STUDER
professional audio equipment

Studer Vista

Digital Mixing System

1. Introduction, Operating Principles
2. Vista Desk Operation
3. Parameter Description
4. Graphic Controller Operation
5. AutoTouch+ Dynamic Automation
6. Vista Remote Bay (Option)
7. Configuration Tool (Option)
8. Vista 8 Differences
9. Application Notes
10. Update Information: SW V3.4/V3.5 Release Notes
    SW V4.0 Differences, New Features
    SW V4.1 Differences, New Features

Operating Instructions

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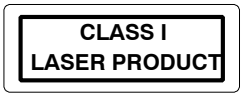
A Safety Information

	To reduce the risk of electric shock, do not remove covers. No user-serviceable parts inside. Refer servicing to qualified service personnel (i.e., persons having appropriate technical training and experience necessary to be aware of hazards to which they are exposed in performing a repair action, and of measures to minimize the danger of themselves).
	This symbol alerts the user to the presence of un-insulated *dangerous voltage* within the equipment that may be of sufficient magnitude to constitute a risk of electric shock to a person.
	This symbol alerts the user to *important instructions* for operating and maintenance in this documentation.
 	Assemblies or sub-assemblies of this product can contain opto-electronic devices. As long as these devices comply with Class I of laser or LED products according to EN 60825-1:1994, they will not be expressly marked on the product. If a special design should be covered by a higher class of this standard, the device concerned will be marked directly on the assembly or sub-assembly in accordance with the above standard.

A1 First Aid

In Case of Electric Shock:

Separate the person as quickly as possible from the electric power source:

- By switching off the equipment,
- By unplugging or disconnecting the mains cable, or
- By pushing the person away from the power source, using dry, insulating material (such as wood or plastic).
- After having suffered an electric shock, *always* consult a doctor.

Warning! ***Do not touch the person or his clothing before the power is turned off, otherwise you stand the risk of suffering an electric shock as well!***

If the Person is Unconscious:

- Lay the person down
- Turn him to one side
- Check the pulse
- Reanimate the person if respiration is poor
- *Call for a doctor immediately.*

B General Installation Instructions

Please consider besides these general instructions also any product-specific instructions in the “Installation” chapter of this manual.

B1 Unpacking

Check the equipment for any transport damage. If the unit is mechanically damaged, if liquids have been spilled or if objects have fallen into the unit, *it must not be connected to the AC power outlet, or it must be immediately disconnected by unplugging the power cable.* Repair must only be performed by trained personnel in accordance with the applicable regulations.

B2 Installation Site

Install the unit in a place where the following conditions are met:

- The temperature and the relative humidity of the environment must be within the specified limits during operation of the unit. Relevant values are the ones at the air inlets of the unit.
- Condensation must be avoided. If the unit is installed in a location with large variation of ambient temperature (e.g. in an OB-van), appropriate precautions must be taken before and after operation (for details on this subject, refer to Appendix 1).
- Unobstructed air flow is essential for proper operation. Air vents of the unit are a functional part of the design and must not be blocked in any way during operation (e.g. by objects placed upon them, placement of the unit on a soft surface, or installation of the unit within a rack or piece of furniture).
- The unit must not be heated up by external sources of heat radiation (sunlight, spot lights).

B3 Earthing and Power Supply

Earthing of units with mains supply (class I equipment) is performed via the protective earth (PE) conductor integrated in the mains cable. Units with battery operation (< 60 V, class III equipment) must be earthed separately.

Earthing the unit is one of the measures for protection against electrical shock hazard (dangerous body currents). Hazardous voltage may not only be caused by a defective power supply insulation, but may also be introduced by the connected audio or control cables.

If the unit is installed with one or several external connections, its earthing must be provided during operation as well as while the unit is not operated.

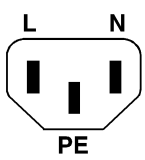
If the earthing connection can be interrupted, for example, by unplugging the mains plug of an external power supply unit, an additional, permanent earthing connection must be installed using the provided earth terminal.

Avoid ground loops (hum loops) by keeping the loop surface as small as possible (by consequently guiding the earth conductors in a narrow, parallel way), and reduce the noise current flowing through the loop by inserting an additional impedance (common-mode choke).

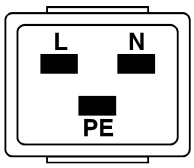
Class I Equipment (Mains Operation)

Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC320/C13 or IEC320/C19) with respect to the applicable regulations in your country.
Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.
Equipment supplied with a 3-pole appliance inlet (protection conforming to class I equipment) *must* be connected to a 3-pole AC power outlet so that the equipment cabinet is connected to the protective earth.
For information on mains cable strain relief please refer to Appendix 2.

Female Plugs (IEC320), Front-Side View:



IEC 320 / C13



IEC 320 / C19

European Standard (CENELEC)		North American Standard (NAS)
Brown	**L (Live)**	Black
Blue	**N (Neutral)**	White
Green/Yellow	**PE (Protective Earth)**	Green (or Green/Yellow)

Class III Equipment (Battery Operation up to 60 V_{DC})

Equipment of this protection class must be earthed using the provided earth terminal, if one or more external signals are connected to the unit (see explanation at the beginning of this paragraph).

B4 Electromagnetic Compatibility (EMC)

The unit conforms to the protection requirements relevant to electromagnetic phenomena that are listed in guidelines 89/336/EC and FCC, part 15.

- The electromagnetic interference generated by the unit is limited in such a way that other equipment and systems can be operated normally.
- The unit is adequately protected against electromagnetic interference so that it can operate properly.

The unit has been tested and conforms to the EMC standards of the specified electromagnetic environment, as listed in the following declaration. The limits of these standards ensure protection of the environment and corresponding noise immunity of the equipment with appropriate probability. However, a professional installation and integration within the system are imperative prerequisites for operation without EMC problems.
For this purpose, the following measures must be followed:

- Install the equipment in accordance with the operating instructions. Use the supplied accessories.
- In the system and in the vicinity where the equipment is installed, use only components (systems, equipment) that also fulfill the EMC standards for the given environment.
- Use a system grounding concept that satisfies the safety requirements (class I equipment must be connected with a protective ground conduc-

tor) and that also takes into consideration the EMC requirements. When deciding between radial, surface, or combined grounding, the advantages and disadvantages should be carefully evaluated in each case.
- Use shielded cables where shielding is specified. The connection of the shield to the corresponding connector terminal or housing should have a large surface and be corrosion-proof. Please note that a cable shield connected only single-ended can act as a transmitting or receiving antenna within the corresponding frequency range.
- Avoid ground loops or reduce their adverse effects by keeping the loop surface as small as possible, and reduce the noise current flowing through the loop by inserting an additional impedance (e.g. common-mode choke).
- Reduce electrostatic discharge (ESD) of persons by installing an appropriate floor covering (e.g. a carpet with permanent electrostatic filaments) and by keeping the relative humidity above 30%. Further measures (e.g. conducting floor) are usually unnecessary and only effective if used together with corresponding personal equipment.
- When using equipment with touch-sensitive operator controls, please take care that the surrounding building structure allows for sufficient capacitive coupling of the operator. This coupling can be improved by an additional, conducting surface in the operator's area, connected to the equipment housing (e.g. metal foil underneath the floor covering, carpet with conductive backing).

C Maintenance

All air vents and openings for operating elements (faders, rotary knobs) must be checked on a regular basis, and cleaned in case of dust accumulation. For cleaning, a soft paint-brush or a vacuum cleaner is recommended.
Cleaning the surfaces of the unit is performed with a soft, dry cloth or a soft brush.
Persistent contamination can be treated with a cloth that is slightly humidified with a mild cleaning solution (soap-suds).
For cleaning display windows, commercially available computer/TV screen cleaners are suited. Use only a slightly damp (never wet) cloth.
Never use any solvents for cleaning the exterior of the unit! Liquids must never be sprayed or poured on directly!
For equipment-specific maintenance information please refer to the corresponding chapter in the Operating and Service Instructions manuals.

D Electrostatic Discharge during Maintenance and Repair

Caution:

Observe the precautions for handling devices sensitive to electrostatic discharge!
Many semiconductor components are sensitive to electrostatic discharge (ESD). The life-span of assemblies containing such components can be drastically reduced by improper handling during maintenance and repair work. Please observe the following rules when handling ESD sensitive components:
- ESD sensitive components should only be stored and transported in the packing material specifically provided for this purpose.
- *When performing a repair by replacing complete assemblies, the removed assembly must be sent back to the supplier in the same packing*

material in which the replacement assembly was shipped. If this should not be the case, any claim for a possible refund will be null and void.

- Unpacked ESD sensitive components should only be handled in ESD protected areas (EPA, e.g. area for field service, repair or service bench) and only be touched by persons who wear a wristlet that is connected to the ground potential of the repair or service bench by a series resistor. The equipment to be repaired or serviced as well as all tools and electrically semi-conducting work, storage, and floor mats should also be connected to this ground potential.
- The terminals of ESD sensitive components must not come in uncontrolled contact with electrostatically chargeable (voltage puncture) or metallic surfaces (discharge shock hazard).
- To prevent undefined transient stress of the components and possible damage due to inadmissible voltages or compensation currents, electrical connections should only be established or separated when the equipment is switched off and after any capacitor charges have decayed.

E Repair

Removal of housing parts, shields, etc. exposes energized parts. For this reason the following precautions must be observed:

- Maintenance may only be performed by trained personnel in accordance with the applicable regulations.
- The equipment must be switched off and disconnected from the AC power outlet before any housing parts are removed.
- Even if the equipment is disconnected from the power outlet, parts with hazardous charges (e.g. capacitors, picture tubes) must not be touched until they have been properly discharged. Do not touch hot components (power semiconductors, heat sinks, etc.) before they have cooled off.
- If maintenance is performed on a unit that is opened and switched on, no un-insulated circuit components and metallic semiconductor housings must be touched, neither with your bare hands nor with un-insulated tools.

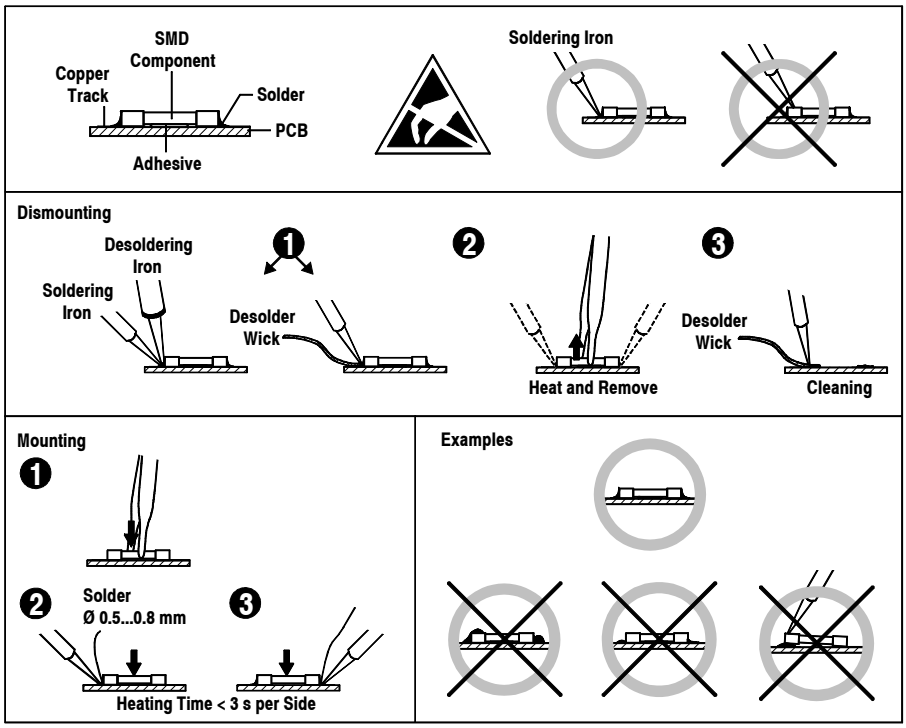
Certain components pose additional hazards:

- *Explosion hazard* from lithium batteries, electrolytic capacitors and power semiconductors (watch the component's polarity. Do not short battery terminals. Replace batteries only by the same type).
- *Implosion hazard* from evacuated display units.
- *Radiation hazard* from laser units (non-ionizing), picture tubes (ionizing).
- *Caustic effect* of display units (LCD) and components containing liquid electrolyte.

Such components should only be handled by trained personnel who are properly protected (e.g. safety goggles, gloves).

E1 SMD Components

Studer has no commercially available SMD components in stock for service purposes. For repair, the corresponding devices have to be purchased locally. The specifications of special components can be found in the service manual.
SMD components should only be replaced by skilled specialists using appropriate tools. No warranty claims will be accepted for circuit boards that have been damaged. Proper and improper SMD soldering joints are illustrated below.



F Disposal

Disposal of Packing Materials

The packing materials have been selected with environmental and disposal issues in mind. All packing material can be recycled. Recycling packing saves raw materials and reduces the volume of waste.
If you need to dispose of the transport packing materials, please try to use recyclable means.

Disposal of Used Equipment

Used equipment contains valuable raw materials as well as materials that must be disposed of professionally. Please return your used equipment via an authorized specialist dealer or via the public waste disposal system, ensuring any material that can be recycled is.
Please take care that your used equipment cannot be abused. To avoid abuse, delete sensitive data from any data storage media. After having disconnected your used equipment from the mains supply, make sure that the mains connector and the mains cable are made useless.

G Declarations of Conformity

G1 Class A Equipment - FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Caution: *Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Also refer to relevant information in this manual.*

G2 CE Declaration of Conformity

We,
Studer Professional Audio GmbH,
CH-8105 Regensdorf,
declare under our sole responsibility that the products
Studer Vista 6, 7, and 8, Digital Mixing Systems
(starting with serial no. 100)
to which this declaration relates, according to following regulations of EU directives and amendments

- Low Voltage (LVD):
  73/23/EEC + 93/68/EEC
- Electromagnetic Compatibility (EMC):
  89/336/EEC + 92/31/EEC + 93/68/EEC

are in conformity with the following standards or normative documents:

- Safety:
  EN 60950:2001 (Class I equipment)
- Safety of laser products:
  EN 60825-1:2004 + A11 + A2, EN60825-2:2000
- EMC:
  EN 55103-1/-2:1996, electromagnetic environments E2 and E4.

Regensdorf, Nov. 16, 2004

B. Hochstrasser, President M. Lienert, Manager R&D

Appendix 1: Air Temperature and Humidity

General

Normal operation of the unit or system is warranted under the following ambient conditions defined by *EN 60721-3-3, set IE32, value 3K3.*
This standard consists of an extensive catalogue of parameters, the most important of which are: ambient temperature +5...+40 °C, relative humidity 5...85% (i.e., no formation of condensation or ice); absolute humidity 1...25 g/m³; rate of temperature change < 0.5 °C/min. These parameters are dealt with in the following paragraphs.
Under these conditions the unit or system starts and works without any problem. Beyond these specifications, possible problems are described in the following paragraphs.

Ambient Temperature

Units and systems by Studer are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5...+40 °C. When rack mounting the units, the intended air flow and herewith adequate cooling must be provided. The following facts must be considered:

- The admissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must provide that the outgoing air is always cooler than 70 °C.
- Average heat increase of the cooling air shall be about 20 K, allowing for an additional maximum 10 K increase at the hot components.
- In order to dissipate 1 kW with this admissible average heat increase, an air flow of 2.65 m³/min is required.

Example: A rack dissipating *P = 800 W* requires an air flow of *0.8 * 2.65 m³/min* which corresponds to *2.12 m³/min.*

- If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the outgoing air temperature must be measured directly above the modules at several places within the rack. The trigger temperature of the sensors should be 65 to 70 °C.

Frost and Dew

The unsealed system parts (connector areas and semiconductor pins) allow for a minute formation of ice or frost. However, formation of dew visible with the naked eye will already lead to malfunctions. In practice, reliable operation can be expected in a temperature range above –15 °C, if the following general rule is considered for putting the cold system into operation:
If the air within the system is cooled down, the relative humidity rises. If it reaches 100%, condensation will arise, usually in the boundary layer between the air and a cooler surface, together with formation of ice or dew at sensitive areas of the system (contacts, IC pins, etc.). Once internal condensation occurs, trouble-free operation cannot be guaranteed, independent of temperature.

Before putting into operation, the system must be checked for internal formation of condensation or ice. Only with a minute formation of ice, direct

evaporation (sublimation) may be expected; otherwise the system must be heated and dried while switched off.

A system without visible internal formation of ice or condensation should be heated up with its own heat dissipation, as homogeneously (and subsequently as slow) as possible; the ambient temperature should then always be lower than the one of the outgoing air.

If it is absolutely necessary to operate the cold system immediately within warm ambient air, this air must be dehydrated. In such a case, the absolute humidity must be so low that the relative humidity, related to the coldest system surface, always remains below 100%.

Ensure that the enclosed air is as dry as possible when powering off (i.e. before switching off in winter, aerate the room with cold, dry air, and remove humid objects as clothes from the room).

These relationships are visible from the following climatogram. For a controlled procedure, thermometer and hygrometer as well as a thermometer within the system will be required.

Example 1: An OB-van having an internal temperature of 20 °C and relative humidity of 40% is switched off in the evening. If temperature falls below +5 °C, dew or ice will be forming.

Example 2: An OB-van is heated up in the morning with air of 20 °C and a relative humidity of 40%. On all parts being cooler than +5 °C, dew or ice will be forming.

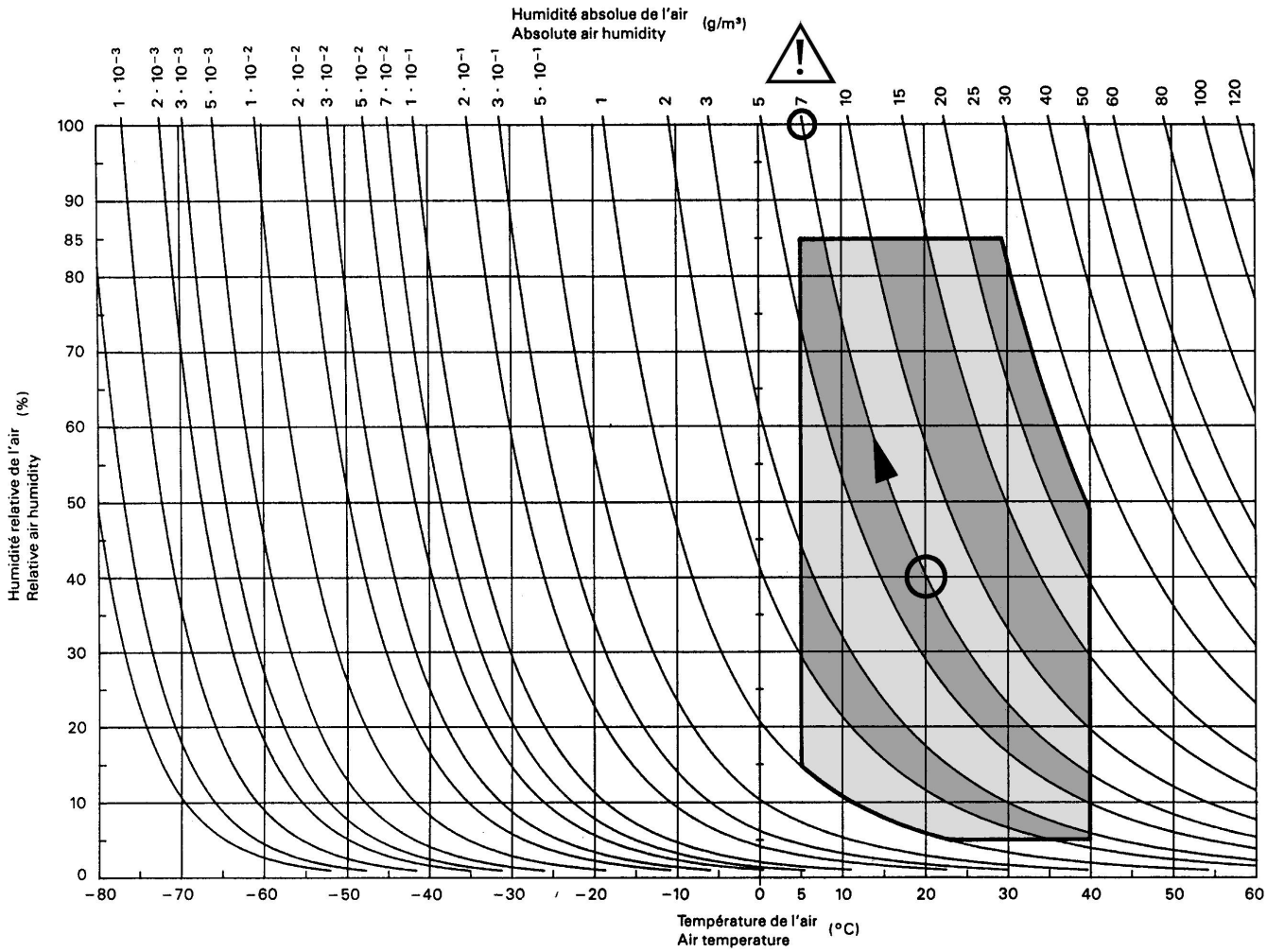


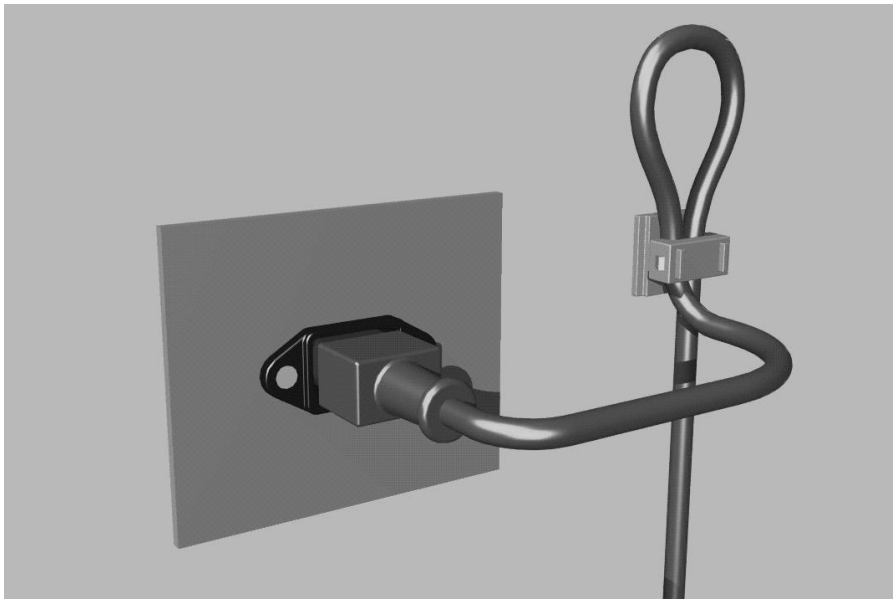
Figure B.3 – Climatogramme pour catégorie 3K3

Climatogram for class 3K3

721-3-3 © CEI:1994

Appendix 2: Mains Connector Strain Relief

For anchoring connectors without a mechanical lock (e.g. IEC mains connectors), we recommend the following arrangement:



Procedure: The cable clamp shipped with your unit is auto-adhesive. For mounting please follow the rules below:

- The surface to be adhered to must be clean, dry, and free from grease, oil, or other contaminants. Recommended application temperature range is +20...+40 °C.
- Remove the plastic protective backing from the rear side of the clamp and apply it firmly to the surface at the desired position. Allow as much time as possible for curing. The bond continues to develop for as long as 24 hours.
- For improved stability, the clamp should be fixed with a screw. For this purpose, a self-tapping screw and an M4 bolt and nut are included.
- Place the cable into the clamp as shown in the illustration above and firmly press down the internal top cover until the cable is fixed.

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Use of the software is subject to the Studer Professional Audio Software License Agreement set forth below. Using the software indicates your acceptance of this license agreement. If you do not accept these license terms, you are not authorized to use this software.

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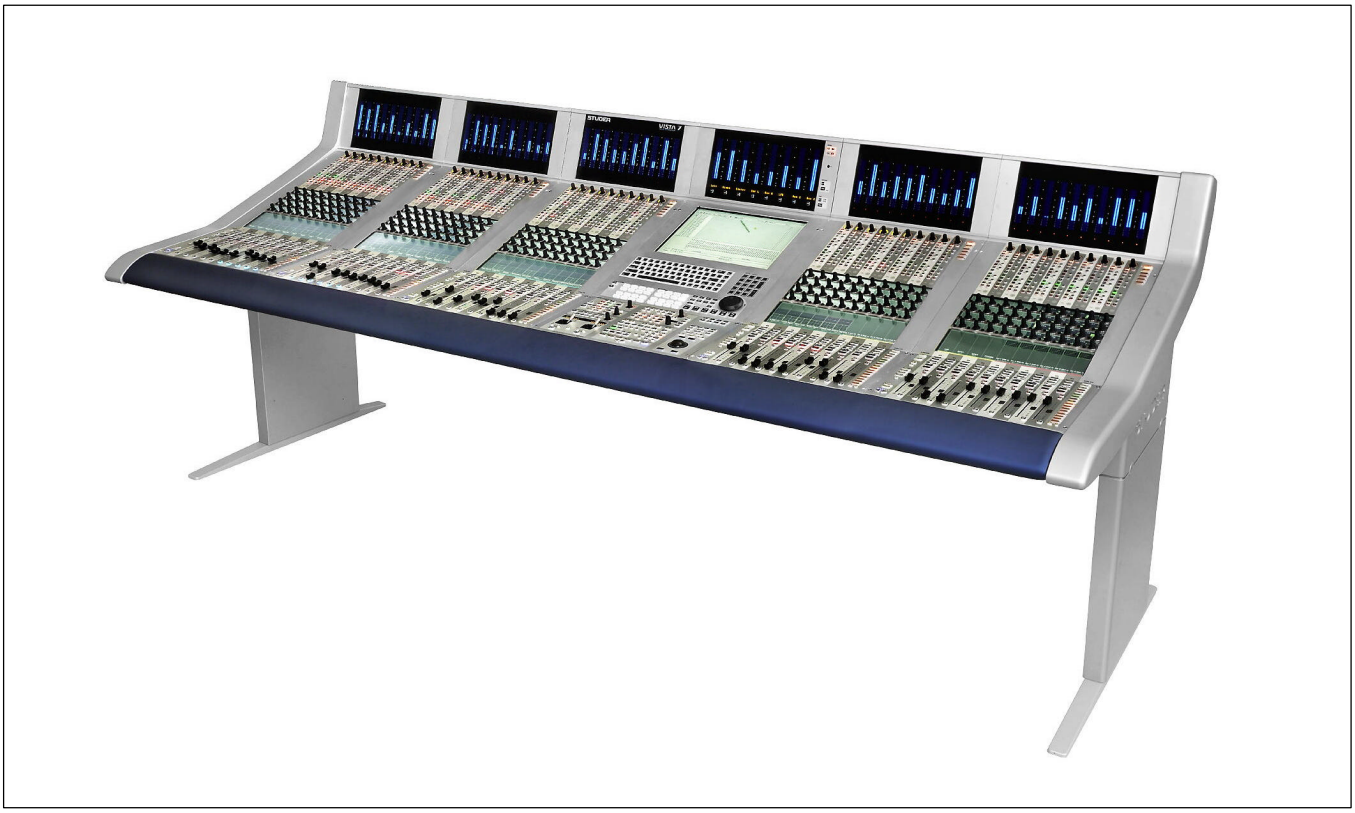
Warranty, Disclaimer, and Liability

For all issues not covered herewithin, refer to the "General Terms and Conditions of Sales and Delivery" being part of the sales contract.

CHAPTER 1

1 INTRODUCTION

1.1 Operating Principles



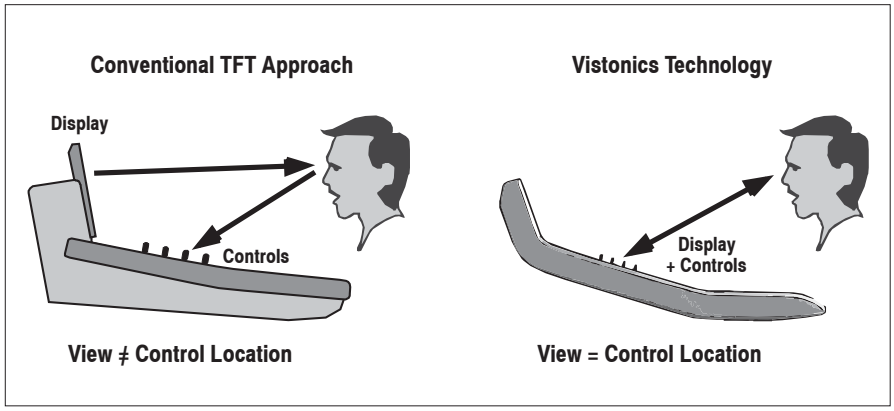
Studer Vista incorporates five operating principles that are applicable throughout nearly the whole console operation:

- Vistonics™
- Momentary/Latching Key Activation
- Ganging
- Copy/Paste
- Scrolling

These operating principles are described below, they are freely combinable. Some exceptions may occur where the combination of functions is not practical. The real speed and easiness of operation will become obvious to a sound engineer by using and combining these operating principles in every day life.

1.1.1 Vistonics™

Vistonics™ allows color and shape of controls to be varied according to good ergonomic practice. A given audio function is always associated with the same color, and a parameter is always associated with the same icon displaying values graphically – just as or even more intuitive than an analog console. Vistonics™ makes it possible to bring the location where you can see a value to exactly the place where you control it. Therefore, tiring translation processes between looking at a screen and finding the corresponding hardware control somewhere else are not existing anymore, saving just a little time and energy a few hundred times a day!

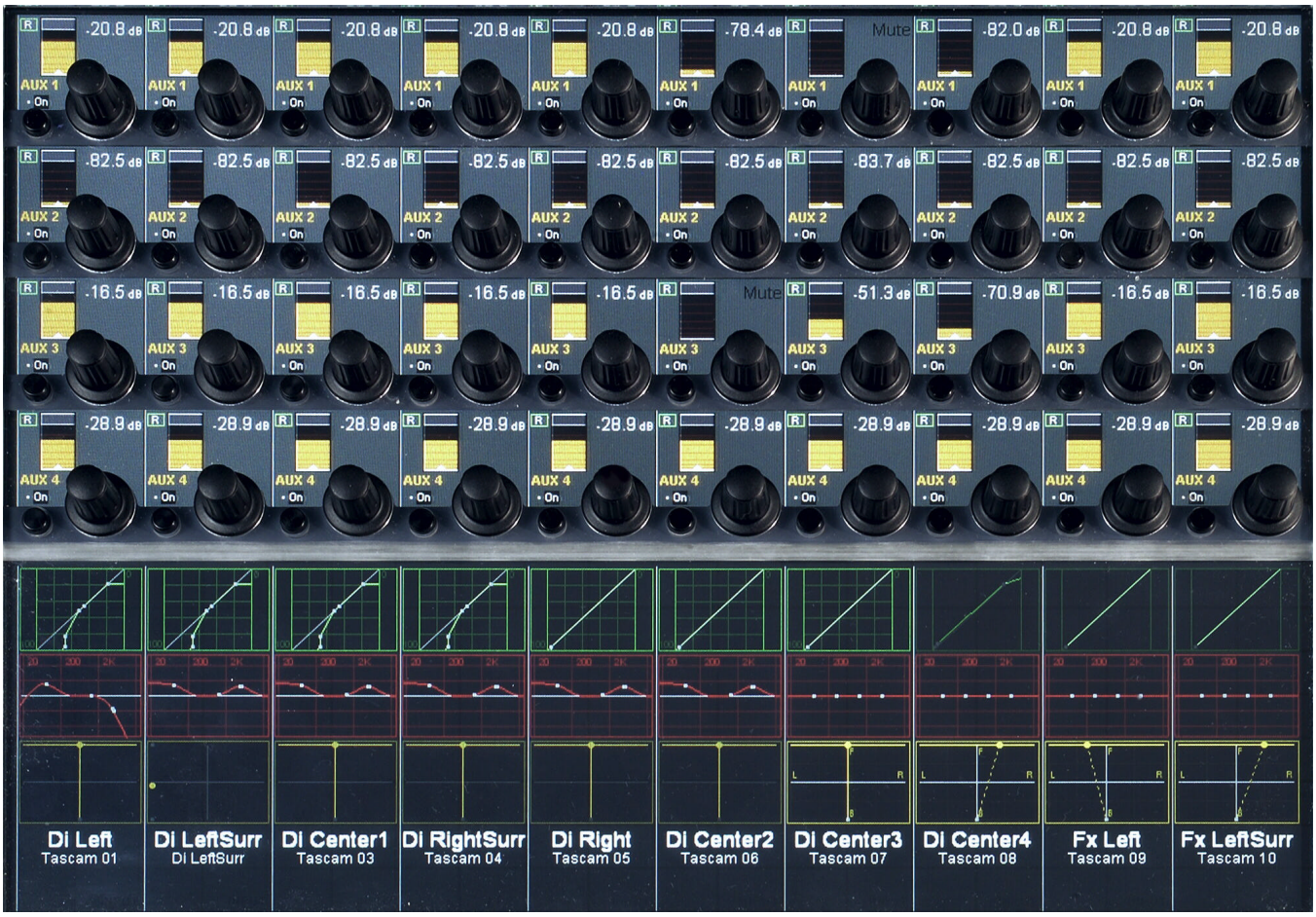


Attention has been paid in order to make the current association clearly visible. Color coding has been used to indicate families of audio functions such as EQ, dynamics, etc. Consistent icons make the physical meaning of an audio function obvious – e.g. bar graph-like icons indicate levels, time adjustments are indicated by clock dials, etc. This way, it is easy to identify the currently associated function even from a distance.

The Vistonics™ module consists of two main parts: 40 rotary controls with push buttons next to each of the them, as well as a touch screen area, showing graphically the most important settings of each channel: Dynamics, EQ and panning information. It is possible to change the association of a rotary control to audio functions either globally or locally:

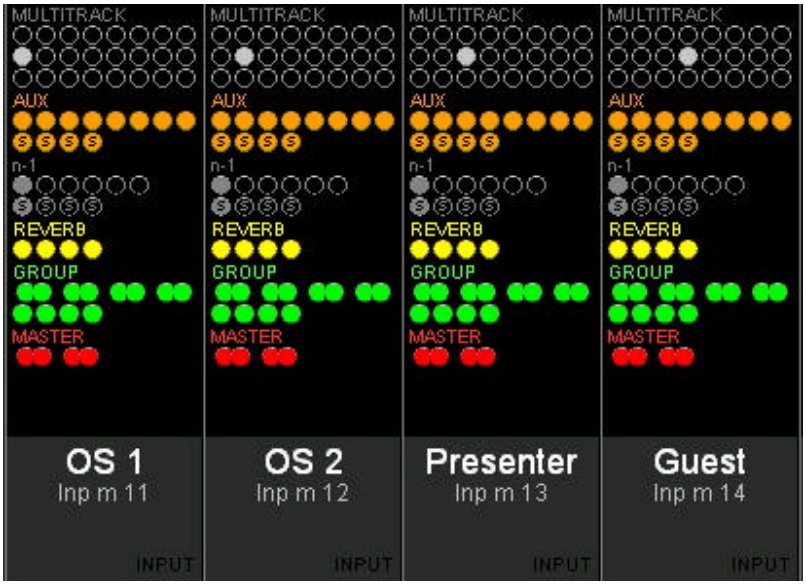
Global Views

Up to four different parameters are shown in each channel strip. The same four parameters will be shown globally on the whole console. However, there is one exception: The four parameters may be different on “locked bays” (see description of Locked Bays for details). This mode is meant to be the “horizontal way of operation”, mostly used for e.g. operating auxiliaries or input settings. The picture below shows a global AUX 1...4 view.

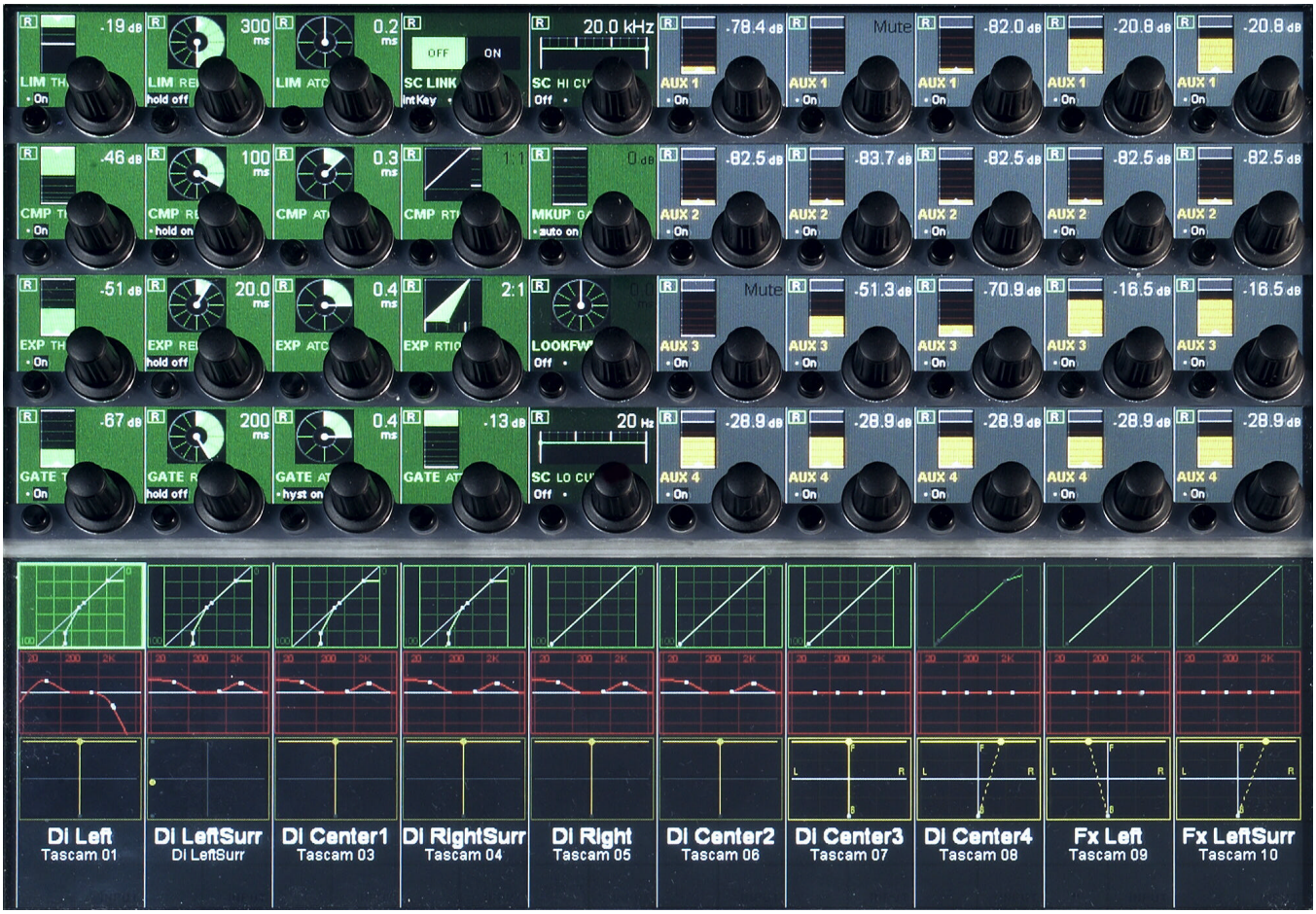


The touch screen area is also used for indication and operation of bus assignment:

Bus Assign Overview:

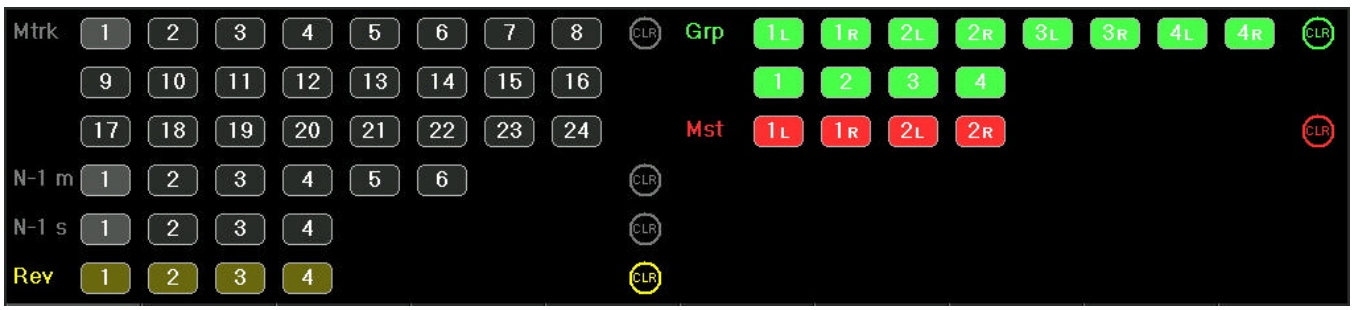


Local Views By touching the graphics shown below the Vistonics™ rotary controls, the whole parameter set of that specific curve is displayed, also covering some of the neighboring channel strips. It is also possible to touch any two curves in one bay in order to display both at the same time.
The example below shows the complete dynamics section of the leftmost channel (the small dynamics view is highlighted), overlaid to a global AUX view.



This philosophy is completed by three hardware keys underneath the Vistonics™ display, showing different combinations of parameters as well as the bus assignment of that specific channel, covering the whole Vistonics™ area.

Bus Assign View: (here, channels can directly be assigned to a bus)



1.1.2 Momentary/Latching Key Activation

A lot of key presses during console operation are repetitive in order to compare settings or to make quick checks for monitoring purposes. The Studer Vista console has reduced the amount of needed key presses tremendously by incorporating a special logic for these cases: The Studer Vista control surface distinguishes long and short key presses and reacts differently in both cases: Pressing and holding a key will automatically reverse its activation upon release of the key – this is, however, applied only where appropriate. All keys featuring momentary/latching activation are labeled with a symbol throughout this manual.

For example, holding down a **MUTE** key for one second will automatically un-mute the signal again upon release. Further examples are ON/OFF switching of audio functions (EQ, filters, dynamics), PFL/SOLO as well as most of the monitoring functions: soloing different loudspeakers, muting loudspeakers, selecting alternate loudspeaker sets, etc. Keeping a monitoring source key or loudspeaker set key pressed will automatically go back to the previous selection upon key release. If you want a switch to be activated continuously, just press the key and release it immediately, without holding.

This automatism also works on view changes: Pressing and holding an EQ graphic will make all its parameters accessible for as long as the graphic on the screen is being touched. However, it will disappear immediately when the graphic is untouched. The same thing is possible for global view changes: Quick checks of bus assignments or auxiliary levels are as fast as never before.

This philosophy has also the advantage of not having to remember the last settings or views. The console remembers it automatically.

Note: The threshold time for the momentary/latching distinction is adjustable in the Graphic Controller's "Vista Desk Settings" screen.

1.1.3 Ganging

On top of grouping certain channels together in a way commonly known as VCA groups, Studer Vista has the ability to link multiple channels temporarily together and let them behave like one single channel. Such a link is called a Gang. It co-exists with VCA style groups (Control Groups) and is only a momentary help to influence multiple channels at the same time. A gang is created by pressing and holding one **LINK/SEL** key on one channel while the same key on a second channel gets pressed. This will link all channels between the two. By using the **MULTI SEL** key it is possible to select or de-select any channels on the surface without having them next to each other. The **MULTI SEL** key acts much the same as the Ctrl key on a regular PC keyboard.

A gang is simply canceled by pressing any **LINK/SEL** key on the console again. Please note that there is always *one* channel selected.

Temporary de-activation of a gang is done by simultaneously touching identical control elements (e.g. fader or rotary encoder) of *two* channels within a gang.

Typical Applications

- Trimming of some faders or auxiliaries by changing the corresponding control on any of the channels
- Copying a certain setting to multiple channels by pasting the value to any of the ganged channels
- Changing a bus assignment on all the ganged channels by changing it on one of them
- Changing dynamic automation modes on the whole gang.

Basically any operation on one of the ganged channels will influence all of them. Changing switches will *overwrite* the same switch on the other channels, while adjusting a audio function with a certain range will adjust all other channels in a *relative* manner. Setting all channels to the same value is accomplished by a copy/paste operation on one of the ganged channels.

Setting Up the Console

For setup application there is a fast way to link all channels of the same type together. Pressing **LINK ALL** followed by pressing the **LINK/SEL** key of one channel will gang all channels of that very same type together (e.g. all input channels). The gang may exceed the visible channels and may also contain channels in other sections. While having that gang active, you may setup your console within seconds: Changing bus assignment, clearing one channel or copy/paste certain values to any of these channels.

1.1.4 Copy/Paste

Copying certain audio settings across the console is made very fast and easy: Each channel strip hosts copy/paste keys dedicated to a certain audio function, as EQ, dynamics, etc. Pressing one of these keys will make it fully lit, while all possible destination channels (channels that also have this same audio function) will show up half-lit. Selecting anyone of them will paste the value into that channel. It is possible to paste a value to multiple channels with the help of the **MULTI SEL** key or by creating a gang. However, there is a shortcut to paste a value to multiple channels located next to each other: Press and hold the 🗗 (Copy/Paste) key of the first channel while pressing the 🗗 (Copy/Paste) key on the last channel. This will paste the value to all channels in between.
There is also a special 🗗 **A** (Copy/Paste All) key to copy a whole channel including bus assignment, as well as a ➲ (Undo/Redo) key to undo the last paste or clear function on each channel separately. Pressing this key after an undo operation again will redo the last copy.

Note: The ➲ (Undo/Redo) key can be used momentarily (long press) in order to compare settings on a channel:

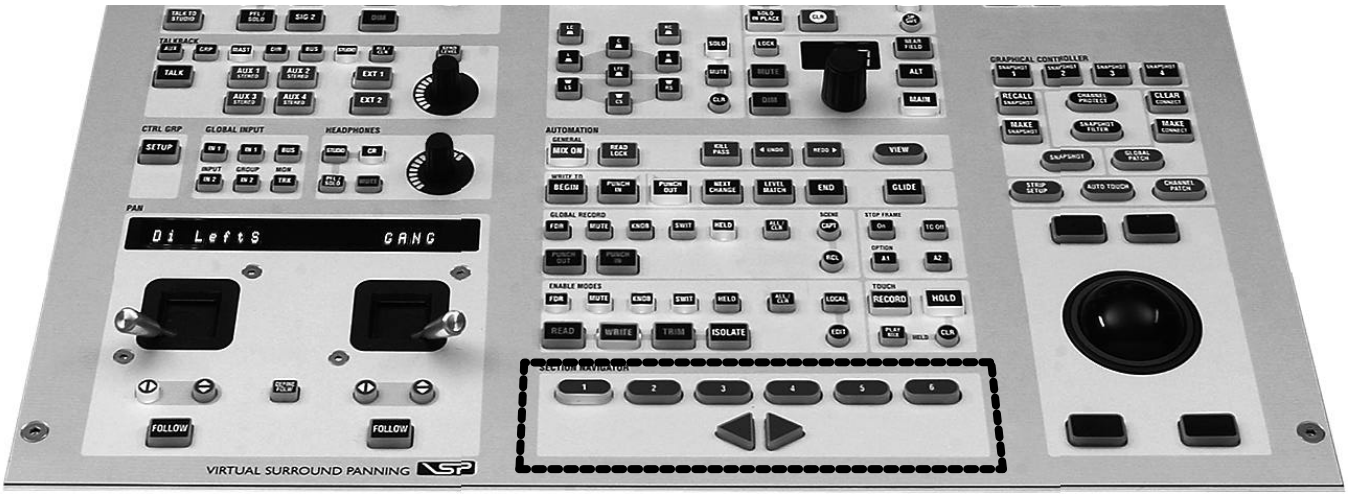
1. Press the 🗗 (Copy/Paste) key twice in order to "memorize" the current setting (i.e., by pasting it to itself)
2. Adjust the audio function to an alternative setting
3. Press ➲ (Undo/Redo) multiple times (either short or long) in order to compare the two settings.

Half-Lit Keys

Whenever the console is waiting for a key press in order to finish a function, it will illuminate all possible keys by half. This is a guide for the user – so he can select one of these keys, or reverse the function by pressing the first (fully lit) key again. A timeout applies if none of the half-lit keys are pressed within a given time frame. Timeout duration is adjustable in the "Vista Desk Settings" menu on the GC.
Examples:
🗗 (Copy/Paste) → 🗗 (Copy/Paste),
LINK ALL → **LINK/SEL**,
Setup of control groups, etc.

1.1.5 Scrolling

Most of the installations will have more channels available in the DSP core than there are physical faders on the console surface. Most manufacturers deal with that fact by introducing “layers”. The console surface can be switched in order to show the different layers, all together making all DSP channels available to the user. The Studer Vista operating concept has slightly modified this concept: Rather than thinking of layers, sitting on top of each other, we think of the layers being arranged in a horizontal line. The “Layer” is now called “Section”. The six sections are next to each other on an imaginary horizontal line, as indicated by the “Section Navigator” keys in the control bay.



As long as the user wants to switch to a specific section, there is no difference in operation to the “layer” concept. Changing to another section is accomplished by pressing one of the corresponding keys in the **SECTION NAVIGATOR** area of the control bay, or by pressing the arrow keys located in each bay with **SCROLL: SECTION** set to ON (see left).

The information on which section is currently displayed is given by the lit keys (Control Bay) or the LEDs representing the different sections (Fader Bay). Looking at the Graphic Controller with the “strip setup” screen in the foreground will also indicate the currently displayed section by putting a dark background to the displayed channels.

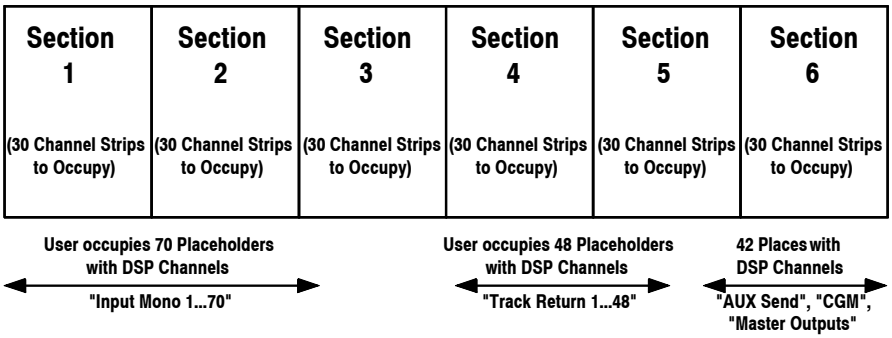
The Difference from the Layer Concept:

Rather than just switching to another section, it is possible to scroll through the sections by pressing any arrow key (for this purpose, **SCROLL: SECTION** has to be OFF on the fader bays). This will make the physical surface scroll through all sections with a step size of one bay (10 channels). It is therefore possible to move any channels close to the position of the operator, allowing him to stay in the "sweet spot" at all times. This concept can also be imagined like moving a chair in front of an analog console. On Studer Vista, you move the surface of an imaginary console that is six times larger than the physical console. Which DSP channel is shown where is defined in the "strip setup" dialog in the Graphic Controller (refer to chapter 4.4.7).

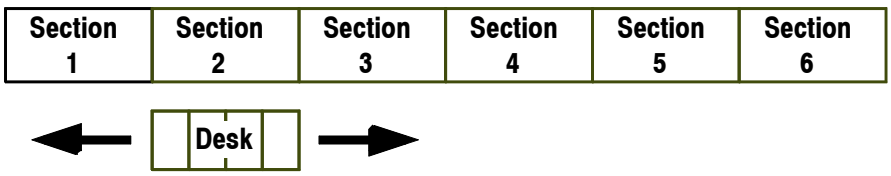
Desk Navigation Example

Let's assume a desk with 30 faders (between 20 and 70 possible in steps of 10). Since the desk can jump to six sections, this user can operate up to 6 × 30 DSP channels. *Please note that it is possible to have the same DSP channel visible in multiple places within the six sections.*

Step 1: The user defines the order of the 180 DSP channels in the strip setup dialog box in the GC. There he will find six empty sections with 30 placeholders, each for a channel assignment.
The definition will most likely be made in such a way that the user starts with a new section when he starts with new channel type (as shown below).



Step 2: The user can now navigate through the "virtual surface" (6 sections wide) in two ways: Either he jumps to a specific section by pressing the corresponding key in the control bay, or he scrolls from the present position to the destination by pressing one of the arrow keys (< and >) in any of the bays. Pressing one of these arrow keys will virtually move the physical surface in front of the total console (6 sections) by one bay (10 faders) at a time in the corresponding direction (like moving a chair in front of a huge console).



The arrow keys are located in every bay, they all have the same functionality. This prevents the user from moving to the center of the console to navigate.

Locking a Bay:

It is possible to prevent one or more bays from scrolling by switching the **SCROLL: LOCK BAY** key on the corresponding bay ON. This will make that bay isolated from the remaining sections. It doesn't only lock from scrolling, but also all global view changes on the surface will not influence locked bays. However, it is possible to change views on a locked bay by operating its **GLOBAL VIEW** keys. These will now only influence the locked bay. A locked bay is strictly isolated from view changes and will operate independently.
Please note that it is also possible to scroll a locked bay independently by using the arrow keys on that specific bay.
It is possible as well to lock multiple bays at a time by pressing and holding the first **SCROLL: LOCK BAY** key and pressing a second **SCROLL: LOCK BAY** key on an other bay; this will lock all bays in between and form a "lock group". Multiple bays within a lock group will scroll at a time and perform common global view changes. In this way it is easy to split the desk for two-operator use.

Scrolling a Locked Bay by One Section:

When both the **SCROLL: SECTION** and the **SCROLL: LOCK BAY** keys are ON on a fader bay, this is a special case. When pressing one of the arrow keys on that specific bay, the display of channels will jump by exactly one section. This function becomes very obvious when looking at the dark background indication on the Graphic Controller. This operation mode might be useful for operators who want to change to a different section with a locked bay.

1.2 The Graphic Controller (GC)

An important feature of the Vista Digital Mixing System is the Graphic Controller, also referred to as "GC". The Graphic Controller program is used for operating all mixing console functions that extend console's functionality.

Specifically, the Graphic Controller's extended functions include:
- General and channel-specific router control (defining the order of processing elements, e.g. EQ or dynamics libraries, within a channel)
- Recall and management of snapshots and cue points
- Saving of desk clipboards
- Assignment of the DSP channels to the fader strips
- Automation control and operation of the timecode control
- Tone generator and metering control
- Control group and linkage control
- Production and Title management
- System administration

Various display windows and dialog boxes logically group the individual functions. Visual elements are optimized for simple and intuitive operation.

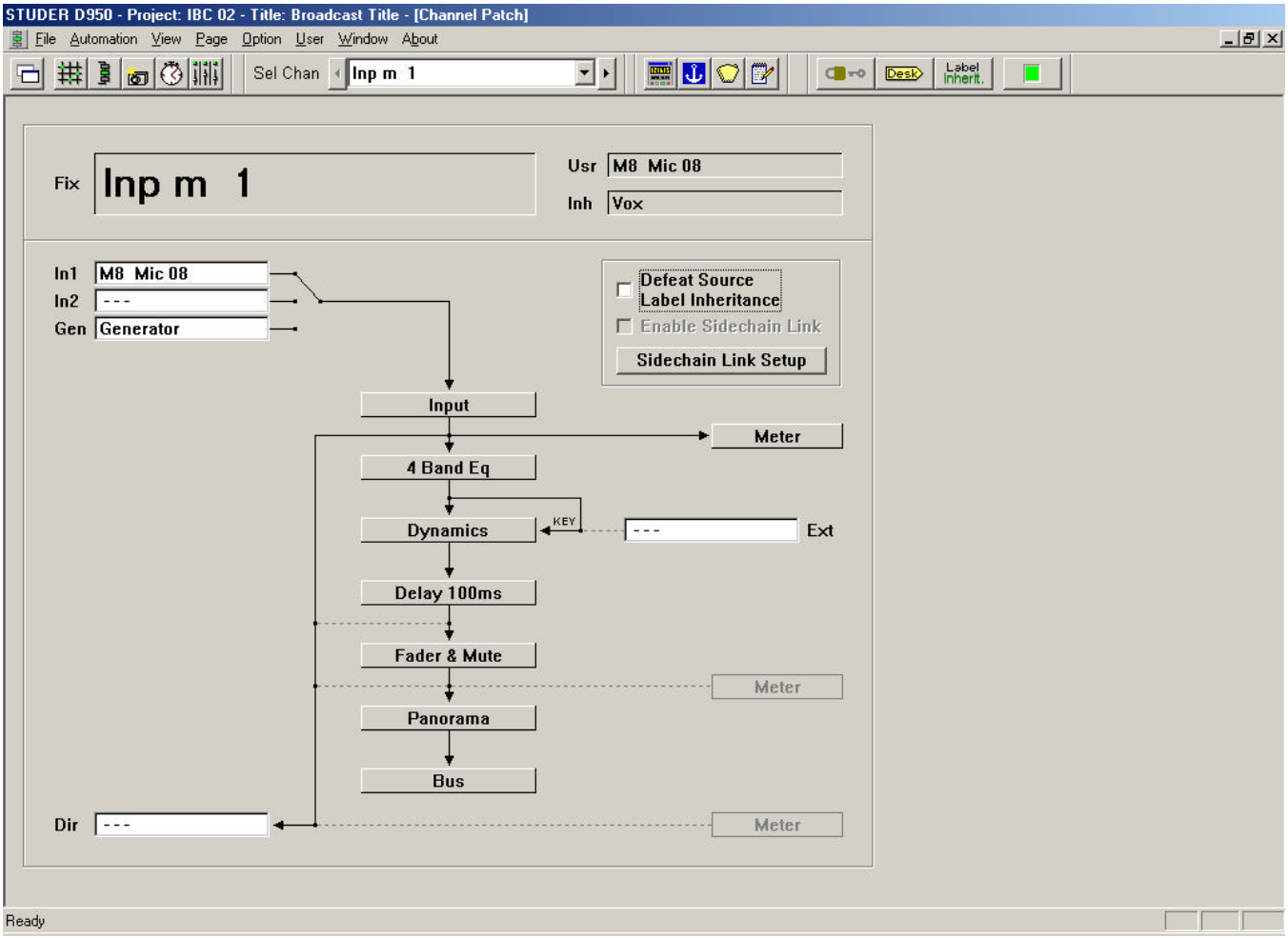
With the help of an easy-to-understand General Patch page, the setup of router cross points is dramatically simplified, even for large mixing console configurations. Via a Snapshot window, all mixing console parameters can be stored and recalled using mouse clicks. Some of the most important functions are also available as dedicated keys on Vista's control bay. In the pull-down AutoTouch+ dynamic automation window, all timecode, loop points, and mix passes can be controlled easily and intuitively.

The concept of overall system configurability has been also adopted within the Graphic Controller application. Since most functions are arranged in overlapping windows of changeable sizes, users can set up their work environment to suit their specific requirements for each recording or production session. These settings can be saved and recalled at any time, allowing for fast and application-oriented operation of the Vista system.

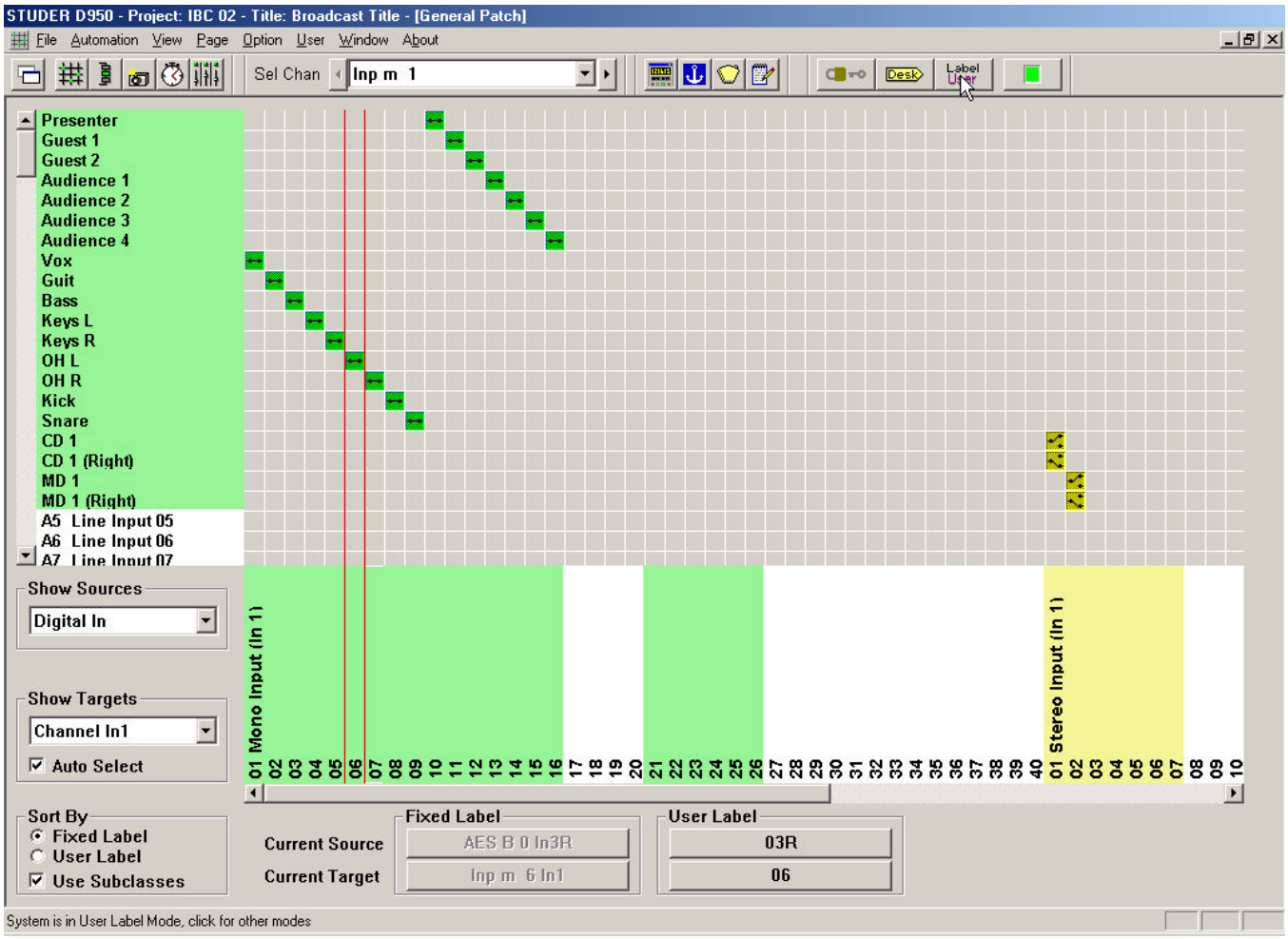
1.2.1 GC Screen Examples

Internal Routing Matrix Control

The Channel Patch screen is an audio path-oriented view for controlling the routing of a particular channel, and is used to set up the sequence of channel processing blocks (EQ, Insert, Delay, etc.) and metering locations within the signal path, as well as defining the direct out signal. This screen also displays the connections made to the channel's various inputs and outputs. By double clicking on one of these display boxes the system will go directly to the associated connection in the General Patch. The Channel Patch also includes labeling and dynamics link facilities.



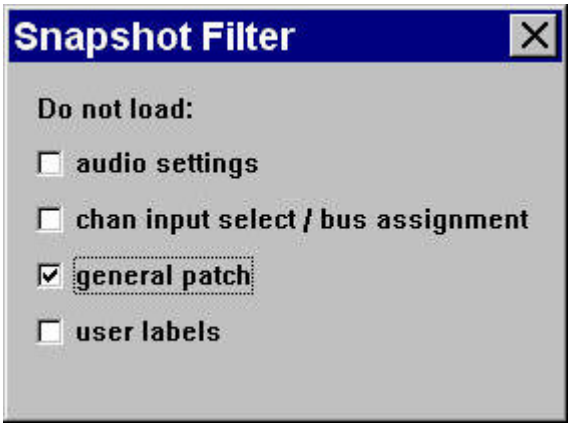
Within the General Patch window, the various cross point routing of sources and targets (destinations) is displayed. For example, it will show which audio signals (AES/EBU in, Direct outs, etc.) connected to the DSP sections are assigned to the corresponding channels and outputs (Input channel, MADI out etc.). These connections are stored within Snapshots and Presets. The sources and targets can be identified by Fixed, Device, Inherited, or User labels.



Snapshot Functions

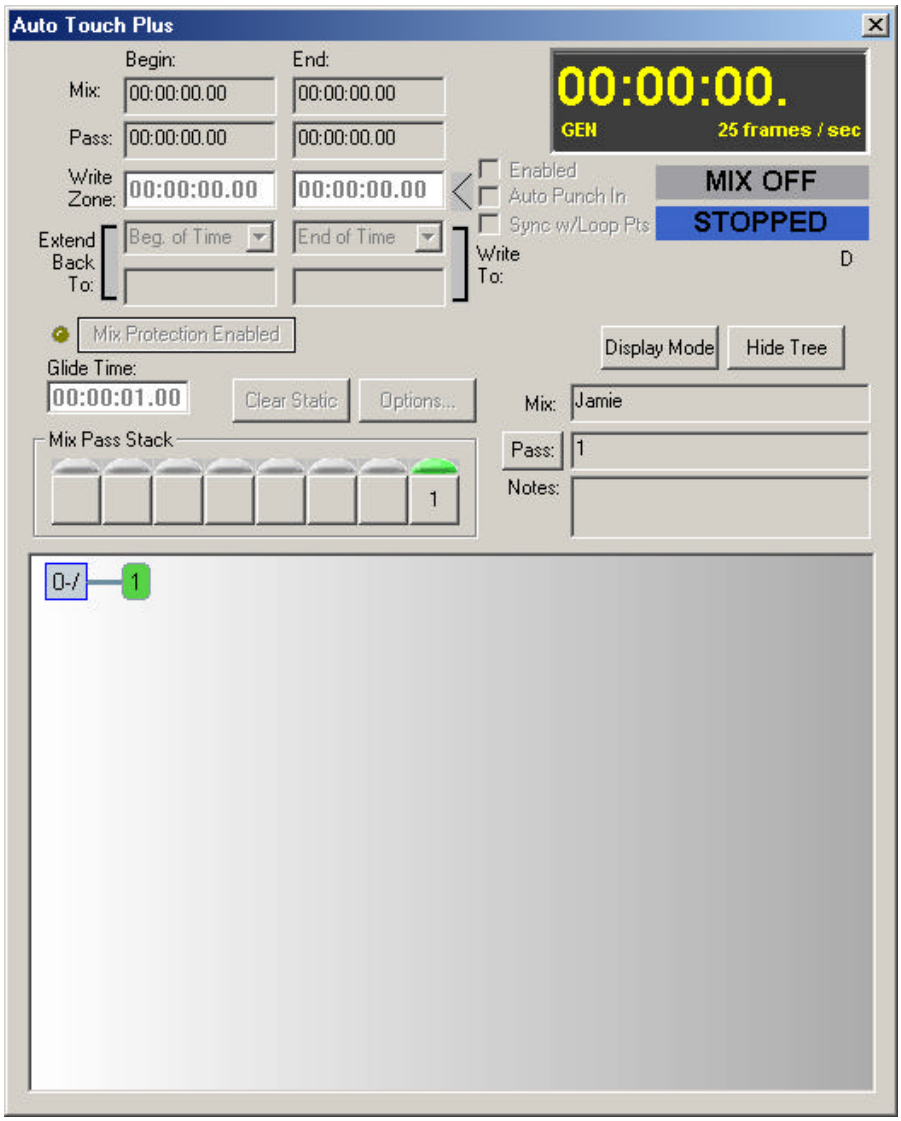
Display and control of snapshot settings (in other words, complete "pictures" of the operating desk's controls and of the console's internal settings) and factory/user presets provide basic working templates.

Control of snapshot/preset filters and channel protection is achieved via separate windows:



Dynamic Automation Control

The AutoTouch+ dynamic automation page contains mix setup and file management functions.

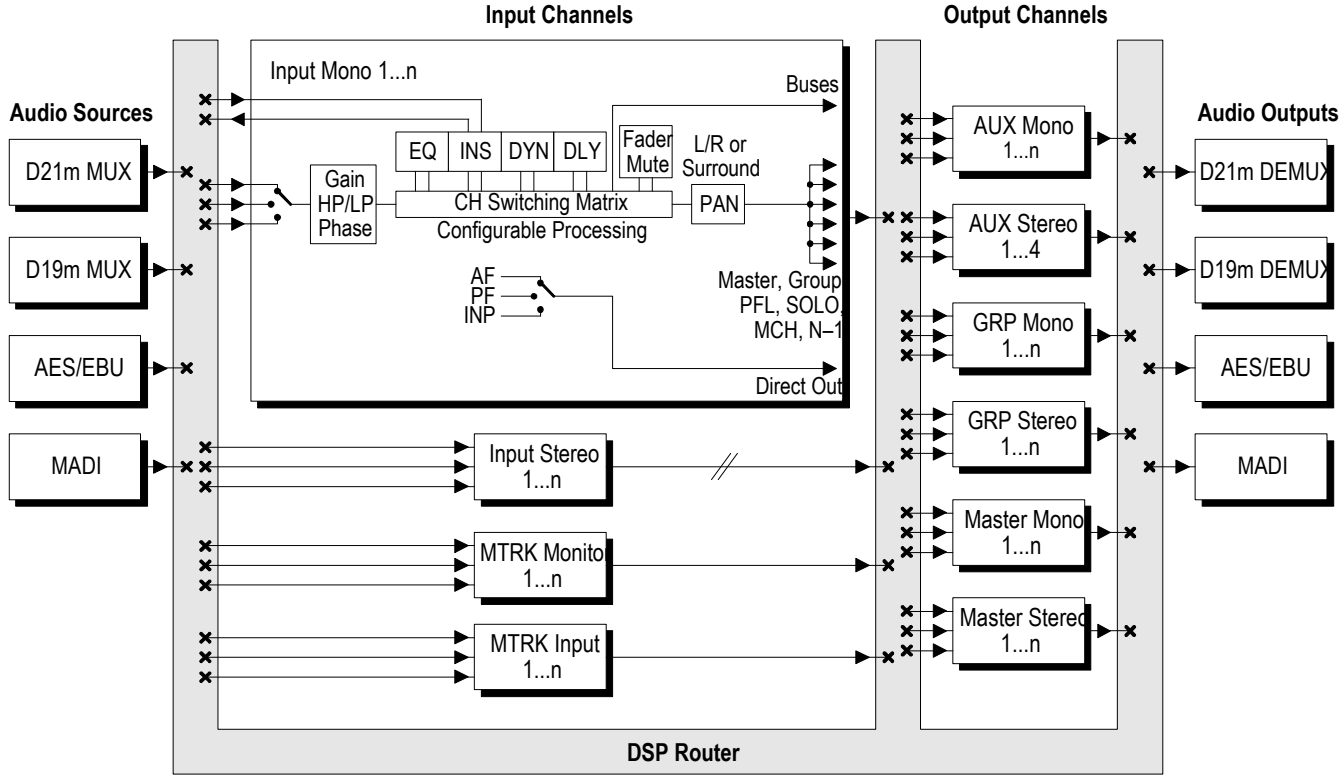


Administration Functions

This menu bar area provides access to the following:

- *Title/Mix Management*, which contains the book-keeping functions for organizing the studio work.
- *User Preferences* administration.
- *View and Page* menus, which control which screens are displayed.
- *Options* menu, which contains controls for various system elements such as the tone generator, meters, mix options, control groups, and so on.
- *Surveyor,* which provides a quick and simple status report of the console for fault analyses.
- *System Administration*, which accesses a password protected area, and enables a variety of setup controls and diagnostic functions.

1.3 Channels, Routing, and Buses



Processing blocks, such as equalizer, dynamics, delay, etc., can be configured for all channel types. *Standard configurations (for every of the four different core sizes) are shipped with your console.*

Input Channels Vista's digital routing matrix is located between the console's physical inputs and the actual DSP channels. This topology means that the physical analog and digital inputs can be assigned to any console channel via the General Patch page on the Graphic Controller. The patch setup forms part of each individual snapshot, and can be saved, updated and recalled within the Snapshot/Preset system.

Output Channels This also applies to the outputs. On the General Patch page, each channel's output can be selected and sent to any analog or digital output destination.

Auxiliaries The number of stereo or mono AUX sends is fully configurable. The users can establish the number and type of AUX sends they would like to use. The AUX master channel can be equipped with the same selection of processing blocks such as equalizer, dynamics, delay, and more.

Clean-Feeds/Mix-Minus (N–1) Clean-Feeds/Mix-Minus or N–1 buses can be set up in stereo or mono, and are configurable in number.

Multi-track and Group Routing Full multi-track and group routing can be configured.

Solo Modes Each channel features a Solo/PFL Switch. Depending upon the mode selected within the Control Bay, a variety of functions can be achieved, including: Standard Solo, Solo-In-Place, Standard PFL, and (for Vista 6 only) Broadcast PFL, etc. A very handy PFL/Solo Reset is provided to disengage any solos regardless of where they are engaged on the console. This eliminates the need to "search" for solos with large console configurations. A key to define certain channels to be safe from being muted in "Solo-In-Place" mode is also provided. This set will be stored once per title.

1.4 Processing Blocks

Equalizers Four fully parametric bands are provided on the Vista. Each band, which can be switched in and out independently, extends from 20 Hz to 20 kHz, with a ±18 dB gain range. The EQ features a psycho-acoustically corrected frequency response for high frequencies, similar to well-known analog EQ designs. The two mid-bands can be switched between constant-Q and constant-range modes. The high and low frequency bands can also be switched to shelving mode. A second EQ type is available (defined in the Configuration Tool), which features an additional Notch filter.

Filters Low-cut and high-cut filters are provided, with cutoff frequencies that are variable between 20 Hz and 20 kHz, and slope selections of 12, 18, or 24 dB/octave.
In addition, an analog low-cut filter with a cutoff frequency of 75 Hz and a slope of 12 dB/octave is available in the D19m Mic/Line preamplifier.

Dynamics The Vista dynamics processing consists of four parts:
Limiter, Compressor, Expander, and Gate.
To avoid pumping and modulation, the dynamics processing sections feature high sampling rate transient detection. Distortion artifacts are minimized through selectable, program-dependent attack and release times. The Vista's dynamics feature a side-chain input that can be used with or without HP/LP filters. A unique "look forward" function is also featured. If desired, this allows the entire transient portion of a waveform to be affected when using the limiter/compressor or to be passed when the expander/gate is used.

Soft Clip In addition, a soft clip function can be activated in the D19m Mic/Line preamplifier.

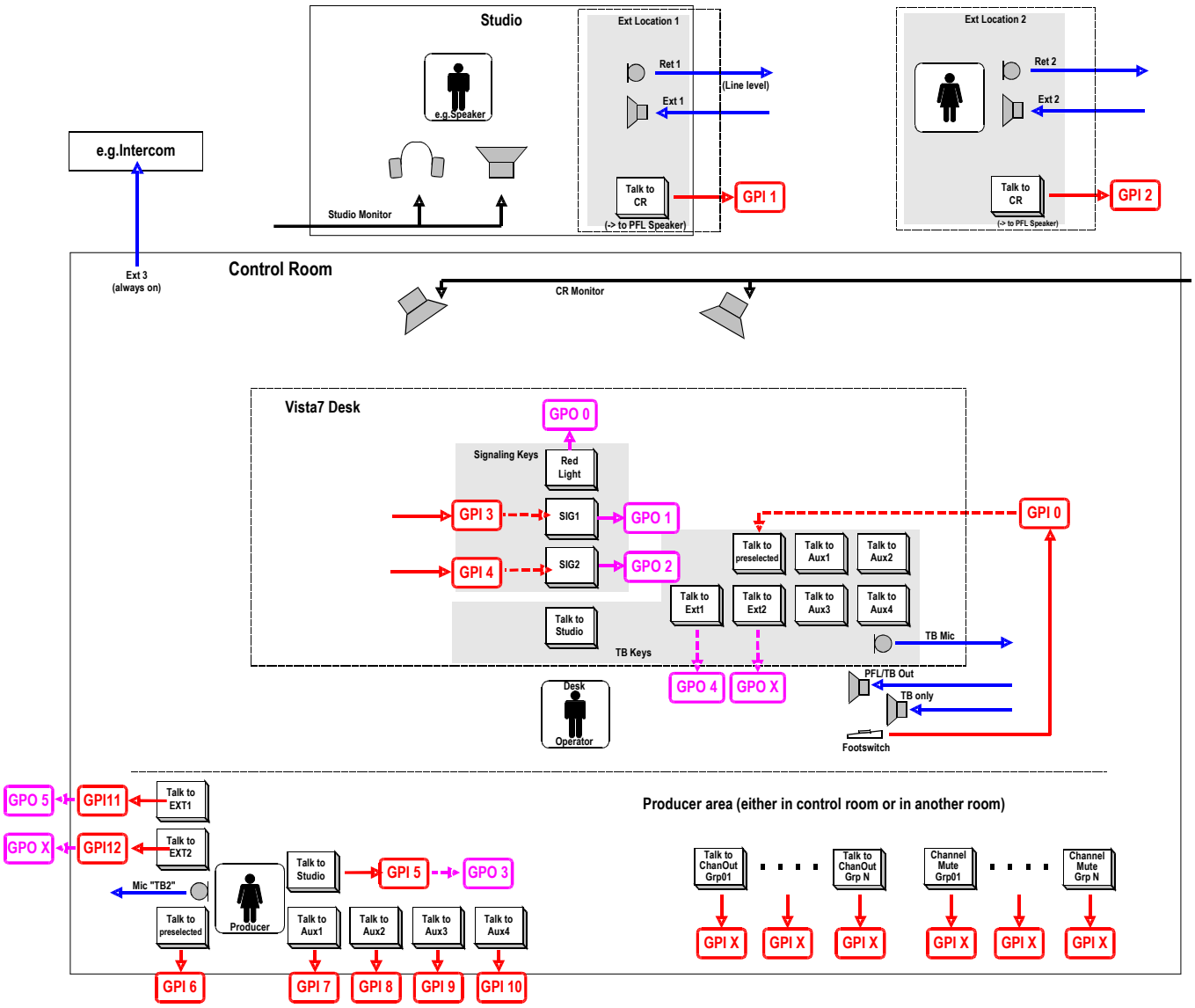
1.5 Monitoring and Communication

Monitoring The Control Room (CR) monitoring section provides control of up to three different speaker systems (two multi-channel and one stereo) and 16 source selectors. All internal digital sources can be assigned to any of the source selector keys. A headphone socket is also supplied for use within the control room.

The Studio Monitor is configurable in the same way as the CR monitor section, although only one stereo loudspeaker pair is supported.

Talkback An extensive talkback system is implemented within the Vista. The talkback source can be either the built-in desk-operator microphone or an external producer microphone. Several destinations, such as buses, direct outputs, auxiliaries, groups, and master outputs are available block.
On Vista 6 only, each channel is fitted with a talkback key that activates talkback to the direct output of the corresponding channel and, if the channel is an N–1 owner, to the N–1 output.
Refer to the talkback and signaling block diagram on the next page for details.

Talkback and Signaling Block Diagram VISTA 7 DIGITAL MIXING SYSTEM



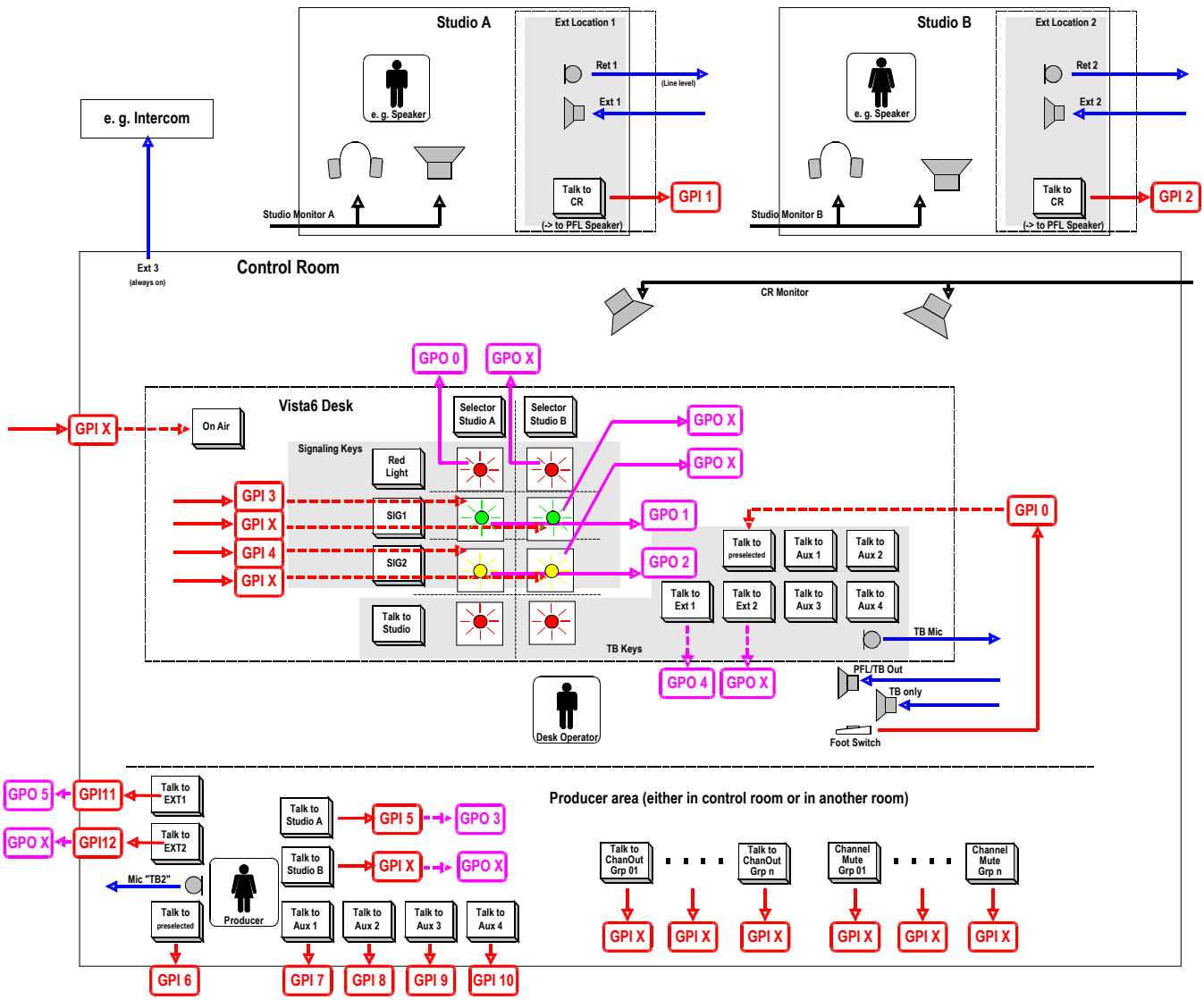
Legend :

- GPI 1 = GPI already configured in *.ini files
- GPO 2 = GPO already configured in *.ini files
- GPI X = GPI prepared to use, but not assigned to signaling card. This can be configured in *.ini files
- GPO X = GPO prepared to use, but not assigned to signaling card. This can be configured in *.ini files

Relations :

Dim CR and PFL if : Anytalk in Desk OR (Anytalk Producer AND Producer located in CR) *[DimLock is activated]*
Dim Studio if : Ret1 Talk to CR AND Ret1 located in Studio *[DimLock is activated]*
Cut Studio if : (Faderstart of source which is assigned to Studio) OR (Studio is OnAir)
Cut Ext1 if : Studio Cut AND Ret1 located in Studio
Sig1 LED Studio = Sig1OutStudio OR Sig1InStudio
Sig2 LED Studio = Sig2OutStudio OR Sig2InStudio
RedLight Studio = StudioA Cut OR RedlightStudio manual
TalkLED Studio = DeskTalktoStudio OR Ret1TalktoCR

Talkback and Signaling Block Diagram VISTA 6 DIGITAL MIXING SYSTEM



Legend :

- GPI 1 = GPI already configured in *.ini files
- GPO 2 = GPO already configured in *.ini files
- GPI X = GPI prepared to use, but not assigned to signaling card. This can be configured in *.ini files
- GPO X = GPO prepared to use, but not assigned to signaling card. This can be configured in *.ini files

Relations :

Dim CR and PFL if : Anytalk in Desk OR (Anytalk Producer AND Producer located in CR) *[DimLock is activated]*
Dim StudioA if : Ret1 Talk to CR AND Ret1 located in Studio *[DimLock is activated]*
Dim StudioB if : Ret2 Talk to CR AND Ret2 located in Studio *[DimLock is activated]*
Cut StudioA if : (Faderstart of source which is assigned to StudioA) OR (StudioA is OnAir)
Cut StudioB if : (Faderstart of source which is assigned to StudioB) OR (StudioB is OnAir)
Cut Ext1 if : StudioA Cut AND Ret1 located in Studio
Cut Ext2 if : StudioB Cut AND Ret2 located in Studio
Sig1 LED StudioA = Sig1OutStudioA OR Sig1InStudioA
Sig2 LED StudioA = Sig2OutStudioA OR Sig2InStudioA
RedLight StudioA = StudioA Cut OR RedlightStudioA manual
TalkLED StudioA = DeskTalktoStudioA OR Ret1TalktoCR
Sig1 LED StudioB = Sig1OutStudioB OR Sig1InStudioB
Sig2 LED StudioB = Sig2OutStudioB OR Sig2InStudioB
RedLight StudioB = StudioB Cut OR RedlightStudioB manual
TalkLED StudioB = DeskTalktoStudioB OR Ret2TalktoCR
OnAirMode = OnAirKey OR GPI

1.6 Automation Functions

Snapshots

An unlimited number of snapshots can be captured, stored, and recalled for each Project Title. All control parameters of the console are stored in the snapshots. When a snapshot is recalled, the console typically requires 50 ms to fully reset itself. Snapshots can be recalled through channel protection filters or function protection filters that yield editing flexibility and safety in live operations.

Copy & Paste Clipboard

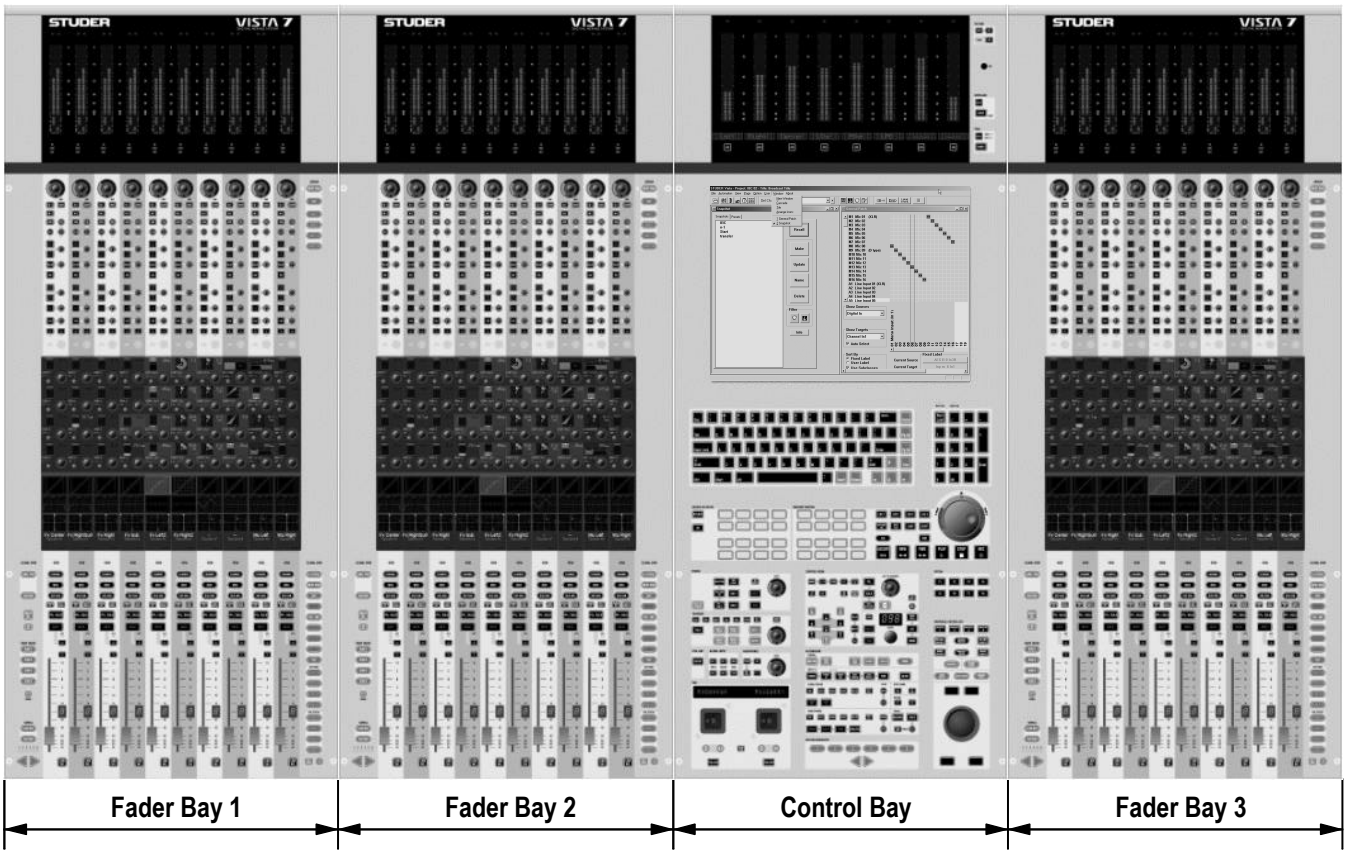
The Vista System supports copy and paste of some or all channel settings to one or more other channels. This ability streamlines the set-up of the console when an operator is starting from scratch with a new layout. However, if starting from a clean slate is desired, clearing all or some of the parameters is possible as well.

AutoTouch+ Dynamic Automation

Each audio parameter of the Vista mixing console can be stored and recalled dynamically against timecode information.
Such enormous versatility can be accompanied, of course, by a certain operation complexity. For this reason, all operator controls capable of being automated are touch-sensitive.
Please refer to chapter 5 for a complete description.

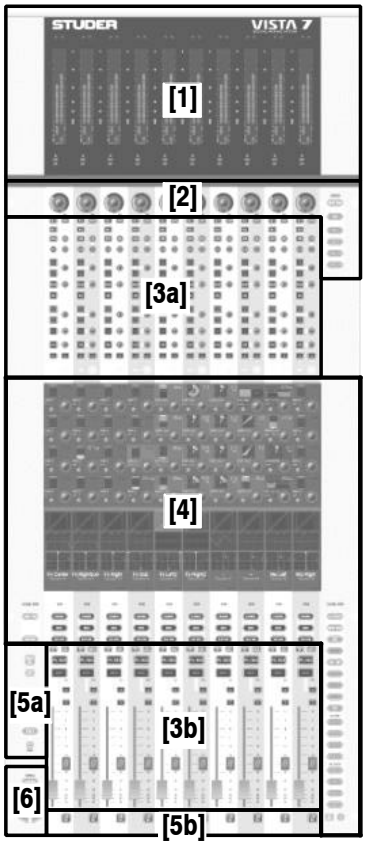
CHAPTER 2

2 VISTA DESK OPERATION



The desk consists of two types of bays: *Up to seven* identical fader bays and *exactly one* control bay.
The fader bays contain the console channel strips with rotary controls, faders, keys, and meters. Ten strips are located next to each other in one bay. They are not dedicated to any DSP channel.
The control bay hosts the global desk operation controls, such as one TFT display for the Graphic Controller, a keyboard, a trackball, (optional) joysticks, a monitoring panel, a machine control panel, and global automation controls. The minimum possible system size is two fader bays and one control bay. The system contains the control PC and the power supplies for the desk and the PC.
If a fader bay should fail to operate, the others will continue to work. In such a case, access to all channels is provided nevertheless thanks to the Vista desk scrolling feature.

2.1 Fader Bay Overview



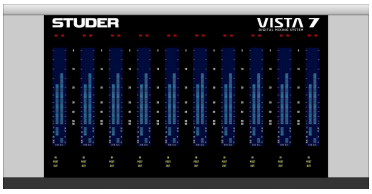
A fader bay can be subdivided into six areas:

- Area [1] contains meters dedicated to each channel strip.
- Area [2] contains rotary controls dedicated to each channel strip. This rotary control can have one out of six functions, assigned by the attached viewing keys. Unless the bay is currently locked, changing the assigned function affects the whole console, not only that specific bay.
- Areas [3a] and [3b] contain various controls, dedicated to each channel strip: Audio functions on/off, Copy/Paste, Selectors, and other standard elements, such as Fader, Mute, PFL etc.
- Area [4] hosts the Vistonics™ element with 10 × 4 on-screen rotary controls and a touch screen area. Some rounded keys are located next to the screen in order to change parameter views on the Vistonics™ screen. The Vistonics™ module can act as a channel-strip-specific control, dedicating four rotary controls as well as their associated bitmaps and graphical displays of the most important settings to each channel strip. It can also act in a sort of "central assign section"-way, occupying any number of Vistonics™ controls, in order to access multiple parameters of one specific channel strip. In that case the control elements of adjacent channels are used as well.
- Areas [5a] and [5b]: These keys are generically used either to select channels or influence any operation on them.
- Area [6] contains controls that are determining which DSP channels are currently visible on that bay. It is possible to either change the whole console to display a different section, or just let that specific bay change to show some different DSP channels.

2.2 Fader Bay Details

Each key marked with this symbol can be activated either momentarily or latching. Pressing this key for a short time will make it latching. Holding it down for a longer period of time will reverse its function automatically upon key release.

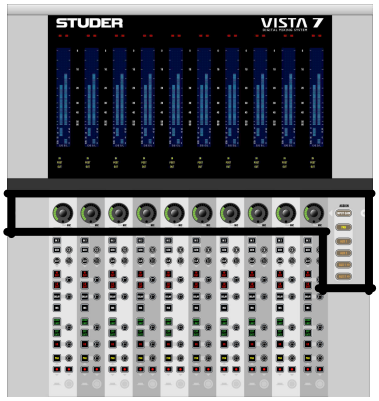
2.2.1 Area 1 – Channel Metering

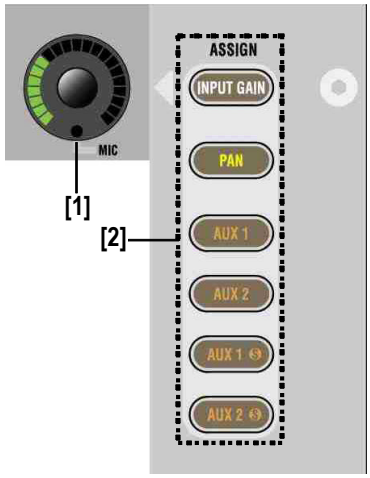


Level Meters
Show digital peak values with indication of headroom (one blank bar), clipping (red LED), peak hold (temporary or continuous), gain reduction (expander/gate: bottom left, compressor/limiter: bottom right), meter tap point (the indicated meter value is either the input, post fader, or direct output level). The bargraph meters may be split to display the left and right signals of a stereo channel.

Note: It is possible to use the red LED above the meters to indicate headroom rather than clipping. This is set in the GC's "Meter/Generator " window.
Vista 6: If the channel is an N–1 owner, the right-hand bargraph shows the output signal level. If stereo signals are present, the meter indicates the larger level of the two channels.

2.2.2 Area 2 – Channel Control





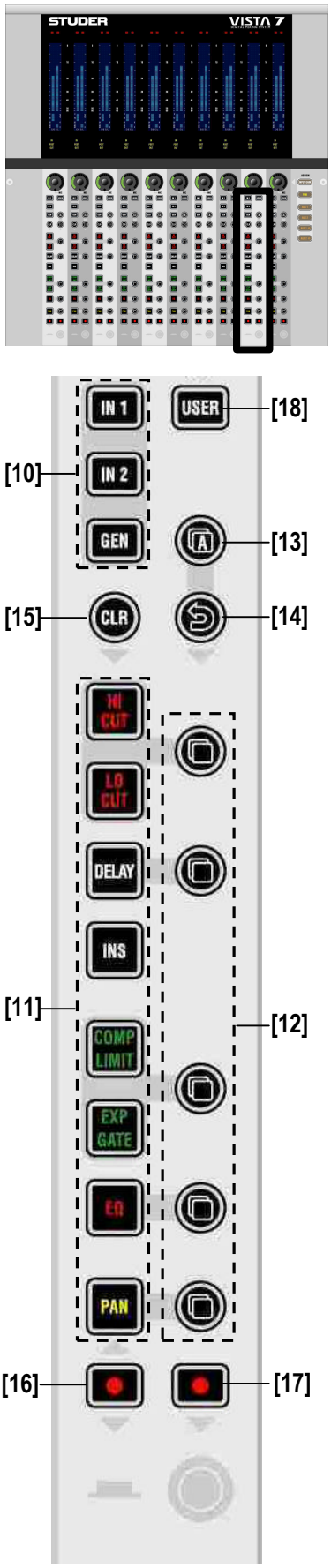
[1] "Dedicated" Rotary Controls
The user may put one out of six available functions onto this rotary control. This function is selected by pressing one of the six **ASSIGN** keys [2]. When **ASSIGN: INPUT GAIN** is selected and a Studer microphone preamplifier is connected, the analog gain will be controlled before the analog/digital converters. Otherwise the rotary control will adjust digital input gain. In any case, further control is available on the Vistonics™ module. The control of a Studer microphone preamplifier is indicated by a small red **MIC** LED at the bottom of the rotary control.

[2]
- **ASSIGN: INPUT GAIN**
- **ASSIGN: PAN**
- **ASSIGN: AUX1**
- **ASSIGN: AUX2**
- **ASSIGN: AUX1 S**
- **ASSIGN: AUX2 S**

Function selection for the "dedicated" rotary control:
- Input Gain (standard digital gain, *or* analog gain if a Studer microphone preamplifier is connected)
- Left/Right Pan
- AUX mono 1 and 2 level
- AUX stereo 1 and 2 level

Normally, the function changes throughout the whole console. If the bay is locked, only the assignment in the corresponding bay changes.

2.2.3 Area 3a – Channel Control



[10] 🕒 **IN1**
🕒 **IN2**
🕒 **GEN**

Input Selector. Each channel has three patch points available (the patch is viewable on the Graphic Controller TFT screen, chapter 2.4.3). Input 3 is patched to the internal generator's output by default, but can be changed by the user at any time.

[11] 🕒 **HI CUT**
🕒 **LO CUT**
🕒 **DELAY**
🕒 **INS**
🕒 **COMP / LIMIT**
🕒 **EXP / GATE**
🕒 **EQ**
🕒 **PAN**

Audio functions on/off; if lit, the corresponding audio function is activated. If dark, the function is bypassed. For more details about functions and their parameters refer to chapters 3.3 and 3.4).

[12] 🗗 **(Copy/Paste)**

Dedicated to each audio function, these keys act as copy (first press) and paste (second press) at the same time. After having copied the value of the source channel into the internal clipboard (first press), the source channel key is fully lit while all possible destination channels are half-lit. This guides the user to select the destination channel efficiently. After having selected one of them as destination key (second press), the copy/paste function is terminated. Nevertheless there are several ways to paste the clipboard value to multiple channels:

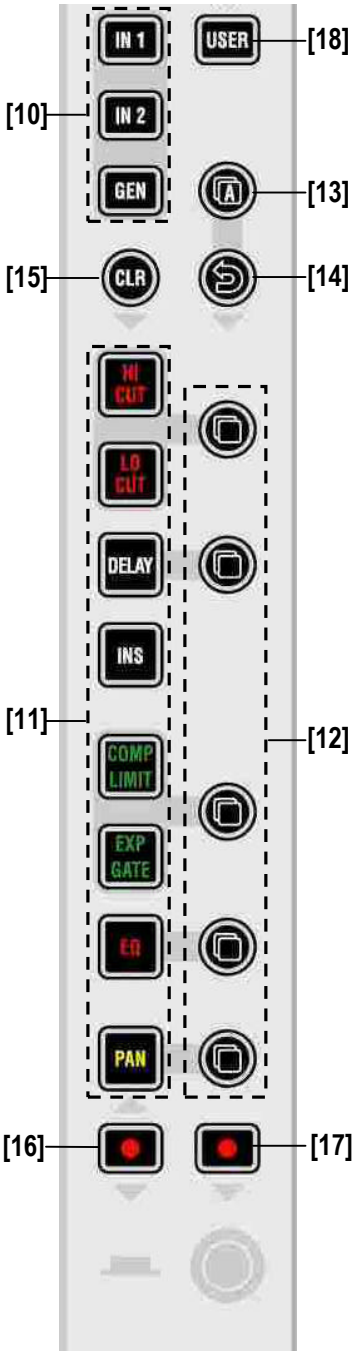
- Create a gang and paste the value into one of the members
- Press and hold the first channel and press another one in addition: All channels in between will get pasted the same value
- Hold **MULTI SEL** [50] (chapter 2.2.6) and paste to channels of your choice.

[13] 🗗 **A (Copy/Paste All)**

As 🗗 [12] above, but includes *all* functions of a channel at the same time. This includes input gains, AUX, fader and bus assign. This function "clones" the whole channel.

Tip for console setup: Set one channel to the desired status, including bus assignment etc., create a "super gang" by linking all input channels together, and press 🗗 **A** (Copy/Paste All) twice. This will bring all linked channels into the same status.

Note: *Software version V3.3 will add extensive clipboard functionality so that specific settings may be saved to the hard disk and recalled for pasting at any time. For details, please refer to chapter 2.5.*



[14] **(Undo/Redo)**
After having copied a setting into one channel, this key will reverse the last paste function. If a clear function has been performed, this key will reverse the last clear function. Note that (Undo/Redo) remembers each channel's settings. It is therefore possible to undo a function on several channels by applying (Undo/Redo) on a gang.
There is also a shortcut for comparing settings within one channel:
- Press copy/paste in one channel twice (this copies the current value into the clipboard and pastes it back into the channel).
- Now change to an alternate value.
- When pressing Undo/Redo, the user can toggle between the two settings and compare by listening.

Note: By using the temporary function of this key, it is possible to compare the two settings with a single key press!

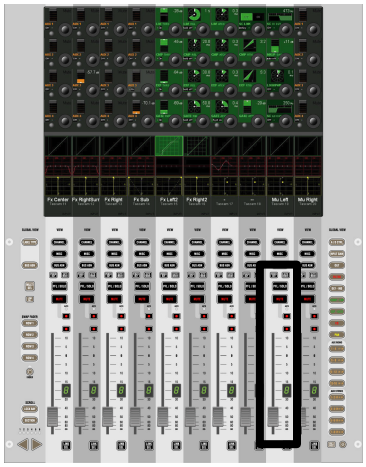
[15] **CLR**
After having pressed this key once, all possible destination keys (audio on/off keys) are half-lit. Pressing one of them will reset its value to the default value. It is also possible to select one of the **IN1, IN2,** or **GEN** input selector keys [10]. This will reset the input gain. Selecting the **A** (copy/paste all) key [13] as the choice to clear will reset all parameters within this channel, including bus assignment. It is also possible to use the **MULTI SEL** key [50] (chapter 2.2.6) to clear multiple functions. In order to set the fader of the channel to 0 dB, it is possible to touch the fader after having pressed **CLR**. After releasing the fader, it will set to 0 dB.
CLR can also be applied to a whole gang.

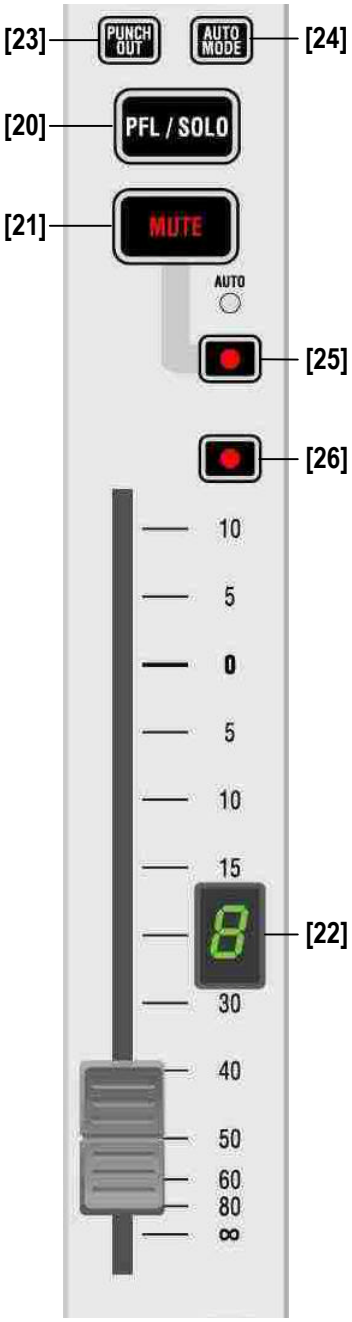
[16] ● **Punch-In/Out of Keys** (Dynamic Automation)
Half-lit: Some of the keys of this channel are "armed", that is, in WRITE or TRIM mode of the dynamic automation.
Fully lit: Some of the keys are being recorded.
Upon press: Punch-in/out.
Vista 6: **USER 1**, *programmable key for different functions such as signaling, fader start on/off etc.*

[17] ● **Punch-In/Out of Rotary Controls** (Dynamic Automation)
Half-lit: Some of the rotary controls of this channel are "armed", that is, in WRITE or TRIM mode of dynamic automation.
Fully lit: Some of the keys are being recorded.
Upon press: Punch-in/out.
Vista 6: **USER 2**, *programmable key for different functions such as signaling, fader start on/off etc.*

[18] **USER**
Key for programmable user- or application-specific functions (such as signaling, fader start, etc.).
Note: In the signaling setup on the Graphic Controller, this key is referred to as "User 1".
Vista 6: **METER**, *toggles the meter tap point between input, post fader, or direct output.*

2.2.4 Area 3b – Faders





[20] **PFL/SOLO**
Depending on the setting of **PFL**, **SOLO**, and **SOLO IN PLACE** keys [135], this activates the PFL, SOLO, or SOLO IN PLACE function of the corresponding channel.

[21] **MUTE**
Mutes the corresponding channel. The small **AUTO** LED indicates when the channel is muted by a SOLO IN PLACE function. In dynamic automation mode, the small **AUTO** LED shows the MUTE value during the last mix pass (replay status). The **AUTO** LED also indicates if the channel is muted through activation of **SOLO IN PLACE**.

[22] **Control Group Indication**
Indicates the control group to which this channel is assigned (this is a function similar to "VCA groups" known from analog mixing consoles).

[23] **PUNCH OUT** of all elements of this channel (Dynamic Automation).
Vista 6: This key is not available.

[24] **AUTO MODE**
Dynamic Automation:
Toggles this channel through selected automation modes, such as WRITE, TRIM, READ, and ISOLATE (selection definable in the "Options" menu of the AutoTouch+ panel). Acts also as the "modifier" key to change HOLD and TOUCH RECORD modes of this channel, depending on the options currently set.
Static Automation:
You may add whole channels to your snapshot filter by pressing this key. It is also possible to isolate only certain elements of a channel, such as the EQ. This is done by pressing and holding the **AUTO MODE** *key while pressing the corresponding audio key. Pressing e.g. the* **EQ** *on/off key will put the whole EQ into ISOLATE mode. Touching a rotary encoder will put just that rotary into ISOLATE mode, indicated by a yellow "*I*" or – if one of the Vistonics keys is selected – just by changing its color to yellow. It is also possible to e.g. open up the EQ view on the Vistonics screen and select only one single parameter of the EQ to go into ISOLATE. If one of the EQ parameters is isolated, but not the whole EQ, the* **EQ** *on/off key becomes half-lit while pressing* **AUTO MODE**. *If the "Enable Trim Mode" option in the Static Automation Options page is active, the status of the elements doesn't only toggle between READ and ISOLATE, but also goes to a red "*T*" (TRIM). On Vistonics keys this status is indicated simply by changing the button's label color to red.*

[25] ● **MUTE Punch-In/Out** (Dynamic Automation)
Half-lit: MUTE is armed for recording (TRIM or WRITE mode)
Fully lit: MUTE is being recorded
Upon press: Punch-in/out of MUTE.
Vista 6: **TALK** *key, activates talkback to the direct output of this channel and, if applicable, to the n–1 bus output.*

[26] ● **Punch-In/Out of Fader** (Dynamic Automation)
Half-lit: Fader is armed for recording (TRIM or WRITE mode)
Fully lit: Fader is being recorded
Upon press: Punch-in/out of fader.
Vista 6: This key is not available.

2.2.5 Area 4 – Vistonics™

[30] **Vistonics™ Rotary Control Area**

Each rotary control is grouped with a key to form a control element. These control elements are sometimes used in a channel-related manner, dedicating four control elements to each channel strip; sometimes, neighboring channels are used in order to show a complete parameter set of one single channel. This is the case when touching any graphical display of EQ, dynamics, or pan, but also when activating VIEW: MISC [33] or VIEW: CHANNEL [34].

[31] **Vistonics™ Touch Screen Area**

Graphical indication of dynamics, equalizer and pan. Touching the graphics will open up all corresponding parameters on the rotary control area.
This section is also able to display bus assignment. Two modes are available: Bus assignment as a "bubble view" to give an overview over the whole console, or bus assignment of a specific channel (one per bay).
The graphical pan display may vary depending on the configured panning function or format. (2-CH Stereo Pan, Multi-format Pan, VSP).

[30]

[31]

[32]

[32] **Generic Display Area**

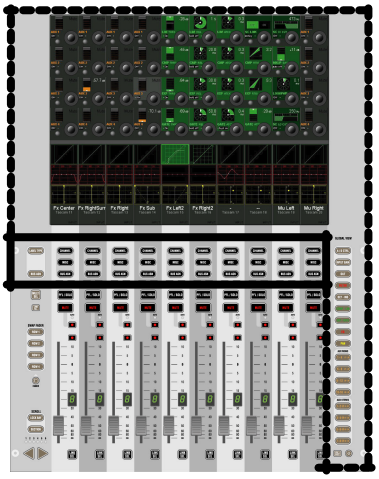
This area is used to display all sorts of information. The following is continuously displayed:

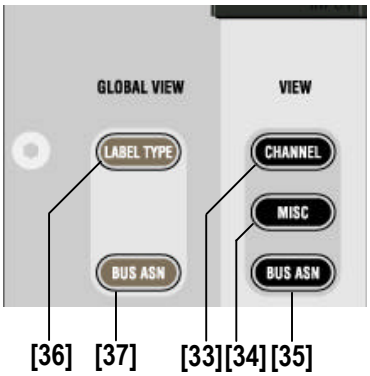
- Inherited label (top line). This corresponds to the USER label of the connected source (can be edited in the GC's Global Patch window).
- Switchable label (second line). Normally this is set to USER labels, but might be changed by pressing GLOBAL VIEW: LABEL TYPE [36]. If set to USER label, the device label of the connected source is being displayed (e.g. "Mic1, StA").
- Indication of channel type by color coding of the lower half as well as writing the type in the bottom right corner.

The following information pops up when appropriate:

- Fader value in dB, when touched (or "held" in dynamic automation mode)
- Graphical representation of fader values in automation mode (replay value of last mix pass and currently set value at the same time)
- Graphical representation of current setting and previewed snapshot at the same time.
- Automation mode of the fader.
- Indication if the fader was dynamically automated while pressing AUTOMATION VIEW [184].
- Numerical indication of the current peak meter value if metering is in PEAK: HOLD CONT mode, or of the overload value if OVERLOAD: HOLD is active.
- *Vista 6: N–1 indication and bus number.*

Touching the upper half (for input channels, multi-track input channels, multi-track monitor channels): Opens the GC's General Patch window, showing the *channel input* position of the selected channel..
Touching the lower half (for all channels): Opens the GC's General Patch window, showing the *direct output* position of the selected channel.





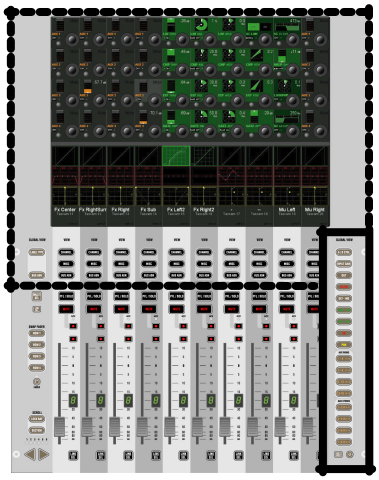
[33] **VIEW: CHANNEL**
Brings up a view of all control elements of this channel besides dynamics, equalizer, and pan, covering the whole Vistonics™ rotary control area.

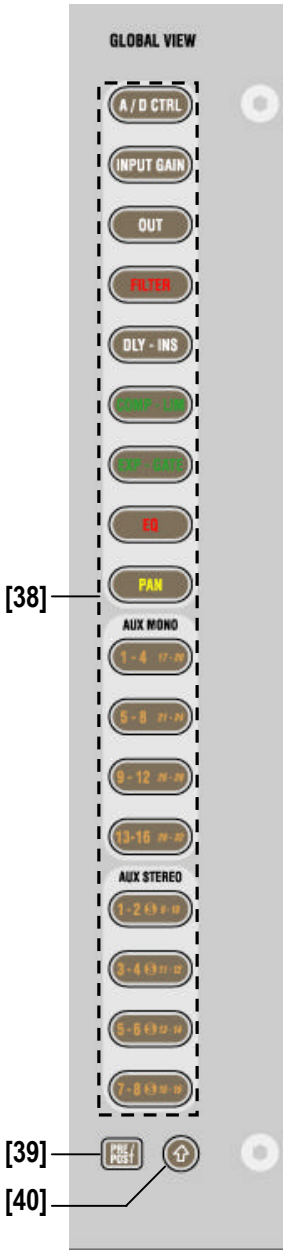
[34] **VIEW: MISC – View Selection of DYNAMICS, EQ, and PAN Controls**
Brings up a view of selected control elements out of dynamics, equalizer, and pan, covering the whole Vistonics™ rotary control area. The **VIEW CHANNEL** [33] and **VIEW MISC** [34] keys form a sort of "center assign panel" function, known from many other consoles, such as the Studer D950 M2.

[35] **VIEW: BUS ASN**
Brings up the bus assign view of one channel, covering the whole touch screen area.
When showing the bus assignment of a single channel, the assignment can be changed by touching the bus number. It is also possible to clear all bus assignments of a type by pressing the corresponding key on the touch screen.

[36] **GLOBAL VIEW: LABEL TYPE**
Changes the label type of the second line in the generic display area [32] to show:
- Inherited label (also known as source label)
- Fixed label (shows the channel number)
- User label (usually equals the Device label)

[37] **GLOBAL VIEW: BUS ASN**
Activates a "bubble view" of the bus assignment throughout the whole console. If the bay is locked, only the corresponding bay is affected.





[38] **GLOBAL VIEW: A/D CTRL**
GLOBAL VIEW: INPUT GAIN
GLOBAL VIEW: OUT
GLOBAL VIEW: FILTER
GLOBAL VIEW: DLY-INS
GLOBAL VIEW: COMP-LIM
GLOBAL VIEW: EXP-GATE
GLOBAL VIEW: EQ
GLOBAL VIEW: PAN
GLOBAL VIEW: AUX MONO ...
GLOBAL VIEW: AUX STEREO...

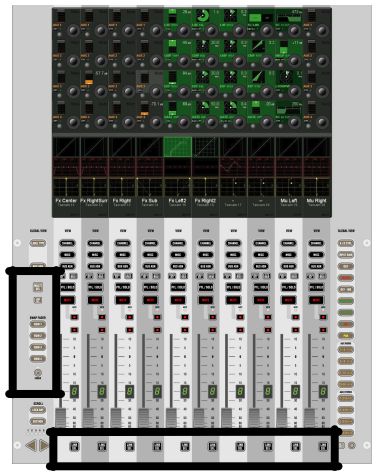
Function selection of the four Vistonics™ rotary controls. The different views will only cover the rotary controls that are necessary to display the corresponding function. The others will still show their previous function. However, pressing **GLOBAL VIEW...** a second time will blank all other rotary controls.
Example: AUX 1-4 are shown on rotary controls 1-4. The user presses **GLOBAL VIEW: FILTER**, and the rotary controls 1-2 will now show the input filters (rotary controls 3-4 are still showing AUX 3 and 4). When the user presses **GLOBAL VIEW: FILTER** again, the rotary controls 3-4 will be blanked.
Normally, these **GLOBAL VIEW...** keys change the function of rotary controls throughout the whole console. However, if the bay is locked, they influence only the corresponding bay.

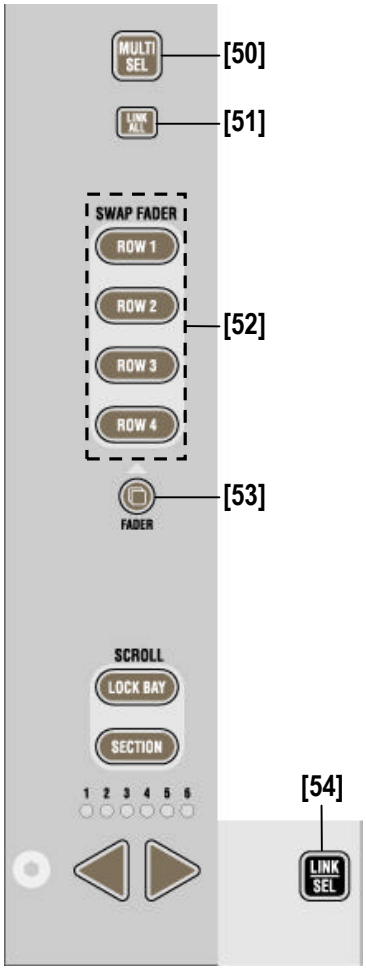
[39] **PRE / POST – AUX View Modifier**
When auxiliaries are shown on the rotary controls, they have an on/off key next to the rotary control. By pressing the **PRE / POST** modifier key, the key next to the AUX rotary control will change its function to pre-/post-fader.

[40] ⇧ (Shift)
Changes the meaning of the **GLOBAL VIEW: AUX...** keys to select the upper half of auxiliaries: AUX MONO 17-32 or AUX STEREO 9-16.
Note: When pressing **GLOBAL VIEW: EQ** while the ⇧ (Shift) key is active, there is an alternate EQ view. Then the four rotaries will show only the two mid bands, but allow access to frequency and gain setting.

Note: *An application allowing the system administrator do adapt default Views according to the customer's requirements will be released shortly.*

2.2.6 Areas 5a, 5b – Channel Selection





[50] **MULTI SEL**
Used to make multiple selections; acts similar as the "Ctrl" key on a PC keyboard.

[51] **LINK ALL**
Links all channels of one type together ("Super Gang") mainly for setup purposes. After **LINK ALL** is pressed, all **LINK / SEL** keys [54] are half-lit, waiting for the channel type to be defined (for linking).
A gang is canceled by pressing any **LINK / SEL** key on the desk.

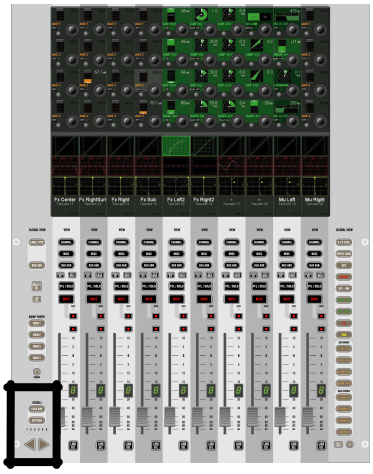
[52] **SWAP FADER: ROW 1...ROW 4**
Swaps the current fader value and the **MUTE** key onto the selected rotary row, if the current global view on that row has a level control with the same range as the fader (–90...+10 dB), while the value of that row is temporarily displayed on the faders. The function is canceled when pressing the swap key again or when activating any other swap function.

[53] **FADER**
Pressing this key will make the keys **ROW 1...4** half-lit. All fader and mute values of the current gang will be copied onto the control element shown on the corresponding rotary row, if there is an appropriate parameter visible; e.g. AUX level or Direct Out Level. If the fader is copied onto a stereo AUX, the left/right pan value is also copied along with the fader and mute values.
Note: If the direct outputs of the input channels are connected to a multi-track recorder, it might be desirable to have the fader values copied over onto the direct output level controls before starting a recording. If the faders are moved, e.g. during a live transmission, the levels on the multi-track machine will remain constant.

[54] **LINK / SEL**
This key is used to select channels in different situations:
- Select a channel for "channel patch view" on the Graphic Controller
- Select a channel for joystick assignment (PAN)
- Select/de-select a channel from a control group when in CGM setup mode
- Select a channel type when linking all channels of the same type together.

Pressing two of these keys simultaneously will form a "gang" between the two. With **MULTI SEL** [50] it is also possible to select channels that are separate from each other.
All the members of a gang act together like one channel. Any change to one of the members is performed to all of them. See chapter 1.1.3 for details.

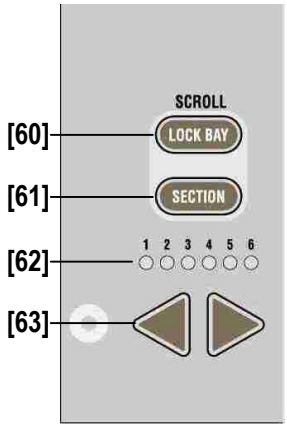
2.2.7 Area 6 – Desk Scrolling



[60] SCROLL: LOCK BAY

Used to lock the corresponding bay. This prevents this particular bay from global scrolling and view changes. However, even a locked bay can be scrolled when using the scroll keys on this particular bay. Global view changes are also only affecting this particular bay if a **GLOBAL VIEW** key is pressed on the locked bay. The global view is not changed if a **GLOBAL VIEW** key is pressed on another bay.

Note: Starting with software version V3.3, it is possible to create a "lock group" by pressing and holding this key on two bays at the same time. All bays in between will then also be part of the lock group. All bays in a lock group will react together in terms of scrolling and global view changes. In this way it is possible to operate the desk with multiple operators. Restrictions: Only one gang and only one pending paste action are available at a time.



[61] SCROLL: SECTION

When activated, pressing the arrow keys [63] will navigate not only by one bay, but by a whole section (= number of physical faders).

Note: If the **SCROLL: LOCK BAY** and **SCROLL: SECTION** keys are both active, scrolling this bay will make it move to the same position within the next section, allowing a kind of "layered" operation with ten channels at a time.

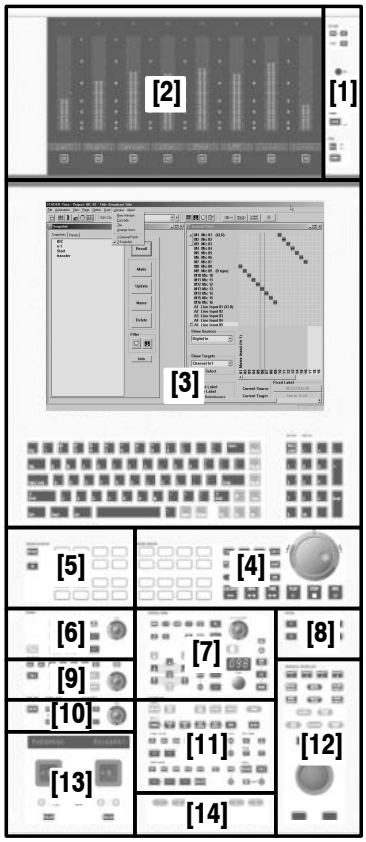
[62] Section Indication

Indication of the current position within all sections. Acts similar to a scroll bar.

[63] ◀ ▶ Scrolling Arrow Keys

By pressing one of these arrow keys, the desk will move by 10 faders to the left or right, similar to scroll keys on a PC.

2.3 Control Bay Overview



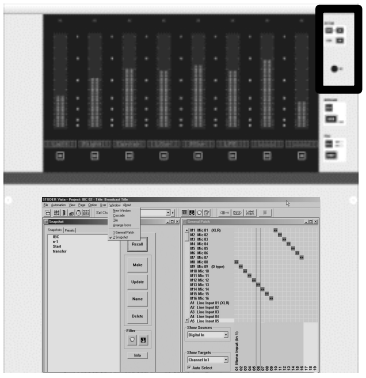
The control bay is divided into 14 different areas:
Area [1] is used for system power up/down, meter settings, and talkback microphone.
Area [2] contains the monitor metering with VFD bargraph meters. *Please note that Vista 6 is equipped with a gain reduction display or a custom meter bridge.*
Area [3] is the TFT display with the Graphic Controller (GC) application and a keyboard with numerical keypad.
Area [4] contains the 9-pin machine control (*Vista 7 only*).
Area [5] is a monitoring source selector (applicable to all controllable rooms).
Area [6] is the studio monitoring control unit (Level, Solo, Dim, Mute...).
Area [7] is the control room (CR) monitoring control unit (Level, Solo, Dim, Mute...).
Area [8] contains spare keys (F1...F3, F4...F7) for future functions and/or options, the clipboard library key (F4), and the external VGA switch (F8).
Area [9] is the talkback section.
Area [10] is used for:
- Control group setup,
- Headphones control, and
- it contains desk-related global switches (In1/In2 switches dedicated to input, group, monitor channels). Please note that these switches may be de-activated in the GC's Vista Settings window.

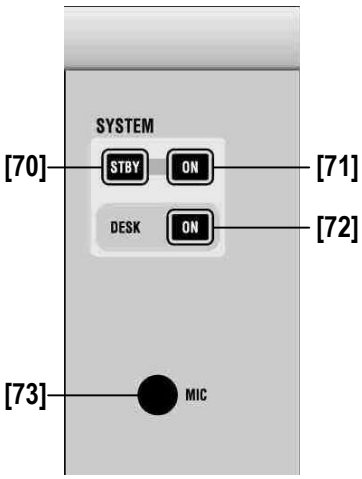
Area [11] is the global automation control for AutoTouch+ automation (*Vista 7 only*).
Area [12] holds:
- A trackball for Graphic Controller operation
- Hardware keys for selecting major pages in the Graphic Controller
- Dedicated keys for snapshot operation.

In area [13] the motorized joysticks for panning are located (*optional),*
and area [14] is the section navigator with keys for navigation (section jumps/scrolling) through the console.

2.4 Control Bay Details

2.4.1 Area 1 – System Power On/Off





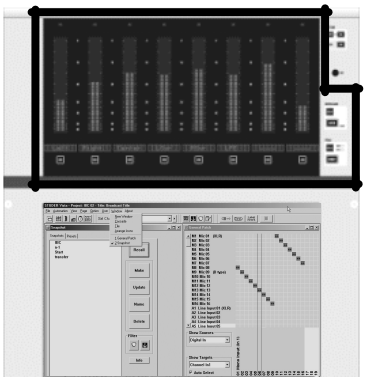
[70] SYSTEM: STBY
Indicates that AC power is connected to the desk.

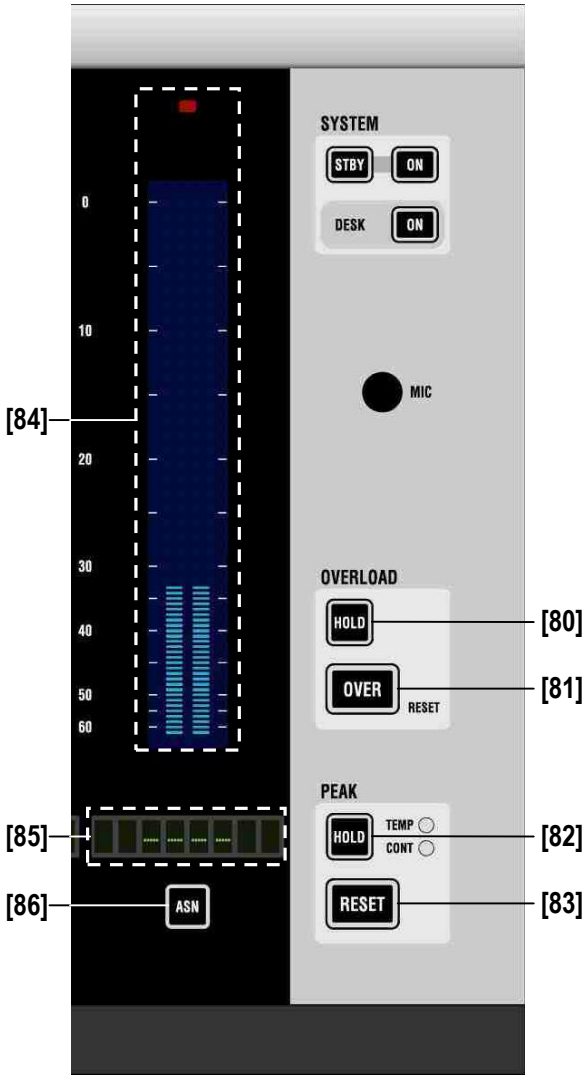
[71] SYSTEM: ON
Indicates that the power for the control system is ok.
Pressing **STBY** and **ON** simultaneously will switch the system on. For switching the system off, normally the Shutdown command in the windows desktop is used. Pressing **STBY** and **ON** together for several seconds will activate an emergency shutdown.

[72] DESK: ON
Indicates that the desk is switched on. Flashes if one of the 24 V_{DC} supply units is defective (also if one of the redundant units is defective).
(For service purposes, it may be necessary to power off the desk part only, while the control PC remains on. This can be accomplished by pressing this key for several seconds. Another short press will power on the desk again. A warning message will be displayed and the GC will be re-started.)

[73] MIC
Internal talkback microphone.

2.4.2 Areas 1 and 2 – Monitor Metering





[80] OVERLOAD: HOLD
Activates the hold function for all overload LEDs in the console. If active, even overloads in sections that are currently not visible are held. Therefore it is possible to scroll through the sections and check if overloads have occurred.
Channels with a held overload condition will indicate the amount of dB above clipping level in the Vistonics'™ generic display area.

[81] OVERLOAD: OVER RESET
LED indicates if any output interface of the core is clipping. Since the Performa DSP core holds all audio in floating-point format, basically no clipping can occur within the core. Clipping only occurs when sending a signal through the standalone 24-bit interfaces. Therefore, this LED indicates *real* clipping somewhere on an output. If **OVERLOAD: HOLD** is on, this LED is held as well. Pressing this key will reset all held overloads.

[82] PEAK: HOLD
Toggles the peak hold function through off, **TEMP** (temporary hold), and **CONT** (continuous hold).

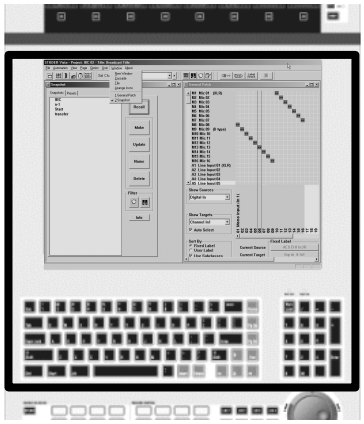
[83] PEAK: RESET
Pressing this key will reset the peak hold indication, if continuous hold has been activated with **PEAK: HOLD** [82].

[84] Assignable Monitor Level Meters
Indication of either monitor level (if **METER MON** [133] is lit), or DIRECT OUT level of assigned channels.
Note: If a meter is assigned to a specific channel, it displays always the DIRECT OUT level. If there is no patch set from that channel to an output interface, there will be no level visible on this meter.

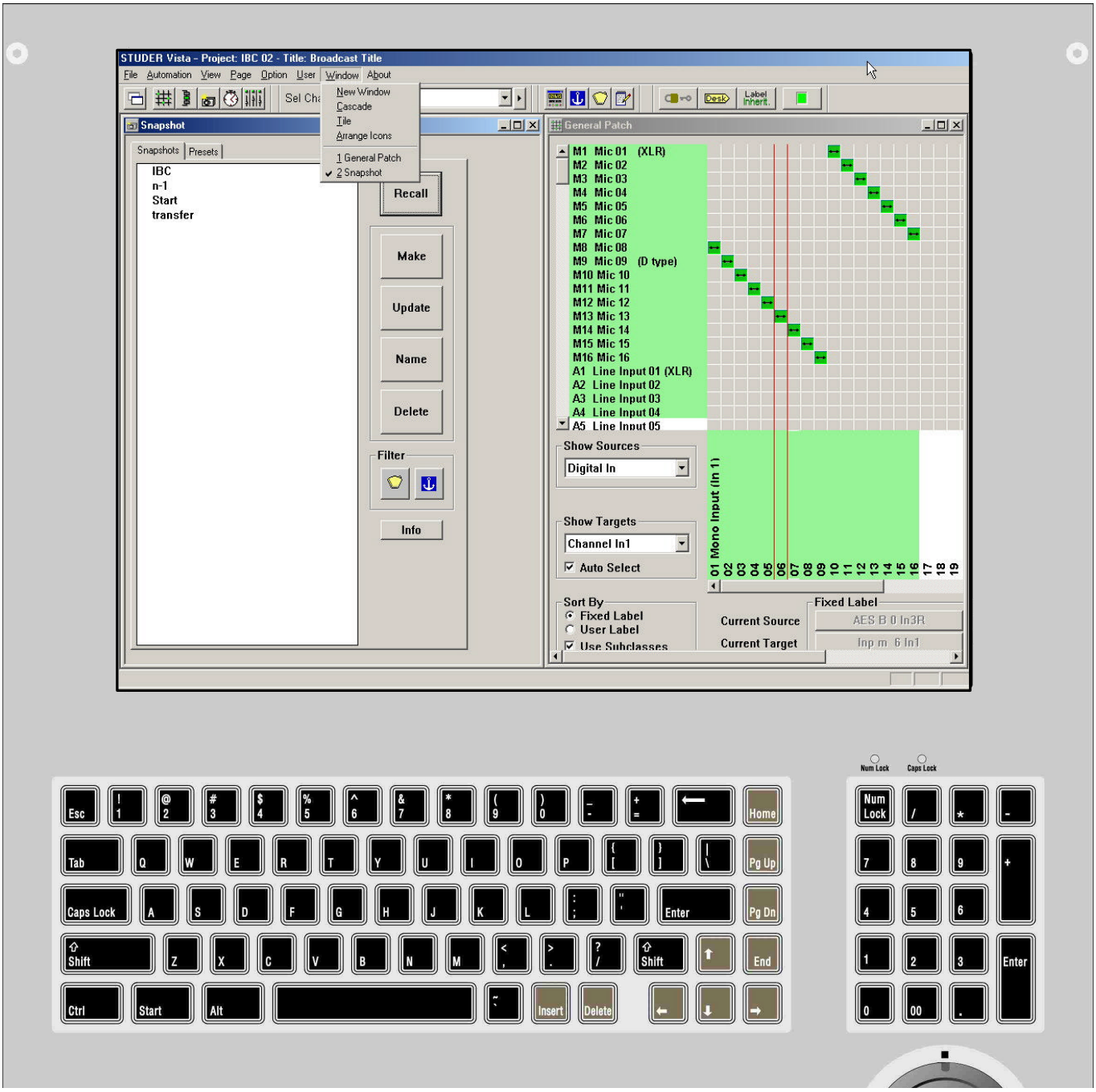
[85] Label
Displays the inherited label of the assigned channel or of the monitored signal, depending on the status of the **METER MON** key [133] (refer to chapter 2.4.7).

[86] ASN
Pressing **ASN** followed by any **LINK / SEL** key of a channel will make the meter show the direct output level of that channel. It is also possible to press-hold one **ASN** key and pressing another one. Pressing any **LINK / SEL** key will assign the previously selected meters from left to right.

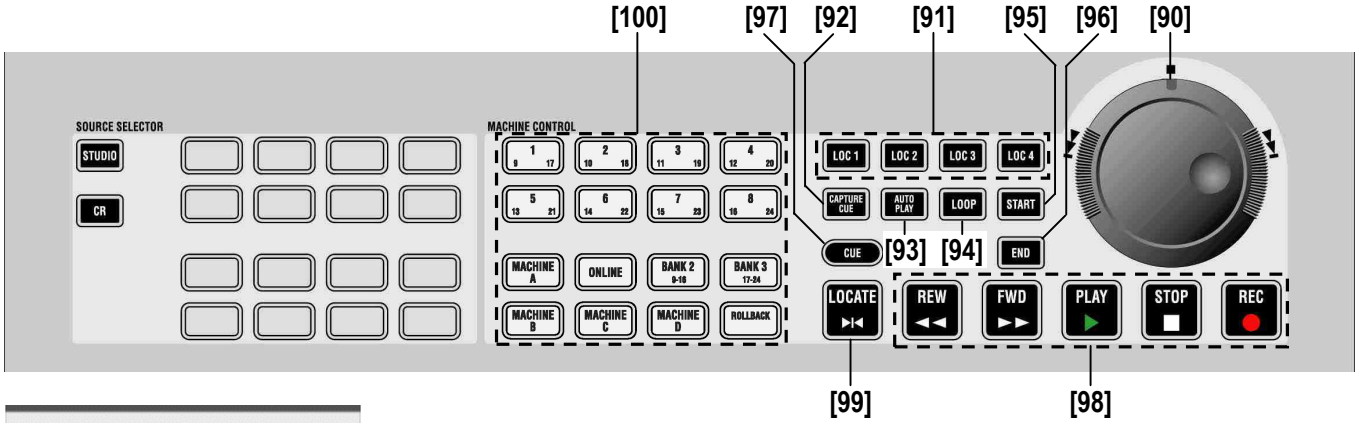
2.4.3 Area 3 – Graphic Controller Screen and Keyboard

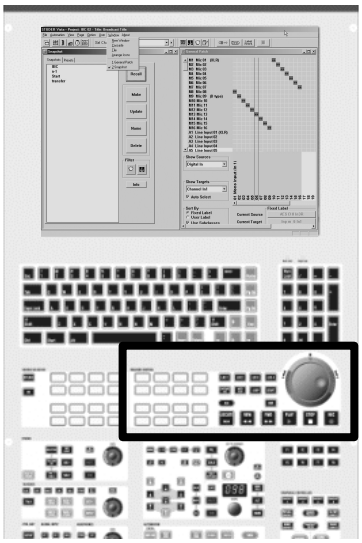


The Graphic Controller TFT screen and the alphanumeric keyboard are used for graphic controller operation, such as setup, project management, backup, patching, etc. See chapter 4 for details.



2.4.4 Area 4 – Machine Control





[90] Jog/Shuttle Wheel
Sensitivity adjustable in the "Option – Vista Settings" menu on the Graphic Controller.

[91] LOC 1...LOC 4
Dedicated locator keys; pressing one of them will make the machine controlled via the 9-pin machine control interface locate to the corresponding TC address, if defined.

[92] CAPTURE CUE
Will create a new cue point by looking at the incoming master TC (source set in the "Option – TC-Reader/Gen." menu). If the key is held and one of the **LOC 1...LOC 4** keys is pressed at the same time, the corresponding **LOC 1...LOC 4** key will be programmed to the current master TC.

[93] AUTO PLAY
When reaching a locate point, a play command is sent out to the machine controlled via the 9-pin machine control interface. The connected machine has to support the "Cued" flag via the 9-pin protocol.

[94] LOOP
Starts playing a loop between start and end point. Post-roll and pre-roll times may be set in the "reader/generator" menu. Pressing **STOP** ■ will end loop mode.

[95] START
Pressing this key will open the machine control window in the Graphic Controller and highlight the start time of the loop. TC can now be entered in that field. Please note the different ways for entering a TC – e.g., by pressing "T" on the GC keyboard, the currently incoming master TC is entered. For details, please refer to chapter 5.23.
When pressing **LOCATE** [98], the machine controlled via the 9-pin machine control interface will locate to this TC address.
This key also opens the GC's Machine Control window.

[96] END
Pressing this key will open the machine control window in the Graphic Controller and highlight the end time of the loop. TC can now be entered in that field (all shortcuts mentioned above can be applied).

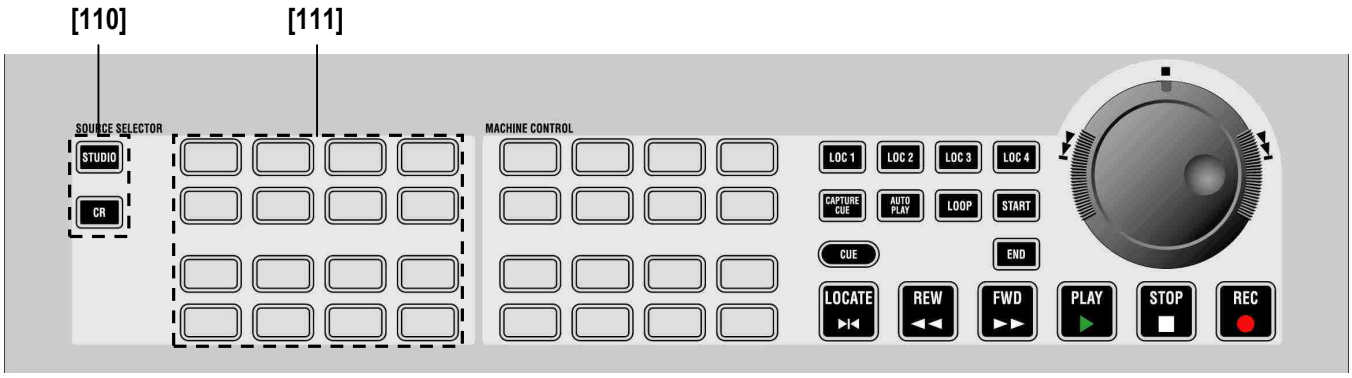
[97] CUE – Show Cue List
Opens the cue list on the Graphic Controller.

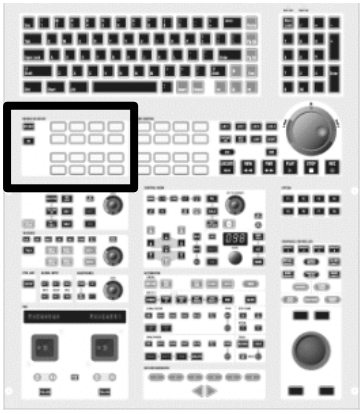
[98] REW ◀◀
FWD ▶▶
PLAY ▶
STOP ■
REC ●
Standard transport control keys. **FWD ▶▶** and **REW ◀◀** can also be activated temporarily (by a long press). Please note that the function of the **REC ●** key may be modified to sending "Edit On", "Crash Rec", or to be deactivated completely in a setup file (*accessible for experts only*).

[99] LOCATE ▶|◀
Locates to the TC visible in the "From:" line of the Machine Control window, as shown below.

[100] MACHINE CONTROL
Extended keys that are only functional with third-party synchronizers "Colin Broad Electronics RM-6" or "Soundmaster ATOM".
Exception: The **ROLLBACK** key (bottom right) performs a rollback function if *no* third-party synchronizer is present. Rollback time is set in the "Option – TC-Reader/Gen." menu.

2.4.5 Area 5 – Monitoring Source Selection

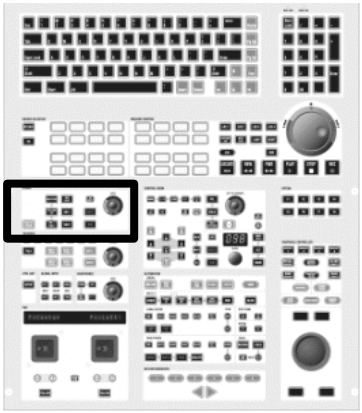


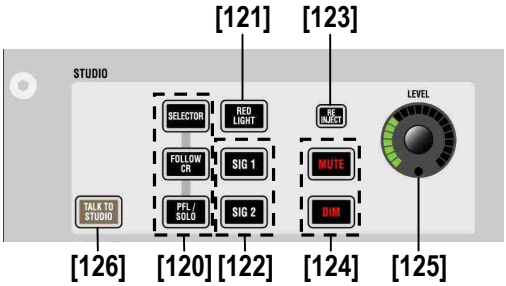


[110] SOURCE SELECTOR: STUDIO
SOURCE SELECTOR: CR
Determines whether the source selectors [111] are active for the studio or for the control room.
Vista 6: Two separate studios A and B.

[111] SOURCE SELECTOR
Each key can be assigned to two sources: One for the control room, one for the studio.
Extended Source Selector mode: For the control room, it is possible to activate the **SOURCE SELECTOR** top row (keys no. 1...4) to be "sub-selectors" rather than selectors, allowing 12 sources to be assigned to each of these keys. This functionality makes 60 sources available for listening in the control room, rather than the standard 16. Activation is done by editing the monitoring.ini file. *This may be done by experts only.*
Pressing one of the "sub-selectors" will make one of the 12 sub-sources selected and audible in the monitoring. Pressing the sub-selector again will open up a list of all 12 sources available for this sub-selector on the Graphic Controller screen. Select any of the 12 with the trackball, then close the dialog by pressing the same sub-selector key again. If none of the 12 sources is selected, the dialog will pop up automatically upon the first key press in order to make a selection with the trackball.
Vista 6 has 32 source selectors available, four of them can be used as "sub-selectors" as described above. This results in up to 76 definable sources for monitoring.

2.4.6 Area 6 – Studio Monitoring





[120] **SELECTOR**
FOLLOW CR
PFL/SOLO
Determines whether the studio is fed with:
- what is selected on the **SOURCE SELECTOR** (16 keys [111]),
- the same source as the control room, or
- the PFL/SOLO signal only.

[121] **RED LIGHT**
Indicates active red light. Can also be pressed in order to switch the red light on/off manually, if not already activated by e.g. open faders.

[122] **SIG 1**
SIG 2
Two GPIOs (general-purpose I/O – with open-collector outputs and optocoupler inputs) are assigned to these keys (refer to the talkback and signaling block diagram in chapter 2.4.9).

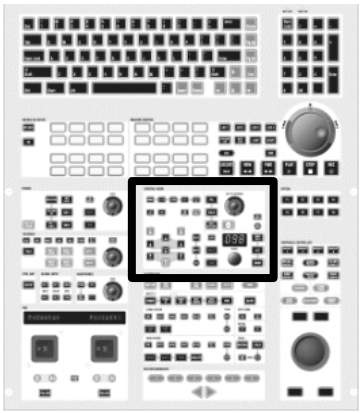
[123] **RE-INJECT**
If the studio is muted by an active **RED LIGHT**, this key allows to inject the signal anyway.
Please note that, depending on the installation and the current level, this might result in acoustical feedback.

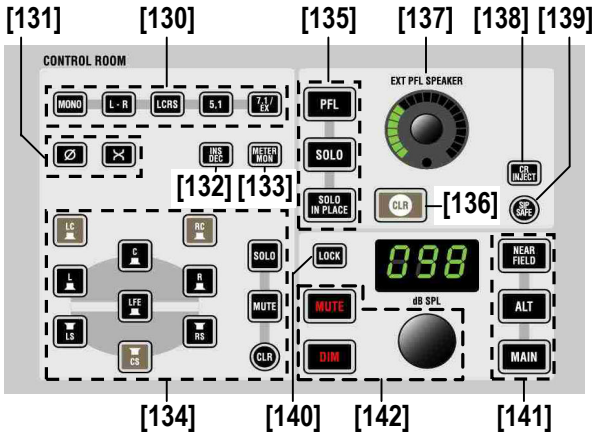
[124] **MUTE**
DIM
Keys for muting or dimming the studio speakers. **DIM** level may be adjusted in the monitoring.ini file by experts only.

[125] **LEVEL**
Level control for the studio speakers.

[126] **TALK TO STUDIO**
Shortcut key for talkback to the studio. This key performs the same function as activating the keys **STUDIO** and **TALK** (see chapter 2.4.9).

2.4.7 Area 7 – Control Room Monitoring





[130] **MONO**
L-R
LCRS
5.1
7.1 / EX
Selects the control room monitoring format by muting unused speakers. The "mono" setting will sum the left and right monitor speaker signals.
The maximum number of surround channels is determined by the available monitoring hardware and the settings in the monitoring.ini file. These may be edited by experts only.

[131] **Ø**
X
Phase inversion on left channel, and left/right channel swap for mono or two-channel stereo mode.

[132] **INS DEC**
Inserts encoder/decoder chain (Inputs/Outputs on the DSP core are pre-defined and may be activated at installation time by experts only).

[133] **METER MON**
Makes the monitor meters [84] indicate the monitored signal instead of the pre-assigned signals.

[134] **L, C, R,**
LC, RC, LS,
CS, RS, LFE
These keys act as solo or mute keys for each speaker being currently active, depending on the monitoring format selection [130]. The mode is preselected by the **SOLO** and **MUTE** keys on the right. It is also possible to clear all pressed keys with the (circular) **CLR** key next to **MUTE**.

[135] **PFL**
SOLO
SOLO IN PLACE
These keys determine the mode the console is in when pressing **PFL/SOLO** on a channel strip. It can be either **PFL** (pre-fader listening), **SOLO** (post-fader listening incl. pan), or **SOLO IN PLACE** (solo by muting all channels but the selected one, masters and other defined channels; destructive mode).

[136] **CLR**
If any of the **PLF/SOLO** keys on the console is active (even if it is not currently visible on the surface), this key will be lit. Pressing it clears all activated **PLF/SOLO** functions on the channels.

[137] **EXT PFL SPEAKER**
If an external PFL speaker is used, this rotary control adjusts the level of the PFL signal on that speaker. The same speaker is used for talkback signals as well, however with a different control for the level setting ([153] in chapter 2.4.9).

[138] CR INJECT
If active: PFL/SOLO signals will be audible in the control room speakers as soon as any **PLF/SOLO** function is activated.

[139] SIP SAFE
Pressing this key enters setup mode for editing the channels that should be safe from muting when activating **SOLO IN PLACE** on any other channel; by default, all master channels are safe from muting when **SOLO IN PLACE** is active. It may be desirable to protect effect returns from muting by adding them to the group of safe channels. When in **SIP SAFE** setup mode, it is possible to select or de-select individual channels on the desk by pressing their **LINK / SEL** key. Pressing **SIP SAFE** again will cancel edit mode and activate the selected SIP protection. The information on which channels should be protected is stored in each title, and therefore may vary from title to title.

Note: As a standard, the **MULTISEL** key is active when entering **SIP SAFE** setup mode. Thus it is possible to select or de-select any channels to be safe from muting. However, for clearing *all* currently selected and safe channels (including master channels), the **MULTISEL** key may be de-activated. When pressing any **LINK / SEL** key of a channel, all others will be de-selected.

[140] LOCK
Locks the control room level and prohibits it from being changed by accident.

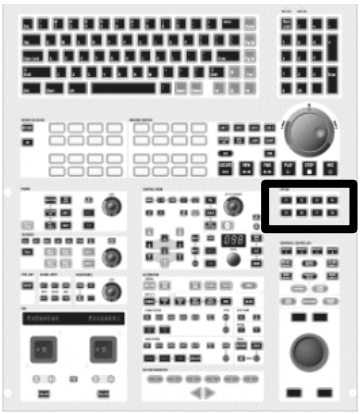
[141] 🕒 **NEAR FIELD**
🕒 **ALT**
🕒 **MAIN**
Selection of three speaker sets: **MAIN** and **ALT** can be multi-channel surround systems, **NEAR FIELD** is a two-channel stereo system. A separate level control is available for each set of speakers, but can be deactivated at installation time. This may be done in the monitoring.ini file by experts only.

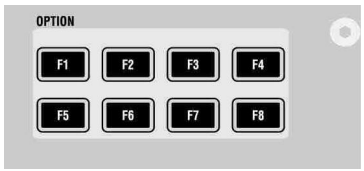
[142] 🕒 **MUTE**
🕒 **DIM**
🕒 **dB SPL**
Muting and dimming of the control room speakers, and setting their level. **DIM** level may be adjusted in the monitoring.ini file *(by experts only)*.

Note: The GC allows level calibration of the different speaker sets as well as trimming the individual speakers.

Vista 6 has two additional keys located above the **CR INJECT** *key [138]:*
ON AIR *prohibits activation of potentially dangerous functions, such as Solo in Place or Talk to Masters.*
PFL BC *activates a mode where PFL/SOLO on a channel is automatically canceled whenever the channel fader is open.*

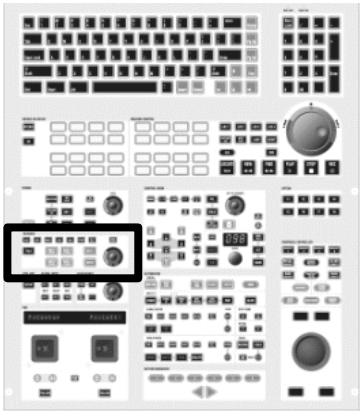
2.4.8 Area 8 – Option (Spare Keys)





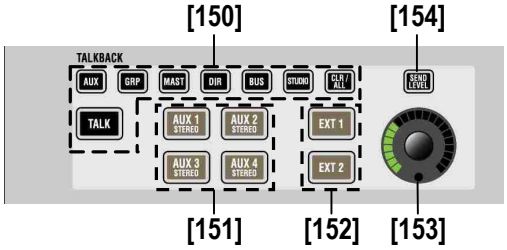
This area contains spare keys (**F1...F3, F5...F7**) for future functions and/or options. **F4** is used for opening/closing the Clipboard Library window, **F8** is used to activate external VGA input that allows to display an external VGA signal on the GC's TFT screen.

2.4.9 Area 9 – Talkback Control



[150] **TALKBACK**
Whenever **TALK** is pressed, the signal from the internal talkback **MIC** [73] is fed to the corresponding group.
Note: The talkback signal is inserted directly before the output interface of the core. If signals are routed internally to some other destinations, the talkback will not harm them.
Available talk destinations:

- **AUX:** direct outputs of all AUX masters
- **GRP:** direct outputs of all group masters
- **MAST:** direct outputs of all masters
- **DIR:** direct outputs of all input channels
- **BUS:** outputs of all multi-track buses (without faders in between)
- **STUDIO** *(Vista 6: talkback to both Studio A and B simultaneously)*



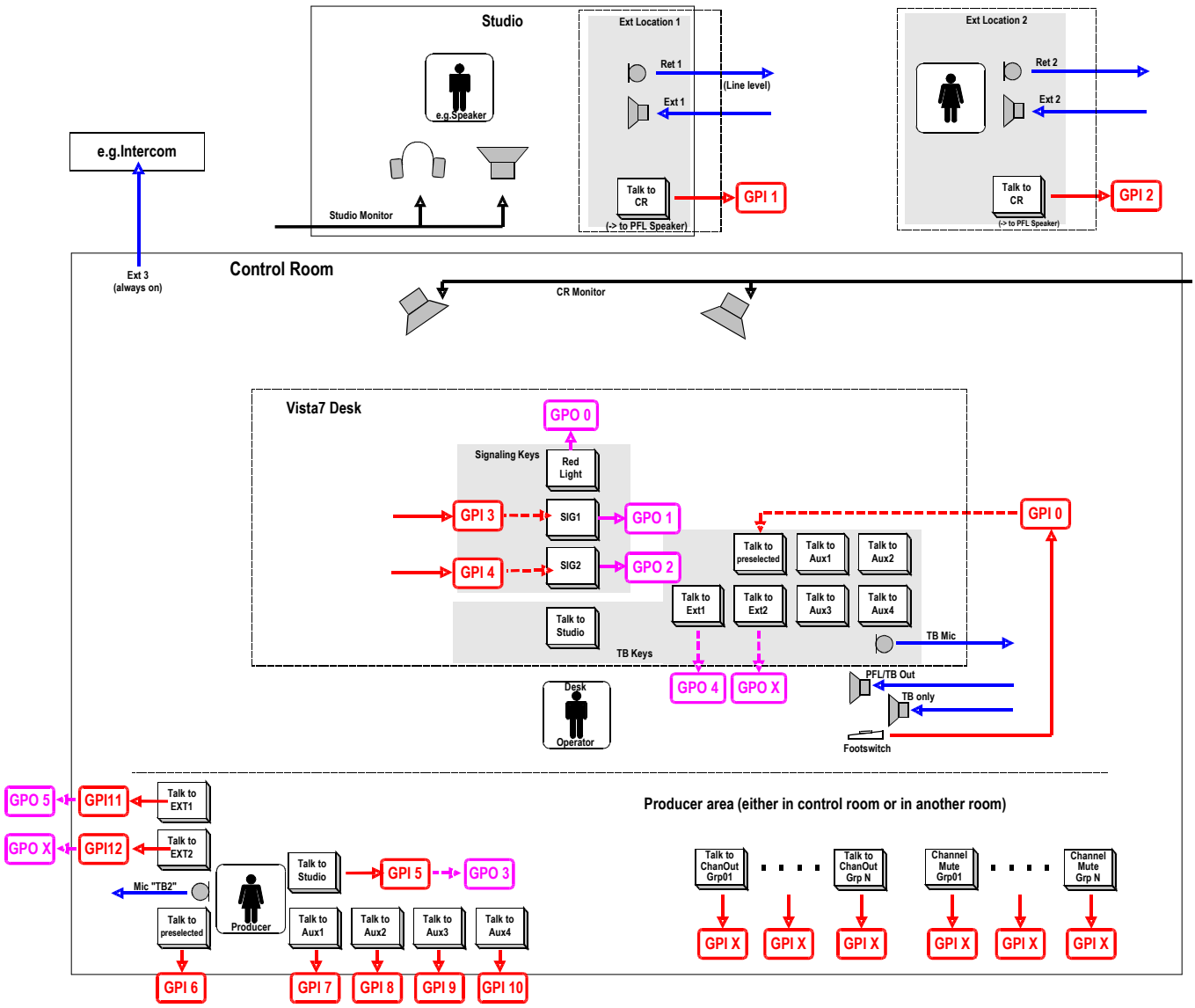
[151] **AUX 1...4 STEREO**
For talking to headphone mixes, these keys can be used to directly activate talkback to the corresponding AUX master outputs.

[152] **EXT 1**
EXT 2
Talk to external locations (analog). For a detailed description refer to the block diagram on the next page.

[153] **Talkback Return Level**
Level setting for external speakers.

[154] If the **SEND LEVEL** key above the knob [153] is active, this knob adjusts the input sensitivity of the internal talkback **MIC** [73] instead of the TB return level.

Talkback and Signaling Block Diagram VISTA 7 DIGITAL MIXING SYSTEM



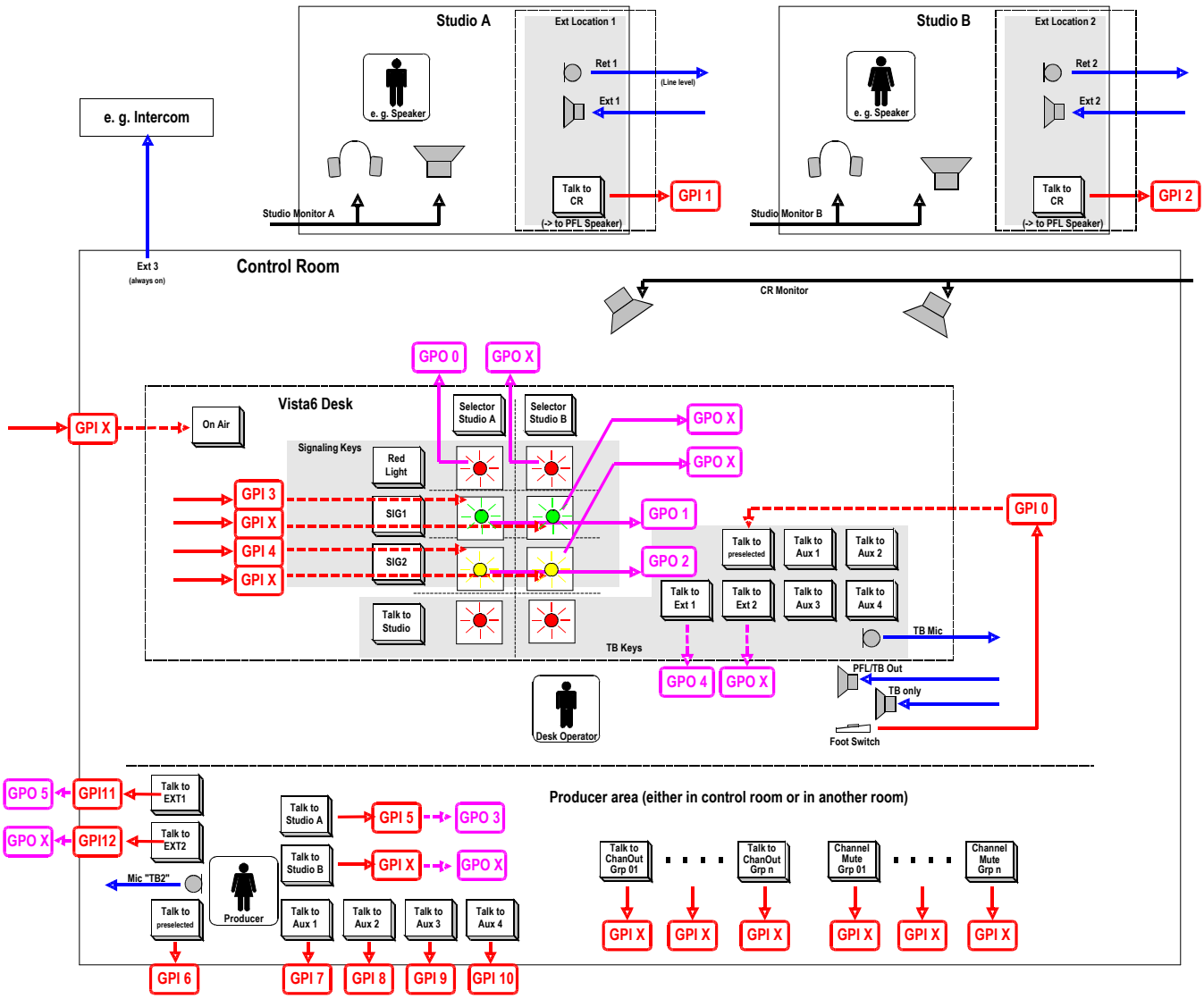
Legend :

- GPI 1 = GPI already configured in *.ini files
- GPO 2 = GPO already configured in *.ini files
- GPI X = GPI prepared to use, but not assigned to signaling card. This can be configured in *.ini files
- GPO X = GPO prepared to use, but not assigned to signaling card. This can be configured in *.ini files

Relations :

Dim CR and PFL if : Anytalk in Desk OR (Anytalk Producer AND Producer located in CR) *[DimLock is activated]*
Dim Studio if : Ret1 Talk to CR AND Ret1 located in Studio *[DimLock is activated]*
Cut Studio if : (Faderstart of source which is assigned to Studio) OR (Studio is OnAir)
Cut Ext1 if : Studio Cut AND Ret1 located in Studio
Sig1 LED Studio = Sig1OutStudio OR Sig1InStudio
Sig2 LED Studio = Sig2OutStudio OR Sig2InStudio
RedLight Studio = StudioA Cut OR RedlightStudio manual
TalkLED Studio = DeskTalktoStudio OR Ret1TalktoCR

Talkback and Signaling Block Diagram VISTA 6 DIGITAL MIXING SYSTEM



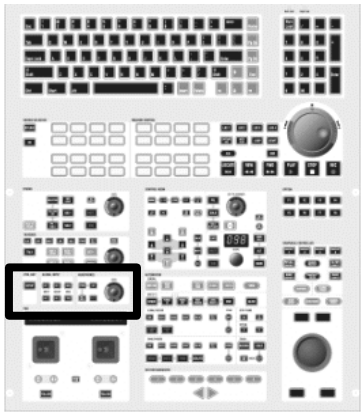
Legend :

- GPI 1 = GPI already configured in *.ini files
- GPO 2 = GPO already configured in *.ini files
- GPI X = GPI prepared to use, but not assigned to signaling card. This can be configured in *.ini files
- GPO X = GPO prepared to use, but not assigned to signaling card. This can be configured in *.ini files

Relations :

Dim CR and PFL if : Anytalk in Desk OR (Anytalk Producer AND Producer located in CR) *[DimLock is activated]*
Dim StudioA if : Ret1 Talk to CR AND Ret1 located in Studio *[DimLock is activated]*
Dim StudioB if : Ret2 Talk to CR AND Ret2 located in Studio *[DimLock is activated]*
Cut StudioA if : (Faderstart of source which is assigned to StudioA) OR (StudioA is OnAir)
Cut StudioB if : (Faderstart of source which is assigned to StudioB) OR (StudioB is OnAir)
Cut Ext1 if : StudioA Cut AND Ret1 located in Studio
Cut Ext2 if : StudioB Cut AND Ret2 located in Studio
Sig1 LED StudioA = Sig1OutStudioA OR Sig1InStudioA
Sig2 LED StudioA = Sig2OutStudioA OR Sig2InStudioA
RedLight StudioA = StudioA Cut OR RedlightStudioA manual
TalkLED StudioA = DeskTalktoStudioA OR Ret1TalktoCR
Sig1 LED StudioB = Sig1OutStudioB OR Sig1InStudioB
Sig2 LED StudioB = Sig2OutStudioB OR Sig2InStudioB
RedLight StudioB = StudioB Cut OR RedlightStudioB manual
TalkLED StudioB = DeskTalktoStudioB OR Ret2TalktoCR
OnAirMode = OnAirKey OR GPI

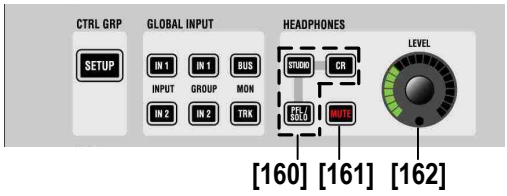
2.4.10 Area 10a – Headphones Control



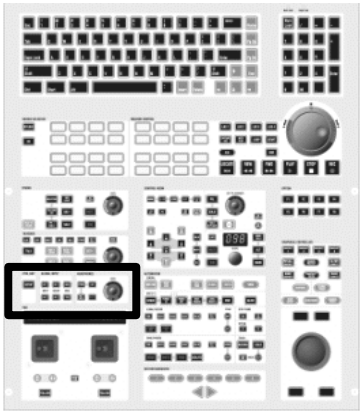
[160] HEADPHONES: STUDIO
HEADPHONES: CR
HEADPHONES: PFL/SOLO
Source selection for headphones output.

[161] MUTE
For headphones output.

[162] LEVEL
Level control for headphones output.

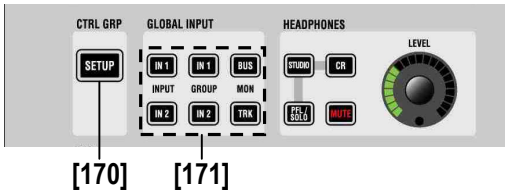


2.4.11 Area 10b – Control Group and Global Input



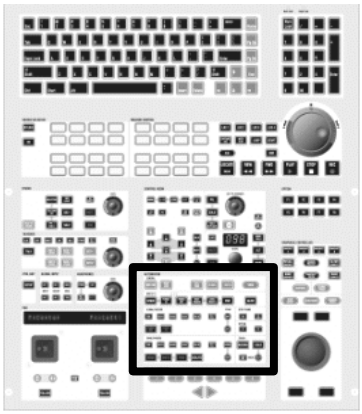
[170] CTRL GRP: SETUP
Pressing this key will enter/exit **CTRL GRP:** (control group) **SETUP** mode. After having entered **CTRL GRP: SETUP**, the user selects the control group he wants to edit by pressing **LINK / SEL** on the corresponding control group master channel. Then the desired channels are added to or removed from the control group by pressing their **LINK / SEL** key.

Note: The **MULTISEL** key is active as standard, thus allowing to select and de-select individual channels. Clearing the entire definition of a control group is easily done by pressing the **MULTI SEL** key, so that it gets dark. After that, any press on **LINK / SEL** of any channel will clear all others. It is also possible to add multiple channels to a control group: Press and hold one **LINK / SEL** key and press another one on a different channel. All channels in between will be added to the control group.



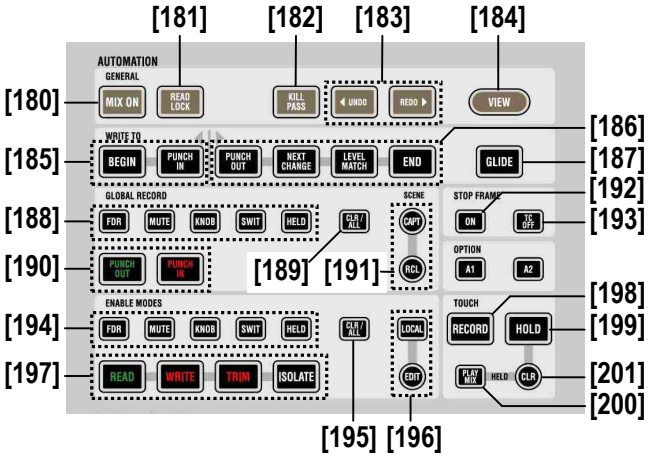
[171] GLOBAL INPUT: INPUT IN 1
GLOBAL INPUT: INPUT IN 2
GLOBAL INPUT: GROUP IN 1
GLOBAL INPUT: GROUP IN 2
GLOBAL INPUT: MON BUS
GLOBAL INPUT: MON TRK
Global keys to switch all input, group, or multi-track monitor channels between inputs 1 and 2. This can be used to switch from bus out to tape return. Please note that the patches have to be set correctly by the user.
These six keys can be de-activated by checking the corresponding options in the GC's Vista Settings window.

2.4.12 Area 11 – Dynamic Automation / *Static Automation*



Please note that in this paragraph the AutoTouch+ dynamic automation system is touched only briefly for explanation of the keys; refer to chapter 5 for more information.
Also note: The static automation system (filtering) cannot be active on a console which has dynamic automation available. The decision which functionality is available is made by an entry in an `*.ini` *file in the console's PC before the application is started, or by starting the application by a special shortcut icon on the desktop.*

[180] MIX ON
If a mix tree is open, this key will activate dynamic automation with this mix tree.
Static automation: Makes Snapshot Filtering active, same as clicking on the Snapshot Filter icon in the toolbar.



[181] READ LOCK
If lit, all control changes on the surface will be ignored, and the current mix is played back. ("layback mode")

[182] KILL PASS
If pressed while doing a mix pass, there will be no pass created upon TC stop.

[183] ◂ UNDO, REDO ▸
Moving backward and forward in the automation stack, moving between the last mix passes.

[184] VIEW (dynamic)
While pressed, all dynamically automated elements on the desk will be indicated in magenta.

[185] WRITE TO: BEGIN
WRITE TO: PUNCH IN
(Default: both off)
Can only be activated if no mix pass is currently running. If activated, the value at the punch-out point will be written back to the "Begin" address (specified in the AutoTouch+ window), or the moment when the element was punched into record.

[186] WRITE TO: PUNCH OUT
WRITE TO: NEXT CHANGE
WRITE TO: LEVEL MATCH
WRITE TO: END
(Default setting: **PUNCH OUT**)
These keys determine what happens when any recording element is punching-out of record. It is defined whether it should stop recording at that point in time (setting **PUNCH OUT**) or whether the last value should be written to some point in the future (**NEXT CHANGE, LEVEL MATCH, END**). If **PUNCH OUT** is not active, the value at the punch-out point will be written further ahead up to the selected time:

- **NEXT CHANGE**: Up to the next recorded movement of this element ahead of the current punch-out point.
- **LEVEL MATCH**: Ahead up to the point where the value at punch-out time matches the value of previously recorded movements.
- **END**: Specified in the AutoTouch+ window.

Note: None of these settings will influence the recording behavior while an element is punched-in (e.g. touched and recording). They only affect the automation behavior *after* the element has been punched-out (e.g. untouched), and therefore make it stay in record further into the future.
Option settings in the AutoTouch+ window may determine whether the "Begin" and "End" settings are cleared automatically when the mix pass is finished, in order to prevent erasing valuable automation data.

[187] GLIDE
Determines whether a fade back to the previous value will be applied at the end point of writing, or whether it should be a jump. Glide time can be adjusted in the AutoTouch+ window.
Static Automation: Activates/deactivates global snapshot cross-fading.

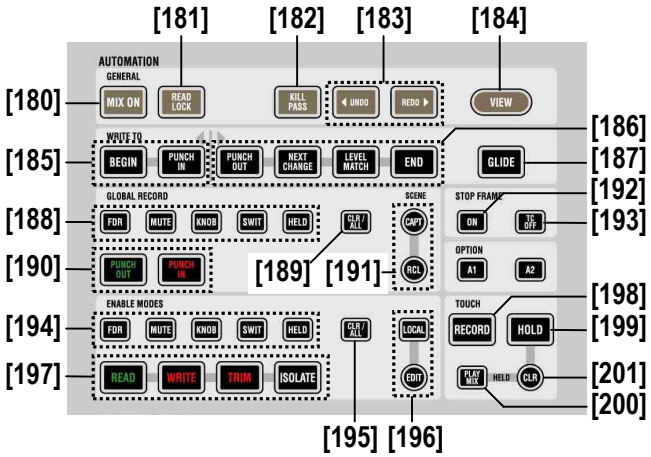
[188] FDR
MUTE
KNOB
SWIT
HELD
Pre-selector keys for global punch-in (fader, mutes, knobs, switches, all held objects); if corresponding elements are in **TRIM** or **WRITE** mode, they may be punched into record by pressing **PUNCH IN** [190]. Only pre-selected keys/elements will be punched-in.

[189] CLR / ALL
This key will either clear all active **GLOBAL RECORD** pre-selector keys [188] (if some of them are already lit), or select them all (if all were dark before).
Shortcut: In order to punch-in or out all armed elements, press and hold **CLR / ALL**, then press **PUNCH IN** or **PUNCH OUT** [190].

[190] PUNCH IN
PUNCH OUT
Punches-in or out all elements selected with one of the **GLOBAL RECORD** pre-selector keys [188]. Punches-in or out all armed elements, if pressed together with **CLR / ALL** [189].

[191] SCENE: CAPT
SCENE: RCL
- **SCENE: CAPT** stores all elements that are currently recording together with their current values into a special clipboard. The **RCL** key is lit if a setting is stored.
- **SCENE: RCL** recalls the values of the stored elements and punches them directly into record, if they are armed and **TOUCH RECORD** [197] is active. If **TOUCH RECORD** is not active, the elements are only recalled (audition mode).

Note: Normally only one scene is stored at a time in the clipboard. However, by holding down the ⇧ **Shift** key of the keyboard (chapter 2.4.3), it is possible to address a second clipboard. ⇧ **Shift** + **CAPT** will therefore store the values into this second clipboard, while ⇧ **Shift** + **RCL** recalls the values from the second clipboard.



[192] STOP FRAME: ON

Instead of starting and stopping a mix pass automatically by detecting the TC play speed, the user can deactivate this automatism, and start and stop a mix pass manually. When this key is lit, the mix pass is started regardless of the TC speed. It is now possible to record movements in slow motion.

Note: The AutoTouch+ Dynamic Automation will *not* record backwards. If a TC address is read, the values are already written to this point. See **STOP FRAME: TC OFF** [193] for "correction mode".

[193] STOP FRAME: TC OFF

In order to look for a certain time code address and being able to jog/shuttle without writing automation data too far ahead, this key will inhibit the automation from looking at TC addresses until deactivated again.

[194] FDR
MUTE
KNOB
SWIT
HELD

Pre-selector keys for global automation mode; used to change the automation modes of elements. Only the lit keys/elements will be changed upon pressing one of the global automation mode keys (**READ**, **WRITE**, **TRIM**, or **ISOLATE** [196]).

Note: No elements will ever change their record mode when pressing only the pre-selector keys!

[195] CLR / ALL

This key will either clear all **ENABLE MODES** pre-selector keys [194] (if some of them are already lit) or select them all (if all were dark before).

Shortcut: In order to change automation mode of *all* elements in the console, press and hold this key while pressing one of the global automation mode keys **READ**, **WRITE**, **TRIM**, or **ISOLATE** [196].

[196] LOCAL *and* **EDIT** *(static automation)*

These keys are inactive in dynamic automation. However, when static automation is active, they will open the Filter Edit window on the graphic controller and allow to define a detailed snapshot filter.

[197] READ
WRITE
TRIM
ISOLATE

Global automation mode keys. Pressing one of these keys will put the preselected elements (**ENABLE MODES** keys [194]) into the corresponding automation mode:

- **READ**
  Recorded data will be played back. If the changed element was never being dynamically automated before in this mix (i.e., it was never in **WRITE** or **TRIM** mode and recording), manual changes are still "recorded" (static) and stored within the mix pass.

- **WRITE**
  Shows and records values and their movements. Depending on **TOUCH RECORD** [197] and **TOUCH HOLD** [198] being on or off, the touched elements will be recorded (**TOUCH RECORD** on) and stay in record upon releasing the element (**TOUCH HOLD** on).
- **TRIM**
  Lets all elements indicate a neutral position and applies offsets to previously recorded data, keeping all previous movements.
- **ISOLATE**
  No changes to elements will be stored. Also no playback of dynamic or static changes will occur.

Static Automation: Pre-selected elements may be put into **READ** *(not filtered),* **ISOLATE** *(filtered) or* **TRIM** *mode (relative corrections applied for all following snapshot recalls, if activated in the Options page).*

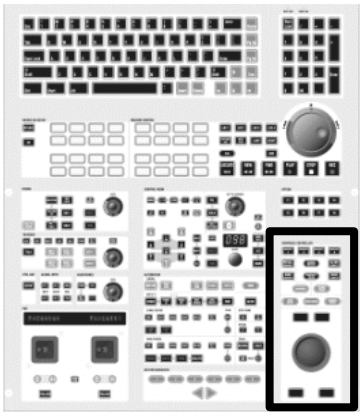
[198] TOUCH: RECORD
If on, an element in **WRITE** or **TRIM** will start recording as soon as it is touched. If off, settings can be auditioned without recording them. However, in conjunction with **TOUCH HOLD** [198] on, elements can be left in an auditioned value and punched-in at anytime afterwards, using **PUNCH IN** [190] with an active **GLOBAL RECORD: HELD** [188] pre-selector key.

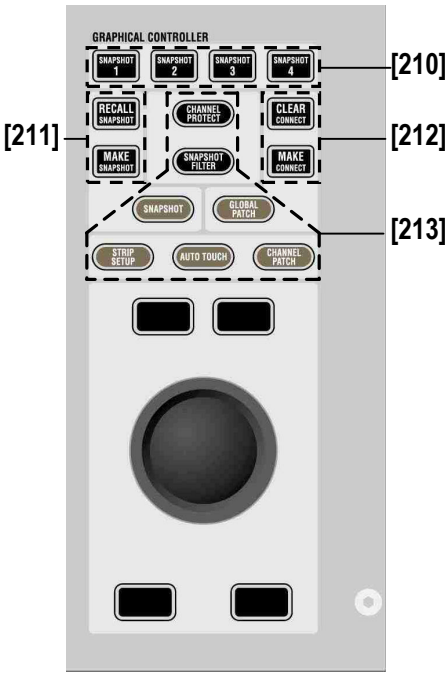
[199] TOUCH: HOLD
Determines whether an element should detect when the user releases it ("un-touch"), or whether only touch is registered and un-touch is ignored. The indication of held elements is as if they were touched (e.g., the dB value visible in the Vistonics™ generic display area [32] (chapter 2.2.5) when a fader is held, or underlined value display in the Vistonics™ Rotary Control Area [30] (chapter 2.2.5).
Note: The AutoTouch+ Dynamic Automation is only looking at the current setting of this key at the moment when an element is untouched (the moment when it is released with the finger). It is therefore possible to touch any element, set the **TOUCH HOLD** key and then release the element. At the next touch, the **TOUCH HOLD** key may be altered. Therefore it is possible to have some elements held, while others are actually moving back to the original value.

[200] HELD: PLAY MIX
If this key is active, the AutoTouch+ Dynamic Automation will always play the *recorded* mix data and therefore make any audition mode inactive.

[201] HELD: CLR
Clears the "hold" status of all objects being currently in "hold" mode.

2.4.13 Area 12 – Shortcut Keys for Graphic Controller





[210] SNAPSHOT 1...4

A snapshot contains all audio settings including patching and labels.
These keys allow four snapshots to be stored and recalled without making use of the Graphic Controller screen.

- *Making a snapshot:*
  Press and hold **MAKE SNAPSHOT** [211], then press one of the four **SNAPSHOT 1...4** keys. This will program this key with the current audio settings.
- *Recalling a snapshot* that has been programmed on one of the **SNAPSHOT 1...4** keys:
  Press and hold **RECALL SNAPSHOT** [211] while pressing one of the **SNAPSHOT 1...4** keys. This will recall the snapshot instantly, if warning mode is not active (see description of the "Options" menu on the Graphic Controller.)
- *Preview of a snapshot* that has been programmed on one of the **SNAPSHOT 1...4** keys *(SW V3.3 and up)*:
  Pressing one of the four keys by itself will activate a preview of that specific snapshot and illuminate it. Values in the previewed snapshot that are different from the current console settings will be visible on the Vistonics™ modules using *magenta-colored* indicators. This preview function can also be activated momentarily or latching.

[211] MAKE SNAPSHOT
RECALL SNAPSHOT

Pressing and releasing **MAKE SNAPSHOT** will create a snapshot with an automatically generated name, listed in the Graphic Controller. Filtering may be applied upon recall of the snapshot. See shortcut keys [213].

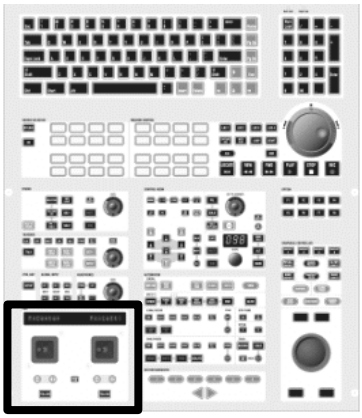
[212] MAKE CONNECT
CLEAR CONNECT

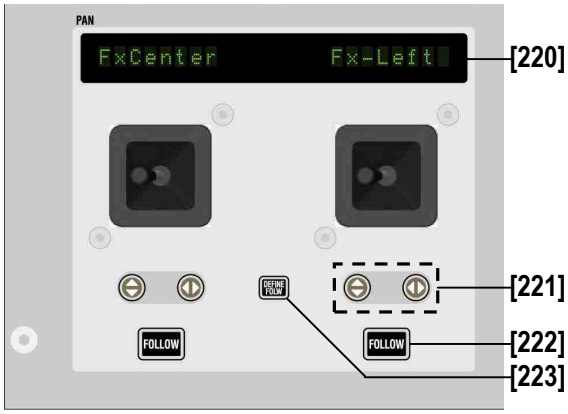
If the general patch window is opened on the Graphic Controller, these keys will make or clear a patch connection at the intersection of the red lines.

[213] CHANNEL PROTECT
SNAPSHOT FILTER
SNAPSHOT
GLOBAL PATCH (General Patch)
STRIP SETUP
AUTO TOUCH
CHANNEL PATCH

These shortcut keys will open the corresponding windows on the Graphic Controller.

2.4.14 Area 13 – Joysticks





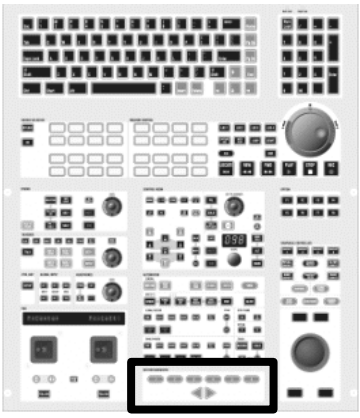
[220] Display
Displays the inherited label of the channel currently assigned to the Joystick.

[221] ⇳ Y axis lock
⇔ X axis lock
Lock the Y axis (⇳) or X axis (⇔) when moving the joystick. Pressing ⇳ and ⇔ simultaneously deactivates the joystick completely and clears the assignment to a channel.

[222] FOLLOW
Activates the joystick to display the currently selected channel (select with **LINK/SEL** [54]). If a gang is present, the joystick will influence the whole gang. **FOLLOW** can be deactivated by a second press; the joystick will then stay assigned to the current channel.

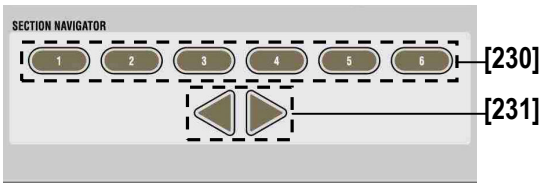
[223] DEFINE FOLLOW
When a gang is active and the joystick is set to **FOLLOW** mode, the joystick will physically move to the average of all the pan values of the gang, allowing the user to make slight adjustments very quickly. However, if the user wants to do a "full" pan, so that all channels will be e.g. fully left, he needs to define the channel for the joystick to display. The joystick will then move to the pan position of the defined channel, but will still keep influencing the whole gang.
Example: One dialog microphone is moving together with the ambience channels. The gang will include all channels even if the joystick is defined to show the dialog microphone by using **DEFINE FOLLOW**.
Operation: Create a gang, have **FOLLOW** on. Press **DEFINE FOLLOW** and select one of the gang members (use the half-lit **LINK/SEL** keys [54] as guides).

2.4.15 Area 14 – Section Navigator



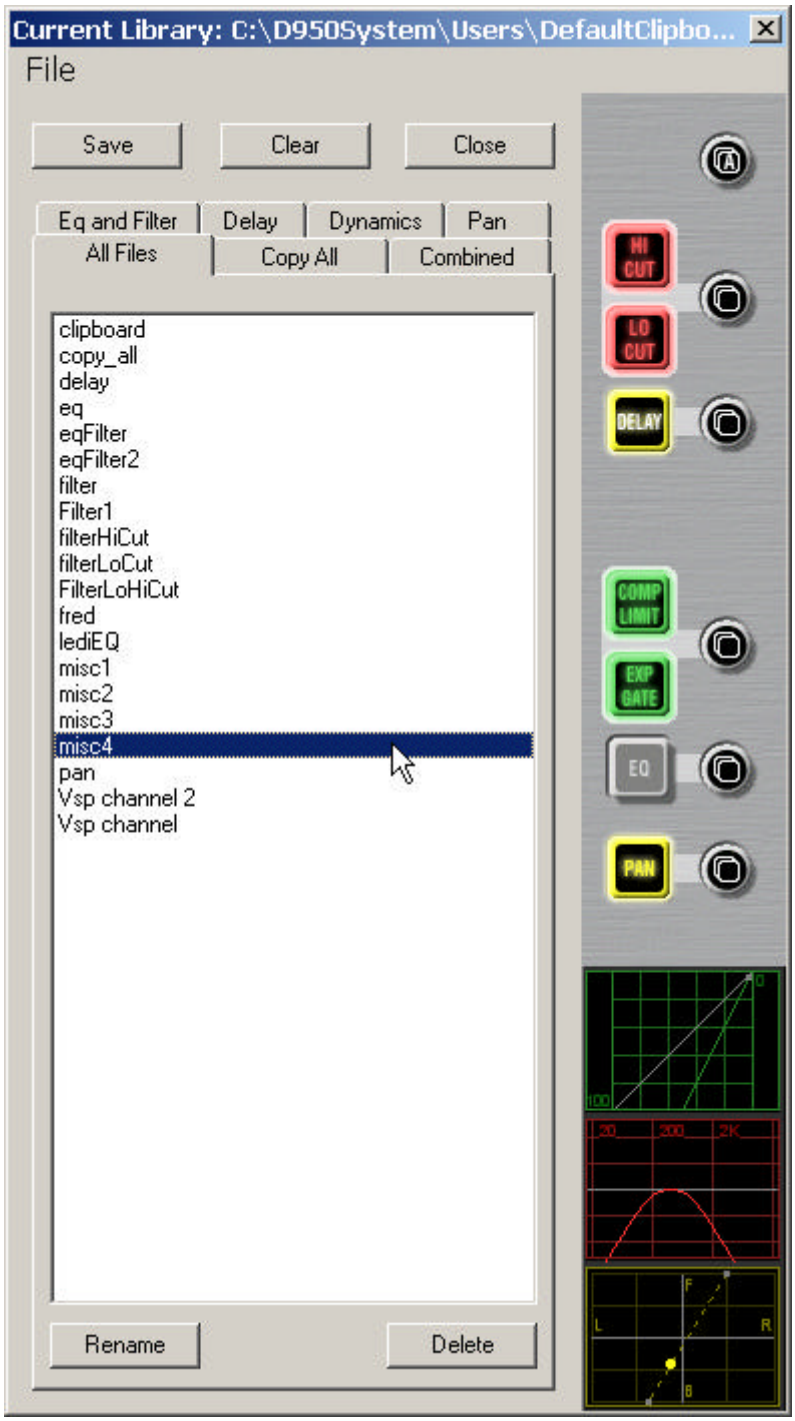
[230] 1...6
Indication of the current position within all sections. Acts similar to a scroll bar, the same as the section indication LEDs [62]. Pressing one of these keys will navigate the desk to the corresponding section directly.

[231] ◂ ▸ Scrolling Arrow Keys
By pressing one of these arrow keys, the desk will move by 10 faders to the left/right, similar to scroll keys on a PC. The keys have the same function as the arrow keys [63] in the fader bay.



2.5 Clipboard Libraries

On the Vista console it is possible to store and load clipboards to/from the hard disk or a CD-R. Clipboard files can contain one or more audio functions (e.g. EQ only, Dynamics only, or a combination of EQ and Dynamics) from a channel, or even can store complete channel settings. This is then representing a "clone" of a channel, including bus assignment. By recalling such a channel from the clipboard library it is easily possible to bring the channels of a console into a certain status without even using snapshot functions.



2.5.1 Clipboard Library Window

The Clipboard Library window is automatically opened whenever a paste function is pending on the Vista console. In order to open the window manually (e.g., to load the console clipboard with a stored value), select the corresponding icon from the toolbar or press the **OPTIONS F4** key on the console. It is also possible to select the window from the View menu.

The window may be closed by clicking on the close box on the top right corner of the window, by clicking on the Close button, or by pressing **F4** again.

2.5.2 Paste into Clipboard Library

1. Press the 🗗 (Copy/Paste) key on one or more audio functions of any channel strip(s) on the console surface. The Clipboard Library window will be opened automatically whenever a paste operation is pending.
2. Click on the half-lit 🗗 button in the window. If multiple audio functions are pending to be pasted (e.g. EQ and Dynamics settings), it is possible to click on the half-lit 🗗 **A** (Copy/Paste All) button in the window. The pasted values will be graphically displayed.
3. The Save dialog opens, now you can give a name to the clipboard. It will be stored in the currently active Clipboard library.
4. Close the Clipboard Library window (see above)

2.5.3 Copy from Clipboard Library

1. Open the Clipboard Library window (see above).
2. If the desired library is not opened already (indicated in the title bar of the window), open the requested library by selecting “Open Library” from the File menu.
3. Select the desired tab. Each of them represents a group of stored settings, which mans that all listed files within a tab have the same type of audio function settings. “All files” will show a list of *all* available clipboard files within this library, containing all the content of the other tabs. Files in the “Combined” tab contain a combination of audio function settings. (e.g. EQ and Dynamics settings together). Files in the “Copy All” tab contain complete channel settings.
4. Select a clipboard setting from the list by clicking on it. This will activate a preview function on the panel, shown at the right-hand side of the window. In this way it is easy to search for a special setting by looking at its graphical representation. The preview function lets you also identify which audio functions are contained in the selected clipboard file: The graphical representation of their “On/Off” key will be grayed-out if there is no value present in this file.

5 Click on the 🗗 (Copy/Paste) button of the desired function in order to activate copying. The button will light, and all possible destination keys on the console surface will be half-lit. Shortcut: A double-click on the clipboard name in the list will activate copying of all contained audio values within that particular file directly.
6 Paste the value into one or more channels of the console, using the standard functionality. If the clipboard contained multiple audio settings, such as EQ and Dynamics, they may be pasted together by pressing the 🗗 **A** (Copy/Paste All) key of the destination channel.

2.5.4 Rename/Delete a Clipboard Library File

1 Open the Clipboard Library window (see above).
2 Select the file you want to change or delete by clicking on it. Click on the "Rename" or "Delete" button of the Clipboard Library window in order to execute the desired action.
3 Close the Clipboard Library window (see above).

2.5.5 Clear the Display

By clicking on the "Clear" button, the previewed settings are cleared, and no graphical indication is shown on the right-hand side of the window.

2.5.6 Update a Clipboard File

To combine, for instance, the current dynamics settings of a channel with the EQ settings that are already in the library, and to store them as one new set into the library, proceed as follows:
1 Open the Clipboard Library window (see above).
2 Select the desired, already stored EQ setting by clicking on it once. The EQ settings will be displayed graphically on the right-hand side of the window.
3 Press the 🗗 (Copy/Paste) key in the dynamics section of the source channel on the console.
4 Click on the half-lit 🗗 (Copy/Paste) button in the dynamics section of the window.
5 Both EQ and dynamics values will now be displayed on the right-hand side of the window.
6 The Save dialog opens. Once saved, the new, combined set will now be displayed within the "Combined" tab.
7 Close the Clipboard Library window (see above).

2.5.7 Storage Format

Each clipboard is stored in a file with a `.cpy` extension. Multiple `.cpy` files form a library. A `.cpy` file may contain only one audio function (e.g. EQ settings) or a combination of any audio functions of a channel (e.g. EQ and Dynamics settings).

2.5.8 Import a Clipboard File from Another Library

1. Select “Import Clipboard” from the file menu.
2. Navigate to the desired library.
3. Open the desired `.cpy` file. It will automatically appear and be stored within the currently active library.

2.5.9 Where are Clipboard Libraries Stored?

If you don’t want to maintain multiple libraries on your console, you never have to change or define a name; just start directly, using the library functionality. The system will then use a library called `DefaultClipboardLib`.

If there are multiple libraries, you may select “Open Library” from the file menu of the clipboard window in order to select another library to work with. It is also possible to save the whole library under a different name or to save it to a portable storage device such as a CD-R by selecting “Save Library” in this file menu. Selecting “New Library” in the file menu creates a new, empty library.

In technical terms, a library is a subdirectory of the `C:\D950System\Users` directory, it may also be located within any other user subdirectory. Selecting “New User” creates a new user directory containing an empty Library called `ClipboardLib`.

CHAPTER 3

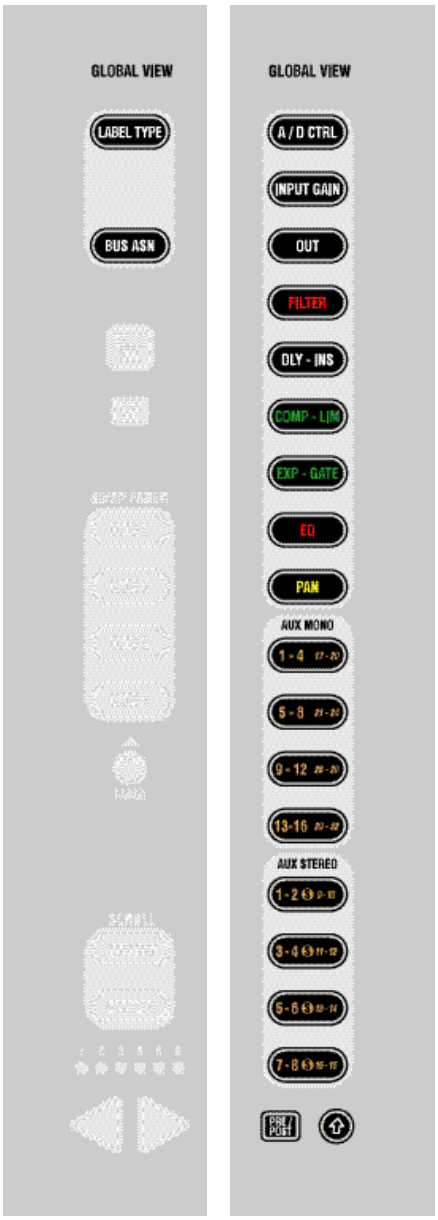
3 PARAMETER DESCRIPTION

3.1 Introduction

The desk can show different audio controls on the Vistonics TFT displays. The controls differ in type of graphical viewing, shapes, and colors. If required, they are grouped together with frames in order to give the user maximum information without the need to read text on the display. The view of the audio controls can be changed either globally for the whole console, or locally within one channel.
For details on selecting the different functions please refer to chapter 1.1.1.

3.2 View Change

3.2.1 Global View Change

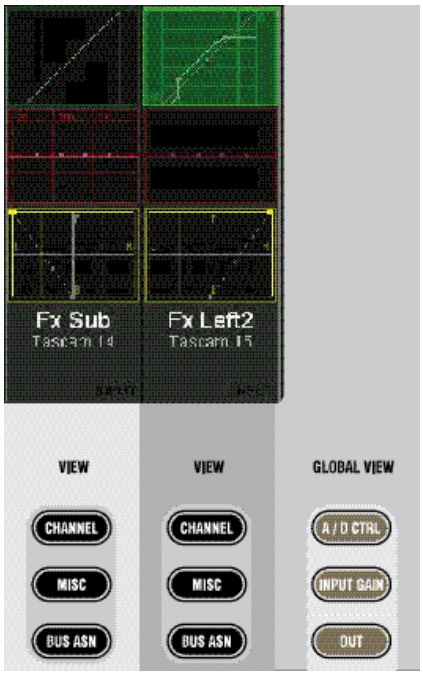


When pressing one of the keys in the **GLOBAL VIEW** area (on each fader bay), the view of the whole desk is changed. Each channel strip will show parameters on up to four rotaries and their associated key. Only one global view key can be active at a time.
Some views will not cover all four rotaries, depending on the function (e.g. a 2-channel pan covers only the bottom rotary) or DSP configuration (e.g. if only 3 mono AUX buses are configured). After a view is activated, the corresponding key is lit. When this key is pressed again, all previous views (i.e., the ones other than the currently pressed global view key) will be blanked. So the selection of parameters can be done in a quite flexible way. When pressing **AUX MONO 1-4** followed by **PAN**, the result will be AUX 1-3 on rotaries 1 through 3, and pan on rotary 4. When pressing **PAN** a second time, rotaries 1 through 3 are blank and pan will still be displayed on rotary 4.

As with every rule, there are a few exceptions:

- For mono AUX views above 16 or for stereo AUX views above 8, the ⇧ key (Shift) must be active.
- When the **PRE / POST** key in the fader bay's **GLOBAL VIEW** area is active, the AUX views change to pre-/post-fader selection.
- As a special global view change, the **GLOBAL VIEW: BUS ASN** key lets the EQ, Dynamics, and pan curves on the lower part of the TFT display disappear and shows all bus assignments instead (see chapter 3.4.7). Pressing **GLOBAL VIEW: BUS ASN** again makes the curves reappear.

3.2.2 Channel-Related View Change



The views listed below can be activated in a channel strip. Then the corresponding values of this particular channel are shown.

- Dynamics (by touching the dynamics curve on the TFT)
- EQ (by touching the EQ curve on the TFT)
- Panning (by touching the pan view on the TFT)
- Bus Assignment (by pressing the **VIEW: BUS ASN** key underneath the TFT – as opposed to the **GLOBAL VIEW: BUS ASN** key described under 3.2.1).
- Channel parameters (by pressing the **VIEW: CHANNEL** key underneath the TFT). This shows the rest of the needed controls, together with AUX. This covers all 40 rotaries.
- Miscellaneous parameters (by pressing the **VIEW: MISC** key underneath the TFT). This shows a reduced view of EQ, dynamics and pan parameters at a time; covers all 40 rotaries.

When touching a curve on the TFT, a picture with the available parameters appears on the rotaries. The picture is “left-aligned” to the selected channel. When touching the dynamics curve of the third channel strip, for instance, the corresponding graphics are shown on the rotary rows 3 through 7, since the dynamics parameters are covering five rows of rotaries. While the function is unfolded on the display, the corresponding graphic field (e.g. showing the dynamics curve) is highlighted, as shown in the picture at the left.

In one fader bay, two audio functions can be shown at a time, either by using the **MULTI SEL** key, or by simultaneously touching two graphics. In this case, one of the two functions is displayed left-aligned, the second one right-aligned. If there is room between them, they are interleaved by one or more strips in black. The rotaries on these blackened strips are not used.

3.3 Global Views

3.3.1 Input Parameters

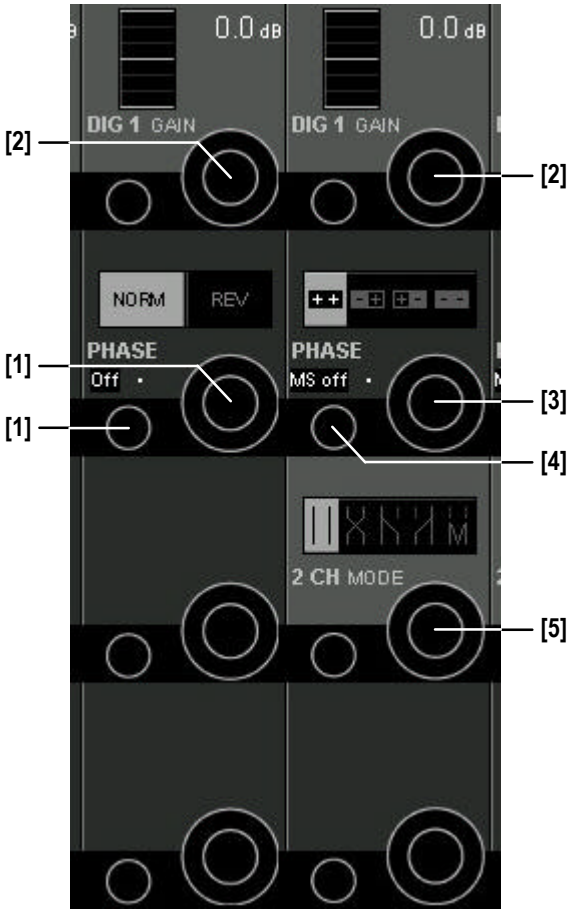
Press **GLOBAL VIEW: INPUT GAIN**.

For input sources IN 1, IN 2, and GEN (selection with the hardware keys below the channel meters), an input control view is available. The number of functions available on Input or Output channels, as well as on mono or stereo channels, depends on the active configuration.
A DC reject filter is always active in each channel.

For input and output channels, the following parameters are available:

	MONO INPUT			STEREO INPUT			MONO GROUP			STEREO GROUP			MONO/STEREO MASTER			MONO/STEREO AUX		
Parameters	IN1	IN2	GEN	IN1	IN2	GEN	IN1	IN2	GEN	IN1	IN2	GEN	IN1	IN2	GEN	IN1	IN2	GEN
PHASE	X	X	X	X	X	X	X	X	X	X	X	X	–	–	–	–	–	–
XY/MS-MODE	–	–	–	X	X	–	–	–	–	X	X	–	–	–	–	–	–	–
INPUT MODE	–	–	–	X	X	–	–	–	–	X	X	–	–	–	–	–	–	–
INPUT GAIN	X	X	X	X	X	X	X	X	X	X	X	X	–	–	–	–	–	–

Mono Channel: *Stereo Channel:*



Input Parameters for Mono Channels *only*:

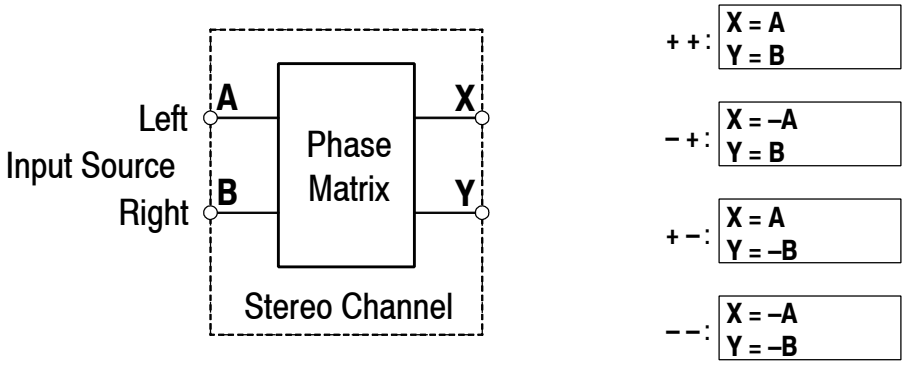
PHASE [1] Two positions are provided (select either with the key or the rotary):
- NORM/Off, in phase (default setting).
- REV/On, out-of-phase.

Input Parameters for Mono *and* Stereo Channels:

GAIN [2] Input gain can set in 1 dB steps from –24 dB (attenuation by 24 dB) to +24 dB. Default value: 0 dB.
In a stereo channel, left and right input gains are treated simultaneously.

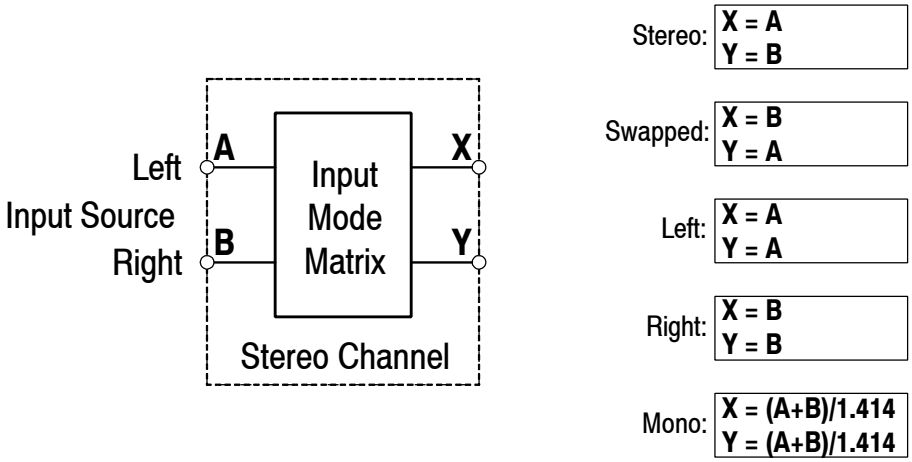
Input Parameters for Stereo Channels *only*:

PHASE [3] Four different positions are provided:
- + +, in phase (default setting).
- – +, left channel (or input A) out-of-phase.
- + –, right channel (or input B) out-of-phase.
- – –, left and right channels (or inputs A and B) out-of-phase.



MS Mode [4] Two different positions are provided:
- MS off (default setting), for coincident XY stereo microphone setups.
- MS on (Mid/Side information), used for decoding MS information from appropriate coincident stereo-microphone arrays.

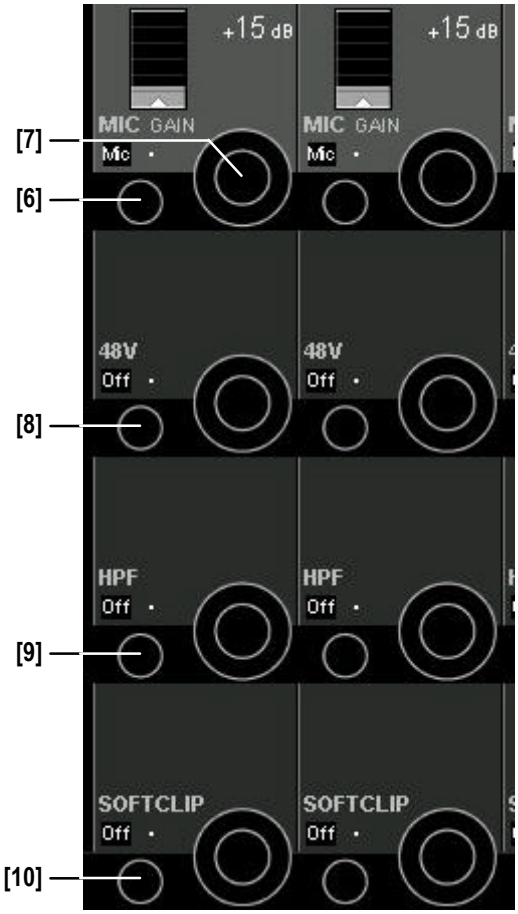
2 CH MODE [5] Five different positions are provided:
- Stereo (default setting).
- Left and right signals are swapped.
- Left signal only is routed to both left and right outputs.
- Right signal only is routed to both left and right outputs.
- Mono, left and right signal mixed together (–3 dB) and routed to both left and right outputs.



3.3.2 Pre-Amp Remote Parameters

Press **GLOBAL VIEW: A / D CTRL**.

Various functions of the D19m MP4RC quad mic/line input cards can be remote controlled (refer to chapter 4.4.2.2 for details on how to activate or deactivate pre-amp remote control).



Mic/Line [6] Mic/Line Switchover

MIC/LINE GAIN [7] If *Line* is selected with [6]: Gain setting in 35 steps of 1 dB, within a –9 through +25 dB range (depending on the current nominal level and headroom settings).
If *Mic* is selected with [6]: Gain setting in 60 steps of 1 dB, within a +20 through +80 dB range.
The display indicates the gain applied to signals passing through the microphone pre-amplifier card.

48 V [8] Selects Phantom Power ON/OFF for the microphone pre-amplifier.

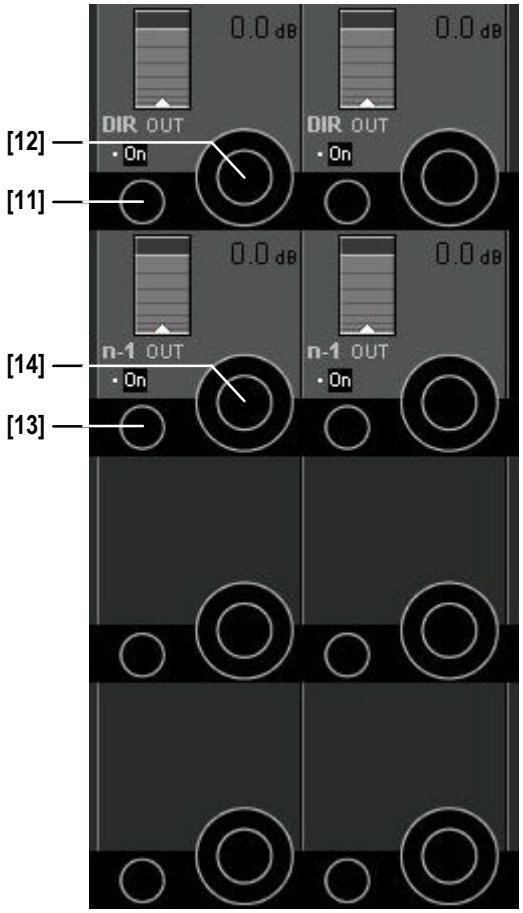
HPF [9] An analog low-cut filter for the microphone-level input, with a fixed cutoff frequency of 75 Hz and a slope of 12 dB/octave is available.

SOFT CLIP [10] It is possible to insert an analog limiter to avoid clipping artifacts. Soft clipping is activated once per MP4RC card (i.e. for four channels at a time).

3.3.3 Direct Output and N–1 Output Parameters

Press **GLOBAL VIEW: OUT**.

This view allows to control the level of the Direct Output and of the N–1 Output, provided that the channel is assigned as a bus owner of an N–1 bus.



On/Off [11] Direct Output on/off.

DIR OUT [12] Direct Output send level, MUTE (i.e. –∞ dB) to +10 dB.

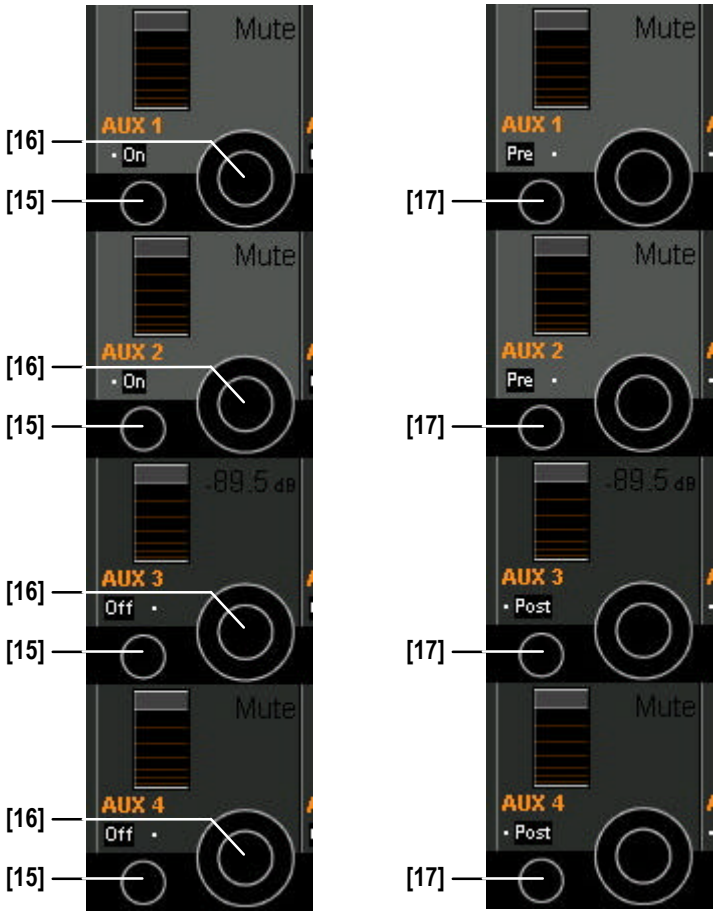
On/Off [13] N–1 Output on/off.

n–1 OUT [14] N–1 Output send level, MUTE (i.e. –∞ dB) to +10 dB.

3.3.4 Mono AUX Parameters

Press one of the **GLOBAL VIEW: AUX MONO** keys.

The mono AUX view provides selection of the AUX bus (ON/OFF), send level adjustment, and pre-/after-fader switching.



AUX On/Off [15] Mono AUX bus selection. Other mono AUX bus views can be selected as well (5...8, 9...12, etc.).

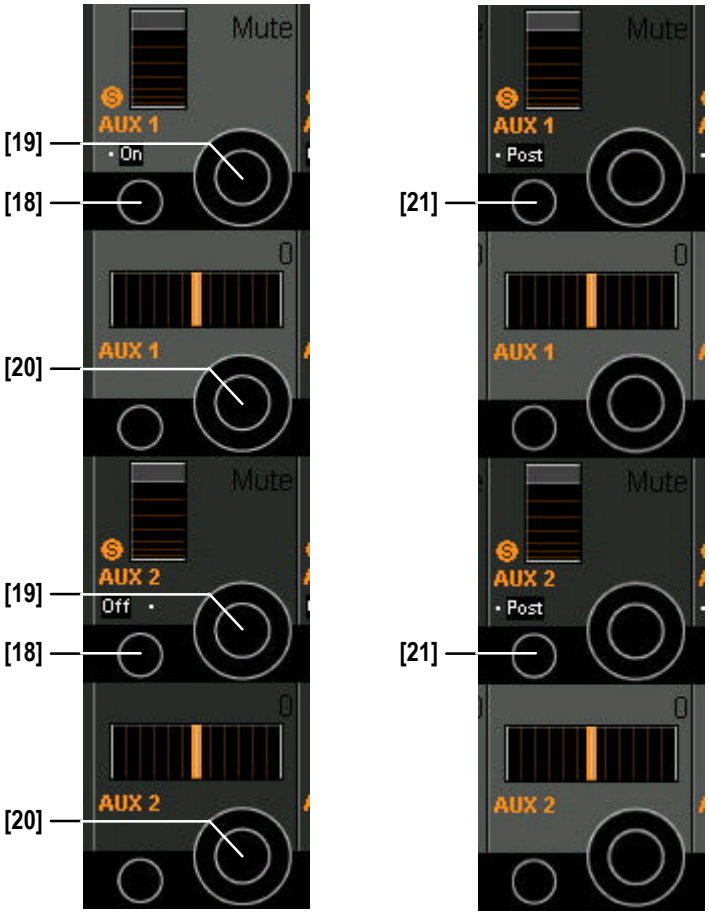
Send Level [16] The send levels for mono AUX 1 through the maximum number configured can be adjusted using this rotary encoder; adjustment range is from MUTE (i.e. –∞) through +10 dB.

Pre/Post Selection [17] When the **PRE / POST** key in the fader bay's **GLOBAL VIEW** area is active, the Vistonics view changes as shown above at the right. The signal sent to the mono AUX bus can be selected pre-fader (before the fader) or post-fader (after the fader).

3.3.5 Stereo AUX Parameters

Press one of the **GLOBAL VIEW: AUX STEREO** keys.

The stereo AUX view provides selection of the AUX bus (ON/OFF), send level adjustment, pre-/after-fader switching, and pan setting.



S AUX On/Off [18] Stereo AUX bus selection. Other stereo AUX bus views can be selected as well (3...4, 5...6, etc.).

Send Level [19] The send levels for stereo AUX 1 through the maximum number configured can be adjusted using this rotary encoder; adjustment range is from MUTE (i.e. –∞) through +10 dB.

AUX Panning [20] Either stereo AUX channel can be attenuated, which provides a L/R panning function.

Pre/Post Selection [21] When the **PRE / POST** key in the fader bay's **GLOBAL VIEW** area is active, the Vistonics view changes similar to the one shown for mono AUX bus on the previous page. The signal sent to the stereo AUX bus can be selected pre-fader (before the fader) or post-fader (after the fader).

3.3.6 Filter Parameters

Press **GLOBAL VIEW: FILTER**.

This view enables the user to control the parameters of the hi- and low-cut filters. These filters are available on the channel-related EQ view as well, refer to chapter 3.4.1. In that chapter you will also find the parameter details.
Please note: The two filter sections are activated with the **HI CUT** and **LO CUT** hardware keys below the channel meters.

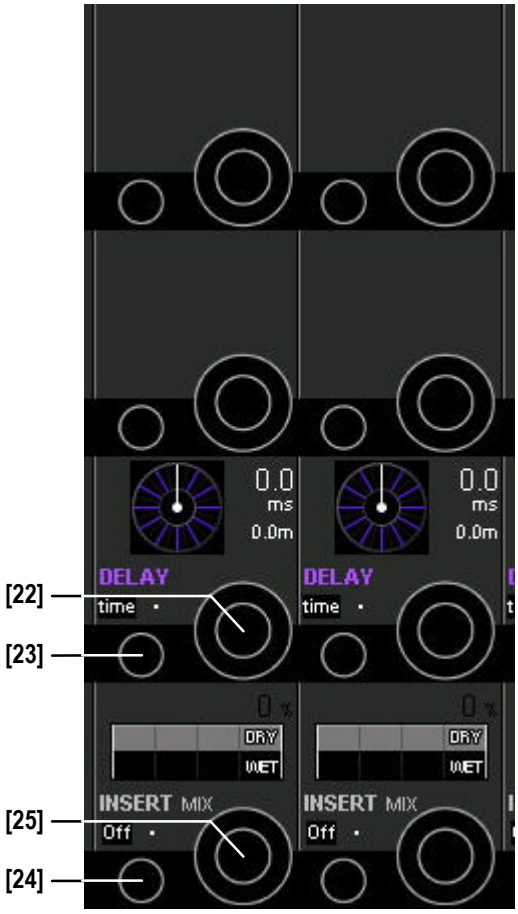
HI CUT/LO CUT Slope/Off — On/off function for the high- and low-cut filters, and slope setting, selectable from 12, 18, and 24 dB/octave (toggles Off, 12, 18, 24, Off...).

Frequency — Cutoff frequency adjustment for the high- and low-cut filter: 20 Hz through 20 kHz, in 120 steps.

3.3.7 Delay and Insert Parameters

Press **GLOBAL VIEW: DLY-INS**.

This view enables the user to control the delay and insert parameters.
Please note: The two sections are activated with the **DELAY** and **INS** hardware keys below the channel meters.



Delay Parameters: The delay value is set using the rotary encoder. It is displayed as a *physical distance* (meters) and as a *delay time* (either samples or milli-seconds).

DELAY On/Off is selected with the **DELAY** hardware key above the Vistonics section.

DELAY time [22] Delay time can be set in a range from 0 through 100 ms (or, depending on the system configuration, to a maximum of 240 ms). The value is displayed as a delay distance as well (from 0 cm up to 81.5 m, depending on the system configuration).

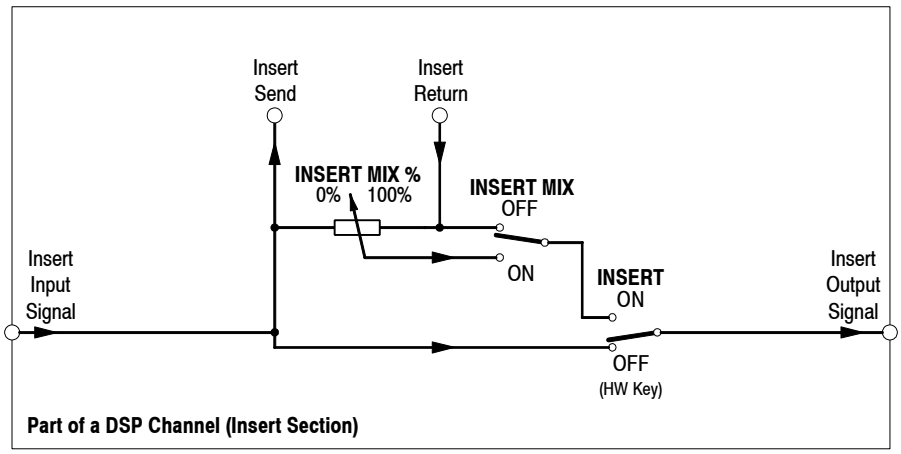
DELAY time/smpl [23] Selects the delay setting in samples ("smpl" – fine setting) or milli-seconds ("time" – coarse setting).

Insert Parameters: The insert section provides selection and control of the insert point (INSERT ON/OFF) and the INSERT MIX function (ON/OFF), plus defining the mix ratio (INSERT MIX %).

INSERT On/Off is selected with the **INSERT** hardware key above the Vistonics section. On activates the insert return signal; off selects the Input Signal (which corresponds to the insert send signal).

INSERT MIX On/Off [24] On activates the insert mix function; off selects only the insert return signal.
When the insert mix function is set to ON, the ratio of the dry (send) to the wet (return) signal depends on the selected mix ratio. In other words, mixing between the insert send and the insert return signals is possible.

INSERT MIX % [25] If the MIX function is ON, this parameter allows mixing or blending of the dry (send) signal with the wet (return). Dry signal only: 0% setting; wet signal only: 100% setting.



Part of a DSP Channel (Insert Section)

Note: *If the insert is routed to a non-digital external device (such as an analog compressor patched through D/A and A/D converters), the delay introduced by the D/A-A/D conversion will result in a comb-filter effect if the insert return and mix are active and the MIX % is set anywhere between DRY and WET. When inserting external analog devices, the MIX% should always be set to WET (i.e., to 100%), unless this comb-filter effect is desired.*

3.3.8 Compressor/Limiter Parameters

Press **GLOBAL VIEW: COMP-LIM**.

This view enables the user to control the *most important* parameters of the dynamics section's compressor and limiter parts. The *complete* parameter set is available on the channel-related dynamics view, refer to chapter 3.4.2. In that chapter you will also find the parameter details.
Please note: The compressor and limiter parts of the dynamics section can be activated *simultaneously* with the **COMP LIMIT** hardware key below the channel meters – in addition to the individual on/off keys described below.

LIM On/Off Limiter on/off.

LIM THRS The limiter threshold can be adjusted in 1 dB steps from 0 dB_{FS} to –48 dB_{FS}. The limiter threshold corresponds to the output level.

LIM ATCK The limiter attack time can be adjusted in 9 steps within a 200 µs to 1 ms range.

CMP On/Off Compressor on/off.

CMP THRS The compressor threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

CMP RTIO The compressor ratio can be adjusted from 1:1 (no compression) to 20:1 (heavy compression).

3.3.9 Expander/Gate Parameters

Press **GLOBAL VIEW: EXP-GATE**.

This view enables the user to control the *most important* parameters of the dynamics section's expander and gate parts. The *complete* parameter set is available on the channel-related dynamics view, refer to chapter 3.4.2. In that chapter you will also find the parameter details.
Please note: The expander and gate parts of the dynamics section can be activated *simultaneously* with the **EXP GATE** hardware key below the channel meters – in addition to the individual on/off keys described below.

EXP On/Off Expander on/off.

EXP THRS The expander threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

EXP RTIO The expander ratio can be adjusted from 1:1 (no expansion) to 20:1 (heavy expansion).

GATE On/Off Gate on/off.

GATE THRS The gate threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

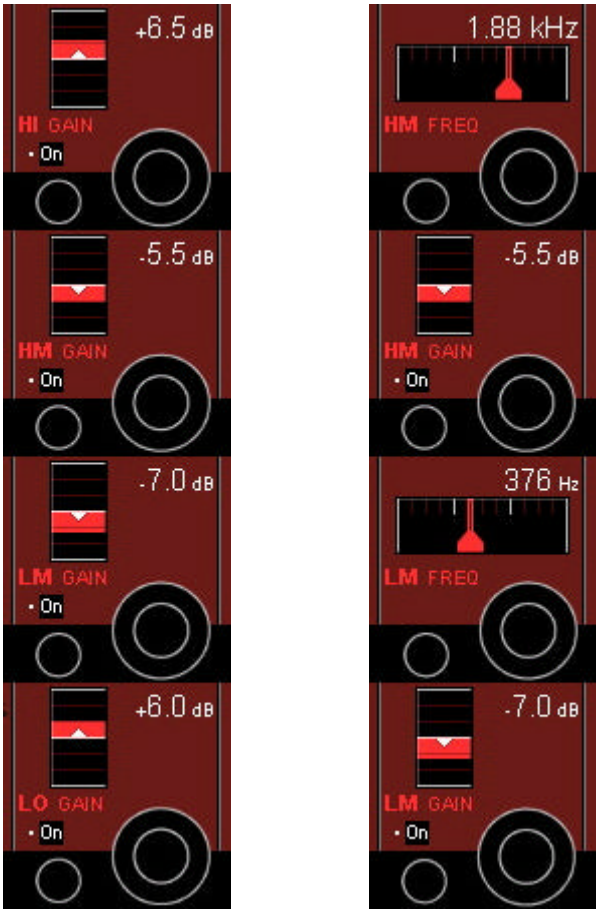
GATE ATCK The gate attack time can be adjusted in 9 steps within a 200 µs to 1 ms range.

GATE hyst on/off The gate hysteresis function provides an offset between the un-mute and mute thresholds. This means the gate will remain open (un-muted) at a lower level than the level than was required to open it.

3.3.10 EQ Parameters

There are two views enabling the user to control the *most important* parameters of the EQ section. The standard view (on the left, showing the gain values of all four bands) is activated by just pressing **GLOBAL VIEW: EQ**; for activating the alternate view (on the right, showing gain and frequency values of the high-mid and low-mid bands), first press ⇧ (Shift).
The *complete* parameter set is available on the channel-related EQ view, refer to chapter 3.4.1. In that chapter you will also find the parameter details.
Please note: All four bands of the EQ section can be activated *simultaneously* with the **EQ** hardware key below the channel meters – in addition to the individual on/off keys described below.

Standard view: *Alternate view:*



HI/HM/LM/LO On/Off On/off function for the selected EQ band.

HI/HM/LM/LO GAIN Boost/cut adjustment; ±18 dB in steps of 0.5 dB.

HM/LM FREQ Center frequency adjustment for the high-mid and low-mid bands. For both bands, the center frequency can be adjusted from 20 Hz through 20 kHz, in 120 steps.

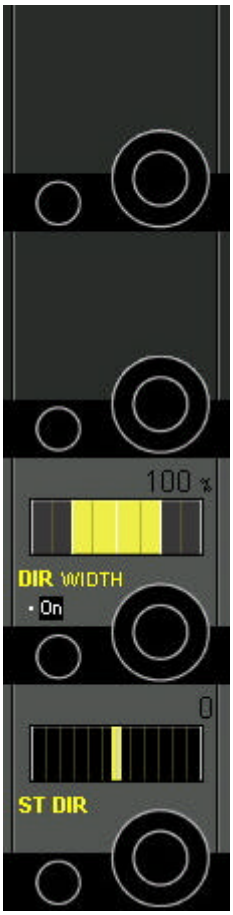
3.3.11 Panning Parameters

Press **GLOBAL VIEW: PAN**.

This view enables the user to control the *most important* parameters of the panning section. Representation is different depending on channel type (mono or stereo), and on the selected panning format. The *complete* parameter set is available on the channel-related pan view, refer to chapter 3.4.3. In that chapter you will also find the parameter details.
Please note: The complete panning section can be activated *simultaneously* with the **PAN** hardware key below the channel meters – in addition to the individual on/off keys described below.

Mono Channel:

Stereo Channel:



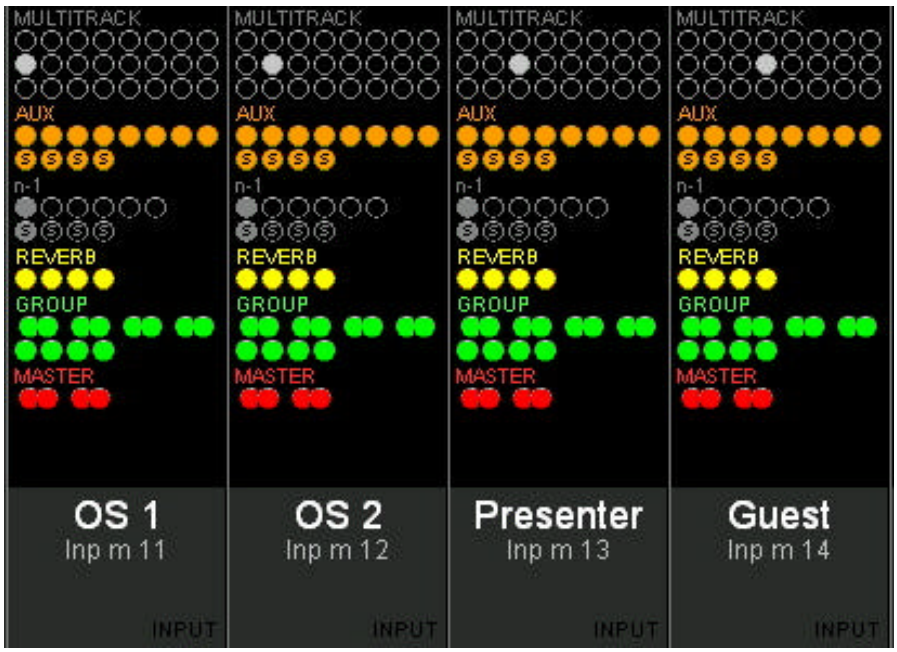
Multi-Format Pan:

Please note that the DIR WIDTH display only appears if this feature has been configured for the corresponding channel.

3.3.12 Global Bus Assignment View

Press **GLOBAL VIEW: BUS ASN** (at the left-hand side of the fader bay). This is an On/Off key that can be activated *in addition* to other global view keys. The bus assignment overview will cover the EQ, dynamics and pan curves on the lower part of the TFT; it disappears when **GLOBAL VIEW: BUS ASN** is pressed again.

The displayed bus assignment bitmap varies depending on the channel type. On a master channel, for instance, no display is activated, since a master channel cannot be routed to a bus. Other channel types may show a part of the bitmap only, depending on possible bus assignments. Therefore the display may show a blank region for some channel types.



3.3.13 Generic and Label Display Area

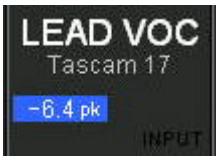
Channel label display: The top line always indicates the inherited label (corresponds to the user label of the patched source – "track sheet") of each channel. The second line normally is set to user label display, but can be changed by pressing **GLOBAL VIEW: LABEL TYPE**.
The channel *type* is indicated with colors in the label display; in addition, the bottom right corner of the label field shows the channel type in writing, as shown below.

Generic Displays, as n–1, OVER (fader over-range), automation mode (R = read, W = Write, T = Trim, I = isolate), etc. are only shown if active:

The numerical fader value in dB is displayed whenever the fader knob is touched; it disappears a short while after the fader knob has been released.

The graphical display of replay value and current fader value pops up over the right-hand part of the display area, showing the values as bar graphs (current value in gray, replay value in pink).

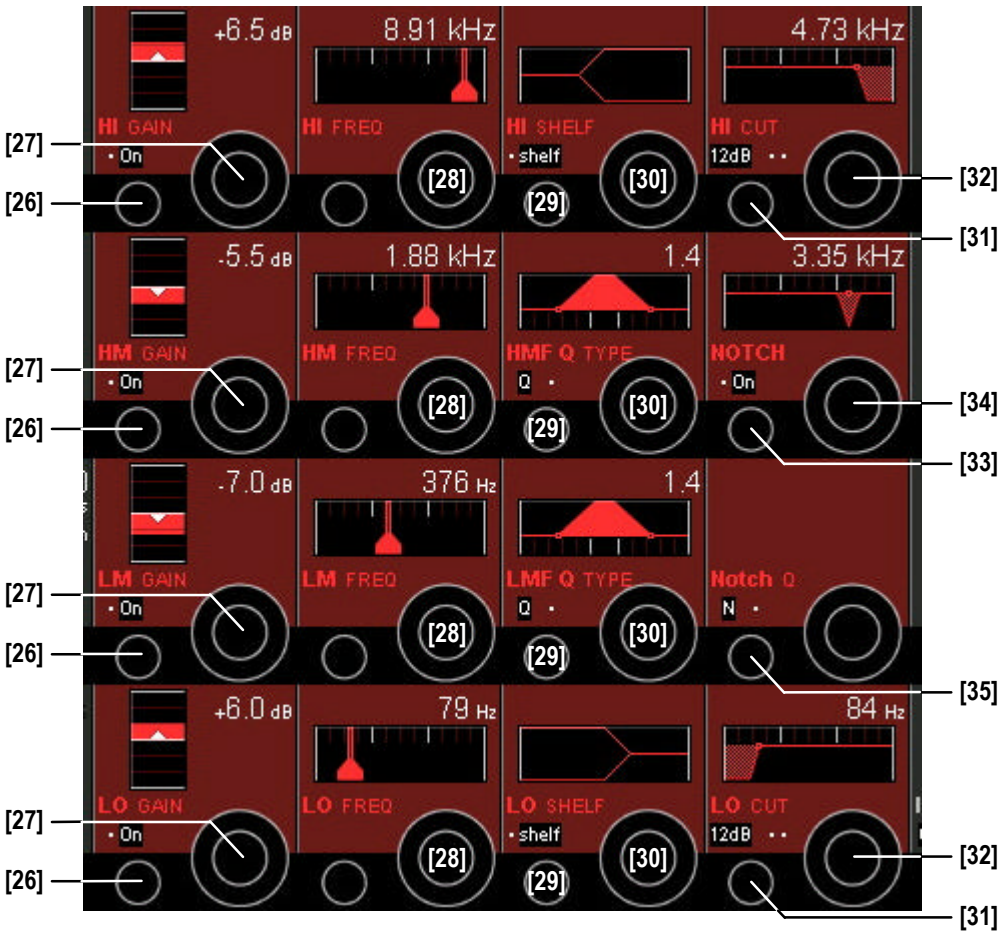
The display below is only visible if the **PEAK HOLD CONT** function is on or if **OVERLOAD HOLD** is active and an overload condition occurred; it shows the current peak hold value of the channel meters:



The display below indicates that mutes or faders are dynamically automated. This is only visible if the **VIEW** key in the AutoTouch+ panel is active *(for more information on automation indications refer to chapter 3.5)*.

3.4 Channel-Related Views

3.4.1 EQ / Filter Parameters



EQ Parameters:

HI/HM/LM/LO On/Off [26] On/off function for the selected EQ band.

HI/HM/LM/LO GAIN [27] Boost/cut adjustment; ±18 dB in steps of 0.5 dB.

HI/HM/LM/LO FREQ [28] Center frequency (or, if "shelf" is selected for the HI or LO frequency band: turnover frequency) adjustment. For all four bands, the center or turnover frequency can be adjusted from 20 Hz through 20 kHz, in 120 steps.

Q/R or bell/shelf [29] For the HM and LM bands, Q type can be selected from *Q* (constant-Q) and *R* (constant-range) filter types.
For the HI and LO bands, *bell* (same as "constant-Q" for HM/LM bands) or *shelf* (shelving-type filter) can be selected.

Q value [30] The Q (bandwidth) can be set to values from 0.27 through 8.7, in 30 steps. For the HM and LM bands Q can be set only if "bell" is selected.
HM, high-mid frequency, and LM, low-mid frequency: Q = 0.27 through 8.7, in 30 steps,

High Cut/Low Cut Filter Parameters:

HI CUT/LO CUT Slope [31] Slope setting for the high- and low-cut filters, selectable from 12, 18, and 24 dB/octave (toggles 12, 18, 24, 12...).

Frequency [32] Cutoff frequency adjustment for the high- and low-cut filter: 20 Hz through 20 kHz, in 120 steps.

Notch Filter Parameters: Please note that these two fields only appear if the notch filter is configured (i.e., "EQ with Notch" is selected for this channel in the console configuration).

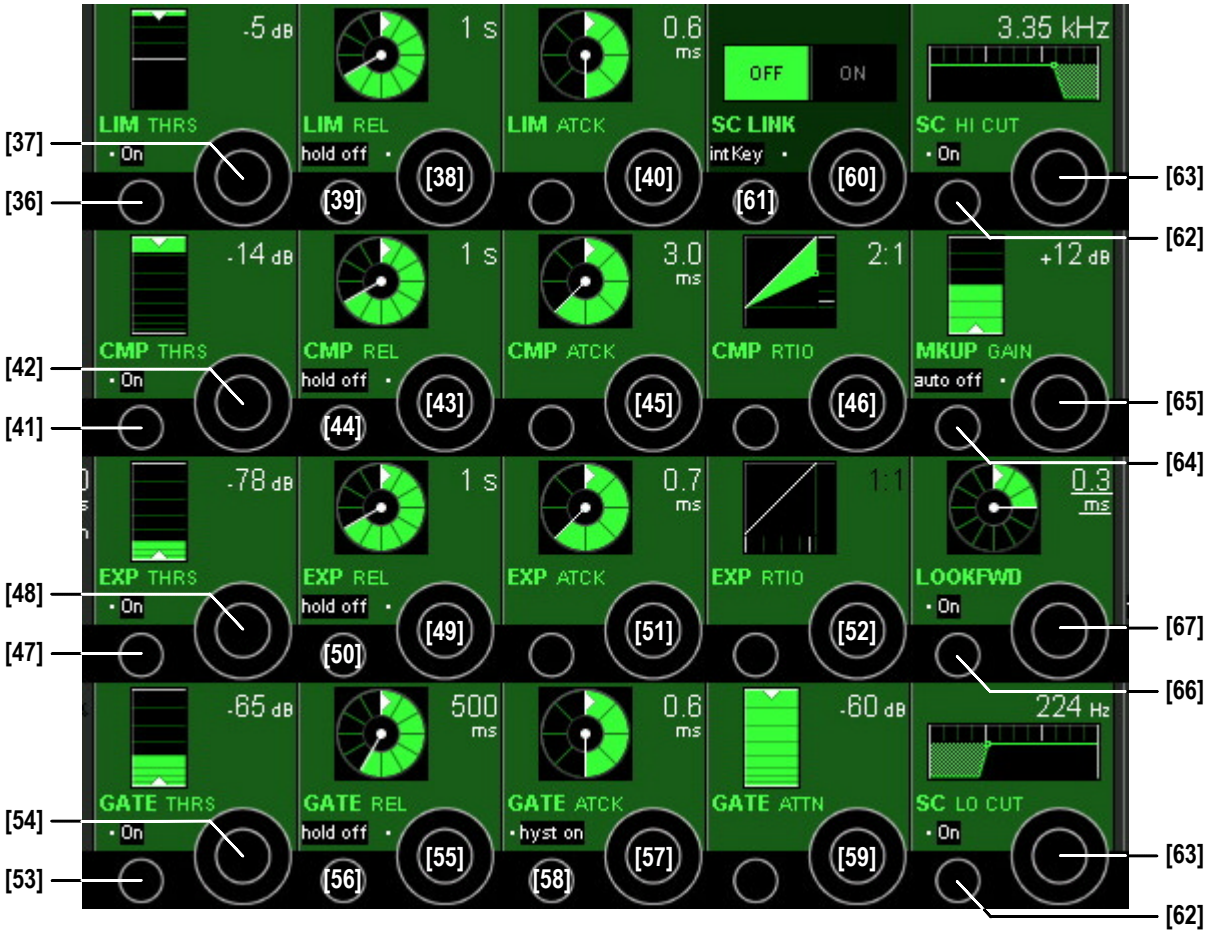
NOTCH On/Off [33] On/off function for the notch filter.

Frequency [34] Center frequency for the notch filter: 20 Hz through 20 kHz, in 120 steps.

Notch Q [35] The notch filter's Q is selectable from two fixed values; W (wide, Q=2), and N (narrow, Q=10).

Please note that there are **EQ**, **HI CUT** and **LO CUT** hardware keys below the channel meters for activating or deactivating EQ and filter sections, in addition to the individual On/Off keys for each EQ band.

3.4.2 Dynamics Parameters



Limiter Parameters:

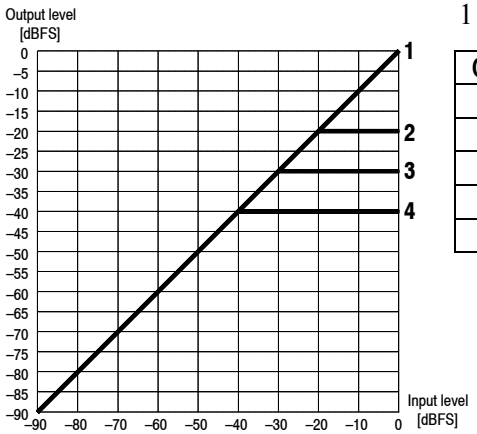
LIM On/Off [36] Limiter on/off.

LIM THRS [37] The limiter threshold can be adjusted in 1 dB steps from 0 dB_{FS} to –48 dB_{FS}. The limiter threshold corresponds to the output level.

LIM REL [38] The limiter release time can be adjusted in 13 steps within a 10 ms to 10 s range (10 ms, 20 ms, 30 ms, 50 ms, 100 ms, 200 ms, 300 ms, 500 ms, 1 s, 2 s, 3 s, 5 s, and 10 s).

LIM hold on/off [39] Hold on = 150 ms, off = 0 ms.

LIM ATCK [40] The limiter attack time can be adjusted in 9 steps within a 200 µs to 1 ms range (0.2 ms, 0.3 ms, 0.4 ms, 0.5 ms, 0.6 ms, 0.7 ms, 0.8 ms, 0.9 ms, and 1 ms).



Curve	Limiter	Threshold [dB]
1	OFF	Any
1	ON	0
2	ON	–20
3	ON	–30
4	ON	–40

Compressor Parameters:

CMP On/Off [41] Compressor on/off.

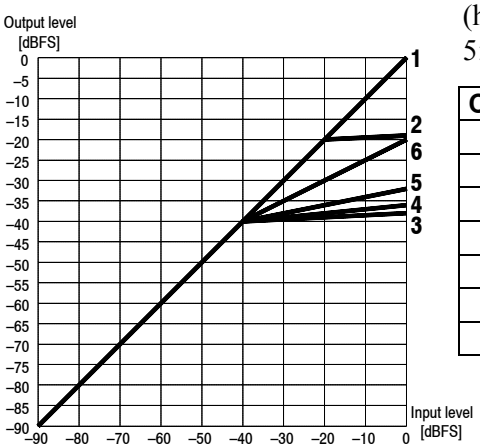
CMP THRS [42] The compressor threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

CMP REL [43] The compressor release time can be adjusted in 13 steps within a 10 ms to 10 s range (10 ms, 20 ms, 30 ms, 50 ms, 100 ms, 200 ms, 300 ms, 500 ms, 1 s, 2 s, 3 s, 5 s, and 10 s).

CMP hold on/off [44] Hold on = 150 ms, off = 0 ms.

CMP ATCK [45] The compressor attack time can be adjusted in 9 steps within a 200 µs to 20 ms range (0.2 ms, 0.3 ms, 0.5 ms, 1 ms, 2 ms, 3 ms, 5 ms, 10 ms, and 20 ms).

CMP RTIO [46] The compressor ratio can be adjusted from 1:1 (no compression) to 20:1 (heavy compression) in the following steps: 1:1, 5:4, 4:3, 3:2, 5:3, 2:1, 3:1, 5:1, 7:1, 10:1, and 20:1.



Curve	Compressor	Threshold [dB]	Ratio
1	OFF	any	any
1	ON	0	1:1
2	ON	–20	20:1
3	ON	–40	20:1
4	ON	–40	20:1
5	ON	–40	5:1
6	ON	–40	2:1

Expander Parameters:

EXP On/Off [47] Expander on/off.

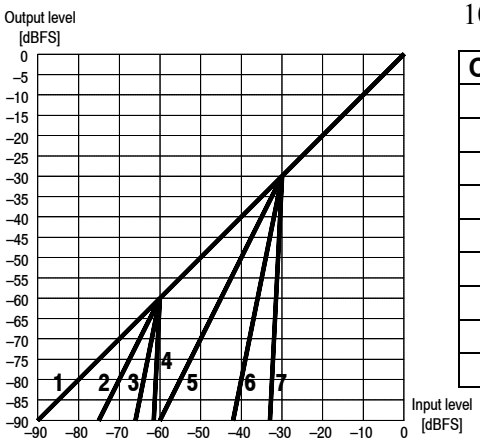
EXP THRS [48] The expander threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

EXP REL [49] The expander release time can be adjusted in 13 steps within a 10 ms through 10 s range (10 ms, 20 ms, 30 ms, 50 ms, 100 ms, 200 ms, 300 ms, 500 ms, 1 s, 2 s, 3 s, 5 s, and 10 s).

EXP hold on/off [50] Hold on = 150 ms, off = 0 ms.

EXP ATCK [51] The expander attack time can be adjusted in 9 steps within a 200 µs to 1 ms range (0.2 ms, 0.3 ms, 0.4 ms, 0.5 ms, 0.6 ms, 0.7 ms, 0.8 ms, 0.9 ms, and 1 ms).

EXP RTIO [52] The expander ratio can be adjusted from 1:1 (no expansion) to 20:1 (heavy expansion) in the following steps: 1:1, 5:4, 4:3, 3:2, 5:3, 2:1, 3:1, 5:1, 7:1, 10:1, and 20:1.



Curve	Expander	Threshold [dB]	Ratio
1	OFF	any	any
1	ON	–96	any
1	ON	–30	1:1
2	ON	–60	2:1
3	ON	–60	5:1
4	ON	–60	20:1
5	ON	–30	2:1
6	ON	–30	5:1
7	ON	–30	20:1

Gate Parameters:

GATE On/Off [53] Gate on/off.

GATE THRS [54] The gate threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

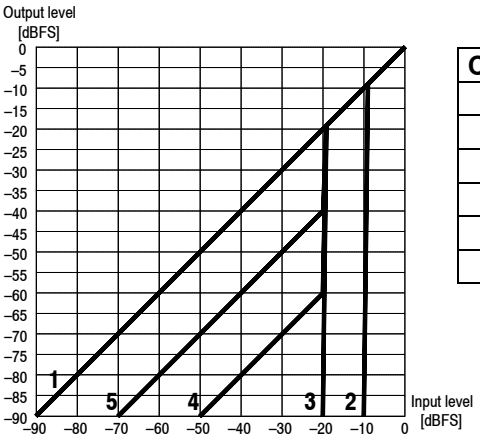
GATE REL [55] The gate release time can be adjusted in 13 steps within a 10 ms through 10 s range (10 ms, 20 ms, 30 ms, 50 ms, 100 ms, 200 ms, 300 ms, 500 ms, 1 s, 2 s, 3 s, 5 s, and 10 s).

GATE hold on/off [56] Hold on = 150 ms, off = 0 ms.

GATE ATCK [57] The gate attack time can be adjusted in 9 steps within a 200 µs to 1 ms range (0.2 ms, 0.3 ms, 0.4 ms, 0.5 ms, 0.6 ms, 0.7 ms, 0.8 ms, 0.9 ms, and 1 ms).

GATE hyst on/off [58] The gate hysteresis function provides an offset between the un-mute and mute thresholds. This means the gate will remain open (un-muted) at a lower level than the level than was required to open it. For example, a threshold can be set so that amp noise from an electric guitar will be attenuated until the guitar is played. However, as the guitar sustains and loses energy (level) over time, the gate will remain open at levels below that which caused it open in the first place (un-mute threshold). Once the level falls far enough, the gate will close (mute) again.

GATE ATTN [59] The attenuation level can be adjusted in 1 dB steps from 0 dB_{FS} to –48 dB_{FS}.



Curve	Gate	Threshold [dB]	Attenuation [dB]
1	OFF	any	any
1	ON	0	0
2	ON	–10	max.
3	ON	–20	max.
4	ON	–20	–40
5	ON	–20	–20

Parameters Shared by the Dynamics Functions:

SC LINK [60] The Side-Chain Link function allows to form a side-chain group from up to eight channels in order to control the dynamics of all of them by the maximum level of all side-chain group members. Side-chains are defined in the GC's Channel Patch window. The rotary encoder switches the side-chain link function on/off, if it is available for the specified channel.

SC LINK intKey/extKey [61] The key source input can be selected from intKey (dynamics processing depends on the channel's input signal), or extKey (processing is controlled by a signal connected via the patch).

SC HI CUT/LO CUT On/Off [62] Low-cut and high-cut filters are available within the side-chain key signal. This facilitates frequency-dependent dynamic processing for creating effects, such as de-essing. Both side-chain filters can be switched on/off independently.

SC HI CUT/LO CUT [63] Both side-chain filters feature cut-off frequencies continuously adjustable between 20 Hz and 20 kHz.

MKUP auto on/off [64] Auto Make-up Gain function on/off.

MKUP GAIN [65] For manual gain compensation; gain can be set in 1 dB steps from 0 through +24 dB.

LOOKFWD On/Off [66] The Look Forward Delay function allows the insertion of an audio delay after the dynamics level detector, allowing to work with higher attack times without any overshooting of levels.

LOOKFWD [67] The Look Forward Delay can be set in 11 steps within a range from 0 to 25 ms (0 ms, 0.2 ms, 0.3 ms, 0.5 ms, 1 ms, 2 ms, 3 ms, 5 ms, 10 ms, 20 ms, and 25 ms).
By activating the look forward feature, a real delay is inserted into the audio path. In order to avoid artifacts with other console channels, it is recommended to insert a corresponding delay into the other channels as well.

Please note that there are **COMP/LIMIT** and **EXP/GATE** hardware keys below the channel meters for activating or deactivating the compressor/limiter and expander/gate parts of the dynamics section, in addition to the individual On/Off keys for each dynamics function.

3.4.3 Panning Parameters

There are several panning options available. These range from a simple left/right pan, to a stereo direction pan with width control, to the sophisticated family of *Virtual Surround Panning* (VSP) modules. Left/Right and VSP functions are available for mono input, group, multi-track input, and multi-track monitor channels. Direction and Direction with Width functions are available for stereo input and group channels.

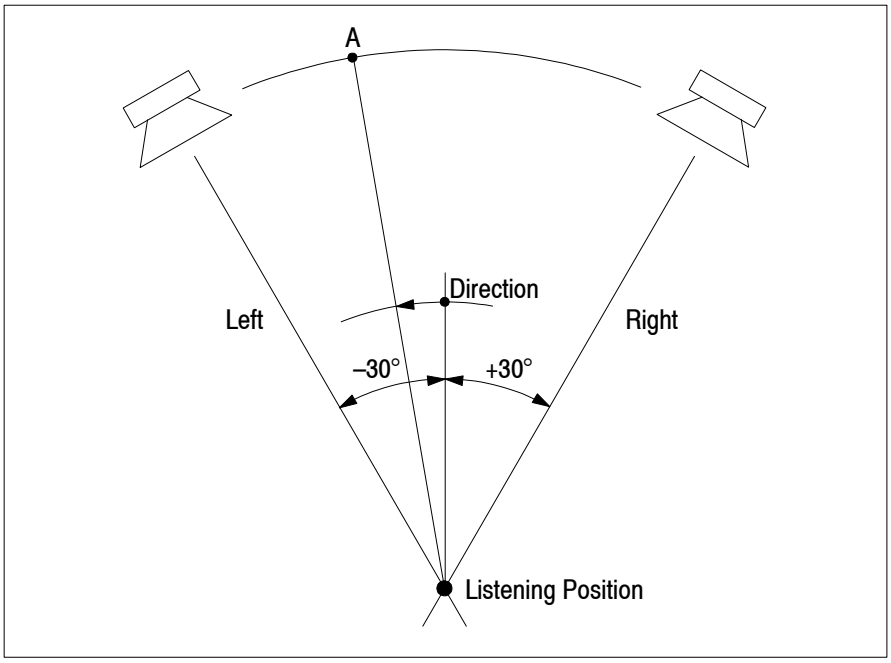
The panning functions can be controlled by the Vista 7's motorized joysticks. To assign a channel to a joystick, press the joystick **FOLLOW** key (it will light) and then the **LINK/SEL** key for the desired channel. A joystick can be used to automate panning functions and then be reassigned to another channel by pressing the **LINK/SEL** key of this channel.

Please note that there is an **PAN** hardware key above the Vistonics TFT for activating or deactivating the complete panning section, in addition to the individual On/Off keys for the panning parameters.
If this **PAN** key is de-activated, the channel signal is directly fed to all assigned buses, without being influenced by any panning.

LR PAN for Mono Channels

The LR panning function is a simple PAN potentiometer controlling the contribution of the mono signal to the odd and even or left and right buses.

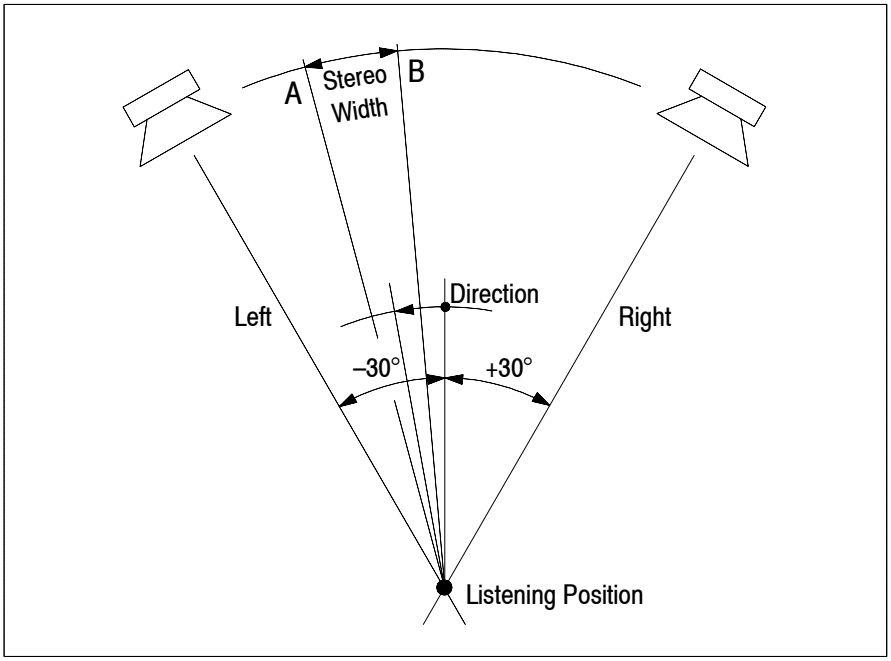
- PAN ON/OFF
- PAN function: Mono direction in 1° steps from –30° (L) to +30° (R).



LR PAN for Stereo Channels

The functions PAN ON/OFF and PAN have been extended to enable working with either standard (L/R) stereo or with MS (mono/side) signals. In addition, features are available to increase the stereo image manipulation possibilities, such as

- Input Direction or
- Input Balance,
- Stereo Width (pan width), and
- Stereo Direction.



Virtual Surround Panning (VSP)

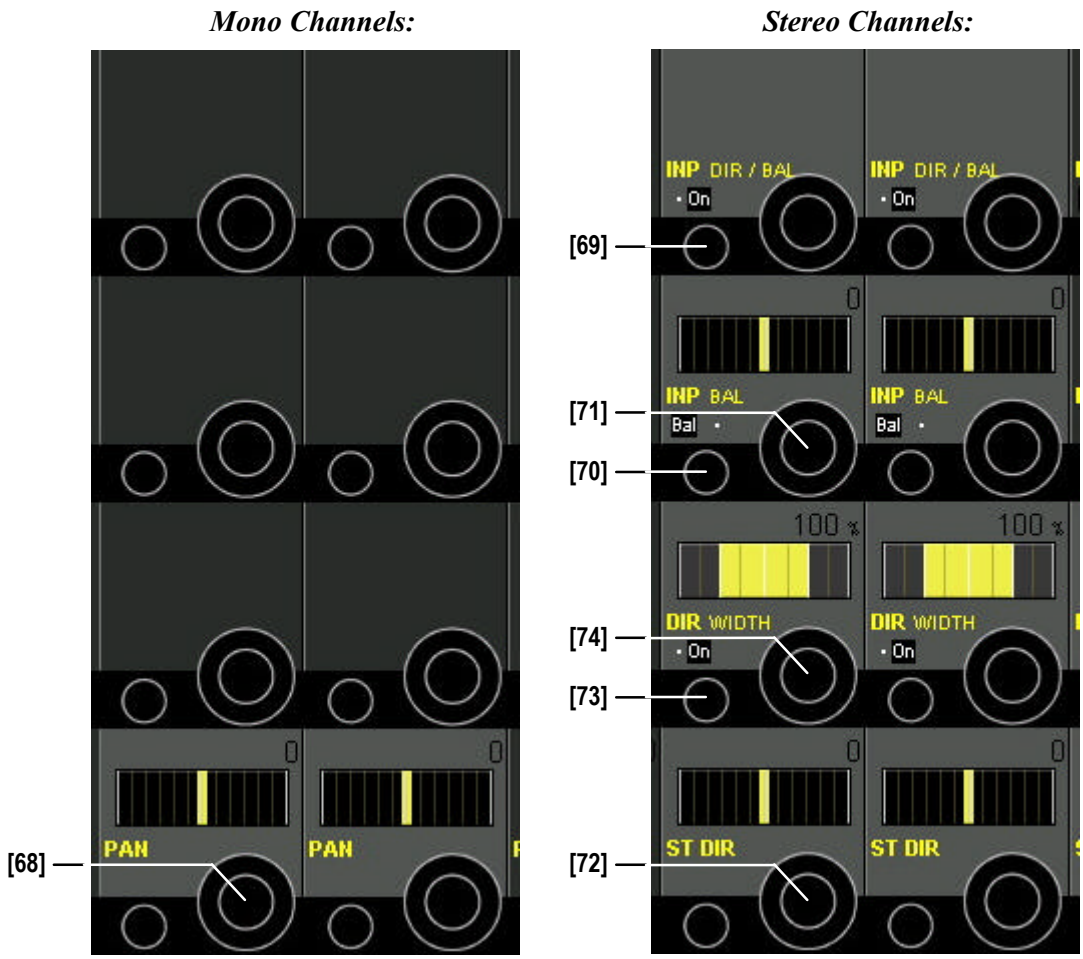
Various surround panning algorithms can be configured for mono input, group, multi-track input, and multi-track monitor channels using the Session Configuration Tool.

Basically, two different surround panning algorithms are available: Multi-format pan, and VSP (Virtual Surround Panning), see table; some more information on these algorithms is given in the "Parameters" sections below.

Algorithm:	Format 2-CH to 7.1-CH	LCR, F/B, Ls/Rs Pan	Divergence	Seamless Center Channel Usage	Pan Mode	VSP Controls: Ambience, Distance, Absorption, Room Size
Multi-Format Pan	X	X	X	X	Amplitude	–
VSP Pan	X	X	X	X	Amplitude, HRTF, Sphere, ORTF, AB	X

Depending upon the currently loaded session configuration, one or both algorithms above may be present in the console at a time.

3.4.3.1 Amplitude Panning Parameters



LR Panning Parameters for Mono Channels:

Mono channel LR PAN has only one panning function: left/right panning. It is useful for left/right panning to stereo master or group buses, or for odd/even panning to group or multi-track buses.

PAN On/Off is selected with the **PAN** hardware key above the Vistonics section.

PAN [68] The rotary encoder provides left/right (odd/even) panning control in 1° steps from –30° (left) to +30° (right).

LR/Direction Panning Parameters for Stereo Channels:

Stereo channel DIR/BAL PAN is a stereo direction panning function. It is useful for controlling the direction of stereo signals to master, group, and multi-track buses.
DIR WIDTH is identical to the DIR pan with an optional width control added (depending on the current configuration).

PAN On/Off is selected with the **PAN** hardware key above the Vistonics section.

INP DIR / BAL On/Off [69] To activate IBAL or IDIR, depending on the function that has been selected with INP BAL / DIR [70].

INP BAL / DIR [70] Selection from two input functions: IBAL *or* IDIR.

INP BAL or INP DIR [71] The INP BAL function is used to control the *balance* of a stereo input signal. Turning the rotary encoder to the left attenuates the right channel

from 0 to –∞ dB while the left channel remains at full input level, and vice versa.
The INP DIR function is used to control the *direction* of a stereo input signal. Turning the rotary encoder shifts the input direction in 1° steps from –30° (left) to +30° (right).

ST DIR [72] Left/right (odd/even) panning control for a stereo output signal in 1° steps from –30° (left) to +30° (right).

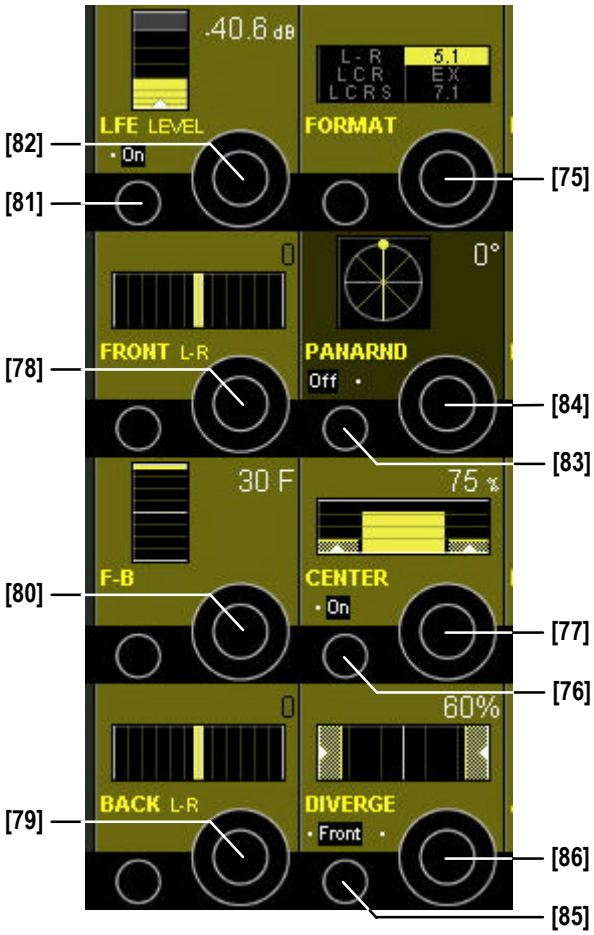
*** DIR WIDTH On/Off [73]** Switches the DIR WIDTH function on/off.

*** DIR WIDTH [74]** The DIR WIDTH parameter is used to control the width of the stereo signal. It is only functional if there is a difference between the left and right input channels, or if IBAL or IDIR has been used to create an offset between the channels. The ST DIR control [72] directs the position of the stereo signal, while the DIR WIDTH control determines the *width* or *stereo spread* either side of that position. DIR WIDTH operates over a range from 0% (mono) to 200% (“super stereo”).

***** *Optional parameters, only if the width function is configured.*

3.4.3.2 Multi-Format Panning Parameters

Surround panning consists of two panning algorithms: Multi-format panning, and VSP (Virtual Surround Panning). These support a variety of surround formats and applications; in all these modes, an LFE (Low Frequency Effects) control is available. *Multi-format panning functions can be configured only for mono channel types.*
Please note that the view below shows 5.1 panning format; for other panning formats, one or more of the fields may be blanked.



FORMAT [75] This serves as the format selector in all multi-format panning modes. The following selections are possible: L-R, LCR, LCRS, 5.1, EX, and 7.1.

CENTER On/Off [76] On/off selector for center channel use.

CENTER [77] Center channel percentage control; 0% = no center channel use (phantom center), 100% = center channel fully active.

FRONT L-R [78] This parameter controls the front panning between the left, (left-center), (center), (right-center), and right channels in 1° steps. The contribution to the center channel is determined by the CENTER control.

BACK L-R [79] This parameter controls panning between the left and right surround channels.

F-B [80] This front/back parameter provides panning between front channels (LCR) and the rear channels (left and right surround) in 60 increments.

LFE On/Off [81] On/off control for the Low Frequency Effects channel.

LFE LEVEL [82] LFE level control from MUTE (i.e. –∞ dB) to +10 dB.
Within this section, no filtering is applied to the signal fed to the LFE bus.

PANARND On/Off [83] This key activates the unique Pan-Around function

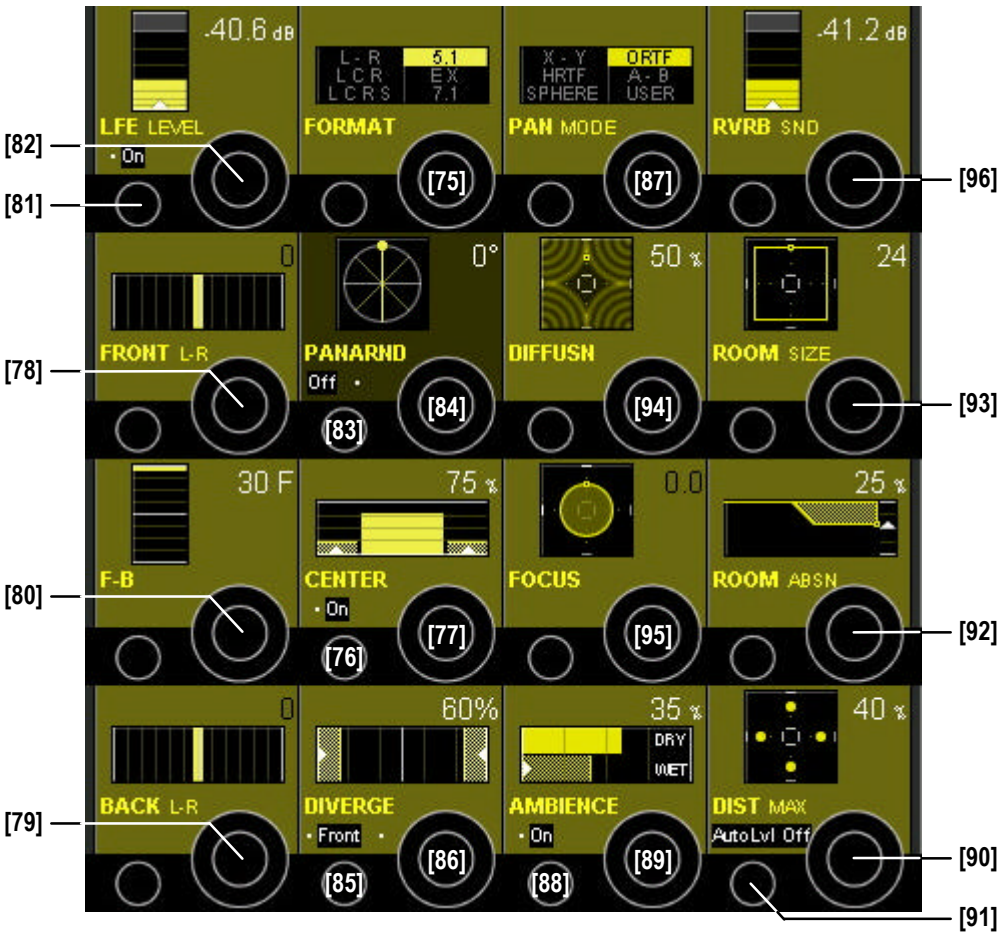
PANARND [84] This is a single-knob function that provides an easy-to-use pan setting around all selected loudspeakers (depending on format) in a circular fashion.

DIVERGE Off/Front/All [85] Divergence mode selector. The divergence function can be applied to panning between all channels or the front channels only. The key toggles between OFF, FRNT, and ALL.

DIVERGE [86] The divergence function is used to bleed portions of sound from the panned output to the other speakers. For example, if the divergence is active and set to 100%, the LR control will act as a traditional L/R pan pot (assuming there is no center channel contribution). Panning to full left will result in full attenuation of the right channel. If the divergence is then set to 50%, one half of the left channel signal strength will be *bled* into the right channel (without effecting the left channel). With the divergence control set to 1%, equal signal will be fed to both channels and the LR pan pot will have no effect. Divergence values are as follows: 1%, 2%, 3%, 4%, 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 60%, 70%, 80%, 90%, 100%. Careful use of this control may have the effect of increasing the size of the mix "sweet spot", particularly for large auditoria. Misuse of this control may result in essentially mono panning.

3.4.3.3 VSP Panning Parameters

Please note that items [75] through [86] (i.e., the left part of the graphic below) are identical with the ones in chapter 3.4.3.2 – for details, please refer to the description in that chapter.



PAN MODE [87] Sets the overall panning algorithm used to position the mono source in the desired direction. In all but the X-Y mode, a stereo microphone simulation is employed which will yield a more diverse sound field. For more details on PAN MODEs please refer to chapter 3.6.

- **X-Y** – A standard panning algorithm that only changes the amplitude of the signal to the various buses in relation to the position of the panner. This operation is well known and is used in all conventional panners.
- **A-B** – An idealized version of the common setup using omni-directional microphones. With this mode the sound stage is perceived as large, and is useful for solo instruments, audience, and choir. The positioning of the source is only established by changes in time delays.
- **ORTF** – An idealized version of the common cardioid microphone setup according to angles and distances used for stereo miking. A more accurate sound field is created through the manipulation of both amplitude and time differences.
- **SPHERE** – This mode emulates a spherical microphone as shown in chapter 3.6.7. The spherical microphone has two capsules mounted into a sphere having a diameter of about 18 cm. The sphere incorporates different effects on the two channels, including amplitude, delay and shadowing of the high frequencies on the channel which is not facing the

source. This mode is only useful in two-channel mode, and presents a very accurate sound field.

- **HRTF** – Mainly a cross-talk canceler using simplified HRTFs (Head Related Transfer Functions). If the listener is positioned exactly in the sweet spot of a ±30° speaker setup, an extreme panning position like full left should effect the signal such that it will only be heard with the left ear and cancelled out on the right. It may also be used for enlarging the perceived width of a recording.
- **USER** – When this mode is selected, the panning algorithms are established from the Microphone User Settings interface provided under the main Option menu in the system Graphic Controller. The settings made affect the relationship between amplitude and time differences, determined by the settings of the imaginary microphones. For details, see chapter 3.6.7.

AMBIENCE On/Off [88] Activates the room ambience. When set to Off, no reflected, but only direct sound will be heard. The reflection part of VSP is basically turned off.

AMBIENCE [89] The AMBIENCE control changes the balance between the direct sound and the indirect sound (i.e., the reflections). When the control is at 1% there will only be direct sound. With the control at 100% there will only be reflected sound. So with this control you can affect how much of the room is “heard”.

DIST MAX [90] This control adjusts the relative perceived distance of the sound source, by adjusting the reflections. It works in conjunction with the panner controls so that it only has effect if the panner has the sound source panned to an extreme location (on the perimeter of the panning circle). So if the distance control is to be active, at least one panner control must be set away from its centered position (or the joystick must be positioned out of center).

AutoLvl On/Off [91] The switch next to the distance control selects one of two distance modes. When the switch is Off, the normal mode is active. When the switch is On, the Film distance mode is active. Then the distance parameter also reduces the audio level as the audio source is set for more distance. This is a realistic effect useful in mix-to-picture applications. In a music mix (with Film mode off), the level is to remain constant even as the distance perception is increased, so direct sound is decreased while a power normalizer maintains a constant audio level.

ROOM ABSN [92] By changing this control, the high-frequency content of the reflections can be adjusted (similar to a HF roll-off). With the control set to 1%, the sound will be very bright, as if the walls were tile or marble. With the control at 100%, the reflections will be muffled, as if the walls were covered with carpet.

ROOM SIZE [93] This sets the apparent room size that will determine the impulse response generated by the VSP channel. Settings range from 0 to 31. The 0 setting results in an impulse response that is around 40 ms long, and the highest setting corresponds to a response where the longest reflection is around 200 ms. Note that this only affects the discrete reflection patterns. Late reflections are controlled within the reverb channel.

DIFFUSN [94] Diffusion controls the spreading of the reflections over time. If the discrete reflections are too apparent, adding some diffusion will smear them over time. The amount of diffusion should be set in accordance with the absorption control (as described later). A highly damped room accepts higher diffusion, without sounding colored. The nominal setting is 50%.

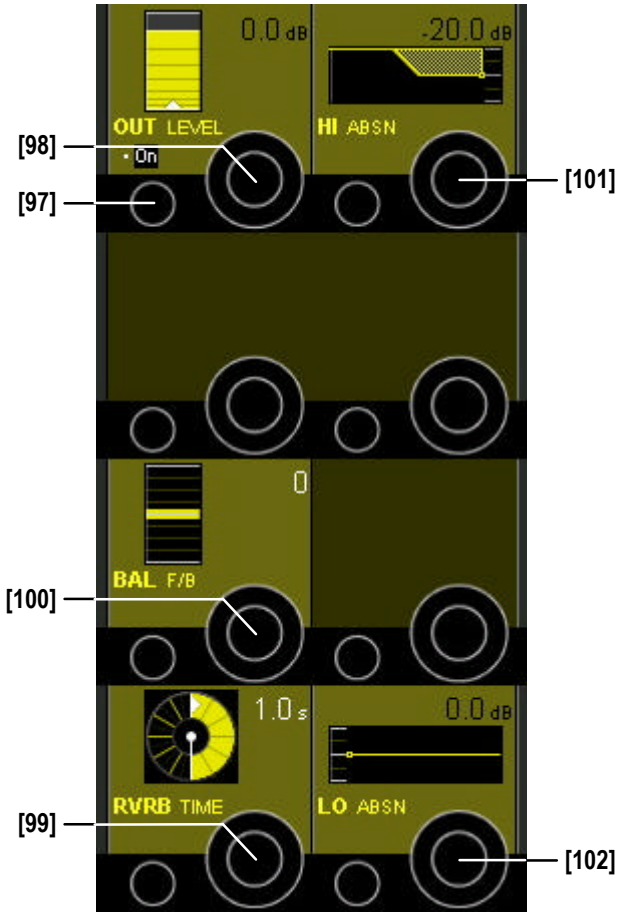
FOCUS [95] Focus controls the gains of the reflections depending on their distribution in time. A high focus (+12 dB) boosts the early discrete reflections which are located around the originating source (like on a stage) and creates a focusing effect. A low focus setting (–12 dB) causes a defocusing since the late discrete reflections are emphasized. Since these usually come from the back, the sound will appear to be coming from all directions when the FOCUS control is turned down.

RVRB SND [96] Reverb send controls the amount of the signal that is being sent to the reverb bus or buses for this VSP panner. The default level is full OFF. By adjusting this control, the audio source for this channel may be made to be more “wet” or “dry”.
For additional information on reverb channels, please refer to chapters 3.4.4 and 3.6.6.

Notes: To disable the VSP panner and use a VSP channel with conventional panning, just set the AMBIENCE switch to Off, and PAN MODE to X-Y. The panner will now function as a standard multi-format panner.
Since the VSP’s room simulation is based on a four-channel feed (front L/R, surround L/R), better results in terms of distance impression and phase information may be achieved when the center channel usage is reduced or even switched off.

3.4.4 Reverb Channel Parameters

For additional information on reverb channels, please refer to chapter 3.6.



OUT On/Off [97] Muting the audio will *immediately* cut the reverb signal with no reverb tail hanging over.

OUT LEVEL [98] Adjusts the output level of the reverb signal.

RVRB TIME [99] Sets the decay time of the reverb channel.

BAL F/B [100] Adjusts the balance of the reverb signals being sent to the front and rear channels. In each extreme only the front or rear channels will be fed.

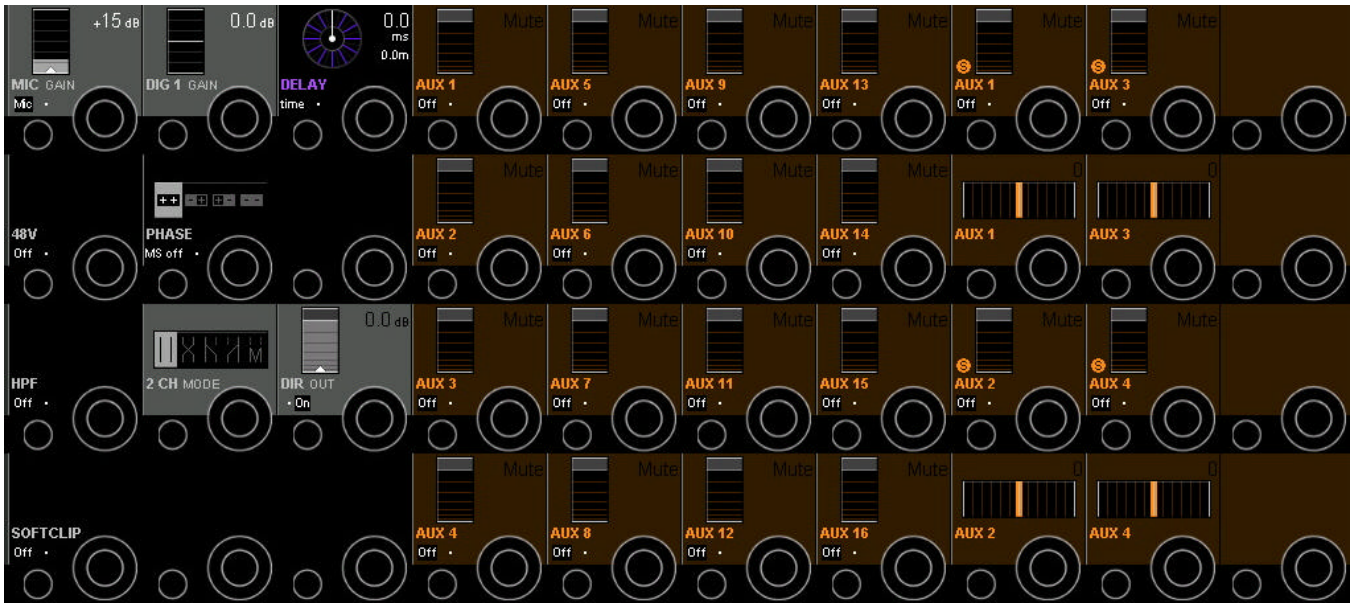
HI ABSN [101] Adjusts the high-end frequency balance.

LO ABSN [102] Adjusts the low-end frequency balance.

Notes: Fader and ON switch of a reverb channel are located *before* the reverb generator, i.e. they control its input signal. Muting the audio at this point will allow the reverb tail to hang over *after* the mute is activated.
The reverb channel generates four de-correlated reverb tails that are fed to front L/R and surround L/R as a standard. Thus the bus assignment should be done to buses 1, 2, 4, 5 in a surround configuration.

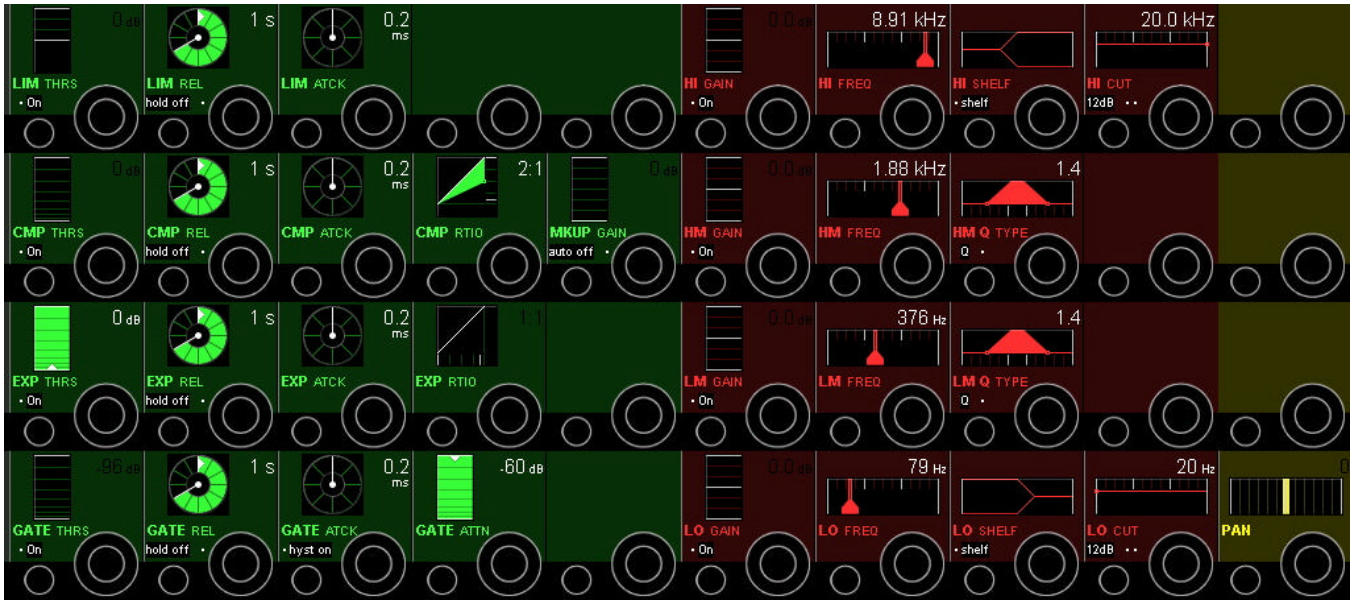
3.4.5 View Channel

Pressing **VIEW: CHANNEL** brings up an overview of the channel, covering the whole Vistonics TFT. All available parameters are shown in the rotary section, except for dynamics, EQ, and panning (see chapter 3.4.6). Only available parameters are visible.



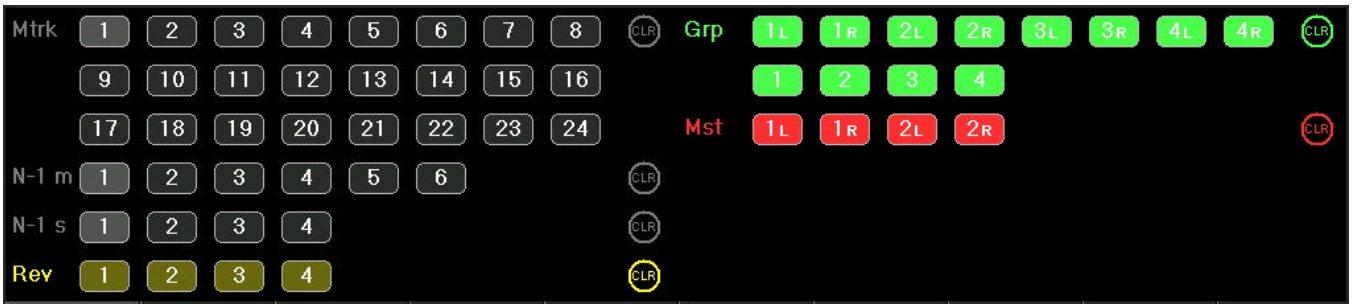
3.4.6 View Misc (Miscellaneous Parameters)

Pressing **VIEW: MISC** brings up an overview of the channel, covering the whole Vistonics TFT. The most important parameters of dynamics, EQ, and pan are shown in the rotary section. Only available parameters are visible.



3.4.7 View Bus Assignment

When touching any of the variable areas, the display changes to the bus assign window of this particular channel, as if the corresponding **VIEW: BUS ASN** hardware key underneath the TFT would have been pressed.



The box only shows the buses which the current channel can be assigned to.
Pressing **VIEW: BUS ASN** on a master channel will not show the bitmap for bus assignment, but will only activate the "inverse bus interrogation" view described later.
If not all the configured buses can be shown at a time, two arrows appear. They allow scrolling to more buses than shown. This will only happen if more than 96 buses (multi-track, Groups, masters, n–1, reverb) are configured. In this case, the last line of buses will disappear, showing the two arrows.
The CLR buttons will clear the assignment to *all* buses of the corresponding type.

Inverse Bus Interrogation

Pressing **VIEW: BUS ASN** on a group master, an AUX master, a reverb, or a master channel (having a bus routed to its input) opens the Strip Setup dialog on the GC screen, showing the currently assigned channels in magenta color.
When pressing **VIEW: BUS ASN** on an n–1 owner channel, the inverse bus interrogation is done on the associated n–1 bus.

3.5 Views in Automation Mode

In automation mode, the channel strips hold additional indications for detailed display of the current status.
This chapter shows all possible indications of automation status and explains their meaning.

First, there are some record indicators integrated within the recording keys:

[A] Recording overview for switches. If half-lit: One or more switches are armed (i.e. in TRIM or WRITE enable mode). If fully lit: One or more switches are recording.
Pressing this key will either punch in the held objects, or punch out the switches currently recording.

[B] Recording overview for rotary encoders. If half-lit: One or more rotaries are armed (i.e. in TRIM or WRITE enable mode). If fully lit: One or more rotaries are recording
Pressing this key will either punch in the held objects, or punch out the rotaries currently recording.

[C] Current and replay value of the channel mute. If the current value is different from the one in the last mix pass, this LED indicates the value within the last mix pass, while the main red LED within the key indicates the current value.
This LED is also used for mute indication, if "solo in place" is active.

[D] Recording of the channel mute. If half-lit: Channel mute is armed (i.e. in TRIM or WRITE enable mode). If fully lit: Channel mute is recording.
Pressing this key will either punch in the current MUTE status, or punch it out of recording.

[E] Recording of fader. If half-lit: Fader is armed (i.e. in TRIM or WRITE enable mode). If fully lit: Fader is recording.
Pressing this key will either punch in the current fader status, or punch it out of recording.

The meaning of the different Vistonics indicators is as follows:

Displayed Value

The *displayed value* (e.g. "–7.6 dB) is always the current value, except when the control is in TRIM mode. Then it shows the offset from the TRIM null point.
It is underlined whenever the control is touched ("hold" in automation).

Rotary Value

Current and replay value of the rotary control. If the current value is different from the one within the last mix pass, a magenta-colored element indicates the value of the last mix pass, while the main display is indicating the current value.

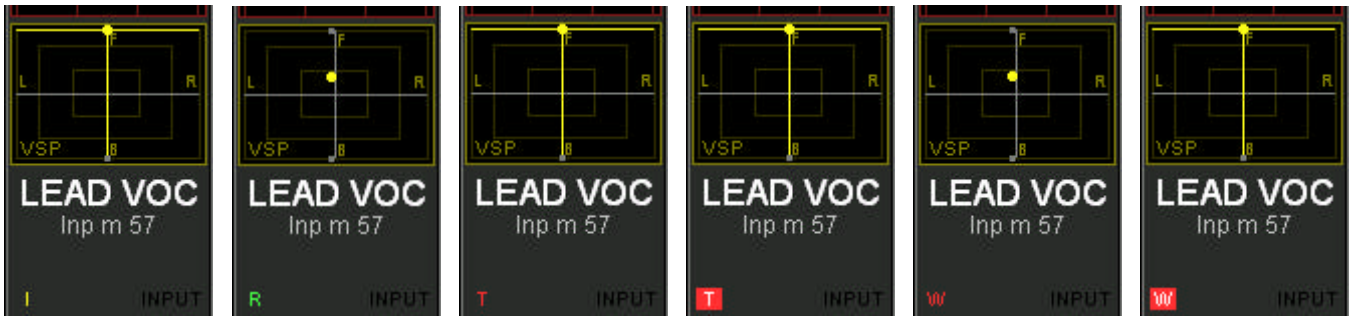
Fader Value

Current and replay value of the fader. If the current value is different from the one in the last mix pass, a magenta-colored element indicates the value of the last mix pass, while the main display is indicating the current value.

Recording

Recording and recording mode indicator: This always refers to the associated control.
Characters without a frame indicate the status of the rotary control (I = Isolate, R = Read, T = Trim, W = Write).
A red frame behind the "W" or "T" indicates that the control is currently recording.

Recording *Recording mode of the fader (in the Vistonics generic display area):*
Characters without a frame indicate the status of the fader (I = Isolate, R = Read, T = Trim, W = Write).
A red frame behind the "W" or "T" indicates that the fader is currently recording.



n–1 x *n–1 x* indicates that the channel is the owner of an n–1 bus, together with its bus number - e.g. "m 1" for "mono 1".

.

Rotary Dynamic/Static *Dynamic/static view of the rotary control*:
When pressing the **VIEW** key in the dynamic automation panel, this display changes to DYN, if this control contains dynamically automated elements

Fader Dynamic/Static *Dynamic/static view of the fader:* When pressing the **VIEW** key in the dynamic automation panel, this display appears and indicates "FADER DYN", if the fader is dynamically automated.

3.6 VSP Quick Operating Guide

With the release of the V2.5 software for the D950/Vista mixing consoles, Studer has also created an enhanced version of its proprietary room modeling software called VSP (= Virtual Surround Panning). VSP is unique in that it can truly produce acoustic scenes that emulate real-world room spaces within an audio console.

This latest enhancement to Studer's VSP has several significant advantages:

- Reverberation is generated so that complete room simulation can now be achieved without the need for *any* external signal processing gear
- Diffusion filters permit finely-tuned room impulse response modeling
- Focus Control allows balancing of early reflections
- DSP code optimization uses less DSP resources than previous versions, even with the added functionality.

This Chapter

Although the functionality of the VSP software has been greatly enhanced, every effort has been made to simplify its use by the mixing engineer. The purpose of this chapter is to provide brief operating instructions so that the VSP software may be used in an efficient and creative manner. Because of the immensely creative possibilities available when using VSP, the mixing engineer is urged to use this operating guide, as, well, just that... as a guide. It is suggested that the VSP be explored through experimentation once the control usage is understood, so that its full range of potential can be achieved.

3.6.1 What is VSP?

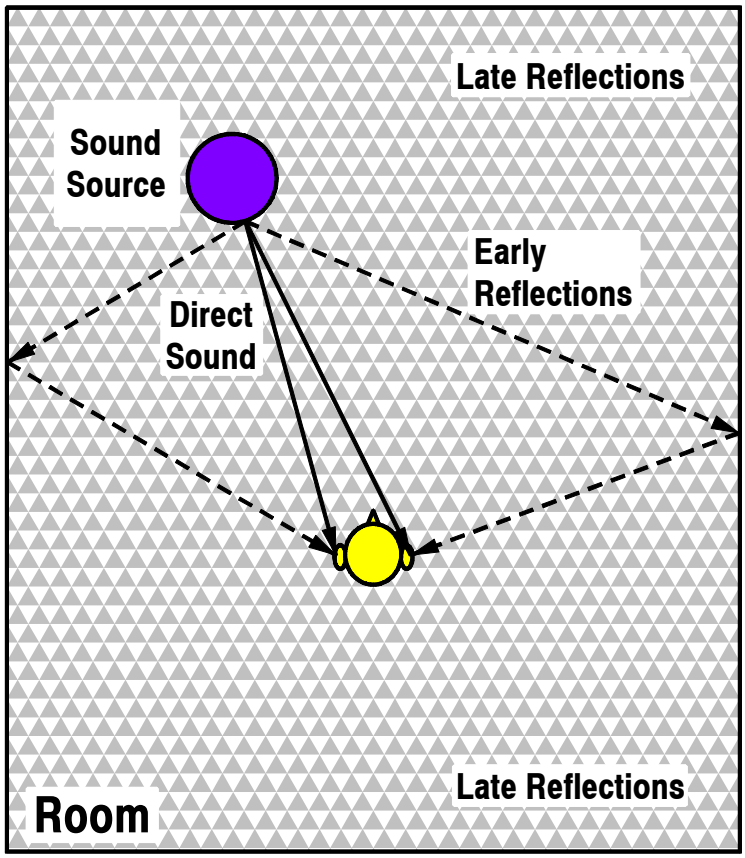
Virtual Surround Panning is a parameterized audio positioning tool for realistically imaging a mono source using a two- to eight-channel playback system.

- Early reflections are generated within a simulated acoustic space, depending on the pan position set on the VSP panner. These reflections are reproduced from the correct direction, and at the correct time.
- Phase and frequency spectrum information can be added to the customary amplitude difference between left and right loudspeakers.
- Late cluster reflections (reverberation) are generated to complete the room simulation.

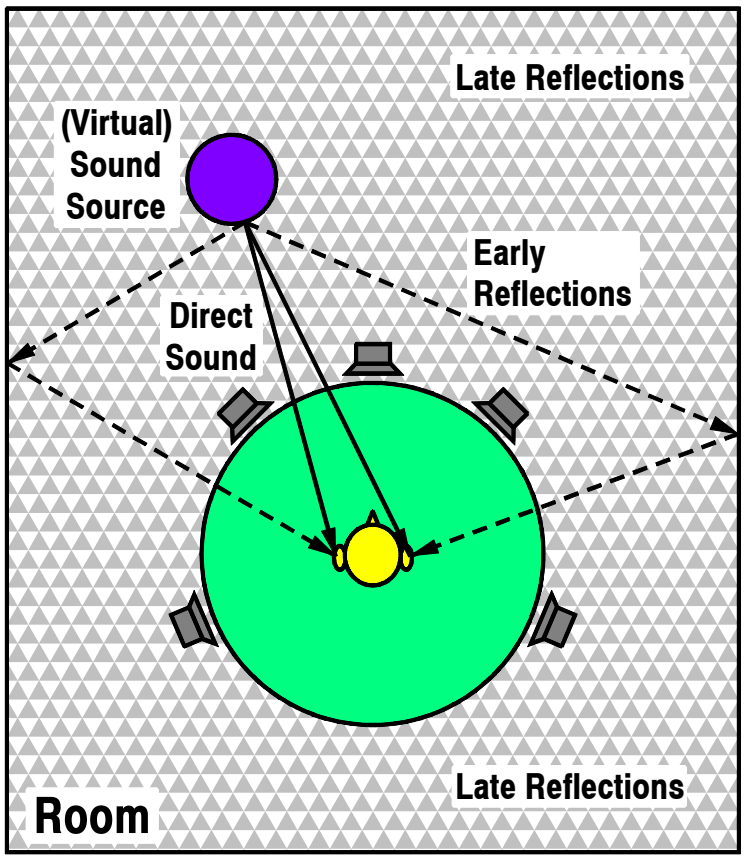
All of the above result in the following advantages over conventional panners:

- True acoustic imaging can be achieved that is impossible with standard amplitude-based panners. Sound sources can be placed accurately both between the speakers as well as beyond them.
- Distance can be perceived.
- 5.1 sound fields (or acoustic scenes) can be created that simulate true room spaces.
- Multiple rooms can be built within the console.
- All of the settings are captured within both the console snapshots and the dynamic automation system.
- All playback channels are used to support the realistic impression of placement and position.

This is what the listener hears in a room:



... and Studer's VSP generates signals from the five speakers that simulate the same listening experience:



3.6.2 Two VSP Operating Styles

Although there are endless possibilities in using the VSP creatively, we will focus on two overall operational styles or setups, in which VSP can be used within a console setup. In order to use the full potential of the VSP system, you must be familiar with the two new types of console channels that are associated with VSP. These are the "VSP Channels" and the "Reverb Channels". These channel types are similar to the other channel types within the D950/Vista console system (such as Input, Master Output, AUX Output, Group Output, Control Group Master, etc.).

VSP Channel

This is basically a standard Input Channel, however the panner section uses the VSP panner, rather than the stereo panner or the Multi-Format panner.
When sitting at the *D950* console you can recognize a VSP channel by selecting PAN to the rotaries. In Page 1, the display at the bottom will read VSP (as opposed to a Multi-Format panner which will display MPAN).
For *Vista* users, a small VSP logo is shown in the pan view (in the Vistonics touch area).
A VSP channel is identical to an input channel with an Multi-Format panner, except that it contains the full functionality of the VSP system. As such it can generate the early reflections and phase-depending signals, as well as the reverb send signals that the VSP system utilizes. It can also be used without its VSP functionality.

Reverb Channel

This is a special channel type that is only used to generate the late reverb associated with VSP.
On the *D950*, you can recognize a reverb channel by selecting INPUT to the rotary knobs. In Page 1, the display at the bottom will read RVRB.
On the *Vista*, reverb channels are indicated in yellow and labeled "Reverb".
The reverb channel takes in a mono signal and generates a four-channel reverb signal that is assigned to the Left, Right, Left Surround, and Right Surround buses, using the standard bus assign switching of the console.

The two usage styles really describe the manner in which the VSP and Reverb Channels are used or setup within the console system. They are operational setups that utilize the VSP functionality in specific ways:

VSP Style

In this setup, the source signals (microphone or "tape" tracks) are routed to VSP channels (input channels with VSP panners). The full capability of the VSP system is utilized because each sound source has the capability of being panned to a specific location within the sound field. Based on the panner setting and the other VSP controls within each channel, individual early reflections are generated on a channel-by-channel basis (different for each channel), creating a most realistic acoustic image. Both the direct sound as well as the early reflections are bused to the outputs by simply assigning the outputs of the VSP panner as usual. All relationships of direct and reflected sound are handled internally within the VSP panner. Late reflection (reverberation) "feeds" are also developed within each channel, and these are sent to one or more reverb channels via special reverb buses. Since the reverberation signal only consists of late reflections that are non-directional, there is no need to develop these signals on a channel-by-channel basis. Therefore one reverb channel can be used for any number of VSP channels. For special applications, or to create differ-

ent acoustic scenes (sound spaces), multiple reverb channels can also be used.
To summarize this operating style: It uses one or more VSP channels and typically one Reverb channel for each acoustic space that is required.

Reverb Style In this setup, the VSP system is set up to work more as a conventional outboard reverb device, except that it resides within the console DSP. No patching is required. In this case, one VSP channel is associated with one Reverb channel to create each single reverb device desired. Up to eight reverb devices can be created within a console (this is depending on the amount of DSP available, and on that the correct VSP and Reverb channels are set up within the configuration). Each of these VSP/Reverb devices are fed from an AUX bus, and so work in a conventional manner, in that the reverb is derived by simply turning up the appropriate AUX send control from any input channel in the system.

Both setups may be used within a single console system. It is simply a matter of operating style. There are no technical limitations that prevent any combination of usages.

3.6.3 VSP Channel Controls

The following are the controls within the panner section of a VSP Channel. Only Controls that directly affect the VSP parameters are described here. Please also refer to chapter 3.4.3.

Panner Mode (Pmod) Sets the panner into a mode that sets the overall panning algorithm used to position the mono source in the desired direction. In all but the Amplitude mode, a stereo microphone simulation is employed which will yield a more diverse sound field.

- **Amplitude – (AMPL)** – A standard panning algorithm that only changes the amplitude of the signal to the various buses in relation to the position of the panner. This operation is well known and is used in all conventional panners.
- **AB** – An idealized version of the common setup using omni-directional microphones. With this mode the sound stage is perceived as large, and is useful for solo instruments, audience, and choir. The positioning of the source is only established by changes in time delays.
- **ORTF** – An idealized version of the common cardioid microphone setup according to angles and distances used for stereo miking. A more accurate sound field is created through the manipulation of both amplitude and time differences.
- **Sphere (SPHE)** – This mode emulates a spherical microphone as shown in the picture (below). The spherical microphone has two capsules mounted into a sphere having a diameter of about 18 cm. The sphere incorporates different effects on the two channels, including amplitude, delay and shadowing of the high frequencies on the channel which is not facing the source. This mode is only useful in two-channel mode, and presents a very accurate sound field.
- **HRTF** – Mainly a cross-talk canceler using simplified HRTFs (Head Related Transfer Functions). If the listener is positioned exactly in the sweet spot of a ±30° speaker setup, an extreme panning position like full left should effect the signal such that it will only be heard with the left ear and cancelled out on the right. It may also be used for enlarging the perceived width of a recording.

- **User** – When this mode is selected, the panning algorithms are established from the Microphone User Settings interface provided under the main Option menu in the system Graphic Controller. The settings made affect the relationship between amplitude and time differences, determined by the settings of the imaginary microphones. This will be described later.

Room Size (RSiz) This sets the apparent room size that will determine the impulse response generated by the VSP channel. The settings range from 0 to 31. The 0 setting results in an impulse response that is around 40 ms long and the highest setting corresponds to a response where the longest reflection is around 200 ms. Note that this only affects the discrete reflection patterns. The late reflections are controlled within the Reverb Channel.

Room Diffusion (RDif) Diffusion controls the spreading of the reflections over time. If the discrete reflections are too apparent, adding some diffusion will smear them over time. The amount of diffusion should be set in accordance with the absorption control (as described later). A highly damped room accepts higher diffusion, without sounding colored. The nominal setting is 50%.

Room Focus (RFoc) Focus controls the gains of the reflections depending on their distribution in time. A high focus (+12 dB) boosts the early discrete reflections which are located around the originating source (like on a stage) and creates a focusing effect. A low focus setting (–12 dB) causes a defocusing since the late discrete reflections are emphasized. Since these usually come from the back, the sound will appear to be coming from all directions when the Focus control is turned down.

Reverb Send (RSnd) The Reverb Send controls the amount of the signal that is being sent to the Reverb Bus or Buses for this VSP panner. The default level is full OFF. By adjusting this control, the audio source for this channel may be made to be more “wet” or “dry”.

Absorption (ABSN) By changing this control, the high-frequency content of the reflections can be adjusted (similar to a HF roll-off). With the control set to 1%, the sound will be very bright, as if the walls were tile or marble. With the control at 100%, the reflections will be muffled, as if the walls were covered with carpet.

Ambiance (AMBI) The Ambiance control changes the balance between the direct sound and the indirect sound (i.e., the reflections). When the control is at 1% there will only be direct sound. With the control at 100% there will only be reflected sound. So with this control you can affect how much of the room is “heard”. The switch next to the Ambiance control turns the room ambiance on and off. When the switch is off, no reflected, but only direct sound will be heard.

Distance (DIST) This control adjusts the relative perceived distance of the sound source, by adjusting the reflections. It works in conjunction with the panner controls so that it only has effect if the panner has the sound source panned to an extreme location (on the perimeter of the panning circle). So if the distance control is to be active, at least one panner control must be set away from its centered position (or the joystick must be positioned at an edge). The switch next to the distance control selects one of two distance modes. When the switch is OFF, the normal mode is active. When the switch is ON, the Film distance mode is active. When Film mode is active the distance parameter also lowers the audio level as the audio source is set for more distance. This is a realistic effect useful in mix-to-picture applications. In a music mix (with Film mode off), the level would want to remain constant even as the distance perception is increased, so direct sound is decreased while a power normalizer maintains a constant audio level.

Note: To disable the VSP panner and use a VSP Channel as a conventional panner, just set the Ambience (AMBI) switch to OFF, and Panner mode (Pmod) control to Amplitude. The panner will now function as a standard Multi-Format panner.

3.6.4 Reverb Channel Controls

The following are the controls within the Reverb Channel. The Reverb Channel is normally sourced from a Reverb Bus. A four-channel output is generated by the Reverb Channel which can be fed to the Left and Right pairs of the Front and Rear (if present) buses. The outputs of the Reverb channel must be assigned using the normal bus assignment method.

Reverb Time (TIME) Sets the decay time of the Reverb Channel.

Front/Rear Balance (BALN) Adjusts the balance of the reverb signals being sent to the front and rear channels. In each extreme only the front or rear channels will be fed.

Low Frequ. Absorption (LABS) Adjusts the low-end frequency balance.

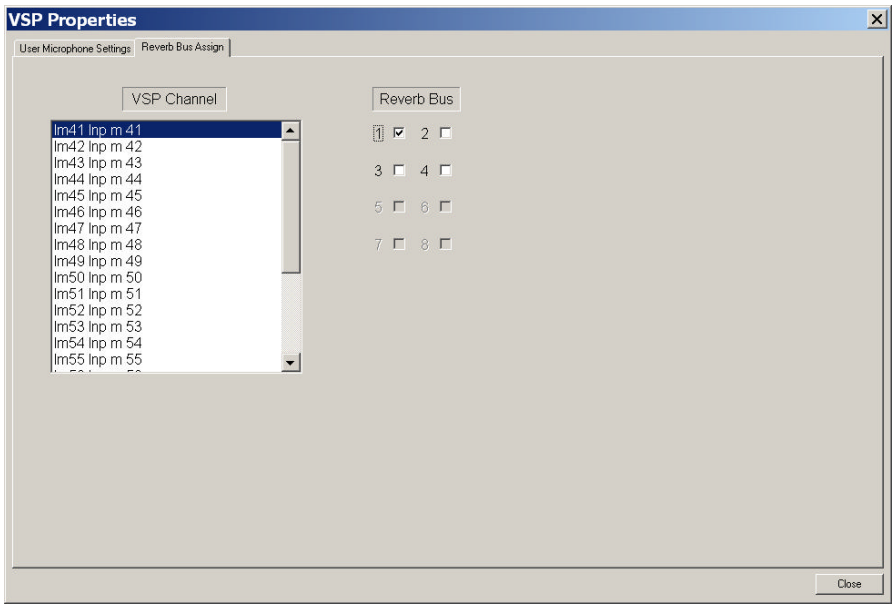
High Frequ. Absorption (HABS) Adjusts the high-end frequency balance.

Output Level and On Switch Adjusts the output level of the reverb signal. Muting the audio will immediately cut the reverb signal with no reverb tail hanging over.

Input Level and On Switch The Fader and Mute switch are before the reverb, they control the input to the reverb generator. So muting the audio at this point will allow the reverb tail to hang over after the mute is activated.

3.6.5 Operating in Full VSP Style

As previously described, in VSP Style of operation (chapter 3.6.2), several sound sources are brought into VSP Input channels. One or more Reverb Channels may be set up. Each VSP channel may feed one (or more, only for special effects) Reverb channels. The following are the adjustments usually made on each VSP channel.



Change Reverb Bus Assignments *(if needed)*
Unless changed by the operator, each VSP channel is automatically assigned to Reverb Bus 1. This assignment can be changed in the Reverb Bus Assign dialog window (see above) which is located in the Options/VSP menu. There, each VSP channel within the configuration can be selected (or more than one can be selected), and the assignments to the Reverb Buses can be made by using the check boxes provided for each Reverb Bus in the configuration. These setting are saved in system snapshots and presets.

Assign to Output Buses Assign the outputs of the VSP panner to the appropriate buses. This will send the direct and reflected signals to the audio buses.

Assign Reverb to Output Buses The Reverb channel must also be assigned to the output buses. The Reverb has four outputs that are normally assigned to the Left and Right buses of both the front and rear (if present).

Select Panner Format Set the panner to the correct format (stereo, LCRS, 5.1, etc.) using the FORMAT parameter on Page 2 *(D950)*, or the PAN MODE rotary selector *(Vista)*.

Engage the Panner Function Press the Pan IN key so that the panner is active for this channel.

Select the Panner Mode Set the Panner Mode (Amplitude, AB, ORTF, etc.) according to the desired acoustic effect.

Set the Room Ambiance ON Turn on the Ambiance Switch and set the Ambiance to a mid level so that other adjustments may be made.

Adjust Other Parameters As needed, adjust the other controls including Room Size, Absorption, Distance, Diffusion, Focus.

Adjust the Reverb Channel Make adjustments as necessary on the Reverb channel(s).

3.6.6 Operating in Reverb-Only Style

As previously described, in the Reverb Style of operation (chapter 3.6.2), the sound sources are brought into normal Input channels. One or more Reverb Channels can be set up, each one with a corresponding VSP channel. The following is the normal of operation in this mode.

Associate one VSP Channel with each Reverb Channel

This is done by simply making sure that each VSP channel is assigned to its associated reverb bus, as previously described.

Patch an AUX Bus to each VSP/Reverb Pair

Using the General Patch, patch the output of an AUX bus to the appropriate VSP/Reverb pair, by patching to the input of the VSP channel. If desired, another method would be to patch the direct output of an AUX Master Channel to the input of the VSP channel, although there is normally no specific advantage to this method.

Once this is set up, each VSP/Reverb pair can be adjusted as desired, and signals from any input channel can be sent to the reverb by simply using the AUX send controls on the input channels, just as if these AUX sends were feeding external devices. The VSP channel as well as the Reverb channel should be assigned to the appropriate output buses, so that early and late (reverberant) reflections are fed to the buses. But of course, if only late reflections are desired, the VSP channel can be de-assigned to the buses and only used to feed the reverb channel.

Alternate Method: While the reverb generator was designed to be fed from a VSP channel, there is no technical reason why an AUX bus cannot be patched directly to the input of a Reverb channel, with no VSP channel being used. If through experimentation, this acoustic result satisfies a requirement, by all means, this much more simple method may be used. In particular, good results can be expected, if the input already contains natural early reflections, which have, for example, been captured by a microphone set-up sufficiently distant from the acoustic source.

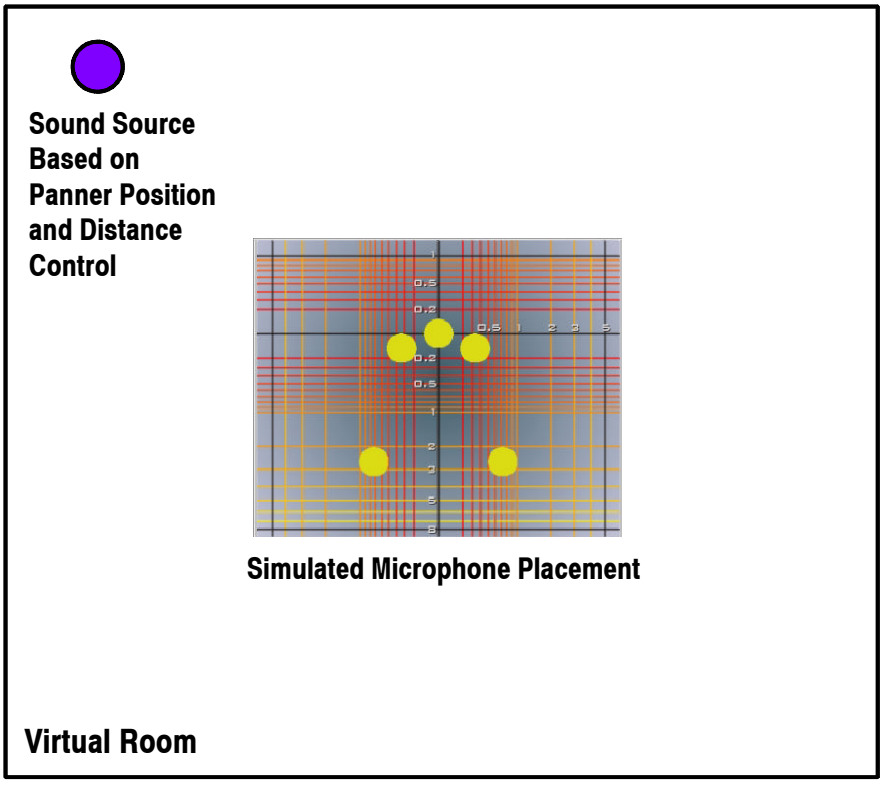
3.6.7 Microphone Simulation Tool (MST) – User Pan Mode

As a further sophistication of the VSP system, a new Microphone Simulation Tool (MST) has been created. This allows the mix engineer to create his/her own multichannel panning law, by simulating the placement of microphones in a virtual space.

Overview

A user can define how the VSP varies the delays and amplitudes of the direct sound when panning between speakers. To instruct the VSP how to generate these signals, commonly known microphone symbols are used. Each symbol represents the signal that will be sent to one speaker.

For example, if five omni microphones are set up at the same position, no panning effect will be achieved. Five omni microphones at certain distances will only create time differences when panning between speakers. Five shotgun microphones positioned in one location will only generate amplitude differences. And five directional microphones positioned in different locations will generate both amplitude and time differences between the speakers (based on the placement of the "microphones").

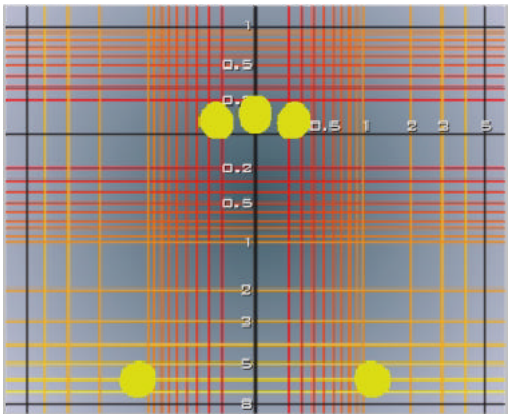


The dry signal within a VSP channel is now placed to an imaginary position based on the panner positioning within the channel. You can now imagine that, if each speaker (in your monitoring environment) is fed the signal based on the placement of the "microphones" in the simulation (including the reflections), that a realistic sound space could be achieved. This is a simplification of what happens within the VSP system.

Each of the Panner modes (ORTF, AMP, AB, etc.) simulates a different placement of the microphones, and therefore yields a different acoustic scene.

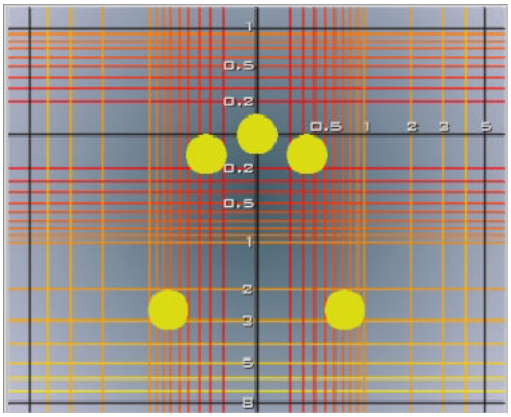
Here are the placements for some of the Panner Mode presets:

ORTF (With Surrounds)



Amplitude varies due to the directionality of the microphones, while time delay is varied based on the distances between the microphones (which each feed a speaker).

AB (With Surrounds)

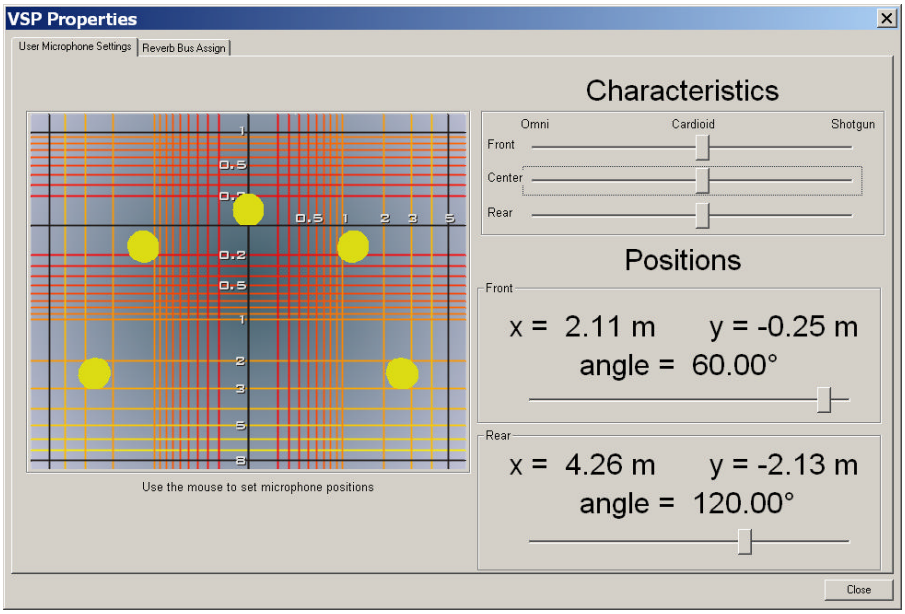


Because all of the microphones are omni-directional, the amplitude is the same for all of them, but the delay differs due to the distances between the microphones.

Sphere

The Sphere setting is based on a microphone as shown in the picture above. Amplitude, phase and frequency response is calculated based on measured signals from such a microphone.

User Setting



With the Microphone Simulation Tool, the mix engineer is able to set up his/her own microphone simulation using the dialog box which is available in the Options/VSP menu.

The settings may be changed as follows:

Microphone Positioning

The front left and right microphones may be moved by grabbing one of them with the mouse and positioning them as desired. The opposite microphone moves to a symmetrical location. The same may be done with the rear left and right microphones. The center microphone cannot be moved.

Microphone Pattern

The Front, Center, and Rear microphones may be independently changed as to their polar characteristics. This may be done using the sliders. Each pattern can be changed from omni-directional, all the way through to shotgun patterns.

Microphone Angle

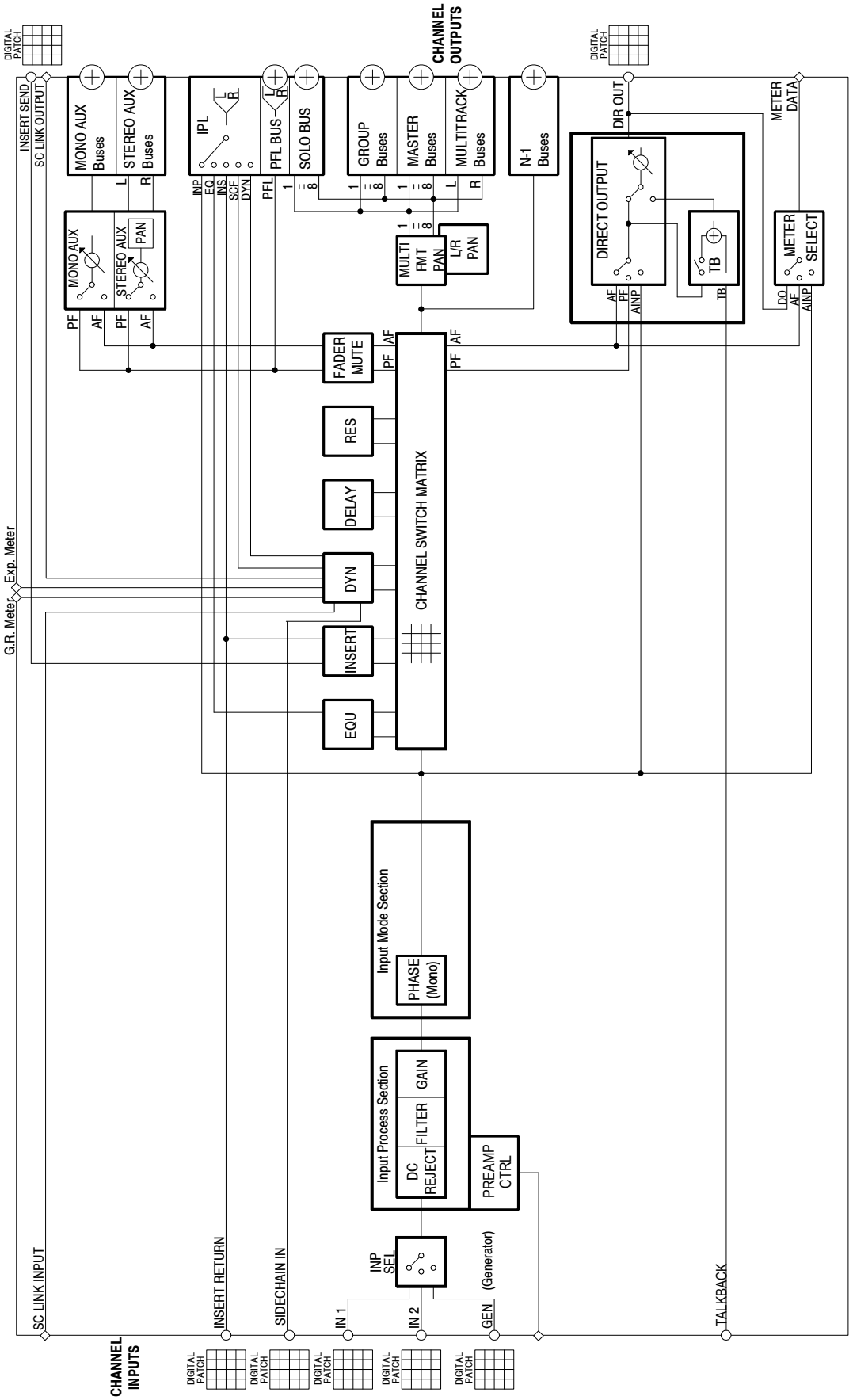
The Front and Rear microphones may also be independently changed as to their positioning angle. This may be done using the angle sliders, or by double-clicking and dragging with the mouse.

So when a VSP Channel Pan Mode is selected to the USER setting, the settings within the Microphone Simulation Tool will be used as a basis for the underlying VSP panning law. These settings may be changed in real time, and the changes will be audible as they are being made. This is an exciting and functional tool that the mix engineer now has exclusively with the use of the VSP panning system within the Studer D950 or Vista consoles.

3.7 Input Channel Block Diagrams

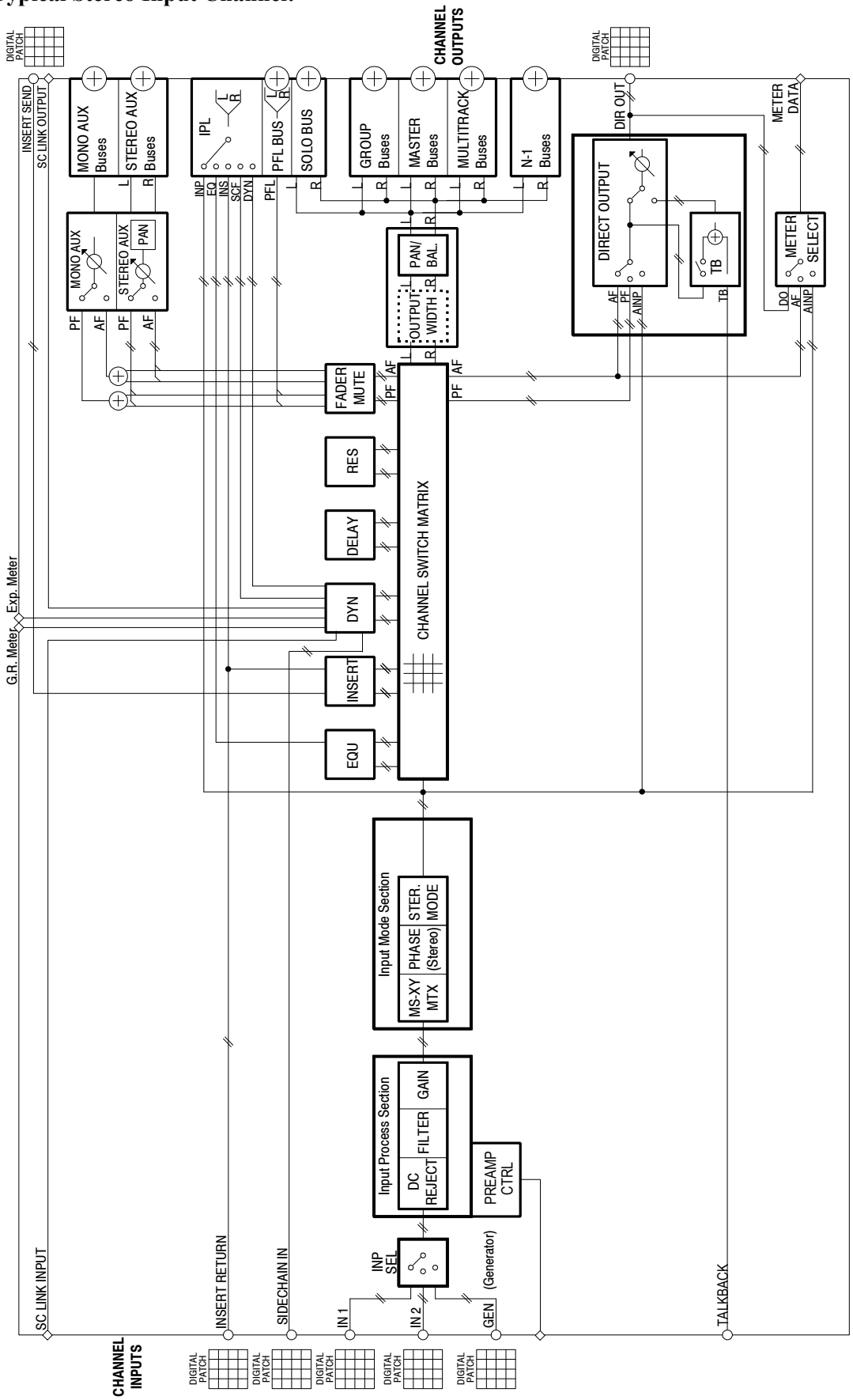
Block Diagram of a Typical Mono Input Channel:

Please note that, essentially, all channel types have the same structure, regardless of the type (input, AUX, group, master, etc.)



Block Diagram of a Typical Stereo Input Channel:

Please note that, essentially, all channel types have the same structure, regardless of the type (input, AUX, group, master, etc.)



CHAPTER 4

4 GRAPHIC CONTROLLER OPERATION

4.1 Introduction

The Graphic Controller (GC) is an essential part of the D950/Vista Digital System's operation, because it enables the user to utilize all of its enhanced functions, such as the snapshots, book-keeping, AutoTouch automation, and much more. It is also the place where the operating software is started and shut down – becoming, in fact, the console's main operations center.

All the operating software – consisting of a large number of individual files needed for proper operation of the console – is stored on the Control PC's hard disk. Even if there are hundreds of configuration, automation, snapshot and related files stored here from previous D950/Vista sessions, the user basically needs to start only *one* application program: `D95ØSYSTEM.EXE`.

Note: The version of the D950/Vista System software is typically included in the application name, for example: `D95ØSYSTEMV3.1Ø.EXE`.

The `D95ØSYSTEM.EXE`, represented by one of the following icons (Windows Shortcut) on the monitor screen:

Note: The D950/Vista System software may also be started from the Windows Start menu (if programmed).

All the D950 or Vista software runs under Windows NT or Windows 2000 operating system, respectively. All files used by the D950/Vista and all the files produced by the user (snapshots, mixes, etc.) are fully compatible with the Windows standard. Which means that they can be copied to other compatible media (floppy, Iomega ZIP®, JAZ®, or CD-R drives, or other networked computers), using the Make Backup facility and standard Windows tools and procedures. Long file names (more than eight characters) are supported.

One of the advantages of using standard Windows techniques is that the majority of users will already be familiar with operating a PC-based system. Because all screen and trackball procedures are derived from the Windows operating systems, please refer to the appropriate manuals if you are not familiar with using them.

Operation of the Graphic Controller is also fully Windows-compatible. Text strings, files, or even pictures can be copied from one location to the other using the Windows clipboard principle and keyboard shortcuts: **Ctrl+c** or **Ctrl+Ins** will copy to, and **Ctrl+v** or **Shift+Ins** will paste from the clipboard. This technique can be used, for example, to enter repetitive labels into the User Labels, or for copying mixes from one Title to another.

Full use is made of the Windows-standard, context-sensitive menus that can be accessed by the right trackball button, as well as conventional dou-

ble-click techniques. The **Tab, PgUp/Dn,** and **arrow** keys behave according to standard Windows operations.

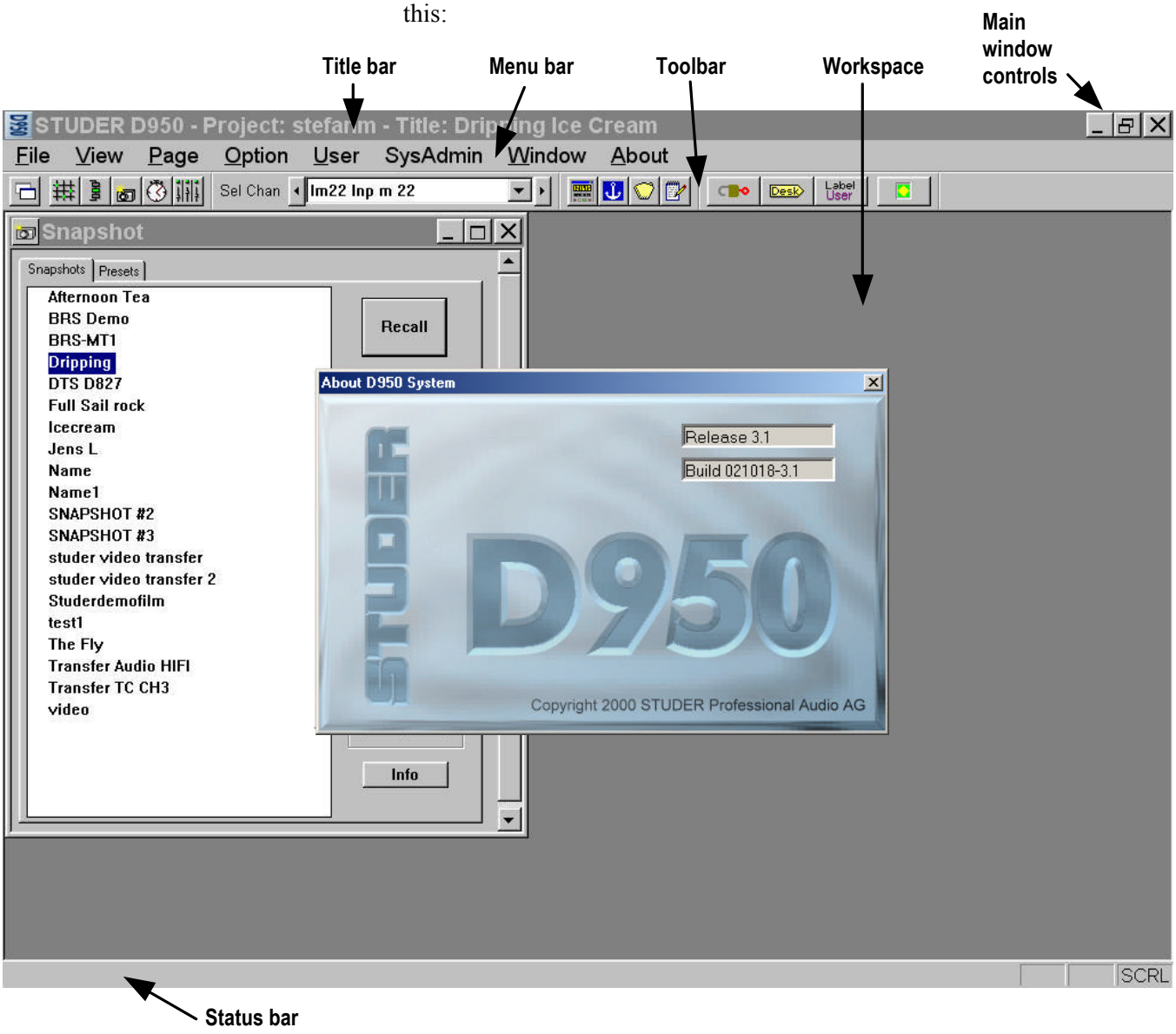
The Graphic Controller's screen colors, screen sizes, individual window positions and sizes, certain font sizes etc., are also part of the Windows Screen Properties, and can be adjusted there.

Because the Graphic Controller's user interface can be configured to suit the individual needs of specific users, all the graphics shown in this User Manual may differ slightly from what you will see on the GC display of *your* D950/Vista Digital Console.

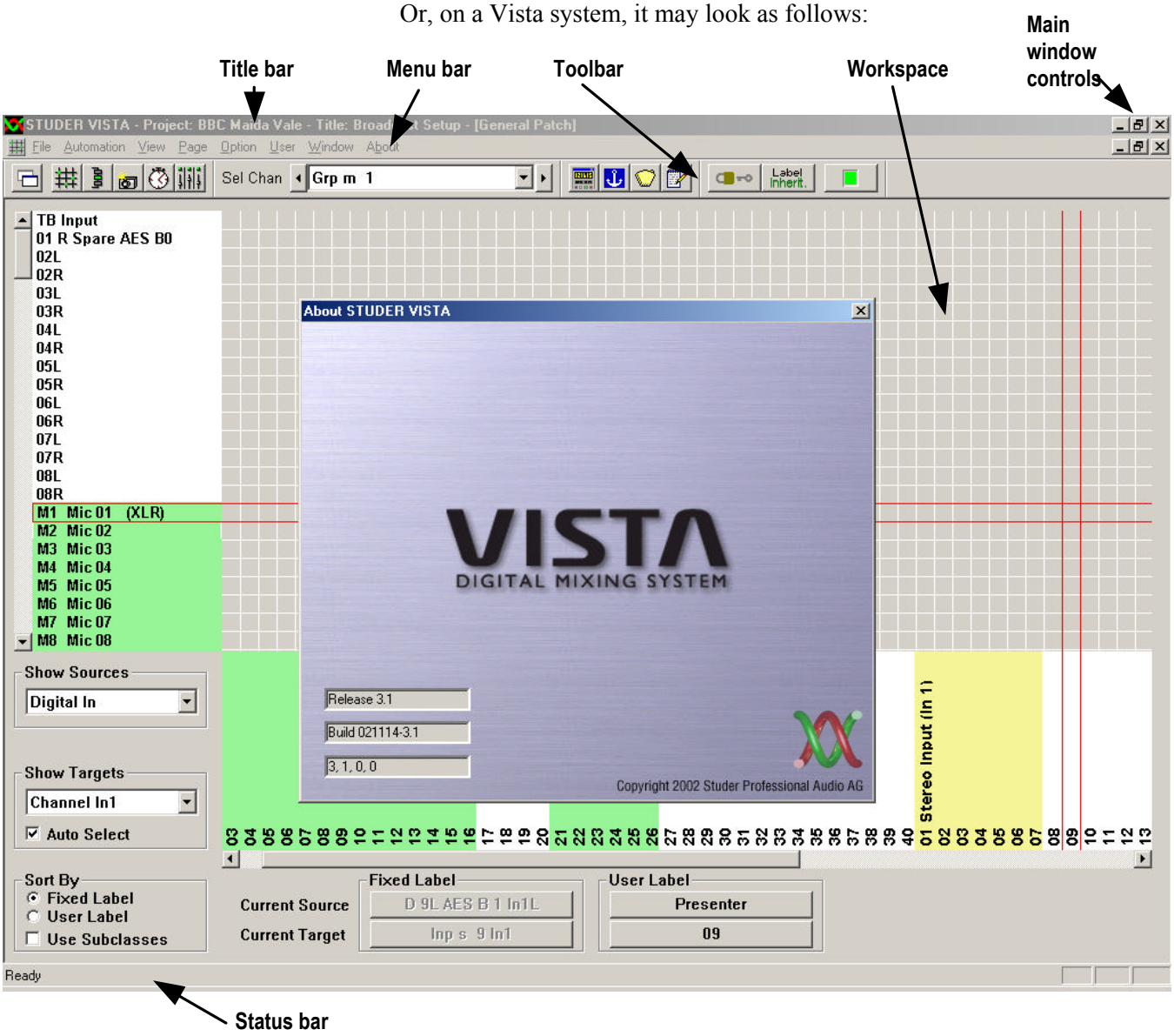
The appearance of the GC screen will also depend on the installed options. Several menu items, tools, or the AutoTouch+ panel will not function and/or be grayed out if the appropriate option is not installed. In the following text, we assumed that *all* the options were installed (otherwise, there would be no point in explaining them).

4.2 The GC Screen

Upon starting the GC for the first time, the screen will look something like this:



Or, on a Vista system, it may look as follows:



Please note the most important parts of the screen:

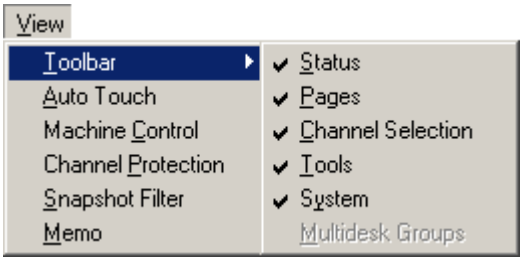
- The *Menu Bar*, allowing access to all the D950/Vista's functions. Refer to chapter 4.6;
- The *Toolbar*, containing various short-cut icons for the most important functions;
- The *Status Bar*, displaying system information and short on-line help information;
- The *Workspace*, where you will open the Main GC Pages and do other useful things;
- The *D950/Vista Logo Splash*, which will disappear a few seconds after the start;
- The *Main Window Controls (minimize, maximize/window mode, quit).*

4.2.1 The Toolbar

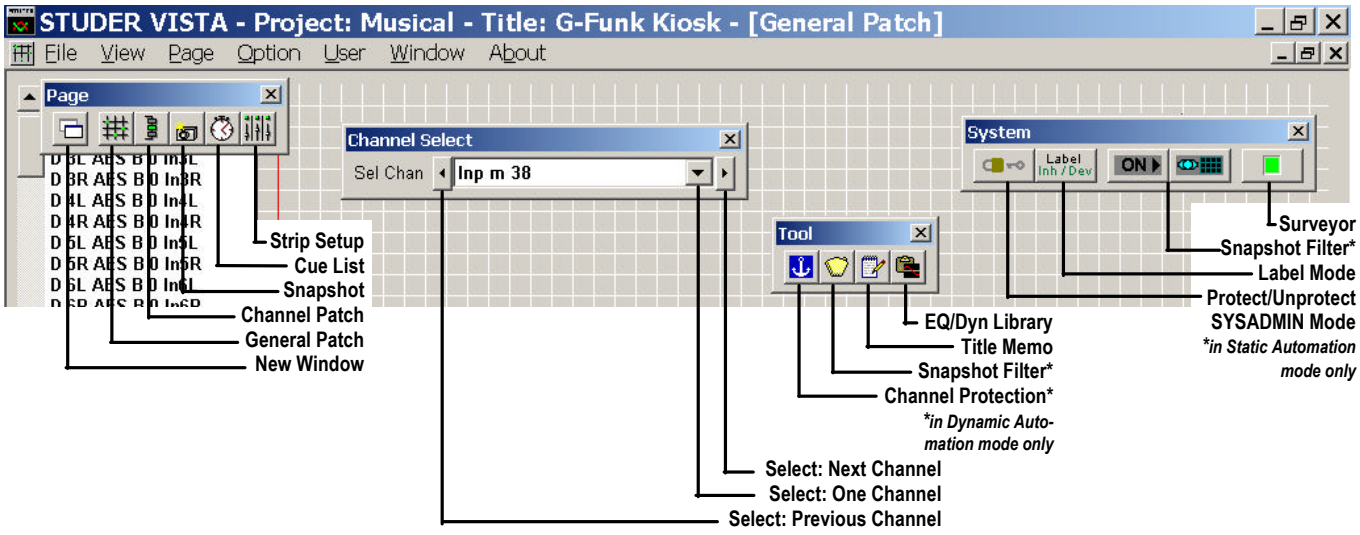
The *toolbar* contains a number of short-cut icons for the D950/Vista's most important functions.

There are four (or five) individual parts of the toolbar: Page Selection, Channel Selection, Tools, System Functions *(and Multidesk Groups, if configured)*.

Each of the four parts can be switched ON and OFF individually. The simplest way to do so is the View menu, item Toolbar:



This menu item also contains the Status bar (refer to chapter 4.2.2). The toolbar elements can be arranged in one continuous bar – as shown in the illustration above – or positioned individually, using conventional drag-and-drop technique:



This arrangement may be stored in a "preferences" file.
The icons represent D950/Vista system functions as described in the illustration; individual functions will be explained later in this chapter.

4.2.2 The Status Bar

The *Status Bar* has two functions:

- Displaying system information;
- Short on-line help information.

Status information is displayed in the Status Bar continually. It is especially helpful to view the Status Bar during startup of the D950/Vista system, because various information regarding the boot process and system parts will be displayed on the monitor screen.

"Ready" in the Status Bar indicates that everything within the D950/Vista is working satisfactorily. Check Status will be displayed if there is something wrong with the system (specifically, a red circle appears in the Surveyor button, refer to chapter 4.8 for more information), and sometimes during system booting (which is normal).

If you move the cursor over a specific item in the toolbar, on-line help information will be displayed. The information displayed describes the basic function of the selected tool.

4.3 Graphic Controller Basics

This chapter describes the basic concepts of the work with the Graphic Controller (GC).

4.3.1 Sources and Targets

Generally, all audio signals available to the D950/Vista can be divided into *Sources* and *Targets*. These names are used rather than "Input", "Output", etc., in order to avoid any confusion regarding where the audio signal comes from, and to where it goes.

Sources: A *Source* is anything that delivers an audio signal:

- *Digital Input Interface* (AES/EBU or MADI);
- *Analog Input Interface* (D19m Mic Input, A/D Converter);
- *Channel Output* (for example, Direct Out of Input Channel #24, Master Output, etc.);
- *Channel Insert Send*;
- *Bus Output* (unlike analog consoles, within the D950/Vista any bus is a valid audio signal source; for example, AUX Mono Bus 12 can be used to feed an output interface, or to become an input to an input channel);
- *Test Generator*.

Targets: A Target is anything that can receive one (mono or stereo) audio signal:

- *Channel Input 1* (first audio input to a channel; free for all input channels; used to connect Sources to input/track monitor channels, such as a MADI output from a digital multi-track to a track monitor channel, or the corresponding bus to an output channel, such as a Group, Master, or AUX channel);
- *Channel Input 2* (second audio input to a channel; free for all channels);
- *Channel Input 3* (third audio input to a channel; used for the test generator connection per default, can be re-patched to any source at any time),
- *Channel insert returns*;
- *Digital output interfaces* (AES/EBU or MADI);
- *Analog output interfaces*.

Sources and Targets implicitly behave as mono or stereo, depending upon their character. A *stereo* Source or Target can be treated, nevertheless, as consisting of two *mono* parts.

Any Source can be connected to as many Targets as needed via the Patch pages. However, a Target (stereo or mono) can have only one Source (stereo or mono) assigned to its input.

4.3.2 The Session Configuration

The *Session Configuration* is the physical and electrical definition of the D950/Vista Digital Mixing System installed at your recording studio or production facility. Session Configuration contains data about the mixing console channels, the patch, the labels, and so on. A Session Configuration *must* be loaded in order for the console to function.

We often refer to the *Virtual Mixing Console (VMC)* when speaking about the Session Configuration. VMC is another concept that forms the very foundation of a D950/Vista: all functions and the current Session Configuration data are stored within the VMC. A simplified definition of the VMC is:
"The VMC is a data structure containing descriptions of the console's functions, including all the current statuses of all functions."

That is why, as we will see later, all the Session Configuration files have the extension `*.vmc`.

Because of the flexibility provided by the Session Configuration Tool, you can create customized, application specific, console configurations. In most cases the facility's D950/Vista system administrator will create the necessary Session Configurations. However, there are some cases where you will not need to be concerned with the Session Configuration, because the one configuration that was loaded at the Studer factory will remain loaded and active unless you changed it. The last-loaded Session Configuration will remain loaded and active until it is either changed, or another one is loaded.
If a production is recalled that has been created with an other Session Configuration, the correct Session Configuration will be automatically loaded.

Please refer to chapter 7 for more details.

4.3.3 Labels

Labels are used extensively within the system to define objects, such as audio sources, channel names, etc., and to visualize these objects in various windows within the GC.

Please note that all labels are stored within Snapshots and Presets, together with all audio settings.

There are various ways to work with labels within the system. For a description of how to use labels, refer to chapter 4.4.2.6. Basic label types are described below:

Fixed Labels These are generated automatically at the time of system configuration, and used to identify *hardware-oriented* objects. For example:

Fixed Label	Meaning
D 1 AES B0 In 1	Digital AES/EBU, on PE/AES Board 0, Physical Input 1
Input m 8 In 1	DSP Mono Input Channel 8, Input 1 of 3
M25 B0 Out 1CH25	MADI Output CH 25, on MADI B 0, MADI Interface 1

Note: *It is advised never to change the Fixed Labels.*

User Labels These by default are identical to the Fixed Labels at the start of a new Session Configuration. The user is able to rename these User labels in the GC to make the system environment more user friendly. User labels are used to give the objects a useful, *application-oriented* name. For example:

Fixed Label	User Label	Meaning
D 1 AES B0 In 1	**DAT 1**	DAT Player 1, coming in via Digital AES/EBU, on PE/AES Board 0, Physical Input #1
Input m 8 In 1	**BASS**	DSP Mono Input Channel 8, Input 1 of 3, used for the audio signal of the Bass Guitar
M25 B0 Out 1CH25	**Foldback 1**	MADI Output CH 25, on MADI B 0, MADI Interface 1, is the foldback Send 1 to the Studio Floor

Inherited Labels Inherited labels are used primarily to indicate the *Source Signal* that is connected to the Channel Strip, rather than the User Label of the Channel. In this way, as soon as the signal is connected to a channel's input, the channel strip display inherits the Label from the actual Source.

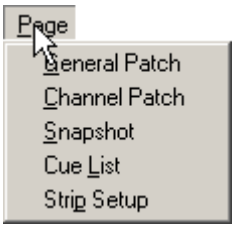
4.4 First Level of Operation: Main GC Pages

There are five main Graphic Controller pages, each of which deals with a different operating part of the D950/Vista System:

- General Patch Page
- Channel Patch Page
- Snapshot Page
- Cue List Page
- Strip Setup Page

These main pages can be accessed in three different ways:

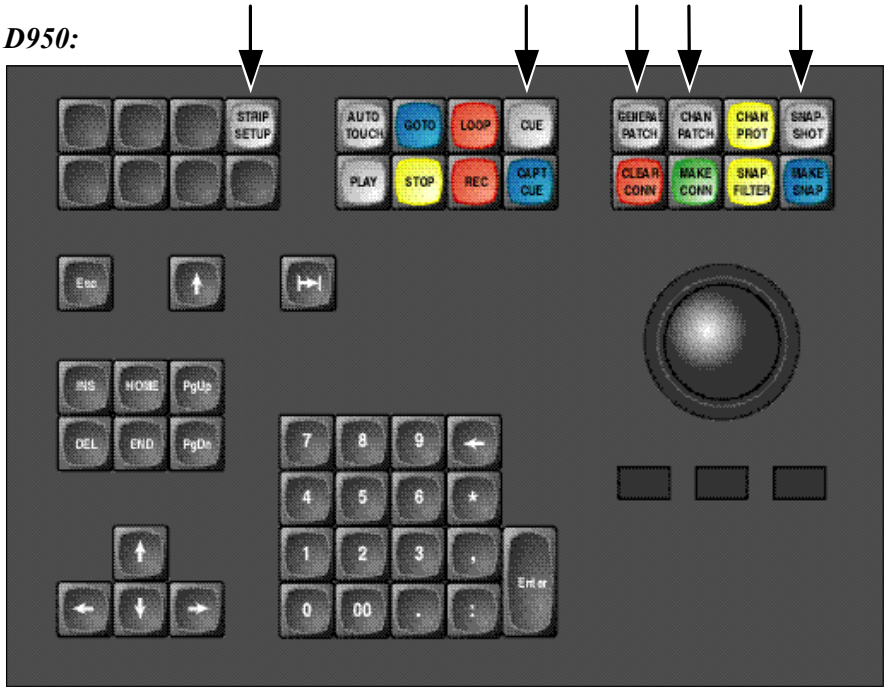
- From the *Page* menu, by clicking on the appropriate menu item:



- Using the Page icons, by clicking on the appropriate icon in the toolbar (see above), or
- Using the function keys on the control surface keyboard – which is probably the fastest way:

Vista:

D950:

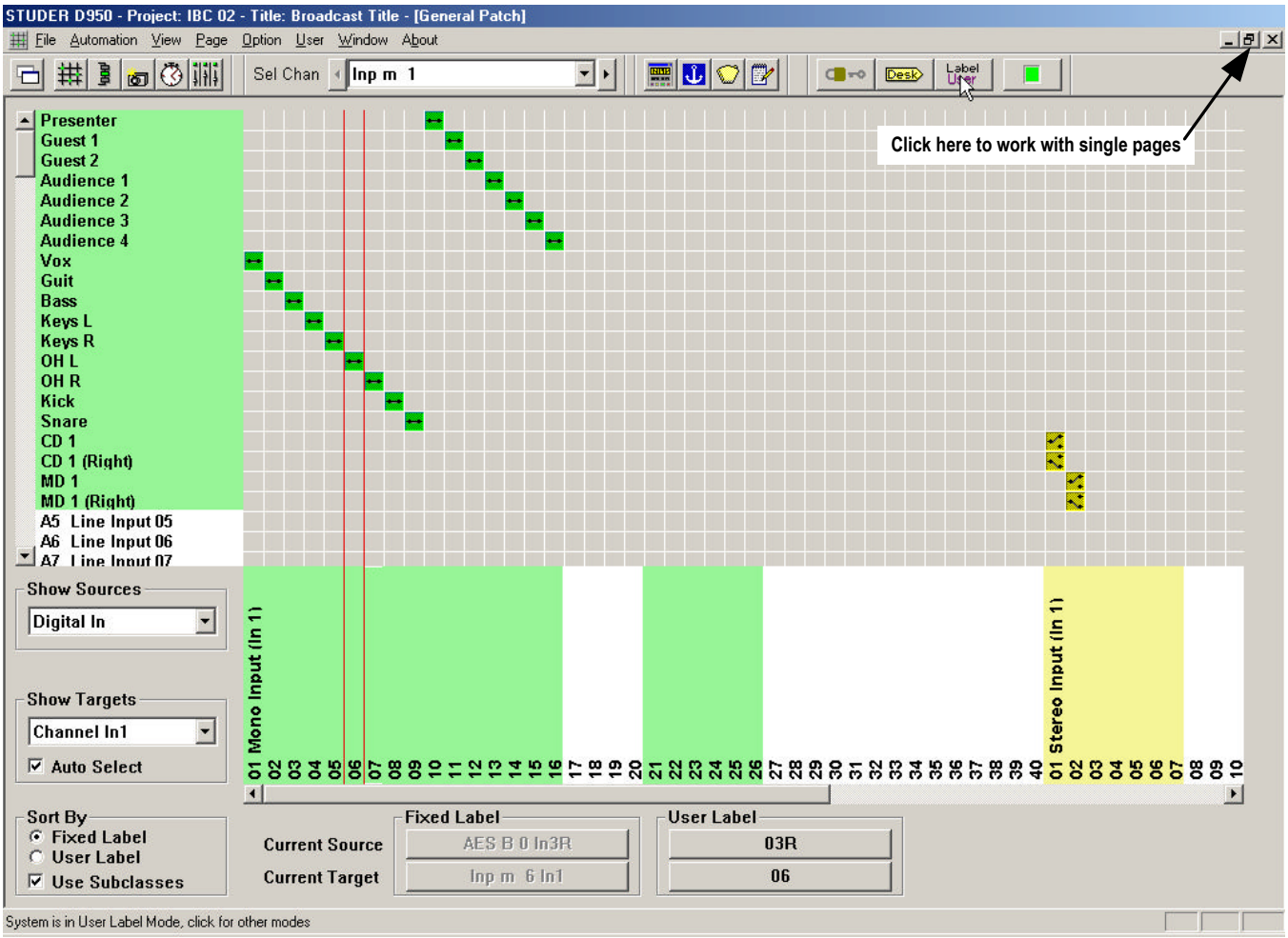


4.4.1 One Page, or More...

The GC Workspace can be used to display one single page, or a number of pages and panels at the same time. Because different users will prefer different page layouts, the User Menu enables Workspace layouts to be stored and retrieved for later use by any number of users. Page layouts can be manipulated using standard Windows techniques.

4.4.1.1 Working with one Single Page

If you prefer working with a single page, select the page using one of the methods listed above. Then click to full-page mode:



The selected single page will now be fully visible. Selecting a single page has the advantage that you always see all parts of a page (except for the General Patch), and that operating via the Function Keys/Page menu always affects the page you want – because there is only *one* to work with.

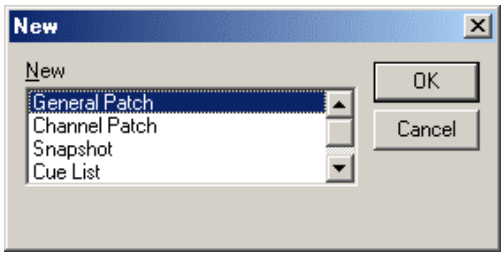
4.4.1.2 Working with Multiple Pages

A number of different pages can be opened on the screen at the same time, and drag-and-drop techniques used to position and size the selected pages.

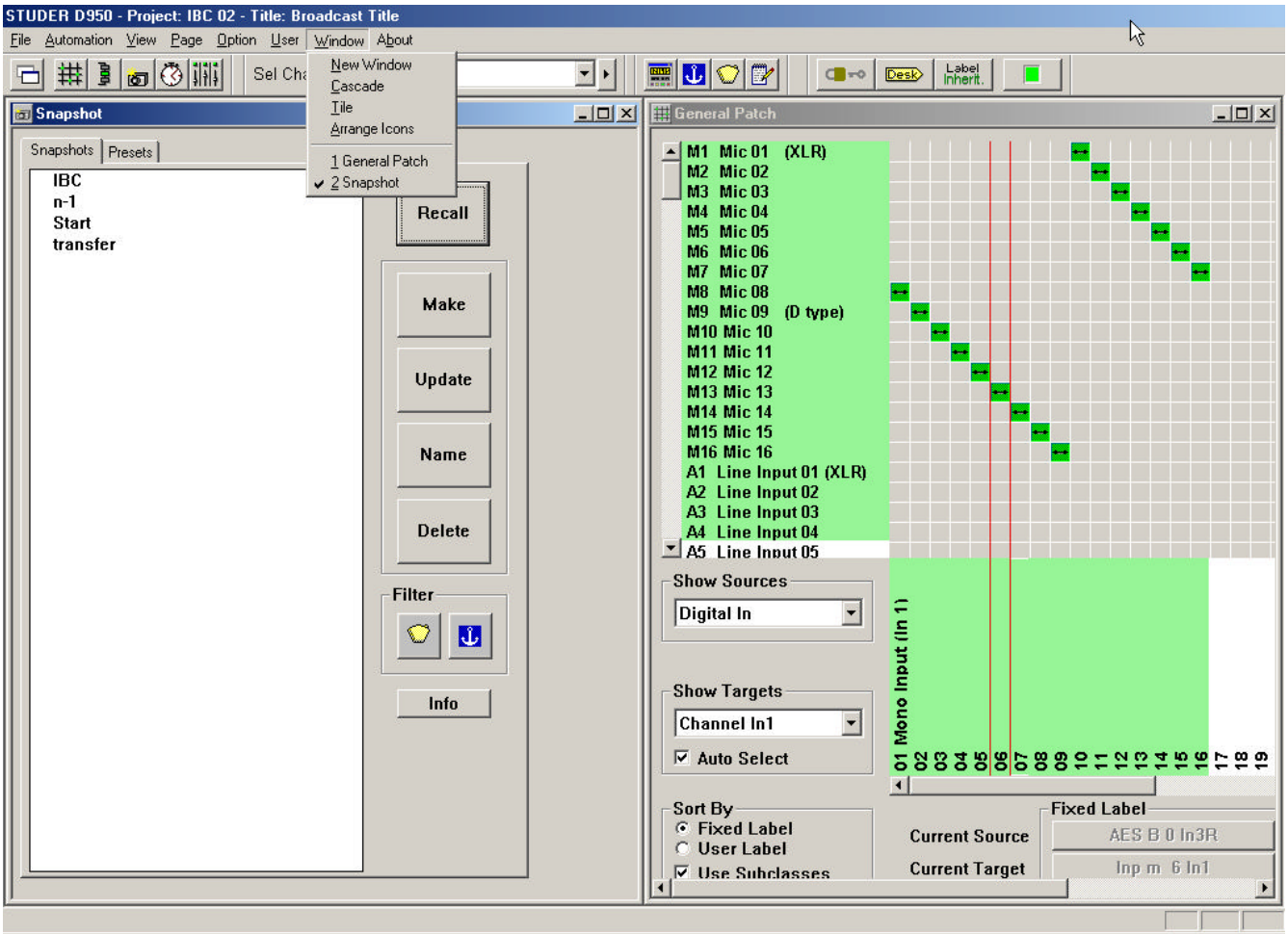
☞ **Tip** To open more than one page, open the first page using the methods listed above; then:

- Use the Window menu item *New Window*, or
- The Toolbar icon *New Window*, and

- Select as many pages as you require.



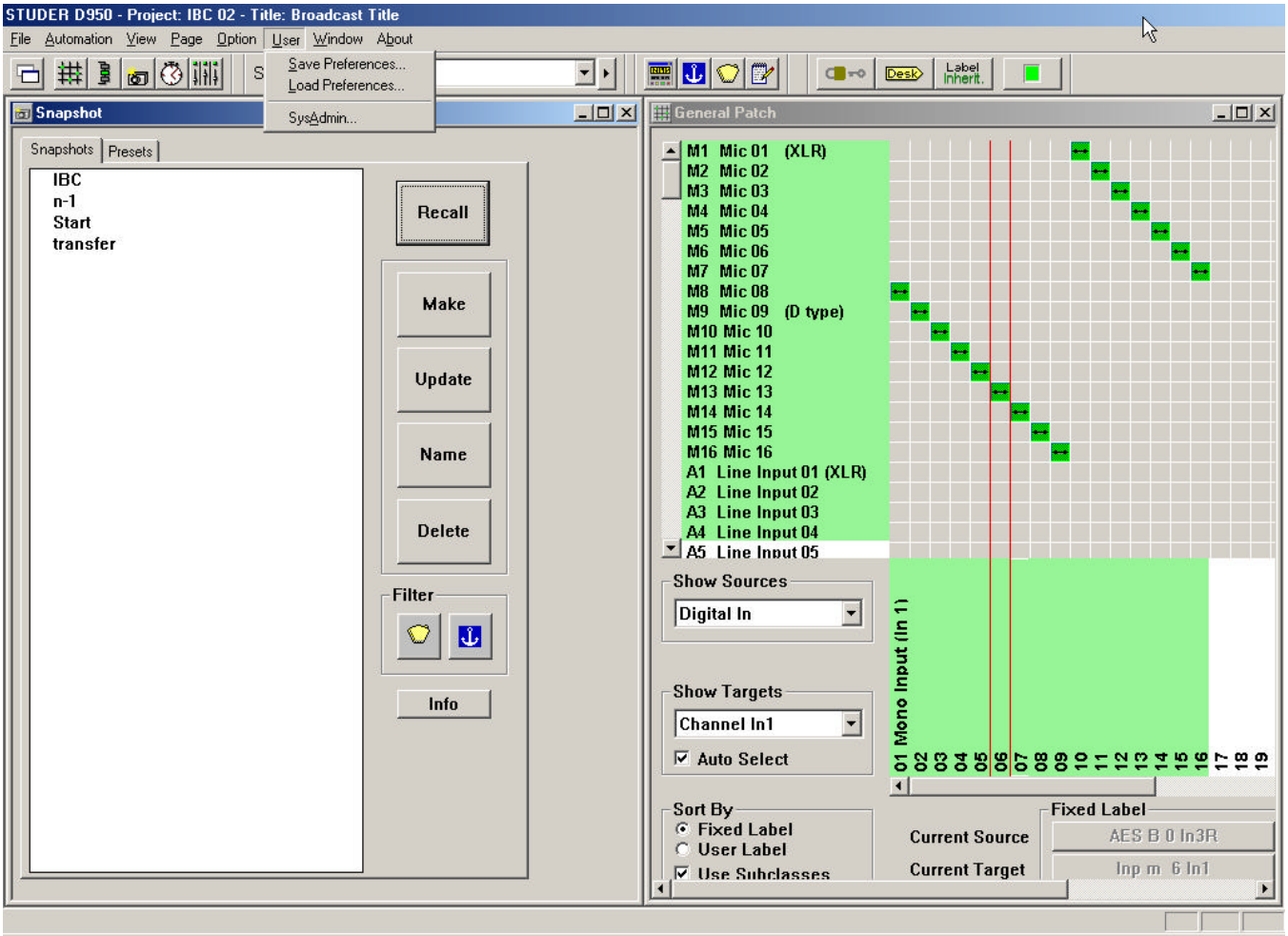
In this example, there are *two* active pages displayed on the same screen:



You can also open the *same* page more than once, which can be useful for simultaneously viewing different areas of the General Patch page, for example. The page you used last will be *selected*, which is indicated by highlighting the Title bar in blue.

Generally, this means that various functions activated through the function keys will only affect the *selected* page. To highlight another page, simply click on it once, or use the familiar Windows **Ctrl+Tab** key combination.

To position and size the pages, use the normal Window menu items Cascade and Tile. Alternatively, use drag-and-drop techniques to position and arrange each page, and experiment with their locations to suit your own requirements. Once you have developed a favorite page layout, store it for later retrieval using the User Menu items Save Preferences and Load Preferences:



☞ **Tip** If you should forget to save your particular preference, don't worry. The system will store automatically the screen layout used when you shut down the system. When starting the system the next time, the screen will appear exactly as you left it.

4.4.2 The General Patch

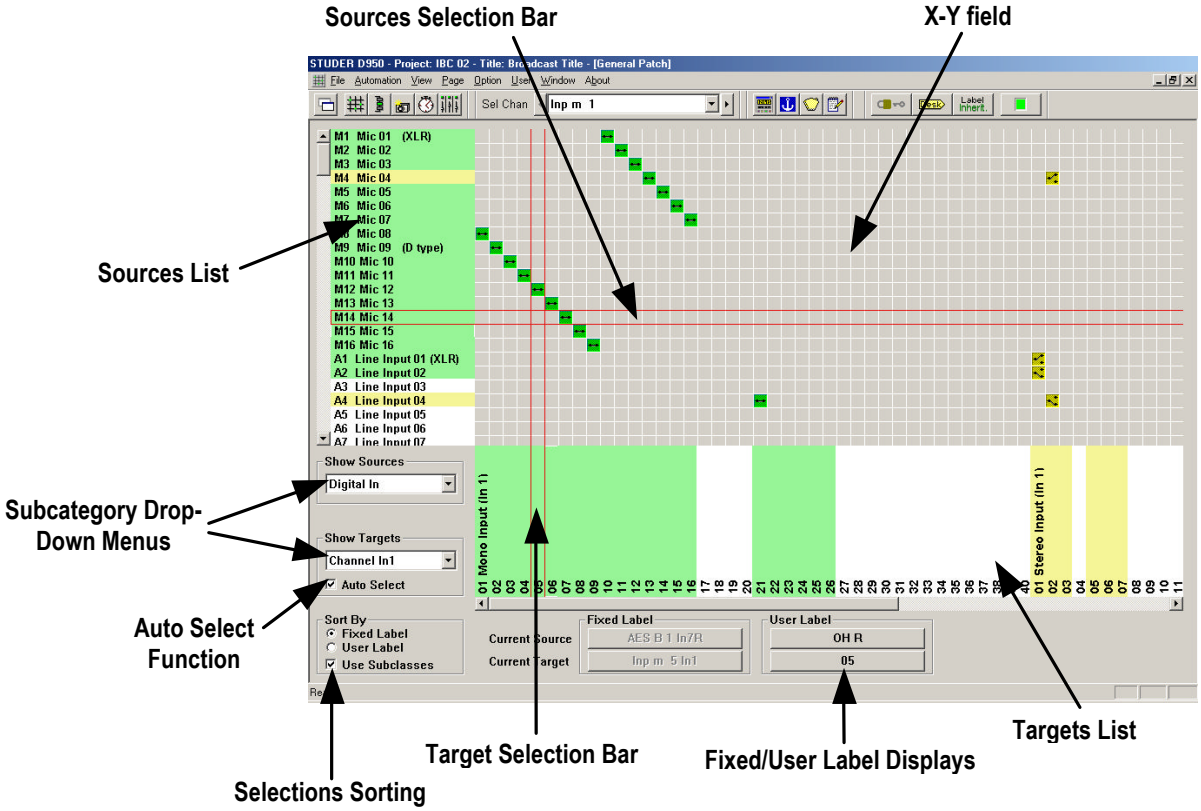
The GC General Patch page can be accessed in three different ways:

- From the Page menu, by clicking on the appropriate menu item
- Using the Page icons, by clicking on the appropriate icon in the tool-bar
- Using the **GENERAL PATCH** *(D950)* or **GLOBAL PATCH** *(Vista)* function key. This is the fastest way.

The General Patch is the main tool used to establish and clear audio connections within the system. The name “Patch” is used because it mimics the conventional patch bay used in analog consoles. It accomplishes all the tasks of a conventional patch bay, and much more. Patch cross-points are stored into the Snapshot/Preset memories.

It utilizes an X-Y axis (or side-to-side/up-down) representation to aid viewing and editing of existing connections or cross-points (equivalent to the location of patch cords), and all existing Sources and Targets (equivalent to the patch-jack pairs used in most patch bays).

The General Patch can be thought of as a number of “sub-patches” whereby single subcategories of the sources and targets can be viewed at one time.



The General Patch consists of:

- A Targets list (the lower horizontal, or x axis), equivalent to the lower jack row in a patch bay
- A Sources list (the left-hand vertical or y axis), equivalent to the upper jack row in a patch bay
- The X-Y field, where the cross-point icons enable interrogation and editing of cross-point connections
- The Source and Target selection Bars

- Source and Target drop-down menus for selection of the subcategory to be viewed
- Auto Select function
- Viewing selections which allow sorting of the Sources and Targets Lists by label type
- The Fixed/User Label displays for the selected Source/Target (refer to chapter 4.3.3).

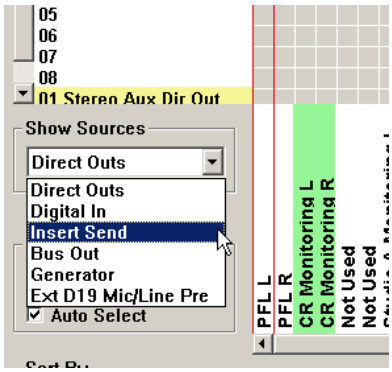
4.4.2.1 General Patch Navigation

4.4.2.1.1 Navigating the Sources/Targets List

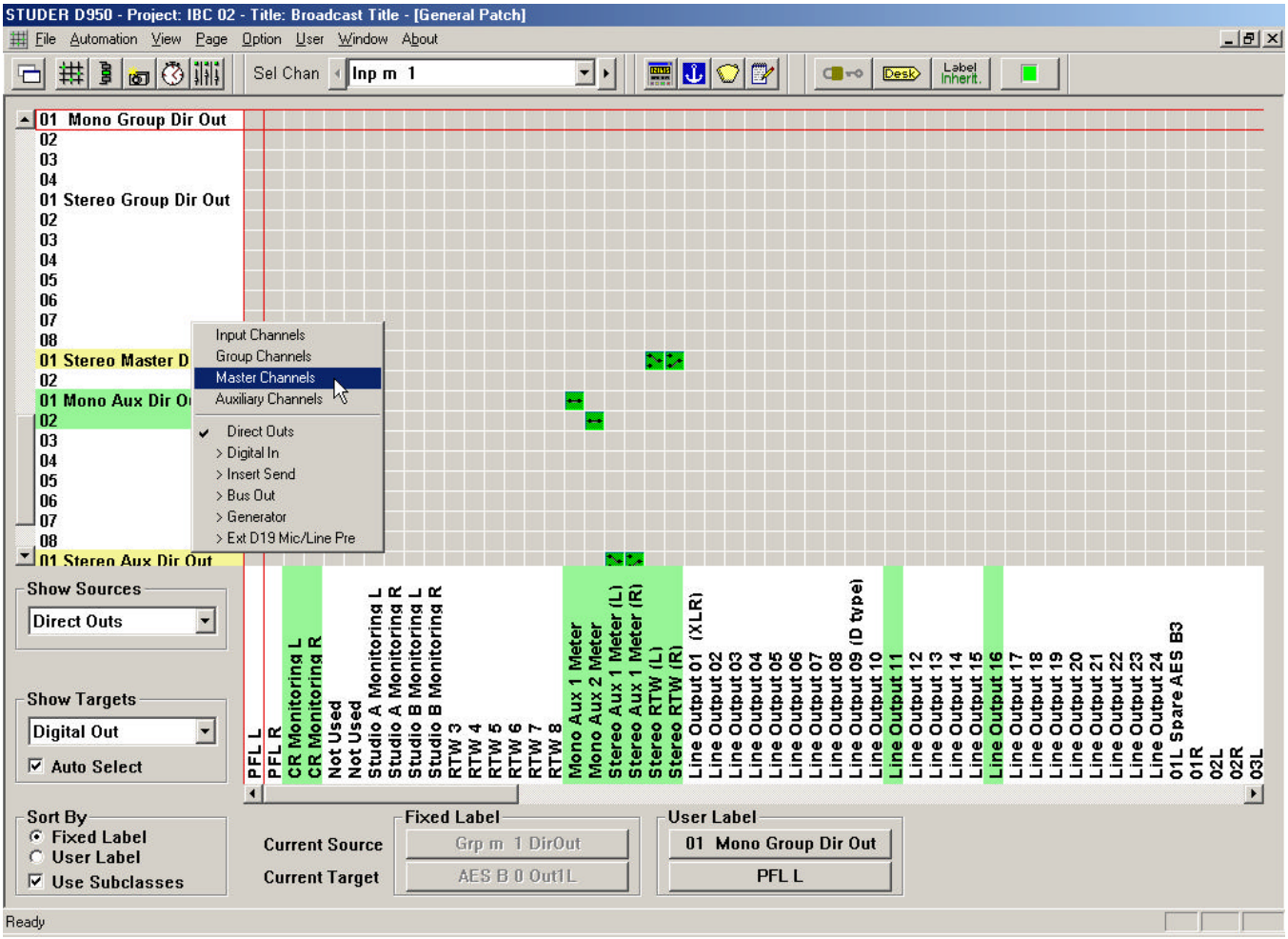
The audio sources list (located on the Y axis) and the targets list (on the X axis) allow the user to find and select a Source/Target pair, and to make or clear a required cross-point connection.

There are different ways to navigate and select the required source and target for making or clearing patch connections. The simplest process to select the required Source/Target selection is described below:

1 Select the subcategory of the required source/target using the "Show Sources" and "Show Targets" drop-down menus. This will show in the X-Y axis list all the possible sources/targets available in the Session Configuration currently loaded. Scrolling using the standard windows scroll bar may be required to see all the sources/targets from the chosen category. Scrolling is *not* recommended as the fastest way to navigate the sources list.



2 Move the cursor into the Sources/Targets List and right-click. This will open a selection list to allow fast navigation to some pre-defined subclasses of Inputs or Channel types (such as Input Channels, Auxiliary Channels, etc.), see the screenshot below. Select the required Input or Channel type category. This will navigate directly to the first Source/Target of the chosen category (e.g Mono Input Channel 1, Auxiliary Channel 1, etc.). Select the required Source/Target by clicking on the Source/Target name or by using the keyboard cursor arrows to move up and down the list. This will position the Selection Bars of the X-Y axis to the chosen Source/Target. The intersection of the two Selection bars will allow the making or clearing of a cross-point based on the chosen Source and Target (see chapter 4.4.2.4 for information on how to make cross-point connections).

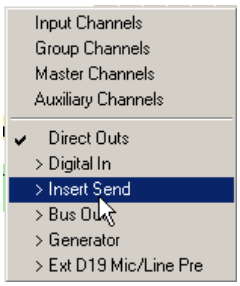

STUDER D950 - Project: IBC 02 - Title: Broadcast Title - [General Patch]
File Automation View Page Option User Window About
Sel Chan
Inp m 1
Desk
Label Inherit.
01 Mono Group Dir Out
02
03
04
01 Stereo Group Dir Out
02
03
04
05
06
07
08
01 Stereo Master D
02
01 Mono Aux Dir O
02
03
04
05
06
07
08
01 Stereo Aux Dir Out
Input Channels
Group Channels
Master Channels
Auxiliary Channels
Direct Outs
Digital In
Insert Send
Bus Out
Generator
Ext D19 Mic/Line Pre
Show Sources
Direct Outs
Show Targets
Digital Out
Auto Select
Sort By
Fixed Label
User Label
Use Subclasses
PFL L
PFL R
CR Monitoring L
CR Monitoring R
Not Used
Not Used
Studio A Monitoring L
Studio A Monitoring R
Studio B Monitoring L
Studio B Monitoring R
RTW 3
RTW 4
RTW 5
RTW 6
RTW 7
RTW 8
Mono Aux 1 Meter
Mono Aux 2 Meter
Stereo Aux 1 Meter (L)
Stereo Aux 1 Meter (R)
Stereo RTW (L)
Stereo RTW (R)
Line Output 01 (XLR)
Line Output 02
Line Output 03
Line Output 04
Line Output 05
Line Output 06
Line Output 07
Line Output 08
Line Output 09 (D type)
Line Output 10
Line Output 11
Line Output 12
Line Output 13
Line Output 14
Line Output 15
Line Output 16
Line Output 17
Line Output 18
Line Output 19
Line Output 20
Line Output 21
Line Output 22
Line Output 23
Line Output 24
01L Spare AES B3
01R
02L
02R
03L
Fixed Label
Current Source
Grp m 1 DirOut
Current Target
AES B 0 Out1L
User Label
01 Mono Group Dir Out
PFL L
Ready

4.4.2.1.2 Other Navigation Methods

Choosing Source/Target Subcategory:

There are two methods to select the required Source/Target subcategory:

1. Use the Source/Target subcategory drop-down menu.
2. Right-click directly in the Sources/Targets List. All the available subcategories (identical to those in the drop-down menus) can be accessed directly from the lower portion of the menu.



Source Subcategory Selection

Target Subcategory Selection

Using "Auto Select" Feature:

For faster selection of the Source/Target subcategories, a useful feature can be activated called "Auto Select". To activate this function, click on the "Auto Select" checkbox.
This function will automatically select the most logical subcategory of Targets as soon as a Source Subcategory is selected. That is, if the "Digital In" Source Subcategory is selected, the Targets List will automatically switch to show the "Channel In 1" subcategory. However, even if this option is selected, it is possible to navigate to other Target subcategories manually after Source navigation.

Use of Color for Navigation:

Color is used in the Sources and Targets lists to give a clear indication and overview of the sources and targets which have connections patched. If a Source is connected to a Target or multiple targets, the Source label in the Sources List will be highlighted by a color. Similarly, if a target is connected to a Source or a number of different Sources, then the Target label in the Targets List will be highlighted by a color. The meaning of each color is as follows:

GREEN: A single connection is made to the indicated Source or Target.
YELLOW: Two or more connections are made to the indicated Source or Target.
RED: The Target has a protected connection.

If a Source or Target is highlighted (indicating a connection is made to it), double-clicking on the label in the Sources/Targets Lists will navigate directly to the cross-point so that the Source Selection Bar and Target Selection Bar intersect at that cross-point. This is an extremely fast method to find what is connected to a Source or Target without the need for scrolling or manual searching of the sub patches. If a Source or Target is highlighted in Yellow (indicating two or more connections are made to it), double-clicking on the label in the Sources/Targets Lists will navigate directly to the first cross-point. Subsequent double-clicks will navigate to each of the following connections that are made to the Source/Target in question. If all connections have been shown, a further double-click will return the user to the first connection and loop around the connections once again with further double-clicks.

4.4.2.1.3 What Subcategories are There?

There are basically seven different subcategories for each of the Sources and Targets Lists:

Sources	Targets
Digital In	Channel In1
Dir Out	Channel In2
Insert Send	Insert Return
Bus Out	Digital Out
Generator	Channel In3
Ext Source	Dyn Ext Key
Ext D19 Mic/line Pre	Ext Target

Each subcategory contains a number of Sources or Targets, depending on the current Session Configuration. Sometimes certain sections will not be present; for example, if no Channel Inserts have been configured, there will be no Insert Send section within the Sources List, and no Insert Return section within the Targets List.

The size of the X-Y General Patch automatically adapts to the number of channels, input interfaces, output interfaces, and to the presence of DSP function blocks in the channels – as defined in the Session Configuration.

Some detail information on the sections:

Sources List:

Digital In: All input audio interfaces (AES/EBU, MADI, or D21m A/D converters).

Dir Out: All Direct Outputs of all channel types.

Insert Send: Sends from the inserts of all channel types.

Bus Out: Unlike analog consoles, with the D950/Vista any bus is a valid audio signal source; AUX Mono Bus 12 can be used to feed an output interface, or to become an input to an input channel.

Generator: The Test Generator's signal.

Ext Source: This is *not* an audio signal, but a *logical Source* to be used in conjunction with future A/D converters (not used in this software version).

Ext D19 Mic/Line Pre: This is *not* an audio signal, but a *logical Source* to be used in conjunction with the remote-controlled D19m Mic/Line Pre-amps/converters.

Targets List:

Channel In1: First audio input to all channel types,
- Free to use for all input channels,
- Used for default connection of the corresponding Bus for an output channel, such as a Group, Master, or Aux channel.

Channel In2: Second audio input to all channel types,
- Free for all input and output channels.

Insert Return: Returns to the inserts of all channel types.

Digital Out: All output audio interfaces (AES/EBU or MADI, D/A converters).

Channel In3: Third audio input to all channel types,
- Used for the Test Generator connection per default,
- Can be re-patched to any source at any time.

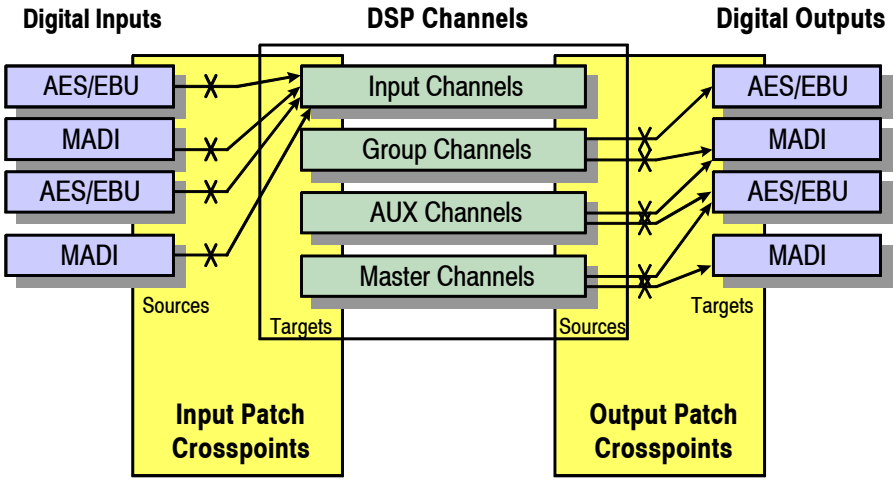
Dyn Ext Key: Input for the external control signal (key) to the Dynamics Sidechain of all channel types.

Ext Target: This is *not* an audio signal, but a *logical Target* to be used in conjunction with external converters.

4.4.2.2 How to Deal with the Analog Interfacing?

"Where are the analog interfaces coming in?", you might be asking. We still need some analog sound. Here is how we achieve that task:

The D950/Vista Patch and DSP systems only know about *digital* interfacing, as can be seen from the following simplified block diagram:



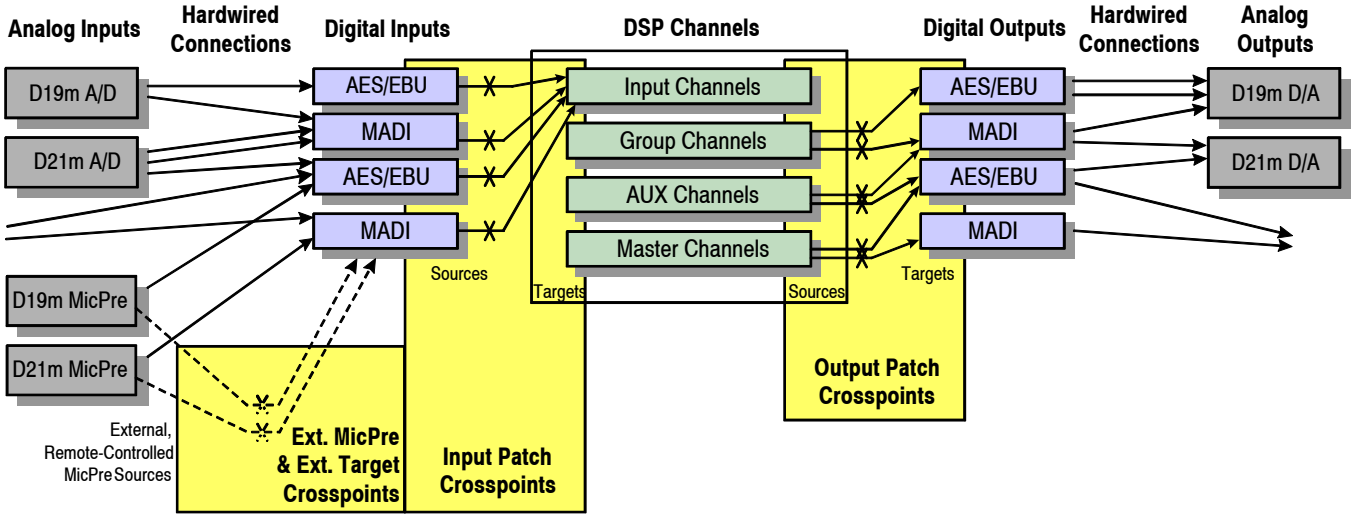
To accommodate analog sources, we need to make a distinction between

- Remotely controllable devices (D19m/D21m mic pre-amps), and
- Non-controllable devices (D19m/D21m A/D and D/A converters).

The mic pre-amps have to be connected to the system using General Patch connections, in order to establish the correct remote control and audio inputs. In addition, they are also hardwired to digital inputs (AES/EBU or MADI).
All other currently available analog interfaces are only hardwired to their digital counterpart sources.

For this reason, all microphone/line sources coming from D19m/D21m mic pre-amps need to be patched *twice (where one of these patches remains the same as long as the wiring of the analog pre-amps to the digital input is not changed)*:

Source	to	Target	Reason
D19m Mic/Line Pre	**to**	Ext Target	Prepare the remote control link, and
Digital Input	**to**	e.g. Channel In1	Establish the connection & control link



As soon as both cross-points have been made, the MIC CTL LED on the corresponding console Channel Strip will be lit to indicate an established connection (assuming the corresponding channel input has been selected).

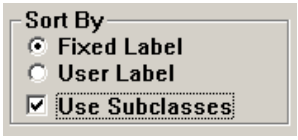
☞ **Tip** Even if it appears complicated, this procedure really is quite simple. As a rule, the Ext D19m mic/line pre-amp Target connections, as well as most of the output patch cross-points, may have been factory-configured, and saved as a Basic Preset, along with appropriate Labels and other useful pre-fabricated settings. In some cases, your subsequent work will be based on that Basic Preset. Unless your console's layout needs to be radically re-configured, you will probably never have to change this preset. In other situations, multiple Presets (and possibly Session Configurations) will be used to allow optimized configurations for a variety of applications.

4.4.2.3 Digital Input/Output Subclasses

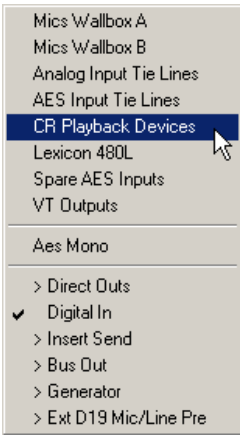
The two subcategories “Digital In” (Sources) and “Digital Out” (Targets) show the list of available physical inputs and outputs of the loaded Session Configuration. These sources and targets provide all the interfacing of the console to the outside world. For this reason, these are the most used of the sources and targets. It would therefore be extremely useful to be able to group certain physical inputs and similarly physical outputs together within the General Patch to aid navigation and viewing possibilities. This grouping of the “Digital In” Sources and “Digital Out” Targets is known as Subclasses. For the creation of these subclasses, please refer to chapter 4.7.1. Subclasses are usually generated by the facility’s system administrator.

4.4.2.3.1 Using Subclasses to Aid Navigation

To use the subclasses, ensure that the “Use Subclasses” check box is selected in the “Sort By” window.



When either the “Digital In” or “Digital out” subcategories are showing, right-click on the Sources/Targets list to show the selection menu.



In the case of Digital Input as shown above, as well as the general selection of Digital Input type such as “MADI Mono”, “AES Mono” or “AES Stereo”, the predefined list of subclasses is also shown. By selecting a subclass, the Source Selection Bar/Target Selection Bar navigates directly to the first of the Sources/Targets within the subclass. This provides fast navigation to physical I/O.

Note: Subclass Names are stored within User Preference files. If changes are made to the Subclass Names, a User Preference should be stored (see chapter 4.6.6).

4.4.2.4 Making and Clearing the Cross-Points

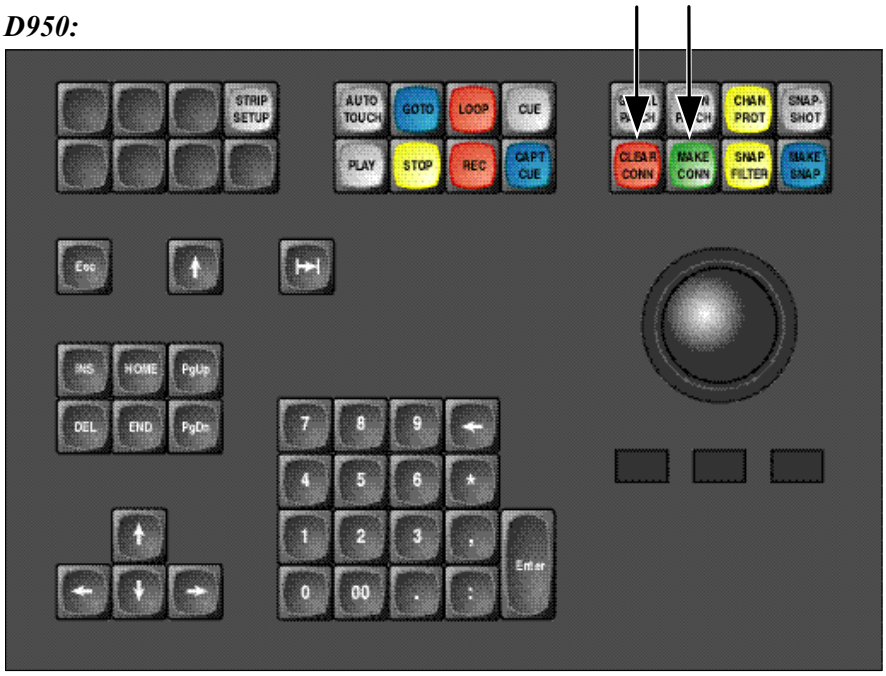
The creation and updating of cross-points is simple. First, select the Source and Target; the Selection Bars have to be crossed to form an X-Y pair.

There are two ways of making or breaking a cross-point connection:

- By double-clicking the left trackball button, while the cursor is positioned over the crossed Selection Bars, or
- By using the function keys on the control surface keyboard;

Vista:

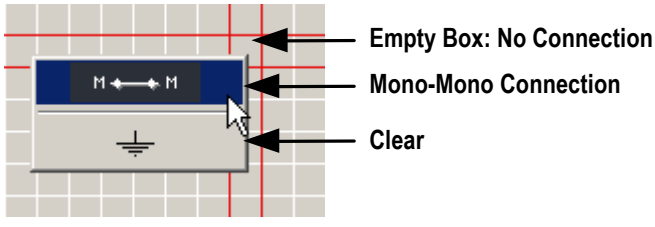
D950:



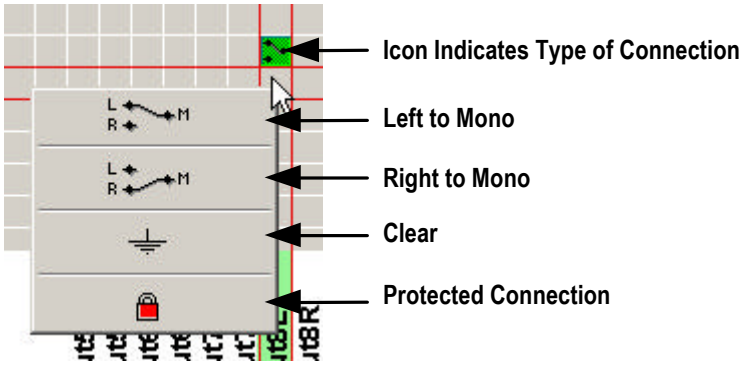
Using the **MAKE CONN** (make connection) function key will always make a default connection, depending on the Source- and Target-type combination. Using the **CLEAR CONN** (clear connection) function key will always clear any cross-point connection. (This is the *fastest* method to make or clear a connection.)

Double-clicking the left track ball button: This method is more sophisticated, because it allows you to select from a *number* of connection options displayed in a pop-up menu box. The menu display depends upon the combination of Source (mono or stereo) and Target (mono or stereo). The uppermost connection type in the menu is the default connection type, which is applied if you use the function keys, as shown above.

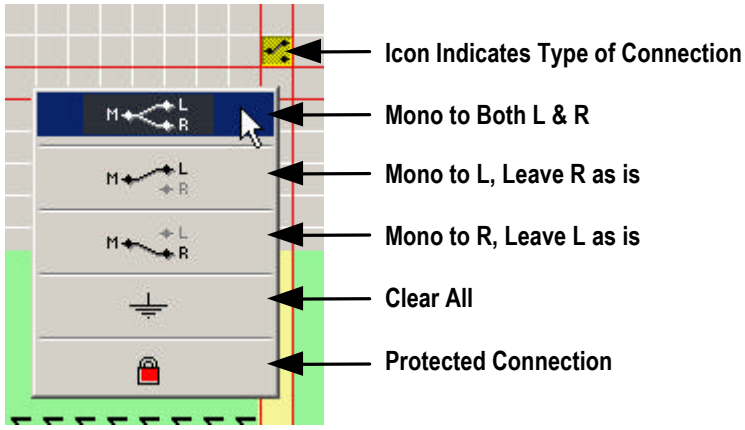
Mono Source – Mono Target:



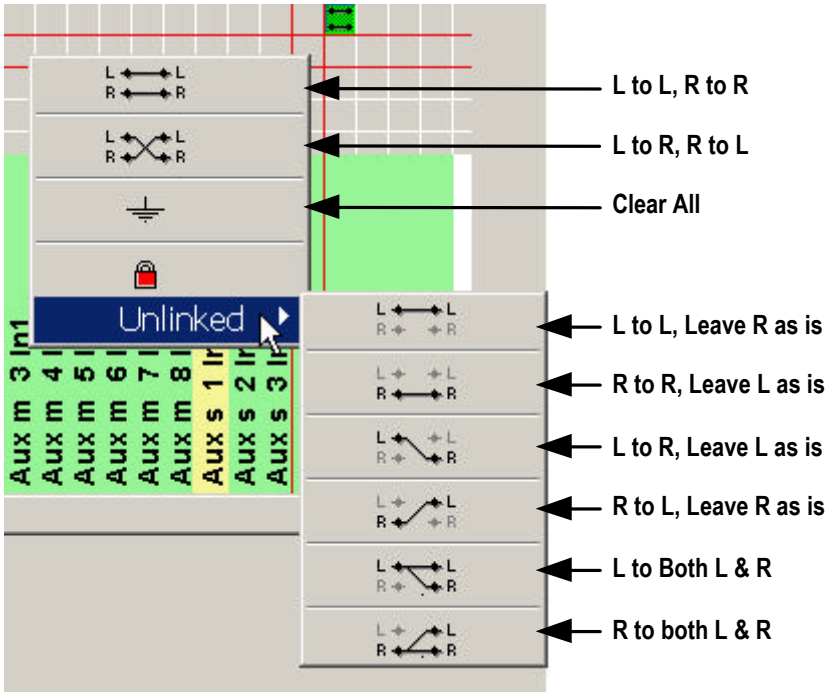
Stereo Source – Mono Target:



Mono Source – Stereo Target:

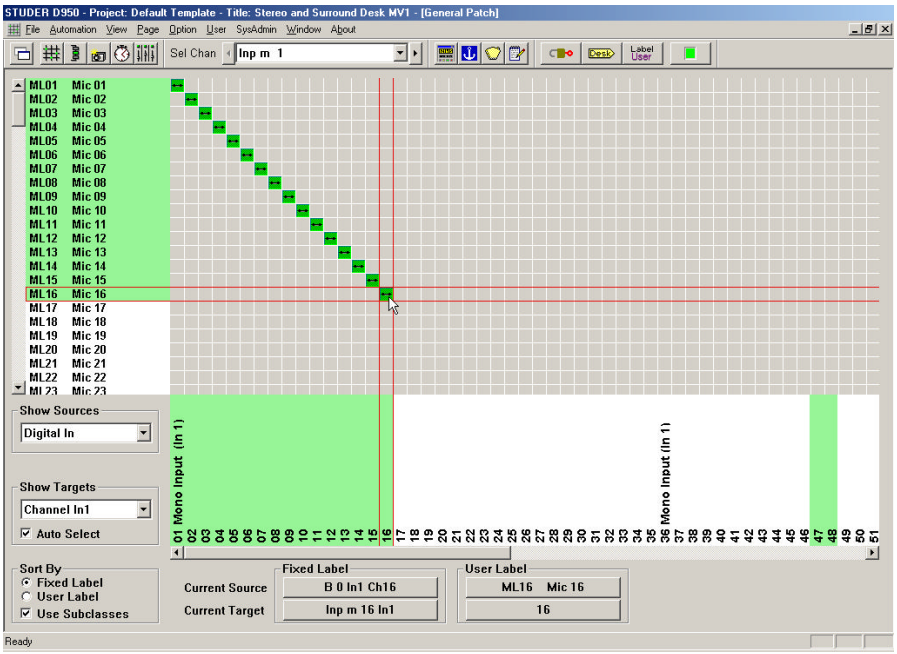


Stereo Source – Stereo Target:



The last menu allows *unlinked* operation, a phrase that refers to a Stereo Target being unlinked and its left and right components used with *different* Sources. Such cross-point connections enable one Target to be connected with *two* Sources, and are indicated with *a yellow icon*.

☞ **Tip** A feature is available for fast diagonal patching of multiple Sources to multiple Targets. The example below shows this feature used in practice.



Example: Patching the first 16 Mic inputs to the first 16 Mono Input Channels.

1. First make the first connection (In this instance Mic 01 to Mono Input Channel 1).
2. Then whilst holding the SHIFT key on the keyboard, make a connection on the last of the diagonal connections (in this instance, Mic 16 to Mono Input 16). This will automatically establish all the connections on the diagonal line between the first and last connection, respectively.

Similarly, if whilst holding SHIFT, the last connection of a diagonal line of connections is double-clicked, then all connections running back up the diagonal will be cleared.

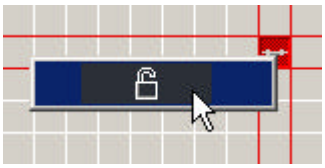
This function provides time saving possibilities when patching.

Connection Protection:

It is also possible to protect a certain connection from accidental change both by the user or by recalling a snapshot.

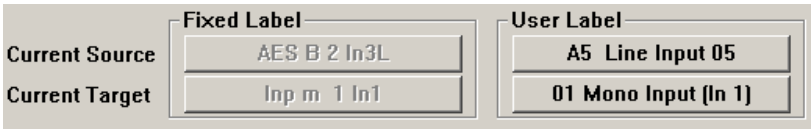
Double-clicking on a connection selects the padlock item to lock the connection. To unlock, double-click again.

Both the background of the Target as well as the connection become red. When attempting to change a protected connection, a warning appears, together with the instructions on how to unprotect the connection.

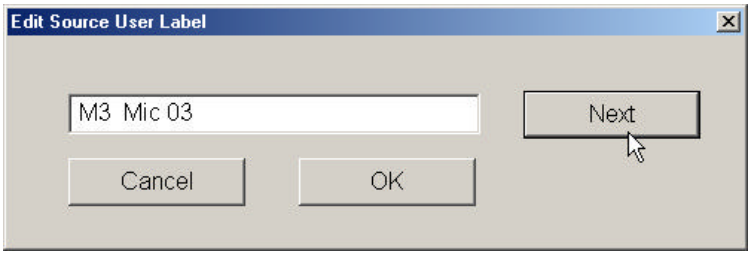


4.4.2.5 Editing the User Labels in the General Patch

To edit the User Labels in the General Patch, first click on the desired Source/Target in the Sources/Targets list. The User Label and Fixed Label for the chosen Source/Target will be shown in the Label Fields at the bottom of the screen:



Click on the User Label Field of the Source/Target. This will open a dialog box which allows a User Label to be entered:



To automatically move to the next Source/Target in the list, either click on "Next" or hit **ENTER** on the keyboard. To close the dialog box click on "OK". It is possible to choose a Source/Target from the General Patch list without closing the Edit User Label dialog box. Simply click on the desired Source/Target from the General Patch list with the window still open. This will automatically enter it into the window for editing.

For D950 Users: The first four characters of the User Label will be displayed in the channel strip display when "Inherited Labels" are selected to be shown. It is important to choose sensible labels that will show useful information in the first four characters. The screenshot above shows an example of integrating two labels into one, e.g. M3__Mic_03.

For Vista Users: User Labels with up to 13 characters (depending on the width of the individual characters) can be used for Digital Input sources.

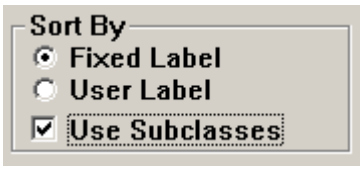
4.4.2.5.1 Sorting Options

There is a number of options for sorting the display of the Sources and Targets in the General Patch Lists. This sorting is independent of which label type is being displayed due to the global label mode selection.

Sort by Fixed Label: Independent of the User Label, the Sources and Targets will be sorted and displayed in alphabetical order, depending on the Fixed Label of the Sources/Targets.

Sort by User Label: The Sources and Targets will be sorted and displayed in alphabetical order, depending on the User Labels of the Sources/Targets.

To select the sorting method, check the "Fixed Label" or "User Label" option button as shown below:



If the "Use Subclasses" checkbox is selected, then the "Digital Input" Source List and "Digital Output" Target List will be sorted and grouped by the defined subclasses. This selection has highest priority of sorting.

☞ **Tip** The most useful sorting method is to Sort by "Fixed Label" and "Use Subclasses".

4.4.2.5.2 How to View the Different Label Types

It is typical that a user will work in a single mode of label type display within the GC. There are times, however, when it is useful to temporarily display another of the label types globally within the GC to help with patching. The Label mode is changed by clicking on the "Label" button in the system toolbar:

Clicking this button will toggle the label view globally throughout all parts of the GC (*D950 and Vista*) and channel strip display (*D950 only*). The label display can be toggled between "User", "Inherited" and "Fixed". For a detailed description of how to work best with labels, see below.

4.4.2.6 Working with Labels

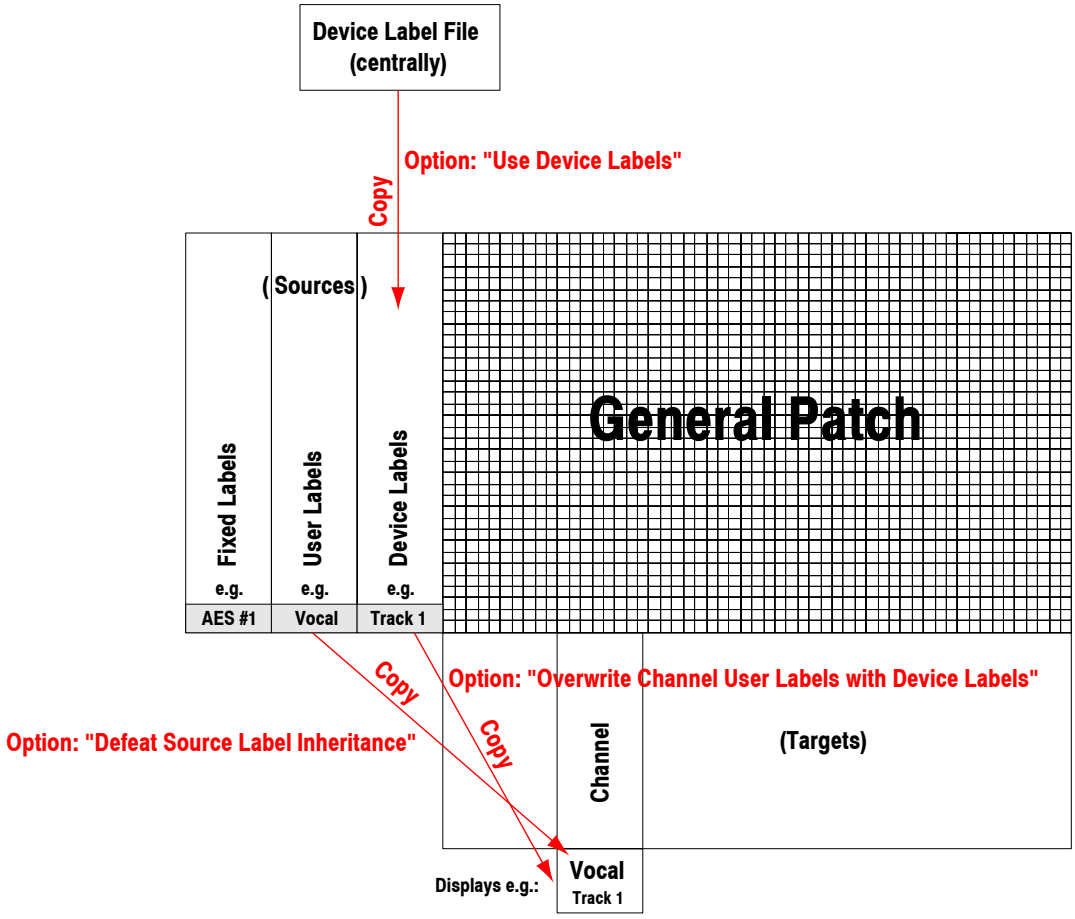
For a detailed description of different label types, please refer to chapter 4.3.3.

The most important aspect of any audio patching system is its labeling. Clear labeling allows fast navigation and fault-free patching.

Labels exist within the general patch window as well as within each single channel. Depending on your preferred way of working, some of the label fields may be filled in automatically by the system (by setting some options), or you choose to type the labels manually in all the places. Two principal automatisms for automatically copying labels exist within your system:

1 Your studio device names (devices connected to a specific console input) may be filled in automatically into the General Patch window after you made a new title, or recalled a snapshot or preset. These labels are then read from a file stored centrally. So you can change your studio wiring, only having to update one file, and then seeing your updated wiring even when opening former projects.

2 The labels within your channels may be filled with the names of connected sources, copying labels from the source to the channel whenever a patch point is set, cleared, or changed.



Note: The “Defeat Source Label Inheritance” option is normally not activated. The other two options may vary, depending on your preferred way of working.
In principle, you can select to work according to one of the two methods described below.

4.4.2.6.1 Method 1: Analog-Style

A lot of D950 users work in this way. Although it is well possible to apply this working style on a Vista, some typographic issues may come up when looking at the label display on a Vista desk. *This is the reason why we recommend not to work with this method on a Vista console.*

The typical method of working in an analog-style environment is as follows:

1 The user decides which sources are to be connected to which physical channels on the console. This will be the channel strip layout. The user then labels the channel strips with labels that are sensible for the sources connected to the respective channels. These could be thought of as the "session" labels, i.e. they only remain valid for that particular session, for example: Violin 1, WW, Bass, DAT, etc.

2 The user patches the audio sources to the respective channels, i.e. Mic 16 to Channel 1 labeled Vln 1, DAT output to Stereo Channel 1 labeled DAT.

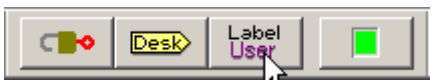
In other words: You name your channels for each of your sessions, and normally do not edit any labels within the patch. However, if you change a patch point to another channel, you will most probably have to rename the channels as well, since e.g. "Vocal Left" was moved to another channel. With this method, the channel displays are an electronic replacement of the tape you had stuck across your analog console in order to name the channels.
In this way of working, you will type your "track sheet" (e.g. "Vocal Left") within the Channel Patch window.

How to Proceed:

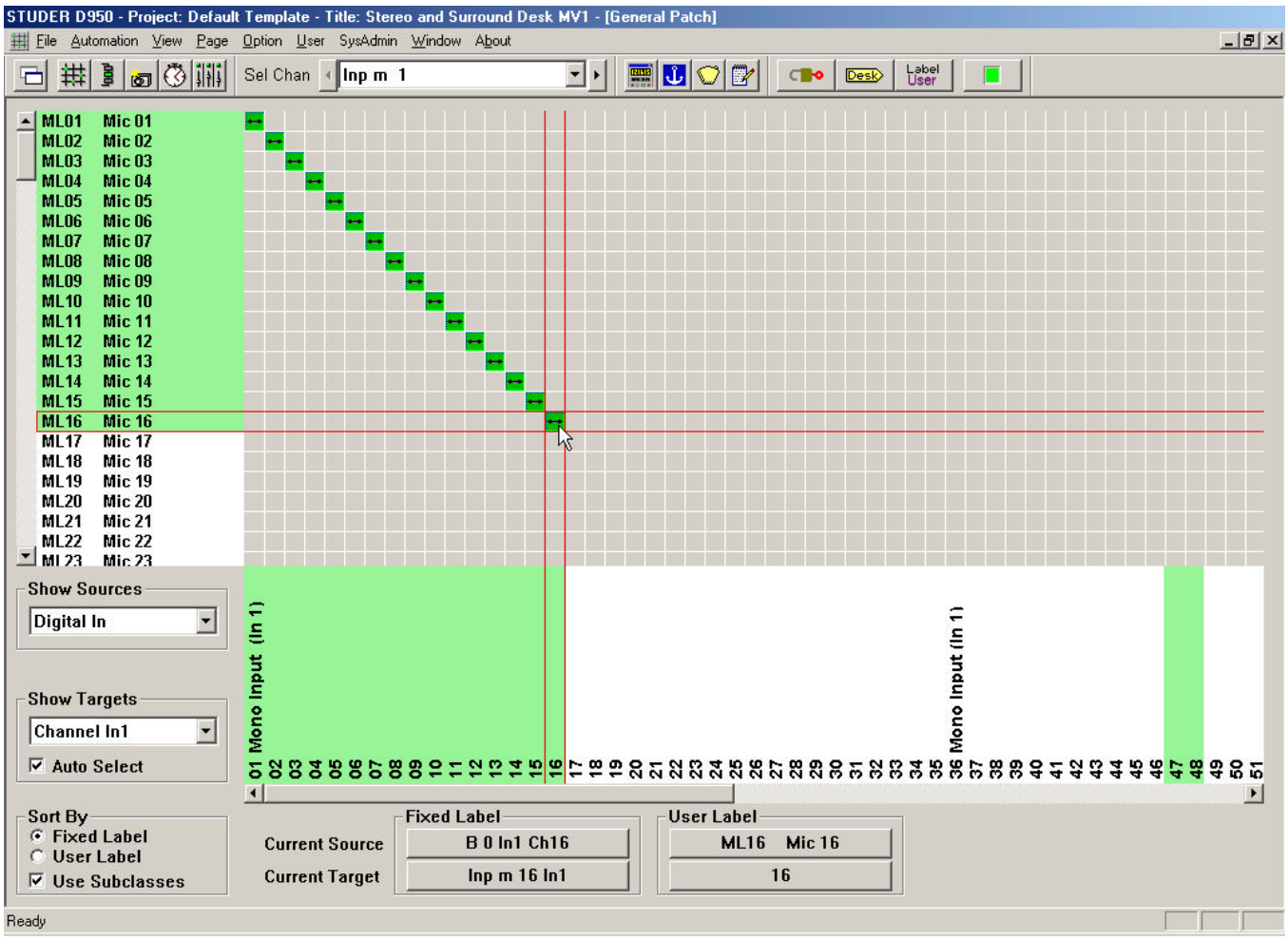
- Switch *off* the "Overwrite Channel User Labels with Device Labels" option in the SysAdmin/Device Labels menu.
- The "Use Device Labels" option in the SysAdmin/Device Labels menu doesn't help you either, since you will most likely not look at these labels while working.
- In order to have your studio environment visible (e.g. "Mic 16"), you will most likely want to edit the User Label of your patch sources. Since one of the copying mechanisms is always active (see above), you will have that information also available in the "INHERITED LABEL" field of the connected channels. In this example, the labels in the various locations will look like as follows:

General Patch Fixed Label	General Patch User Label	Channel Patch Fixed Label	Channel Patch User Label	Channel Patch Inherited Label
M25 M B0 In1 Ch25	M16 Mic 16	Im01 Imp m 01 In 1	Vln	M16 Mic 16

When working with labels in this way, you should work in "Show User Labels" mode at all times.



This means that the User Labels will be shown in all GC windows. On the channel strip displays, the User Label of the Channel Patch will be shown. To see which Source is routed to the channels on the channel strips, switch the label mode to “Show Inherited Labels”. To see which DSP Channel is represented on the channel strips in the channel strip displays, switch the label mode to “Show Fixed Label”. This will then show the Fixed Label of the DSP channel in the channel strip displays, and the General Patch will show the Fixed labels of Sources and Targets.
See below for an example of the User Labels displayed in the General Patch window:



☞ **Tip** It is strongly recommended to make a default “Title” containing all of the labeling, default patching, and audio settings, which can be used as a template for every new session. Before using the console in a situation where a new Title would be generated, first open this default Title and immediately “Save As ...” with another Title name. This means the default Title will remain unchanged, and the user has all the correct labels and default patching already made for his newly saved Title (see chapter 4.6.1.1).
Alternatively, when a new session configuration is loaded, first label the General Patch. Once the General Patch has been labeled, make a Preset (see chapter 4.4.4). This is essentially a Snapshot containing all of the General Patch labeling. Whenever a new title is made in the same Session Configuration, this Preset can be recalled, and all the labeling is in place before starting work. The Preset can even be imported to a new Title if a new but similar Session Configuration is loaded.

4.4.2.6.2 Method 2: Automatic Label Propagation

This is the typical way the users will work on a Vista console, but it can be applied to the D950 as well.

D950:

You type all your labels in the patch and let the system propagate them automatically to the connected channels. If you change any patch point, the channel labels will be updated automatically. Also, if you have one source connected to multiple channels, all of them will have the same labels. In this way, you will type your "track sheet" (e.g. "Violin") within the General Patch window, and you will never edit any label within the Channel Patch itself.

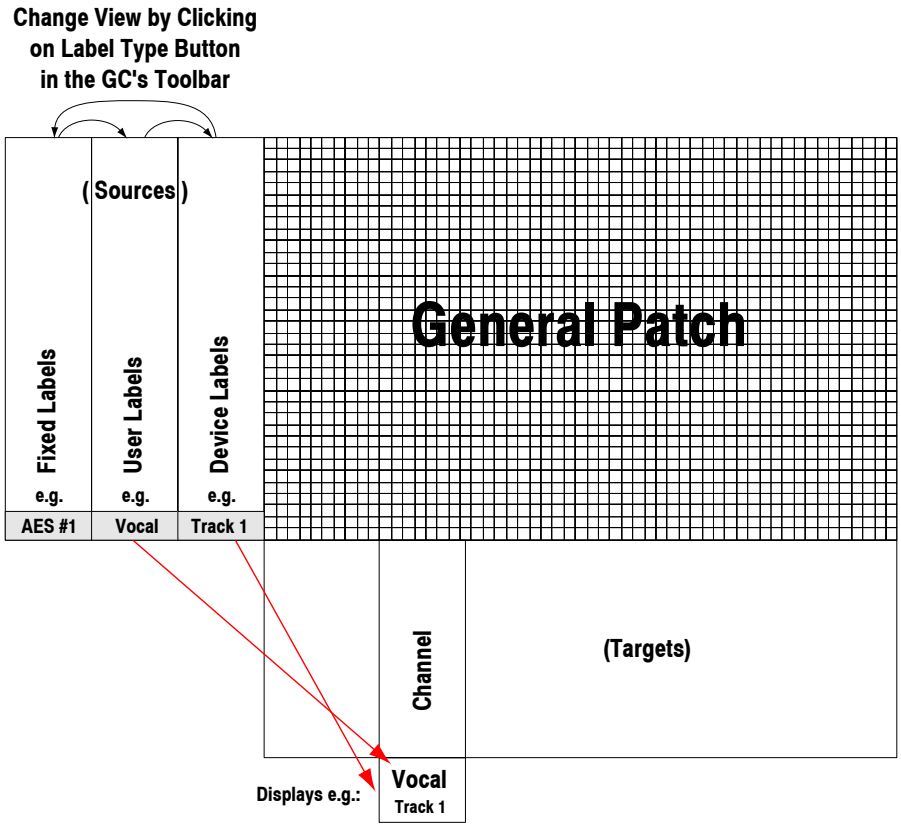
How to Proceed:

- Switch *on* the “Overwrite Channel User Labels with Device Labels” option in the SysAdmin/Device Labels menu.
- Switch *on* the “User Device Labels” option in the SysAdmin/Device Labels menu.
- There must be a file “`__DeviceLabels.pre`” present, which holds your device labels (technical labels), e.g. “Studio 1”, “Mic 1”).
- Type your track sheet into the USER LABEL field of the General Patch.
- Switch to “Show Inherited Labels” mode.

You will now see your session labels (e.g. “Violin”) within the channel strips, while the patch is showing you where it is coming from (e.g. “Mic 1”). On the CAS you will see all this information at the same time.

Vista:

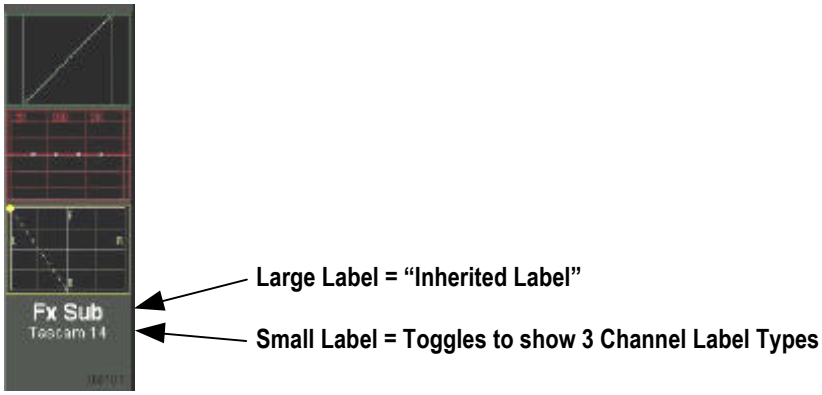
The philosophy on Vista consoles concerning labeling is not to name any labels *within channels*, but to name *patch sources* in the General Patch, letting the system propagate them to the connected channels. Specifically, we are talking about two kinds of labels which will be propagated in this way: Device labels (technical labels), and User labels (session labels, e.g. track sheet). This also supports the workflow, whereby the operator first names his sources and then patches them to any possible channel.
Advantages: If a source is connected to more than one channel, or if a patch is changed, the labels are correctly updated on the actually patched channels. You see what you hear!



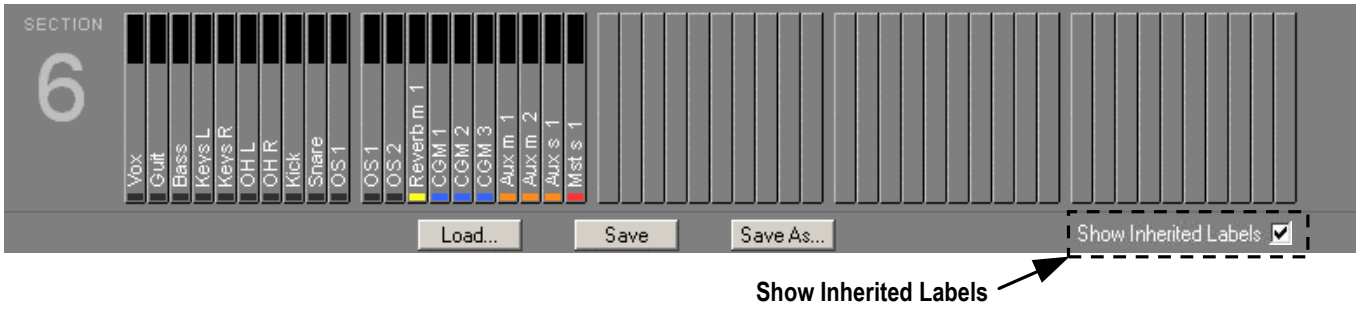
How to Proceed:

- Switch *on* the "Use Device Labels" option in the SysAdmin/Device Labels menu.
- Switch *on* the "Overwrite Chan. User label with Device Label" option in the SysAdmin/Device Labels menu.
- There must be a file "`__DeviceLabels.pre`" present, which holds your device labels (technical labels), e.g. "Studio 1", "Mic 1").
- Type your track sheet into the USER LABEL field of the General Patch.
- Patch Sources to Channels, and you will see session labels displayed in the top line of each channel You may have to press the **GLOBAL VIEW: LABEL TYPE** key a few times until you see device labels or fixed labels (the actual channel number) in the second line.

This may look as follows:



Note: In the Strip Setup window it is possible to display either the session labels (standard) or the device labels, depending on the option indicated in the lower right corner of the window.



Show Inherited Labels

4.4.2.7 What are Device Labels?

All labels shown in the general patch and within the channel strips are always stored together with all audio settings within snapshots and presets. Some of the labels you will name in the patch will most likely represent your studio environment and where your equipment is connected to the console. E.g. you might possibly want to label the AES/EBU input 30 as “Tascam 11”, in order to recognize that you have connected your recorder that way. Since these labels are contained within each snapshot or preset, it is theoretically also possible to change the labels just by recalling a snapshot. In some cases this may be very useful (e.g. if you have entered a track sheet, but would like to use a different one for your next song), but in some cases this can be a handicap: E.g. you change your studio wiring slightly, e.g. add new equipment, but still want to use some of your older project settings. This would lead to the fact that you would have to update all the old snapshots and presets. The same handicap applies if you start with a new title. You will most likely want to see your equipment names appear in the patch automatically. This is where the device label functionality comes up. We have one file holding your device labels (such as “Tascam 11” for the AES/EBU input 30), and the system is able to automatically read these labels from that file and apply it to your current General Patch screen.

4.4.2.8 How to Activate the Device Label Functionality

In order to activate the automatic import of your device labels from the device label file, two conditions must be met:

- There must be a preset file named “`__DeviceLabels.pre`” matching your current session configuration and holding your device label names.
- You must have activated the “User Device Labels” option in the SysAdmin/Device Labels menu.

This will automatically show you the device labels in the General Patch window when switching to the corresponding label mode.

4.4.2.9 Where are the Device Labels Stored?

As you know, these labels are normally not changed for a specific session, but will stay constant in a studio installation. This is why they are stored in a preset (`*.pre`) file, being valid for a whole session configuration, rather than just a snapshot or title. If you make a new session configuration or edit an existing one using the Session Configuration Tool, you will need to import the "`__DeviceLabels.pre`" file from the previous configuration.

4.4.2.10 How to Create or Overwrite a Device Label

If you create a device label file from scratch or overwrite an existing one with a new one, you may proceed as follows:

- Enter the device labels into the USER LABEL field of the patch (input ports and output ports). *Do this in the USER LABEL field*.
- Enter SysAdmin mode in the GC by clicking the padlock icon on the toolbar, and enter the system password.
- Go to the SysAdmin/Device Labels menu and select "Save and Apply User Labels as Device Labels".

4.4.2.11 How to Edit an Existing Device Label

Since the device labels are stored in a regular preset file, you just log in as the system administrator and recall the"`__DeviceLabels.pre`" file. You will see the device labels again in the patch (USER LABEL field). Now you may edit them; then either click UPDATE, or go to the SysAdmin / Device Labels / "Save and Apply User Labels as Device Labels" menu.

4.4.2.12 Background Information for Technically Interested Users

If you are using the device label functionality (option SysAdmin/Device Labels/Use Device Labels), you activate an automatic and repetitive import of these labels from the "`__DeviceLabels.pre`" file into your patch. If you create any snapshots, the current device labels will be part of the snapshot. However, if you recall older snapshots that have been stored at a time when no device labels were active, that snapshot on the disk will not be changed at all. The snapshot will be loaded onto your console, visualized as it was stored in your General Patch screen; but an instant later the current device labels of your console will be copied into your patch. If you now choose to update your snapshot or make any new ones, these will contain exactly the labels you see on your General Patch screen.

4.4.3 Channel Patch

The Channel Patch page of the Graphic Controller can be called up in three different ways:

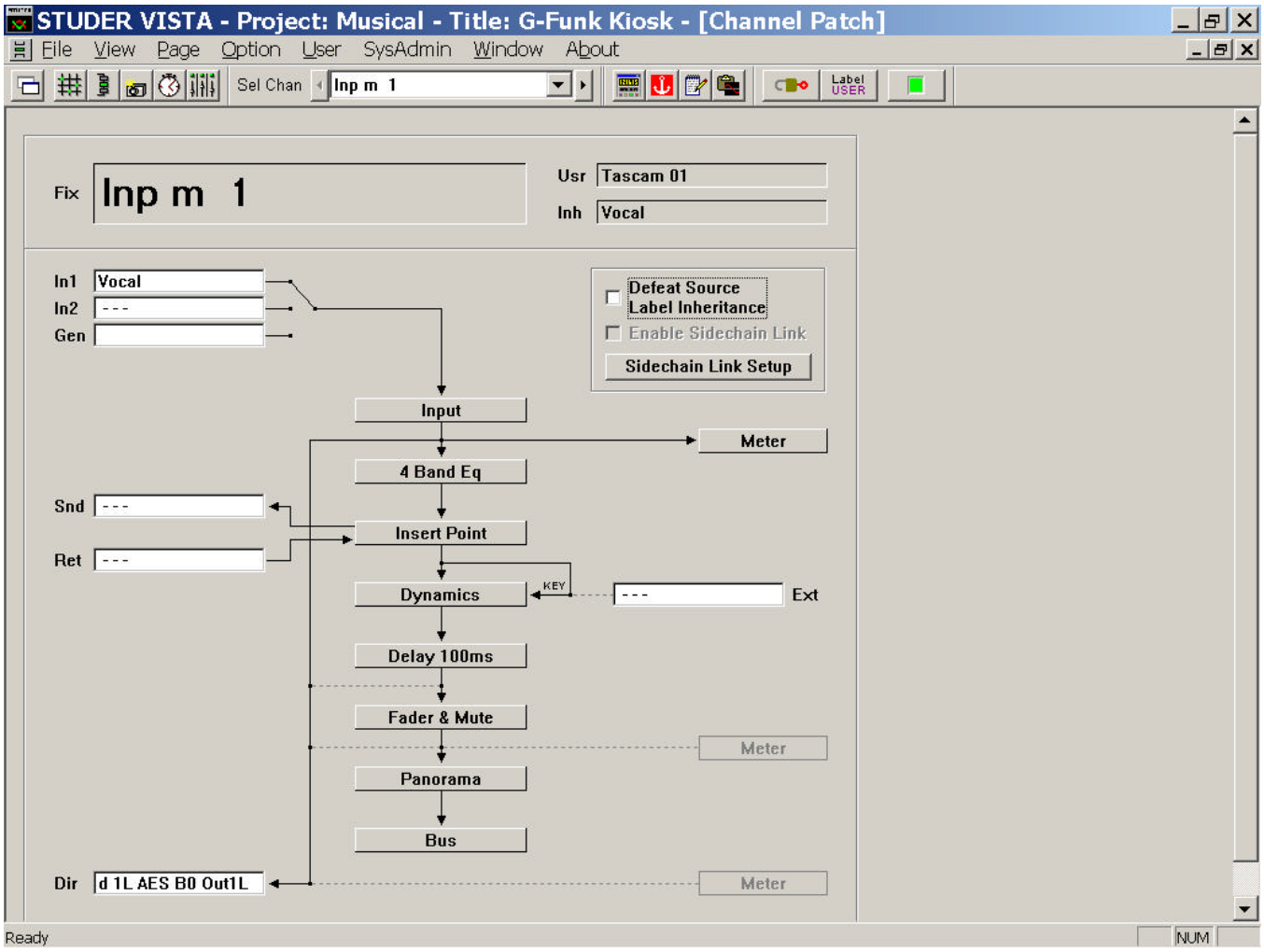
- From the Page menu, by clicking on the appropriate menu item;
- Using the Page icons, by clicking on the appropriate icon in the tool-bar;
- Using the **CHAN PATCH** function key on the control surface – which is probably the fastest way.

To quickly switch back from General Patch to Channel Patch page, just click the right trackball button while the cursor is positioned over the X-Y field in the General Patch.

As its name implies, the Channel Patch is channel-oriented, which means that only *one* channel is displayed at a time.

To select a channel to be displayed in the Channel Patch page:

- Press the **SEL** key *(***LINK/SEL** *key for Vista)* on the desired Desk Channel Strip, or
- Use the Channel Selector in the Toolbar (refer to chapter 4.2.1).



☞ **Tip** If using the **SEL** key on the Desk, make sure that the Follow Desk icon

in the toolbar (refer to chapter 4.2.1) is *not* crossed out. If it is crossed out, click it once to establish Follow Desk selection mode.

Essentially, the Channel Patch provides a block diagram of the selected channel's audio path. All channel types can be selected. From the Channel Patch, you can:

- View General Patch connections to and from the selected channel;
- Directly access the channel's patch points in the General Patch;
- View channel's DSP processing blocks;
- Set the order of DSP processing blocks in the selected channel's audio path;
- Toggle three-way input selector of the selected channel;
- Toggle selected channel's two-way Dynamics key selector;
- View and edit selected channel's Desk Labels;
- Switch off selected channel's Label Inheritance function;
- Set the Metering source point in the selected channel's audio path;
- Set the Direct Output source point in the selected channel's audio path;
- Setup the Sidechain Links;
- Activate the Sidechain Link for the selected channel.

4.4.3.1 Using the Channel Patch for Patching Audio

The Channel Patch page displays the following channel-oriented patch items of the selected channel for viewing:

In1 The first audio input;
In2 The second audio input;
Gen (In3) The third audio input;
Snd The Insert Send;
Ret The Insert Return;
Ext The key signal to Dynamics Block;
Dir The Direct Out.

These labels will be displayed according to the current Label Mode. To edit the patch connection, just double-click the left trackball button while the cursor is positioned on a connection. This will toggle over to the General Patch page, allowing actions to be performed. The connection you pointed at will be pre-selected automatically.

Examples for channel Im1 (Input Mono 1):

*Double-click on **In1** field*
⇨ toggles to General Patch
⇨ pre-selects Target Im 1 Input m 1 In1
⇨ now only select a Source and patch it.

*Double-click on **Dir** field*
⇨ toggles to General Patch
⇨ pre-selects Source Im 1 Input m 1 DirOut
⇨ now only select a Target and patch it.

Obviously, if the connection you selected is a Source (Snd, Dir), you will only have to select a Target in the General Patch. If the connection is a Target (In1, In2, Gen, Ret, Ext), you will only have to select a Source.

All patch cross-points are stored with Snapshots and Presets.

☞ **Tip** To quickly toggle the display from Channel Patch to General Patch page, just click the right trackball button while the cursor is positioned anywhere in the Channel Patch page.
To quickly switch back from General Patch to Channel Patch page, just click the right trackball button while the cursor is positioned over the X-Y field in the General Patch.

4.4.3.2 Setting the Order of DSP Processing Blocks

The following processing blocks (provided they have been configured) can be placed individually at different locations along the Audio Path of each channel:
- EQ;
- Insert Point;
- Dynamics (Compressor/Limiter/Expander/Gate/Sidechain);
- Delay;
- Fader & ON/OFF Mute.

The actual order of the system blocks is user-modifiable, and can be changed at any time. The order is stored with Snapshots and Presets.

To change the system-block order, use the familiar drag-and-drop technique:
- Click on the selected blocks, and hold down the trackball button;
- Available positions in the signal path are shown as a *reversed embossed graphic;*
- Drag the selected block to the required position in the signal path;
- If the block can be inserted at that location, the block name will turn *red*;
- Release the button and the selected block will be inserted into the new location.

4.4.3.3 On-screen Toggles for Input Selector and Dynamics Key Selector

Input Selector To toggle the three-way input selector (In1, In2, Gen), click on the switch icon that corresponds to the location at which you want the selector to point. The Desk Input Selector keys will follow the changes, and display the correct source.

Dynamics Key Selector To toggle the two-way input selector (Int, Ext), click on the switch icon that corresponds to the location at which you want the selector to point.

The selector settings are stored within Snapshots.

4.4.3.4 Editing the Channel User Labels

Double-click on the User Label field (Usr) to open the Edit window. Proceed to edit and/or change the Desk Label using the same techniques used in the General Patch. ***D950 only:*** Note that the Channel User Label display has four characters, and will display only the *first four* characters of what you type. The edited Labels can be stored within Snapshots and Presets.

4.4.3.5 Set the Metering and Direct Out Source Point

Set Metering Source Point: To set the Metering Source point in the selected channel's audio path, click on one of the three Meter boxes. The channel meter will now be sourced from the selected point in the signal path.
Available points in the signal path are:
- After Input Block;
- After Fader & Mute;
- After Direct Out level control.

The Meter Source point is stored within Snapshots and Presets.

Note: There will only be two Meter Source points if Direct Outputs have not been configured for the selected channel.

To set the Metering Source points for more channels at a time, use the Option – Meter/Generator menu (refer to chapter 4.6.5.1).

Set Direct Output source Point: If a Direct Output is included in a channel's configuration, it can be fed from one of three points in the audio path. To set the Direct Output source point, click on one of the three "wires" connected to the Dir Box (the current connection will be shown *solid*, while the two possible connections are displayed as *dotted* lines).
The Direct Out will now be fed from the selected point in the signal path.

Available points in the signal path are:
- After Input Block;
- Pre Fader & Mute;
- After Fader & Mute.

The selected Direct Output source points are stored within Snapshots and Presets.

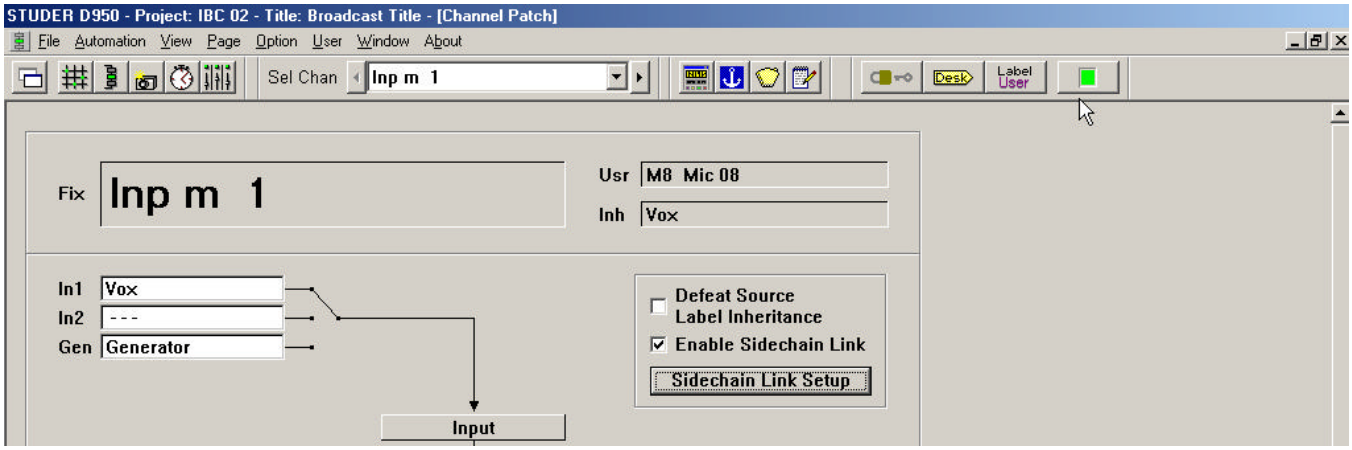
☞ **Tip** If you have changed the order of the processing blocks, note that the Meter and Direct Out source points will move *together* with the processing blocks to which they are attached (except the Input Block, which cannot be moved).

4.4.3.6 Switch off the Label Inheritance

The Desk Label displays will show Source Labels (from the General Patch) if the console is set to Inherited Label mode and if a source is patched in to the channel. If you wish to remain in Inherited Mode, but do not wish to see Source Labels for certain channels, check the Defeat Source Label Inheritance box. The Desk Label display will now show the *name* of the channel rather than the Source Label, assuming the User Label on the Channel Patch has not been changed from the default. If the User Label has been changed on the Channel Patch screen, the Desk Labels will display this User Label when the Defeat Source Label Inheritance box has been checked. User Labels entered on the Channel Patch screen are stored with Snapshots and Presets.

4.4.3.7 Setup & Activate the Dynamics Sidechain Link

The effect of a Dynamics Sidechain Link, if activated, is identical to any item of outboard gear set to Link or Stereo mode. This function is used to control between two and eight Dynamics Processors inserted into up to eight different channels. Regardless of which channel is carrying the highest signal level, all processors will the provide the *same* gain modification. In this way, Stereo or Multi-channel Surround image stability will be preserved. Unlike in many analog consoles with dynamics units, the channels to be linked do not need to have adjacent locations.

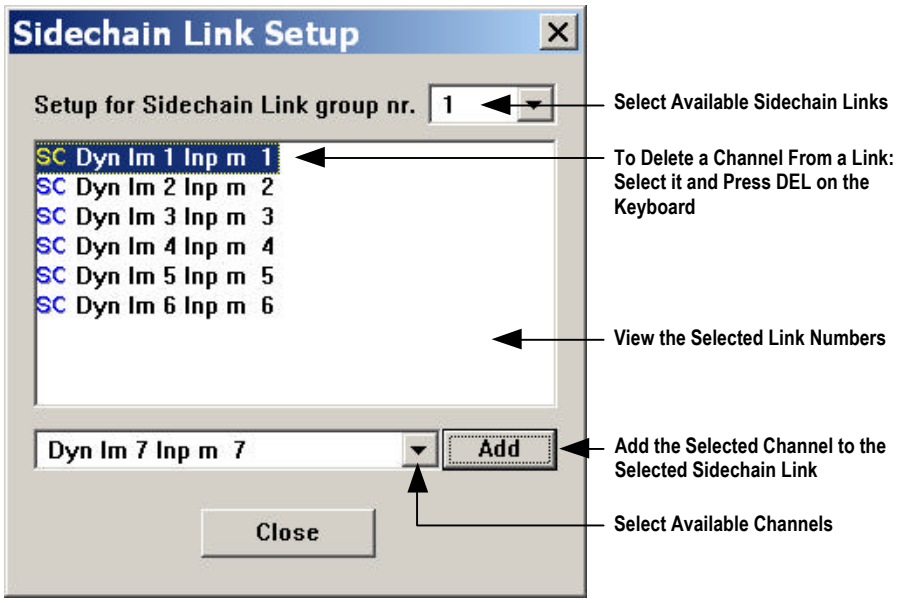


Note: The number of Sidechain Links available (if any) is determined by the Session Configuration. Additional links can only be created using the Session Configuration Tool; please refer to chapter 7.

To activate the Sidechain Link for a selected channel, check the Enable Sidechain Link box. This will activate linking of the Sidechain with another channel, or with other channels assigned to that particular Link Group. The channel must be assigned to a Link Group in order for the Enable Sidechain Link box to function. The SCL (Sidechain Link) keys on the LACP *(D950)* or Vistonics *(Vista)* will follow the selections.

The status of the Sidechain Link is stored within Snapshots and Presets.

Sidechain Link Setup: Click on the Sidechain Link Setup button to bring up the Sidechain Link editor screen, which allows selection of available links and addition/removal of channels from the links.



The D950S/Vista is able to link together more than two side chains – in fact up to eight per Sidechain Link. For these reasons, a number of Sidechain Links (each for up to eight member channels) has to be specified during setting up of the Session Configuration. There can be any number of configured Sidechain Links. A channel can be a member in only *one* Link at a time.

To set up the Sidechain Links:

- Select a Sidechain Link using the on-screen icon;
- If there are any members in the Link, they will now be displayed;
- Add new member channels with the Add button;
- Remove members by selecting one or more of them in the list and pressing the **DEL** key on the keyboard;
- Proceed to edit the next Link number.

☞ **Tip** If a channel is a member of a Sidechain Link, its graphical representation in the Channel Patch will change:

The following indicates a Dynamics Block:

The following indicates a Dynamics block that is a member of a Sidechain Link:

4.4.4 Snapshot Page

The Snapshot page of the Graphic Controller can be called up in four different ways:

- From the Page menu, by clicking on the appropriate menu item
- Using the Page icons, by clicking on the appropriate icon in the toolbar
- Using the **SNAPSHOT** function key on the console – which is probably the fastest way.

The Snapshot Page deals with Snapshot and Preset management. Snapshots and Presets are extremely helpful when working with a digital console as they contain the static values for all console parameters. The difference between Snapshots and Presets is simple: while Snapshots can be edited freely, Presets can only be edited in System Administration mode (refer to chapter 4.7) after having entered the System Administrator password.

Snapshots are stored within Titles, and Presets are stored with Session Configurations. Because of this, Snapshots are readily available only while using the Title in which they were created. On the other hand, all Presets that were created using a particular Session Configuration are available in any Title that uses that configuration. This allows Presets to be used as templates (based upon that configuration), while Snapshots are specific to individual projects or sessions.
An other difference between Snapshots and Presets is that any filtering mechanism is active for Snapshots only, but not for Presets. This means that after having recalled a Preset, the user can always be sure to have all audio settings applied.

Using the Import facility from the File menu, it is possible to use Snapshots and Presets from other titles and configurations, refer to chapter 4.6.1.4.

Because it is possible to store an *unlimited* number of Snapshots, D950/Vista operators will probably find themselves using them more and more every day.

A Snapshot or Preset will store:

- All audio settings: Fader levels, auxiliary settings, dynamics, delays, input selectors, etc.
- Order of channel processing blocks;
- Direct output and meter source points;
- Bus assignments;
- All labels;
- All patch cross-point connections;
- Channel and other links;
- N–1/Mix-minus assignments.

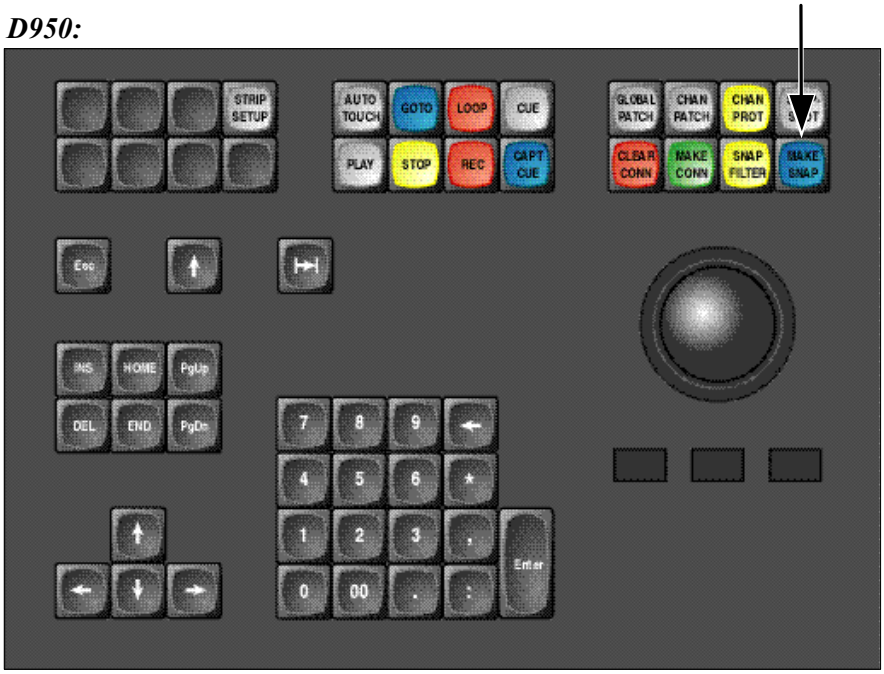
☞ **Tip** Snapshots and Presets always store *every* control and switch setting for the *entire* console. The choice of recalling every setting to every control is up to the operator. A sophisticated filtering system is available in order to keep certain settings even when recalling a Snapshot.

4.4.4.1 Snapshots

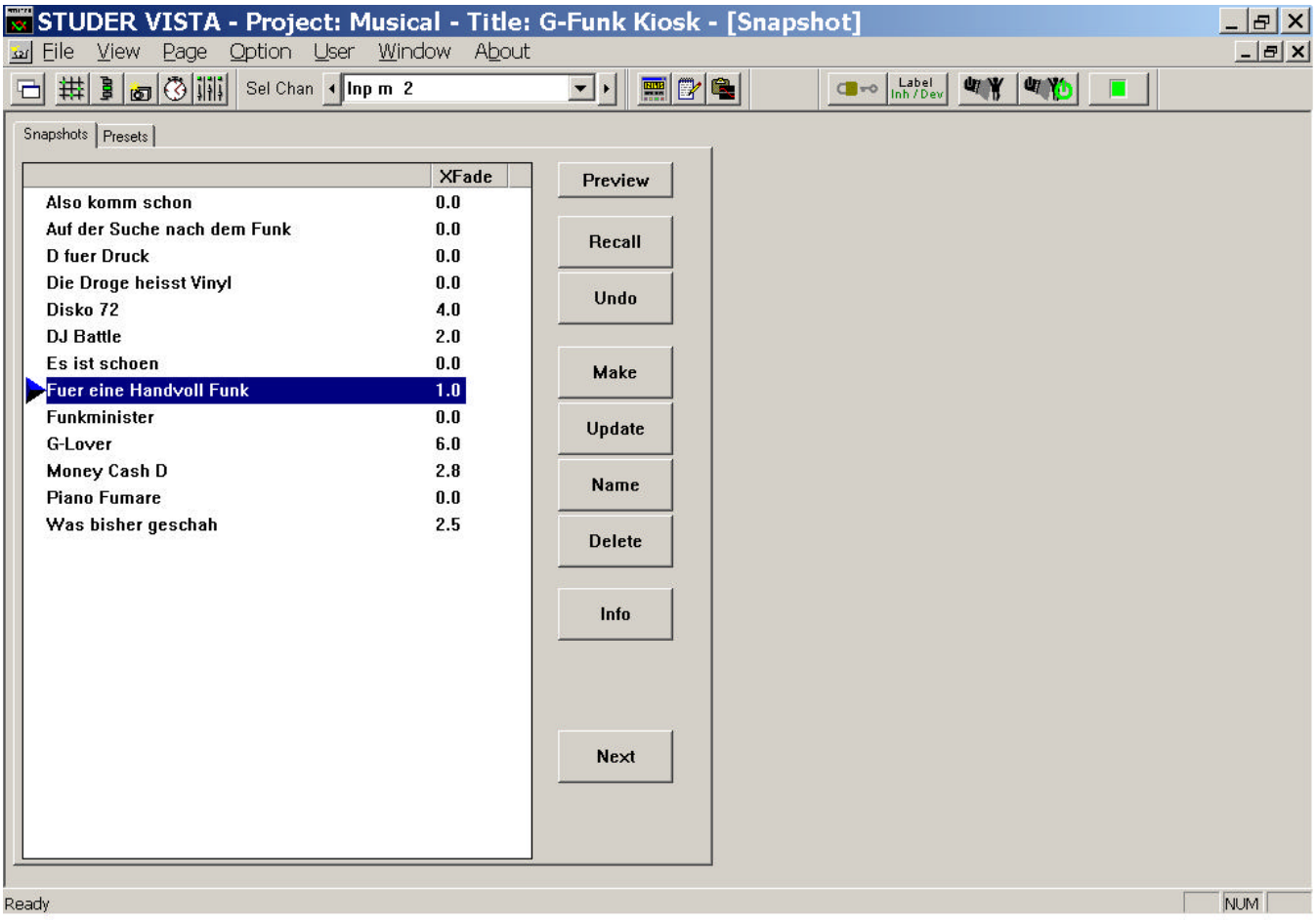
To capture a new Snapshot of the various user controls, press the **MAKE SNAP** key *(D950)* or **MAKE SNAPSHOT** key *(Vista)* on the console:

Vista:

D950:



The new Snapshot will automatically be numbered something like `SNAPSHOT #1`, `SNAPSHOT #2`, etc.



Now You Can: ***Recall a Snapshot***

- Select a Snapshot from the List, and
- Click on the Recall button, or
- Simply double-click on the Snapshot you wish to recall.

Clicking on the Next button will recall the currently selected snapshot and automatically move one line down within the Snapshot list and recall the next Snapshot.

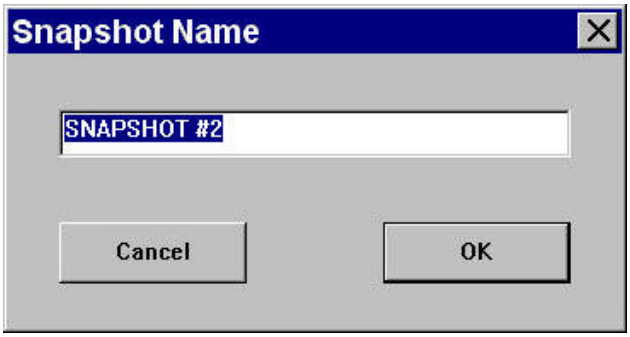
The Snapshot that was recalled last is marked with a small triangle. If the Snap Confirm option in the Options menu (refer to chapter 4.6.5.6) is checked, there will be a pop-up dialog requiring confirmation of Snapshot Recall. This capability is useful for live environments, where you may not wish to delete or overwrite too easily what you are doing.

Note: Once a Snapshot or Preset is applied, the existing parameter settings are replaced by those contained within the Snapshot or Preset. If the previous settings have not been stored, there is an Undo button available, in order to go back to the last settings before recalling the Snapshot or Preset.

Name a Snapshot

- Select a Snapshot from the List, and
- Click on the Name button.

This action will bring up an editing window that allows the user to enter the new name. Since Snapshots are listed in alphabetical order, by carefully naming you can arrange them exactly as you wish.



Update a Snapshot

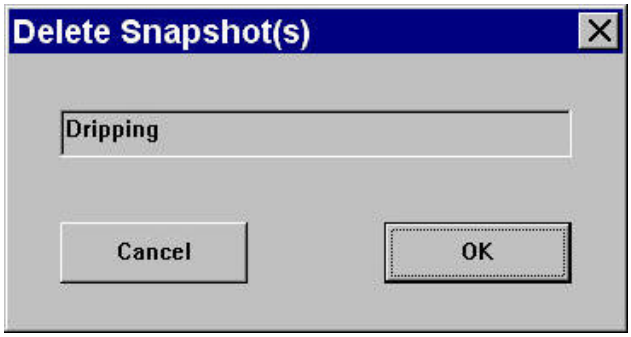
- Select a Snapshot from the List, and
- Click on the Update button.

This action will bring up a window that allows the user to confirm the update. An update will store any changes you since made under the selected Snapshot's name.

The "Audio Only" button is valid if a partial snapshot is about to be updated. The update wold normally change audio settings as well as the potential change in focus of that snapshot. By clicking the Audio Only button, the focus of the partial snapshot will not be changed, and only parameters of the corresponding snapshot are being updated.

Delete Snapshot(s)

- Select a Snapshot from the List, or
- Select any number of Snapshots from the List using the familiar Windows multiple-selection techniques. (Either drag the trackball, or press Shift and select with the cursor). Click on the Delete button, an action that will bring up a window to confirm the deletion.



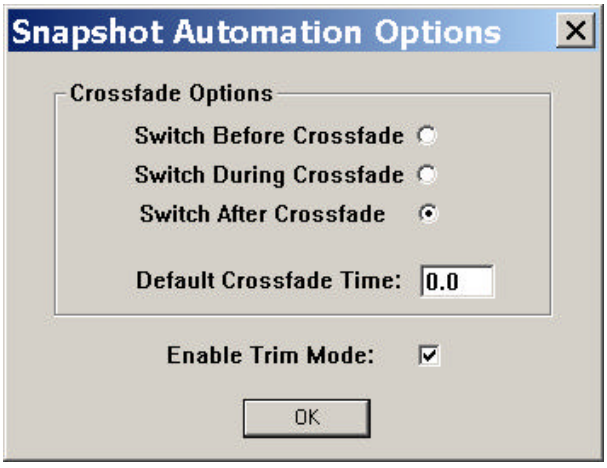
View the Snapshot Info

- Select a Snapshot from the List, or
- Click on the Info button. This will bring up a window displaying the Snapshot Name, the Snapshot Creation Date & Time, and the Snapshot Last Modification Date & Time.

Snapshots are stored with the current Title, the file extension is `*.snp`.

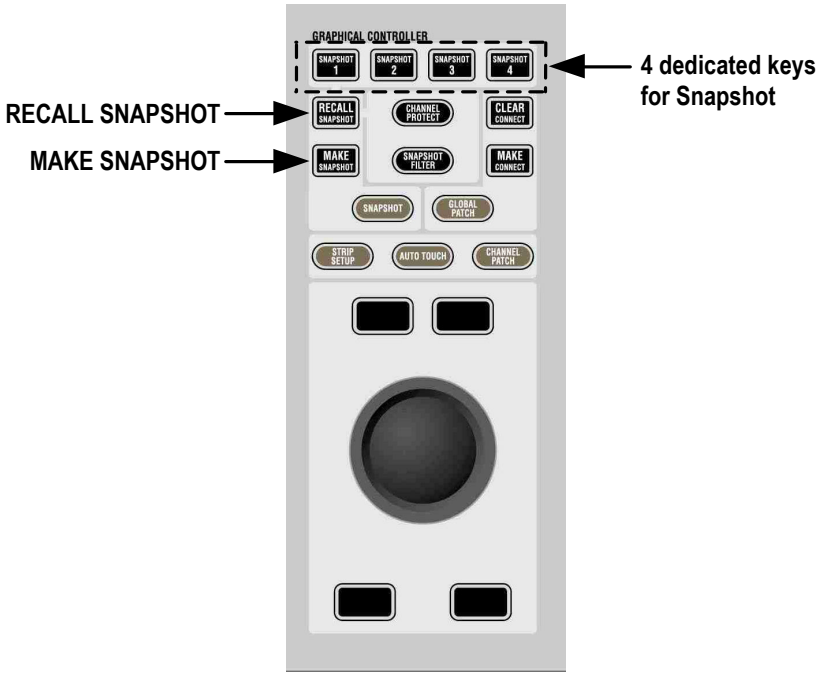
4.4.4.2 Snapshot Crossfading

It is possible to define a crossfade time for each Snapshot. This is done by simply clicking on the crossfade time and scroll your trackball up or down. If the crossfade feature is deactivated (see below), it is impossible to adjust the crossfade time.
The Snapshot crossfading may be deactivated by deselecting the Xfade Active option on the Snapshot Screen. On Vista 7, this can also be done by pressing the **GLIDE** key on the **AUTOMATION** panel in the Control Bay.
Settings which cannot be crossfaded (switches) can either switch at the beginning, in the middle of the crossfade or after the crossfade. This behavior can be defined in the Snapshot Automation Options window selected from th Options menu. There, it is also possible to define a Default Crossfade Time.
For an explanation of the Enable Trim Mode option, refer to chapter 4.4.4.5.



4.4.4.3 Additional Snapshot Functionality for Vista

In addition to the dedicated **MAKE SNAPSHOT** hardware key on the Vista surface, there are four **SNAPSHOT 1...4** keys for storing and recalling four individual snapshots on these keys.



Assign a Snapshot to a Key: To store a snapshot onto one of the 4 keys, *push and hold down* the **MAKE SNAPSHOT** key, then hit the key you would like it to be stored on. Depending on which of the keys you select, a snapshot will be generated in the Snapshot List called `__Snapx_Key`, where *x* is the number of the selected button between 1 and 4. This snapshot can now be recalled at any time using the dedicated key by *holding down* the **RECALL SNAPSHOT** key and pressing the desired **SNAPSHOT** key. The need for a two-key operation provides a certain level of security.

A new snapshot can be applied to one of the dedicated keys even if the button already has a snapshot stored to it. In this instance, the previously stored snapshot will be overwritten.

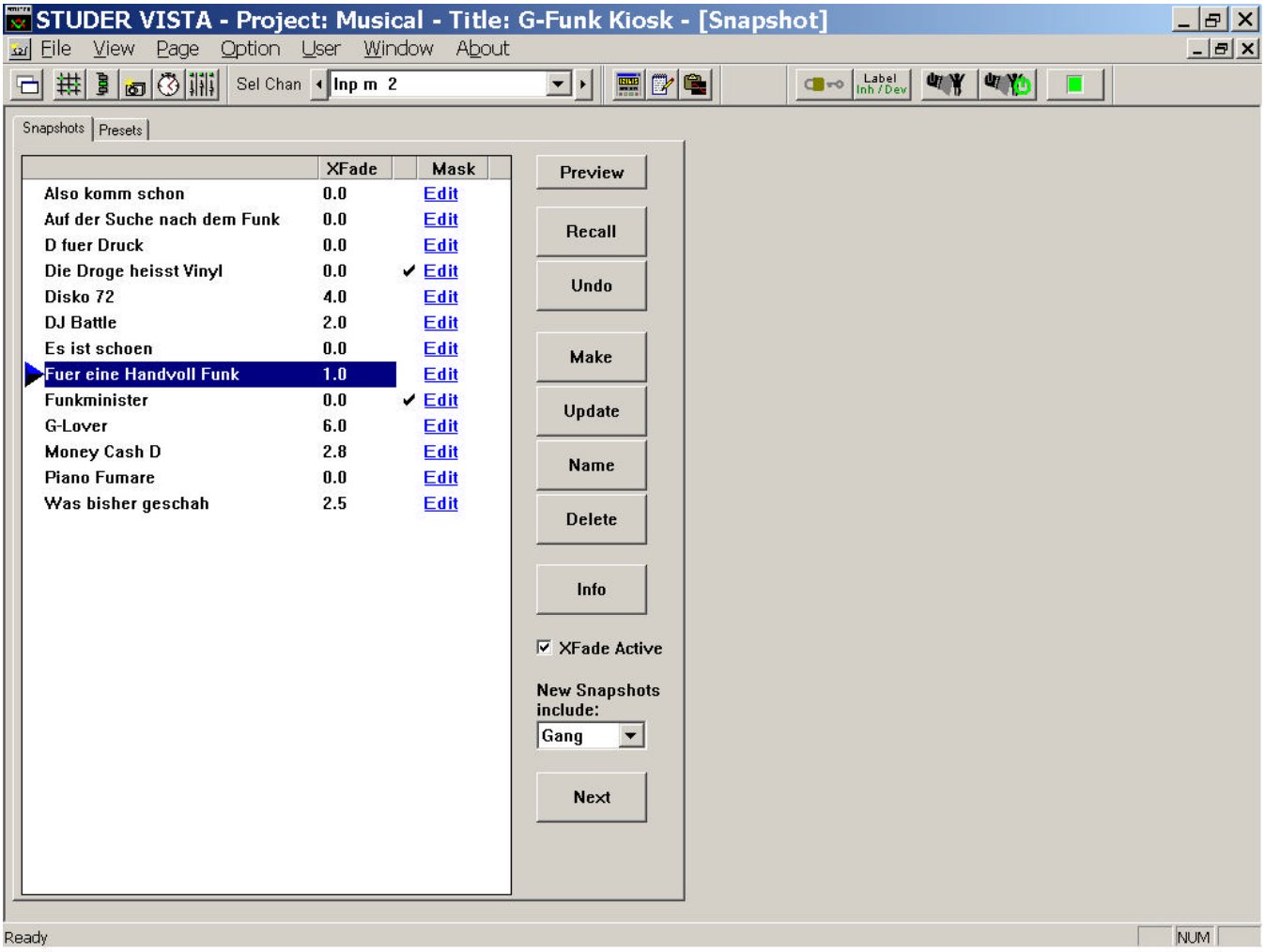
☞ **Tip** To ensure that a snapshot that has been stored on a dedicated key is not overwritten, and hence lost from the snapshot list, always make the snapshot twice, once to the key and once in the normal way just by pressing the **MAKE SNAPSHOT** key by itself. In this case the same snapshot will appear in the Snapshot list twice; once called `__Snapx_Key` and a second time as `Snapshot x`. Rename the latter snapshot as required; this will ensure that the snapshot is not lost even if is removed from the dedicated key.

Note: It is possible to rename any snapshot already existing in the snapshot list to `__Snapx_Key`. Doing this will put the renamed snapshot onto the chosen hardware key directly without having to recall it first. *Make sure that only one instance of* `__Snap1_Key`, `__Snap2_Key`, `__Snap3_Key`, *or* `__Snap4_Key` *exists in the Snapshot list at any time.*

Snapshot Preview: By clicking on the PREVIEW button, the console enters this mode. Whichever Snapshot the user selects, pink elements within all Vistonics™ elements will show any difference between the current console settings and the settings within the previewed Snapshot. It is still possible to recall any Snapshot by all mechanisms described above.
When pressing any of the four dedicated **SNAPSHOT 1...4** keys without pressing the **RECALL SNAPSHOT** key at the same time, that corresponding snapshot is automatically only previewed. It is also possible to preview it only momentarily by pressing e.g. the **SNAPSHOT 1** key for a longer period; the key will be lit as long as the preview is active.

4.4.4.4 Partial Snapshots

It is possible to create snapshots that do not affect the whole console when recalled. They are called “partial snapshots”. When recalling such a snapshot, only some of the channels – or even only some of their elements – are being changed on the desk. Partial snapshots are being marked with a checkmark next to the crossfade time.



Creating a Partial Snapshot

The easiest way to create a partial snapshot is to gang some channels and make a snapshot, while having the “New Snapshots include:” setting set to “Gang”:

If no gang is present, the whole console settings will be stored in a full snapshot. If the “New Snapshots include:” setting is set to “No Mask”, there will always be made a full snapshot, regardless of a gang being present or not.

It is also possible to set the partial snapshot to “Active Snapshot Filter”. This will actually create a partial snapshot out of the settings currently *not* masked out by a Snapshot Filter.

4.4.4.5 Snapshot Filtering (Static Automation)

At the time of recalling a snapshot, there might be a filter active, leaving some console settings unchanged upon recall of any snapshot. Each console parameter can therefore be in one of the following states:

- Isolate (= part of the filter); this parameter will not be influenced by snapshot recalls. Indication: yellow “I”.
- Read (= not filtered); this parameter may be changed upon recall of any snapshots. Indication: none.
- Trim (= offsets applied to snapshot recalls); any changes since the last snapshot recall will be applied in a relative way to upcoming snapshot recalls. Indication: red “T”.

There are some different ways to define the parameters to be filtered out.

Note: The static automation system (filtering) *cannot* be active on a console which has dynamic automation available. The decision which functionality is available is made by an entry in a `*.ini` file before the system is rebooted, or by using a special way to boot the system (alternate icon on the desktop).

Channel-Based Masking

You may add whole channels or only parts of them to your mask by pressing the **AUTO MODE** key *(Vista 7; see chapter 2.2.4 for details)* or **AUTO** key *(D950; see chapter 2.5.2 for details)*.

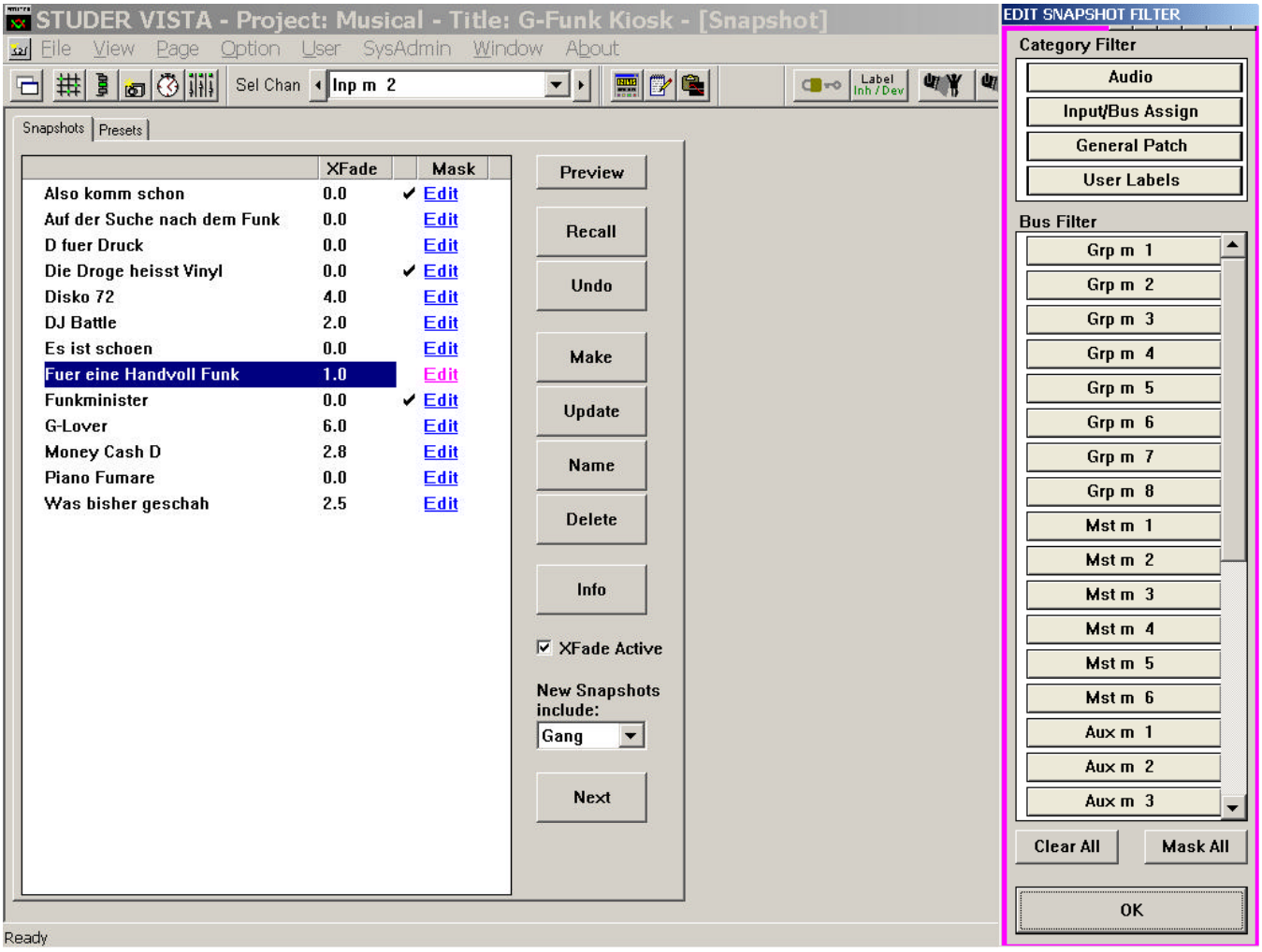
Entering Edit Filter Mode

When you click the Edit Snapshot Filter button in the toolbar or press the **LOCAL / EDIT** keys on the Vista’s control bay Automation panel, you will put the whole console into edit snapshot filter mode. Exit by clicking/pressing the same button or key again. While the console is in edit snapshot filter mode, it is not primarily showing audio settings, but actually visualizing the snapshot filter. Each LED will indicate that this parameter is currently part of the snapshot filter, meaning being filtered out from snapshot recalling. Vistonics™ elements are indicating a small letter “I” – Vistonics™ keys change their color to yellow if they are part of the snapshot filter. E.g. seeing the EQ key lit will indicate that this equalizer is currently part of the snapshot filter including all its parameters. If the key is half-lit, there are some – but not all – parameters of that equalizer part of the snapshot filter. If dark, it indicates that none of the equalizer parameters are part of the snapshot filter. You may make the whole equalizer be part of the snapshot filter or not by pressing its key.
If the console is in edit snapshot filter mode, this is indicated by the opened EDIT SNAPSHOT FILTER window (as shown below); on a Vista console, the Vistonics™ elements are marked by magenta-colored frames in addition.

Notes: It is of course also possible to use ganging in order to add an element of multiple channels to the snapshot filter.
To add a whole channel to the snapshot filter, press the **AUTO MODE** key on the channel strip.
Also the copy/paste mechanism works in order to copy selections across one or multiple channels.

Adding a Whole Bus to the Snapshot Filter

In edit snapshot filter mode (as described above), the following window is shown on the GC screen:



This window allows adding a whole group of parameters to your snapshot filter. Either select one of the four groups on top, or one of the listed buses.

Audio Settings: Will add all channel processing functions to your snapshot filter.

Input/Bus Assign Settings: Will add the input switches of all channels as well as all bus assignments to your snapshot filter.

General Patch Setting: Will add the General Patch to your snapshot filter, meaning that no patch points will change when recalling a snapshot.

User Labels: Will add all user labels (within the General Patch as well as within the channel strips) to the snapshot filter.

Bus: This is a very powerful feature. By clicking e.g. on “Aux m 1”, you will add all relevant parameters to your snapshot filter, such that the Mono AUX Bus 1 will not be influenced by any snapshot recalling. Included are:

- The levels of all channels routed onto that bus
- The bus assign (on/off switch) of all channels for that bus
- The corresponding master channel with all its settings
- The output patch made from that master channel to any output ports.

Caution: Clicking on the “Clear All” button will completely remove the snapshot filter and therefore may change all console parameters upon the next snapshot recall.
Clicking on the “Mask All” button will protect the whole console (with some exceptions, such as Patch points) against snapshot recalls, afterwards allowing to enable just single elements to be activated.

De-activating Snapshot Filters

It is possible to de-activate an existing filter in order to re-activate it at a later point. Click on the corresponding icon in the toolbar to activate/de-activate the current snapshot filter, or press the MIX ON key on the Automation panel.
If the snapshot filter is de-activated, the icon for entering the snapshot filter edit mode is grayed-out and not accessible.

Trim Mode

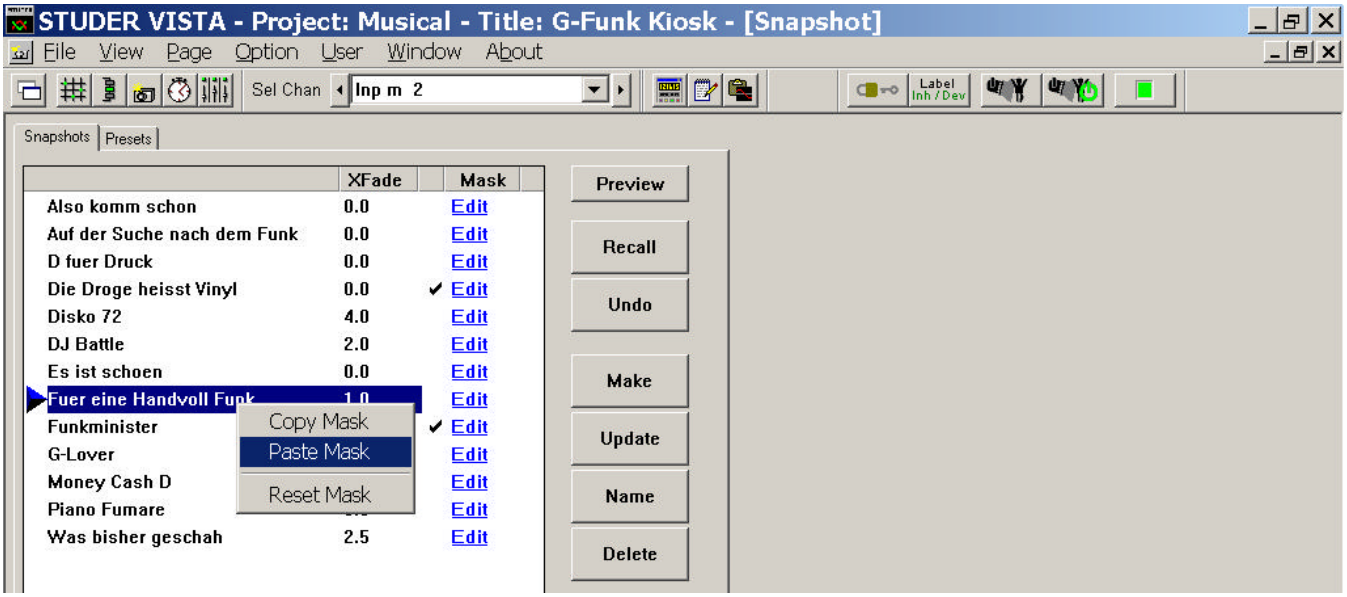
It is also possible to put elements into Trim mode. In that mode, you may have recalled a snapshot and make some corrections (e.g. push the fader up by some dB). This change will then be applied to all following snapshots when recalling them. This feature is very handy if you have prepared a performance and need to correct some levels when the show really starts. Obviously it is good to have that correction applied to all snapshots of the show.

Note: When going back to Read mode, the elements will jump back to the original snapshot value.

In order to activate the Trim mode as a third possible status of the elements, the Enable Trim Mode option must be activated in the Snapshot Automation Options window. Then the snapshot filter will not only contain two (Read and Isolate) but three modes: Read, Isolate, and Trim. Switches cannot go into Trim mode, therefore their indication is not different (yellow “I”). However, the rotary controllers and faders will toggle between “Read”, yellow “I” for “Isolate” and red “T” for “Trim”.

4.4.4.6 Correcting the Mask of a Partial Snapshot

If a partial snapshot already has been made and the user finds that he forgot to have some channels in that snapshot, there is a powerful method to correct the mask contained in a partial snapshot. As it has been mentioned at the beginning of this chapter, each snapshot file in general contains all settings of the console. A partial snapshot just adds an invisible mask to the audio settings. Therefore it is possible to enter an edit mode, showing the *mask of a partial snapshot* and giving the possibility to edit it. Let's say you had channels 1 to 5 in a gang and made a partial snapshot of them, it is easily possible afterwards to tell the system that this snapshot should have also contained the channel 6. How to do this?



Next to each snapshot there is an Edit link at the very right of the snapshot list. By clicking this button, you will put the console into the "partial snapshot filter edit" mode. Then you will see the same edit dialog box on the screen as when editing the snapshot filter. Also the desk doesn't show your audio settings anymore, but the mask defining the focus of that partial snapshot. You may now press **AUTO MODE** on one or more channels, create a gang, and add multiple channels to the partial snapshot, or touch and press any other control. The same mechanism will apply as when editing the snapshot filter. Upon clicking the Edit link again, you leave the edit mode, and the console is back to display normal audio settings.
When you are not in the edit mode of the partial snapshots mask, you are also able to copy and paste masks across from one snapshot to one or multiple others. Simply *right-click* on the Edit link of a snapshot mask and use the standard windows commands.

4.4.4.7 Typical Application Examples

Isolate one or more channels from being changed by upcoming snapshot recalls:

Press **AUTO MODE** on the corresponding channels. On Vista the user may create a gang first in order to isolate multiple channels at a time.

Isolate just the EQ of one or more channels from being changed by upcoming snapshot recalls (Vista only):

Press and hold **AUTO MODE** in order to enter the edit snapshot filter mode, indicated by magenta-colored frames within all Vistonics™ elements of this channel. *All LEDs will now display their isolation status but not the audio*. E.g. if the EQ button is lit at this time, the EQ is isolated. In order to change the isolation status, press the corresponding key, touch the fader or knob while still holding the **AUTO MODE** key. The word "ISOLATE" will now show up in the generic display area, indicating that some element is currently isolated. You may also use a gang in order to isolate one element of multiple channels.

De-Activate the whole snapshot filtering mechanism on the console

De-activate **MIX ON** on the Automation panel on the Control Bay, or click on the snapshot filter icon in the toolbar to de-activate the snapshot filtering while keeping its definition for later use.

Create Snapshots, that contain only some of the channels, but not the whole console

Set the "New Snapshot includes:" option to "Gang". Whenever a gang is present, only the gang will be "part of the snapshot". If there is no gang, the whole console is affected by the recall of freshly created snapshots. A snapshot not affecting the whole channel is graphically marked by a checkmark.

4.4.4.8 Presets

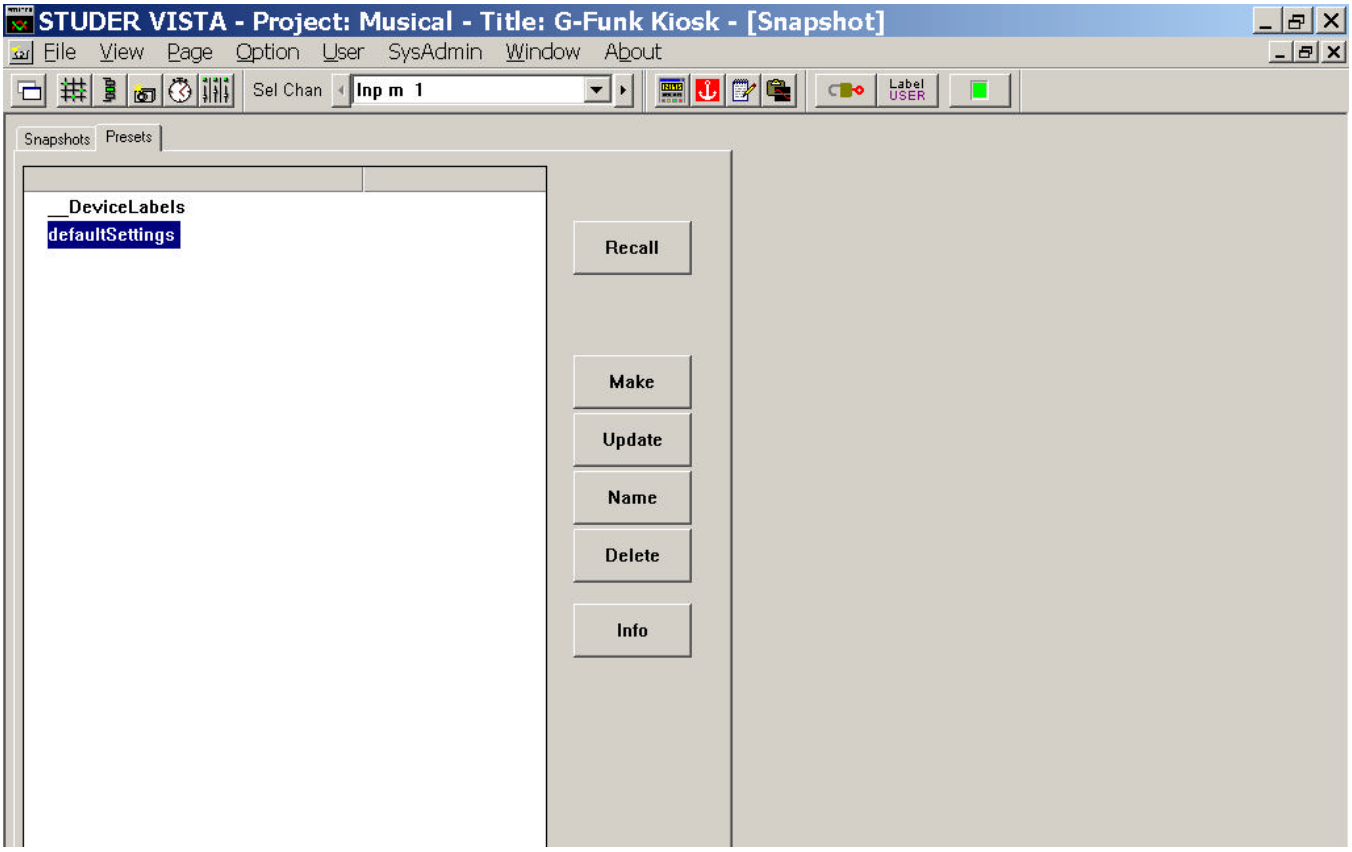
Presets are exactly the same as Snapshots. However, they normally can only be recalled but not edited; so their main purpose is to represent – as the name implies – a number of starting console setups that can be recalled, used to build particular refinements from there, and then stored as normal Snapshot files.

To access Presets from the Snapshot Page, click on the Presets tag. Presets are stored with the Session Configuration, because it is assumed that they may be valid for more than one Title.
The file extension is `*.pre`.

If the System Administration mode (refer to chapter 4.7) is activated (by entering the appropriate System Administrator password), Presets can be edited exactly in the same way as Snapshots.

4.4.4.9 Default Settings

In the Preset List, there is always one line labeled *defaultSettings*. This is a Preset that is automatically generated for every Session Configuration, but no file will be found in the corresponding Session Configuration directory (as would be the case for other Presets).
When recalled, the *defaultSettings* will reset the console to the defaults – it functions much like a Total Reset.



DefaultSettings *cannot* be edited, renamed, deleted or updated.

4.4.4.10 Files and Backup

Snapshots and Presets are stored as Windows-compatible files.

Usually, Snapshots are stored in the current Title directory, with a `*.snp` file extension.

Usually, Presets are stored in the Session Configuration directory, with a `*.pre` file extension.

All the Snapshot and Preset files can be copied and/or moved to and restored from a backup medium using the Make Backup facility (refer to chapter 4.6.1.3).

4.4.5 Cue List Page

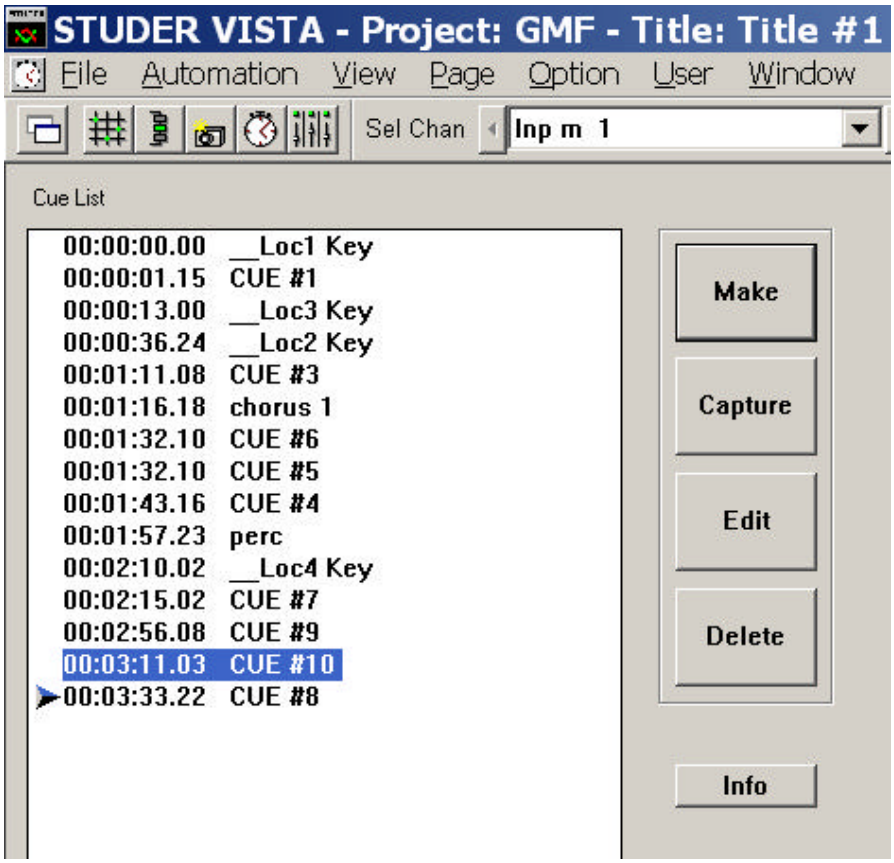
The Cue List page of the Graphic Controller can be called up in three different ways:

- From the Page menu, by clicking on the appropriate menu item;
- Using Page icons, by clicking on appropriate icon in the Toolbar;
- Using the **CUE** function key on the control surface keyboard – which is probably the fastest way.

The Cue List is only available if the optional AutoTouch+ Dynamic Automation and the TC2 or TC3 time code options are installed on your D950/Vista. The Cue List helps to deal with parts of a musical piece or film you want to keep track of in time. That could be an Intro, Chorus A, Bridge, Chorus B, the End of a song, or a scene from the film you might want to (auto-) locate to. An unlimited number of Cues can be stored.

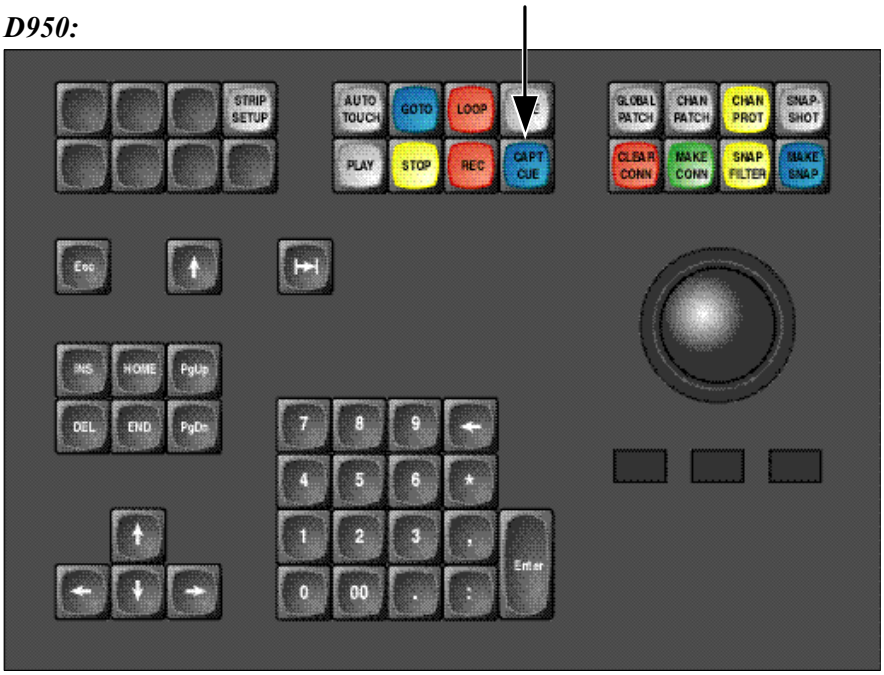
Each Cue in the Cue List has a timecode stamp and a name. The names are generated and numbered automatically when you make a cue, they can be edited at any time along with the TC stamp. The cues in the Cue List are automatically sorted by increasing TC. If you make a new cue, it will be inserted into the list according to its TC stamp.

When the running TC passes a cue point existing in the List, a small triangle will appear next to the cue to indicate that this particular cue has been reached. The triangle will remain there until the next cue in the list is reached, and so on.

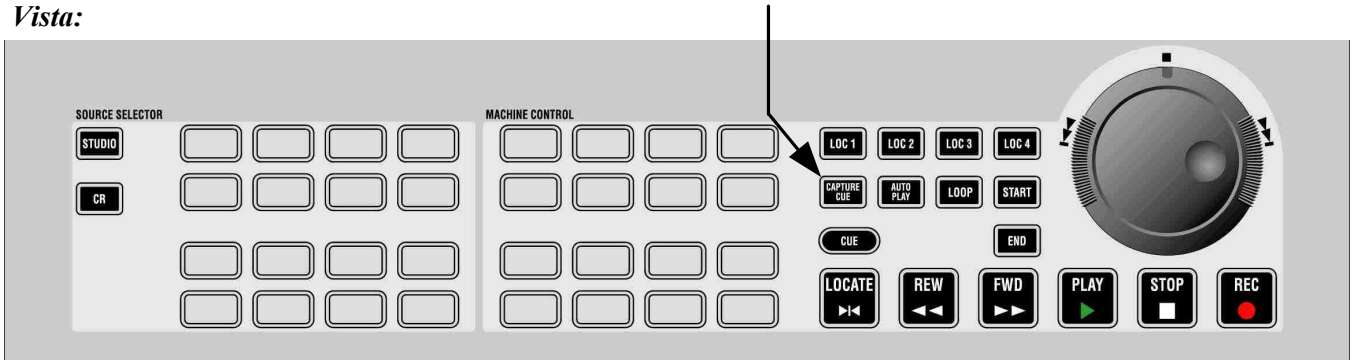


Capture: To quickly make a Cue and edit the name and/or timecode stamp later (if necessary), press **CAPT CUE** on the console when you hear the audio event to be marked:

D950:



Vista:

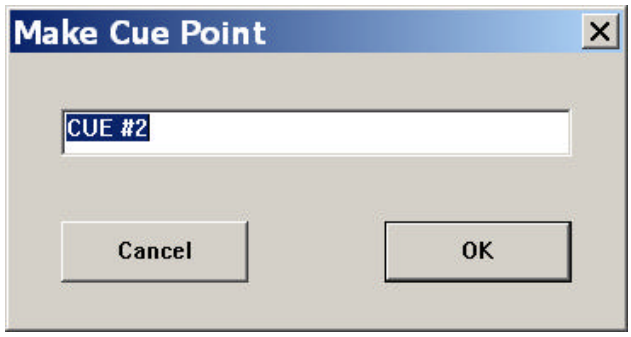


It is also possible to use the Capture button in the Cue List. In both cases, a Cue point will be generated, automatically numbered, and stamped with the current timecode address at the moment you pressed the button.

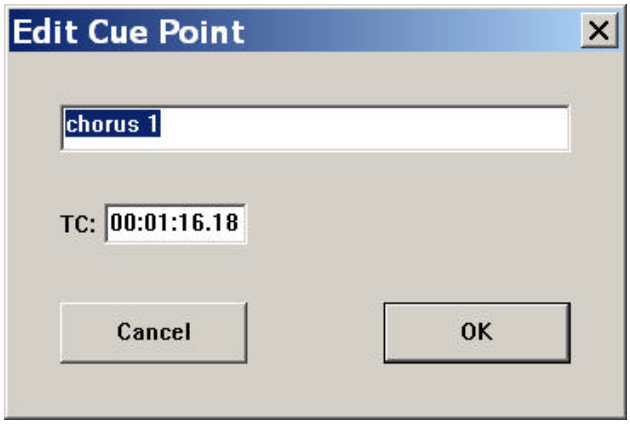
Make: To make a Cue means:

- First enter a name within the edit window that appears when you click the Make button
- Wait for the right audio event to occur, and click the on-screen OK button, or press the **Enter** key on the control surface keyboard

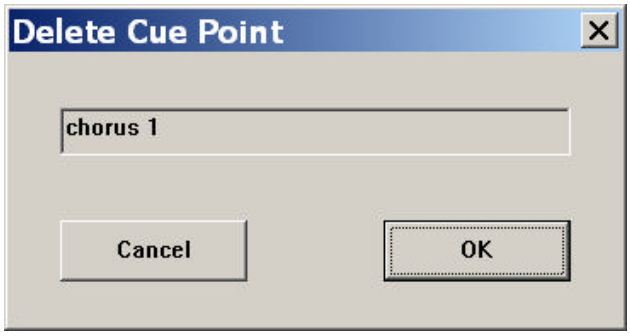
A Cue point with the entered name will be generated and stamped with the current timecode as soon as you click OK or press **Enter**. You can edit both name and TC stamp later, if necessary.



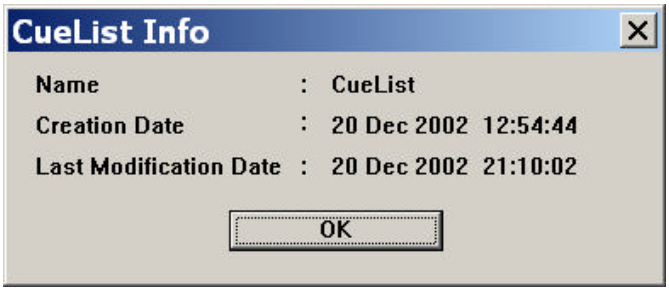
Edit: Opens an edit window that allows changes to be made to the name and the timecode stamp of a selected Cue from the Cue list.



Delete: Opens an edit window that allows one or more Cues to be deleted from the List. Select a Cue in the list by clicking on it, or select any number of Cues from the List using the familiar Windows multiple-selection techniques. (Drag trackball or press **Shift**, and select with the cursor). Click on the Delete button. This action will bring up a window allowing you to confirm the Delete operation.



Info: Calls up Cue Info:
Click on the Info button, an action that will bring up a window displaying
- Cue List name;
- Cue List creation date and time;
- Cue List last modification date and time.



☞ **Tip** To enter timecode values, use the control surface keyboard's numeric keypad. The keypad features a double-zero key (00) to speed up the process. You do not have to enter any punctuation marks – i.e., no colons or commas between hour, minute, second, and frame values – since they will be added automatically.

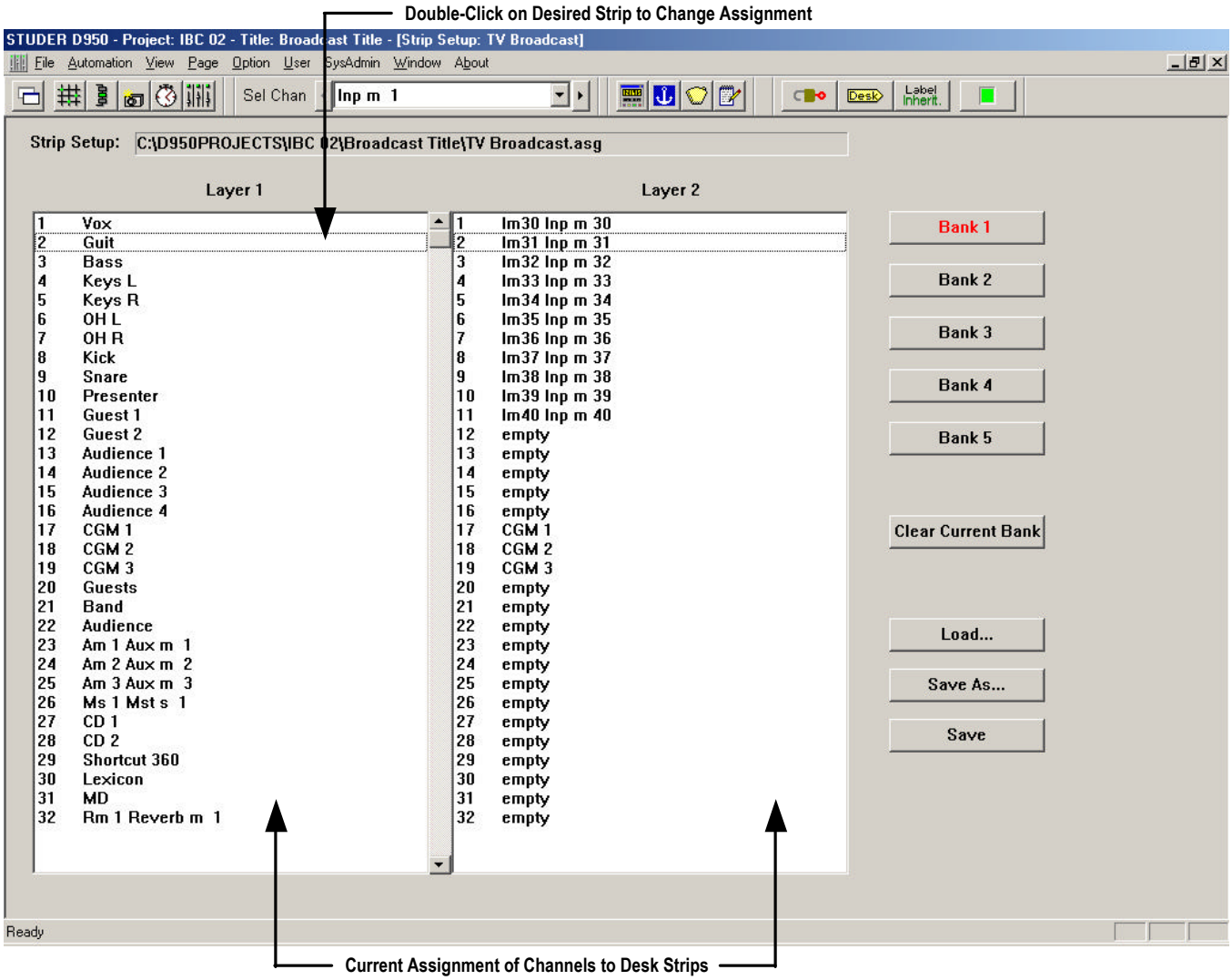
TC Scroll Mode: This is an alternate method for fast timecode entries. It is initiated by the left trackball button, followed by a vertical trackball move.
Please note that the common TC entry shortcuts apply; for information on this subject refer to chapter 5.23.

4.4.6 D950 Strip Setup *(for Vista Strip Setup, refer to chapter 4.4.7)*

The Strip Setup page of the Graphic Controller can be called up in three different ways:

- From the Page menu, by clicking on the appropriate menu item;
- Using the Page icons, by clicking on the appropriate icon in the tool-bar;
- Using the **STRIP SETUP** function key on the control surface keyboard, which is probably the fastest way.

The Strip Setup page allows the user to adapt the layout of the Channel Strips. Using this utility, all the audio channels of various types can be assigned (or re-assigned) to the Channel Strips in five Banks, each with two layers. It shows the currently active Desk Bank with its two layers, and layout of the channels.



4.4.6.1 Background of the D950 Strip Setup Principle

Because the D950 User Interface Desk is fully assignable, *any* DSP channel can be assigned to *any* Channel Strip at *any* time. In fact, the same channel may be assigned to multiple desk locations (while it may be controlled from many locations, there is only one audio path). Likewise, a channel may not be assigned to the desk at all (although there is no control from the desk, it will still function). The Strip Setup can be used to adapt the Channel Strip's layout to match your personal preferences, or to better suit a particular session application.

Strip Setup files are stored within Titles. When a new Title is created, a copy of the current Strip Setup file (if any) is automatically stored along with the other Title data. If a new Session Configuration is loaded, either an existing Strip Setup file must be loaded or a new file must be created and then saved.

If an existing Strip Setup has been modified, a window will appear giving you the option of saving the edited Strip Setup file, either when another file is opened, when the Title is closed, or when a new Title is created from an existing one.

Multiple Strip Setup files can be stored within a single Title. This is accomplished by editing the current file and using the "Save as..." button. The new file can be saved in the current Title or elsewhere using the familiar Windows save box. The Strip Setup file that was last used will be loaded the next time the Title is opened if the file has been stored with the Title.

A Strip Setup file from other Titles (or elsewhere) can be loaded using the "Load..." button, but should be stored within the current Title if it is to be used with that Title again in the future.

Strip Setup files have an `*.asg` file extension.

The following is an example of the ways in which a D950 Desk with 16 Channel Strips may be assigned for two very different Session Configurations:

Example #1:

Bank 1

Layer 1

In Mono 1	In Mono 2	In Mono 3	In Mono 4	In Mono 5	In Mono 6	In Mono 7	In Mono 8	In Mono 9	In Mono 10	In Mono 11	In Mono 12	Master 1	Master 2	Master 3	Master 4

Layer 2

AUX 1	AUX 2	AUX 3	AUX 4												

Desk: **16 Strips**
Session Config: **12 Mono inputs / 4 Mono masters / 4 Mono AUX**
Assigned layers: **Bank 1 / Layer 1 + Layer 2**
other Banks & Layers not assigned

Example #2:

Bank 1

Layer 1

In Mono 1	In Mono 2	In Mono 3	In Mono 4	In Mono 5	In Mono 6	In Mono 7	In Mono 8	In Mono 9	In Mono 10	In Mono 11	In Mono 12	In Mono13	In Mono 14	In Mono 15	In Mono 16

Layer 2

In Mono 17	In Mono 18	In Mono 19	In Mono 20	In Mono 21	In Mono 22	In Mono 23	In Mono 24	In Mono 25	In Mono 26	In Mono 27	In Mono 28	In Mono 29	In Mono 30	In Mono 31	In Mono 32

Bank 2

Layer 1

In Mono 33	In Mono 34	In Mono 35	In Mono 36	In Mono 37	In Mono 38	In Mono 39	In Mono 40	In Mono 41	In Mono 42	In Mono 43	In Mono 44	In Mono 45	In Mono 46	In Mono 47	In Mono 48

Layer 2

In Stereo 1	In Stereo 2	In Stereo 3	In Stereo 4	Master 1	Master 2	Master 3	Master 4	Master 5	Master 6	AUX 1	AUX 2	AUX 3	AUX 4		

Desk: **16 Strips**
Session Config: **48 Mono inputs / 4 Stereo inputs / 6 Mono mast ers / 4 Mono AUX**
Assigned layers: **Bank 1 / Layer 1 + Layer 2**
Bank 2 / Layer 1 + Layer 2
other Banks & Layers not assigned

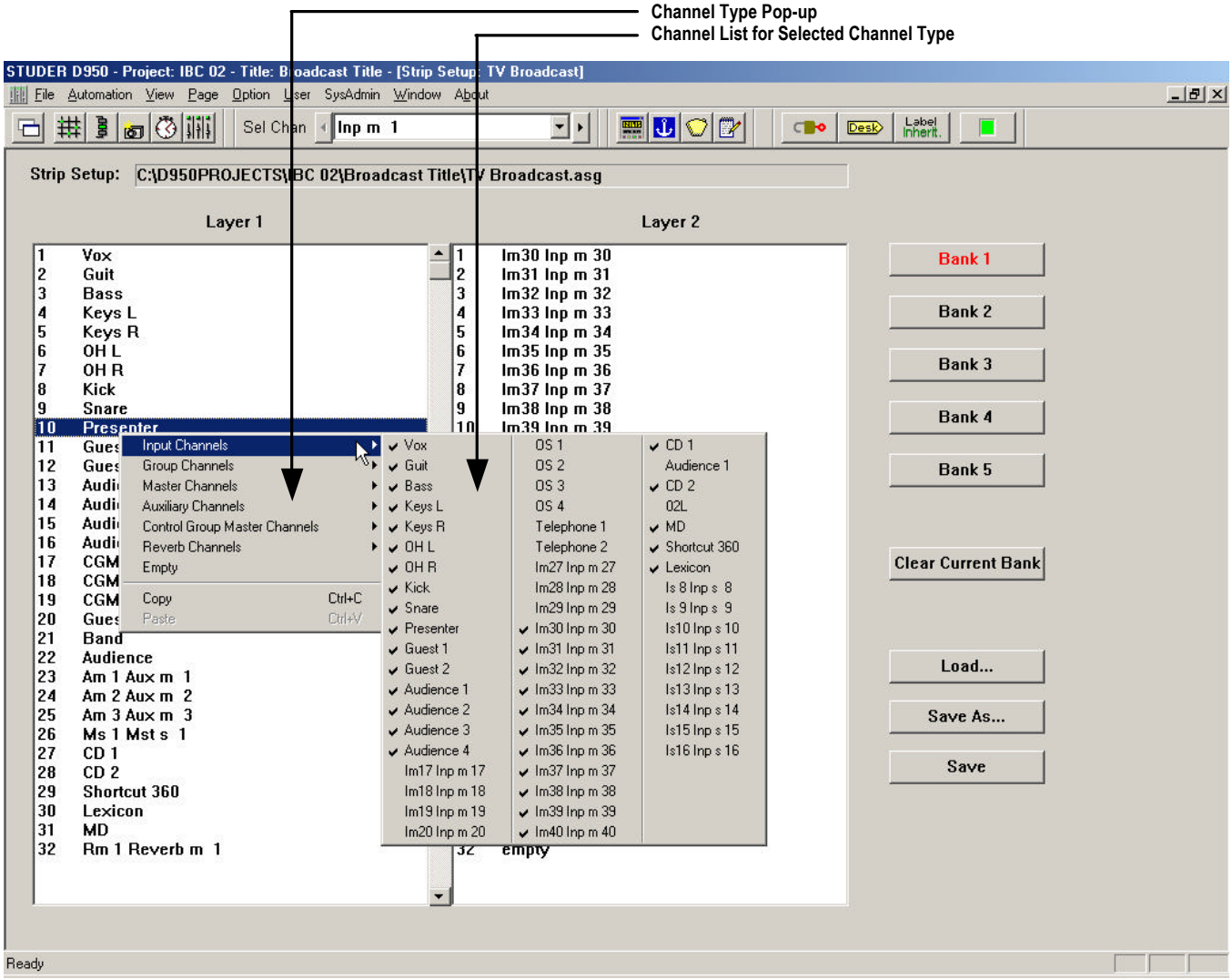
Such a Strip Setup forms the starting point for using a new Session Configuration, and can be adapted at any time (as shown below).

This powerful concept allows almost any D950 Desk to function with any D950 Session Configuration (even if the console size is different) without a problem.

4.4.6.2 How to Use D950 Strip Setup

To create a new Strip Setup or to adapt an existing Strip Setup – regardless whether it belongs to a new Title, or has already been edited – first call up the Strip Setup page. *Note that the Strip Setup window displays the label type of the console active at the time when opening the window.*

Bank 1...5: First, use one of the Bank buttons to select the Bank to be edited. This will display the two Layers of that particular Bank, and the current Strip Assignment. Banks can also be selected using the Bank 1 through 5 keys of the Bank Select Unit (BSU) in the center section of the console control surface.



The Clear Current Bank button clears the assignments to both Layers within the selected Bank.

Click on the Layer and Strip you want to assign or re-assign (the selected Strip will be highlighted in blue), and click on its name with the right-hand trackball key. A pop-up menu will appear with a list of all the configured channel types. If you select a channel type, a list of all *configured* channels for that channel type will be shown. To assign, click on the desired channel.

You can also select “empty” if you do *not* wish to assign a channel to a particular Strip.

Multiple Channel Strips can be selected in several ways:
- By double-clicking on any Strip will select the entire Layer;
- by holding down the left-hand trackball key and dragging the cursor over the desired Strips;
- By clicking on the first Strip in a series, holding down the **Shift** key and clicking on the last desired Strip will select all the Strips within that range;
- By clicking the center trackball key on the first Strip in a series and dragging the cursor over the desired range;
- By holding down the **Ctrl** key and then clicking on the desired Strips.

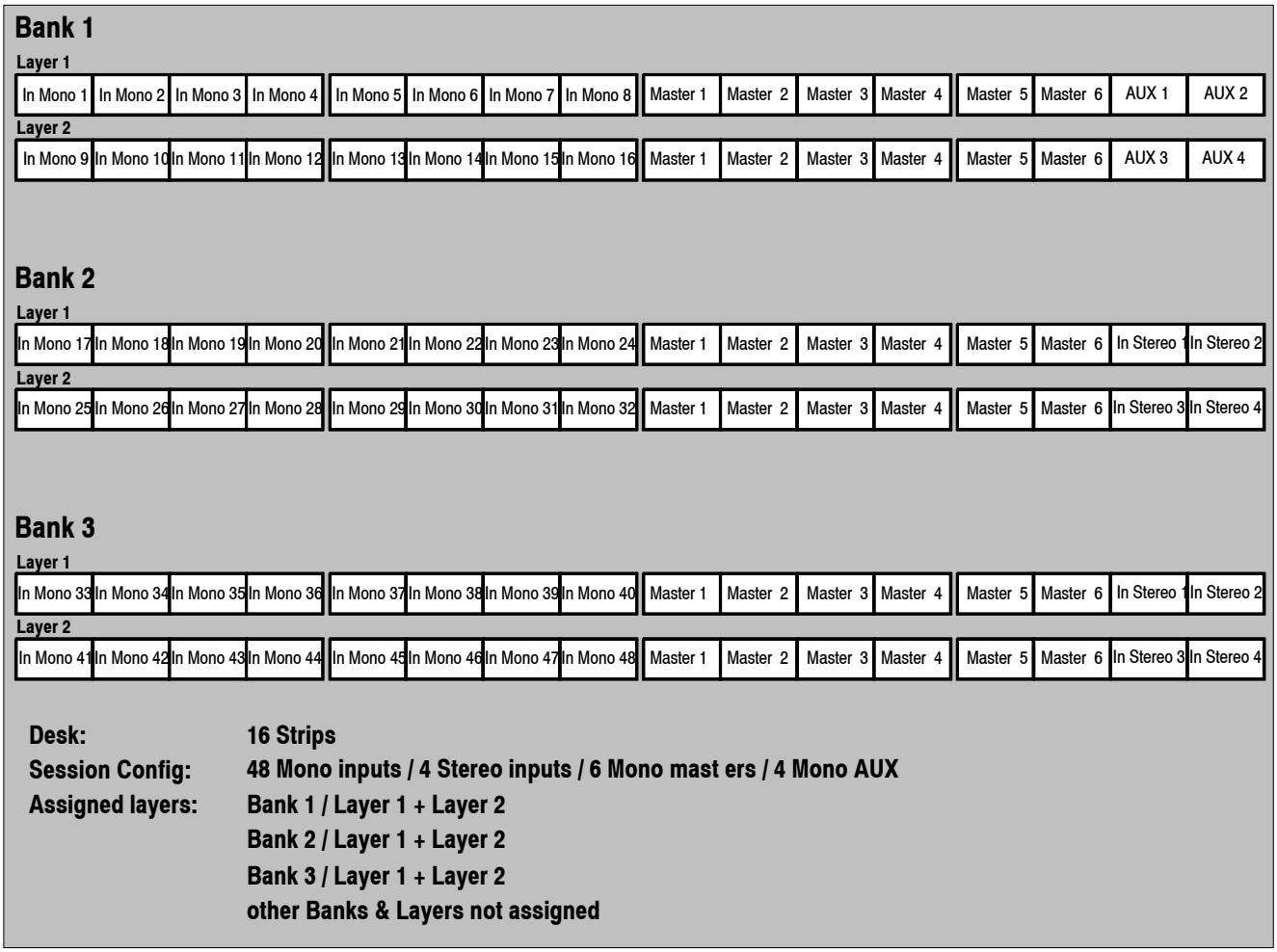
When multiple Strips have been highlighted, channels will be assigned staring with the first one selected and continue in order over the range of highlighted Strips or until the remaining channels of that type have been assigned.

Channels that have been assigned will be indicated by a checkmark to the left of the channel name in the pop-up menu.

Channel assignments can be copied to a clipboard by highlighting a Strip or a range of Strips and clicking Copy from the channel selection menu (right-hand trackball key). These assignments may then be pasted to other Strip locations. This is accomplished by highlighting the destination Strip(s) and clicking Paste in the channel selection menu. The same clipboard may be pasted to multiple locations if desired. Keyboard shortcuts are provided for these clipboard functions: Copy (**Ctrl+c**); Paste (**Ctrl+v**).

Here are some useful facts about the process:
- *Any* channel can be assigned to *any* Channel Strip on *any* Layer of *any* Bank;
- Any channel can be assigned more than once to several different Channel Strips, on any Layer, of any Bank – a feature that allows a configuration in which Masters Channels, for example, always are on top layer(s);
- It is not necessary to assign all channels available in a configuration, however, control of these channels will be limited to the CAS.
- Regardless of how you assign the signal sources to channel strips, there is *no* change in audio signals within the console – you can perform this modification at any time.

So, after you have edited it, the Session Configuration from Example #2 (*above*) may be laid out in a different way:



In the example above, it is clearly visible that the six Masters have been assigned to all layers of the first three Banks.

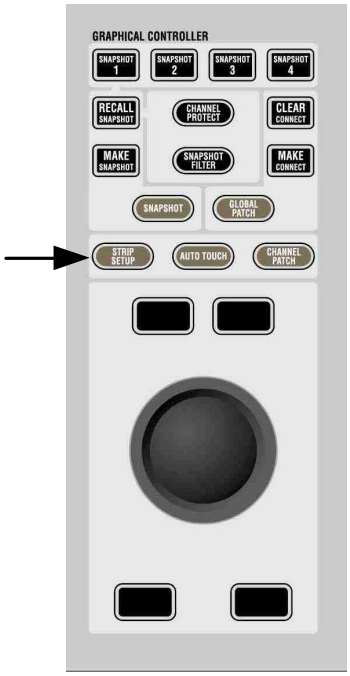
In other words: The Masters are always directly accessible, no matter which of the first three Banks/Layers is currently selected.

☞ **Tip** In addition to Strip Setup, the Desk Channel Swap function can be used to temporarily assign channels to the Channel Strips to suit your requirements.

4.4.7 Vista Strip Setup *(for D950 Strip Setup, refer to chapter 4.4.6)*

The Strip setup page can be called up in 3 different ways:

- From the Page menu
- Using the Page Icons
- Using the **STRIP SETUP** function key in the Control Bay of the Vista surface.



The Strip Setup page has a number of functions. Primarily, the “Strip Setup” window allows the user to assign DSP Channels onto the Vista surface. It also, however, gives a very good overview of the console and may be used during general operation of the console to help the user navigate around the console.

Please refer to chapter 1.1.5 for information on navigation philosophy.

The “Strip Setup” page (see below) provides a representation of the six sections of the Vista “virtual surface”. Although the concept of navigation is based on scrolling in a horizontal plane, the representation of the six sections is displayed in a vertical plane because of the logistics of screen space. The navigation system allows the user to decide which area of the virtual console the Control Surface will represent. The number of bays within a section will automatically be identical to the number of physical bays of the control surface. In the example shown below, the Control Surface will have five fader bays – a total of 50 faders. The total number of virtual channel strips available to represent DSP channels is 6 x 50 = 300 in this example.

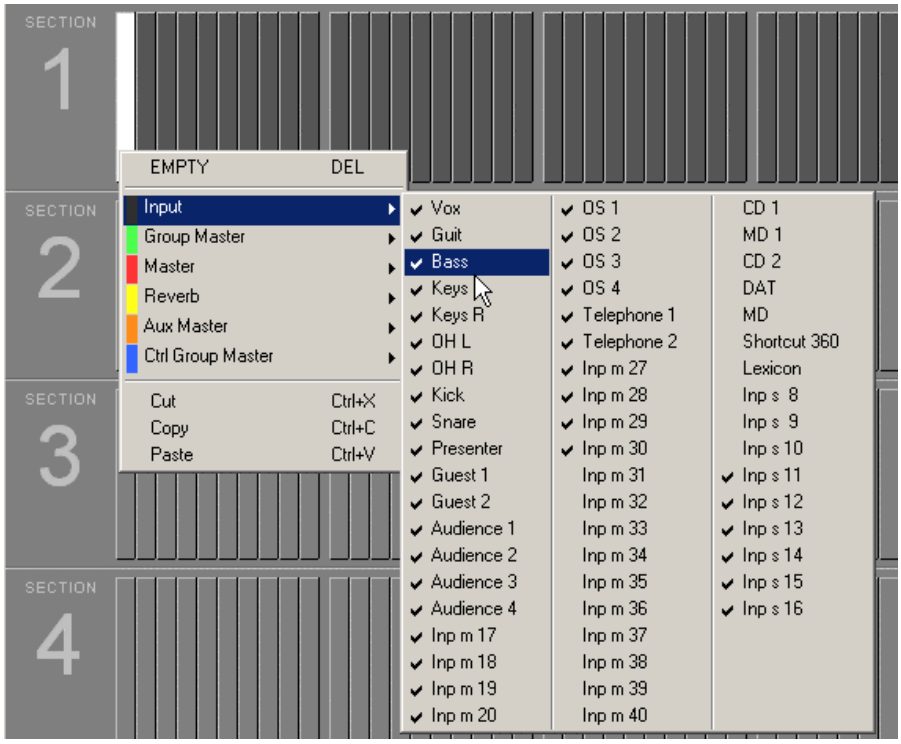
Color is also used to aid the user in channel identification. The colors relate to the channel type being shown and these are consistent with the use of color for channel identification on the screens of the fader bays.

4.4.7.1 How to Use Vista Strip Setup

To create a new strip setup or to adapt an existing strip setup, first call up the strip setup page (see above).

4.4.7.1.1 Assigning a Single DSP Channel to a Single Channel Strip

To assign a channel to one of the virtual channel strips, right-click on the virtual channel strip that the DSP channel is to be displayed on. This will highlight the chosen channel and a selection menu will appear, listing all the categories of channel types. These are submenus that contain a list of the available DSP channels in the loaded Session Configuration. Move the cursor to the drop-down menu of the desired channel type and select the desired channel from the list to assign it to the highlighted channel strip.



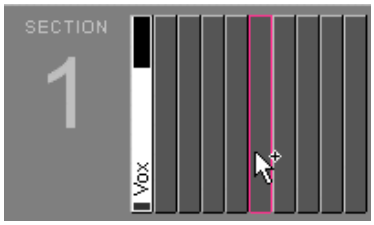
4.4.7.1.2 Assigning Multiple Channels in one Single Action

It is possible to assign consecutive DSP channels onto consecutive channel strips in one action. First use the hold and drag function of windows to select a number of consecutive channel strips. This will highlight the selected channel strips. Right-click on any of the highlighted channels to open the channel selector menus. Select the first channel of the consecutive channels to be assigned. Consecutive DSP Channels will now be pasted to fill the number of highlighted strips.

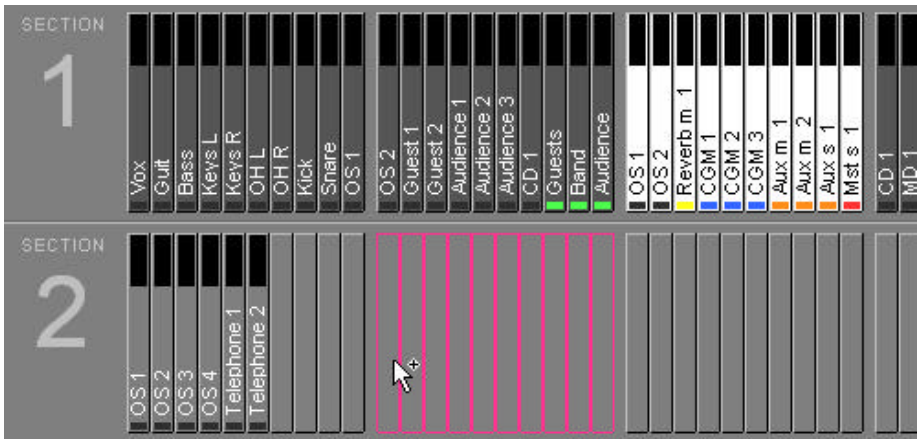
☞ **Tip** By double-clicking on a single channel, the complete bay of 10 strips that the channel strip resides is selected. Three clicks on a single channel will select all channel strips within the complete Section.

4.4.7.1.3 Moving Already Assigned DSP Channels to Other Channel Strips

If a DSP channel is already assigned to a channel strip, it is extremely easy to change the channel strip on which it is shown. Simply click-and-hold the left trackball button on the desired channel and drag-and-drop it onto any other channel strip. This will remove it from its present position and place it in the new channel strip. Whilst the left trackball button is held with a selected channel, a "ghost" view will appear to aid navigation to its newly selected channel strip. If it is dropped onto a channel strip which is already displaying a channel, the new channel will replace the existing one.



It is also possible to move numerous consecutive channels in one block by highlighting a number of channels. Click-and-hold the left trackball button and drag-and-drop the channels to the new location. A "ghost" view of the selected channels appears to help navigation.



☞ **Tips** By holding the **Ctrl** key whilst dragging-and-dropping channels, the DSP channels will be copied to the selected destination, instead of being moved from their original position. Standard Windows Copy/Paste functionality (**Ctrl+c** for copy, **Ctrl+v** for paste, **Ctrl+x** for cut) is possible once channel strips are highlighted.

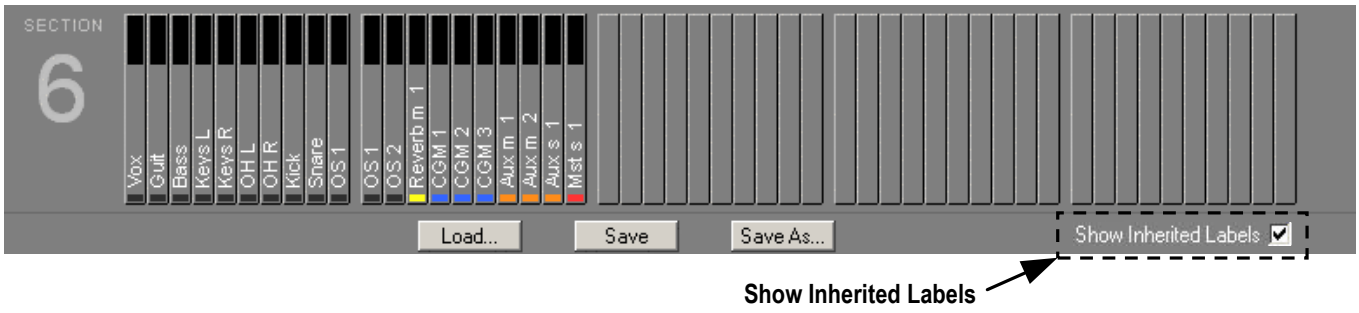
Note: If ten channel strips are copied or cut, and only five channel strips are highlighted to paste the DSP Channels into, then only the first five DSP channels of the copied ten will be pasted.

4.4.7.1.4 Useful Information

- Any DSP Channel can be assigned to any Channel Strip on the virtual control surface.
- Any DSP Channel can be assigned more than once to several different Channel Strips on any Section.
- It is not necessary to assign all DSP Channels available in the loaded configuration; however, there will be no control of these channels from the control surface.
- Assigning DSP Channels to Channel Strips has no affect on audio. It is purely a viewing function, and therefore changing the strip setup can be done at any time whilst operating the console.
- An indication is provided to highlight which bays are currently displayed on the physical console. These displayed bays are in dark gray.

4.4.7.1.5 Labels in Strip Setup

The most useful label type to show in strip setup is the “Inherited Label”. This is the session label of the source that is patched to a DSP channel and also relates to the large label in the channel strip display. See chapter 4.4.2.6 for more information regarding the Vista labeling system. For this reason, a checkbox is provided which locks the label type view of Strip Setup to show the “Inherited labels” (see below). Check the “Show Inherited Labels” box to always show Inherited Labels in the Strip Setup window.



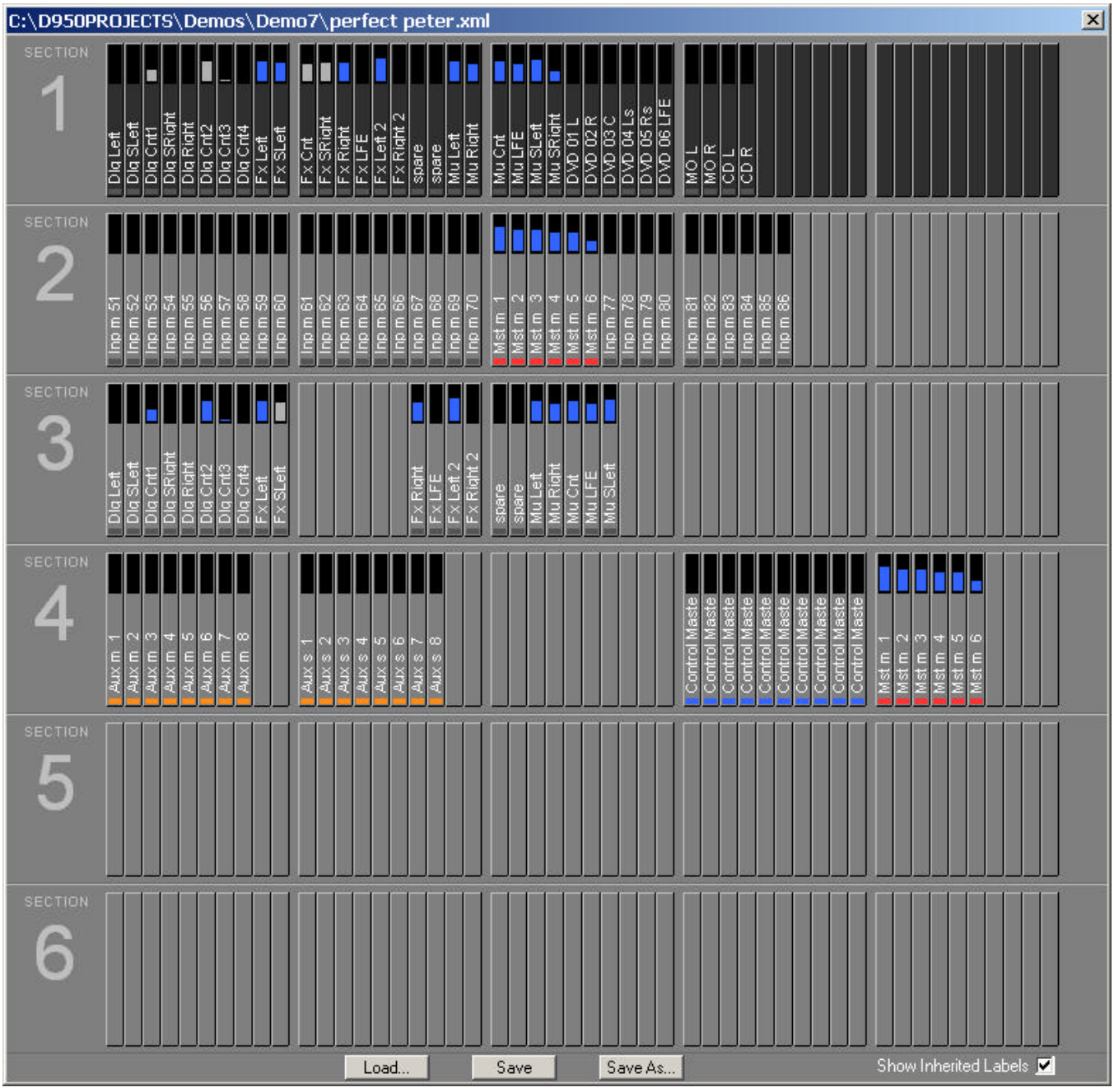
Show Inherited Labels

If the “Show Inherited Labels” box is not checked, the label type shown in the Strip Setup will follow the choice of label which is displayed by the smaller label in the Channel Strips. See chapter 4.4.2.6.2 for a description of this label.

4.4.7.1.6 Meters

The Strip Setup page provides an excellent overview of the meter activity of the channels on the virtual console.

Every channel displayed on the virtual console surface has a *slow* meter which is a slow indication of signal activity at this channel's input. Furthermore, by use of color the user can identify whether the channel fader is open and whether the channel is switched on. If the meter signal shown in the Strip Setup window is blue, this means that the DSP channel has its fader open and channel on. If the meter signal is gray, then the channel has a signal associated with it, but either the channel fader is closed or the channel is muted. If the meters are red, they are currently in Overload status.



4.5 Second Level of Operation: The Toolbar Functions

The toolbar contains a number of short-cut icons for the most important D950/Vista system functions. There are four (or five) individual parts of the toolbar:

- Page Selection
- Channel Selection
- Tools
- System Functions
- *Multidesk Groups (if configured).*

Each of the toolbar parts can be switched on and off individually. The easiest way to do so is the View menu, item "toolbar" (refer to chapter 4.2.1):

4.5.1 Page Selection

There are five main Graphic Controller pages, each of them dealing with a different D950/Vista operating function:

- General Patch Page
- Channel Patch Page
- Snapshot Page
- Cue List Page
- Strip Setup Page

General Patch:
This action brings up the General Patch page (also refer to chapter 4.4.2).

Channel Patch:
This action brings up the Channel Patch page (also refer to chapter 4.4.3).

Snapshot:
This action brings up the Snapshot page (also refer to chapter 4.4.4).

Cue List:
This action brings up the Cue List page (also refer to chapter 4.4.5).

Strip Setup:
This action brings up the Strip Setup page (also refer to chapter 4.4.6 *[D950]* or 4.4.7 *[Vista]*).

If multiple-page display is selected, this will only affect the currently selected page.

☞ **Tip** The Graphic Controller's main pages can also be called up as follows:

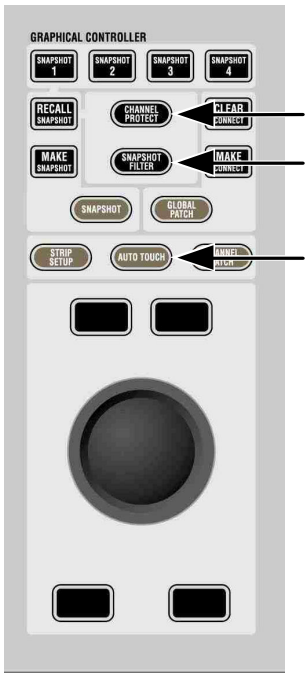
- From the Page menu, by clicking on the appropriate menu item;
- Using the Page icons, by clicking on the appropriate icon in the toolbar;
- Using function keys on the control surface keyboard – which is probably the fastest way.

4.5.2 Tools

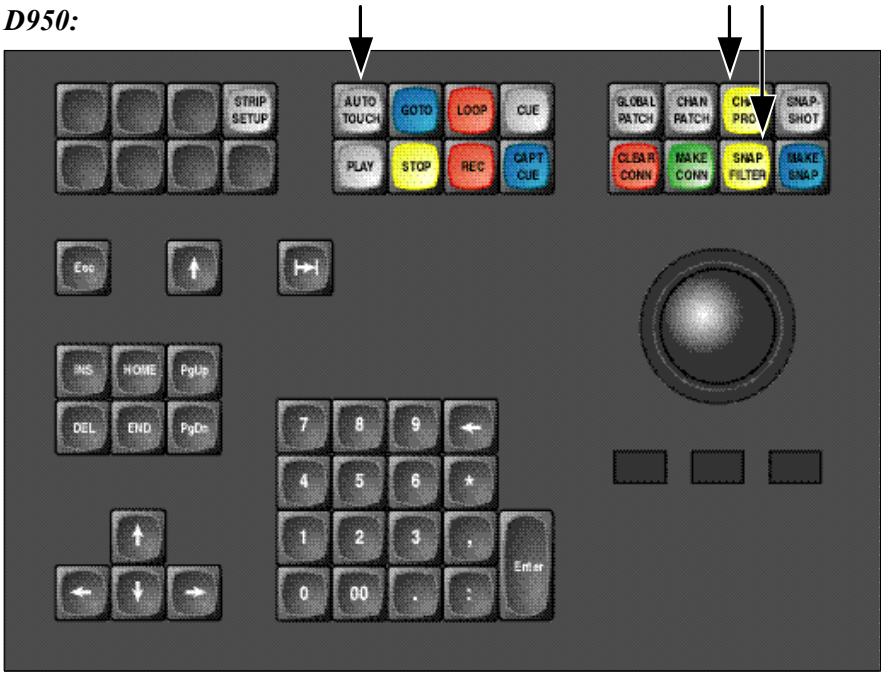
The various control panels from the Tools section of the toolbar can be called up or hidden in three different ways:

- Via the View menu;
- Using the toolbar icons, by clicking on the appropriate icon;
- Using the function keys (**CHANNEL PROTECTION, SNAPSHOT FILTER,** and **AUTOTOUCH**) on the control surface – which is probably the fastest way:

Vista:



D950:

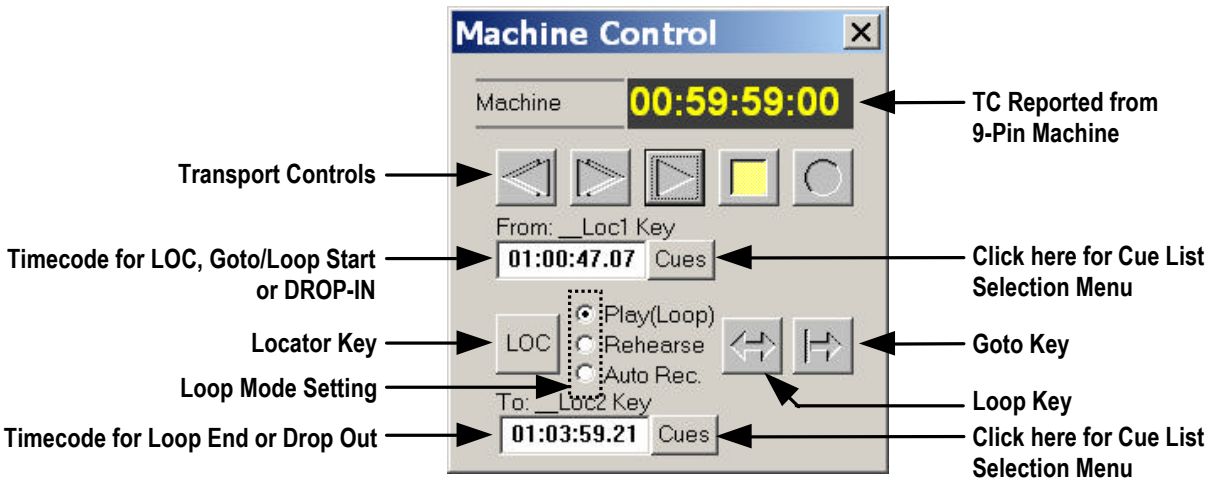


4.5.2.1 Tools: Machine Control Window

The Machine Control window can only be displayed if the TC2 or TC3 timecode options are installed.
Click on this icon to open the machine control window.

The Machine Control window allows simple machine control functions to be operated from the GC screen. The basic machine control functions are also available from the Control Surface panel *(except for Vista 6)*.

The Machine Control window is always positioned on the top level of display of the windows of the GC. Much of the window's operation is depending on the settings of the Options/TC-Reader/Generator menu. Refer to chapter 4.5.2.1.1 for details.



4.5.2.1.1 Machine/TC Generator Control

The settings and functions are:

Machine Control buttons: Consist of Rewind, Fast Forward, Play, Stop, Record, Locate, GoTo and Loop buttons. For added convenience, Play, Stop, Record, GoTo and Loop are also featured on the control surface keyboard. The Machine Control keys can be configured in the Option/TC-Reader/Generator Menu for:

- *None*: Both Machine Control key/button sets are disabled.
- *9-pin serial control*: Both Machine Control key/button sets control the one 9-pin port.
  This setting may be used to serially control a single transport, or to control the optional multi-machine Motion Controller system.
- *Generator Control*: Both Machine Control key/button sets control the TC2 or TC3 Timecode Generator. This setting is used for pre-striping tapes with timecode data, or to control machine transports in TC chase mode.

Locate Mode: *Loc*: The connected 9-pin machine will locate to the selected *From* timecode address.

Loop Mode: The Loop, Rehearse, and Drop-In (Auto Rec) selection operates in conjunction with the Loop button:

- *Loop*: The machine will play in an endless loop, starting with the *From* timecode setting, and ending with the *To* timecode value.
- *Rehearse*: The machine will play in an endless loop, starting with the (*From – Pre-roll*) timecode setting, and ending with the (*To + Post-roll*) timecode value. In addition, any machine tracks set to Ready will go into a *simulated* Record function, starting with the *From* timecode setting, and ending with the *To* timecode value.
- *Auto Rec*: The machine will play in an endless Loop, starting with the (*From – Pre-roll*) timecode setting, and ending with the (*To + Post-roll*) TC value. In addition, any machine track set to Ready will enter Record mode, starting with the *from*, and ending with the *to* TC value.

Pre-roll time: (A value set in the Option/TC-Reader/Generator Menu). This action allows the operator to enter a Pre-roll time in timecode format. The controlled audio or video machine will be parked *before* the actual drop-in point given by the value "x" = Pre-roll time, and then synchronized in Play mode (usually, Pre-roll is set to values from 3 to 5 s).

Post-roll time: (A value set in the Option/TC-Reader/Generator Menu). This action allows the operator to enter a Post-roll time in timecode format. The controlled audio or video machine will be kept in synchronized Play mode *after* the actual drop-out point for the value "y" = Post-roll time (usually, post-roll is set to about one second).

From/To Control: This action allows the user to enter a start-timecode address (*From*) and an end-timecode address (*To*) for the Locate, Loop, and GoTo functions. The timecode values can be entered manually, using the control surface keyboard. You can also select any of the existing Cue Points by clicking on the *Cue* button.

Note: *Rehearse and Auto-Rec modes are depending on the connected machine. The feature has been tested with common Sony VCR machines. Studer cannot guarantee proper function with all 9-pin machines being currently on the market. However, some options exist for system administrator use to adapt the 9-pin behavior of the D950/Vista to some machines (refer to the Service Manual).*

4.5.2.2 Tools: Title Memo

The Title Memo editor page allows any relevant Title information to be kept for later use. There is one Memo per Title. Its contents can include Studio name, Producer Name, Engineer Name, Artist Name, plus a free-form Memo pad. The Title directory location and modification date/time are displayed at the top of the Title Memo page.

To open the Title Memo use:

- The  "notepad and pencil" icon in the toolbar
- The View menu, by clicking on the appropriate menu item.

Note: The Title Memo does not have a function key on the control surface keyboard.

4.5.3 Channel Selection Tool

This tool allows one console Channel to be selected for control of various centralized functions on the Graphic Controller, such as Channel Patch. There are three arrow buttons:

Selects the *previous channel* from the list;

Selects the *next channel* from the list;

Opens the *full Channel List* to select a channel. Labels are displayed according to the selected Label Mode (refer to chapter 4.3.3).

4.5.4 System Functions

4.5.4.1 System Functions: Protect/Unprotect SysAdmin Mode

This action allows the system user mode to be toggled from Standard to System Administration. The System Administration mode allows access to some system functions that are not needed in normal operation.

Accessing the System Administration mode can be accomplished in two ways:

- Clicking the  padlock icon in the toolbar;
- Selecting SysAdmin… in the User menu.

From *Standard Mode* (closed padlock icon): Click on the padlock icon, or select SysAdmin… in the User menu. You will be asked to enter the System Administration Password.

After complying with the request, an additional menu item – SysAdmin – will appear in the menu bar.

From *System Administration mode* (open padlock icon): Click on the padlock icon or select Protect in the User menu to exit this mode.

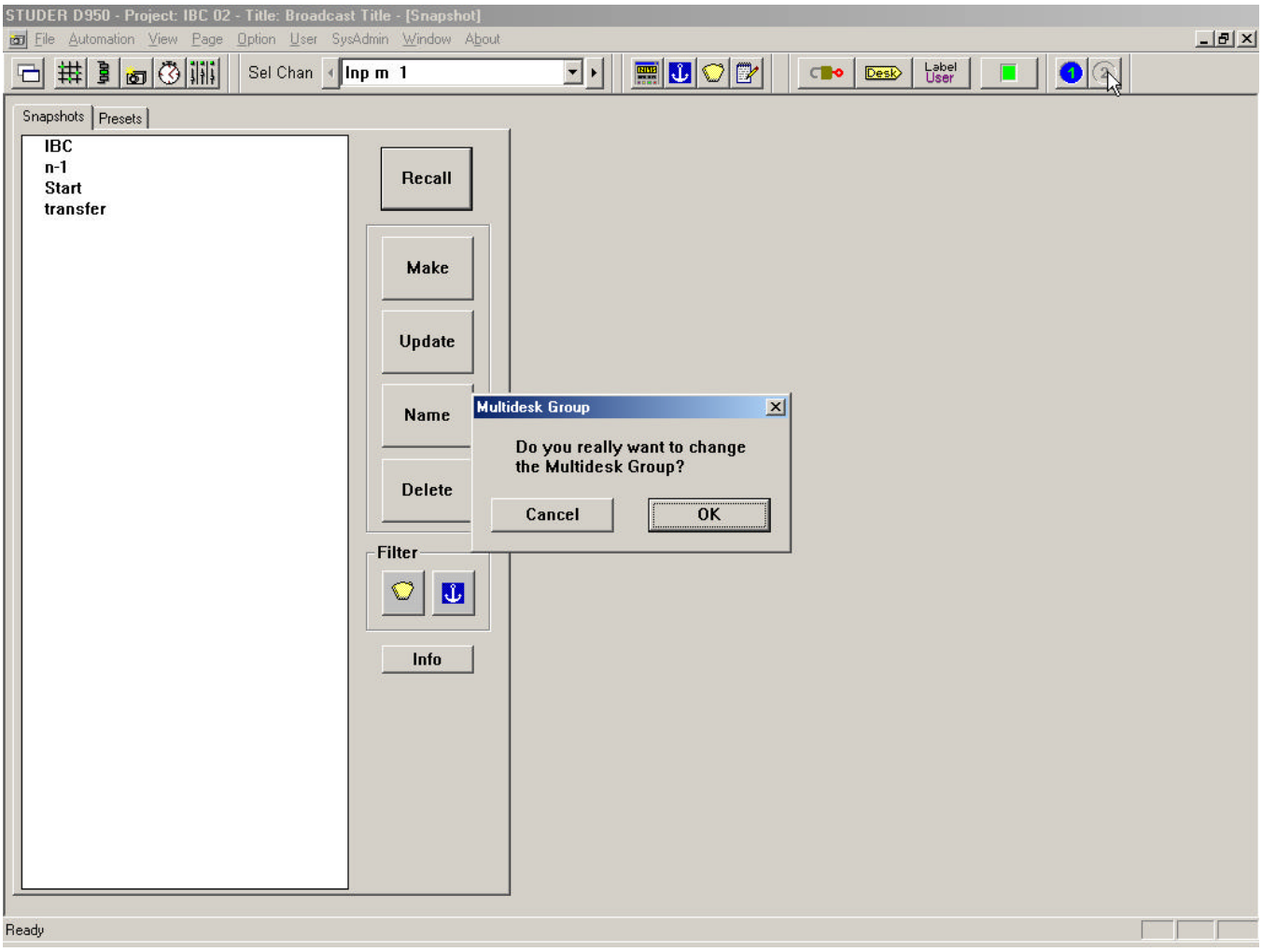
For more details on the User/Protect menu and the System Administration menu, refer to chapters 4.6.6 and 4.7.

4.5.4.2 System Functions: Toggle Control Group *(D950 only)*

The concept of Control Groups is used for MultiDesk operation, where:

- Several independent operators work at the *same* time on the *same* desk;
- Several desks are supported by *one* DSP Core and Control System.

Control Groups are defined within the Session Configuration Tool (see chapter 7.4.3.4.1) and set up according to the requirements of a particular studio. During this configuration process, several mostly independent Workspaces for the GC and the Desk Surface are defined. To move from one Workspace to the next, click on the corresponding Control Group icon.



When you click on a Control Group icon, you will need to confirm this action by clicking the OK button before the Workspace is toggled to the desired Group.

Control Groups may be configured to have:

- Independent Desks;
- Independent areas in the Patch;
- Control over different console Channels;
- Separate and independent Titles, Snapshot Lists, Cue Lists, User Preferences, etc.

4.5.4.3 System Functions: Follow Desk *(D950 only)*

This icon allows the Desk Channel Select Mode to be set. It is particularly convenient to utilize the **SEL** key on a channel strip to select one console Channel for various centralized functions on the Graphic Controller, such as Channel Patch.

The Desk Channel Select Mode has two status levels:

Follow Desk Icon is not crossed out, which means that Follow Desk mode is active, and that the **SEL** key will select the same channel for both the Desk and the Graphic Controller.

Follow Desk Icon is crossed out, which means that Follow Desk mode is deactivated. In this mode, the channel **SEL** key will function for control surface operations, but will not affect the Graphic Controller.

In both cases the Channel Selector in the toolbar (chapter 4.2.1) can be used.

4.5.4.4 System Functions: Label Mode Selector

This icon allows the Label Mode for both Desk Labels and the Source/Target Labels to be set at the same time.

Label Mode is toggled through to display:

Fixed Labels (labels created according to the Session Configuration);

User Labels (labels entered by the user in the General and Channel Patch);

Inherited/Device Labels (General Patch Source labels used on the control surface).

Refer to chapter 4.3.3 for more information on Labels.

4.5.4.5 System Functions: The Surveyor

The Surveyor button keeps the operator informed about general system status. The button's icon changes to indicate the overall condition of the D950/Vista. These indications are as follows:

Yellow triangle: Loading. System is booting, look at the Status Bar;

Green square: OK. Everything is fine;

Green square with yellow diamond: Not Found. A system element cannot be found. This is sometimes seen when a Session Configuration is loading. Other time it may indicate a problem.

Red circle: Error: Something is wrong. Open the Surveyor to see what is malfunctioning.

Grey circle: Not Used. A system element is defined but is not in use.

You can view more details about the System Status by clicking on the Surveyor button, which will then open the Surveyor page.

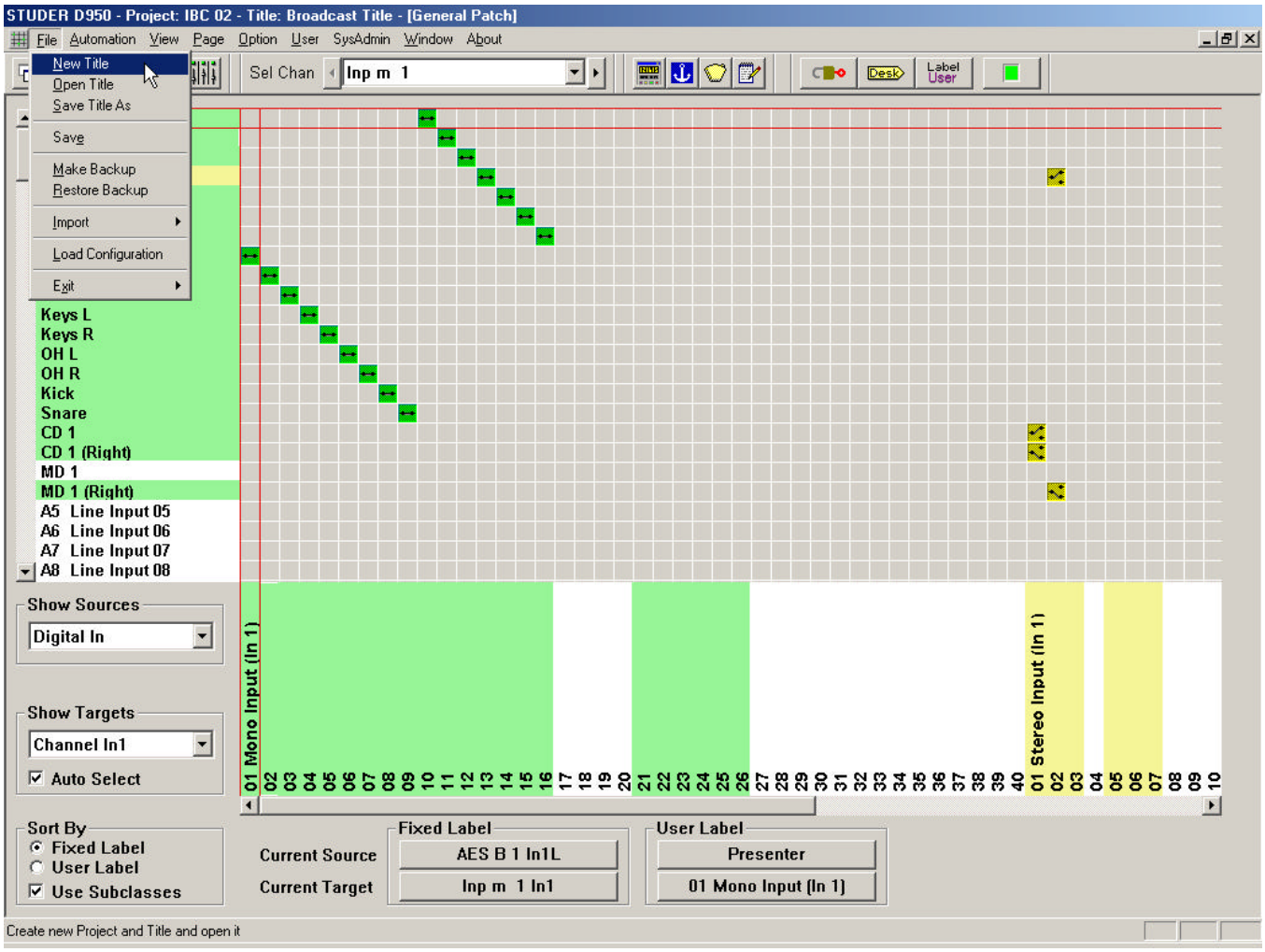
☞ **Tip** If you wish to determine which Session Configuration is currently loaded, also click on the Surveyor button. Other current system files (such as monitor files) may be found within the Surveyor, but may be nested within subdirectories.

For more information on the Surveyor refer to chapter 4.8.

4.6 Third Level of Operation: Menu Items

4.6.1 The File Menu

The File menu contains most of the D950/Vista system's bookkeeping functions. Management of Projects, Titles, and Mixes, access to Session Configurations, Backup and Import functions, and the Exit menu are controlled from here.

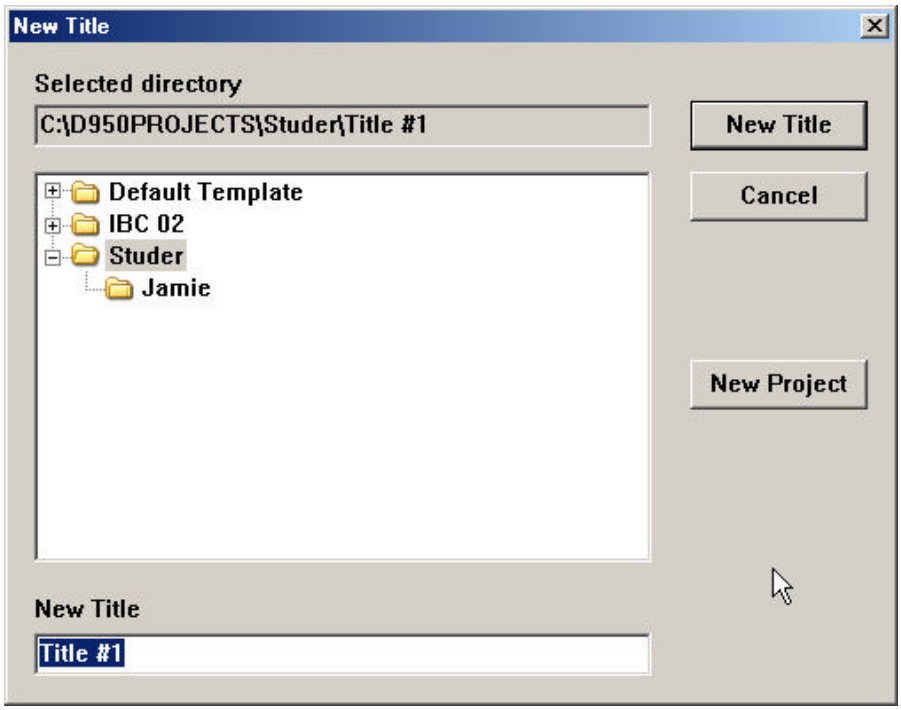


4.6.1.1 Titles and Projects

The *Title* is the main container for all the session data. Titles contain all Snapshot, Mix, Cue List, Title Memo, and other files that relate to each session. Titles also contain pointers that recall the appropriate Session Configuration, Monitor file, and so on.

Titles are found in a Project folder. Project folders may be created along with a new Title. For example, a Project folder might be created at the start of an album project when the Title for the first song was made. Subsequent Titles could be created for each of the other songs and placed in that album's Project folder. Projects are located in the `D950PROJECTS` folder.

New Title: This action opens a dialog box that enables the creation and selection of a name for a new Project and/or Title. You can freely create any number of Projects and Titles.
Let us assume you wanted to create a new Project and Title in the Subdirectory `D950PROJECTS`. Click on File in the Menu bar, select New Title, and you'll end up with a familiar Windows box:



Click on the New Project button and a name entry box will appear. Type in a new Project name – for example, *CITY TV1* – and click OK. A new folder with the name you just entered will appear in the list. It will be highlighted in gray, indicating that it has been selected to receive new Titles. The New Title name entry field (at the bottom of the box) will now automatically display *Title #1* (or the next available number). This will be highlighted in blue, indicating that it is ready to be over-written with a proper name, for example, *BLUES CITY*. Once a new Title name has been entered, click the New Title button or press the Enter key. The above actions will perform the following:

- Creating a new Project subdirectory (`C:\D950PROJECTS\CITY TV1`);
- Creating a new Title subdirectory (`BLUES CITY`) within the `CITY TV1` project folder (`C:\D950PROJECTS\CITY TV1\BLUES CITY`);
- Creating the necessary Title-oriented files, which are stored within this Title subdirectory;
- Display of the current Title name in the Title Bar.

If you do *not* create a new Title, all your subsequent data will be stored in whichever Title is currently open. If a Title is not currently open (as is the case after loading a Session Configuration), you will be prompted to open or create a new Title before data can be saved.

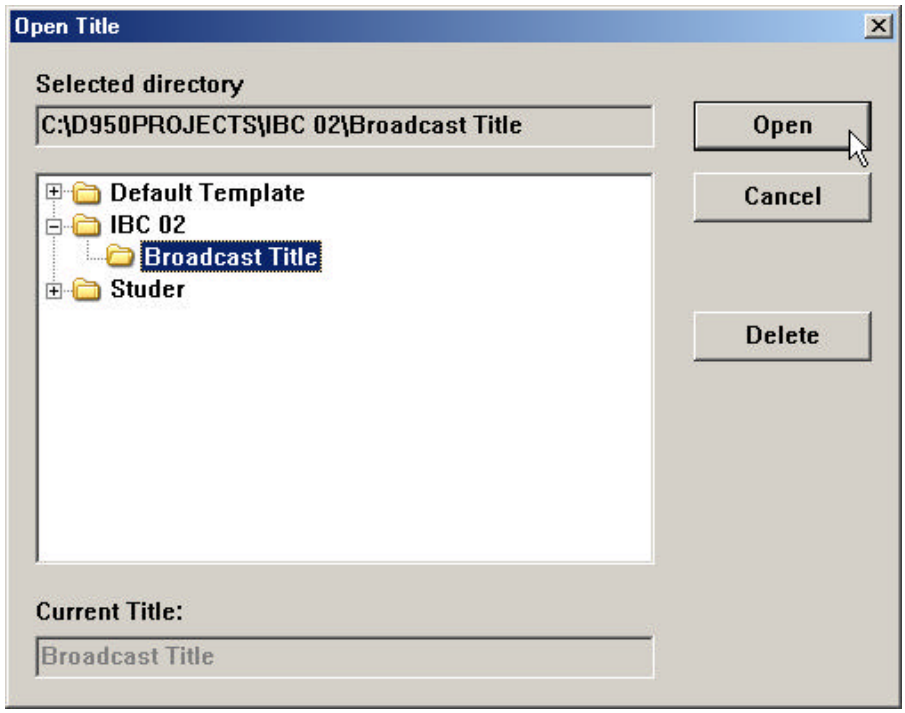
☞ **Tip** You should generally organize your Subdirectories in such a way that `C:\D950PROJECTS` remains the *parent* directory, because the system automatically searches for that particular directory while opening Projects, Titles, etc. After several weeks of using the D950/Vista system, your directory structure may create something like this:

Parent	Your projects	Your titles	Your data
C:\D950\Projects	\SuperProductions_1	\FirstSong	\FirstSong.tit \Snap1 \Snap2
		\SecondSong	\SecondSong.tit \Snap11 \Snap12 \Mix1 \Mix2
C:\D950\Projects	\SuperProductions_2	\EveningShow	\EveningShow.tit \SnapBaby \SnapBaby_new \Mix
C:\D950\Projects	\SuperProductions_3	\MorningShow	\MorningShow.tit \CoffeSnap_1 \CoffeSnap_2 \MyNewMix

...and so on.

Open Title: This action opens the list of Project folders from the `D950PROJECTS` directory. This enables the selection and opening of an existing Title from a selected folder. Titles can also be deleted from this menu item.

To open an existing Title, first double-click on the desired Project Subdirectory, an action that will move you into its Subdirectory:



The desired Title can now be opened by double-clicking on the Title folder or by highlighting it and clicking the Open button. This action will perform the following:

- Make the new Title the *current* Title, making available all snapshots, mixes, etc;
- Indicate the Current Title name in the Title Bar.

A Title can be deleted by highlighting a Title's name (while in Open Title) and clicking on the Delete button. You will be asked to confirm this action. You cannot directly delete a Project folder using this technique. However, if you delete the last Title from within a Project folder, you will be notified that the empty folder will be automatically deleted.

Note: Titles are color-coded according to the status of the Session Configuration that was in use during their creation. Black, blue, and red Title names indicate the following:

Black: The Session Configuration needed for this Title is currently loaded;

Blue: The Session Configuration needed for this Title is not currently loaded. You will have the option of loading the needed configuration (if it is available on the PC), converting the selected Title to work with the currently loaded configuration, or canceling;

Red: *The Session Configuration needed for this Title is no more available on the PC.*

Save Title As...: Opens a Windows dialog box allowing to select a new name and to store the current Title's data under a new name. The process is similar to "New Title" because it creates a new Title under a new name. The difference is that it also copies all the snapshots, mixes, etc., from the current Title into the new Title. So, it will do the following:

- Create a new Title subdirectory with the new name;
- Copy all data from the Current Title into this subdirectory;
- Make the new Title the *current* Title;
- Indicates the Current Title in the Title Bar.

To save a current Title under a new name:

- Select Save Title As... from the File menu;
- Highlight the desired Project Folder;
- Type an appropriate Title name in the entry box;
- Click on the Save button or press the keyboard Enter key.

4.6.1.2 Save

Selection of the Save menu item will save all Title oriented information to the currently opened Title.

Since this happens automatically when changing to an other title or when leaving the application, this button possibly may never be used.

4.6.1.3 Make/Restore Backup

The D950/Vista provides a powerful and easy-to-use data backup utility. This feature enables the creation of a Backup subdirectory that contains a copy of all files from the Title folder and all pertinent Session Configuration and system files needed to recreate the session on this or another D950/Vista. These Backup files can be used for data protection and easy transportation of Titles between D950/Vista equipped facilities.

Backup directories can be made on any storage media of sufficient size. While a floppy disk is too small, a 100 MB Zip disk or a CD-R can contain several D950/Vista Backup directories.

Backup directories can be used to restore all of the files and information needed to recreate the Title at a later date or on a different D950/Vista.

Make Backup: This action opens the Create Backup window, where a destination for the Backup directory is selected. Backup directories are automatically named by the utility. After the `BCK_D95Ø_BACKUP…` portion of the title, names include the Title name and dates of modification and origination.

To create a Backup directory for the current Title:

- Select Make Backup from the File menu;
- Select the destination for the Backup directory;
- Click the OK button or press **Enter** on the keyboard

These actions will perform the following:

- Creation of a new Backup directory at the desired location;
- Name and date the directory.

Restore Backup: This action opens the Restore Backup window entitled, where a Backup directory is selected for reloading.

To restore a Backup directory:
- Select Restore Backup from the File menu;
- Highlight the desired Backup directory;
- Click the OK button or press **Enter** on the keyboard;

A pop-up dialog box will appear giving you the option of Replacing the Existing Title, Saving the Restored Title as a new Title, or Canceling the Backup. If you select "Replace the Existing Title", you will not be able to replace the Session Configuration if it is currently loaded and will be given the option to continue. You will also have the opportunity to replace the Monitor file if it also exists. Choosing "Restoring the Title As" will result in the normal Window's save screen.

Notes: Regardless of the method used to create it, after a Backup has been restored, the resulting Title must be opened before use.
If you move production data between different consoles, it is advisable not to restore certain files onto the destination console, since it may have different hardware. This is valid in particular for the `monitoring.ini` files. You will be asked whether you want to restore these files as well; in this case answer negative if the two consoles are not identical in terms of monitoring.

4.6.1.4 Import

Using the Import utility in the File menu, Snapshots, Presets, Mixes, and Titles can be imported.

Import: This action is used to select the type of data you wish to Import. Once the type of data is selected, an open window appears allowing to select the data source. The following rules apply when using the Import utility:
- Snapshots and Mixes can only be imported into an open Title;
- Imported Presets will be stored with the current Session Configuration;
- Items can be renamed as the are imported;
- A Title will need conversion if it is imported for use with a different Session Configuration.

Note: Importing a Snapshot, Preset, Mix, and/or Title will not make it current. For example, a Snapshot will not be applied to the console upon being imported, it must be recalled using the Snapshot page.

4.6.1.5 Load Session Configuration

If there is more than one Session Configuration on your D950/Vista system, you may need to access this menu item in order to load a different Session Configuration. Since Titles will automatically open the correct Session Configuration (if its not already loaded), using the Load Configuration menu item is only necessary when loading a Session Configuration without opening a Title. Regardless of how a Session Configuration is recalled, this process takes 20 to 30 seconds to complete, and mutes the console during loading.

Note: Keep in mind that all Titles contain pointers that enable the loading of the proper Session Configuration and other appropriate files. If the Title's Session Configuration is different from the one that is currently loaded, you will be asked to either confirm the loading of the correct Configuration or to convert the Title for use with the current one. Therefore, during routine operation, it is not necessary to use the Load Configuration menu unless the user has created or modified a Session Configuration during that session. Typically, the Load Configuration menu item should only be used by the facility's System Administrator or by advanced users.

Session Configuration subdirectories reside in the `C:\D950SYSTEMBD` subdirectory. These subdirectories contain the following files:

- Virtual Mixing Console (VMC) files: These files (with `*.vmc` extensions) are created by the Session Configuration Tool. They contain all the Configuration data needed for the Session Configuration Tool to create a core file;
- Core files: These files (with `*.cor` extensions) are created by the Session Configuration Tool. They contain the actual code used by the DSP core;
- Preset files: These files (if any exist) are created within Titles but are stored with Session Configurations so they can be used with any Title that uses a particular Configuration. Preset files have .pre extensions.

Session Configuration: This action opens a dialog box that allows the selection and opening of an existing Session Configuration. A list of available Session Configurations for selection will be displayed.

☞ **Tip** You should generally organize your Session Configurations in such a way that `C:\D950SYSTEMDB` remains the parent directory, because the system automatically searches for that directory during opening of a Title or Session Configuration.

To load a configuration, double-click on it, or highlight it and click the Open button. This will do the following:

- Mute the console's audio paths (including the monitoring section);
- Load the appropriate VMC data (core file) into the system, and check their validity;
- Erase the old Session Configuration DSP software from the Flash EPROM in the DSP Core, and load the new DSP software;
- Reload the control surface desk (the Channel Strips will go blank for a few moments);
- Load the appropriate Monitor Configuration file;
- Activate the last used preferences belonging to the newly loaded Session Configuration.

Notes: When a Session Configuration is loaded via the Load Configuration menu, the currently open Title will be closed; no new Title will be opened. Before any data can be stored using the newly loaded Configuration, an existing Title must be opened or a new one must be created.
If a Session Configuration is displayed in red this means that this Configuration has not been compiled properly by the Session Configuration Tool. Either run the tool again or delete this Configuration.

4.6.1.6 Exit D950/Vista Application

There are three possible ways of quitting the D950/Vista Software application. It is recommended to use the File menu's *Exit* item.

Exit GC This action will close the Graphic Controller (D950/Vista System application) while simultaneously muting all monitoring outputs, and returning to the Windows NT operating system. All other programs and applications continue to run.

Exit System This action will close the Graphic Controller (D950/Vista System application) while simultaneously muting all monitoring outputs. It also quits all other running applications and the Windows operating System. The controller PC will then be ready to be switched off.
In case the standard UPS (Un-interruptible Power Supply) is installed, and the associated PowerChute utility is configured to do so, this will also turn off the UPS/PC combination automatically after a pre-set time period.

Using Main Window Control It is also possible to quit the D950/Vista application by clicking on ☒ main window control. There is no confirm box in this case, and the application is terminated immediately.

It could be potentially dangerous for your session if you click on ☒ main window control, because the application will be terminated, and audio will no longer pass. However, the data that was in use will be written to the "last known session" and "shutdown" files and will not be lost.

Note: It is possible for an expert to adjust settings in order to make the ☒ close box disappear.

4.6.2 The Automation Menu

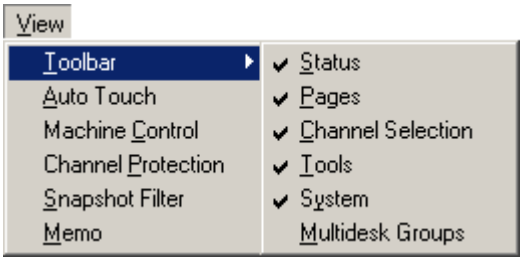
This menu is described in detail in chapter 5.

4.6.3 The View Menu

The View Menu contains commands for opening various Pages and Tools, and defining the appearance of the toolbar (refer to chapter 4.2.1).

View/Toolbar: This action displays the various items of the Toolbar/Status Bar to be checked. The toolbar contains a number of short-cut icons for accessing the D950/Vista's most important functions. When checked, the following icon groups are displayed:

- Status Bar
- Page Selection
- Channel Selection
- Tools
- System functions
- Multidesk Groups (if configured).



View/AutoTouch: This action toggles display of the optional AutoTouch Control Panel (refer to chapter 5).

View/Channel Protection: This action toggles display of the Channel Protection Panel (refer to chapter 4.5.2).

View/Snapshot Filter: This action toggles display of the Snapshot Filter Panel (refer to chapter 4.4.4.5).

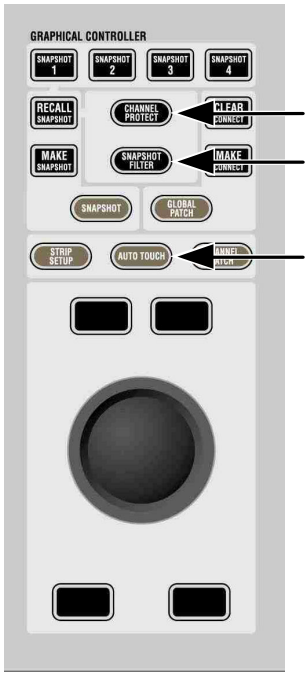
View/Memo: This action toggles display of the Title Memo Panel (refer to chapter 4.5.2.2).

View/Clipboard Library: This action opens the Clipboard Library window (*Vista:* refer to chapter 2.5).

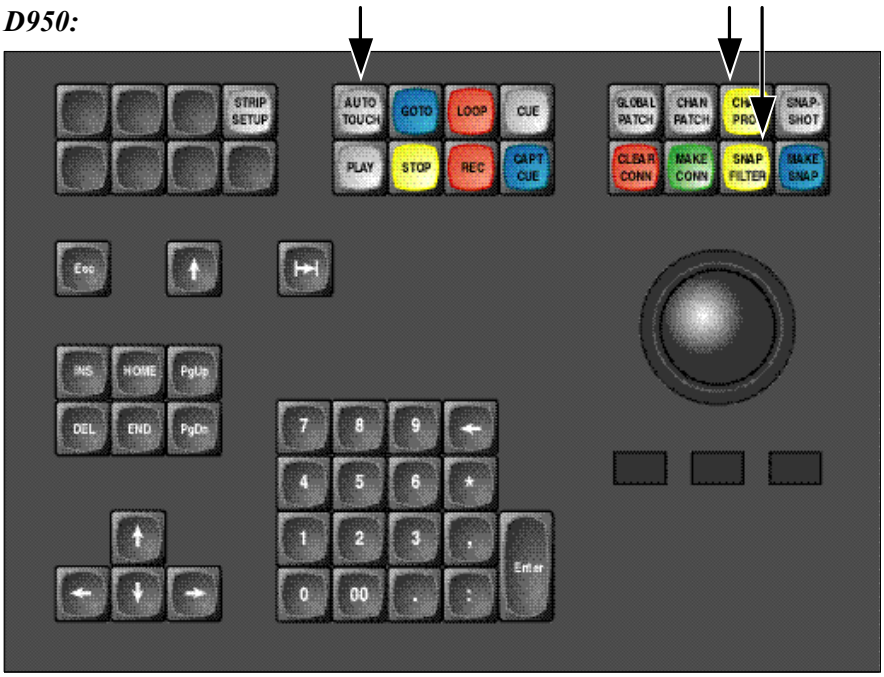
The various Graphic Controller windows can be called up or hidden in three different ways:

- Via the View menu;
- Using the toolbar icons, by clicking on the appropriate icon;
- Using the function keys (**CHAN PROT**, **SNAP FILTER** and **AUTO TOUCH**) on the control surface keyboard – which is probably the fastest way.

Vista:



D950:



4.6.4 The Page Menu

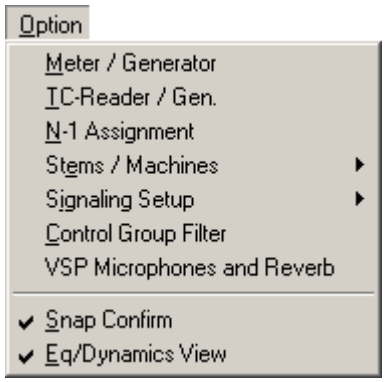
There are five main Graphic Controller pages, each of them dealing with a different operating part of the D950/Vista system.

This menu has been described in detail in chapter 4.4.1.

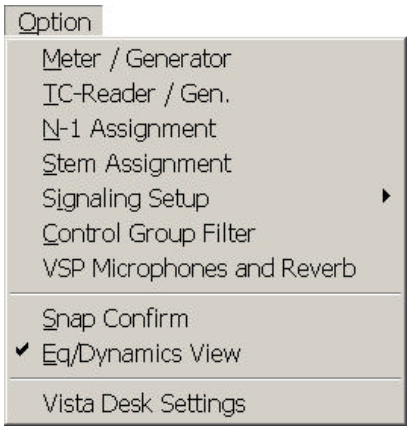
4.6.5 The Option Menu

The Option Menu is used to set up various operating modes, preferences, and options. It consists of several items, some of which may not be available if the appropriate D950/Vista option is *not* installed. Items in the upper part will generally bring up a screen for selection of settings and operating modes; the lower part contains two items that can be directly checked from the menu.

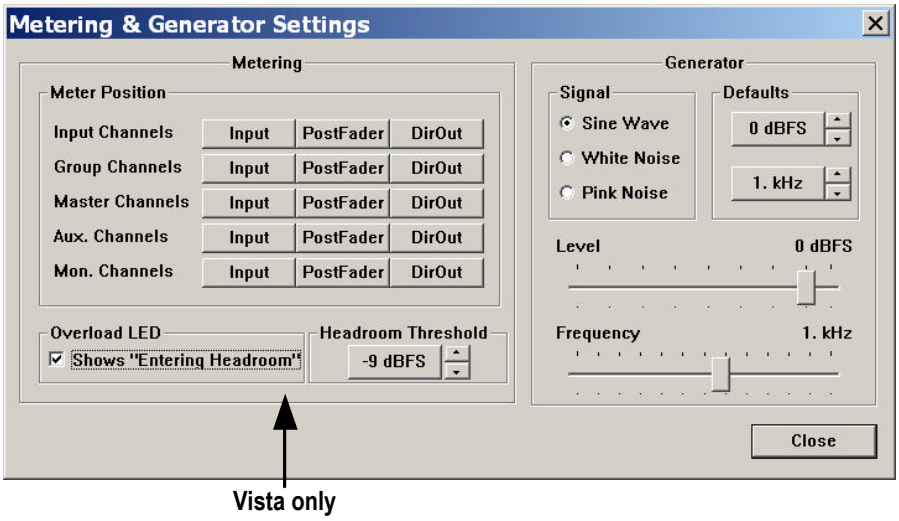
D950:



Vista:



4.6.5.1 Option: Meter/Generator



The Meter/Generator page is used for adjusting various settings of the desk channel strip metering and test generator. Generator defaults are automatically stored in the `D950system\shutdown.pfc` file when quitting the system, so that the *last used* defaults are available after the next start of your system.

Metering/Meter Position: This action globally sets the metering signal source for all the channels of the same type to the same point within the signal path. It is usual to set the Input Channel and Monitor Channel meter sources to Input and those of the Group, AUX and Master Channels to the Post-Fader position. Meter positions can be changed on a channel-by-channel basis and stored with Snapshots and Presets.

Generator/Level: This action sets the test signal generator's level to the desired value. Levels can be set to off and, in 1 dB steps, from –90 to +10 dB_{FS}. The Generator Level can be turned off by moving the Level slider all the way to the left.

Generator/Frequency: This action sets the test signal generator's frequency (sine wave only) to the desired value. The generator frequency can be set in $1/12^{th}$ octave steps from 19.95 Hz to 19.95 kHz.

Generator/Signal: This action selects the waveform of the test signal generator, from Sine Wave, White Noise, and Pink Noise.

Generator/Defaults: This action sets the test signal Generator's level and frequency defaults by using the arrow buttons to adjust the default values.
To quickly apply a level or frequency default, rather than to adjust it manually, click on the appropriate Defaults button. Default levels can be set in 1 dB steps, from –90 to +10 dB_{FS}. The Generator Level cannot be turned off from the Defaults controls. Default frequencies can be set in $1/12^{th}$ octave steps from 19.95 Hz to 19.95 kHz.

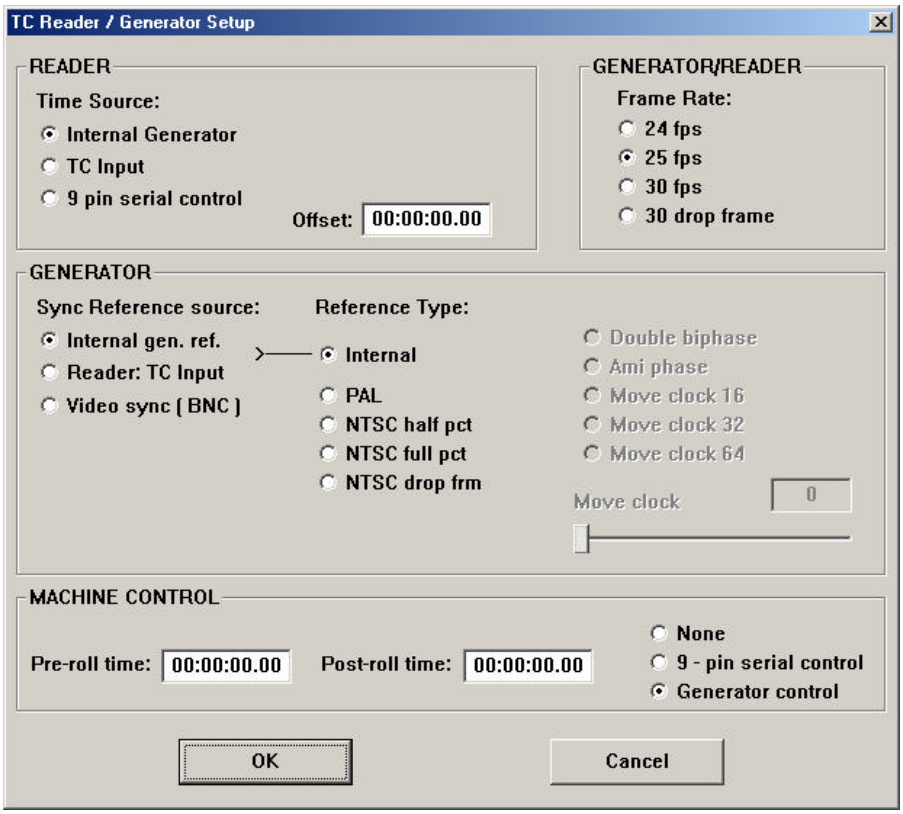
☞ **Tip** By default, the Test Signal Generator is patched to GEN (third channel input) of all channels. It also appears as a signal source in the General Patch and can be patched to any target from there.

4.6.5.2 Option: TC Reader / Gen.

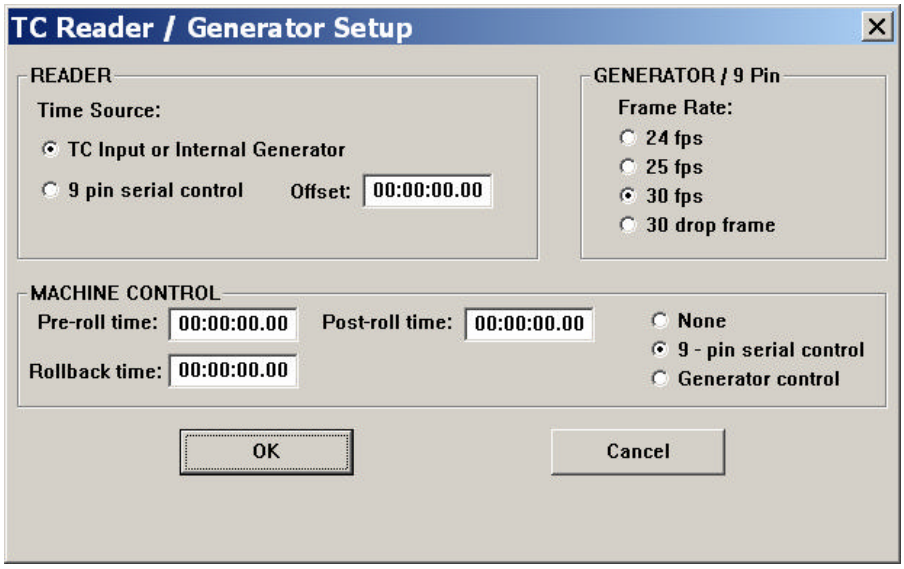
The TC (Timecode) Reader/Generator Setup page is only available in two cases:

- If the full AutoTouch+ Dynamic Automation system is installed, or
- If the TC2 or TC3 Reader/Generator option is installed.

TC2 Setup Window:



TC3 Setup Window:



The setup page allows setting of the different TC Reader/Generator options and defaults for three different sections of the TC unit:

- Reader
- Generator
- Machine Control.

TC Reader/Generator settings are automatically stored when quitting the system, so that the last-used defaults are available after the next system start. To actually control the TC2/TC3 Reader/Generator, use the Machine Control keys on the control surface keyboard and the Machine Control keys in the AutoTouch+ Panel (refer to chapter 5).

4.6.5.2.1 TC2 Reader Settings

The READER settings have to be set according to actual incoming SMPTE/EBU time code format. The settings are:

Time Source: Select from the following options:

- Internal Generator = Internal D950/Vista TC Generator (TC 2);
- TC Input = External TC from the TC Input;
- 9-pin serial control = External TC from the 9-pin interface.

Setting the D950/Vista to Internal allows the AutoTouch Automation system to run from the internal TC Generator, for instance, while testing. The normal system setting, while using a tape machine, for example, would be TC Input or 9-pin serial control.

Frame Rate: Select from 24/25/30/30 drop frame formats of the incoming TC signal.

Offset: This introduces an offset in the TC format, expressed by Reader TC Value/Incoming TC Value.

- Positive offset = Mix data will be *later* than the actual incoming TC;
- Negative offset = Mix data will be *before* the actual incoming TC.

☞ **Tip** A flashing **READY** LED on the desk's Automation Control Panel can indicate a mismatch of incoming timecode and Reader Frame Rate setting.

4.6.5.2.2 TC3 Reader Settings

Most of the READER settings are automatically set by the system.

Time Source: Select the timecode source for the automation system (master timecode, used for locate points etc.). If linear timecode (LTC) or the TC3 internal generator is used, set the source to "TC Input or Internal Generator". If 9-pin is used as a TC source, set the source accordingly.

Frame Rate: Supported frame rates are: 24/25/30/30 drop frame. The incoming format is automatically detected. However, if working with 9-pin TC, the format may be selected in the "Generator / 9-pin" section.

Offset: This introduces an offset in the TC format, expressed by Reader TC Value/Incoming TC Value.

Note 1: If it is critical to have quarter-frame accuracy in the dynamic automation system, it is not recommended to use 9-pin as a timecode source. Technically, the LTC input is much more accurate whereas the 9-pin input is likely to jitter due to technical specification of the interface (mostly: max. 1 frame). However, for most applications using of the 9-pin input may be sufficient. It gives the additional advantage of not having to care about slow motion automation.

Note 2: If working in slow motion or requesting the automation to show correct values even when the system is not in play speed, the following conditions must be met by the connected TC source:

1. If the TC source is set to "TC Input or Internal Generator", the connected LTC source must provide "standing timecode", also called "stationary timecode". This means that the source is delivering LTC even when in stop or slow motion. Please refer to the manual of your TC source in order to check this condition.
2. If working with 9-pin as the master timecode source, there is normally no problem with machines not providing the current timecode position while being in stop. Most of the machines will provide their position at any speed and time. However, please refer to Note 1 (above) concerning accuracy of the provided timecode.

4.6.5.2.3 TC2 Generator Settings

The GENERATOR settings have to be set according to the desired time code format to be generated. The settings are:

Frame Rate Select from 24/25/30/30 drop frame formats for the generated TC signal.

Sync Reference source Select the Synchronization reference source for the TC2 Generator from the following options:

- Internal Generator Reference (Internal gen. ref.);
- Reader: TC Input;
- Video sync (BNC).

Usual settings are Internal gen. ref or Video sync.

Reference Type Once the Sync Reference has been selected, the type can be set here, selecting from:

Reference type	Select from
Internal/Reader: TC Input	Internal
Video	PAL NTSC half picture NTSC full picture NTSC drop frame
Double bi-phase	Double bi-phase Ami phase
Move Clock	Move Clock 16 (pulses per second) Move Clock 32 (pulses per second) Move Clock 64 (pulses per second)

Move Clock For the move clock input, the clock rate can be set to predefined values of 16, 32 or 64 (see above), or it can be adjusted using the slider or by entering numerical values. The range is 1 through 2048 pulses per second.

4.6.5.2.4 TC3 Generator Settings

The GENERATOR settings have to be set according to the desired time code format to be generated. Set the TC reader settings to “TC Input or Internal Generator” in order to activate the TC3 generator as your timecode source. The settings are:

Frame Rate: Select from 24/25/30/30 drop frame formats for the generated TC signal.

Note: The TC3 internal generator has no ability to jog/shuttle nor fast rewind or forward.

4.6.5.2.5 Machine Control Settings

For information on machine control settings please refer to chapter 4.5.2.1.1.

4.6.5.3 Option: N–1 Assignment

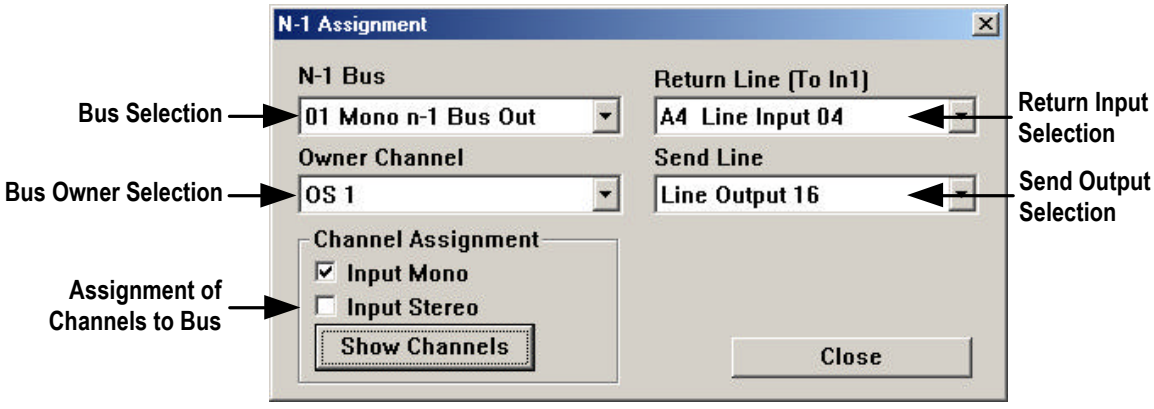
The N–1/Mix-minus Assignment window allows the setup and configuration of the N–1/CleanFeed/Mix-minus structure.
The principle of N–1 is summing; i.e. all desired channels (N) get summed to a bus except the "minus one" (–1).

The N–1/Mix-minus bus is a special bus that sums the contributions of channels other than the Bus Owner of the Channel, thus performing the N–1 summation. Any number of Mono and/or Stereo N–1 buses can be configured in a Session Configuration.

The Bus Owner channel is the channel which:
- Does not contribute to the N–1 bus
- Contains the N–1 bus output level and Talkback controls on the physical channel strip assigned to it
- Has an N–1 indication on the assigned channel strip.

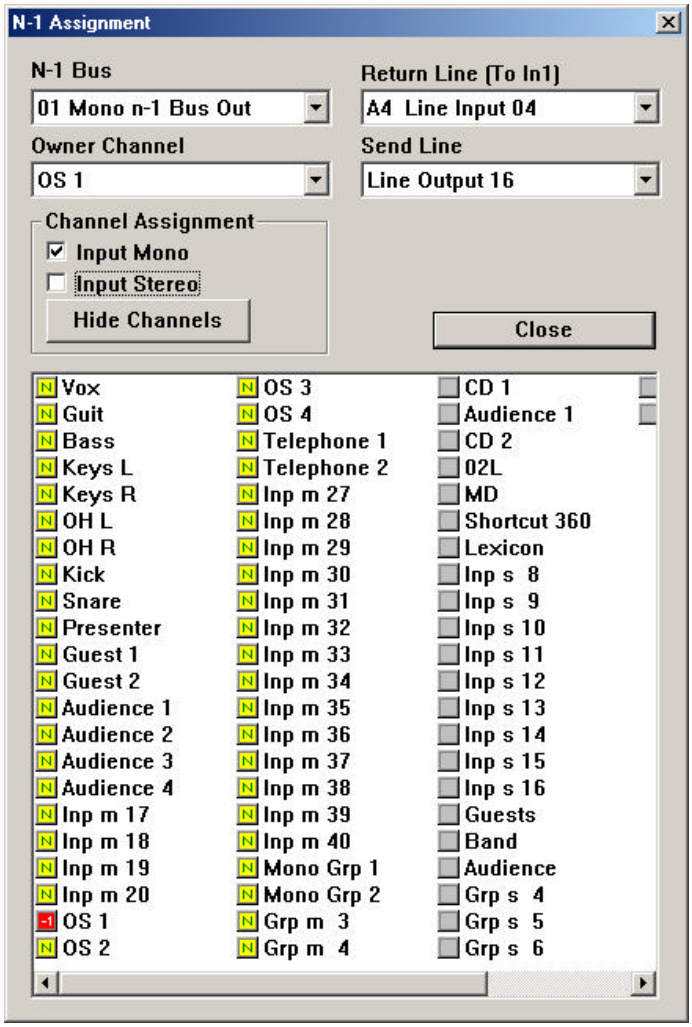
The setup and assignment of the N–1 has a number of processes.
1 A Bus Owner (–1 channel) must be assigned to an N–1 bus.
2 The N–1 Send Line (Physical Output) and Return Line (Physical Input) must be patched in the General Patch
3 The channels which are to be sent to the –1 must be assigned to the bus.

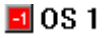
The N–1 Assignment window allows fast setup of this process.



Setup is as follows:
1 First choose the N–1 bus to be used with the drop-down menu, and the Bus Owner Channel which will be the –1 channel.
2 Use the drop-down menus to select the Return Line (Physical Input) and Send Line (Physical Output) to which the Outside Source (–1) is connected to the console. This is essentially making cross-points in the General Patch without having to go to the General Patch page. Selections made using these drop-down menus will change any previous patching of the Outside Source. *Please note that the label type shown is taken from the General Patch.*
3 The two Channel Assignment check boxes allow fast allocation of all Input Channels to the chosen N–1 bus. If only Mono inputs are chosen, then *all* Mono input channels in the system (*except the Bus Owner channel*) are routed to the chosen bus. If specific channels need to be routed instead of *all* Mono or Stereo input channels, the

Show Channels button should be clicked. This will extend the window as shown below, to allow individual assigning of the channels within the Session Configuration to the chosen N–1 bus.



The chosen Bus Owner channel is shown in the list as 

Any assigned channels to the bus are shown in the list as 

Clicking on individual channel boxes will either select or deselect a channel; this makes the N–1 bus in fact being an N–x bus. It is also possible to mark a number of channels to be assigned by left-clicking and dragging across a number of channels for speed.
It is also possible to assign channels to a configured N–1 bus by using the dedicated bus assignment panel *(D950)* or bus assign window *(Vista)* on the control surface.
The talkback and N–1 bus level control will be displayed in the assigned channel strip for the N–1 Bus Owner Channel (see chapter 3.3.3).

Vista Only: The right-hand bargraph channel meter for the Bus Owner Channel will automatically show the N–1 bus level output.

☞ **Tip** The N–1 settings are stored within snapshots.

4.6.5.4 Option: Control Group Filter

This feature is described in detail in chapter 4.7.7.

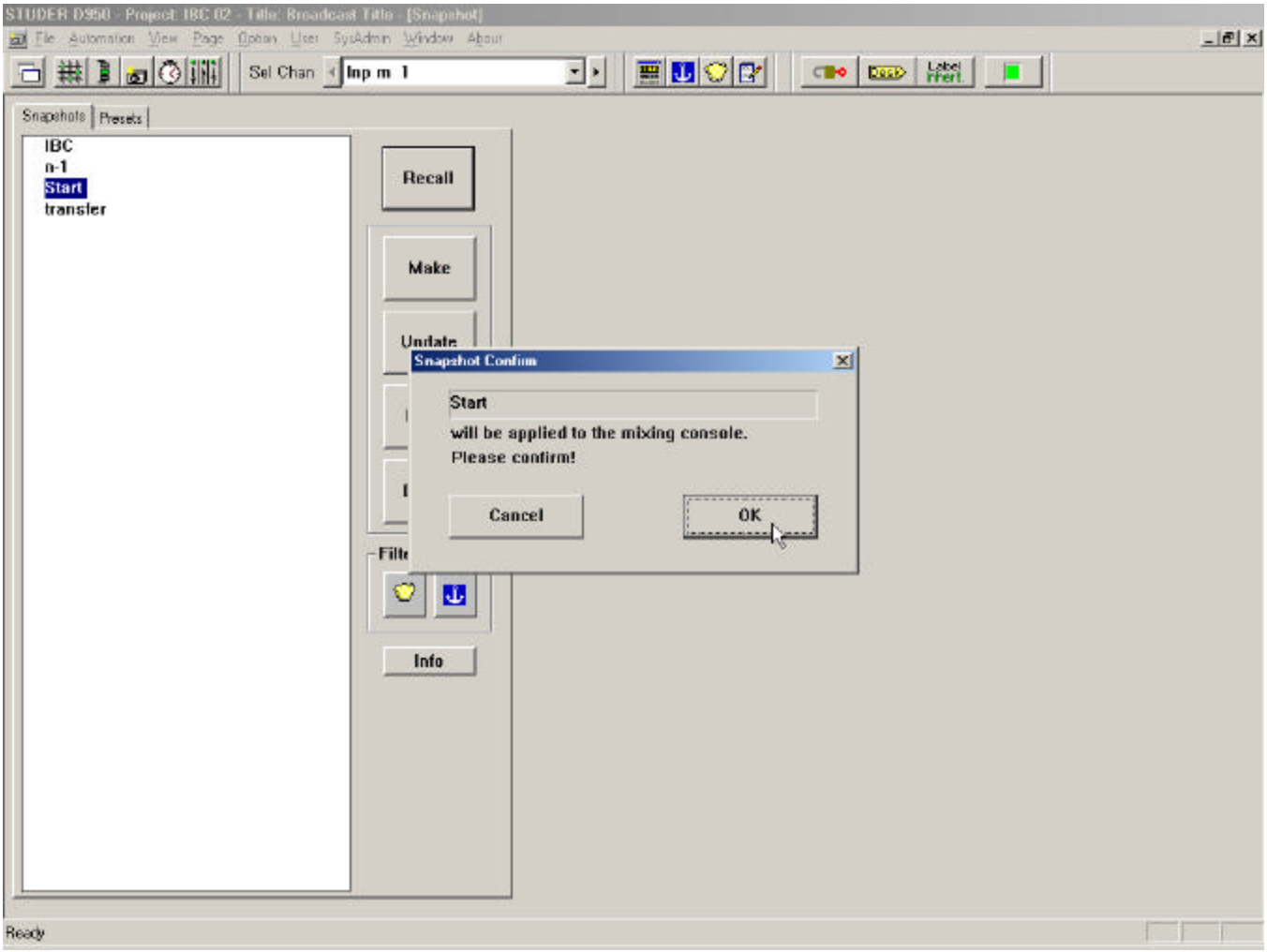
4.6.5.5 Option: VSP Microphones and Reverb

This feature is described in chapter 3.6 *(Vista)*.

4.6.5.6 Option: Snap Confirm

The Snap Confirm option can be checked or unchecked:

- If *checked*, the Snapshots/Presets can only be recalled with user confirmation (the user must click OK or press **Enter** to finally recall the Snapshot/Preset, or click Cancel to cancel the Snapshot/Preset Recall).
- If *unchecked*, the Snapshots/Presets will be applied to the console immediately, and parameter settings not already saved will be lost.

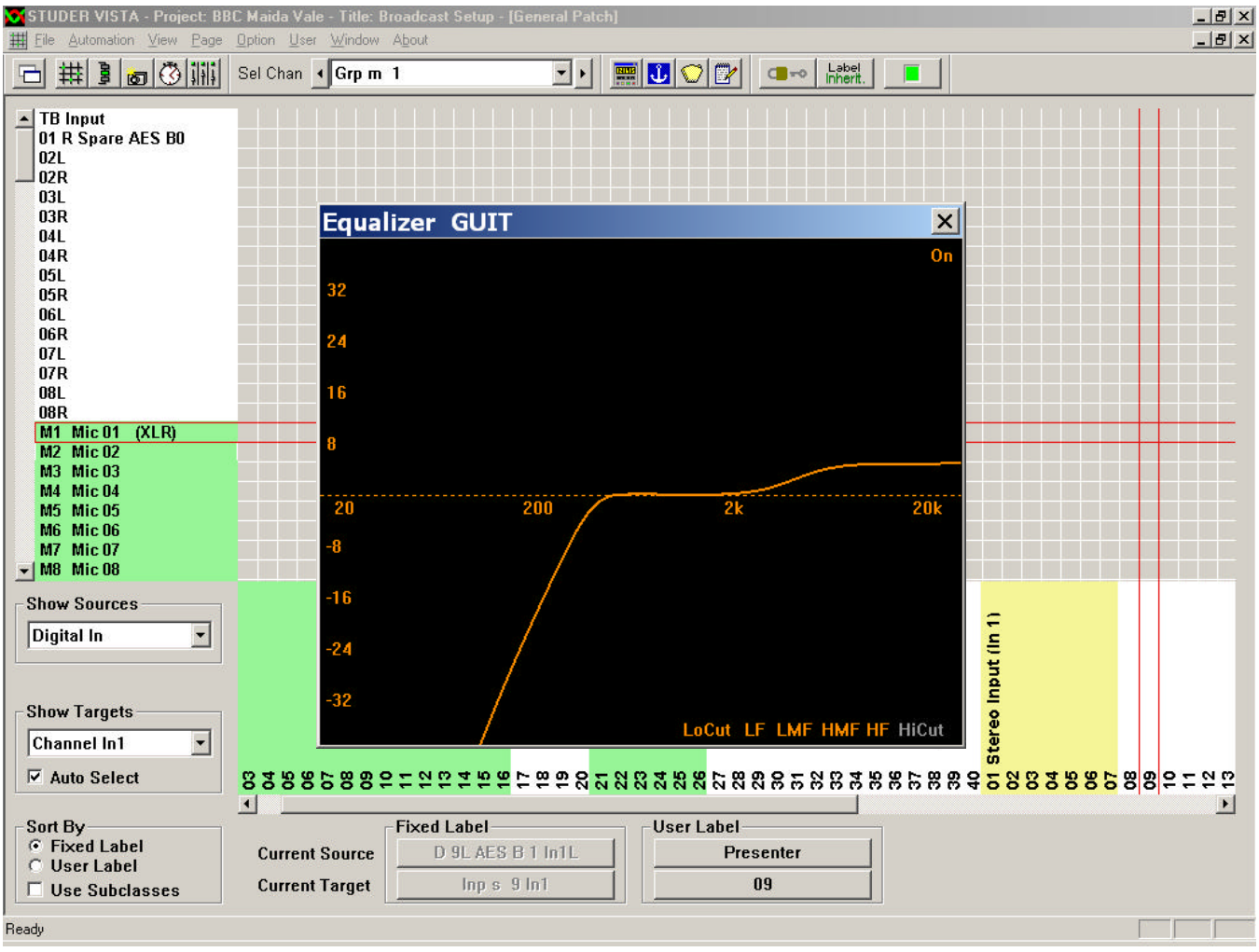


Notes: It may be advisable to leave Snap Confirm checked until fluency with Snapshots/Presets is achieved.
Snap Confirm applies to both Snapshots *and* Presets.

4.6.5.7 Option: EQ/Dynamics View

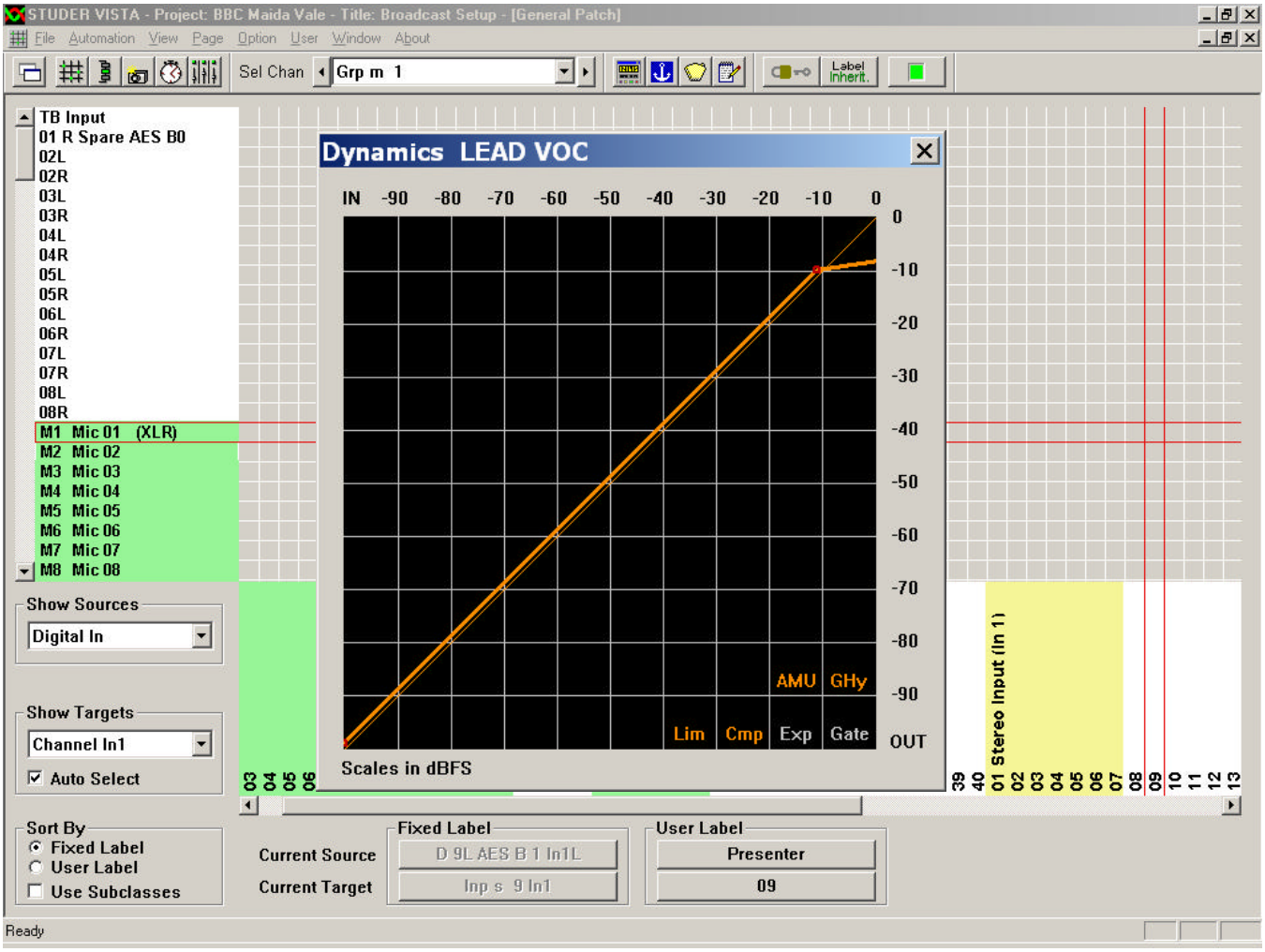
The EQ/Dynamics View option can be checked or unchecked. If *checked*, the Graphic Controller will display an EQ and/or a Dynamics screen.

EQ Screen: The EQ screen is displayed for the channel on which any of the rotary encoders is touched or operated while the channel's controls are in the EQ/Filter page. Please note that the EQ screen will appear when any EQ/Filter control is touched. However, for the EQ screen to be displayed, *EQ/Filter must be engaged* in the channel.



The EQ screen is time-limited and will automatically disappear several seconds after the last touch, or when pressing **Esc**. It is always on top of any other screens/pages.

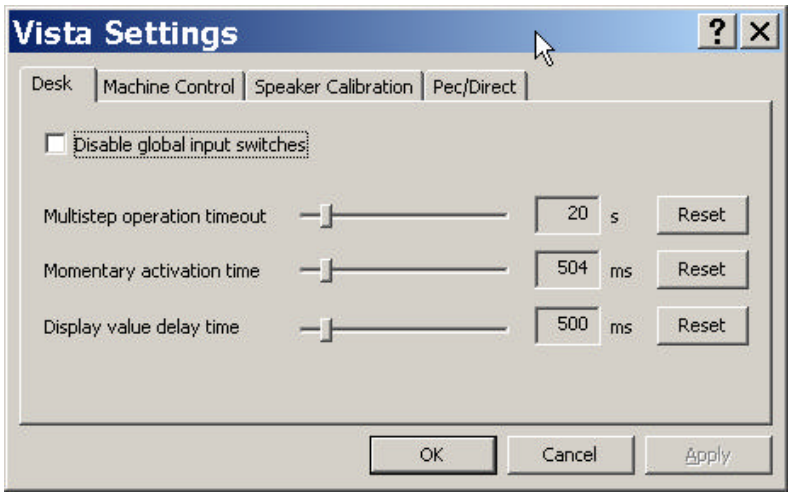
Dynamics Screen: The Dynamics screen will appear when any Dynamics control is touched. However, for the Dynamics screen to be displayed, *one of the LIM, COMP, EXP, or GATE functions must be engaged in the channel*.

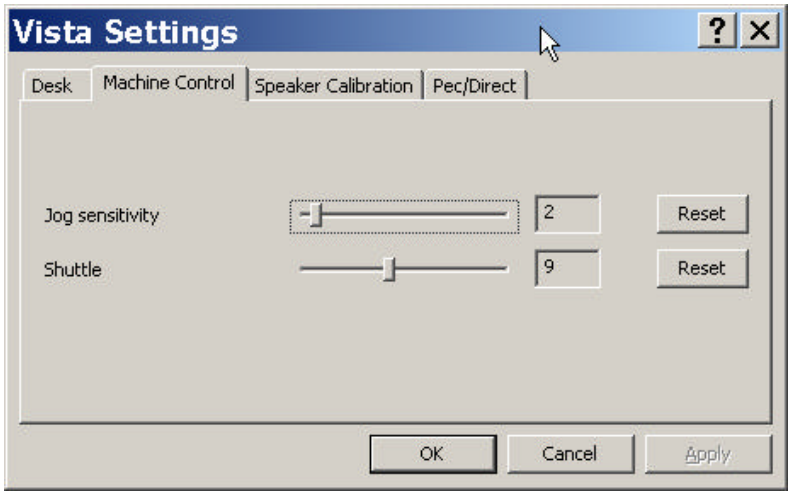


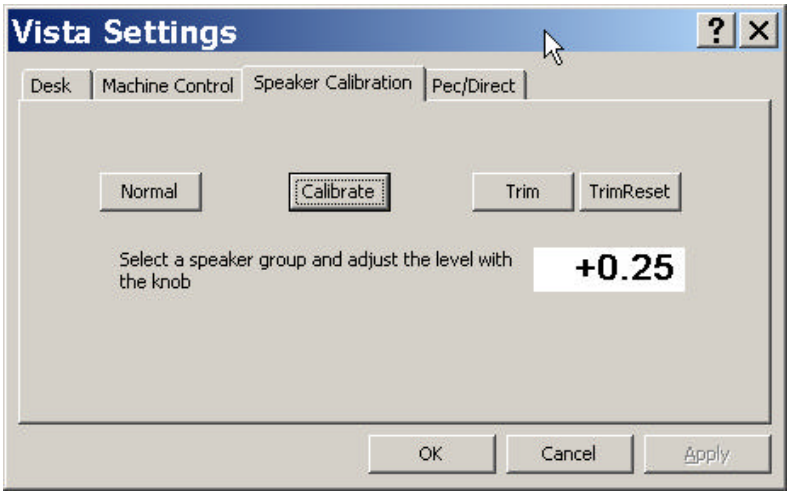
The dynamics screen is time-limited and will automatically disappear several seconds after the last touch, or when pressing **Esc**. It is always on top of any other screens/pages.

4.6.5.8 Option: Vista Settings *(Vista only)*

The Vista Settings window allows different adjustment; there are four tabs for selection of Desk (timeout and delay time settings), Machine Control (jog/shuttle sensitivity), Speaker Calibration, and Pec/Direct settings.





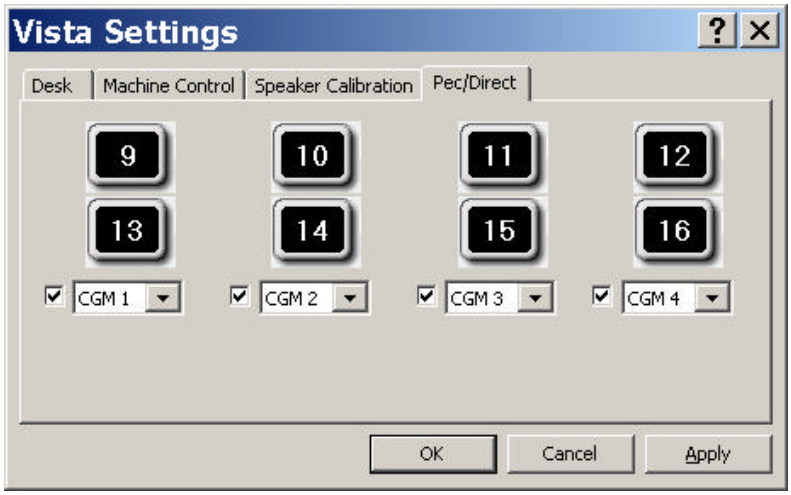


Speaker Calibration

To allow access to the speaker calibration, the Enable Setup function must be enabled. Please refer to chapter 4.7.5.

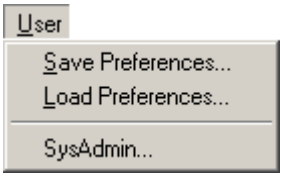
Calibrate Mode: Calibrate mode allows setting a level offset for a whole monitor group (**MAIN**, **ALT** or **NEARFIELD**) relative to the other two. To activate this mode, click the "Calibrate" button and select a monitor group on the control surface monitoring section. The offset range is from –20 dB to +10 dB. The current calibration offset will be displayed in the display box. The calibration offset can be changed in steps of ¼ dB.

Trim Mode: Trim mode allows setting an offset for a single loudspeaker relative to others in a group. The offset range is ±10 dB. Trim mode is selected by clicking the "Trim" button. Select the monitor group (**MAIN**, **ALT** or **NEARFIELD**) and **SOLO** the speaker to be offset on the on the control surface monitoring section. The current Trim value of the selected speaker will be displayed in the window. The Trim offset can be changed in steps of ¼ dB. To clear all Trim offsets within the selected monitor group, click the "TrimReset" button.



4.6.6 The User Menu

The User menu allows the users to individually store various preferences including page layout, size, and position of various windows.



User – Save Preferences...: This action opens a dialog box that allows selection of a name for a new Preference file, and to create a new Preference file. You can freely create any number of Preferences. The dialog box will usually display the `C:\D950SYSTEMDB` directory with all the available Session Configurations. The User Preference files are best stored together with the current Session Configuration in the Session Configuration directory, because they will probably change only when the users change, and not with every Production/Title.

Enter a name for the new Preference file, or select an existing Preference file to be overwritten, and then click Save to finish.
The User Preference files have the extension `*.pfc`, which is added automatically; you do not have to type it.

☞ **Tip** If you forget to save your preference, don't worry. The system will store the last-used screen layout at shutdown. When you restart the system, the screen will come up exactly as you left it.

User – Load Preferences...: This action opens a dialog box that allows selection of a User Preference file for loading. The dialog box will usually display the `C:\D950SYSTEMDB` directory with all the available Session Configurations.

Enter the desired Session Configuration directory, and select the Preference file to open. Click Open or double-click on the file to load.

User – Protect (or SysAdmin): This action allows the system mode to be toggled from standard to System Administration mode. The System Administration mode allows access to some system functions which are not needed in normal operation.

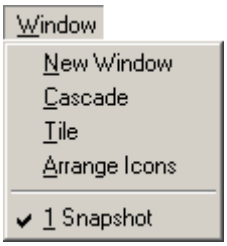
From Standard Mode: Click on SysAdmin to enter the System Administration mode. You will be asked to enter the System Administration Password. After completing that, an additional SysAdmin menu item will be placed in the menu bar.

From System Admin mode: Click on Protect to exit the System Administration mode.

Refer to chapters 4.2.1 (toolbar) and 4.7 (System Administration menu) for more details.

4.6.7 The Window Menu

This menu helps with the organization of the Graphic Controller screen, and works in the same way as with most Windows-compatible applications.
If multiple windows/pages are active, the lower part of this menu allows to make a particular page the current page (put on top). A checkmark (✓) near a particular page indicates that this page is currently on top.



Window – New Window: This action opens the New Window dialog box, and allows selection of an additional (new) window to be displayed on the Graphic Controller. For more details on working with multiple windows, refer to chapter 4.4.1.2.

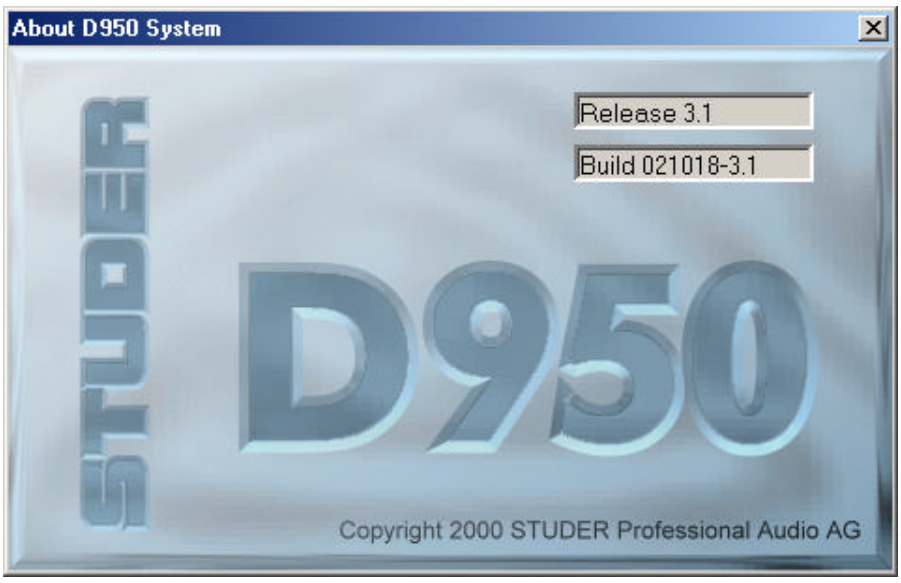
Window – Cascade: This action arranges all active screens/pages in a cascaded layout on the screen.

Window – Tile: This action arranges all active screens/pages in a tiled layout on the screen.

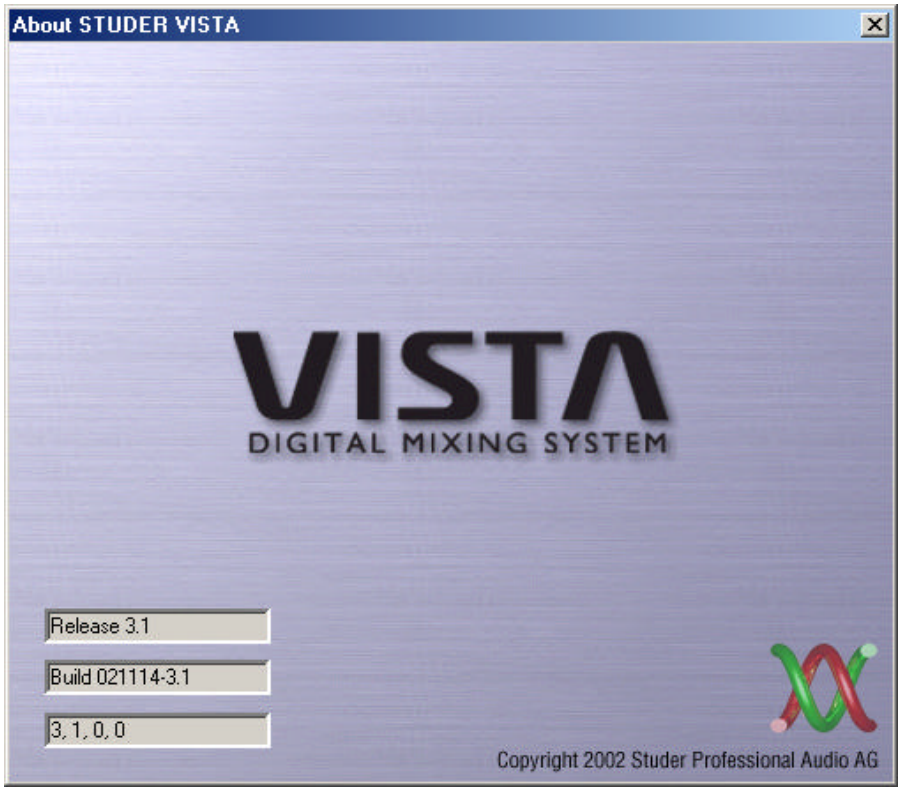
Window –Arrange Icons: No function.

4.6.8 The About Menu

D950:



Vista:



When selected, this menu item displays information pertaining to that specific D950 or Vista installation. This includes the software Release Number (version), the Build Number, and the Copyright notice.

4.7 Fourth Level of Operation: SysAdmin Menu

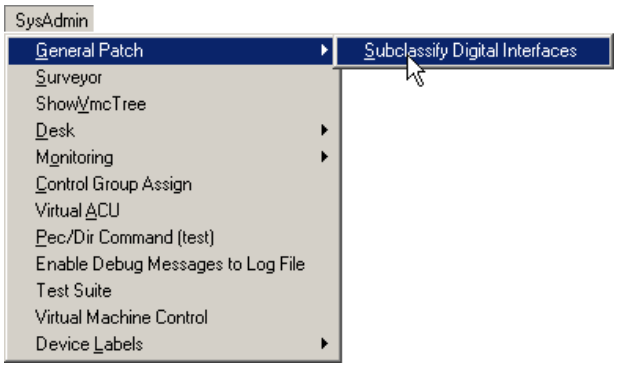
The SysAdmin (System Administration) menu is normally hidden from view within the Console's standard operating mode, because it contains functions that are only useful during building the console and setting it up for operation. The menu contains various test and configuration possibilities that are not required during normal operation.

Nevertheless, some of the functions from the SysAdmin menu will be explained here, since they may be useful if the console is radically reconfigured, the Monitoring or Signaling systems are expanded, or some detailed troubleshooting is required.

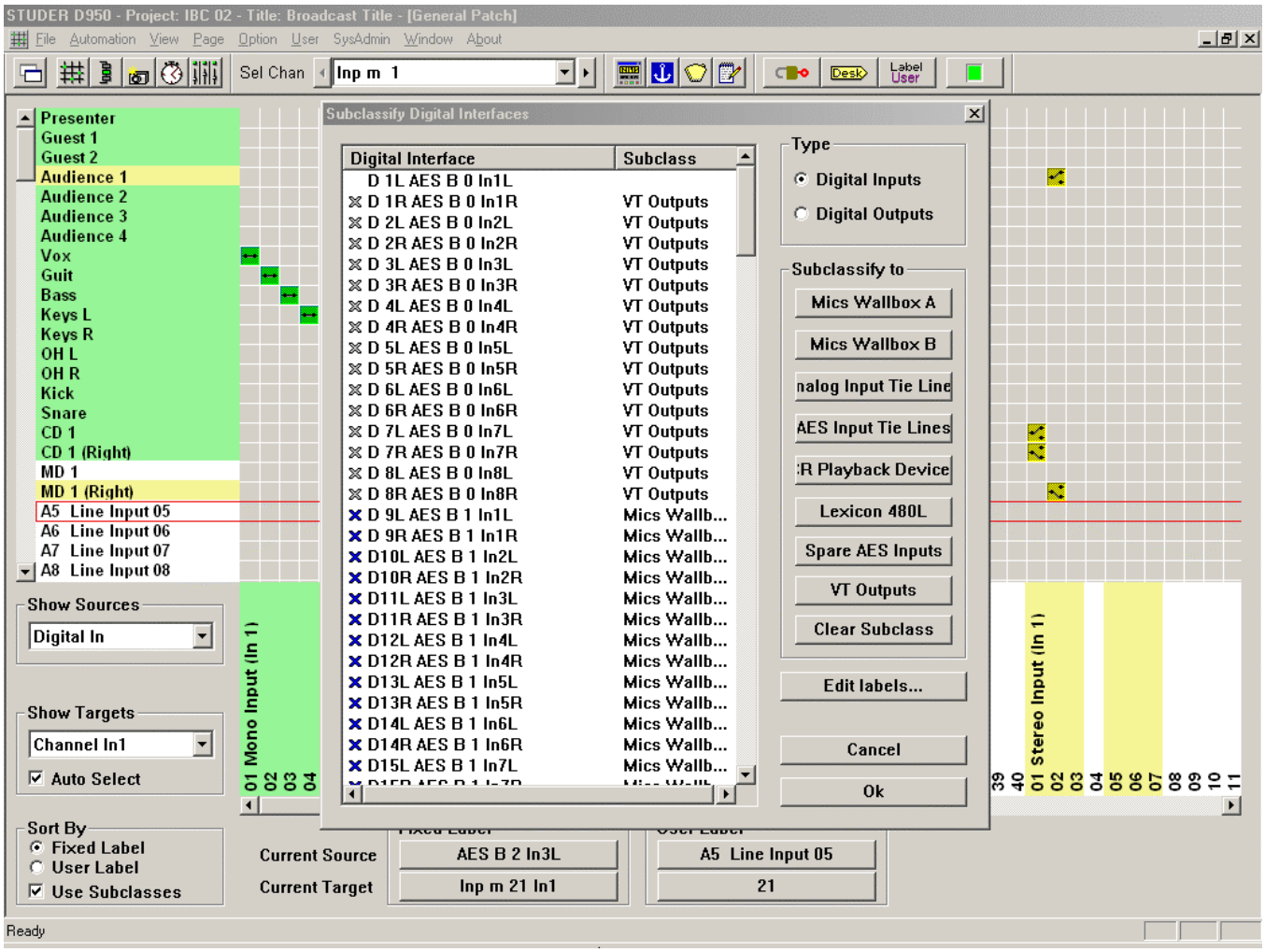
How to activate the SysAdmin Mode from Standard Mode:
Click on the closed padlock icon in the toolbar. You will be asked to enter the System Administration Password. After completing that, an additional SysAdmin menu item will be placed in the menu bar.

4.7.1 SysAdmin: General Patch/Subclassifying the Digital I/O Sections

There is only one accessible item in this menu: Subclassifying the Digital In and Digital Out Interface Sections of the Patch.



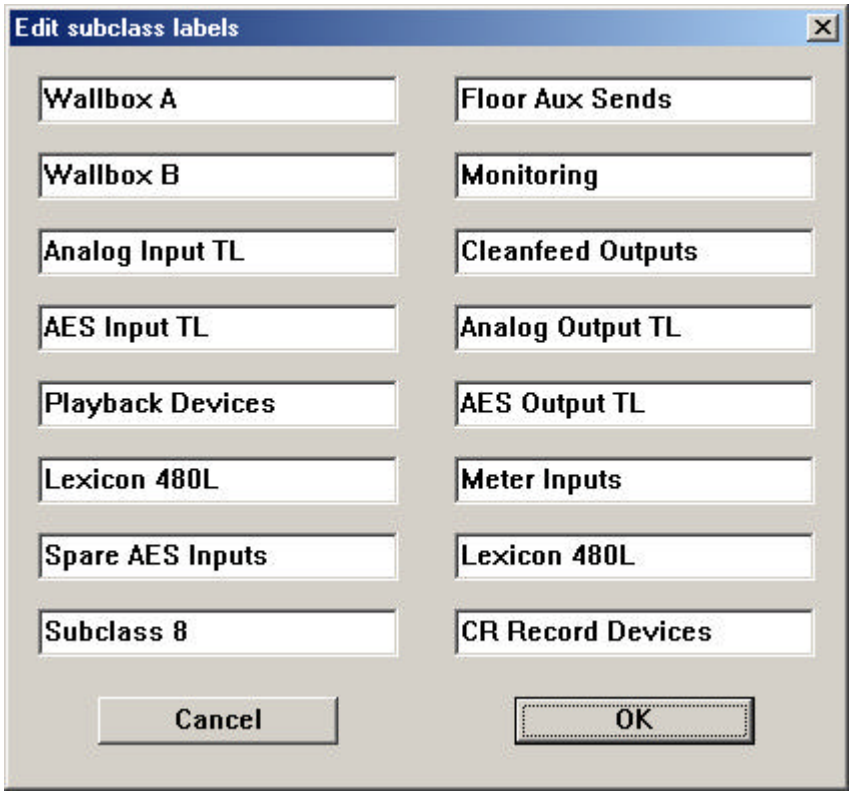
For more information on Subclasses refer to chapter 4.4.2.3.



The Digital Inputs and Digital Outputs Patch Sections can be subclassified into eight subclasses each. Subclasses 1 through 8 belong to the Digital Inputs, and Subclasses 9 through 16 to the Digital Outputs.
The process of Subclassifying is usually done by the facility's system administrator. You need to adapt the Subclass information *only* if there are changes in the interfacing due to a system upgrade or rewiring.

4.7.1.1 Setting the Subclass Labels

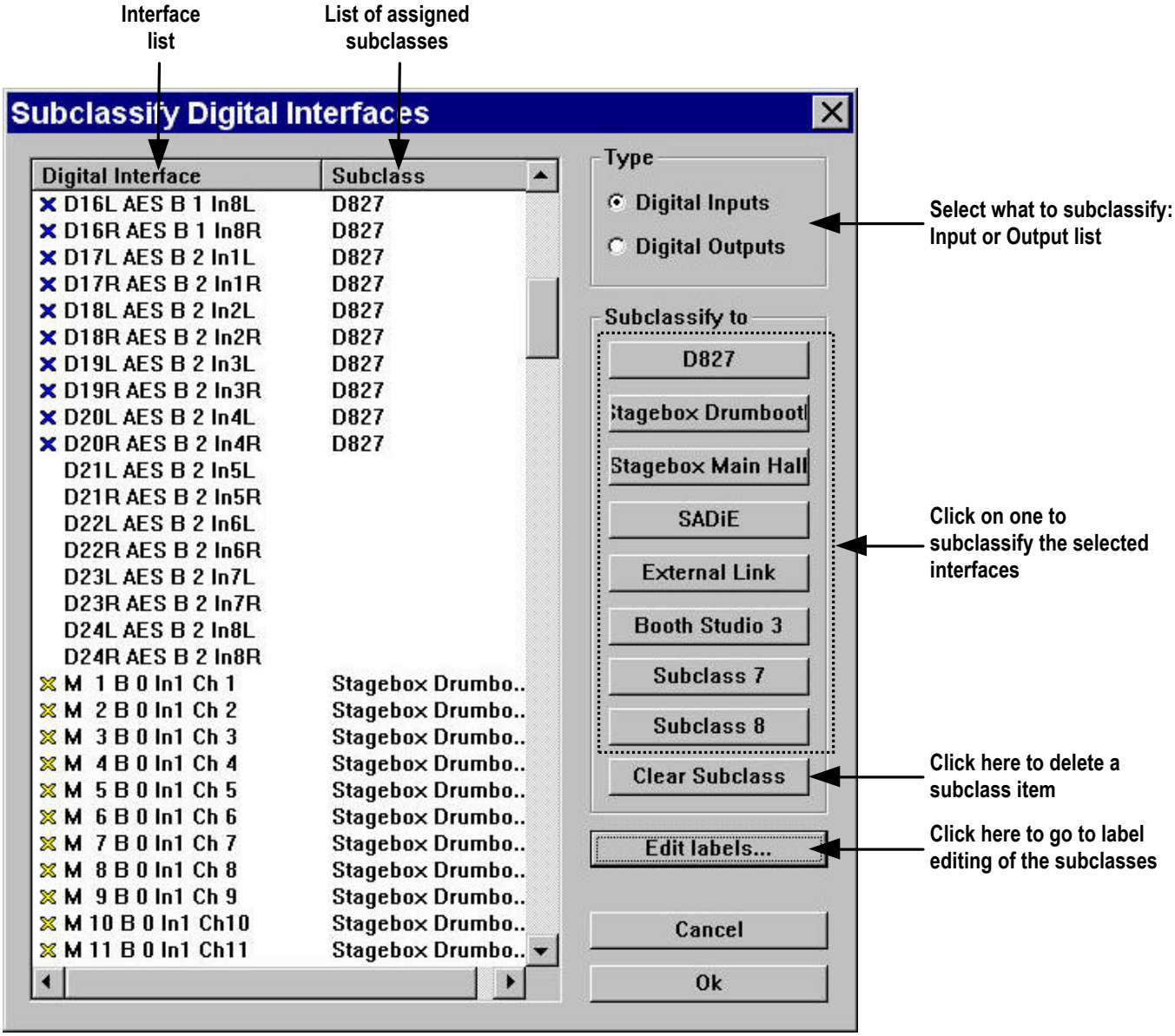
Click on the “Edit labels...” button to open the Subclass Label editor.



Within the editor page, enter the names you wish to appear for each of the Subclasses in the Patch Lists. Confirm with OK, otherwise any changes will be lost.

4.7.1.2 Assigning Sources and Targets to Subclasses

To initiate the process of assigning, first select the interface type you want to assign: Digital Inputs, or Digital Outputs.



On the left-hand side, the Digital Interface list is displayed. Some of the Sources and/or Targets may already be assigned to certain subclasses. This is visible from the Subclass column.

To assign, select the desired Sources or Targets from the list. Individual selection can be done simply by clicking on a Source or Target. Multiple selection can be done by the Windows drag technique. **Ctrl** + click technique can be used to select items from the list that are not contiguous.

Once all items are selected, click on one of the Subclass buttons to assign the selected Sources or Targets to a Subclass. The list will reflect your new assignment.

A Source or Target can be assigned to any of the Subclasses, but *only to one Subclass at a time*.

To reassign an item or items from a Subclass, use the same selection techniques as above. Then you can:

- Click on the Clear Subclass button to remove the selected items from the Subclass. This will return the selected items to the Digital Input or Digital Output Patch Section;
- Click on a different Subclass button to directly re-assign the selected items from the current Subclass to another Subclass.

The result of this process is that the subclassified sections are now visible in the Patch lists and can be directly accessed using the right trackball button. For details, refer to chapter 4.4.2.3.

Notes: Subclass names are stored and recalled with User Preferences.
Assignment of individual interfaces to subclasses is stored in each Snapshot Preset and can therefor vary from Snapshot to Snapshot.

4.7.2 SysAdmin: Surveyor

Surveyor: This action will open the Surveyor, which is used to check the status of the D950/Vista system. Refer to chapter 4.8.

4.7.3 SysAdmin: Show VMC Tree

This feature is primarily used in troubleshooting and typically does not have a use in normal operation.

Show VMC Tree: This action will bring up the VMC tree View. This page will display a list of all channels, inputs, outputs, buses, and other system elements that are defined within the current Session Configuration. Double-clicking on one of these items will display the contents of that item's branch. Opening of subsequent branches will take further and further inside the VMC tree. If the item has a changeable parameter, such as EQ high frequency, that parameter may be controlled directly from the VMC tree.

4.7.4 SysAdmin: Desk *(D950 Only)*

The Desk menu item contains several functions regarding the control desk:

Message to Desk Node: This function will bring up the Desk Common Msg entry box;

Reset Desk Nodes: This function will re-initialize the desk's control nodes and then reload the data needed for operation;

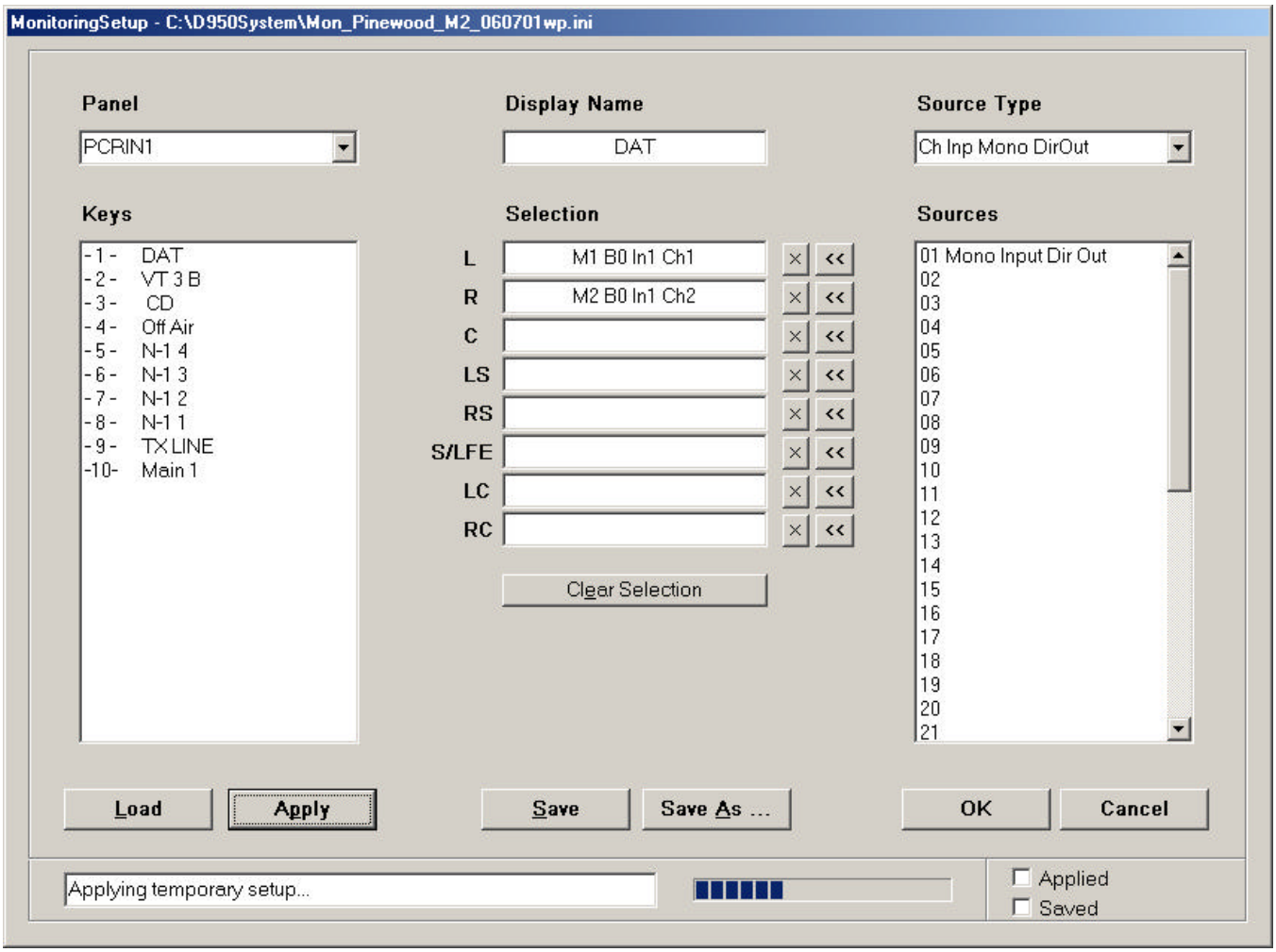
Reload Desk Nodes: This function will reload data for the desk's control nodes without re-initialization;

Update Desk Display: This function will refresh the desk's display with the current data from the PC.

4.7.5 SysAdmin: Monitoring

The Monitoring menu item contains several functions regarding the D950/Vista loudspeaker control:

Edit Monitor File: This action brings up the Monitoring Setup editing utility. The title bar will display the name and location of the currently loaded Monitor Configuration file.



The Monitoring Setup page contains the following fields and controls:

Panel Selection box: This box provides a pop-up menu used to select a control room or studio Assignable Source Selector panel installed in the control surface for editing. The Source Selector keys for the selected panel will be displayed in the Keys box, where they can be selected for editing. The name of the panel may also be edited using this box.

Note (Vista only): *The four subpanels popping up on the screen upon activated option (experts only!) show up as individual panels with 12 source selectors each.*

Key Selection box: This box is used to select a specific Monitor Source Selector key for editing.

Display Name entry box: This is a name entry box for the selected Source Selector key. It will display the name of the selected key, which can be edited. The name that appears in this box will be shown on the D950 Monitor Source Selection

panel(s) with LED displays, once the Monitor Configuration file is applied. Please note that only the first eight characters can be displayed on the control surface panel(s).

Speaker/Source Selection entry boxes: These fields are used to connect a digital audio source (such as a direct output) to a specific loudspeaker feed (such as left, right, center, etc.). This is accomplished by highlighting a source from the Source Selection list and assigning it to the desired loudspeaker feed using the appropriate double-arrow button (<<). When such an assignment is made, the source name will appear in the selected loudspeaker field. Selections may be cleared using the X buttons.

Clear Selection button: This button will clear all Speaker/Source selections made for that Monitor Source Selector key.

Source Type Selection box: This box provides a pop-up menu used to select the type of digital source for assignment (such as a mono master direct output or an AES interface). Once an item has been selected, all the sources of that type will be displayed in the Sources list below.

Source Selection box: This box displays a list of digital sources of a specific type that are available for assignment to loudspeaker feeds.

Load button: This button brings up a familiar Windows box from which an existing Monitor Configuration file can be loaded.

Apply button: This button applies the current Monitor Configuration file to the D950/Vista. This is handy when testing a recently edited file or recalling a previously stored file.

Save and Save As... buttons: The Save button allows a previously stored Monitor Configuration file to be updated after editing. The Save As... button allows a new file to be named and created.

OK and Cancel buttons: The OK button accepts the current Monitor setup and closes the window. Clicking OK does *not* apply or save the Monitor Configuration file. The Cancel button exits the Monitor Setup screen.

Monitor File Name entry box: This field is used to enter a name for a new Monitor Configuration.

Application Progress indicator: This meter displays the progress of the loading of the Monitor Configuration file when it is applied to the console.

Applied and Saved Status boxes: These boxes display the status of the current Monitor Configuration file. If checked, the current file is applied to the console and/or saved.

To create a new Monitor Configuration file:

- First open the Monitoring Setup utility from the Monitor section of the SysAdmin menu.
- Select the desired Assignable Source Selector panel and key, using the lists on the left.
- Select a source type and source from the lists on the right.
- Highlight the selected source and click on the double-arrow (<<) button next to the desired loudspeaker feed in the Selection boxes. The source name will appear in the selected location. Once a key is selected, its name may be changed using the Display Name field.
- Repeat these steps to complete the necessary assignments. Once finished, the new file can be saved and applied to the console.

Please note that the edited file must be applied to the console before it takes effect.
Existing Monitor Configuration files can be edited by recalling them with the Load button and using the procedures described above.

Note (D950 only): Only digital monitor sources can be assigned using the Monitoring Setup utility. Source Selections with external analog sources can only be assigned via a direct manipulation of the Monitor Configuration Initialization file. This is usually done in the factory during the initial software setup. *It is strongly recommended that direct modification of this file should be performed only by qualified personnel* (the friendly folks at Studer, for example). If an analog source is assigned to a Selector key, the loudspeaker selection fields will be "grayed-out" and no source selection will be possible using the Monitoring Setup utility.

Enable Setup Mode: *(D950 only; for Vista, see "Option – Vista Settings", chapter 4.6.5.8)*
This action enables the monitor setup mode. Checking this menu item allows the **SETUP** key on the desk's (multi-format) monitor panel to function. When illuminated, a level offset may be applied to each of the installed speaker systems. Offsets may be applied over a range from –20 through +10 dB in 1 dB and 0.5 dB increments. The monitor panel will display the offset in dB.
To use this facility:

- First enable the Monitor Setup mode from the Monitor section of the SysAdmin menu;
- Then engage the **SETUP** key on the monitor panel and select the monitor system to receive the offset;
- Enter the desired offset value for each system;
- Complete the process by disengaging the **SETUP** key and deactivate the Monitor Setup mode.

Config Dump: This action will create a copy of the current Monitor Configuration file and place it in the `D950SYSTEM` directory. The copied file will be named `MONCONFIGDUMP.DAT` and is useful for troubleshooting. In this status this file is not executable since it does not have a `*.ini` extension. However, it does contain all the parameter settings and other information.

Reinitialize: This action will reinitialize the monitor system and reload the last used Monitor Configuration file. The monitors will mute during this operation.

Test Command: *This menu item is only used in the factory for testing the communication between the work-surface, the control PC, and the monitoring racks.*

4.7.6 SysAdmin: Signaling Setup

The Signaling Setup Menu allows on-line assignment of available Signaling relays to functions, such as Red Light activation or Fader Start of remote systems. It also allows Save and Load of such assignment configurations for later use.

Output Signaling is always related to the Patch Sources. The D950/Vista console is fully assignable, meaning that:

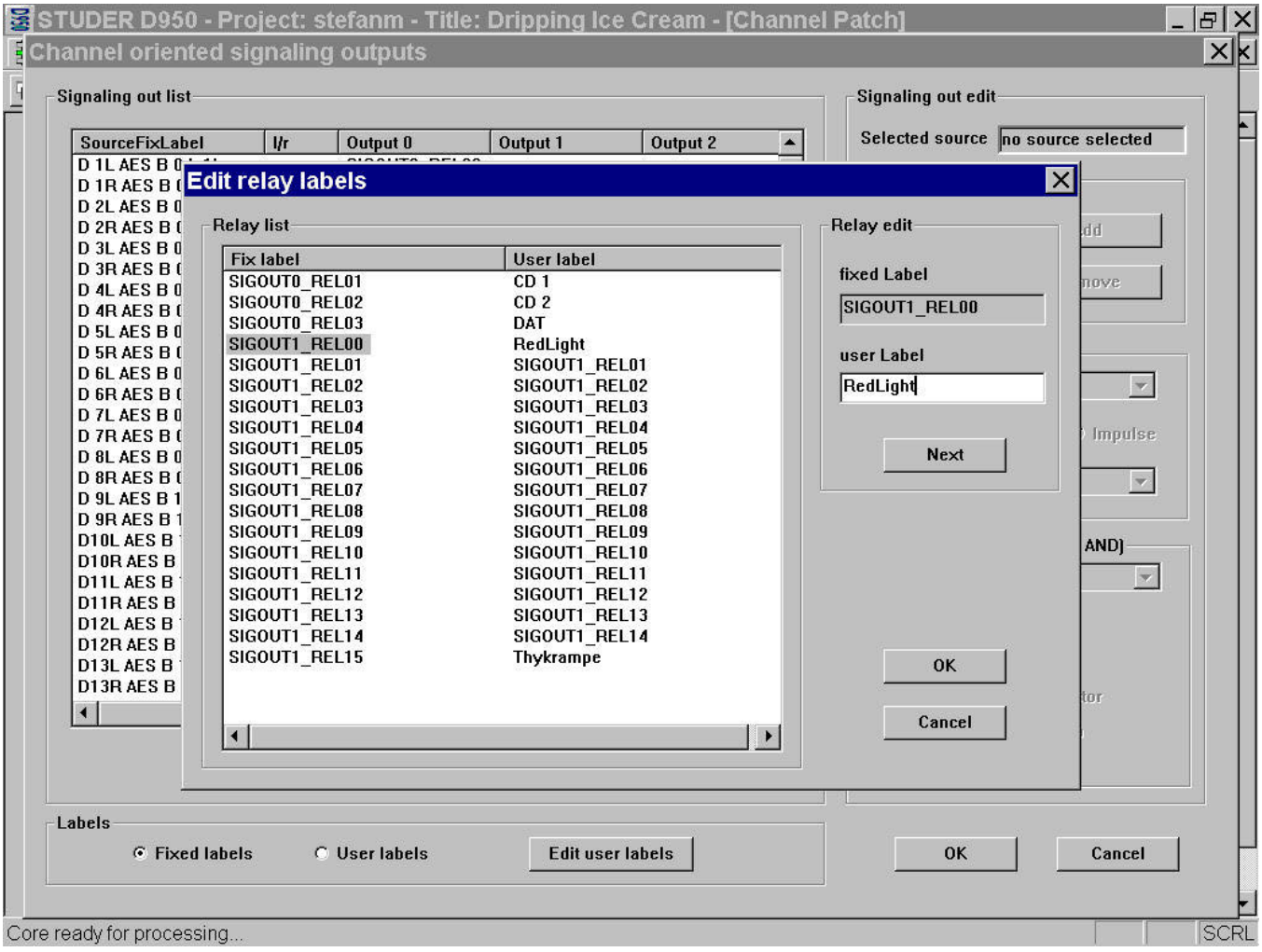
- A channel can be assigned to *any* channel strip;
- An audio Source (for example, a CD Player) can be patched into *any* channel and be accessed via *any* fader;
- A Snapshot can change the *entire* Patch settings.

For these reasons, it is impossible to assign an output Signaling device, such as a Fader Start relay, to a *specific* fader. Instead, it has to be assigned to the Patch source which, in turn, is assigned to a fader via the Patch. In this way, the system logic is able to activate, for example, the correct relay when a fader is opened. All output Signaling always follows the Sources, and the Signaling Assignment itself also is Source-oriented.

The D950/Vista system automatically knows how many Signaling relays are available by accessing that information from the configuration and `*.ini` files. The available Sources are read from the Session Configuration. The Signaling Configuration is all about assigning the right relay to the right source, as we will see next.

4.7.6.1 Editing the Relay Labels

First, the System Administrator needs to determine how the relays will be connected to peripheral equipment (machine-transport controls, lamps, etc.). Then, the fixed relay labels can be edited to reflect their functions. For this action, select the Edit User Labels button from the Signaling Output or Red Light menu pages:



This action will open the Edit relay labels page and first allow selection of the desired relay, and then to enter a User Label for each relay. Be sure to click OK when finished; otherwise all changes will be lost.

The fixed relay labels have been automatically generated by the D950/Vista
system. They have the format **SIGOUT0_REL01,** where **SIGOUT0, SIGOUT1**, etc. define the relay card number, and **REL01**, **REL02**, etc. define the relay number on a particular card.

There are 16 relays per card. Some of the physically present relays may be assigned to internal system functions and may therefore not be available for the Signaling Configuration.

Source labels can be edited in the Patch pages; refer to chapters 4.4.2 and 4.4.3.

4.7.6.2 Signal Out Configuration

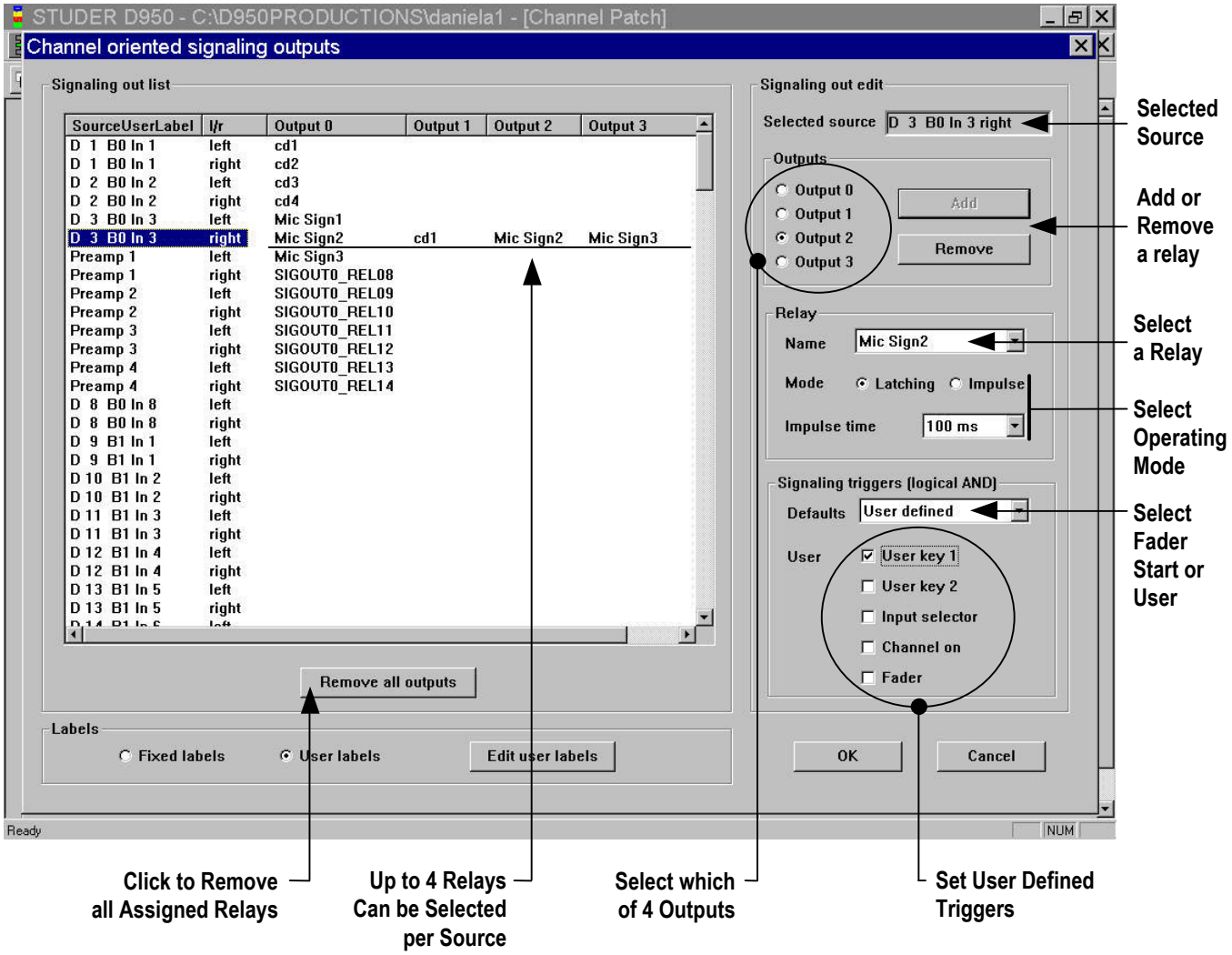
Signaling Outputs are generally relays installed in the Monitoring frame. They may be used for various purposes, such as:

- Fader Start;
- Microphone ON actions (loudspeaker muting, etc);
- Parallel Record/Ready mode of tape-machine tracks.

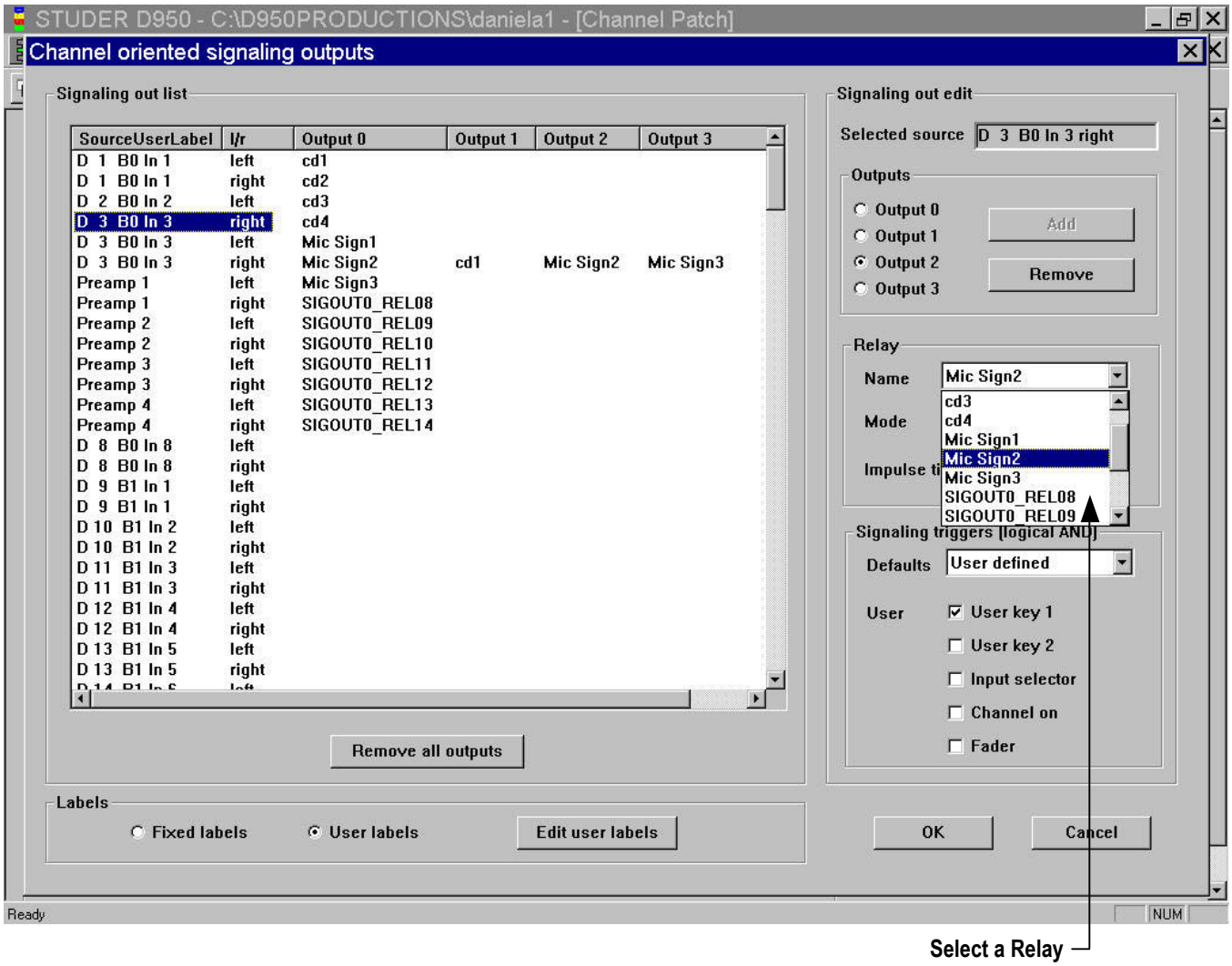
Up to four different relays may be configured for each source. They may feature different Trigger Setups (see later). For each relay, Latching or Impulse operation modes can be selected.
Multiple sources can be configured to one single relay, forming a logical OR combination.

There are four steps in the Signaling Configuration:

1. To configure the Signaling, first select a source in the Signaling Out List,
2. Within the Signaling Out Edit window, select the desired output 0 to 3. In most cases the correct Output (the next one that is unassigned) will be selected automatically. Now you can add or remove a relay to/from this source.



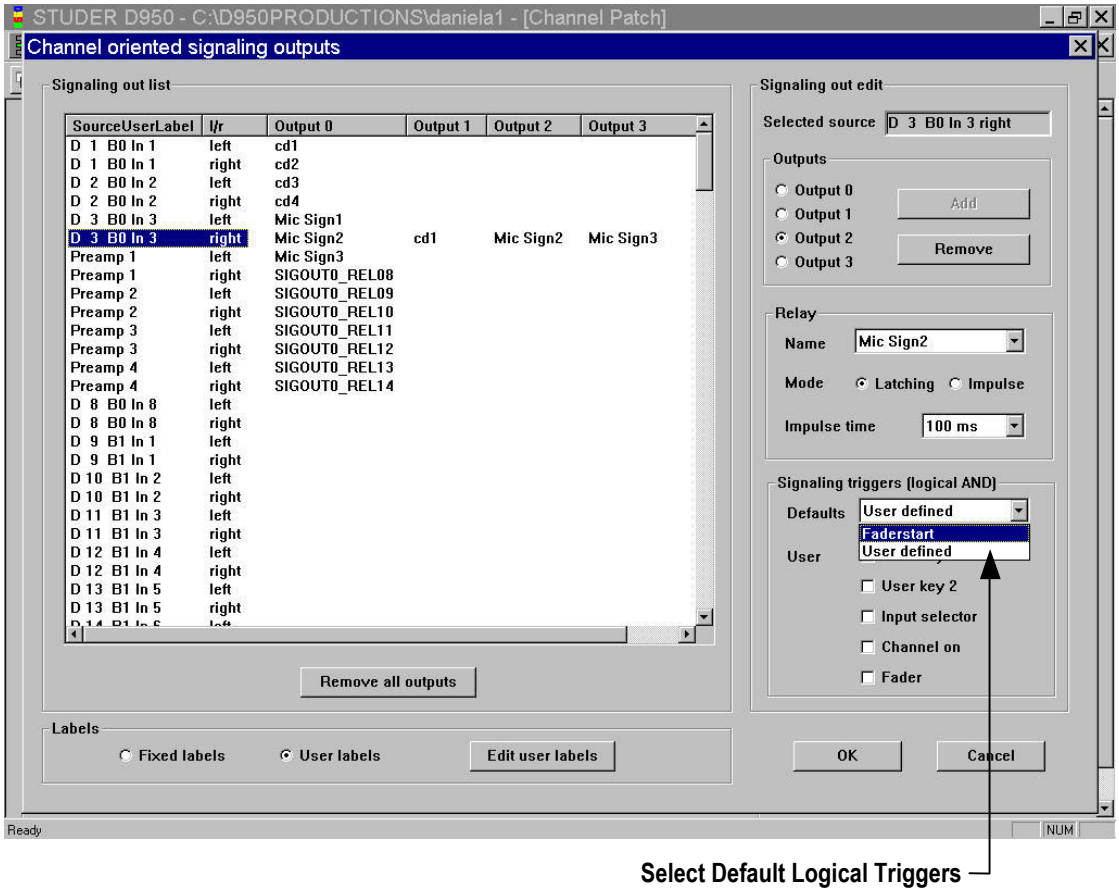
3. Now you need to select the desired relay (use the arrow button to open a list of relays), and to determine its mode of operation to either latching (contact closed when trigger conditions are fulfilled) or impulse (contact closed for a short time when trigger conditions are fulfilled, and then opened again). Impulse mode closure time can be set to 100 or 200 ms.



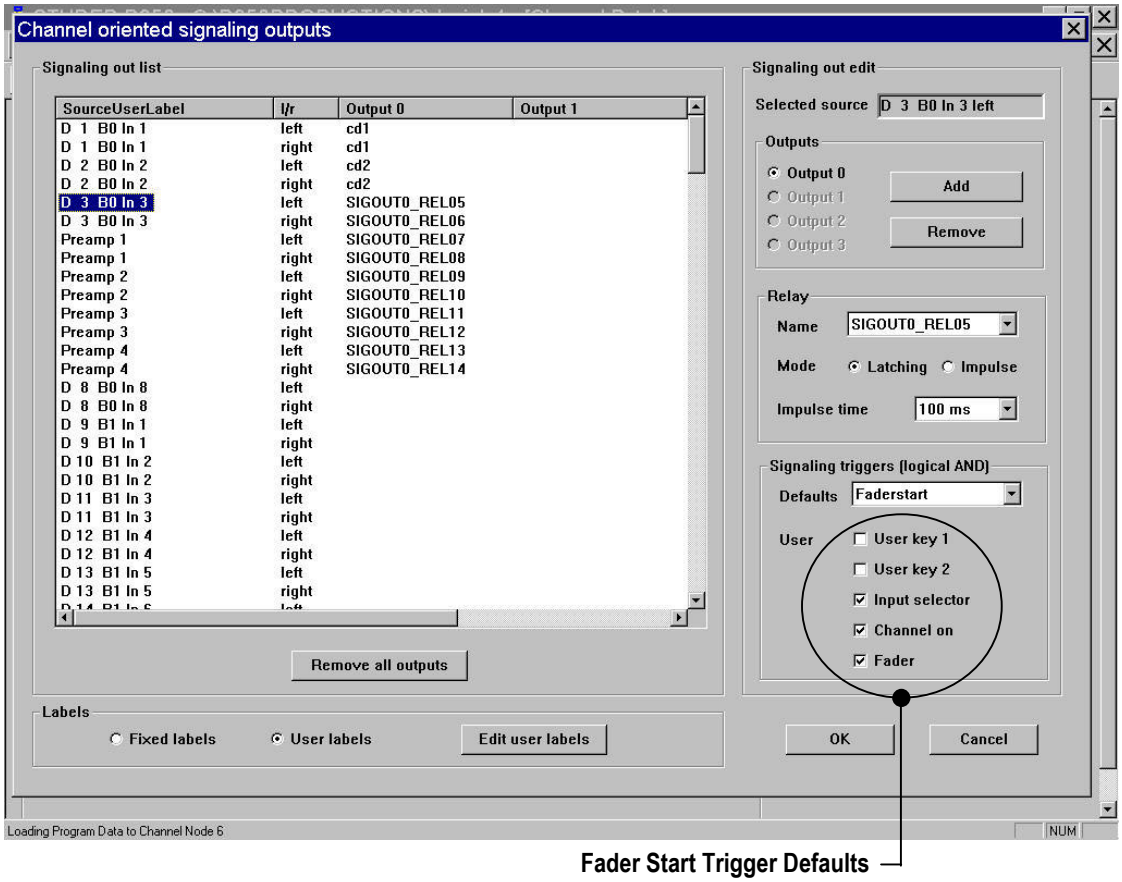
4. The Triggers have to be set according to the application of the selected relay. All Triggers always work in a logical AND fashion:
   - The desired Source must be patched into the appropriate Channel (implicitly understood and done in the Patch), and

   There is the possibility to check up to five other Triggers to finally trigger the relay:
   - User key 1, *and*
   - User key 2, *and*
   - Input Selector, *and*
   - Channel On (MUTE), *and*
   - Fader open.

   Any combination of the five possibilities above can be used. It is also possible to select from a default list of pre-configured Trigger combinations:
   - Fader start, *or*
   - User Defined.



Typical fader start setup for two stereo sources (D1 and D2):



The typical Fader Start Trigger combination is:
- Input selector, *and*
- Channel on (MUTE), *and*
- Fader (open).

You can also remove all assigned relays from the list by clicking on the Remove all outputs button.

☞ **Tip** For a typical stereo source, such as a CD player, the same relay should be configured for both the left and the right signal part, as shown in the example above for D1 (relay *cd1*) and D2 (relay *cd2*). This action ensures that the CD player will start even if it is connected to two Mono Input Channels, and only *one* of the faders is opened.

4.7.6.3 Red Light Configuration

Generally, Red Light Outputs are relays installed within the Monitoring frame. Usually only one relay is used for the global Red Light Signaling, but several relays can be configured independently if more than one Studio exists.

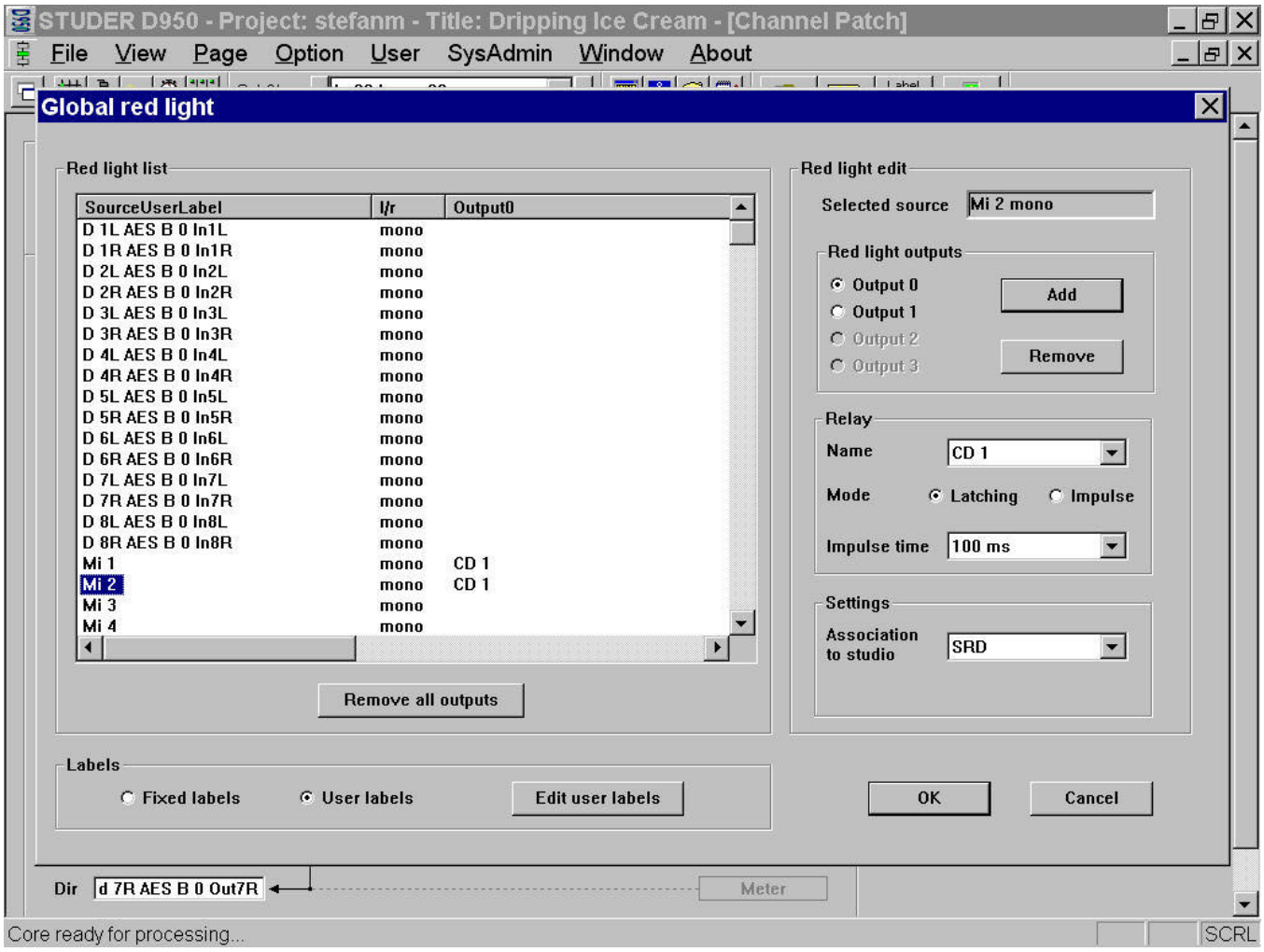
The Trigger conditions for a Red Light relay to be activated are fixed to the following:
- A Source configured for Red Light is patched to a Channel, *and*
- The Input Channel Input Selector is set to the above Source, *and*
- The Input Channel Fader is open, *and*
- The Input Channel ON (MUTE) is open, *and*
- The Input Channel is routed to at least one Master Bus, *and*
- The Master Channel Input Selector is set to the above Source, *and*
- The Master Channel Fader is open, *and*
- The Master Channel ON (MUTE) is open.

In other words, the audio signal has a fully open path from the Source to the Master Channel output. If an Input Channel is routed to a group only, then the Group has to be routed to a Master, etc., to fulfill the Trigger conditions.

Multiple sources are usually configured to one single relay – they form a logical OR. For instance, all Mic Inputs from the same room would be configured to the same Red Light relay.

There are four steps in the Red Light Configuration:

1. To configure the Red Light, first select a source in the Red Light List;
2. You can then add or remove a relay to/from this source in the Red Light Edit window.



3. Now you have to select the relay itself (use the arrow button to open a list of relays), and to determine its mode of operation to either latching (contact closed when trigger conditions is fulfilled) or impulse (contact closed for a short time when trigger conditions is fulfilled, and then opened again). Impulse mode closure time can be set to 100 or 200 ms. Obviously, the actual relay that is externally wired for Red Light must be selected.
4. In the Settings window, an association to a Studio can be set. Usually, only one Studio is being used. If, however, more than one Studio should be present, each may require its own Red Light relay and its configured Sources. In this case, several relays can be configured independently. To select a Studio, click on the arrow button, and select a studio from the list. If a Studio is associated, the Red Light will also be shown on the Desk's Studio Monitor Unit.

   You can also remove all assigned relays from the list, by clicking on the Remove all outputs button.

4.7.6.4 Load Signaling Configuration

This action opens a window that allows selection from existing Signaling Configurations to load into the D950/Vista. The `C:\D95ØSYSTEMDB` directory will usually be displayed first, and a Session Configuration must be selected. The Signaling Configuration files have a `*.sig` extension. This process will load all stored relay assignments for both the Signaling Out and the Red Light Configurations, and the relay User Labels.

4.7.6.5 Save Signaling Configuration As

This action opens a window that allows entry of a new name for the Signaling Configurations to be saved. The `C:\D95ØSYSTEMDB` directory will usually be displayed first, and a Session Configuration must be selected. The Signaling Configuration files have a `*.sig` extension. This process will save all relay assignments for both the Signaling Out and the Red Light Configurations, and the relay User Labels. Any number of such Configurations can be stored and loaded at a later date.

Note: Each title contains at least one `*.sig` file that holds the signaling settings of the time when the title was closed or saved manually.

4.7.7 SysAdmin: Control Group Assign

4.7.7.1 Control Group Basics

A Control Group is a group of console channels controlled by a Control Group Master (CGM), similarly to the VCA groups in analog consoles.

Control Group Master

The Control Group Master is a dedicated channel of a special type. The sole purpose of the Control Group Master is to control the audio functions of its Members.

Up to 32 Control Group Master channels can be defined in the Session Configuration. The number of each Control Group Master is shown on the 7-segment display in the channel strip of each CGM, following the rule:

Control Group No.	Display
1	0
2	1
...	...
10	9
11	A
12	b
13	C
14	d
15	E
16	F
17	0.
18	1.
...	...
26	9.
27	A.
28	b.
29	C.
30	d.
31	E.
32	F.

The Control Group Master channel controls the audio functions of the Members. Master channels can be assigned to desk strips in the same way as any other console channel. The desk strip to which a Control Group Master is assigned will display the following:

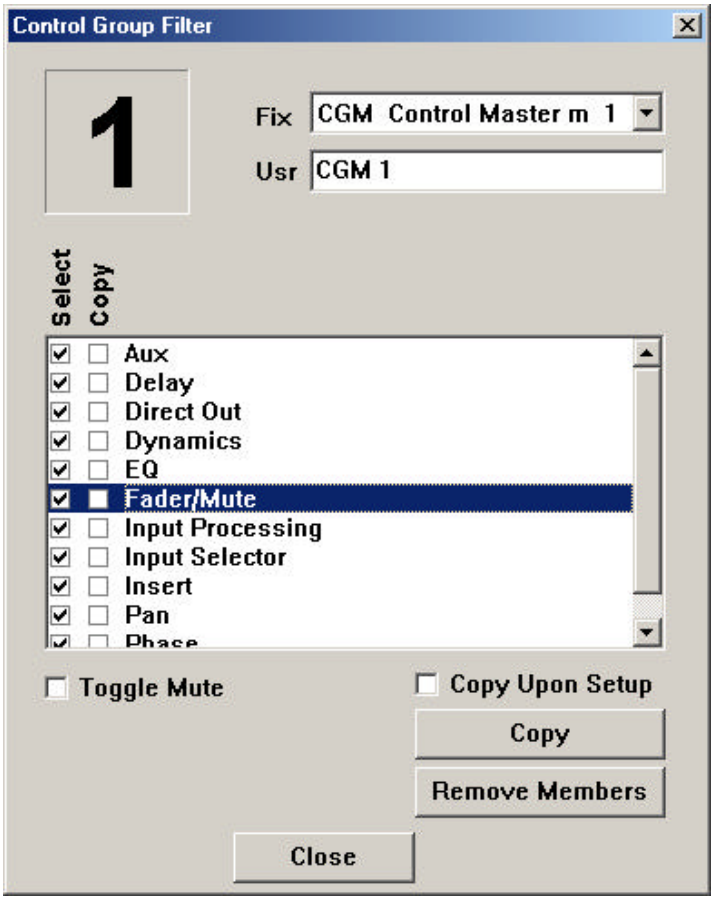
- Control Group Master numbers in the seven-segment display next to the fader: 0 through 9, characters A through F (and, for numbers above 16, the same but followed by a decimal point, as shown in the table above);
- The Fixed Label is set to CGM (Control Group Master), but can be set to display user labels such as DRUM, LVOX, BVOX, RTHM, etc. in the Control Group Filter dialog box in the GC.

Control Group Members

Control Group Members can be selected to and deselected from a Control Group during the console operation. This is done in a special Control Group Edit mode. Any console channel can be selected as a member in a Control Group. The members can be “stolen” from one Control Group to another.

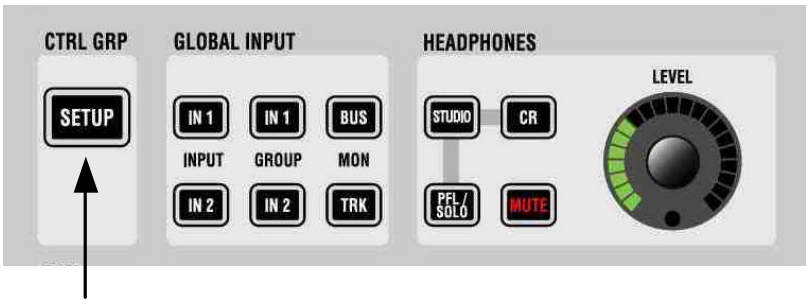
When a channel is selected as a member in a Control Group, its channel strip displays the Control Group in the seven-segment display next to the fader in the same manner as described above.

Operating an audio parameter on the Control Group Master influences that parameter on all members (if that parameter has been selected in the Control Group Filter Dialog Box during Control Group Edit mode). It offsets the member value by the move amount of the Master. Operating the parameter on the member influences only that member's parameter.

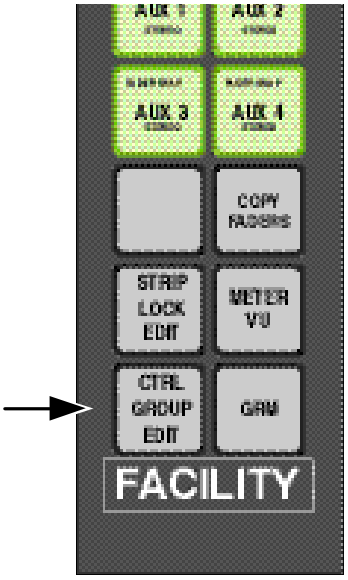


Control Group Setup The Control Groups are edited in the Control Group Setup Mode. This mode is activated through the **CTRL GRP: SETUP** key *(Vista)* or the **CTRL GROUP EDIT** key *(D950)*.

Vista:



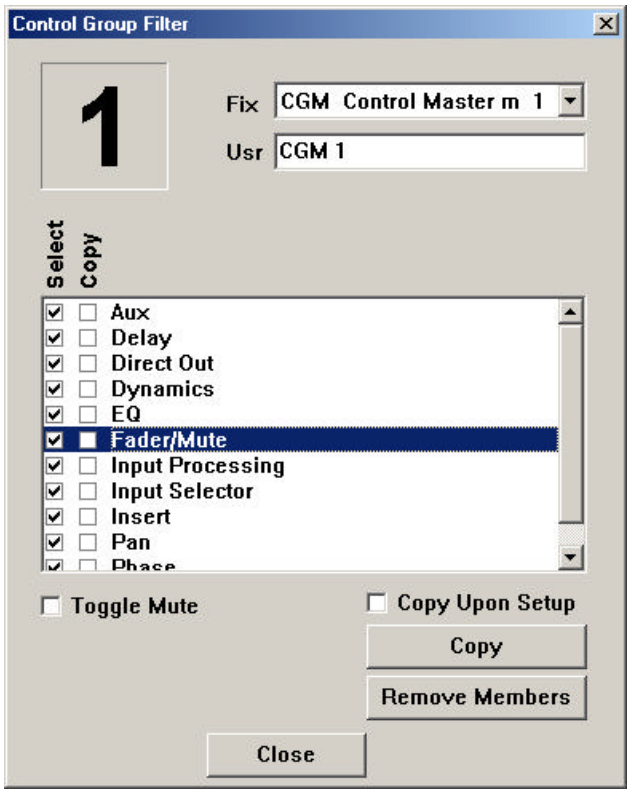
D950:



On first press, the **CTRL GRP SETUP / EDIT** key is lit to show that an activity has been started but not yet finished. All **SEL** *(D950)* or **LINK/SEL** *(Vista)* keys of Control Group Master channels are half-lit. Pressing one of these enables setting up the corresponding Control Group. The **LINK/SEL** keys of the Control Group members are lit, the ones of non-members are half-lit. The Graphic Controller automatically activates the Control Group Filter dialog (see above) for the selected Control Group.
When a Control Group is selected for editing, member channels can be added or removed from the Control Group by using their **LINK/SEL** keys. If the **MULTI SEL** key *(Vista only)* is deactivated, all members are cleared upon pressing any **LINK/SEL** key, similar to creating a gang. During editing, the Control Group is not active, i.e. the setting of the Control Group Master can be changed without influencing the members. This can be used to adjust the offset between the Master and the Members if required.
Editing a control group can be terminated either by pressing the **LINK/SEL** key of the master, or by exiting setup mode by pressing the **CTRL GRP SETUP/EDIT** key in the control bay. If you now want to proceed with editing of another control group, first deselect (using the **LINK/SEL** key) the Control Group Master you have just finished with, and then select the new one that you wish to edit.

Control Group Filter

When Control Group Editing is activated, the Graphic Controller automatically activates the Control Group Filter dialog box for the selected Control Group:



In the Control Group Filter dialog, the user can define functions to be grouped or not. To group the desired function, the appropriate Select checkbox must be checked. If Select is unchecked, the functions' control can be moved freely without influencing the members. Normally, when the members are grouped, their local values of Fader/Mute are left untouched

when the group is formed – they are grouped in a relative way. If absolute grouping is desired, values can be copied from the master to the members:

- By checking the Copy Enable checkbox and clicking on Copy;
- By completing the editing of a group while the Copy Upon Setup checkbox is checked.

There is also a context menu available, called up by right-clicking within the edit dialog:

- If the cursor is placed over the Select items, the menu allows to check or clear all select boxes;
- If the cursor is placed over the Copy column, the menu allows to check and clear all copy parameters;
- and if it is placed over a white space, it does both.

Note: The Control Group Filter dialog box can also be started by clicking on the Control Group Filter item on the Options menu of the Graphic Controller. Clicking on the Close button does *not* terminate the Desk editing mode.

Absolute/Relative Faders are implicitly controlled in a relative way. This means that all the members will remain in relative positions to each other when the Master Fader (or other control) is moved. The member Faders can be forced to match the Master Fader using the Copy function in the Control Group Filter dialog, see above.
Muting can be controlled absolutely and relatively. The relative (Toggle) mode for the Mutes can be selected by the user in the Group Filter dialog. If selected, the Mutes can be set to On or Off on the members and will be toggled when the Master Mute is used. If Toggle is not selected, all Mutes on the members will be forced to the same status as the Master Mute the next time the Master Mute is used, regardless of their original status.

Member Behavior When a new member is added to a Control Group, it keeps its values until a change is made in the Control Group Master. At that moment, the change is transferred to all members. When a member is separated from a Control Group it keeps its current setting which includes the Master offset(s) that have been applied along the way. Member values can be changed locally at any time, without affecting the status of the other members or of the Control Group Master.

Over-Range All controls can have an over-range. The over-range condition can occur if the Member Fader has reached its top or bottom position while the Master Fader is still moving. During over-range, the relative levels of the members are kept intact, even if the Fader (and the audio level) can not move anymore.
Over-range can be positive or negative. The maximum value of over-range can be twice the normal working range of the Fader (100 dB) in both up and down directions.
The over-range of a Member can be zeroed easily. Simply move the Fader of a Member in over-range by a bit, and the over-range will be zeroed.

Note: This will, however, clear the initial relative level of that particular Member with respect to the other Members.

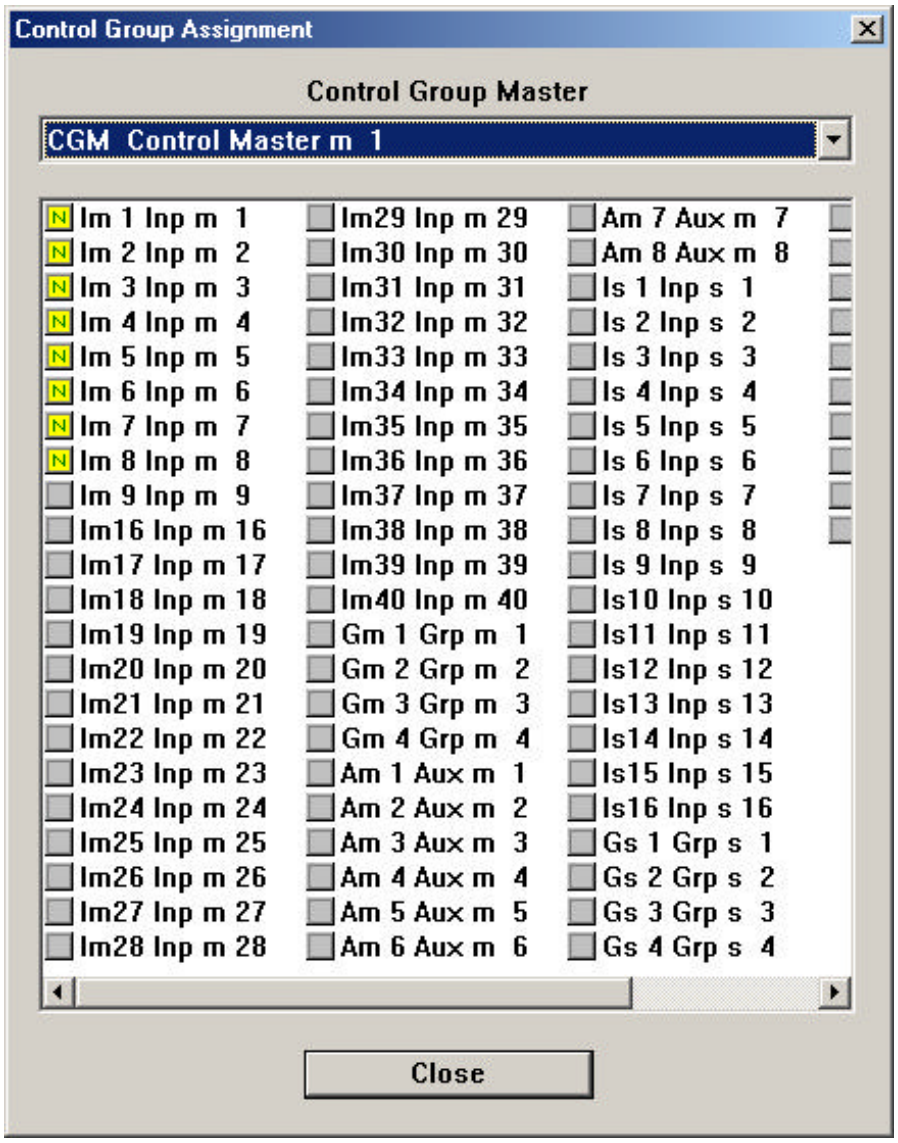
Snapshots Control Groups are part of the snapshot. Their data comprise three parts:

- Members of a Control Group (which channels are Members in a Control Group);
- Control Group settings (filter and Copy settings);
- Parameter values of the Control Group Masters.

4.7.7.2 Control Group Assignment

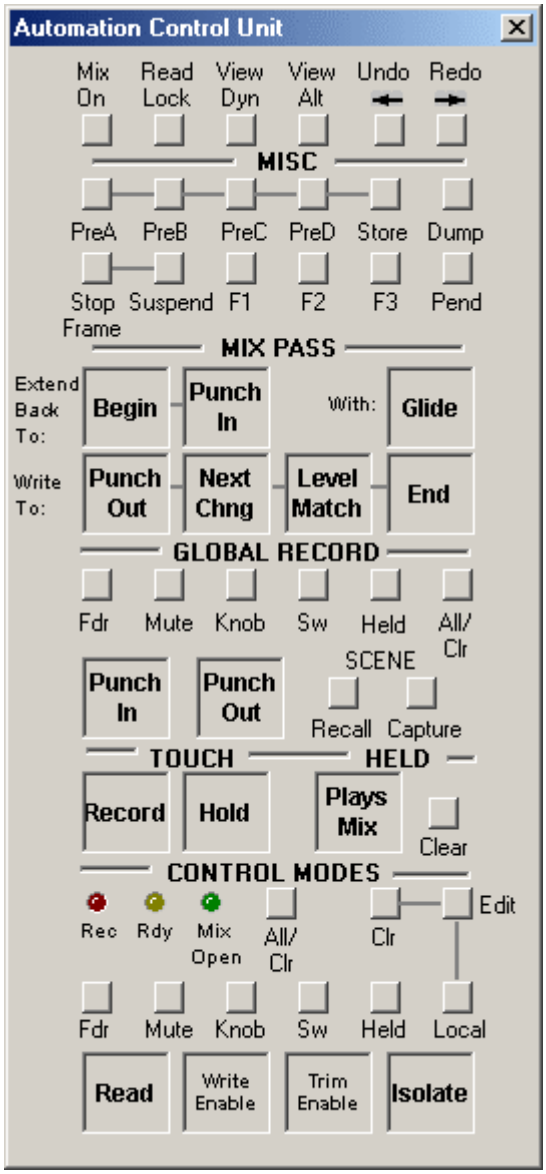
A Control Group Assignment dialog window can be started from the Sys-Admin (System Administration) menu in the Graphic Controller. This window allows to view the members for a selected Control Group and to edit the members by clicking or dragging them graphically on the screen. Selection of the control group to be edited is not synchronized with the Desk selection – so two different control groups can be viewed at a time.
The Control Group Assignment window serves a similar function as the **CTRL GROUP SETUP / EDIT** key on the control surface, except assignments are made via software, and the Control Group Filter window does not open.

To assign a channel to a Control Group, select a Control Group Master using the pop-up menu in the field at the top of the window. Channels can be assigned or de-assigned by double-clicking the channel's name. Keep in mind that a channel can belong to only one Control Group at a time. If assigned, a yellow N will appear in the box to the left of the channel name, and the number of the Control Group will be displayed in the channel's fader. Control Group Assignments are stored within Snapshots and Presets.

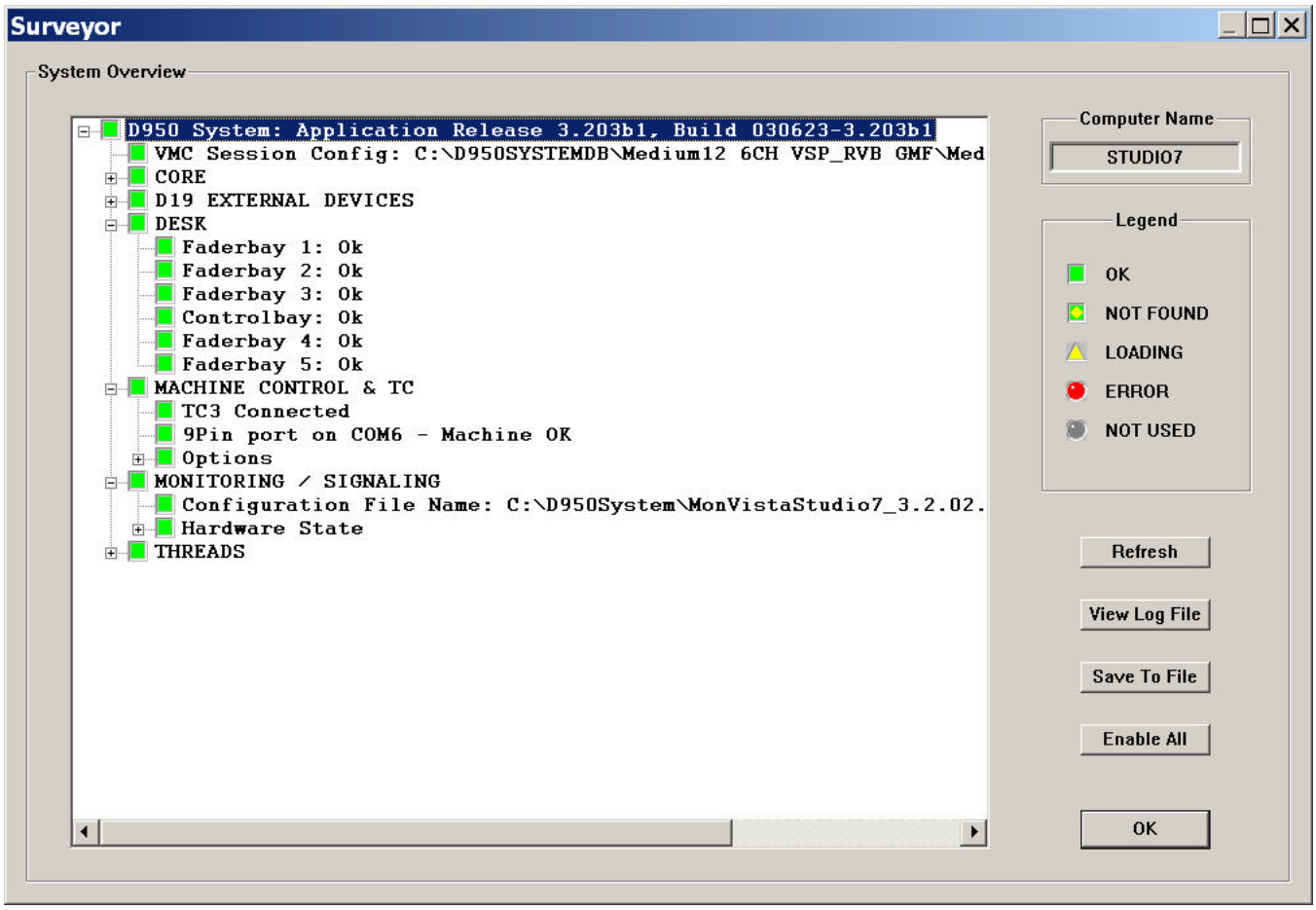


4.7.8 SysAdmin: Virtual ACU

Virtual ACU: This action brings up the Virtual Automation Control Unit. This screen duplicates the controls and indicators found on the control surface Automation Control Unit panel. This provides PC control of the AutoTouch+ Dynamic Automation system (if installed) when troubleshooting from a remote location, or when the control surface is not available.



4.8 Fifth Level of Operation: The Surveyor



The D950/Vista constantly monitors the status of all major hardware and software systems. This information is provided to the user via the Surveyor. The Surveyor is also the primary diagnostic tool used for troubleshooting and fault finding.

The Surveyor displays its information in two ways:

- The icon shown on the Surveyor Button in the Toolbar;
- The Surveyor page.

The Surveyor Button: When enabled, the Surveyor button is located in the Toolbar. It is intended to keep the operator informed about general system status. The button's icon changes to indicate the overall condition of the D950/Vista. These indications are as follows:

Yellow triangle: Loading. The system is booting (look at the Status Bar);

Green square: OK. The console will operate normally;

Green square with yellow diamond: Not Found. A system element cannot be found. This is sometimes seen as a Session Configuration is loading. If this icon remains on, a problem is indicated. The status bar will prompt you to check the system's status;

☞ **Tip** Sometimes an element cannot be found just because it has not been switched on.

Red circle: Error. An error, fault, or failure is detected in the system. This is sometimes seen as a Session Configuration is loading. If this icon remains on, a problem is indicated. The status bar will display "Check Status;"

Grey circle: Not Used. A system element is defined but is not in use.

Surveyor Page: The Surveyor Page may be opened from the SysAdmin menu or by clicking on the Surveyor button. The main window contains all the major system elements displayed as a directory tree. The status icon at the start of each directory indicates the general status of its contents. These icons utilize the same indication system as the Surveyor button (see above).

If all elements display the OK icon (green square), the system will operate normally. If any of the directories display the Error icon, it can be opened to determine which of its contents has a problem. Since some system elements have many subsystems, several nested subdirectories might be contained within the main directories. As with the typical Windows directory system, directories that contain subdirectories have a "+" symbol on the left of the status icons. To open these directories either click on the "+" symbol or double-click the directory name or status icon. It might be necessary to open several directories to find the specific element that is having a problem.

Surveyor Tools: The Surveyor features several tools to enhance its operation. These are available as buttons on the Surveyor Page:

- *Refresh*: Real-time updates of system element icons are not provided when the Surveyor Page is open. If a fault is corrected during troubleshooting, the system must be re-interrogated before the Surveyor Page will display the result. Clicking the Refresh button will survey the entire system and display the current the status of all elements.
- *View Log File*: This tool allows the D950/Vista Log Files to be viewed from within the Surveyor.
- *Save Log File*: This button saves the current D950/Vista Log File.
- *Enable All*: It is possible to tell the Surveyor to ignore some problems by right-clicking on one of the red symbols. This will make the main symbol in the task bar remain green, even if there is an error reported

in some sub-area. “Enable All” clears these exceptions and makes the Surveyor work as usual. *Inactivated sub-areas are always re-activated upon system startup for safety reasons.*

- *OK*: Clicking this button will close the Surveyor Page.

Surveyor Information: When it is initially opened, the Surveyor displays some information without the need to open any directories or subdirectories:

- *Computer Name*: This field displays the name of the PC that is being used to control the D950/Vista system;
- *D950/Vista System*: This is the main directory in the Surveyor, which contains all of the other system element subdirectories. It’s name displays the D950/Vista software Application Release number (version) and the Build number. This directory will always be open to show the primary system element subdirectories (and their status) when the Surveyor is opened;
- *VMC Session Config*: This item displays the currently loaded Session Configuration file in a directory name format, such as: `C:\D950SYSTEM\VMC` directory `name\VMC name.vmc`.

☞ **Tip** Other current system files (such as monitor files) may be found within the Surveyor, but will be nested within subdirectories.

CHAPTER 5

5 AUTOTOUCH+ DYNAMIC AUTOMATION

5.1 Getting Started Quickly

This short introduction to the AutoTouch+ Automation is meant to give the user an easy entry point in order to start working with the dynamic automation. For simplicity some facts are not totally accurate and may have exceptions. Also it is possible to modify the behavior of AutoTouch+ automation very much by varying option settings. In order to get a detailed overview of all available functions, please refer to chapters 5.2 and up.

For Beginners: We recommend to set the automation to factory default settings. This is done by exiting the Vista/D950 application and deleting the `C:\D950system\D950ofla.mop` file. After restarting the application, you have the factory default settings applied.

5.1.1 Basics

The operation is based on the individual channel strip as well as on the AutoTouch+ panel, located near the center of the console.

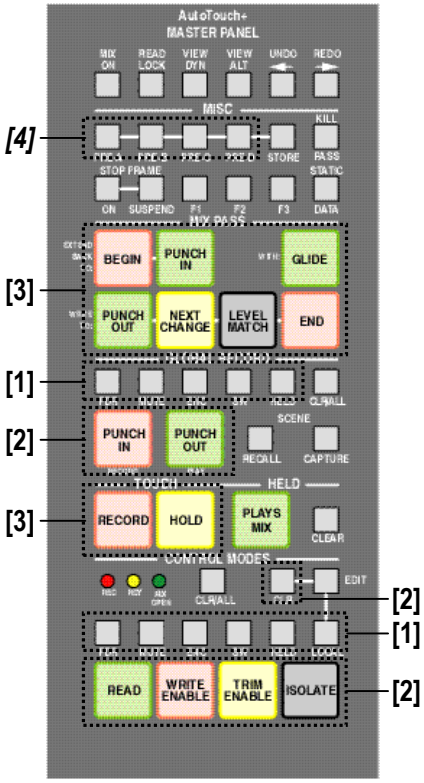
Definitions:

Objects: An "object" in the context of the AutoTouch+ automation is any channel parameter, such as a fader, a key (for e.g. switching an EQ on and off), or a knob (for adjustment of anything like gain, etc.).

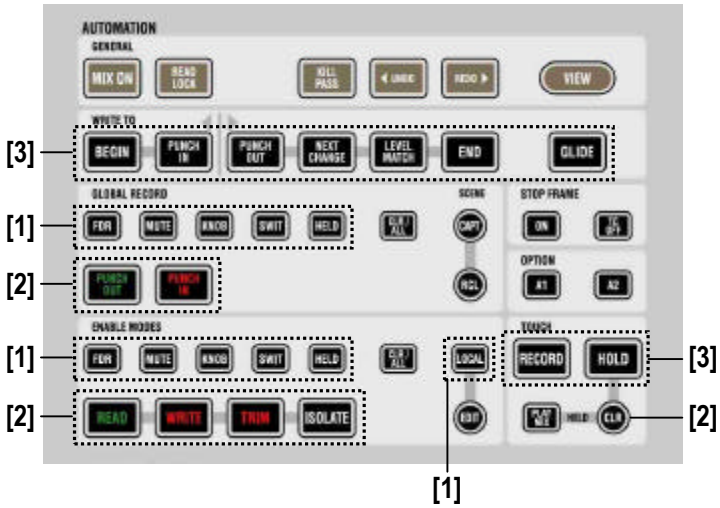
"Held" Objects: This is an object being touched with a finger (or an object after being un-touched, but with the un-touch suppressed by a special mode). Held objects are indicated by underlined values *(Vista)*, displayed fader values in dB *(Vista)* or an associated LED being lit *(D950)*.

5.1.2 The AutoTouch+ Panel

D950:



Vista:



Most keys on these panels can be roughly divided into three or four groups, respectively:

[1] Pre-selector keys
[2] Action keys
[3] Mode keys
[4] *Setup keys (D950 only)*

Pre-selector Keys [1] These keys select the group of functions that will be influenced by the action keys located below them: **FDR**, **MUTE**, **ENC / KNOB**, **SW / SWIT**, or all current **HELD** objects. The pre-selectors for faders, mutes, encoders/knobs, and switches influence the whole console, not only specific channels.

Action Keys [2] These keys perform an immediate action when pressed, e.g.:

- **PUNCH IN**, **PUNCH OUT**
- Set objects into **READ**, **WRITE** , **TRIM** , or **ISOLATE** mode
- **CLR** (clear) the "held" state of all held objects

Mode Keys [3] These keys put the automation into a specific mode, influencing its behavior for the next time the corresponding event occurs, e.g.:

- **GLIDE** will switch on or off the glide mechanism for *upcoming* punch-outs.
- **HOLD** will suppress the *detection* of the physical un-touch of an object. The object will therefore stay in a "held" state.

Note: This key will only influence *future* physical un-touch of objects.

- **RECORD** tells the system whether it should punch-in when (upcoming) touches are being detected. If this switch is off, the automation is in an "audition" or "rehearse" mode.

- **WRITE TO: LEVEL MATCH**, **NEXT CHANGE**, **END**, and **PUNCH OUT** will write the value *at the time of punch-out* possibly further ahead, rather than immediately stop recording. The neutral setting is **PUNCH OUT**. This will record no more after punch-out.
- **EXTEND BACK TO:** *(D950)* / **WRITE TO:** *(Vista)* **BEGIN**, **PUNCH IN:** These keys can only be activated *before* starting a mix pass. They will write the value at the time of punch-out as a constant value back to the begin (setting **BEGIN**) or back to the point where the user punched in (setting **PUNCH IN**).

Application Examples:

In **WRITE** *mode:*

1 Correcting a constant value throughout a mix (**WRITE TO: BEGIN**)

2 In a music mix, when a solo is played: For finding a value while listening and applying the final value to the whole passage (**WRITE TO: PUNCH IN**).

In **TRIM** *mode:*

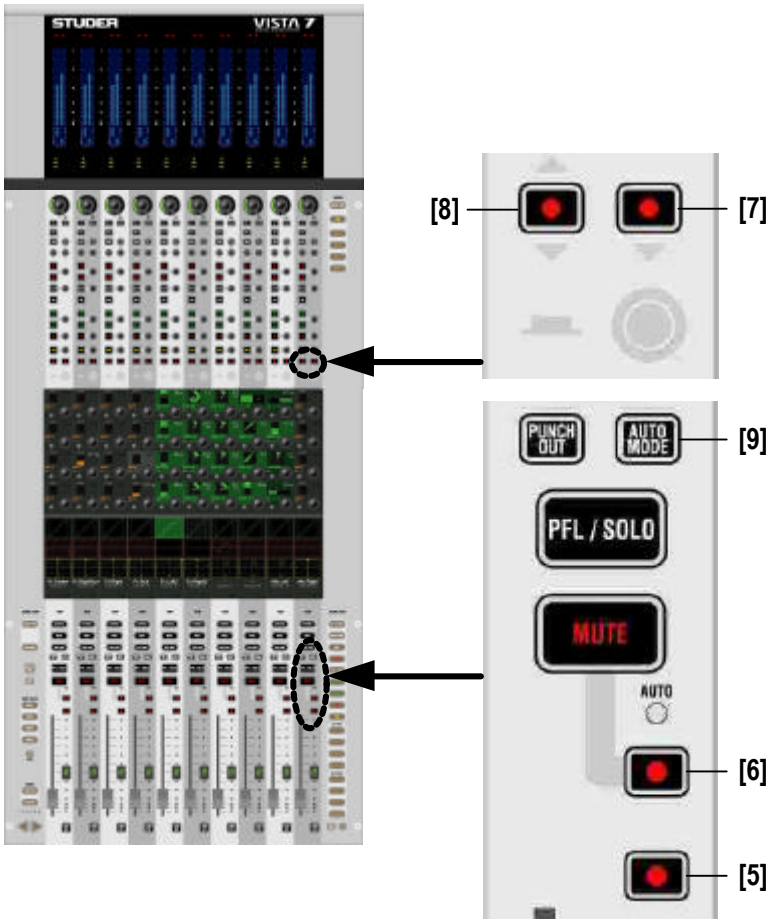
1 Trim an object back to the beginning of a mix while keeping its movements (**WRITE TO: BEGIN**)

2 Trim an object by a constant value between punch-in and punch-out point, while keeping the movements (**WRITE TO: PUNCH IN**).

Setup Keys [4] (D950 only): *For storing or recalling mix option settings which define the behavior of the automation system. Such a preset contains all option settings and can either be assigned to specific keys or just stored in files.*

5.1.3 Automation Keys on the Channel Strips

Vista:



Punch IN/OUT: Four keys are representing the recording state of its member objects:

[5] Fader

[6] Mute

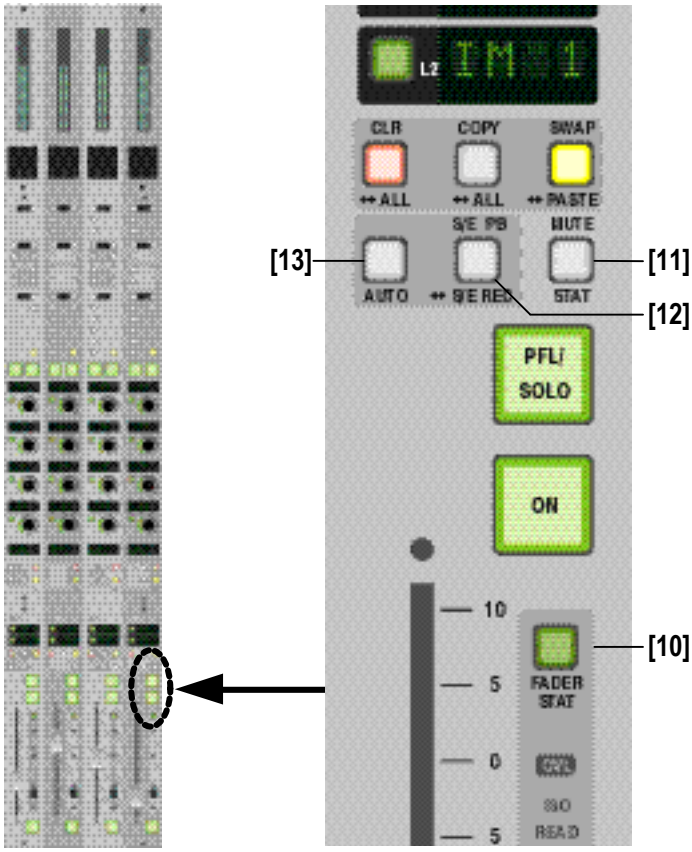
[7] Knob

[8] Switches

AUTO MODE [9]: Toggles between different automation modes: READ, WRITE, TRIM, ISOLATE. As a standard, only the objects selected in the "pre-selector area" of the AutoTouch+ panel (e.g. FADER) are toggled, but not the whole channel.

This key has also the important function to suppress the detection of a physical touch or un-touch of any objects. It is therefore possible to modify a value without putting the object into "held" mode. Or – vice versa – it is possible to physically un-touch an object so that the automation doesn't detect the un-touch (object is still considered as "held"). This is the reason why this key is sometimes referred to as "modifier key".

D950:



Punch IN/OUT: Three keys are representing the recording state of their member objects:

[10] FADER STAT

[11] MUTE STAT

[12] S/E PB, S/E REC (S/E stands for switches and encoders/knobs)

AUTO [13]: Toggles between different automation modes: READ, WRITE, TRIM, ISOLATE. As a standard, only the objects selected in the "pre-selector area" of the AutoTouch+ panel (e.g. FADER) are toggled, but not the whole channel.

This key has also the important function to suppress the detection of a physical touch or un-touch of any objects. It is therefore possible to modify a value without putting the object into "held" mode. Or – vice versa – it is possible to physically un-touch an object so that the automation doesn't detect the un-touch (object is still considered as "held"). This is the reason why this key is sometimes referred to as "modifier key".

If this key is lit, the fader is in "held" state.

5.1.4 Mix Passes

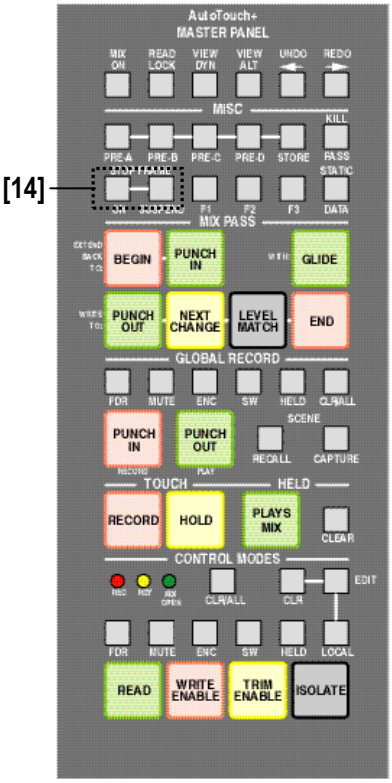
Normally a new mix pass is automatically being created when play speed of incoming timecode is detected. A mix pass finishes upon detection of non-play speed.
In order to record slower than play speed (slow motion) or even write automation data between two locate points, it is necessary to start and stop a mix pass manually.

Note for D950 Users: *Recording in slow motion is only possible when using the Studer TC3 timecode reader or newer.*

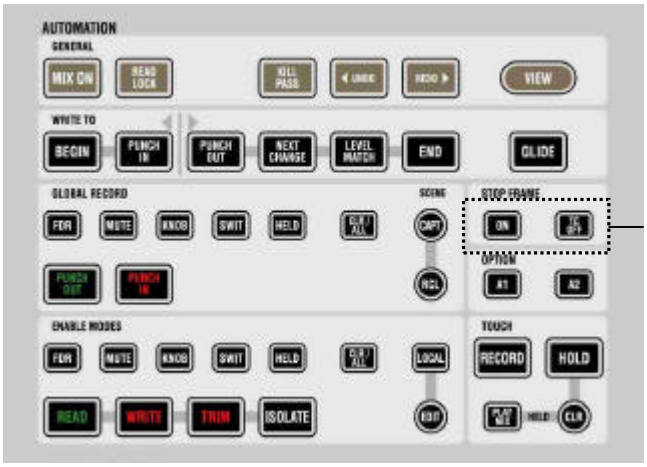
A mix pass is manually started by switching Stop Frame automation on using the **STOP FRAME** keys [14]. It is finished when this key is switched to off again.

Note: The automation cannot record backwards; the automation records data up to any incremented timecode value. Therefore it is not possible to erase data by going backwards using the jog wheel.
In order to locate precisely to a certain frame without "overshooting", it might be useful to suspend the reading of timecode while searching for that specific frame. This can be done by activating the **TC OFF** *(Vista)* or **SUSPEND** *(D950)* key.

D950:



Vista:



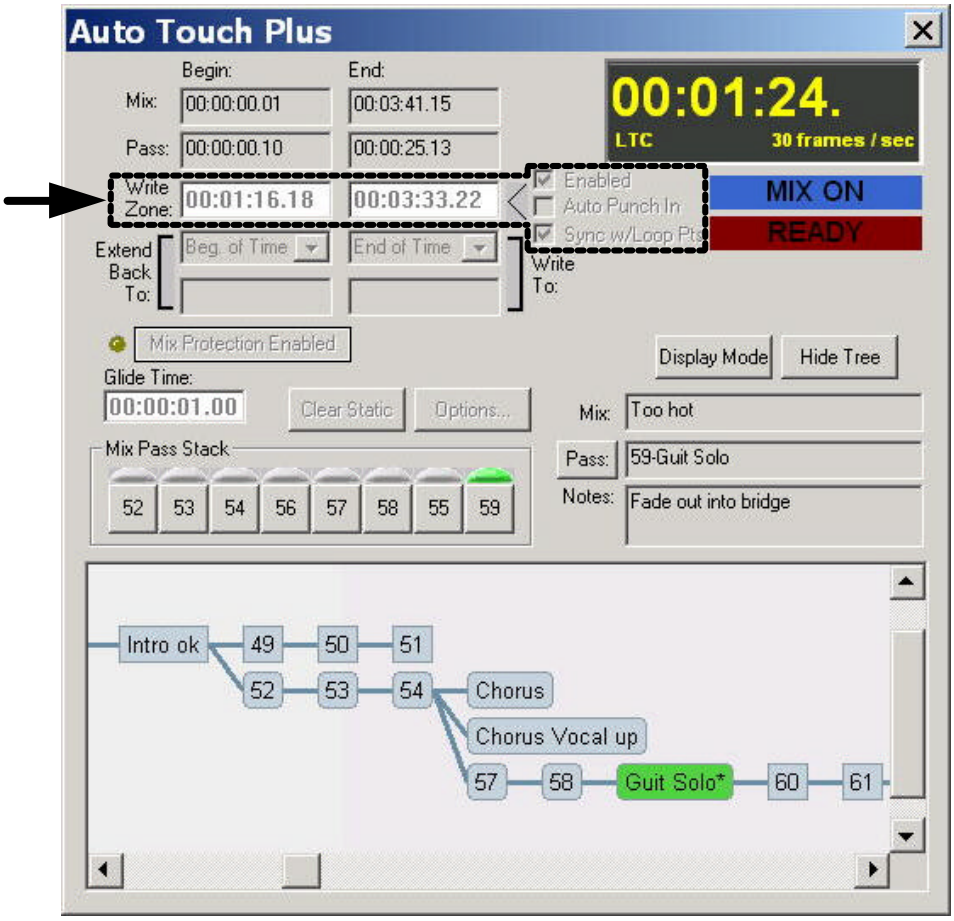
Example: The user wants to write data between 1:00:01:00 and 1:00:09.20, using the jog wheel to locate both points precisely.
Procedure:

1. Find the starting point with the jog wheel.
2. Start a mix pass by switching **STOP FRAME** on.
3. Punch-in requested objects.
4. Activate **TC OFF** *(Vista)* or **SUSPEND** *(D950)*.

5 Locate the end point 1:00:09:20 using the jog wheel (the user can freely jog around this point and even overshoot in order to locate precisely). It is possible to use locate commands as well.
6 Deactivate **TC OFF** *(Vista)* or **SUSPEND** *(D950)*. ⇒ Automation data is written up to the current timecode value.
7 Finish the mix pass by switching **STOP FRAME** off.

5.1.5 Write Zones

In order to protect any passages from being overwritten by automation data, it is possible to define a write zone in the graphical controller. If activated, it is not possible to write any data outside that zone. When working together with machine control (looping), it is possible to synchronize this write zone constantly with the set In and Out points of the machine control.



5.1.6 How to...

...put the whole console into write mode?

Activate pre-selector keys **FDR**, **MUTE**, **KNOB/ENC**, **SWIT/SW** (or press the **ALL/CLR** key) and press automation mode **WRITE** (make sure you have **TOUCH RECORD** active in order to record any changes against timecode).

...put all faders into write mode?

Select **FDR** as pre-selector and press **WRITE** underneath in order to put all faders into write mode (make sure you have **TOUCH RECORD** active in order to record any changes against timecode).

<**Option**> There is an optional setting (see menu "Automation Options…", "Control Modes", "Mode Enable sets non-selected to READ", also refer to chapter 5.21.2) which determines whether the non-selected functions (e.g. **MUTE**, **KNOB / ENC**, **SWIT / SW**) will change their state to READ or whether they don't change their automation state when putting the faders into WRITE.

...put a group of faders into write mode? ***(Vista)***

Select **FDR** as pre-selector (section **ENABLE MODES)** and create a gang of the channels that should change their automation mode to Write. Then toggle through the automation modes by pressing the **AUTO MODE** key on any of the linked channels several times, until the automation state indication on the TFT says "W" (make sure you have **TOUCH RECORD** active in order to record any changes against timecode).

...use "Rehearse" mode?

Basically you just have to switch off the **RECORD** key. This will prevent all upcoming touches from switching into recording. To rehearse some settings, you will normally have **HOLD** on, since you want your settings to stay when you physically un-touch an object. In this way you will see all objects you changed in order to rehearse some alternate settings indicating "held" state, either by underlined values (Vistonics module) or in the fader case by the displayed dB values. You can now stop the tape, rewind, and all objects will stay "held". Now you activate the **HOLD** key from the pre-selectors of the section **GLOBAL RECORD** (**PUNCH IN / PUNCH OUT**) and play the tape again. When you press the **PUNCH IN** or **PUNCH OUT** key, you will now put all your rehearsed objects in and out of recording.

Note: If objects are moved in rehearse mode, you will always hear what you see. However, if you want to switch over and hear the underlying original mix, simply activate the **PLAY MIX** key.

...correct a mix pass and let the automation take over whenever the level matches?

Select **WRITE TO...: LEVEL MATCH**. Please note that these **WRITE TO...** keys will only affect automated objects *after* they are punched out. This is to prevent unwanted punch-outs while you are still touching an object and doing corrections. In order to move e.g. a fader manually over the point of level match and make it punch-out upon level match, you need to punch-out first and afterwards touch the fader again "without the automation detecting the touch". This means you will have to hold down the **AUTO MODE** modifier key when touching the fader again. Now you can move the fader towards the point of expected level match. As soon as this level is reached, this fader will stop recording.

There is also an alternate way of suppressing the detection of the touch: Switch **TOUCH RECORD** off and then touch the fader, followed by a manual movement over the point of matching levels.

...activate a glide on one channel while another one shouldn't glide back?

As stated above, **GLIDE** is a mode key and does only influence upcoming punch-outs. You can switch this key while mixing.
E.g.: **GLIDE** is off and you punch-out channel 8. It will punch-out without gliding. Then you switch **GLIDE** on and punch-out channel 9. Since **GLIDE** mode is now activated, channel 9 will punch-out and glide back to the value of the last mix pass.

...keep an object in "held" mode while another one should not be held?

There are two easy ways for this. The first one is similar to activating and deactivating **GLIDE**: Switch **HOLD** on and physically un-touch an object – it will stay "held". Change the **HOLD** state to off, and the next time you physically un-touch an object it will also come out of "held" state.
A second way is to hold down the **AUTO MODE** modifier key while releasing an object. This will invert the **HOLD** state for that specific event.

Note: The behavior of the modifier key can be defined in the automation options (Misc, Modified Un-touch Inverts) whether **TOUCH RECORD** or **TOUCH HOLD** will be modified.

...make an object louder for the entire mix while keeping its movements?

In the **MIX PASS** *(D950)* or **WRITE TO** *(Vista)* section, activate **EXTEND BACK TO / WRITE TO BEGIN** and **WRITE TO END.**
Select **TRIM** mode for the desired objects (section **ENABLE MODES / CONTROL MODES**, use pre-selectors). Start a mix pass and move the desired objects by the amount you want them to be corrected.
In this case the movements of the objects will be kept, only the "offset" will be written to the new mix pass.

Note: When **TRIM** mode for faders is selected, the faders will jump to the 0 dB position and therefore indicate the correction level rather than the real fader values.

Vista: The real values will still be displayed in the touch-screen area. On rotary controls, Vista will display the amount of corrections in digits while displaying the real values graphically.

...erase all movements of an objects on the entire mix? Or, how to...
...turn a "dynamic object" back into a "static object" again?

In the **MIX PASS** *(D950)* or **WRITE TO** *(Vista)* section, activate **EXTEND BACK TO / WRITE TO BEGIN** and **WRITE TO END.**
Select **RECORD** mode for the desired objects (section **ENABLE MODES / CONTROL MODES**, use pre-selectors). Start a mix pass and set the desired objects to the value you want to have for the entire mix. This will write the level at the time of punch-out to the time between **END** and **BEGIN**.

Note: The exact meaning of **END** and **BEGIN** can be defined on the graphical controller screen, but defaults to "begin of mix" and "end of mix".

5.2 Now the Details: Introduction

Welcome to the AutoTouch+ dynamic automation system for Studer D950 and Vista digital mixing consoles. For new D950 and Vista users, AutoTouch+ provides a powerful and comprehensive automation system that is easy and efficient to use. For current D950 users, V3.0 AutoTouch+ is a major revision to the previous AutoTouch system (V2.5 or earlier). While maintaining many of the V2.5 operations, AutoTouch+ provides a multitude of refinements, new features, and options. All users will find the flexibility to work in the way most appropriate for the task at hand without overly complicated procedures. Users will also find the power to efficiently create and fine-tune the optimal mix.

AutoTouch+ allows any control defined within a VMC file to be automated. This includes faders, encoders, switches, and bus assignments. Connections made within the new and improved General Patch, audio oriented objects in the Channel Patch, and select Graphic Controller (GC) menu items may also be automated.

5.2.1 About this Chapter

Assumptions: This chapter is designed to explain the operation of the Studer AutoTouch+ dynamic automation system. It will prepare the reader for basic to advanced operation of the system. It assumes the user will have basic D950 familiarity and operational proficiency. The full understanding of many of the terms and concepts depends on this familiarity. Refer to the Console Operation chapters of the D950 and Vista manuals as necessary.

Redundant Information: In several chapters information is repeated. This is to accommodate those who will use this document as a reference, only going to the chapter(s) in which help is needed. Redundant chapters will become obvious to those who will read this document as a text, and may be skipped as desired.

Conventions: Automation in V2.5 software and earlier software is known as AutoTouch. In V3.0, it is known as AutoTouch+. The similarities of the names may be confusing, so for the purposes of this document, older versions of AutoTouch may be referred to as V2.5 and AutoTouch+ as V3.0.

Disclaimer: The information provided in this document is as accurate as possible at the time of its creation. Minor difference may be present in the final release version and in subsequent releases.

This document is designed to provide information to those new to D950 and Vista, as well as long time D950 users. Basic information is sometimes presented and is not intended to offend advanced users.

5.2.2 Description

AutoTouch+ is a software and hardware package that is fully integrated into Studer D950 and Vista digital audio mixing systems.

Software: AutoTouch+ is part of the V3.0 software package. V3.0 represents a major revision to the D950/Vista system software and in addition to the overhaul of the automation, it contains other new features and bug fixes that address other parts of the system. There is also a set of ancillary software (much of which is new) that supports system operations.

The AutoTouch+ portion of the V3.0 software provides a clear and easy to use human interface. Its intuitive and uncluttered windows have control and display elements whose labels and screen positions are obvious to their purpose.

Hardware: AutoTouch+ requires a new Automation Master Panel. For current D950 users, the new panel will replace the old AutoTouch panel in both M2 and Classic work surfaces. The panel is an integral part of the Vista desk surface.

The Automation Master Panel integrates the software and work surface aspects of the system. It also provides a logical and ergonomic interface for the user.

User Release Notes: For details of the V3.0 package, please refer to the Studer D950 Version 3.0 User Release Notes. This document provides information regarding the installation and use of the V3.0 software set. Details of AutoTouch+ is provided in this document.

5.2.3 V2.5 vs. V3.0

AutoTouch+ is an evolution of the original D950 AutoTouch system. Because of this, operation of AutoTouch+ is very similar to V2.5 automation. If desired, AutoTouch+ may be set up to emulate the operation of previous versions.

Being a major revision, AutoTouch+ also goes well beyond the capabilities of V2.5 or earlier systems. It permits the most complex automation tasks to be carried out within a clear and logical workflow while remaining straightforward and simple to operate.

5.2.3.1 New Features

There is an impressive array of new features built into AutoTouch+. A summary of these features follows.

New Mix Management: Automation Mix files are managed via a new Mix Tree System (MTS). The MTS will work in conjunction with the expanded Mix Pass Stack (8 Mix Passes). Each and every Mix Pass will be automatically saved and archived within the Mix Tree. Multiple Mix Trees can be created within a Title. Any previous mix can become the Active Pass (or Read Mix Pass) for a subsequent Record Mix Pass. The MTS is maintained between sessions, so that when a mix is recalled days or weeks later, the entire Mix

Tree will be available to the new session. The Mix Tree may also be hidden so that all mix management can be done within the Mix Pass Stack. At any time the Mix Tree may be made fully visible again. Mix Passes may be named and comments may be added. A full mix link history is maintained.

Static Objects: When a mix is first created (when a Mix Tree is first opened) all automatable controls are Static Objects. Static objects act just like manual controls except that their final setting is remembered by the automation. All controls remain Static until a Dynamic move is recorded.

Any switch, fader or rotary control (automation objects) may be classified as a Static object. They may be adjusted at any time during the mix process without needing to put them into a WRITE or RECORD automation mode (similar to mixing on an analog console). The value of all static objects is maintained on a pass-by-pass basis. This simplifies the "tweaking" of the hundreds of controls within a mix session that must be adjusted, but will never change at timecode locations. Should a Dynamic move be required for a Static object, the move can be simply written into the mix, and the object is transformed automatically into a Dynamic automation object. This simple and effective system will greatly enhance the mix process and dramatically improve mix efficiency.

Independent Automation Modes: Different channels may be in different automation Control Modes. For example some channels may be in WRITE while others may be in TRIM. In addition, different controls (objects) within channels may be in different modes. For example the fader may be in TRIM, while the mute is in WRITE, and the rotaries are in READ. Any combination is possible.

Touch Record Function: Touch Record allows an enabled control to enter RECORD when touched. With Touch Record turned off, a control be auditioned before it is punched-in to Record. With Touch Record engaged touching a Held enabled control will permit an intentional "jump level" punch-ins if the Audition value is different from the Read Mix value.

Touch Hold Function: With Touch Hold engaged, the setting of a touched control will be maintained when it is released. If Touch Record was enabled before the control was touched, it will stay in RECORD upon release. Touch Hold can function for faders, rotaries, and switches and can work in READ, WRITE, and TRIM modes.

Held Plays Mix: This feature allows the read mix to be heard, even though one or more objects are being held in an audition state awaiting a punch-in. This allows true emulation of the resultant mix, while the mix pass is being run.

Mix Pass Control: Full flexibility is allowed for how a new Mix Pass automatically merges with the Active Pass Read Mix data. The setting of a control when it is punched out may be written to the punch-out point; the next data change in the read mix; when a level match occurs (auto-takeover); or the end of the mix, the end of time (23:59:59:2x), or a fixed cue point. In addition, the setting at the punch-out point may be extended back to the punch-in point, the beginning of the mix, the beginning of time (00:00:00.00), of a fixed cue point.

Enhanced Glide Control: When the Glide function is active, every transition between the Read Mix data and the new pass will Glide from one to the other according to the current glide time. In addition, some Glide transitions may be optionally set to "back time" the Glide so that they are completed at the desired edit

point, rather than started there. Also, specific Glide transitions may be suppressed while others are allowed.

Scene Capture: Any specific set of controls, their settings, and automation modes can be saved in the Scene buffer. This allows the exact settings of those controls to be punched into the mix at a later time when the scene occurs again.

Read Lock: This forces the automation system to playback the current Active Mix and ignore any and all key and control changes. This ensures a perfect audition playback or layback to the final master record machine.

Real Time Switch Editing: Switch data may be edited in real time allowing the movement of the in-point and or the out-point, as well as adding or deleting Mutes and Ins or Outs.

Event List Editor: All automation events may be edited (moved, copied, or deleted) offline using the Event List Editor.

Full Offline Editing: The D950 OFLA application is integrated in AutoTouch+. Mix data comprising the entire mix, or any specified objects for any specified time range may be changed, merged, or copied with other mixes or itself.

Protection: Any set of controls may be placed in a protected status. Protected controls playback their recorded moves, but are prevented from being enabled for Write or Trim operations. This is useful for protecting channels or controls that have already been written, while working on other aspects of the mix.

Write Zone: A Write Zone may be specified so that no data can be written outside the time range specified. This is useful for working on a specific scene or section while protecting the rest of the mix from accidentally writing into it. This will also facilitate the automatic punch-out (with or without glide) at the end of the Write Zone.

Auto-Punch: When Auto-Punch is active the system will automatically punch Write Enabled controls into RECORD at the beginning of the Write Zone.

Stop Frame Automation: The Stop Frame automation feature makes it possible to write specific control values between timecode locations. The user can stop timecode playback at a specific location, set any number of controls to desired values, and move to the next location forward in time where values may again be adjusted. The initially set values will be recorded between the timecode locations.

New Automation Master Panel: A new Automation Master Panel is required to run AutoTouch+. It will replace the existing Master Panel in both Classic and M2 versions of the D950 work surface. (V3.0 software will run on the D950 without the new panel, but the automation system will be inoperative.)

5.2.4 Operational Philosophy

The automation system follows the paradigm that there is audio under each control. It is as if this were a conventional analog moving fader system, in which case the fader position *always* represents the audio level. This is referred to as WYSIWYH ("What You See Is What You Hear"). However, in order to enhance the operation of the system, this rule is broken from time to time. Those cases will be noted and they are the exception. The general rule is WYSIWYH.

Formula Based System: In order to make a very powerful system, that is also easy to understand, the system is based on a set of consistent Rules that pertain to the behavior of each mode or function. It is the consistency of these Rules, that allow the system to be simple to understand, yet very deep and powerful.

To these Rules, Conditions and Options may be imposed that further define the behavior of the basic modes or functions. It is these Conditions and Options that add extra facility and flexibility to the system.

Options essentially "fine-tune" the functionality or operation of specific areas of the system.

The combination of Rules, Conditions, and Options allows the user to start using the system in a basic and easy to use manner. As familiarity increases (and based on the needs of the production), more complex operations may be carried out by applying the appropriate Conditions and/or Options. The system also provides extreme flexibility so operation may be essentially "customized" to the task at hand and/or the working style of the user. The net result is a powerful and flexible automation system, that is easy to use, but can address even the most complex needs of any production.

Rules: Rules define the basic behavior(s) of a control, function, or feature. The basic Rules are simple and straightforward. In the simplest form, these Rules will dictate the basic functionality of the system. In this regard, Rules mostly apply to the basic modes of operation, but it should be noted that all aspects of the system have their own set of rules.

In some cases the Rules will be broken or modified depending and the exact function will be determined by a given set of Conditions and Options.

Conditions: Conditions further define the behavior(s) of a control, function, or feature. They are imposed by the selection of combinations of modes/features and in some cases by way in which controls are operated. Conditions may be influenced by the selected set of Options.

Options: Options apply operational or functional details to specific areas of the system. Options further define the behavior of the associated mode, control, feature, or function. In some cases, Options may influence the system independently of the Rules and Conditions being applied. Options are set by selecting the appropriate tab on the Mix Options page. They are indicated throughout this document within brackets, i.e. **<Option>**.

Operational Formula: The essential aspect to understanding the system is the following formula:
Rules + Conditions + Options = Exact Function
The key to efficient operation is knowledge of this formula and the elements within. Rules provide the basis of operation and functionality, Conditions further define behaviors, and Options provide specific parameters to the various elements being used.

In some instances (such as Switch and GC automation), the operation of the control will also influence its functionality. However, in the majority of cases the formula above will apply.

Document Note: *When appropriate this document will organize information with the operational formula in mind.*

Functional Formula: Three basic areas should be kept in mind when conducting most AutoTouch+ operations:

- Selected Control Mode: Basic operating modes (READ, WRITE, TRIM, and ISOLATE). Refer to chapter 5.6.
- Selected Touch and Hold Functions: Determine the effects of touching a touch-sensitive control or operating a switch. Refer to chapter 5.7.
- Transition of data: How the data transitions between previously recorded data and newly recorded data. Refer to chapter 5.9.

If these areas are considered, especially when learning the system, logical and predicted results will routine.

5.3 Essential Concepts

In addition to the various Rules, Conditions, and Options, there is a small set of "essential concepts" that must be understood when operating Auto-Touch+. An explanation of these concepts follows.

5.3.1 Static and Dynamic Objects

One of the primary tenants of the AutoTouch+ system is the concept of Static and Dynamic controls. By definition, the value of a Static control is remembered by the system, but does not change during the course of a Mix Pass. Dynamic controls are defined by having one or more changes recorded at specific timecode locations within a Mix Pass.

Note: The terms "objects" and "controls" may be used interchangeably.

5.3.1.1 Static Objects

The addition of Static (objects) controls allows mixes to be created in much the same way as mixes would be made on an analog console with fader/mute automation, but with the power to automate any audio control as needed (not just faders and mutes). Once set to the desired values, the vast majority of controls will not need to be automated. However during the course of a mix, the engineer may need to periodically adjust the settings of these controls (such as "tweaking" an EQ). As with an analog console, the new values will be applied with the expectation that settings will be retained from Mix Pass to Mix Pass. In AutoTouch+, Static controls will perform in this manner and allows the user to work in a very familiar and intuitive fashion.

Static Objects: A Static object is defined as any automatable control that has no dynamic changes recorded within the Mix Pass. Therefore, Static objects retain one value throughout a Mix Pass. Any switch, fader, rotary control and some GC items (automation objects) may be classified as a "Static object." Static objects act just like manual controls except that their final setting is remembered by the automation. They may be adjusted at any time during the mix process without needing to put them into a WRITE or RECORD automation mode or needing to update the Mix Snapshot. The value of all Static objects is maintained on a pass-by-pass basis. This simplifies the "tweaking" of the hundreds of controls within a mix session that must be adjusted, but will never move against timecode.

All objects are Static until a dynamic move is recorded. Should a dynamic move be required for a static object, the move can be simply written into the mix, and the object is transformed automatically into a Dynamic automation object.

Note: If a control is put into Isolate, it's static value will not change. If changed while in Isolate, the control's current value will be heard, but its Static value will not be updated in subsequent Mix Passes.

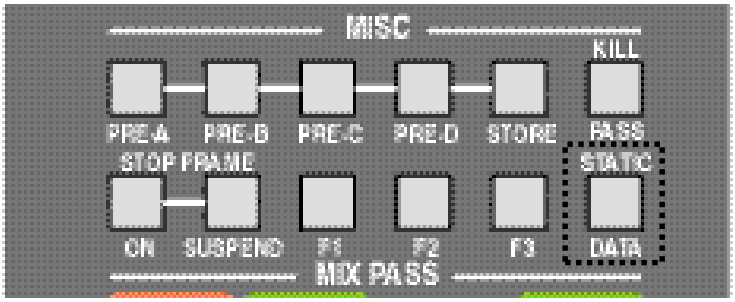
Changing Static Values: When a new mix (Mix Tree) is first opened, the Static value for every control is stored in the first Mix Pass. The stored Static values will be the current values of all controls at the time the new Mix Tree was created.

This value will be retained in subsequent passes unless the Static value is changed.

Any time a control is adjusted (without being in RECORD), its Static value will change. In other words, Static values may be changed as long as RECORD is not engaged for the control.

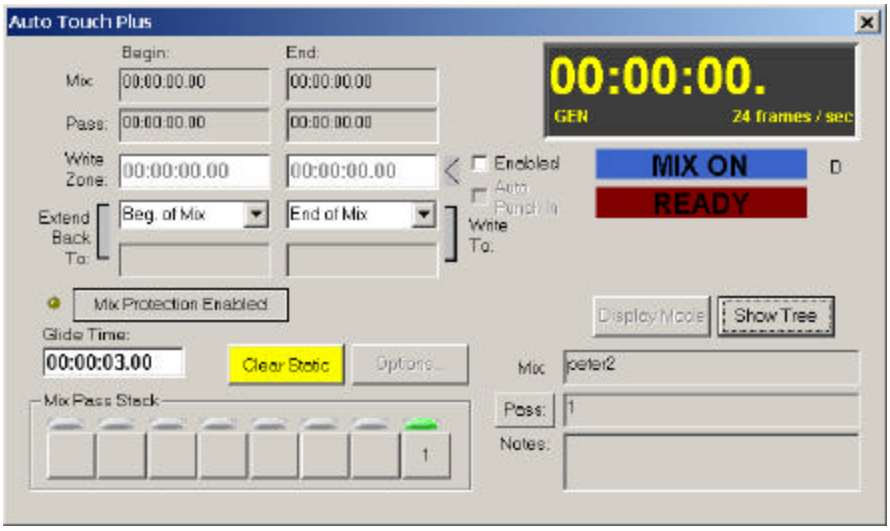
Static Data Buffer: Changed Static values are temporarily stored in the "Static Data Buffer." The next time a new Mix Pass is created (usually by recording a Dynamic change on another control), the contents of the Static Data Buffer will be stored in the new pass. The old Static values will be retained in the previous pass. The new values will be retained in any new Mix Passes made from the just created pass. The Static Data Buffer may be cleared by clicking the Clear Static button in the AutoTouch+ window. D950 users may also use the **STATIC** key on the Automation Master Panel. In this way, Static Values may be "Auditioned".

D950:



Clear Static Button: The Clear Static button in the AutoTouch+ window (and the **STATIC DATA** key on the D950 desk AutoTouch+ Panel) has two functions:

- When lit, the Clear Static button indicates there is information in Static Data Buffer and there is a difference between the current Static values and those stored within the Active Mix Pass.
- Pressing/clicking the Clear Static button clears the values in the Static Data Buffer and restores those stored within the Active Mix Pass. Clearing the Static Data Buffer cannot be undone.



Notes: There is no **STATIC** key on the Vista work surface.
Static data may also be cleared by clicking the Clear Static button in the AutoTouch+ window.

When the first Static object is changed within a Mix Pass, the **STATIC** key illuminates. As mentioned above, this indicates that there is data in the Static Data Buffer. The values in the Static Data Buffer will be retained and the button will remain lit until one of two things occur:

- A new Mix Pass is created;
- The **STATIC** key is pressed.

Note: Static values can only be cleared on a global basis and cannot be cleared individually.

When a new Mix Pass is created, the current Static values are written to the new pass and the Static Data Buffer clears. When the Static Data Buffer is cleared with the **STATIC** key, the temporary Static values are erased and the Static values stored in the current pass (Active Pass) are restored. In either case the **STATIC** key goes out.

Note: Static objects are new in V3.0.

<Option> In the Automation Options... menu, item Misc (also refer to chapter 5.21.8), static objects can be protected under certain circumstances.

5.3.1.2 Dynamic Objects

A Dynamic object is defined as any automatable control whose value changes at one or more timecode location within a Mix Pass. Any switch, fader, rotary control, and some GC items (automation objects) may be classified as a “Dynamic object”. All moves applied to a Dynamic object are remembered by the automation and replayed at the corresponding timecode location.

Dynamic controls may be adjusted at any time during the mix process and recorded to a new Mix Pass using WRITE or TRIM automation modes. In this way, the value of selected Dynamic objects is updated from pass to pass. Dynamic controls may also be Auditioned and/or “pre-set” before a punch-in.

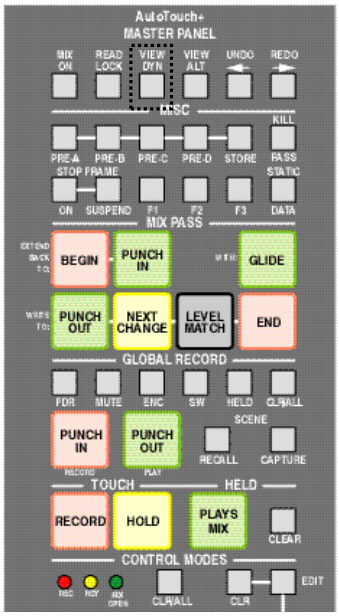
All objects will remain static until a move is recorded. Once a move is recorded, the object becomes a dynamic control. A dynamic control may be made static by erasing all recorded moves for that control for the entire pass.

The majority of this document discusses the automation of Dynamic controls.

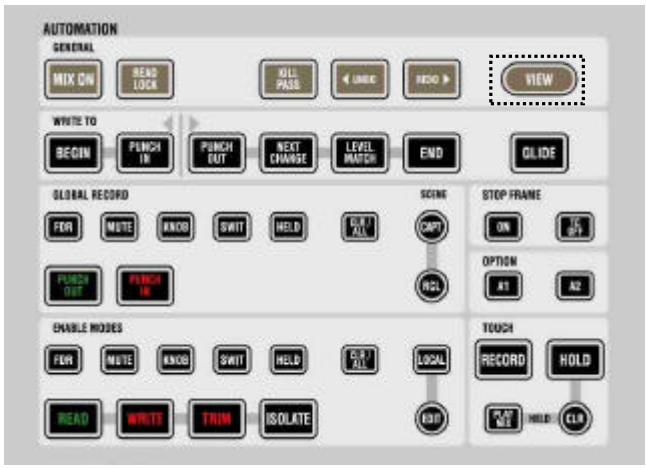
VIEW / VIEW DYN key

Pressing **VIEW** *(Vista)* or **VIEW DYN** *(D950)* will cause the lights for all dynamic controls currently on the work surface to illuminate. This provides a very quick and easy means of identifying dynamic controls.

D950:



Vista:



5.3.1.3 Mix Snapshot

The Mix Snapshot contains two types of data:
- The values for Static objects.
- The initial values for Dynamic objects from the beginning of the Mix Pass up to the first recorded change.

Every Mix Pass has a Mix Snapshot. When a Mix Tree is first opened, a Mix Pass is created that contains a Mix Snapshot with a Static value for each control. The Static value stored in the Mix Snapshot is the current value of the control at the time the Mix Tree was first opened. As a mix progresses the following operations occur:
- Changes to Static values are written directly to the Mix Snapshot each time a new Mix Pass is created.
- Changes made to Dynamic objects are written to timestamps (timecode locations) within the Mix Pass.

When changes are made to Static Objects, the Mix Snapshot is automatically updated when the next Mix Pass is generated.

The Mix Snapshot for Dynamic objects may be updated in two ways:
- Using the “Extend Back To Begin” Mix Pass function. The value of the control at the time of a punch-out will be written back to the beginning of the Mix Pass (essentially updating the Mix Snapshot).
- Performing a “Update Mix Snap” edit using the OFLA offline mix editor.

In normal V3.0 operation, use of the Mix Snapshot is mostly transparent to the user and there is no need for manual updates.

5.3.2 Touch & Un-touch Events

Another crucial, but easy to understand concept is that of Touch and Un-touch. AutoTouch+ is a very tactile system and relies on physical actions for efficient operation. Faders and encoders are touch-sensitive and can be made to respond in different ways depending on the mode and operation being performed. Switches and automatable GC items are not sensitive to physical touch, but their actuation can generate similar messages as faders and encoders.

Touch Events: The physical touching of a fader or encoder produces a "Touch Event." Actuating an automatable switch or GC item may also generate a Touch Event, depending on the current mode.

Un-touch Events: The physical release of a fader or encoder produces an "Un-touch Event." Automatable switches and GC items may also generate an Un-touch Event, depending on the current mode.

Events and AutoTouch+: In most cases, Events come in Touch and Un-touch pairs…that is a Touch followed by an Un-touch. An example would be touching a fader, moving it for a short period of time, and then releasing it. When the fader was first touched, a Touch Event will be sent and when released an Un-touch will be sent. AutoTouch+ will either use both Events, ignore both Events, or suppress one or the other. Details of how these events are used and the operations this makes possible are discussed throughout this document.

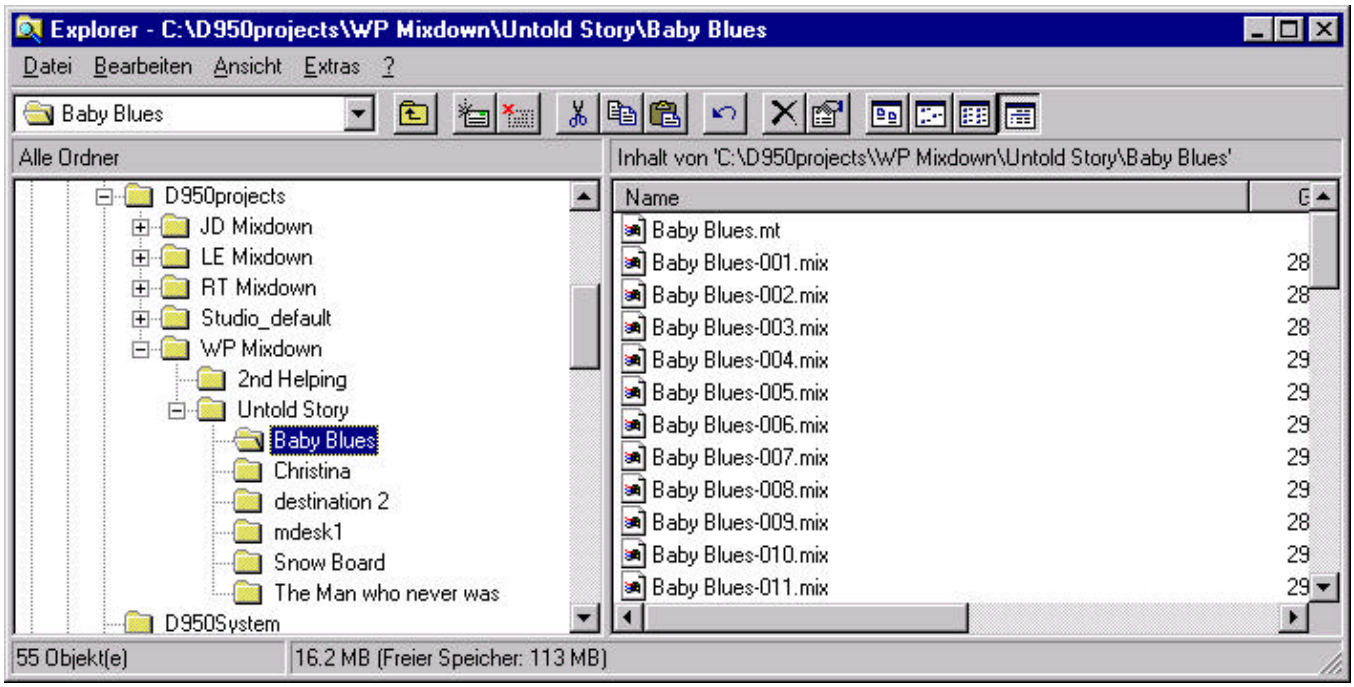
5.4 File Management

Mix File Structure: There may be multiple mixes within each Title. Each Mix has its own name and a folder in which its files are kept. There is one Mix Tree for each Mix. A Mix Tree is a collection of Mix Passes, along with a Mix Tree file. Each Mix Tree and its files are kept in the Mix Folder. So unlike V2.5 where all mixes for a given Title were just stored within the Title directory, in V3.0 each Mix has its own folder within the Title. This really eliminates clutter within the Title folder because no matter how many Mix Passes are stored, they are all within their own separate folder.

Mix File Organization: The files and folders created and used by AutoTouch+ are identified as follows:

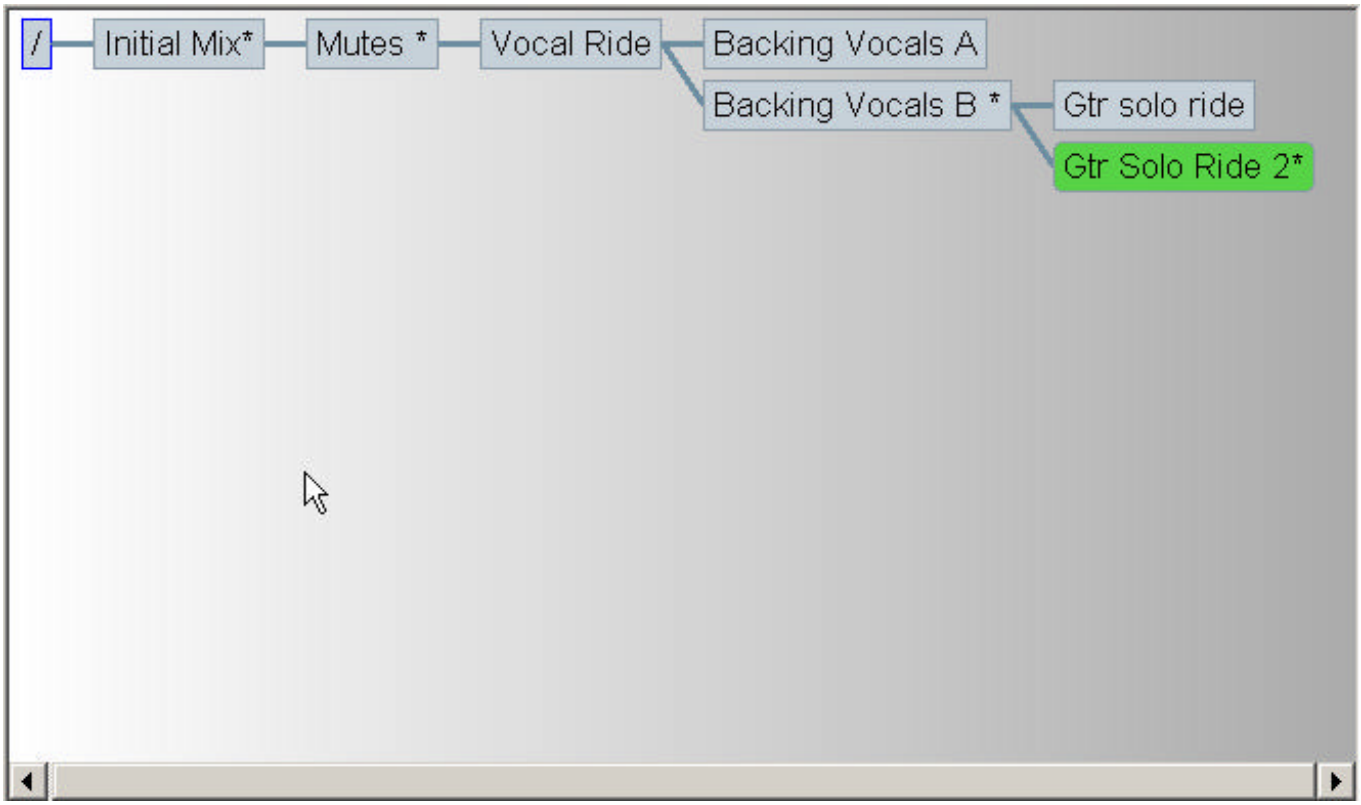
- The Mix tree database file has an .mt extension (filename.mt);
- Each Mix Pass ends in the pass number with a .mix extension (filename-004.mix);
- The folder that the mix tree file and mix pass files resides in is the name of the mix (filename).

The following example shows the file structure for a Mix named “Baby Blues”:
D950Projects (Main D950 projects folder)
---WP Mixdown (Project folder)
-----Untold Story (Title folder)
--------Baby Blues (Mix folder)
----------Baby Blues.mt (Mix tree)
----------Baby Blues-001.mix (Mix passes)
----------Baby Blues-002.mix
----------Baby Blues-003.mix
----------Baby Blues-004.mix
----------Baby Blues-005.mix
etc.



5.4.1 Mix Tree

Automation Mix files are managed via the Mix Tree System (MTS). Each and every Mix Pass is automatically saved and archived within the Mix Tree.



Used in a linear fashion, the Mix Tree will have no branches. If at some point a previously written Mix Pass becomes the Active Pass, a new branch of the Mix Tree will start growing as new passes are generated. In this way, the Mix Tree provides a graphic representation of the evolution of all Mix Passes. See above.

Each Mix Pass is displayed as well as its linked history (the branch of the Mix Tree from which the pass evolved). Working in conjunction with the Mix Pass Stack, the Mix Tree provides an efficient means of organizing the multiple Mix Passes that are created during the course of a mix. This is particularly useful when creating several final versions of a mix.

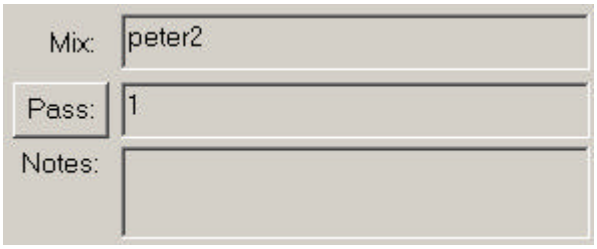
The MTS is maintained between sessions, so that when a Mix is recalled days or weeks later, the entire Mix Tree will be available to the new session. All Mix Passes will be recalled and placed in their proper positions when the Mix Tree is opened. The last Active Pass used will be loaded to the top of the Mix Pass Stack and becomes the Active Pass. (The Mix Pass Stack is not maintained when the Mix Tree is closed.)

Any number of new Mix Passes may be generated. Any existing Mix Pass from any Title may be added to the Mix Tree.

5.4.1.1 Passes in the Mix Tree

Mix Pass Info: Each completed Mix Pass has the following information:

- Assigned Mix Pass Number
- Mix Pass Name
- Mix Pass Notes



Assigned Mix Pass Numbers: Assigned Mix Pass Numbers are used by the system to identify each Mix Pass. For example, a Mix Pass is identified only by its number when it's part of the Mix Pass Stack.

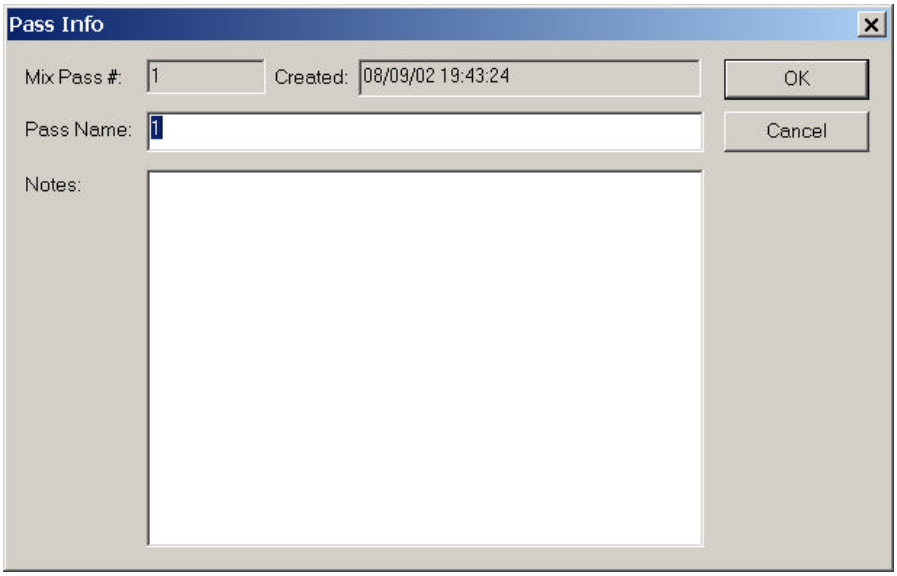
As Mix Passes are added to the Mix Tree, an Pass Number is automatically assigned to each. Mix Pass numbers are assigned in the order in which passes were added to the Mix Tree. For a new Mix Pass, the assigned number will serve as a temporary Mix Pass Name unless an new one is entered. For an existing Mix Pass, the assigned number will be displayed before the stored pass name as it appears in the Mix Tree.

Mix Pass Names: As mentioned above, the assigned Mix Number will serve as a temporary Mix Pass Name for new Mix Pass. This name will persist until the current Mix Tree or Title is closed (or a new Mix Tree or Title is opened). If no name is entered, the assigned pass number will appear as the Mix Pass Name in the Mix Tree. The resultant stored file name will be the name of the Mix Tree and pass. For example, if a name is not entered, "Dulcimer-002.mix" would become the stored file name for the second Mix Pass in the Mix Tree named "Dulcimer." The next time this Mix Tree is opened, this Mix Pass would appear as the second Mix Pass in the Mix Tree and have the pass name "2." If this same Mix Pass was loaded in another Mix Tree, it would appear as "Dulcimer_Pass_002" with the number of its position within the current Mix Tree.

Editing Mix Pass Name: A Mix Pass must be the Active Mix Pass before it's name can be entered or edited. To enter or change a Mix Pass Name, use the following procedure:

1 Make the Mix Pass to be named or renamed the Active Mix Pass by clicking its icon on the Mix Pass Stack or double-clicking its icon in the Mix Tree.

2 Click the "Pass:" button next to the current Mix Pass Name (to the right of the Mix Pass Stack). The Pass Info entry box will appear with the Pass Name highlighted.



3 Type the new name for the pass and click the "OK" button. The new Mix Pass Name will appear in the Pass Name field and in the Mix Tree.

Mix Pass Notes: A set of notes can be entered and stored for each Mix Pass. Combined with the Mix Pass Name, this can greatly benefit the organization of a large number of passes.

Editing Mix Pass Notes: A Mix Pass must be the Active Mix Pass before notes can be entered or edited. To enter or change Mix Pass Notes, use the following procedure:

1 Make the desired Mix Pass the Active Pass if it is not already. (Click its icon in the Mix Pass Stack or double-click its icon in the Mix Tree.)

2 Click the "Pass:" button next to the current Mix Pass Name (to the right of the Mix Pass Stack). The Pass Info entry box will appear. See #2 above.

3 Type the new notes in the "Notes:" field and click the "OK" button. The first few lines of the new Mix Pass Notes will appear in the AutoTouch+ window whenever that Mix Pass becomes active. If the notes are lengthy, the complete set may be viewed by opening the Pass Info entry box.

5.4.1.2 Active Pass

The Active Mix Pass provides the Read Mix data for subsequent RECORD Mix Passes.

When a Mix Pass becomes Active the following events occur:

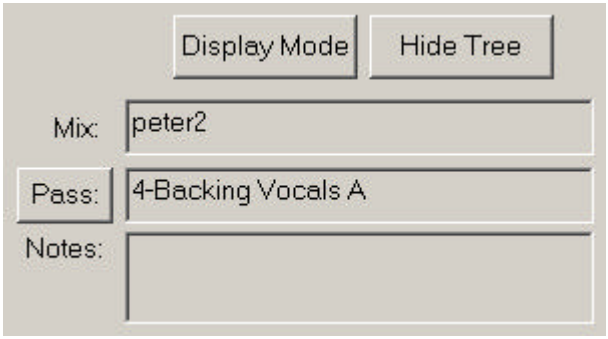
- In the AutoTouch+ window:
  - The name and assigned number of the Mix Pass appears in the "Pass:" field
  - The name of the Mix Tree appears in the "Mix:" field
  - Any notes belonging to the pass appears in the "Notes:" field
  - The Green Light illuminates above the associated position in the Mix Pass Stack
- In the Mix Tree window:
  - The Mix Pass is highlighted in green

The Active Mix is normally the mix on the top of the stack. Refer to chapter 5.5.1 for details regarding the Mix Pass Stack.

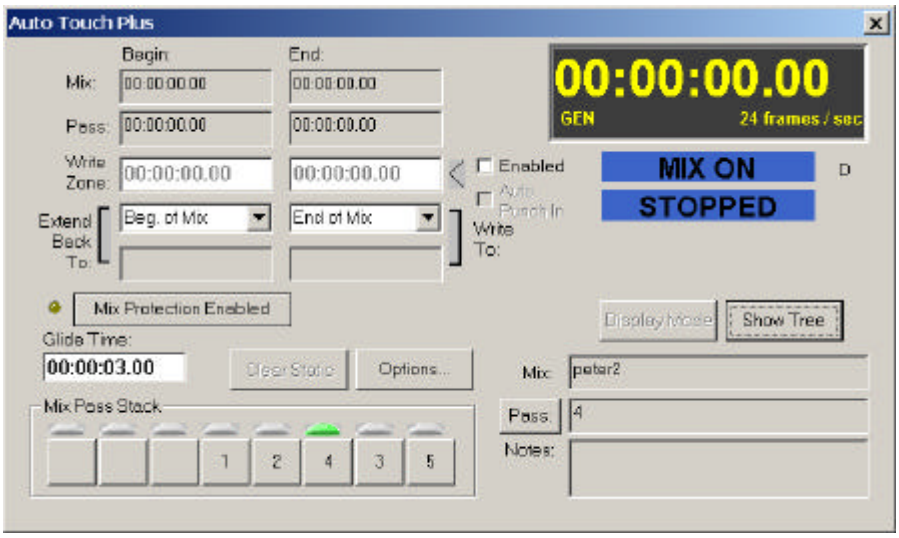
5.4.1.3 Mix Tree Display Modes

Hide Tree/Show Tree Button:

AutoTouch+ may be operated with or without the Mix Tree displayed. The Mix Pass Stack will be available in either case and can be used without the Mix Tree if desired (as in V2.5). To facilitate working without the Mix Tree, it may be hidden so that all Mix management can be done within the Mix Pass Stack. The Mix Tree is hidden by clicking the **Hide Tree** button in the AutoTouch+ window.



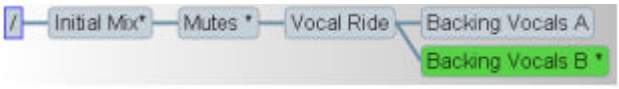
The Mix Tree will disappear as indicated below and the **Hide Tree** button changes to **Show Tree**. At any time, the Mix Tree may be made fully visible again by clicking the **Show Tree** button.



Whether or not the Mix tree window is displayed, the Mix Pass number, name, and notes are always displayed for the currently selected Active Mix. See above.

Mix Pass Display Modes: Within the Mix Tree, Mix Passes are displayed in one of three ways:

- Pass Name:

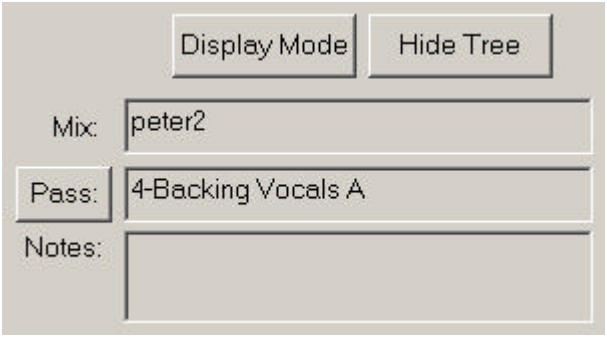


- Pass Number:

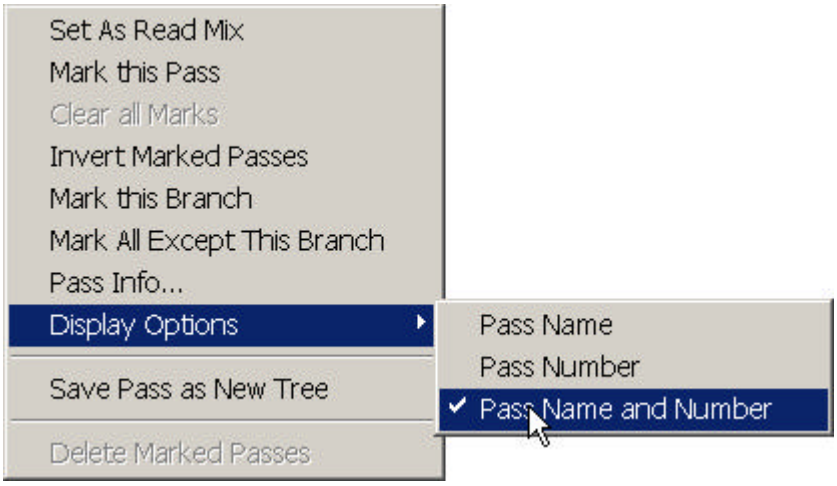
- Pass Name and Number:

Changing the Display Mode: There are two methods to change the Mix Pass display modes:

- **Display Mode** button: Clicking the **Display Mode** button will cycle through the three display modes. The **Display Mode** button is located in the AutoTouch+ window.



- "Display Options" menu: Right-clicking within the Mix Tree window will bring up the Mix Tree menu. Selecting "Display Options" from this menu will open a context menu which contains the three display modes. The desired mode can be selected from this menu.



Note: Until a Pass Name is entered, the name defaults to the pass number. The system detects this and when the display mode is set to display the name AND number, if they match, only the number is displayed.

Note: The Mix Pass number, name, and notes for the Active Mix are always displayed in the AutoTouch+ window.

Round and Square Corners: Mix Passes within the Mix Tree have either rounded or squared corners. Rounded corners indicate the Mix Pass is part of the Mix Pass Stack. Squared corners indicates it is not. See graphic below.

Green Highlight: The Active Mix Pass is highlighted in green in the Mix Tree and by a green LED symbol in the Mix Pass Stack.

Asterisk: An asterisk will appear in the Mix Tree icons for all Mix Passes that contain Mix Pass Notes. This condition will persist regardless of the chosen Display mode. See graphic below.

5.4.1.4 Mix Tree Click Functions

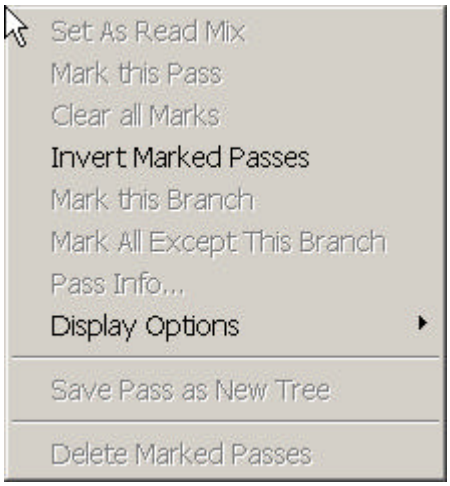
A variety of "click functions" are available within the Mix Tree. These functions range from

Left-Click Functions:

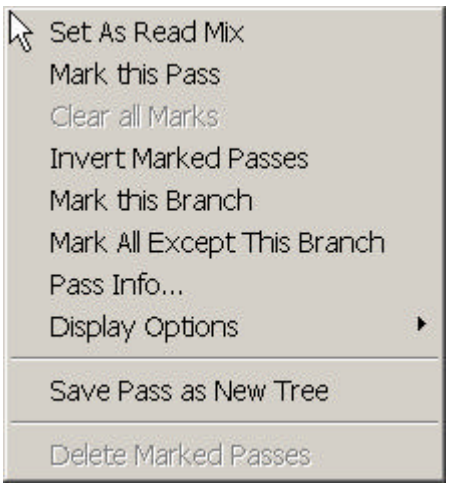
- Single-clicking a Mix Pass within the Mix Tree will "mark" that pass by highlighting it in red. Clicking a marked pass will "unmark" it and remove the red highlight. Only one mix at a time may be selected using this method.
- Control-clicking (holding the **Ctrl** key and single-clicking) allows individual Mix Passes anywhere within the Mix Tree to be marked or unmarked. Any combination of passes may be marked.
- Shift-clicking (holding the Shift key and single-clicking) two Mix Passes allows these passes and those in-between to be marked or unmarked. The passes must be within the same branch or root-branch of the Mix Tree. In this way, multiple passes may be marked. More importantly, the link history of these passes is maintained.
- Double-clicking a Mix Pass adds it to the top of the Mix Pass Stack and makes it the Active Pass. The Active Pass will be highlighted in green in the Mix Tree.

Right-Click Functions:

- Right-clicking within the Mix Tree will open the Mix Tree Menu. Only the items that don't pertain to individual passes or branches are shown.



- Right-clicking a Mix Pass within the Mix Tree will open the Mix Tree Menu with all available items shown.



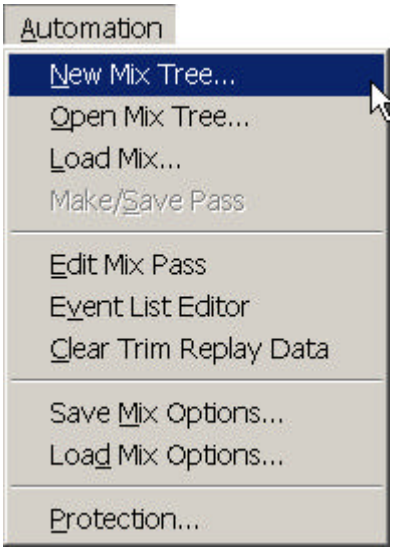
The Mix Tree menu items function as follows:

- Set As Read Mix: Makes the selected Mix Pass the Active Pass (this is the same as double-clicking a Mix Pass in the Mix Tree)
- Unmark This Pass: Unmarks the selected Mix Pass
- Clears All Marks: Unmarks all marked Mix Passes (always available when any passes are marked)
- Invert Marked Passes: Reverses which Mix Passes are marked and which are unmarked. (always available)
- Mark This Branch: The selected Mix Pass and all subsequent passes made from this pass will be marked
- Mark All Except This Branch: All branches except the one in which the selected Mix Pass is a member will be marked. Selecting a Mix Pass in the middle of a branch will prevent any member of that branch from being marked whether they were made before or after the selected pass. All other branches will be marked.
- Pass Info…: Opens the Pass Info entry box for the selected Mix Pass. The selected pass does not need to be the Active Pass in order to open the Pass Info entry box in this way.
- Display Options: Opens the context menu for Mix Tree Display modes. Name, Number, and Name & Number may be selected. (always available)
- Save Pass As New Tree: Creates a new Mix Tree with the selected Mix Pass loaded as the first pass. This function is only available for the Active Pass. The newly created Mix Tree will not automatically open, but may be opened as needed.
- Delete Marked Passes: Any marked passes will be deleted. Because this action is not undoable, the user will be prompted to verify this action.

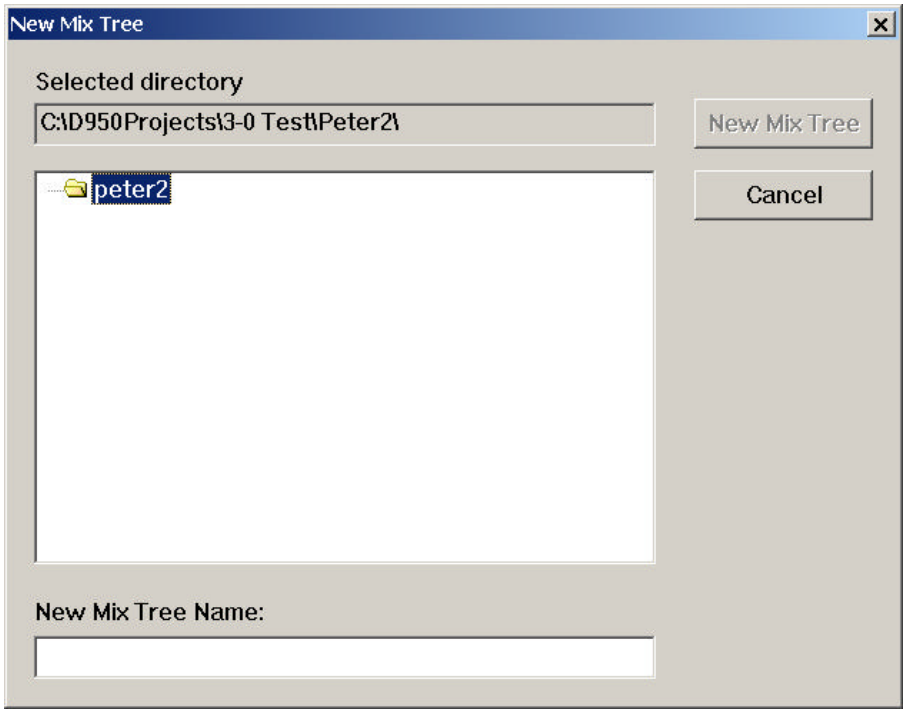
5.4.2 Creating a New Mix

New Mixes: To create a new Mix use the following procedure:

1. Select "New Mix Tree…" from the Automation menu in the GC.



The "New Mix Tree" box will open and a display of existing Mixes will be shown.



2. Enter a name for the Mix in the "New Mix Tree Name:" entry field. *Please note that the selected directory is given by the opened Project and Title and cannot be edited.*

3. Click the "New Mix Tree" button. A new Mix folder, Mix Tree file, and first Mix Pass file will be created in the Title folder.

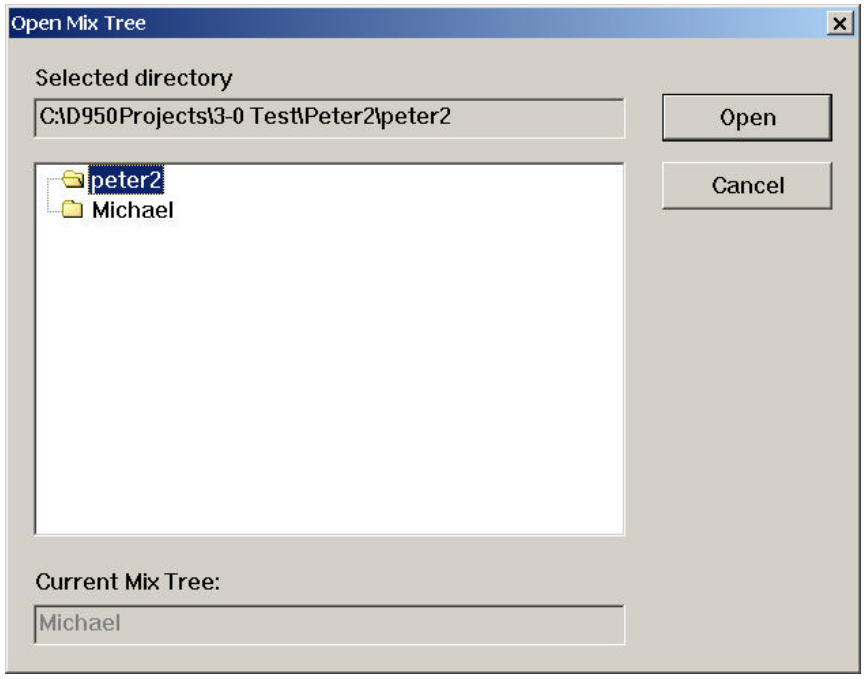
A new Mix Tree will appear on the screen underneath the AutoTouch+ window. A Mix Pass (#1) will be at the start of the tree and will be the Active Pass in the Mix Pass Stack.

5.4.3 Loading an Existing Mix

Existing Mixes: Previously created Mixes from both V3.0 and V2.5 automation systems may be used with AutoTouch+. Any previous Mix Pass can be loaded into the Mix Pass Stack and become the Read Mix pass (Active Mix Pass) for a subsequent Mix Pass. Mixes are accessed via the Automation menu on the GC.

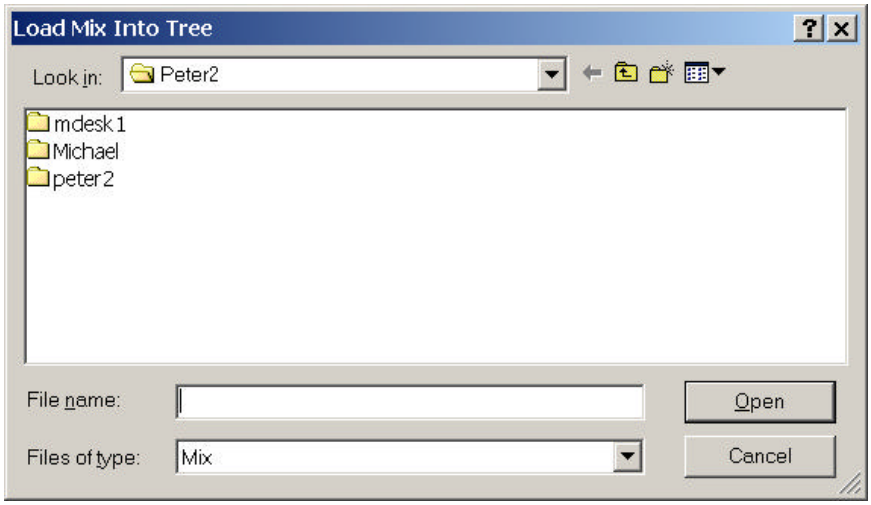
V3.0 Mixes: Existing Mix Trees and Mix Passes made with V3.0 software may be loaded by selecting the following from the Automation menu:

- "Open Mix Tree…:" Loads an entire Mix Tree. A directory of existing Mix Trees within the current Title will be displayed.



Double-clicking the desired Mix Tree (or selecting it and clicking Open) will load that tree. The last used Mix Pass will be loaded in the top position of the Mix Pass Stack and becomes the Active Mix.

- "Load Mix…:" Loads a single Mix Pass into the current Mix Tree. A directory of existing Mix Trees within the current Title will be displayed.



Double-clicking the desired Mix Tree folder will open that tree and the Mix Passes within will be displayed. The desired Mix Pass may be loaded by double-clicking its name or icon. The newly loaded Mix Pass will be loaded in the top position of the Mix Pass Stack and becomes the Active Mix. Mixes may also be loaded from other Titles.
Use the Import function (menu File – Import – Mix), select the Mix Pass in the desired Project/Title/Mix Tree, and click Open.
Now you can select the Project/Title/Mix Tree folder to save the selected Mix Pass. It is even possible to rename the Mix Pass if required.
Use the Load Mix function to load the Mix Pass into the current Mix Tree.

Notes: Whenever a single Mix Pass is loaded (whether V2.5 or V3.0) it starts a new branch at the start of the Mix Tree.
The Mix Pass Stack is not maintained after the Mix Tree is closed. However, the last Active Mix Pass is loaded at the top of the Mix Pass Stack when an existing Mix Tree is opened.

V2.5 Mixes: Existing Mixes made with V2.5 or earlier software are fully compatible with V3.0 software. However, a Mix Tree must be open in the current Title before a Mix Pass can be loaded. Once a Mix Tree is open, V2.5 Mix Passes may be loaded by selecting the following from the Automation menu:

- "Load Mix…:" Loads a single Mix Pass into the current Mix Tree. Locate the desired V2.5 Mix Pass within the Title to which it belongs using the "Look In" pull-down menu at the top of the box. Once located, the desired Mix Pass may be loaded by double-clicking its name or icon. The newly loaded Mix Pass will be loaded in the top position of the Mix Pass Stack and becomes the Active Mix.

Notes: When using V3.0 software, a new Mix Tree must be added to any Title created with V2.5 software before any existing Mix Pass (V2.5 or V3.0) can be loaded. Since V2.5 software doesn't create Mix Trees and since the "Open Mix Tree…" menu item only looks in the current Title, opening an existing Mix Tree is not possible.
Whenever a single Mix Pass is loaded (whether V2.5 or V3.0) it starts a new branch at the start of the Mix Tree.

5.5 Mix Pass

A Mix Pass contains a set of records for each dynamic control, fader Trim Replay Data if any, and a set of values for static controls.

Creating a Mix Pass: A new Mix Pass is created whenever any of the following occur:

- A change in a dynamic control is recorded (such as using Touch Record or Global Punch-in/Out);
- "Make/Save Pass" is selected from the GC Automation menu;
- An offline edit is performed with either OFLA or the Event Editor

In all cases above, the new Mix Pass is added to the Mix Tree and to the top of the Mix Pass Stack. It also becomes the Active Mix Pass.

As part of the Mix Tree, each new Mix Pass is stored to the hard drive. Because of this, every Mix Pass created is retained by the system unless purposely deleted. Refer to chapter 5.4, File Management.

Notes: Mix Tree folders or Mix Passes need to be deleted in the Windows Explorer.
Making changes to Static controls or using Audition modes will not generate a new Mix Pass.

5.5.1 Mix Pass Stack

There is an eight-position Mix Pass Stack which holds up to eight Mix Passes in memory for immediate use. Mix Passes can only be played back from the Mix Pass Stack. The Mix Pass Stack is located on the AutoTouch+ screen on the D950 GC.

Organization: The eight positions of the Mix Pass Stack are represented by eight Mix Pass boxes arranged horizontally. The number of the Mix Pass will appear within the Mix Stack position (box) in which it is stored. A Mix Pass can appear only once within the Mix Pass Stack.

The box the furthest to the right is the position where Mix Passes are added to the stack. As Mix Passes are added, any existing passes shift to the left. When the Mix Pass Stack is full and a new pass is added, the Mix Pass in the last position (far left position) will be deleted from the stack as one to its right is shifted down.

In the example above, only three Mix Passes are loaded into the Mix Pass Stack and the #5 pass is Active.

Adding a Pass to the Stack: Mix Passes are added to the Mix Pass Stack in the following ways:

- Creating a new Mix Pass: The newly created Mix Pass will be added to the top of the Mix Pass Stack and becomes active. See "Creating a New Mix Pass" above.

- Double-clicking a Mix Pass in the Mix Tree: The selected Mix Pass will be added to the top of the Mix Pass Stack and becomes active.
- Right-clicking a Mix Pass in the Mix Tree: The Mix Tree Right Click menu will open. Selecting "Set As Read Mix" will cause the selected Mix Pass to be added to the top of the Mix Pass Stack and become active.

Active Mix Pass: The "Active Mix Pass" is the one played back and will be the basis for a new Mix Pass if any changes are made. It contains the "Read Mix Data" that is used as new passes are created. The Active Mix Pass is indicated by a green light above the active position and the box containing the pass number is highlighted.

The Active Mix Pass may also be referred to as the Active Pass or Read Mix Pass.

Selecting an Active Mix Pass: The Active Mix Pass is selected from the Mix Pass Stack in one of three ways:

- Clicking a Mix Pass in the Mix Pass Stack: That Mix Pass will become active.
- Double-clicking a Mix Pass in the Mix Tree: If that Mix Pass is already in the Mix Pass Stack it will become active. If it is not already in the stack, the selected Mix Pass will be added to the top of the Mix Pass Stack and becomes active.
- Creating a new Mix Pass: The newly created Mix Pass will be added to the top of the Mix Pass Stack and becomes active.
- Right-clicking a Mix Pass in the Mix Tree: The Mix Tree Right Click menu will open. Selecting "Set As Read Mix" will cause the selected Mix Pass to be added to the top of the Mix Pass Stack and become active.

Conditions: The Active Mix Pass cannot be changed while RECORD is engaged.

5.5.1.1 Mix Comparison

One of the unique features of AutoTouch+ is the ability to compare Mix Passes while the mix is running. Any Mix Pass in the Mix Pass Stack can be accessed at any time, even while a mix is being played back.

Comparing Mix Passes: Mix Pass comparisons can be performed in one of two ways:

- Clicking a Mix Pass in the Mix Pass Stack: The clicked Mix Pass will become active after a short processing delay. Using this method, passes in the Mix Pass Stack can be activated in any order.
- **UNDO/REDO** keys: The **UNDO/REDO** keys activate adjacent Mix Passes in the Mix Pass Stack (see below).

Conditions: Mix comparison is disabled once RECORD has been entered.

Note: A fair amount of processing must take place when switching between Mix Passes. Due to the time it takes to perform this processing a slight delay is normal.

5.5.1.2 Undo/Redo

UNDO and **REDO** keys are located in the top row of the Automation Panels. They allow the user to essentially "undo" and "redo" changes as they are made within the course of a mix. They also provide a method for real-time mix comparison.

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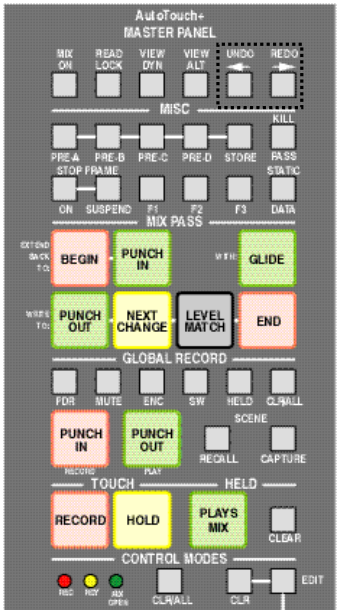
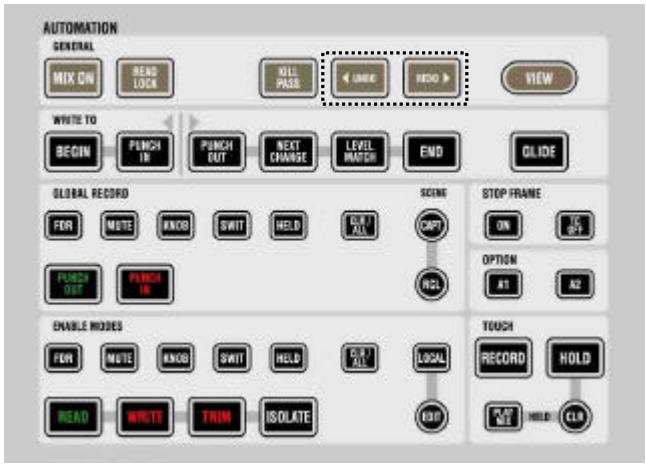


Vista:



Using these keys activates adjacent Mix Passes within the Mix Pass Stack with **UNDO** moving backward through the stack and **REDO** moving forward.

Note: The **UNDO** and **REDO** keys move consecutively through the Mix Pass Stack. The order of passes heard while using the **UNDO** and **REDO** keys may not necessarily be in numeric order, depending on the order in which passes were added to the stack.

UNDO / REDO: The precise functions of the **UNDO** and **REDO** keys are as follows:

- **UNDO:** Pressing the **UNDO** key will activate the most previous Mix Pass in the Mix Pass Stack from the currently active position. In other words, pressing **UNDO** will allows the previous adjacent Mix Pass to be activated.
- **REDO:** Pressing the **REDO** key will activate the next Mix Pass in the Mix Pass Stack from the currently active position. In other words, pressing **REDO** will allows the next adjacent Mix Pass to be activated.

Consecutive presses of either key will continue through the Mix Pass Stack in the direction the key indicates (**UNDO** = backward or to the left, **REDO** = forward or to the right). If the first pass in the Mix Pass Stack is the Active Pass, the system provides eight levels of undo/redo.

Conditions: **UNDO** and **REDO** are disabled once RECORD has been entered.

Notes: Since all Mix Passes are stored in the Mix Tree, it is always possible to retrieve any Mix Pass at anytime. However, passes must be in the Mix Pass Stack to be played. In addition, the **UNDO / REDO** keys do not apply to the Mix Tree and activate only the passes in the Mix Pass Stack.
The **UNDO / REDO** keys only allows activation of adjacent passes within the Mix Pass Stack. The order of passes may or may not follow the

branches of the Mix Tree. This is depending on the order in which Mix Passes were added to the Mix Pass Stack.

Using UNDO / REDO:

- Discarding an Undesired Pass: If a new Mix Pass was just completed, the new pass will be at the top of the stack and will become active. If it contains unsuccessful moves, going back to the previous pass is as easy as pressing **UNDO.** When **UNDO** is pressed, the previous Mix Pass will become active and therefore the basis for the next new pass. In this regard, consecutive presses of **UNDO** will allow the user to "back up" to a Mix Pass that provides a suitable point from which to restart.
- Real-time Mix Comparison: Pressing **UNDO / REDO** while a Mix Pass is being replayed, adjacent passes in the Mix Pass Stack may be compared in real-time.

5.5.1.3 Kill Pass

The “Kill Pass” function prevents a new pass from being written if flaws are detected while a new Mix Pass is being created. This is useful if a mistake is made during a RECORD pass and the resultant pass would not be worth keeping.

The **KILL PASS** key is located next to the **UNDO** / **REDO** keys in the Automation Panels.

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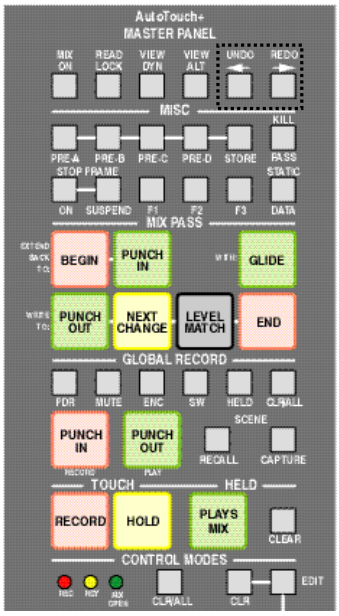
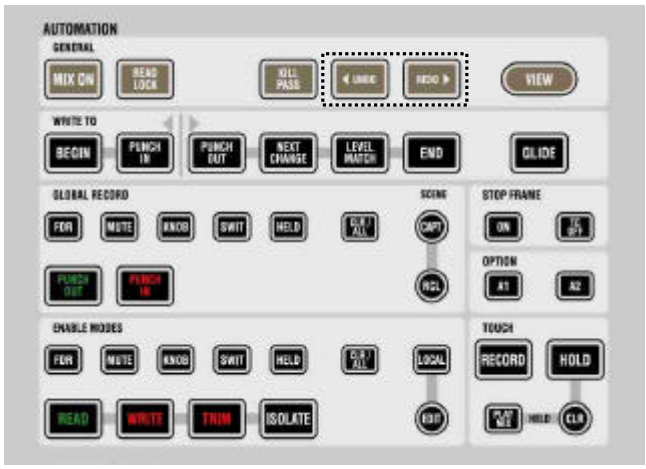


Vista:



Killing a Mix Pass: If **KILL PASS** is engaged when timecode is stopped, the new mix pass will not be written. To prevent a new Mix Pass from being written, press the **KILL PASS** key *before* playback of timecode stops.

Note: **KILL PASS** may be engaged and disengaged at any time while timecode is being played back. This allows the user to kill a pass and then change his or her mind before the timecode is stopped. As long as timecode hasn’t stopped, Kill pass may be toggled on an off at will. The Kill Pass state that exists when timecode is stopped will dictate the fate of the Record Mix Pass

KILL PASS will always disengage at the end of a Mix Pass.

Conditions: **KILL PASS** functions only when RECORD passes are in progress.

<Option>

- With <Protect Static From Kill Pass> checked on the Misc Options page, changes made to Static controls are retained when **KILL PASS** is used; also refer to chapter 5.21.8.

Note: The Mix Options window is opened by clicking the Options… button in the AutoTouch+ window. Clicking the appropriate Tab will open the corresponding page.

5.6 Control Modes

There are four Control Modes used in the AutoTouch+ mix system:

- **READ**
- **WRITE ENABLE**
- **TRIM ENABLE**
- **ISOLATE**

Each automatable control within the system is always in one of these four modes.

Rule-Based System: As mentioned before, the system is based on a set of consistent rules that pertain to the behavior of each mode or function. It is the consistency of these rules that allows the system to be simple to understand, yet very deep and powerful. The key to using the system is simply to learn the rules. The rules define how an control or feature will function under a given set of conditions.
The conditions that define the exact function of each mode are determined by the selection of other functions, selected options, and record status. With this in mind, it may be helpful to think about Control Mode as the primary function which maybe modified to yield the precise operation the user desires.
In a few cases the basic rules will be broken, but these will be clearly noted.

Independent Control Modes: Different channels may be in different automation modes. For example, some channels may be in **WRITE** while others may be in **TRIM**. In addition, different controls within channels may be in different modes. For example the fader may be in **TRIM**, while the mute is in **WRITE**, and the rotaries are in **READ**. Any combination is possible.

READ LOCK With **READ LOCK** engaged, all controls are placed in **READ** mode. All mode changes are locked out, Audition mode is defeated, and only written values will be heard. In this regard, **READ LOCK** over-rides Control Mode selections.

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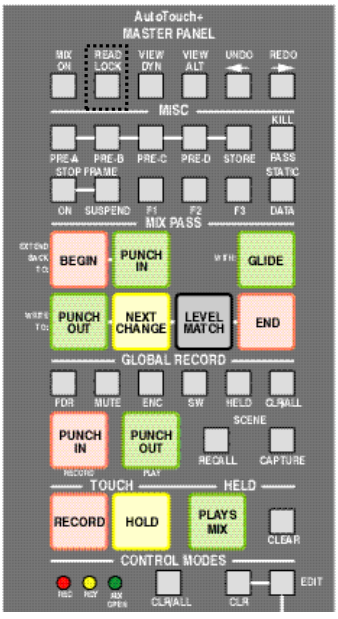
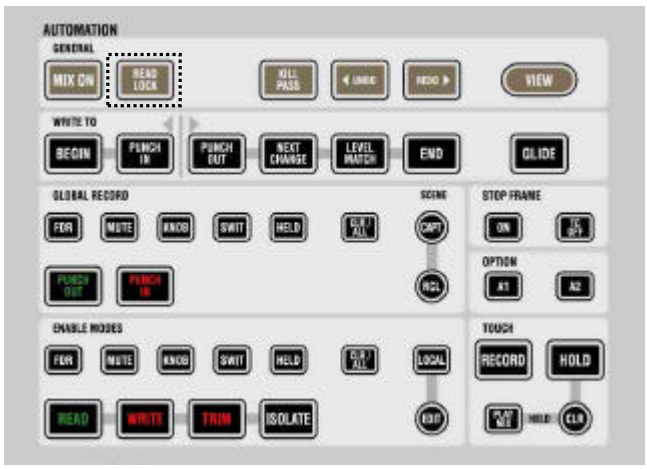


Vista:



Note: In describing the behavior of each Control Mode it is assumed that the **MIX ON** function is active and timecode is running. If **MIX ON** is not active then all controls behave as if there were in **ISOLATE** mode.

Document Note: The next several chapters will provide a set of basic rules for each Control Mode. A set of conditions and options that further define the mode's operation will also be provided. The most pertinent conditions and options for each mode will be discussed, but it would be impractical to list every permutation. Some system conditions and options will be discussed as stand alone elements and their effects upon other areas will be noted.

5.6.1 Read

READ is the data replay mode of the system. Controls in **READ** mode will playback changes written in the Mix Pass.

READ Rules:

Record Off:

- REPLAY: The control plays back the mix data to timecode.
  - Static controls will be set to the value stored within the Mix Pass. (Static values are not timecode stamped.)
  - Dynamic controls will be set to their stored values and subsequent changes will be replayed.
- AUDITION: If the control is moved or prevented from following written changes, the audio changes to reflect the "audition" level.
  - When released the control will snap back to its written value
  - A new Mix Pass is not generated when controls are auditioned.

Record On:

- A control in **READ** cannot be placed into record.

Conditions:

- If touched, the control will enter AUDITION for the duration of the touch. When released (un-touched) the control snaps back to its written value.
- With **TOUCH HOLD** engaged, the control will enter AUDITION when touched and holds the audition value when released (un-touched).

<Option>

- With <Read Safe> checked on the Misc. Options page, AUDITION mode is defeated for controls in **READ** and only written values will be heard.

Static Controls: Changes may be made to Static controls while AutoTouch+ is in **READ** (or any other mode). Changes to Static values are temporarily stored in a global memory buffer (Static Buffer). If a new Mix Pass isn't written, changes to Static controls will be retained in the buffer over time. For example, a section of a song might be looped while adjustments to EQ, Pans, and other controls are made. Changes to these Static controls will accumulate in the Static buffer until a new Mix Pass is generated or the Static Buffer is cleared. The values in the Static Buffer will saved as part of the next Mix Pass created.

5.6.2 Write

WRITE is the primary data recording mode of the system. Controls in WRITE ENABLE are armed for recording and those in WRITE RECORD will write changes to a new Mix Pass.

WRITE **Rules:**

Record Off:

- WRITE ENABLE: The control acts the same as if it were in READ (replaying the mix Read data), but is armed to go into WRITE RECORD.
  - A new Mix Pass is not generated unless RECORD is engaged.

Record On:

- WRITE RECORD: The absolute value (level) of the control is written into a new Mix Pass.
  - Read mix values are overwritten.
  - At the end of a pass in which at least one control was in WRITE RECORD, a new Mix Pass is generated based upon the Active Mix Pass and the newly recorded data.

Note: WRITE RECORD is a destructive mode in regard that previously written data is overwritten. However, mix data is never lost because a new Mix Pass is generated at the end of every RECORD pass. All Mix Passes are retained in the Mix Tree unless purposely deleted.

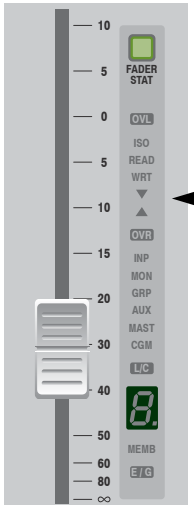
***D950* Null Indications**

When a control is being written, a Null indication is provided. In basic terms, the null indication provides information regarding the difference between the current value of a control and its Read Mix value.
Write mode null indications are handled the same for faders and encoders, however null indications are given only for the last encoder used.

Rotary Null Indicators:

For the last knob touched... Always shows the difference between the rotary value and the effective read value. En exception is to show the offset form the trim null point when in TRIM mode (this is always the absolute position of the rotary from 0 dB or the center value).

Fader Null Indicators:



Always show the difference between the fader value and the effective read value. An exception is to show the offset from the trim null point when in TRIM mode (this is always the absolute position of the fader from 0 dB).

When a fader or encoder is placed in **WRITE RECORD** and is moved from its Read Mix value, an arrow will illuminate to indicate which way the control must be moved to match the Read Mix value. If it is the first time the control is put into **WRITE RECORD**, its Read Mix value is the same as its Static value.

Vista Null Indications

The Vistonics™ concept allows to display the current and replay values of rotary and fader controls in a very clear and comfortable way.

Rotary Values: Current and replay value of the rotary control: If the current value is different from the one within the last mix pass, a pink colored element indicates the value of the last mix pass, while the main display is indicating the current value.

Fader Values: Current and replay value of the fader: If the current value is different from the one in the last mix pass, a pink colored element indicates the value within the last mix pass, while the main display is indicating the current value.

Conditions:

- If touched and not in **RECORD**, the control will enter AUDITION for the duration of the touch. The control will snap back to its Read value upon release.
- With **TOUCH RECORD** engaged, the control will enter **WRITE RECORD** (Punch-in) when touched and return to **WRITE ENABLE** (Replay) when released (Punch-out). When released the control will snap back to its Read value unless **GLIDE** is engaged. If glide is engaged the control will glide back to its Read value.
- With **TOUCH HOLD** engaged, the control will enter AUDITION mode when touched and holds the audition value when released.
- With **TOUCH RECORD** and **TOUCH HOLD** engaged, the control will enter **WRITE RECORD** (Punch-in) when touched and stays in **WRITE RECORD** when released. The control will stay in **WRITE RECORD** until punched out or the Mix Pass has ended.

Note: Refer to chapter 5.7.5.1 for information regarding HELD PLAYS MIX.

Entering WRITE RECORD: Controls in **WRITE ENABLE** can change to **WRITE RECORD** using any of the following three methods:

1. Local Touch (Touching the control on the Channel Strip), CGM Touch *(or, for D950 only: CAS Touch)*. **TOUCH RECORD** engaged or the **AUTO MODE** modifier key must be used.
2. (*for D950 only*) Local punch-in using the Channel Strip **STAT** (record punch) key or the appropriate CAS controls.
3. Global punch-in via **GLOBAL RECORD PUNCH IN** key or Auto-Punch or GPI (see chapter 5.8.5).

5.6.3 Trim

TRIM is the update mode of the system. Controls in **TRIM ENABLE** are armed for recording offsets and allows Trims to be Auditioned. Those in **TRIM RECORD** will apply the offset to previously written mix data and the resultant values will be written to a new Mix Pass.

Faders vs. Other Objects **TRIM** is handled slightly different for faders than for other automation objects. In both cases, Trim offsets are applied to the Read Mix Data for the Active Pass, and a new Mix Pass is generated. The Read Mix data in the new pass contain the values of the previous Active Pass plus the Trim offset. In addition, for faders, the Trim offset values are stored separately as Trim Replay Data.

Trim Replay Data For faders not only is the Trim offset applied to Read Mix data to generate a new Mix Pass, but the offset is stored within the new pass as Trim Replay Data. Trim Replay Data are absolute values that are used to offset fader Read Mix values. Since the Trim Replay Data is separate from the Read Mix Data, it may be manipulated as an independent entity. This means that Trim Replay Data can be rewritten, modified, disabled from replay, and cleared.

Notes: Since the trimmed fader values are merged with the Read Mix data in the new Mix Pass, the new pass has integrity even if the Trim Replay Data is disabled or cleared.
While mixes created on earlier versions of D950 software are compatible with AutoTouch+, mixes made on V2.5 or earlier versions do not contain Trim Replay Data. However, Trims made with older versions are incorporated into Read data at the end of each Trim Pass. An older mix may be played back using AutoTouch+ and Trim Replay Data may be added. Mixes created using V3.0 software can be played back on systems using earlier D950 software versions. The net results of all Trims will be heard and the mix will playback perfectly. However, in V2.5 and earlier software, the Trim Replay Data will be ignored and is not displayed by the fader.

Null Indications When a control is being trimmed, a Null indication is provided. In basic terms, the null indication provides information regarding of the Trim offset value. However, null indications are handled differently for faders than for other controls.

Faders: The first time a fader is placed in TRIM, the null point is 0 dB and the fader will snap to this position. It should be noted that the fader is showing the null value rather than the Read Mix values and in this case it is 0 dB. As the pass is played, the changes in the Read Mix values will be heard

with a 0 dB offset and the fader will not move. When the fader is moved from 0 dB, an offset equivalent to the amount of the move will be applied to the Read Mix data and the net result will be heard.
On the D950 desk, the amount of the offset will be indicated in the Null display and an arrow illuminates to indicate which way the fader must be moved to match the Trim Replay value.
On the Vista desk, the offset is displayed by a pink bar (replay value) and a gray bar (current value).

When a recorded Trim is played back with TRIM enabled, the fader will move to indicate the Trim offset from 0 dB. If the value of the Trim Replay Data is recorded at –3 dB and then moves to –5 dB, the fader will move
–3 dB and then to –5 dB at the appropriate time. The underlying Read Mix data will be heard with the Trim offset applied. The Trim Replay Data may be updated using TRIM RECORD techniques, thus allowing Trims to be modified.

It should be noted that faders in TRIM do not follow the WYSIWYH (What You See is What You Hear) paradigm. The recorded moves plus Trim offsets will be heard, but only the Trim Replay values will be shown by the fader.

Encoders: Any time an encoder is placed in TRIM, the null point will be 0 dB and the encoder will "auto-null" to this value. Since there is no Trim Replay Data for encoders, the null value can show only the offset of Read Mix values from 0 dB. The null point for encoders is always a 0 dB offset from the Read Mix value.

Whenever an encoder is put in TRIM, a 0 dB offset will be used. When a recorded Trim is played back with TRIM enabled, the encoder will move to indicate the Trim offset from 0 dB. As the pass is played, the changes in the Read Mix values will be heard with a 0 dB offset and the encoder will not move. When the encoder is moved from 0 dB, an offset equivalent to the amount of the move will be applied to the Read Mix data and the net result will be heard.
On the D950 desk, an arrow will illuminate to indicate which way the encoder must be moved to match the Read Mix value.
On the Vista desk, the pink-colored bar or dot (replay value) is used to match the current value to the replay value

TRIM Rules: **Record Off:**

- TRIM ENABLE: The control is armed to go into TRIM RECORD.

  Faders move to their Trim Replay values and both the Read Mix Data and Trim Replay Data are replayed. The Read Mix values plus the Trim offset will be heard. Any changes made to the Trim value (+/- from the nominal Trim Replay value), will offset the Trim Replay value by that amount. The first time TRIM ENABLE is used, faders will display a nominal Trim value of 0 dB. Since the default offset value is 0 dB, the Read Mix Data will be heard unaltered if the control is not moved. While Read Mix data will be heard, it will not be indicated by the fader's position.

  Encoders display a nominal Trim value. The nominal value will vary depending on the control (i.e. 0 dB for levels/gains, center for stereo panner, etc.). Read Mix Data (Written changes plus any previous

Trims) is played back. Any changes made to the Trim value (+/- from the nominal Trim value), will offset the Read Mix values by that amount.
On the D950 desk, read Mix data will be heard; no be indication by the control's position.
On the Vista desk, the Read Mix (replay value) is roughly indicated by a pink-colored element.

- If the control is moved while in TRIM ENABLE (no Touch modes engaged), the Trim value will be AUDITIONED. The Trim values will offset the Read Mix Data and the net result will be heard. In other words, if the control is moved, the audio reflects the sum of the Read Mix Data plus the offset from the nominal Trim value of the control. So, if the Read Mix Data had a moving value, you will hear that same moving value, except it will be offset by the amount that the control has been moved from the nominal trim value.
- If changes to Trim values have been previously written, faders in TRIM will normally replay the Read Mix Data (which incorporates the previous Trim values) and the Trim Replay values will be shown on the faders and null indicators. Other controls will replay the Read Mix Data (which incorporates the previous Trim values). Changes to Trim values will be displayed by the control.

Record On:

- TRIM RECORD: Everything is the same as with Record Off, except that the Trim values are written into a new Mix Pass. For all controls, the Trim offset is combined with the Read Mix data in the new pass. The Trim Replay data is also modified for faders.
  - Previous Trim values are updated (modifying a trim).
  - At the end of a pass in which at least one control was in TRIM RECORD, a new Mix Pass is generated that contains the previous Mix Pass Read data plus the Trim offset. For faders, the newly recorded Trim Replay Data is generated as well.

Note: TRIM RECORD is a destructive mode in regard that previously written Trim data is updated. However, Trim data is never lost because a new Mix Pass is created at the end of every Trim RECORD pass. All Mix Passes are retained in the Mix Tree unless purposely deleted.

Conditions:

- If touched and not in RECORD, the control will enter TRIM AUDITION for the duration of the touch. The control will snap back to its Trim value upon release.
- With TOUCH RECORD engaged, the control will enter TRIM RECORD (Punch-in) when touched and return to TRIM ENABLE (Replay) when released (Punch-out). When released the control will snap back to its Trim value unless GLIDE is engaged. If glide is engaged the control will glide back to its Trim value.
- With TOUCH HOLD engaged, the control will enter TRIM AUDITION mode when touched and holds the audition value when released.
- With TOUCH RECORD and TOUCH HOLD engaged, the control will enter TRIM RECORD (Punch-in) when touched and stays in TRIM RECORD when released. The control will stay in TRIM RECORD until punched out or the Mix Pass has ended.

<Option>

- With <Disable Trim Replay> checked on the Misc Options page, the offset of fader Read Mix Data using Trim Replay Data is defeated and untrimmed audio is heard (also refer to chapter 5.21.8).

Automation Menu:

- Selecting "Clear TRIM Replay Data" from the Automation menu in the GC deletes the fader Trim Replay Data and creates a new Mix Pass with 0 dB recorded as the new Trim Replay value.

Entering TRIM RECORD:

Controls in TRIM ENABLE can change to TRIM RECORD using any of the following 3 methods:

1. Local Touch (Touching the control on the Channel Strip), CGM Touch, or *(D950 only)* CAS Touch. TOUCH RECORD engaged or the **AUTO MODE** modifier key must be used.
2. Local punch-in using the Channel Strip STAT (record punch) key.
3. Global punch-in via Global Record Punch In key, or Auto-Punch, or GPI (refer to chapter 5.8.5).

5.6.4 Isolate

ISOLATE is the system's manual mode. Controls in ISOLATE neither responds to or creates new mix data. In other words, the control is essentially removed from the automation system is becomes strictly a manual control.

Note: A control in ISOLATE mode differs from a Static control in regard that changes in an Isolated control's position are not written to Mix Passes. Likewise, Static values are not applied to Isolated controls.

ISOLATE Rules:

Record Off:

- ISOLATE: The control acts like a manual control and is unaffected by any previously written Read and Trim Replay data.
  - The audio follows the control position

Record On:

- A control in ISOLATE cannot be placed into record.

5.6.5 Control Mode Entry

Controls may be put into the various Control Modes using one of four methods:

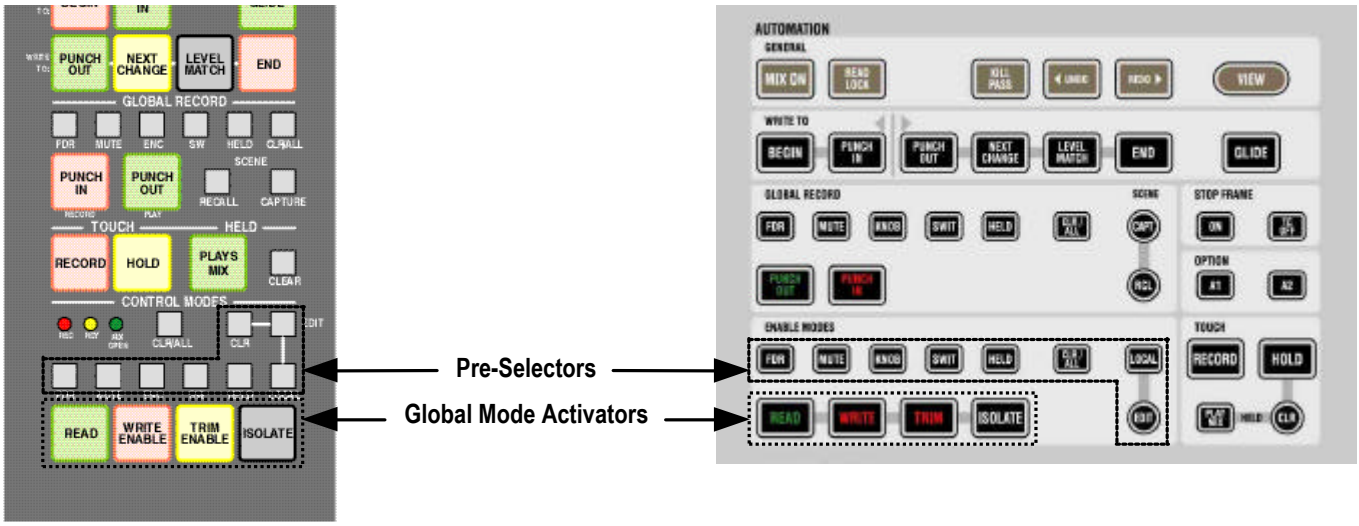
1. Globally using the Global Control Mode Activator keys and other controls on the Master Automation Panel.
2. Locally using the channel strip **AUTO MODE** key.
3. Remotely from the CAS using Control Mode Activator keys.
4. When AutoTouch+ is turned On using the **MIX ON** key on the Automation Master Panel. Activating the system will engage the Control Mode selected on the Panel Presets Options page.

Note: Multiple Control Modes may be active on the console simultaneously.

5.6.5.1 Global Mode Entry

Global Control Mode Entry: The primary method to enter automation Control Modes is using the Control Mode section of the Master Automation Panel. Controls that are to enter the mode are "Pre-Selected" using Control Mode Pre-Selector keys. The Pre-Selected controls are then entered into the desired mode using the Global Mode Activator keys.

D950: ***Vista:***



Global Mode Activators: There is an activator key for each Control Mode. Pressing one of these keys puts the Pre-Selected controls on all channels **<Option>** into that mode. The controls affected are filtered by the Pre-Selectors that are currently active. For example, when only the **Fader** Pre-Selector is active and the **Write Enable** activator is pressed, only the faders on all channels will change to WRITE ENABLE. Any other Control Modes that were set on controls other than faders will retain their mode state **<Option>**.

Note: When a Global Mode Activator key is lit, it indicates the Control Mode for all channels. Mode changes made on individual channels will cause the light to go out. Resetting all the Control modes to match on the local level will not cause Global Mode Activators to re-light.

Pre-Selectors: Control Mode Pre-Selectors determine which controls are selected when a new Control Mode is activated. Multiple Pre-Selectors may be active at one time. Any and all combinations are allowed. Pre-Selectors will illuminate when activated.

The following describes the control classifications as defined by the Control Mode Pre-Selectors:

- **FDR** (Fader): The fader of all channel types
- **MUTE** (Mute): The Mute of all channel types
- **ENC / KNOB** (Encoders): All continuous controller type encoders (knobs or rotaries). This does *not* include knobs that control "selectors" such as pan format, or phase inversion (for example).
- **SW / SWIT** (Switches): All switches (keys) and selectors (keys and knobs)
- **HELD** (Held Controls): All controls that are currently in a "Held" status (this could be any combination of faders, mutes, switches, and encoders). Refer to chapter 5.7.3, Touch Hold.
- **LOCAL, LOCAL EDIT, LOCAL CLR**: Not implemented.

Note: If no Pre-Selectors are active, then no controls will be put into the mode of the pressed Mode Activator.

Clear/All:

- **CLR / ALL**: Permits the changing of all of the Pre-Selectors at once. This key functions as follows:
  - If one or more Pre-Selectors are active, then pressing **CLR / ALL** clears all of the Pre-Selectors.
  - If no Pre-Selectors are active, then *all* Pre-Selectors become active.
  - Holding **CLR / ALL** and pressing a Control Mode activator will bypass the Pre-Selector and select all controls.

This is very handy as follows. If the user wants to set only the fader to a Control Mode and some Pre-Selectors are active, it is not necessary to manually disengage each of the currently lit selections. Pressing **CLR / ALL** followed by **FDR**, will clear all active Pre-Selectors and then select fader. This will save several key strokes and improve efficiency.

Another Shortcut: If the user wishes to set all of the controls into a specific Control Mode the following method may be used. Rather than pressing **CLR / ALL** until all the pre-selectors are active, just hold down **CLR / ALL** and press the Global Mode Activator for the desired Control Mode. *All* control types will be set into that mode and the Pre-Selectors will remain in the state that they were.

Other Control Mode Entries: Control Modes may entered as part of other automation operations. These operations are as follows:

- Turning Automation on for the First Time: Control Modes are entered based upon the options selected on the Panel Presets Options page. See Options below.
- Setting the Mix Status to on: Control Modes are entered based upon the options selected on the Control Mode Options page. See Options below.
- Loading a Panel Preset *(D950 only)*: Control Modes are entered based upon the options selected on the Panel Presets Options page. See paragraph <Options> below.
- Recalling a Scene: Controls that have been stored within the Scene Buffer are set to WRITE ENABLE and come back in a Held state. The stored values are also reset upon recall.

- Engaging **READ LOCK**: All controls are placed in READ mode. All mode changes are locked out, AUDITION mode is defeated, and only written values will be heard.

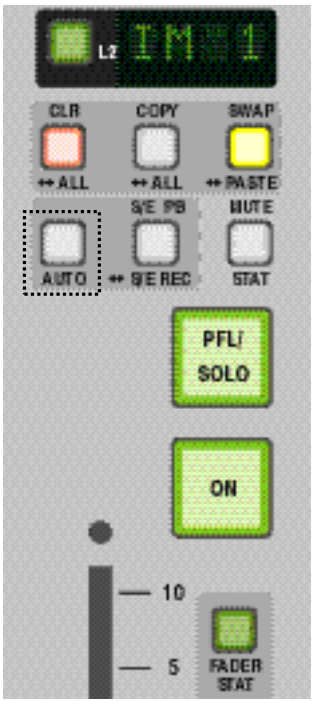
<Option>

- <When Mix Status is Set to on> (also refer to chapter 5.21.2): Radio buttons on the Control Modes Options page allow the selection of one of the following options to take effect when Mix Status is set to on (after the first time AutoTouch has been turned on for the first time):
  - <Maintain Object Modes>: When the **MIX ON** key on the Automation Master Panel is turned off, all controls are isolated from automation and operate as manual controls. With <Maintain Object Modes> selected, knowledge of the Control Mode for each control is maintained. When the system is turned back on, the Control Mode of all controls is restored.
  - <Set All to Read>: Turning the **MIX ON** key on, after having turned it off, will set all controls to READ.
  - <Set Pre-Selector Objects to WRITE>: Any controls that are selected in the Global Control Modes Pre-Selector will be set to WRITE. All others will be set to READ.
  - <Set Pre-Selector Objects to TRIM>: Any controls that are selected in the Global Control Modes Pre-Selector will be set to TRIM. All others will be set to READ.
- With <Mode Enable sets non-selected to READ> checked on the Control Modes Options page, all controls not pre-selected are placed in READ when a new Control Mode is enabled. In other words, only the controls that have been Pre-Selected will enter the new mode and all others change to READ.
- <First Time Automation is Turned ON> *(D950 only)* (also refer to chapter 5.21.6): Radio buttons on the Panel Preset Options page allow the selection of one of the following options to take effect when AutoTouch+ is turned on for first time:
  - <Load Preset A>: Control Modes are entered according to the options that determine what happens when a Panel Preset is loaded. Maintaining current modes, setting all to READ, and loading the Mode stated stored within Preset A are possible.
  - <Use Last Setting>: The last used Control Modes are entered.
- <When Loading a Preset>: Radio buttons on the Panel Preset Options page allow the selection of one of the following options to take effect when a Panel Preset is loaded:
  - <Maintain Object Modes>: Loading a Panel Preset will not change the control modes of any of the controls in the console. Current modes will be retained.
  - <Set All to Read>: Loading a Panel Preset will set all controls to READ.
  - <Apply Stored Control Mode>: The Control Modes and Pre-Selectors stored within the recalled Preset will be applied.

5.6.5.2 Local Mode Entry

Local Control Mode Entry: The **AUTO / AUTO MODE** key on the channel strip can be used to enter the various Control Modes on a channel-by-channel basis.

D950: ***Vista:***



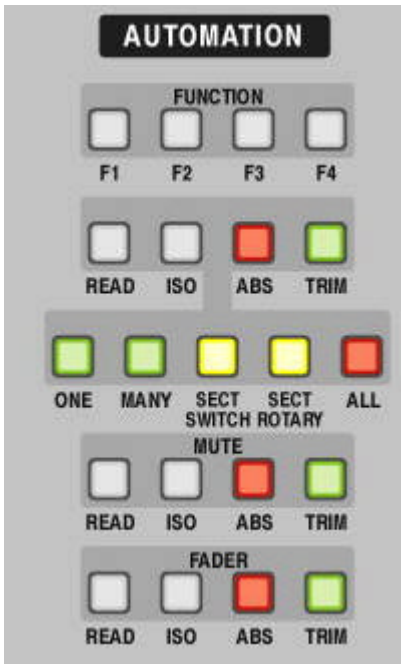
Pressing the **AUTO / AUTO MODE** key will cycle through the available Control Modes. The order and availability of Control Modes that can be entered is determined by the options selected in the Channel Auto-Mode Button section of the Control Modes Options page. The selection of local controls that enter the selected Control Mode is also determined at this location.

<Option> Options for the **AUTO / AUTO MODE** key are set in the Channel Auto-Mode Button section of the Control Modes Option page (also refer to chapter 5.21.2):

- <Order>: There are 4 positions that can be accessed via consecutive presses of the **AUTO / AUTO MODE** key.
  - The assignment for each position is made using the four pull-down menus in the <Order> section.
  - The top menu represents the first position.
  - Any Control Mode can be selected at any position or none can be selected.
  - If <None> is selected, that position is not included when cycling the **AUTO / AUTO MODE** key.
- <Affects…>: The selection of controls that enter the selected Control Mode is determined in the <Affects…> section. Radio buttons allow the selection of 1 of the following options:
  - <Pre-Selector Objects>: Local controls that correspond to the active Control Mode Pre-Selectors on the Master Automation Panel.
  - <Fader>: Fader only
  - <Mute>: Mute only
  - <Fader & Mute>: Fader and Mute only.

5.6.5.3 CAS Mode Entry *(D950 only)*

CAS Control Mode Entry: The Control Mode for the channel assigned to the CAS can be selected using the controls in the **AUTOMATION** section of CAS.



It should be noted that the CAS automation mode will follow those made at the channel strip or globally.
The CAS Control Mode Activators are organized in three groups of keys:

- Fader
- Mute
- Switches and Encoders (rotaries)

Each group of activators has a key for each Control Mode:

- READ: READ
- ISO: ISOLATE
- ABS: WRITE ENABLE (ABS is a legacy of AutoTouch 2.5)
- TRIM: TRIM ENABLE

Switches and Encoders within the channel can be independently Pre-Selected for entry into the desired mode. For details, refer to chapters 5.19.1.2, CAS Controls, and 5.10, Switch Automation.

5.6.5.4 Vista Mode Entry

Vista Control Mode Entry: Control Mode entries on the Vista work surface is accomplished using the same local and global methods as used on the D950 M2 and Classic desks and the same conditions and options apply.

Local Control Mode Entry: Refer to chapter 5.6.5.2

Global Control Mode Entry: Global Control Mode entry is made as described above. However it should be noted that the Global Mode Activators are located in the “Enable Modes” section of the Vista automation panel.

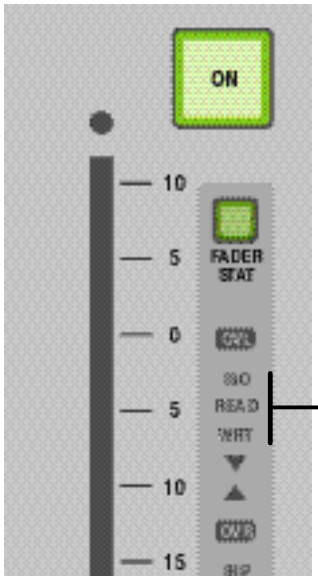
5.6.6 Control Mode Indicators *(D950)*

Control Mode Display:

Control modes are displayed on the D950 desk on the channel strips and the CAS in the following manner:

Fader: **Channel Strip:**

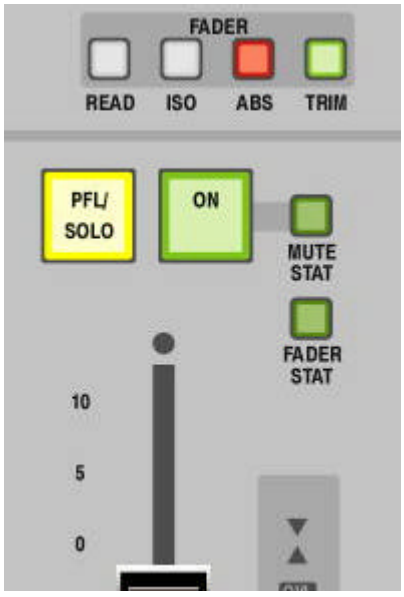
- READ: **READ** is lit next to the fader
- WRITE ENABLE: **WRT** is lit next to the fader. The **FADER STAT** key lights (flashes when in RECORD).
- TRIM ENABLE: **READ** and **WRT** are lit next to the fader strip. The **FADER STAT** key lights (flashes when in RECORD).
- ISOLATE: **ISO** is lit next to the fader strip.



Displays for Fader Automation Enable Status:
ISO = Isolate
READ = Read
WRT = Absolute Enable
WRT + READ = Trim Enable

CAS:

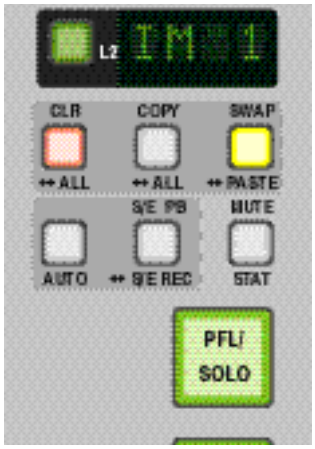
- READ: The **FADER READ** Control Mode Activator is lit.
- WRITE ENABLE: The **FADER ABS** Control Mode Activator is lit. The **FADER STAT** key lights (flashes when in RECORD).
- TRIM ENABLE: The **FADER TRIM** Control Mode Activator is lit. The **FADER STAT** key lights (flashes when in RECORD).
- ISOLATE: The **FADER ISO** Control Mode Activator is lit.



Mute: **Channel Strip:**

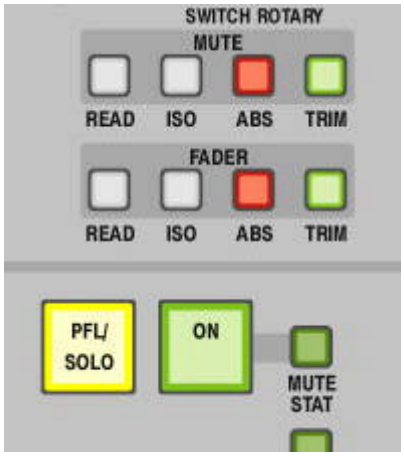
Control Modes for Mutes are not shown in a unique fashion on the channel strip. It is not possible to determine the exact status by viewing the **MUTE STAT** key locally. The unique status is shown on the CAS.

- READ or ISOLATE: **MUTE STAT** key is not lit.
- WRITE ENABLE: **MUTE STAT** key is lit (flashes when in RECORD)
- TRIM ENABLE: **MUTE STAT** key is lit (flashes when in RECORD)



CAS:

- READ: The **MUTE READ** Control Mode Activator is lit.
- WRITE ENABLE: The **MUTE ABS** Control Mode Activator is lit. The **MUTE STAT** key lights (flashes when in RECORD).
- TRIM ENABLE: The **MUTE TRIM** Control Mode Activator is lit. The **MUTE STAT** key lights (flashes when in RECORD).
- ISOLATE: The **MUTE ISO** Control Mode Activator is lit.

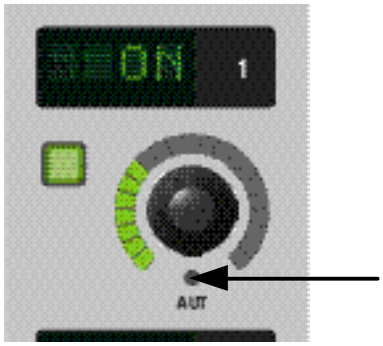


Encoders (Knobs):

Channel Strip:

The Control Mode of each of the four Encoders on the channel strip is indicated by the associate **AUT LED**.

- READ or ISOLATE: **AUT LED** is not lit. The **S/E REC** key is not lit.
- WRITE ENABLE: **AUT LED** is lit in red (flashes red when in RECORD). The **S/E REC** key lights (flashes when in RECORD).
- TRIM ENABLE: **AUT LED** is lit in green (flashes green when in RECORD). The **S/E REC** key lights (flashes when in RECORD).

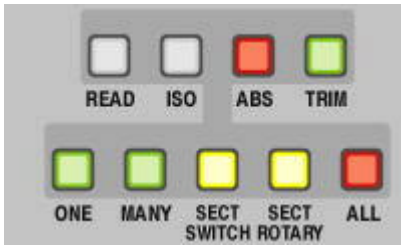


(The graphic above is that of a channel strip, but the Control Mode indications of the **AUT** LED are the same as on the CAS.)

CAS:

The **SECT ROTARY** Pre-Selector key will light for all Encoder Control Mode indications.

- READ: The Switches and Encoders **READ** Control Mode Activator is lit.
- WRITE ENABLE: The Switches and Encoders **ABS** Control Mode Activator is lit (**SECT ROTARY** Pre-Selector key flashes when in RECORD).
- TRIM ENABLE: The Switches and Encoders **TRIM** Control Mode Activator is lit (**SECT ROTARY** Pre-Selector key flashes when in RECORD).
- ISOLATE: The Switches and Encoders **ISO** Control Mode Activator is lit.



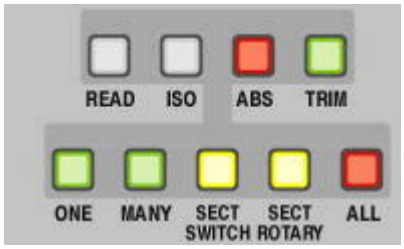
Switches:

Channel Strip:
Control Modes for Switches are not shown in a unique fashion on the channel strip. It is not possible to determine the exact status by viewing the **S/E STAT** (**S/E PB**, **S/E REC**) key locally. There are also no Control Mode indications for individual Switches. The unique status is shown on the CAS. Switch Control Modes are indicated in the channel strip as follows:

- READ or ISOLATE: The **S/E STAT** key is not lit.
- WRITE or TRIM ENABLE: The **S/E STAT** key lights when one or more Switch or Encoder is enabled.
- WRITE or TRIM RECORD: The **S/E STAT** key flashes when one or more Switch or Encoder is in RECORD.

CAS:
The **SECT SWITCH** Pre-Selector key will light for all Encoder Control Mode indications.

- READ: The Switches and Encoders **READ** Control Mode Activator is lit.
- WRITE ENABLE: The Switches and Encoders **ABS** Control Mode Activator is lit (**SECT SWITCH** Pre-Selector key flashes when in RECORD).
- TRIM ENABLE: The Switches and Encoders **TRIM** Control Mode Activator is lit (**SECT SWITCH** Pre-Selector key flashes when in RECORD).
- ISOLATE: The Switches and Encoders **ISO** Control Mode Activator is lit.



Channel Strip S/E STAT Key:

The **S/E STAT** (**S/E PB**, **S/E REC**) key gives partial Control Mode indications for both Switches and Encoders

- **S/E STAT** key *on*: One or more Switch(es) or Encoder(s) is/are in either WRITE ENABLE or TRIM ENABLE mode.
- **S/E STAT** key *flashing*: One or more Switch(es) or Encoder(s) is/are in either WRITE ENABLE or TRIM ENABLE mode.
- **S/E STAT** key *off*: All Switches and Encoders are in either READ or ISOLATE mode.

5.6.7 Control Mode Indicators *(Vista)*

In automation mode, the channel strips hold additional indications for detailed display of the current status.
This chapter shows all possible indications of automation status and explains their meaning.

First, there are some record indicators integrated within the recording keys:

[A] Recording overview for switches. If half-lit: One or more switches are armed (i.e. in TRIM or WRITE enable mode). If fully lit: One or more switches are recording.
Pressing this key will either punch-in the held objects, or punch-out the switches currently recording.

[B] Recording overview for rotary encoders. If half-lit: One or more rotaries are armed (i.e. in TRIM or WRITE enable mode). If fully lit: One or more rotaries are recording
Pressing this key will either punch-in the held objects, or punch-out the rotaries currently recording.

[C] Current and replay value of the channel mute. If the current value is different from the one in the last mix pass, this LED indicates the value within the last mix pass, while the main red LED within the key indicates the current value.
This LED is also used for mute indication, if "solo in place" is active.

[D] Recording of the channel mute. If half-lit: Channel mute is armed (i.e. in TRIM or WRITE enable mode). If fully lit: Channel mute is recording.
Pressing this key will either punch-in the current MUTE status, or punch it out of recording.

[E] Recording of fader. If half-lit: Fader is armed (i.e. in TRIM or WRITE enable mode). If fully lit: Fader is recording.
Pressing this key will either punch-in the current fader status, or punch it out of recording.

The meaning of the different Vistonics indicators is as follows:

Displayed Value

The *displayed value* (e.g. "–7.6 dB") is always the current value, except when the control is in TRIM mode. Then it shows the offset from TRIM null point.
It is underlined whenever the control is touched ("hold" in automation).

Rotary Value

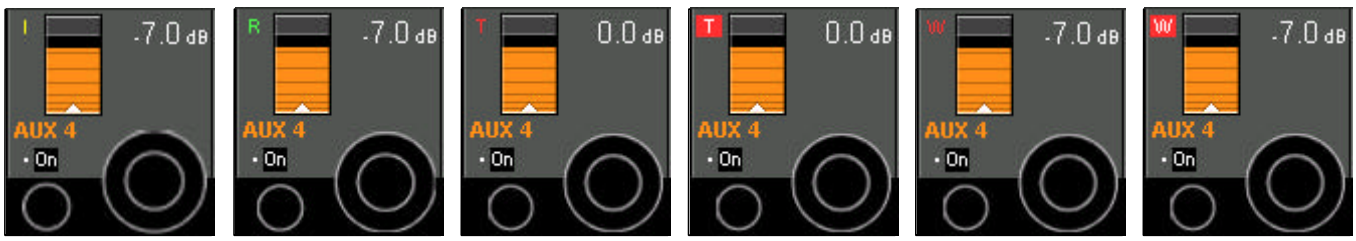
Current and replay value of the rotary control. If the current value is different from the one within the last mix pass, a pink colored element indicates the value of the last mix pass, while the main display is indicating the current value.

Fader Value

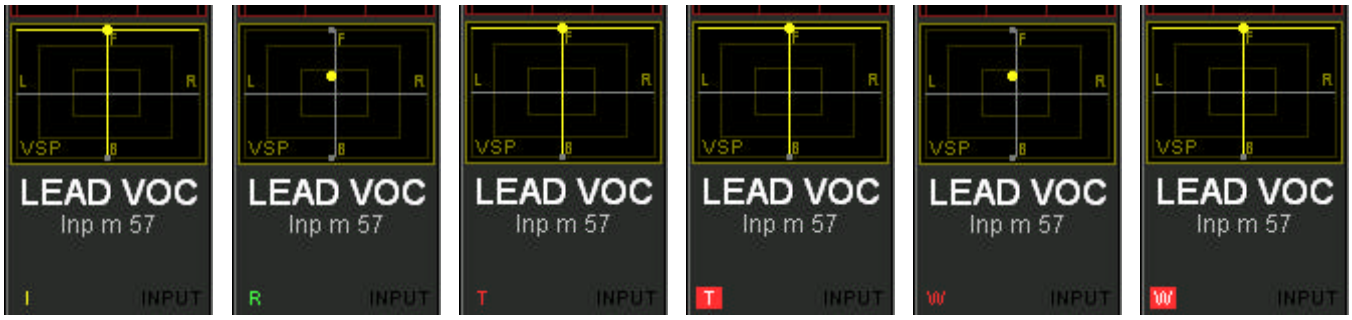
Current and replay value of the fader. If the current value is different from the one in the last mix pass, a pink colored element indicates the value within the last mix pass, while the main display is indicating the current value.

Recording

Recording and recording mode indicator: This always refers to the associated control.
Characters without a frame indicate the status of the rotary control (I = Isolate, R = Read, T = Trim, W = Write).
A red frame behind the "W" or "T" indicates that the rotary control is currently recording.



Recording *Recording mode of the fader (in the Vistonics generic display area):*
Characters without a frame indicate the status of the fader (I = Isolate, R = Read, T = Trim, W = Write).
A red frame behind the "W" or "T" indicates that the fader is currently recording.



n–1 x *n–1 x* indicates that the channel is the owner of an n–1 bus, together with its bus number - e.g. "m 1" for "mono 1".

.

Rotary Dynamic/Static *Dynamic/static view of the rotary control*:
When pressing the **VIEW** key in the dynamic automation panel, this display changes to DYN, if this control contains dynamically automated elements

Fader Dynamic/Static *Dynamic/static view of the fader:* When pressing the **VIEW** key in the dynamic automation panel, this display appears and indicates "FADER DYN", if the fader is dynamically automated.

5.7 Touch and Hold

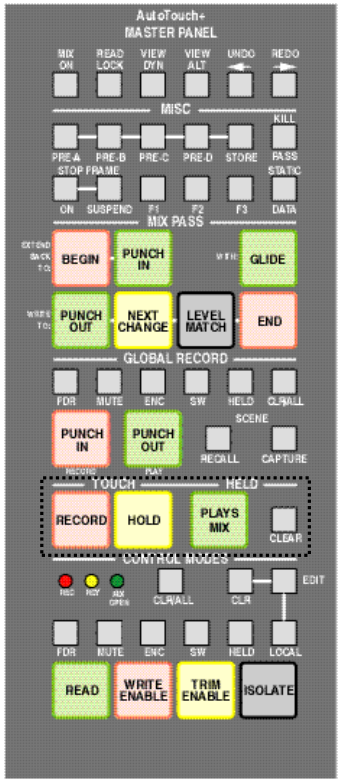
Touch and Hold functions are key aspects of understanding the Auto-Touch+ system. Knowledge of these functions and their permutations is essential to the operation of the system. As with Control Modes, there are rules, conditions, and options that determine the precise function of these features.

Faders and Encoders on the channel strip and the *(D950)* CAS are touch-sensitive. Switches are touch-sensitive in regard that touch events are recognized by the system when a Switch is actuated.

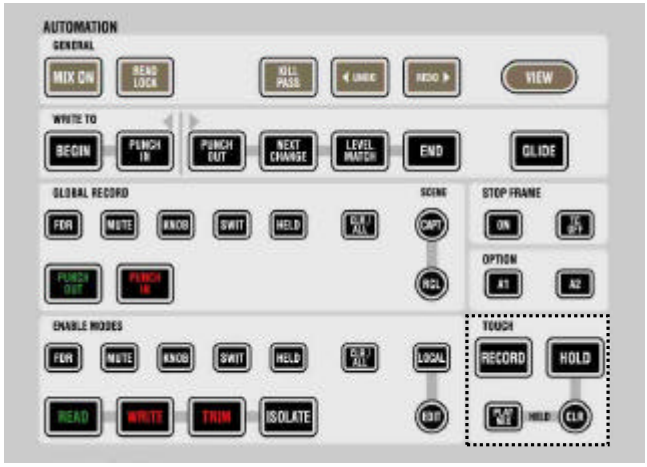
Note: *This chapter will emphasize how touch events relate to Faders and Encoders. Switch automation information will be included, but for complete information regarding Switch automation refer to chapter 5.10.*

The activator keys for Touch and Hold functions are found in the **TOUCH / HELD** section of the AutoTouch+ Panel.

D950:



Vista:



5.7.1 Touch and Un-touch

Touch/Un-touch Events: Touching a Fader or Encoder is registered by the system as a "Touch" event. Releasing the control is registered as an "Un-touch" event. Auto-Touch+ uses these events to trigger various operations and to toggle between states.

Switches: Switches present a special case. This chapter discusses Touch and Un-touch events as they apply to faders and encoders. Please refer to chapter 5.10 for Switch Automation details.

Note: It is important to recognize that Touch and Un-touch events are separate and independent events and are used by AutoTouch+ in different ways. However, Touch and Un-touch are often linked during many operations.

Examples of possible operations that can be triggered by Touch and Un-touch events:

- Touch
  - Enter the enabled mode for that control (i.e. Audition)
  - Punch-in that control (i.e. Enable to Record)
- Un-touch
  - Exit the enabled mode for that control (i.e. Audition)
  - Punch-out that control (i.e. Record to Enable)

Touch-sensitivity is *always* active on the work surface, even if **TOUCH RECORD** and/or **TOUCH HOLD** are not active. It should also be noted that when necessary, Touch and Un-touch events can be suppressed to facilitate specific functionality.

Basic Touch/Un-touch Events: Touch/Un-touch events can be registered without **TOUCH RECORD** or **TOUCH HOLD** engaged. These events perform the following functions when dynamic controls are in the Control Modes indicated:

- READ: Touch/Un-touch will toggle the control in and out of AUDITION. The control will change from READ to AUDITION when touched and will snap back to recorded values (READ) when released.
- WRITE ENABLE: Touch/Un-touch will toggle the control in and out of AUDITION
- TRIM ENABLE: Touch/Un-touch will toggle the control in and out of TRIM AUDITION
- ISOLATE: Touch/Un-touch events of Isolated controls are not recognized by AutoTouch+.

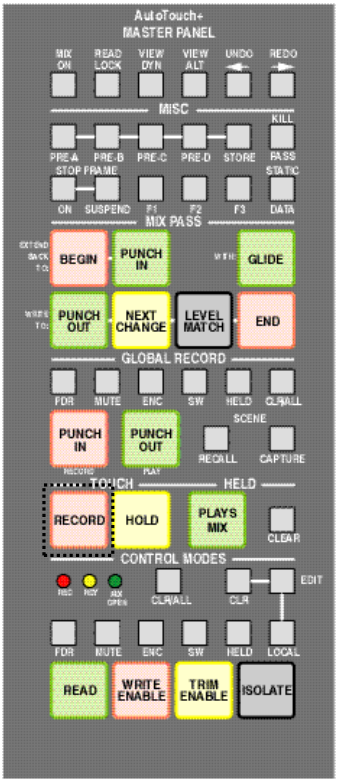
<Option>

- With <Read Safe> checked on the Misc Options page, AUDITION mode is defeated for controls in READ and only Read Mix values will be heard (also refer to chapter 5.21.8).

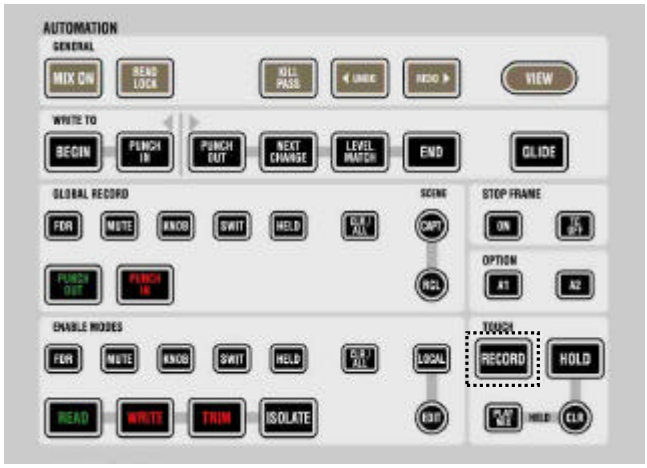
5.7.2 Touch Record

With **TOUCH RECORD** engaged, touching a Write or Trim enabled control will change it from ENABLE to RECORD. This will effectively perform a "Punch-In" for that control. Touching a control in READ will change it to AUDITION.

D950:



Vista:



When released, a control in RECORD will change back to ENABLE, effectively "Punching-Out" (if **TOUCH HOLD** is not engaged). Subsequent Touch/Un-touch events will to toggle that control in an out of RECORD. Likewise a control in AUDITION will revert to READ when released.

To sum it up, if **TOUCH RECORD** is used alone (without **TOUCH HOLD**) controls will change to either RECORD or AUDITION for the duration of the human contact with the control.

Touch Record: With only **TOUCH RECORD** engaged (without **TOUCH HOLD**), Touch/Un-touch events perform the following functions when dynamic controls are in the Control Modes indicated:

- READ: Touch/Un-touch will toggle the control in and out of AUDITION.
- WRITE ENABLE: Touch/Un-touch will toggle the control in and out of RECORD. The control will change from WRITE ENABLE to WRITE RECORD when touched and will snap back to recorded values (WRITE ENABLE) when released. The control will glide back if **GLIDE** is engaged.
- TRIM ENABLE: Touch/Un-touch will toggle the control in and out of RECORD. The control will change from TRIM ENABLE to TRIM RECORD when touched and will snap back to recorded Trim values (TRIM ENABLE) when released. The control will glide back if **GLIDE** is engaged.
- ISOLATE: Touch/Un-touch events of Isolated controls are not recognized by AutoTouch+.

Note: The examples above assume that **WRITE TO PUNCH OUT** is active. Refer to chapter 5.9.1.

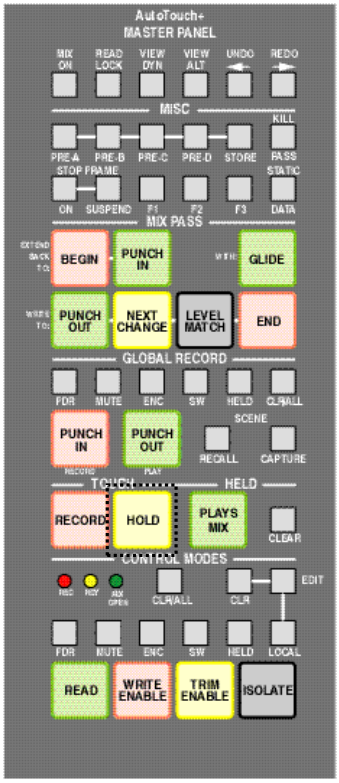
<Option>

- With <Read Safe> checked on the Misc. Options page, AUDITION mode is defeated for controls in READ, and only written values will be heard.
- The **TOUCH RECORD** key may be overridden by checking options on the <Master Panel Overrides> section of the Master Panel Options page. Faders and Encoders can have **TOUCH RECORD** set to <ON>, <OFF>, or to follow the Master Panel <Follows Panel>. **TOUCH RECORD** for Switches can also have <ON> and <OFF> overrides or be set to follow the Master Panel <Follows Panel>.

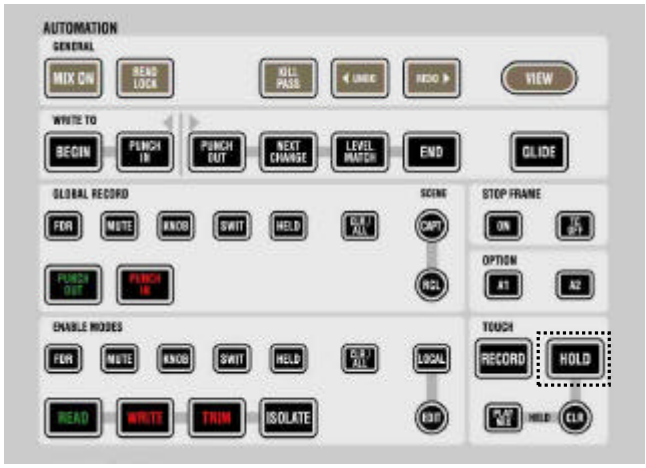
5.7.3 Touch Hold

With **TOUCH HOLD** engaged, touching a control will change it to being in a "Held" state.

D950:



Vista:



Held Controls: Controls that are in Held status have specific functional qualities:

- They maintain their current status when physically released (Un-touched)
- They may be selected as a group (Held Objects) for additional automation operations (such as a Pre-Selector set).

When **TOUCH HOLD** is activated the Touch event is registered by the system and the Un-touch event is suppressed. Touching a control will change it to the next mode available. More importantly, the control will "hold" that mode when it is released.

When released, a control in RECORD will not punch-out and change back to ENABLE, it will stay in RECORD. Likewise a control in AUDITION will not revert to READ when released.

To sum it up, if **TOUCH HOLD** is used alone (without **TOUCH RECORD**) controls will change to their AUDITION modes and stay there when released.

Touch Hold: With only **TOUCH HOLD** engaged (without **TOUCH RECORD**), Touch events perform the following functions when dynamic controls are in the Control Modes indicated (remember Un-touch events are suppressed):

- READ: Touch will change to and stay in AUDITION.
- WRITE ENABLE: Touch will change to and stay in AUDITION.
- TRIM ENABLE: Touch will change to and stay in TRIM AUDITION.
- ISOLATE: Touch/Un-touch events of Isolated controls are not recognized by AutoTouch+.

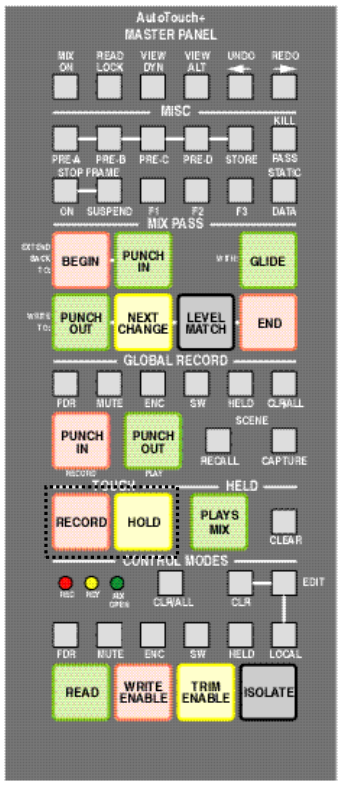
<Option>

- With <Read Safe> checked on the Misc Options page (see chapter 5.21.8), AUDITION mode is defeated for controls in READ, and only written values will be heard.
- The **TOUCH HOLD** key may be overridden by checking options on the <Master Panel Overrides> section of the Master Panel Options page (see chapter 5.21.5). Faders and Encoders can have **TOUCH HOLD** set to <ON>, <OFF>, or to follow the Master Panel <Follows Panel>. **TOUCH HOLD** for Switches can also have <ON> and <OFF> overrides or be set to follow the Master Panel <Follows Panel>.

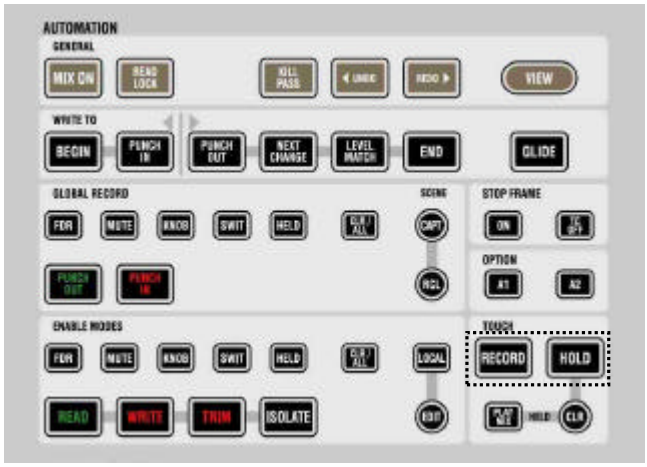
5.7.4 Touch Record + Touch Hold

TOUCH RECORD and **TOUCH HOLD** can be used together to create a condition where controls will change to RECORD (if enabled) or AUDITION (if in READ) when touched and stay in that mode when released.

D950:



Vista:



With both **TOUCH RECORD** and **TOUCH HOLD** engaged, touching a control will change it from its current state to the next mode available and then will "hold" that mode (remember, when **TOUCH HOLD** is activated, the Touch event is registered by the system and the Un-touch event is suppressed).

When released, a control in RECORD will not punch-out and change back to ENABLE, it will stay in RECORD. Likewise a control in AUDITION will not revert to READ when released.

Touch Record + Touch Hold: With both **TOUCH RECORD** and **TOUCH HOLD** engaged, Touch events perform the following functions when dynamic controls are in the Control Modes indicated (remember Un-touch events are suppressed):

- READ: Touch will change to and stay in AUDITION.
- WRITE ENABLE: Touch will change the control from WRITE ENABLE to WRITE RECORD and stay in WRITE RECORD when released.
- TRIM ENABLE: Touch will change the control from TRIM ENABLE to TRIM RECORD and stay in TRIM RECORD when released.
- ISOLATE: Touch/Un-touch events of Isolated controls are not recognized by AutoTouch+.

<Option>

- With <Read Safe> checked on the Misc Options page (see chapter 5.21.8), AUDITION mode is defeated for controls in READ, and only written values will be heard.
- The Master Panel **TOUCH RECORD** and **TOUCH HOLD** keys may be overridden by checking options on the <Master Panel Overrides> section of the Master Panel Options page (see chapter 5.21.5). Faders and Encoders can have **TOUCH RECORD** and **TOUCH HOLD** set to <ON>, <OFF>, or to follow the Master Panel <Follows Panel>. **TOUCH RECORD** and **TOUCH HOLD** for Switches can also have <ON> and <OFF> overrides or be set to follow the Master Panel <Follows Panel>
- The Un-touch function of either **TOUCH RECORD** or **TOUCH HOLD** may be changed by using the **AUTO MODE** modifier key. For details, refer to chapter 5.7.6.

5.7.5 Held Controls

A control that is touched with **TOUCH HOLD** engaged becomes a "held" control. Held controls are also known as "Held Objects." Controls that are held not only stay in their Touched mode when released, they are identified by the system as being held.

Held Controls Buffer: As controls are placed into a held status, they are added to a list of controls stored in the "Held Controls Buffer." The **CLR HELD** key in the **HELD** section of the AutoTouch+ Panel will light if one or more control is held.

The Held Controls list is used as a filter for the **HELD** pre-selectors in the Control Modes and Global Record sections of the Automation Master Panel.

Clearing Held Controls: *Clear Held Controls Buffer:* Pressing the **CLR HELD** key will take all Held controls out of Hold. It will also clear the list of controls in the Held Controls Buffer.
Clear Held Controls Modes: Controls may be taken out of hold in the following ways:

- When **TOUCH HOLD** is turned OFF **<Option>**
- Upon Punch-Out **<Option>**
- At the end of a Mix Pass **<Option>**

<Option>

- With <When Touch Hold Turned Off> checked in the <Clear Held Objects> section of the Hold Options page (also refer to chapter 5.21.7), all held controls are cleared when **TOUCH HOLD** is turned Off.
- With <Upon Punch-Out> checked in the <Clear Held Objects> section of the Hold Options page, any Held control is cleared upon punch-out.

- With <Held Objects> checked in the <End of Pass Clears> section of the End of Pass Options page, all held controls are cleared at the end of each Mix Pass.

Note: The TOUCH HOLD key on the AutoTouch+ Panel may be overridden by checking options on the <Master Panel Overrides> section of the Master Panel Options page (also refer to chapter 5.21.5). Faders/Encoders and Switches can have TOUCH HOLD set to <ON> as an default option. When using this option, care should be taken not inadvertently place controls into Hold.

5.2.5.1 Held Plays Mix

When the HELD PLAYS MIX key is engaged, all Held controls play their Read Mix data when not in RECORD, but the controls can be set to different physical positions.

The Read Mix data is heard, even though one or more controls are being held in AUDITION. This allows a held control to be pre-positioned while awaiting a punch-in. The result is true emulation of the resultant mix, while the Mix Pass is being run.

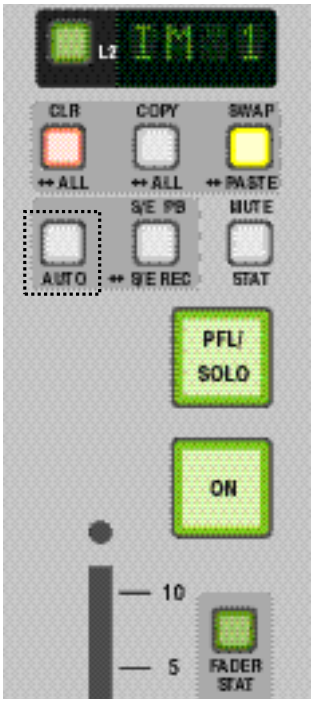
<Option>

- With <Disabled While Touched> checked in the <Held Plays Mix> section of the Hold Options page (also refer to chapter 5.21.4) and HELD PLAYS MIX engaged, all held controls that are touched will change to AUDITION for the duration of the touch. The AUDITION value will be heard while the control is being touched. Upon release held controls revert to playing the Read mix. This is useful when pre-positioning the control before the punch. This “TOUCH AUDITION” mode allows the Punch-In value to be determined by touching and moving the control to the desired position and releasing it to return to hearing the Read mix. The control retains its AUDITION value awaiting Punch-In while the Read mix is heard.

5.7.6 Auto Mode Key Function

Auto Mode Key: The channel strip **AUTO / AUTO MODE** key is also known as the "modifier key."

D950:



Vista:

Auto Mode Key Function: Holding the **AUTO / AUTO MODE** key down temporarily reverses the state of the Master Panel Touch Record key on a local basis. For example, if Touch Record is activated on the AutoTouch+ Panel, holding down the **AUTO / AUTO MODE** key will deactivate Touch Record on that channel as long as the key held down. If Touch Record is not active, holding the **AUTO / AUTO MODE** key will activate it for that channel.

Using the Auto Mode Key: The **AUTO / AUTO MODE** key may be used as follows:

- Global Touch Record Active:
  - Holding the **AUTO / AUTO MODE** key will deactivate Touch Record for that channel. This will allow enabled controls to be auditioned on a local basis without being punched-in.
  - Touching an enabled control will punch it in and holding it will keep it in RECORD. Pressing and holding the **AUTO / AUTO MODE** key before the control is released will deactivate Touch Record. When it is released, the control will not punch-out and will stay in RECORD in a Held state.
- Global Touch Record Inactive:
  - Holding the **AUTO / AUTO MODE** key will activate Touch Record for that channel. This will allow enabled controls to be punched-in on a local basis.
  - Holding the **AUTO / AUTO MODE** key and releasing a control that is in RECORD will punch that control out. In this case, the control may be touched at any time, but the **AUTO / AUTO MODE** key must be pressed at the time of release for a punch-out to occur.

Note: To achieve the function mentioned above when Global Touch Record is inactive, the "Modified Untouch Inverts" option (radio button "Touch Record") must be selected (also refer to chapter 5.21.8).

5.7.6.1 Modified Un-touch Inverts

As an option, the Touch Record or Touch Held may have their modified Un-touch function inverted. In other words, if the **AUTO / AUTO MODE** key is held down when a control is Un-touched (released) the normal Un-touch function of Touch Record or Touch Hold will be reversed.
Either Touch Record or Touch Hold may be selected for Un-touch inversion, but not both.

<Option>

- Either the <Touch Hold> or <Touch Record> function may be selected for Modified Un-touch Inversion when the **AUTO / AUTO MODE** key is held. This selection is made by clicking the desired radio button in the <Modified Un-touch Inverts> section of the Misc Options page (also refer to chapter 5.21.8).

5.7.6.1.1 Option Modified Un-Touch Inverts <Touch Record>

***Both* Global Touch Record *and* Global Touch Hold *inactive*:**

1a - Holding the **AUTO / AUTO MODE** key when an enabled control is touched, will punch that control in RECORD. As long as the **AUTO / AUTO MODE** key is held down, a touched control will be in RECORD. Un-touching the control will return the status from RECORD to ENABLE.

1b If the control is touched and the **AUTO / AUTO MODE** key is released before the control is physically un-touched, the control will remain in RECORD even if the control is physically un-touched.
Even if the control remains in RECORD, the un-touch information is suppressed.

1c - A control being in RECORD can be punched out by holding the **AUTO / AUTO MODE** key, and touching and un-touching the control while the **AUTO / AUTO MODE** key is being pressed. The control changes from RECORD to ENABLE when the control is physically un-touched.

Global Touch Record *active*, Global Touch Hold *inactive*:

2a - While pressing the **AUTO / AUTO MODE** key, touching of a control that is in ENABLE mode will not punch it into RECORD.

2b - Touching the control (causing it to change from ENABLE to RECORD) and pressing the AUTO MODE key while still touching the control, then releasing the control while still pressing the **AUTO / AUTO MODE** key will cause the control to remain in RECORD and HELD status.

Global Touch Record *inactive*, Global Touch Hold *active*:

3a - Keep the **AUTO / AUTO MODE** key pressed. Touching and untouching a control in ENABLE mode will punch the control in and out of RECORD. *Please note that the control is in HELD status, regardless whether it is in RECORD or not.*

3b - Keep the **AUTO / AUTO MODE** key pressed and touch a control that is currently in ENABLE mode. Keep the control touched and release the **AUTO / AUTO MODE** key. The control will remain in RECORD.

3c - A control being in RECORD mode can be punched out by keeping the **AUTO / AUTO MODE** key pressed, then touching and untouching the con-

trol. At the moment the control is released, it punches out of RECORD but remains in HELD status.

***Both* Global Touch Record *and* Global Touch Hold *active*:**

4a - While keeping the **AUTO / AUTO MODE** key pressed, touching a control in ENABLE mode will not punch into RECORD. The control will remain in HELD status.

4b - A control being in RECORD status can be punched out by keeping the **AUTO / AUTO MODE** key pressed, then touching and untouching the control. At the moment the control is released, it punches out of RECORD while remaining in HELD status.

5.7.6.1.2 Option Modified Un-Touch Inverts <Touch Hold>

***Both* Global Touch Record *and* Touch Hold *inactive*:**

5a - While keeping the **AUTO / AUTO MODE** key pressed, touching a control in ENABLE mode will switch it to RECORD and HELD status. When releasing the control it will remain in RECORD and TOUCHED.

Global Touch Record *active*, Touch Hold *inactive*:

6a - While keeping the **AUTO / AUTO MODE** key pressed, touching a control in ENABLE mode will switch it to HELD but not to RECORD status, if the control is released before the **AUTO / AUTO MODE** key.

6b - While keeping a control in ENABLE mode touched, press the **AUTO / AUTO MODE** key. Then release the control before releasing the **AUTO / AUTO MODE** key, causing the control to switch to RECORD and HELD status.

Global Touch Record *inactive*, Touch Hold *active*:

7a - While keeping the **AUTO / AUTO MODE** key pressed, touching a control in ENABLE mode will switch it to RECORD but not to HELD mode, if the control is released before the **AUTO / AUTO MODE** key.

***Both* Global Touch Record *and* Touch Hold *active*:**

8a - While keeping the **AUTO / AUTO MODE** key pressed, touching a control in ENABLE mode will not punch the control into RECORD. When releasing the control while the **AUTO / AUTO MODE** key is still pressed, the control will not jump back to the replay value.

8b - A control being in RECORD can be punched-out by pressing the **AUTO / AUTO MODE** key, then touching the control and releasing it while the **AUTO / AUTO MODE** key is still pressed. At the same time the control's HELD status is cleared.

Ref.	Step	Global Touch Record	Global Touch Hold	AUTO MODE Key Action	Control Action	Control Status Condition/Reaction
1a		OFF	OFF			ENABLE
	1	OFF	OFF	Press + Hold		ENABLE
	2	OFF	OFF	Hold	Touch	RECORD
	3	OFF	OFF	Hold	Un-touch	ENABLE
1b		OFF	OFF			ENABLE
	1	OFF	OFF	Press + Hold		ENABLE
	2	OFF	OFF	Hold	Touch + Hold	RECORD
	3	OFF	OFF	Release	Hold	RECORD
	4	OFF	OFF		Un-touch	RECORD
1c		OFF	OFF			RECORD
	1	OFF	OFF	Press + Hold	Touch	RECORD
	2	OFF	OFF	Hold	Un-touch	ENABLE
2a		ON	OFF			ENABLE
	1	ON	OFF	Press + Hold		ENABLE
	2	ON	OFF	Hold	Touch	ENABLE (no change)
2b		ON	OFF			ENABLE
	1	ON	OFF		Touch + Hold	RECORD
	2	ON	OFF	Press + Hold	Hold	RECORD
	3	ON	OFF	Hold	Un-touch	RECORD + HELD
3a		OFF	ON			ENABLE + HELD
	1	OFF	ON	Press + Hold		ENABLE + HELD
	2	OFF	ON	Hold	Touch	RECORD + HELD
	3	OFF	ON	Hold	Un-touch	ENABLE + HELD
3b		OFF	ON			ENABLE
	1	OFF	ON	Press + Hold		ENABLE
	2	OFF	ON	Hold	Touch + Hold	RECORD
	3	OFF	ON	Release	Hold	RECORD
3c		OFF	ON			RECORD
	1	OFF	ON	Press + Hold		RECORD
	2	OFF	ON	Hold	Touch	RECORD
	3	OFF	ON	Hold	Un-touch	ENABLE + HELD
4a		ON	ON			ENABLE
	1	ON	ON	Press + Hold		ENABLE
	2	ON	ON	Hold	Touch	ENABLE + HELD
4b		ON	ON			RECORD
	1	ON	ON	Press + Hold		RECORD
	2	ON	ON	Hold	Touch	RECORD
	3	ON	ON	Hold	Un-touch	ENABLE + HELD
5a		OFF	OFF			ENABLE
	1	OFF	OFF	Press + Hold		ENABLE
	2	OFF	OFF	Hold	Touch	RECORD + HELD
	3	OFF	OFF	Hold	Un-touch	RECORD + HELD

Ref.	Step	Global Touch Record	Global Touch Hold	AUTO MODE Key Action	Control Action	Control Status Condition/Reaction
6a		ON	OFF			ENABLE
	1	ON	OFF	Press + Hold		ENABLE
	2	ON	OFF	Hold	Touch	ENABLE
	3	ON	OFF	Hold	Un-touch	ENABLE + HELD
6b		ON	OFF			ENABLE
	1	ON	OFF		Touch + Hold	RECORD
	2	ON	OFF	Press + Hold		RECORD
	3	ON	OFF	Hold	Un-touch	RECORD + HELD
7a		OFF	ON			ENABLE
	1	OFF	ON	Press + Hold		ENABLE
	2	OFF	ON	Hold	Touch	RECORD
	3	OFF	ON	Hold	Un-touch	RECORD (not HELD)
8a		ON	ON			ENABLE
	1	ON	ON	Press + Hold		ENABLE
	2	ON	ON	Hold	Touch	ENABLE
	3	ON	ON	Hold	Release	ENABLE
8b		ON	ON			RECORD
	1	ON	ON	Press + Hold		RECORD
	2	ON	ON	Hold	Touch	RECORD
	3	ON	ON	Hold	Release	ENABLE (not HELD)

5.8 Global Record

Controls can be “punched in and out” on a global basis. Global punch-ins and punch-outs are accomplished in one of three ways:

1. Manually: Using the **PUNCH-IN** and **PUNCH-OUT** activator keys on the **GLOBAL RECORD** section of the AutoTouch+ Panel
2. Automatically: Enabling the Write Zone and “Auto Punch-In/Out” in the AutoTouch+ window of the Graphic Controller (GC). Refer to chapter 5.8.4, Auto Punch In/Out.
3. Automatically via GPI input (refer to chapter 5.8.5).

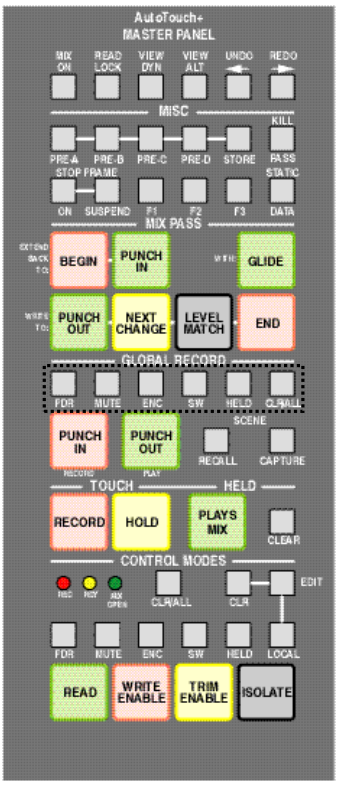
Conditions: If no controls of the type chosen of the Global Record Pre-Selector are enabled, Global punch-in has no affect. Likewise, if no controls of the type chosen of the Global Record Pre-Selector are in RECORD, Global punch-out has no affect.

Note: Individual controls can be punched in and out independently of the Global Record functions. This is done locally on the channel strip or on the D950 CAS.

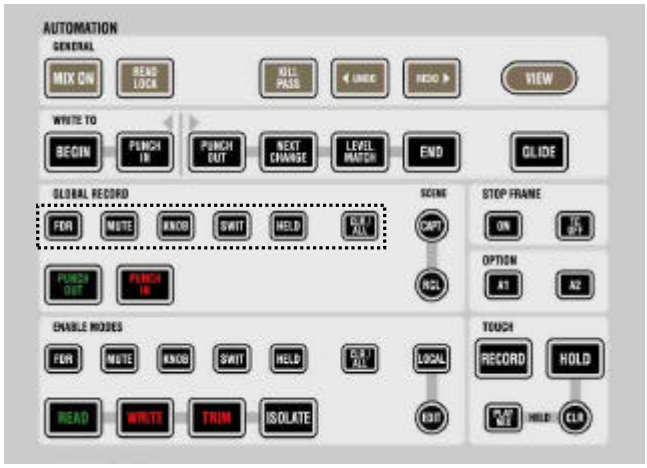
5.8.1 Pre-Selectors

Pre-Selectors: Regardless of the punch method used, the Global Record Pre-Selectors determine which controls are affected when a global punch-in occurs.

D950:



Vista:



Multiple Pre-Selectors may be active at a time. Any and all combinations are allowed. Pre-Selectors will illuminate when active.
The following describes the control classifications as defined by the Global Record Pre-Selectors:

- **FDR** (Fader): The fader of all channel types
- **MUTE** (Mute): The Mute of all channel types
- **ENC / KNOB** (Encoders/Knobs): All continuous controller type encoders (knobs or rotaries). This does *not* include knobs that control “selectors”, such as pan format, or phase inversion (for example).
- **SW** (Switches): All switches (keys) and selectors (keys and knobs)
- **HELD** (Held Controls): All controls that are currently in a “Held” status. (This could be any combination of faders, mutes, switches, and encoders). Refer to chapter 5.7.3.

Note: If no Pre-Selectors are active, then no controls will be punched-in or out.

Clear/All:

- **CLR / ALL**: Permits the changing of all of the Pre-Selectors at once. This key functions as follows:
  - If one or more Pre-Selectors are active, then pressing CLR/ALL clears all of the Pre-Selectors.
  - If no Pre-Selectors are active, then ALL Pre-Selectors get active.
  - Holding **CLR / ALL** and pressing **PUNCH-IN** or **PUNCH-OUT** will by-pass the Pre-Selector and select all controls.

5.8.2 Manual Punch-In/Out

The manual **PUNCH-IN** and **PUNCH-OUT** activators are located in the Global Record section of the Automation Master Panel. As described above, the controls to be punched in and out are chosen using Global Record Pre-Selectors and then manually "punched in and out" of RECORD using the **PUNCH-IN** and **PUNCH-OUT** activator keys.

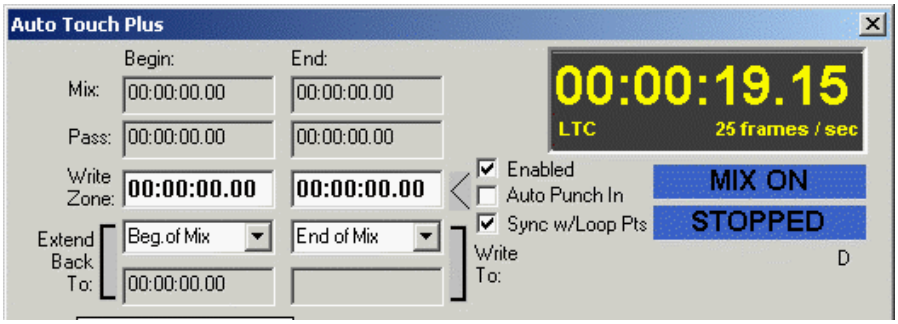
Punch-in/Out Activators:

- **PUNCH IN**: Pressing **PUNCH IN** puts the Pre-Selected controls on all channels **<Option>** into RECORD (if enabled). As with Control Mode entries, the controls affected are filtered by the Pre-Selectors that are currently active.
- **PUNCH OUT**: Pressing **PUNCH OUT** takes the Pre-Selected controls on all channels **<Option>** out of RECORD (if enabled). As with Control Mode entries, the controls affected are filtered by the Pre-Selectors that are currently active.

Note: Whenever any control is in RECORD the **PUNCH IN** and **PUNCH OUT** keys are lit.

5.8.3 Write Zone

The Write Zone is a region between two user-specified timecode locations. When the Write Zone is enabled, recording may take place only within that timecode region.



Write Zone Functions:

When the Write Zone is enabled, the following conditions are in place:

- Record is locked out before the Write Zone Begin Time.
- Record is locked out after the Write Zone End Time.
- Recording is allowed only between the Write Zone Begin and End Time.
- Any controls in RECORD will punch-out at the Write Zone End Time if timecode is played through the End Time (with or without Auto Punch-In engaged).
- If Auto Punch-In is engaged, enabled controls will punch-in at the Write Zone Begin Time if timecode is played through the Begin Time.

Enabling the Write Zone: The Write Zone is enabled by checking the "Write Zone Enabled" box in the AutoTouch+ window. If this box is unchecked the Write Zone has no affect.

Write Zone Begin Time: The Write Zone Begin Time is the timecode location before which recording is locked out, assuming the Write Zone is enabled. Recording is allowed only after the Write Zone Begin Time, but only up to the Write Zone End Time.

Auto Punch-In: If Auto Punch-In is engaged, a punch-in will occur for enabled controls when the Write Zone Begin Time is encountered.

Write Zone End Time: The Write Zone End Time is the timecode location after which Recording is locked out, assuming the Write Zone is enabled. Recording is allowed only before the Write Zone End Time, but only after the Write Zone Begin Time.

Sync w/Loop Pts: Checking the "Sync with Loop Points" function allows to set the Write Zone In an Out points, according to the selected cue points in the AutoTouch+ window.

Any controls in RECORD will punch-out when the Write Zone End Time is encountered. This happened whether Auto Punch-In is engaged or not.

Write Zone Begin/End Time Entry: The Write Zone Begin and End times may be entered in the following ways:

- Highlighting all or part of the Begin or End Time entry field and typing in the new time;
- Highlighting all or part of the Begin or End Time entry field and rolling the time up or down using click/drag methods
- Highlighting all or part of the Begin or End Time entry field and using the up or down arrow keys
- Selecting a time from the Right-Click menu
- Pressing + or – followed by a numeric value
- Using the "Sync with Loop Points" function.

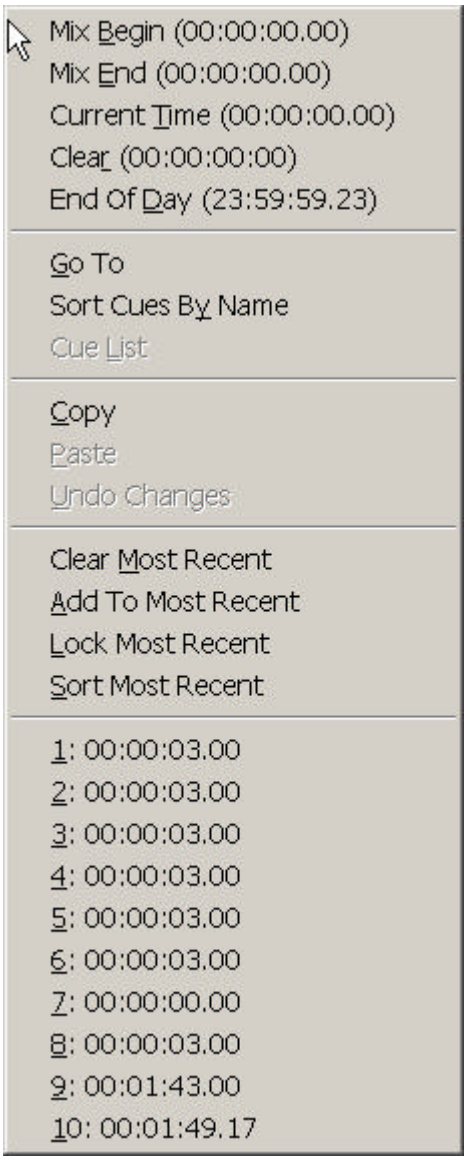
The Write Zone must be enabled before Begin/End Time entry is permitted.

Hot Keys: Hot Keys are provided to aid in the entry of fixed Begin and End timecode locations. A complete description of Hot Key functions is provided in the Appendix.

Entry Field Right-click Menu: Right-clicking either Write Zone entry fields will open the Entry Field Right-click menu.

This menu contains several items that assist the user in quickly entering timecode values. These items are organized in five basic areas:

- Significant System Times: Mix Begin, Mix End, Current Time, Clear (00:00:00.00), and End of Day (23:59:59.2X)
- Cue List Times: Allows access to the Title Cue List and provides the means to sort and go to cues
- Copy/Paste/Undo Changes: Entry field clipboard functions
- Most Recent: A list of the most recently used timecode locations is maintained by the system. Timecode locations from this list many be selected for the entry field value. The most recent timecode (current value) may be locked as the entry field value, to prevent it from being changed. A timecode may be manually added to the list. The list may be sorted and deleted.

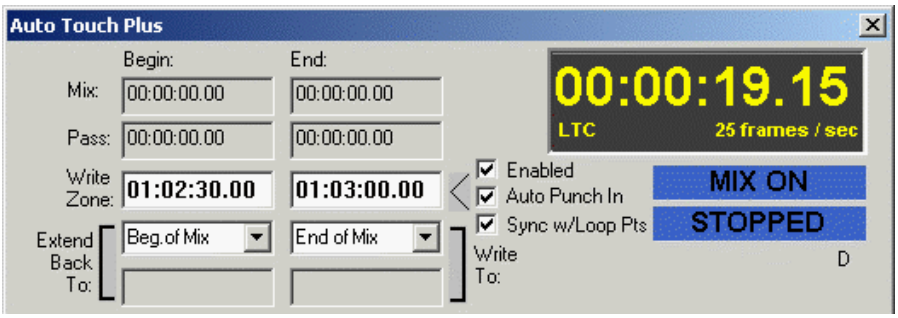


5.8.4 Auto Punch-In/Out

Automatic punch-in/punch-out is controlled via the AutoTouch+ screen of the D950 GC.

Write Zone: To set up an Auto Punch-in/Out, a "Write Zone" with a "Begin" and "End" time must first be established. These will be the In and Out point for the Auto Punch-in. The times displayed were the last In and Out times used by the system. Direct entry of Begin and End times is possible once the Write Zone is enabled. Refer to chapter 5.8.3 for details.

Auto Punch-in: To activate the Auto Punch-in feature, the Write Zone must first be enabled, which is done by checking the "Enable" box next to the End time field. Once the Write Zone is enabled, it is then possible to enable the Auto Punch-in facility. This is accomplished by checking the "Auto Punch In" box located below the Write Zone Enable box.



Performing the Punch: Once Auto Punch-In is enabled and the desired controls are enabled, play back timecode (media). During the pre-roll before the Begin Time, the affected controls will act as if in RECORD ENABLE, but will not punch-in until the Write Zone Begin time.

At the Begin time, the system will automatically punch-in and the any enabled controls will change to RECORD. Recording will continue until the End time is reached, where the controls are automatically punched out.

Note: It is possible to punch-out any individual control at any time within the Write Zone using the **AUTO MODE** key. Global punch-outs may also take place before the end of the Write zone. It is not possible to punch-in before the Begin time or after the End time when the Write Zone is enabled.

Note: Glide functions may be used with Auto Punch-In/Out. Since changes to the Read Mix are prohibited after the Write Zone End time, the Backtime Glide function must be used if Auto Punch-out is used.

5.8.5 Auto GPI In/Out

Global Punch-Ins and Punch-Outs can also be done via the GPI input. This will basically make the Punch-In and Punch-Out key available to external systems or external keys.
If such functionality is required, the `Signaling.ini` file needs to be adapted accordingly. Please contact Studer Service & Support to do the necessary changes in that file.

5.9 Data Transition Behaviors

Data Transitions: In simplest terms, a Data Transition takes place whenever new data meets old data. In more formal terms, a data transition is where Record Mix Data transitions to Read Mix Data and vice versa. This means a transition takes place when Read Mix Data transitions to Record data (such as at a punch-in) and when the Record Data transitions to Read Mix Data (such as a punch-out).

Note: Data Transitions are not limited to punch-in and punch-out locations.

Last Recorded Value: The Last Recorded Value is always the current value of the control at the time it is punched out. However, it should be noted that this value might have been set well before the actual punch-out. In this case, the location of the Last Recorded Value is earlier than the punch-out location.

By definition, the Last Record Value is a Dynamic value. However, it should be noted that it is a singular, non-moving value.

Understanding Behaviors: One of the key aspects to AutoTouch+, is understanding where the Last Recorded Value transitions to and from Read Mix data and how it makes the transitions.

The "where" behavior is determined in two ways:
- Write To: Where Record Data transitions to Read Mix Data
- Extend Back To: Where Read Data transitions to Record Data

The Last Recorded Value may be applied up to or beyond the punch-out point. It may also be applied back to the punch-in point or before. These behaviors will be discussed below.

The "how" behavior is determined by whether the Glide function is On or Off and the Glide Options enabled.

5.9.1 Write To:

The choice of Mix Pass "Write To:" function determines where the Record Data to Read Mix Data transition takes place. In essence, the concept is as follows:
"Take the last recorded value and write it to: _____!"

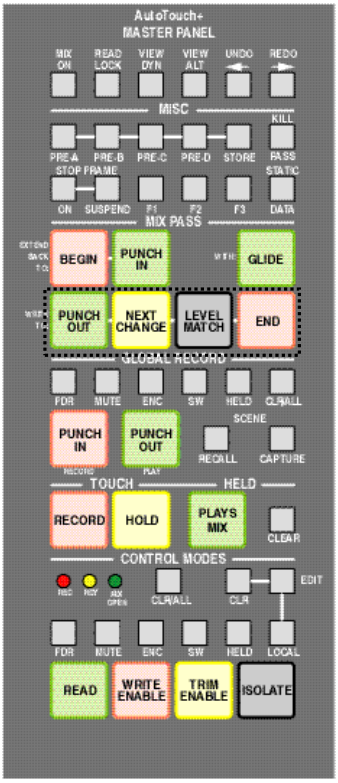
The blank can be filled in with one of following "Write To:" locations:
- Punch-out: Apply the last recorded value to the punch-out location
- Next Change: Apply the Last Recorded Value to the location of the next recorded change
- Level Match: Apply the Last Recorded Value until the it matches the Read Mix value
- End: Apply the Last Recorded Value to the specified End Time.

These locations are also known as "Write To: Functions."

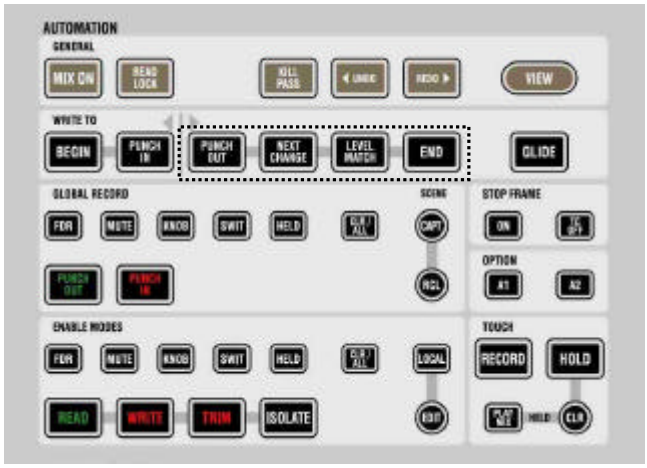
Note: Unlike other automation systems, the transition from Record Data to Read Mix Data does not necessarily have to take place at the punch-out location. In fact, selecting "Write to Punch Out" is the only time that both happen simultaneously.

Write To Keys: The Mix Pass **WRITE TO:** keys determine the point at which the transition from Record Data to Read Mix Data will take place. As noted above, there are four different **WRITE TO:** functions, one of which must be selected. The selected function key will illuminate when that function is active. Only one function can be active at one time.

D950:



Vista:



The four **WRITE TO:** functions behave as follows:

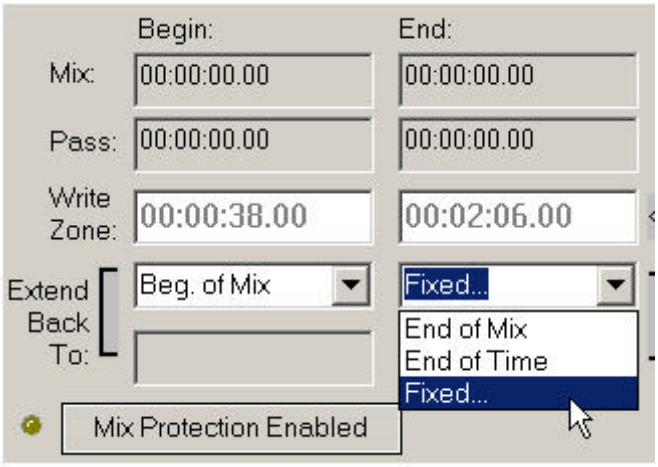
- **PUNCH OUT**: The Last Recorded Value (punch-out value) will be applied until the Punch-out point. At the punch-out point, the Record Data will transition to the Read Mix Data. **PUNCH OUT** is the default **WRITE TO:** function.
- **NEXT CHANGE**: The Last Recorded Value will be applied until the next recorded change in the Read Mix Data. At that point, the Record Data will transition to Read Mix Data.
- **LEVEL MATCH**: The current value of the control (by definition the Last Recorded Value) will be written until it matches the Read Mix Data. At this point, the Record Data will seamlessly transition to the Read Mix Data and a punch-out will occur. If a punch-out occurs without the level being matched, the control will not actually punch-out until the levels match. Any moves that are made before the levels match will be recorded. Matching level may be accomplished by either moving the control to match the Read Mix value or positioning the control where the Read Mix values will intercept the physical position.
- **END**: The Last Recorded Value will be applied until the user-specified End Time. All previously recorded values between the Last Recorded Value (typically Punch-out) and the End Time will be erased.

  The End Time is defined in three different ways:
  - End of Mix: The Last Recorded Value will be applied until the End Time of the Active Mix.
  - End of Time: The Last Recorded Value will be applied up to the last possible timecode location (i.e. 23:59:59.2X). The number of frames will be determined by the selected timecode frame rate.
  - Fixed…: The Last Recorded Value will be applied up to a “fixed” user-selected End Time. See Setting a Fixed End Time below.

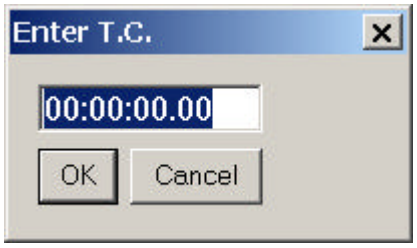
Post Pass Processing: **NEXT CHANGE**, **LEVEL MATCH**, and **END** transitions do not have to be performed in real-time. The active "Write To:" function will take place even after timecode playback has stopped at the end of Record Pass. This saves time by eliminating the need to perform complete real-time passes when a control's value can be written to a known location. This also means it is possible to overwrite mix data in locations that have not been heard. Care is suggested while using "Write To:" functions.

Important Note: **WRITE TO: NEXT CHANGE**, **LEVEL MATCH**, and **END** are destructive functions in the regard that they will overwrite existing mix data until transitioning at their respective **WRITE TO:** locations. Even though previous Mix Passes are retained, for efficient operation care should be taken when using these functions.

Setting a Fixed End Time: Fixed End Times are set using the Write To End Time pull-down menu in the AutoTouch+ window of the GC. The pull-down menu will allow the selection of an End Time definition (End of Mix, End of Time, or Fixed…).

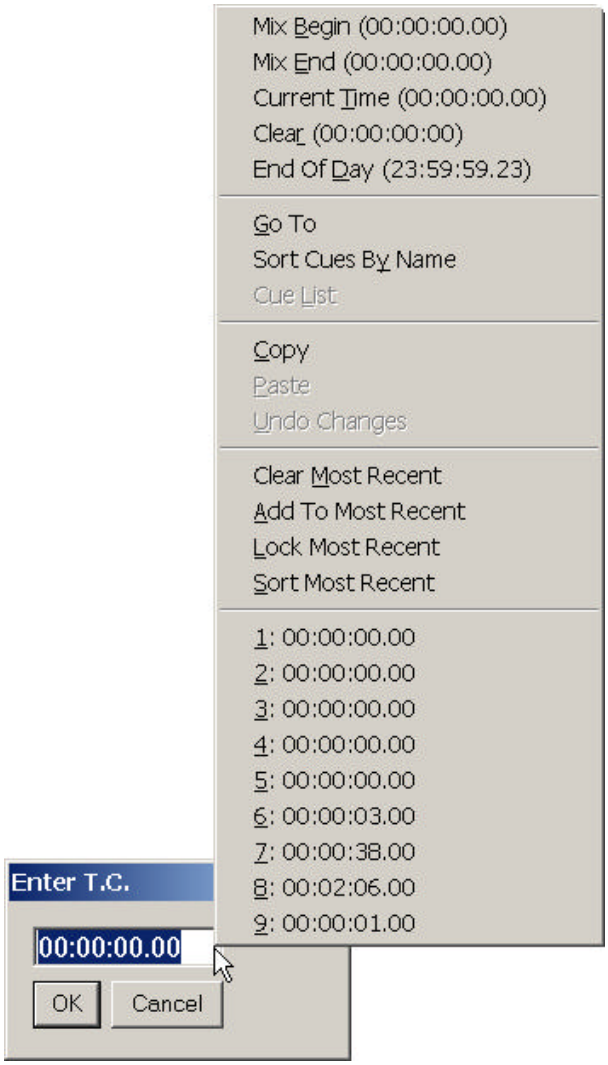


The End of Mix time is predetermined by the End Time of the Active Mix Pass and cannot be altered via this field. End of Time is always the last possible timecode location (i.e. 23:59:59.2X) and cannot be altered. When Fixed End Time is selected a T.C. Entry box appears.



The desired Fixed End Time may be entered via this box by typing in a timecode location or using the roller method (timecode locations cannot be pasted into this field) and clicking OK. When Fixed End Time is selected, the entered timecode location will be shown in the display field directly below the End Time pull-down menu. Changes or direct entries are not allowed using this field. To edit the Fixed End Time, Fixed must be selected from the pull-down menu.

Right-clicking in the Enter T.C. field will open the Entry Field Right-click menu. This menu contains several items that assist the user in quickly entering timecode values.



These items are organized in five basic areas:

- Significant System Times: Mix Begin, Mix End, Current Time, Clear (00:00:00.00), and End of Day (23:59:59.2X)
- Cue List Times: Allows access to the Title Cue List and provides the means to sort and go to cues
- Copy/Paste/Undo Changes: Entry field clipboard functions
- Most Recent: A list of the most recently used timecode locations is maintained by the system. Timecode locations from this list many be selected for the entry field value. The most recent timecode (current value) may be locked as the entry field value, to prevent it from being changed. A timecode may be manually added to the list. The list may be sorted and deleted.

Hot Keys: Hot Keys are provided to aid in the entry of fixed End timecode locations. A complete description of Hot Key functions is provided in chapter 5.23.

<Option> <End of Pass Clears>: The End of Pass options (also refer to chapter 5.21.7) determine the behavior of specific functions when a mix pass is terminated by stopping timecode. The behaviors that take place are determined on the End of Pass Options page. Check boxes allow the selection of the following options:
With <Write To End> checked, the "Write To: End" function is disabled after the end of every Mix Pass and Punch Out is reset as the default state. This ensures that "Write To: End" is only used for one pass without being reset as the "Write To:" function.

5.9.2 Extend Back To:

The choice of Mix Pass "Extend Back To:" function determines where the Read Mix Data to Record Data transition takes place. In essence, the concept is as follows:
"Take the last recorded value and extend it back to: _____!"

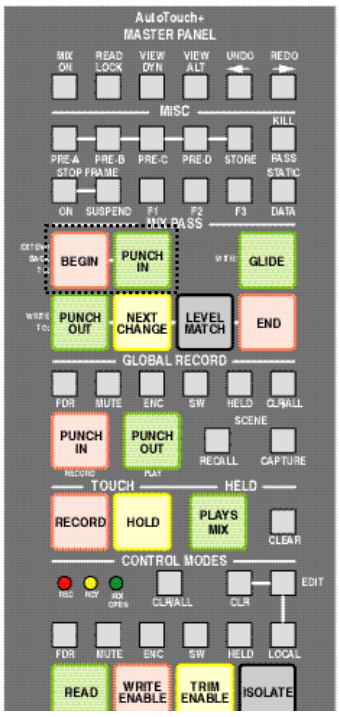
The blank can be filled in with one of two "Extend Back To:" locations:
- Punch-in: Extend the Last Recorded Value back to the punch-in location
- Begin: Extend the Last Recorded Value back to the specified Begin Time.

These locations are also known as **EXTEND BACK TO:** Functions.

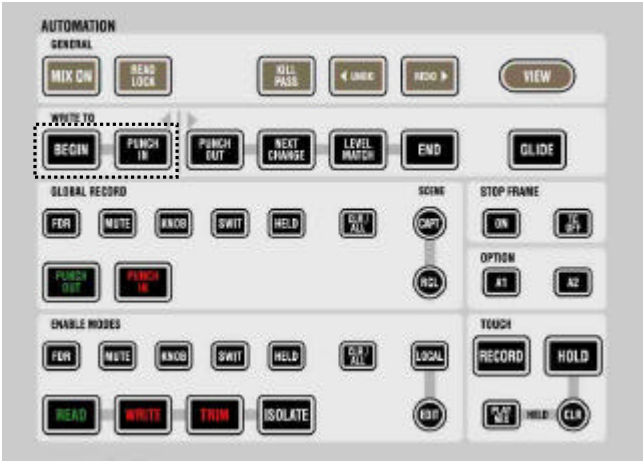
Note: Unlike other automation systems, the transition from Read Mix Data to Record Data does not necessarily have to take place at the punch-in location.

EXTEND BACK TO: keys: The Mix Pass **EXTEND BACK TO:** keys determine the point at which the transition from Read Mix Data to Record Data will take place. As noted above, there are two different **EXTEND BACK TO:** functions. The selected function key will illuminate when that **EXTEND BACK TO:** function is active. Only one function can be active at a time.

D950:



Vista:



Keys for **EXTEND BACK TO:** functions are located on the Mix Pass section of the Automation Master Panel.

The two **EXTEND BACK TO:** functions behave as follows:

- **PUNCH IN**: The Last Recorded Value (typically the value at the time of the punch-out) will be extended back to the punch-in point. At the punch-in point, the Read Mix Data will transition to the Record Data.
- **BEGIN**: The Last Recorded Value will be extended back to the user-specified Begin Time. All previously recorded values between the Last Recorded Value (typically Punch-out) and the Begin Time will be erased.

  The Begin Time is defined in three different ways:
  - Beginning of Mix: The Last Recorded Value will be extended back to the Begin Time of the Active Mix.
  - Beginning of Time: The Last Recorded Value will be extended back to the first possible timecode location (i.e. 00:00:00.00).
  - Fixed…: The Last Recorded Value will be extended back to a "fixed" user-specified Begin Time. See Setting a Fixed Begin Time below.

Post Pass Processing: By definition, **EXTEND BACK TO:** transitions are performed as a post pass process. This also means it is possible to overwrite mix data in locations that have not been heard. Care is suggested while using **EXTEND BACK TO:** functions.

Important Note: **EXTEND BACK TO: PUNCH IN** and **BEGIN** are destructive functions in the regard that they will overwrite existing mix data back to their respective **EXTEND BACK TO:** locations. Even though previous Mix Passes are retained, for efficient operation care should be taken when using these functions.

Setting a Fixed Begin Time: Fixed Begin Times are set using the methods employed to setting Fixed End Times. Refer to "Setting a Fixed End Time" in chapter 5.9.1 above.

Hot Keys: Hot Keys are provided to aid in the entry of fixed Begin timecode locations. A complete description of Hot Key functions is provided in the Appendix.

<Option>

- <End of Pass Clears>: The End of Pass options (refer to chapter 5.21.7) determine the behavior of specific functions when a mix pass is terminated by stopping timecode. The behaviors that take place are determined on the End of Pass Options page. Check boxes allow the selection of the following options:
  - With <Extend Back To Begin> checked, the "Extend Back To: Begin" function is disabled after the end of every Mix Pass. This ensures that "Extend Back To: Begin" is only used for one pass without being reset.
  - With <Extend Back To Punch In> checked, the "Extend Back To: Punch In" function is disabled after the end of every Mix Pass. This ensures that "Extend Back To: Begin" is only used for one pass without being reset.
- With <Extend Back To Punch In Selects Write to Punch Out> checked on the Master Panel Options page (refer to chapter 5.21.5), "Write To: Punch Out" is automatically selected when "Extend Back To: Punch In" is selected. This is convenient since these functions are often used together, especially when Auditioning a level and then using that level between punch-in and punch-out locations.

- The Master Panel **EXTEND BACK TO: PUNCH IN** and **BEGIN** keys may be overridden by checking options on the <Master Panel Overrides> section of the Master Panel Options page. Faders and Encoders can have **EXTEND BACK TO: PUNCH IN** and/or **BEGIN** set to <OFF> or to follow the Master Panel <Follows Panel>. **EXTEND BACK TO: PUNCH IN** and/or **BEGIN** for Switches can also be set to <OFF> or be set to follow the Master Panel <Follows Panel>.

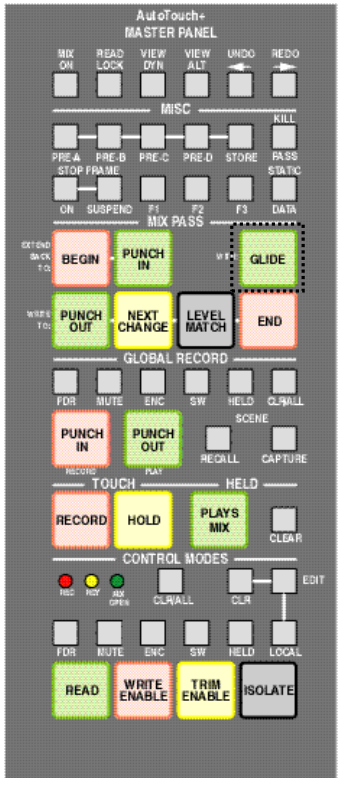
5.9.3 Glide

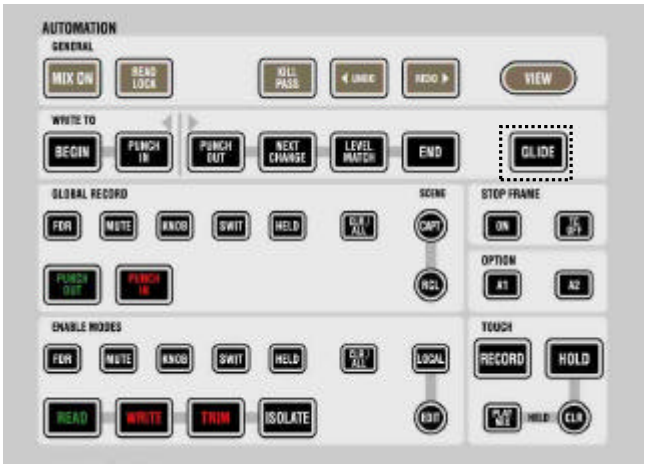
AutoTouch+ provides extensive "Glide" functions. Glide determines how the new data transitions to old data and vice versa. The behavior of the Glide functions are determined by the specified Glide Time and the enabled Glide options.

Glide allows Record Data to transition to and/or from Read Mix Data over a user-specified period of time. Controls can "glide" from their Record values back to their Read Mix values at the desired "Write To:" location. Unlike many other automation systems, controls can also Glide from the Read Mix value to the Record values at the desired "Extend Back To:" location.

Real-time/Post Process Glides: Glide operations may take place in real-time or as a post Record pass process. Refer to the "Write To:" or "Extend Back To:" paragraphs above.

Glide functions are engaged by pressing the **GLIDE** key in the Mix Pass section of the AutoTouch+ Panel. When Glide is active the **GLIDE** key will illuminate.





Note: If no Glide Options are selected in the Glide Options page, then no glide functions will take place within the system even if the **GLIDE** key is active.

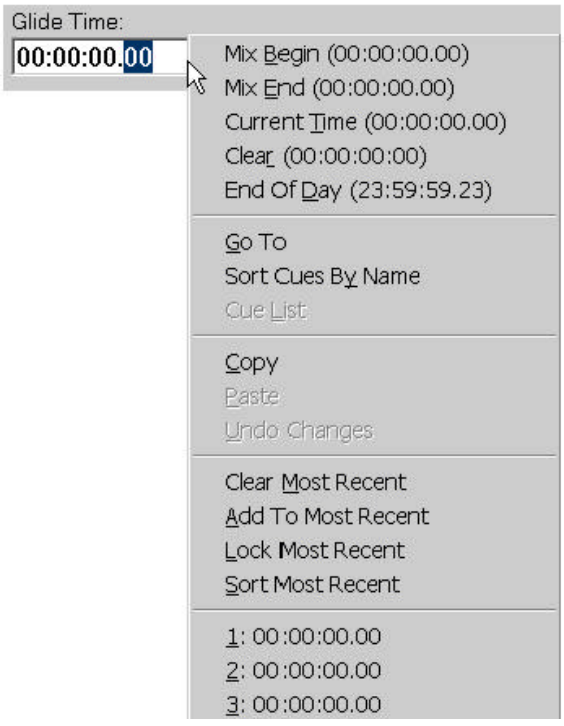
Glide Behaviors: Glide can be set to operate before or after the "Write To:" transition points **<Option>**. Glide will always operate after the "Extend Back To:" transition points when enabled.

Glide behaviors at transition points are described below:

- Glide After Transition Point:
  - "Write To:" At the Record Data to Read Mix Data transition, Glide functions will start at the transition point and continue until the Read Mix Data values have been restored. Glide will take place after the Punch-out, Next Change or Fixed End location (if possible).
  - "Extend Back To:" At the Read Mix Data to Record Data transition, Glide functions will start at the transition point and continue until the Record Data values have been reached. The Glide will take place after the Punch In or Begin location.
- Glide Before Transition Point (Back Time enabled **<Option>**): This feature is only available for "Write To:" data transitions and at the end of the Write Zone when AutoPunch is used.
  - "Write To:" At the Record Data to Read Mix Data transition, Glide functions will start before the transition point by the amount of the Glide Time. The Glide will continue until the Read Mix Data values have been restored (at the specified transition point). The Glide operation will be completed by the Next Change or End location. For example, if a three second Glide is applied with "back time" enabled, the control will start gliding back to its Read Mix data three seconds before its "Write To:" transition point.

Setting the Glide Time: The Glide Time period of time it takes for controls to glide from their Record values to their Read Mix values. This time can be any value between 00:00:00.00 and 23:59:59.2x and is specified via the Glide Time entry field on the AutoTouch+ screen on the D950 GC. Glide times can be typed in or entered using the roller method.

Right-clicking the Glide Time entry field will open the Entry Field Right-click menu. This menu contains several items that assist the user in quickly entering timecode values.



These items are organized in five basic areas:

- Significant System Times: Mix Begin, Mix End, Current Time, Clear (00:00:00.00), and End of Day (23:59:59.2X)
- Cue List Times: Allows access to the Title Cue List and provides the means to sort and go to cues
- Copy/Paste/Undo Changes: Entry field clipboard functions
- Most Recent: A list of the most recently used timecode locations is maintained by the system. Timecode locations from this list many be selected for the entry field value. The most recent timecode (current value) may be locked as the entry field value, to prevent it from being changed. A timecode may be manually added to the list. The list may be sorted and deleted.

Hot Keys: Hot Keys are provided to aid in the entry of glide times. A complete description of Hot Key functions is provided in the Appendix.

<Option> Glide can be applied to all transition points used within the system. The affected points are selected by checking the options on the Glide Options page (also refer to chapter 5.21.3).
<Apply Glide to the following transition points when Glide is ON:>

- <Write To:> Glide will be applied to the following “Write To:” transition points:
  - <Punch Out>
  - <Next Change>
  - <End>
  - <Write Zone End (Auto Punch Out)>
- <Extend Back To:> Glide will be applied to the following “Extend Back To:” transition points:
  - <Begin>
  - <Punch In>
- <Back Time Glide (End and Write Zone End Only)>: Glide will “back time” from the transition point. The Glide will start before the transition point by the amount of the Glide Time. The Glide will finish at the transition point. This feature does not apply to “Extend Back To:” transition points.

5.10 Switch Automation

Switch automation using AutoTouch+ is both easy to use and flexible enough to facilitate numerous functions and modes of operation.

Real-time Switch Editing: The location of switch state changes may be edited in real-time. Adding or deleting switch events may also be easily accomplished.

In general, the following types of switch events may be created and edited:
- Mute On/Off: Turns the channel Mute on and off
- Process In/Out: Engages and disengages the configured processes
- Process Control Switches: Performs switch functions within configured processes

Refer to chapter 5.19.1.1 for details regarding channel strip switches, and chapter 5.19.1.2 for details regarding CAS switches.

Note: Channel Mute operates within AutoTouch+ as a switch, but since it has its own Status key some Mute functions are performed differently as other switches. These differences in operation will be noted where needed.

Other system controls that are seen by AutoTouch+ as “switches” but have alternative means of control. These controls are discussed in detail elsewhere in this document, but warrant mention here:
- Selectors: Choosing the routing of audio or audio processor functions (Channel Input Selector or Filter Slope for example). See below.
- General Patch Connections: Making or breaking General Patch Connections. Refer to chapter 5.11.1, General Patch.
- Channel Patch Direct Out Tap: Changing the location from where the channel Direct Output is derived. Refer to chapter 5.11.2, Channel Patch.
- Channel Patch Meter Tap: Changing the location from where the channel Meter feed is derived. Refer to chapter 5.11.2, Channel Patch.
- Channel Patch Processor Order: Changing the location of processor blocks within the channel. Refer to chapter 5.11.2, Channel Patch.

<Option>
- With <Read Safe> checked on the Misc Options page (refer to chapter 5.21.8), AUDITION mode is defeated for controls in READ and only Read Mix values will be heard.

5.10.1 Switch Classifications

The multiple switches on the channel strip and on the D950 CAS can be defined as being either VMC oriented or control oriented. The classification of the switches (and other controls) is determined by whether or not they are defined in VMC file. If they are not defined by the VMC, they are control oriented by default.

- VMC Oriented Controls: By definition, the objects (controls in this case) that appear in the VMC are audio oriented. These objects directly affect the audio and/or its routing.
- Control Oriented Controls: By definition, these controls have an operational orientation and do not directly affect audio. These controls carry-out system oriented functions.

VMC Switches: VMC oriented switches can be automated using AutoTouch+. These switches are as follows:

- Channel Strip:
  - Mute: Channel Mute
  - Encoder Parameter Switches: The switch associated with each of the four channel strip rotary encoders.
  - Rotary Selectors: This also includes rotary encoders that are used as Selectors. (See Selectors below)
  - Processor Block In/Out Switches: **EQ, FILT, COMP/LIM, EXP/GATE, INSERT, DELAY, OPT,** and **PAN**
  - Auxiliary In/Out Switches: **MONO 1...4 and STEREO 1...4**
  - Direct Out Switch: **DIR OUT**
  - Input Selector Switches (See Selectors below): **IN 1, IN 2, GEN**

Note: Mono and stereo auxiliaries 5 and above may be engaged via the CAS or CAU (Central Assignment Unit).

- CAS:
  - Mute: Channel Mute
  - Output Switch: DIR OUT, MT Bus Trim/N-1
  - Input Selector and Parameter Switches (See Selectors below): **IN 1, IN 2, GEN**
  - Processor Block In/Out and Parameter Switches: **EQ, FILT, COMP/LIM, EXP/GATE, INSERT, DELAY, OPT,** and **PAN**
  - Rotary Selectors: This also includes rotary encoders that are used as Selectors. (See Selectors below)
  - Auxiliary In/Out and Pre Switches: **MONO** and **STEREO**

Note: A process must be included in the VMC in order for it to be automated. A process has not been assigned to the OPT processing block position in V3.0 or previous software.

Control Switches: Switches that are control oriented are outside the AutoTouch+ system and therefore cannot be automated. Switches outside of the control of Auto-Touch+ are as follows:

- Channel Strip:
  - **SEL** Key: Channel Select key
  - **PFL/SOLO** Key:
  - Automation Switches: **AUTO MODE, S/E PB – S/E REC, MUTE STAT, FDR STAT**
  - Layer Switches: **L1** and **L2**
  - Clipboard Control Switches: **CLR/••ALL, COPY/••ALL, SWAP/••PASTE**
  - **PAGE** Switches: **1, 2, 3, 4**
  - **TALK**
  - **LAST/••FREEZE**
  - User Keys: **USER 1, USER 2**
  - **ASN SEL** key: Assignment Select key (**ASN ENC** on D950 M2)
- CAS:
  - Channel Selection Controls:
  - **PFL/SOLO** key:
  - Automation Switches:
  - Clipboard Control Switches: **CLR/••ALL, COPY/••ALL, SWAP/••PASTE**
  - Auxiliary/Master/Panner Selection Controls:

- In Process Listen Keys: **INPUT LISTEN, SC/DYN LISTEN, EQ LISTEN, INSERT LISTEN**
- User Keys: **USER 1**

Note: While clipboard functions are not automatable, the affects of their use may affect control values. Because of this, the results of clipboard operations may be recorded as automation events.

Selectors: Selectors are a special group of controls that typically use the encoder knobs as a means of physical control, but function as "switches" within AutoTouch+. This differs from switches that operate as "toggles," and alternate between two states.

Selectors perform one of two functions:
- Audio Routing: Input Selector, Direct Out tap location, Meter tap location, Processor Block Order, etc.
- Processor Parameter Selector: Input Function, Filter Slope, etc.

Selectors may be assigned to switches, knobs, or to the Channel Patch for a means of control. However, they may only be pre-selected using the **SW** (**SWIT**) Pre-Selectors.

Note: The Channel Input Selector is a special case in regard that it has a key for each input on the channel strip. However, these keys function collectively as a Selector. The input may also be selected from the Channel Patch.

Note: Press and Hold operations may not apply to all selectors.

5.10.2 Switch Control Modes

Since switches and selectors are not continuous controllers like faders or encoders, Control Modes affect switches in a unique manner.

Switch operations will perform the following functions when dynamic switches are in the Control Modes indicated:

READ: The Read Mix data will determine the switch state. AUDITION mode is available.
- Press and Release Actuation:
  - Without Touch Hold engaged, Switch Press will toggle the switch state and put the switch in Audition. The switch state will toggle back at the next recorded change of state.
  - With Touch Hold engaged, Switch Press will toggle the switch state and put the switch in Audition in a Held state. The switch will hold its alternate state and stay in Audition until Held controls are cleared.
- Press and Hold Actuation:
  - Switch Press will toggle the switch state and put the switch in Audition. The switch will exit Audition when released. If its state does not match the Read Mix state, it will toggle to match upon release.

WRITE: While in RECORD previously written switch states will be overwritten. WRITE AUDITION mode is available.

- Press and Release Actuation:
  - Without Touch Record or Touch Hold engaged, Switch Press will toggle the switch state and put the switch in Audition. The switch state will toggle back at the next recorded change of state.
  - With Touch Hold engaged, Switch Press will toggle the switch state and put the switch in Audition in a Held state. The switch will stay in Audition until Held controls are cleared.
  - With Touch Record engaged, Switch Press will toggle the switch state and punch the switch into RECORD. The switch will hold its alternate state and stay in RECORD until Held controls are cleared.
- Press and Hold Actuation:
  - Without Touch Record, Switch Press will toggle the switch state and put the switch in Audition. The switch will exit Audition when released. If its state does not match the Read Mix state, it will toggle to match upon release.
  - With Touch Record engaged, Switch Press will toggle the switch state and punch the switch into RECORD. The switch will punch-out when released. If its state does not match the Read Mix state, it will toggle to match upon release.

TRIM: While in TRIM previously written switch states may be edited. TRIM AUDITION mode is available.

- Press and Release Actuation:
  - Without Touch Record engaged, Switch Press will toggle the switch state and put the switch in Audition. The switch state will toggle back at the next recorded change of state.
  - With Touch Record engaged, Switch Press will toggle the switch state and punch the switch into RECORD. The switch will hold its alternate state and stay in RECORD until the next recorded change of state. The switch state will toggle to its Read Mix state and will punch-out at the next recorded change of state.
- Press and Hold Actuation:
  - Using Press and Hold actuation on Trim Enabled switches yields the same results as if the switches were Write Enabled.

The Trim of a switch cannot persist past the next recorded change of state for that switch.

ISOLATE: State changes of Isolated switches are not recognized by AutoTouch+.

Note: All Mix Pass “Write To:” and “Extend Back To:” conditions apply as appropriate.

5.10.3 Switch Operation

Switches and Touch-sensitivity: Switches are not “touch-sensitive” in the same regard as faders or encoders. Mere physical contact with a switch is not sufficient enough to be registered by the system. For switches to have an effect within the system, they must be pressed.

Unlike faders and encoders (knobs) switches are “touch-sensitive” only when engaged and disengaged. Because of this, and the toggle function of most switches (all switches except Selectors), the automation of switch

functions differs from faders and encoders. The differences are operational mostly in nature and will be described in this chapter.

Switch Functions: Pressing a switch performs two basic functions:
- Audio Function: The switch state is toggled to its alternate position.
- Automation Functions:
  - Switch Press
  - Switch Release

Under normal circumstances, a Switch Press produces a Touch event. However, unlike faders and encoders, switches do not produce a Un-touch event when they are released. The Switch Press audio toggle (switch state toggle) event may be suppressed by holding down the **AUTO MODE** modifier key when the switch is actuated.

AutoTouch+ recognizes Switch Press and Switch Release as separate and independent events. The Touch event produced by a Switch Press serves a separate from the Switch Press itself. This system allows the user to determine what will take place when a key is pressed and also when it is released.

This independence allows switches to take on different behaviors depending on which functions Switch Press and Switch Release are allowed to perform. The result is the ability for switches to operate in different modes depending on the needs of the user.

Switch Operating Modes: Switches may operated using the following modes:
- Press and Release: Momentary Press and Release; Pressing the key and immediately releasing it.
- Press and Hold: Pressing and holding the key down beyond a predetermined time threshold.
- Modified Press Function: Holding the **AUTO MODE** key will suppress the audio toggle function, but produces the Touch event when a key is pressed. This mode allows the switch to be punched-in without toggling its state.

Each of these functions are described below. The Modified Press Function may be used with either Press and Release or Press and Hold operations.

Document Note: *The next three chapters make the assumption that the switches actuated are in the proper enabled Control Mode as operations are carried out.*

5.10.3.1 Press and Release

Press and Release is defined as using switches in a momentary manner. To perform a Press and Release operation, press a work surface key and immediately release it. The key is not held down any longer than it takes to toggle the switch state.

Press and Release operations perform the following functions:
- Switch Press:
  - Toggles the switch state
  - Produces a Touch event
- Switch Release:
  - An Un-touch event is not produced.

With Press and Release operations, switches toggle to their alternate state when pressed and then hold that state until one of several conditions is met. The behaviors that occur as the result of a Press and Release switch operation is dependent on the switch's Control Mode and whether Touch Record and/or Touch Record is engaged. Refer to chapter 5.10.2.

Note: If a switch is held down too long, it will change to Press and Hold operation. The length of time a switch may be held down is determined by the Switch Press and Hold Threshold in the `D950desk.ini` file in the `D950System` folder.

5.10.3.2 Press and Hold

Press and Hold is defined as using switches in a temporarily sustained manner. To perform a Press and Hold operation, press a switch and hold it down for a period of time before releasing it. AutoTouch+ senses how long the key is down and its mode of operation changes if it is held down longer than a specified period of time (typically 500 ms or so). The function becomes similar to touching a fader, keeping a finger on it, and then releasing it later.

Press and Hold operations perform the following functions:
- Switch Press:
  - Toggles the switch state
  - Produces a Touch event
- Switch Release:
  - Punch-out

With Press and Hold operations, switches toggle to their alternate state when pressed and then hold that state as long as the key is held down. When the switch is released, it may or may not toggle depending on the state recorded in the Read Mix Data at the time of release.

If Touch Record is engaged, the switch will punch-in as well as toggle its alternate state when it is pressed. The switch will stay in that state and in RECORD as long as the switch is held down. Upon release, the switch will punch-out. It may or may not toggle states depending on the state recorded in the Read Mix Data at the time of release. The change of state may Written or Trimmed depending on the selected Control Mode.

The behaviors that occur as the result of a Press and Hold switch operation is dependent on the switch's Control Mode and whether Touch Record and/or Touch Record is engaged. Refer to chapter 5.10.2, Switch Control Modes.

Press and Hold Threshold: Whenever a work surface key is pressed, AutoTouch+ monitors the duration the key is held down. If the time a key is held down is longer than the Switch Press and Hold Threshold value, Press and Hold becomes active. If the hold duration is less than the threshold time the Press and Release functions are maintained.

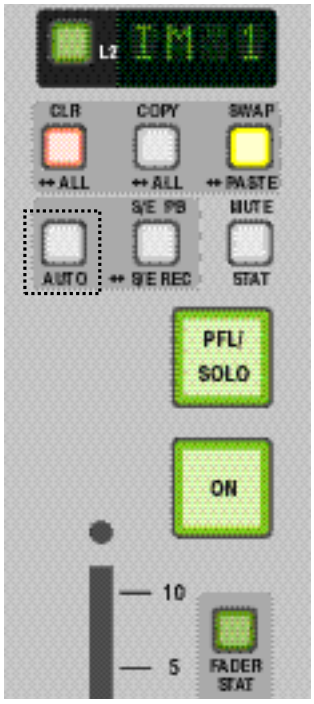
5.10.3.3 Modified Press Function

It is possible to suppress the toggle function when a switch is pressed, but still allow the Touch event to be produced. This allows a punch-in or Audition to be performed by pressing a switch without toggling its state. This "Modified Press Function" is very useful when the punch-in switch state matches the Read Mix state.

This Modified Press Function is available for both Press and Release and Press and Hold operations.

The key press may be modified by holding down the **AUTO MODE** key as a work surface key is pressed. In this regard, the **AUTO MODE** key functions as a modifier key.

D950:



Vista:

Example: With Touch Record engaged, press and hold the **AUTO MODE** key, then press and hold a record-enabled key. When the key is pressed, it will punch-in but its status will not toggle. If the **AUTO MODE** key is released before the key is, toggle suppression is turned off. Now when the key is released, it will toggle its status, and the key release will cause the control to punch-out.

5.11 Graphic Controller Automation

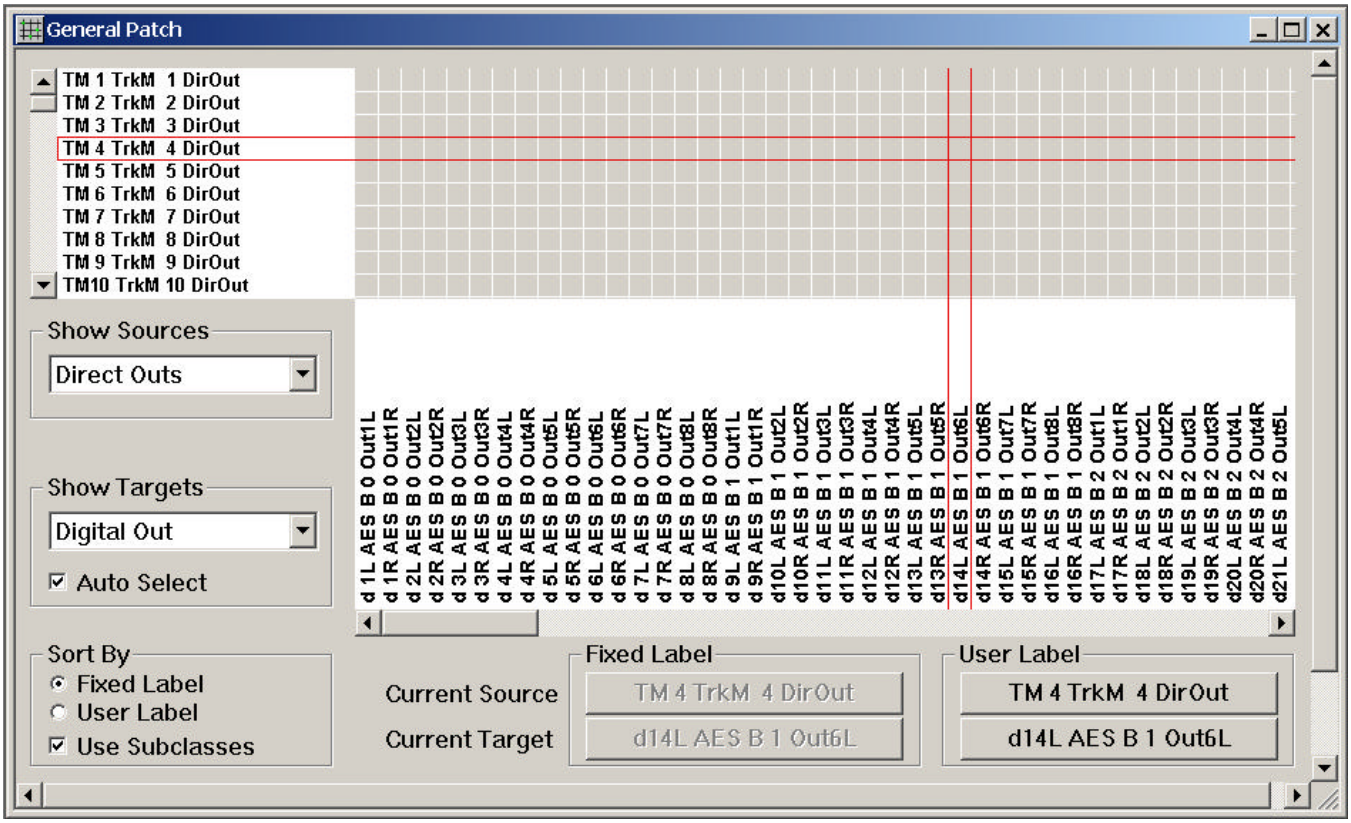
As discussed in the Switch Automation chapter, controls that are defined in the VMC may be automated. While most of these controls are work surface oriented, some controls are found only in the Graphic Controller.

Automated Items: Automatable items in the Graphic Controller are as follows:

- General Patch Connections
- Channel Patch:
  - Input Selector
  - Processor Block Order
  - Dynamic Sidechain Link Setup
  - Dynamic Sidechain Link Enable
  - Dynamic Key Input Routing
  - Direct Output Tap Location
  - Meter Feed Tap Location

5.11.1 General Patch

Connections within the General Patch may be automated. Both “Make Connection” and “Break Connection” operations may be stored as Static objects or recorded as Dynamic objects. All types of General Patch connections may be recorded.



Connection Behavior: The General Patch does not have dedicated automation controls. The current global automation modes apply to the General Patch. The **SW / SWIT** Pre-Selector must be used to select global modes.

General Patch connections follow the rules of a Press and Release switch operation. Refer to chapter 5.10.3.1.

As with any control, changes to General Patch connections may be Auditioned.

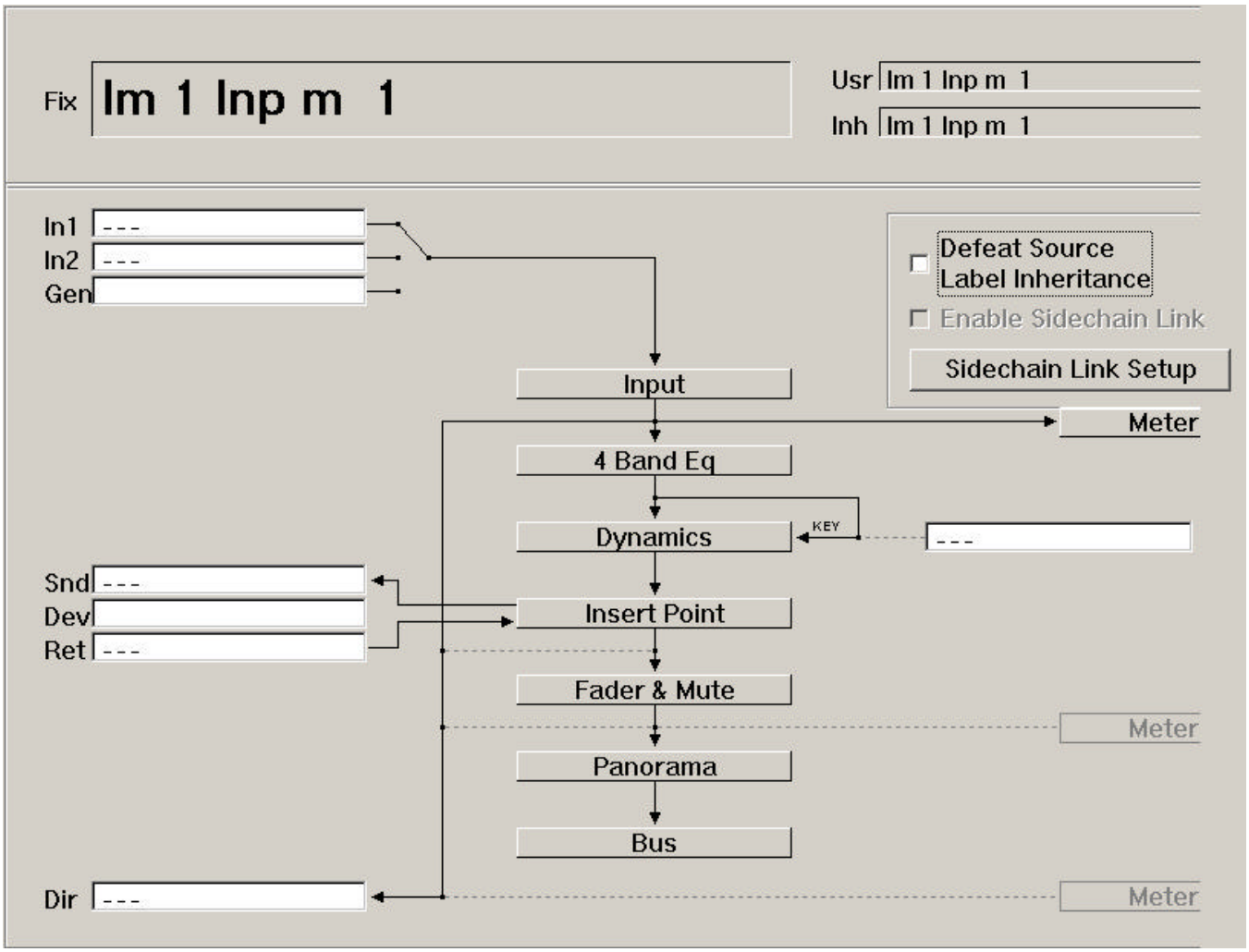
Record a General Patch Change: To automate a connection in the General Patch, use the following procedure:

1. Select the desired global Control Mode. Write will overwrite previous changes, both location and connection type.
2. Select **TOUCH RECORD**.
3. Select the desired "Write To:" and "Extend Back To:" functions.
4. Open the General Patch if it is not already open.
5. Select the connection point to be automated (single click at the desired location).
6. Make/break the desired connection as follows:
   - To make a simple mono-to-mono connection, press the **MAKE CONNECT** function key above the trackball. (Double-clicking the connection location will bring up the connection menu where a mono-to-mono connection may be made.)
   - To make a complex connection (mono-to-stereo, stereo-to-stereo, stereo-to-mono), double-clicking the connection location will bring up the connection menu where the desired connection may be made.
   - To break any connection, press the **BREAK CONNECT** function key above the trackball. (Double-clicking the connection location will bring up the connection menu where a connection may be broken.)
7. Upon the selection of the desired connection type, AutoTouch+ will punch-in. Following the rules for Press and Hold, the new connection state will persist until the "Write To:" conditions are met or a Global Punch-out occurs.
8. When timecode is stopped, a new Mix Pass will be generated.

Note: Like any other object within AutoTouch+, all General Patch connection points are Static objects until a change state is recorded in the system. Therefore, General Patch connections may be updated in the same manner as any other Static control.

5.11.2 Channel Patch

There are several items within the Channel Patch that may be automated. These items may be stored as Static objects or recorded as Dynamic objects.



The following Channel Patch items may be automated:

- Input Selector: Changes to the selected channel input may be automated (In1, In2, Gen)
- Processor Block Order: Changes to the order of the channel processor blocks may be automated (EQ, Dynamics, Insert, Delay, and Fader)
- Dynamic Sidechain Link Setup: The addition of channels to the Dynamic Sidechain Link Setup may be automated
- Dynamic Sidechain Link Enable: The **Enable Sidechain Link** button may be automated (Enable/Disable)
- Dynamic Key Input Routing: The selection of the Dynamic unit Key Input may be automated (Channel/External)
- Direct Output Tap Location: The location from where the channel Direct Output is fed may be automated (Post Input, Pre Fader, Post Fader)
- Meter Feed Tap Location: The location from where the channel Meter is fed may be automated (Post Input, Post Fader, Direct Out Assignment)

Note: Like any other object within AutoTouch+, all Channel Patch items are Static objects until a change state is recorded in the system. Therefore,

Channel Patch items may be updated in the same manner as any other Static control.

Note: The following Channel Patch items have switches on the channel strip that duplicate the Channel Patch functions:
- Input Selector
- Dynamic Sidechain Link Enable
- Dynamic Key Input Routing

Note: The channel Meter location can be set globally using the controls in the "Meter/Generator" item in the GC Options menu (not the AutoTouch+ Options selector).

Item Behavior: The Channel Patch does not have dedicated automation controls. The current global automation modes apply to the Channel Patch.

The following Channel Patch items operate as Selectors:
- Input Selector
- Processor Block Order
- Dynamic Key Input Routing
- Direct Output Tap Location
- Meter Feed Tap Location

The SW (SWIT) Pre-Selectors are used to select global modes.

Press and Release Selectors: Some Channel Patch Selectors operate as Press and Release switches and therefore follow Press and Release switch operation rules. Refer to chapter 5.10.3.1.

The following Channel Patch items operate as Press and Release Selectors:
- Input Selector
- Dynamic Key Input Routing
- Meter Feed Tap Location

Note: The channel Input Selector may be operated via the Channel Patch or by using the keys on the channel strip. Since input selection is controlled with a Selector, Press and Hold operations are not possible.

One Shot Selectors: Other Channel Patch Selectors operate as "One Shot" switches. One Shot selectors operate as true momentary switches. The user has no control over the duration of the held down state and release is immediate. A One Shot operation produces both a Touch and a Un-touch event. In TOUCH RECORD, when a One Shot switch is operated, punch-in and punch-out is almost immediate. Under normal circumstances this could produce an audible glitch, depending on the operation being completed. However, functions assigned to One Shot Selectors will persist in their changed state after punch-out. All Mix Pass "Write To:" and "Extend Back To:" conditions apply, except "Write To : Punch Out."

The following Channel Patch items operate as One Shot Selectors:
- Processor Block Order
- Direct Output Tap Location

These items follow the rules for One Shot Selectors as described above.

Channel Patch Operations: Channel Patch items are operated as follows:

- Input Selector: Place the cursor on or near the Input Selector icon. Each trackball click will cycle the selector through the inputs. A Touch event will be produced for each click.
- Processor Block Order: Click and hold the processor block to be moved, drag it to the new location, and release the trackball button (click and drag). A Touch event will be produced when the trackball is released.
- Dynamic Sidechain Link Setup: Clicking Sidechain Link Setup will open the Sidechain Link window where channels may be added to the available Sidechain Links. A Touch event will be produced when the ADD button is clicked.
- Dynamic Sidechain Link Enable: Clicking the Check Box will toggle the switch state. A Touch event will be produced when the box is checked or unchecked.
- Dynamic Key Input Routing: The route with the solid line is the current state. Clicking the dashed line will select that route and a Touch event will be produced.
- Direct Output Tap Location: The route with the solid line is the current state. Clicking the dashed line will select that route and a Touch event will be produced.
- Meter Feed Tap Location: Clicking the alternate location (shown grayed-out) will select that location and a Touch event will be produced.

Channel Patch Switches: Two Channel Patch items operate as toggle Switches:

- Dynamic Sidechain Link Setup
- Dynamic Sidechain Link Enable

From the Channel Patch, these switches follow the rules of Press and Release switch operations. However, if these functions are accessed via the channel strip keys, they may use either Press and Release or Press and Hold operations. Press and Hold functions are not available via the GC.

As with any control, changes to Channel Patch items may Auditioned.

Record a Channel Patch Change: To automate an item in the Channel Patch, use the following procedure:

1. Select the desired global Control Mode. Write will overwrite previous changes, both location and connection type.
2. Select TOUCH RECORD.
3. Select the desired “Write To:” and “Extend Back To:” functions.
4. Open the Channel Patch if it is not already open.
5. Perform the desired operation within the Channel Patch.
6. At the time the desired operation is performed, AutoTouch+ will punch-in. The new item state will persist until the “Write To:” conditions are met or a Global Punch-out occurs.
7. When timecode is stopped, a new Mix Pass will be generated.

5.12 Other Automated Functions

There are several ancillary functions that may be automated. These functions are described below.

5.12.1 Bus Assignments

Bus Assignments may be automated. Both “assignment” and “de-assignment” operations may be stored as Static objects or recorded as Dynamic objects.

Central Assign Unit (CAU*; D950 only*):

The CAU does not have dedicated automation controls. The current global automation modes apply to the Bus Assignments. The **SW** Pre-Selector must be used to select global modes.

Bus Assignments follow the rules of a Press and Release or Press and Hold switch operation. Refer to chapter 5.10. All Mix Pass “Write To:” and “Extend Back To:” conditions apply, except “Write To : Punch Out.”

As with any control, changes to Bus Assignments may Auditioned.

Record a Bus Assignment:

To automate a Bus Assignment, use the following procedure:

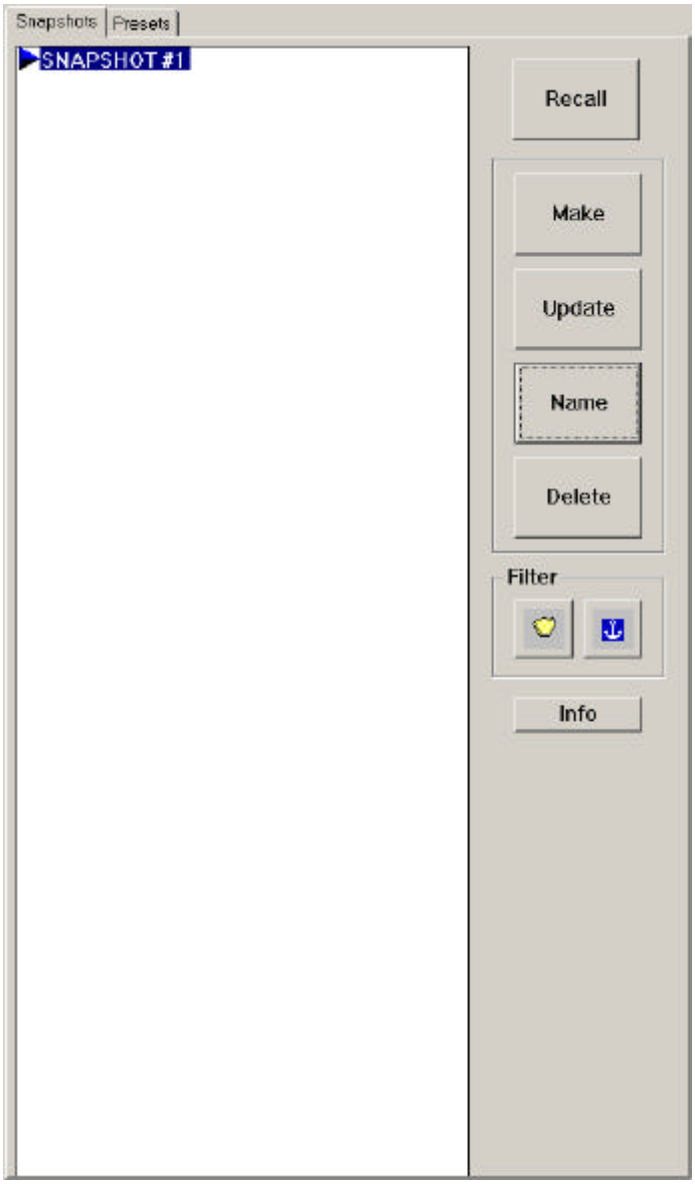
1. Select the desired global Control Mode. Write will overwrite previous changes, both location and connection type.
2. Select **TOUCH RECORD**.
3. Select the desired “Write To:” function.
4. *D950:* Select the channel to be assigned to the desired bus by either pressing the **SEL** key on the channel strip or using the Channel Selector on the CAU.
   Vista: Activate **BUS ASN** in the Touch Screen Area below the Vistonics™ section.
5. *D950:* On the CAU, select the bus type to be assigned.
6. Press the desired bus number to make the assignment.
7. Press and Release or Press and Hold switch rules will apply depending on how the switch is operated.
8. When timecode is stopped, a new Mix Pass will be generated.

Note: Like any other object within AutoTouch+, all Bus Assignments are Static objects until a change state is recorded in the system. Therefore, Bus Assignments may be updated in the same manner as any other Static control.

5.12.2 Snapshots/Presets

VMC Snapshots and Presets may be recalled while AutoTouch+ is in use. The control values contained within Snapshots and Presets maybe applied to the console while AutoTouch+ is in operation, but only for controls that have been properly enabled. All Mix Pass “Write To:” and “Extend Back To:” conditions apply.

Snapshot and Preset control values may be recalled and stored as Static values by recalling the desired Snapshot/Preset without engaging Write or Trim enable. The Static values will be updated and stored the next time a Mix Pass is written.



Recall Behavior: The Snapshot page does not have dedicated automation controls. The current global automation modes apply when Snapshots or Presets are recalled. Any Pre-Selector may be used to select global modes, depending on the controls/functions the user wishes to enable.

Switches and Selectors recalled using Snapshots or Presets will follow the rules of a Press and Release switch operation. Refer to chapter 5.10.3.1.

Since values are being applied to VMC controls, the affects of recalling Snapshots or Presets may Auditioned.

Record Recalled VMC Values: To record Snapshot or Preset values to controls, use the following procedure:

1. Select the desired global Control Mode.
2. Select **TOUCH RECORD**.
3. Select the desired "Write To:" function (Trim will default to "Next Change").
4. Open the Snapshot page in the GC if it is not already open.
5. Recall the desired Snapshot or Preset.
6. Global conditions will apply to the controls that were enabled.
7. When timecode is stopped, a new Mix Pass will be generated.

Note: Recalling the channel strip clipboard has the same affect as recalling a Snapshot or Preset, except values are only applied on one channel at a time. Recording recalled clipboard values may be done as described above.

5.12.3 GC Menu Items

Some operational GC menu items may be automated. During normal operation, these items are found in the GC Option menu. However, since all VMC objects are available in the ShowVMCTree menu (In the SysAdmin menu), these menu items may be automated as well.

Automatable Option Menu Items: The following Option menu items contain automatable controls:

- Meter/Generator: Global channel Meter locations and Generator parameters may be automated. Changes made to these items will produce Touch/Un-touch events.
- N–1 Assignments: N–1 Assignments may automated. Changes made to these assignments will produce Touch/Un-touch events.
- Control Group Filter: Changes made within each Control Group may be automated. Changes made within a Control Group will produce Touch/Un-touch events.
- VSP Microphones and Reverb: Changes made Reverb Bus Assignments and Microphone Characteristics (polar pattern and placement) may be automated. Changes made within the VSP Microphones and Reverb menu items will produce Touch/Un-touch events.

Menu Item Behavior: The GC menus do not have dedicated automation controls. The current global automation modes apply to the automatable GC menu items. For an Option menu item use either the SW (SWIT) or ENC (KNOB) Pre-Selectors to select global modes, depending on item to be automated. For "ShowVMCTree" items, any Pre-Selector may be used, depending on the controls/functions the user wishes to enable.

Menu item switches and selectors will follow the rules of a Press and Release switch operation, refer to chapter 5.10.3.1. All Mix Pass "Write To:" and "Extend Back To:" conditions apply.

As with any control, changes to menu items may be auditioned.

Record a Menu Item Change: To automate a menu item, use the following procedure:

1. Select the desired global Control Mode. Write will overwrite previous changes, both location and connection type. Trim will allow the locations of changes to be moved without changing connection types.
2. Select **TOUCH RECORD**.
3. Select the desired "Write To:" function.
4. Open the appropriate GC menu and select the desired item.
5. Perform desired operations to be automated.
6. At the time the desired operation is performed, AutoTouch+ will punch-in. The new item state will persist until the "Write To:" conditions are met or a Global Punch-out occurs. (*trimmed* status will persist until the Next Change by default.)
7. Upon punch-out a new Mix Pass will be created.

Note: Like any other object within AutoTouch+, menu items are Static objects until a change state is recorded in the system. Therefore, menu items may be updated in the same manner as any other Static control.

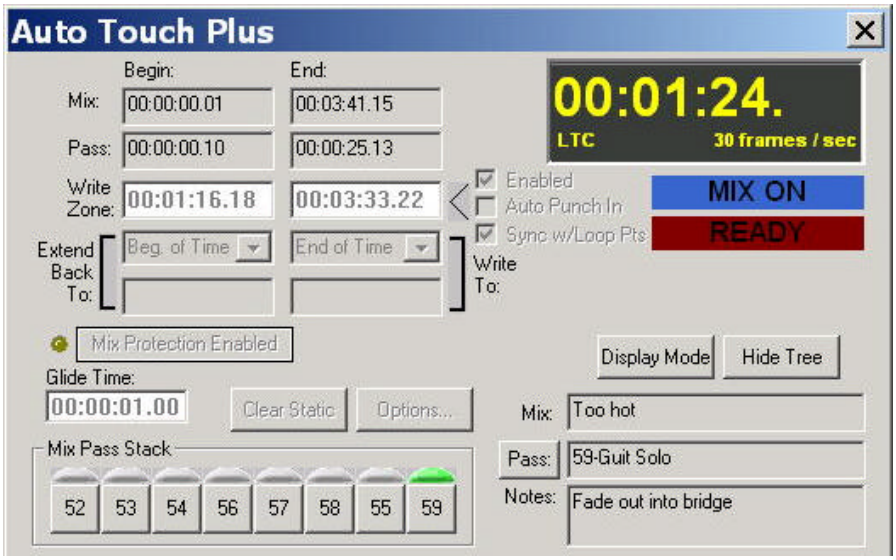
5.13 Mix Protection

Mix Protection allows individual controls or sets of controls to be “Protected” or locked out from changes. Mix Protection may also be applied to the General Patch.

When Protected, a control is essentially in a “read only” mode. The Read Mix data for the Active Pass will be heard for all Protected controls. All the READ LOCK conditions apply to Protected controls (just not on a global basis).

Controls and the General Patch may also be isolated from the mix using Mix Protection techniques.

Mix Protection Enabled Button: The Mix Protection Enabled button opens the “Automation Protection” window. The yellow LED symbol to the left of the button illuminates when any controls are in a Protected State. The Mix Protection Enabled button is located in the AutoTouch+ window.



The Automation Protection window can also be opened by selecting “Protection” from the GC Automation menu.

<Option>

- With <Protect Static For Protected Controls> checked on the Misc Options page (also refer to chapter 5.21.8), the values of Static controls are replayed, but changes to those values are not allowed.

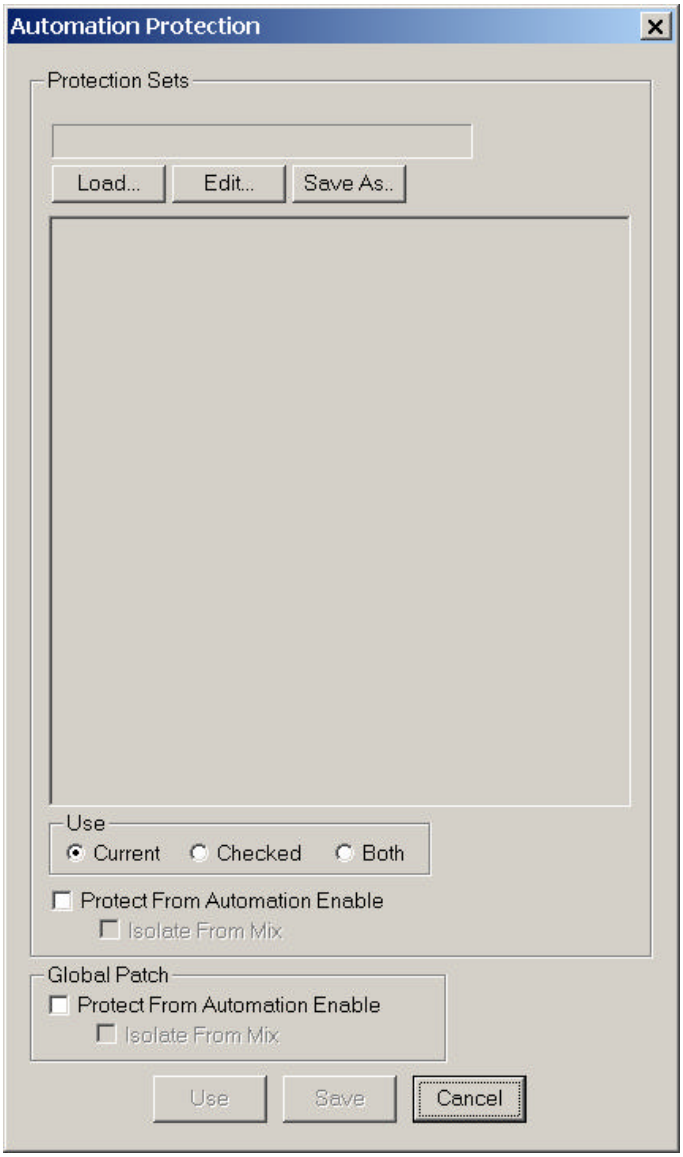
5.13.1 Protection Sets

Protection Sets: Any combination of controls on any combination of channels may be organized into "Protection Sets." These may be created, saved, and recalled as needed. Any number of Protection Sets may be created and stored. Protection Sets are available to any Mix Pass within the Title.

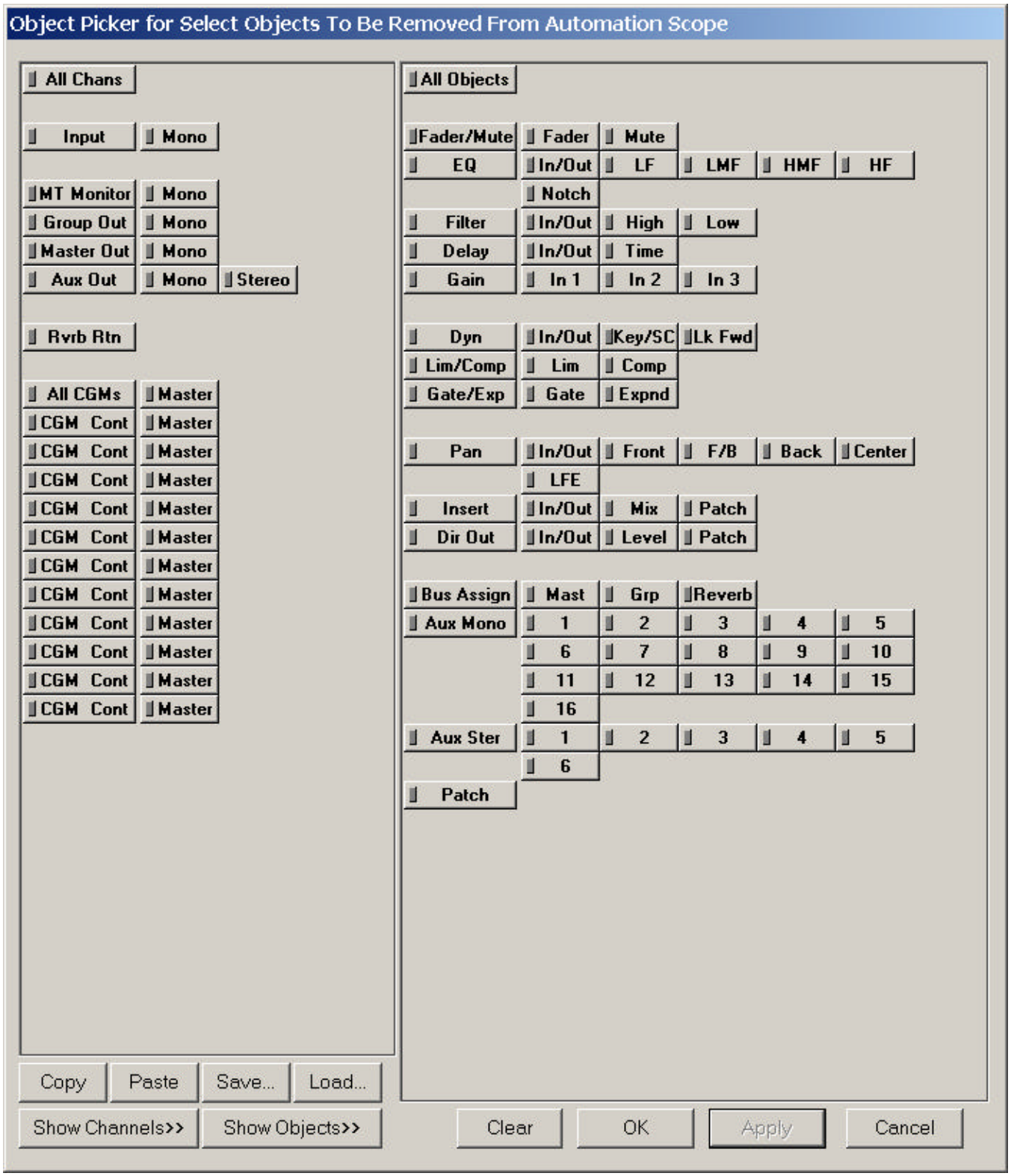
5.13.1.1 Creating Protection Sets

To create a Protection set, execute the following procedure:

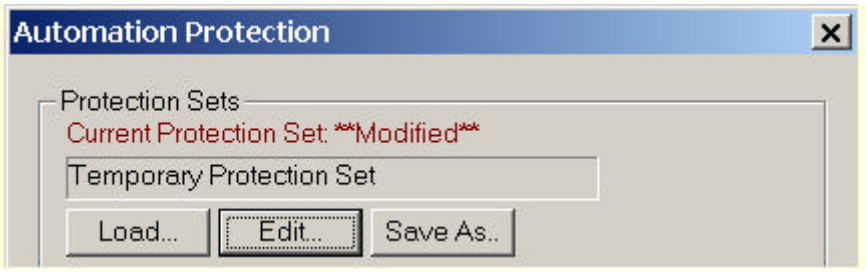
1. Click the **Mix Protection Enabled** button to open the "Automation Protection" window. The first time it is opened no Protection Sets will be available and the various fields will be blank.



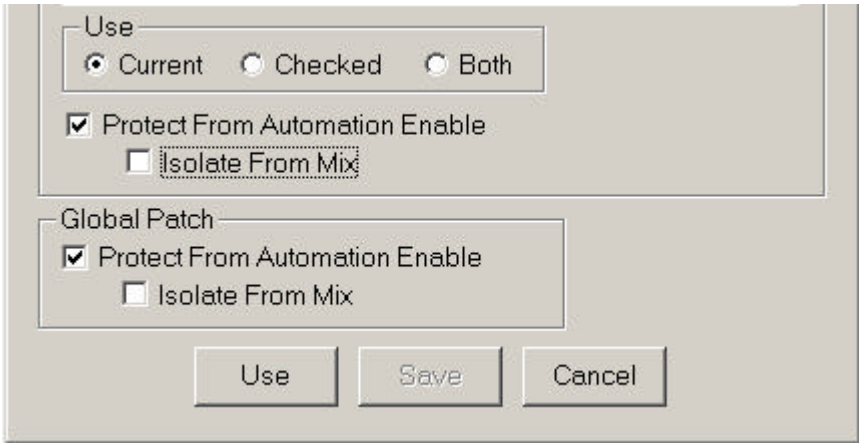
2. Click the Edit… button. The "Object Picker for Select Objects to be Removed From Automation Scope" will open. Using this "picker," controls may be selected for Protection. For example, Mutes on channels 1...12 may be selected as a Protection Set. Refer to chapter 5.16.2.1 for information regarding the operation of the Object Picker.



3. Once controls have been selected for Protection, click “Apply” or “OK” at the bottom of the object picker (OK will close the picker, Apply will keep it open). A temporary Protection Set will be created and made the current set. “Current Protection Set **Modified**” will appear in red above the current set field to indicate changes have been made to the current set. (As in the previous example, the Mutes on channels 1-12 would constitute the **Modified** set.)



4. Check “Protect From Automation Enable” for the selected set of controls and/or the General Patch. Click the **USE** button to enable Protection for the selected Protection Set.



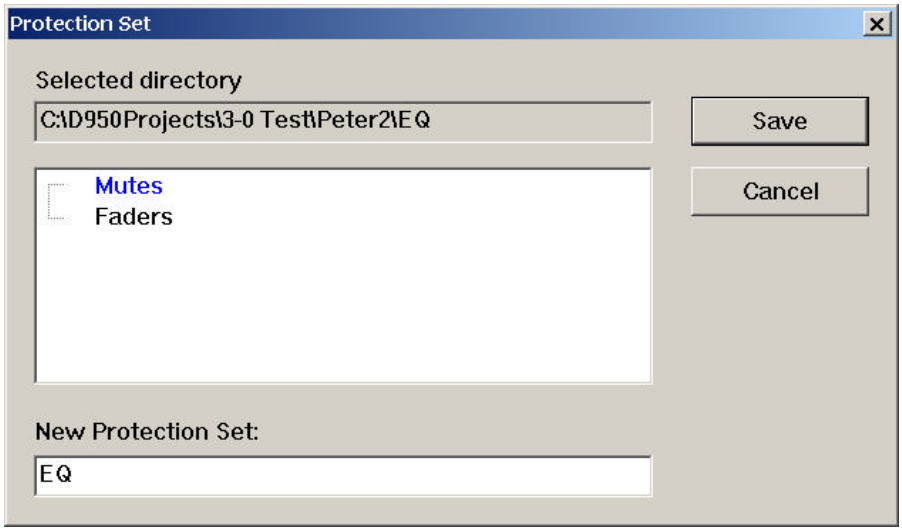
Note: Either the “Current” or “Both” radio button in the “Use” section of the Automation Protection window *must* be selected to enable the Edit button.

5.13.1.2 Saving Protection Sets

Any number of Protection Sets may be created and saved. A temporary Protection Set will persist in the system unless it is overwritten, even if the Mix Tree and Title are closed. Temporary and modified sets may be saved at anytime.

Using the following procedure, Protection Sets may be saved:

1. Once a Protection Set has been created or modified, click the “Save As…” button. The Protection Set save box will open.



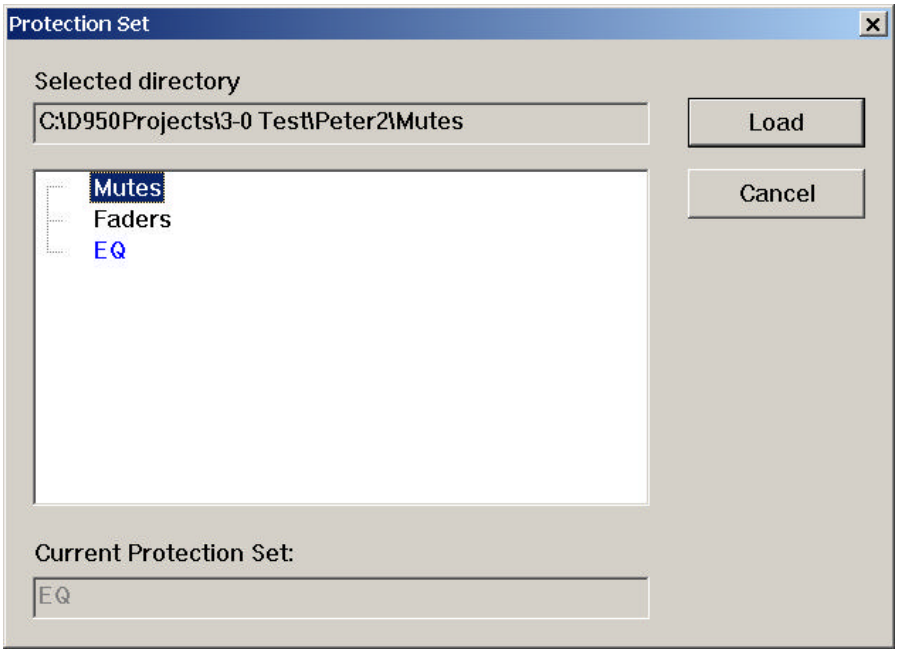
2. Enter a name for the new set in the “New Protection Set:” field. Click “Save” and the new set will be created and assigned the entered name. The newly saved set will become the current Protection Set and will be added to the list of available sets (which appears in the Protection Set section of the Automation Protection window).

5.13.1.3 Loading Protection Sets

To make a Protection Set the current set, it must be Loaded unless it was the last set used or saved.

Using the following procedure, previously created Protection Sets may be loaded:

1. Click the Mix Protection Enabled button to open the Automation Protection window if it is not already open.
2. Click the “Load…” button and a selection box containing the available Protection Sets will be displayed. The current Protection Set will be displayed at the bottom of the box in the “Current Protection Set:” field. The current set will also be shown in blue in the Protection Set list. All others will be in black.



3. Double-click the desired Protection Set or click it and “Load”. The selected set will become the current set and the selection box will close.

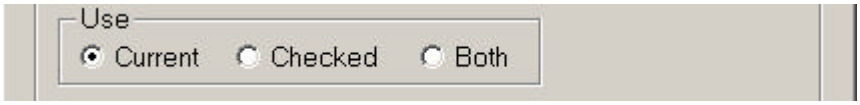
Note: Protection Sets cannot be loaded from other Titles. Protection Sets made within a Title are only available to that Title. Protection Sets made within a Title are available to all Mix Passes within that Title.

5.13.2 Applying Mix Protection

One or more Protection Sets may be applied simultaneously. This affords multiple layers of protection, which may be built up during the course of a mix. These layers of protection may be quickly applied and removed as needed. If a Title is being used as a production template, the saved Protection Sets may be used with any Mix Pass created using that template.

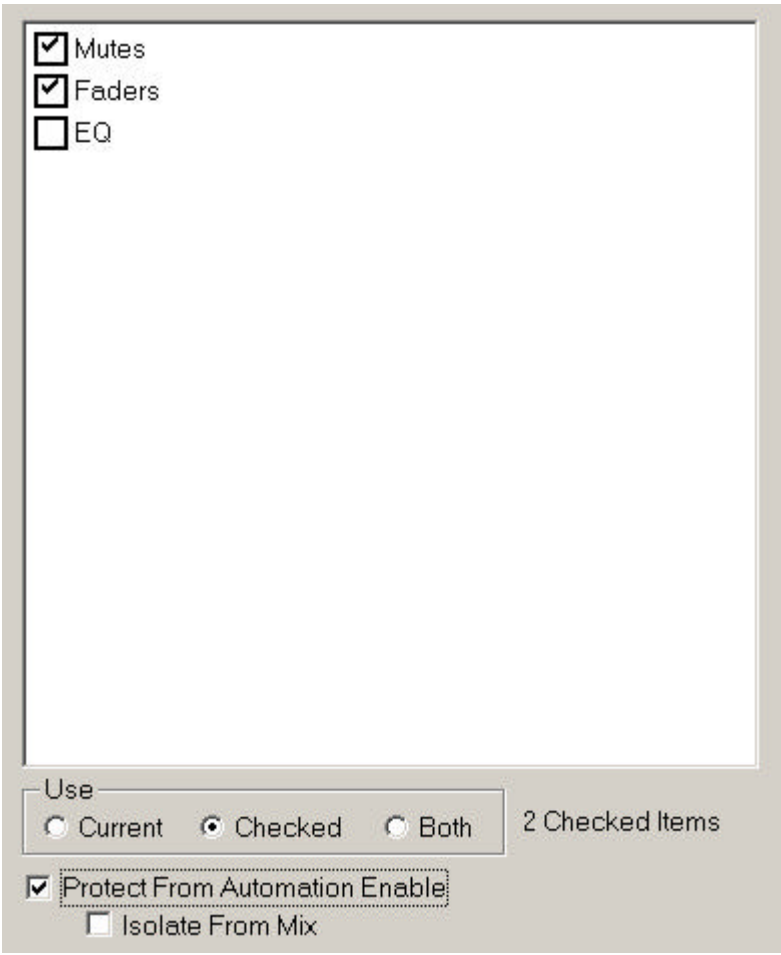
Important Note: When Mix Protection is enabled, Protection is applied to the Active Pass. All protected controls will be protected regardless of which Mix Pass is made active.

Selecting Protection Sets: How Protection Sets are selected is determined by selecting the desired radio button in the "Use" section of the Automation Protection window.

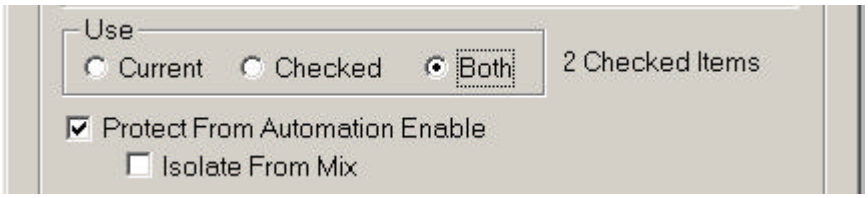


These radio buttons allow the selection of Protection Sets one of three ways:

- Current: The current Protection Set will be selected.
- Checked: The checked Protections Sets will be selected. A list of Protection Sets is displayed in the Protection Set section of the Automation Protection window. Each Protection Set has a box which may be "checked" to include that set in the list of checked sets. The current Protection Set is not selected.



- Both: The current Protection Set and any checked sets will be selected.



Applying Protection Sets: To apply one or more Protections Sets, use the following procedure:

1. Click the Mix Protection Enabled button to open the Automation Protection window if it is not already open.
2. Click "Current, Checked, or Both" in the "Use" section as appropriate. If "Checked" or "Both" are selected, check the needed Protection Set(s).
3. Check the "Protect From Automation Enable" box in the "Protection Set" section to apply Protection to the selected set(s) (Mutes on channels 1-12 per the example).
4. If desired, check the Global Patch "Protect From Automation Enable" box to apply Protection to the General Patch.
5. Click the **Use** button at the bottom of the window. The window will close and Protection will be applied to the controls included within the Protection Set (Mutes on channels 1-12 in the example). The "Mix Protection Enabled" LED will illuminate.

Note: If neither Protection Set or Global Patch "Protect From Automation Enable" box is checked, Protection will not be applied.

5.13.3 Removing Protection

Just as Protection may be applied in layers, it may be removed in layers or entirely.

To remove one or more Protection Sets, use the following procedure:

1. Click the Mix Protection Enabled button to open the Automation Protection window if it is not already open.
2. Click "Current, Checked, or Both" in the "Use" section as appropriate. If "Checked" or "Both" are selected, uncheck the unneeded Protection Set(s).
3. If desired, uncheck the Global Patch "Protect From Automation Enable" box to remove Protection from the General Patch.
4. Click the Use button at the bottom of the window. The window will close. Any selected Protection Sets will remain active and those deselected will be removed. Protection will be removed from the controls included within the deselected Protection Set (Mutes on channels 1-12 in the example). The Mix Protection Enabled LED remains lit if any controls remain Protected.

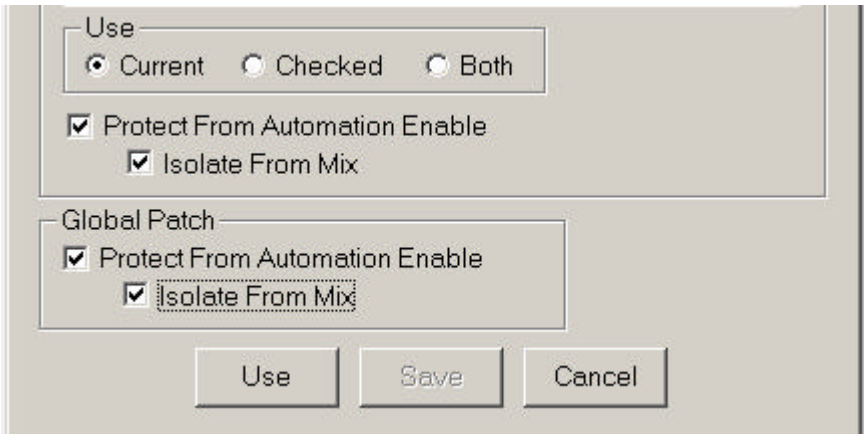
Shortcuts: To quickly remove Protection from all controls, uncheck the "Protect From Automation Enable" box in the Protection Sets section of the Automation Protection window and click the Use button.

To quickly remove Protection from the General Patch, uncheck the "Protect From Automation Enable" box in the Global Patch section of the Automation Protection window and click the Use button.

5.13.4 Isolate via Protection

Controls and the General Patch can be forced into ISOLATE using the Mix Protection selection methods. This is different from selecting the ISOLATE Control Mode in that Isolation persists only as long as the Protection Isolation is applied. This provides a convenient method of temporarily Isolating controls in any Mix Pass without creating new passes.

To apply Isolation via Protection, the same methods are used as when creating and applying Protection Sets. The only difference is “Isolate From Mix” is checked for either Protection Sets, Global Patch, or both before Protection is applied.



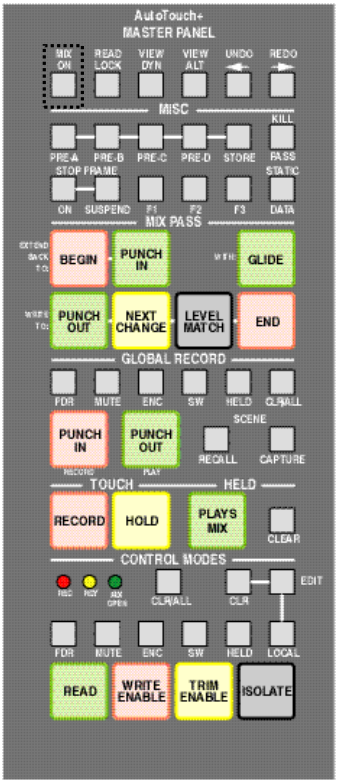
5.14 Miscellaneous Controls/Modes

A variety of controls and modes that are not explained elsewhere are described below.

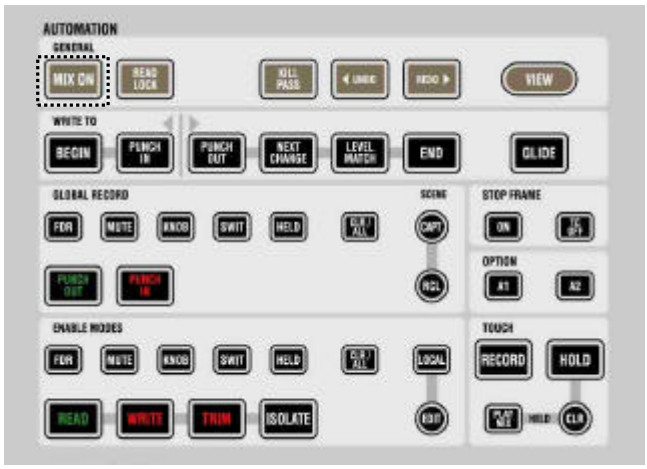
5.14.1 Mix On

Engaging the **MIX ON** key activates the AutoTouch+ system. A Mix Tree must be open before the system may be turned On. When the system is On, the **MIX ON** key illuminates.

D950:



Vista:



5.14.2 View Dynamic

Pressing **VIEW DYN / VIEW** will cause the lights for all dynamic controls currently on the Work surface to illuminate. Static controls will not light. This provides a very quick and easy means of identifying which controls have Dynamic moves recorded and which are Static controls. See Graphic above.

5.14.3 View Alt

Not implemented – for future use.

5.14.4 AutoTouch+ Panel Presets

AutoTouch+ Panel settings may be stored and recalled as needed (D950 only). All switch states may be stored in any of four AutoTouch+ Panel "Presets." This is helpful when the same settings are used frequently. Presets may also be programmed to emulate V2.5 Automation Panel settings.

Storing AutoTouch+ Panel Preset: AutoTouch+ Panel Presets may be stored as follows:

1. Set all AutoTouch+ Panel controls to the desired state.
2. Hold the **STORE** key and press the desired Preset key (**PRE A, PRE B, PRE C,** and **PRE D**).

Recalling AutoTouch+ **Panel Preset:** AutoTouch+ Panel Presets may be recalled as follows:

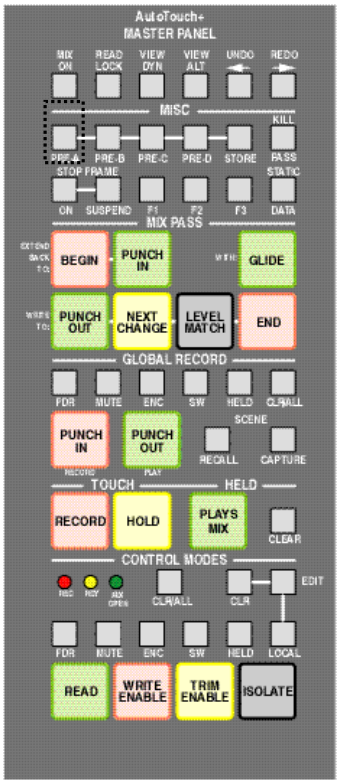
1. Press the Preset key (key (**PRE A, PRE B, PRE C,** and **PRE D**) for the Preset to be recalled.

Long Term Storage: The contents of all AutoTouch+ Panel Presets, along with the current settings, may be stored as part of a User File. Refer to chapter 5.17.

5.14.5 Function Keys

Function keys **A1** and **A2** (Vista) or **F1...F3** (D950) are not implemented (for future use).

5.14.6 Static Data *(D950 only)*



The **STATIC** key on the D950 AutoTouch+ Panel has two functions:

- When lit, the **STATIC** key indicates that Static Data Buffer is active and there is a difference between the current Static values and those stored within the current Mix Pass (Active Pass).
- Pressing the **STATIC** key clears the current Static values and those stored within the current Mix Pass (Active Pass). This function cannot be undone.

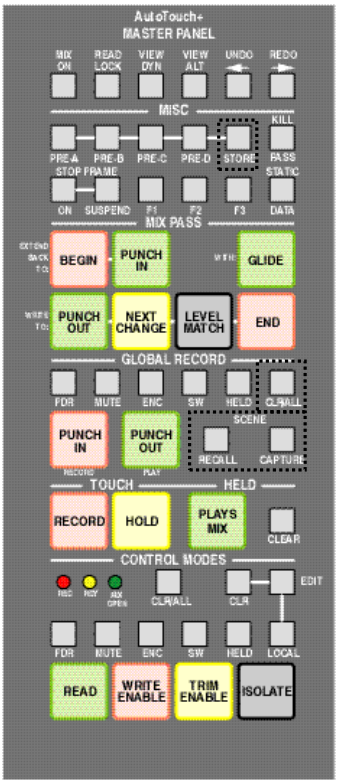
Notes: Static data may also be cleared by clicking the Clear Static button in the AutoTouch+ window.
In the "Automation Options – Misc" menu (also refer to chapter 5.21.8), static objects can be protected under certain circumstances.

5.14.7 Scene Capture/Recall

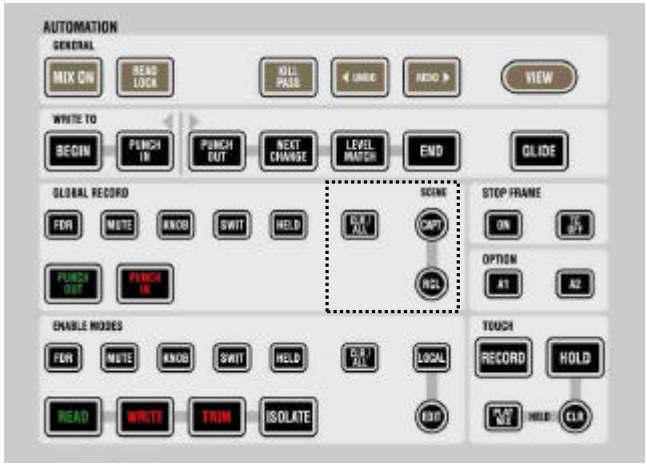
A Scene is a global “snapshot” of the automation status of each control within the system. There are two buffers in which Scenes may be stored. Scenes will be stored and can recalled during subsequent sessions.

Note: The term “snapshot” is not the same as a Snapshot in the GC. Snapshot in this regard refers to a picture of the automation status console-wide.

D950:



Vista:



Scene Capture: Holding the **STORE** key and pressing the **SCENE CAPTURE** key *(D950)* or just **CAPT** *(Vista)* will “capture” a Scene in the first buffer. Holding the **AUTO MODE** and **STORE** keys and pressing the **SCENE CAPTURE** key *(D950)* or **AUTO MODE** and **CAPT** *(Vista)* will “capture” a Scene in the second buffer.

The **SCENE RECALL / RCL** key will illuminate when a Scene has been captured in the first buffer. There is no indication of the status of the second Scene buffer.

The following controls will be stored within a Scene:

- Controls in RECORD
- Controls that are Held
- Controls that are being touched when the Scene is captured

Note: If no controls are in the states listed above, the existing Scene buffer will remain intact.

A list of controls and their values will be stored when a Scene is captured.

Scene Recall: Pressing the **SCENE RECALL / RCL** key will "recall" the Scene stored in the first buffer. Holding **AUTO MODE** modifier key and pressing the **SCENE RECALL / RCL** key will recall the Scene stored in the second buffer.

When a Scene is recalled, the controls on the list come back Held and WRITE Enabled. The values for the controls in the buffer will be reinstated as well. If Touch Record is active, the controls in the list will punch-in to RECORD upon Scene Recall

Clearing a Scene Buffer: Holding the Global Record **CLR / ALL** key and pressing the **SCENE RECALL** key *(D950)* or **CLR / ALL** and **RCL** *(Vista)* will "clear" a Scene in the first buffer. Holding Global Record **CLR / ALL** and **AUTO MODE** and pressing **SCENE RECALL / RCL** will clear the second Scene buffer.

Note: The data in the Scene Buffer is *not* saved as part of a Mix Pass, Mix Tree, or Title. Therefore, it will *not* persist from session to session.

5.15 Special Operating Modes

AutoTouch+ offers a series of special operating modes and features to accommodate specific production requirements and working styles.

5.15.1 Stop Frame Automation

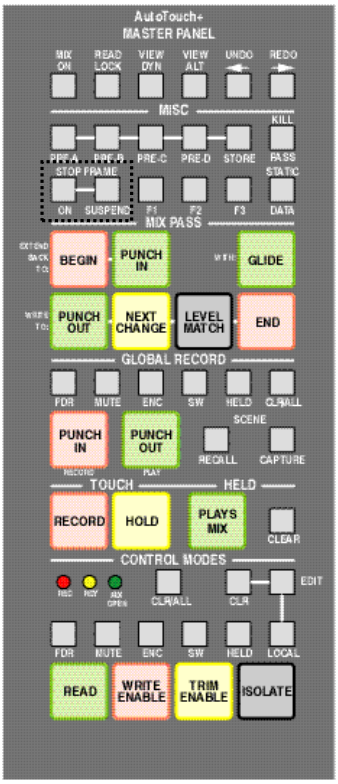
The Stop Frame automation feature makes it possible to write specific control values between timecode locations. The user can stop timecode playback at a specific location, set any number of controls to desired values, and move to the next location forward in time where values may again be adjusted. The initially set values will be recorded between the timecode locations.

Stop Frame automation may also be used with the internal timecode generator and **LOCATE** key when working with an EDL (Edit Decision List). This allows automation data to be recorded in a "pseudo offline" fashion without the work media.

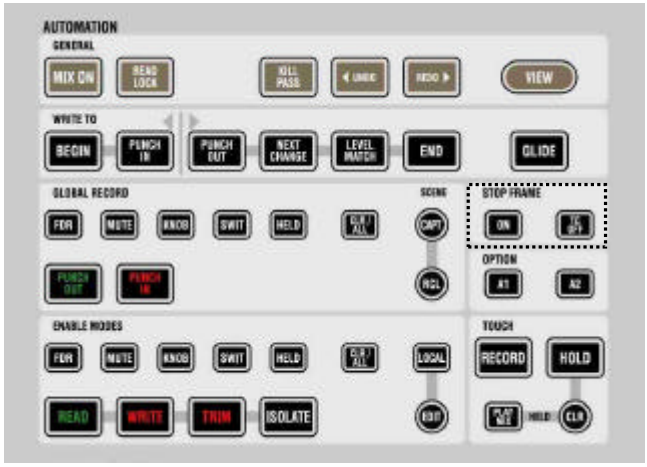
Stop Frame Automation may be enabled at any point. After control values are written at a specific location, the media can be moved forward to the next location, and the next set of values can be written. If locations are not known, Stop Frame may be "suspended" as the media is searched.

Stop Frame Controls: There are two keys on the AutoTouch+ Panel associated with Stop Frame automation.

D950:



Vista:



STOP FRAME keys perform the following functions:

- **STOP FRAME ON**: When engaged, all enabled controls will switch to their active RECORD state. The values of these controls will be recorded at the current timecode location. If timecode is advanced, these values will be recorded to each consecutive location. At any time, the user may stop timecode playback and make further adjustments to the controls. The new values will be recorded at the current location and any consecutive ones if the media is moved forward. It is important to note that control values will not be recorded if the timecode is moved backward.

- **STOP FRAME SUSPEND / STOP FRAME TC OFF**: When engaged, Stop Frame recording is suspended. This allows timecode to be moved backward or forward so a the next timecode location may be found. No control values will be written while **SUSPEND** or **TC OFF** is engaged.

Using Stop Frame Automation: The procedures for using Stop Frame Automation are as follows:

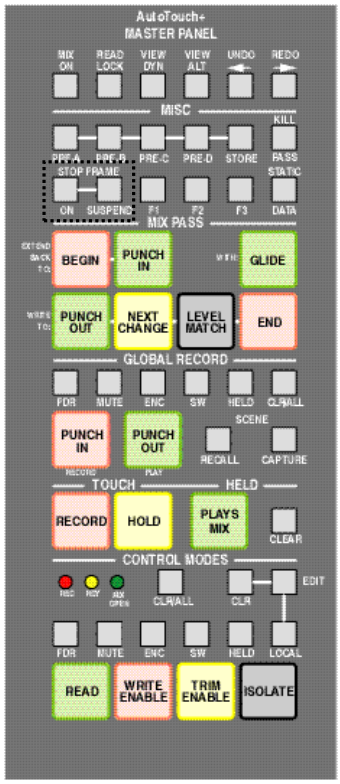
1. Select **WRITE ENABLE** or **TRIM ENABLE** and the desired Pre-Selector(s).
2. Engage **TOUCH RECORD** so that touched, enabled controls change to RECORD. Also engage **TOUCH HOLD** so controls won't snap back to previously written values when un-touched.
3. Move the media forward and stop media at a desired timecode location.
4. Enable Stop Frame by pressing the **STOP FRAME ON** key, if it is not already on. The **STOP FRAME ON** key will illuminate and record status will change to "Ready."
5. Adjust enabled controls to the desired values while sitting at that location. Any touched control will enter RECORD and its value can be set. The final value for each control will be recorded at that location and every consecutive timecode location played into the system. This is typically to the next Stop Frame location, but transitions will be applied according to the chosen "Write To:" function.
6. Pressing the **SUSPEND** or **TC OFF** key will release Stop Frame from timecode. This allows the media to searched forward *and backward* in order to find the next timecode location.
7. Once values have been recorded at all desired locations, turn Stop Frame off, by disengaging the **STOP FRAME ON** key. A new Mix Pass will be created and added to the Mix Tree and Mix Pass Stack.

5.15.2 Read Lock

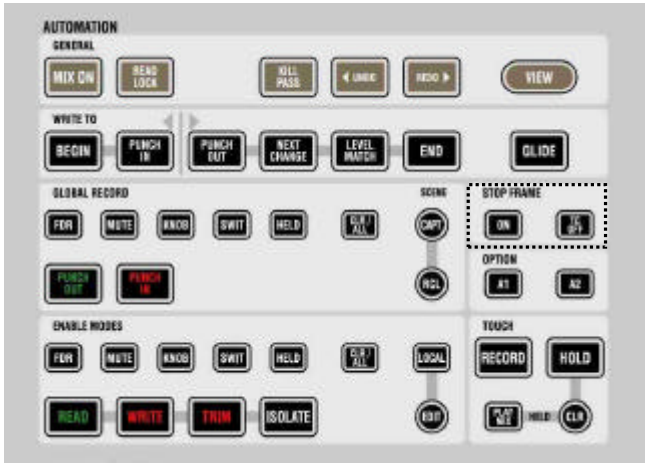
Read Lock forces all controls into Read and locks out all changes. While in this mode, playing back the Read Mix data from the Active Pass is the only operation possible. This assures the Active Pass will be played back exactly as saved, which can be quite useful when printing a final mix or layback.

The **READ LOCK** key is located at the top-left of the AutoTouch+ Panel and will illuminate when engaged.

D950:



Vista:



Conditions: With **READ LOCK** engaged, the following conditions exist:

- All controls are placed into the READ Control Mode and then locked in READ. Only the stored values of the Active Pass will be heard. Changes to control values are not possible. All controls are Protected.
- Changes may not be made to Static controls, the Channel Patch, or the General Patch
- Control Mode changes are locked out
- Controls may not be placed in a Held state (**TOUCH HOLD** defeated)
- All Record functions are defeated (**TOUCH RECORD**, **GLOBAL RECORD PUNCH IN/OUT**)
- All Audition functions are defeated
- **SCENE RECALL / RCL** is defeated

5.16 Offline Mix Editing

There are two methods of offline editing of Mix Passes:

- Event List Editing: The location of automation records may be moved or "slipped in time." Automation records may also be deleted. Control values may not be edited.
- OFLA Editing: Allows the value of automation records to be changed within a timecode window. Controls can also be reset to their default values or have their values frozen or spread across the timecode window. Controls can be made Static and Mix Passes may be merged.

Together, these methods provide powerful and easy to use means of fine tuning Mix Pass data or working with Edit Decision Lists. Each Method of editing is described below.

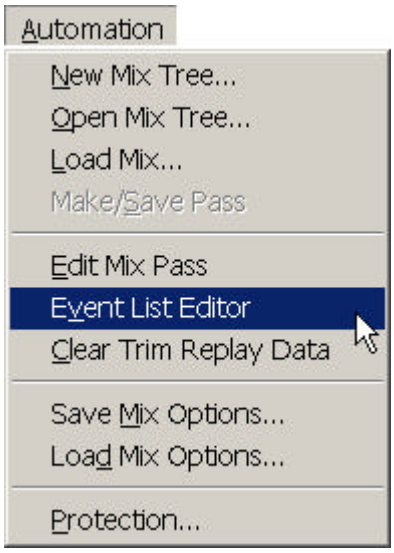
5.16.1 Event List Editing

Automation data may be edited using the Event List Editor within AutoTouch+. Being fully integrated within AutoTouch+, the Event List Editor provides quick and easy means of moving the location of automation records (Events). Automation events can also be deleted.

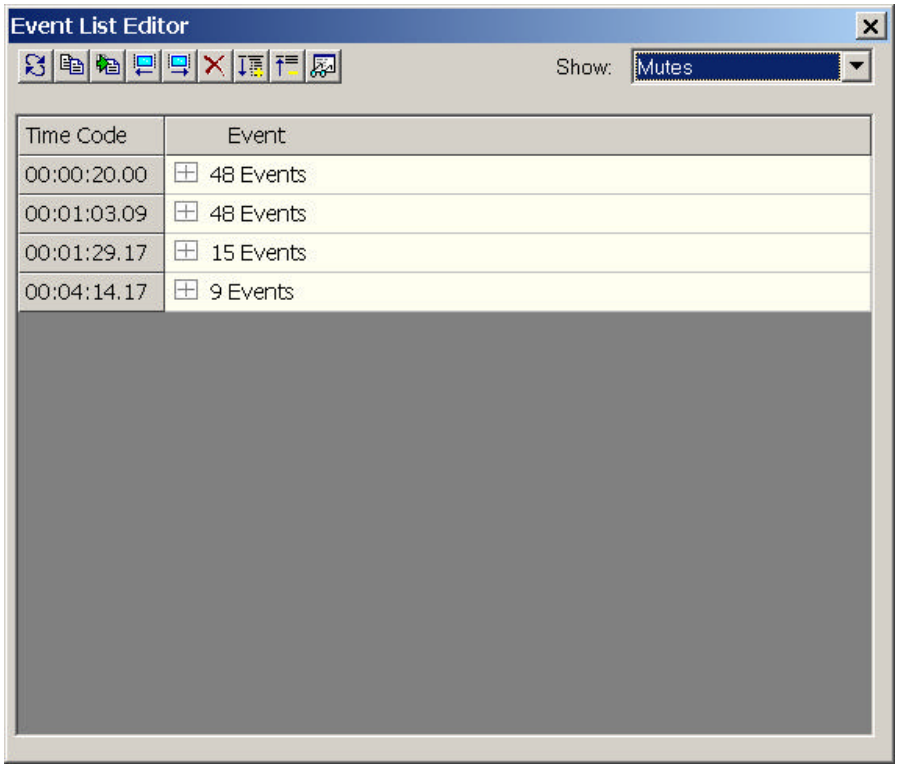
The Event List Editor is new in V3.0 software.

Accessing the Event List Editor:

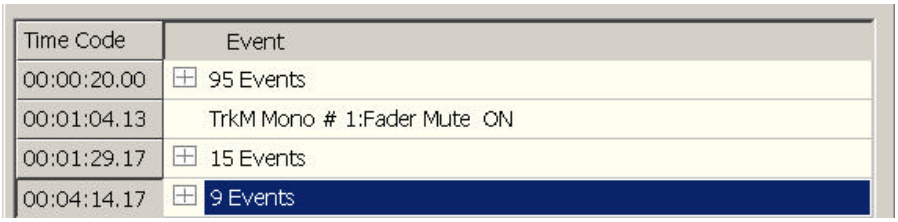
The Event List Editor is available by selecting "Event List Editor" from the GC Automation menu.



This action will open the Event List Editor window.



Events and Event Lists: As a mix progresses, Events (automation records) are recorded at timecode locations within a Mix Pass. These Events are organized by timecode and displayed in the Event List Editor. If more than one Event is recorded at the same timecode location, an Event List is created at that location. The Event List will contain all Events recorded at that location.



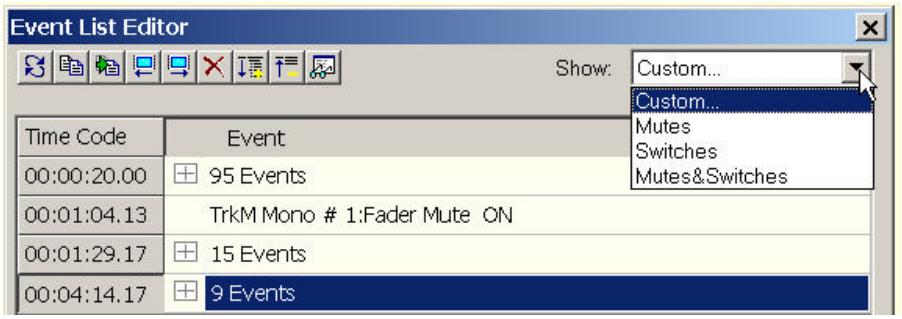
Only the timecode location of an Event may be edited. Events may copied to new locations or be deleted from the new Mix Pass.

Important Note: Control values may not be changed using the Event List Editor.

Displayed Events: Since a vast number of Events may be generated during a mix, Event Lists become both very numerous and very large. In a large or complex project, the number of events can grow to be overwhelming. To solve this problem, the Events to be displayed may be selected in one of two ways:

- Show Menu Selections: The Event Editor will display only the items selected in this menu
- Event List Filter: The Event Editor will display only the items selected by the Event List Filter

Show Menu: Selecting an item from the “Show:" pull-down menu will select the Events for that item’s controls to be displayed in the Event List Editor.

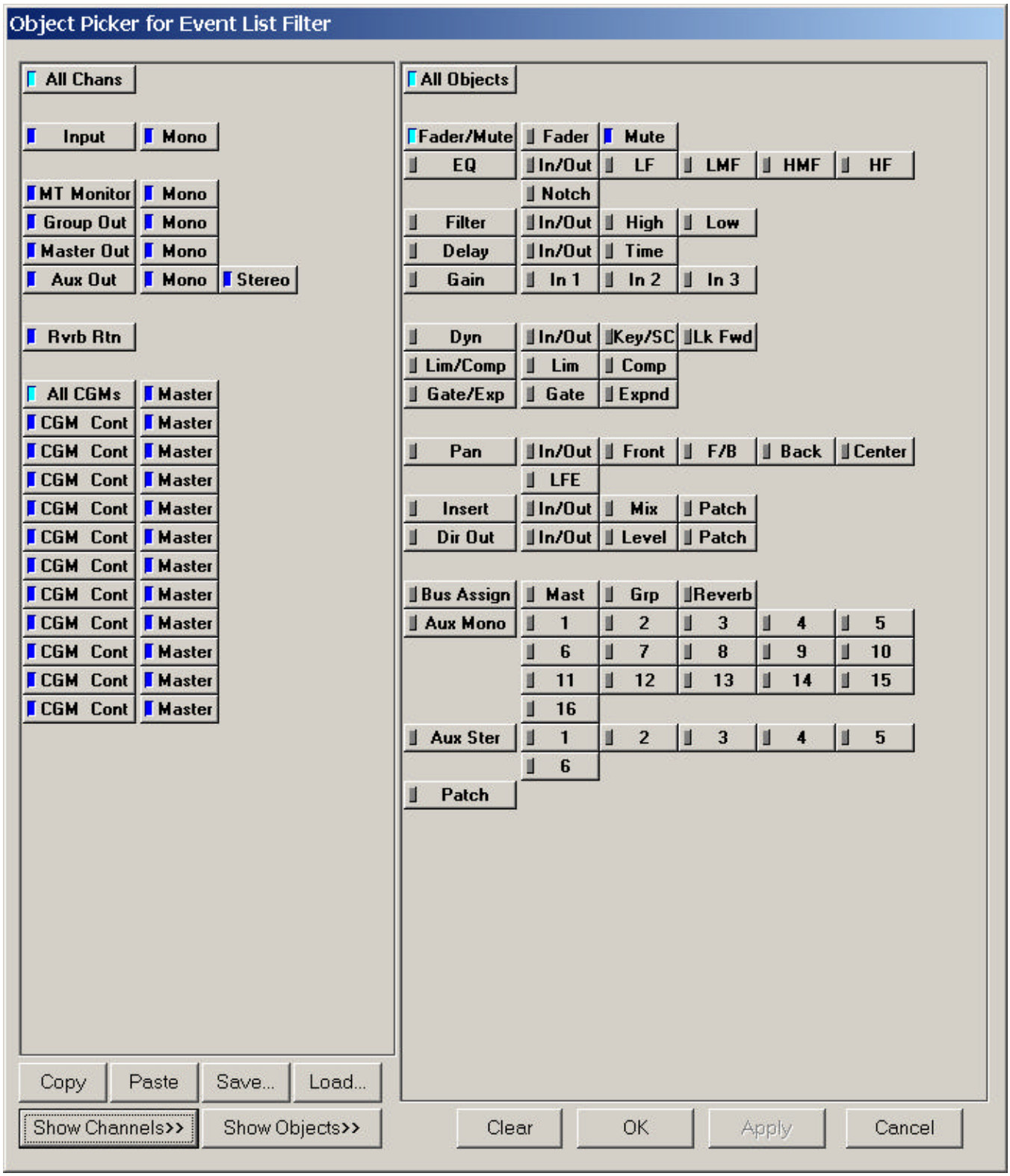


The following sets of Events are available in the “Show:” menu:

- Custom…: Allows a customized set of Events to be displayed. Selecting this item will open the Event List Filter where an exact set of Events may be chosen for display (see below). If a set of custom set of Events has already been selected, choosing “Custom…” will display the Events within that set.
- Mutes: Only Mute Events will be displayed in the Event List Editor
- Switches: Only Switch Events will be displayed in the Event List Editor
- Mutes & Switches: Only Mute and Switch Events will be displayed in the Event List Editor

Event List Filter: Using the Event List Filter, Events for specific controls can be selected for display in the Event column of the Event List Editor window.

To access the Event List Filter, click the  button.



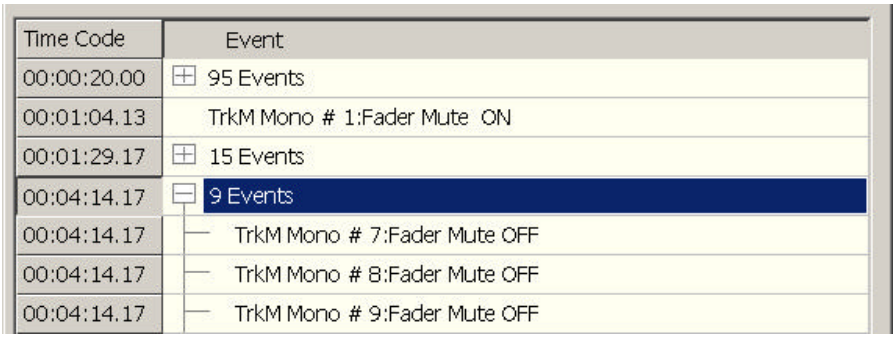
The Event List Filter provides the means to select desired controls within desired channels for display within the Event column. This set of Events is not limited to Mutes and Switches. Any combination of channels and controls is possible. Using the Object Picker for the Event List Filter, it is possible to select an exact set of controls for which Events will be displayed. For example, to edit Mute locations, only the Events for Mutes on selected channels may be chosen for display. This will remove all other Events from view and provide an efficient means of performing Mute Event edits.

Note: Automated Graphic Controller items are not selectable using the Object Picker for the Event List Filter.

Note: If objects are selected for display that do not have recorded Events, the Event List will be empty.

Event List Display: Selected Events may be displayed in a number of ways.

- Individual Events: Individual Events will be displayed next to their timecode location. The Event label contains the channel type, channel number, control, and control value. Timecode locations are always shown for each individual Events.
- Consolidated Event Lists: Only timecode locations with recorded Events are displayed. If only a single Event is recorded, it will be displayed. If multiple Events have been recorded at the same timecode location, an Event List header will be shown, but the contents will not be displayed. The header label will indicate the number of Events in the list and contains a + button. Clicking the + button will expand the list, its contents will be displayed, and the + button changes to a – button. Clicking the – button will close the list.
- Expanded Event Lists: All Events are shown individually. If an Event is part of an Event List, the header will be the first item for that particular timecode location.



Using the display modes listing above, any combination of displays may be accomplished.

Important Note: The use of the term “Mute” is used literally in the Event List Editor. If the Mute is listed as “ON” in the Event List, the post fader channel output will be cut. Muting will be activated. The associated key on the work surface will not be illuminated (channel **MUTE** key on Vista and channel **ON** key on D950). This may be a source of confusion for D950 users because the channel is “off” and the **ON** key is not lit when the Event List indicates the mute is “On.”

Note: The Event List Editor only shows a subset of all the events stored within a Mix Pass. Making an edit can change what is shown and depending on the edit performed, some events may drop off the list.

Note: Timecode locations without recorded Events will not be displayed in the Event List Editor.

Selecting Events to be Edited: From the Events chosen for display, single Events, an entire Event List, or a selected group of Events and/or Event Lists may be chosen for editing.

Use the following procedures to select Events and/or Event Lists may be chosen for editing:

- Individual Events: Individual Events may be selected by clicking the Event label or the associated timecode. To select individual Events from an Event List, the list must first be expanded.
- Event Lists: Individual Event Lists may be selected by clicking the Event List header or the associated timecode.
- Selected Events and/or Event Lists: A group of selected Events and/or Event Lists may be chosen using any of the following methods:
  - Click and Drag: Click and hold on an Event or Event List and drag the cursor over the desired items. This allows adjacent items to be selected.
  - Control-clicking (holding the **Ctrl** key plus single-clicking): Allows selection of individual Events and/or Event Lists anywhere within the Event List Editor. Items may be selected regardless of location, so non-adjacent items may be chosen.
  - Shift-clicking (holding the Shift key and single-clicking): Allows selection of a range of Events and/or Event Lists. Clicking a pair of items while holding down the Shift key will select those items and the ones in-between.

Event List Editor Operations: The following operations may be performed using the Event List Editor:


Redisplay Event List Near Current Timecode: Opens the Event List closest to the current or selected timecode location.


Copy Event(s) to New Timecode: The selected Events and/or Event Lists are copied and pasted to a new timecode location. When selected, a timecode entry box will open.


Move Event(s) to New Timecode: The selected Events and/or Event Lists are moved to a new timecode location. When selected a timecode entry box will open.


Move Event(s) One Frame Earlier: The selected Events and/or Event Lists are moved one frame earlier. The selected items are “nudged backward.”


Move Event(s) One Frame Later: The selected Events and/or Event Lists are moved one frame later. The selected items are “nudged forward.”


Delete Selected Events: The selected Events and/or Event Lists are deleted from the resultant Mix Pass. Caution: No warning prompt is given. See Note below.


Expand and Show Each Event at a Timecode: All Events Lists are opened and each Event is displayed with its timecode location.


Consolidate Multiple Events at Each Timecode: Only Events Lists are shown at each timecode location. Individual Events will be shown only if they are the only Event at that timecode location.


Filter Which Events to Display: Opens the Object Picker for the Event List Filter.

Each time an Event List edit operation is performed, a new Mix Pass is created.

Note: Deleting an Event or Event List is a destructive operation. However, the original Active Pass on which the edit is to be performed is retained and a new Mix Pass is created without the deleted item. In this regard, deleting an item is a non-destructive operation.

Perform an Event List Edit: To perform an Event List edit, use the following procedure:

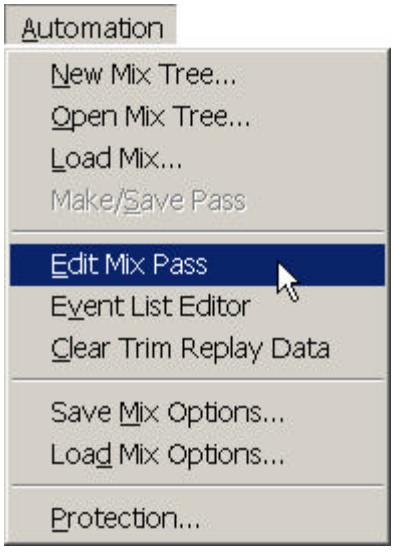
1. Make the Mix Pass to be edited the Active Pass if it is not already.
2. Select "Event List Editor" from the GC Automation menu. The Event List Editor window will open.
3. Click the **Edit List Filter** button to open the Object Picker for the Event List Filter. Using this picker will allow Events for the desired controls on selected channels to be chosen for editing. Once selected, click either the **Apply** button (if more edits will be performed) or the **OK** button (if no more objects need to be selected). Events for the controls in the picker will be selected for editing and will appear in the Event column of the Event List Editor window.
4. Click the desired edit operation. If moving or copying Events and/or Event Lists, enter the new timecode location and click **OK**. The selected edit will be performed.
5. A new Mix Pass is written that contains the edited values.

5.16.2 OFLA Editing

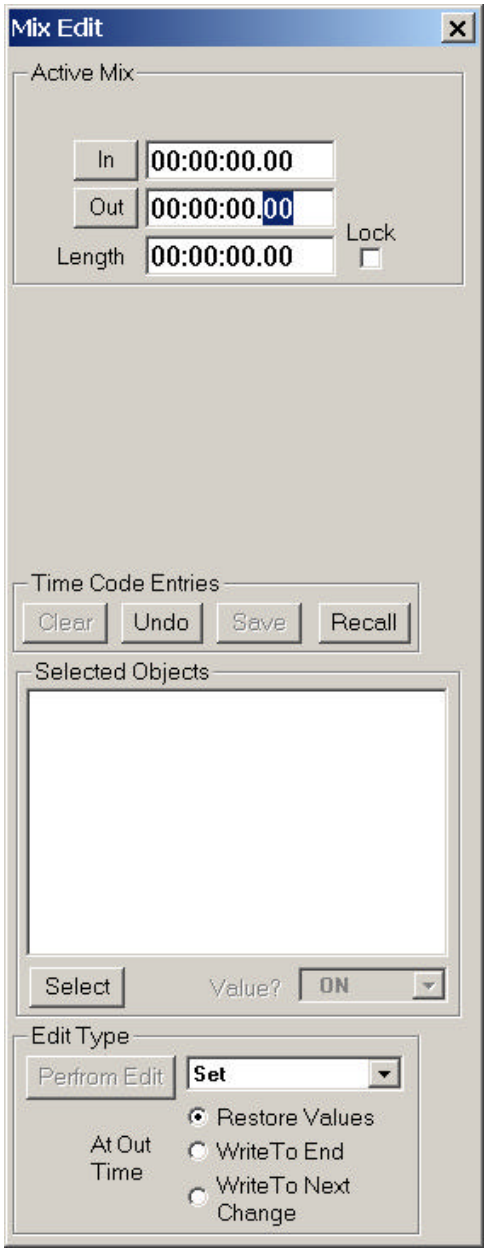
AutoTouch+ data may be edited using the OFLA offline mix editor. OFLA is stand alone mix editor that may be used with or without AutoTouch+. Being fully integrated with AutoTouch+, OFLA provides quick and easy comprehensive Mix Pass editing when used in a session environment. When used in an offline capacity OFLA is equally efficient.

OFLA allows the values of automation records to be edited within a timecode window. Objects can also be made Static using OFLA.

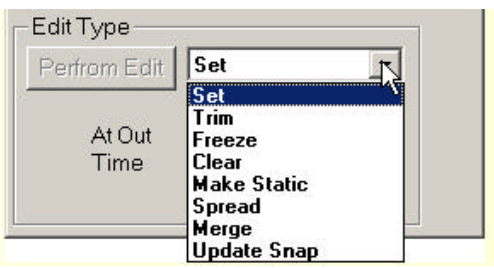
Accessing OFLA: OFLA is available by selecting "Edit Mix Pass" from the GC Automation menu. This is different from V2.5 where OFLA is accessed via the "Edit Mix" button in the GC Automation window.



This action will open the Event List Editor window:



OFLA Edit Types: There are eight different Edit Types available. It should be noted that all Edit Types are not available for all control types (for example, the value of a mute or switch cannot be trimmed).



The following edit operations may be applied to selected controls using OFLA:

- Set: Sets a fixed control value within the timecode window.

- Trim: Offsets the previously written control values by a fixed amount within the timecode window. Switches may not be Trimmed.
- Freeze: The control value at the OFLA In time will be retained for the duration of the timecode window.
- Clear: Controls will be reset to their default values within the timecode window.
- Make Static: Controls will be made Static. All automation records other than the Static value will be erased for the entire Mix Pass.
- Spread: Control values at a specific point in a source mix (Active or Mix Tree) may be applied throughout the timecode window.
- Merge: Control values a timecode window within a source mix (Active or Mix Tree) may be applied throughout the timecode window.
- Update Snap: Updates the Mix Snapshot. This applies the current control values from the beginning of the Mix Pass to the first recorded record.

Each time an OFLA edit is performed, a new Mix Pass created.

Edit a Mix Pass with OFLA: To edit a Mix Pass with OFLA, use the following procedure:

1. Make the Mix Pass to be edited the Active Pass if it is not already.
2. Select "Edit Mix Pass" from the GC Automation menu. The basic Edit Mix window will open.
3. Click the **Select** button to open the Object Picker for Edit Object Selector. Using this picker will allow the desired controls on selected channels to be chosen for editing. Once selected, click either the **Apply** button (if more edits will be performed) or the **OK** button (if no more objects need to be selected). The controls in the picker will be selected for editing and will appear in the Selected Objects section of the Edit Mix window.
4. Select the Edit Type from the Edit Type pull-down menu.
5. Enter the new control value if necessary (depending on Edit Type).
6. Enter the Spread Source Mix or Merge Mix if Spread or Merge edit types are used. The Mix Passes in the current Mix Tree are available.
7. Enter the timecode locations for edit In and Out points if necessary (depending on Edit Type).
8. Click on the appropriate radio button to select the "At Out Time" function. These functions mostly mirror the "Write To" functions found in AutoTouch+, but have some difference. See below.
9. Click **Perform Edit** to perform the edit. A new Mix Pass is written that contains the edited values.

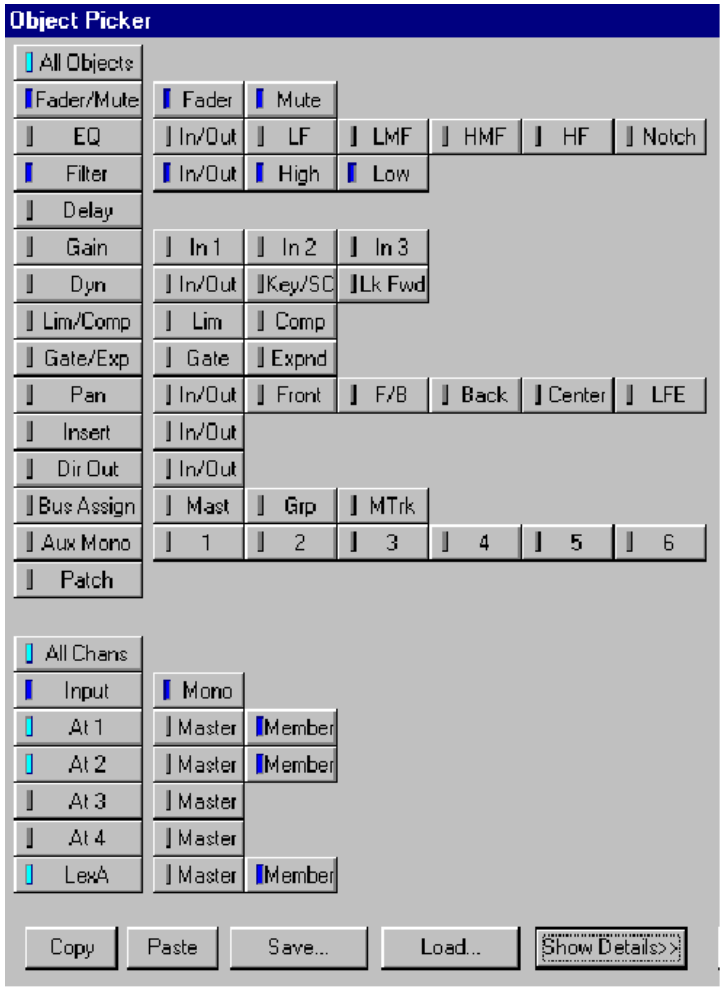
Note: Automated Graphic Controller items are not selectable using the Object Picker for Edit Object Selector.

At Out Time Functions: The select "At Out Time" function will determine how the edit data transitions back to Read Mix data.

At Out Time selections function as follows:

- Restore Values: This is the equivalent to "Write To: Punch-Out". Read Mix control values will be restored at the OFLA Out Time. Glide functions are not available.
- Write to End: This is the equivalent to "Write To: End" except the edit control values will be written to the end of the Mix Pass. To use a fixed end time select Restore Values as the At Out Time function. "Write To: End Of Time" is not available.
- Write to Next Change: This is the equivalent to "Write To: Next Change". Read Mix control values will be restored when the next record is encountered. Glide functions are not available.

5.16.2.1 Object Picker

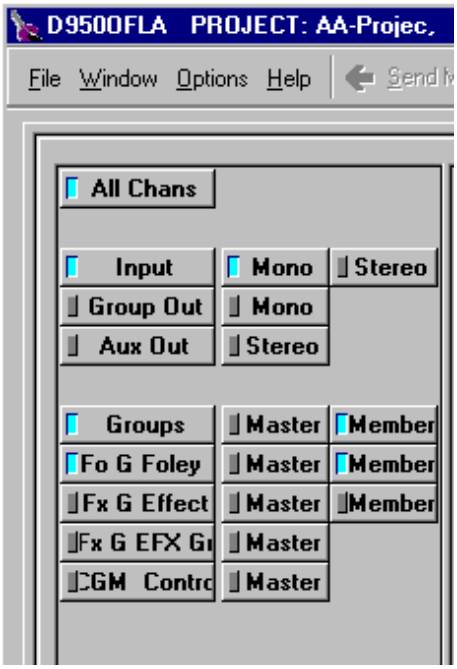


The Object Picker is used to select the elements within a mix you wish to edit. These elements are organized into channels and objects within channels. Selection of elements can be as specific as an individual parameter value, within a particular object, within a single channel, and as broad as all parameters, within all objects, within all channels.

Note: It is important to realize that the channels and objects displayed in the picker are the same as contained within the VMC used to create the title and mix. If a different VMC is loaded, the channels and objects will change accordingly. In other words, the elements that appear in the Object Picker are determined by the console configuration that was in use when the data was created.

There are five main sections in the Object Picker:
- Channel Selector panel;
- Object Selector panel;
- Channel/Object Tree display area;
- Function controls;
- Open Mix Selector Tabs.

5.16.2.2 Channel Selector Panel



This panel contains buttons that correspond with the channels that are present within the active mix. Using these buttons, channels can be selected for editing as follows:

All Chans: selects all channels for editing;
Input: selects all Input channels for editing;
MT Input: selects all Multitrack Input channels for editing;
MT Monitor: selects all Multitrack Monitor channels for editing;
Group Out: selects all Group Output channels for editing;
Master Out: selects all Master Output channels for editing;
Aux Out: selects all Auxiliary Output channels for editing.

Activating the left-hand button at the beginning of each row will select all channels of that type. If both mono and stereo versions of a particular channel type are included in the VMC, just the mono or stereo channels may be selected by clicking on the appropriate button. Channel types and/or versions may be de-selected after a large selection (such as All Chans) has been made.

In addition to channel selection, buttons are included that allow editing of group assignments and Control Group Masters. Channels that contribute to each group may be also selected for editing *as a group*, via these controls. These buttons function as follows:

Group: selects all items associated with the group (group members, Control Group Masters, and group assignments) for inclusion in the edit;
Master: selects Control Group Masters for inclusion in the edit;
Member: selects group members and group assignments for inclusion in the edit.

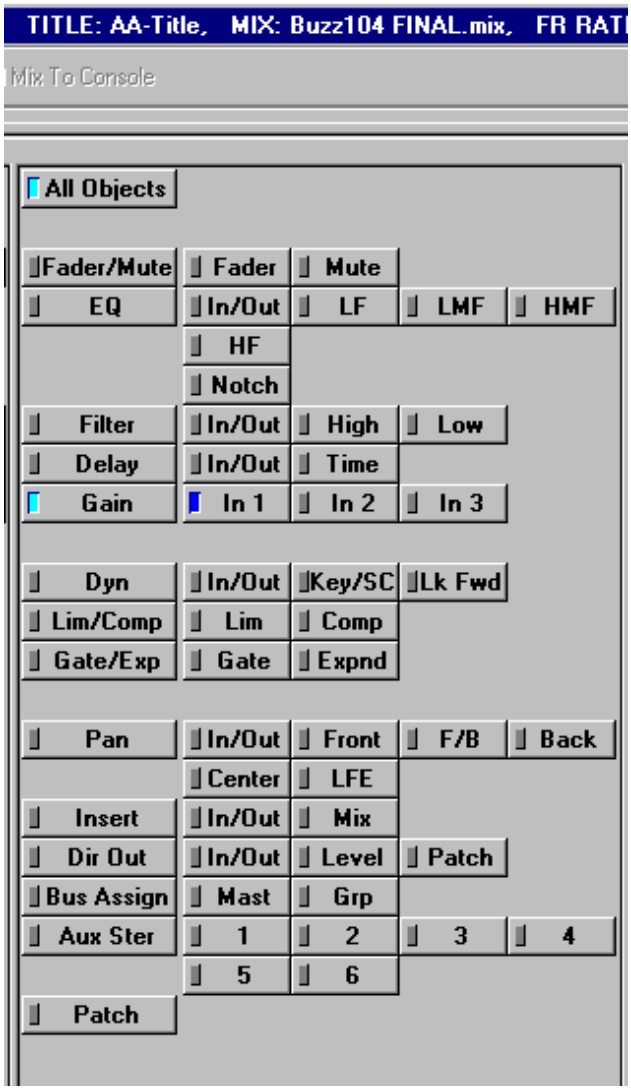
A set of “Group”, “Master”, and “Member” buttons is provided for each group. The top row of buttons act as global selectors for the group controls below.

The assignments of channels as group members are stored as part of the mix data and may be unique to each mix. Therefore, only groups that have channels assigned as members will have “Member” buttons available with

the group. In other words, whether or not the “Member” buttons appear in the Channel Selector Panel is determined by the loaded mix/snapshot.

Notes: User Labels can be displayed on “Group” buttons by selecting “User Labels on Group Buttons” from the Options menu.
The buttons on the Channel Selector Panel select channels and groups on a global basis. If individual (or subsets of) channels/groups are to be selected for editing, the “Show Channels>>” facility must be used.

5.16.2.3 Object Selector Panel



This panel contains buttons that correspond with the elements (or objects) that are contained within the channels.

Note: It is important to realize that the Object Selector Panel will display *all* elements that are included in the VMC. While an object might appear on the panel, it might not be configured within the selected channel(s). Objects not included anywhere in the VMC will not appear on the Object Selector Panel.

Using these buttons, objects can be selected for editing as follows:

All Objects: selects all objects for editing;
Fader/Mute: selects all fader and mute parameters for editing;
EQ: selects all EQ parameters for editing;
Filter: selects all filter parameters for editing;
Delay: selects all delay parameters for editing;
Gain: selects all input gain parameters for editing;
Dyn: selects all limiter/compressor *and* gate/expander parameters for editing;
Lim/Comp: selects all limiter/compressor parameters for editing;
Gate/Exp: selects all gate/expander parameters for editing;
Pan: selects all pan parameters for editing;
Insert: selects all insert parameters for editing;
Dir Out: selects all direct output parameters for editing;
Bus Assign: selects all bus assignments for editing;
Aux Mono: selects all mono auxiliary parameters for editing;
Aux Stereo: selects all stereo auxiliary parameters for editing;
Patch: selects all patch assignments for editing

Selection of an object will select all objects of that type for editing. For example, if all four EQ types have been configured in the VMC (mono, stereo, mono with notch, and stereo with notch), all four EQ types will be selected when the "EQ" object button is clicked.

Each object contains an appropriate set of parameters for that object's functions. Several parameters may be selected by clicking a single button. For example, if Filter/High is clicked, then HP on/off, HP slope, and HP frequency will all be selected.

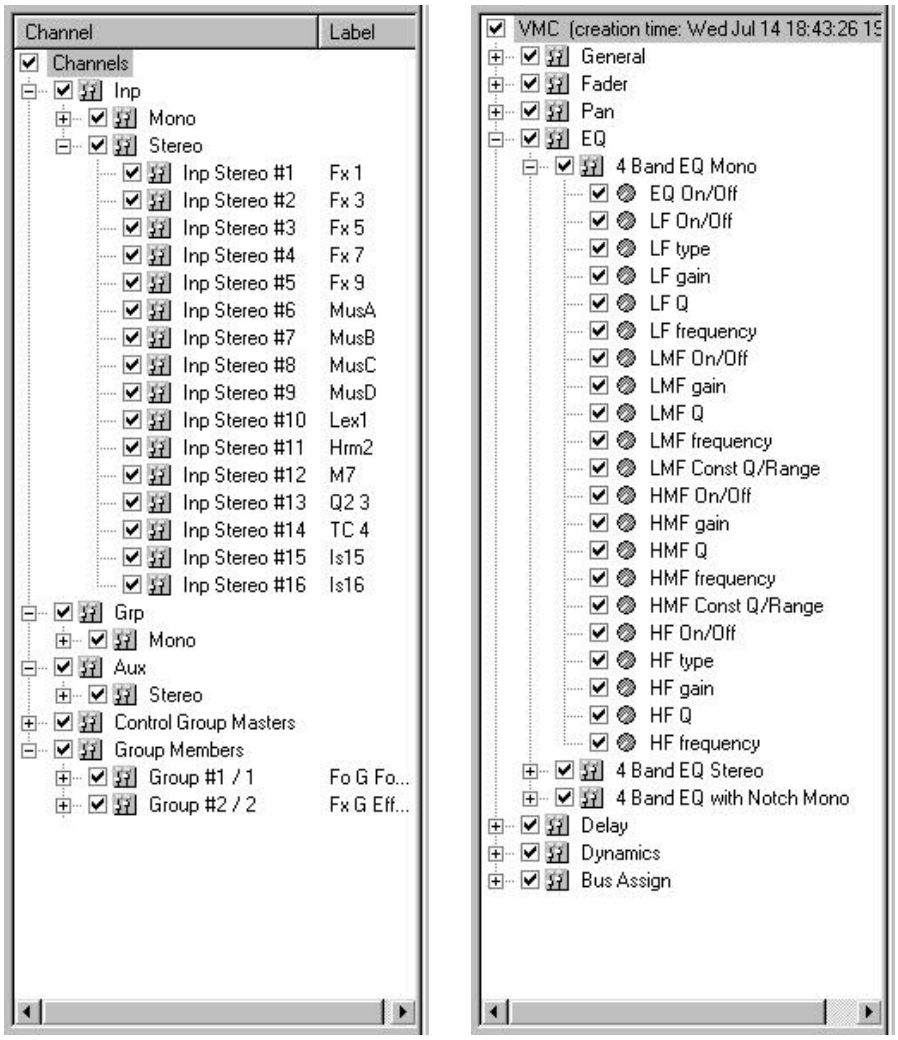
Activating the left-hand button at the beginning of each row will select all parameters for that object. Objects and/or their parameters may be de-selected after a large selection (such as All Objects) has been made.

Note: The buttons on the Object Selector Panel select objects and parameters on a global basis. If individual or subsets of parameters are to be selected for editing, the "Show Objects>>" facility must be used.

5.16.2.4 Channel/Object Tree Display Area

All channels and objects may be displayed in a tree format. This provides the means to select specific channels and/or objects on an individual, subset, or global basis. This display area is located to the right of the Object Selector Panel and will be blank if both trees are hidden.

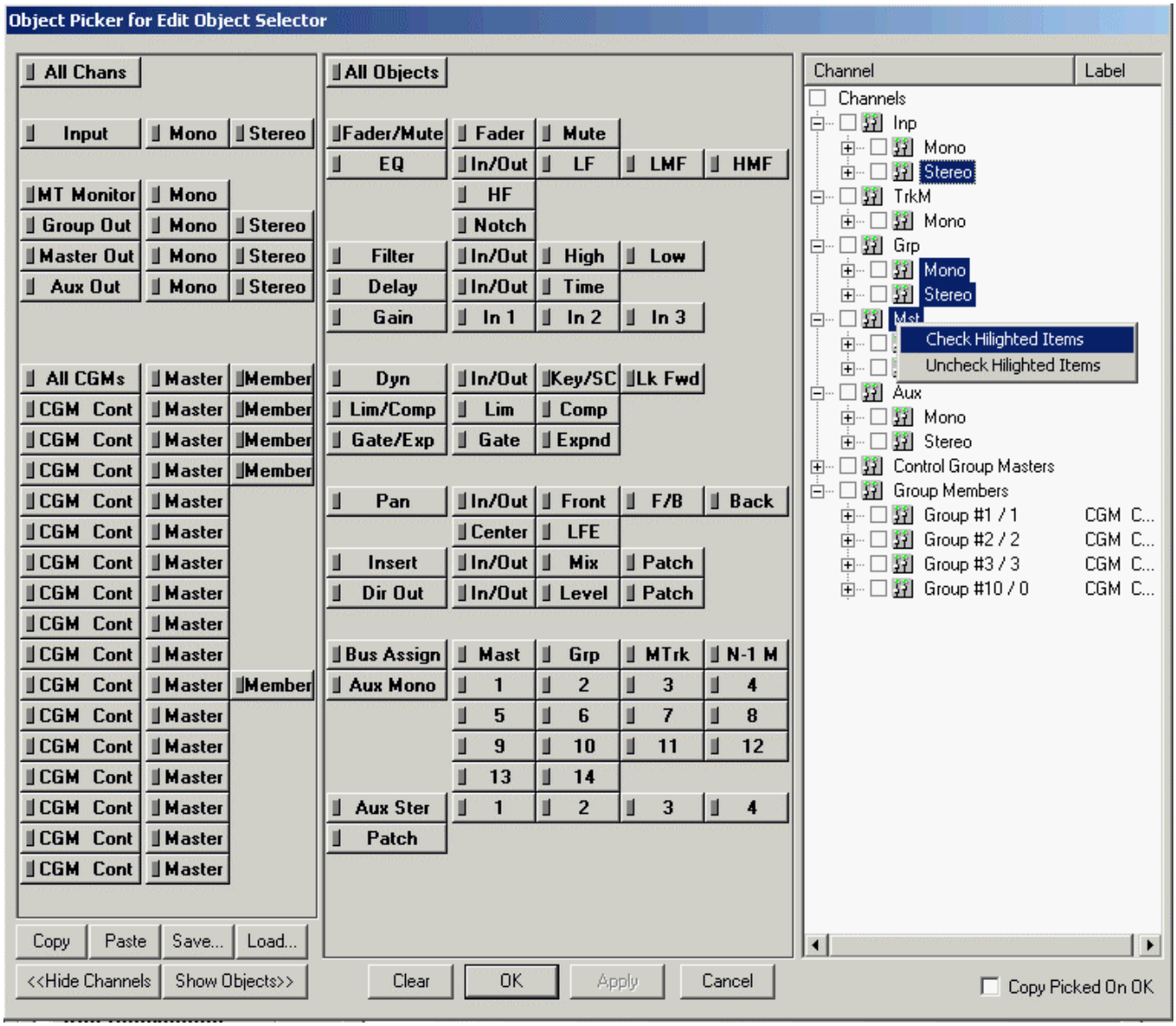
To view the Channel Tree, click the "Show Channels>>" button located under the Channel Selector Panel. All the channels included in the VMC, along with their User Labels, will be contained in the tree (left part of the picture below).
To view the Object Tree, click the "Show Objects>>" button. All objects included in the configuration will be included within the tree. Only one tree can be displayed at any one time (right part of the picture below).



Once a tree has been chosen, all of the individual elements it contains may be viewed by opening the displayed folders and folders within folders (click the "+" icons to open folders and the "–" icons to close them). Like the channel/object selectors, only elements contained within the VMC are displayed.

Items can be selected for editing by checking any combination of folders and/or individual elements within the tree. Using this method, an exact set of elements, either simple or complex, can be chosen. Because of this high

resolution, a much more precise set of elements may be selected than what is possible using the channel/object selector panels.
An item can be checked or unchecked by clicking on the box next to its name. Several items may be selected by highlighting the item labels using the familiar Shift-click and Ctrl-click methods. Once the labels have been highlighted, Right-clicking will open a pop-up menu that allows the group to be checked or unchecked.



Notes: When all items within a channel/object section have been chosen, the associated selector button(s) will illuminate with a dark blue light and the associated tree elements will be indicated with a black check. If only part of a section is chosen, the associated selector buttons will illuminate in light blue and the tree elements will be checked in gray.
Notice the relationship between the channel/object selector panels and the tree displays. When an element is chosen using a selector panel, the corresponding element is checked on the tree. Likewise, if an item is checked on the tree, the corresponding selector button is illuminated.

5.16.2.5 Function Controls

A set of function controls are provided below the Channel/Object Selector panels. These function buttons are as follows:

Copy: copies the Selected Objects Set to the PC clipboard;

Paste: pastes the contents of the PC clipboard (copied Selected Objects Set) to the Object Picker;

Save…: saves the Selected Objects Set as a file;

Load: allows saved object files to be reloaded;

Clear: clears the selection of all objects;

Apply: selects the objects chosen in the Object Picker for editing;

Copy Picked on OK: if checked, the Selected Objects Set is copied to the clipboard when the "Apply" button is clicked;

Cancel: cancels changes made to the Selected Objects Set since the last set was applied, saved, loaded, copied, or pasted.

Once an object or set of objects has been selected in the Object Picker, they are then selected for editing by clicking the "Apply" button. The selected objects from the selected channels will be displayed in the "Selected Objects" window. Those are the only objects that will be affected when edits are performed.

Note: If an object has been chosen but a channel has not, the object will not be selected for editing when the "Apply" button is clicked.

Open Mix Selector Tabs: A set of tabs, each of them representing a mix, are located at the bottom of the Object Picker window (bottom left in the picture above). Every mix that is currently open in the OFLA has its own tab. When the mix selector menus are set to "Selected Mix", these tabs are used to choose a mix by simply clicking on the appropriate tab.

5.16.3 Mix Controls

All edits are based upon an existing mix, known as the Active Mix. Depending on the type of edit selected, data may be needed from another mix or snapshot. The controls for the necessary mixes appear in the combo boxes to the right of the Object Picker or Mix Viewer window.

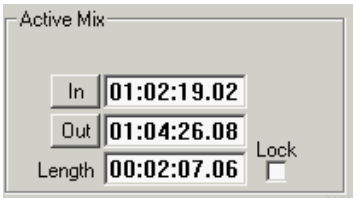
5.16.3.1 Active Mix

The Active Mix provides the primary data set that is used during editing. Every edit is based upon the selected Active Mix, the channels/objects selected within the mix, the portion of the mix to be altered, and the type of edit applied. In other words, the data (parameter values) from the selected Active Mix objects is altered according to the chosen Edit Type and Edit Region when the edit is performed. Previously existing and altered data are combined and saved as a new mix.

Most Edit Types (Set, Trim, Freeze, and Clear) need data from only the Active Mix for an edit to be performed. Spread, Merge, and Update Snap edits all require data from other mixes. When an additional data source is needed to perform an edit, an additional mix combo box (containing the appropriate controls) will appear when the corresponding Edit Type is chosen.

Each mix needed for an edit has a combo box that contains the necessary controls for that mix and edit type.

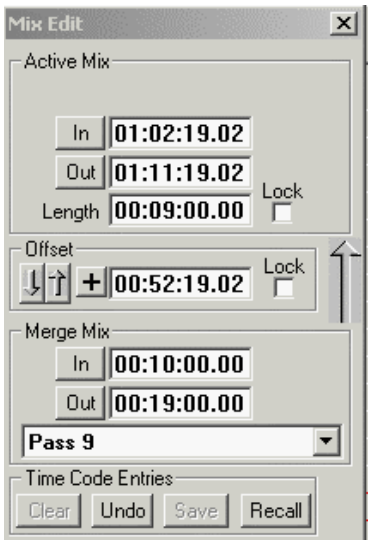
The Active Mix combo box has a primary control set:
- *Timecode Entry Fields*, used to select the Edit Region.



Timecode Entry Fields: For most edit types to be performed, an Edit Region must be established within the Active Mix using timecode addresses (Update Snap does not use an Edit Region). The Edit Region can be as short as a single frame or as long as an entire mix.

Edit Regions are defined using Timecode Entry Fields. The Active Mix includes three Timecode Entry Fields:

In Time: Starting point for the edit; the timecode address from which data is altered;
Out Time: Ending point for the edit; the timecode address from which data is no longer altered;
Length: Duration of the edit; the total time of the Edit Region;
Length Lock: Freezes the value of the Length field.



Timecode addresses may be entered into all three fields in the following ways:

- Capture the current timecode address using the “In” or “Out” buttons (if provided);
- Highlight all or part of the entry field and type in the address;
- Highlight all or part of the entry field and click/drag (roll) the value up or down;
- Press the “+” or “–“ key from the computer keyboard, and an additional Timecode Entry Field will appear. The value entered into this field will be added (+) or subtracted (–) from the existing timecode value.
- Right-Click any part of the entry field and a menu of timecode address selections from which to choose will appear;

Note: Refer to chapter 5.16.4 for additional details regarding timecode entries.

The In Time and Out Time entry fields are equipped with buttons that allow the capture of the current timecode address while the mix is stopped or running. Clicking on these buttons will enter the current address into the appropriate field.

Changes made to one of the entry fields may effect the address(es) of one or both of the other fields. For example, changes made in the In Time or Out Time fields will change the value of the Length time. Changes made in the Length field will change the value of the Out Time.

The Length field may be frozen by checking the Lock box to its right. When the Length field is locked, its value remains constant when changes are made in the other fields. Changes made to the In Time will change the Out Time and vice versa. It is important to note that the Length value may be edited even when it’s locked.

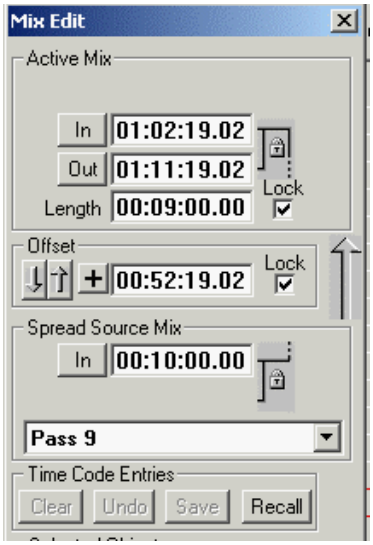
Note: Timecode Entry Fields do not appear in the Active Mix box when Update Snap is selected as the Edit Type.

5.16.3.2 Spread Source Mix

The Spread Source Mix allows external mix data from a single point In Time (Data Point) to be applied to the Active Mix. The data from the selected point in an external mix (Spread Source Mix) is applied to the selected objects, on the selected channels, in the Active Mix during the Edit Region.

The Spread Source Mix combo box has two primary control sets:
- *Mix Selection Menu:* used to select the Spread Source Mix;
- *Timecode Entry Fields:* used to select the Data Point from the Spread Source Mix.

In addition, an Offset combo box is provided, so that the Active Mix and the Spread Source Mix *In Times* can be easily offset from each other.



Mix Selection Menu: This pop-up menu box provides a list of mixes available to become the Spread Source Mix. This list contains the same mixes available to the Active Mix and functions using the same selection techniques.

Note: The Spread Source Mix is typically different from the Active Mix. However, it can also be the same mix as the Active Mix.

Timecode Entry Field: For a Spread Edit to be performed, a Data Point (a single timecode address) must be selected from within the Spread Source Mix.

The Data Point is defined using a Timecode Entry Field. The Spread Source Mix has one Timecode Entry Field:

In Time: Point from which the Spread Source Mix data originates, i.e. the timecode address of the Data Point.

The In Time from the Spread Source Mix is selected using the same techniques used for selecting the Active Mix timecode addresses.

Notes: The In Time selects the Data Point (a specific frame) from the Spread Source Mix. This fixed data is applied throughout the entire Edit Region in the Active Mix.
Refer to chapter 5.16.4 for additional details regarding timecode entries.

Offset Controls: An Offset combo box is provided for easy control of offsets between the Active and Spread Source Mix In Times.

The Offset combo box for the Spread Source Mix contains the following controls:

Down Arrow: Moves the Active Mix In Time to the Spread Source Mix In Time;
Up Arrow: Moves the Spread Source Mix In Time to the Active Mix In Time;
+/– Box: Toggles the Offset Value between positive (+) and negative (–); "+" is the default value;
Offset Value: Difference between the Active Mix and Spread Source Mix In Times (00:00:00:00 is the default value);
Offset Lock: Freezes the Offset value.

The relationships between the Active Mix and Spread Source Mix In Times and the Offset Values are as follows:

- If the Active Mix and Spread Source Mix In Times are identical, the Offset Value will be 00:00:00:00.
- If the Active Mix In Time is 10 seconds greater than the Spread Source Mix In Time, the Offset Value will be +00:00:10:00.
- If the Active Mix In Time is 10 seconds less than the Spread Source Mix In Time, the Offset Value will be –00:00:10:00.
- Changing either In Time will cause a corresponding change in the Offset Value unless it is locked.
- Locking the Offset field will freeze its value. When locked, its value remains constant when changes are made in the other fields. Changing either In Time will then cause a corresponding change in the other In Time. It is important to note that the Offset Value may be edited even when it's locked.

Note: It is possible to lock both Length and Offset fields.

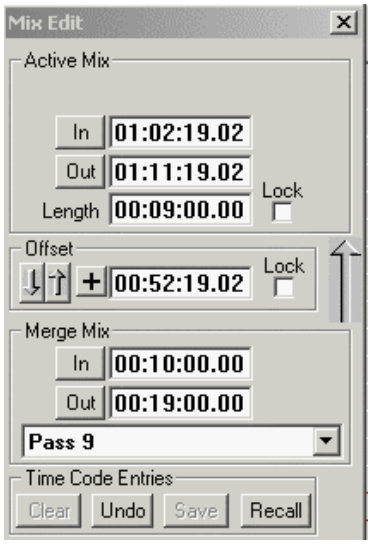
5.16.3.3 Merge Mix

The Merge Mix allows mix data from a region of an external mix to be applied to the Active Mix. The data from the selected region in an external mix (Merge Mix) is applied to the selected objects, on the selected channels, in the Active Mix during the Edit Region.

The Merge Mix combo box has two primary control sets:

- *Mix Selection Menu:* used to select the Merge Mix;
- *Timecode Entry Fields:* used to select the source region of the Merge Mix.

In addition, an Offset combo box is provided so the Active Mix and Merge Mix *In Times* can be easily offset from each other.



Mix Selection Menu: This pop-up menu box provides a list of mixes available to become the Merge Mix. This list contains the same mixes that are available to the Active Mix and functions using the same selection techniques.

Note: The Merge Mix may be the same mix as the Active Mix.

Timecode Entry Fields: For a Merge edit to be performed, a Data Region from within the Merge Mix must be selected.

The Data Region is defined using Timecode Entry Fields. The Merge Mix has the following Timecode Entry Fields:

In Time: This is the starting point of the Data Region from the Merge Mix;

Out Time: This is the ending point of the Data Region from the Merge Mix.

The Merge Mix timecode entries are selected using the same techniques as used for selecting the Active Mix timecode addresses.

Notes: The Data Region from the Merge Mix is applied to the Edit Region of the Active Mix. Therefore, the Data Region and Edit Regions must be the same length. Because of this, the Length field in the Active Mix box works in concert with the In Time or Out Time in both the Active and Merge Mix boxes. Changing the Length field will change the values in the Active Mix *and* Merge Mix boxes. Changing the Merge Mix In Time or Out Time will change the Active Mix In Time or Out Time values, as well as the Length value. Locking the Length field will affect the functions of the In Time or Out Time in both the Active Mix and Merge Mix sections.
Refer to chapter 5.16.4 for additional details regarding timecode entries.

Offset Controls: An Offset combo box is provided to facilitate easy control of offsets between the Active Mix and Merge Mix In Times.

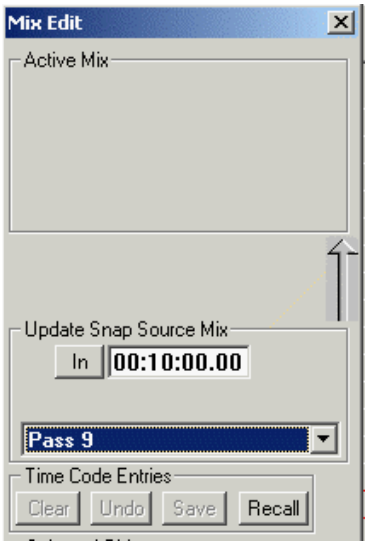
The Merge Mix Offset controls function the same as the Spread Source Mix Offset controls.

5.16.3.4 Update Snap Source Mix

The Update Snap Source Mix allows external mix data from a single point In Time (Data Point) to be applied to the Active Mix. The data from the selected point in an external mix (Spread Source Mix) is applied to the selected objects, on the selected channels, in the entire Active Mix. It performs the same basic function as “Update Mix Snapshot” from the D950 System Mix Options menu.

The Update Snap Source Mix combo box has two primary control sets:

- *Mix Selection Menu:* used to select the Update Snap Source Mix;
- *Timecode Entry Field:* used to select the Data Point from Update Snap Source Mix.



Mix Selection Menu: This pop-up menu box provides a list of mixes available to become the Update Snap Source Mix. This list contains the same mixes that are available to the Active Mix and functions using the same selection techniques.

Note: The Update Snap Source Mix may be the same mix as the Active Mix.

Timecode Entry Field: For an Update Snap edit to be performed, a Data Point (a single timecode address) must be selected from within the Update Snap Source Mix.

The Data Point is defined using a Timecode Entry Field. Update Snap Source Mix has one Timecode Entry Field:

In Time: This is the point from which the Update Snap Source Mix data originates; the timecode address of the Data Point.

The In Time for the Update Snap Source Mix is selected using the same techniques used for selecting the Active Mix Timecode addresses.

Notes: The In Time selects the Data Point (a specific frame) from Update Snap Source Mix. This fixed data is applied throughout the entire length of the Active Mix. Therefore, the Active Mix does not contain any Timecode Entry Fields (In, Out, or Length) when Update Snap is selected as an Edit Type.
Refer to chapter 5.16.4 for additional details regarding timecode entries.

5.16.4 Timecode Controls

5.16.4.1 General Information

All timecode values are expressed as positive numbers and are limited by the number of timecode addresses available. Times cannot be less than 00:00:00:00 or greater than 23:59:59:29 (in 30 non-drop). Only Offset fields can have both positive and negative time values.

Timecode Entry Fields are interactive. Changes made to an entry field may effect other fields' values. For example, changes made to the In Time or Out Time fields in the Active *or* Merge Mix boxes will change the value of the Length time. Changes made in the Length field will change the value of the Out Time of both the Active and Merge Mixes. Changes made to the Offset field may effect In Times, and so on.

It is possible for the In Time and Out Time to be equal in value. When using the click/drag method of timecode entry, it is possible scroll the Out Time downward until it matches the In Time. In that event, the Length time will be 00:00:00:00. Additional reduction of the Out Time value will also reduce the In Time value. Returning the Out Time to its original value will increase the In Time until it matches its original value.

The current system timecode is displayed in the upper right-hand corner of the OFLA screen when the Mix Viewer is enabled.

5.16.4.2 Editing Timecode Entries

Timecode Entry Fields: A variety of Timecode Entry Fields are provided for the definition and control of Edit Regions, Data Regions, Data Points, and Offsets.

Timecode Entry Fields function as follows:

In Time: The starting point for an Edit Region (Active Mix), the starting point for a Data Region (Merge Mix), or the timecode address for a Data Point (Spread Source Mix or Update Snap Source Mix);

Out Time: The ending point for an Edit Region (Active Mix) or a Data Region (Merge Mix);

Length: The duration of the edit; the total time of the Edit Region;

Offset: The difference between In Times of the Active Mix and Spread Source or Merge Mixes.

The In Time and Out Time entry fields are equipped with buttons that allow the capture of the current timecode address while the mix is stopped or running. Clicking on these buttons ("In" or "Out") will enter the current address into the appropriate field.

Timecode addresses may be entered into any field using the following methods:

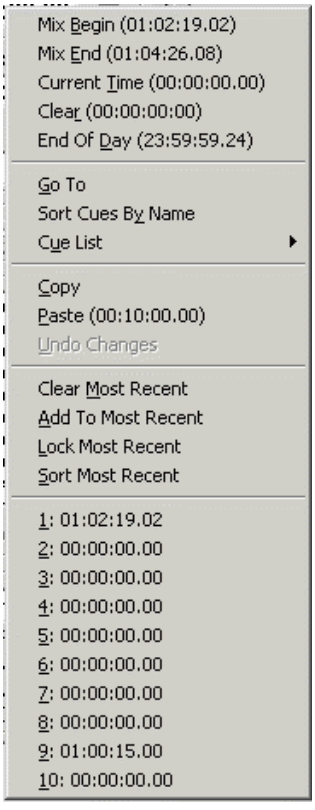
Timecode Capture: Capture the current timecode address by clicking the "In" or "Out" buttons (if provided); at the point the "In" or "Out" button is clicked, the current timecode address is entered into the corresponding field; Timecode addresses can be captured when the mix is running or stopped.

Highlight and Type:
- Highlight all or part of the entry field (hours, minutes, seconds, and frames may be selected individually or as a group);
- Type in the desired timecode value (colons are not necessary when typing);
- Press Enter.

Highlight and Roll:
- Highlight all or part of the entry field;
- Click and drag (roll) the value up or down; an upward trackball motion will increase the timecode value, and a downward motion will decrease the value;
- Stop at the desired value and press Enter.

+/– From Existing Time:
- Press the + or – key from the computer keyboard, and an additional Timecode Entry Field will appear;
- Using one of the highlight methods above, enter a timecode value;
- Press Enter. The math to add (+) or subtract (–) the entered value to/from the existing timecode will be applied. The result of the math will be entered as the new timecode address.

Right-Click Menu Selection:
- Right-click any part of the entry field;
- A menu of timecode address selections from which to choose will appear;
- Use the click/drag method to select a timecode address included in the menu.



The items contained within the Right-Click Timecode Menu are as follows:

Mix/Timecode Items:
- *Mix Begin:* This is the first timecode address within the selected mix (the selected mix is the open mix that has been chosen with the tabs at the bottom of the Object Picker or Mix Viewer); clicking the "In" button while holding the **AUTO MODE** key performs the same function.

- *Mix End:* This is the last timecode address within the selected mix; clicking the "Out" button while holding the Shift key performs the same function.
- *Current Time:* This is the current D950 timecode address.
- *Clear:* This clears the timecode entry for the selected field and resets the value to 00:00:00:00. *The Backspace key will also clear entries, however, it resets* all *timecode fields.*
- *End of Day:* This will enter the last possible timecode address available. For 30 frame non-drop timecode, this value will be 23:59:59:29.

Cue List Items:

- *Go To:* This is a transport control used when the Mix Viewer is enabled.
- *Sort Cues By Name:* This sorts the Cue List items alphabetically by name. Items are usually displayed chronologically by timecode address. This function may be toggled On/Off, with On being indicated by a check next to the menu item.
- *Cue List:* This displays the contents of the Cue List (if one exists) from the currently opened Title. Timecode addresses from the Cue List items may be selected using the click/drag method.

Function Controls:

- *Copy:* This allows the timecode address from the selected field to be copied to the PC clipboard.
- *Paste:* This allows the timecode address from the PC clipboard to be pasted to the selected field.
- Undo Changes: This restores the previous timecode value to the selected field after a change has been made.

Most Recent Address Controls:

- *Clear Most Recent:* This clears all items from the Most Recent timecode address list.
- *Add to Most Recent:* This adds a timecode address to the Most Recent List. Timecode addresses are also added to the Most Recent list whenever a value is entered into any field (unless Lock Most Recent is enabled).
- *Lock Most Recent:* This prevents changes from being made to the Most Recent timecode address list. This menu item may be toggled On/Off. A locked Most Recent list is indicated by a check next to this menu item. When the Most Recent list is locked, the Clear Most Recent menu item is not available.
- *Sort Most Recent:* This sorts the Most Recent list chronologically by timecode address. Most Recent list items are usually displayed in the order in which they were entered. Sort Most Recent will re-arrange the list items with the lowest value first. This menu item may be toggled On/Off. If left On (indicated by a checked menu item), new entries to the Most Recent list will be automatically sorted as they are entered.

Most Recent Address List:

- *List Entries:* This displays the contents of the Most Recent timecode address list (if one exists). Timecode addresses from this list may be selected using the click/drag method. The Most Recent list is available to all Timecode Entry Fields.

5.16.4.3 Timecode Entry Controls

Timecode Entries: Controls are provided that allow timecode fields to be set to zero, reset to the previous values, stored, and restored on a global basis. When these controls are used, the values for all present Timecode Entry Fields are effected. As discussed previously, the fields that are present are determined by the Edit Type selected.

The timecode entry controls (labeled Timecode Entries) are as follows:

Clear: Resets all timecode values to 00:00:00:00; the Backspace key on the computer keyboard performs the same function;

Undo/Redo: Toggles between Undo and Redo modes of operation; Undo resets the timecode fields to the values that were in use before changes were made; Redo restores the most recent changes;

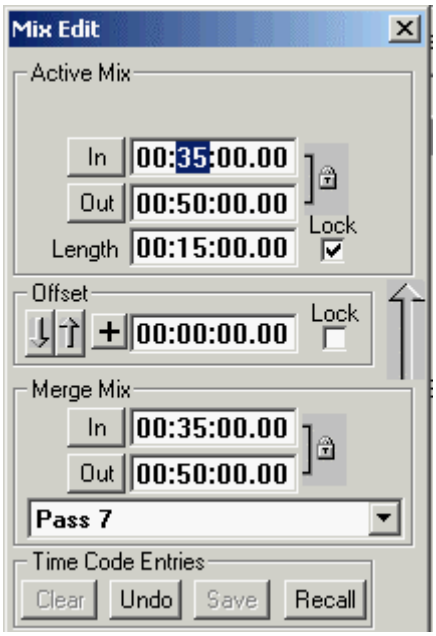
Save: Copies all timecode values to the PC clipboard;

Recall: Copies the saved timecode values from the PC clipboard to the Timecode Entry Fields.

5.16.4.4 Locking Timecode Fields

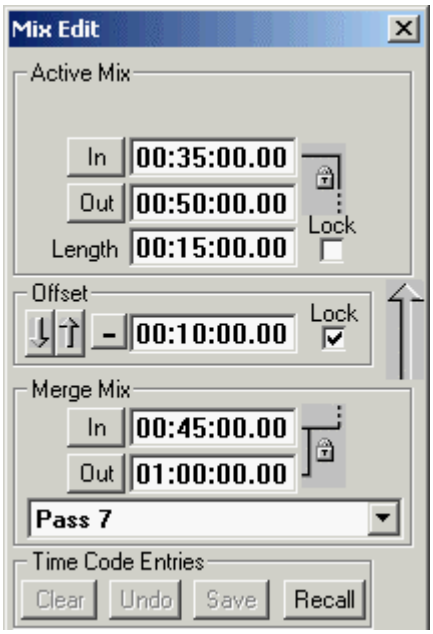
Timecode Field Locks: Timecode values may be locked in the Length (in the Active Mix box) and the Offset fields (used with Spread Source Mix and Merge Mix). This allows the values in the locked field(s), which might otherwise change, to remain constant when the values in other fields are changed. Locking the Length or Offset field is accomplished by checking the Lock box to the right of the field.

Locking the Length Field: Locking the Length field is useful when the duration of an Edit Region needs to maintain its total time, but the In or Out Times must change. Changes made to the In Time will create corresponding changes to the Out Time and vice versa, while the Length field remains the same. Changes made to the Length field will change the Out Time field. *It is important to note that the Length field's value may be edited even when it's locked.*

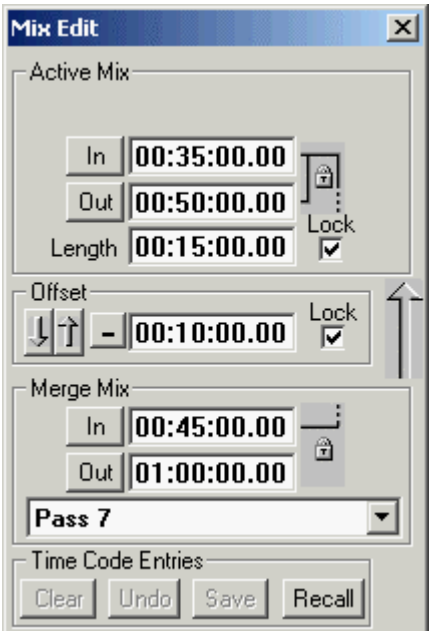


Locking the Offset Field: Locking the Offset field is useful when it is desired to maintain a constant difference In Time (offset) between the In Time of the Active Mix and the In Time of a Spread Source Mix or Merge Mix. This allows fields (other than Offset), including In Time, to be changed while preserving the offset value between the mixes.

When the Offset field is locked by itself, it is possible to change its value by ± one increment only. If the entire entry field is highlighted, its value can be changed + or – by only a single frame only. If only the seconds portion of the entry field is highlighted, the value can only be changed by ± one second only, and so on.



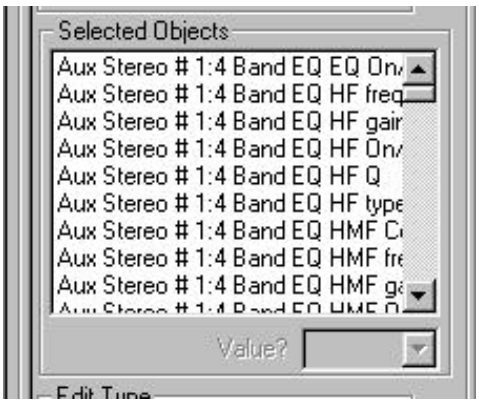
Locking the Length/Offset Fields: Both the Length and Offset fields may be locked simultaneously. This allows the Edit Region *and* Offset to remain constant when other fields are altered. In this case, it is possible to change the Offset field by more than ± one increment.



Notes: To fully understand the relationships between the various entry fields and their locking capabilities, experimentation with a variety of conditions is strongly suggested.
Remember that Timecode Entry Fields are interactive, so changes to fields in one box (such as Merge Mix) may affect changes in other fields (such as Active Mix).

5.16.5 Selected Objects Display

Selected Objects Window: Once channels/objects have been selected and applied using the Object Picker, a list of the chosen objects is displayed in the Selected Objects window. It is the parameter values of these objects that will be affected when the edit is performed.



Note: Selected Objects (objects and parameter values) cannot be further defined using the Selected Objects window. Channels, objects, and parameter values can only be chosen using the Object Picker.

Value Entry Field: A Value Entry field is located in the lower right-hand corner of the Selected Objects combo box. It is used to enter the value to be applied when Set and Trim Edit Types are performed. This value is applied as follows:

Set: Parameters selected for editing will be set to the entered value for the duration of the Edit Region;

Trim: The values of the parameters selected for editing will be offset by the entered value for the duration of the Edit Region.

Note: The Value Entry Field is only available in Set and Trim Edit Types.

The type of value is determined by the type of parameter(s) selected for editing. Some parameters will have specific labels for the Value Entry Field. For example, if Fader values were selected from a group of Input channels, the Value Entry Field will be expressed in dB. Likewise, if a group of EQ frequency parameters were selected, “freq” would represent the Value Entry Field. Other parameters without specific labels will be labeled simply as “Value.”

Note: An arrow will appear at the right of the Value Entry Field when like parameters of certain types are selected for editing. Clicking on this arrow (or anywhere in the Value Entry Field) will cause a scroll box to appear that contains a list of the possible values for that parameter. For example, if Input Gain #1 is selected, the scroll box will contain values ranging from –24 to +24 dB in 1 dB increments. A value can be selected from this list by highlighting the desired item.

Parameters of the same type (such as Direct Out Level) may be chosen from several different channel types, such as Input, Group, Auxiliary Output, and so on. Mono and Stereo channels may be included when objects/parameters are chosen.

Parameters of *similar type* may be selected from *similar types of objects*. For example, ON/OFF parameters may be selected from Filters, EQ, Dynamics, Delay, and other objects that contain ON/OFF switches. However, parameters that are dissimilar may not be chosen for Set and Trim Edit Types.

Note: When incompatible parameters are selected (such as Fader level and Mute), Set and Trim Edit Types are not functional and values cannot be entered. This is indicated by a "Grayed Out" Value Entry Field.

5.16.6 Edit Types

General Information: In order to provide power and versatility, OFLA offers seven distinct Edit Types. Each provides an edit function designed to perform a specific task.

Edit Types can be chosen by clicking the arrow at the end of the display. A list of Edit Types will be displayed. Clicking one of the Edit Types will select it for use. Edit Types can also be selected using click-drag method in the Edit Type window.

Edit Types are as follows:

Set: Parameters selected for editing will be set to the entered value for the duration of the Edit Region;

Trim: Data for the parameters selected for editing will be offset by the entered value for the duration of the Edit Region;

Freeze: Data for the parameters selected for editing will be frozen at the In Time for the duration of the Edit Region;

Clear: Data from the VMC Defaults will be applied to the parameters selected for editing for the duration of the Edit Region;

Spread: Data from a single point in an external mix will be applied to the parameters selected for editing for the duration of the Edit Region;

Merge: Data from a region of an external mix will be applied to the parameters selected for editing for the duration of the Edit Region;

Update Snap: Data from a single point in an external mix will be applied to the parameters selected for editing for the entire mix. This is a function corresponding to "Update Mix Snapshot" in the D950 System Mix Options menu.

At Out Time: Controls are provided that determine what happens to the data (for the parameters selected for editing) that exists after the Edit Region. These radio buttons are contained in the "At Out Time" section of the Edit Type combo box. Only one of these options may be selected.

The functions of these controls are as follows:

Restore Values: The data from the Active Mix that exists after the Edit Region is retained.

Write To End: The data from the last frame of the Edit Region is written to the end of the mix.

Write To Next Change: The data from the last frame of the Edit Region is written for each selected parameter until there is an original value change for that parameter in the Active Mix.

5.16.7 Offline Editing Tutorial

Select Objects:

1. Click the SELECT button on the AutoTouch+ page in the GC.
2. Using the Object Picker, click the channel buttons to choose groups of channels for editing.
3. Using the Object Picker, click the object buttons to choose groups of objects for editing.
4. Click "Apply" to select objects for editing.

OR

1. Click the "Show Channels>>" button.
2. Check items in the Channel Tree to choose individual or groups of channels for editing.
3. Click the "Show Objects>>" button.
4. Check items in the Object Tree to choose individual or groups of objects for editing.
5. Click "Apply" to select objects for editing.

Set an Edit Region:

1. Click the "In" button in the Active Mix box or enter a timecode address manually.
2. Click the "Out" button in the Active Mix box or enter a timecode address manually.
3. Further manipulate the Edit Region as necessary.

Select an Edit Type:

1. Using the Edit Type Menu, select the desired edit function.
2. Enter Set or Trim values if using those functions.
3. Enter the necessary timecode values as required by the selected Edit Type.
4. Click on the desired "At Out Time" option.

Perform Edit:

1. Click "Perform Edit" to complete the process.
2. Repeat as needed.

After Editing: In the mix pass tree, a new Mix Pass will be created after each "Perform Edit" function.

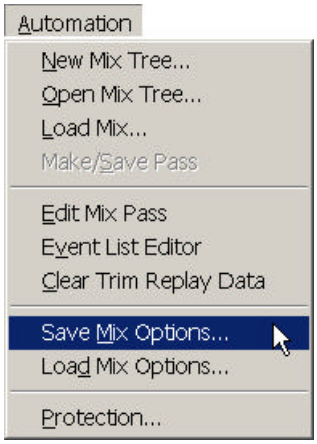
5.17 User Files

To help manage the multiple options available in AutoTouch+, the settings of all Options can be saved in a User File. The current AutoTouch+ Panel settings and presets are also saved within User Files. This allows each engineer to save his or her own preferred settings and recall them at future sessions. This eliminates the process of manually resetting all the AutoTouch+ Options and panel settings, adding to the ease of operation.
Beyond creating custom setups for engineers, User Files can also be used to create automation templates for specific tasks. For example, one User File might be created for music mixing, while another is created for post.

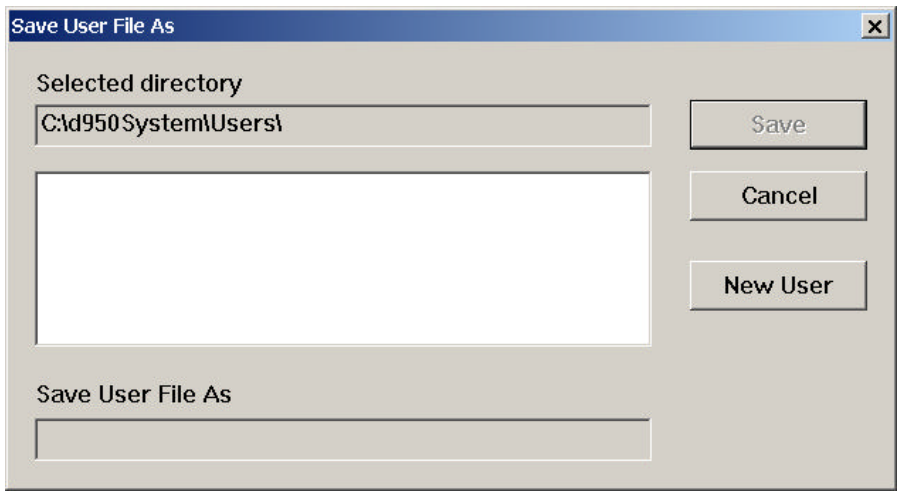
Users: AutoTouch+ supports any number of Users. For each new User a folder is created in the "Users" folder in the D950System directory. The User folder may be named as desired. Any number of User Files may be stored in a User's folder.
Users and User Files are not specific to a particular Mix Tree, Title, or Project. Because of this, any User File in any User's folder is available for use with any Title or any Mix Pass.

Create a New User & User File: Use the following procedure to create a new User and User File:

1. Set all Options as desired.
2. Store all AutoTouch+ Panel Presets, if any (*D950 only*).
3. Select "Save Mix Options…" from the GC Automation menu.



The Save User File As window will open.

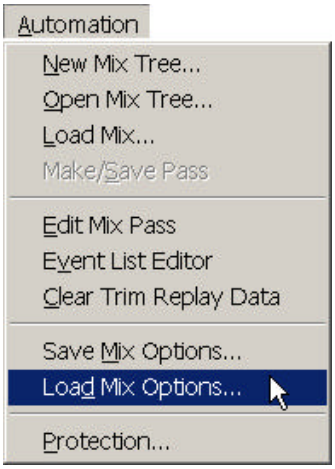


4. Click the New User button. The New User window will open.

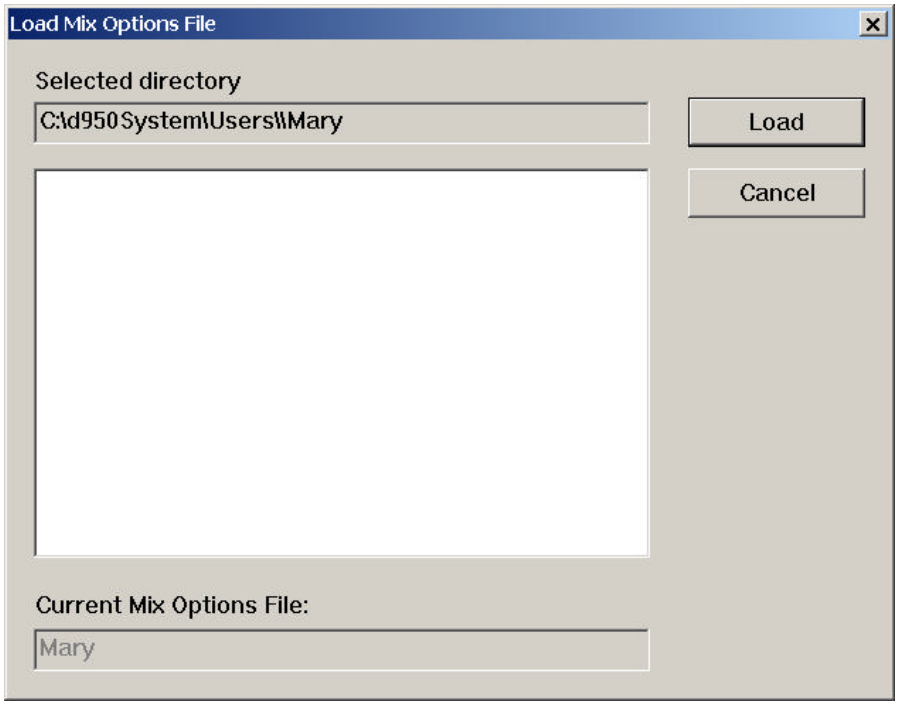
5. Enter a new User name in the field provided and click OK. A new User folder will be created bearing the name entered.
6. Enter the name of the new User File in the Save User File As field and click OK.
7. A new User File bearing the name entered will be created.

Load a User File: Use the following procedure to store a User File:

1. Select "Load Mix Options…" from the GC Automation menu.



The Load User File As window will open.



2. The User folder containing the active User File will be open and the active User File will be indicated in blue letters.
3. If necessary open the appropriate User folder by clicking the + icon for that User or double-click the name. The folder will open and display its contents.
4. Double-click the name of the desired User File or single-click the name to highlight it and then click the Load button.
5. The selected User File will be loaded.

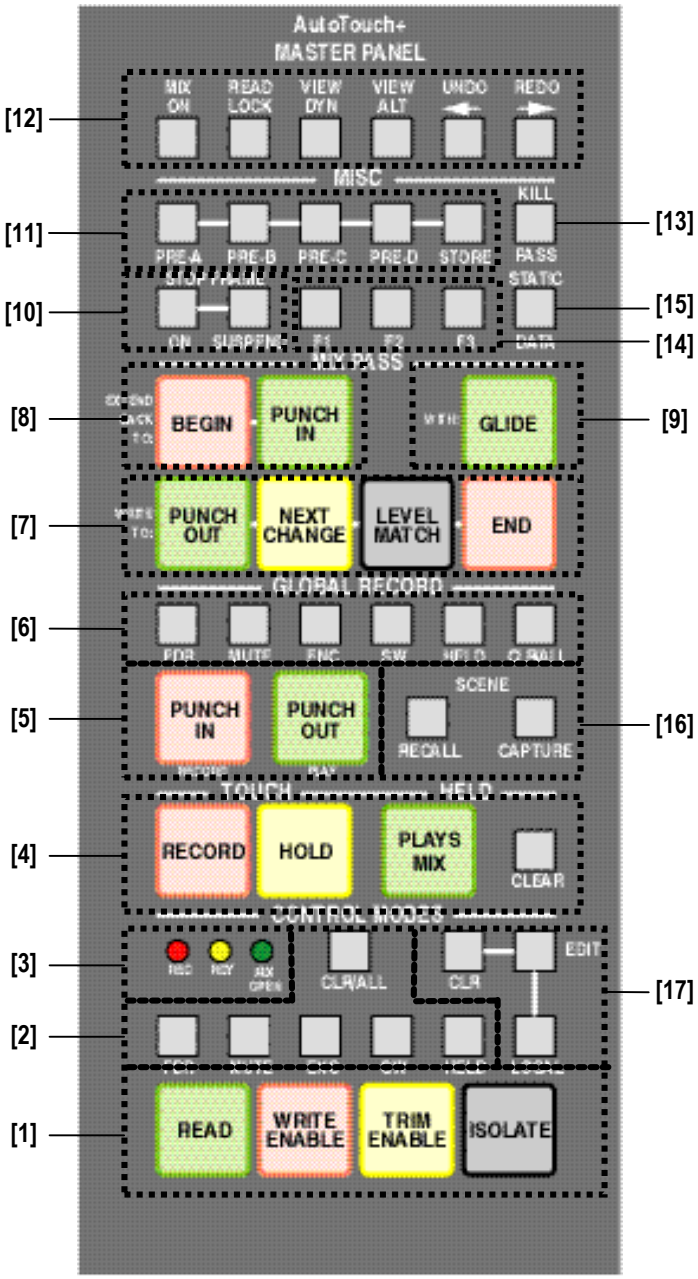
Update a User File: Use the following procedure to update an existing User File:

1. Make changes to Options as desired.
2. Store any changes to AutoTouch+ Panel Presets (if any – *D950 only*).
3. Select "Save Mix Options…" from the GC Automation menu. The Save User File As window will open.
4. Either double-click the active User File (in blue letters) or enter the same User name in the field provided and click OK. A dialog box will indicate a file with the same name already exists and will ask if you wish to replace it.
5. Click YES and the chosen User File will be updated.

Delete a User or User File: Users and User Files may be deleted by removing them from the Users folder in the D950System directory.

5.18 AutoTouch+ Panel

5.18.1 D950



[1] Global **CONTROL MODES** (see also chapter 5.6)

READ – Sets selected objects (depending on the Pre-Selector setting) into Read mode.

WRITE ENABLE – Sets selected objects (depending on the Pre-Selector setting) into Write Enable mode. These parameters are "armed" and can be put into write (record).

TRIM ENABLE – Sets selected objects (depending on the Pre-Selector setting) into Trim Enable mode. These parameters are "armed" and can be put into trim (record).

ISOLATE: Isolates selected objects (depending on the Pre-Selector setting). These objects will not be affected by the automation.

[2] Global Pre-Selectors for Control Modes (see also chapter 5.6.5.1)
Before globally any control mode (Read, Write Enable, Trim Enable and Isolate) can activated, the Pre-Selectors for the desired objects must be activated. These are:
FDR (Fader) – all Faders
MUTE – all Mutes
ENC (Encoders) – all continuous controller type encoders (knobs or rotaries)
SW (Switches) – all switches
HELD (Held controls) – all controls that are currently in a "Held" state. This can be any combination of faders, mutes, encoders and switches. Refer to chapter 5.7.3.
CLR / ALL (Clear/All) – Permits the changing of all Pre-Selectors at once.
If one ore more pre-selectors are active, pressing **CLR / ALL** will clear all pre-selectors.
If none of the pre-selectors are active, pressing **CLR / ALL** will activate all pre-selectors.
If **CLR / ALL** and a global Mode (e.g. **WRITE ENABLE**) is pressed, will select all controls into Write Enable (this is like Pre-Selectors are bypasses).

[3] Automation Indication:
MIX OPEN (green) – Mix is open and automation system is on.
RDY (yellow) – Automation system is ready (e.g. timecode ok).
REC (red) – Automation system is recording.

[4] **TOUCH / HELD** (see also chapters 5.7.1 through 5.7.4)
TOUCH RECORD – If activated, touching a write or trim enabled control element (e.g. fader) will put the touched control into record.
TOUCH HOLD – If activated, touching and releasing a control element (e.g. fader) will simulate a touch and held the object even manually the control has been released.
HELD PLAYS MIX – When this key is engaged (see also chapter 5.7.5.1), all Held controls play back their Read Mix data when not in RECORD, but the controls can be set to different physical positions.
The Read Mix data is heard, even though one or more controls are being held in AUDITION. This allows a held control to be pre-positioned while awaiting a punch-in. The result is true emulation of the resultant mix, while the Mix Pass is being run.
CLEAR HELD – Pressing this key will take all Held controls out of Hold. It will also clear the list of controls in the Held Controls Buffer.

[5] **GLOBAL RECORD** (see also chapter 5.8)
PUNCH IN – Write or Trim Enabled controls are put into record (depending on the **GLOBAL RECORD** Pre-Selector setting).
PUNCH OUT – Control elements which are in record are punched out (depending on the **GLOBAL RECORD** Pre-Selector setting).

[6] Global Pre-Selectors for **GLOBAL RECORD** (see also chapter 5.8.1).
Before globally any control can be punched In or punched out (Record, Play), the Pre-Selectors for the desired objects must be activated. These are:
FDR (Fader) – all Faders
MUTE – all Mutes
ENC (Encoders) – all continuous controller type encoders (knobs or rotaries)
SW (Switches) – all switches
HELD (Held controls) – all controls that are currently in a "Held" state. This can be any combination of faders, mutes, encoders and switches. Refer to chapter 5.7.3.
CLR / ALL (Clear/All) – Permits the changing of all Pre-Selectors at once.
If one ore more pre-selectors are active, pressing **CLR / ALL** will clear all pre-selectors.
If none of the pre-selectors are active, pressing **CLR / ALL** will activate all pre-selectors.
Holding **CLR / ALL** and pressing a Global Record command (Punch-in or Punch-out) will affect all controls (like Pre-Selectors are bypassed).

[7] **MIX PASS WRITE TO:** (also refer to chapter 5.9.1).
WRITE TO: LEVEL MATCH, NEXT CHANGE, END will write the value at the time of punch-out further ahead, rather than immediately stop recording. The neutral default setting is **PUNCH OUT**. This will record no more after punch-out.
WRITE TO: PUNCH OUT – The automation system stays in record until Punch-out is performed.
WRITE TO: NEXT CHANGE – The last recorded data will be applied until the next recorded change in the Read Mix data. At that point the automation will transition from record data to read mix data.
WRITE TO: LEVEL MATCH – The last recorded value will be written until it matches the read mix data.
WRITE TO: END – The Last Recorded Value will be applied until the user-specified End Time. All previously recorded values between the Last Recorded Value (typically Punch-out) and the End Time will be erased.

[8] **MIX PASS EXTEND BACK TO:** (see also chapter 5.9.2).
EXTEND BACK TO: PUNCH IN – Extend the Last Recorded Value back to the punch-in location.
EXTEND BACK TO: BEGIN – Extend the Last Recorded Value back to the specified Begin Time.

[9] Mix Pass **WITH: GLIDE** (see also chapter 5.9.3).
WITH: GLIDE – Activates the Glide function.

[10] **STOP FRAME** (see also chapter 5.15).
STOP FRAME ON – Activates the stop frame automation.
STOP FRAME SUSPEND – Stop Frame recording is suspended. This allows timecode to be moved backward or forward so a timecode location may be found. No control values will be written while Suspend is engaged.

[11] AutoTouch+ Panel Preset Settings (see also chapter 5.14.4).
PRE-A...D – Four locations to store AutoTouch+ Panel settings.
STORE – To store Panel Presets, first set all AutoTouch+ Panel controls to the desired state. Hold the **STORE** key and press the desired Preset key (**PRE-A**, **PRE-B**, **PRE-C**, and **PRE-D**).

[12] **MIX ON** – Turns the Automation system on (see also chapter 5.14.1).
READ LOCK – Forces all controls into Read and blocks out all other controls. Nothing can affect playback of Read Mix (see also chapter 5.15.2).
VIEW DYN – When held, dynamic objects are lit on the surface (see also chapter 5.14.2).
VIEW ALT – *not implemented in V3.2*
UNDO – Sets the Read Mix to the previous pass in the Mix Pass Stack (see also chapter 5.5.1.2).
REDO – Sets the Read Mix to the next pass in the Mix Pass Stack (see also chapter 5.5.1.2).

[13] **KILL PASS** – If engaged when timecode is stopped, the new mix pass will not be written. To prevent a new Mix Pass from being written, press **KILL PASS** before playback of timecode stops (see also chapter 5.5.1.3).

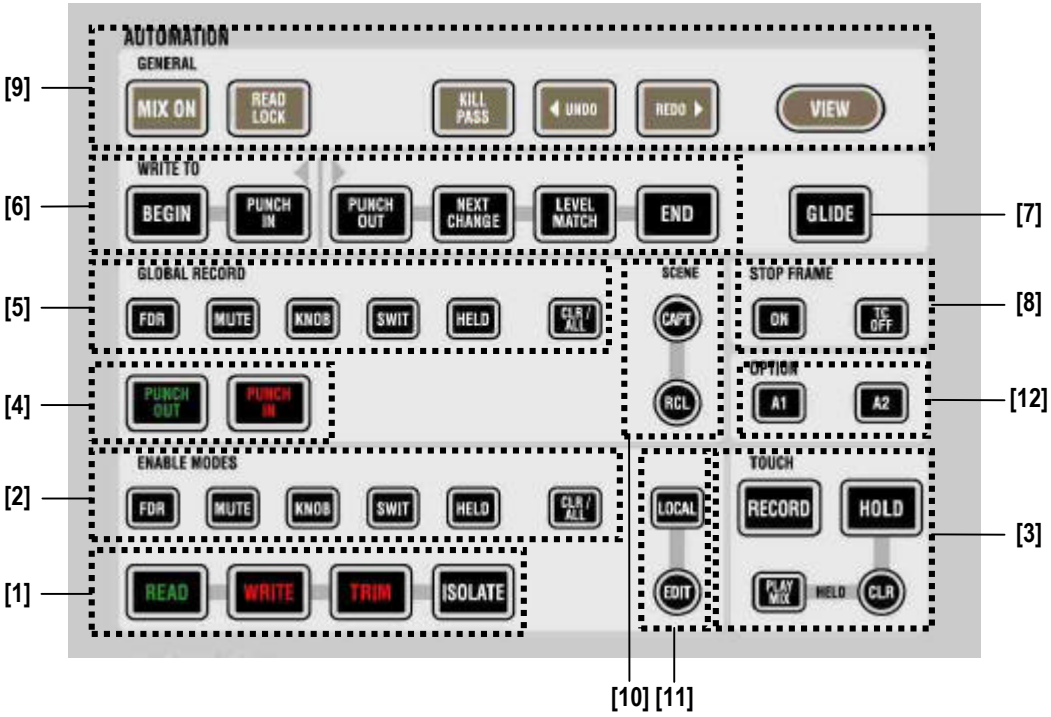
[14] Function keys **F1...F3**: Not implemented.

[15] **STATIC DATA** – When lit, this key indicates that Static Data Buffer is active and there is a difference between the current Static values and those stored within the current Mix Pass (Active Pass).
Pressing the **STATIC DATA** key clears the current Static values and those stored within the current Mix Pass (Active Pass). This function cannot be undone (see also chapter 5.14.6).

[16] **SCENE** (see also chapter 5.14.7).
A Scene is a global snapshot of the automation state of each control within the system. There are two buffers in which Scenes may be stored. Scenes will be stored and can recalled during subsequent sessions.
SCENE CAPTURE – Holding the **STORE** key (see item [11] in the AutoTouch+ Panel description) and pressing **SCENE CAPTURE** will "capture" a Scene in the first buffer. Holding **AUTO MODE** and **STORE** and pressing **SCENE CAPTURE** will "capture" a Scene in the second buffer.
SCENE RECALL – Will illuminate when a Scene has been captured. Pressing **SCENE RECALL** will "recall" the Scene stored in the first buffer. Holding **AUTO MODE** and pressing **SCENE RECALL** will recall the Scene stored in the second buffer.

[17] **LOCAL**, **LOCAL EDIT**, **LOCAL CLEAR** – *Not implemented in V3.2*

5.18.2 Vista



[1] Global **CONTROL MODES** (see also chapter 5.6).
READ – Sets selected objects (depending on the Pre-Selector setting) into Read mode.
WRITE ENABLE – Sets selected objects (depending on the Pre-Selector setting) into Write Enable mode. These parameters are "armed" and can be put into write (record).
TRIM ENABLE – Sets selected objects (depending on the Pre-Selector setting) into Trim Enable mode. These parameters are "armed" and can be put into trim (record).
ISOLATE: Isolates selected objects (depending on the Pre-Selector setting). These objects will not be affected by the automation.

[2] Global Pre-Selectors for Control Modes (see also chapter 5.6.5.1).
Before globally any control mode (Read, Write Enable, Trim Enable and Isolate) can activated, the Pre-Selectors for the desired objects must be activated. These are:
FDR (Fader) – all Faders
MUTE – all Mutes
KNOB (Encoders) – all continuous controller type encoders (knobs or rotaries)
SWIT (Switches) – all switches
HELD (Held controls) – all controls that are currently in a "Held" state. This can be any combination of faders, mutes, encoders and switches. Refer to chapter 5.7.3.
CLR / ALL (Clear/All) – Permits the changing of all Pre-Selectors at once.
If one ore more pre-selectors are active, pressing **CLR / ALL** will clear all pre-selectors.
If none of the pre-selectors are active, pressing **CLR / ALL** will activate all pre-selectors.
If **CLR / ALL** and a global Mode (e.g. **WRITE ENABLE**) is pressed, will select all controls into Write Enable (this is like Pre-Selectors are bypassed).

[3] **TOUCH / HELD** (see also chapters 5.7.1 through 5.7.4).
TOUCH RECORD – If activated, touching a write or trim enabled control element (e.g. fader) will put the touched control into record.
TOUCH HOLD – If activated, touching and releasing a control element (e.g. fader) will simulate a touch and held the object even manually the control has been released.
HELD PLAY MIX – When this key is engaged (see also chapter 5.7.5.1), all Held controls play back their Read Mix data when not in RECORD, but the controls can be set to different physical positions.
The Read Mix data is heard, even though one or more controls are being held in AUDITION. This allows a held control to be pre-positioned while awaiting a punch-in. The result is true emulation of the resultant mix, while the Mix Pass is being run.
CLEAR HELD – Pressing this key will take all Held controls out of Hold. It will also clear the list of controls in the Held Controls Buffer.

[4] **GLOBAL RECORD** (see also chapter 5.8).
PUNCH IN – Write or Trim Enabled controls are put into record (depending on the **GLOBAL RECORD** Pre-Selector setting).
PUNCH OUT – Control elements which are in record are punched out (depending on the **GLOBAL RECORD** Pre-Selector setting).

[5] Global Pre-Selectors for **GLOBAL RECORD** (see also chapter 5.8.1).
Before globally any control can be punched In or punched out (Record, Play), the Pre-Selectors for the desired objects must be activated. These are:
FDR (Fader) – all Faders
MUTE – all Mutes
KNOB (Encoders) – all continuous controller type encoders (knobs or rotaries)
SWIT (Switches) – all switches
HELD (Held controls) – all controls that are currently in a "Held" state. This can be any combination of faders, mutes, encoders and switches. Refer to chapter 5.7.3.
CLR / ALL (Clear/All) – Permits the changing of all Pre-Selectors at once.
If one ore more pre-selectors are active, pressing **CLR / ALL** will clear all pre-selectors.
If none of the pre-selectors are active, pressing **CLR / ALL** will activate all pre-selectors.
Holding **CLR / ALL** and pressing a Global Record command (Punch-in or Punch-out) will affect all controls (like Pre-Selectors are bypassed).

[6] **MIX PASS WRITE TO:** (see also chapter 5.9.1).
WRITE TO: LEVEL MATCH, NEXT CHANGE, END will write the value at the time of punch-out further ahead, rather than immediately stop recording. The neutral default setting is **PUNCH OUT**. This will record no more after punch-out.
WRITE TO: PUNCH OUT – The automation system stays in record until Punch-out is performed.
WRITE TO: NEXT CHANGE – The last recorded data will be applied until the next recorded change in the Read Mix data. At that point the automation will transition from record data to read mix data.
WRITE TO: LEVEL MATCH – The last recorded value will be written until it matches the read mix data.

WRITE TO: END – The Last Recorded Value will be applied until the user-specified End Time. All previously recorded values between the Last Recorded Value (typically Punch-out) and the End Time will be erased.
WRITE TO: PUNCH IN – Extend the Last Recorded Value back to the punch-in location.
WRITE TO: BEGIN – Extend the Last Recorded Value back to the specified Begin Time.

[7] Mix Pass **WITH: GLIDE** (see also chapter 5.9.3).
WITH: GLIDE – Activates the Glide function.

[8] **STOP FRAME** (see also chapter 5.15).
STOP FRAME ON – Activates the stop frame automation.
STOP FRAME TC OFF – Stop Frame recording is suspended. This allows timecode to be moved backward or forward so a timecode location may be found. No control values will be written while **TC OFF** is engaged.

[9] **MIX ON** – Turns the Automation system on (see also chapter 5.14.1).
READ LOCK – Forces all controls into Read and blocks out all other controls. Nothing can affect playback of Read Mix (see also chapter 5.15.2).
KILL PASS – If engaged when timecode is stopped, the new mix pass will not be written. To prevent a new Mix Pass from being written, press **KILL PASS** before playback of timecode stops. (see also chapter 5.5.1.3).
UNDO – Sets the Read Mix to the previous pass in the Mix Pass Stack (see also chapter 5.5.1.2).
REDO – Sets the Read Mix to the next pass in the Mix Pass Stack (see also chapter 5.5.1.2).
VIEW – When held, dynamic objects are lit on the surface (see also chapter 5.14.2).

[10] **SCENE** (see also chapter 5.14.7).
A Scene is a global snapshot of the automation state of each control within the system. There are two buffers in which Scenes may be stored. Scenes will be stored and can recalled during subsequent sessions.
SCENE CAPTURE – Holding the **STORE** key (see item [11] in the Auto-Touch+ Panel description) and pressing **SCENE CAPTURE** will "capture" a Scene in the first buffer. Holding **AUTO MODE** and **STORE** and pressing **SCENE CAPTURE** will "capture" a Scene in the second buffer.
SCENE RECALL – Will illuminate when a Scene has been captured. Pressing **SCENE RECALL** will "recall" the Scene stored in the first buffer. Holding **AUTO MODE** modifier key and pressing **SCENE RECALL** will recall the Scene stored in the second buffer.

[11] **LOCAL**, **LOCAL EDIT**, **LOCAL CLEAR** – *Not implemented in V3.2*

[12] **OPTION A1 / A2** – *Not implemented in V3.2*

5.19 Desk Automation Controls

This chapter is an overview of the channel strip and central automation controls other than those found in the AutoTouch+ Panel. D950 Classic and M2 work surfaces are covered, as well as Vista.

5.19.1 D950 Desk Automation Controls

The D950 Classic and M2 work surface automation controls are virtually identical in function and location. However, there are some minor changes in labels for a few controls. These will be noted as necessary.

5.19.1.1 D950 Channel Strip Controls

Each channel strip has a set of automation controls. These controls are sometimes referred to as "Local Controls." Used in conjunction with the channel's audio controls, automation operations may be carried out with ease. All automation functions are accessed via channel strip keys. Descriptions of the channel strip automation controls follow.

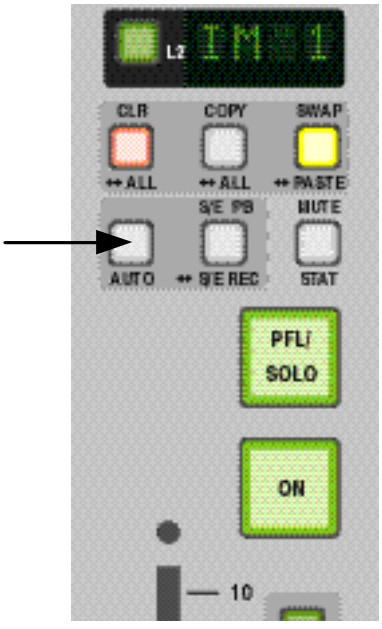
The channel strip automation controls can be broken down into four categories:

- General Controls and Indicators
- Fader Controls and Indicators
- Mute Controls and Indicators
- Switches and Encoders Controls and Indicators

5.19.1.1.1 D950 Auto Mode Key

The primary purpose of the channel strip **AUTO / MODE** key is to cycle through the available AutoTouch+ Control Modes **<Option>**. The modes selected will be for a set of channel controls defined by the user. Also refer to chapter 5.7.6.

The AUTO MODE key lights if the fader is touched or held. Pressing the key toggles the status of the Pre-selected channel sections in the order determined by the AUTO MODE key option setting. When held down, this key acts as a modifier key with the following results while held:
- If a fader or rotary is touched, the effect of Touch Record is inverted
- If a fader or encoder is released (untouched), the effect of Touch Record is inverted (optionally, Touch Hold can be inverted).
- If a switch is pressed, the function will be punched into Record (if enabled) and *not* toggled (the key acts as a Record Punch key for that function).
- If the S/E PB key is pressed, all objects will go to Playback.



Mode Selection: Consecutive presses will select the next available Control Mode for that channel **<Option>**. Which Control Modes are included and the order in which they appear in the cycle is determined by Options selected in the Control Modes Options page (also refer to chapter 5.21.2).

Affected Controls: The channel controls affected by the chosen Control Mode are determined by the settings on the Control Modes Options page. The following Channel Auto-Mode Affects… options may be selected:

- <Pre-Selector Objects>: The controls selected in the global Control Mode Pre-Selectors.
- <Fader>: Fader only
- <Mute>: Mute only
- <Fader and Mute>: Fader and Mute only

The current Control Mode for the fader is indicated to its right.

Other Functions: When held down, the **AUTO / MODE** key serves two additional purposes:

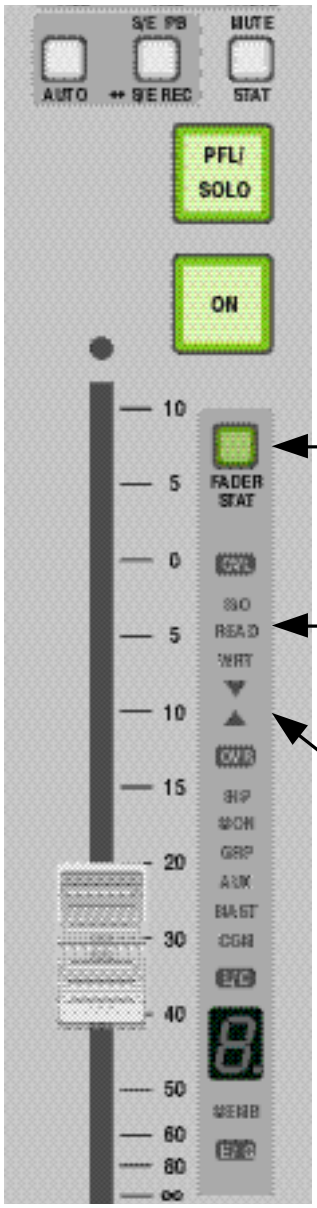
- Punch-In/Out Key for selected encoders and switches: When holding down the **AUTO / MODE** key and actuating an encoder or switch, individual controls within the channel strip may be punched in or out of RECORD. This assumes the controls are properly enabled.
- Modifier Key: When held down, the key:
  - Prevents switches from toggling states
  - Inverts the Touch and possibly the Un-touch functions **<Option>** for Touch Record and Touch Hold.

<Option> Options for the **AUTO / MODE** key are set in the Channel Auto-Mode Button section of the Control Modes Option page (also refer to chapter 5.21.2):

- <Order>: There are four positions that can be accessed via consecutive presses of the **AUTO / MODE** key.
  - The assignment for each position is made using the four pull-down menus in the <Order> section.
  - The top menu represents the first position.
  - Any Control Mode can be selected at any position or none can be selected.
  - If <None> is selected, that position is not included when cycling the **AUTO / MODE** key.
- <Affects…>: The selection of controls that enter the selected Control Mode is determined in the <Affects…> section. Radio buttons allow the selection of one of the following options:
  - <Pre-Selector Objects>: Local controls that correspond to the active Control Mode Pre-Selectors on the AutoTouch+ Panel.
  - <Fader>: Fader only
  - <Mute>: Mute only
  - <Fader & Mute>: Fader and Mute only
- Either the <Touch Hold> or <Touch Record> function may be selected for Modified Un-touch Inversion when the **AUTO / MODE** key is held. This selection is made by clicking the desired radio button in the <Modified Un-touch Inverts> section of the Misc Options page (refer to chapter 5.21.8).

5.19.1.1.2 D950 Channel Strip Fader Controls

Channel Fader: The touch-sensitive channel fader is the primary channel output level control.



Lights constantly when the fader is enabled in either WRITE or TRIM. Flashes when the Fader is in Record. Pressing the key punches the fader in and out of Record, if enabled.

Displays the fader automation enable status.
ISO = Isolate
READ = Read
WRT = Absolute Enable
WRT + READ = Trim Enable

Always shows the difference between the fader value and the effective read value. An exception is to show the offset from the trim null point when in TRIM mode (this is always the absolute position of the fader from 0 dB).

Control Modes: The fader Control Mode may be selected locally by pressing the **AUTO / MODE** key. Repeated presses will cycle the available control modes **<Option>**.

FDR STAT Key: The **FDR STAT** key is the primary control for automating the channel fader.

Single Press Functions:
- A single press punches the channel fader in or out of RECORD if it is enabled.

Status Indications: The **FDR STAT** key provides information on the automation status of the channel fader:
- Steady Illumination: The fader is in WRITE or TRIM enable.
- Flashing: The fader is in RECORD.

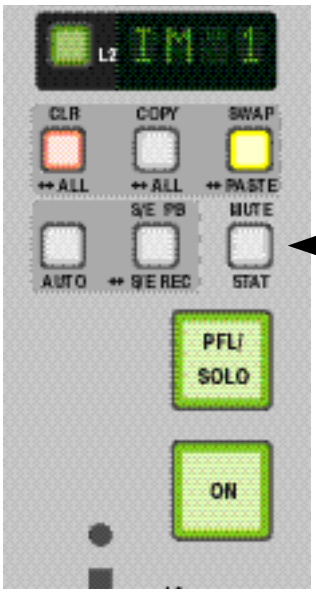
The fader Control Mode is indicated to the right of the fader:
- ISO: Isolate
- READ: Read
- WRT: Write Enable
- WRT + READ: Trim Enable

Null Indicators: Up and down arrow lights indicate the difference between the current fader value and the Active Pass Read Mix data. When the values match both lights are extinguished. An exception is to show the offset from the Trim Null point when in TRIM (this is always the absolute position of the fader from 0 dB). The fader null indicators are located next to the fader.

Fader Value: The current value of the fader is shown in the unused Layer display.

5.19.1.1.3 D950 Channel Strip Mute Controls

ON Key: The channel mute key (**ON** key) is the primary on/off control for the channel's audio output.



Lights constantly when the Mute is enabled in either WRITE or TRIM. Flashes when the Mute is in Record. Pressing the key punches the Mute in and out of Record, if enabled.

Control Modes: The mute Control Mode may be selected locally by pressing the **AUTO / MODE** key. Repeated pressed will cycle the available control modes **<Option>**.

MUTE STAT Key: The **MUTE STAT** key is the primary control for automating the channel mute.

Single Press Functions:
- A single press punches the channel mute in or out of RECORD if it is enabled.

Status Indication: The **MUTE STAT** key provides information on the automation status of the channel mute:
- Steady Illumination: The mute is in WRITE or TRIM enable.
- Flashing: The mute is in RECORD.

5.19.1.1.4 D950 Channel Strip Switch and Encoder Controls

LACP Controls: The four touch-sensitive rotary encoders and their associated switches provide primary parameter control for channel audio processes. The Input Selector, processor block in/out keys, and the first four mono and stereo AUX in/out keys are also automatable.
The **ASN SEL** (**ASN ENC** on D950 M2), **USER1**, **USER2**, **PAGE**, **TALK**, **L1**, **L2**, and **LAST / FREEZE** keys are not automatable.

D950 *M2:*

These keys are fully automated. When enabled, and Touch Record is active, pressing a key toggles the status of the function *and* punches it into Record. If Touch Record is not active, pressing this key just toggles its status.
If the AUTO / MODE key is held, pressing a key punches that function in (if enabled) or out (if recording) of Automation Record.
Press and Hold: If a switch is held, its release will cause a punch-out, if it was in Record prior to its release.

Keys not affected by the Automation System.

Encoder Automation Mode LEDs:
Off = Read or Isolate
Continuous, red = Absolute Enable
Flashing, red = Absolute Record
Continuous, green = Trim Enable
Flashing, green = Trim Record

Null LEDs - for the last knob touched:
Always show the difference between the fader value and the effective read value.
An exception is to show the offset from the Trim Null point when in Trim mode (this is always the absolute position of the fader from 0 dB).

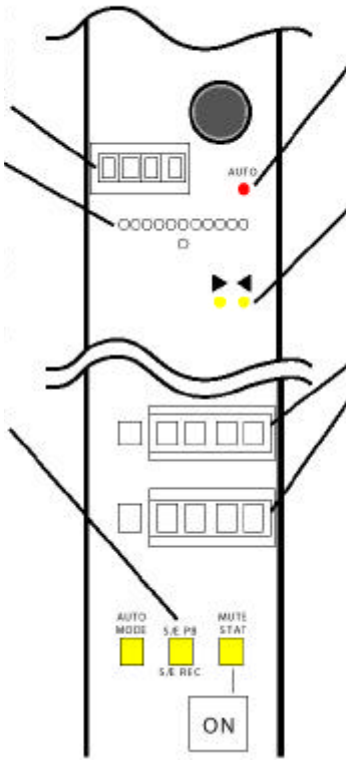
Keys not affected by the Automation System.

D950 *Classic:*

When displaying values, this shows the value according to the mode charts; when the control is in TRIM it shows the offset and direction from the trim null point.

Always shows the current knob position.

Lights when any S/E is in TRIM or WRITE ENABLE. Flashes when any S/E is in RECORD.
• Pressing punches all S/E into Playback.
• Pressing with AUTO MODE held down punches all objects into Playback.
• Pressing twice puts all enabled S/Es into RECORD *or* only enabled S/Es that are touched or held (basing on GC option).



Off = READ or ISOLATE
Cont. red = Absolute ENABLE
Flashing red = Absolute RECORD
Cont. green = TRIM ENABLE
Flashing green = TRIM RECORD

For the last knob touched... Always shows the difference between the fader value and the effective READ value. An exception is to show the offset from the TRIM null point when in TRIM mode (this is always the absolute position of the fader from 0 dB.

When the Fader is in TRIM this shows the offset and direction from the TRIM null point. When a RECORD waiting event is active (punch-out in AT), shows the difference and direction to the match point (the effective READ data).

Control Modes: The switches and encoders Control Mode may be selected locally by pressing the **AUTO MODE** key. Repeated pressed will cycle the available controls modes **<Option>**. See paragraph "Auto Mode" above.

S/E PB, S/E REC Key: The Switches/Encoders Playback (**S/E PB**), Switches/Encoders Record (**S/E REC**) key is the primary control for automating channel switches and encoders.

Single Press Functions:
- A single press will punch-out any switch and/or encoder that is in RECORD.
- A single press while holding down the **AUTO MODE** key will punch-out all objects that are in RECORD.

Double-Press Functions:
- Double-pressing puts any enabled switch and/or encoder that is Touched or Held into RECORD.

Status Indication: **S/E PB, S/E REC** key provides information about the automation status of the channel's switches and encoders:
- Continuously on: One or more switch and/or encoder is in WRITE or TRIM enable.
- Flashing: One or more switch and/or encoder is in RECORD.

Each encoder has its own Control Mode indicator LED:
- Off: READ or ISOLATE
- Continuously, red: WRITE ENABLE
- Flashing, red: WRITE RECORD
- Continuously, green: TRIM ENABLE
- Flashing, green: TRIM RECORD

Encoder Null Indicators: For the last encoder touched, left and right arrow lights indicate the difference between the current encoder value and the Active Pass Read Mix data. When the values match both lights are extinguished. An exception is to show the offset from the Trim Null point when in TRIM (this is always the absolute position of the encoder from 0 dB). The encoder null indicators are located just below the encoders.

Encoder Value: Each encoder has its own four-character LED display that indicates the current value of that encoder.

5.19.1.2 D950 CAS Controls

The D950 Central Assign Section (CAS) has all the automation functions found on the channel strip, plus some added abilities. Some of the AutoTouch+ controls (fader and mute) are exactly as they are on the channel strip, while other sections are expanded in comparison. The result is similar operation with enhanced capability.

The majority of AutoTouch+ controls are found just above the fader in the Automation control section of the CAS. The fader and mute controls are located with the fader. Control Mode indicators are provided for each encoder. Null and value indicators are provided at the top of the CAS.

Organization of Controls: AutoTouch+ controls are organized in groups, according to function, in the Automation section of the CAS.

There are four groups of CAS automation controls:
- Fader
- Mute
- Switches and Encoders
- Function Keys

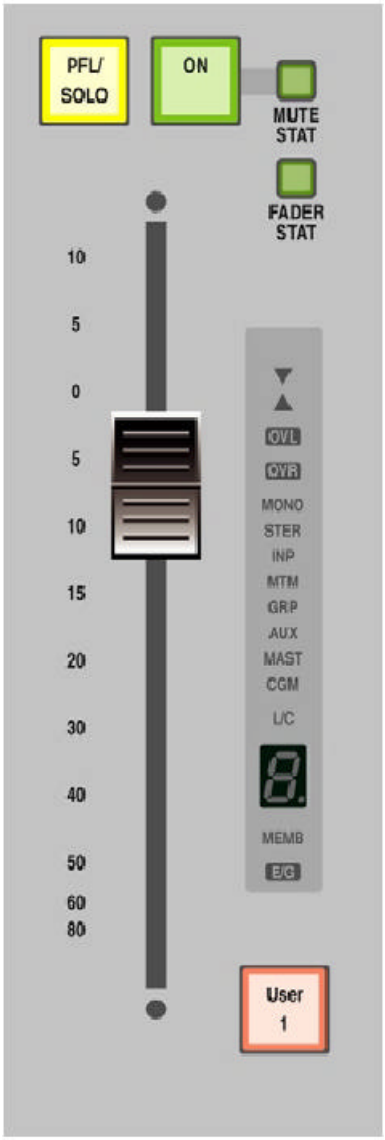
Explanations of each group follow.

Note: The CAS automation mode will follow those made at the channel strip or globally.

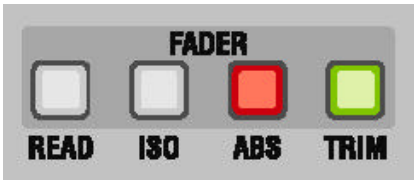
5.19.1.2.1 CAS Fader Controls

CAS fader automation controls include the Fader Control Mode keys, the **FADER STAT** key, and the touch-sensitive fader itself.

CAS Fader: The touch-sensitive CAS fader is the primary output level control for the channel currently assigned to the CAS.



Fader Control Modes: A set of Control Mode activators are provided exclusively for the CAS fader. The CAS fader Control Mode may be selected by pressing the **FADER** Control Mode key for the desired mode. Modes may also be selected globally or locally (via the channel strip for assigned channel).



CAS **FADER** Control Mode Activators:
- **READ**: READ
- **ISO**: ISOLATE
- **ABS**: WRITE ENABLE (**ABS** is a legacy of AutoTouch 2.5)
- **TRIM**: TRIM ENABLE

The Control Mode activator for the current fader mode will illuminate.

FADER STAT Key: The **FADER STAT** key is the primary control for automating the CAS fader.

Single Press Functions:
- A single press punches the CAS fader in or out of RECORD if it is enabled.

Status Indications: **FADER STAT** key provides information about the automation status of the CAS fader:
- Continuously lit: The fader is in WRITE or TRIM enable.
- Flashing: The fader is in RECORD.

The **FADER** Control Mode is indicated by the illuminated Control Mode activator:
- **READ**: READ
- **ISO**: ISOLATE
- **ABS**: WRITE ENABLE
- **TRIM**: TRIM ENABLE

Fader Null Indicators: Up and down arrow lights indicate the difference between the current fader value and the Active Pass Read Mix data. When the values match both lights are extinguished. An exception is to show the offset from the Trim Null point when in TRIM (this is always the absolute position of the fader from 0 dB). The fader null indicators are located next to the fader.

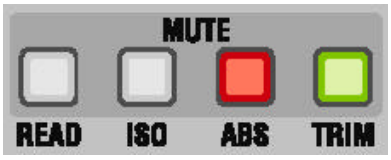
Fader Value: The current value of the last CAS control to be used is shown in the Function Value display at the top of the CAS.

5.19.1.2.2 CAS Mute Controls

CAS mute automation controls include the Mute Control Mode keys, the **MUTE STAT** key, and the **ON** key.

CAS ON Key: The CAS mute key (**ON** key) is the primary on/off control for the channel currently assigned to the CAS.

Mute Control Modes: A set of Control Mode activators are provided exclusively for the CAS Mute. The CAS mute Control Mode may be selected by pressing the Mute Control Mode key for the desired mode. Modes may also be selected globally or locally (via the channel strip for assigned channel).



CAS Mute Control Mode Activators:
- **READ**: READ
- **ISO**: ISOLATE
- **ABS**: WRITE ENABLE
- **TRIM**: TRIM ENABLE

The Control Mode activator for the current mute mode will illuminate.

MUTE STAT Key: The **MUTE STAT** key is the primary control for automating the CAS mute.

Single Press Functions:
- A single press punches the CAS mute in or out of RECORD if it is enabled.

Status Indications: The **MUTE STAT** key provides information about the automation status of the CAS mute:
- Continuously lit: The mute is in WRITE or TRIM enable.
- Flashing: The mute is in RECORD.

The mute Control Mode is indicated by the illuminated Control Mode activator:
- **READ**: READ
- **ISO**: ISOLATE
- **ABS**: WRITE ENABLE
- **TRIM**: TRIM ENABLE

Mute Value: The current value of the last CAS control to be used is shown in the Function Value display at the top of the CAS.

5.19.1.2.3 CAS Switches and Encoders Controls

CAS switches and encoders automation controls include the Switches and Encoders Control Mode keys, the Switch and Encoder selection controls, and all CAS touch-sensitive encoders and audio related switches.

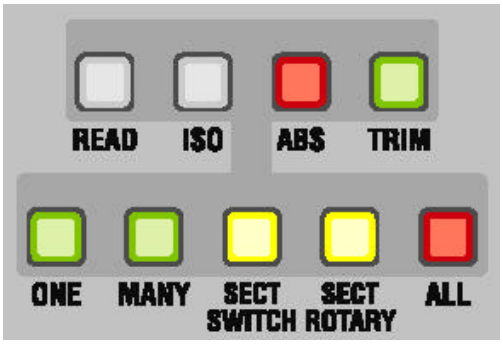
The CAS provides the most precise means of switch and encoder automation control and status indication. It allows the user to select the exact set of controls to be automated.

CAS Switches and Encoders: The touch-sensitive rotary encoders and their associated switches provide primary parameter control for audio processes for the channel currently assigned to the CAS. Other CAS switches control the in/out function of processing blocks.

Note: In the graphic above only the Dynamics section of the CAS is shown.

Switches and encoders may be controlled separately in the CAS. See CAS Controls below.

Switch & Encoder Control Modes: A set of Control Mode activators are provided exclusively for the CAS switches and encoders. The CAS switches and encoders Control Mode may be selected by pressing the switches and encoders Control Mode key for the desired mode. Modes may also be selected globally or locally (via the channel strip for assigned channel).



CAS switches and encoders Control Mode Activators:

- **READ**: READ
- **ISO**: ISOLATE
- **ABS**: WRITE ENABLE (**ABS** is a legacy of AutoTouch 2.5)
- **TRIM**: TRIM ENABLE

Switch & Encoder Controls: The CAS has five keys that support switch and encoder automation. These keys allow a precise set of controls to be easily chosen for automation. They also allow separate control over switches and encoders.

- **ONE:** Allows the creation of a temporary list of controls to be automated. Holding down the **ONE** key and touching the desired controls will select those controls for automation. Touching an encoder will select both the encoder and its associated switches. The list is deleted upon the completion of the automation operation.
- **MANY:** Allows the creation of a list of controls to be automated that may be kept for future use. Holding down the **MANY** key and touching the desired controls will select those controls for automation. Touching the encoder will select both the encoder and associated switches. The **MANY** key will illuminate indicating that a list of controls has been created. Pressing the **MANY** key recalls the list of controls for further automation operations.
- **SECT SWITCH** (section switches): Allows the creation of a temporary list of switches to be automated. Pressing the **SECT SWITCH** key and touching any switch will select (or deselect) the switches for the entire section from the selection list. The list is deleted upon the completion of the automation operation.
- **SECT ROTARY** (section rotaries): Same as the **SECT SWITCH** mode, except for encoders for an entire section.
- **ALL:** Selects all controls, and then individual control status (in the list or not) can be toggled on or off as needed.

Note: When an entire section or the **ALL** function is used, this refers to the visible controls on the CAS. So, for example, if the **ALL** key is used, only the control from the Compressor *or* the Limiter will be included, as only one of those sections can be visible on the CAS at a time. Of course the alternate controls can be added by touching them and adding them to the list. This affects AUX Sends and any other “hidden” controls as well.

Encoder Null Indicators: For the last encoder touched, left and right arrow lights indicate the difference between the current encoder value and the Active Pass Read Mix data. When the values match both lights are extinguished. An exception is to show the offset from the Trim Null point when in TRIM (this is always the absolute position of the encoder from 0 dB). The encoder null indicators are located at the top of the CAS, just below the Function Value display.

Encoder Value: The current value of the last CAS control used is shown in the Function Value display at the top of the CAS.

5.19.2 Vista Desk Automation Controls

In automation mode, the channel strips hold additional indications for detailed display of the current status.
This chapter shows all possible indications of automation status and explains their meaning.

First, there are some record indicators integrated within the recording keys:

[A] Recording overview for switches. If half-lit: One or more switches are armed (i.e. in TRIM or WRITE enable mode). If fully lit: One or more switches are recording.
Pressing this key will either punch-in the held objects, or punch-out the switches currently recording.

[B] Recording overview for rotary encoders. If half-lit: One or more rotaries are armed (i.e. in TRIM or WRITE enable mode). If fully lit: One or more rotaries are recording
Pressing this key will either punch-in the held objects, or punch-out the rotaries currently recording.

[C] Current and replay value of the channel mute. If the current value is different from the one in the last mix pass, this LED indicates the value within the last mix pass, while the main red LED within the key indicates the current value.
This LED is also used for mute indication, if "solo in place" is active.

[D] Recording of the channel mute. If half-lit: Channel mute is armed (i.e. in TRIM or WRITE enable mode). If fully lit: Channel mute is recording.
Pressing this key will either punch-in the current MUTE status, or punch it out of recording.

[E] Recording of fader. If half-lit: Fader is armed (i.e. in TRIM or WRITE enable mode). If fully lit: Fader is recording.
Pressing this key will either punch-in the current fader status, or punch it out of recording.

The meaning of the different Vistonics indicators is as follows:

Displayed Value

The *displayed value* (e.g. "–7.6 dB") is always the current value, except when the control is in TRIM mode. Then it shows the offset from TRIM null point.
It is underlined whenever the control is touched ("hold" in automation).

Rotary Value

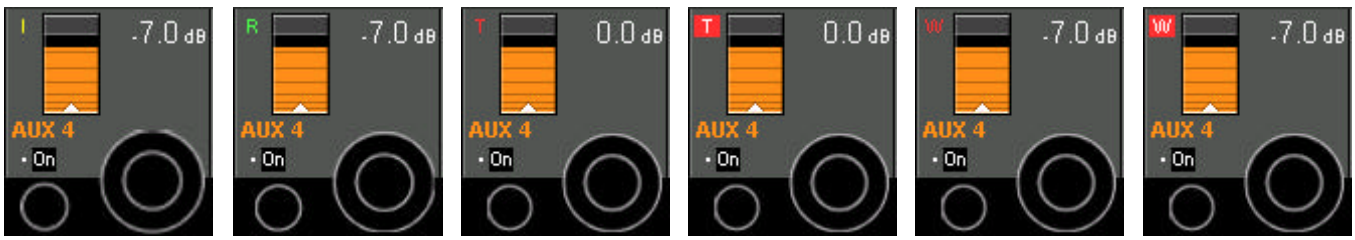
Current and replay value of the rotary control. If the current value is different from the one within the last mix pass, a pink colored element indicates the value of the last mix pass, while the main display is indicating the current value.

Fader Value

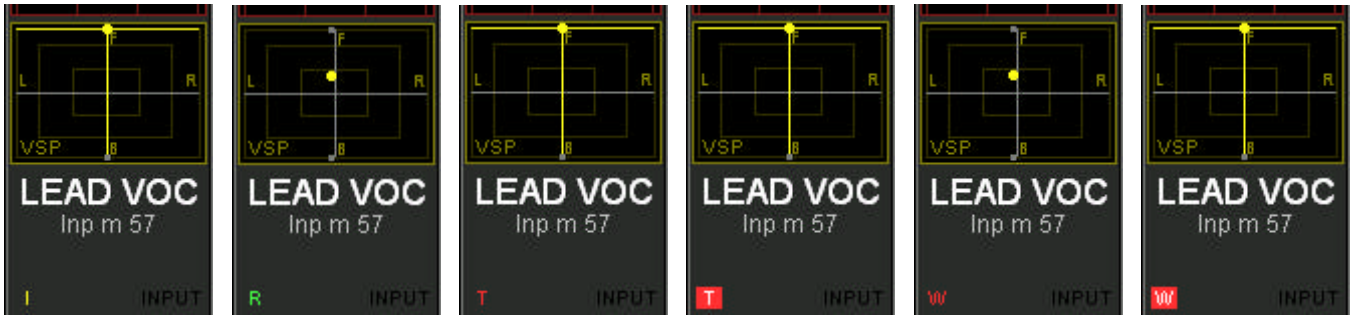
Current and replay value of the fader. If the current value is different from the one in the last mix pass, a pink colored element indicates the value within the last mix pass, while the main display is indicating the current value.

Recording

Recording and recording mode indicator: This always refers to the associated control.
Characters without a frame indicate the status of the rotary control (I = Isolate, R = Read, T = Trim, W = Write).
A red frame behind the "W" or "T" indicates that the rotary control is currently recording.



Recording *Recording mode of the fader (in the Vistonics generic display area):*
Characters without a frame indicate the status of the fader (I = Isolate, R = Read, T = Trim, W = Write).
A red frame behind the "W" or "T" indicates that the fader is currently recording.



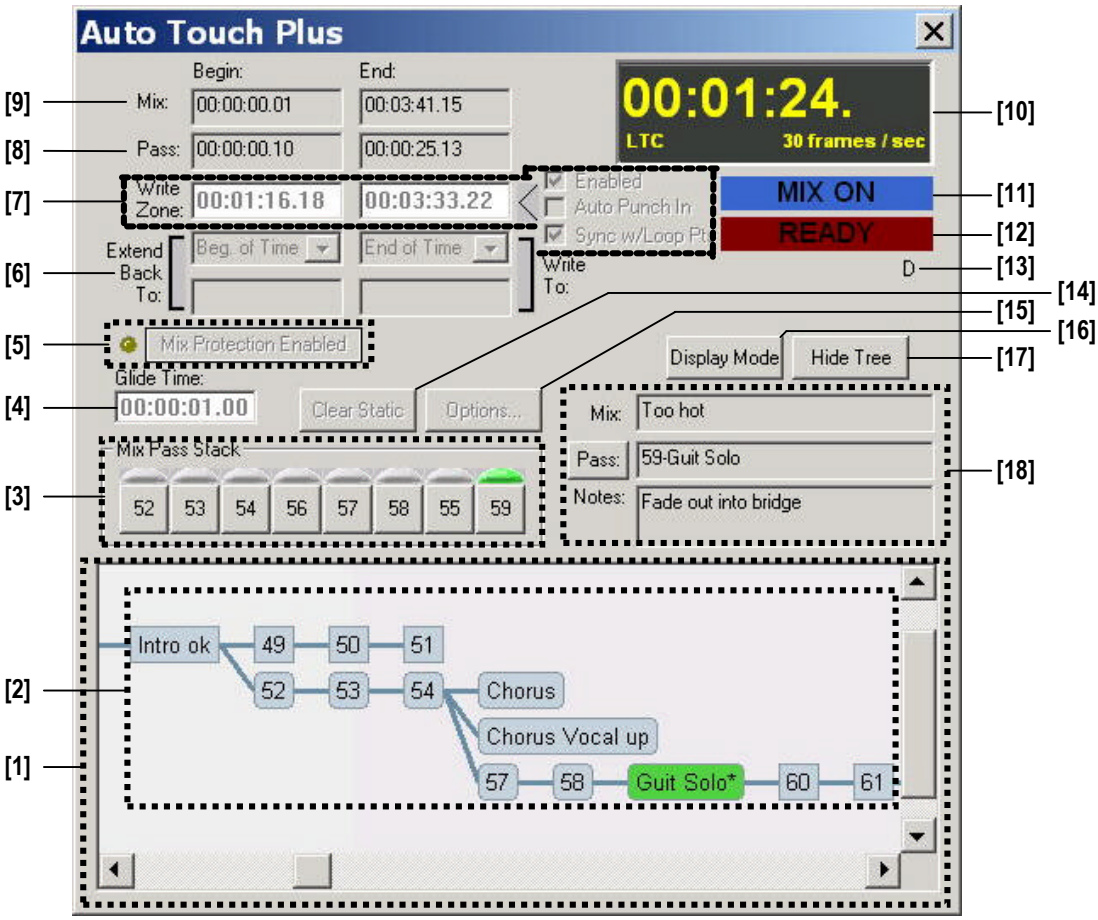
n–1 x *n–1 x* indicates that the channel is the owner of an n–1 bus, together with its bus number - e.g. "m 1" for "mono 1".

.

Rotary Dynamic/Static *Dynamic/static view of the rotary control*:
When pressing the **VIEW** key in the AutoTouch+ panel, this display changes to DYN, if this control contains dynamically automated elements

Fader Dynamic/Static *Dynamic/static view of the fader:* When pressing the **VIEW** key in the AutoTouch+ panel, this display appears and indicates "FADER DYN", if the fader is dynamically automated.

5.20 Auto Touch Plus Window



[1] Mix Tree window. Can be hidden by clicking on the “Hide Tree” button. If hidden, this button turns into “Show Tree”, the “Display Mode” button becomes inactive (refer to chapter 5.4.1 for details).

[2] Several Mix Passes are shown in the Mix Tree window. With the “Display Mode” button the display mode of the mix passes can be changed, and it can be decided if only the Mix Pass number, only the Mix Pass name, or both shall be displayed (refer to chapter 5.4.1.3 for details).

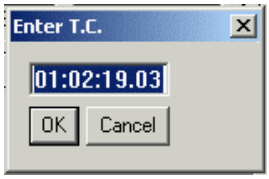
[3] Mix Pass Stack; holds up to eight Mix Passes for immediate use (e.g. direct comparison of Mix Passes (refer to chapter 5.5.1 for details).

[4] Glide Time; defines the length of the glide. To enter a value just click in the box and type the desired glide time, or use the right click menu allowing e.g. to access the Cue list with timecode cue points (also refer to chapter 5.9.3).

[5] Mix Protection allows individual controls or a group of controls to be protected or locked-out from changes (also refer to chapter 5.13). If Mix Protection is on, the yellow LED symbol is on.

[6] Extend Back to / Write to.
In the entry box “Extend Back To:” a Fixed value, the Beginning of Time, or the Beginning of the Mix can be selected. In the entry box “Write To:” a Fixed value, the End of Time or the End of Mix can be defined.

If “Fixed” has been selected, an timecode entry box will be opened. Use the same method to enter a timecode as explained under point [4].



“Extend Back To:” can be activated on the AutoTouch+ panel. Either Extend back to **BEGIN** or **PUNCH IN** can be selected.
Refer to chapter 5.9.2 for more information on “Extend Back To:”.
Selected “Extend Back To:” **BEGIN** (on the AutoTouch+ panel) will be displayed in the GC Auto Touch Plus panel in *red*, to indicate that this function has been activated.

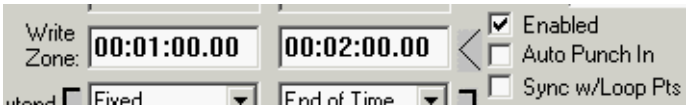
This means that automated parameters will be written back to the selected timecode value (fixed, beginning of time, or beginning of mix) in the next mix pass.
A *green* indication refers to activated “Extend Back To: PUNCH IN”.
The entered timecode value (fixed, beginning of time or beginning of mix) is not activated.

That means that automated parameters will be written back to PUNCH IN time in the next mix pass.

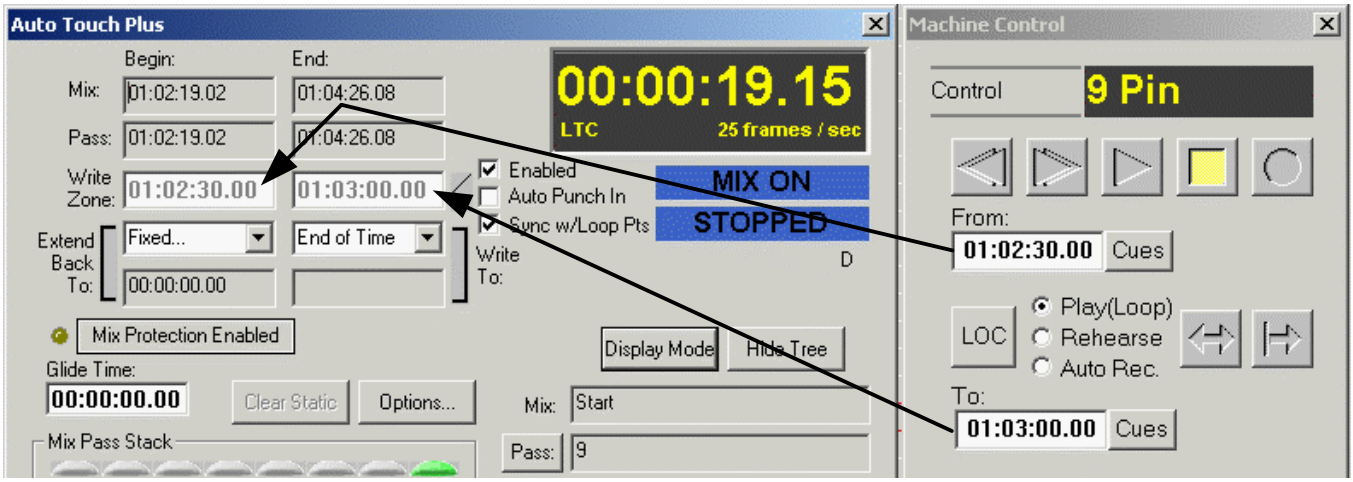
Write to: is *red* and active if **WRITE TO: END** on the AutoTouch+ panel has been selected (also refer to chapter 5.9.1).

Green indicates that Extend Back to: PUNCH IN will be performed and the *red* Write to: shows, that “Write to: END will be performed.

[7] Write Zone is defined by a BEGIN and an END timecode value. If activated, automation data can be written in this zone only.



If "Auto Punch In" is checked, Write enabled parameters will punched in automatically at the write zone beginning and punched out at the write zone end.
If "Sync w/Loop Pts" is checked, the selected locator points in the machine control window will be used as Write zone BEGIN and END points.



[8] Pass; shows the Begin and End time of the current mix pass.

[9] Mix; shows the Begin and End time of the entire mix.

[10] The timecode window displays the current timecode (hh, min, s, frames), the frame rate, and the timecode type. Timecode type can be GEN (internal TC Generator), 9 pin (serial TC), or LTC (external TC).
These settings are made in the Option – TC Reader/Gen menu (also refer to chapter 4.6.5).

[11] MIX ON / OFF indication (**MIX ON** key on the AutoTouch+ panel).

[12] RECORD, READY or STOPPED automation status indication.

[13] Indication if the currently touched parameter is a dynamic (D) or static (S) object (also refer to chapters 5.3.1.1 and 5.3.1.2).

[14] Clear Static; when a non-dynamic parameter has been changed, this button will lit. By clicking on the button the Static Data Buffer will be cleared, otherwise the static information will be written in the next mix pass.

[15] Options...; (only activated if MIX is ON) Click on the this button to access the Mix Options (also refer to chapter 5.21).

[16] Display Mode; mix pass display mode selection: it can be decided if only Mix Pass number, only Mix Pass name or both shall be displayed (also refer to chapter 5.4.1.3 for details).

[17] Hide Tree or Show Tree; will hide or show the Mix Tree window.

[18] Mix Pass information; to activate the PASS INFO dialog box. A name and notes can be entered for the selected Mix Pass (also refer to chapter 5.4.1.3).
Mix: Shows the Mix Tree Name
Pass: Shows the name of the mix pass and allows to enter the PASS INFO dialog box
Notes: Shows the notes.

5.21 Mix Options

On one hand, AutoTouch+ is a relatively simple system to use, on the other hand it has tremendous depth. Creating a system that has both of these attributes is not easy. In addition, when such a large amount of functionality is available, it is difficult to define every single transition from one mode or state to another in a precise and dictated way. There are two reasons for this:

- No two mixers will mix the same way. While one will want a feature to work this way, another equally proficient mixer will want it to work another way.
- Even the same mixer will want different functionality at different times within the mix process or based on different types of projects.

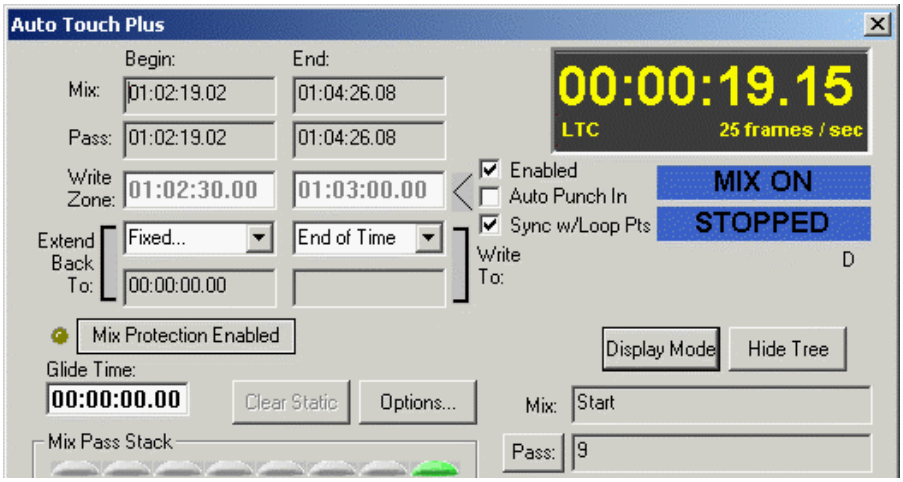
There is no right or wrong way to implement many of the functions in AutoTouch+. There are just different ways. So in answer to the above, there is a large number of options that affect the specific functionality of very specific modes. In total, the option set defines the specific ways in which the system will work. Each individual option, however, allows the system to have another nuance that allows the mixer to best do his or her work, in a creative and efficient manner.

Mix Option Management:

A potential problem with having such a large number of options is the means to manage them all. When a mixer steps up to the console they need to be confident that the system will work in a predetermined way. In other words, they need to have ALL of the options set to a state that they have already pre set for their specific needs of the moment. AutoTouch+ offers a system of Mix management where each mixer can have their own unlimited number of options sets, known as User Files.

Accessing Mix Options:

The **Mix On** button on the AutoTouch+ Panel must be turned on before Mix Options may be accessed. All of the mix options reside in one convenient options dialog box which is accessed by clicking the **Options…** button of the AutoTouch+ window.



When you click the **Options…** button, the “tabbed” Options Dialog window will open. It will be set to the page where it was last left, so the options dialog tab page is said to be “sticky.”

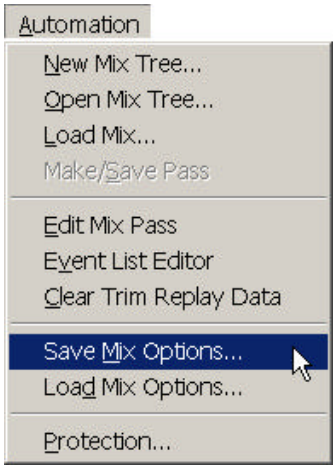
5.21.1 Saving/Loading Mix Options

A set of Mix Options may be saved as part of a User File and recalled at anytime. Only the sections that apply to saving and recalling User Files is presented here. Users and User Files are discussed in detail in chapter 5.17.

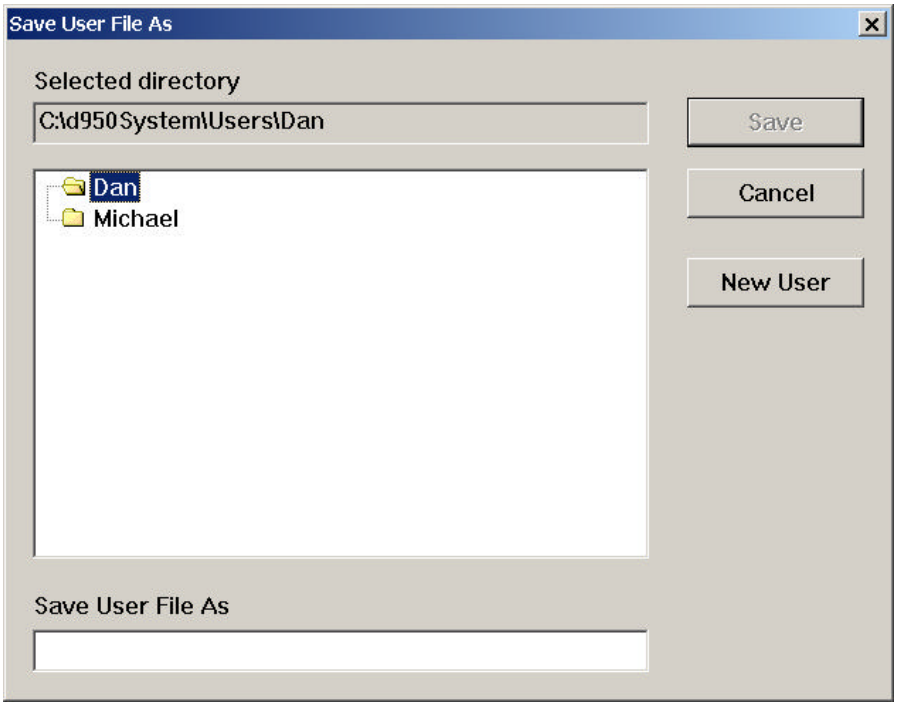
Create a New User & User File:

Use the following procedure to create a new User and User File:

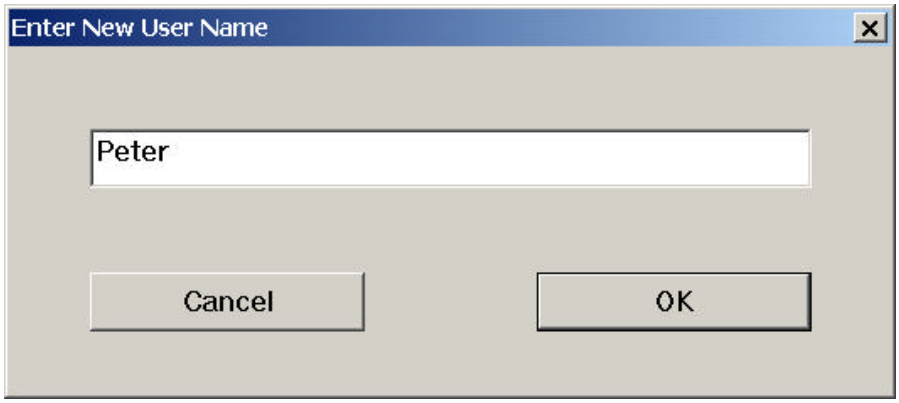
1. Set all Options as desired.
2. Store all AutoTouch+ Panel Presets, if any *(D950 only)*.
3. Select "Save Mix Options…" from the GC Automation menu.



The Save User File As window will open.



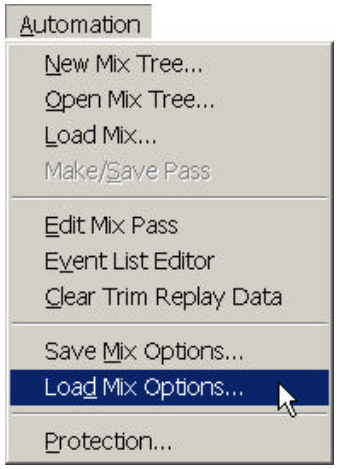
4. Click the **New User** button. The Enter New User Name window will open.



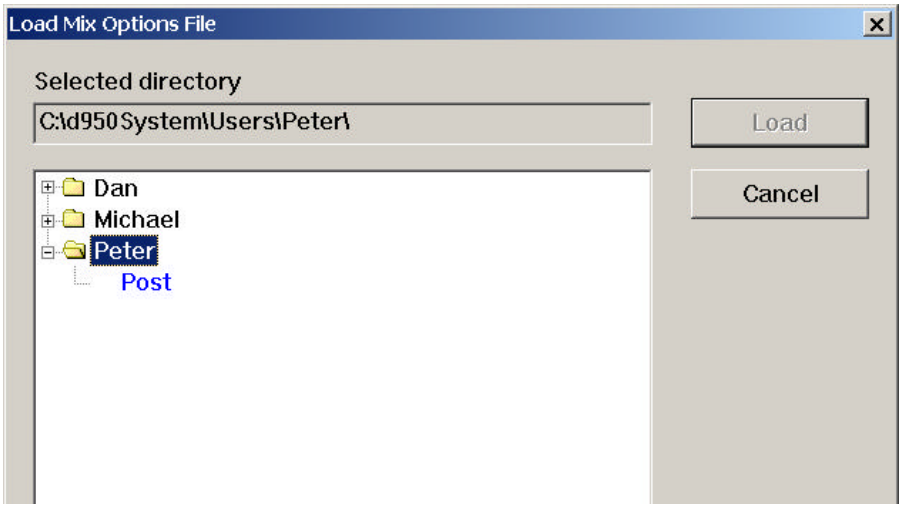
5. Enter a new User name in the field provided and click **OK**. A new User folder will be created bearing the name entered.
6. Enter the name of the new User File in the "Save User File As" field and click **OK**.
7. A new User File bearing the name entered will be created.

Load a User File: Use the following procedure to store a User File:

1. Select "Load Mix Options…" from the GC Automation menu.



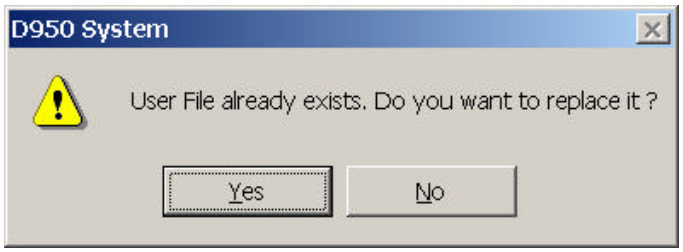
The Load User File As window will open:



2. The User folder containing the active User File will be open and the active User File will be indicated in blue letters.
3. If necessary open the appropriate User folder by clicking the + icon for that User or double-click the name. The folder will open and display its contents.
4. Double-click the name of the desired User File or single-click the name to highlight it and then click the **Load** button.
5. The selected User File will be loaded.

Update a User File: Use the following procedure to update an existing User File:

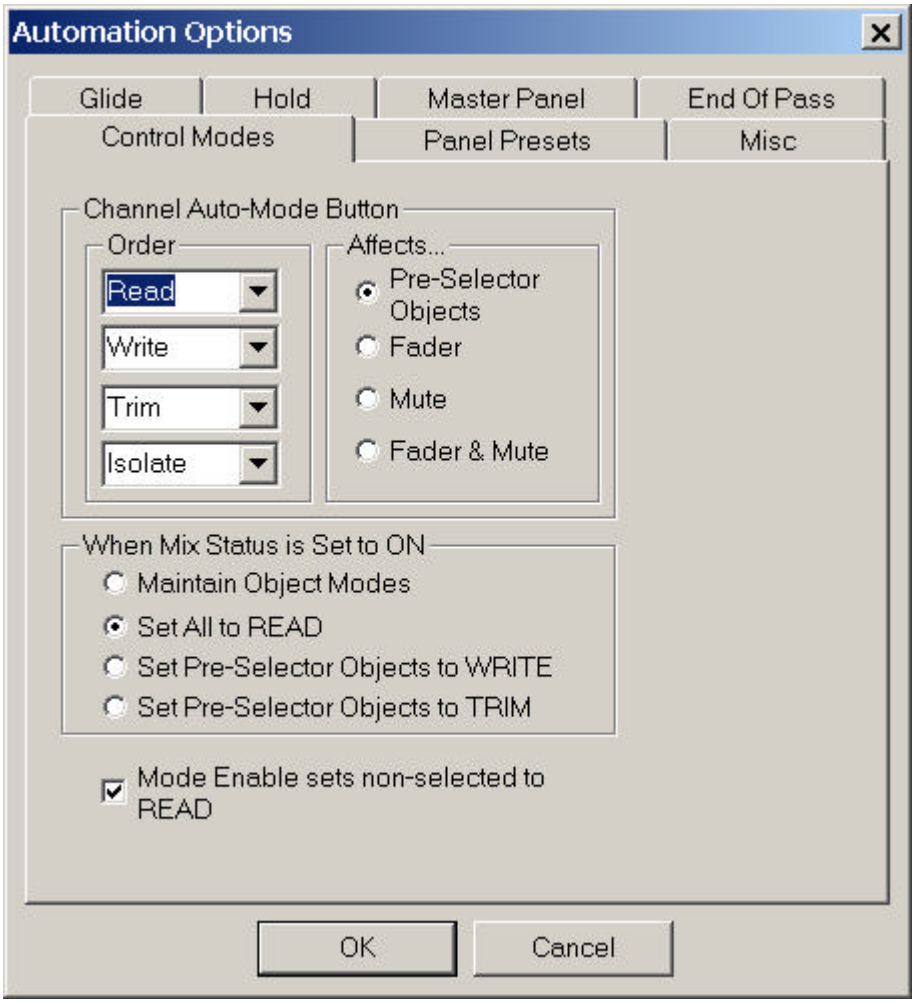
1. Make changes to Options as desired.
2. Store any changes to AutoTouch+ Panel Presets (if any).
3. Select "Save Mix Options…" from the GC Automation menu. The Save User File As window will open.
4. Either double-click the active User File (in blue letters) or enter the same User name in the field provided and click **OK**. A dialog box will indicate a file with the same name already exists and will ask if you wish to replace it.



5. Click **YES** and the chosen User File will be updated.

Delete a User or a User File: Users and User Files may be deleted by removing them from the Users folder in the `D950System` directory.

5.21.2 Control Mode Options



Channel Auto-Mode Button:

<Order>: This list selects which Control Modes will be selected by pressing the **AUTO MODE** key, and in what order. All four Control Modes may be selected or not in whatever order is desired.

<Affects>: This set of radio buttons determines which controls within the channel will be affected by the **AUTO MODE** key when it is used to set Control Modes.

- <Pre-selector Objects>: The state of the Control Mode Pre-Selectors determine which controls will be affected by the **AUTO MODE** key when it is used to set Control modes.
- <Fader>: The **AUTO MODE** key only affects the fader of the channel.
- <Mute>: The **AUTO MODE** key only affects the mute of the channel.
- <Fader and Mute>: The **AUTO MODE** key only affects the fader and mute of the channel.

When Mix Status is Set to On:

This set of radio button controls what happens when the Mix On mode is selected and unselected (turned on and off)…

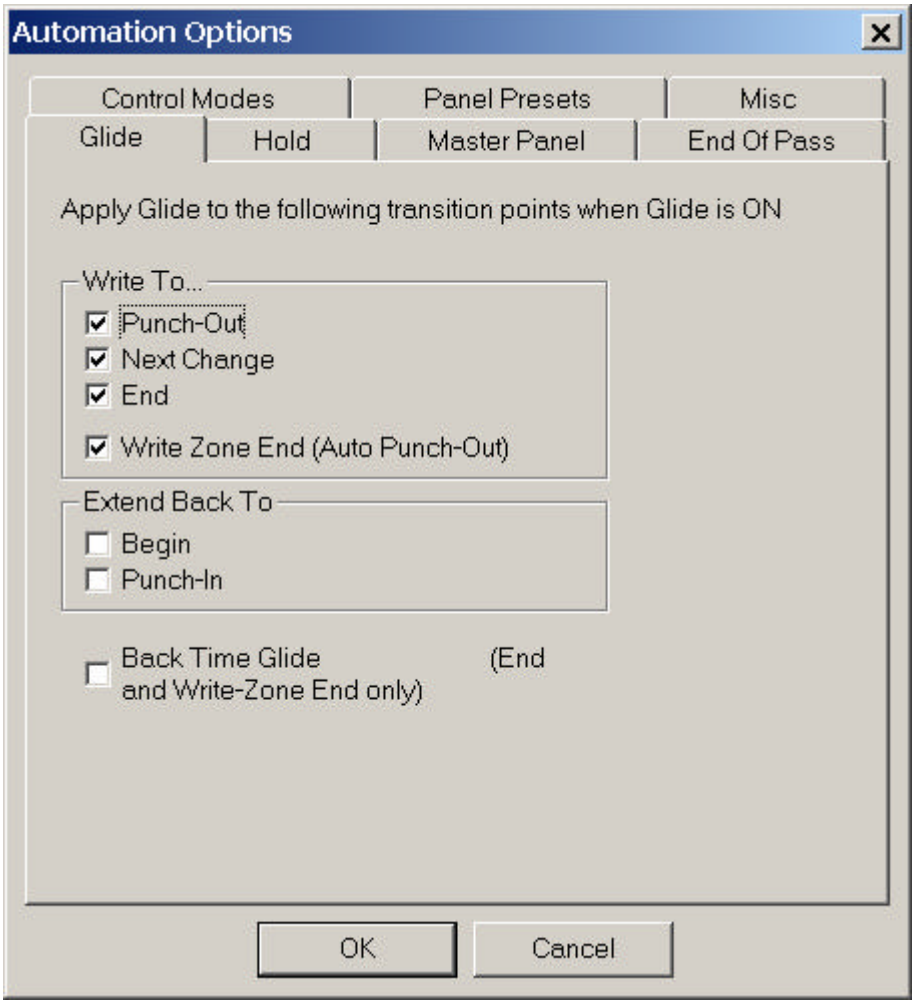
- <Maintain Object Modes>: In this case turning MIX ON, on and off, will not change the control modes of any of the controls in the console.
- <Set All to Read>: In this case turning MIX ON, on, after having turned it off, will set all controls to READ.
- <Set All to Read>: In this case turning MIX ON, on, after having turned it off, will set all controls to READ.

- <Set Pre-Selector Objects to WRITE>: Any controls that are selected in the Control Modes Pre-Selector will be set to WRITE. All others will be set to READ.
- <Set Pre-Selector Objects to TRIM>: Any controls that are selected in the Control Modes Pre-Selector will be set to TRIM. All others will be set to READ.

Mode Enable sets non-selected to READ:

Normally you can use the Pre-Selectors in combination with the Control Mode activators to set various control types into different Control Modes. For example, you could select FDR (only) and hit WRITE and the faders will all go into WRITE. You could then hit CLR and ENCoders and then hit TRIM and the knobs will be in TRIM, while the faders are in WRITE. This is very flexible and useful, but if you want to ensure that only specific controls are in a specific mode (like making sure that the Faders are in WRITE and everything else is in READ), you would have to select all the Pre-Selectors (or Hold down the CLR/ALL key) and hit READ. Then select FDR and Hit WRITE. However, when this option is set, you are always assured that when you hit an Control Mode activator, all control NOT active on the Pre-Selectors will be set to READ when the selected controls are set to the activator mode. For example, if only FDR selected on the Pre-Selector and the TRIM activator is hit, it is assured that every control other than faders will automatically be set to READ mode.

5.21.3 Glide



Glide at Punch-Out: When a control is punched out of Record into Playback the control will glide from the punch-out value to the read mix value over the time period as set by the Glide Time setting. The system attempt to recalculate the glide vector after each frame so an attempt is made to have the actual glide duration match the set glide time as closely as possible. However, if the read data is approaching the gliding control quickly, the glide duration may be shorter than the actual setting. In no cases will the time be longer. This behavior is consistent with good mixing practice.

The punch-out glide will take place if the control is punched out…

- While timecode is running (glide takes place in real-time)
- As a result of Timecode being stopped (glide takes place in the post process)
- And even if timecode is stopped in the middle of the glide (glide takes place partly in real-time and partly in the post process). This is a great feature because there are many times when a machine (TC) is stopped by one mixer just after another mixer has punched out and a glide has begun. In this case the glide will occur unscathed!

Glide at Next Change: When an old Read Mix data record is encountered for this control, a glide begins at that point and extends for the duration of the glide time (of course this assumes that the option is set and that the Master Glide Button is active at the time of the next change).

Glide at End: When the end time occurs (either in real time or as part of the post processing) a glide begins. The glide starts at the end time if set to End of Mix or a Fixed timecode. If the glide takes place during the post process (after the mix pass is ended) then the Master Glide Button must be active at the time that the Mix pass is stopped. If End is set to end of time, no glide occurs. (Also see Back Time option below.)

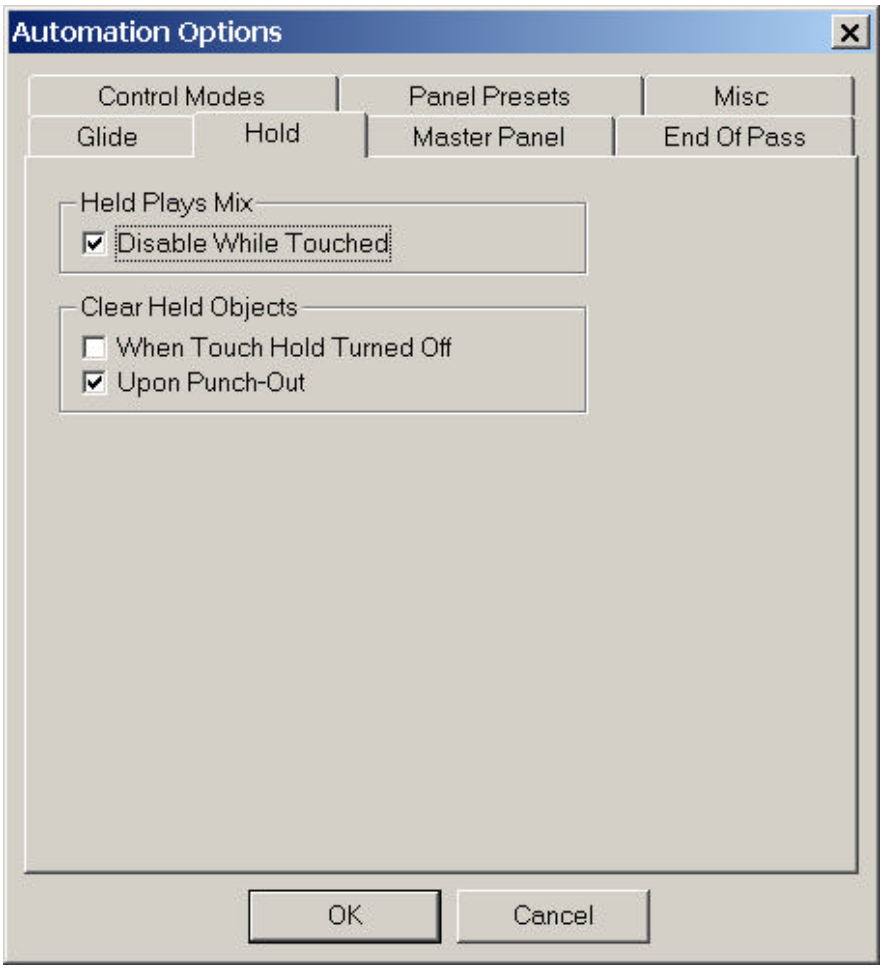
Glide at Write Zone End: If the Write Zone is active then a glide will occur at the Write Zone End time either in real time or as part of the post process (subject to the state of the option and the Master Glide Button. (Also see Back Time option below.)

Glide at Beginning: If the Extend Back To: Begin is active, then a glide will occur at the begin time (beginning of Mix or a user-input TC) as part of the post processing (subject to the state of the option and the Master Glide Button)

Glide at Punch-In: If the Extend Back To: Punch In is active, then a glide will occur at the Punch-in time as part of the post processing (subject to the state of the option and the Master Glide Button at the time of Punch-in).

Back Time Glide (applies to End and Write Zone End only): If this option is set, then the glide will begin such that the glide ENDS at the End or Write Zone End time rather than beginning at that time. This back times the glide so the data beyond the end time (or write zone end time) is perfectly preserved and match BEFORE the transition point.

5.21.4 Hold

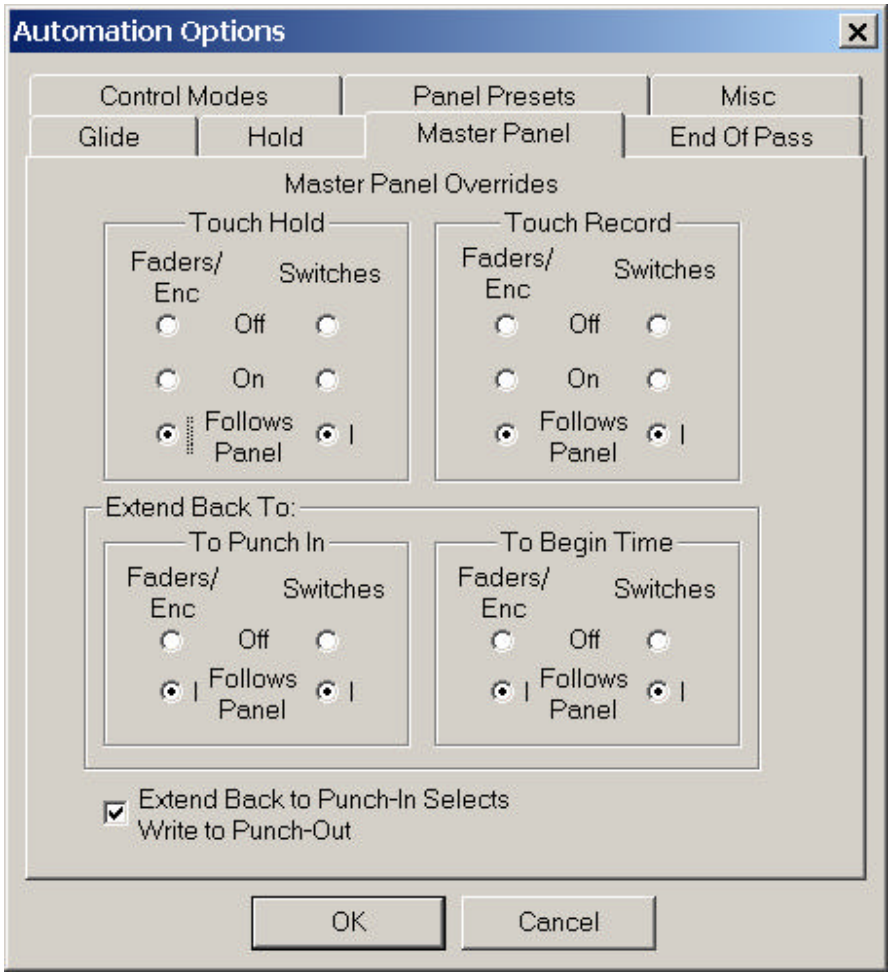


Held Plays Mix: <Disable While Touched>: When **HELD PLAYS MIX** on the AutoTouch+ Panel is active channels that are Held, do not "play" their held auditioned values, but play the Read Mix values instead. When this option is set, touching a control at this time disables this feature and allows a new audition (punch) value to be established by being able to listen to the Audition audio. If this option is unchecked, the Held Plays Mix function is not overridden and the Read Mix continues to be heard.

Clear Held Objects: <When Touch Hold Turned Off>: **TOUCH HOLD** (on the AutoTouch+ Panel) may be turned on and off during the course of a Mix pass. This options affects whether Held controls are cleared of their "held" status when The Touch Hold mode is changed from On (active) to Off. If the option is not selected, then changing the state of Touch Hold will have no effect on Held controls.
<Upon Punch Out>: Touch Hold is used for a variety of purposes. Sometime a write value needs to be held (so that un-touching the control while Touch Record is engaged does not punch it out of record), just until the control is punched out of record. At that point the control would return to playing back the Read Mix. With this option set, that is how the behavior would work. However, sometimes you will want to punch-in to that same held value later in the mix pass, even after you have punched out for this section of the mix. By deselecting this option the behavior will allow for this operation. The held value will remain until it is cancelled by other means. The new Mix Pass will, of course, not be affected.

5.21.5 Master Panel

This option page allows you to over-ride certain settings of the system that are normally controlled by the AutoTouch+ Panel. This allows for the AutoTouch+ Panel to control functions for certain types of controls while allowing other types of controls to remain in specific modes or be blocked by them.



Touch Hold: **Faders/Encoders:**
<Follows Panel>: Faders and Encoders (knobs) will follow the settings of the AutoTouch+ panel in regards to Touch Hold.
<On>: Faders and Encoders (knobs) will always be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.
<Off>: Faders and Encoders (knobs) will never be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.

Switches:
<Follows Panel>: Switches (keys) and Selectors (keys or knobs) will follow the settings of the AutoTouch+ panel in regards to Touch Hold.
<On>: Switches (keys) and Selectors (keys or knobs) will always be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.
<Off>: Switches (keys) and Selectors (keys or knobs) will never be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.

Touch Record:

Faders/Encoders:
<Follows Panel>: Faders and Encoders (knobs) will follow the settings of the AutoTouch+ panel in regards to Touch Record.
<On>: Faders and Encoders (knobs) will always be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.
<Off>: Faders and Encoders (knobs) will never be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.

Switches:
<Follows Panel>: Switches (keys) and Selectors (keys or knobs) will follow the settings of the AutoTouch+ panel in regards to Touch Record.
<On>: Switches (keys) and Selectors (keys or knobs) will always be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.
<Off >: Switches (keys) and Selectors (keys or knobs) will never be in Touch Hold mode regardless of the settings of the AutoTouch+ Panel.

Extend Back To Begin Time:

Faders/Encoders:
<Follows Panel>: Faders and Encoders (knobs) will follow the settings of the AutoTouch+ panel in regards to Extend Back To Begin Time.
<Off>: Faders and Encoders (knobs) will be blocked from entering Extend Back To Begin Time regardless of the settings of the AutoTouch+ Panel.

Switches:
<Follows Panel>: Switches (keys) and Selectors (keys or knobs) will follow the settings of the AutoTouch+ panel in regards to Extend Back To Begin Time.
<Off>: Switches (keys) and Selectors (keys or knobs) will be blocked from entering Extend Back To Begin Time regardless of the settings of the AutoTouch+ Panel.

Extend Back To Punch-In:

Faders/Encoders:
<Follows Panel>: Faders and Encoders (knobs) will follow the settings of the AutoTouch+ panel in regards to Extend Back To Punch-In.
<Off>: Faders and Encoders (knobs) will be blocked from entering Extend Back To Punch-In regardless of the settings of the AutoTouch+ Panel.

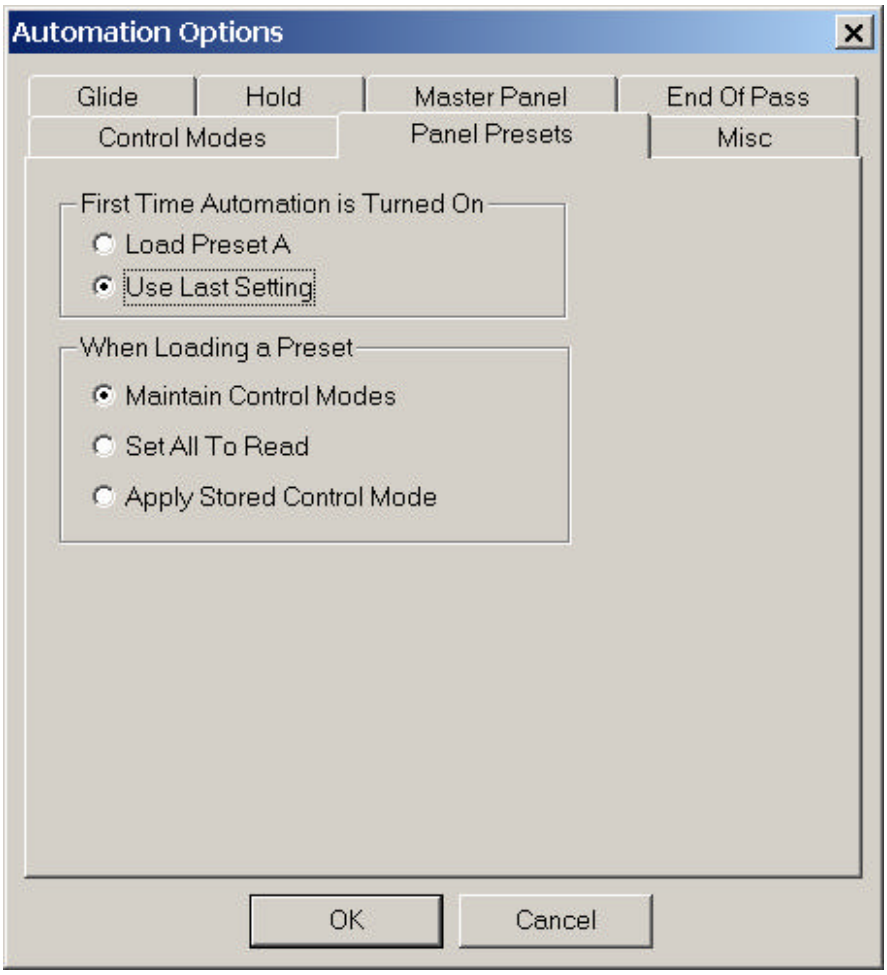
Switches:
<Follows Panel>: Switches (keys) and Selectors (keys or knobs) will follow the settings of the AutoTouch+ panel in regards to Extend Back To Punch-In.
<Off>: Switches (keys) and Selectors (keys or knobs) will be blocked from entering Extend Back To Punch-In regardless of the settings of the AutoTouch+ Panel.

Extend Back To Punch-In Selects Write to Punch-out:

In many cases it is desirable to audition a level and have that final determined level be written from the punch-in to the punch-out time. This is sometimes referred to as writing to a region. In AutoTouch+ this is accomplished by setting both the Extend Back To: Punch-In as well as Write To: Punch Out. Because this combination is selected so often, this options automatically selects Write To: Punch-Out whenever Extend Back To: Punch-In is selected. It is simply a convenience and ensure that when you wish to write to a punch-in/out region it is set properly. If you wish to set Extend Back to Punch-In with a different Write To selection you can simple select a different Write To selection after Extend Back to Punch-In has been selected (or do not set this option).

5.21.6 Panel Presets *(D950 only)*

This option page controls the action of the A through D AutoTouch+ Panel Presets.

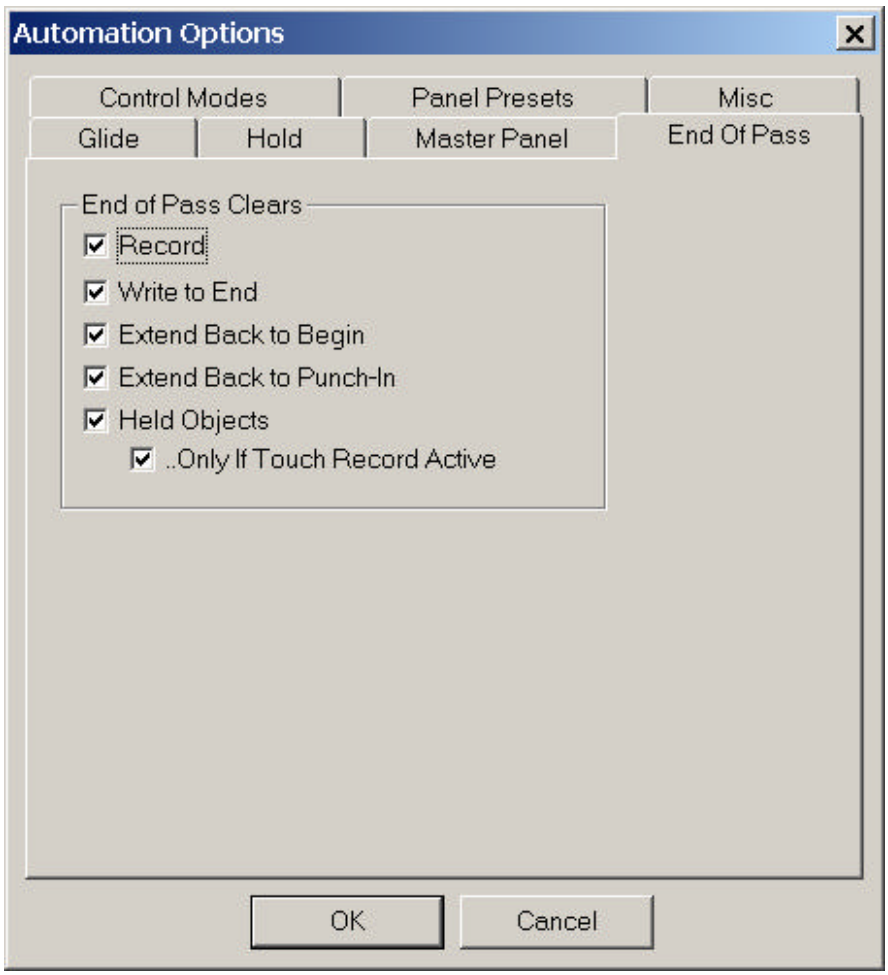


First Time Automation is Turned On: This determines which preset will be loaded when the **MIX ON** key is activated for the first time only. Subsequent cycling of the **MIX ON** key has no affect on the Panel Presets.
<Load Preset A>: When the system is first turned on, AutoTouch+ Panel Preset A is loaded.
<Use Last Setting>: When the system is first turned on, no Preset will be loaded. The AutoTouch+ Panel will be set in the same state as when the system was last shut down.

When Loading a Preset: <Maintain Control Modes>: When a Preset is loaded, do not change any of the Control Modes of the controls in the console.
<Set All to Read>: When a Preset is loaded, set all of the controls in the console to READ.
<Apply Stored Control Mode>: When saving a Preset, one of the Control Mode activators is always lit and stored in the Preset. When this option is set, upon loading the Preset, that stored activator mode will be applied to all controls based on the settings of the Pre-Selector (which were also stored).

5.21.7 End Of Pass

The End of Pass options determine the behavior of specific functions when a Mix Pass is terminated by stopping timecode. At the end of a Mix Pass each of the options control this behavior in the following manner.

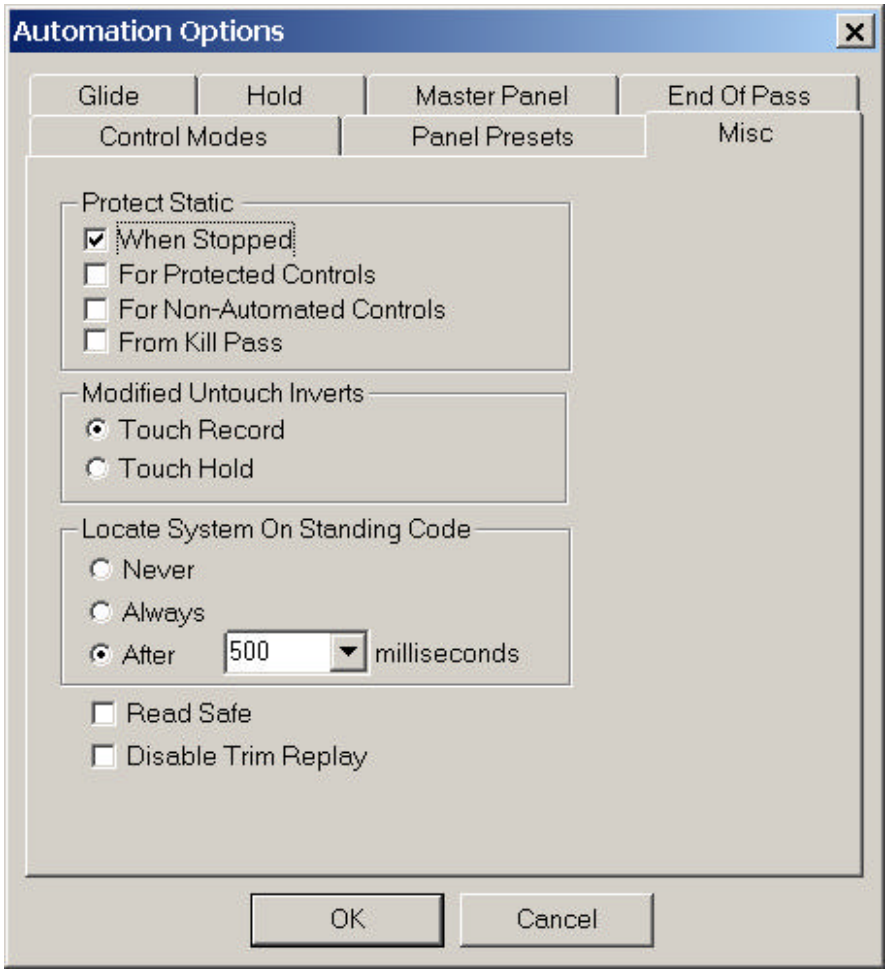


End of Pass Clears:

<Record>: If any controls are in record when the mix pass is ended they will be punched out of record if this option is set.
<Write To End>: Because Write To End is a very destructive feature (although very much used and useful), this option ensures that it is only used for one pass and Write to End Reverts to Punch-In at the end of a Record Pass. There will be no effect by a play pass (which is the case with all of these options).
<Extend Back to Begin>: Like Write To End, this destructive function can be set to be cleared after a Record pass has been written.
<Extend Back to Punch-In>: Same as above.
<Held Objects>: There are times when you want to hold objects (in record or audition) and have them revert to playing the Read Mix data when the next pass is run. And there are time when you want to audition a level and then run the pass again to do the actual record pass. In this case, by unchecking this option the controls can be held across passes.
<…Only if Touch Record Active>: When checked, End of Pass will clear the items above only if Touch Record was active.

5.21.8 Miscellaneous

This option page contains options not addressed elsewhere.



Protect Static: <When Stopped>: Changes to Static objects will be ignored unless the system is "Mixing" (timecode running or stop frame mode).
<For Protected Controls>: When a control is protected (out of scope) changes to the control will not be stored as Static values. They can be auditioned and will return to their stored value when a new Mix Pass is started.
<For Non-Automated Controls>: Changes to Non-Automated objects (like Pan Format) will not be stored as Static values. They can be auditioned and will return to their stored value when a new Mix Pass is started.
<From Kill Pass>: Stored Static values are not affected by Kill Pass operations.

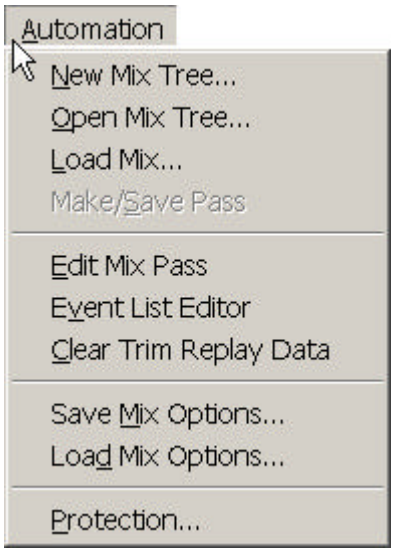
Modified Un-touch Inverts: <Touch Record>: The **AUTO MODE** key acts as a modifier key for certain functions. For example, if the modifier key is held when an enabled control is touched, the control will or won't go into record based on the inverse of the setting of the Touch Record function (of the AutoTouch+ Panel). Normally, when this radio button is selected, when un-touching a control, if the modifier key is held, the Touch Record functionality is again reversed.
<Touch Hold>: By selecting this option, when un-touching a control, the effect of Touch Hold is reversed rather than that of Touch Record.

Locate System on Standing Code: <Never>: AutoTouch+ will never locate to a standing timecode location.
<Always>: AutoTouch+ will always locate to a standing timecode location.
<After>: AutoTouch+ will locate to a standing timecode location after the time specified by the millisecond pull-down menu.

Other Miscellaneous Options: <Read Safe>: Normally when a control is moved its changed value is able to be auditioned, and then it snaps back to the Read Mix value (unless Touch Hold is active). When this option is set, any controls in READ mode will NOT be able to be auditioned, they will always follow the read mix value regardless of the physical or virtual control position
<Disable Trim Replay>: When this option is selected, faders will NOT play back any recorded Trim data. Note that this has no effect on the mix values that are being played from the read mix. Only that the faders will not track the any previous Trim values that were recorded. The Read Mix values already contain the effects of any previously recorded TRIMs. So this only affects how the faders respond when they are in TRIM enable mode. Also note that TRIM replay is only available on faders.

5.22 GC Automation Menu

The GC Automation menu contains several items used in the operation of AutoTouch+. These menu items are referenced throughout this document and are explained briefly below.



New Mix Tree: Selecting "New Mix Tree…" from the Automation menu opens the New Mix Tree dialog window. A new Mix Tree may be created using this window.

Open Mix Tree: Selecting "Open Mix Tree…" from the Automation menu opens the Open Mix Tree dialog window. An existing Mix Tree may be opened using this window.

Load Mix: Selecting "Load Mix…" from the Automation menu opens the Load Mix Into Tree dialog window. An existing Mix from any Title may be loaded into the current Mix Tree using this window.

Make/Save Pass: Selecting "Make/Save" from the Automation will generate a new Mix Pass. This is useful when it's desirable to save updated Static values without having to perform a RECORD pass.

Edit Mix Pass: Selecting "Edit Mix Pass" from the Automation menu opens the OFLA offline mix editor. The Active Mix Pass control values and locations may be edited.

Event List Editor: Selecting "Event List Editor" from the Automation menu opens the offline Event List Editor. The locations of the Active Mix Pass control changes may be edited.

Clear Trim Replay Data: Selecting "Clear Trim Replay Data" clears the Trim Replay Data for the Active Mix Pass.

Save Mix Options: Selecting "Save Mix Options" from the Automation menu opens the Save User File As dialog window. A new User and or User File may be created using this window. User Files contain Mix Options and AutoTouch+ Panel Presets.

Load Mix Options: Selecting “Load Mix Options” from the Automation menu opens the Load Mix Options File dialog window. Any existing User File may be loaded using this window. User Files contain Mix Options and AutoTouch+ Panel Presets.

Protection: Selecting “Protection…” from the Automation menu opens the Automation Protect control window. Protection may be applied to any set of controls using this window.

5.23 Hot Keys

V3.0 software supports a variety of "Hot Keys" (shortcut keys) that improve efficiency when operating the system. These Hot Keys assist in the management of timecode entry and information.

Note: This chapter assumes that the appropriate window or entry box is active. Appropriate fields or sections of fields are highlighted, and/or the cursor is placed appropriately.

Hot Key Functions: Hot Key functions are described in the table below.

Key	Function
Right Arrow	Next Field to the Right
Left Arrow	Next Field to the Left
Shift Right Arrow	Extend Selection one Field to the right
Shift Left Arrow	Extend Selection one Field to the left
B, b	Captures the current mix start time
E, e	Captures the current mix end time
Space, t or T	Captures current system time
G or g	Goto.. locates the system to the time in the control
C or c	Copies the FOD to a special copy buffer
P or p	Pastes the FOD from the copy buffer
R or r	Clears the timecode to 00:00:00:00
M or m	Clears the Most Recently used Timecode List
S or s	Toggles the Sorted view of the most recently used timecodes in the context menu
L or l	Toggles the locking state of the most recently used Timecode List (accept or don't accept further changes taken)
Shift Space	Selects all fields
Home	Selects Hours field
End	Selects Frames field
Shift Home, End	Extends selection appropriately
Single Click	Selects Field
Double Click	Selects All fields
Delete	Zeros out selection
Up Arrow	Bumps Selected Field Up (if more than one field is selected it will bump by the right most field and keep the selection active) Holding Shift puts it into X10 Mode.
Dn Arrow	Bumps Selected Field Down (if more than one field is selected it will bump by the right most field and keep the selection active). Holding Shift puts it into X10 Mode.
Pg Up	Bumps Selected Field Up by 10 (if more than one field is selected it will bump by the right most field and keep the selection active).
Pg Dn	Bumps Selected Field Down by 10(if more than one field is selected it will bump by the right most field and keep the selection active)
Digit	Places the selected fields into edit mode. All unselected fields will be grayed to indicate edit mode. Once in edit mode, all digits entered will shift previous digits to the left. Most non-digit keys and trackball click activity will leave edit mode. When leaving edit mode the new timecode is checked for validity.

Continued...

Key	Function
. (Period)	If in edit mode and the frames field is included in the selection it will try to justify the entered digits to the seconds field if sufficient space is available. Then it will leave edit mode on the previous selection and put the frames field in edit mode. If in edit mode but the frames field was not in the selection it will leave the digits entered as is. Exit enter mode on the previous selected fields and enter edit mode on the frames field. If not is edit mode it will select the frames field.
+/– (on numeric or normal keypad) also = is handled as + so Shift doesn't need to be held.	Used for Offsetting the timecode by another timecode. Brings up a new timecode edit box under and offset from the parent box. The Parent box goes gray. An offset can be entered into the new edit box. All normal editing can be used in the new box (bumping, scrolling etc) except for +,–. The offset can be applied to the original timecode by pressing Enter, + or –. Pressing enter will apply the offset, either adding or subtracting it based on the key used to initiate the process. Pressing + will add it (irregardless of the key used to initiate), pressing – will subtract it (irregardless of the key used to initiate). Pressing esc will cancel the action. Clicking outside the offset entry box will also cancel the action. The offset entry box will allow frames to be entered up to 99 if the HH, MM and SS fields are all 0 for bumping by up to 99 frames.
Ctrl and Left Track-ball Button and Vertical Trackball Move	Enters Scroll Mode. The Control key is the modifier to enter scroll mode. Once in scroll mode the control key can be released. Scrolls the Field clicked on, wrapping into higher order fields. When the field and all higher order fields are 00s or Max Values the scrolling is stopped (i.e. 0 wrap is prevented). Pressing and holding the shift key while scrolling enables 10x scrolling as long as the shift key is held.
Enter	Commits to the Edited Timecode
Esc or U	Cancels all changes to the timecode since the last Commit

Timecode Entry Validation: When free form entry of timecodes is performed, after all digits are entered or the selected field is changed, the entered data is validated. If there are invalid digits for the type of timecode, the highest order invalid field is highlighted and the text color goes red. At this point no operations are allowed until the timecode is corrected. Since the field in error is highlighted direct entry for correction is easy.

Commit/Cancel: The timecode editor keeps two timecodes during editing, the committed timecode and the working timecode. As you bump, offset, enter digits, etc. the working timecode gets changed. Hitting Enter or leaving the edit box (i.e. the edit box loses focus) commits the edits. If after making changes, even in the middle of entering digits or with invalid timecode displayed in red, you can press ESC to cancel the changes and go back to the original timecode.

Up to 99 frame offset: When offsetting, the add/subtract editor window will allow frames to be entered up to 99 if the hh, mm and ss fields are all 0. For example if you wanted to offset the timecode 1.5 seconds at 30 fps you could either press +, 1, 1, 5, Enter for adding 1 second 15 frames, or press +, 4, 5, Enter for adding 45 frames.

Remainder: When converting from FODs to Timecode Strings there is the possibility of a remainder. There are roughly 100 FODs per frame. If an FOD is converted to a string and the string converted back to an FOD, any FOD between the start of the frame and the original FOD would be lost. For example, frame 00:00:00.01 starts at FOD 103. If FOD 105 is converted to

the string 00:00:00.01 and the string converted to an FOD the result would be 103, loosing two FODs in the process. During various operations like bumping or offsetting, the timecode conversion routine keeps track of the remainder automatically. Basically, having a remainder means that the FOD does not exactly equal the beginning of the frame represented by the timecode string. The following table illustrates the rules regarding when remainders are saved and when they are lost.

Action	Remainder
User Enters any Timecode Digits	No, FOD exactly matches string entered
User Captures Current Time	Yes
Offsets	Yes
Bump/Scroll	Yes
Drag/Drop	Yes

Intellibump: When scrolling or bumping drop frame code to an invalid timecode the control automatically adjusts to the next valid timecode. For example, if bumping seconds up two times to achieve a 2 second offset from 00:10:59.00 to 00:11:01.00, the first bump one from will result in 00:11:00.00. This is invalid during drop frame counting so the control automatically sets it to 00:11:01.00. The second bump would normally bump 1 second from the previous value, which would yield 00:11:02.00. This is not what was desired.

The control keeps track of artificial frame bumps required to keep true to the drop frame counting sequence and automatically re-compensates when possible. This re-compensation is attempted until the timecode is committed or some other action besides bumping or scrolling the particular field is performed. In the above example, the second bump performed would actually yield 00:11:01.00 since the control would re-compensate for the two frame bump required to keep the drop frame rules.

CREDITS

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CHAPTER 6

6 VISTA REMOTE BAY

6.1 General

The Vista Remote Bay is one or two Channel Bays that can be placed in distance to the main operating desk. It provides all features and controls found in the original Channel Bay and acts just as (an) additional Channel Bay(s) to the console.

6.2 Operation

The Vista Remote Bay can be operated like the Vista main desk, offering the same functionality and operating principles. The original operating concept of the Vista 6/7 is respected, with a few exceptions:

- *Copy/Paste* and *Ganging* is allowed once for the whole console. It is working simultaneously on the main console and on the Remote Bay, thus might causing operational interference.
- Full *Geographical Orientation* over the console is not given on a single Remote Bay. If located next to the main console the Remote Bay acts together with the main console as one large mixer. The (virtual) position of the Remote Bay is *to the right* of the main console (this is important during system start up and when scrolling).
- For remote operation, the Remote Bay has to be set into Locked Bay mode to work independently from the main console. The Remote Bay therefore does *not* work like a multi-desk configuration as possibly known from the Studer D950.

- The Remote Bay provides exactly the same functionality as a normal Channel Bay; that is, there are no additional features, neither a talkback send nor a headphone monitor return.

6.3 Applications

The Vista Remote Bay is designed for applications where an additional console, separate faders, quasi-two-operator mode or remote control of the main desk is required:

Broadcast - OB Trucks: Second, small desk inside the truck or a studio for the control of defined sources.

Broadcast - OB Trucks: Remote bay for the control inside the venue/room or on the stage/front-of-house for preparation and monitoring purposes

Congress Centers, Theaters - Remote Operation:
Remote bay for preparation work in the audience or on stage; overcomes the limitations of the control room

Congress Centers, Theaters - Remote Operation:
Remote bay next to the stage (e.g. monitoring), or for control of specific channels operated e.g. by the producer during the play or event.

All Applications: Increase of console size and number of faders of existing Vista consoles without the need for an all new frame.

CHAPTER 7

7 SESSION CONFIGURATION TOOL (OPTION)

The Studer D950 and Vista Digital Mixing Systems may be easily reconfigured using the optional Session Configuration Tool. Whereas the ability for reconfiguration is a great feature of the Studer D950/Vista, it is important for an operator to fully understand the Session Configuration Tool and its functions. There is no safeguard functionality to prevent someone from configuring a console without e.g. the summing buses – and in such a case, the console may not function properly.

Functions, features, and appearance of the Session Configuration Tool may be changed by modifying the software. For this reason the operation of the tool and its parts as described in this manual may be slightly different from your version.

Information contained in this chapter has been carefully checked and is believed to be correct and complete. But as we all know, everybody makes mistakes, and we are not immune either. If you detect a mistake, please write or send an e-mail to the address printed on the cover. We will be grateful for your feedback. No responsibility is taken for any inaccuracies, errors or omissions, nor is any liability assumed for any loss or damage resulting either directly or indirectly from use of the information contained in the manual and any accompanying documentation.

7.1 Installation

Note A good level of understanding PC basics is assumed for this installation. You may need to copy files between various media and create subdirectories. You will be required to edit a simple .ini file to adjust the environment of your PC. Please have an instruction manual for the Windows version you are using at your disposal if necessary.

Environment The Session Configuration Tool will run under Microsoft Windows 95, 98, 2000, or NT 4.0 environments.

Minimum Requirements The Session Configuration Tool requires the following minimum environment to run properly:

- Windows 95, 98, 2000 or Windows NT 4.0
- Pentium processor, min. 200 MHz recommended
- 32 (preferably 64) MB of RAM
- Display resolution 1024x768

7.1.1 Where to Install

The Session Configuration Tool may be installed on:

- The Studer D950/Vista Control PC
- Any other PC, provided that above requirements are met

We recommend installation on a PC different than the D950 or Vista control PC. The program requires a lot of processor power while it is compiling. Whilst it will run without any problem in a multitasking environment with multiple programs running at the same time, its performance may be considerably slowed down under such circumstances. If speed is essential, we recommend running the Session Configuration Tool alone on a PC.
In some cases, the Studer D950/Vista Digital Mixing System may be delivered with the Session Configuration Tool already installed.

7.1.2 How to Install

Installing from a Compressed File

If you have obtained the Session Configuration Tool in compressed form, you will start by copying the file (usually called `D950Cfg.exe`) into the target directory and then running the self-extracting file. This will decompress the original files and create the necessary directories for you.

You need to extract the original files into a root directory of a drive (C, D, E, ...) on your PC. Please make sure that the "`:\ADI_DSP`" directory has been placed directly under the root of your selected drive as indicated above, otherwise the Configuration Tool may not work properly.
Now please proceed with the instructions found in the paragraph "Check the installation" below.

Check the Installation

Check the Results:

Please use the Windows Explorer to check the results of your work now. The following (or similar) file structure should now be found on your target PC (assuming "C" was selected as the target drive):

```
C:\D950cfg      \tmpFiles\(subdirectory) contains temporary files
                \aryymmdd.ach            DSP Proc. Element architecture file
                \CoreFuncyymmdd.lib      48k DSP source code library
                \CoreFunc96kyymmdd.lib   96k DSP source code library
                \D950CfgTool.exe         the Session Configuration program
                \mnyymmdd.exe            executable used for the core files
                \rtyymmdd.a              DSP RTOS (operating system library)
```

`yymmdd` refers to **y**ear **m**onth **d**ay and indicates the version of the file. This version number varies from release to release. Please refer to the release documentation of your specific release in order to check that the files are correct.

```
C:\ADI_DSP\21K\Bin   \asm21k.exe             Sharc assembler file
                     \go32.exe               Sharc assembler file
                     \ld21k.exe              Sharc assembler file
                     \lib21k.exe             Sharc assembler file

C:\ADI_DSP\21K\Etc   \a21000.exe             Sharc assembler file
                     \cpp.exe                Sharc assembler file

C:\ADI_DSP\21K\Include  \def21060.h          Sharc assembler file
```

Please make sure that the "`:\ADI_DSP`" directory has been placed directly under the root of your selected drive as indicated above, otherwise the Configuration Tool may not work properly.

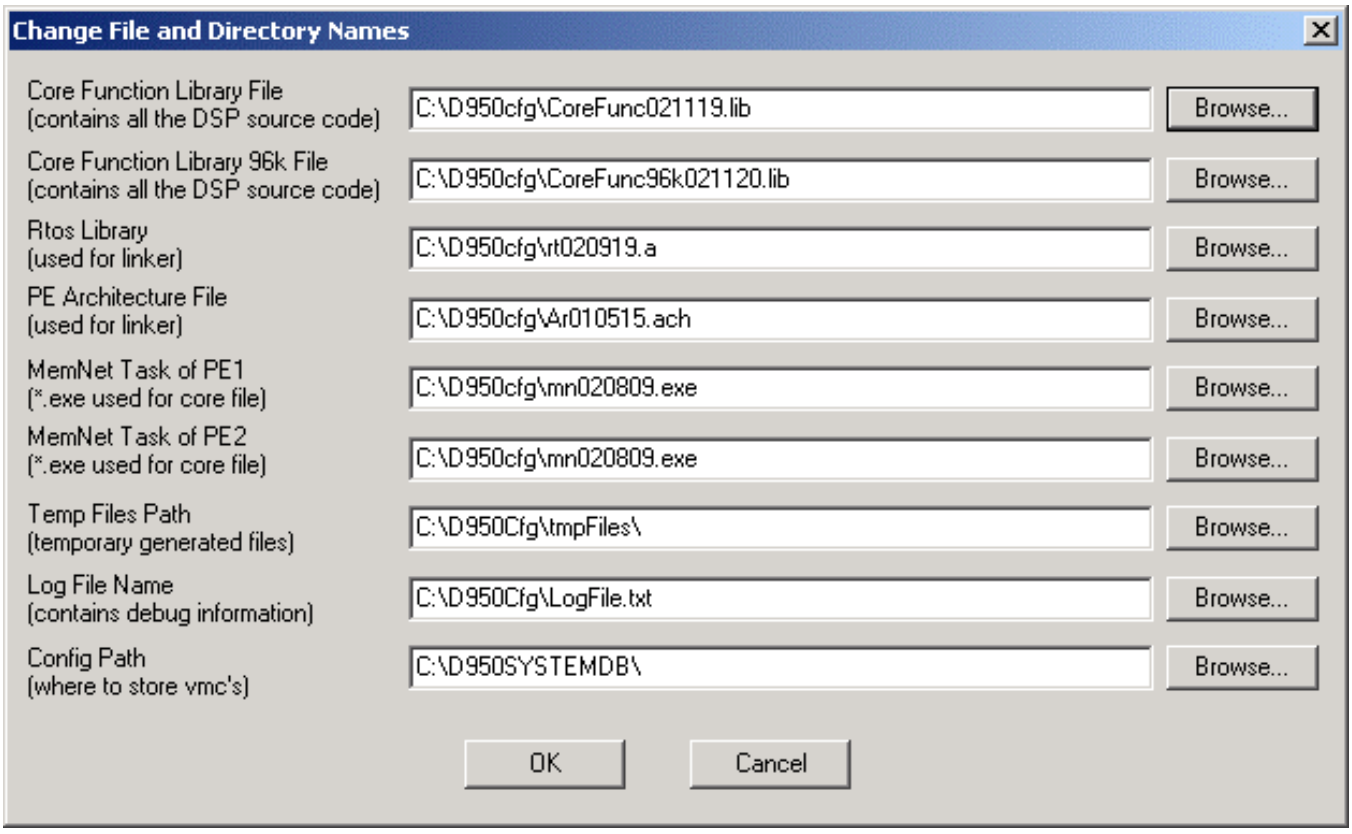
```
C:\D950SYSTEMDB   \YourCfg\(subdirectory)any previously existing Configurations
                   ...
```

The next step will be to create a Shortcut and then to set several options within the Configuration Tool.

Create a Shortcut: Usually the fastest way to use a program is to create a so-called Shortcut on the Windows Desktop. To create a Shortcut for the Session Configuration Tool, please click on the file "`d950CfgTool.exe`" in the Windows Explorer, then use the right trackball button and drag the file to the desktop. Now you are ready to run the Configuration Tool for the first time.

Start the Program: Double-click on the shortcut. There will probably be an error message "`Unable to open file: xxxx`". This is because the `.ini` file options have not yet been set. Quit the message and the Session Configuration Tool screen will appear.

Set the Options: Click on the menu item "Options" and then on "Directories/Files". The following setup screen will appear:



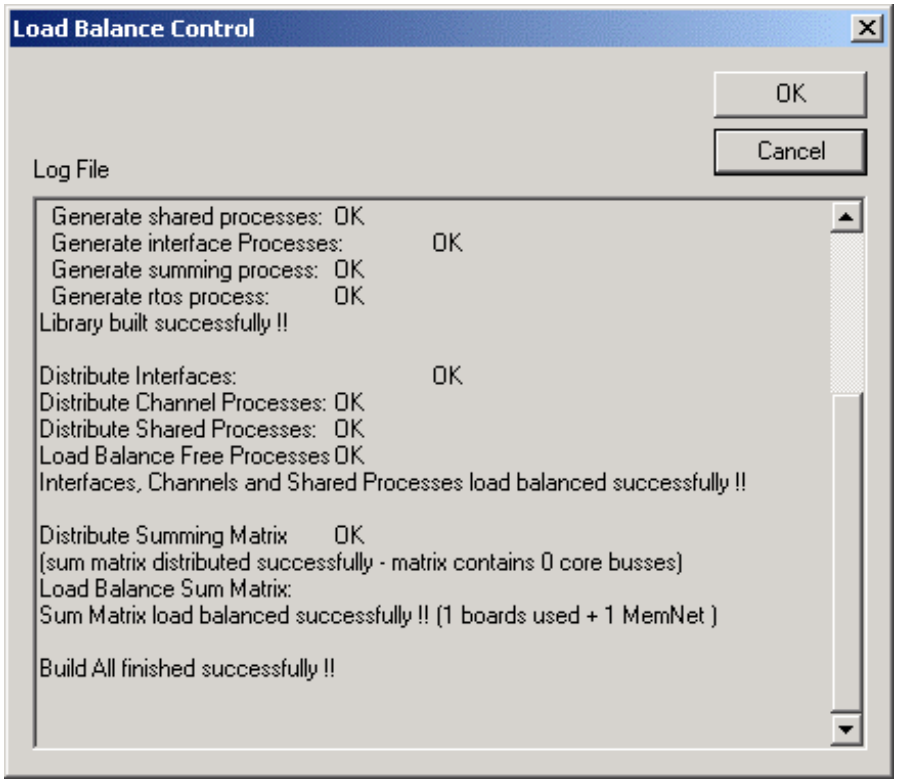
Here the names of directories and appropriate files that you have just copied have to be entered. The above graphic shows the files used for software version 3.1.02. Since those may vary for every installation and software version, you will now need to update these entries by using appropriate file names and paths, as installed on your system. The Browse button can be used to select the appropriate file, except for the following two entries:

- Temp Files Path, and
- Config Path,

for which the appropriate paths must be entered manually; *they must be followed by a backslash (\) sign.*

After making the appropriate entries please click "OK" to finish the preparations and to store the edited "`D950CfgTool.ini`" file automatically. To learn more about the use of the .ini file, please refer to chapter 7.5, Maintenance.

Test the Installation: Now that you have installed all files and set the basic options, you can proceed to test the whole installation, by generating an empty configuration. This empty configuration is loaded per default after starting the application.
Select the menu item "Generate" and then "All". This will start the process of generating the DSP and control software that is needed to run a new Session Configuration on your console. Various messages will be displayed, and after a while, a message similar to the following one should appear:



After the message "Build All finished successfully !!" appears, click on "OK" to finish the successful installation and test procedure.

7.2 Introduction

7.2.1 Features & Benefits

The D950/Vista DSP Concept

The concept of the Studer D950/Vista allows to use multiple DSP processors in a fully scaleable and configurable way. It is possible to specify the power of the DSP core in fine steps in order to fulfil the exact need of an application. It can be said that the Studer D950/Vista has a scaleable DSP resource pool of computing power, which can be used in many different combinations.

Session Configuration

So the concept of the "Session Configuration" was born which allows to create many completely different mixers that can run on the same existing hardware. The operator is now able to choose the ideal mixer for the task he or she wants to work on.
For this, the Session Configurations can be loaded and the Studer D950/Vista console is restarted in a matter of seconds. Each Session Configuration can contain a different console configuration based on the available DSP power. In the ever-changing studio environment, it is now possible to have a "new" mixer every day:

Day 1	Day 2	Day 3
Live Broadcast Configuration	**Multitrack Recording Configuration**	**Mixdown Configuration**
48 Mono Input Channels with – EQ – Delay 24 Stereo Input Channels with – EQ	48 Inline Channels with – EQ in monitor path – Comp/Lim/Exp/Gate in input path – Delay 4 Stereo Input Channels with – EQ	96 Mono Input Channels with – EQ – Delay – Comp/Lim/Exp/Gate – IPL – Surround PAN 4 Stereo Input Channels with – EQ
0 Routing buses	48 Routing buses	8 Routing buses
8 Groups with – EQ	0 Groups	16 Groups
2 Master Outputs with – Output Limiter – EQ	4 Master Outputs	8 Master Outputs
8 Mono Auxiliaries 2 Stereo Auxiliaries	4 Mono Auxiliaries 4 Stereo Auxiliaries	12 Mono Auxiliaries 4 Stereo Auxiliaries
12 Cleanfeed buses	0 Cleanfeed buses	0 Cleanfeed buses

Channel Types

All channels within the DSP core can be configured as Mono or Stereo channels. The number of channels for any channel type is defined through the Session Configuration. Moreover, any channel type can be fitted with the available function blocks from the processing library. So EQ, Delay, or Dynamics can be fitted to Input Channels, but also to Group Channels, Master Channels or Auxiliaries in any number and combination. Any combination of Auxiliary, Cleanfeed, Multitrack Routing, Audio Subgroup and Master Buses can be configured in the system.

DSP Boards

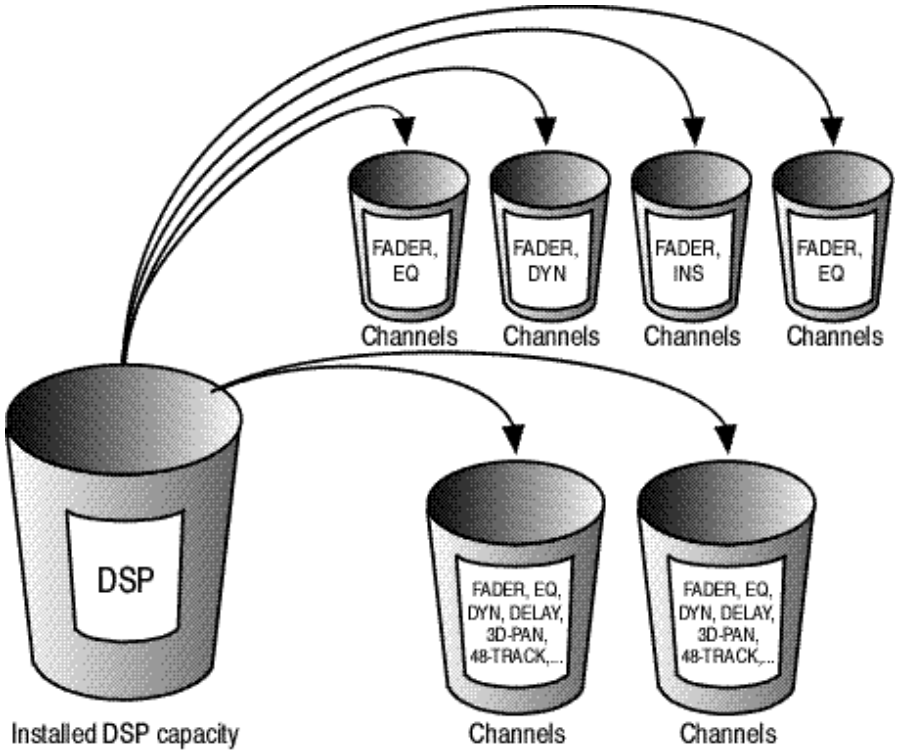
The Studer D950/Vista system can contain 5 board types.

- PE – DSP board with 6 DSP processors
- PEAES – DSP board with 6 DSP processors, 8 AES/EBU inputs (2 of which with SFC) and 8 AES/EBU outputs
- MADI I/O board with 2 MADI inputs and 2 MADI outputs
- PE – D21m board with one D21m input and one D21m output
- MEMNET board for communication and control

The system *must* contain one communication and control board called the MEMNET board.
The total number of boards in any combination can be 21 at the maximum.

System Size & Numbers

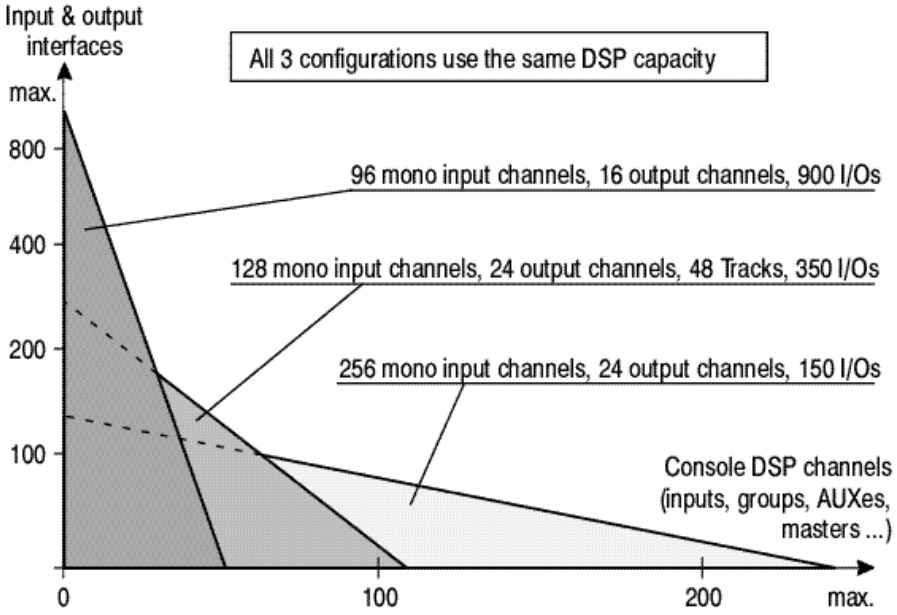
The size and power of the system is defined by the number of DSP processors and I/O boards installed. The total DSP power can be compared to a large bucket full of water (Installed DSP Capacity). The contents of the large bucket can be distributed to four small buckets (channels with fader + EQ) or to only two medium-sized buckets (channels with fader + EQ + Dyn + Delay + 3D-PAN...).



So, the number of available channels depends on two things:

- Total installed capacity (1...20 DSP boards)
- Load required by each of the channel types and their quantity.

To complicate matters slightly, the total number of channels also depends on the number of summing buses and the number of physical I/O interfaces. To illustrate this, we can look at 3 different ways to use the same installed DSP power.



The Session Configuration Tool will tell you exactly how many DSP and I/O boards you will need in order to run a certain configuration defined by the number and type of channels, the number of summing buses, and the number of physical I/O interfaces. As a consequence, there is no finite maximum number of channels on the Studer D950/Vista – the maximum can be anywhere between 100 and 300 channels.

7.2.2 The Concept of a Virtual Mixing Console (VMC)

The Studer D950/Vista Digital Mixing System bases its operation on the concept of a Virtual Mixing Console (VMC). The VMC is a software structure that runs on the Studer D950/Vista control PC and consists of two parts:

- Console configuration (structure)
- Current audio settings of the console (data)

Structure The VMC describes all the parameters of a certain console configuration, such as the number of input channels, the number of multitrack buses, whether there is EQ on each channel, etc.

Data Moreover, the VMC is a real-time data container that keeps the current settings of a console, such as "input channel 13 EQ gain = +12 dB", "master 4 fader = –10 dB", etc. The VMC will only keep data for the channels and console parts that are defined in the structure part of the VMC. Active controls on the console, such as the faders, rotary encoders, pushbuttons and the GC keyboard/trackball control, but also the Snapshot system and the AutoTouch+ Automation system can write data to the VMC. Other console parts, such as lamps, displays, and the GC screen can read data from the VMC and display them. It can generally be said that almost all settings and conditions of the Studer D950 and Vista console are a part of the VMC.

Make and Edit a Configuration The Session Configuration Tool can be used to make a new configuration, or to edit an existing one. This is the first part of the process of preparing a

VMC for the Studer D950/Vista console. That part is done off-line, even if the Configuration Tool is running on the Studer D950/Vista Control PC. The results of this part are:

- A “meta” VMC file (`*.vmc`) – the definition of the console structure
- A DSP core file (`*.cor`) – software that tells the DSP core what to do
- Configuration knowledge file (`*.ckf`) – defines the distribution of the processes among the boards of the core, and stores other configuration relevant information.

Use a Configuration

When we operate the Studer D950/Vista console, we speak of “loading a configuration”. This means loading the “meta” VMC file to the memory of the Studer D950/Vista Control PC. This process will remove the current file from the Studer D950/Vista memory and load a different one. The Studer D950/Vista Control software will then, based on information contained in the new files, run a VMC that corresponds to the information from the “meta” VMC file. It will also remove the current DSP core file, replacing it with a new one, thus activating a new VMC. Now the Studer D950/Vista is ready to work with the new Session Configuration.

There can only be one VMC that is active on the Studer D950/Vista console at any one time, but there can be multiple VMCs configured and stored for later use. For more information on loading a configuration and using the Studer D950/Vista, please consult the Studer D950/Vista Operating Instructions.

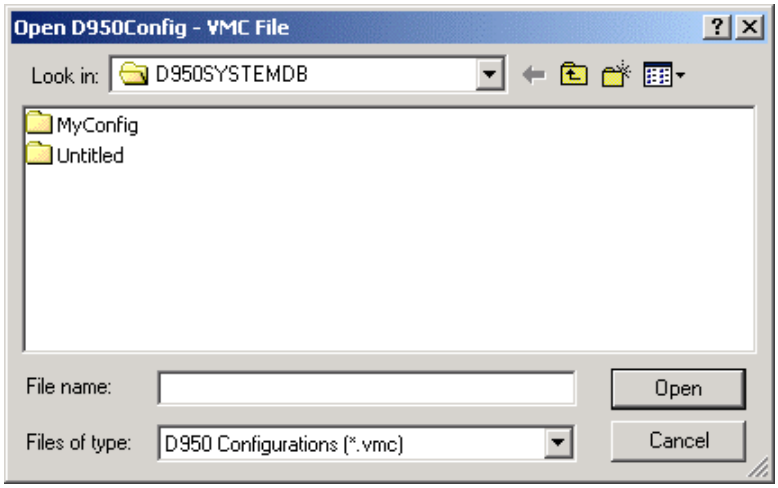
7.2.3 The Practical Side

The purpose of the Session Configuration Tool is to allow creating and modifying "meta" VMC files and generating the DSP files from the information contained in the "meta" VMC file. We call this process "making a Session Configuration". There are always two files that are the result of making a Session Configuration:

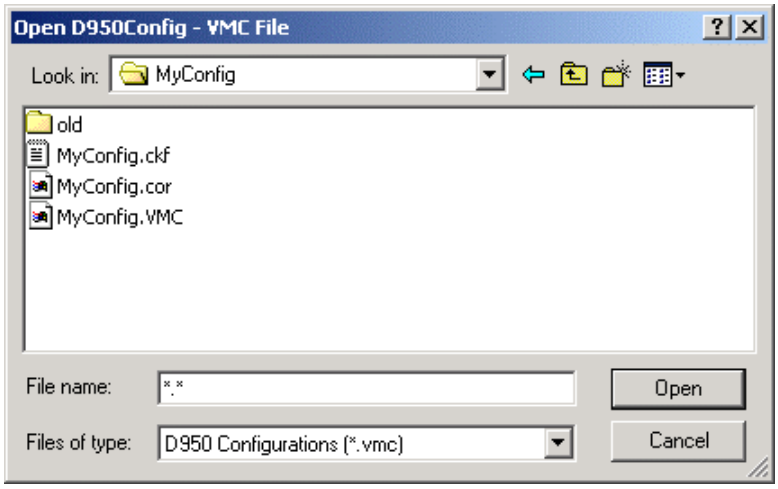
- the "meta" VMC file called `MyConfig.vmc`
- the DSP core file called `MyConfig.cor`
- the configuration knowledge file called `MyConfig.ckf`

The name "MyConfig" stands for any name selected by the user. The endings "`.vmc`", "`.cor`" and "`.ckf`" are mandatory. They are automatically created by the Tool and do not have to be typed.

It is good practice to keep all Session Configurations in the same Windows folder, because both the Session Configuration Tool and the Studer D950/Vista System software can be set to search in this folder automatically. The Configuration Tool will automatically create a subdirectory (folder) with the same name as the Session Configuration, so the folder structure may look similar to this:



Each of the subdirectory folders will contain the following files and folders when the generation process is finished.



When editing a configuration, the "old" folder is generated automatically, in order to store the last configuration.

Both the Session Configuration Tool and the Studer D950/Vista System software should be set to search in the folder `C:\D95ØSYSTEMDB`.

On the Studer D950/Vista System

If you are running the Configuration Tool on the Studer D950/Vista System, and the search paths are set as above, there is nothing more you need to do in order to load a configuration. Simply switch to the Studer D950/Vista operating system (the GC) and load a new configuration from the GC File menu.

On a Separate PC

If you are running the Session Configuration Tool on a separate PC, you will need to transfer the configuration files to the Studer D950/Vista control PC. Since all files are Windows files, it is a simple matter of using a transfer medium (floppy, ZIP or even a LAN network) to transport the files. Care has to be taken to store the files under the appropriate directory on the Studer D950/Vista control PC as described above. The only files that must be transferred for each configuration are:

- `MyConfig.vmc`
- `MyConfig.cor`

Both files must be in the same subdirectory, otherwise the Studer D950/Vista will not be able to load this configuration. The best practice is to always copy the whole folder `<MyConfig>` with both files inside and paste it to the `C:\D95ØSYSTEMDB` directory.
It is not necessary to copy the `*.ckf` file. It is not used by the Studer D950/Vista. It is generated for maintenance reasons only.

7.2.3.1 Data Compatibility

Studer D950/Vista features such as Snapshot, AutoTouch Automation, etc. use Windows compatible files to store data. Since the contents of such files are dependent on the current configuration, each file is internally stamped with the Session Configuration ID. The configurations may be quite different – the resulting snapshot or automation files will be different, too.
A Snapshot file made under Session Configuration A can not, therefore, be directly recalled under a different configuration B. A function called Import must first be performed using the appropriate controls within the GC. For more information on the Import function, please consult the D950/Vista Operating Instructions.

Import Rules

A simple set of rules will apply for the import:

- Unnecessary data are truncated
- Only items of identical type can be imported, e.g. data for mono input channels can only come from mono input channels
- If the source configuration A has 48 mono input channels and the current configuration B has only 32, just the channels 1 through 32 are imported and the rest of the source channels are ignored. When the item is saved it will have 32 channels in it.
- If the source configuration A has 32 mono input channels and the current configuration B has 48, just the channels 1 through 32 are imported and the rest of the current channels are ignored. User can edit and save channels 33-48 manually. When the item is saved it will have 48 channels in it.
- The same rules apply to the existence of processing blocks (EQ, Dynamics, etc.).

7.3 The Fast Lane – Try it!

7.3.1 Do Your Own – Use Existing or Start from Scratch?

7.3.1.1 Use an Existing VMC

Usually the changes that need to be made to a configuration are small. Adding two more AUXes or replacing the mono input channels by stereo input channels may be two examples of such small changes. In such cases, an existing `*.vmc` file can be loaded and modified. For the first try you can use the `*.vmc` file that was delivered with your console as a starting point.

The `*.vmc` files can be treated in a similar way as word processing documents. They can be opened, saved, saved under a different name, moved and deleted.

☞ **Tip** Please be careful to first save the file under a different name in order to keep the Studer D950/Vista basic configuration intact! Use the Save As item in the File menu.

Modifying the `*.vmc` file that had been delivered with your console is the simplest way to create a configuration that will run properly on your existing Studer D950/Vista console. On your console, there are several things that can not simply be changed by editing the configuration:

- All external I/O wiring
- Monitoring wiring and monitoring configuration
- Number of mic preamplifiers and their wiring
- Signaling (fader start, ...) wiring and configuration

It is not very likely that you will be changing any of the above all the time – that is why you will want to use the existing configuration as a starting point for your work, without having to think of configuring the right I/O every time.

☞ **Tip** It could be that you want to change the sampling frequency of an existing configuration. Just hit the according button on the toolbar, and you are done.
The Configuration Tool will prompt you about functions which are not supported under the selected sample frequency. It says, that they are not supported and therefore will be removed automatically.

Functions not supported under 96 kHz:

- All AES interface functions
- All external I/O wiring
- All MADI interface functions
- 240 ms delay

7.3.1.2 Start from Scratch

It is sometimes handy to find out how many DSP boards would be needed for a certain configuration. You can always configure the mixing console of any description by starting with an empty (New) `*.vmc` file. For this, you will use the File/New menu. The approach of starting from scratch will be useful if you do not have to modify an existing console, but are really starting a new project.
The first thing you need to do is selecting the sample frequency. The default value is 48 kHz. The buttons on the toolbar show the selected value.

☞ **Tip** If you want the new configuration to really run on your existing console, you need to be careful to think of all the elements of a configuration – channel numbers and types, summing buses, I/O configuration, shared functions, etc. Otherwise your new configuration may not be able to be loaded properly on an existing console.

7.3.2 Generate the D950/Vista Configuration Files

In this chapter, a simplified but complete configuration exercise is described. The example `*.vmc` file will be used as the starting point and modified. A DSP core file will be generated. You will need to start the Session Configuration Tool first.

Open the File

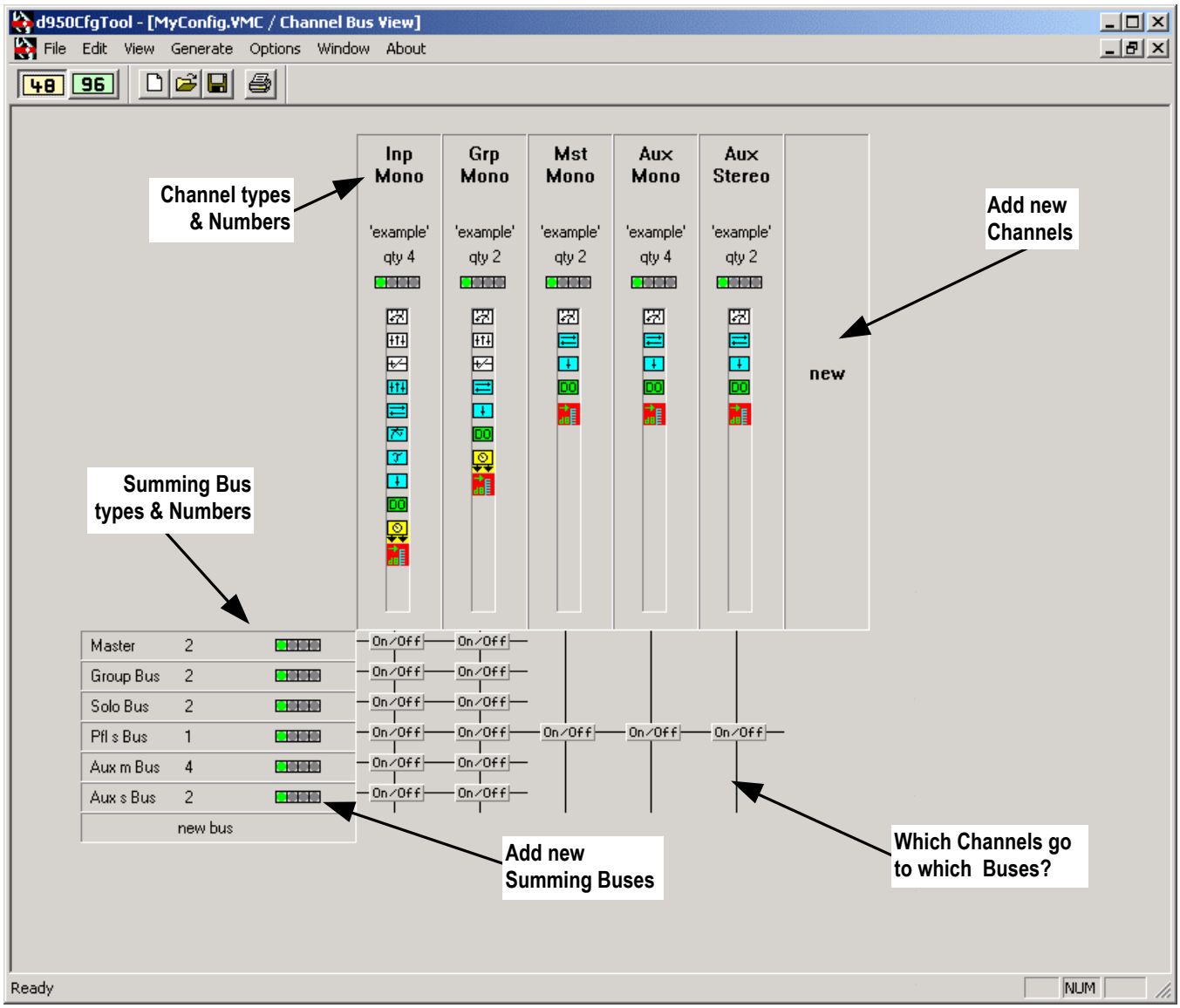
Use the "File/Open" menu or the "open folder" icon in the toolbar to open a `*.vmc` file.

Save VMC as...

To keep the original file intact, use the "Save VMC as..." command from the File menu. Note that you do not have to type the extension `.vmc`. A new folder and a new `*.vmc` file will be automatically created.

View the Configuration

Use the "View/Channel Bus" command from the menu bar to display the configuration contents. You may want to maximise the window in order to see all the components.
This is a display of all the configured channel types and numbers and all the configured summing buses as well as their interconnections:

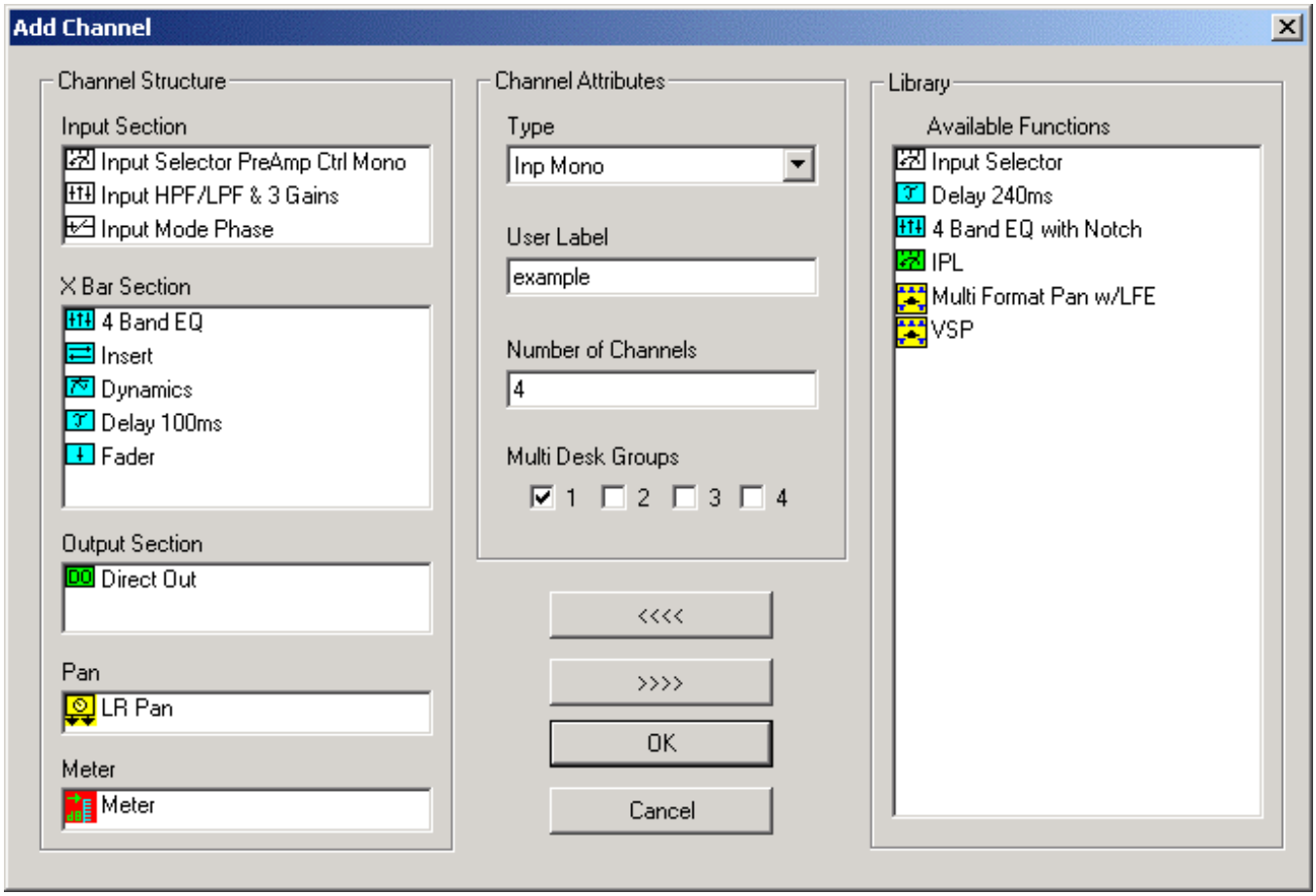


As you can see, this configuration is for a console that has:

- 4 mono input channels
- 2 stereo input channels
- 2 mono groups + 2 group buses
- 2 mono masters + 2 master buses
- 4 mono Auxes + 4 mono AUX buses
- 2 stereo Auxes + 2 stereo AUX buses
- 2 SOLO buses
- 1 stereo PFL bus

Add More Channels

Double-click on the channel area labeled “Input mono”. This will open an editing dialog box which will allow you, among other things, to change the number of mono channels:



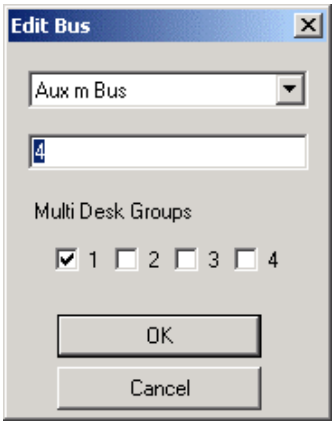
Go to the “Number of channels” area and change the number from 4 to 8. Click on OK. Now you have increased the number of mono input channels to eight.

Edit the Stereo Input Channel

Now we will change the stereo input channel configuration and name. Double-click on the channel area labeled “input stereo”. On the left-hand side, in the area called “X Bar Section”, double-click on “Dynamics” and on “Delay 100 ms”. This will remove those two functions from the stereo input channel. Now move to the area called “Library / Available Functions” and double-click on “Delay 240 ms”. Then go to the “User Label” field and type in “my stereo”. Click on OK.

Add More AUXes

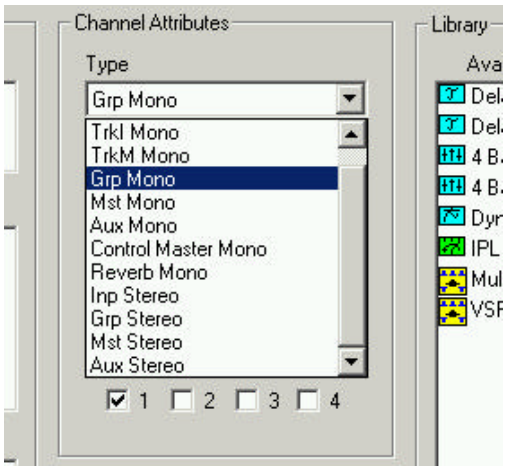
Now we will add two more mono AUX masters. Double-click on the channel area labeled “AUX mono” and change the number of channels to 6. Click on OK.
Now you will have to adapt the number of AUX mono buses to reflect the above change. Double-click on the area labeled “Aux m Bus”.
This will open a dialog that will allow you to set the number of buses to 6, matching the new number of AUX mono channels.



Enter “6” instead of “4” and click on OK. This will add two more AUX mono buses to the system.

Add New Group Channels

Now double-click on the channel area labeled “new”. This will allow you to select a channel type and set its contents and number. Click on “Channel Attributes / Type” and select “Group mono”.



This will select the channel type to mono group. Set the “Number of channels” to 2. Add “4-Band EQ” from the library by double-clicking on this item. Type in “my GRP” in the user label area and click on OK. This will add two more audio groups including EQ to the configuration. Note that you now have two sets of mono group channels with completely different audio processing sections called “my GRP” and “Example”. Note also that the bus connections have been extended with the small “on/off” boxes indicating that the two new groups will have access to Master, Solo, PFL and AUX buses. By clicking on the “on/off” box corresponding to the Master Bus, you can disable access from the new groups to the masters – so they can only be used for direct outputs.

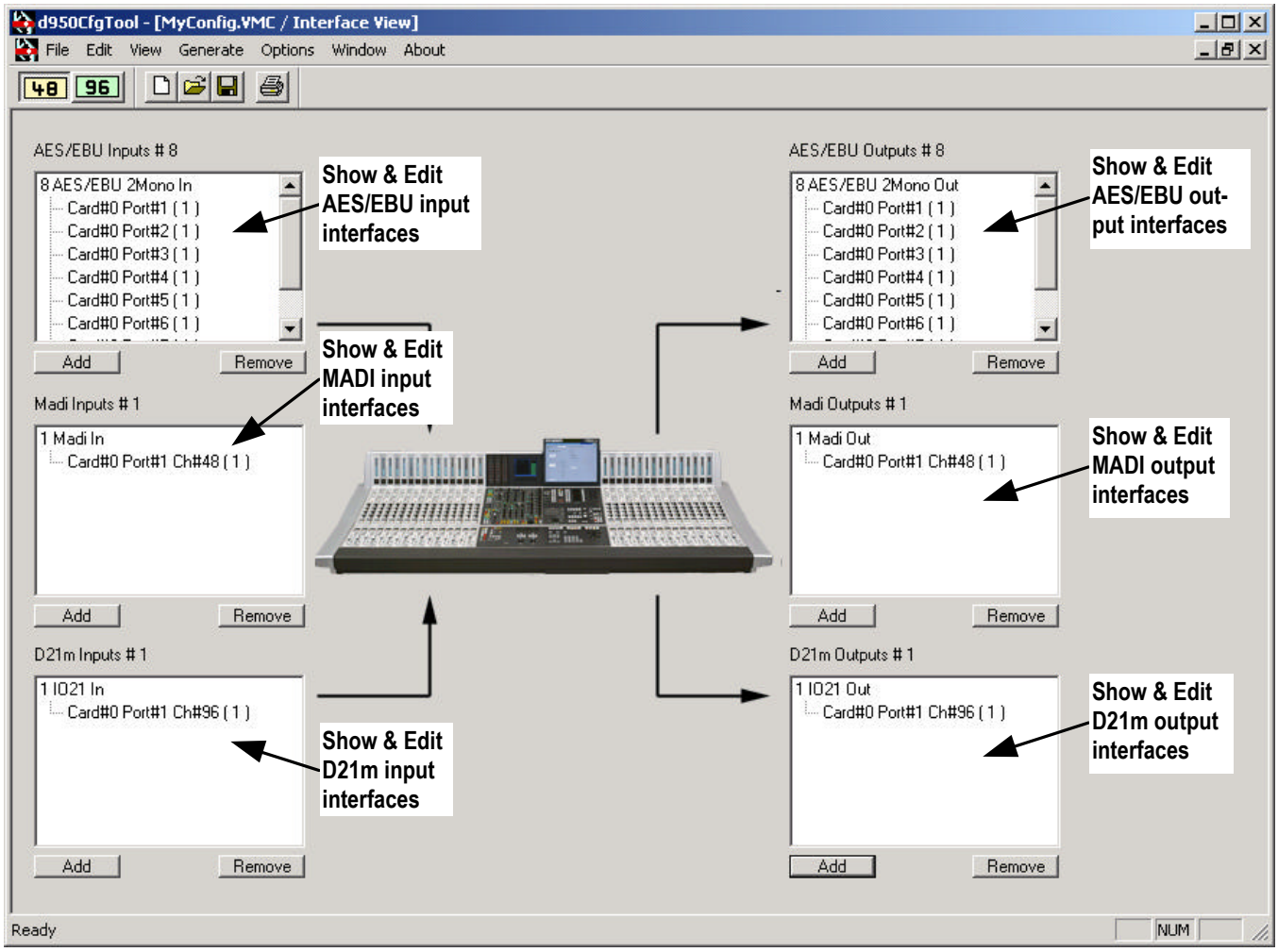
Finished? Not quite. We still have to increase the number of Group Buses to a total of four. Oops - the number is four already! The original configuration had two groups, but it had four group buses.

☞ **Tip** It is legal to have more buses than corresponding channel types, as in the example above. The reason for this is that the buses (unlike in analog consoles) are valid audio signals and can be used as such in the Studer D950/Vista patch. They are simply summation buses which will output the sum of all assigned inputs.

The newly edited configuration now looks as follows:

- 8 mono input channels
- 2 stereo input channels with changed processing
- 2 + 2 mono groups, different processing + 4 group buses
- 2 mono masters + 2 master buses
- 6 mono Auxes + 6 mono AUX buses
- 2 stereo Auxes + 2 stereo AUX buses
- 2 solo buses
- 1 stereo PFL bus

Check the Interfaces We will assume that for this example, the interfacing does not need to be changed. We will only have a look at what interfacing is available in the configuration we just changed. For this purpose, select “Interface” from the “View” menu.

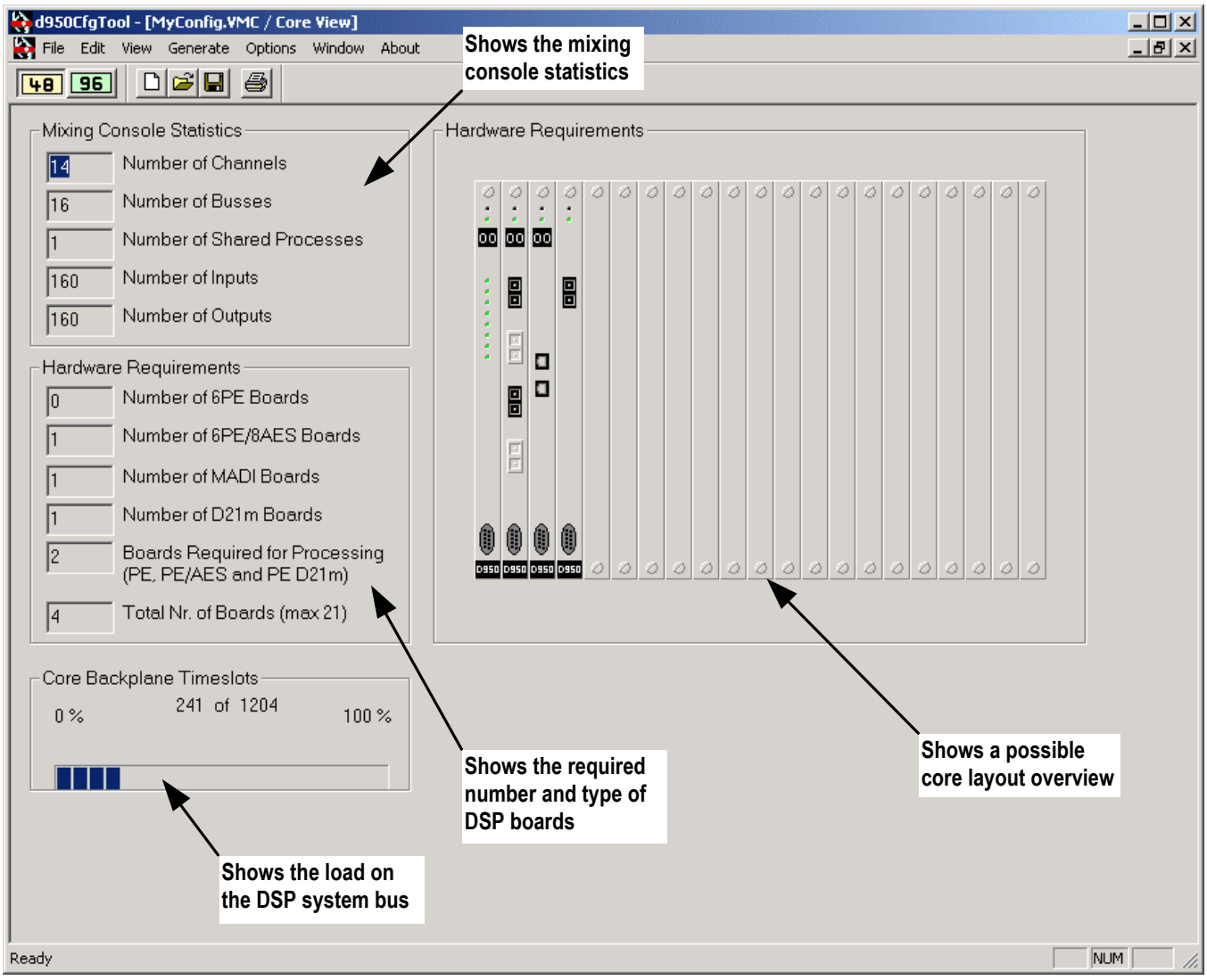


There are eight AES/EBU input interfaces, eight AES/EBU output interfaces, one MADI input with 48 configured channels, one MADI output with 48 configured channels, one D21m input with 96 channels, and one D21m output with 96 channels. This accounts for a total of 160 mono-equivalent inputs and 160 mono-equivalent outputs.

☞ **Tip** Although we have been through many actions and have edited the original configuration quite a bit, we did not yet touch on all possibilities of the Configuration Tool. Please read on and acquaint yourself with all the details before you attempt to make a configuration and load it on your console.

7.3.2.1 Does my Console Have Enough Power?

In order to see the console statistics, now select "Core" in the "View" menu. This will display the statistics of the channels, buses and I/Os, as well as the occupancy of the DSP core.



When generating a new or editing an existing configuration, the core view displays a rough estimation of the required DSP power, instead of the actual requirements for a previously generated configuration.

When you edit a configuration and see that it requires more boards than your existing core has, there are three possibilities to continue.

Generate Core and Check Again

To get to the real number of boards, the full Generate Core process has to be done first, as will be explained in the next chapter. Once this is finished, it may happen that the requirements are less then estimated, and that your newly edited configuration could fit on the existing core.

☞ **Tip**

It is always recommended to run the Generate process before deciding whether a desired configuration will fit on a given DSP core.

Reduce the Requirements

If you do not have enough installed DSP power, you can either reduce your configuration slightly, by reducing the number of channels or by removing some Dynamics or EQs you do not really need, or by reducing the number of I/Os, until the configuration matches your actual board number.

Add More Power

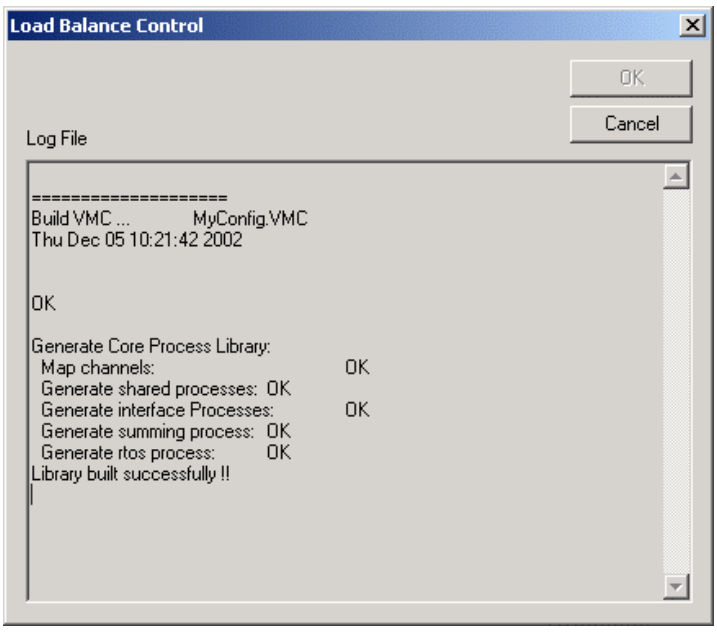
The other way is, of course, to plug in the additional required number of PE or PEAES cards into the DSP rack and load your new configuration. You can even do this with power on. You may need to add some I/O wiring on the back of the DSP rack if you are expanding the number of physical I/Os.

7.3.3 Generate the Core File

To generate the core file for your new configuration, simply click on the "Generate / All" menu item. This starts an automatic process which will end up with a core file being saved in the same folder as the `*.vmc` file.
A fairly complicated procedure called Load Balancing will try to compress all the required components of the new configuration into as few DSP boards as possible, and, at the same time, try to distribute the workload evenly across all necessary DSP boards.
You can follow what is happening on the screen. Most of the information shown on screen will also be stored into a LOG file for later viewing.

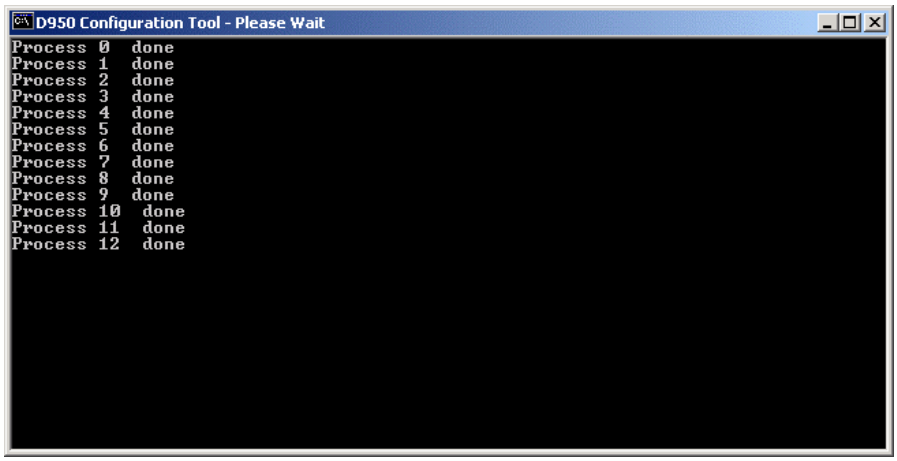
Build VMC and Processes

The Load Balancer first generates the VMC structure and then checks the channels, shared processes, buses, and builds a DSP library.



Compile Processes

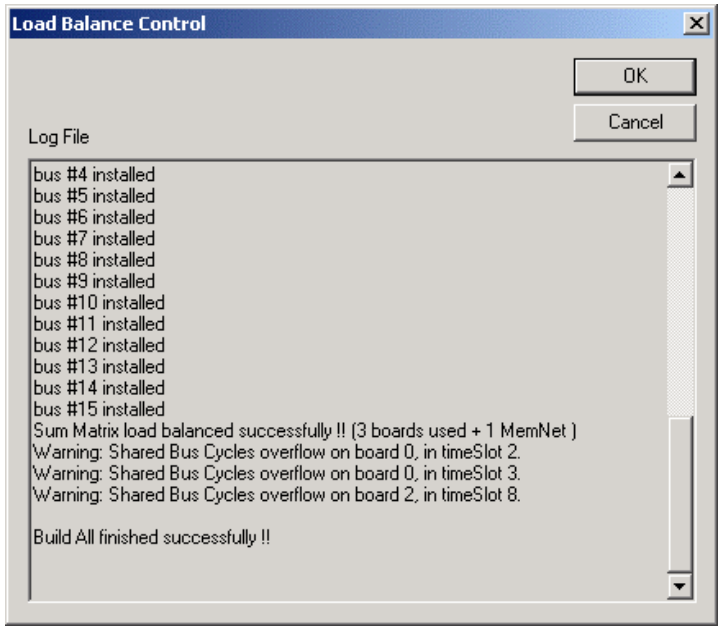
A DSP compiler/assembler generates all the individual DSP files needed to perform EQ, Dynamics, Summing, etc.



First all channels and then all the summing buses are allocated to the required DSP board processors. Then the final core file is assembled from individual components:

Finished ...

And finally, the finished core and core knowledge files are automatically stored. You only have to click OK to finish the whole process after the message “Build All finished successfully!”.



☞ **Tip** Please note that if you now display the core View, the lettering "(rough estimation)" will be missing, indicating that the numbers displayed are now the real, load-balanced ones.
The displayed warning does not mean that the configuration will not work. The meaning of the warning will be explained in chapter 7.5.3.1.

7.3.4 Transfer the Files to the Console

The Core file and the "meta" VMC files are now ready to be used on a D950 or Vista console.

On the Studer D950/Vista System If you are running the Session Configuration Tool on the D950/Vista PC and the search paths are set as described before, there is nothing more you need to do in order to load a configuration. Simply switch to the D950/Vista operating system (i.e., the GC) and load a new configuration from the GC File menu.

On a Separate PC If you are running the Session Configuration Tool on a separate PC, you will need to transfer the configuration files to the Studer D950/Vista control PC. Since all files are Windows files, it is a simple matter of using a transfer medium (floppy, ZIP or even a LAN network) to transport the files. Care has to be taken to store the files under the appropriate directory on the Studer D950/Vista control PC as described above. The only files that must be transferred for each configuration in the above example are:

- `MyConfig.vmc`
- `MyConfig.cor`

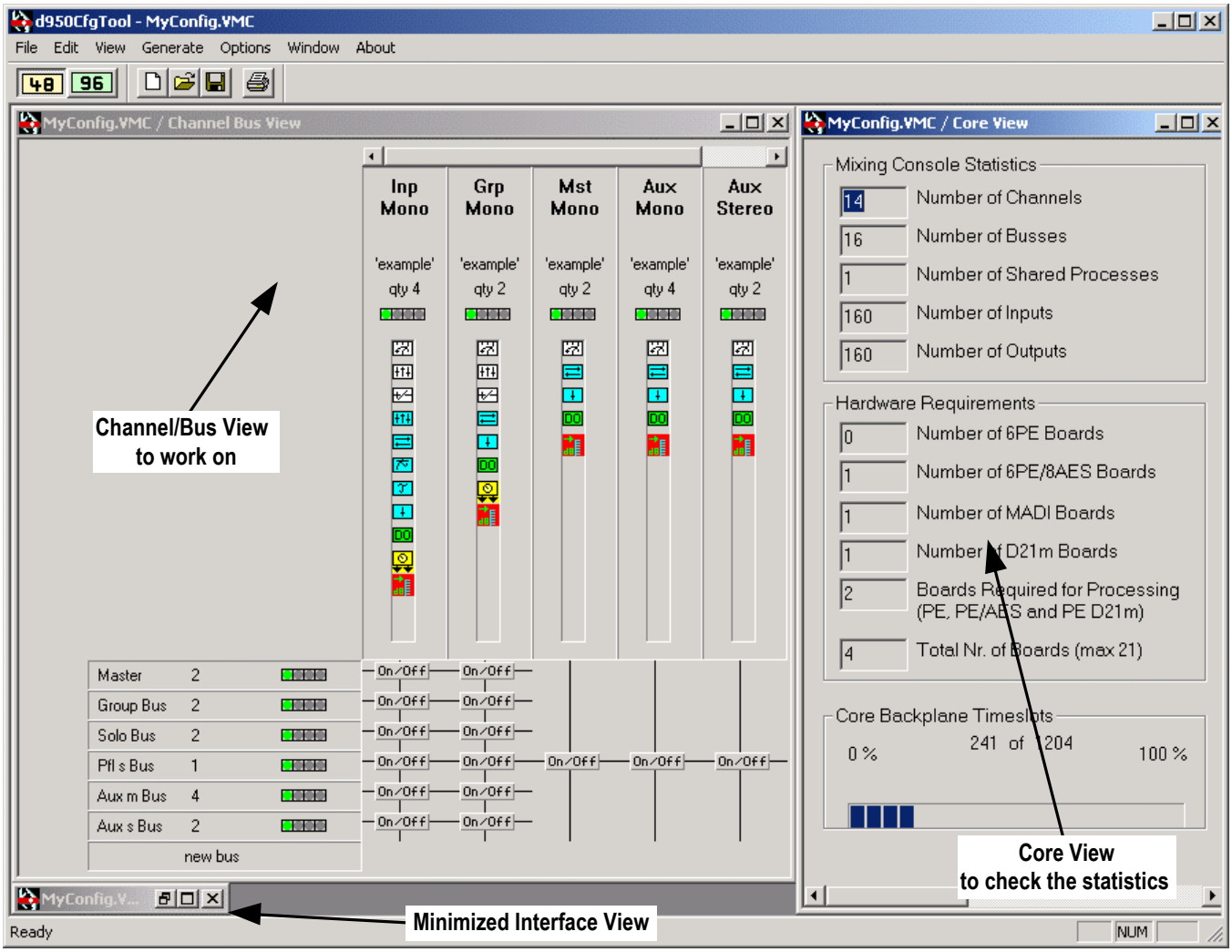
Both files must be in the same subdirectory, otherwise the Studer D950/Vista will not be able to load this configuration. The best practice is to always copy the whole folder `<MyConfig>` containing both files and paste it to the `C:\D950SYSTEMDB` directory.

7.4 Detailed Tutorial

The previous chapter gives a brief run through all the basics needed to configure a Studer D950/Vista console. We recommend reading it before you proceed with the detailed tutorial, found in this chapter.

7.4.1 Set Your own Workspace

The Session Configuration Tool supports multiple windows. Up to now, a single view Window was used to operate the Configuration Tool functions. For a better overview of the configuration process, we recommend using two windows at the same time – the Channel/Bus page alternatively with the Interface page, and the Core page in addition. This allows following the rough estimation of the core requirements on-line, as you edit channels, buses and interfaces.



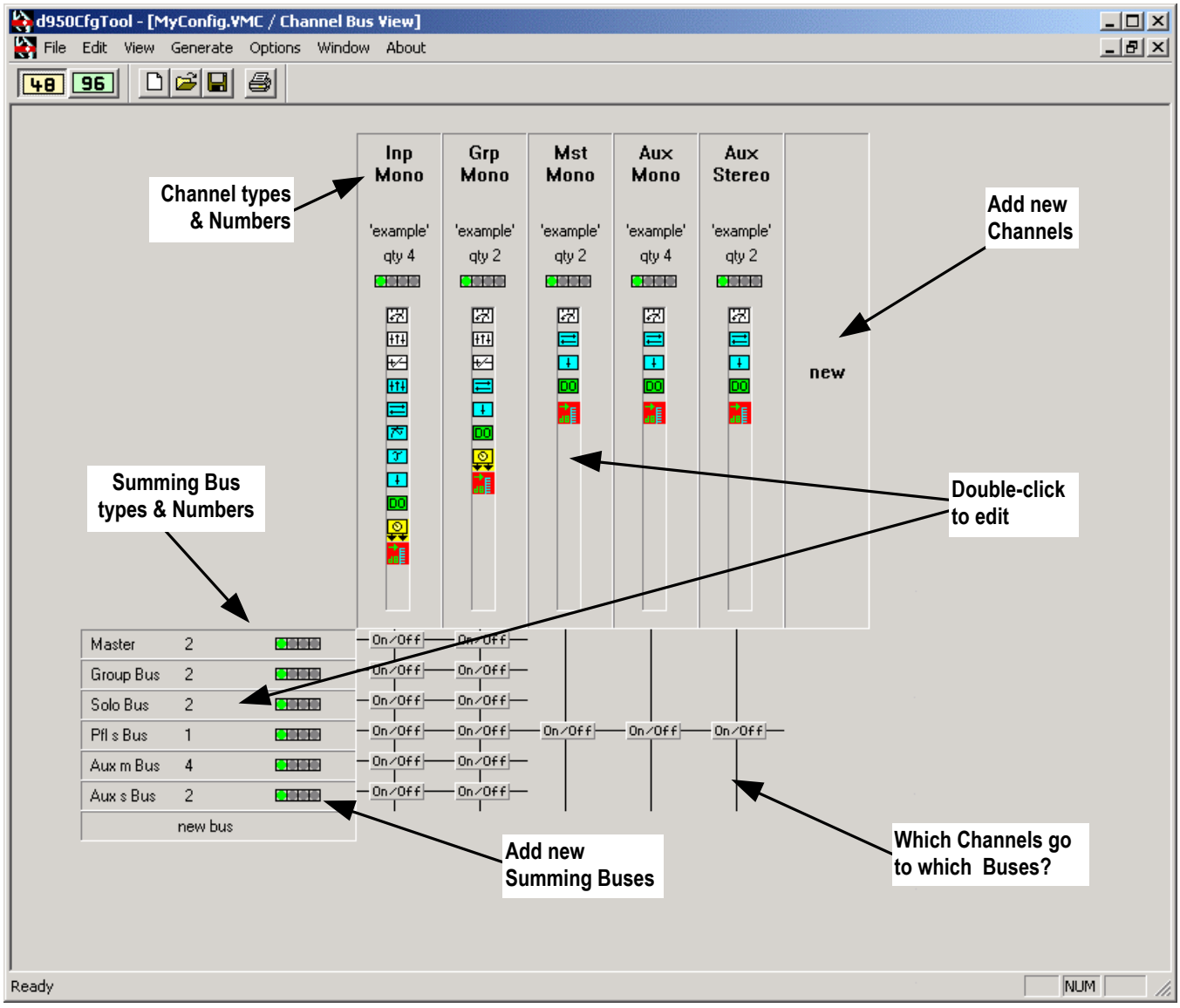
The last used Workspace setup will be stored when you close the Session Configuration Tool, and will be recalled the next time you start the program.

7.4.2 Set the Sampling Frequency

The sampling frequency can be set with the two according buttons on the toolbar (48/96). It may be set anytime during configuration; however, it is wise to do it first thing when editing or generating a new configuration.

7.4.3 The Channel/Bus Page

The Channel/Bus page is the main working area of the Session Configuration Tool. It allows adding new or editing existing channels, buses and their interconnections, displaying the configured console in a matrix arrangement. It displays all the configured channel types and their functions in a condensed way.



How to:

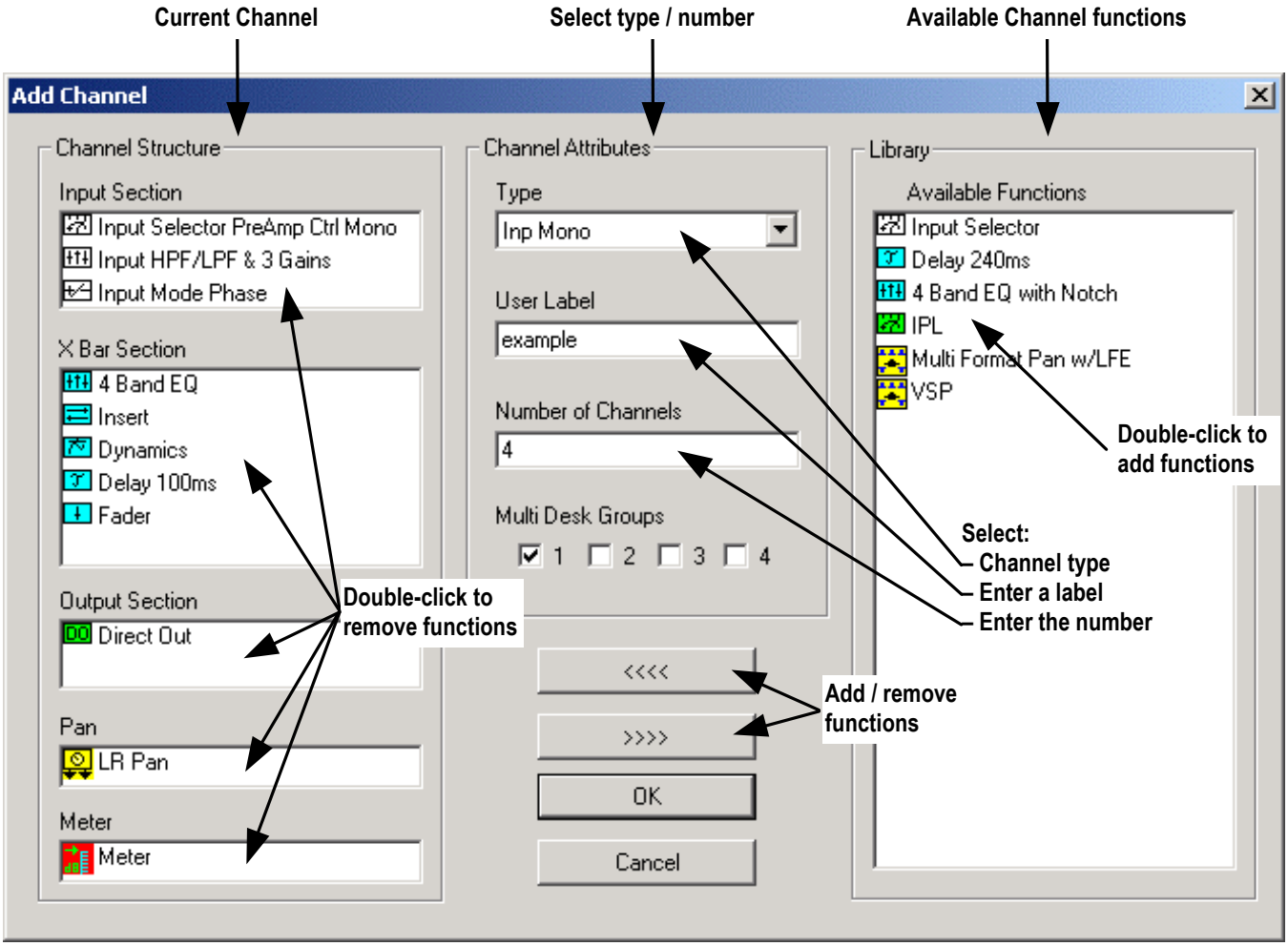
Add new channels	Double-click on “new” in the channel area
Add new buses	Double-click on “new bus” in the bus area
Edit channels	Double-click on an existing channel type in the channel area
Edit buses	Double-click on an existing bus type in the bus area
Assign/Deassign buses	Double-click on the “On/Off” button where the channel and bus cross. All channels of the selected type will have access to all buses of the selected type if the button is set.

7.4.3.1 Add / Edit Channels

Add New Channels Double-click on “new” in the channel area of the Channel/Bus page.

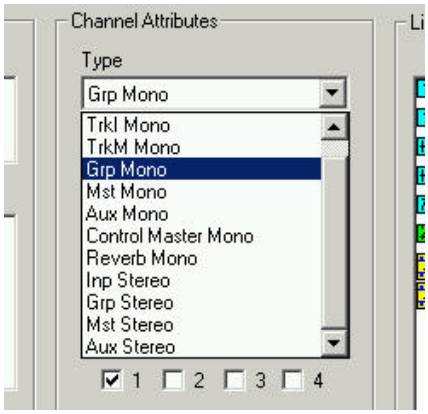
Edit Channels Double-click on an existing channel type in the channel area of the Channel/Bus page.

Both actions will open the “Add Channel” dialog box that allows editing all the entries for new or existing channels.



Select Channel Type Click on the box to display the available channel types. Currently, the following channel types are available:

- Mono Input
- Mono Multitrack Input
- Mono Multitrack Monitor Input
- Mono Group
- Mono Master
- Mono AUX Master
- Mono Reverb
- *Mono Control Master*
- Stereo Input
- Stereo Group
- Stereo Master
- Stereo AUX Master.



All channel types correspond to similar channels of an analog console. Each channel will be assigned to a channel strip on the Studer D950/Vista Desk upon loading of the configuration. AUX mono and stereo masters are treated as normal channels in this respect. On selection, a set of factory default functions will be loaded to the Channel Structure area, depending on channel type.

Mtrk Input / Monitor *(D950 only)*

These channel types largely correspond to what is known as "in-line" channel. They have a very similar structure as input channels, and the only major difference is in the way they are both assigned to the D950 desk. The Mtrk Monitor channel is always automatically assigned to the upper layer of a bank, and the Mtrk Input channel to the lower layer. This simulates an in-line desk layout. Please refer to the corresponding chapter in the Studer D950 Operating Instructions for more information on the Desk layer/bank concept.
The Vista knows no such rule.

Control Master

The Mono Control Master is a special channel type having any audio functions – it is the Control Group Master used for the "VCA" style control groups. Up to 16 such Control Masters may be configured.

User Label

User label is an optional text label that can be entered to additionally differentiate the channel types. Usually, labels are used to differentiate channels of the same type but with different functions, e.g. Input Mono "with EQ", Input Mono "without Dynamics", etc.

Number of Channels

Any number can be entered here to define the quantity for this particular channel type. The maximum numbers are in function of the overall installed DSP capacity (check the Core page to see how requirements change) and, for some channel types, the maximum number is limited by the capacity of the Studer D950 or Vista Desks to operate them. Desk limitations are as follows:

Aux Mono *D950*	8, can be extended to 16 if no Aux Stereo extension
Aux Mono *Vista*	32
Aux Stereo *D950*	4, can be extended to 8 if no Aux Mono extension
Aux Stereo *Vista*	16
Master Mono	8
Master Stereo	8
Group Mono + Stereo	48, Stereo counts as 2 (e.g. 32 Mono + 8 Stereo Groups)
Control Master	16

MultiDesk Groups

See chapter 7.4.3.4.

Current Channel Structure

This area displays the functions that have been selected for the current channel type. There are five sections of each channel, corresponding to the audio signal flow:

- Input Section
- X-bar Section (order of functions can be set in the D950/Vista GC using drag-and-drop)
- Output Section
- Pan Section
- Meter Section

The functions have icons in different colours corresponding to each of the five sections above. Functions can be removed from the current channel by

double-clicking on the function, or by using the >>>> button. Each of the functions requires DSP power, therefore it is prudent to keep only the functions that are really needed. The minimum functions of a channel are:

- Input Selector
- Fader
- Direct Out.

Library / Available Functions In this area, the functions available from the system library are listed. The list changes slightly depending on the channel type (e.g. master channels do not have a Pan function available), but most functions are the same for all channel types. This means that master channels may be configured with an EQ, or an Aux master can have a limiter if needed. Functions can be added to the current channel by double-clicking on the function in the library, or by using the <<<< button.

Please note that several restrictions to the X-bar section apply:

- The X-bar section can contain a maximum of 6 functions.
- "Delay 100 ms" and "Delay 240 ms" must not be used at the same time.
- "4-Band EQ" and "4-Band EQ Notch" must not be used at the same time.
- "VSP Surround PAN" requires a lot of DSP power and cannot be used in a full channel, otherwise an error will be displayed during the Generate process. It is usually sufficient to remove Dynamics or EQ + Delay functions to allow fitting of the VSP PAN.

Remove Channels Simply click on the channel type to be removed and hit the "Del" (delete) key.

☞ **Tip** Note how the requirements shown in the "Core Statistics" area in the Core page change as you add or remove channels, change their number, or add/remove functions.

7.4.3.2 Function Library

Mono and Stereo Channel Functions:

Input Selector	3-way input selector
Input Selector PreAmp Ctrl	3-way input selector, with a control interface to pre-amplifiers
Input HPF/LPF & Gain	variable high-pass and low-pass filters, channel gain ±24 dB
Insert	Insert function with dry/wet mix feature
Delay 100 ms	VariabIe audio delay 0...100 ms
Delay 240 ms	VariabIe audio delay 0...240 ms
4-Band EQ	Fully parametric 4-Band EQ with Bell/Shelving switch in the LO and HI bands, Constant Q/Constant Range switch in the HI-MID and LO-MID bands
4-Band EQ Notch	Fully parametric 4-Band EQ with Bell/Shelving switch in the LO and HI bands, Constant Q/Constant Range switch in the HI-MID and LO-MID bands, with additional Notch filter
Dynamics	Full dynamics section with Compressor, Limiter, Expander, Gate, Look-forward circuit and Auto Make-up gain, Sidechain with HP/LP Filter
IPL	In-Process-Listen functions, allows listening into various points along the signal path
Meter	Precision metering function, switchable to channel input or after fader.

Functions for Mono channels only:

Input Mode Phase Phase reversal switch

LR Pan Standard Left/Right panner

Multiformat Pan Multiformat Surround Pan (MPAN): Format selection: 2CH, LCR, LCRS, 5.1, EX, 7.1, Amplitude Panning, adjustable Divergence, Panaround feature

Multiformat Pan w/LFE Format selection: 2CH, LCR, LCRS, 5.1, EX, 7.1, Amplitude Panning, adjustable Divergence and centre usage, Panaround feature, and LFE feed.

VSP VSP (Virtual Surround Panning): Format selection: 2CH, LCR, LCRS, 5.1, EX, 7.1, Amplitude Panning, adjustable Divergence, Panaround feature, Intensity, Frequency-depending and echo Pan modes, Simulation algorithms for several surround microphone types (HRTF, ORTF, AB, Sphere), Simulation of Virtual Rooms with Room Size Control, Ambiance & Absorption Controls, Variable Source Distance

Reverb Special channel type for generation of late reverb (tail): Diffuse reverb on up to four buses (bus 1, 2, 4, and 5). Separate adjustment of high and low frequencies as well as reverb time. Balance control of late reverb between front and rear buses. As a standard, this type of channel gets fed by a reverb bus, but can also be patched to any AUX bus.

Functions for Stereo channels only:

Input MS Mode Phase MS/XY decoding matrix, stereo mode (Normal, LL, LR, reverse, Mono) and Phase switch L, R, LR

Input MS Mode Phase Width MS/XY decoding matrix, stereo mode (Normal, LL, LR, reverse, Mono) and Phase switch L, R, LR, stereo Width control 0...200%

Pan Bal Stereo panorama

Pan Bal Width Stereo panorama, stereo Width control 0...200%

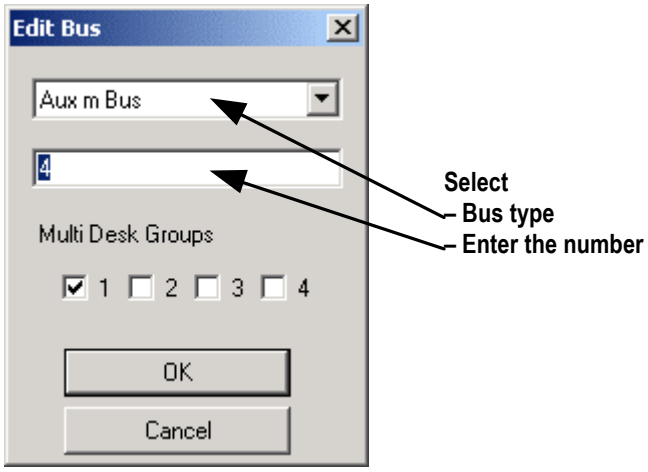
7.4.3.3 Add / Edit Buses

Add New Buses Double-click on “new bus” in the bus area

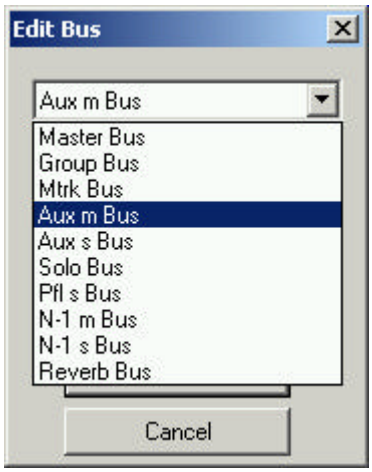
Edit Buses Double-click on an existing bus type in the bus area

Assign/Deassign Buses Double-click on the “On/Off” button, where the corresponding channel and the bus are crossing. All channels of the selected type will have access to all buses of the selected type if the button is set.

Both the Add and the Edit actions will open the “Edit Bus” dialog box that allows editing all the entries for new or existing buses.



Select Bus Type



Click on the box to display the available bus types. Currently, the following bus types are available:

- Mono Master bus
- Mono Group bus
- Mono Reverb bus
- Mono Multitrack bus
- Mono AUX bus
- Stereo AUX bus
- Mono SOLO bus
- Stereo PFL bus
- Mono N–1 bus
- Stereo N–1 bus

Number of Buses

Any number can be entered here to define the quantity for this particular bus type. The maximum numbers are in function of the overall installed DSP capacity (check the Core page to see how requirements change) and, for some bus types, the maximum number is limited by the capacity of the D950 Desk to operate them. This does not apply for Vista.
Here the D950 Desk limitations:

Aux Mono	max. 48
Aux Stereo	max. 48
N–1 Mono	max. 48
N–1 Stereo	max. 48
Master Mono	max. 8
Master Stereo	max. 8
Group Mono + Stereo	max. 48, stereo counts as 2 (e.g. 32 mono + 8 stereo groups)

Bus Conventions

There are three types of stereo buses

- Aux Stereo bus
- PFL Stereo bus
- N–1 Stereo bus

These bus types have to be entered bearing in mind that their number is counted as stereo. All other bus types are mono, regardless how they are used. For example, having eight mono master channels and eight stereo master channels will need a total of 24 mono master buses.

The required numbers are automatically entered into the Edit Bus dialog based on the number of corresponding channels. In the example above, the Edit Bus box will suggest 24 buses automatically.

For buses which do not correspond to channels (Multitrack, SOLO, PFL and N–1 buses), the suggested number will be initially zero and must be set by hand.

☞ **Tips**

When having mono and stereo channels of the same type (applies for master and group channels only), you have to make a gang of buses for each type. The first gang will be connected to the stereo channels and the second gang to the mono channels.
When adding a new mono or stereo channel format (applies for master and group channels only) to an existing configuration, first delete the corresponding buses (group or master) before adding the new buses, in order to guarantee the correct bus sequence.

Typically, there will only be one stereo PFL bus. The number of Solo buses has to comply with the surround format – i.e., for the 5.1 format you will need six Solo buses.
It is legal to have more buses than corresponding channel types. The reason for this is that the buses (unlike in analog consoles) are valid audio signals and can be used as such in the Studer D950/Vista patch. They are simply summing buses which will output the sum of all assigned inputs, which means that the buses can also be used as components of multiformat stems.

Remove Buses Simply click on the bus type to be removed and hit the "Del" (delete) key.

MultiDesk Groups See chapter 7.4.3.4.

7.4.3.4 Special Configuration Functions: MultiDesk and Stems

Here a brief explanation of two concepts which are unique to the Studer D950/Vista.

7.4.3.4.1 The Concept of MultiDesk Control Groups *(D950 only)*

Up to four individual operating desks can access the same DSP Core on the D950 (*not possible on the Vista consoles*). Each of these desks can have a separate Monitor section, PFL buses, Solo buses, and a set of Outputs. The four desks can work on individual tasks in different studios, but they share the available DSP power of the core and the AutoTouch automation. It is also possible that any or all four desks access the same audio channels. Using the built-in digital router, audio resources such as input converters can also be shared among the studios. This allows to have up to four operators (in four different locations or in the same room) working on the same task, or to have four independent mixing consoles working on four separate tasks.
The Session Configuration defines and configures the way how several Desks in a MultiDesk setup are working and sharing DSP power.

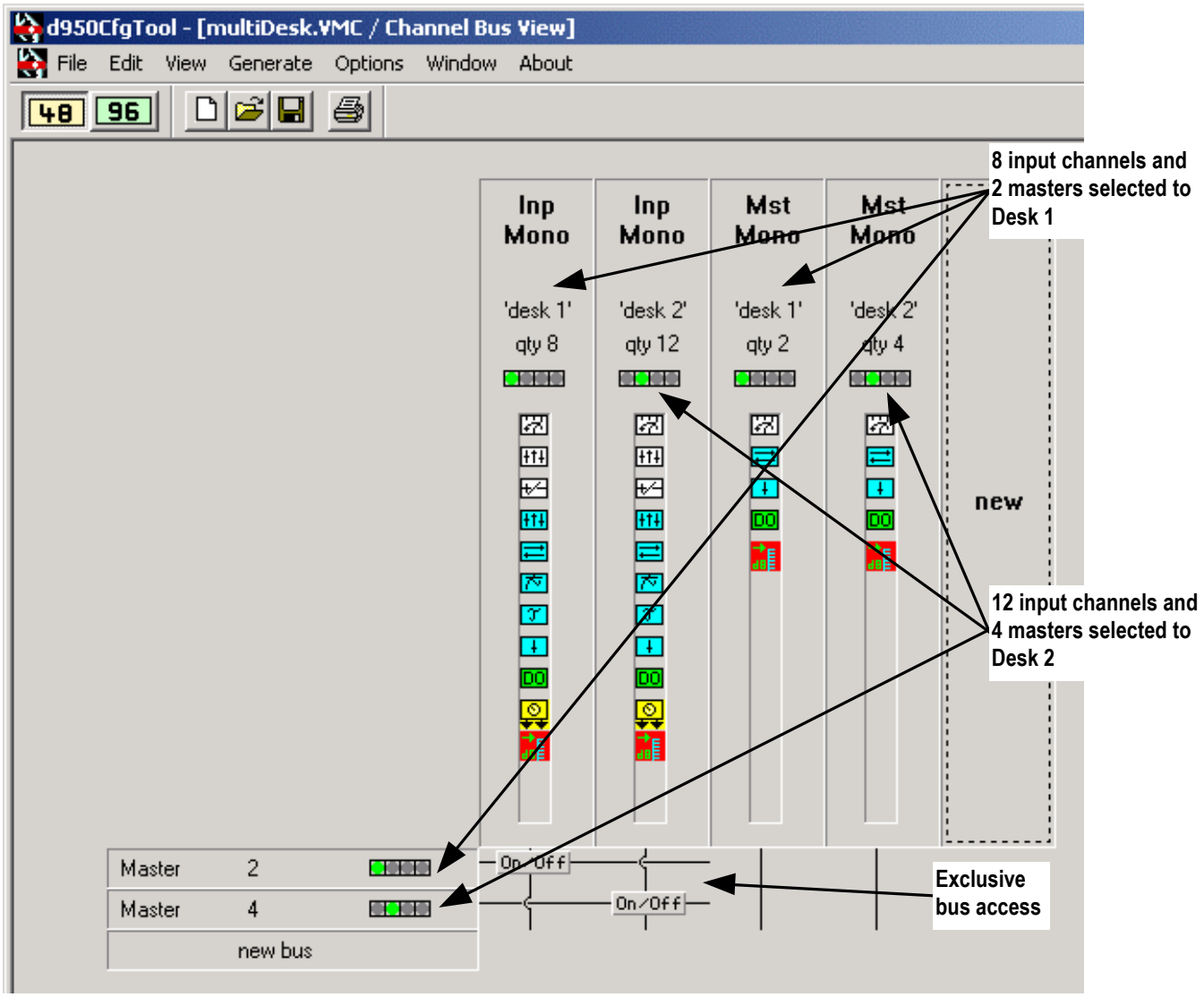
☞ **Tip** Please note that there are two limitations to this concept:

- Regardless of the number of desks in a MultiDesk system, they must all work with the same Timecode, since there is only one TC input to the system
- Since there is only one control system, and only one Session Configuration, it is impossible to reconfigure individual desks and to load a configuration independently from other desks. This means that all (up to 4) desks are always loaded at the same time.

Please also note that having made a MultiDesk configuration is only a part of the work. The Studer D950 desk also must have been manufactured and equipped in an appropriate way, as well as all peripheral devices configured to serve the MultiDesk purpose. The next section describes the principle of making two strongly different MultiDesk configurations. In both cases we will make a two-desk configuration for reasons of simplicity.

How to Make a Split Desk?

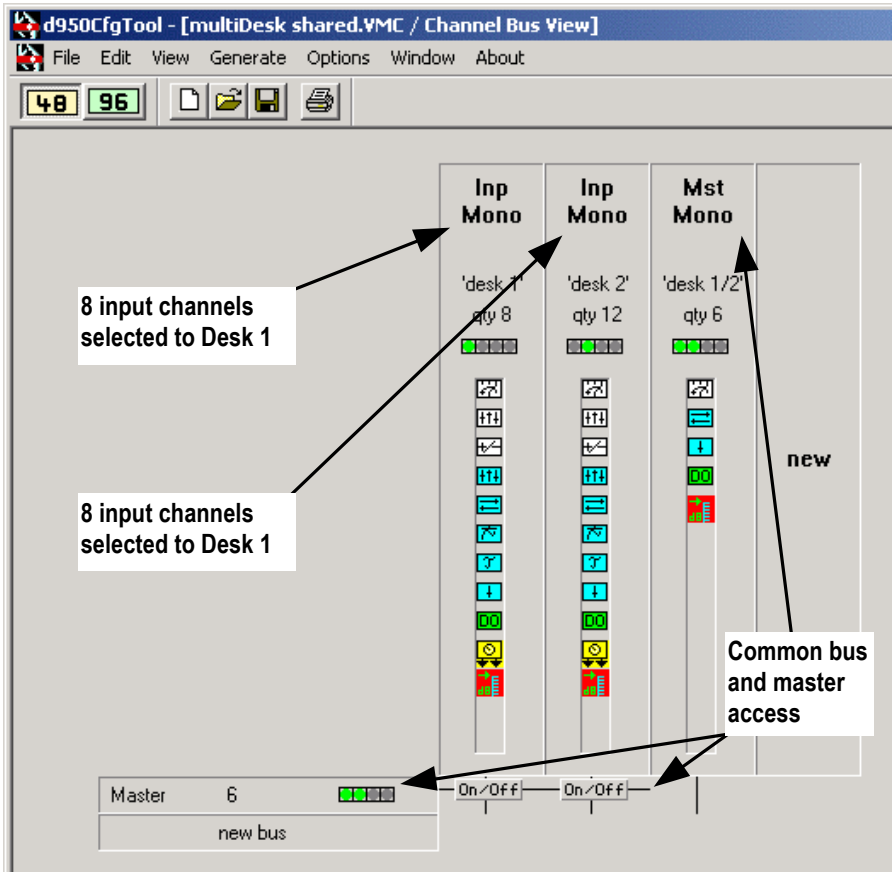
Use the MultiDesk Groups checkboxes in the Edit Bus and Add Channel dialogs in order to assign channels and buses to the two desks (operators). The following example shows a two-operator split desk, whereby the desks are independent of each other:



The DSP capacity is sufficient for a total of 20 input channels and six master channels. Operator 1 sees eight input channels and two master channels, whereas Operator 2 sees twelve input channels and four master channels.

How to Make a Parallel Desk?

Use the MultiDesk Groups checkboxes in the Edit Bus and Add Channel dialogs in order to assign channels and buses to the two desks (operators). The following example shows a two-operator parallel desk configuration, whereby the inputs of the desks are independent of each other, but the masters are common and both operators have access to the same master buses.



The DSP capacity again is sufficient for a total of 20 input channels and six master channels. Operator 1 sees eight input channels and all six master channels, and Operator 2 sees twelve input channels and all six master channels.

7.4.3.4.2 The Concept of Stems

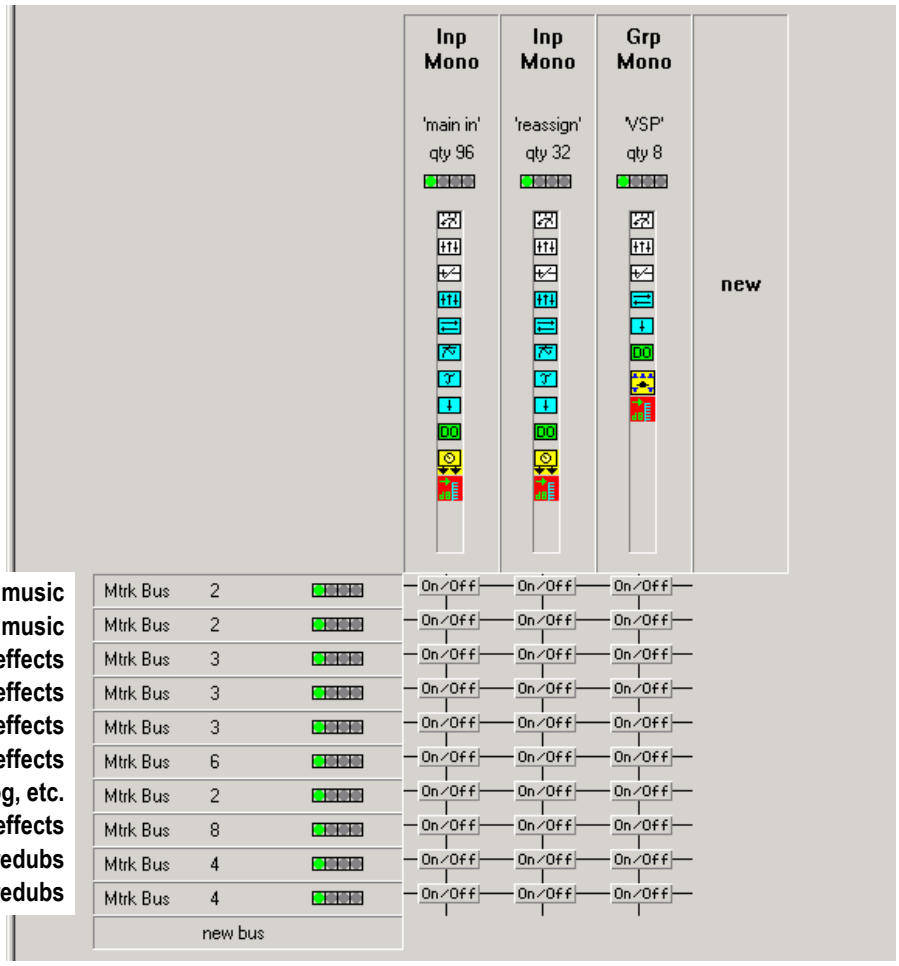
For Film style mixing, bits and pieces of film sound are put together from a variety of surround formats, ranging from mono to eight channels. Very often, there may be hundreds of audio sources that need to be mixed together and put into the right spatial image. In order to bring some order to such a vast number of sources and formats, a concept of Stems is often used.

A Stem is a group of sounds (i.e., audio summing buses) that belong together. Stems can be 1-channel to 8-channel wide. For example, a console may be configured to have:

2 Stereo stems for music
3 LCR stems for simple effects
1 5.1 stem for effects
1 Stereo stem for dialog, etc.
1 8-CH stem for effects
2 Dolby Surround (4-CH) stems for predubs

The basic Stem setup is defined in the Session Configuration – the number, type and assignment of Stem buses is fixed. In the Studer D950/Vista GC, there are controls for dynamic Stem setup and for assignments of the related recorder tracks. In this way, the Stem setup may be changed dynamically as the need arises.

The restriction to the total number of Stems is the number of buses for a certain Session Configuration. Studer D950/Vista Master, Mono Group and/or Track buses are used to build a system of Stems (each stem consists of a number of buses) up to a maximum of 104 Stem buses at any time.



Stereo stem for music
Stereo stem for music
LCR stem for simple effects
LCR stem for simple effects
LCR stem for simple effects
5.1 stem for effects
Stereo stem for dialog, etc.
8-CH stem for effects
Dolby Surround (4-CH) stems for predubs
Dolby Surround (4-CH) stems for predubs

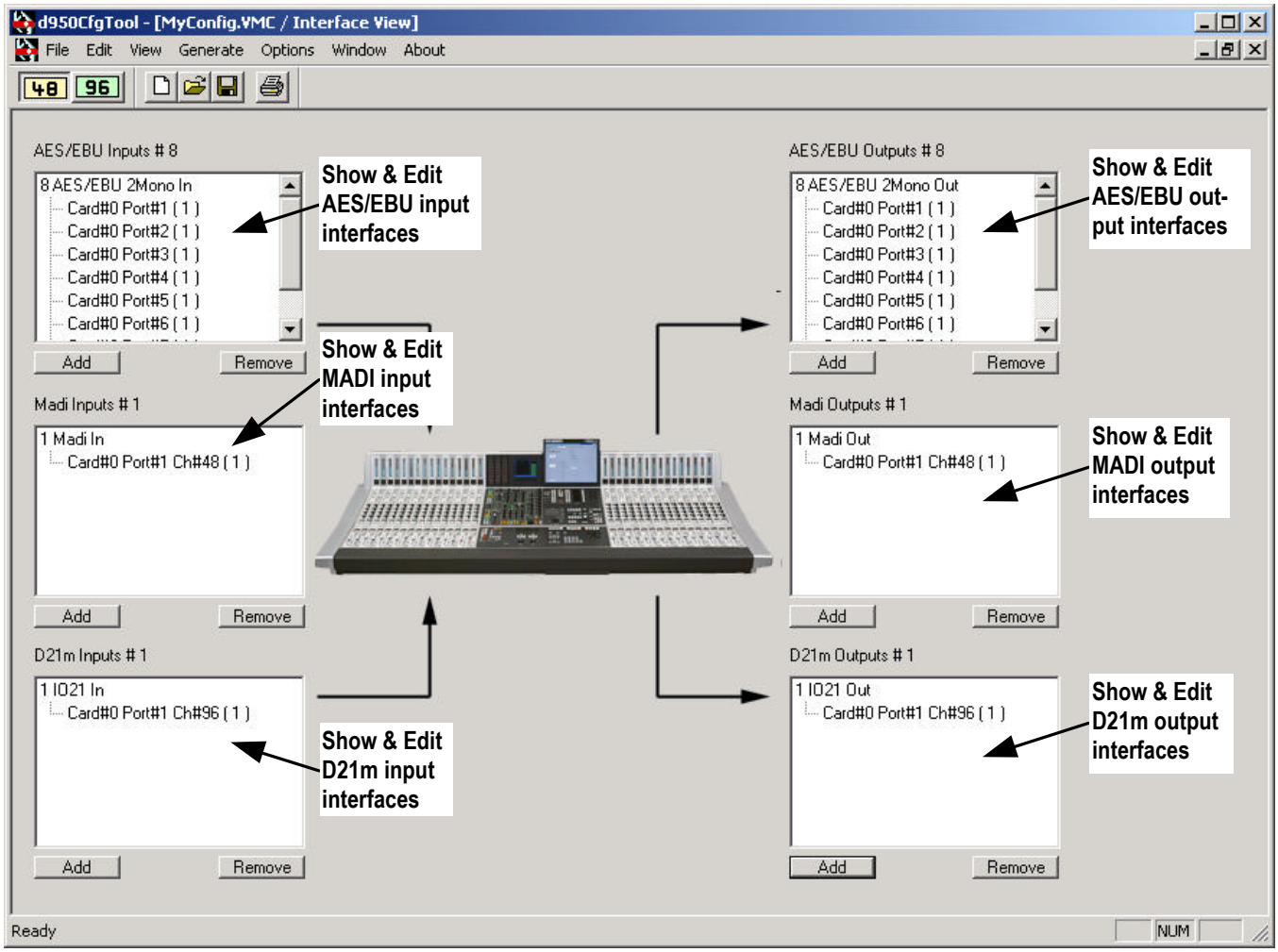
In this example, the bus structure has been set to allow for the above stem configuration using multitrack buses as Stem buses. A total of 37 multitrack buses has been configured by adding new buses for a stem of 2, a stem of 2, a stem of 3, etc. All 136 input and group channels have access to all ten stems.

7.4.4 The Interface Page

The interface page allows viewing and editing of the audio interfacing to the DSP core. It is important to assign enough audio input and output interfaces so that the configured system can work satisfactorily. There are eight types of interfaces that can be edited here:

- AES/EBU Stereo inputs
- AES/EBU 2 Mono inputs
- AES/EBU Stereo outputs
- AES/EBU 2 Mono inputs
- MADI inputs
- MADI outputs
- D21m inputs
- D21m outputs

All those require a little DSP power and, obviously, the right DSP board type and quantity. Only the direct-to-core interfaces are relevant for the core load. Any mic preamps, A/D or D/A converters or other digital format converters must be connected to the above four direct-to-core interface types.



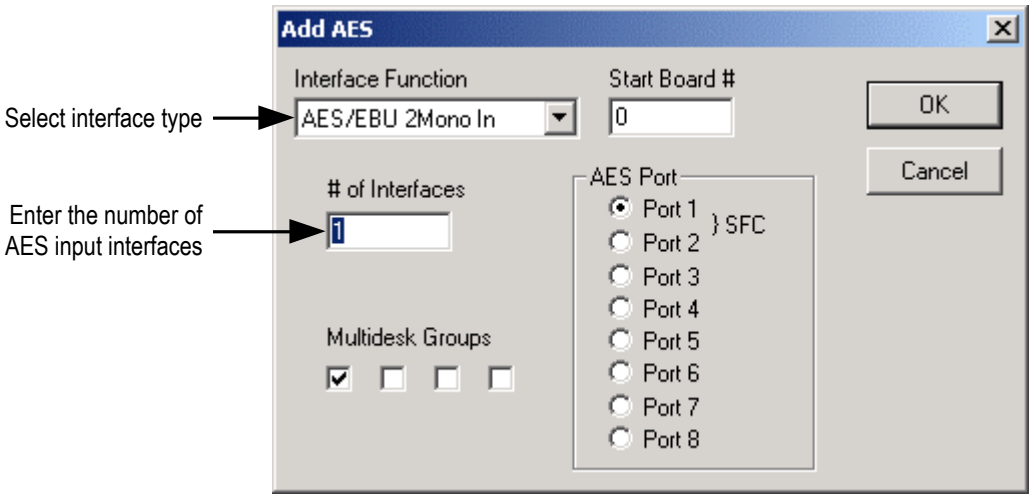
The Studer D950/Vista system can contain three I/O board types that are relevant for the interfacing:

- PEAES – DSP board with 6 DSP processors, 8 AES/EBU inputs (2 of which with SFC) and 8 AES/EBU outputs
- MADI I/O board with 2 MADI optical input connectors and 2 MADI optical output connectors per board
- PED21m I/O board with one LVDS interface to be used in conjunction with the D21m.

The Session Configuration Tool will check all the relevant requirements as you enter the numbers and will calculate the necessary DSP power, the board types and their number, and will display that information on the Core page.

Edit AES/EBU Interfaces

To add AES/EBU input interfaces to the system configuration, simply click on the Add button in the AES/EBU Inputs area. A dialog box will appear:



Most of the time it is sufficient only to enter the total number of interfaces, bearing in mind that the number of AES/EBU interfaces will mean twice the number of available mono-equivalent audio inputs – if you enter 24, this will mean 48 mono signals that can enter the DSP system.

The Configuration Tool will calculate the total number of PEAES boards needed (3 in the example above). Normally, the other entries in the box will never have to be used.

For Specialists Only!

The "start board" entry allows to set the board where the first interface will be placed by the system (this normally starts with board 00). The "AES Port" entry allows to set the first of the 8 AES ports on the selected board. The "Interface Function" entry only allows Digital Input to be set ® currently no function.

To add AES/EBU output interfaces to the system configuration, simply click on the "Add" button in the AES/EBU Outputs area and a similar dialog box will appear, allowing to set the number of AES/EBU outputs.

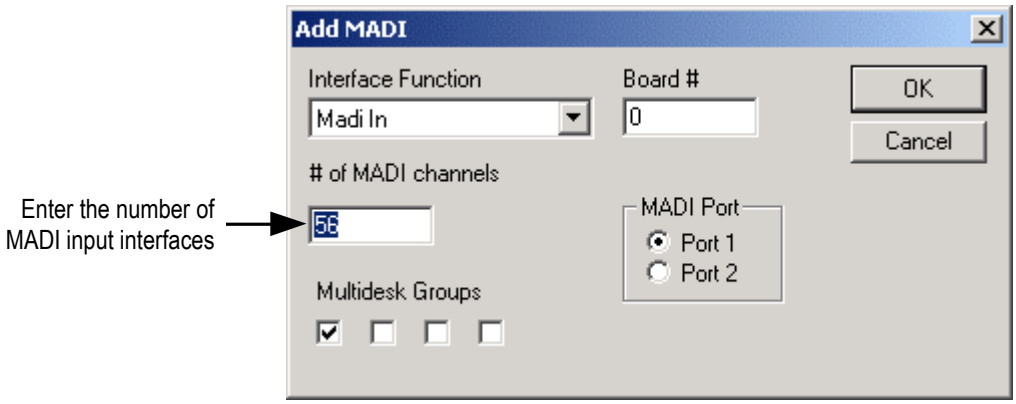
The total number of AES/EBU inputs does not have to be the same as the number of outputs. Since all AES/EBU inputs and outputs require a little DSP power, it is prudent to keep the numbers as low as necessary.

After adding the required interfacing, the display will show the total number of interfaces and their distribution on the PEAES board, starting with board number 00.

To remove AES/EBU input interfaces from the system configuration, simply select the interface to be removed (or to remove all, select the uppermost line) and click on the "Remove" button, or use the "Del" (delete) key.

Edit MADI Interfaces

To add MADI input interfaces to the system configuration, simply click on the "Add" button in the MADI Inputs area and a dialog box will appear:



The number of channels per each MADI interface has to be entered, and the process repeated for every MADI interface.

The Configuration Tool will calculate the total number of MADI I/O boards needed. Normally, the other entries in the box will never have to be used.

For Specialists Only!

The "start board" entry allows to set the board where the first interface will be placed by the system (normally starts with board 00). The "MADI Port" entry allows to set the first or second of the two MADI ports on the selected board. The "Interface Function" entry only has a function for outputs in order to select between MADI Out and reduced MADI out. Reduced MADI out obviously has reduced functionality and is only used in Router applications; it is, therefore, only accessible to expert users.

To add MADI output interfaces to the system configuration, simply click on the "Add" button in the MADI Outputs area and a similar dialog box will appear, allowing to set the number of MADI outputs.

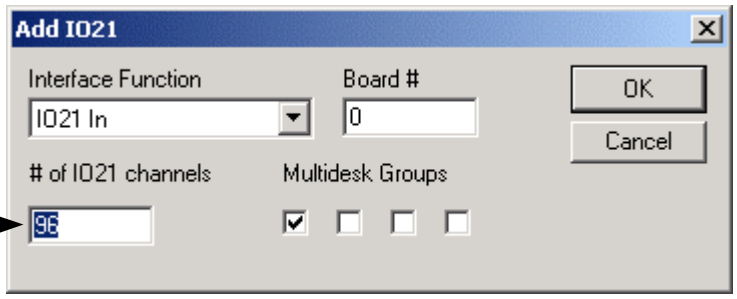
The total number of MADI inputs does not have to be the same as the number of outputs. Since a new MADI board is added per each two new MADI interfaces, it is prudent to keep the numbers as low as necessary. Since all individual channels within a single MADI interface require a little DSP power, it is also prudent to enter only the required number. If you need to interface a 24-track digital recorder via MADI, then only enter 24 in the "# of MADI channels" box instead of 56, which would be the maximum that a standard MADI interface will support.

After adding the required interfacing, the display will show the total number of interfaces and their distribution on the MADI board, starting with board number 00.

To remove MADI input interfaces from the system configuration, simply select the interface to be removed (or to remove all, select the uppermost line) and click on the Remove button, or use the "Del" (delete) key.

Edit D21m Interfaces

To add D21m input interfaces to the system configuration, simply click on the "Add" button in the D21m Inputs area and a dialog box will appear:



The number of channels per each D21m interface has to be entered, and the process must be repeated for every D21m interface. The number of channels must be a multiple of eight which is the smallest function unit.

For Specialists Only!

The "start board" entry allows to set the board where the first interface will be placed by the system (normally starts with board 00).

To add D21m output interfaces to the system configuration, simply click on the "Add" button in the D21m Outputs area and a similar dialog box will appear, allowing to set the number of D21m outputs.

The total number of D21m inputs does not have to be the same as the number of outputs, since a new D21m board is added per each new interface. It is prudent to keep the numbers as low as necessary in order to save DSP power.

When operating with 96 kHz sampling frequency, the board cannot handle 96 inputs and 96 outputs. Please refer to the following table for possible combinations of inputs and outputs.

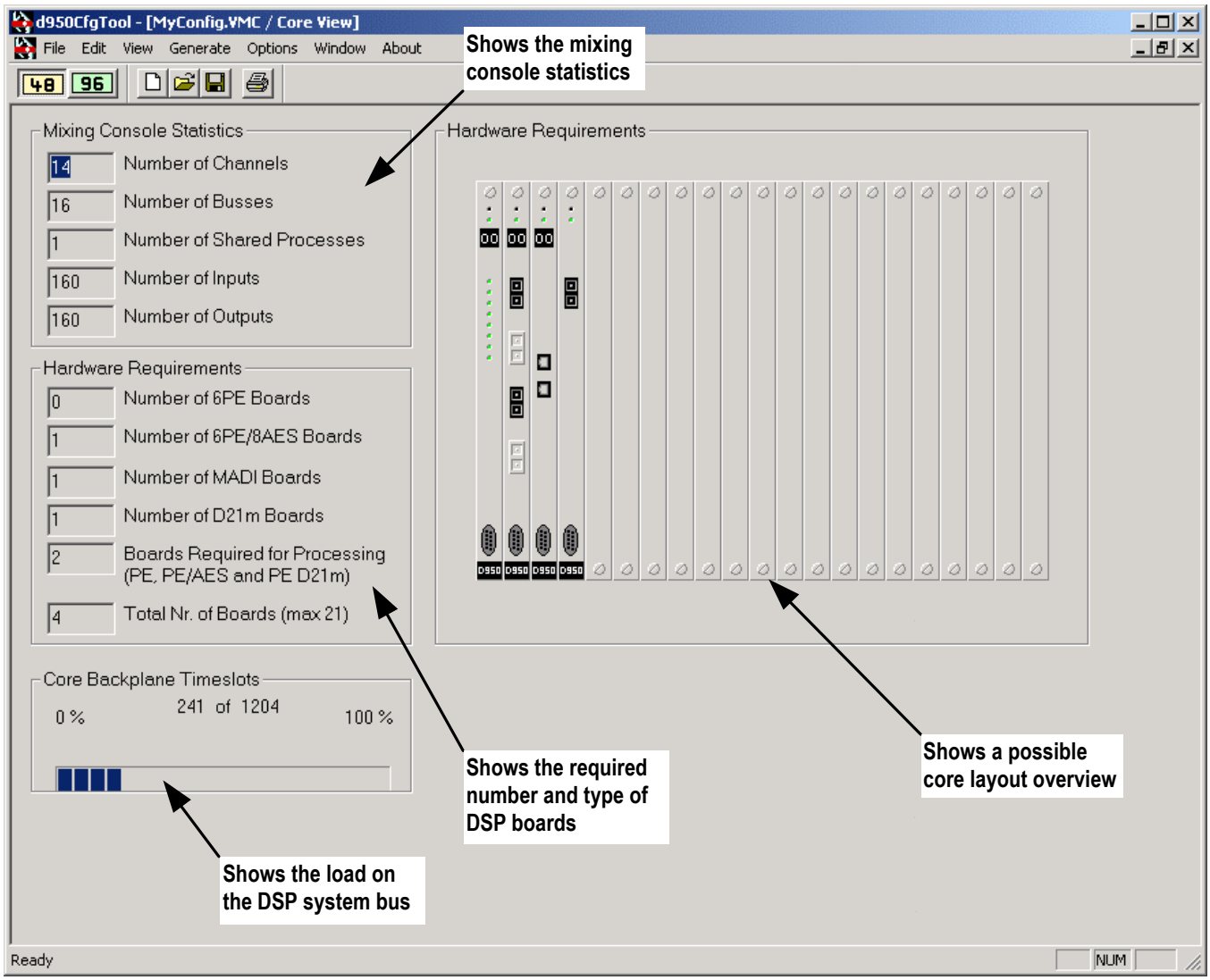
Inputs	Outputs
0	80
24	72
48	64
72	56
96	48

After adding the required interfacing, the display will show the total number of interfaces and their distribution on the D21m board(s), starting with board number 00.

To remove D21m input interfaces from the system configuration, simply select the interface to be removed (or to remove all, select the uppermost line) and click on the Remove button, or use the "Del" (delete) key.

7.4.5 The Core Page

The Core page displays the statistics of the channels, buses, and I/Os, as well as the occupancy of the DSP core. The page has four parts:



Mixing Console Statistics This area indicates the configured number of channels, buses, shared processes (test tone generator, side-chain links), and input and output interfaces. These numbers reflect all the entries that have been made during the configuration process.

Hardware Requirements For already generated configurations it shows the exact hardware Requirements. When generating a new or editing an existing configuration, the display switches to “rough estimation”. It shows the expected requirements by applying a simple algorithm that is not as accurate as the one used for generating a configuration. Therefore the number of boards may change when generating the configuration. The total number of boards must not exceed 21.

Global Buses Shows the current communication load on the DSP system communication bus (not to be mistaken for audio buses in the mixing console). The number of buses must not exceed 1204.

7.4.6 The Shared Functions Page

The Shared Functions page allows adding and editing the so-called shared functions. Currently the following shared functions are available:

- Generator (D950/Vista)
- Dynamics sidechain link (D950/Vista)
- Fader (Router)
- Extended Fader (Router)
- Tieline (Router)
- Mixer (Router)
- Stereo to Mono (Router)
- Delay 240 ms (Router)
- 4-Band EQ (Router)
- Dynamics (Router)
- Dynamics Stereo (Router)

The router functions are only accessible for expert users.

Generator The Generator is used to test the console with sine-wave, white noise, and pink noise signals. The number is automatically set to 1.

Dynamics Sidechain Link The dynamics sidechain link allows to link the controls (sidechains) of the dynamics sections of up to eight different channels. It is similar to the "stereo link" function found on many standalone compressor/limiters, but the number of linkable channels has been set to eight rather than only two, so that all current surround formats can be supported. The dynamics sidechain link requires DSP power, so the number is best set to the required minimum. The default number is zero, and the number can be set freely.

Tieline Virtual Patch point.

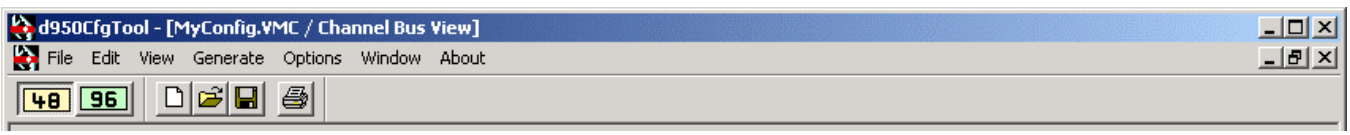
Other Functions Audio functions have the same functionality as their corresponding channel functions.

To Edit To edit the numbers of shared functions go to the VMC Tree View.

7.4.7 The Session Configuration Tool Menu and Toolbar

Most of the functions of the Session Configuration Tool are controlled directly from the four View pages as described in the previous chapters. There are, nevertheless, some functions that are accessible only via the menus. The following descriptions briefly explain all the menu items, and only go into details for functions not explained in the previous chapters.

7.4.7.1 The Toolbar



48 Set sampling frequency to 48 kHz.
96 Set sampling frequency to 96 kHz.

7.4.7.2 The File Menu

New	Opens a new, empty configuration file called “Untitled”.
Open	Opens an existing `*.vmc` configuration file. First looks into the folder as stated in the “Options/Directories/Files” menu, usually `C:\D950SYSTEMDB`.
Close	Closes the current `*.vmc` configuration file.
Save VMC	Saves the current `*.vmc` configuration file under the same name, thus overwriting it.
Save VMC as...	Saves the current `*.vmc` configuration file under a different name. The extension `*.vmc` does not have to be typed out. Generates a new folder with the same name as the `*.vmc` configuration file and saves the `*.vmc` configuration file there.
Save VMC Overview	Saves the Overview of the current `*.vmc` configuration file as a `*.txt` file. The overview contains condensed information on the current configuration. Example in chapter 7.4.7.5.
Print VMC Overview	Prints the Overview of the current `*.vmc` configuration file. The overview contains condensed information on the current configuration.
Print Preview	Shows the Overview of the current `*.vmc` configuration file on screen.
Print Setup	Standard Windows printer setup.
Exit	Quits the Session Configuration Tool.

7.4.7.3 The Edit Menu

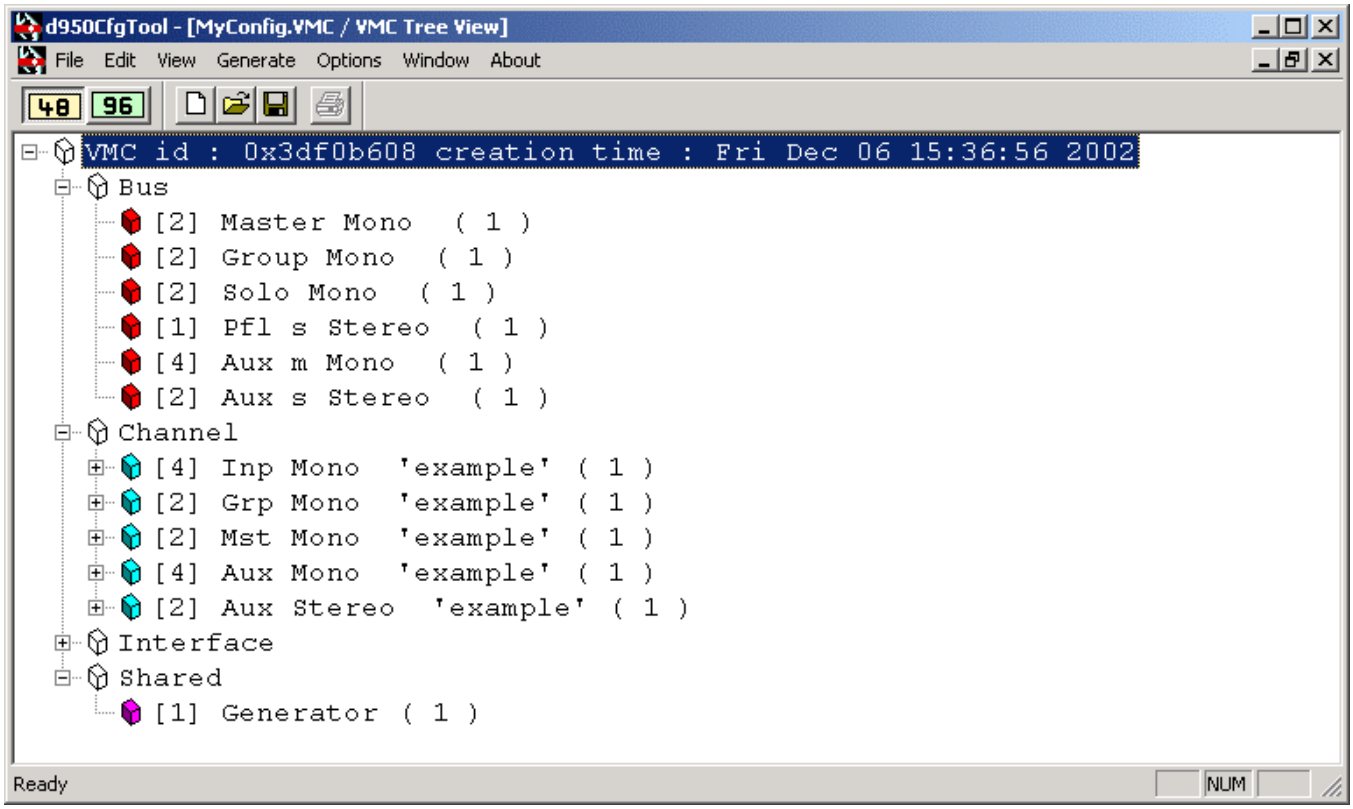
Remove Last Process	An “Undo” function to remove the last added process (channel, bus, shared function or interface).

7.4.7.4 The View Menu

Vmc	✋ **For Specialists Only!**
FuncLib	✋ **For Specialists Only!**
Log File	Shows the Log File that contains information on the last several Generate runs. The oldest information is shown at the top of the file.
Tool Bar, Status Bar	Switches the Tool Bar and The Status Bar on and off.
Channel Bus	Brings up the Channel Bus page. For a description, please see previous chapters.
Interface	Brings up the Interface page. For a description, please see previous chapters.
Shared and External	Brings up the VMC Tree View (see chapter 7.4.7.5).
Core	Brings up the Core page. For a description, please see previous chapters.
Tree	Brings up the VMC Tree View (see chapter 7.4.7.5).

7.4.7.5 The VMC Tree View

The VMC Tree View can be used to view and even edit the configuration.



Edit an Item Select any function and choose “Edit” from the menu, accessed by hitting the right trackball button.

Delete an Item Select any function and choose “Delete” from the menu, accessed by hitting the right trackball button.

Delete all Buses Select the item Bus and choose “Delete” from the menu, accessed by hitting the right trackball button.

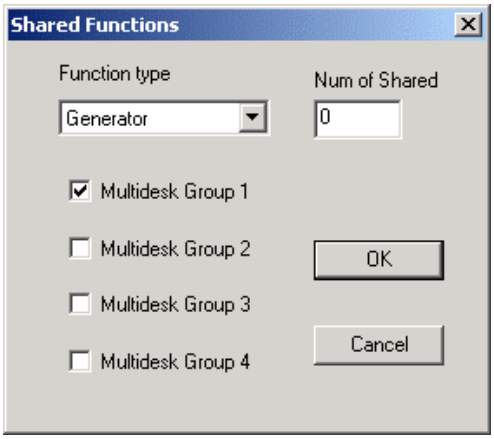
Delete all Channels Select the item Channel and choose “Delete” from the menu, accessed by hitting the right trackball button.

Delete all Interfaces Select the item Interface and choose “Delete” from the menu, accessed by hitting the right trackball button.

Delete All Shared Functions Select the item Shared and choose “Delete” from the menu, accessed by hitting the right trackball button.

Add New Items To add a function select the “Root” item, right-click, and choose “Add”.

Add Shared Functions To add a shared function select the “Root” item, right-click, and choose “Add”, then “Shared”. The following dialog will appear.



☞ **Important Tip** The number of functions is set to 0 per default. It is important to enter the number of functions here, otherwise nothing will happen.

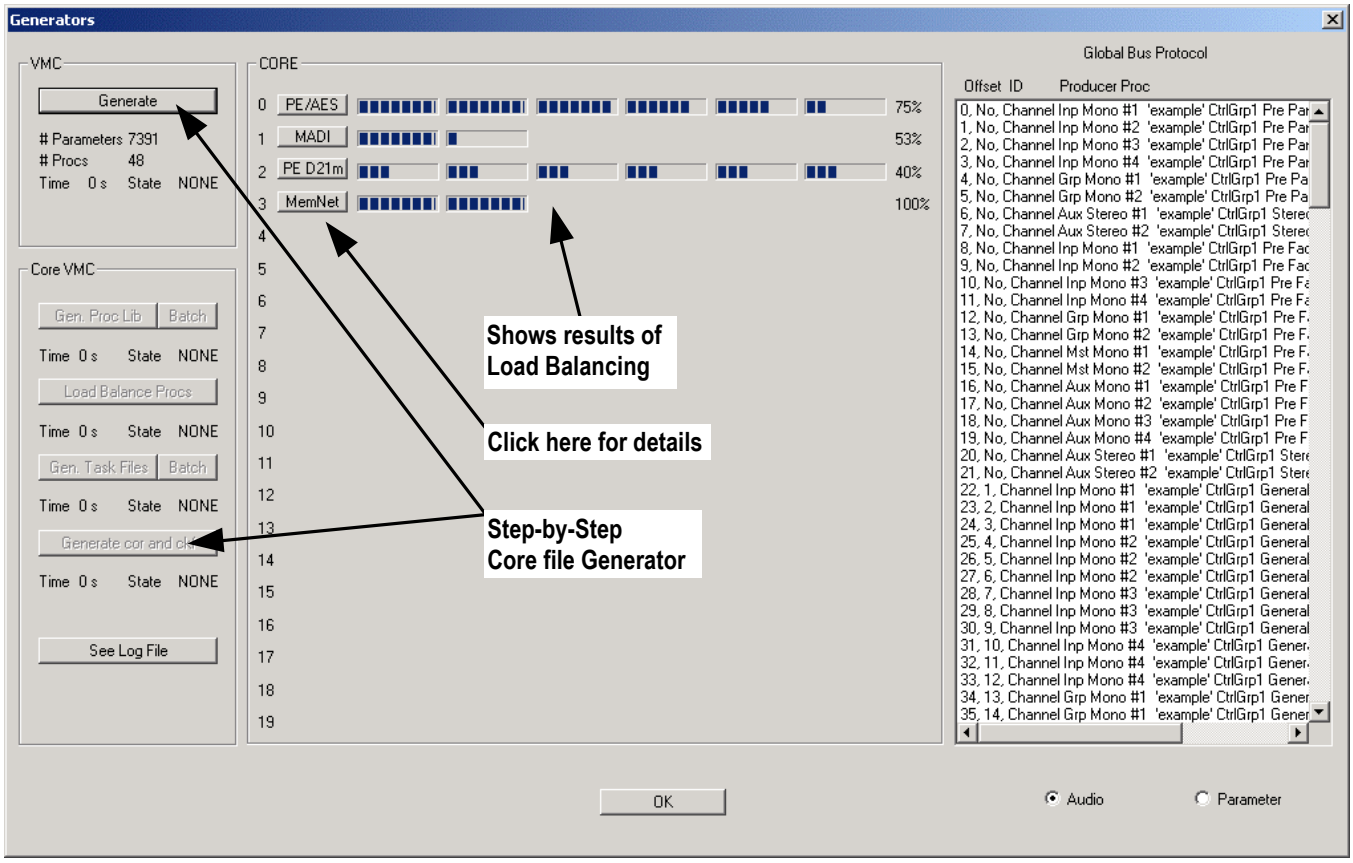
Add External Functions If you want to add an external function select the “Root” item, right-click, and choose “Add” from the menu. When choosing “Ext Device” the following dialog will appear.

☞ **Important Tip** The number of devices is set to 0 per default. It is important to enter the number of devices here, otherwise there will be no remote control possibility.

7.4.7.6 The Generate Menu

Detailed This menu opens up an interactive dialog box that allows to start step-by-step manual Load Balancing and generation of the DSP core file. It allows the expert user to see more details of the current configuration as if Generate/All would be used.

For Specialists Only! It is not necessary to go to this menu item to do the whole generate process. The main reason for looking at this page is to see the load distribution to various DSP boards and individual PE processors. There is a lot of other information here that does not mean much to the "ordinary humans" (uhm, sorry, ordinary humans).
This menu becomes available when you are in the expert mode. The expert mode is activated by double-clicking the right trackball button with the trackball pointer on the "About" dialog while holding the **Ctrl/Shift** keys.



If a Generate process has already been done, the "CORE" area will show the results of load balancing and distribution of the load to DSP boards. Click on one of the buttons to see the load distribution on one DSP board in detail. If the Generate process has not yet been done, the "CORE" area is empty.

To do the Generate process from here, all seven boxes in the "VMC" area have to be clicked in turn, always waiting for the result of the previous action to appear before the next box is clicked. The order of the individual processes is as follows:

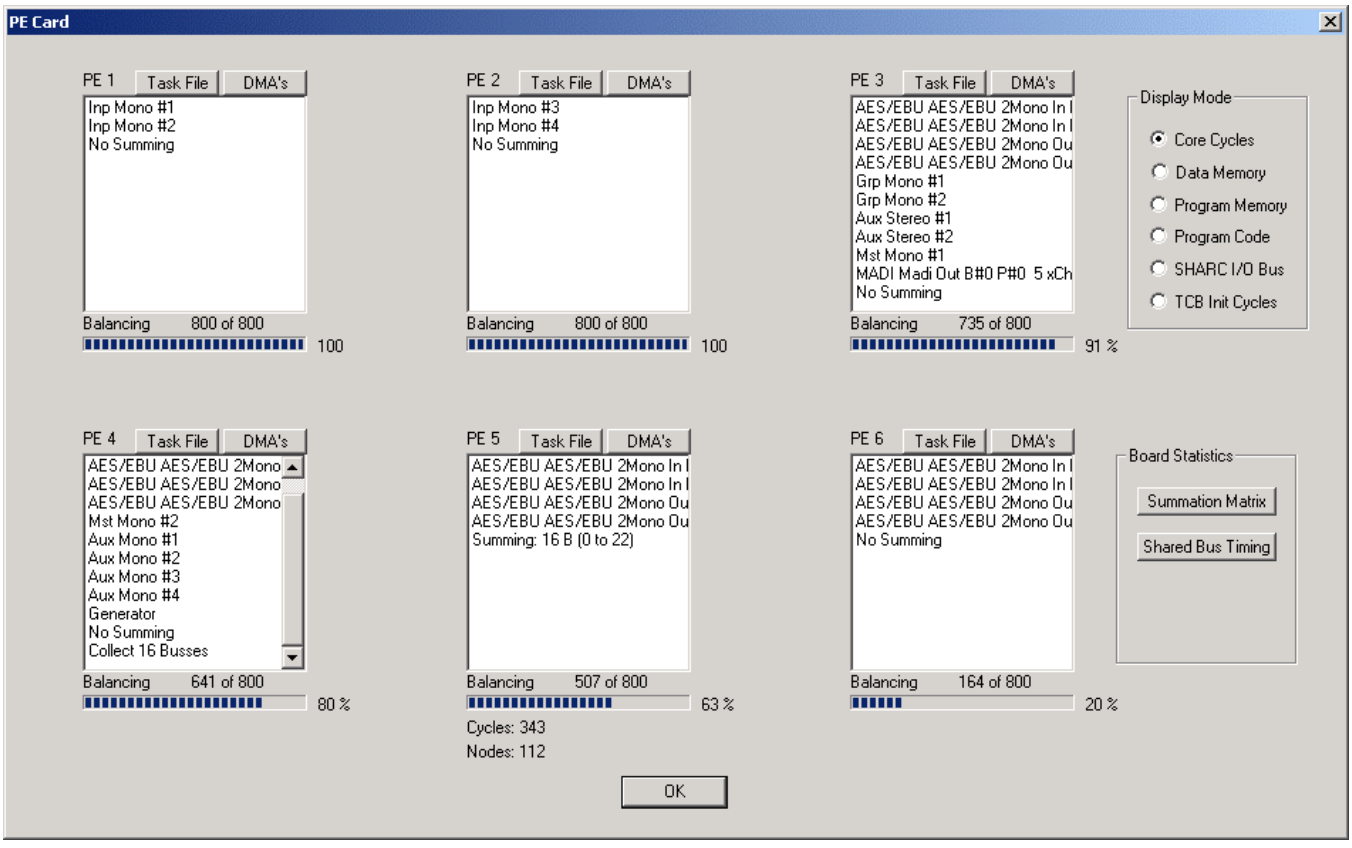
- Generate (VMC)
- Gen Proc Lib
- Batch
- Load Balance Procs (now the “CORE” area will be filled in)
- Gen Task Files
- Batch
- Generate Core File

If all steps are completed, the new core file is generated.

☞ **Tip** If you only wish to see the results of load balancing, but not to generate a core file, use only the following three boxes:

- Generate (VMC)
- Gen Proc Lib
- Load Balance Procs

which will display the “CORE” area. Click on one of the buttons in this area to see the load distribution on one DSP board in detail. Here the display for the PEAES Board 00 is shown as an example:



Some of these details can also be found in the core knowledge file. An example of this file is given in chapter 7.5.2.1. The page and the file contain condensed information on the load distribution on DSP PE and PEAES boards and individual PE processors. This information may be helpful during troubleshooting of the system, because all the individual channels, buses, and functions can be precisely located to a particular board.

All Starts the Load Balancing and automatic generation of the DSP core file. For a description, please see previous chapters.

7.4.7.7 The Options Menu

Core Constants	☝ **For Specialists Only!** ***You are not allowed to change anything here, even if you are an expert user.***

Directories / Files... Allows to edit the `D950CfgTool.Ini` file, as described in the previous chapters.

7.4.7.8 The Window Menu

This menu contains standard functions for windows management. Multiple windows and copies of existing windows are allowed.

New Channel Bus Opens a new Channel Bus page, or, if there are already Channel Bus pages, creates a new copy of the page.

New Interface Opens a new Interface page, or, if there are already Interface pages, creates a new copy of the page.

New Core Opens a new Core page, or, if there are already Core pages, creates a new copy of the page.

New Tree Opens a new VMC Tree dialog.

Cascade Arranges the Workspace as cascaded windows.

Tile Arranges the Workspace as tiled windows.

1, 2, 3, ... Brings the selected page to the top of the workspace

7.5 Maintenance

7.5.1 Managing the Files – Which File is Where?

Any Session Configuration starts with only two files:

- myConfig.vmc
- myConfig.cor

They are stored in a subfolder (with the name of the configuration) of the Session Configuration folders on the Studer D950/Vista PC.

7.5.2 The D950CfgTool.ini File

The :\Windows_Root directory contains the "D950CfgTool.ini" file. This file tells the Configuration Tool where to look for various components and what the basic settings are. This root directory may be called similarly to "Windows", "Win95", or "WINNT40" and is usually found on the C: drive of every PC.

The contents of this file are set by the Session Configuration Tool software. The user should not find it necessary to edit the file using a text editor.
This file is automatically generated if there is none available upon starting the Configuration Tool for the first time.

7.5.2.1 Example of a Core Knowledge File

The Core Knowledge file offers the following information on a Configuration.

VMC ID	Identification of the VMC used to ensure that the *.vmc and *.cor files match.
Sampling Frequency	48 kHz or 96 kHz
Tasks	Shows the task (channels, buses….) of the configuration.
D950CfgTool.ini	A copy of the *.ini file used to generate the configuration.
Resources	List which task is being executed on which board and processor.

(Please turn page)

```
C:\D95ØSYSTEMDB\MyConfig\MyConfig.ckf
--------------------------------------------------------------------------------

VMC id : Øx3df46da8 creation time : Mon Dec Ø9 11:17:12 2ØØ2

The configuration runs at 48k.
--------------------------------------------------------------------------------

The configuration executes the following tasks
--------------------------------------------------------------------------------

Channels:

4 Inp Mono 'example' Channels

Input Selector PreAmp Ctrl Mono
Input HPF/LPF & 3 Gains
Input Mode Phase
4 Band EQ
Insert
Dynamics
Delay 1ØØms
Fader
Direct Out
LR Pan
Meter

2 Grp Mono 'example' Channels

Input Selector
Input HPF/LPF & 3 Gains
Input Mode Phase
Insert
Fader
Direct Out
LR Pan
Meter

2 Mst Mono 'example' Channels

Input Selector
Insert
Fader
Direct Out Simple
Meter

2 Aux Mono 'example' Channels

Input Selector
Insert
Fader
Direct Out Simple
Meter

2 Aux Stereo 'example' Channels

Input Selector
Insert
Fader
Direct Out Simple
Meter
```

```
Buses:

2 Master Buses
2 Group Buses
2 Solo Buses
1 Pfl s Bus
4 Aux m Buses
2 Aux s Buses

Shared Process

1 Generator

Interfaces:

8 Digital Input AES Interfaces
8 Digital Output AES Interfaces
1 Digital Input MADI Interface
1 Digital Output MADI Interface
1 Digital Input D21m Interface
1 Digital Output D21m Interface


The configuration was generated, using the following ini file
--------------------------------------------------------------------------------

[globals]

DpramAMessageChOffset=0
DpramAAudioChOffset=666
DpramABoardChStartOffset=700
DpramALength=992
DpramBMessageChOffset=64
DpramBParamChOffset=128
DpramBAudioChOffset=666
DpramBBoardChStartOffset=700
DpramBLength=992
DpramReadWaitStates=0
DpramWriteWaitStates=0
DpramABeginWrite=c00000
DpramABeginRead=400400
DpramBBeginWrite=c01000
DpramBBeginRead=401400
AddToIoBus=100
AddToSharedBus=64
MaxNumOfTcbInitCycles=280
DeskType=D950

[dir and file settings]

CoreFuncLibFile=C:\D950cfg\CoreFunc021119.lib
CoreFuncLibFile96k=C:\D950cfg\CoreFunc96k021120.lib
LogFile=C:\D950Cfg\LogFile.txt
CoreMemNet1File=C:\D950cfg\mn020809.exe
CoreMemNet2File=C:\D950cfg\mn020809.exe
PearchFile=C:\D950cfg\Ar010515.ach
RtosFile=C:\D950cfg\rt020919.a
CoreTempFilesPath=C:\D950Cfg\tmpFiles\
CfgPath=C:\D950SYSTEMDB\
```

```
[GUI settings]

ShowWindow=3
View=ChanBusView,1,176,176,980,756,0,0,InterfaceView,1,110,110,914,690,0,0,CoreView,1,572,0,
890,591,0,0,TreeView,3,154,154,842,734,0,0

[GUI settings-Summary]

Bars=4
ScreenCX=1024
ScreenCY=768

[Recent File List]

File1=D:\D950SystemDB\MyConfig\MyConfig.VMC
File2=D:\D950SystemDB\Untitled\Untitled.VMC

[GUI settings-Bar0]

BarID=59392
XPos=86
YPos=-2
Docking=1
MRUDockID=0
MRUDockLeftPos=86
MRUDockTopPos=-2
MRUDockRightPos=202
MRUDockBottomPos=30
MRUFloatStyle=8256
MRUFloatXPos=-2147483648
MRUFloatYPos=0

[GUI settings-Bar1]

BarID=59392
XPos=-2
YPos=-2
Docking=1
MRUDockID=0
MRUDockLeftPos=-2
MRUDockTopPos=-2
MRUDockRightPos=88
MRUDockBottomPos=30
MRUFloatStyle=8256
MRUFloatXPos=-2147483648
MRUFloatYPos=0

[GUI settings-Bar2]

BarID=59393

[GUI settings-Bar3]

BarID=59419
Bars=4
Bar#0=0
Bar#1=59392
Bar#2=59392
Bar#3=0
```

```
In addition to the MemNet baord, the configuration uses the following resources
--------------------------------------------------------------------------------

PE/AES Boards : 1
PE Boards : Ø
MADI Boards : 1
D21m Boards : 1

Backplane Timeslots : 241

Distribution Information
------------------------

BOARD :Type : PE/AES Addr : Ø Task No : Ø

Summing Buses:

Bus Pfl s #1__Ø CtrlGrp1 left
Bus Pfl s #1__Ø CtrlGrp1 right
Bus Master #1__Ø CtrlGrp1
Bus Master #2__1 CtrlGrp1
Bus Group #1__Ø CtrlGrp1
Bus Group #2__1 CtrlGrp1
Bus Solo #1__Ø CtrlGrp1
Bus Solo #2__1 CtrlGrp1
Bus Aux m #1__Ø CtrlGrp1
Bus Aux m #2__1 CtrlGrp1
Bus Aux m #3__2 CtrlGrp1
Bus Aux m #4__3 CtrlGrp1
Bus Aux s #1__Ø CtrlGrp1 left
Bus Aux s #1__Ø CtrlGrp1 right
Bus Aux s #2__1 CtrlGrp1 left
Bus Aux s #2__1 CtrlGrp1 right

PE 1:
Channel Inp Mono #1  'example' CtrlGrp1
Channel Inp Mono #2  'example' CtrlGrp1
No Summing

PE 2:
Channel Inp Mono #3  'example' CtrlGrp1
Channel Inp Mono #4  'example' CtrlGrp1
No Summing

PE 3:
AES/EBU AES/EBU 2Mono In B#Ø P#Ø
AES/EBU AES/EBU 2Mono In B#Ø P#1
AES/EBU AES/EBU 2Mono Out B#Ø P#Ø
AES/EBU AES/EBU 2Mono Out B#Ø P#1
Channel Grp Mono #1  'example' CtrlGrp1
Channel Grp Mono #2  'example' CtrlGrp1
Channel Aux Stereo #1  'example' CtrlGrp1
Channel Aux Stereo #2  'example' CtrlGrp1
Channel Mst Mono #1  'example' CtrlGrp1
MADI Madi Out B#Ø P#Ø  5 ext.ch
No Summing
```

```
PE 4:
AES/EBU AES/EBU 2Mono In B#Ø P#2
AES/EBU AES/EBU 2Mono In B#Ø P#3
AES/EBU AES/EBU 2Mono Out B#Ø P#2
AES/EBU AES/EBU 2Mono Out B#Ø P#3
Channel Mst Mono #2  'example' CtrlGrp1
Channel Aux Mono #1  'example' CtrlGrp1
Channel Aux Mono #2  'example' CtrlGrp1
Channel Aux Mono #3  'example' CtrlGrp1
Channel Aux Mono #4  'example' CtrlGrp1
SharedProc Generator 1
No Summing

PE 5:
AES/EBU AES/EBU 2Mono In B#Ø P#4
AES/EBU AES/EBU 2Mono In B#Ø P#5
AES/EBU AES/EBU 2Mono Out B#Ø P#4
AES/EBU AES/EBU 2Mono Out B#Ø P#5
Summing: 16 B (Ø to 22)

PE 6:
AES/EBU AES/EBU 2Mono In B#Ø P#6
AES/EBU AES/EBU 2Mono In B#Ø P#7
AES/EBU AES/EBU 2Mono Out B#Ø P#6
AES/EBU AES/EBU 2Mono Out B#Ø P#7
No Summing

BOARD :Type : MADI Addr : Ø Task No : 1

No Summation

PE 1:
MADI Madi In B#Ø P#Ø  48 ch
MADI Madi Out B#Ø P#Ø  43 ch


PE 2:

BOARD :Type : PE D21m  Task No : 2

No Summation

PE 1:
IO21 IO21 In B#Ø P#1
IO21 IO21 In B#Ø P#1
IO21 IO21 Out B#Ø P#1
IO21 IO21 Out B#Ø P#1

PE 2:
IO21 IO21 In B#Ø P#1
IO21 IO21 In B#Ø P#1
IO21 IO21 Out B#Ø P#1
IO21 IO21 Out B#Ø P#1

PE 3:
IO21 IO21 In B#Ø P#1
IO21 IO21 In B#Ø P#1
IO21 IO21 Out B#Ø P#1
IO21 IO21 Out B#Ø P#1
```

```
PE 4:
IO21 IO21 In B#Ø P#1
IO21 IO21 In B#Ø P#1
IO21 IO21 Out B#Ø P#1
IO21 IO21 Out B#Ø P#1

PE 5:
IO21 IO21 In B#Ø P#1
IO21 IO21 In B#Ø P#1
IO21 IO21 Out B#Ø P#1
IO21 IO21 Out B#Ø P#1

PE 6:
IO21 IO21 In B#Ø P#1
IO21 IO21 In B#Ø P#1
IO21 IO21 Out B#Ø P#1
IO21 IO21 Out B#Ø P#1
```

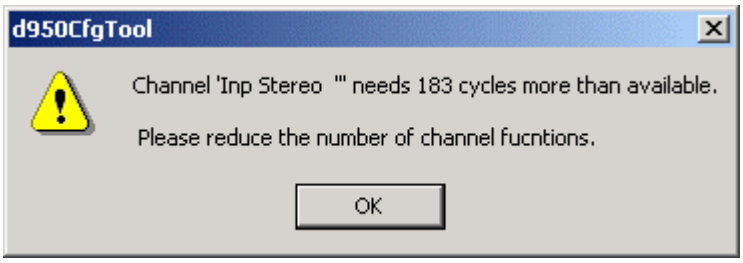
7.5.3 Troubleshooting

The Session Configuration Tool was checked at the factory during more than a year for malfunctions and erroneous operations. Hundreds of different configurations were tried, and all sorts of tests have been made. Nevertheless, since there exists an almost infinite number of channel, bus, and I/O configuration combinations, not all of them could be tested. So it may happen that on a very rare occasion an error message will be issued during editing or during the Generate process. A description of some of the typical error messages is listed below.

7.5.3.1 Errors and Warnings During Generate Process / In Log File

When Inserting a New Function

When inserting a new function that exceeds the capacity of the core, the following dialog will appear:



This message is very likely to appear when the console is operating with 96 kHz, or when switching from 48 to 96 kHz.
If you decide to proceed in generating the configuration regardless of the warning, the following message will be displayed in the Generate All dialog, and the configuration process will be stopped.

```
Could not find pe for 'Channel Inp Stereo #1 CtrlGrp1'!
Please reduce the requirements of that function
```

D21m

If the configured number of D21m interface channels exceeds the capacity of the D21m board the following message will be displayed. This can only happen with 96 kHz configurations.

```
Unable to Distribute the D21m interfaces of PE D21m Board # 0.
Please reduce the number of channels.
```

Shared Bus

The load balancing of the on-board communication is not always as accurate as it should be. This may happen because assumptions are made during load balancing which do not always apply. The following warning will be displayed in such a case:

```
Warning: Shared Bus Cycles overflow on board 1, in timeSlot 0.
```

This does not mean that the configuration does not work. If you want to make sure that it does work, please send it to the factory for further investigation.

I/O Bus The I/O bus is a SHARC internal bus used to communicate between the DMA controller and the internal memory.
Also there assumptions are made which do not always apply. This leads to the following warning.

```
Warning: 611 I/O buses of 600 on PE 2 of board 1
```

Again, this does not mean that the configuration does not work. For further investigation please send it to the factory.

CHAPTER 8

8 VISTA 8 DIFFERENCES, based on SW V3.5 (as opposed to SW V3.3)

8.1 Introduction

Vista 8 is a further development of the Studer Vista console family. It has been designed specifically for live applications, such as live broadcasting of TV and radio as well as live PA, in particular for fixed installations. While maintaining the well-established operational philosophies and data transfer formats, it offers a completely new control bay, adding a highly flexible and ergonomic output section to the console. This output section can be varied in its placement and also provides all monitoring functions and the powerful dynamic "AutoTouch+" automation. Vista 8 is utilizing much of the proven hardware and software of Vista 6 and 7, guaranteeing the reliability of this product.

In this chapter we will explain the operational differences between the Vista 8 and the Vista 6/7. Some of the software features described here are also available for Vista 6 and 7 by upgrading to software version 3.4 or newer. They will be described in the software release notes of the corresponding product.

The Main Differences from Vista 6 and Vista 7:

- Vista 8 has faders fitted not only across the fader bays, but also in the control bay. Although these added faders can operate any channel of the console, their keys are optimized for master output control and the powerful "reverse interrogation".
- In addition to the twelve additional faders in the control bay, the Vistonics® screen offers real-time metering and instant access to another 40 console faders, such as auxiliary, groups, or matrix outputs.
- Metering: Vista 8 offers colored metering with very high contrast. It allows user-definable headroom indication by changing the color of the display to red within a wide range.
- Vista 8 offers the full functionality of the static snapshot automation of Vista 6 as well as full access to all dynamic automation controls of "AutoTouch+", offered previously by Vista 7 only. The console can therefore be started in "static" as well as in "dynamic" automation mode.
- Comprehensive functionality in conjunction to "N–X" buses (clean feeds, N–1) has been added, like on the Vista 6.
- In addition to the well-proven concept of "scrolling" through sections, Vista 8 offers the possibility to switch to another section on a channel-by-channel basis.
- In order to support live PA work, Vista 8 offers mute groups, cue list with MIDI and HiQNet control, surface illumination, a blackout function as well as matrix outputs.
- Studer is proud to offer full redundancy of the control system, including all necessary internal cards. In case of an emergency, a manual switchover is possible while maintaining the settings used before.
- The graphic controller screen is mounted externally. This allows using 3rd-party TFT screens. The keyboard has been placed in a drawer underneath the control bay, providing more space for actual audio operation.
- Vista 8 offers the possibility to connect any talkback microphone to the XLR connector mounted in the meter bridge. An analog level trimmer as well as 48 V phantom power (activated by a jumper within the meter bridge) allows adapting any type of microphone.

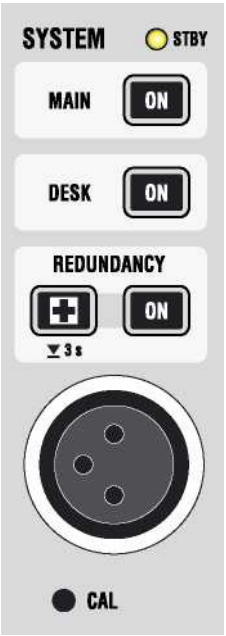
- Custom meters may be fitted into the meter bridge (2 units wide), while the flexible assignable meters are maintained. As an option it is possible to remove the assignable meter panel and fit custom metering across the whole central meter bridge (11 units wide).

8.2 Hardware Differences

8.2.1 Graphic Controller Screen

The TFT screen displaying the graphic controller software (GC) is not an integral part of the console anymore. It is therefore possible to connect any 3rd-party TFT screen with DVI input to the console. If the system is equipped with a redundant control system, the resolution of the screen may be 1024 × 768 or 1280 × 1024 (see chapter 8.2.6). If no redundant control system is fitted, the resolution is only limited by the capabilities of the internal graphics card. In order to provide power to the external screen, a power plug is provided on the rear side of the console. This connector has active power whenever the control system is powered up. This includes any redundancy option possibly fitted in the console. The output is automatically set to the same voltage as the mains voltage provided to the console.

8.2.2 Power Up/Down



The console is powered up by pressing the (upper) MAIN ON key located in the meter bridge. Shutting down the system is achieved by selecting the corresponding command within the console software (“System Shutdown”).
If a redundant control system is fitted, it is powered up whenever the main system is (default). However, it is possible to start the redundant control system individually by setting an internal jumper accordingly (see service instructions for details). Use the REDUNDANCY ON key to start the redundant control system separately.
For servicing reasons it may be required to power down the desk while keeping the control system powered up. This is achieved by holding the DESK ON key for several seconds.
Power down: The system is powered down by using the corresponding command within the software. In case an “emergency shutdown” should be required, this is possible by pressing-and-holding the (upper) MAIN ON key for several seconds.
The STBY LED is on whenever power is connected to the console. The ON keys are lit whenever the corresponding part is powered up. If a key is flashing, the redundant power supply is no more active.

Emergency shutdown: Should it be necessary to power down the system without software control, it is possible to hold the MAIN ON key for several seconds. This will activate the emergency shutdown of the system.

Note: This should be used only if software-guided shutdown is absolutely not possible anymore!

- Custom meters may be fitted into the meter bridge (2 units wide), while the flexible assignable meters are maintained. As an option it is possible to remove the assignable meter panel and fit custom metering across the whole central meter bridge (11 units wide).

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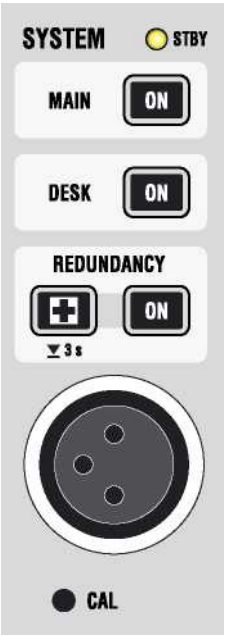

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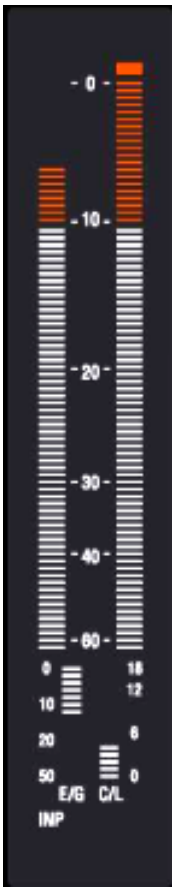
Emergency shutdown: Should it be necessary to power down the system without software control, it is possible to hold the MAIN ON key for several seconds. This will activate the emergency shutdown of the system.

Note: *This should be used only if software-guided shutdown is absolutely not possible anymore!*

8.2.3 Talkback Microphone

Vista 8 allows connection of any 3rd-party microphone to its talkback input. An XLR connector is located within the meter bridge. By using a small screwdriver the input sensitivity can be coarsely adjusted, while fine-tuning is done using the corresponding rotary control located in the control bay (software controlled). In addition, 48 V phantom power can be activated with a jumper within the meter bridge (see service manual for details).

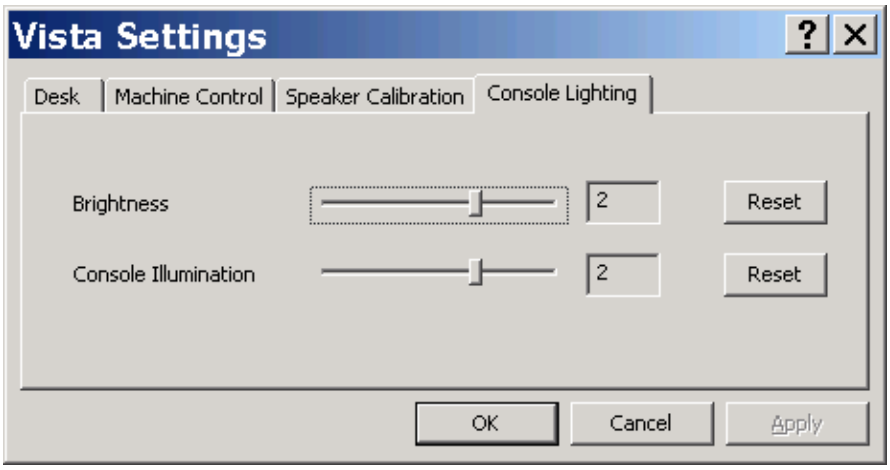
8.2.4 Metering



Vista 8 offers colored metering. The headroom threshold can be set between –5 dB_{FS} and –25 dB_{FS} using the “Option: Meter / Generator” menu. The metering contains dedicated sections for displaying the current gain reduction of compressor/limiter as well as expander/gate. An indication of the current metering tap point (input, post fade or direct output) is provided at the bottom.

8.2.5 Console Illumination (optional)

Vista 8 may be ordered with optional illumination. It may be varied in intensity using the “Option: Vista Settings” menu. There are two separate controls for the console lights (including Vistonics® backlights) and for the illumination mounted on top of the meter bridge.



8.2.6 Redundant Control System

If the console is equipped with a redundant control system, the external graphic controller screen is running at a resolution of 1280 × 1024 pixels by default. Resolution may be reduced to 1024 × 768 pixels by setting an internal jumper (see service manual for more details).

8.2.6.1 Switchover to the Redundant Control System (Emergency Switch)

During normal operation, the main control system is backing up all necessary data of the currently loaded project in regular intervals to the redundant control system’s hard drive. The interval is set in the “D950system.ini” file located within the Windows directory. If for any reason it should be necessary to switch to the redundant control system, the user may hold the emergency key for about 3 seconds. This will switch the whole system over to the second control system. The user will then see the redundant system on the graphic controller screen and start the console application by double-clicking on the appropriate icon on the desktop. It will load the data previously backed up by the healthy main system, and the operator has full access to the whole system again. While the redundant system is active, the emergency key is lit. However, it is not intended to switch back to the main control system during a live situation. In such a case, the data can be backed up using a CD-R or a USB memory stick and put back to the main control system after the production has been finished.

8.2.6.2 "Small" Switching to the Redundant Control System (Health Check)

It is possible to switch to the redundant control system without activating the emergency procedure. This may be useful for e.g. a quick health check or for maintenance purposes. In this case, only the keyboard, trackball and the graphic controller screen is switched over, while the console itself continues to run using the main control system. Such a security check may be performed at any time during console operation. Switchover is done by *pressing-and-releasing* the ⇧ (shift) key of the keyboard, followed by pressing the "-" key.

Note: This combination may vary according to the serial number of the console. Please refer to the documentation delivered with your console in case the key combination described shouldn't work.

8.3 Functional Differences: Control Bay

The control bay hosts twelve faders and a Vistonics® screen as well as the keys for monitoring functions, dynamic automation, talkback etc. known from other Vista consoles. The faders and the Vistonics® screen are fully independent from the rest of the console in terms of view changes and scrolling. A separate set of four keys provides independent scrolling functionality of this section. In the strip setup window of the graphic controller, a second page ("tab") has been introduced, allowing to set-up the strip usage of the control bay. Four fader pages with ten strips each are provided as a standard. By scrolling once to the left and the right, an extension of up to 120 strips is available for channel access within the control bay.
The Vistonics® screen is used as a collection of 40 level controls, usually representing a duplicate view of the fader bays' channel faders. The Vistonics® controls will then not only give access to the channel faders and graphically indicate their settings, but is also indicate a real-time level meter on the screen right next to the corresponding rotary control. This allows viewing up to 40 meters at a glance while having direct access to all of their corresponding faders by using the rotary control next to it. Tweaking any of the console's output levels is therefore extremely easy and fast.

The VIEW keys on the right-hand side of the control bay allow access to some predefined channel types (AUX, GROUPS, MASTERS, DIRECT OUT, BUS OUT) as well as to five user-definable views. By using the third page (**Vistonics Views** tab) of the strip setup window (next page), it is possible to define the five user setups in a way very similar to the known strip setup window. In order to make a user view, simply select the Vistonics® elements on the screen and fill them up using the right trackball button. Although primarily intended for outputs, also input faders can be visible and controlled with these USER views.

The top user-definable view is labeled **MATRIX**. This page is also fully user-definable and covers the same functionality as the other four USER1...4 keys. As a standard the user may want to use the MATRIX key to see the console's matrix outputs (see chapter 8.6.8).

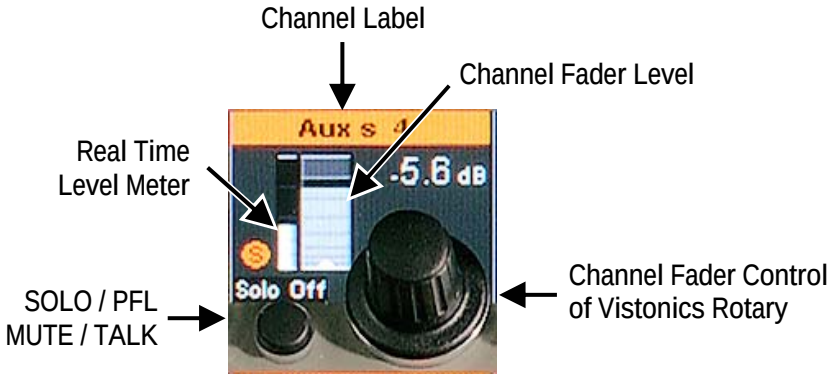
The function of the Vistonics® keys next to each rotary knob on the Vistonics® screen may be modified by pressing the TALK or MUTE keys. They will change the Vistonics® key from a SOLO/PFL/SIP key (depending on the current mode) to a TALK or MUTE key.

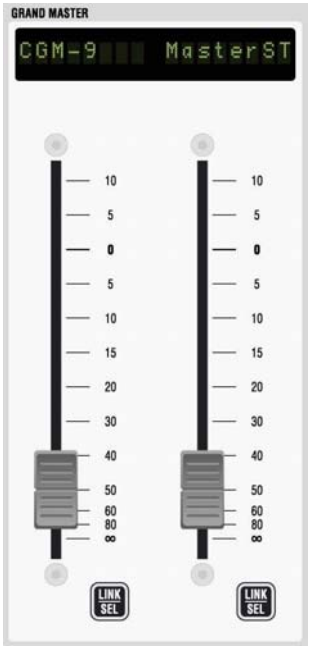
Note: These functions may not be available on certain channel types.

Apart from displaying meters and set levels, the Vistonics® screen also indicates the label of the displayed channel with the color coding applied accordingly.

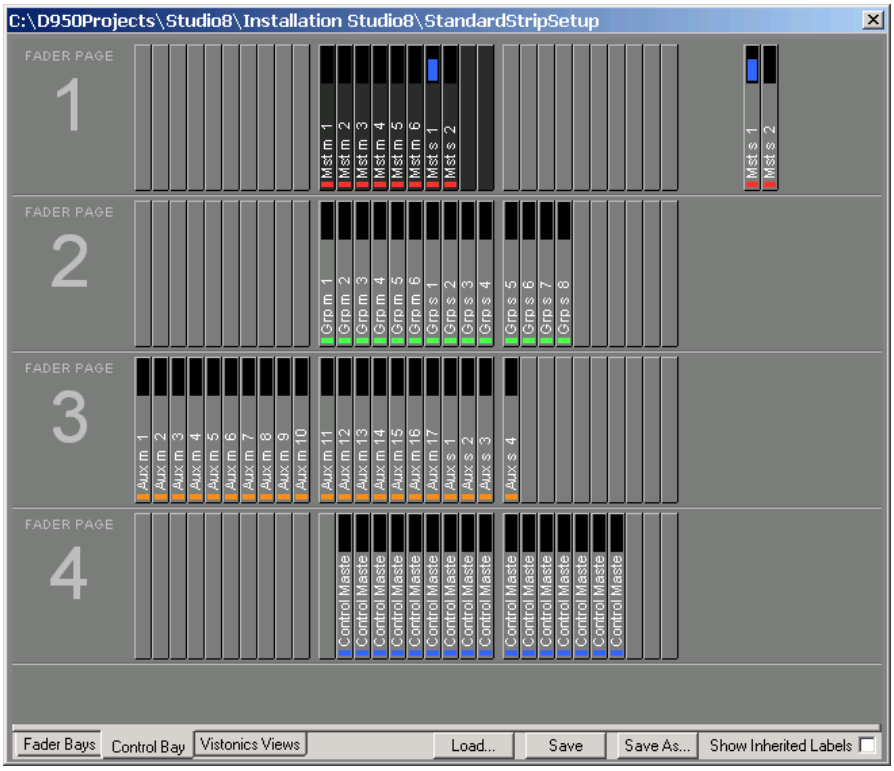
Temporary activation of these keys is possible.

The ⇧ (shift) key is reserved for future use and doesn't offer any function currently.





Vista 8's control bay also hosts two "grand master" faders. The user determines which two faders are most important for him and to which he wants constant access. This may be very useful as an "emergency access" to very important output faders, since these faders will never scroll or be switched over in any way. Which two channels are controlled by these faders is defined in the top right corner of page 2 (Control Bay tab) of the strip setup window, as shown below.



Note: *Any two* console faders can be assigned as "grand master" faders, regardless of their channel type.

8.4 Output Levels on Faders

8.4.1 Output Faders

The ten faders have their own strip setup window. It is available by clicking on a different “tab” within the standard strip setup window. The ten faders have four pages (keys FADER PAGE 1...4), and each page in fact contains 30 strips. Left/right scrolling is done with the ◀ ▶ arrow keys within each page in order to access up to 120 faders. As is the case with the user-definable view keys for the Vistonics® screen, any kind of channels can be assigned to these ten faders, including input channels, if required.

8.4.1.1 “Grand Master” Faders

The setup of the grand master faders is done within the same window. Unless the corresponding option is selected, faders defined as grand masters never change when selecting different fader pages (these faders are shown in the top right corner of the screenshot on page 8-10).

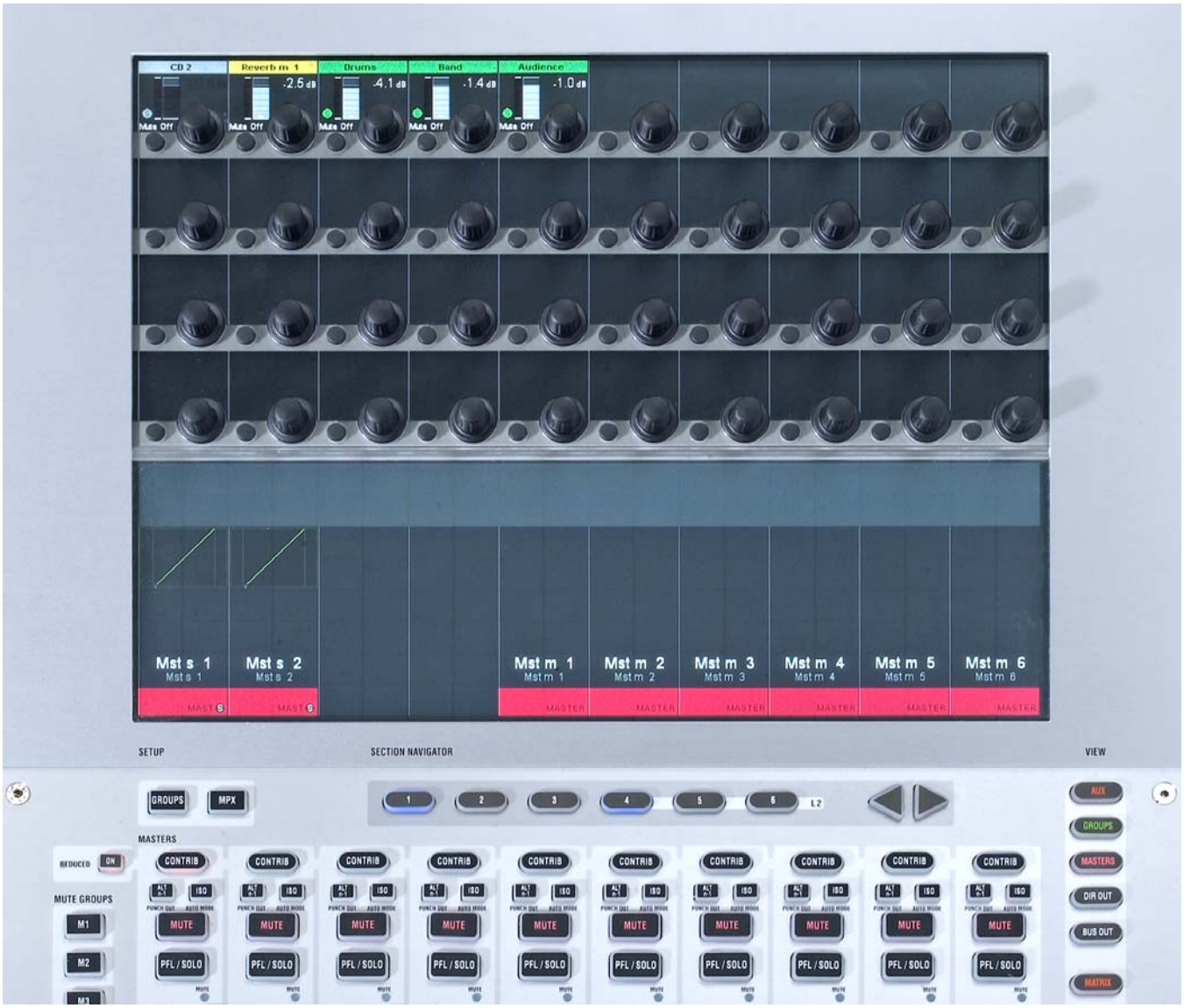
8.4.1.2 Touch Screen

On the touch screen area of the Vistonics® screen, the ten faders are correctly labeled and color-coded. If the channels currently shown contain EQ or dynamics functionality, the corresponding settings are graphically displayed on the touch screen. It is possible to touch those curves in order to open up their parameter control views on the Vistonics® rotaries, as known from the fader bays.

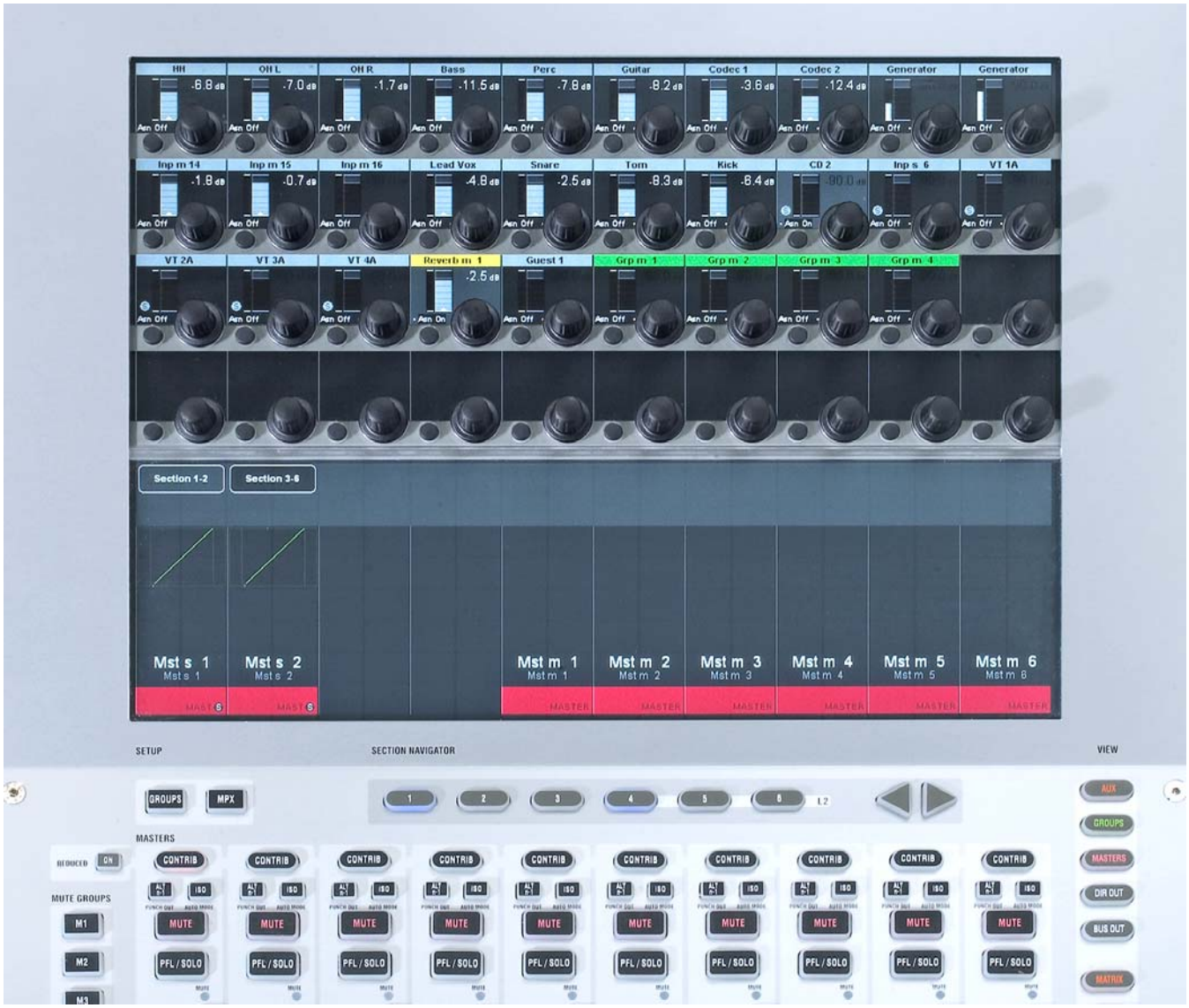
8.4.1.3 Contribution Access

Very often it is useful to operate the console in “reverse” way, coming from an *output* fader and operate the various *input* channels contributing to this output. By pressing the CONTRIB key on top of a fader the Vistonics® rotaries will show all channel faders currently contributing to this master signal. In case of a matrix or AUX master output, the view shows all channels contributing to this output, hence input, subgroup or master channels.
“Contribution” can be operated in two ways, depending on the state of the “Reduced View” key on the left-hand side:

“Reduced View ON”: When pressing CONTRIB only the channels currently assigned to the corresponding master bus are displayed.



“Reduced View OFF”: All channels that *may* contribute are displayed. These are all channels that can be assigned to that specific output bus. This view allows assigning or de-assigning them from the master bus by using the corresponding Vistonics® keys.

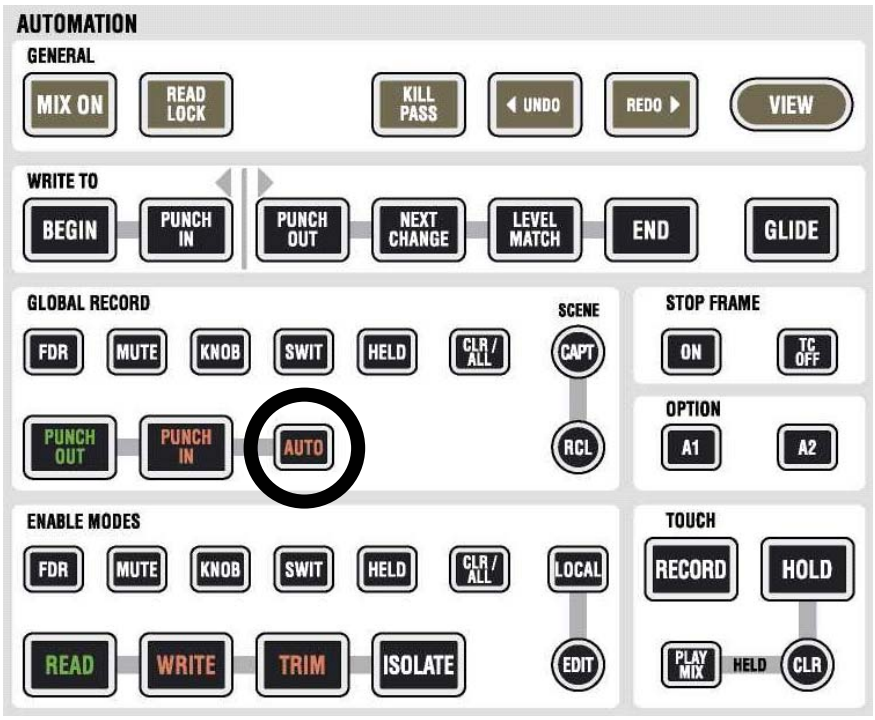


It is extremely easy to adjust a balance of e.g. a matrix output without accessing the fader strips of the contributing channels.
When working in “Reduced View OFF” mode, another advantage becomes apparent: The operator may do the bus assign now by choosing the output first and then assign the corresponding channels to it.

8.4.2 Other Differences

8.4.2.1 Dynamic Automation “AutoTouch+”

The AUTOMATION hardware panel in the control bay hosts a dedicated AUTO key for punching the selected objects in and out at the beginning and at the end of the write zone. This key therefore is a duplicate of the check-box within the AutoTouch+ window in the control screen but provides direct access for quick changes. This is useful if the operator works with loops while auditioning certain settings. If the settings are finally adjusted, this key allows writing these values when playing back the loop for a last time.



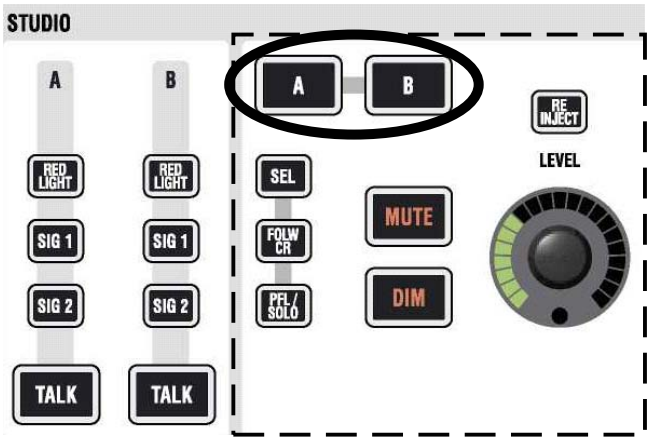
8.4.2.2 Studio Monitoring Controls

Vista 8 gives direct access to the most important functions for two studios. Control and view of the following functions are directly accessible, without having to select the appropriate studio first:

RED LIGHT, SIG 1 (Ready), SIG 2 (Call), TALK

These keys allow activation of the corresponding function; they may light automatically if the function has been activated e.g. by one of the GPI (general purpose inputs).

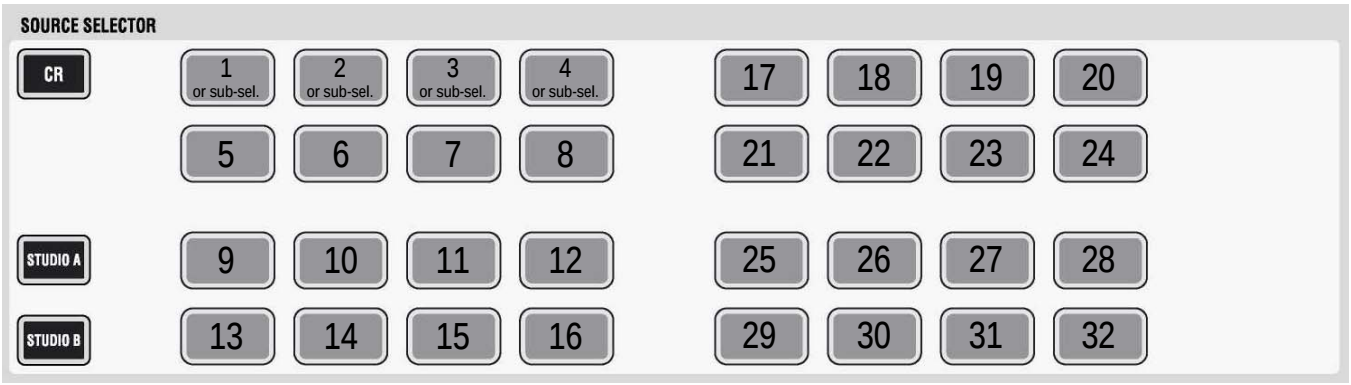
The right part of the studio monitoring panel is used to control the audio level of the two studios. First select the studio (A or B), then adjust the level and select from "Selected Source on Source Selectors" (SEL), feed studio with same source as control room (FOLW CR), or send PFL/SOLO signals to the studio (PFL/SOLO). It is also possible to disengage the mute mechanism normally activated by the red light logic. This is done by activating RE-INJECT.



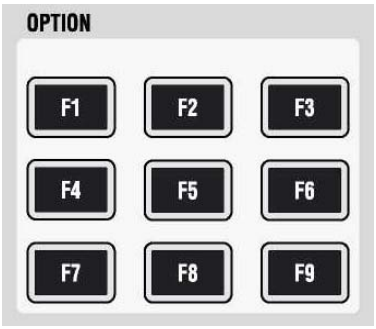
8.4.2.3 Monitoring Source Selector

The 32 available monitoring source selectors act exactly the same as with Vista 6. First select the target to be changed: Control Room (CR), STUDIO A, or STUDIO B. Then select the appropriate source key (1...32). All keys are fully user-definable by using the monitoring setup dialog on the control screen (accessible to system administrators only). Each key may independently feed a set of one to eight loudspeakers. It is therefore possible to have a two-channel stereo source on one key, while another key selects a 5.1 surround source. This makes the use of third-party equipment for automatic mix-down of a 5.1 surround mix into a two-channel stereo mix very easy: Feed the mix-down equipment with the 5.1 master mix and feed its two output channels back to the console. Define one of the source selector keys to switch these two channels onto left and right loudspeaker.

Note: The keys 1...4 may be used as "sub-selectors", each opening up a choice of twelve more sources on the control screen. This functionality is the same as with Vista 6 and 7.



8.4.2.4 Option Keys



These keys are intended for future software expansion. Current functions:

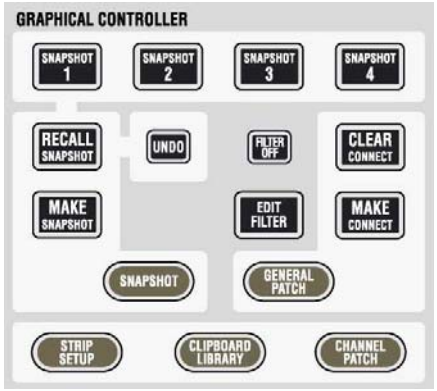
F3 If the cue list is "armed", this key switches off/on all console lights.

F7 Used during live broadcasting; by pressing it, it is possible to de- and re-activate the offline conference temporarily without loosing its member definition. This key is a duplicate of the conference icon in the GC toolbar.

8.4.2.5 Machine Control (Option)

An optional machine control panel can be fitted into the Vista 8 control bay. This gives control over one external machine using Sony P2 ("Sony 9-pin") protocol. Please contact Studer Service & Support for installation instructions.

8.4.2.6 Graphic Controller Keys



These keys have the same functionality as the ones on Vista 6 and 7. They allow fast access to the most important pages of the graphic controller screen.

The following keys have been added on Vista 8:

CLIPBOARD LIBRARY — Dedicated key for opening and closing the clipboard library.

(RECALL SNAPSHOT) UNDO — Snapshot recall: Hold UNDO and press RECALL SNAPSHOT; this will undo the last snapshot recall.

FILTER OFF — Dedicated key for temporarily inactivating snapshot filters.

EDIT FILTER — Dedicated key to enter and exit the snapshot isolation "filter edit" mode. When lit, all console controls are showing whether or not they are isolated against snapshot recalls. The user may modify their state by pressing or touching the corresponding controls. Ganging is possible.

This toolbar icon on the graphic controller screen allows access to the "AutoTouch+" control screen.

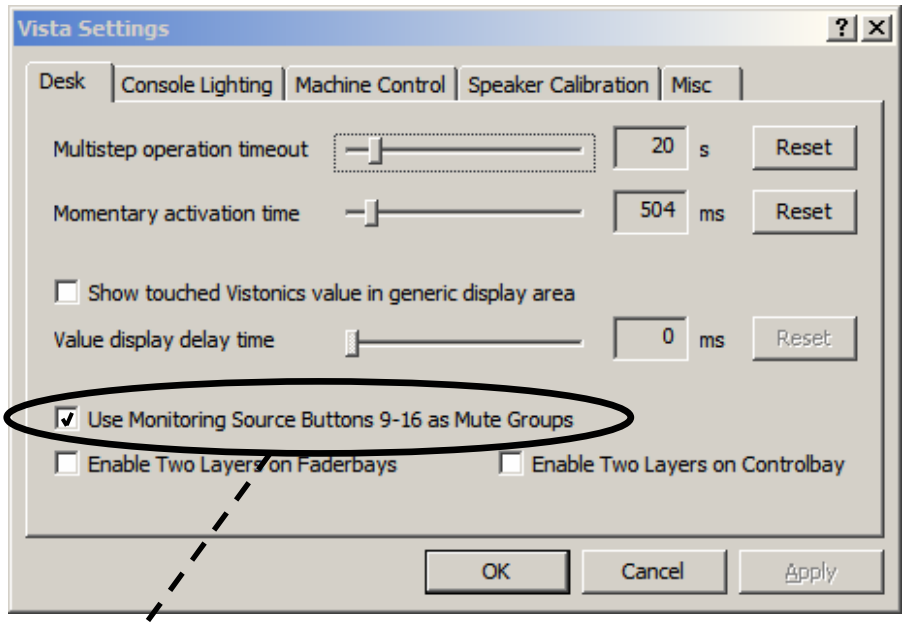
8.4.2.7 Section Navigator

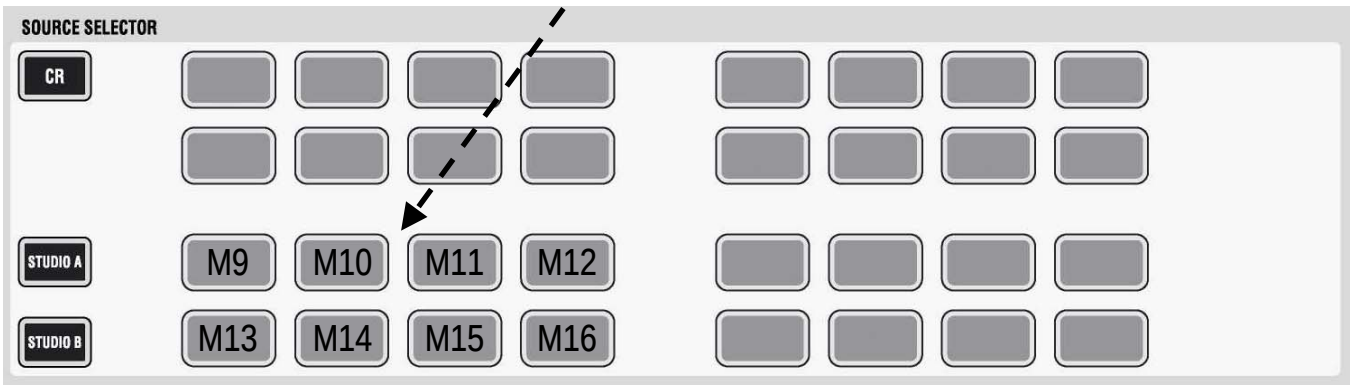
The section navigator works in the same way as with Vista 6 and 7. It allows quick changes of the fader bays between sections as well as scrolling by one bay using the ◀ ▶ arrow keys.

8.4.3 Mute Groups

Vista 8 provides up to 16 mute groups. MUTE GROUPS M1...M8 have dedicated keys on the left side of the control bay.

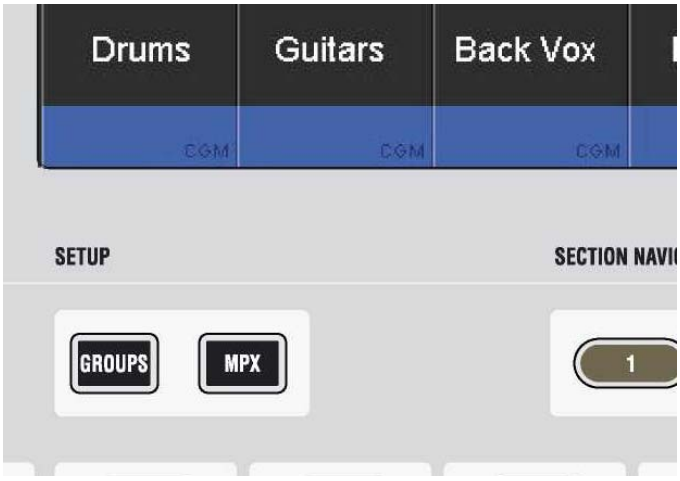
Mute groups M9...M16 may be operated using eight of the 32 monitoring source selectors. Use of these keys (monitoring source selectors or mute groups) is defined in the “Option: Vista Settings” menu.



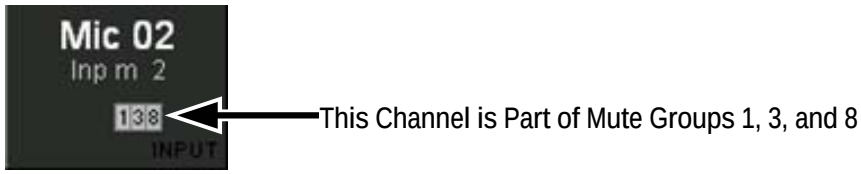


8.4.3.1 Setting up a Mute Group

Press the SETUP GROUPS key on the control bay. The mute group master keys (dedicated MUTE GROUPS M1...M8 keys, and if defined, the keys 9…16 in the SOURCE SELECTOR area, see above) will be half-lit.



Select the mute group you want to setup (mute group master keys, or one of the source selectors 9…16).
A dialog will pop up on the graphic controller screen, allowing you either to add all currently muted channels on the console to this mute group with one trackball click, or to clear all members from the selected mute group. You may also select or deselect members using their LINK / SEL key.
Press the mute group master key again in order to select another one. Please note that hierarchies can be built up as well. In other words, a mute group may contain individual channels as well as another mute group master. Hierarchies are not indicated on the desk once the set-up menu is quit. The area below the channel labels indicates whether a channel is a member of one or multiple mute groups.



Press SETUP GROUPS again in order to leave the setup mode.

8.4.3.2 Where are the Mute Groups Saved?

Information on which channel belongs to which mute group is saved within a so-called “start snapshot” of each title. I.e., this information is saved once per title when the title is closed. However, the state of the mutes in each channel is saved within each snapshot.

8.5 Functional Differences: Fader Bay

Most of the functionality within the fader bay is identical to the one of Vista 6.

METER

This key allows selection of the different meter tap points (input, post-fader, direct output).

The keys listed below change their function depending on the mode which the console is booted in. The key's standard labels are valid when booted in "static automation mode". This mode is foreseen to be the primary operation mode of Vista 8. The labels printed *below* the keys are active when the software is started in "dynamic automation" mode. For details on the functionality in "dynamic automation" mode, please refer to chapter 5.

USR 1 REC SWIT USR 2 REC KNOB

Act as user keys. These keys are user-programmable and may be used for various tasks, such as activating fader start or fader ramps, etc. Further programming is available on request from Studer Service & Support.

ALT n-1 PUNCH OUT

Activates the "alternate" N–1 signal; setup in the corresponding dialog of the control screen. Refer to chapter 8.2.10 for more details.

ISO AUTO MODE

Activates channel isolation against changes when recalling snapshots. Hold this key and touch/press any channel parameter in order to isolate this particular parameter or the whole function (e.g. EQ on/off key). If the whole channel is isolated, the key is fully lit.

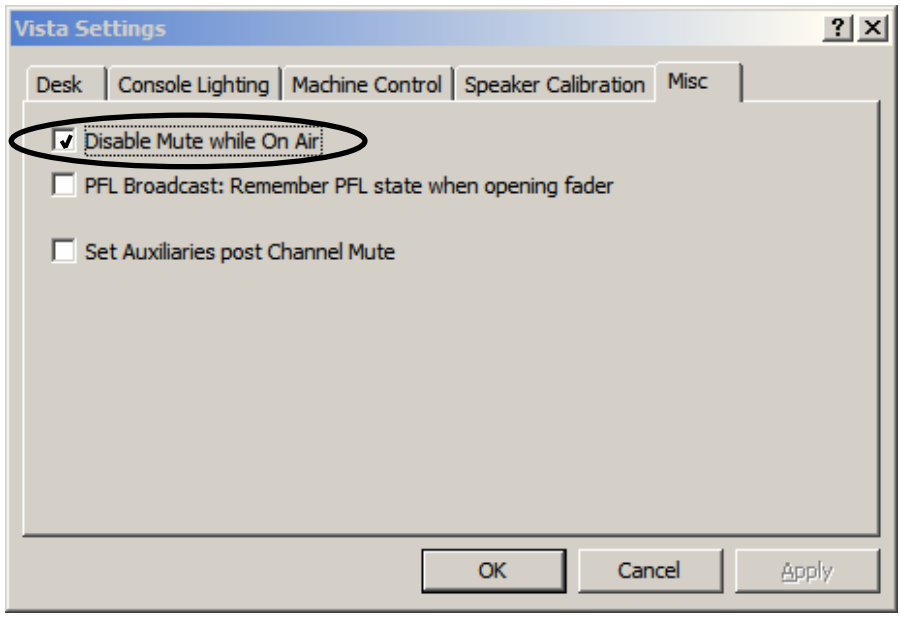
L2 MUTE REC

Activates switching to the second layer if the corresponding option is activated. If the second layer is displayed, the key is fully lit. Refer to chapter 8.6.6 for more details.

TALK FDR REC

Activates the talkback function to the direct output and, if the channel is an owner of an N–X bus, to the output of this bus.

The locations of the PFL/SOLO and MUTE keys have been changed in order to suit a live situation better. This prevents from accidental use of the MUTE key. In addition, the MUTE key may be disabled whenever the console is in "On Air" (live) mode. This is done in the "Option: Vista Settings" dialog:



8.6 Other Software Improvements

8.6.1 Updating Multiple Snapshots

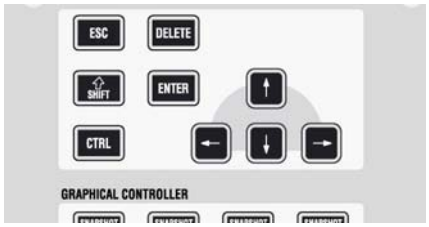
Very often, certain parameters should be overwritten in multiple snapshots. It may be important that only certain parameters are overwritten and others are left as they are in the individual snapshots. In order to achieve this, place those parameters into “Isolate” mode and recall a snapshot. If this action is now followed by an Update command, the values are changed as requested.

By using Trim mode (see chapter 4.4.4.5), it is even possible to apply relative changes to individual parameters of snapshots. E.g. place the fader 1 into Trim mode and lower it by 8 dB. Recall the next snapshot and click Update. This will save the original value of the second snapshot, reduced by 8 dB, to the hard disk. See example 2 below for details.

This can be done even faster: First select multiple snapshots and click Recall and Update once.

Note: The **Update** button is changing its name whenever multiple snapshots are selected.

8.6.1.1 Selecting Multiple Snapshots



Multiple snapshots can be selected at the same time by using the keyboard ⇧ SHIFT and CTRL keys. The selection of multiple snapshots is following standard windows rules: ⇧ SHIFT + click selects all snapshots in between the two, CTRL + click allows selection of individual snapshots.

Example 1:

Goal: The value of channel 3 should be overwritten and set to –20 dB on “Snapshot #1”, “Snapshot #3”, and “Snapshot #5”

Procedure: Place the fader to –20 dB.

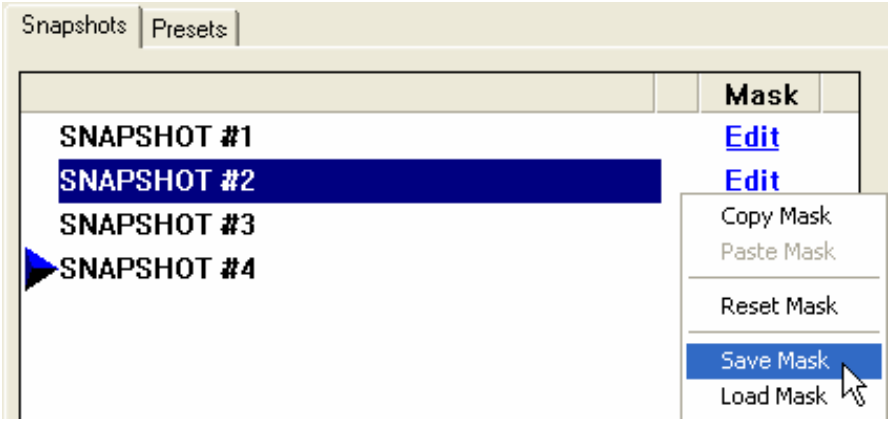
Hold ISO on channel strip 3. Touch the fader in order to put it into isolate mode.

Select “Snapshot #1” with the trackball.

Hold the CTRL key on the control bay, and select “Snapshot #3” and “Snapshot #5”.

Click on “Recall and Update”, and confirm that you want to overwrite these snapshots.

The console will automatically recall and update the selected snapshots.



Example 2:

Goal: The value of channel 3 should be lowered by 4 dB on “Snapshot #1”, “Snapshot #3”, and “Snapshot #5”.
These snapshots currently contain the following fader values:
“Snapshot #1”: 0 dB; “Snapshot #3”: –5 dB; “Snapshot #5”: –10 dB.
Therefore, after the update they should contain the new, updated values:
“Snapshot #1”: –4 dB; “Snapshot #3”: –9 dB; “Snapshot #5”: –14 dB.

Procedure: Make sure the **Enable Trim mode** option in the “Option: Snapshot Automation” menu is set.
Recall any snapshot.
Hold ISO on channel strip 3. Touch the fader *twice* in order to put it into Trim mode.
Lower the fader of channel 3 by 4 dB (the exact trim value will be displayed on the Vistonics® screen).
Select “Snapshot #1” with the trackball.
Hold the CTRL key on the control bay, and select “Snapshot #3” and “Snapshot #5”.
Click on “Recall and Update”, and confirm that you want to overwrite these snapshots.
The console will automatically recall and update the selected snapshots.

Since the console assumes that the controls being in Trim mode have been placed into this mode for the purpose of this update, the operator will be asked whether these controls should be taken out of Trim mode afterwards.

8.6.2 Saving Snapshot Masks

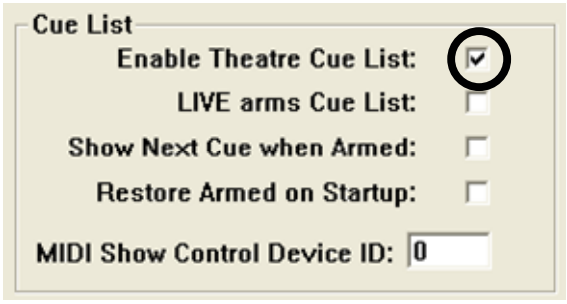
When working with partial snapshots (option available in “Option: “Snapshot Automation”), it is possible to right-click on the **Edit** link to the right of the snapshots. A context menu will allow not only copying and pasting of masks between snapshots, but also saving and loading of masks to/from files. The files will be saved in the `C:\d950System\Users` directory.
This function can be very helpful when multiple operators are working on the console. During rehearsals, both operators may randomly save snapshots. After the rehearsal they select “their” snapshots and apply a prepared mask to them. This will make these particular snapshots only influence the part of the console which the operator was working on. Other applications may contain any recall of more complex masks.

8.6.3 Cue List

When using software V3.5 or newer, an extensive Cue List functionality is available. The Cue List allows sorting snapshots as well as attaching MIDI and HiQNet commands to each of them. Each title can contain one Cue List. The Cue List can be controlled from external controllers using MIDI. It is possible to use standard “MIDI show control” commands as well as recalling certain cues with a user-defined MIDI command (note and program change). The Cue List is only available in “static” mode, hence not when dynamic automation is active. Opening the cue list is done either by clicking on the *Cue Icon* (see left) in the GC screen’s toolbar, or by using the LIST key on the control bay.

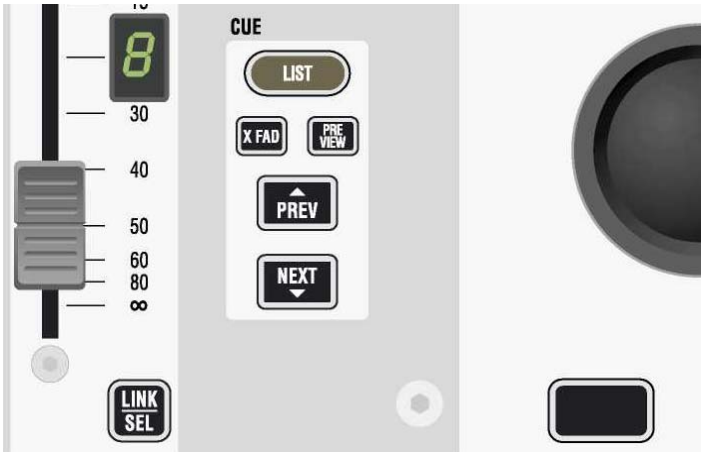
8.6.3.1 Activating Theatre Cue List Functionality

In order to activate the “theatre cue list” functionality, enter the “Option: “Static Automation” menu. (Explanation of further options see chapter below)



8.6.3.2 Hardware Keys

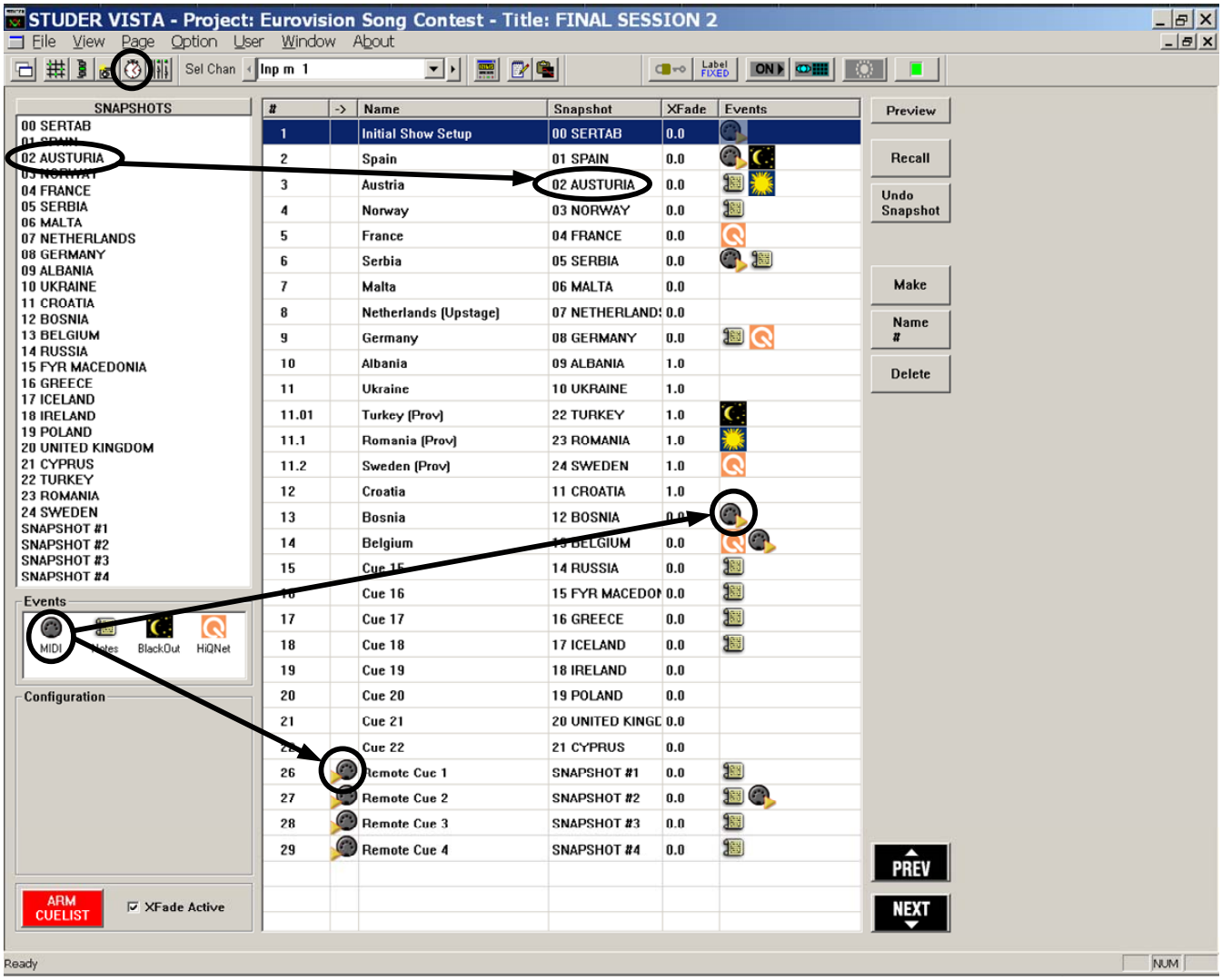
The following keys are located on the control bay:



They can be used to control various functions of the cue list and allow certain functions to be switched using a hardware key, while it remains possible to use the trackball and operate these functions on the graphic controller screen:

- Switching on/off the cross-fade function between cues
- Activate or inactivate the cue preview mode
- Go to the next or previous cue.

8.6.3.3 Creating a Cue



To create a cue, simply drag-and-drop one of the available **SNAPSHOTS** from the top left corner, or one of the **Events** from below the snapshots to the cue area. A cue can be created using the **Make** button on the right side of the cue list. It doesn't have to contain a snapshot; it is also possible to just fill in any event without activating any console setting changes.

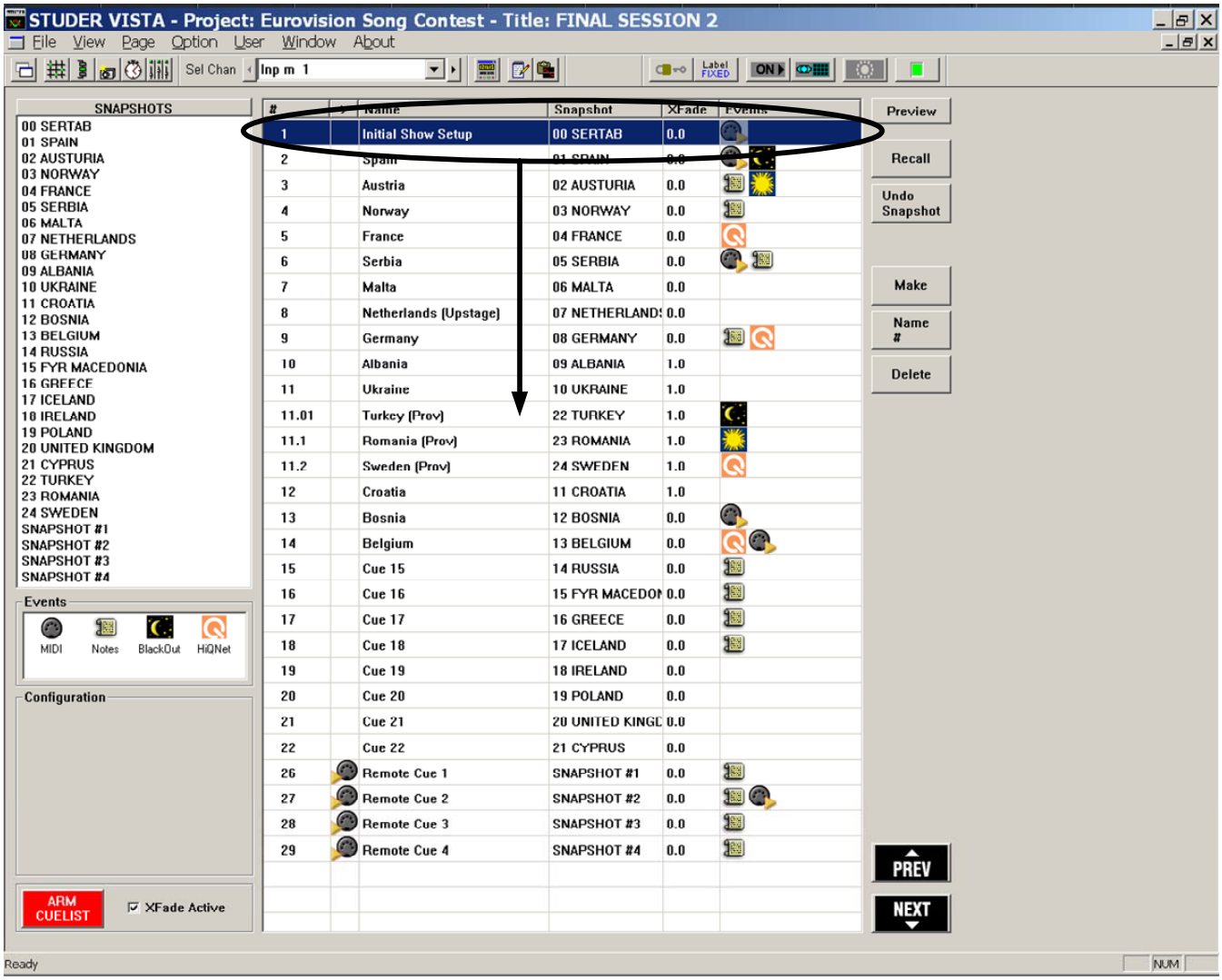
8.6.3.4 Recalling a Cue

There are different ways to recall a cue:

- Double-click on its name
- Click on the NEXT or PREV button on the GC's control screen
- If the cue list is armed: Attach an incoming MIDI event to it and send the appropriate note or program change command to the console
- If the cue list is armed: Press NEXT or PREV on the control bay
- Send MIDI show control messages to the console, according to the specification given below.

8.6.3.5 Cue Numbering and Sorting

The cue will automatically be given a number, but it can also be edited manually in order to match cue numbers with other teams within a project (such as the lighting department). To do so, select the desired cue and click on Name / # in the right-hand part of the cue list. When modifying the cue number, it will automatically be re-sorted depending on the current number. The numbers used may contain a decimal point and up to two digits thereafter (#.##). When re-sorting cues using drag-and-drop, the numbers are automatically extended using a decimal point followed by up to two digits. In order to sort the cues, simply drag-and-drop the cue name to the desired place.



Automatic numbering example: When inserting a cue between the cues 11 and 12, this cue will automatically be numbered 11.1. If another cue is inserted between 11 and 11.1, this new cue will be numbered 11.01. Please note that he system doesn't allow further cues to be inserted between 11 and 11.01 without manually modifying the number 11.01 first.

8.6.3.6 Cross-fading Between Cues

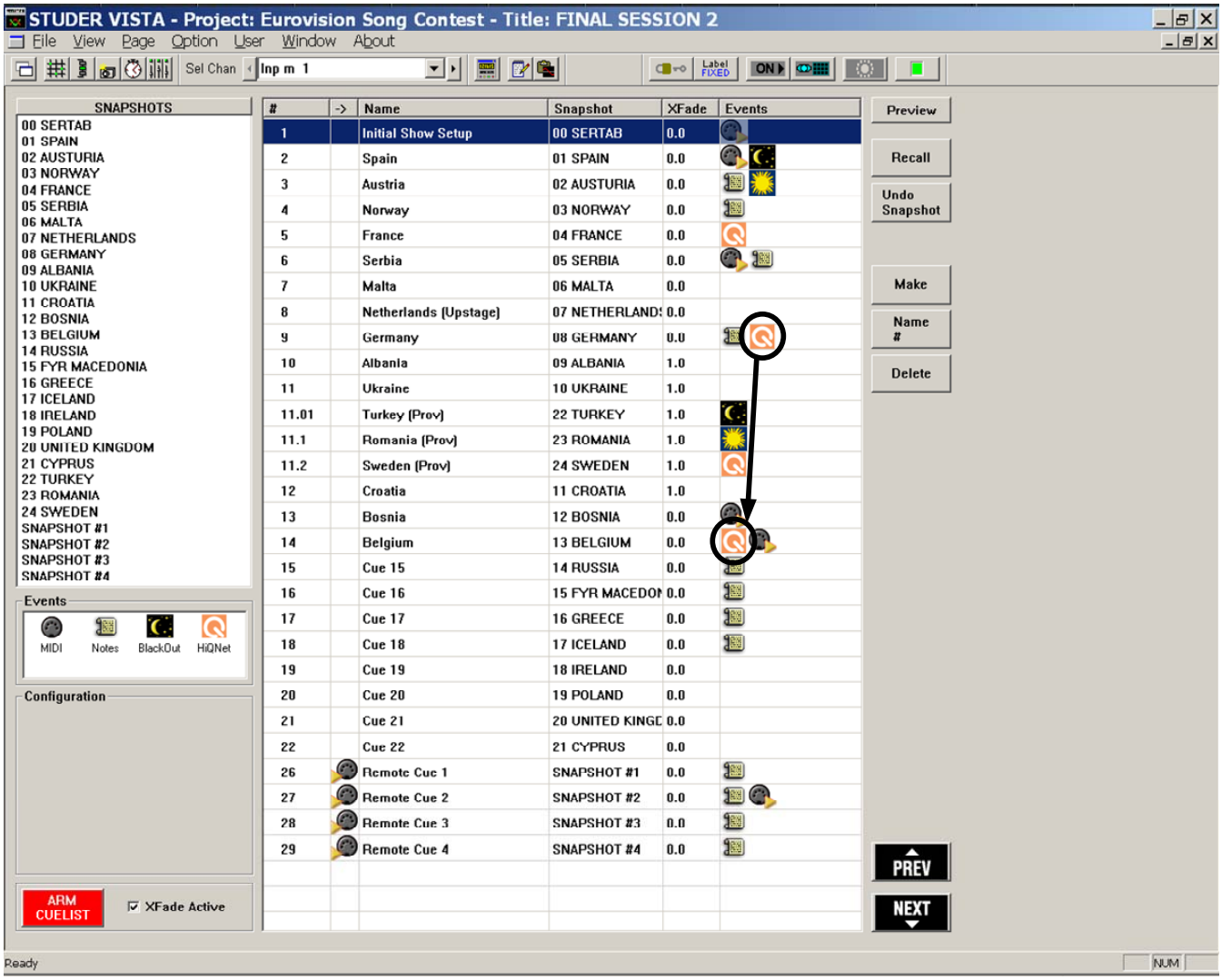
Each cue displays a value for the cross-fade time when activating this cue. To modify the cross-fade time, point to the digits, hold the left trackball button, and scroll up or down. Alternatively, enter the number using the numerical keypad.
When clicking on the cross-fade time once, options for the behavior of switches during cross-fades become visible in the left part of the window (Options Area). For each cue it can be defined whether the switches should change their state before, in the middle, or after the cross-fade – while the other parameters are changing seamlessly.
Within a cue, a partial snapshot may be recalled, influencing only certain parts of the console. If a larger cross-fade time is applied to this and the next cue is recalled before the last cross-fade has been finished, there will be two cross-fades happening at the same time, possibly with different cross-fade times. Only if the two cues change the same parameters, the first cross-fade will stop and the second one is applied from this point onwards.

Example:

Given: All Faders are set to 0 dB.
Cue #1 contains a partial snapshot, setting faders 1…10 to –20 dB, cross-fade time 10 s.
Cue #2 contains a partial snapshot, setting faders 11…20 to –40 dB, cross-fade time 1 s.

Procedure: Recall Cue #1, e.g. by double-clicking on its name. Faders 1…10 will start moving down slowly.
Five seconds later, Cue #2 is recalled. Faders 11…20 will start moving down.
After six seconds, faders 11…20 have finished their cross-fade and are set to –40 dB.
After ten seconds faders 1…10 also have finished their cross-fade and are set to –20 dB.

8.6.3.7 Organizing Events



It is possible to move events from one cue to a different one by using drag-and-drop. Also, snapshots may be moved between cues using drag-and-drop. In this way, snapshots can be replaced or exchanged within cues.

8.6.3.8 Updating Snapshots

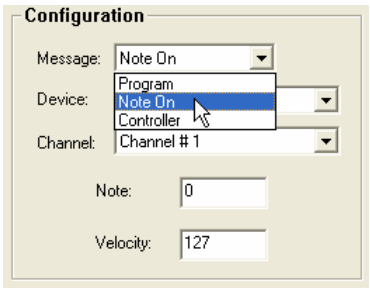
The snapshot names displayed in the cue list are only referring to the corresponding snapshot contained in the snapshot list. It is therefore possible to use the same snapshot in multiple cues, possibly using different cross-fade times. When updating a snapshot, the cues containing it will automatically use the updated snapshot.

Note: Snapshots can be updated from within the cue list window; right-click on the snapshot within the snapshot list in the top left corner in order to get different options, such as **Make**, **Update**, **Name**, etc.

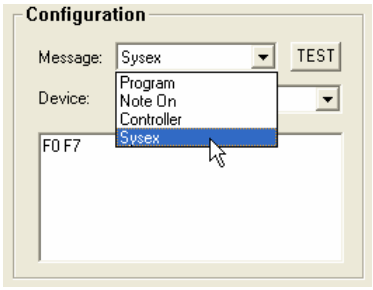
MIDI MIDI note and program changes can be used both as sources for firing a cue, or as events to be sent out of the console upon recalling a cue. In order to attach a MIDI command as a cue trigger, drag-and-drop the MIDI icon to the left side of the cue name. If a MIDI command should be sent out upon cue recall, drag-and-drop the MIDI icon to the right side of the cue. Multiple events may be added to the right side of a cue.

8.6.3.9 Event Options

After having attached an event to a cue, various parameters may be modified, depending on the event. When selecting the event icon within the cue list, the corresponding options are displayed within the **Configuration** area of the window (bottom left). The following options are available:



MIDI In: Program change, note change, and controller commands may activate the corresponding cue.

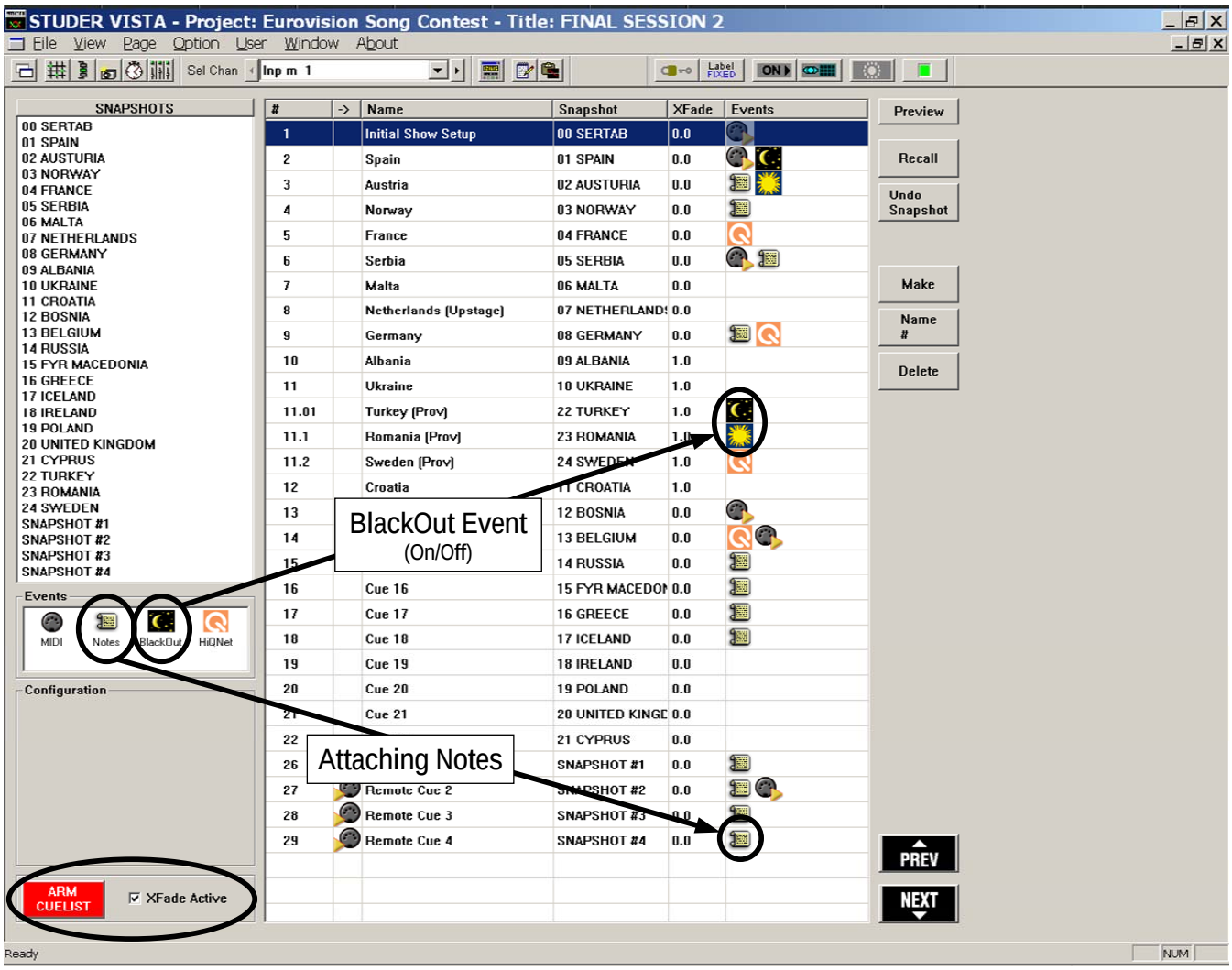


MIDI Out: Program change, note change, controller, and system exclusive ("Sysex") commands may be triggered by this event. A TEST button allows sending out this parameter during system setup without actually recalling the cue.

BlackOut: Console lights on/off (see below).

Notes: Enter your notes.

HiQNet: Venue change message sent out from the console to any HiQNet device.



8.6.3.10 BlackOut

It is possible to make the whole console surface go dark. This function is useful in case complete darkness is required, e.g. in a theatre environment. This function also includes the optional console illumination. It can only be activated if the cue list is armed. The console lights come back on again either by the next BlackOut event (Parameter: OFF) or by pressing F3 in the control bay.

8.6.3.11 Arm CueList

To avoid undesired influence by external devices, the cue list inputs may be armed or disarmed. If not armed, the BlackOut function, the MIDI IN events, and the NEXT and PREVIOUS keys in the control bay are disabled.
It is possible to set the default value of the **ARM CUELIST** button by using the “Option: “Static Automation” menu.

8.6.3.12 XFade Active

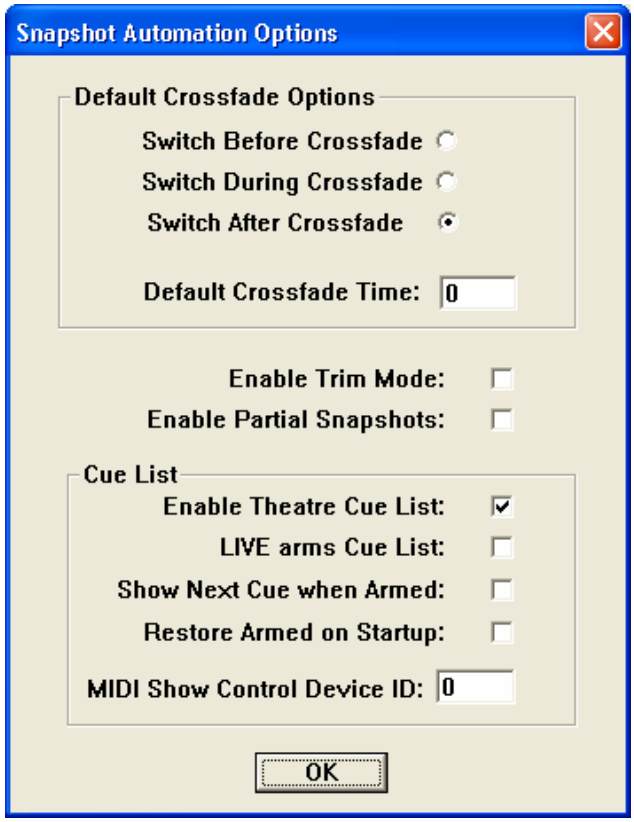
It may be useful to temporarily disable cue cross-fades (e.g. during rehearsals). This can be done by un-checking this item.

8.6.3.13 Preview

The snapshot/cue preview mode can be activated either by a hardware key or by clicking on the button located in the top right corner of the cue list window. When in preview mode, the cue or snapshot currently selected (single click) is compared to the current audio settings. If there is a difference, Vistonics® shows both values at the same time, using a pink graphical indication. When pressing the dedicated snapshot keys above the trackball, the preview mode is automatically activated until the same key is pressed again.

8.6.3.14 Cue List Options

In the “Option: Snapshot Automation Options” menu the following options are available:



Default Crossfade Options: The system allows cross-fading between two cues. The default cross-fade values may be defined here. These will be used whenever a new cue is created.

Switch Options: Describes the behavior of switches (e.g. MUTE, EQ on/off etc.) when cross-fading. They apply if a switch changes its state in the next cue. They may change their state before, during, or after the cross-fade.

Default Crossfade Time: Set default value of cross-fades when new cues are created.

Enable Trim Mode: When pressing-and-holding the ISO key on the channel strip followed by touching individual controls (e.g. faders, rotaries), their state can be isolated from snapshot recalls. If this option is on, the particular parameter may be touched a second time. This will set it into Trim mode. In this mode all changes to that parameter since the last snapshot recall will be applied relative (!) to all upcoming snapshot recalls – thus, not modifying them on disk.

Enable Partial Snapshots: Activates the "Partial Snapshot" feature. It will be possible to include only ganged channels when making a snapshot. Options are available within the snapshot window of the GC screen.

Enable Theatre Cue List: Enables extensive functionality of cue lists.

LIVE (On-Air) arms Cue List: When pressing LIVE in the EXT PFL SPEAKER area of the Vista 8 control bay, the state of the cue list will change accordingly.

Show Next Cue when Armed: Defines whether the currently active or the next cue should be highlighted when the cue list is armed. This also allows reading the attached notes ahead during the live event.

Restore Armed on Startup: The system will switch the console into the "armed" state whenever the software is started. This allows e.g. constant reception of external MIDI commands for firing off cues.

MIDI Show Control Device ID: See below.

8.6.3.15 MIDI Show Control Device

It is possible to control the cue list by using "MIDI Show Control" commands. Vista 8 acts as a slave in this case. The following "MIDI Show Control" commands are supported: Go, Stop, Resume, Load, Reset, Standby+, Standby–, Sequence+, Sequence–.

Vista is designated as a Music Command Format (0x11). The MIDI device ID is set in the "Option: Snapshot Automation" menu.

Examples:

Next Cue: F0 7F [Device ID] 02 11 01 F7 *(Go command)*

Previous Cue: F0 7F [Device ID] 02 11 12 F7 *(Standby Command), then*
F0 7F [Device ID] 02 11 01 F7 *(Go Command)*

Recall Cue 3.5: F0 7F [Device ID] 02 11 01 33 2E 35 F7 *(Go Command with Q specified)*

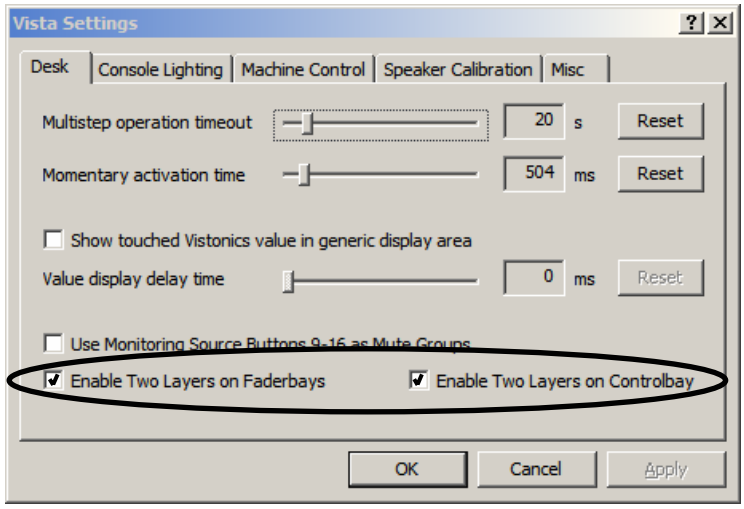
8.6.4 Muting Pre-Fader Auxiliaries upon Channel Mute

A new option has been added in the "Option: Vista Settings" dialog. If selected, all auxiliary buses are muted if the channel MUTE key is activated. If this option is not active (default), only the auxiliary buses switched to post-fader are muting upon channel mute.

8.6.5 View MISC and CHANNEL with ⇧ (Shift) Key

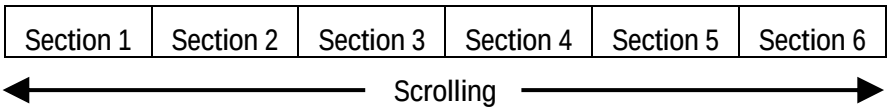
If the ⇧ (shift) key is activated on a fader bay, it is possible to see up to 40 mono and 20 stereo auxiliaries when pressing MISC and CHANNEL on a channel strip. This is useful when working with multiple auxiliary and matrix buses.

8.6.6 Single Fader Switch to Second Layer

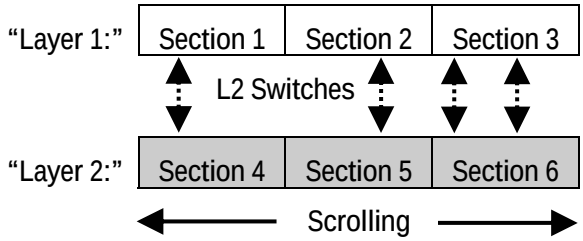


By activating “Enable Two Layers…” in the “Option: Vista Settings” menu, the virtual desk may be reduced from six to three sections. Scrolling will then be possible only between sections 1 and 3. The previous sections 4...6 now serve as a lower second (lower) layer of the console.
By pressing the L2 key on the channel strips, one individual channel strip can be switched between the upper and the lower half of the console. If a channel strip is currently displaying the third channel of section 1, it will afterwards display the third channel of section 4. This function may be helpful when working e.g. with backup microphones. In this way it is easy to switch to a different channel while leaving the other ones untouched.

8.6.6.1 Second Layer Disabled (Classic Operation)

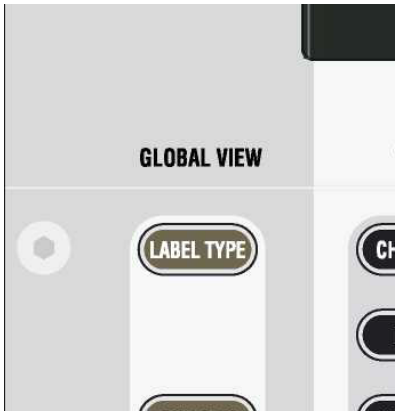


8.6.6.2 Second Layer Enabled



It is still possible to globally switch to the second layer by pressing the section navigator keys 4...6. This will activate the L2 keys on each strip of the console surface, indicating that the operator is now looking at the lower half of the console.

8.6.6.3 Displaying Both Layers at the Same Time

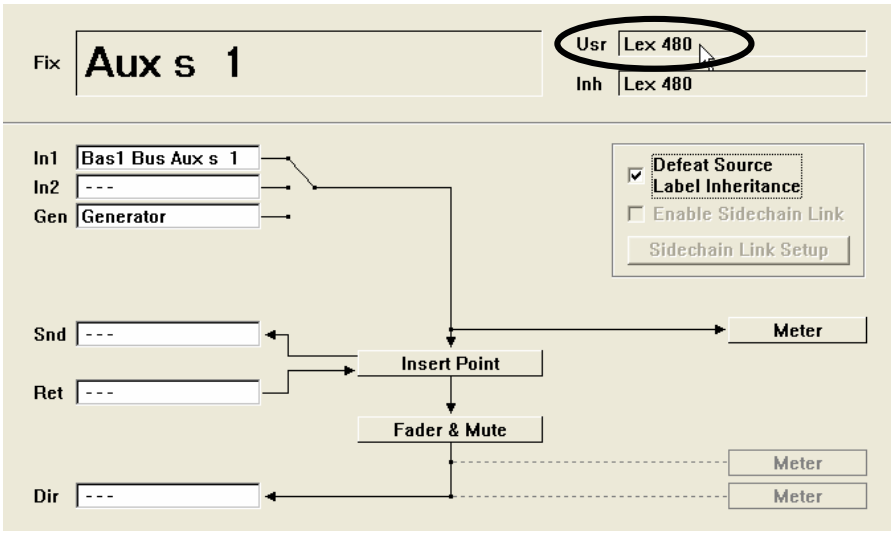


If the second layer option is activated, Vista 8 may display the label and real time metering of both layers at the same time. In order to activate this label view, press LABEL TYPE several times until the label display area on the Vistonics® screen shows the labels of both layers. This label of the second layer appears only if there is a channel assigned to that strip on both layers. Use the Strip Setup dialog on the graphic controller screen to do this.
Next to the label there is a small icon showing the level of the alternate layer (below, left). When switched to the second layer, the label lines are swapped, and the top line is showing the first layer label and metering (below, right).

Notes: This option may be activated separately for all fader bays as well as for the control bay.
The second layer is displayed only if the first layer is not empty.

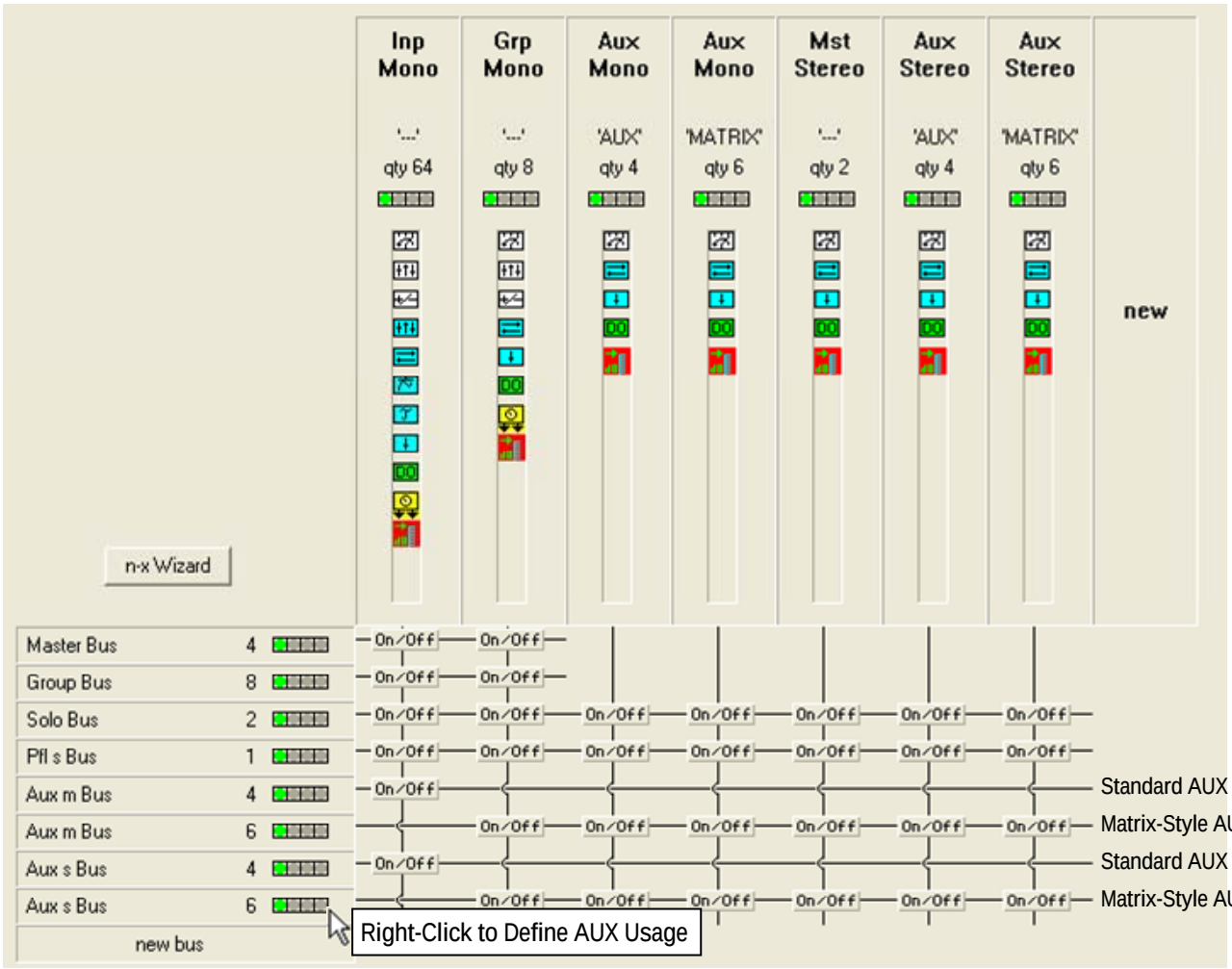
8.6.7 Naming Auxiliary Buses

A name can be given to the auxiliary master channel, which is automatically propagated backwards to all displays of the input channel. Renaming the auxiliary master user label is done within the channel patch window. Double-click on the **Usr** (label) area and enter a name, e.g. the name of the device attached to the output of this auxiliary master channel. The given name will then automatically show up on the input channels rather than the auxiliary number.



8.6.8 Matrix Buses

This type of bus/output is used very often for live applications, particularly in PA operation. A matrix bus is a kind of an auxiliary bus typically fed only by master channels (subgroups, masters, aux masters), but not from input channels. The Configuration Editor 3.4 application (and newer) offers the possibility to talk from master channels to auxiliary buses. It is therefore possible to have a “super auxiliary” bus that can be fed from any channel within the console. However, very often this may be confusing. The Configuration Editor software easily allows the software to know whether you intend to use a certain auxiliary bus as a typical aux bus (no actions necessary) or whether you want to use it as a matrix bus with typical feed possibilities (right-click on the Aux Bus field in the CHANNEL/BUS view, as shown below). The latter will remove the possibility to talk to this bus from input channels, but instead will add feeds from all master channels. This is identical to a matrix bus, and the corresponding master channels can be used as matrix outputs. They may even be equipped with signal processing, such as EQ, dynamics, or delay, in order to satisfy the specific needs of each customer.



To avoid confusion about which master is a “true” auxiliary master and which one is a matrix output, it is recommended to rename the user label of the “matrix style” master channels to MATRIX 1, for example. This name will then be propagated and properly displayed on the input channels – as described at the beginning of these notes.

8.6.9 Multi-Track Buses with Switch for Pre-/Post-Fade and Pan On/Off

When configuring the “Multitrack Enhanced” bus type, additional parameters become available on the console. In the global OUT n–1 view or the local CHANNEL view, a multi-track send level is visible. This level is used for all multi-track buses. A “Pan ON/OFF” key allows the user to select whether the channel pan setting may affect the multi-track buses or not. By using the PRE/POST modifier key on the bottom right corner of the fader bay, the switch function may be changed to become a PRE/POST key for multi-track buses. So it can be determined:

- whether the multi-track buses are fed by a pre- or post-fader signal
- whether the channel panner should be active for the multi-track bus feed level.

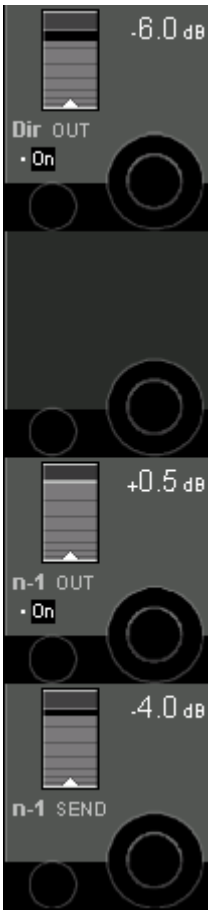
Note: When working with channels equipped with Virtual Surround Panning (VSP™), only normal amplitude panning functions (without early reflections) will be active on the multi-track buses. If full VSP is desired on the multi-track buses, the standard “Multitrack” bus type must be used.

8.6.10 N–X

As a replacement for the previously offered “N–1” bus type, now a bus type with enhanced functionality is available. When configuring an “N–X” bus, additional functionality, such as contribution level adjustment (N–X level on each input channel in order to balance the signal going to all N–X buses) and the possibility to define and activate a conference between multiple N–X owner channels is obtained. An “alternate source” signal may be sent out of an N–X output (e.g. station ID signals) while the channel fader is closed. The N–X bus types have to be configured using the Configuration Editor software.

8.6.10.1 Send Level

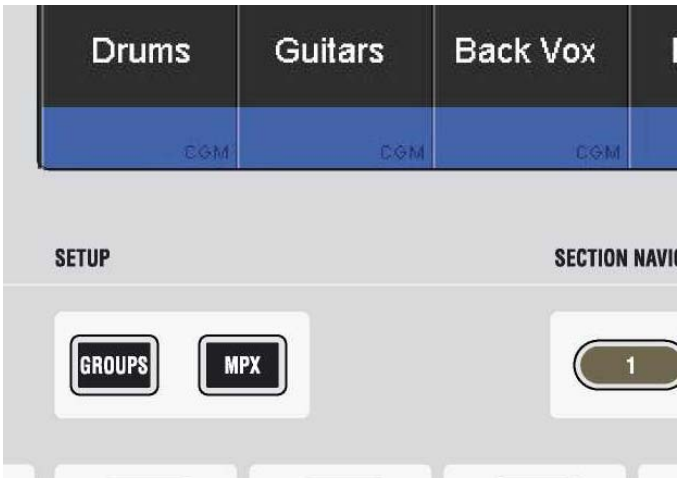
When looking at the N–1 out global view (press GLOBAL VIEW: OUT), you will see a level on the bottom rotary. It defaults to 0 dB, which means that this channel signal is sent to all assigned N–X buses with a post-fader level of 0 dB. In some cases, a particular channel should have its signal at a lower level audible on the N–X buses, e.g. when you have a jingle machine connected and the persons listening to the N–X outputs don't want that signal to be so loud. It is therefore easy to adjust this level by adjusting the bottom rotary. *However, this will set the level going to all N–X buses.*



8.6.10.2 Offline Conferencing

When configuring the N–X buses, a subset of N–X owner channels may be defined to be members of a conference. Whenever their fader is closed, they will automatically hear all other members (without hearing themselves back), rather than the normal N–X signal. As soon as the fader is opened, they will instantly hear the N–X signal again.

8.6.10.3 Setting up the Offline Conference



By pressing the SETUP MPX key on the control bay, the console is put into conference setup mode. The LINK / SEL keys of all possible conference member channels (all N–X owner channels) are half-lit, and the user may select any number of them to be members of the conference. If the user wishes to adapt this setting frequently, he may even stay in this mode during a live production, since the channels are instantly added or removed from the conference when pressing their LINK / SEL key (however, other features such as ganging will not be available while in setup mode).
All the channels currently defined as conference members are marked in the strip setup window.

The conference icon in the toolbar has three states:

Grayed out No conference active nor defined

Colored Conference active (if member faders closed)

Colored, crossed out Conference defined, but temporarily deactivated (even if member faders closed).

Note: In certain circumstances, also an AUX master can be selected as a conference member (indicated by its half-lit LINK / SEL key). This is intended for adding e.g. an on-air signal to the conference. See details below.

8.6.10.4 Talk to the Conference

When pressing the TALK key on a channel which is currently conferencing, the talk function is automatically activated *on all members of the conference* at the same time.

8.6.10.5 Deactivate Conference Temporarily

The conferencing may temporarily be deactivated by clicking on the conference icon  in the toolbar or pressing F7 on the control bay. In this case the conference definition is retained. As soon as the conference is reactivated globally (by pressing F7 or clicking on the conference icon in the toolbar again), the previously selected channels may talk to each other again. Temporary activation of the F7 key is possible as well.

8.6.10.6 Conference Level

While in conference mode, the N–X send level of the channel conferencing may be adjusted. This level will then be used as a conference send level only. When opening the fader, the level previously set returns. In other words, the system remembers two level settings; one of them is active when conferencing, the other one is activated in normal N–X mode.

8.6.10.7 Monitoring the Conference Using the MPX Bus

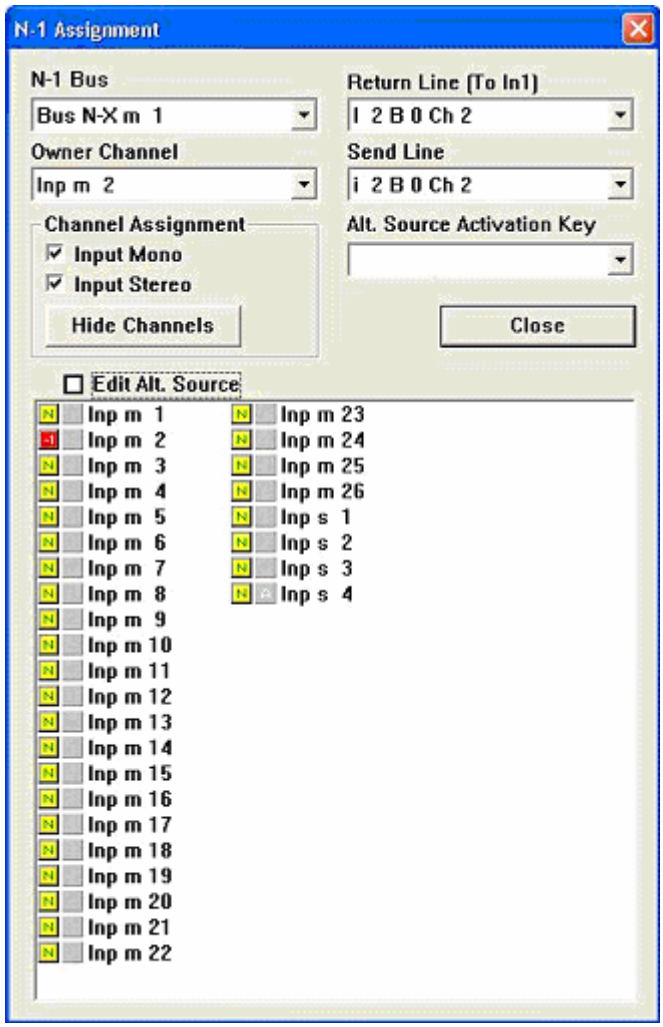
Within the new Configuration Editor software, the MPX bus type has been added. This bus only exists once within a configuration (similar to a PFL bus) and is used to monitor the conference. It is a mono bus. Any channel currently conferencing is automatically assigned to the MPX bus, and the MPX bus output may be monitored using a source selector key. Since the MPX bus output is a normal bus output, it can also be patched to any console output. This allows, for example, feeding this signal to a small loudspeaker for constantly playing back the conference signal.

8.6.10.8 Adding On-Air Signal to the Conference

It is possible to add an amount of the master signal to the conference, in case the conferencing members should want to constantly hear what's happening on air. This functionality is provided by a special function, whereby an auxiliary master channel is added as a conference member. This AUX bus is fed by the on air signal from the masters.

Procedure: Have one AUX bus configured with an On/Off symbol at the master channels. Have another On/Off symbol between this master channel and all N–X buses (this step is normally performed by the N–X wizard available in the Configuration Editor software.)
Define your conference members by pressing MPX and selecting any of the half-lit N–X owner channels, and add the AUX master channel as a further conference member.
Go to the console master channels and open some level to this AUX bus.
Vary the N–1 send level on the corresponding AUX master channel in order to add the on-air signal to the conference. Since this feed is taken pre-fader, this master's fader has no effect.
Typically, one auxiliary bus is reserved for this use. It may be the one with the highest of all bus numbers, in order to avoid confusion with the rest of the buses. By using the new "N–X setup" wizard within the Configuration Editor software, this functionality can be easily added with all typical settings.

8.6.10.9 Alternate Signal to N–X Outputs (CUE)



The new N–X bus type allows defining an “alternate N–X bus assignment”. It is possible to select any console channel (or multiples) to be the alternate N–X output signal. This signal is activated by the ALT n–1 key on the channel strip. This can be done only if the owner channel’s fader is closed.

If you don’t want to use normal console channels to be the alternate signal, feel free to configure simple input channels not used otherwise during the production. Such a channel can be the “alternate cue signal” source for all N–X buses – or you can define a different alternate source for each N–X bus separately.

Set-up an “alternate N–X signal” for a specific N–X bus:

- Open the “Option: N–1 Assignment” menu in the graphic controller screen
- Select the N–X bus you want to define the alternate signal for
- Check the **Edit Alt. Source** checkbox
- Select any channel (or multiple) to be the alternate signal source for the selected N–X bus (their pre-fader signal will be used that can be weighted with the “N–1 send level” to form the alternate signal for this N–X bus).

Notes: The **Alt. Source Activation Key** option is not useful for Vista 8. It would allow activating the alternate N–X signal with the USR 1 or USR 2 keys. Since Vista 8 has a dedicated key for this purpose, selecting one of the user keys is unnecessary.
To avoid having to repeat this process too often, such a setup may be stored in a snapshot or preset to be used at any time by all operators.

8.6.11 D21m I/O System

The D21m I/O system has been completed by mic/line input cards as well as the possibility to connect remote I/O boxes (stage boxes) over a MADI link to a "hub" frame located next to the DSP core. For systems already installed, there is nothing new with this software. However, for new systems delivered with the D21m I/O system, the additional functionality provided by the D21m I/O system will be explained below.

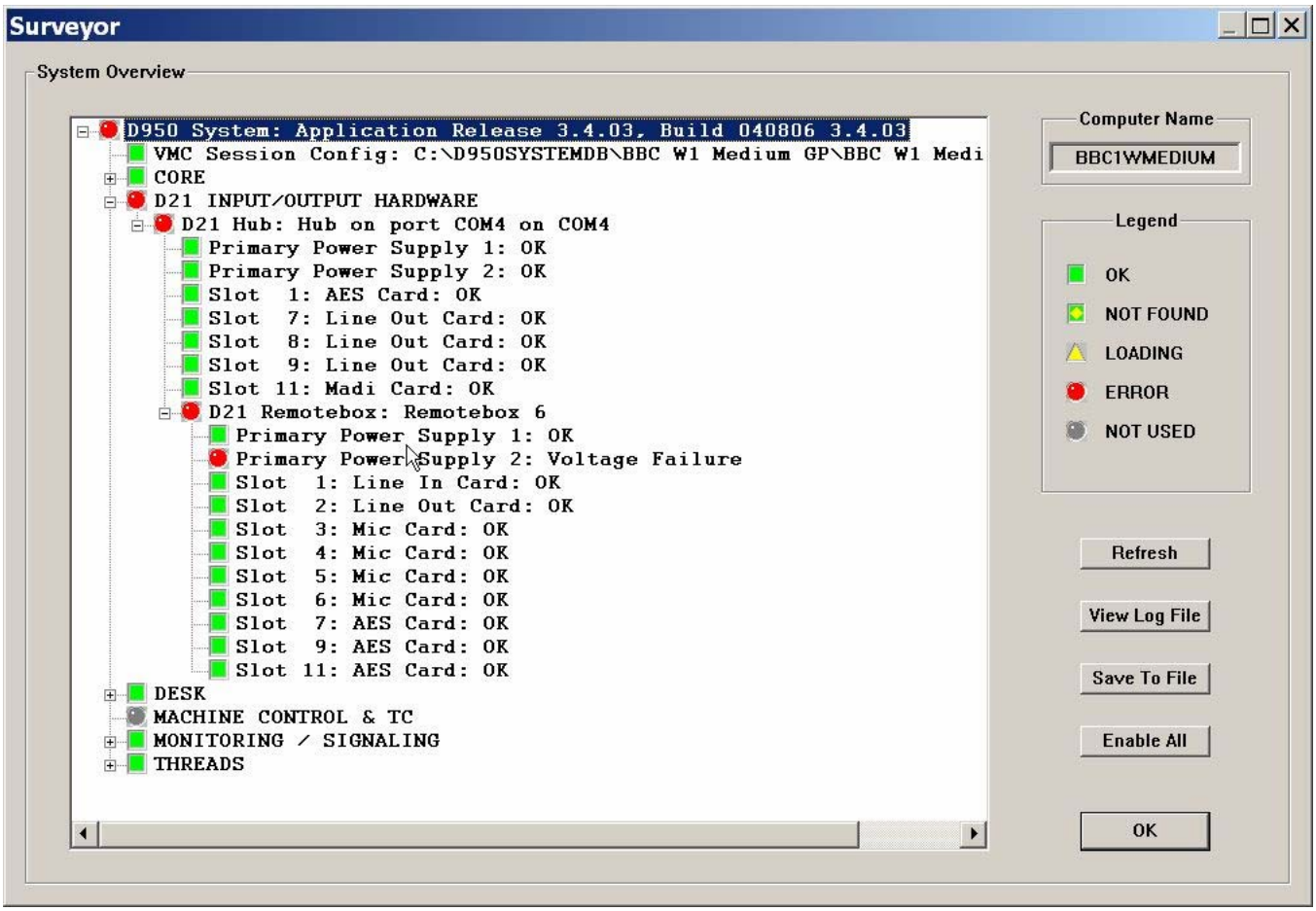
8.6.11.1 Automatic Detection of I/O Setup

The D21m I/O system is very much a "plug-and-play" unit. There is no longer any need to tell the system which ports have mic/line preamplifier cards connected, nor is it necessary to define the presence of such cards at the time of configuration (in the Configuration Editor Software). This also means that there is no more "External Devices" sub-patch in the general patch window. The philosophy of automatic I/O detection works as follows:

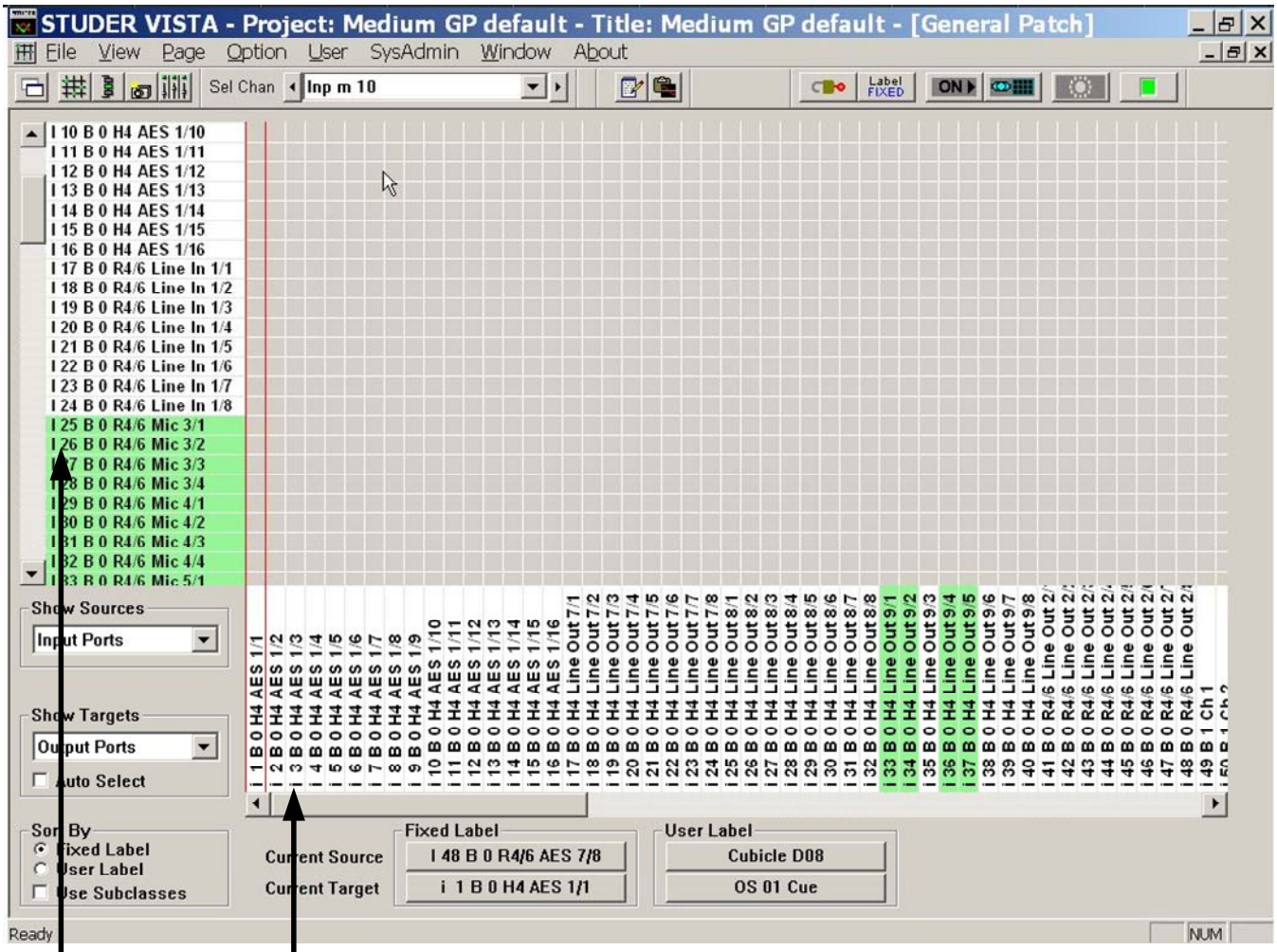
At startup time of the console software, the I/O structure is scanned and compared with the structure previously found when the system was started for the last time. If the system detects any I/O structure changes (e.g. a stage box has been removed to work temporarily with another console), a warning is displayed for the user. He then may confirm that this situation is ok and the system should not expect the missing components for this session. The user also has the possibility to confirm the new I/O structure as the standard (and this will be the structure the system expects when starting the next time). If the channels within the configuration are equipped with the D21m input function, the user can go ahead and patch audio to input channels – while automatically getting control over all parameters of the I/O system.

8.6.11.2 Enhanced Surveyor Information

The information on the I/O system displayed in the surveyor is much enhanced. Now not only the mic/line preamplifier cards are indicated, but the health state of all I/O cards. Power supplies (main and redundant) are indicated as well.



8.6.11.3 Automatic Generation of Intelligent Fixed Labels



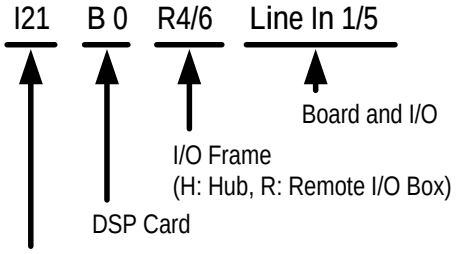
AES input 3 (out of 16) of I/O card 1 inserted in Hub 4 (COM port 4)

Audio is transferred over HD link channel #3, connected to DSP card #0

Mic input 2 (out of 4) of Mic/Line In card 3 (slot 3) inserted in Remote I/O Box 6 (slot 6), connected via MADI to Hub 4 (COM port 4)

Audio is transferred over HD Link channel #26, connected to DSP card#0

Structure of Intelligent Fixed Labels:



Frame numbers represent double-width slot in corresponding hub frame to which the MADI link is connected (1…6).
Card numbers represent slot number of frame into which the card is inserted.

Audio coming through the D21m I/O components is always reaching the core over Studer's proprietary HD (high density) link. This link is present between the local hub(s) and the DSP core. Each link may carry up to 96 audio channels. Instead of displaying these channel numbers in the general patch, the software 3.4 is able to give more intelligent names to the input and output ports shown in the general patch. You will then see frame numbers as well as card types and channel numbers within each card. This generation is automatically active whenever the D21m I/O system is present

and the hub frame is connected to the console via a serial link. However, when recalling a snapshot containing the "non intelligent" fixed labels (e.g. from older productions), this will overwrite the fixed labels as well and make the "intelligent fixed labels" disappear. In this case, select **Regenerate Intelligent Fixed Labels** within the SysAdmin menu and update this snapshot.

8.6.11.4 Functionality of the D21m Mic/Line Input Card

The D21m mic/line input card features some additional functionality compared to previous I/O systems. All relevant parameters are accessible from the console surface and visible in the "A/D CTRL" global view. The input gain (one common connector for mic/line) can be adjusted click-free over an 86 dB range.

All mic/line cards provide an active split output for each microphone channel. This output may be used to connect a second console to the same microphones. This output is mainly independent from the mic gain set. However, to achieve maximum audio quality (signal-to-noise ratio) on these split outputs, it cannot be avoided to attenuate this split output by 20 dB whenever the mic input gain set on the main console is very low (for input signals from +4 to +25 dBu). This will be graphically indicated on the Vistonics® screen. Inputs of a second console connected to the split output(s) can therefore always work in the "microphone range" and don't necessarily have to switch to "line range".

A soft clip function is available on all channels and can be activated individually. This "analog limiter" may prevent nasty clipping noises in case the audio level should be too high. We recommend activating this function during live productions, since audio is not influenced below about –6 dB_{FS}.

Note: An analog insert point is made available by inserting an additional analog insert card. Its send output is always active at line level, and the return path may be activated by the corresponding switch on the console.

8.6.12 VCA-Style Masters (“Motors Off” Option)

The “Control Group Masters” in a classic sense were implemented in such a way that all channel faders belonging to a certain control group would automatically move whenever the master fader was moved. This has the advantage that you always visually see the audio settings currently active in the DSP core. However, there are two drawbacks to this behavior:
When the Control Group Master fader is closed, the user cannot adjust the balance between the member channels, since they are moved down together with the master fader.
When the master fader is closed, it is still possible that there is some audio passing through some of the member channels, since their fader is not completely closed.

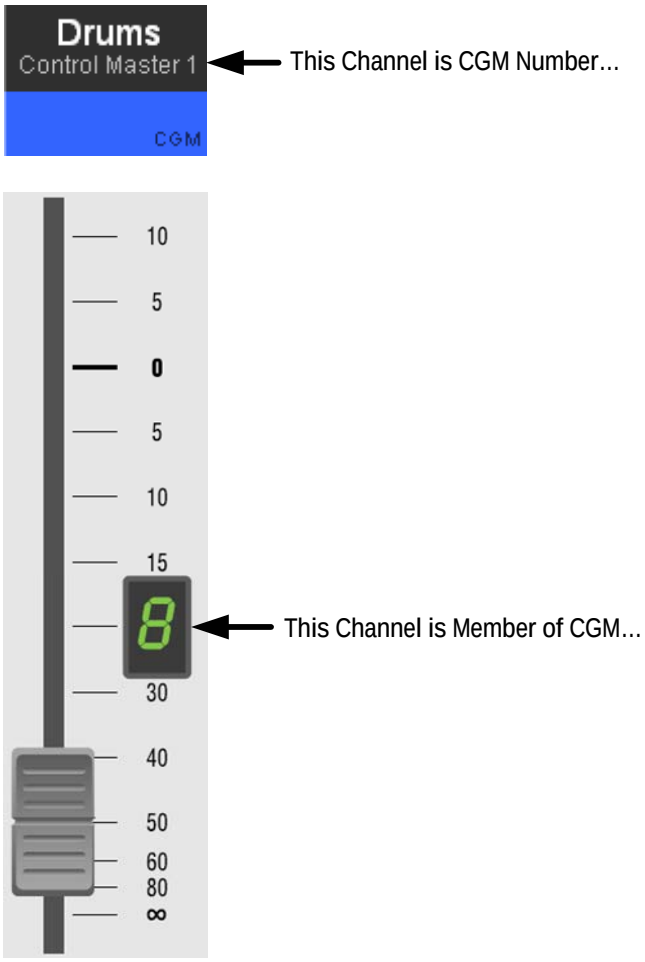
With software release 3.4, there is now an alternative way of how the control group master channels can work, that is very similar to the VCA groups of an analog mixing console. Sometimes, this new behavior is also called “motors off”. In this mode, the value set on the control group master channels (as seen on their scale) is added to or subtracted from all member channels, and the resulting (audio) level is set in the DSP core. The faders of the member channels don't move up/down, and so it is possible to have the master fader closed but still to correct the balance between the member faders. In addition, the user can be sure that whenever the master channel is closed, no audio can be heard from the member channels. Since the fader of a member channel doesn’t represent the real audio value anymore, the digits below the label display are indicating the *real* audio value.

Note 1: If “VCA style” operation is active, you may see member channels change their fader values as soon as they are added to a control group. This is the case if the master channel is already set to a value different from 0 dB at the moment when a new slave channel is added to the group. This behavior is by intention, in order not to have any audio changing when adding or subtracting member channels from a control group. Example: You have set a microphone channel to –15 dB, and you add it to a “VCA” group the master channel of which is already set to –10 dB. In the moment the microphone channel is added to that group, the user will see the microphone fader jump up to –5 dB. This results in no audio change, as requested.

Note 2: The **VCA style Control Groups** option can be found in the Option menu of the graphic controller screen. On D950 and Vista 7 it is available only as long as the console doesn't have dynamic automation active. On Vista 6 it is permanently available.

8.6.12.1 Hierarchical CGMs

It is now possible to have control group masters (CGMs) being a member of other CGMs. The indication of the control group number on master channels has therefore slightly changed: The green display next to the fader is now constantly showing to which master a channel belongs. If there is no further hierarchical level above a CGM, this area is dark. The number of the CGM itself can now be seen in the second line of the label display area.



8.6.13 Fast Adjustment of DIM and PFL/SOLO Offset Level

Up to the current software version it was possible to adjust the DIM level in the control room as well as in the attached studios. It was also possible to define an offset level for PFL and SOLO, so the control room monitoring level would increase by a certain level whenever PFL or SOLO is active. However, it was not accessible for operators to quickly change these settings. Now this is performed easily. The settings are saved within the monitoring file, as before.

8.6.13.1 Control Room DIM Level Adjustment

Hold the DIM key next to the control room level rotary. After a short while you will see the current DIM level on the level display. Turn the dB SPL CR level control to adjust the dimming level, and then release the DIM key.

8.6.13.2 Studio DIM Level Adjustment

Hold the DIM key next to the studio monitor LEVEL rotary for two seconds. Turn the LEVEL rotary control to adjust the dimming level and release the DIM key. The current dimming level is displayed with the LED ring around the LEVEL control.

8.6.13.3 PFL and SOLO Offset Level Adjustment

Hold the PFL or SOLO key (next to the EXT PFL SPEAKER level control). After about two seconds you will see the current offset level in the control room level display. Turn the dB SPL CR level control to adjust the offset level and release the PFL or SOLO key.

8.6.14 3rd-Party Control of Console Patch (Native ProBel Support)

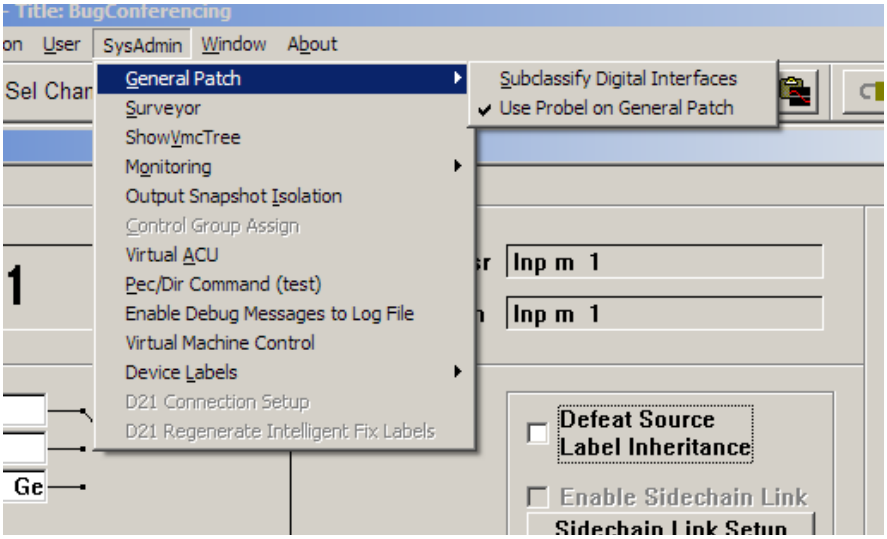
Starting with version 3.5 of the D950/Vista Software, these products are able to support ProBel enabled devices natively, and so a second PC is no more necessary for this functionality. However, we do not recommend that existing installations are altered that are already in use with a second PC for ProBel interfacing.
The explanations below are therefore intended for installation personal and not for the console operators.

Supported Functionality

Our implementation enables the ability to map certain ProBel connect requests to a set of definable patch connections. The control of patch points is not restricted to set output patch points. It is possible to set any patch points within the console patch upon reception of a ProBel command. The set-up procedure is done from the General Patch screen, where certain patches can be selected (by just selecting the affected targets) and which are being mapped to a ProBel source/destination combination with a single click on a dialog.

Enabling ProBel Setup

In order to activate and see the **Setup Probel** button on the General Patch window, the system has to be in SysAdmin mode. The SysAdmin menu contains a General Patch sub menu and a **Use Probel on General Patch** item.



This setting will be written to the `D950System.ini` as well, resulting in the same behavior as if it was edited by hand in the first place.
The button will then be visible whenever the system enters SysAdmin mode.

Enabling COM Ports for Use with the ProBel Protocol

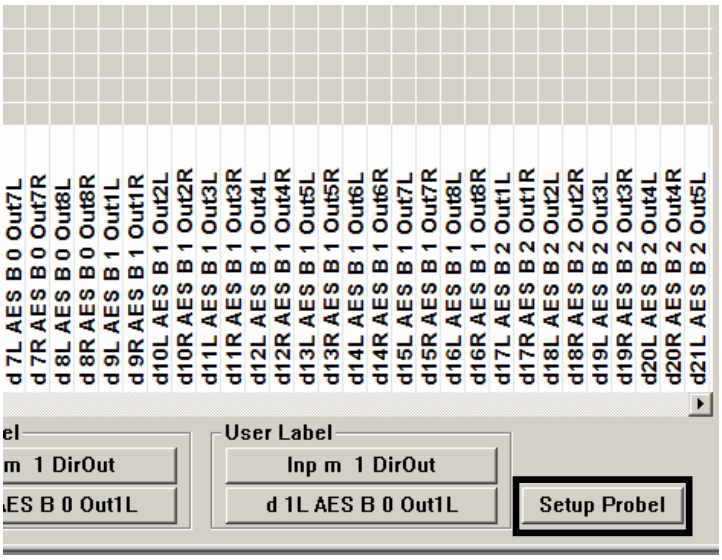
Ports that are to be used for ProBel need to be specified in the `D950System.ini` in the `[d950SerialPorts]` section. This gives the possibility to use non-standard data rates and parity settings.

```
[d950SerialPorts]
1= {p} COM1 baud=115200 parity=N data=8 stop=1
2= {b} COM6 baud=38400 parity=E data=8 stop=1
```

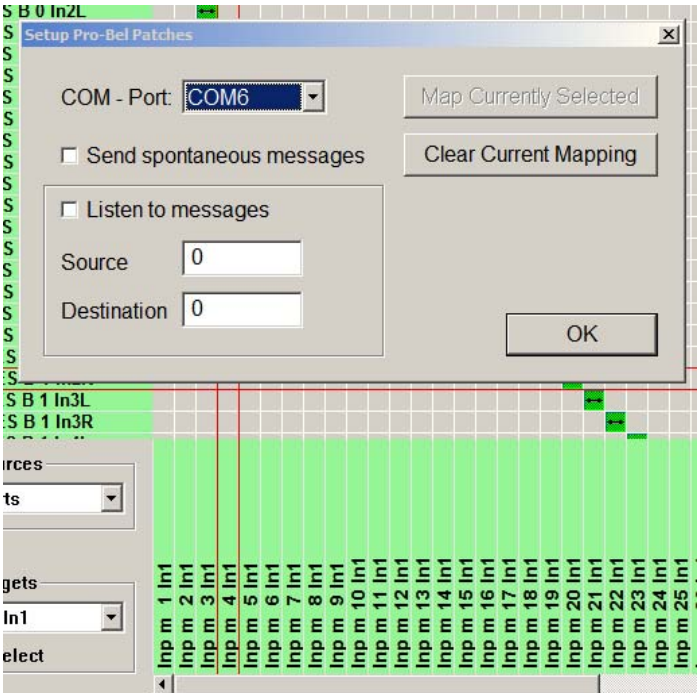
"b" is used to indicate ProBel use. Only the COM ports defined in this way will be available in the ProBel set-up dialog.

ProBel Set-up Dialog

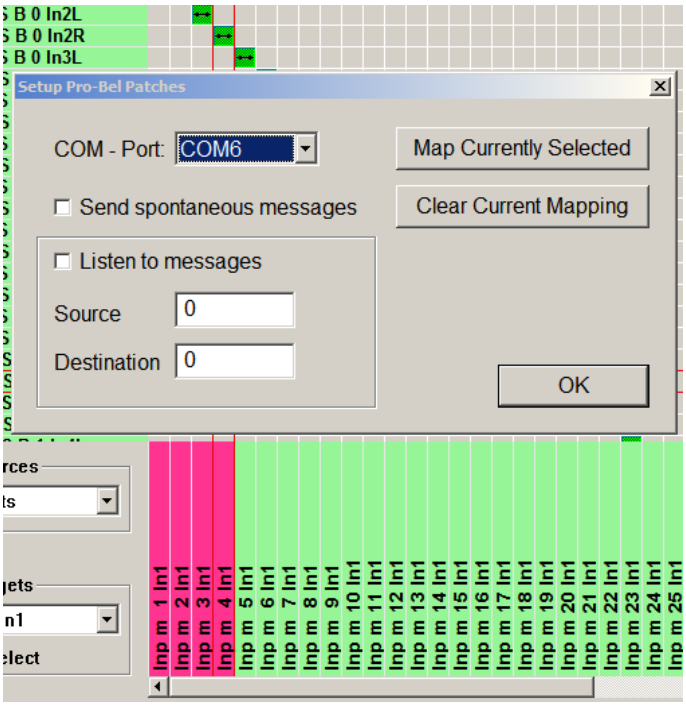
With **Use Probel on General Patch** enabled the General Patch displays an additional button on the bottom right.



When clicking on this button the system brings up the set-up dialog and enters ProBel set-up mode.



Targets with their respective connections can be selected by clicking on them in the list on the general patch. Selected targets change their color to pink to show their selection state.



Clicking on the **Map Currently Selected** button maps the patches for the selected targets (the pink-colored ones) to the ProBel connect command specified on the left.

With **Listen to messages** enabled, incoming connect messages are mapped to the edit fields on the dialog. To select targets affected by this connect command simply click on them in the target list of the general patch (color is set to pink).

Make sure to always associate the same ProBel destination to the same set of targets.

Any connection on the patch may be mapped to certain ProBel connect commands. You are not limited just to outputs or inputs!
With **Send spontaneous messages** enabled, the appropriate CONNECTED message is sent whenever one of the defined patch combinations matches the same combination as when they were defined.

Files Used to Save ProBel Set-up

The system creates human-readable files (ini-file format) in the `D950System` directory to save the set-up. The files are named according to the COM port used:
File name: `PortX.probel` – with X being the COM port used.

Example for a `.probel` File

```
[TARGET_1 SOURCE_6]
Im23 Inp m 23 In1 left=D12L AES B 1 In4L left
Im24 Inp m 24 In1 left=D12L AES B 1 In4L left
[TARGET_1 SOURCE_7]
Im23 Inp m 23 In1 left=D11R AES B 1 In3R left
Im24 Inp m 24 In1 left=D11R AES B 1 In3R left
[TARGET_1 SOURCE_4]
Im23 Inp m 23 In1 left=
Im24 Inp m 24 In1 left=
[TARGET_0 SOURCE_0]
Im23 Inp m 23 In1 left=D11R AES B 1 In3R left
Im24 Inp m 24 In1 left=D11R AES B 1 In3R left
Im25 Inp m 25 In1 left=
Im26 Inp m 26 In1 left=
```

This file basically has a section for each used Source/Target combination. The fixed labels are being used; “left” is appended for left or mono sources/targets, and “right” is appended for right sources/targets.

8.6.14.1 Exclude Certain Patch Targets from Being Changed by Snapshots

Some customers are using our consoles as audio routers for other studio installations, controlling the internal router by protocols such as ProBel or ARMI. When recalling console snapshots, the patch points set by these devices are reset to the value of the snapshot, even if this was not always requested. With software release 3.4 it is possible to define certain patch targets as "isolated from snapshot recalls". In other words, the user defines the patch outputs are controlled by ProBel/ARMI devices and therefore makes those targets completely independent from snapshot recalls by the console operator. This set-up is typically done once on a system. See service instructions for information on how to set-up this isolation.

8.6.14.2 Label Import from 3rd-Party Systems

With software release 3.4 it is possible to exchange label information with external router systems, such as ProBel and Grass Valley. Using a serial connection, a permanent label exchange can be set up in such a way that the "device labels" used in Vista and D950 systems are permanently overwritten by received labels from the 3rd party router. This means that you will automatically see the name of the original sources on your channel strip, even if a large routing system is placed before your console.

Studer supports two label exchange protocols: ProBel SW-P-08 and Grass Valley Group Series 7000. Normally this feature is only used for label *import* from the external devices. However, when using the ProBel SW-P-08 protocol, also *export* of output interface labels is supported. It is therefore possible to connect two Vistas together and get the labels automatically from one Vista transferred to the second.

Note: If you plan to use this feature, please contact Studer Service & Support beforehand.

8.6.15 Support of External Monitoring Source Selector Panels

As an alternative to control patch points of the console by using 3rd-party controllers (ProBel protocol), Studer offers a “mini” ProBel controller module. The module may be mounted within the Vista 8 console or anywhere externally. It hosts 32 freely programmable keys to set any number of patch points within the console. Each key may be defined to set a certain patch point (or a set of patch points.) The keys on the hardware panel are illuminated, if all of the defined patch points are currently set. As soon as one of them is cleared or changed, the key gets dark. This intelligence allows free grouping of the 32 keys to e.g. 16 groups of two sources each, or to one single group of 32 sources. Any combination in between is possible. It is also possible to use 16 keys as one group while using the remaining keys as two groups of eight, for example.

If a set of keys are setting patch points to the same destination they are automatically recognized as a group and therefore their illumination will automatically indicate the correct patch state. Rule: A key is illuminated as long as all defined patch points are set. If at least one of them is changed (e.g. by pressing another source selector or by the console’s trackball) the key becomes dark.

Note: Switching patch points is not only possible to outputs of the console, but everywhere within the patch (e.g. input patches to input channels or inserts). Therefore the Studer panel may also be used to switch any number of input patches of the console to different inputs.

8.6.15.1 Patch Point Isolation

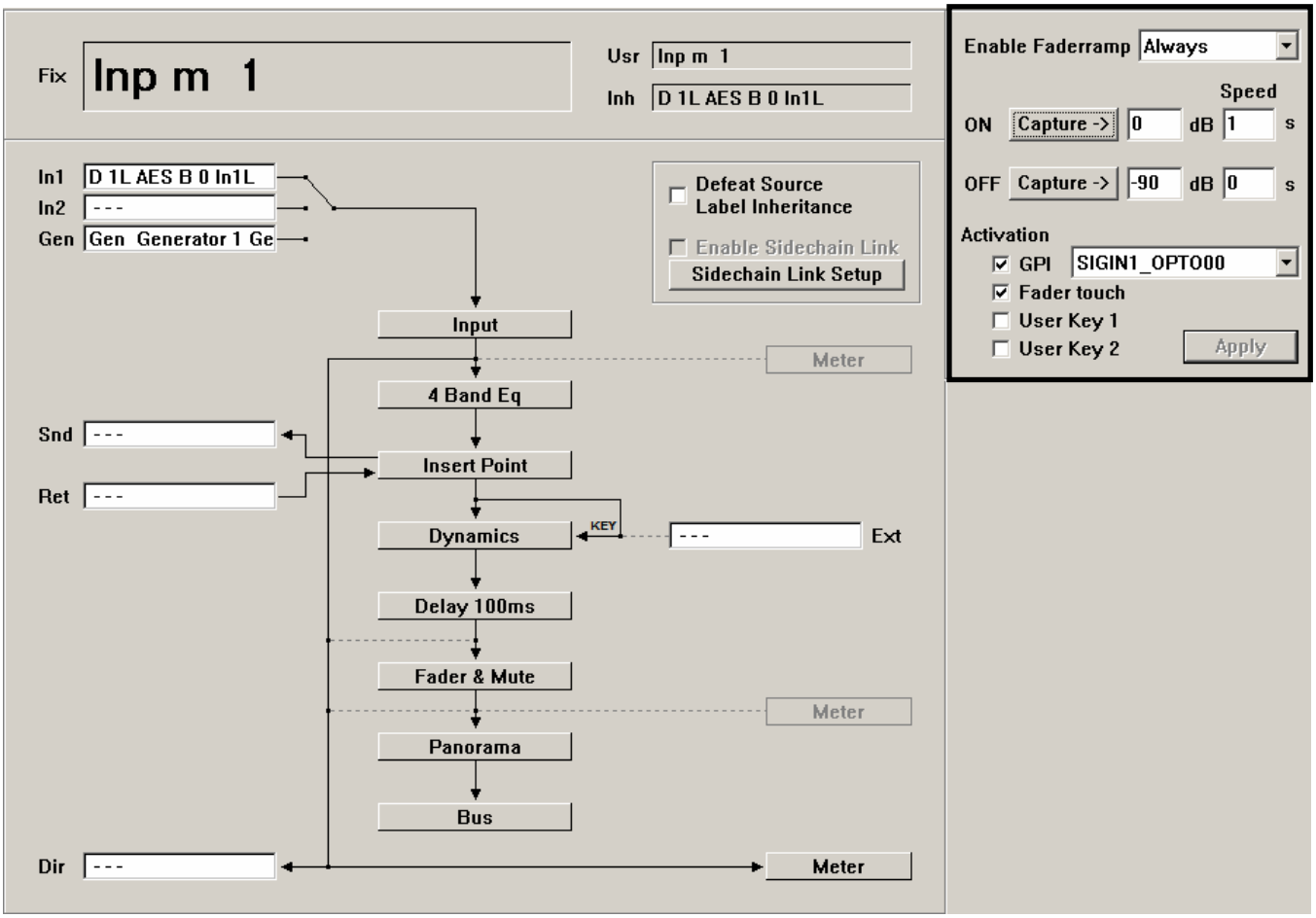
These patch points cannot be isolated against changes by snapshot recalls, unless the inputs of the channels are isolated. The general function of isolating patch points against snapshot recalls may be applied to output patches only.

8.6.15.2 Patch Mapping Setup

The setup on the console side happens in the same way as when setting up normal ProBel control; see chapter 8.6.14 for details. The panel itself needs an address set. This address will guarantee that multiple panels may work at the same time. Multiple panels may be connected to one serial port of the console. Please refer to the service manual for more details.

8.6.16 Fader Ramp Control ("Audio Follows Video")

This function is only available in static automation mode.



Faders of all console channels can be externally controlled. When using this feature, the console operator determines the Fader Open/Close values, as well as the fade in/out speed. Various triggers are available in order to activate the fade. The channel patch window allows adjustment of all necessary settings.

The fader ramp function might be particularly useful when doing TV work. Opening and closing of certain microphone channels may be controlled by the video switcher, using GPIs (general-purpose inputs, i.e. closure contacts in the monitoring rack). Another possible use is radio/TV talk-shows: Different people have their microphones constantly opened and lowered. This action may be pre-programmed, and the fade in/out may be activated by just touching the fader or pressing one of the USER keys. The following options may be set in the channel patch window:

Enable Fader Ramp: Select if you want to use one of the two USER keys to enable the fader ramp on a specific channel. It is also possible to activate it constantly, leaving the USER keys free for other functions.

ON (Fader Value)**:** Clicking on the Capture button will set the current fader value to be used when the GPI is active, hence the value used when the fader is opened. Alternatively the value may be typed using the keyboard or by using the trackball: Click in the number field and drag the pointer up or down. This action is similar to the way time values are adjusted in the dynamic automation of the Vista consoles.

OFF (Fader Value)**:** Clicking on the Capture button will set the current fader value to be used when the GPI is inactive, hence the value used when the fader is lowered/closed.
Alternatively the value may be modified as described above.

Note: By using the same GPI on two channels and setting the ON value to the "fader closed" position on one of the two and vice versa allows using one GPI to control opening *and* closing of different channels at the same time.

Speed ON: Determines the time used for fading in the corresponding channel.

Speed OFF: Determines the time used for fading out the corresponding channel.

Activation: The fade actions may be activated by different events. Several events may be enabled at the same time. The fade will take place whenever one of the activated events is detected:

GPI: Select one of the general-purpose inputs available on the console for triggering the fade.

Fader Touch: Touch-and-release the fader in order to activate the fade.

Note: If the fader is moved while being touched, no automatic fade is being executed. This prevents from accidental fading.

User Key 1/2: The fade is activated when pressing the corresponding USER 1 or USER 2 key on each channel.

Note: In case adjusted values should constantly jump back to their previous values, check that the `C:\D950System\Sig...ini` file is not write protected.

8.6.17 Option: Remember PFL State in Broadcast PFL Mode

If the broadcast PFL mode (also referred to as "PFL cut on channel active" function) is enabled, audio signals are cut from the PFL bus if the channel is ON and the fader is open.
For this mode, a **Remember PFL State** option has been added in the "Option: Vista Settings" menu. If this option is set, the channel will also go back into PFL state when the fader is closed again.

CHAPTER 9: APPLICATION NOTES

9.1 Application Note 1: Working with Stems on Vista 7

9.1.1 General

Although the Vista 7 mixing console doesn't provide the classic paddle-style film monitoring panel, it is well able to cope with mixing situations where the user wants to mix and record different stems separately, using the monitoring for adding all stems together in order to check the whole mix. Since the structure of the console is quite flexible, the solution described here may be altered according to specific customer needs.

- Vista 7 will use the group buses to create your stem mixes. The buses will be patched directly to the corresponding stem recorder, without master channels in between. The subgroup master channels are only used for summing your stems, in order to provide the signal for additive monitoring. If needed, level displays are provided on these subgroup master channels. Make sure the meter tap point is set to INPUT.
- The master buses are in fact only used for monitoring purposes. There is no need to have master channels with faders, since it is easily possible to listen to "bus outputs" by using the flexible monitoring assignment capabilities.
- In order to listen to the stems, one of the top eight source selectors has to be configured to listen to "master bus out". The remaining seven source selectors are still freely assignable for any of your audio sources.
- The lower half of the 16 monitoring source selectors are used in pairs of two, controlling one stem each. Therefore we provide fast access to up to four stems.
- One pair of keys (above each other) provides the functionality to toggle between "tape send" (bus output) and "tape return" (input to core from tape). It is also possible to mute a stem by pressing the currently selected input key (send/return) a second time. This will make the key go dark, and the corresponding stem will be muted.
- Temporary action on stem monitoring is possible, for both muting and tape send/return switching.

For better understanding, refer to the drawing on the next page.

9.1.2 Stem Monitoring Setup

1 Use the configuration editor to create a console structure as described above.
   - If you use three stems with 5.1 format, configure three sets of six subgroup buses.
   - Configure group master channels without any signal processing.
   - Configure master buses (e.g. six for 5.1) without master channels.

2 Patch points from the subgroup buses to their master channels are set automatically (IN1), but the tape return lines need to be patched manually to IN2 of the subgroup master channels.

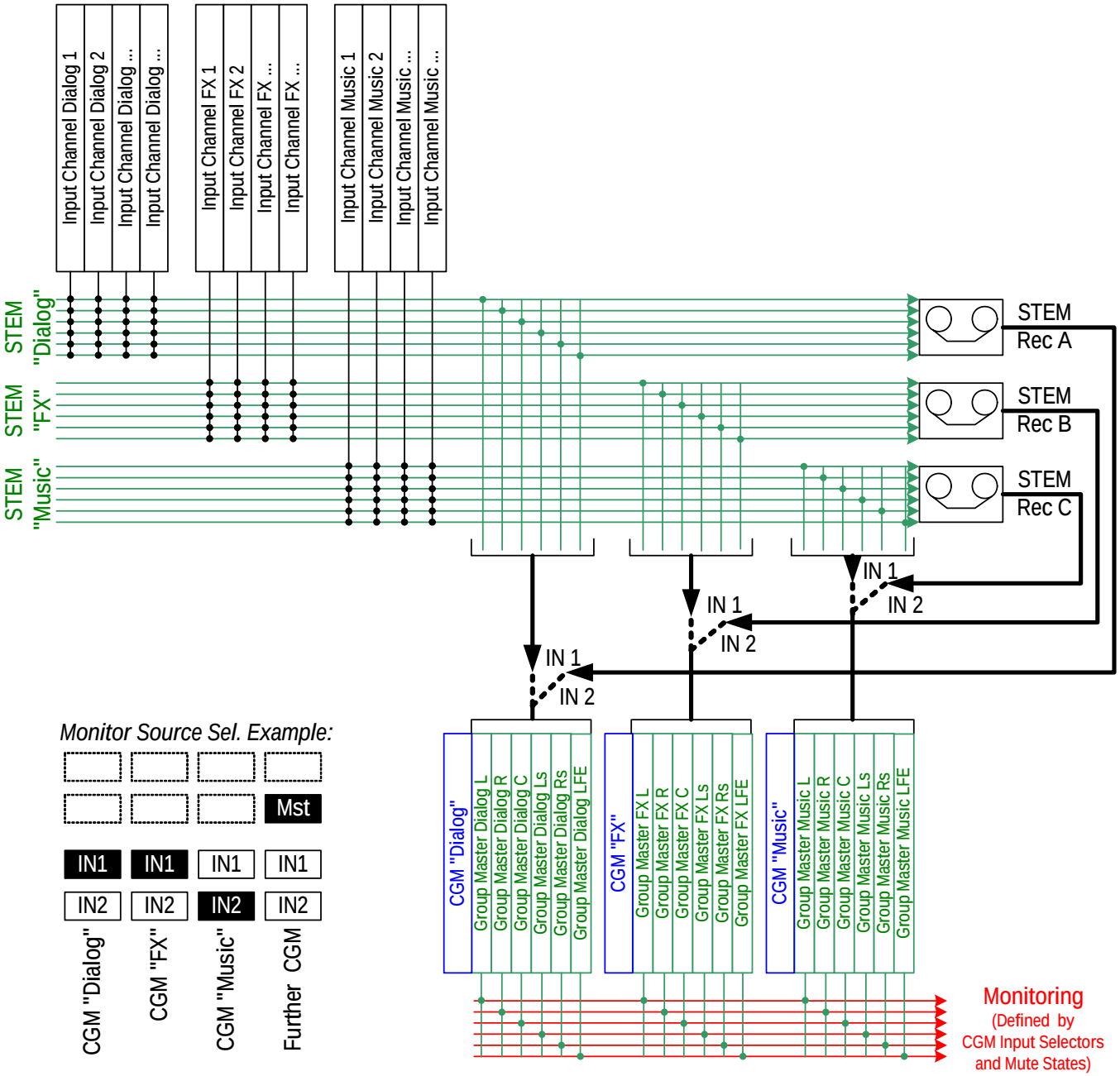
3 Setup up CGM master channels in such a way that each of them controls a set of subgroup master channels, as shown in the drawing.

4 Assign one of the top eight source selector keys to provide the “master bus out” signal to the monitoring. In this way it is possible to listen to a free combination of tape send, return or muted stems.

5 Start the console application and go to Vista settings in the user menu, select the PEC/DIR tab, and define some of the four pairs of source selectors (lower half) to control your “stem CGMs”.

6 Create a preset or snapshot of your patching, in order to have this setup ready for later use.

7 If you need more than four stems, the rest can be operated directly on the CGMs. You just need to create your strip setup in a way that you have the corresponding CGM channel close to you.



9.2 Application Note 2: Panning in a PA Environment (Vista 8 Matrix Buses)

Even though matrix buses can be used for a number of applications, a most typical situation will be described here. A live venue has a number of speakers and wants to use the console panner for positioning sound sources within the given installation. The console's panner is assuming the speakers to be placed at standard angles and distances with respect to the listener (such as, for the well known 5.1 format, left/right/center/left surround/right surround/LFE). Let's assume that the venue has 10 loudspeaker channels. Obviously there is a need to map the standardized surround channels to these 10 speakers, depending on their placement within the venue. This is done by configuring 10 matrix buses that can be fed by the 6 master channels. Depending on a speaker's position, the operator adds signal from one or several master channels to a speaker channel, in order to match the sonic impression in the venue with the panner directions. It is also possible to add some DSP processing in the matrix output channels, e.g. some delay or EQ.

The Channel/Bus view of the Configuration Editor software could look like this:

In this very simple example the matrix buses are only fed by the master buses (such "short" matrix buses will not need the same amount of DSP power as other buses in the system) The six master buses are used as surround masters , and the multi-format pan on the input channels is set to "5.1".
When working in two-channel stereo or LCR (3 channel) mode, the same principles apply. In this case, two or three master channels would be

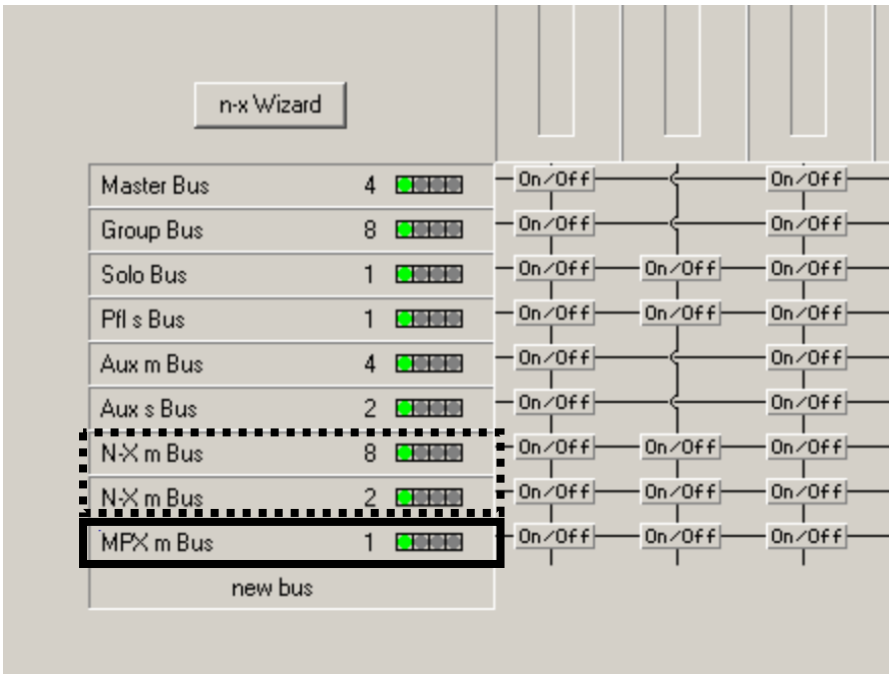
configured. The operator mixes the loudspeaker signal from the available masters. If the speakers are removable and their position changes between different productions, there is no problem to adjust the “translation” between standard pan formats and the installation by adjusting the matrix level on the master channels. The number of matrix outputs would always match the installation in the venue.

9.3 Application Note 3: TV Gallery "Pre-Hear" (Vista 5/8)

It is a common requirement in TV studios – especially when doing light entertainment and current affairs – that the director and producer in the studio control room want to hear the main presenters even when their mics are faded down. They normally listen on a small desk loudspeaker or via the comms system. It is of course a simple matter to route a pre fade direct output of each presenter mic to an Aux and send this to the director. However when the presenter mic is faded up the director gets two signals, one from the main monitoring and the second from the pre-hear speaker. A simple use of the Vista/D950 conferencing automatically produces a simple pre-hear mix and removes presenters mics from this pre-hear when they are faded up.

Configuration

First the DSP configuration must be set to provide as many N–X buses as there are presenters, say 10. Also the configuration must include an MPX bus.

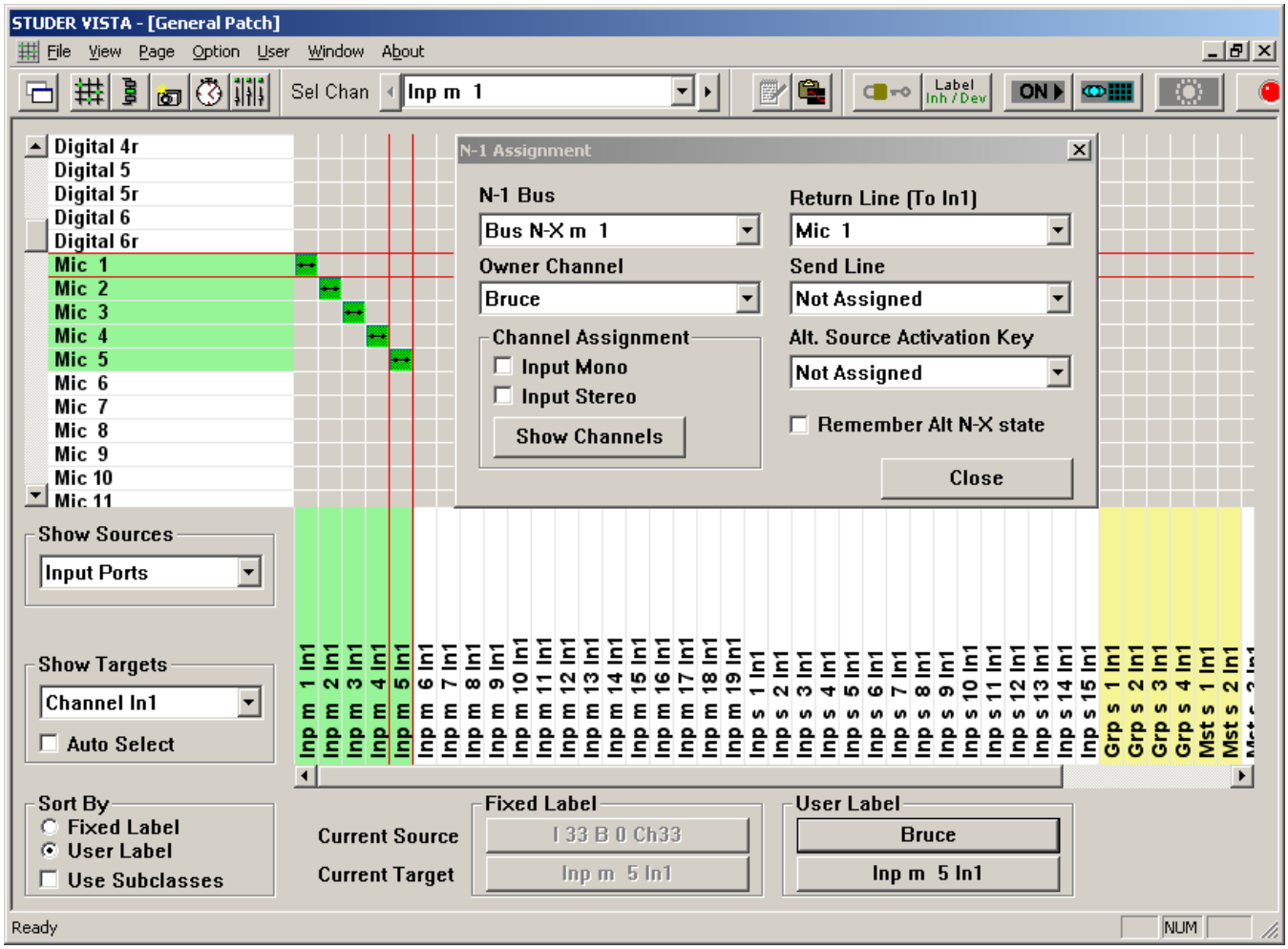


The required N–X m buses (dashed) and one MPX bus (solid) are added. If you use the N–X Wizard do not add the master Aux bus to mix the program to the MPX bus.

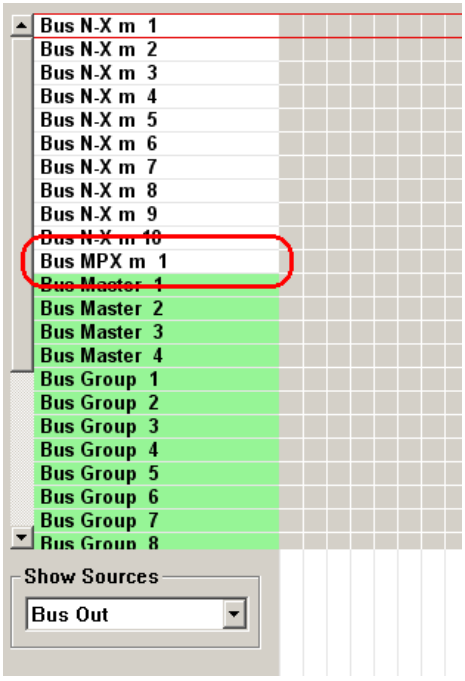
Build the config and then load it and create or merge to your title.

Title

The first thing is to make all the presenters mics N–X bus owners. Open "Option/N–1 Assign" and you get the screen on the next page. Add all the presenters as N–X bus owners *(note the N–1 Bus pull down must be "Bus N–X m 1" etc. If you cannot find this bus then you have configured the wrong N–X bus type in the config tool)*. You do *not* need to add the send lines or check the Channel Assignment boxes.



Open the general patch and select "Bus Out" on the "Show Sources" pull down menu.



Patch this bus to the output port feeding the director's loudspeaker.

Setting up the Conference

Now we have to add the presenter mic channels to the MPX conference.

On a Vista 5 or 8, press the MPX key on the master bay. On Vista 6 or 7 press the F6 key on the control bay. The LINK/SEL keys of all possible conference members half light, the user may add all or some of the bus owners as required by pressing the LINK/SEL keys. If you are using the N–X system for external clean feeds from TBUs or Outside Sources you may or may not wish these channels to be members.

On the strip setup page you can see the assigned conference channels in blue.

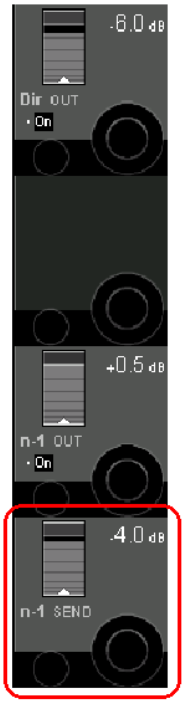
If you do not wish the input channel meters to show the conference signals you may disable the N–X metering in the options menu: "Options/Vista Settings/Misc"

Working

As soon as the fader of one or more of the channels is closed it will mix the prefader channel signal to the MPX bus. You may globally activate and deactivate this feature in the GUI with the button on the screen or the OPTION F7 key. (Vista 5 hosts a dedicated key for this next to "SETUP Conference"). The F7 key lights to show the function is enabled.

The GUI button has three settings:-
Grayed-out: Not active or defined.
Coloured: Conference active, even if members closed.
Coloured and crossed out: Conference defined but deactivated.

Levels



The channel Vistonics Out N–1 assignment has for each N–X bus owner a level control **n–1 SEND** (next to the front) controlling the mix to the director's pre-hear. You may adjust this as required, note; this must be set with the fader closed as the level to the MPX bus changes when the fader opens.
Note, the pre-hear will be active if the channel is muted; in order to cut the pre-hear during toilet breaks you need to either disable the MPX, "Option F7" or leave the fader at –70 dB or so.

CHAPTER 10: UPDATE INFORMATION

Release Notes for STUDER VISTA Software 3.4

Introduction

Studer is very happy to present the latest software 3.4, suitable for all our large format digital consoles D950, Vista 6, Vista 7 and for the first time also for the Vista 8, the newest version within this product line. Along with this software also comes the Configuration Editor 3.4, bringing the improved sound of our new dynamics section to our products and providing new possibilities!

The new console application software provides a lot of additional functionality for the existing products D950, Vista 6 and Vista 7, along with some improvements and corrections. The first sections of these release notes are dedicated to the new features on the various products while the second part lists all the minor improvements and fixes which were made for release 3.4. There is also an application example for PA applications. Besides this document describing the new functionality, there is a separate document about how to install this software upgrade as well as giving some insight into the changes made in the background of the user interface itself.

By providing new functionality even to consoles shipped 7 years ago, Studer shows how serious we take the topic of being "future proof". We assure you by purchasing a Studer product you have invested in the right kind of product. Given the fast changing technology in today's audio world, we are proud to be able to offer this upgrade service without compromising new products, delivering leading edge technology at the same time!

Studer wishes you a lot of success and fun when working with your console!

Stefan Ledergerber, Product Manager

PS: Please keep this document in your Vista manual, chapter 10

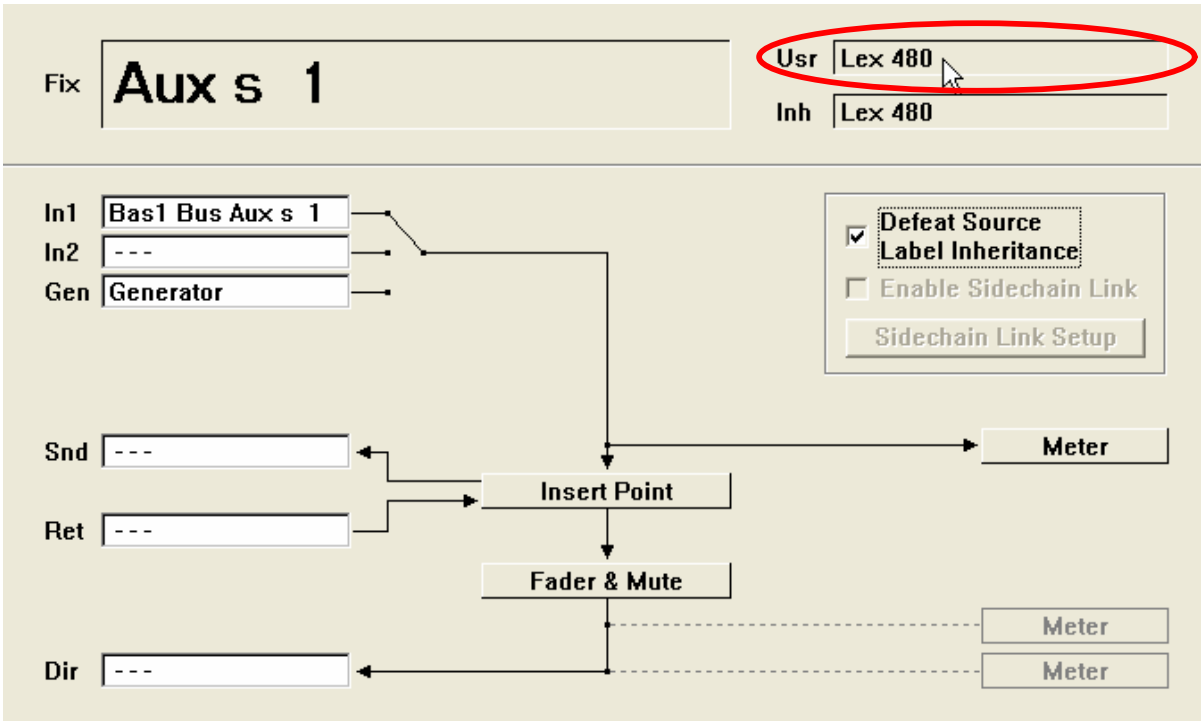
Content

1. New Dynamics in DSP core

The new dynamics section looks 100% identical to the previous one. However, the DSP code has been completely re-engineered and the sound of it has been greatly improved. Since all parameters are identical, there is no need to import old production data. The only thing necessary to take advantage of the new dynamics is a re-calculation of the configurations (without editing them!). Please see the upgrade instructions for more details.

2. Naming auxiliary busses

It is now possible to give a name to the auxiliary master channel, which is automatically propagated back to all displays of the input channel. Renaming of the auxiliary master user label is done within the channel patch window. Double click on the USR label area and enter a name, e.g. the name of the device attached to the output of this auxiliary master channel. The given name will automatically show up on the input channels instead of the auxiliary number.



3. New n-x busses with conferencing functionality

As a replacement of the previously offered bus type "n-1", we are now offering a new bus type with enhanced functionality. When configuring the new "n-x" bus, the user gets additional functionality such as contribution level adjustment (n-x level on each input channel in order to balance the signal going to all n-x busses), as well as the possibility to define and activate a conference between multiple n-x owner channels. In addition it is possible to send an "alternate source" signal out of n-x output (e.g. station ID signals) while the channel fader is closed. If you want to make use of this additional functionality, you should replace the n-1 busses with n-x busses by using the Configuration Editor software.

Send Level

When looking at the global view "OUT n-1", you will see a level on the bottom rotary. It defaults to 0dB, which means that this channel signal is sent to all assigned n-x busses with a postfade level 0dB. In some cases it is desired to be able to set a certain channel back in order to have its signal at a lower level audible on the n-x busses, e.g. when you have a jingle machine connected and the persons listening to the n-x outputs don't want that signal to be so loud. It is therefore easy to adjust this level by turning the bottom rotary down. This will adjust the level going to all n-x busses!

Conferencing

When configuring the n-x busses, it is possible to define a subset of n-x owner channels to be member of a conference. Whenever their fader is closed, they will hear all other members (without hearing themselves back) automatically, rather than the normal n-x signal. As soon as the fader is taken out of the -∞ position, they will instantly hear the n-x signal again.

Setting up the conference

By hitting the F6 key on the control bay, the console is put into n-x setup mode. The LINK/SEL key of all possible conference member channels (all n-x owner channels) are half lit and the user may select any number of them to be members of the conference. If the user wishes to adapt this setting frequently, he may even stay in this mode during a live production, since the channels are instantly added or removed from the conference when pressing its LINK/SEL button. (However, other features like ganging would not be available while in setup mode.)

The conference icon in the toolbar () has three states:

Grayed out:	No conference active nor defined
Coloured:	Conference active (if member faders closed)
Coloured, crossed out:	Conference defined, but temporarily deactivated (even if member faders closed)

Note: In certain circumstances it is possible to select also a aux master as a conference member (indicated by its half lit LINK/SEL key). This is to add e.g. an on air signal to the conference. See details below.

Talk to the conference

When pressing the TALK button on a channel which is currently conferencing, the talk function is automatically activated on all members of the conference at the same time.

Inactivate Conference temporarily

The conferencing may temporarily be deactivated by pressing the CONFERENCE icon in the toolbar () or hitting the F7 key on the control Bay. In this case the definition of which channels should be in the conference is kept. As soon as the conference is activated again globally (hit F7 again or click again on the icon in the toolbar), the previously selected channels are again able to talk to each other. Temporary activation of the F7 button is also possible.

Conference Level

When in conference, it is also possible to alter the n-x send level of the channel conferencing. This level will then be used as a conference send level only. When opening the fader, the previously set level comes back. In other words: the system remembers two level settings, one is active when conferencing, the other value will be activated when in normal n-x mode.

Monitoring the conference using the MPX bus

Another new bus type is available within the new Configuration Editor software: MPX. This bus only exists once within a configuration (similar to a PFL bus) and is used to monitor the conference. It is a mono bus. Any channel currently conferencing is automatically assigned onto the MPX bus and the MPX bus output may be monitored by the sound engineer using a source selector key. Since the MPX bus output is a normal bus output, it can also be patched to any console output. This allows you to feed this signal to a small loudspeaker constantly playing back the conference signal, for example.

Adding On Air signal to the conference

It is possible to add an amount of the master signal to the conference, in case the conferencing members want to constantly hear what's happening on air. This functionality is provided by a special function, whereby an auxiliary master channel is added as a conference member. This AUX bus is fed by the on air signal from the masters.
Step by step:

1. Have one aux bus configured with an On/Off symbol at the master channels. Have another On/Off symbol between this master channel and all n-x busses. (This step is normally performed by the n-x wizard available in the configuration editor software.)
2. Define your conference members by hitting F6 and selecting any of the half lit n-x owner channels and add the aux master channel as a conference member too.
3. Go to the console master channels and open some level to the aux this aux bus.
4. Vary the n-1 send level on the corresponding aux master channel in order to add the on air signal to the conference. Since this feed is taken prefade, the fader of this master doesn't have any influence.

Typically one auxiliary bus is reserved for this use. It may be the one with the highest bus number of all, in order to confuse with the rest of the busses. By using the new "n-x setup" wizard within the Configuration Editor software, this functionality can be easily added with all typical settings.

Alternate signal to n-x outputs (CUE)

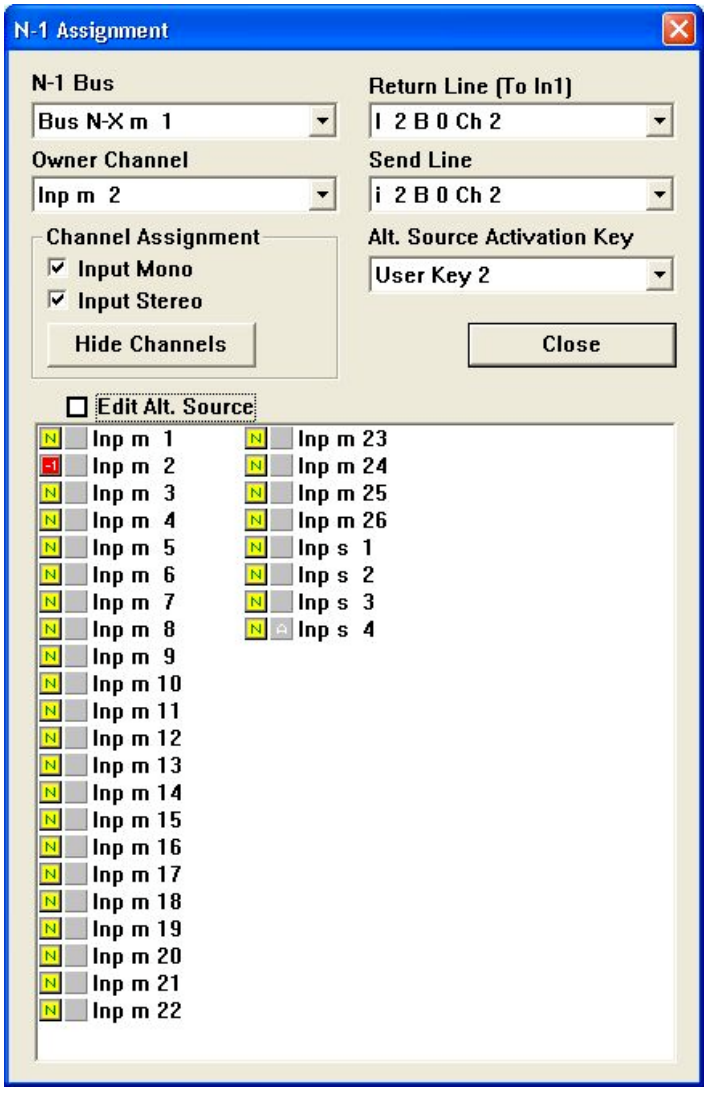
With the new n-x bus type it is possible to define an "alternate n-x bus assignment". It is possible to select any console channel or multiple together to the alternate signal to an n-x output. This signal is activated by one of the user keys on the channel strip. It is only possible to do so at the moment when the fader of the owner channel is closed.

If you don't want to use normal console channels to be the alternate signal, feel free to configure simple input channels which are not used otherwise during the production. Such a channel can be the "alternate cue signal" source for all n-x busses - or you can define an different alternate source for each n-x bus separately.

Set-up a "alternate n-x signal" for a specific n-x bus:

1. Open the menu “N-1 Assignment” in the OPTIONS menu of the graphical controller screen.
2. Select the n-x bus you want to define the alternate signal for.
3. Click on “Edit Alt. Source”
4. Select any channel (or multiple) to be the alternate signal source for the selected n-x bus. (Their prefade signal will be used, weighted with the “n-1 send level” to form the alternate signal for this n-x bus.)
5. Define the USER1 or USER2 button to be the activation key

In order to not to repeat this process too often, such a setup may be stored in a snapshot or preset and used at any time by all operators.



4. New multitrack busses with option to switch prefade and switching pan off

When configuring the new "Multitrack Enhanced" bus type, additional parameters become available on the console: When looking at the global view "OUT n-1" or the local CHAN view, a multitrack send level is visible. This level is used for all multitrack busses. A "Pan ON/OFF" switch allows the user to select whether the channel pan setting has an influence on the multitrack busses or not. By using the PRE/POST modifier key on the bottom right corner of the fader bay, it is possible to alter the switch function to become a PRE/POST switch for multitrack busses. It is therefore possible to determine:

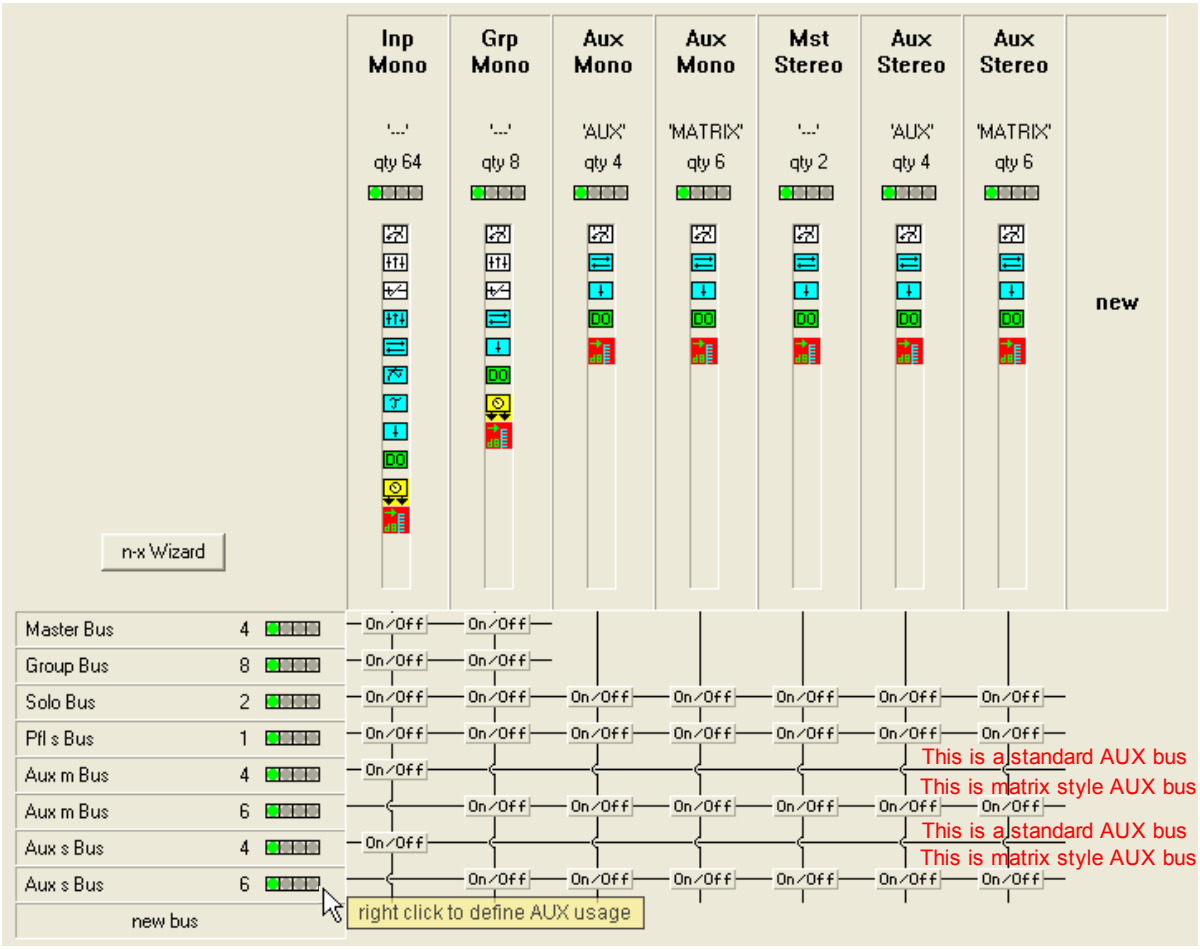
a) whether the multitrack busses are fed by a pre- or postfade signal
b) whether the channel panner should be active for the multitrack busses

c) the level that is used to feed the multitrack bus

Note: When working with channels equipped with Virtual Surround Panning (VSP™), only normal amplitude panning functions (without early reflections) will be active on the multitrack busses. If the user wants to have full VSP on the multitrack busses, he should use the standard bus type "Multitrack".

5. "Matrix" Busses

Some customers have asked for matrix busses. This bus type is very often used for live applications, especially in PA. A matrix bus is a kind of an auxiliary bus, which is typically only fed by master channels (subgroups, masters, aux masters), but not from input channels. The new Configuration Editor 3.4 offers the possibility to talk from master channels onto auxiliary busses. It is therefore possible to have a "super auxiliary" bus, which can be fed from any channel within the console. However, very often this may be confusing. With the Configuration Editor software 3.4 it is easily possible to let the software know whether you intend to use a certain auxiliary bus as a typical aux bus (no actions necessary) or whether you want to use it as a matrix bus with typical feed possibilities (right click on aux bus in CHANNEL/BUS view). The latter will remove the possibility to talk to this bus from input channels, but add feeds from all master channels. This is identical to a matrix bus and the corresponding master channels can be used as matrix outputs. They may even be equipped with signal processing such as EQ, dynamics or delay in order to satisfy the specific needs of each customer.



In order to avoid confusion about which master is a "true" auxiliary master and which one is a matrix output, we recommend you rename the user label of the "matrix style" master channels to. MATRIX 1, for example. This name will then be propagated and properly displayed on the input channels – as described in the beginning of this notes.

6. VCA style CGMs ("Motors Off" option)

The "Control Group Masters" up to now were implemented in the way, that all channel faders belonging to a certain control group would automatically move up and down whenever the master

fader was moved. This has the advantage that you always visually see the audio settings which are currently active in the DSP core. However, there are two disadvantages to this behaviour:

a) When the Control Group Master fader is closed, the user is not able to adjust the balance between the member channels, since they moved down together with the master fader.
b) When the master fader was closed, it was possible that there was still some audio passing through member channels, since their fader was not completely closed.

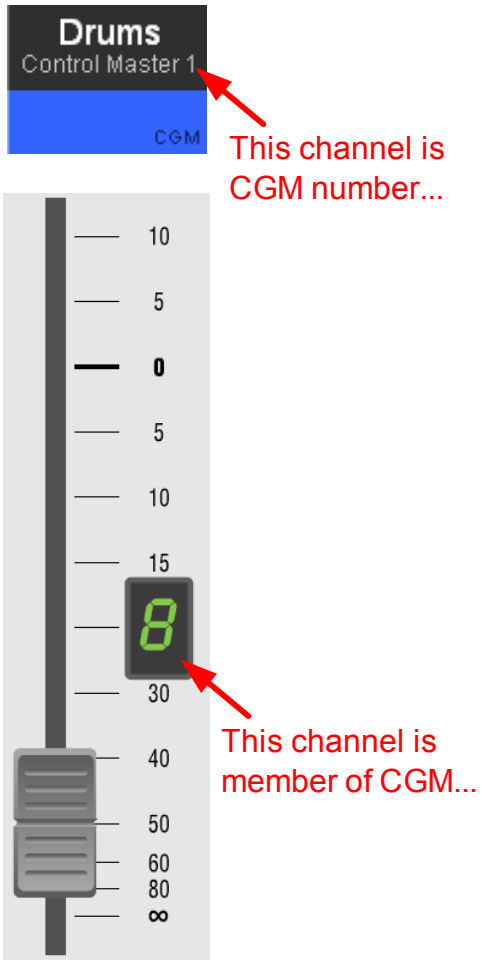
With software release 3.4 there is now an alternative way of how the control group master channels can work. It is very similar to the VCA groups of an analogue mixing console. Sometimes this new behaviour is also called "motors off". In this mode, the value set on the control group master channels (as seen on their scale) is added to/subtracted from all member channels and the resulting level is set in the DSP core (audio). The faders of the member channels don't move up/down and it is possible to have the master fader closed and still correct the balance between the member faders. Also the user can be assured that whenever the master channel is closed, no audio can be heard from the member channels. Since the fader of a member channel doesn't represent the real audio value anymore, the digits below the label display are indicating the **real** audio value.

Note 1: If the "VCA style" operation is active, you may see member channels change their fader values as soon as they are added to a control group. This is the case, if the master channel is already set to a value other than 0dB at the moment when a new slave channel is added to the group. This behaviour is by intention, in order not to have any audio changing when adding or subtracting member channels from a control group. Example: You have set a microphone channel to -15dB, and you add it to a "VCA" group, where the master channel is already set to -10dB. In the moment when the microphone channel is added to that group, the user will see the microphone fader jump up to -5dB. This results in no audio change, as requested.

Note 2: The option "VCA style Control Groups" can be found in the OPTIONS menu of the graphical controller screen. On D950 and Vista 7 it is only available while the console doesn't have dynamic automation active. It is permanently available on Vista 6.

7. Hierarchical CGMs

It is now possible to have CGMs being a member of other CGMs. The indication of the control group number on master channels has therefore slightly changed: The green number next to the fader is now constantly showing to which master a channel belongs. If there is no further hierarchical level above a CGM, this area is dark. The number of the CGM itself can now be seen in the second line of the label display area.



D950: On the D950 it is not possible to see, to which CGM a CGM may belong. A small light next to the fader shows the presence of another hierarchical level.

8. Fast adjustment of DIM and PFL/SOLO offset level

Up to the current software version it was already possible to adjust the DIM level in the control room as well as attached studios. It was also possible to define an offset level for PFL and SOLO, so the control room monitoring level would increase by a certain level whenever PFL or SOLO is active. However, it was not accessible for operators to quickly change this settings. It is now possible to do this easily. The settings are stored within the monitoring file, as before.

How to adjust the DIM level of the control room

Press and hold the DIM button next to the control room level rotary. After a certain time you will see the current DIM level within the level display. Turn the CR level control in order to adjust the dimming level and release the DIM button.

How to adjust the DIM level of the studios

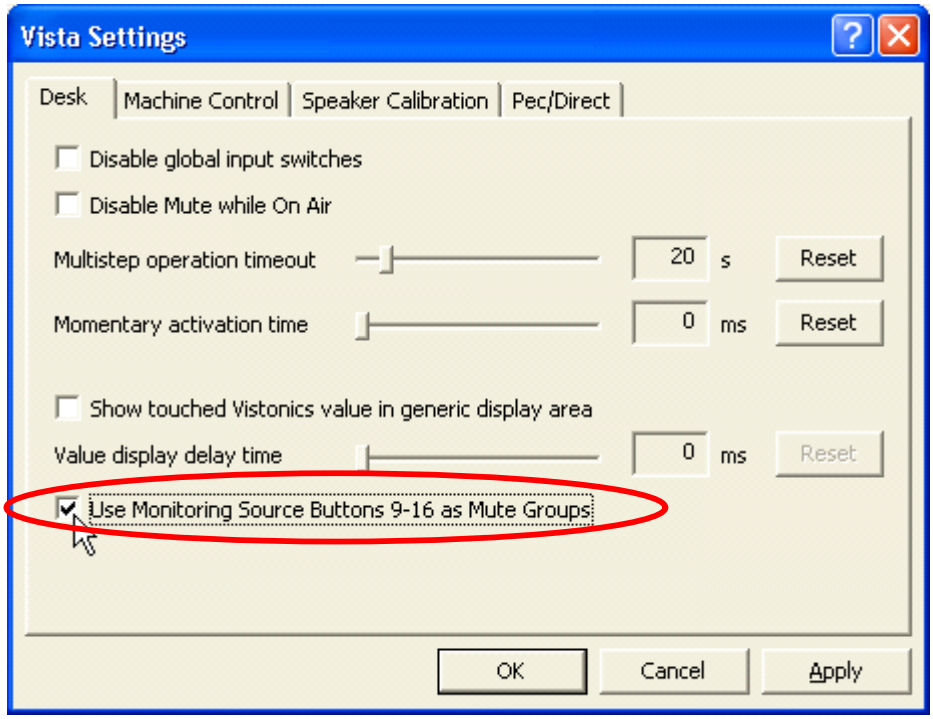
Press and hold the DIM button next to the studio monitor level rotary for 2 seconds. Turn the studio level control in order to adjust the dimming level and release the DIM button. The current dimming level is graphically displayed with the LED ring around the level control

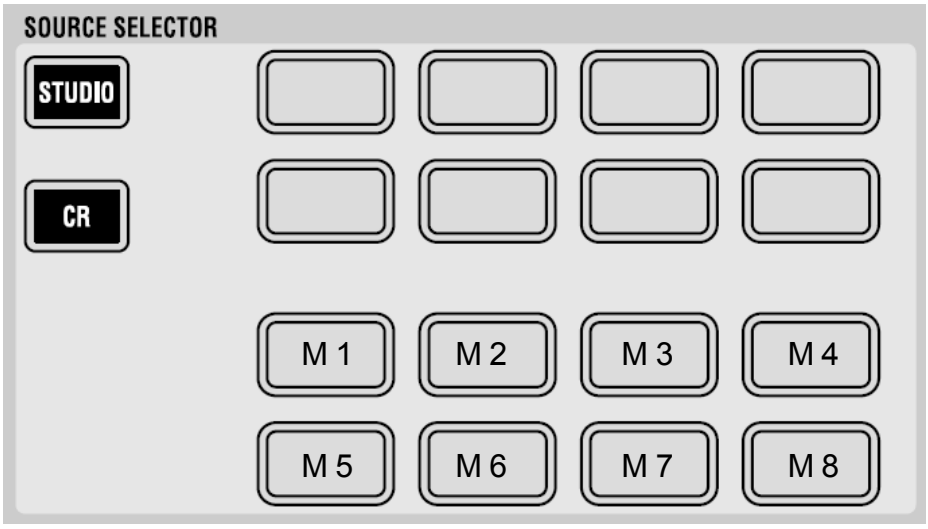
How to adjust the PFL and SOLO offset level

Press and hold the PFL or SOLO mode switch (next to the level control of the external PFL speaker). After about 2 seconds you will see the currently set offset level within the display of the control room level. Turn the control room level in order to adjust the offset level and release the pressed PFL or SOLO mode button.

9. Mute Groups

Inherited from the brand new Vista 8, it is now possible to have mute groups available on the Vista 6 and 7! In order to make use of this feature, the user must decide to use 8 source selector keys of the monitoring section as mute groups. This can be done in the menu "Vista Settings" in the "USER" menu of the graphical controller screen. Source selectors 9-16 can alternatively be used as mute group masters.

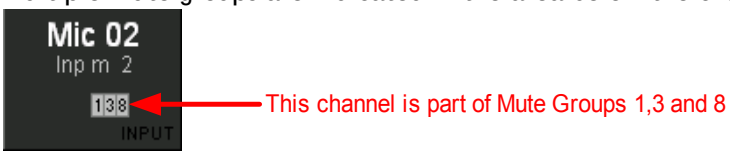




How to setup a mute group?

1. Activate Option "User Source Selector 9-16 as Mute Groups" in the "Vista Settings" menu in the "USER" menu of the graphical controller screen
2. Hit the "Ctrl Grp Setup"-button on the control bay. The Mute Group masters (previous source selector keys) go half lit.
3. Select the mute group you want to setup (one of the source selectors 9-16, representing mute groups 1-8)
4. A dialog will pop up on the graphical controller screen while you are in this set-up, allowing you to add all currently muted channels on the console to this mute group with one mouse click – or clearing all members from the selected mute group. You may also select or deselect members by the use of their LINK/SEL button.

5. Press the mute group master again in order to select another one. Please note that it is possible to build up hierarchies as well. In other words it is possible to contain individual channels as well as another mute group master within a mute group. Hierarchies are not indicated on the desk once the set-up menu is quit. Membership of a channel to one or multiple mute groups are indicated in the area below the channel labels.



6. Press "Ctrl Grp Setup" again in order to leave the setup mode.

Where are the mute groups stored?

The information, which channel belongs to which mute group is stored within a so called “start snapshot” of each title. In other words this information is stored once per title, at the moment when it is closed. However, the state of the mutes in each channel is stored within each snapshot.

10. Exclude certain patch targets from being changed by snapshots

Some customers are using our consoles as audio routers for other studio installations and are controlling our internal router by protocols such as Probel or ARMI. When recalling console snapshots, the patch points set by those devices are reset to the value of the snapshot, even if this was not always requested. With software release 3.4 it is possible to define certain patch targets as "isolated from snapshot recalls". In other words: The user defines the patch outputs which are controlled by Probel/ARMI devices and therefore makes those targets completely independent from snapshot recalls by the console operator. This set-up is typically done once on a system. See service information about how to set-up this isolation.

11. Possibility to import labels from 3rd party systems

We are making integration of our systems with 3rd party products even more seamless. We are now offering the possibility to exchange label information with external router systems such as Probel and Grass Valley. By using a serial connection, it is possible to set-up a permanent label exchange in the way, that the "device labels" used in the Vista and D950 are permanently overwritten by received labels from the 3rd party router. This means that you will automatically see the name of the original sources on your channel strip, even if a large routing system is placed before your console.

Studer supports two label exchange protocols: Pro-Bel SW-P-08 and Grass Valley Group Series 7000. Normally this feature is only used for **importing** of labels from the external devices. However, when using Pro-Bel SW-P-08 protocol, Studer supports also **export** of output interface labels. It is therefore possible to connect two Vistas together and get the labels automatically from one Vista transferred to the other one.

Note: If you plan to use this feature, please contact Studer Service & Support beforehand.

12. Full software support of new D21m IO system

The D21m IO system has now been completed by microphone input cards as well as the possibility to connect remote IO boxes (stageboxes) over MADI to a "hub" frame next to the DSP core. For systems already installed, there is nothing new with this software. However, for new systems delivered with the D21m IO system we shall explain the additional functionality provided by the D21m IO system.

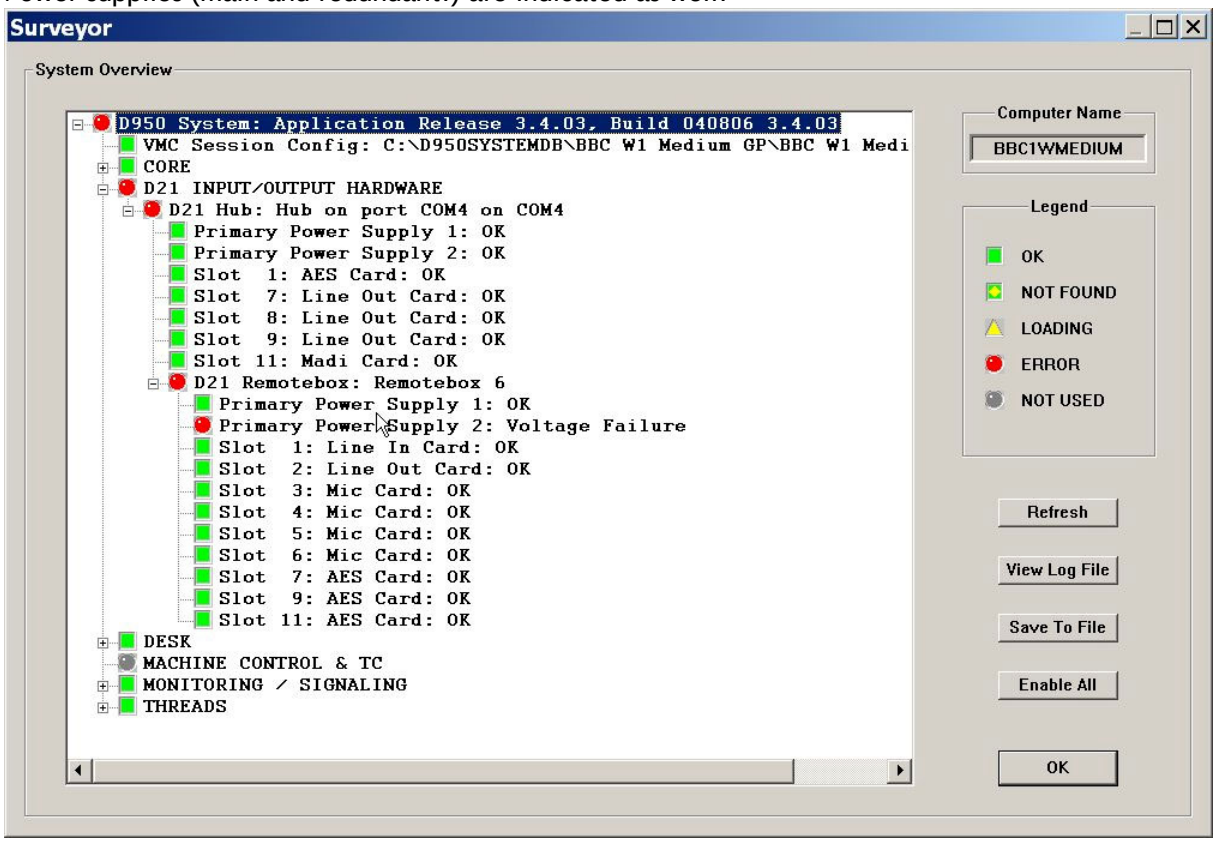
Automatic detection of IO setup

The D21m IO system is very much a "plug-and-play" unit. There is no longer any need to tell the system which ports have microphone preamplifier cards connected, nor is it necessary to define the presence of such cards at the time of configuration (in the Configuration Editor Software). This also means that there is no sub-patch "External Devices" anymore in the general patch window. The philosophy of automatic IO detection works as follows:

At startup time of the console software, the IO structure is scanned and compared with the structure previously found when the system was last started. If the system detects any IO structure changes (e.g. a Stagebox has been removed to work temporarily with another console), a warning is displayed for the user. He then may confirm that this situation is ok and the system should not expect the missing components for this session. The user also has the possibility to confirm the new IO structure as the standard. In other words this will be the structure the system expects when starting the next time. If the channels within the configuration are equipped with the D21m input function, the user can go ahead and patch audio to input channels – while automatically get control over all parameters of the IO system.

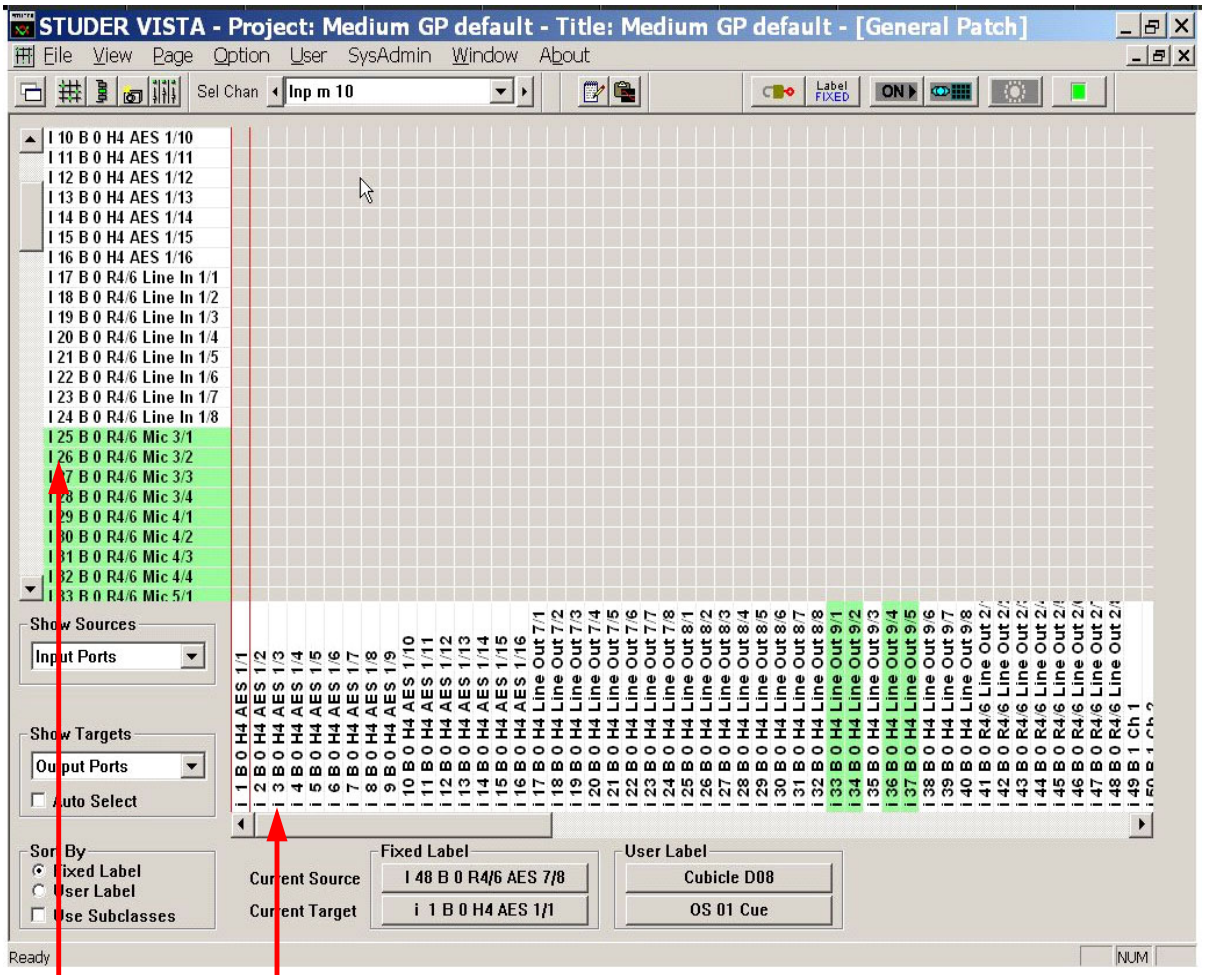
Enhanced information in surveyor

The information about the IO system displayed in the surveyor is much enhanced. Now not only the microphone preamplifier cards are indicated, but the health state of all IO cards. Power supplies (main and redundant!) are indicated as well.



Automatic generation of intelligent Fixed Labels

The audio coming through the D21m IO components is always reaching the core over Studers proprietary high density link. This link is present between local hubs and the DSP core. Each link may carry up to 96 audio channels. Instead of displaying these channel numbers in the general patch, the software 3.4 is able to give more intelligent names to the input and output ports shown in the general patch. You will then see frame numbers as well as card types and channel numbers within each card. This generation is automatically active whenever the D21m IO system is present and the hub frame connected over a serial line to the console. However, when recalling an snapshot which contains the "non intelligent" fixed labels (e.g. from older productions), this will overwrite the fixed labels as well and make the "intelligent fixed labels" disappear. In this case, select "**Regenerate Intelligent Fixed Labels**" within the SysAdmin menu and update this snapshot.



AES input 3 (out of 16) of IO board 1
Inserted in Hub 4 (COM port 4)

Audio is transferred over HD Link Channel #3,
connected to DSP board #0

Mic Input 2 (out of 4) of mic board 3 (slot 3)

Inserted in Remote IO box 6 (slot 6)
which is connected over MADI to hub 4 (COM port 4)

Audio is transferred over HD Link Channel #26,
connected to DSP board #0

Structure of intelligent Fixed Labels

Board and IO

IO Frame
(H: Hub, R: Remote IO box)

DSP board

HD Link Channel

Frame numbers represent double width slot in corresponding hub frame, to which the MADI link is connected (1-6).
Card numbers represent slot number of frame in which it is inserted (1-12)

New functionality of D21m microphone card

The D21m microphone card features some additional functionality compared to previous IO systems. All relevant parameters are accessible from the console surface and visible in the global view "A/D CTRL". The input (one common connector for mic and line) can be varied over a range of 86 dB – clickfree!

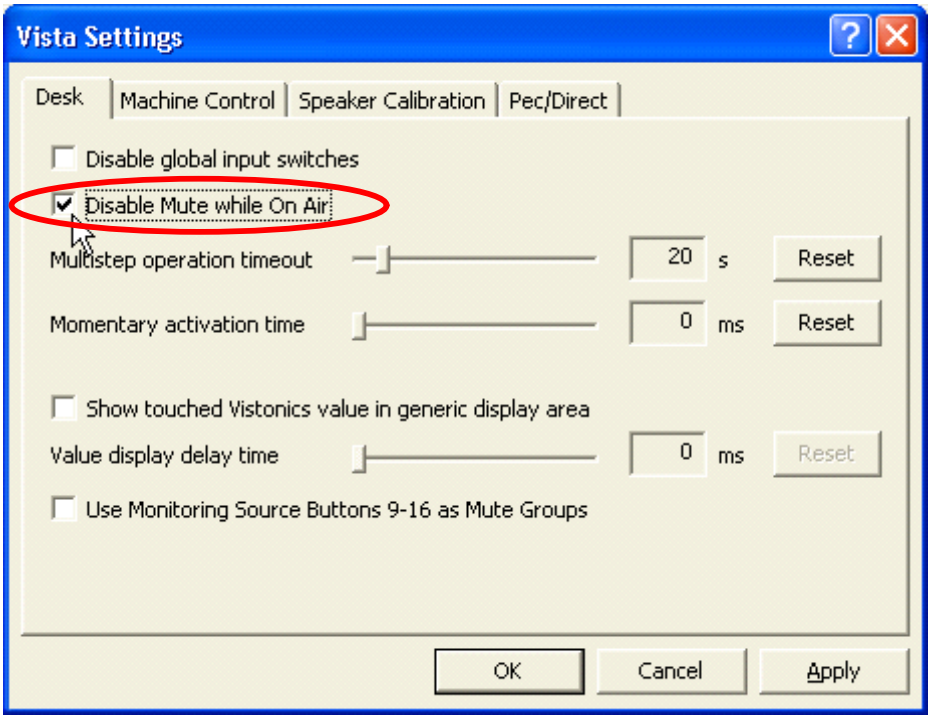
All microphone cards provide an active split output for each microphone channel. This output may be used to connect a second console to the same microphones. This output is mainly independent from the mic gain set. However, to achieve maximum audio quality (signal-to-noise ratio) on these split outputs, it cannot be avoided to attenuate this split output by -20dB whenever the microphone gain set on the main console is very low (-11..+25dB gain). This will be graphically indicated on the Vistonics screen. Be aware when working together with other consoles not to freely change the level over a wide range! The console may therefore always work in the "microphone range" and doesn't necessarily have to switch to "line range".

A softclip function is available on all channels and can be activated individually. This "analogue limiter" may prevent nasty clipping noises in case the audio level is going too high. We recommend you to activate this function when making any live productions, since audio is not influenced below about $-6dB_{FS}$.

Note: A analogue insert point is also available by inserting an additional „analogue insert card". While the send output is always active at line level, the return path may be activated by the corresponding switch on the console.

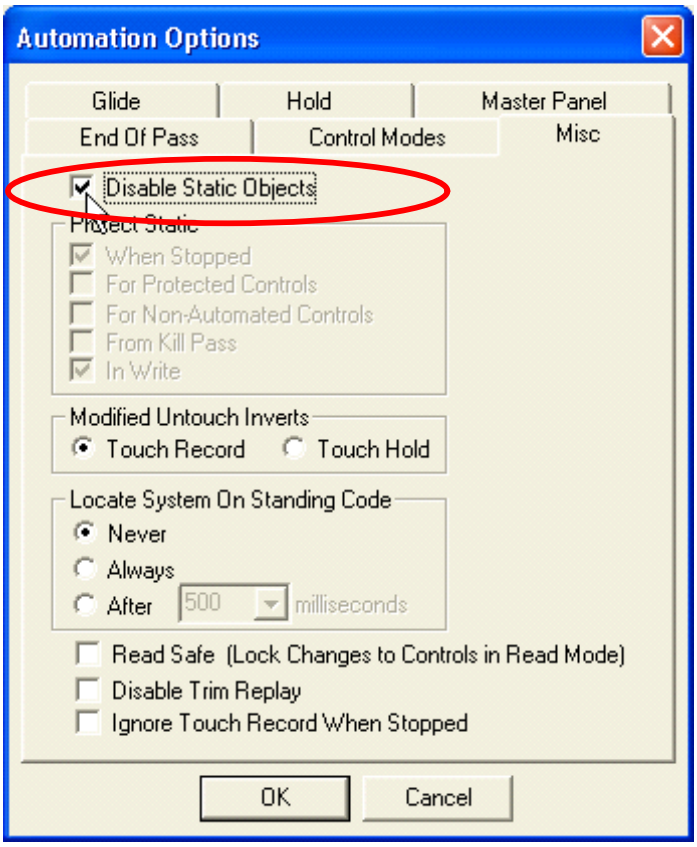
13. New Option to disable MUTE buttons while being in ON AIR mode

A new option within the "Vista Settings" menu in the USER menu of the graphical controller allows you to disable the MUTE button on all channels when the console is in ON AIR mode. When this option is active, any presses of the MUTE keys of the console are ignored. This feature was implemented for customers who never use the MUTE button while being on air and want to make sure that it is never hit by accident.



14. New Option: Dynamic Automation without static objects

A new option has been introduced in order to disable static objects completely. Some customers wanted to have all objects dynamic at all times and not use the feature of having static objects as long as they are not dynamically written. For those customers we previously recommended punching in and out all objects at the beginning of a mix. This was seen as a workaround. However, this was in fact a bug in the software, since punching elements in and out without writing any changes should not make them dynamic. This bug is now fixed since the bug had some impacts for other customers - therefore the workaround doesn't work anymore. But the new option allows to work without static objects at all times – without using this workaround. If this option is selected, all other options no longer applying are grayed out.



Comment: Presets versus Snapshots

Since the last software upgrade 3.3 we encountered some misunderstandings regarding the protected patch points, snapshot filtering and the meaning of presets. We would therefore like to add some comments on this topic: It is important to know that the difference between snapshots and presets has grown against previous software versions. Previously a preset was the same as a snapshot with the difference that it existed only once per session configuration (rather than per title) and it could only be altered by the system administrator. Now we regard the preset also as more powerful than a snapshot, ignoring all filters and protections which may be active. The reason is that since the introduction of sophisticated snapshot filtering and partial snapshots, it is not 100% sure anymore that recalling a snapshot is putting the whole console into a defined audio state. But being able to do so is necessary. This is the difference to Presets. When recalling presets, the whole console is put into a 100% defined state of audio, as it was when the preset was created. This happens regardless of protected patch points or filtered parameters. However, the fact that some parameters may be filtered or protected against changes by snapshot recalls stays active. As soon as any snapshot is recalled, the rules of filters and protections are valid as before.

Minor improvements and fixed bugs

Description	Comment
Various:	
Label type in menu "Subclassify Digital Interfaces" in menu SysAdmin/General Patch shows only fixed labels	Label type now follows label type selected in General Patch
It is now possible to SOLO master channels	Any freshly generated configuration will have this feature in. In order to add this feature to existing configurations, add the ON/OFF function to the SOLO bus within existing configurations in the Configuration Editor software and re-generate the configuration. However, in some cases it is possible that configurations will need more DSP cards.
When applying monitor settings within setup menu, these settings were not remembered the next time the title was loaded	Changed name of button into "Apply for session only" in order to make clear that this button doesn't save the settings, but only applies them as long as the title isn't closed.
Instability when scrolling past last section/screen	Fixed
Mic Preamp gains were sometimes not displayed correctly after a title change – until recalling a snapshot (sometimes twice necessary)	Fixed.
Digital meter peak values don't update after a while	Fixed.
Unnecessary logfile entry "Stallion not present" on Vista consoles	Fixed.
When booting the DSP core without MemNet connection, the last state was not always restored when working with large configurations	Fixed when recompiling configuration with Configuration Editor 3.4
Sometimes after loading user preferences, the D950 DESK icon would appear on the toolbar	Fixed. Doesn't appear anymore.
When changing the "Momentary Activation Time" in the VISTA SETTINGS menu, this would make the console not recognizing fast repeated button presses anymore (e.g. MUTEs).	Fixed.
Instability when pasting strips multiple times after each other in strip setup window	Fixed.
GPIO events were sometimes lost, especially when working the D19m RCC card GPIOs	Fixed.
When copying parameters between channels, not 100% all parameters were copied (e.g. the dynamics did not include “look forward time”)	Fixed.
It was not possible, to put a reverb channel setting into the clipboard library	By using “copy pan” or “copy all” this is now possible.
Static Automation:	
D950: Bus assigns were not protected together with channel	Fixed.
Dynamic Automation:	
Separate icon in toolbar for opening AutoTouch+ panel	
If mix options file was write protected and user wanted to overwrite file, it seemed like it succeeded.	Warning added, if user tries to save options to a write protected file.
TRIM TO END sometimes didn't work	Fixed
Loading mix options was showing wrong colours	Fixed. The currently loaded mix options are

(blue / black)	shown in black, other are shown in blue – same as titles in "Open Title" menu
CLEAR HELD without timecode running didn't switch the held status off	Fixed.
WRITE TO NEXT CHANGE was sometimes missing last value by one. (e.g. pan recorded to 0, replayed at 1L)	Fixed.
Protected Patch points could get lost when using dynamic automation	Fixed.
D950: Instability when changing automation state of MUTE button on CAS	Fixed.
When tape stopped without having written a pass, options selected to be cleared at end of pass were cleared	Now this option is only valid, if a pass has been really written. If tape is stopped without any objects being written, there is no clearing of options performed. This means that in a lot of cases the option "End Of Pass Clears… Held Objects" is ok to be deactivated. Typically the user runs a try without writing anything. Since this is not regarded as a mix pass, there is no clearing taking place anyway. *

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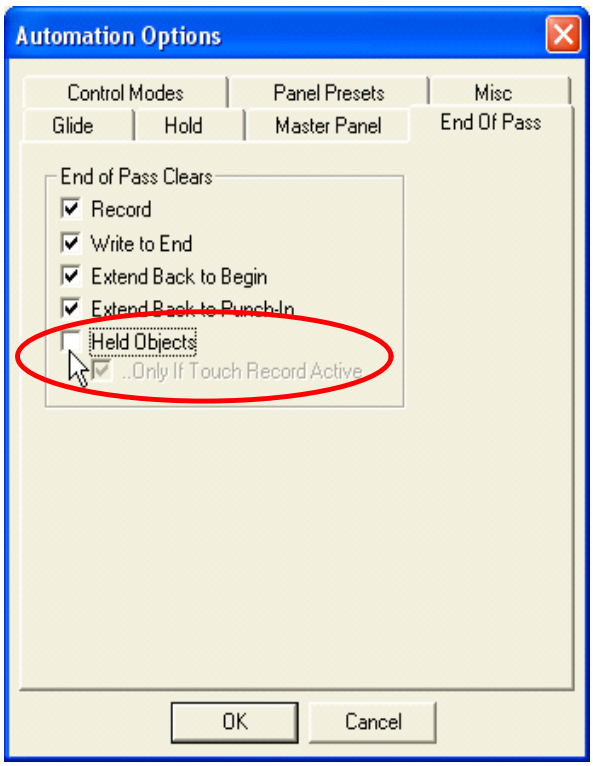


Application example of Matrix Busses: Panning in a PA environment

Even though matrix busses can be used for a number of applications, a most typical situation should be described here. A live venue does have a number of speakers and wants to use the console panner to move position sound sources within the given installation. Of course the panner of the console is assuming the speakers to be sitting on a certain angles to the listener. E.g. for the well known 5.1 format: left, right, center, left surround, right surround, LFE. Lets assume the 10 loudspeaker channels of the venue mentioned above. Obviously there is a need to map the standardized surround channels onto the 10 speakers, depending on their placement within the venue. This is done by configuring 10 matrix busses which are possible to be fed by the 6 master channels. Depending on a speakers position, the operator adds signal from one or several master channels to a speaker channel in order to match the impression in the venue with the panner directions. It is also possible to add some DSP processing in the matrix output channels, e.g. some delay or EQ.

The Channel/Bus view of the Configuration Editor Software could look like this:

In this very simple example the matrix busses are only fed by the master busses. (Such “short” matrix busses will not need the same amount of DSP power as other busses in the system!) The 6 master busses are used as surround masters and the multiformat pan on the input channels are set to 5.1.

When working in 2 channel stereo or LCR (3 channel) mode, the same principles apply. In this case 2 master channels (or 3 respectively) would be configured. The operator mixes the loudspeaker signal out of the available masters. If the speakers are removable and their position changes between different productions, there is no problem to adjust the “translation” between standard pan formats and the installation by adjusting the matrix level on the master channels. The number of matrix outputs would always match the installation in the venue.

Release Notes for STUDER VISTA Software 3.5

Introduction

Studer is happy to announce the release of software version 3.5. This software is a major step forward for all of our Vista series consoles. It contains improvements and major new functionality for Vista 6,7 and 8 as well as the D950.

The majority of the new features relate to live PA work, with the most significant new feature being the new cuelist functionality. With the addition of this feature, the Vista 8 console can now be used as a versatile Live PA console while maintaining and even improving its suitability for any kind of broadcasting work.

The new cue functionality allows the user to build up a list of cues and sort them into a specific order. A cue may contain a snapshot of the console and additionally fire off various events at the same time, such as MIDI messages. It is also possible to trigger a specific cue from incoming MIDI messages. Finally it is possible to control the cue list itself using "MIDI Show Control" messages. The cue list also supports for the first time the brand new Harman Pro HiQNet network technology which was introduced to the public in January 2005. This allows networking of various Harman components together and control from a central position such as a tablet PC – or the Vista console. The cue list window of the console allows you to fire off HiQNet "Venue Recall" messages which allow triggering of various events from within the attached HiQNet units.
Changing settings across multiple snapshots has now become easier than ever before. For example, correcting a fader setting within multiple snapshots can now be accomplished with one single update action. It is even possible to trim the values within multiple snapshots – e.g. lowering a fader by 5 dB from their stored value.

The software 3.5 also provides new functionality specifically for live broadcasting use: It is now easily possible to control a fader by opening and closing a "general purpose input" (GPI) or even make it move up and down by just shortly touching the fader itself. The purpose of this is to make the life of live TV sound engineers during a talk show much easier: Simply open and close microphones by tapping their faders! But there is even more: Software 3.5 natively supports the control of the console patch points using the standard "Pro-Bel" protocol. Vista hosts extensive mapping functionality in order to make it possible to switch any number of patch points upon reception of one single Pro-Bel command. Not only is it possible to control output patch points. You may in fact control any patch point within the patch window using a “Pro-Bel” command, such as patches to input channels. There is a new optional hardware panel available now, allowing the control of patch points by pressing one of 32 keys. This new panel may be used for any kind of console external patch control, such as additional monitoring paths, which may be required. Finally it is now possible to configure one or multiple "Stereo-To-Mono" processes within the configuration editor software. Each process will then have two inputs and one output visible on the general patch window. This allows easy mono summing of any two signals available on the patch.

But there is even more. Read on to find out about all the great new functionality provided in the new software.

Stefan Ledergerber, Product Manager

PS: Please keep this document in your Vista manual, chapter 10

Content

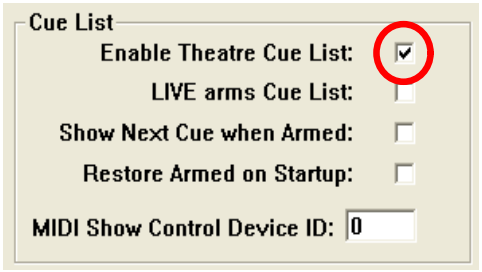
1. Cue List

This function is only available when in “static automation mode”.

Using software version 3.5 or newer, extensive cue list functionality is available. The Cue List allows sorting of snapshots as well as attaching MIDI and HiQNet commands to each of them. Each title can contain one cue list. The cue list can also be controlled from external controllers using MIDI messages. It is additionally possible to use standard "MIDI show control" commands as well as recalling certain cues with a user defined MIDI command (Note and Program change). The cue list is only available in "static" mode, hence not when dynamic automation is active.

Opening the cuelist is done either by clicking on the cue icon  in the toolbar of the graphical controller screen or using the LIST button on the Vista 8 control bay.

Activating Theatre Cue List functionality
In order to activate the "theatre cue list" functionality, enter the menu “Option: Snapshot Automation” menu.



Hardware Buttons
The following keys are located on the Vista8 control bay:

It is possible to use these keys to control various functions of the cue list. They allow certain functions to be switched using a hardware button, while it is still possible to use the mouse and operate these functions on the graphical controller screen:

- Switching on/off the crossfade function between cues
- Activate or de-activate the cue preview mode
- Go to next or previous cue.

Creating a cue
In order to create a cue, simply drag&drop one of the available snapshots from the top left corner or an event from below the snapshots to the cue area. It is also possible to create a cue using the MAKE button on the right side of the cue list. A cue doesn't have to contain a snapshot. It is also possible to just add any event without activating any console setting changes.

Recalling a cue
There are several ways to recall a cue:

- Double-click on its name
- Click on "NEXT" or "PREVIOUS" buttons on the graphical control screen
- If cuelist is armed: attach an incoming MIDI event to it and send the appropriate MIDI message to the console

- If cuelist is armed: Hit "NEXT" or "PREVIOUS" on the Vista 8 control bay
- Send MIDI show control messages to the console, according to the specification given below.

Cue numbering and sorting
The number to the cue will automatically be given, but can be edited manually in order to match cue numbers with other teams within a project (e.g. lighting department). In order to do this, select the cue and click on "NAME, #" on the right side of the cue list. When altering the cue number, it will automatically be resorted depending on the number given. The numbers used may contain a decimal point and up to two digits thereafter. (#.##) When resorting cues using drag&drop, the numbers are automatically extended using decimal points and up to two digits after this. In order to sort the cues, simply drag&drop the cue name to the right place.
Automatic numbering example: When inserting a cue between cue number 2 and 3, this cue will automatically be numbered 2.1. If another cue is inserted between 2 and 2.1, this new cue will be numbered 2.01. The system doesn't allow further cues to be inserted between 2 and 2.01. The user would have to manually alter the number 2.01 first.

Crossfading between cues
Each cue displays a number for the crossfade time when activating this cue. To alter this time, press-and-hold the left mouse button onto the digits and scroll up and down. Alternatively, enter the number using the numeric keyboard. (Note that the Cue crossfade must be active for you to be able to change this value).
When clicking on the crossfade time once, options for the behaviour of switches during crossfades become visible on the left side of the window (Options Area). It is possible to define for each cue, whether the switches should change their state before, in the middle or after the crossfade – while other parameters are changing seamlessly.
It is possible to recall a partial snapshot within a cue, therefore only influencing certain parts of the console. If a larger crossfade time is applied to this and the next cue may be recalled before the last crossfade has been finished, there will be two crossfades happening at the same time, possibly with different crossfade times! If the two cues would change the same parameters, the first crossfade would stop and the second one is applied from the point onwards.

Example:
Given:

- All Faders are set to 0dB
- Cue #1 contains a partial snapshot, setting faders 1-10 to -40dB. Crossfade time 10 seconds.
- Cue #2 contains a partial snapshot, setting faders 11-20 to -40dB. Crossfade time 1 second.

Action:

1. Recall Cue #1, e.g. by double-clicking on its name. -> Faders 1-10 will start slowly moving towards -40dB dB
2. After e.g. 5 seconds Cue #2 is recalled. -> Faders 11-20 will start moving towards -40dB
3. After 6 seconds faders 11-20 have finished their crossfade and are set to -40dB
4. After 10 seconds faders 1-10 have finished their crossfade and are set to -40dB

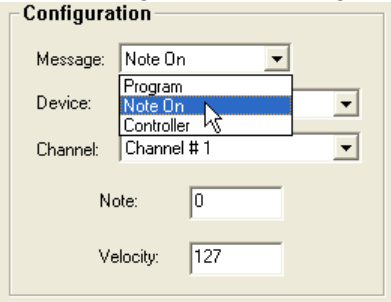
Organizing Events
It is possible to move events from one cue to another one by using drag&drop. It is also possible to move snapshots between cues using drag&drop. This adds the possibility to replace snapshots within cues or exchanging them.

Updating snapshots
The snapshot names displayed in the cue list only refers to the corresponding snapshot contained in the snapshot list. It is therefore possible to use the same snapshot in multiple cues, possibly using different crossfade times. When updating a snapshot, the cues containing it will automatically use the updated snapshot. Note: It is possible to update snapshots from within the cue list window: Right-click on the snapshot within the snapshot list in the top left corner in order to get different options like: MAKE, UPDATE, NAME etc.

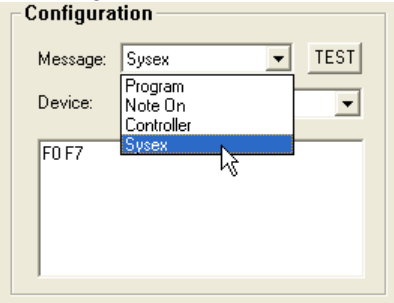
MIDI
It is possible to use MIDI note, program change and controller messages both as a source for firing a cue or as events to be sent out of the console upon recalling a cue. In order to attach a MIDI command as cue trigger, drag&drop the MIDI icon to the left side of the cue name. If a MIDI command should be sent out upon cue recall, drag&drop the MIDI icon to the right side of the cue. It is possible to add multiple output events to the cue.

Event options
After having attached an event to a cue, it is possible to alter various parameters, depending on the event. **After** having attached an event to a cue, click on the event icon within the cue list. The corresponding options are displayed within the "Options" area of the window (bottom left). The following options are available:

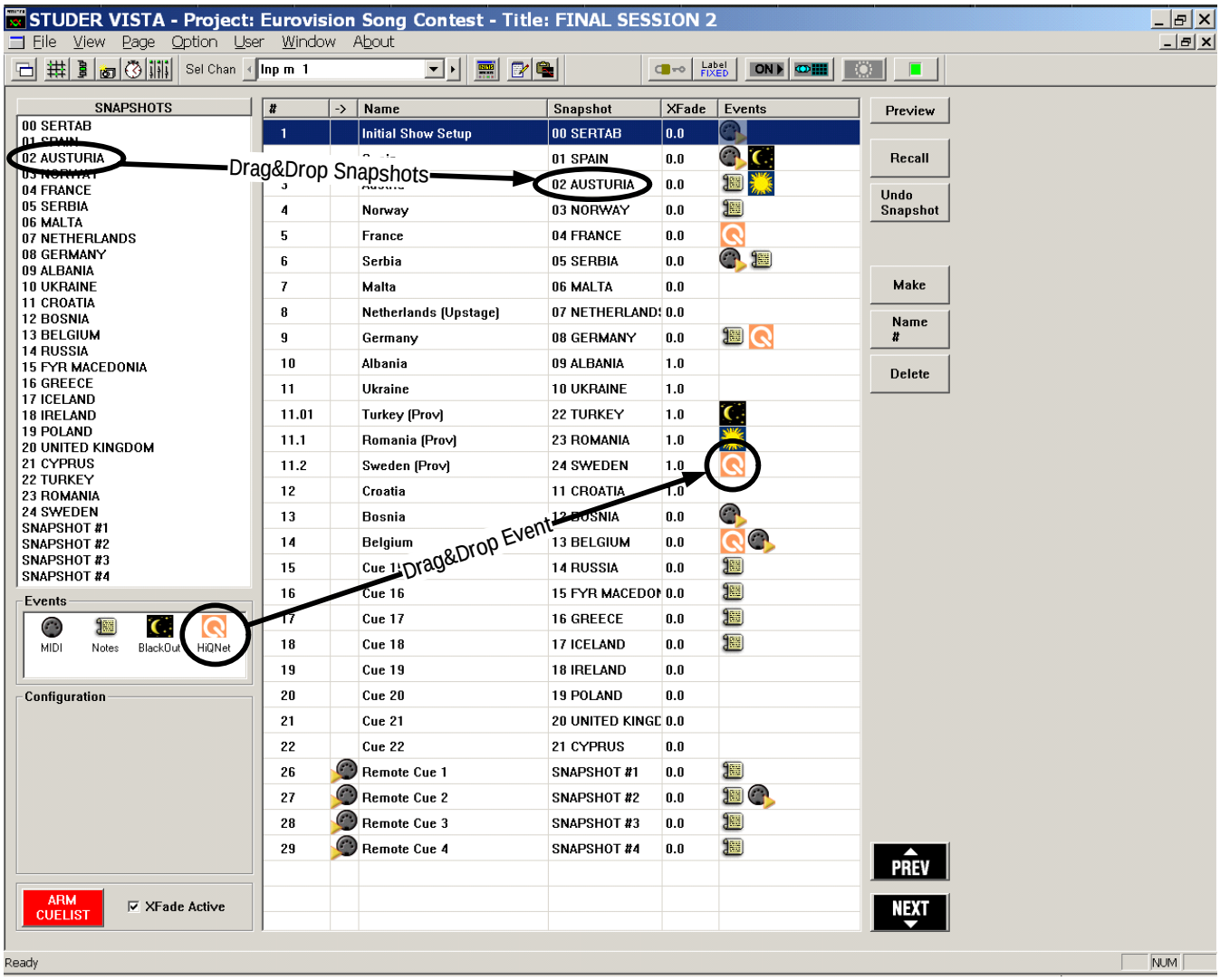
- MIDI In: Program, note change and controller commands may activate the corresponding cue



- MIDI Out: Program change, note change, controller and sysex commands may be fired off by this event. A TEST button allows sending out this parameter during system setup without recalling the cue.



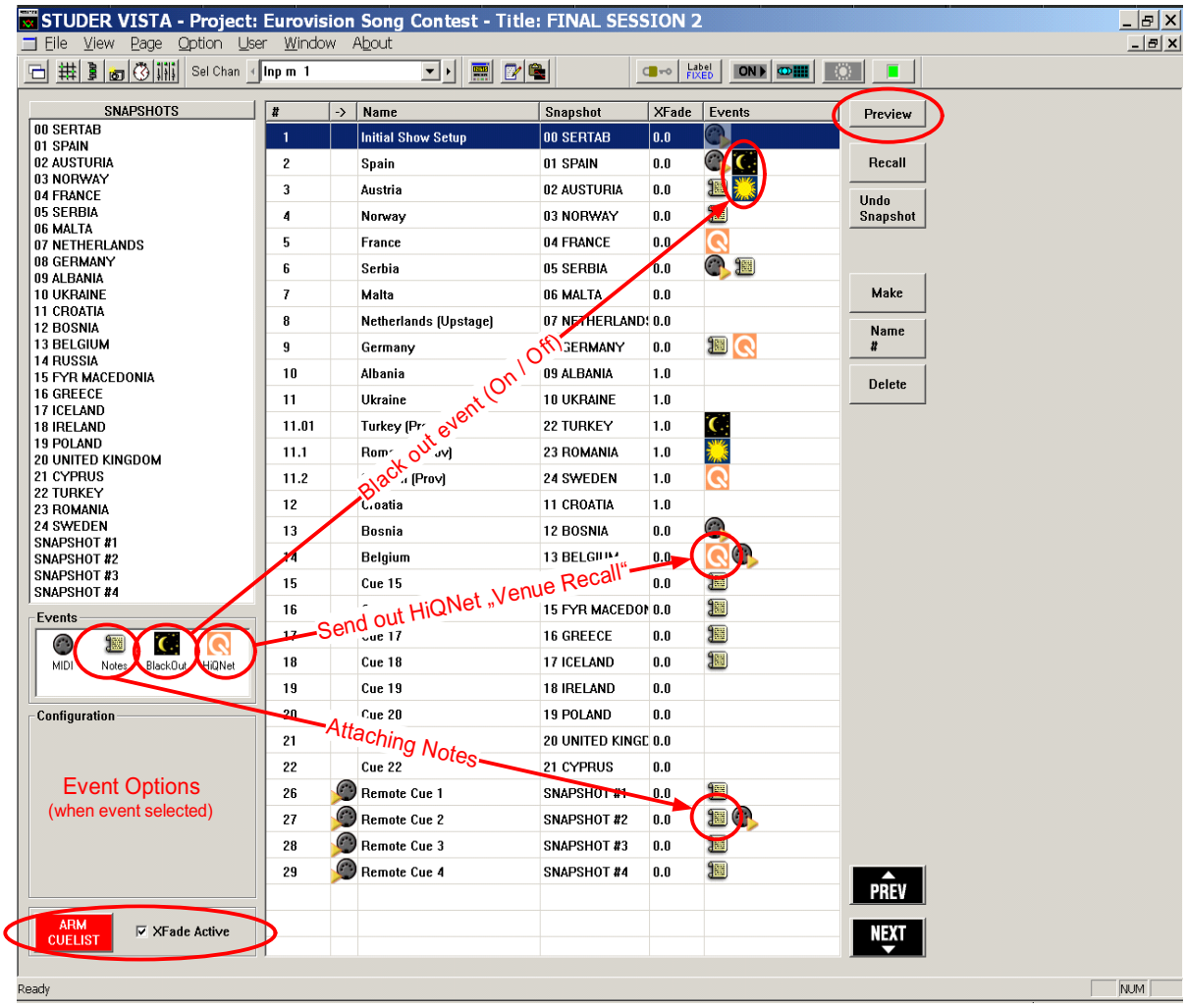
- Blackout: Console lights On/Off.
- Notes: Enter your notes. An option allows the user to change the behaviour of the cue list for note events: Should they be displayed before the cue is recalled or afterwards? (see “Options” for more details.)
- HiQNet: "Venue Recall" message sent out of the console to any HiQNet device. The corresponding venue number is entered in the configuration area of the window.



Blackout
It is possible to make the whole console surface go dark. This function is useful in a case where there should be absolute darkness e.g. in a theatre environment. The function also includes console illumination. This function can only be activated if the cue list is "armed". The console lights come back on again either by the next Blackout event (Parameter: OFF) or by hitting F3 on the console surface. F3 may also be used to activate the blackout manually (if the cue list is “armed”).

Arm Cuelist
In order to avoid unwanted influence by external devices, it is possible to arm/disarm the cue list inputs. When not armed, the blackout function, the MIDI IN events as well as the hardware buttons "NEXT"/"PREVIOUS" on the console surface are disabled.
It is possible to set various options for this button using the menu “Option: Snapshot Automation”

XFade active
It may be useful to temporary disable cue crossfades (e.g. during rehearsals). This can be done by un-checking this item.

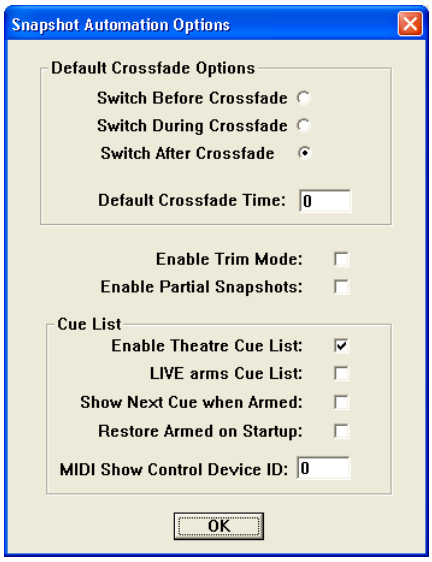


Preview mode

The snapshot/cue preview mode can be activated either by a hardware button or by clicking on the software button located in the top right corner of the cue list window. When in preview mode, the currently selected cue or snapshot (single click) is compared to the current audio settings. If there is a difference, the Vistonics® shows both values at the same time, using a pink graphical indication. When hitting the dedicated snapshot keys above the trackball, the preview mode is automatically activated until the same key is pressed again.

Cue List Options

In the menu "Options", "Snapshot Automation" the following options are available:



Default Crossfade Options:
The system allows cross-fading between two cues. It is possible to define the default values for cross-fades. These values will be used whenever a new cue is created.

Switch options:	Describes behaviour of switches (e.g. MUTE, EQ on/off etc.) when cross-fading. They apply if a switch changes its state in the next cue. They may change their state before, during or after the crossfade.
Default Crossfade Time:	Set default value of crossfades when new cues are created.
Enable Trim Mode:	When pressing-and-holding ISO button on the channel strip, followed by touching individual controls (e.g. faders, rotaries), their state can be set to being isolated from snapshot recalls. If this option is on, it is possible to touch the particular parameter a second time. This will set it into TRIM mode. In this mode all changes to that parameter since the last snapshot recall will be applied relatively (!) to all upcoming snapshot recalls. Thus, not altering them on disk!
Enable Partial Snapshots:	Activates the "partial Snapshot" feature.
Enable Theatre Cue List:	Enables the cue list functionality.
LIVE (ON AIR) arms Cue List:	When pressing the "Live" button on the Vista 8 control surface, the armed state of the cue list will change accordingly.
Show Next Cue when Armed:	Defines, whether the currently active or the next cue should be highlighted when the cue list is armed. This also allows to read attached notes ahead during the live event.
Restore Armed on Startup:	The system will switch the console into the stored "armed" state whenever the software is started. This allows e.g. constant reception of external MIDI commands for firing off cues.
MIDI Show Control Device ID:	See below

Vista is a MIDI Show Control device

It is possible to control the cue list by using "MIDI Show Control" commands. Vista is acting as a “slave” in this case. The following "MIDI Show Control" commands are supported:
Go, Stop, Resume, Load, Reset, Standby+, Standby-, Sequence+, Sequence-

Vista is designated as a Music Command Format (0x11). The MIDI device ID is set in the menu “Option”, “Snapshot Automation”.

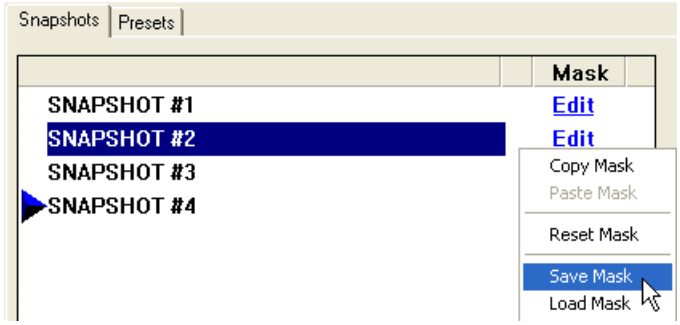
Examples:

Next Cue:	F0 7F [Device ID] 02 11 01 F7 (Go command)
Previous Cue:	F0 7F [Device ID] 02 11 12 F7 (Standby- Command), then F0 7F [Device ID] 02 11 01 F7 (Go Command)
Recall Cue 3.5:	F0 7F [Device ID] 02 11 01 33 2E 35 F7 (Go Command, with Q specified)

2. Storing snapshot masks

This function is only available when in “static automation mode”.

When working with partial snapshots (Option available in "Option", "Snapshot Automation"), it is possible to right-click on the "Edit" button to the right of the snapshots. A context menu will allow not only copying and pasting of masks between snapshots, but also saving and loading of masks into files. The files will be stored in the directory "C:\d950System\Users".
This function will be very helpful e.g. when multiple operators are working on the console. During rehearsals both operators may randomly store snapshots. After the rehearsal they select "their" snapshots and apply a prepared mask to them. This will make those snapshots only influence the part of the console where the operator was working on. Other applications may contain any recall of more complex masks.



3. Updating multiple snapshots

This function makes only sense when in “static automation mode”.

Very often certain controls should be updated in multiple snapshots. It may be important that only certain controls are overwritten and others obviously left as stored. In order to achieve this, place those controls into "Isolate" mode and recall a snapshot. If this action is now followed by an UPDATE command, only the isolated controls will be updated.
By using TRIM mode, it is even possible to apply relative changes to individual controls within snapshots. E.g. place the fader 1 into TRIM and lower it by -8dB. Recall the next snapshot and press UPDATE. This will store the original value of the second snapshot -8dB onto disk. See example 2 below for details.
It is possible to do all this even faster: First select multiple snapshots and press "Recall and Update" once. Note: The button "Update" is changing its name whenever multiple snapshots are selected.

Selecting multiple snapshots
It is possible to select multiple snapshots at the same time by using the keyboard SHIFT or CTRL key. The selection of multiple snapshots is following standard windows rules: SHIFT selects all snapshots in between the two, CTRL+click allows selection of individual snapshots.

Example 1:
Goal: The value of channel 3 should be overwritten and set to -20dB on the following snapshots: "Snapshot #1", "Snapshot #3", "Snapshot #5"

Steps:

1. Place the fader at -20dB
2. Press-and-Hold ISO on channel strip 3. Touch the fader in order to put it into ISOLATE mode.
3. Select "Snapshot #1" with the mouse
4. Press-and-Hold the CTRL key on the control bay, followed by selecting "Snapshot #3" and "Snapshot #5"
5. Click on "Recall and Update". Confirm that you want to overwrite those snapshots.

6. The console will automatically recall and update the selected snapshots.

Example 2:
Goal: The value of channel 3 should be lowered by 4dB on the following snapshots: "Snapshot #1", "Snapshot #3", "Snapshot #5".
These snapshots currently contain the following fader values:
"Snapshot #1": 0dB
"Snapshot #3": -5dB
"Snapshot #5": -10dB
Therefore after the update they should contain the new (relative) updated values:
Snapshot #1": -4dB
"Snapshot #3": -9dB
"Snapshot #5": -14dB

Steps:

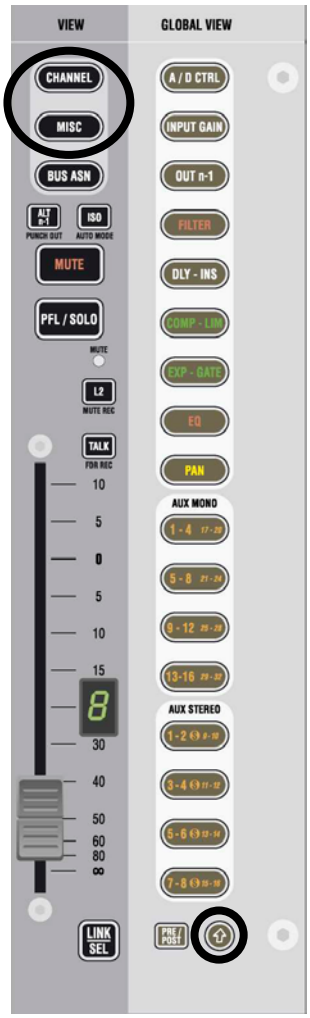
1. Make sure the option "Enable Trim mode" in the menu "Option", "Snapshot Automation" is set.
2. Recall any snapshot
3. Press-and-Hold ISO on channel strip 3. Touch the fader **twice** in order to put it into TRIM mode.
4. Lower the fader of channel 3 by 4dB. (The offset value will be displayed on the Vistonics® screen!)
5. Select "Snapshot #1" with the mouse
6. Press-and-Hold the CTRL key on the control bay, followed by selecting "Snapshot #3" and "Snapshot #5"
7. Click on "Recall and Update". Confirm that you want to overwrite those snapshots.
8. The console will automatically recall and update the selected snapshots.
9. Since the console assumes that the controls in TRIM mode were placed into this mode for the purpose of this update, the operator will be asked whether those controls should be taken out of TRIM mode.

4. Option for muting prefade auxiliaries upon channel mute

A new option has been added in the "User", "Vista Settings" dialog. If selected, all auxiliary busses are muted if the channel MUTE button is activated. If this option is not active (standard), only the auxiliary busses switched to postfade are muting upon channel mute.

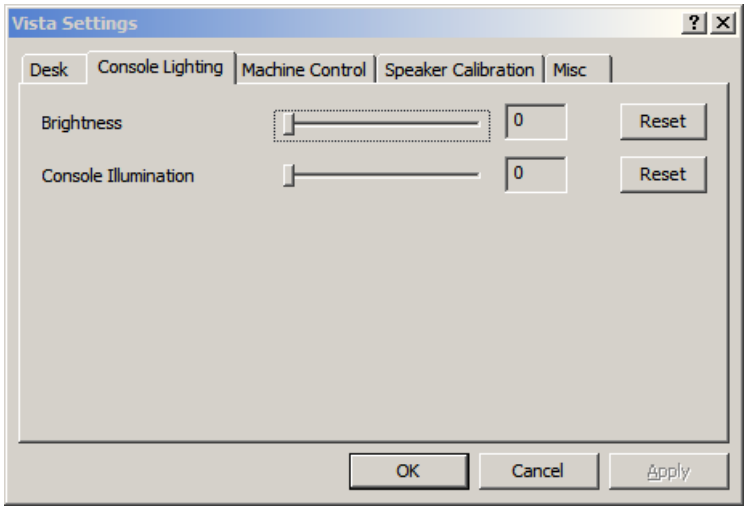
5. View MISC and CHAN with SHIFT key

If the SHIFT key is activated on the fader bays, it is possible to see up to 40 mono and 20 stereo auxiliaries when pressing CHAN and MISC on a channel strip. This is useful when working with a lot of auxiliary and matrix busses.



6. Adjustment of console lights

On the Vista 8 it is possible now to adjust the brightness of the console lights. Two sliders provide control over the LEDs and TFT brightness. The second slider controls the (optional) console illumination.



7. Offline conferencing

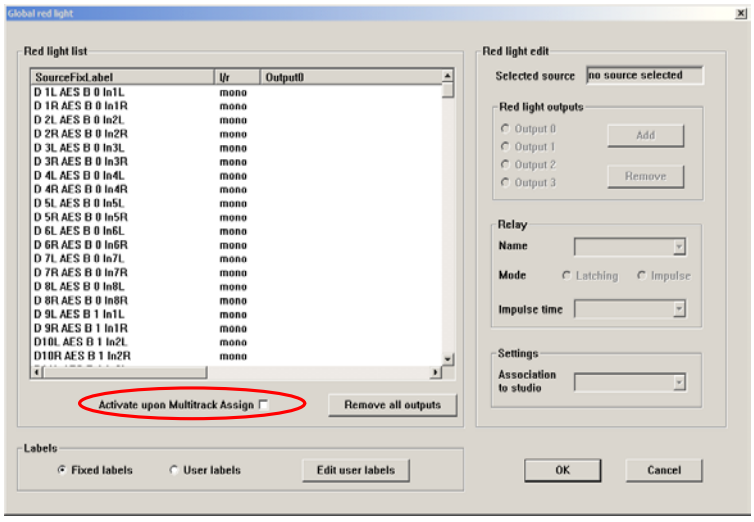
Whenever a offline conference is defined, there is now a overview available by opening up the "Strip Setup" view. All channels currently defined as conference members are marked with a semitransparent blue-green background.

8. PFL broadcast

Vista 6 and 8 provide the possibility to activate the "PFL Broadcast" mode by pressing the corresponding button in the monitoring section. Now there is an option available which lets the console remember the PFL state of a channel upon opening a fader. If a channel is in PFL mode before opening it, it will automatically go back into that mode when closing the fader again.

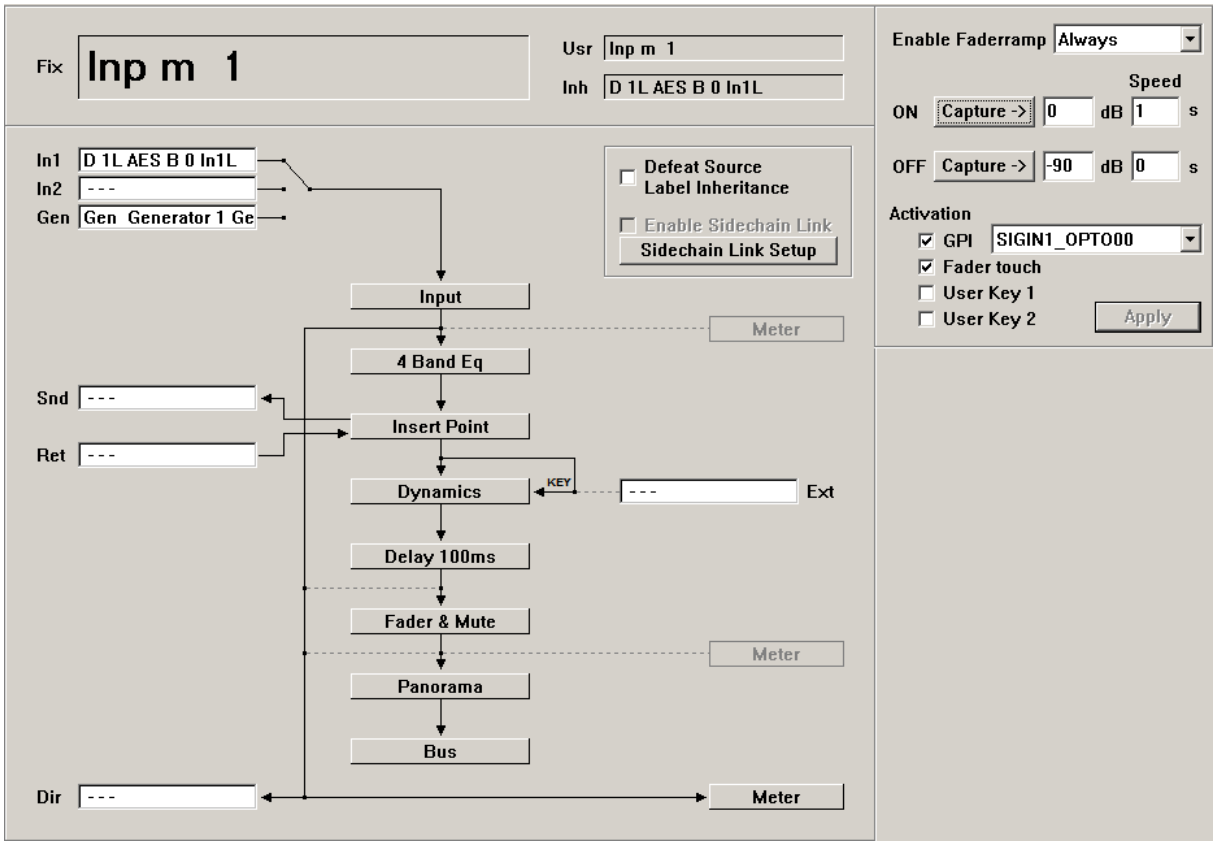
9. New Option: Red Light upon Multitrack assignment

In the setup menu of the red light functionality it is now possible to activate the Option "Activate upon Multitrack Assign". If this option is active, the red light condition is already met when an assignment to the multitrack busses is done and the fader is opened. This supports customers working with multitrack recorders.



10. Fader Ramp control ("Audio follows Video")

This function is only available when in “static automation mode”.



It is possible to control faders of all console channels externally. When using this feature, the console operator determines the “Fader Open/Close” values, as well as the speed the fade in/out should happen. Various triggers are available in order to activate the fade. The channel patch window allows adjustment of all necessary settings.
The “Fader Ramp” function might be particularly useful when doing TV work. The opening and closing of certain microphone channels may be controlled by the video switcher, using “GPIs” (closure contacts in monitoring rack). Another possible use is for radio/TV talk-shows: Different people have their microphones which are constantly opened and lowered. This action may be pre-programmed and the fade in / out may be activated by just touching the fader or pressing one of the USER buttons. The following options may be set in the channel patch window:

- **Enable Fader Ramp:** Select, if you want to use one of the two USER keys to enable the fader ramp on a specific channel. It is also possible to constantly activate it, leaving the USER buttons free for other functions.
- **ON fader value**: Pressing the “Capture” button will set the current fader value to be used when the GPI is active, hence the value used when the fader is opened.
  Alternatively the value may be typed in using the keyboard or by using the mouse: Click in the number field and drag the wheel up and down. This action is similar to the way time values are adjusted in the dynamic automation of the Vista consoles.
- **OFF fader value**: Pressing the “Capture” button will set the current fader value to be used when the GPI is inactive, hence the value used when the fader is lowered/closed.
  Alternatively the value may be typed in using the keyboard or by using the mouse: Click in the number field and drag the wheel up and down. This action is similar to the way time values are adjusted in the dynamic automation of the Vista consoles.

  Note: By using the same GPI on two channels and setting on one of the two the ON value to the “fader closed” position and vice versa allows using one GPI to control opening and closing of various channels at the same time.
- **Speed ON**: Determines the time used for "fade in" the corresponding channel

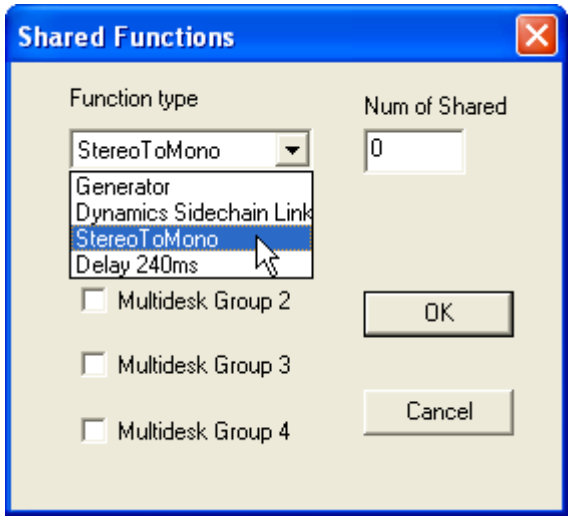
- **Speed OFF**: Determines the time used for "fade out" the corresponding channel
- **Activation**: The fade actions may be activated by different events. Some events may be enabled at the same time. The fade will take place whenever one of the activated events is detected:
    - **GPI:** Select one of the “General Purpose Inputs” available on the console for triggering the fade.
    - **Fader Touch**: Touch-and-Release the fader in order to activate the fade.
      Note: If the fader is moved while being touched, the trigger of the fade is deferred. This prevents from accidental fading.
    - **User Key 1/2**: The fade is activated when pressing the corresponding User key on each channel.

Notes: In the case where adjusted values constantly jump back to their previous values, check that the file “C:\D950System\Sig...ini“ is not write protected.

The Fader Ramp parameters are stored in the current signaling.ini file which is referenced from the used monitoring.ini file. Each title can have its own settings (separate monitoring/signaling files) or multiple titles can use the same settings (shared monitoring/signaling files). See enclosed Application Note for a detailed example.

11. Mono summation

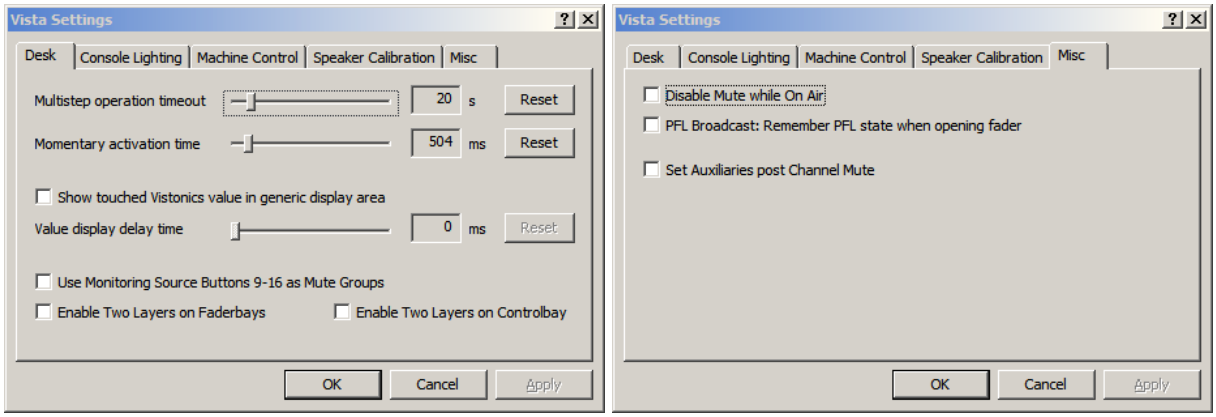
It is possible to configure "Stereo-To-Mono" processes within the configuration editor software. If your session configuration contains one or more such processes, you will see them on the general patch window. Each process has two inputs (left and right) and one output. You will find them when right-clicking on the sources or targets area. Select "Shared Processes". The output is the sum of the two inputs, attenuated by 3 dB.



Note: It is also possible to configure one or multiple delays as a „shared process“. However, in order to adjust its value you would have to be a system administrator and go into the „VMC tree“ view of the console parameters. Hence this function is only intended when installing a console. Fixed delays might be set by Studer Service personal at that time.

12. General Information

- The snapshot crossfade function has been moved from the snapshot window to the new cue list window.
- The menu "Vista Settings" within the "Options" menu has been slightly re-organized and new tabs have been introduced as follows:



- For customers having D950 and Vista consoles in their facilities and want to transfer configurations and settings between the consoles: Vista configurations containing Vista specific features may not be taken over onto the D950 consoles. Current Vista specific functions are:
  - Auxiliary busses used as matrix outputs (assign function to aux busses from aux master channels or master channels)
  - SOLO assign functions from master or aux master channels
  - New multitrack busses with enhanced functionalities (Pan on/off, post/prefade switch)
  - n-x busses

13. Minor improvements and fixed bugs

Description	Comment
Some meter peak values get lost	fixed
Monitoring settings were not stored with title or their application fails when changing configurations.	fixed
"Clear All" action lets control over microphone preamplifiers disappear	fixed
Clipboard library: Sometimes pan values are not correctly indicated	fixed
Dynamic Automation: Scrolling clears all "HOLD" states of channels	only the scrolled ones are cleared, other ones stay in "HOLD" mode.
Display of current bays on Strip Setup window sometimes wrong	fixed
Configuration Editor Software: After removing an insert function from a CGM, it can't be added anymore	fixed
Easy to create offsets when working with Control Group Masters	fixed
Loading a strip setup from another title with another session configuration doesn't work correctly	fixed. Strip Setup will show now all common channel types.
Section change during setup of CGM groups will result in dark LINK/SEL keys instead of half lit	fixed
n-x setup: When using a gang, it is possible to add the n-x owner channel to its own n-x bus	fixed
Adjusting the momentary activation time doesn't impact keys in monitoring section	fixed
Snapshot recall doesn't restore position of VCA member channels correctly	fixed
Channel isolation doesn't include insert points and misses some direct out settings	fixed
Channel delays can't be controlled by CGM	fixed
Improvement: When trying to open a title which doesn't belong to the currently loaded configuration, the question about importing it into the currently loaded configuration defaults to YES. Dangerous!	Now default NO
Audible clicks when adjusting D21m mic gains	fixed
Channel function keys (above Vistonics screen) on fader bays sometimes stay dark upon first start of console	fixed
UNDO of CLEAR fader (touch) doesn't work	fixed
Unreliable restore of snapshot filter state upon console application start	fixed
Sometimes moving a CGM master doesn't move its members	fixed
General Patch window: Label edit dialog box jumps to "target label" upon touching the generic display area	shows now always source labels
Deleted snapshot after error "Failed to update Snapshot"	fixed
Pan function on SOLO bus doesn't work correctly	Fixed. Recompile Configurations!
Vista 8 specific:	
Vista 8 control bay: No momentary activation of PFL/SOLO buttons.	fixed
Vista 8 with redundant control system: Not all settings were copied to redundant system	fixed
Vista 8 Improvement: When hitting CONTRIB on a auxiliary master channel, the contribution view is now using the right colour coding.	
Vista 8: When hitting CONTRIB key on the control bay, the modifier state MUTE/TALK should be reset	fixed
Vista 8: Copy/Paste of strip setup between fader bays and control bay not possible	fixed
Vista 8 control bay: changing fader page should re-allign to center position	fixed
Vista 8 control bay: L2 button on channel 10 doesn't work	fixed
Vista 8 Control Bay: When assigning input channels onto the Vistonics screen using USER views, these channels don't show PFL/SOLO functionality	fixed
Vista 8 dynamic automation: When enabling record on MUTE keys they are not going half lit	fixed

14. Native Pro-Bel support

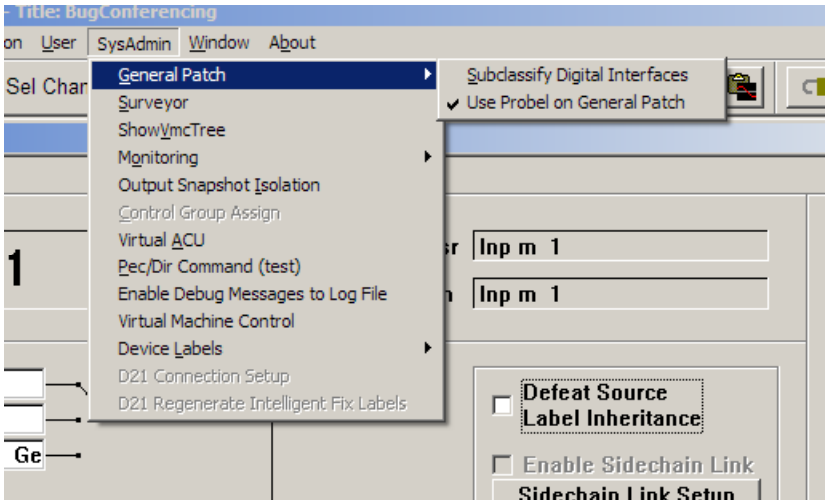
Starting with version 3.5 of the D950 and the Vista Software those products are able to support Pro-Bel enabled devices natively, and so a second PC is not necessary for this functionality. However, we do not recommend that existing installations are altered which are already in use with a second PC for Pro-Bel interfacing. The explanations following below are therefore intended for installation personal and not for the console operators.

Supported Functionality

Our implementation enables the ability to map certain Pro-Bel connect requests to a set of definable Patch connections. This set up procedure is done from the General Patch screen, where certain patches can be selected (by just selecting the affected targets) and which are being mapped to a Pro-Bel source/destination combination with a single click on a dialogue.

Enabling Pro-Bel Setup

To be able to activate and see the Setup Probel button on the General Patch the system has to be in Sysadmin Mode.The SysAdmin menu contains a sub menu GeneralPatch and a switch to use Pro-Bel.



Menu for activating native Pro-Bel support

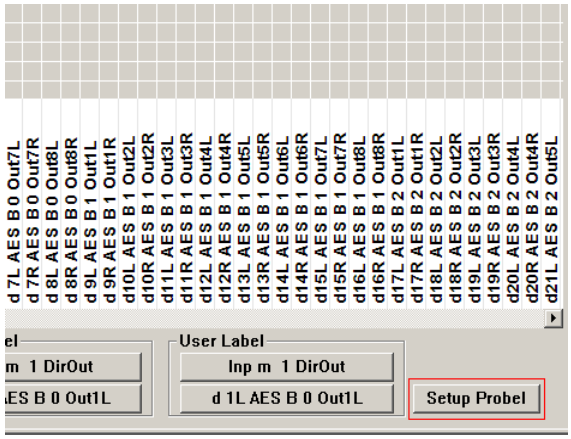
This setting will be written to the D950System.ini as well, resulting in the same behaviour as if it was edited by hand in the first place.
The button will then be visible whenever the System enters the Sysadmin Mode.

Enabling COM ports for use with the Pro-Bel protocol
Ports that are to be used for Pro-Bel need to be specified in the D950System.ini in the [d950SerialPorts] section. This gives the possibility to use non standard data rates and parity settings.

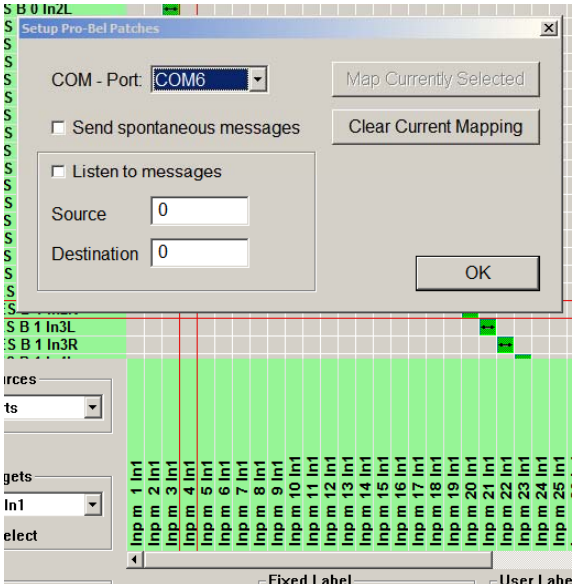
```
[d950SerialPorts]
1= {p} COM1 baud=115200 parity=N data=8 stop=1
2= {b} COM6 baud=38400 parity=E data=8 stop=1
```

The b is used to indicate the Pro-Bel utilisation. Only the COM ports defined like this will be available in the Pro-Bel setup dialogue.

Bringing up the set up dialogue for Pro-Bel
With Pro-Bel setup button enabled the General Patch presents a new button on the bottom right. Hitting this button the system brings up the set up dialogue and enters Pro-Bel set up mode.

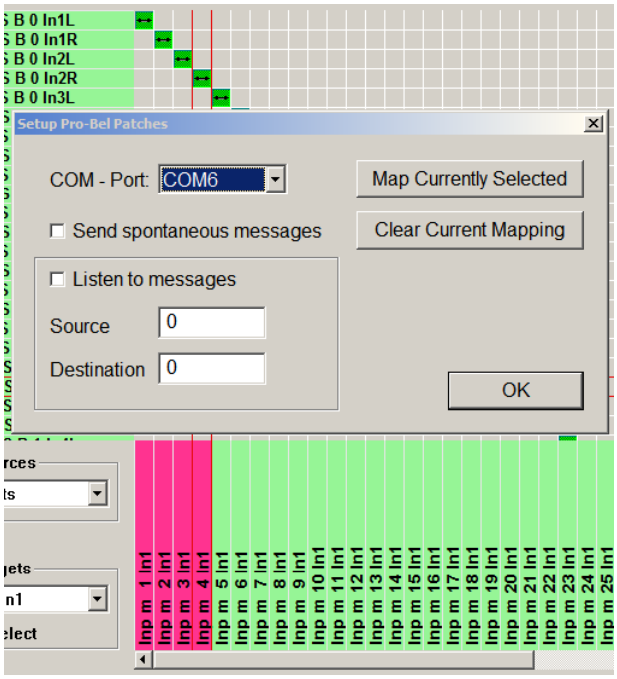


Pro-Bel Setup button



Active Pro-Bel set up dialogue

Targets with their respective connections can be selected by clicking on them in the list on the general patch. Selected targets change their colour to pink to show their selection state.



Hitting the “Map Currently Selected” button maps the patches for the selected targets (the pink coloured ones) to the Pro-Bel connect command specified on the left.
With the listen button enabled, incoming connect messages are mapped to the edit fields on the dialog. To select targets affected by this connect command simply click on them in the target list of the general patch (colour is set to pink).
Make sure to always associate the same Pro-Bel destination to the same set of targets.

It is possible to map any connection on the patch to certain Pro-Bel connect commands. You are not limited to outputs or inputs!

It's possible to activate spontaneous messages. The appropriate CONNECTED message is sent whenever one of the defined patch combinations matches the combination when they were defined.

Files used to store Pro-Bel set up
The system creates human readable files (ini-file format) in the D950System directory to store the set up. The files are named according to the COM – port used.
Filename: PortX.probel
with X being the COM – port used.

```
[TARGET_1 SOURCE_6]
Im23 Inp m 23 In1 left=D12L AES B 1 In4L left
Im24 Inp m 24 In1 left=D12L AES B 1 In4L left
[TARGET_1 SOURCE_7]
Im23 Inp m 23 In1 left=D11R AES B 1 In3R left
Im24 Inp m 24 In1 left=D11R AES B 1 In3R left
[TARGET_1 SOURCE_4]
Im23 Inp m 23 In1 left=
Im24 Inp m 24 In1 left=
[TARGET_0 SOURCE_0]
Im23 Inp m 23 In1 left=D11R AES B 1 In3R left
Im24 Inp m 24 In1 left=D11R AES B 1 In3R left
Im25 Inp m 25 In1 left=
Im26 Inp m 26 In1 left=
```

Example for a .probel file

This file basically has a section for each used Source/Target combination. The fixed labels are being used and left is appended for left or mono sources/targets and right is appended for right sources/targets.

Application Note: "Working with Fader Ramps"

Since the Fader Ramp settings are stored in the signaling.ini file, they will be valid for all titles using the the same signaling.ini file. The currently used signaling file is referenced by an entry in the active monitoring.ini file.
In order to allow different titles and productions to have their unique Fader Ramp settings (i.e different signaling.ini files), be sure to assign the appropriate monitoring files. If two titles should use the same monitoring but different fader ramps : simply duplicate the common monitoring file, and change one signaling reference to the original signaling.ini, the other to the alternative signaling2.ini.

Example : Separating Productions with/without Fader Ramps

After the upgrade to V3.5 there should be productions with and others without fader ramps. The following steps show the required modifications when starting with a common monitoring.ini file for all productions, but it also applies also for systems with multiple monitoring files.

Before starting to work with Fader Ramps at all

1. make a copy of the monitoring file "*Monxxx.ini* " in C:\D950system and name it "*MonxxxFR.ini*".
2. make a copy of the signaling file "*SigVista.ini*" in C:\D950system and name it "*SigxxxFR.ini*"
3. Open the new "*MonxxxFR.ini*" file, and go to the very end
   where you find the line `SignalingFile=C:\D950System\SigVista.ini`
   and change it to `SignalingFile=C:\D950System\SigxxxFR.ini`

Assign one of the 2 available monitoring files (and the linked signaling file) to any existing or new title now. Titles without fader ramps need to load the "Monxx.ini", titles with Fader Ramps will load the Mon.ini file "MonxxFR.in".:

4. Open or create the title which should be used with Fader Ramps.
5. Go in "Sysadmin" mode and open the monitor file editing window.
6. Load the newly created "MonxxFR.ini" and confirm with "Apply"

If you wish to use different Fader Ramp settings on different "Fader Ramp" titles, you can of course have several monitoring files available, each linked to a signaling file with it's own settings.

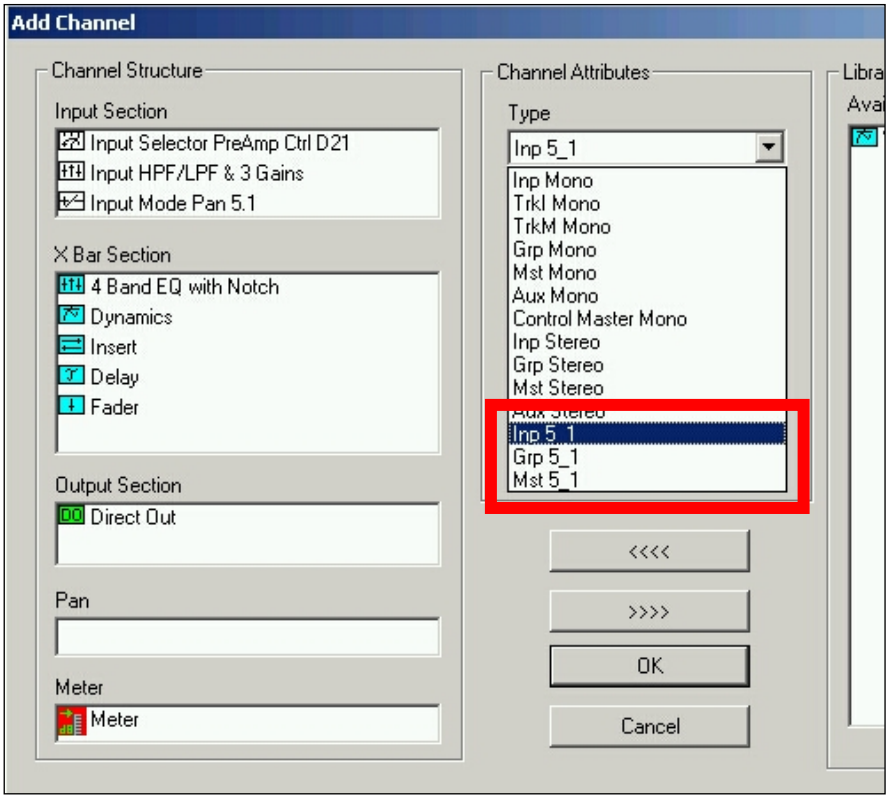
VISTA SW V4.0, DIFFERENCES AND NEW FEATURES

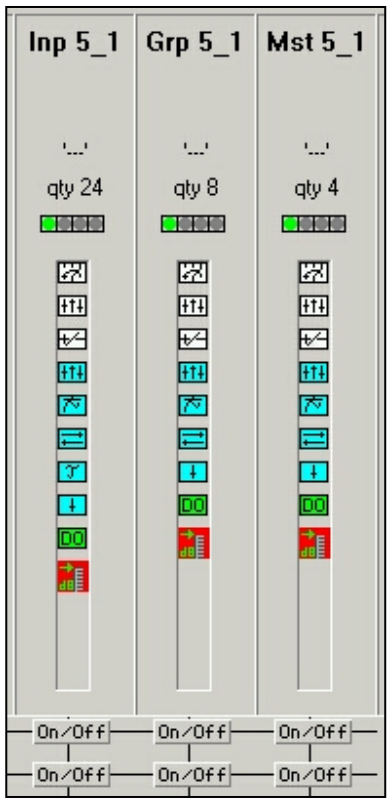
Please insert this document at the end of chapter 10 of your Vista operating instructions folder.

A "5.1 CHANNELS" (SCore Live only)

A.1 Introduction

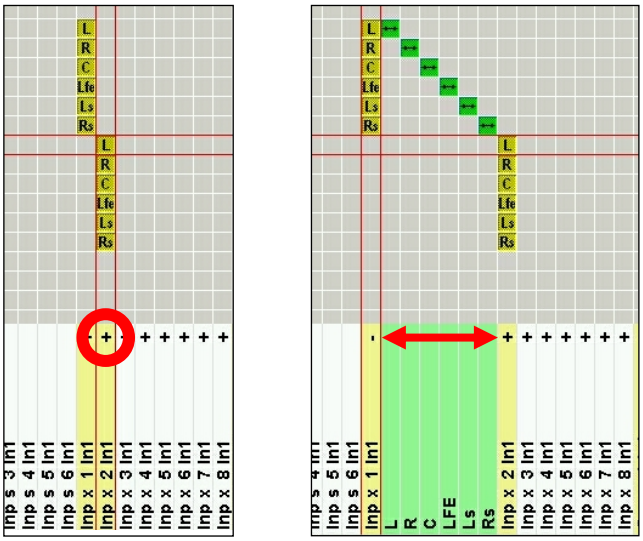
With the Vista V4.0 software release, “5.1 channels” were introduced. These are also referred to as “surround channels”, using only one single fader for bringing a surround source into a mix. “5.1 channels” are available in the SCore Live configuration editor as *input*, *group* or *master* channel types.





A.1.1 Channel Patch

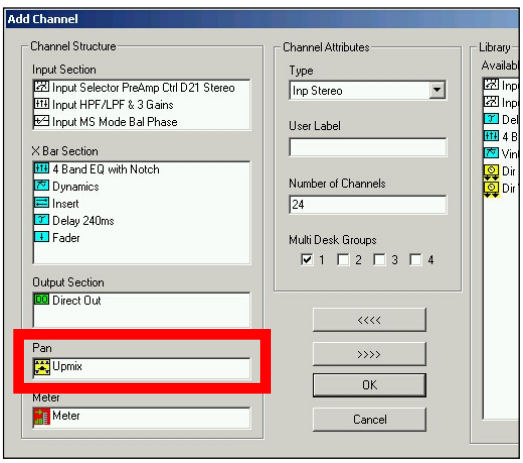
A surround source can very easily be patched to a 5.1 input channel by using the “auto” route facility, where all six discrete mono sources are patched at once and with one single click. Moreover, there is a "+" unfold icon with every 5.1 target. When clicking on it, all 6 individual legs of the surround target are shown and can be patched in any desired order. Clicking on "-" closes this view to show only one single patch connection again.

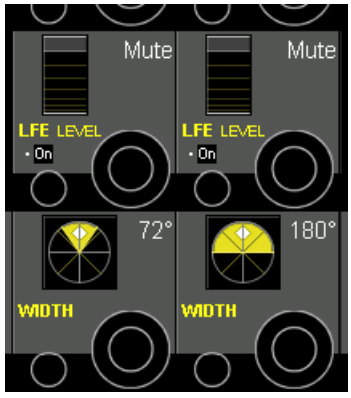


A.1.2 "Upmix" Panner for Stereo Channels

Normally, a significant number of stereo sources is still used for a typical surround production, so they need to be brought into the 5.1-channel format. The upmix panner is a way to pan stereo signals to a surround mix, providing the possibility to ‘unwrap’ a simple stereo signal to a surround sound field.

Every stereo channel can be equipped with the new “upmix” panner. There are three operating modes: "Normal LR", "5.1", and "5.1 width" modes. "LR" mode is normal stereo panning; "5.1" mode simply uses “standard” panning, where e.g. the left channel is also sent to the left surround speaker, etc. The most uncommon of these modes is "5.1 width", applying a special algorithm (using Harman corporate intellectual property), extending the stereo width control to the rear channels as well.



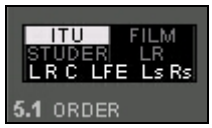


A.1.3 New Surround Bus Order

With the surround channel order now accepted by the industry, according to the ITU standard (L, R, C, LFE, Ls, Rs), the bus order in Vista consoles has been changed. The newly introduced bus labeling in the Vistonics™ touch area allows a better overview and secure and quick assigning.

Note: *It is very important to understand that the new 5.1 input channels can be assigned to buses in this strict order only.*

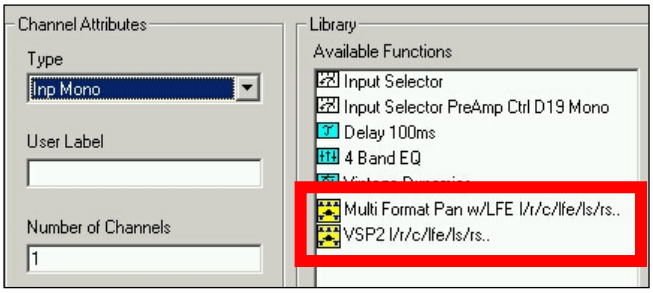
Daily broadcast work shows, however, that not all 5.1 sources are delivered in the standard format yet. An input order selector has been designed comparable to the "2-CH mode" (L to both, R to both, swapped, mono) in stereo channels. This is an easy way to detangle different standard surround material, so once it is on the 5.1 fader, everything is in the correct "L R C LFE Ls Rs" standard order.

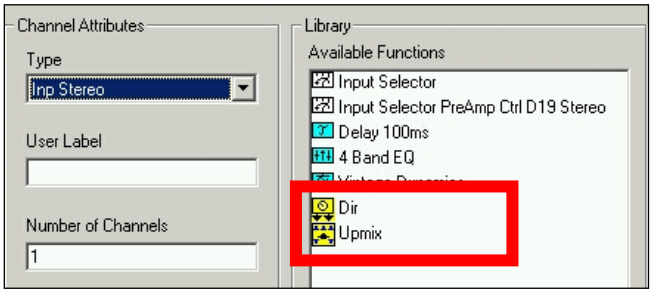


The configuration editor application provided with this release will only use surround panner modules (for mono channels) that pan to the buses in the new order.
This means that there are new surround panner modules that are:

- "Multiformat Pan w/LFE": l/r/c/lfe/ls/rs, and
- "VSP2": l/r/c/lfe/ls/rs.

The new "Upmix" panner for stereo channels also pans to the buses in the new order.





There are different possible update scenarios for your VMC configurations:

- Add 5.1 channels and stereo upmix panners to your existing configurations, and change the mono channel surround panners to the new bus order.
- Don’t add 5.1 channels or stereo upmix panners, but change the existing mono channel surround panners to the new bus order.
- Don’t change your configurations at all.

We recommend the first or second scenario. The necessary steps are described in detail in the SW release upgrade notes.

A.1.4 Monitoring

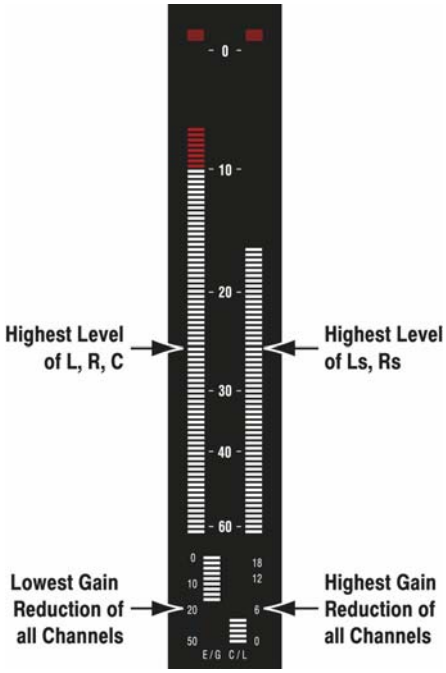
In order to cope with the new surround bus order, the monitoring patch and the surround orders in the monitoring file dialog, along with the order of the monitoring meters have been changed with SW V4.0. This is achieved by modifying the Mon.ini file, as indicated in the SW release upgrade notes.

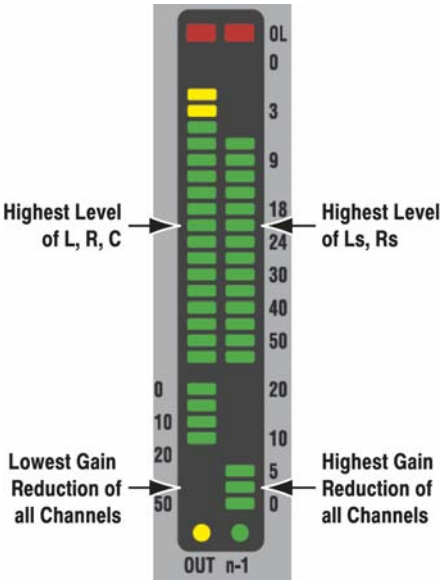
Vista 8 CR meters below SW V4.0:

Vista 8 CR meters with SW V4.0:

A.1.5 Metering

For level indication of the surround input signals, two possibilities are available:
The *channel meters* indicate maximum level values of several signal legs, as shown below (left: Vista 6/7/8, right: Vista 5).





Discrete levels of all surround input legs are displayed in the *panning window* of the Vistonics screen:

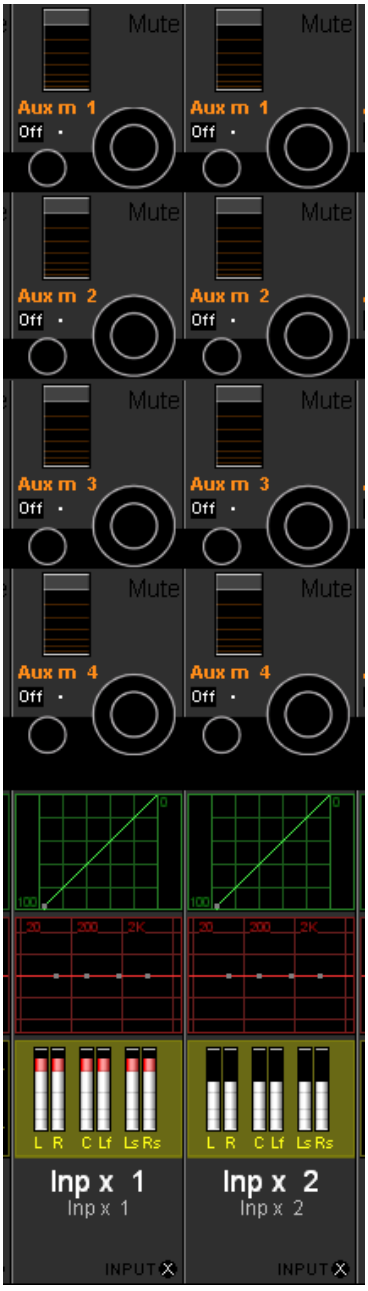
A.2 Parameters

With the 5.1 input channels, the user has input, EQ, dynamics and panning sections completely designed for premixed 5.1-channel input sources. The main goal is that he can adjust the most important parameters directly with a touch on the Vistonics™ screen, without the need to “spilling” single mono or stereo channels to additional faders, where other important sources would be hidden and become unavailable.

On the following pages you will find a detailed parameter description of these new channel types. Functions that remain the same as with mono or stereo channels are not necessarily mentioned.

Parts of the mixing console/Vista application that are affected by the 5.1 channels are described as well.

***Global View** of two 5.1 Input Channels:*

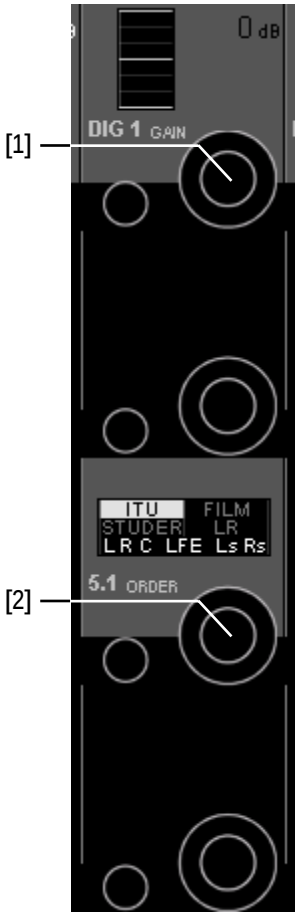


A.3 Global Views

A.3.1 Input Parameters

Press GLOBAL VIEW: INPUT.

Compared with mono or stereo channels, the global input control section of a surround input channel is slightly different: There is no phase control switch, and the **2 CH Mode** selector has been replaced by **5.1 ORDER**.



DIG 1 GAIN [1] As it is the case with mono or stereo channels, the digital gain stage acts as a trim after the A/D converter. Input gain can be set in 1 dB steps in a range of ±24 dB. The default value is 0 dB. In a 5.1 channel, all six surround input legs are treated simultaneously.

5.1 ORDER [2] Like the **2 CH MODE** function in a stereo channel, this functionality provides a kind of patching within the 5.1 channel. The bus order in Vista consoles with SW V4.0 has been changed according to the ITU standard (L, R, C, LFE, Ls, Rs). The **5.1 ORDER** selector allows converting different surround formats to the ITU order.

Format	Input Channels ⇨	ITU Output Channels
ITU	L R C L F E Ls Rs	L R C LFE Ls Rs
Studer (SW before V4.0)	L R C Ls Rs LFE	
Film	L C R Ls Rs LFE	
L R	L R	

For further information on this subject, please refer to chapter A.1.3.

A.3.2 Pre-Amp Remote Parameters

Press GLOBAL VIEW: MIC CTRL.

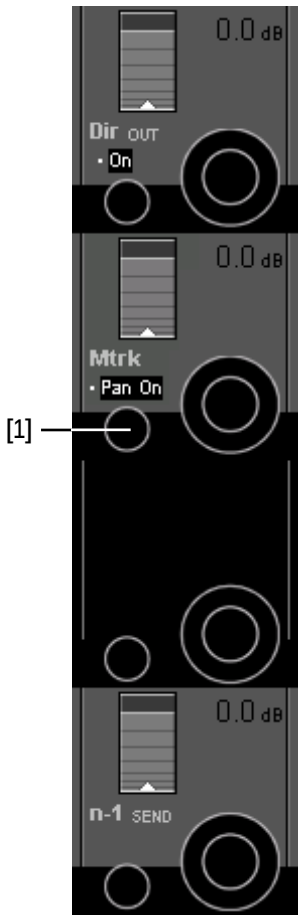
The same functions for Mic control are found as on mono and stereo input channels. On the 5.1 surround input channels these controls are linked for all six legs of the surround signal.

A.3.3 Direct, Multi-Track and N–1 Output Parameters

Press GLOBAL VIEW: OUT n-1.

This view is similar as with mono or stereo channels; it allows controlling the levels of the Direct and Multi-Track outputs and of the channel's contribution to the N–1 bus.

From surround input channels, N–1 mono buses are fed with an ITU-compatible mono down-mix of the surround signal. N–1 stereo buses are fed accordingly with an ITU-compatible stereo down-mix.



Pan On/Off [1] Allows panning of the channel's output signal to the multi-track bus if set to "Pan On", in addition to the standard channel pan. The panning is adjusted with the usual Pan controls.

A.3.4 Mono AUX Parameters

Press one of the GLOBAL VIEW: AUX MONO keys.

The mono Aux sends are fed from the 5.1 channels with an ITU-compatible mono down-mix.

A.3.5 Stereo AUX Parameters

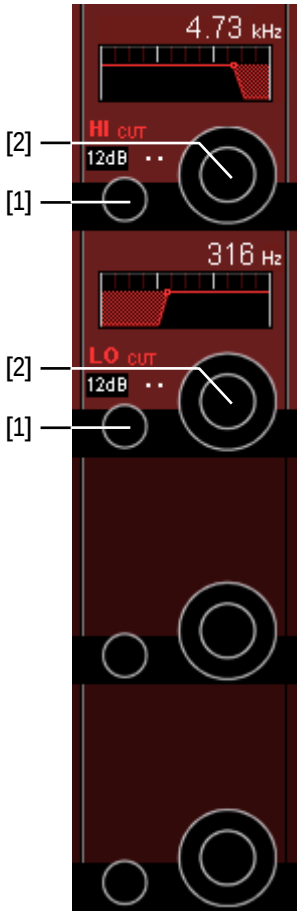
Press one of the GLOBAL VIEW: AUX STEREO keys.

The stereo Aux sends are fed from the 5.1 channels with an ITU-compatible stereo down-mix. Compared with the stereo Aux send view for mono or stereo input channels, *there is no panner control available* for 5.1 surround input channels.

A.3.6 Filter Parameters

Press GLOBAL VIEW: FILTER.

This view is the same as with mono or stereo channels; it allows controlling the high- and low-cut filter parameters. Please note that HI- and LO-CUT filter parameters applied here will be valid for all surround signal legs, *except the LFE*. For further information on this subject, please refer to chapter A.4.2.



HI CUT/LO CUT [1] Slope setting for the high- and low-cut filters, selectable from 12, 18, and 24 dB/octave (toggles 12, 18, 24, 12, ...).

Frequency [2] Cutoff frequency adjustment for the high- and low-cut filter: Both filters can be set in 120 steps in the range from 20 Hz through 20 kHz.

A.3.7 Delay and Insert Parameters

Press GLOBAL VIEW: DLY-INS.

This view is the same as with mono or stereo channels; it allows controlling the channel delay and insert parameters. Please note that the available delay processing block for 5.1 channels has a maximum delay time of 700 ms (compared with the standard 240 or 100 ms delay in the mono or stereo channels).

A.3.8 Compressor/Limiter Parameters

Press GLOBAL VIEW: COMP-LIM.

This view is the same as with mono or stereo channels. Please note that the compressor and limiter settings applied here will be valid for all surround signal legs *except the LFE*. For further information on this subject, please refer to chapter A.4.1.

A.3.9 Expander/Gate Parameters

Press GLOBAL VIEW: EXP-GATE.

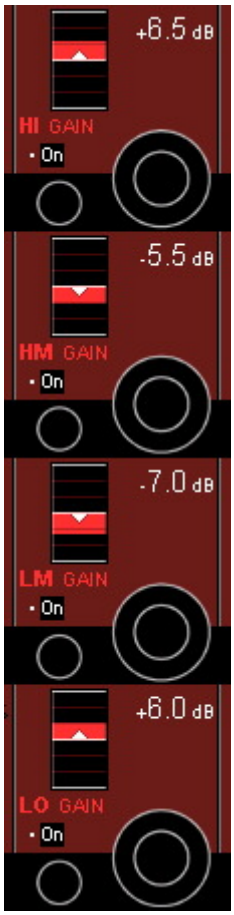
This view is the same as with mono or stereo channels. Please note that the expander and gate settings applied here will be valid for all surround signal legs *except the LFE*. For further information on this subject, please refer to chapter A.4.1.

A.3.10 EQ Parameters

Press GLOBAL VIEW: EQ

This view is the same as with mono or stereo channels. Please note that the equalizer settings applied here will be valid for all surround signal legs *except the LFE*. For further information on this subject, please refer to chapter A.4.2.

Standard view:

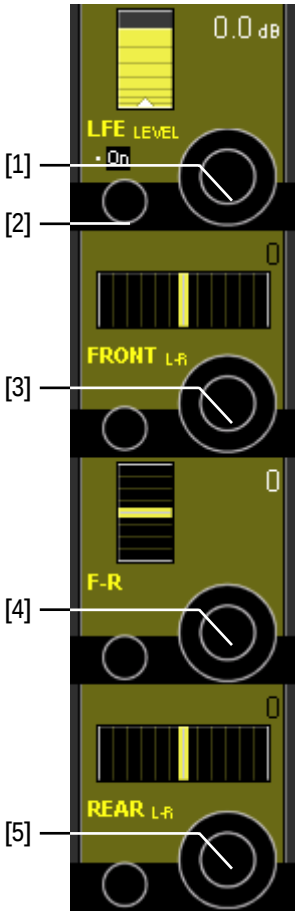


Alternate view:

A.3.11 Panning Parameters

Press GLOBAL VIEW: PAN.

Please note that the panning section in the 5.1 channels is completely different from the panning we already know from mono or stereo channels. The main goal of the panning section for surround input channels is the direct adjustment of the most important parameters by a touch on the Vistonics™ screen, without the need to "spill" single mono or stereo channels to additional faders, since other important sources would then be hidden and become unavailable. This is realized by introducing completely new parameters for "balancing" the 5.1 signal using the Vistonics rotary encoders. The complete 5.1 channel panning section is described in chapter A.4.3.
The most important 5.1 panning parameters can be seen and controlled in the global view:



LFE LEVEL [1] This is a simple level trim for the LFE leg of the surround signal. The default level is 0 dB. Maximum boost/cut is +10 dB/–90 dB.

LFE LEVEL On/Off [2] "Off" mutes the LFE signal.

FRONT L-R [3] Balance control for the FRONT channels of the surround signal. When set towards the left, the signal of the right channel is attenuated, and vice versa. This is comparable to the input balance of a stereo channel.

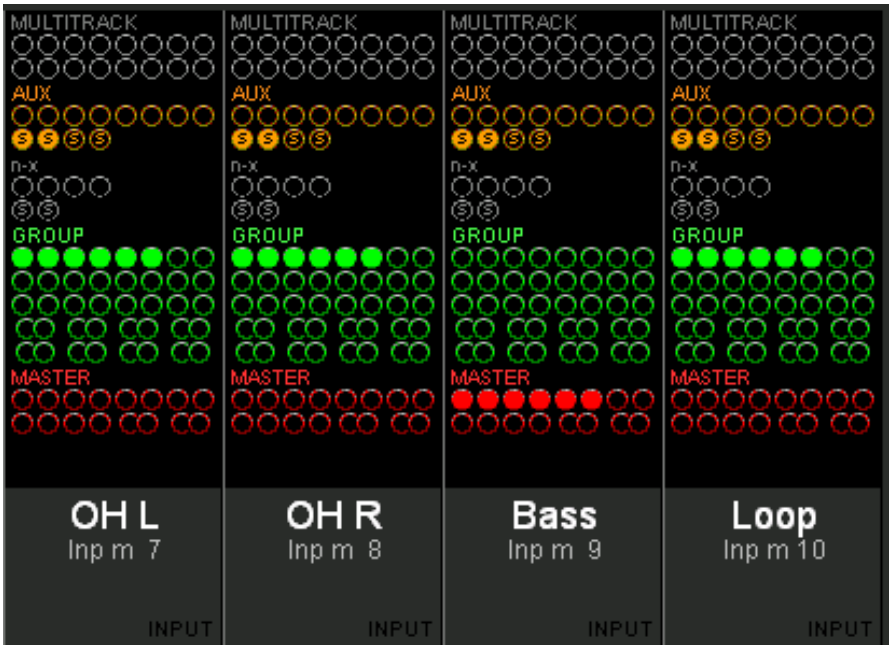
F-R [4] Balance control for the relation between the surround signal's FRONT and REAR channels. When set towards the FRONT, the REAR signal pair is attenuated, and vice versa.

REAR L-R [5] Balance control for the REAR channels of the surround signal. When set towards the left, the Rs channel signal is attenuated, and vice versa.

A.3.12 Global Bus Assignment View

Press GLOBAL VIEW: BUS ASN. This is an On/Off key that can be activated *in addition* to other global view keys. The bus assignment overview will cover the EQ, dynamics and pan curves on the lower part of the TFT; it disappears when GLOBAL VIEW: BUS ASN is pressed again.

The displayed bus assignment bitmap varies depending on the channel type. Some channel types may show a part of the bitmap only, depending on possible bus assignments. Therefore the display may show a blank region for some channel types.

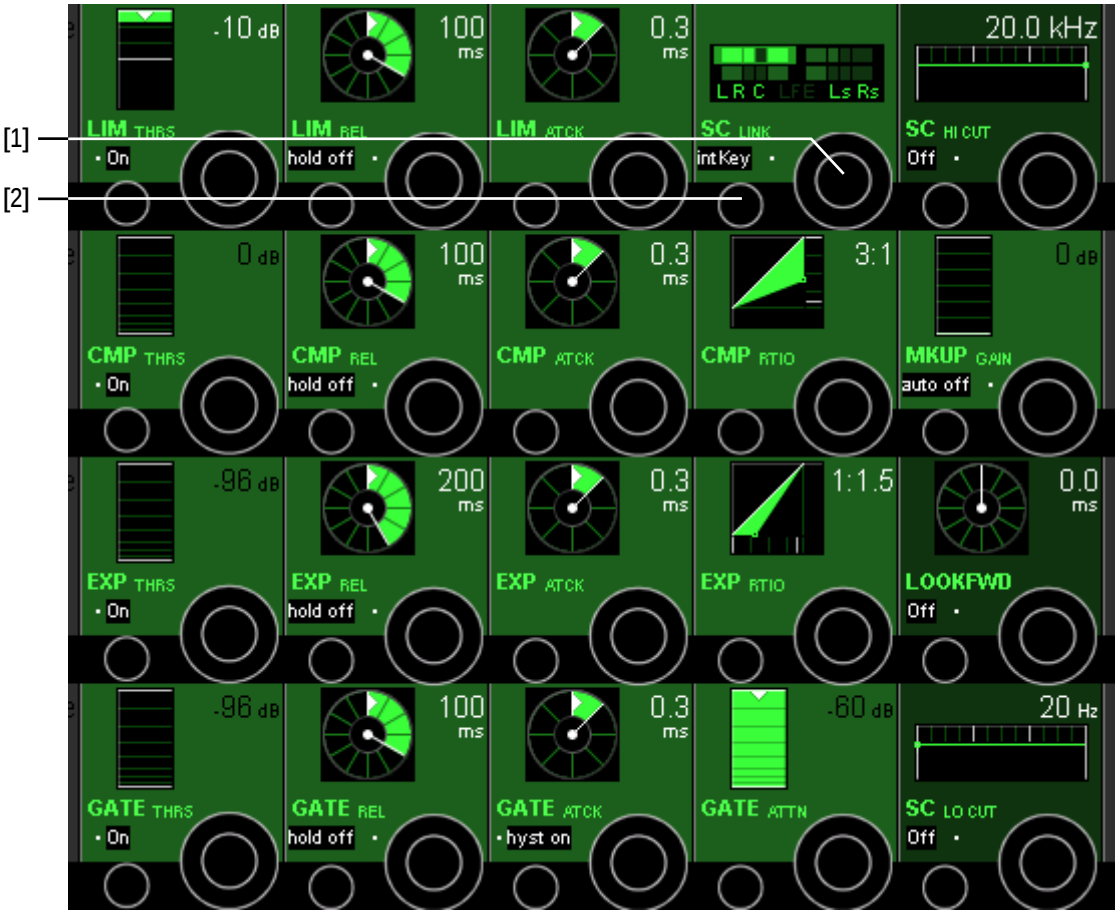


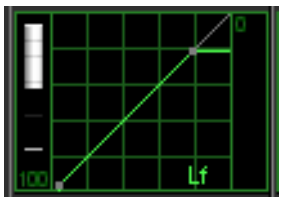
A.4 Channel-Related Views

A.4.1 Dynamics Parameters

Touch the green Vistonics™ dynamics field.

This view is the same as with mono or stereo channels with one exception, refer to the screenshot below. *Please note that the dynamics settings applied here will be valid for all surround signal legs except the LFE.*





If such a setting has been made, the default Vistonics™ dynamics display shows in small characters which signal leg is different from the others (in this case, only "Lf" is shown since the LFE's EQ setting is not modified), as shown left.
If one or more of the signal legs must be adjusted differently from others – such as adding expansion in the center channel only, the CHANNEL VIEW has to be selected. Then all the separate EQ and dynamics settings for "Front", "Center", "LFE" and "Rear" are accessible. Please note that there also is a gain reduction indication at the left of each of the four individual dynamics icons.

Parameters Shared by the Dynamics Functions:

SC LINK [1] The Side-Chain Link function allows forming a side-chain group from up to eight channels in order to control the dynamics of all of them by the maximum level of all side-chain group members. Side-chains are defined in the GC's Channel Patch window ("Sidechain Link Setup", tick "Enable side Chain Link"). The rotary encoder selects the surround signal legs used for the side-chain group; for details, see the block diagram below.

Four different possibilities are available:

All signal legs (L, R, C, Ls, Rs) are part of the sidechain link.

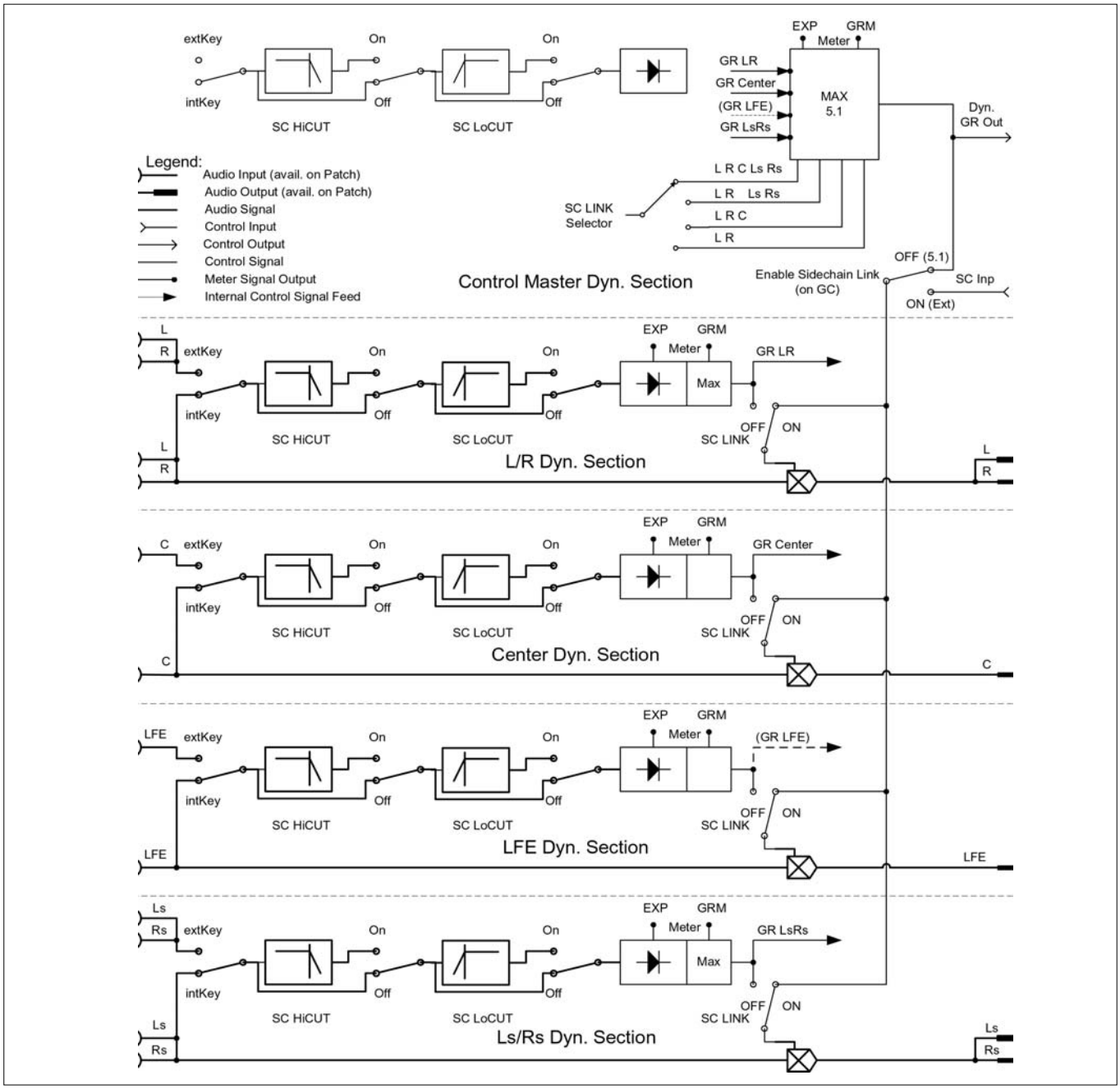
Only the L, R, Ls and Rs signal legs are part of the sidechain link.

Only the L, R and C signal legs are part of the sidechain link.

Only the L and R signal legs are part of the sidechain link.

SC LINK intKey/extKey [2]

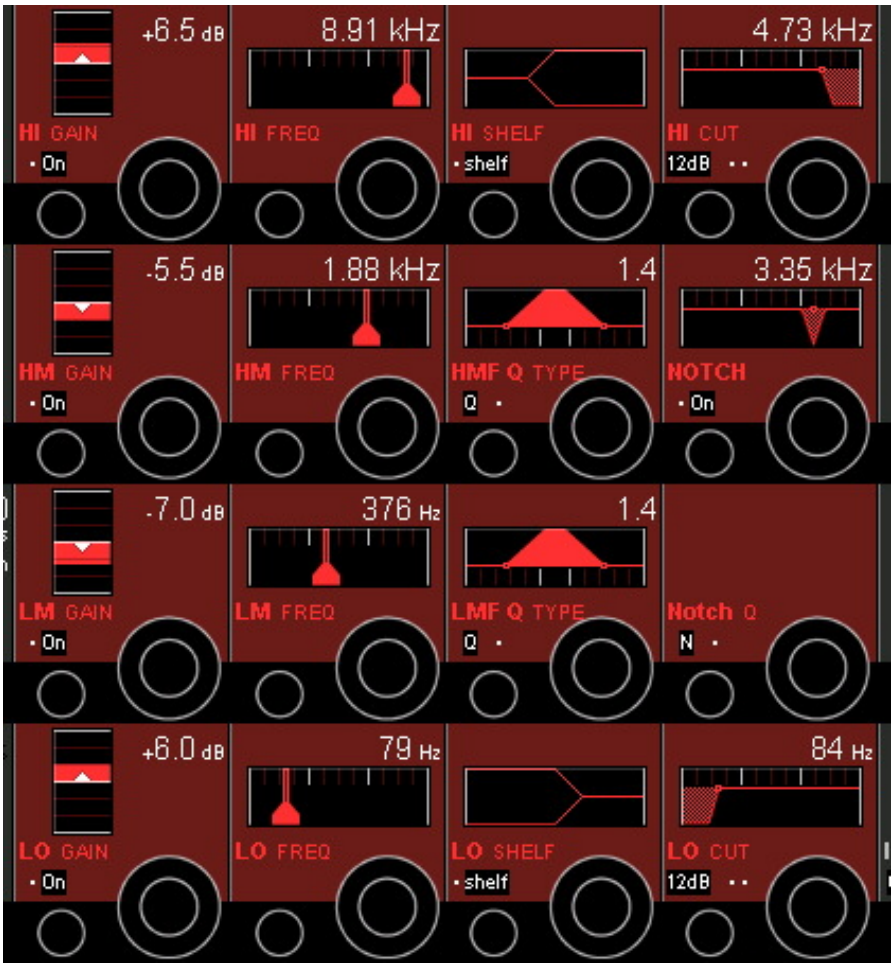
The key source input can be selected from intKey (dynamics processing depends on the channel's own input signal, i.e. an internal key signal), or extKey (processing is controlled by a signal connected via the patch, i.e. by an external key signal).

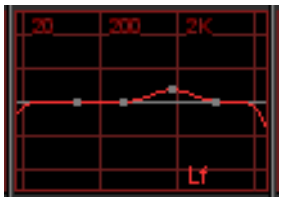


A.4.2 EQ / Filter Parameters

Touch the red Vistonics™ EQ field.

This view is the same as with mono or stereo channels. Please note that the equalizer settings applied here will be valid for all surround signal legs *except the LFE*.

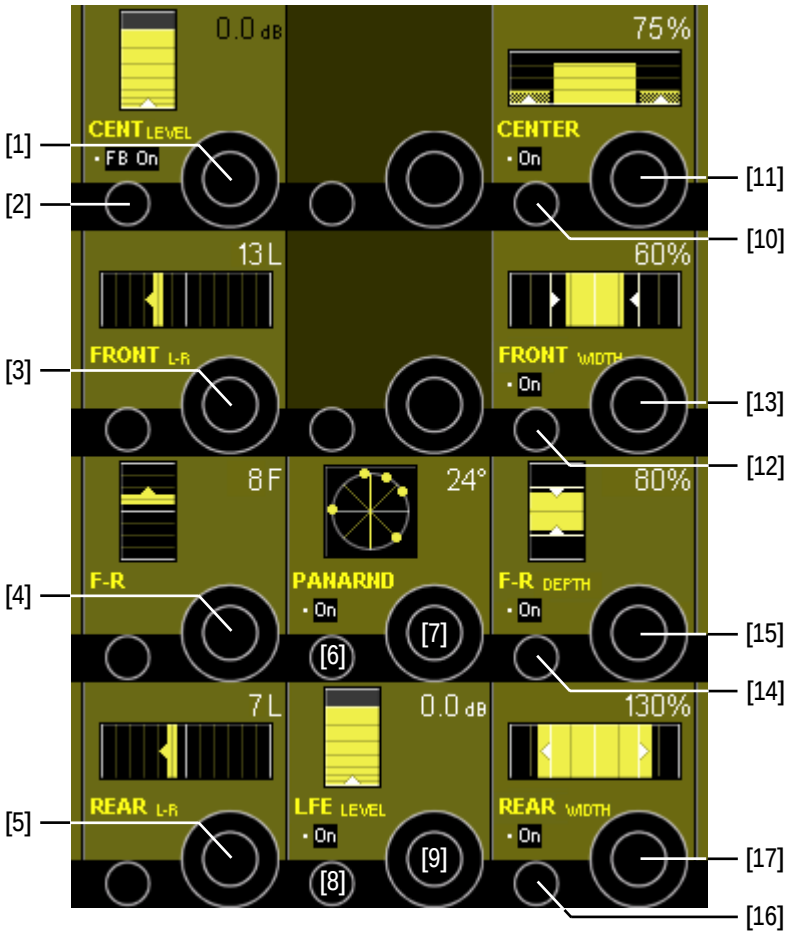




If such a setting has been made, the normal Vistonics™ EQ display shows in small characters which signal legs are different from the others (e.g. "Lf"), as shown left.
If one or more of the signal legs must be adjusted differently from others – such as boosting HF in the center channel only, the CHANNEL VIEW has to be selected. Then all the separate EQ and dynamics settings for "Front", "Center", "LFE" and "Rear" are accessible.

A.4.3 Panning Parameters

Touch the yellow Vistonics™ pan field.



PAN On/Off is selected with the PAN hardware key.

CENT LEVEL [1] Center level control from MUTE (i.e. –∞dB) to +10 dB.

FB On/Off [2] On/off switch for center channel contribution to the F-R control [4].

FRONT L-R [3] Front panning between the left, (center) and right channels in 1° steps. The contribution to the center channel is determined by the CENTER control.

F-R [4] This parameter allows variable blending from front to rear channels in 60 increments, either with a contribution from the center channel (FB On) or without (FB Off).

REAR L-R [5] Panning between the left and right surround channels in 1° steps.

PANARND On/Off [6] Activates the Pan-Around function.

PANARND [7] Single-knob function, allows rotating the surround sound field by ±180°.

LFE On/Off [8] On/off selector for LFE channel use.

LFE LEVEL [9] LFE channel percentage control; 0% = no LFE channel use, 100% = LFE channel fully active.

CENTER On/Off [10] On/off selector for center channel use.

CENTER [11] Center channel percentage control; 0% = no center channel use (phantom center), 100% = center channel fully active.

FRONT WIDTH On/Off [12] Switches the FRONT WIDTH function on/off.

FRONT WIDTH [13] The FRONT WIDTH parameter is used to control the width of the front signal. It is only functional if there is a difference between the left and right input channels. FRONT WIDTH operates over a range from 0% (mono) to 200% (“super stereo”).

F/R DEPTH On/Off [14] Switches the F/R DEPTH function on/off.

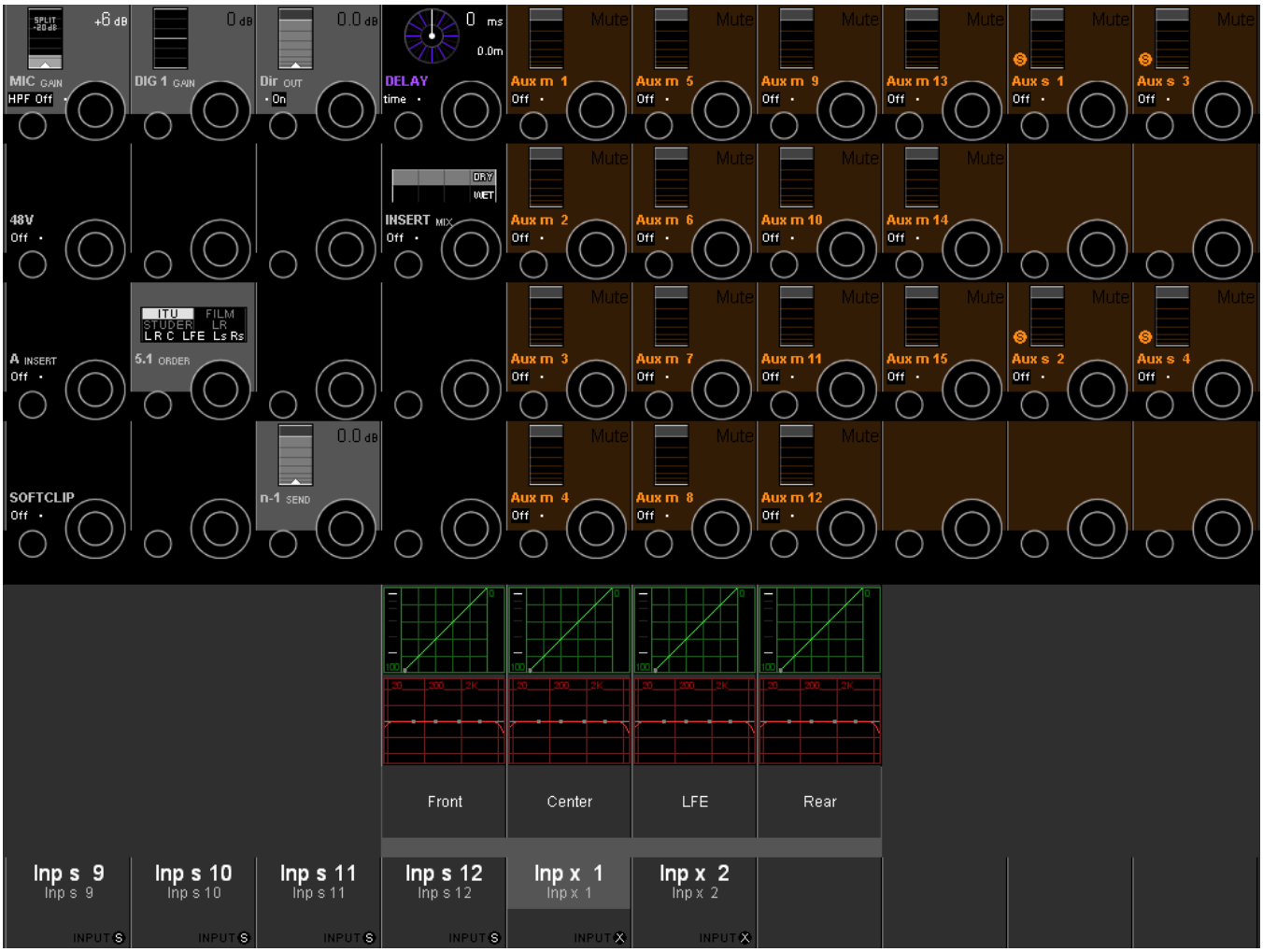
F/R DEPTH [15] The F/R DEPTH parameter is used to control the depth of the surround space. It is only functional if there is a difference between the front and the rear input channels. F/R DEPTH operates over a range from 0% (zero depth) to 200% (“super depth”).

REAR WIDTH On/Off [16] Switches the REAR WIDTH function on/off.

REAR WIDTH [17] The REAR WIDTH parameter is used to control the width of the rear signal. It is only functional if there is a difference between the left and right input channels. REAR WIDTH operates over a range from 0% (mono) to 200% (“super stereo”).

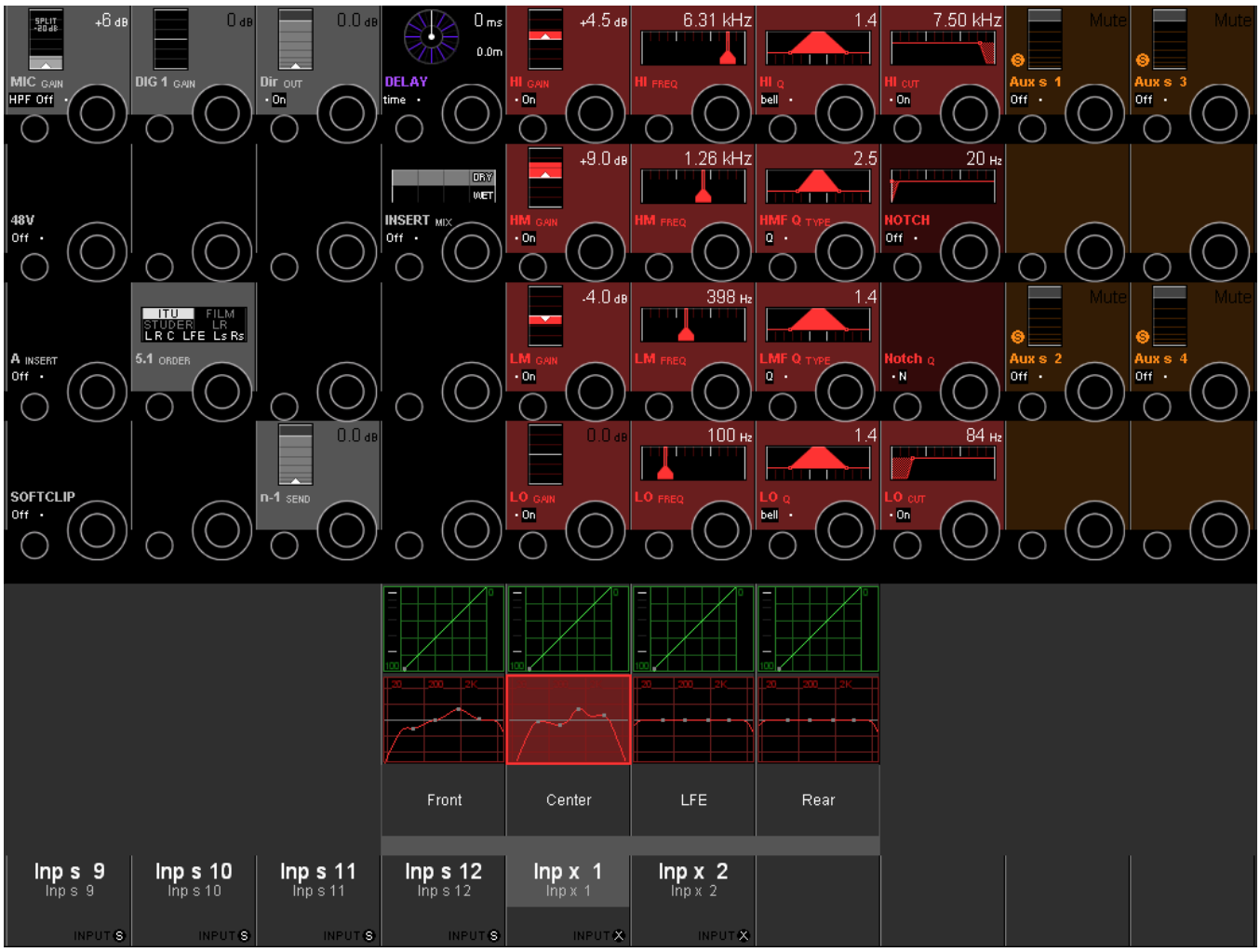
A.4.4 Channel View

Pressing VIEW: CHANNEL brings up an overview of the channel, covering the whole Vistonics TFT. All available parameters are shown in the rotary section, except for dynamics, EQ, and panning (see chapter A.4.5). Only visible parameters are available for adjustment.

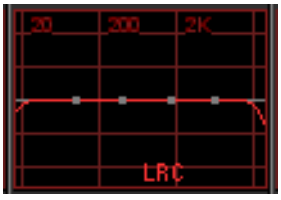


As can be seen above, there is an additional selection possibility in the touch area that allows modifying the EQ and dynamics parameters for the Front, Center, LFE and Rear signals individually.
Upon touching one of these fields (e.g. the red "Center" EQ field) the display changes to the individual EQ setting of the "Inp x 1" 5.1 input's center channel.

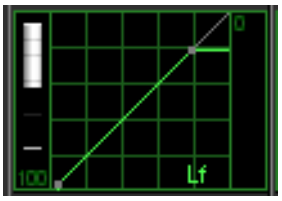
The display changes then as shown on the next page.



After the individual setting is made, pressing VIEW: CHANNEL again switches back to the standard channel view. In our case (where the front and center channels of Inp x 1 have individual EQ settings), the EQ field then displays the standard EQ curve with supplementary, small L, R and C characters, indicating that the front and center EQ settings are different from the displayed curve.

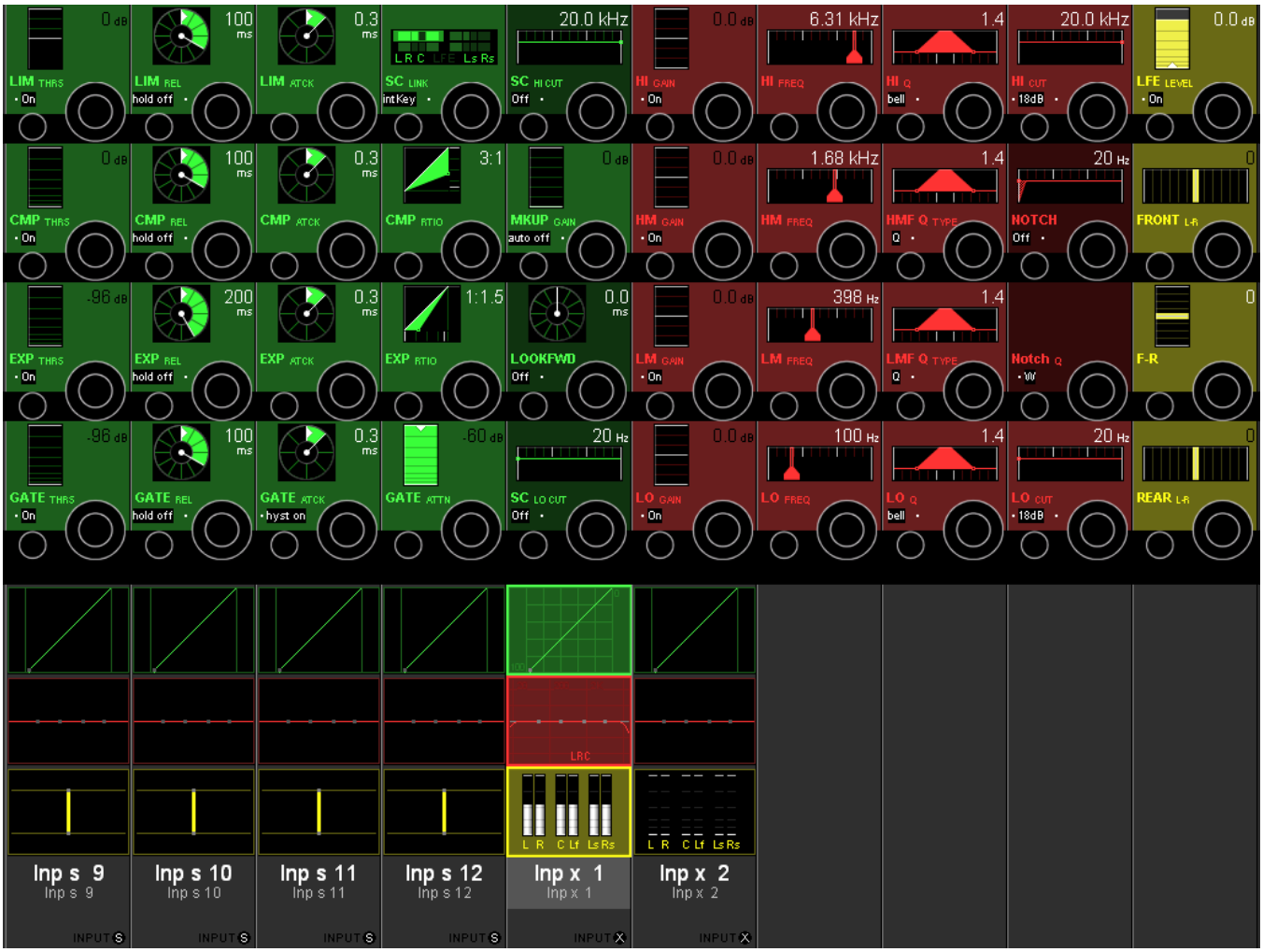


Individual dynamics settings for the different surround signal legs can be adjusted and are indicated in the same way. Please note that there is a gain reduction indication at the left of each of the four individual dynamics icons:



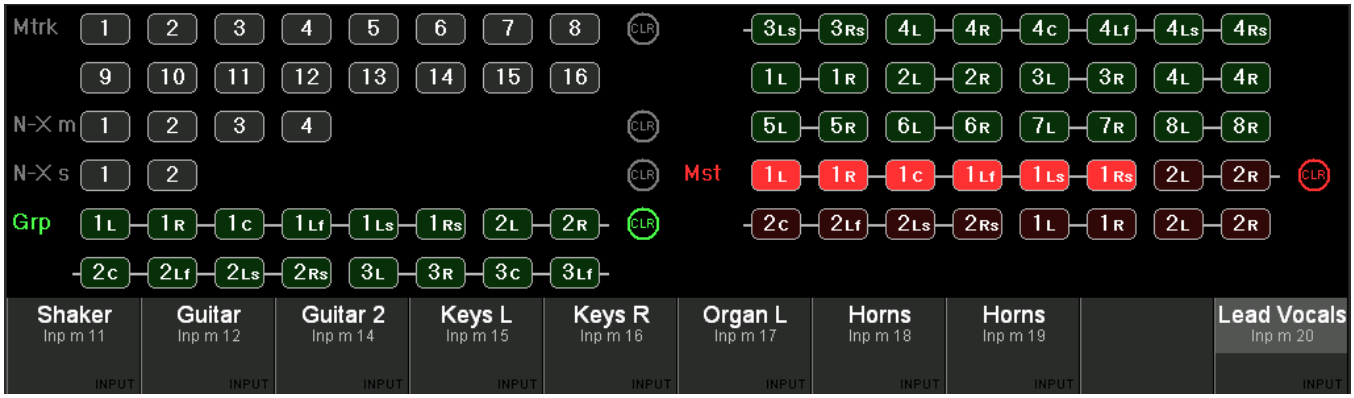
A.4.5 Misc View (Miscellaneous Parameters)

Pressing VIEW: MISC brings up an overview for one channel, covering the whole Vistonics TFT. The *most important* parameters of a channel (i.e. dynamics, EQ, and pan) are shown in the rotary section. Only visible parameters are available for adjustment.



A.4.6 Bus Assignment View

When pressing VIEW: BUS ASN, the display changes to the bus assign window of this particular channel.



Only buses are shown here to which the current channel can be assigned.
Pressing VIEW: BUS ASN on a master channel, however, will activate the "inverse bus interrogation" view described below.
The CLR buttons will clear the assignment to *all* buses of the corresponding type.

Inverse Bus Interrogation

Pressing VIEW: BUS ASN on a group master, an AUX master or a master channel (having a bus routed to its input) opens the Strip Setup dialog on the GC screen, showing the currently assigned channels in magenta color.
When pressing VIEW: BUS ASN on an N–X owner channel, the inverse bus interrogation is done on the associated N–X bus.

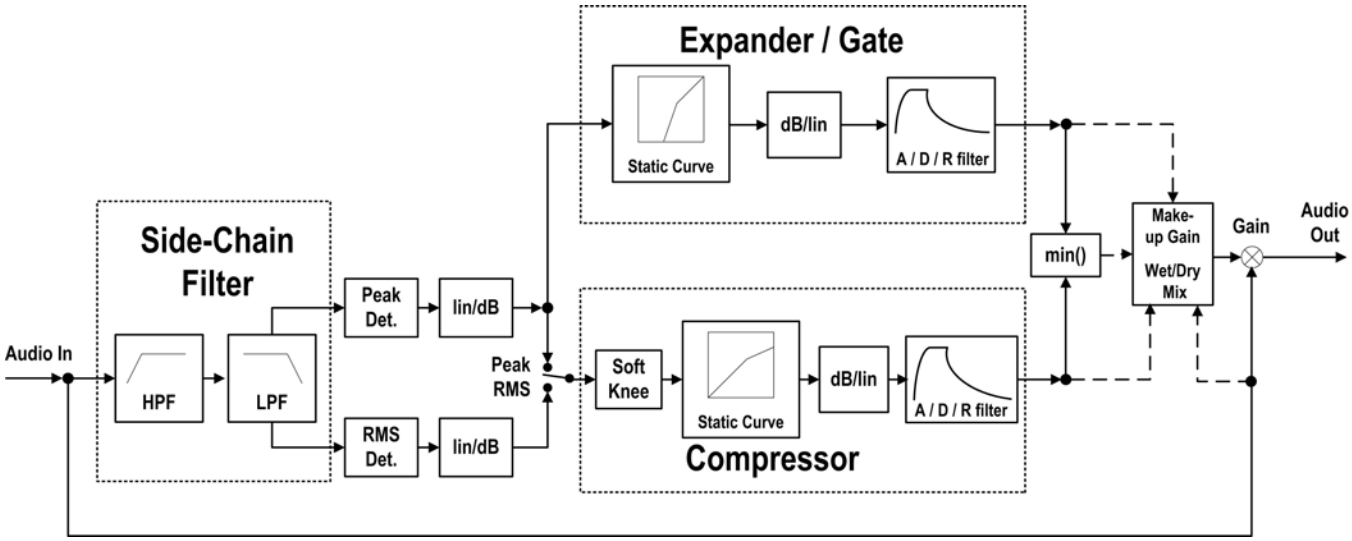
B VINTAGE DYNAMICS (SCore Live only)

B.1 Introduction

Alternative "Vintage" Dynamics Processing Block

With the Vista SW version 4.0 there is a new VMC processing block available for mono and stereo channels. It is called "Vintage Dynamics" and consists of a compressor which can be used in conjunction with an expander/noise-gate. The design focus was very clearly set on the compressor. This new compressor algorithm provides an alternative to the current dynamics section in the Vista consoles, which has been described as rather "transparent". This is a desired property for most users. For some applications, however, the compressor is utilized in a more pronounced way, i.e., as an effect itself. This new compressor unit is targeted to be flexible enough for many different types of sound "coloration", including extreme and unusual settings.

B.2 Block Diagram

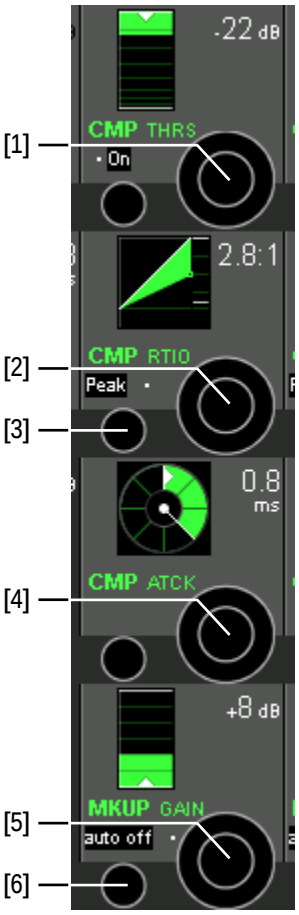


B.3 Global View

B.3.1 Vintage Compressor Parameters

Press GLOBAL VIEW: COMP-LIM.

This *global* view enables the user to control the *most important* parameters of the vintage dynamics section's compressor part. The *complete* parameter set is available on the *channel-related* vintage dynamics view, refer to chapter B.4.1. There you will also find the parameter details.



CMP THRS [1] The compressor threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

CMP RTIO [2] The compressor ratio can be adjusted from 1:1 (no compression) to 40:1 (heavy compression or limiting).

CMP peak/RMS [3] Level detection mode: peak or RMS

CMP ATCK [4] The compressor attack time can be adjusted in 64 steps within a range of 0.2 ms to 250 ms.

MKUP GAIN [5] Manual gain compensation from 0 dB to +24 dB

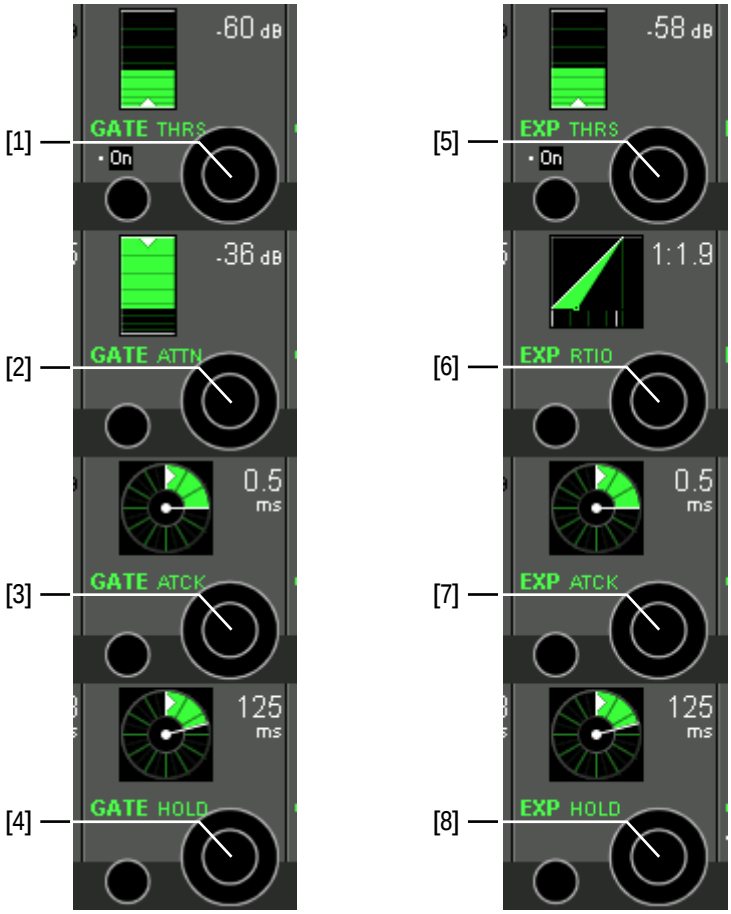
MKUP GAIN auto on/off [6] Auto Make-up Gain function on/off.

B.3.2 Vintage Expander/Gate Parameters

Press GLOBAL VIEW: EXP-GATE.

This global view enables the user to control the *most important* parameters of the vintage dynamics section's expander or gate parts. The *complete* parameter set is available on the *channel-related* vintage dynamics view, refer to chapter B.4.1. There you will also find the parameter details.

Standard view: ***"Shift" view:***



GATE THRS [1] The gate threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

GATE ATTN [2] The gate attenuation level can be adjusted in 1 dB steps from 0 dB_{FS} to +60 dB_{FS}.

GATE ATCK [3] The gate attack time can be adjusted in 64 steps within a range of 0.2 ms to 5 ms.

GATE HOLD [4] The gate hold time can be adjusted in 64 steps from 0 ms to 2000 ms.

2nd Global View: *Activated by pressing* GLOBAL VIEW: EXP-GATE *and the* ⇧ *key (Shift) at the same time.*

EXP THRS [5] The expander threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

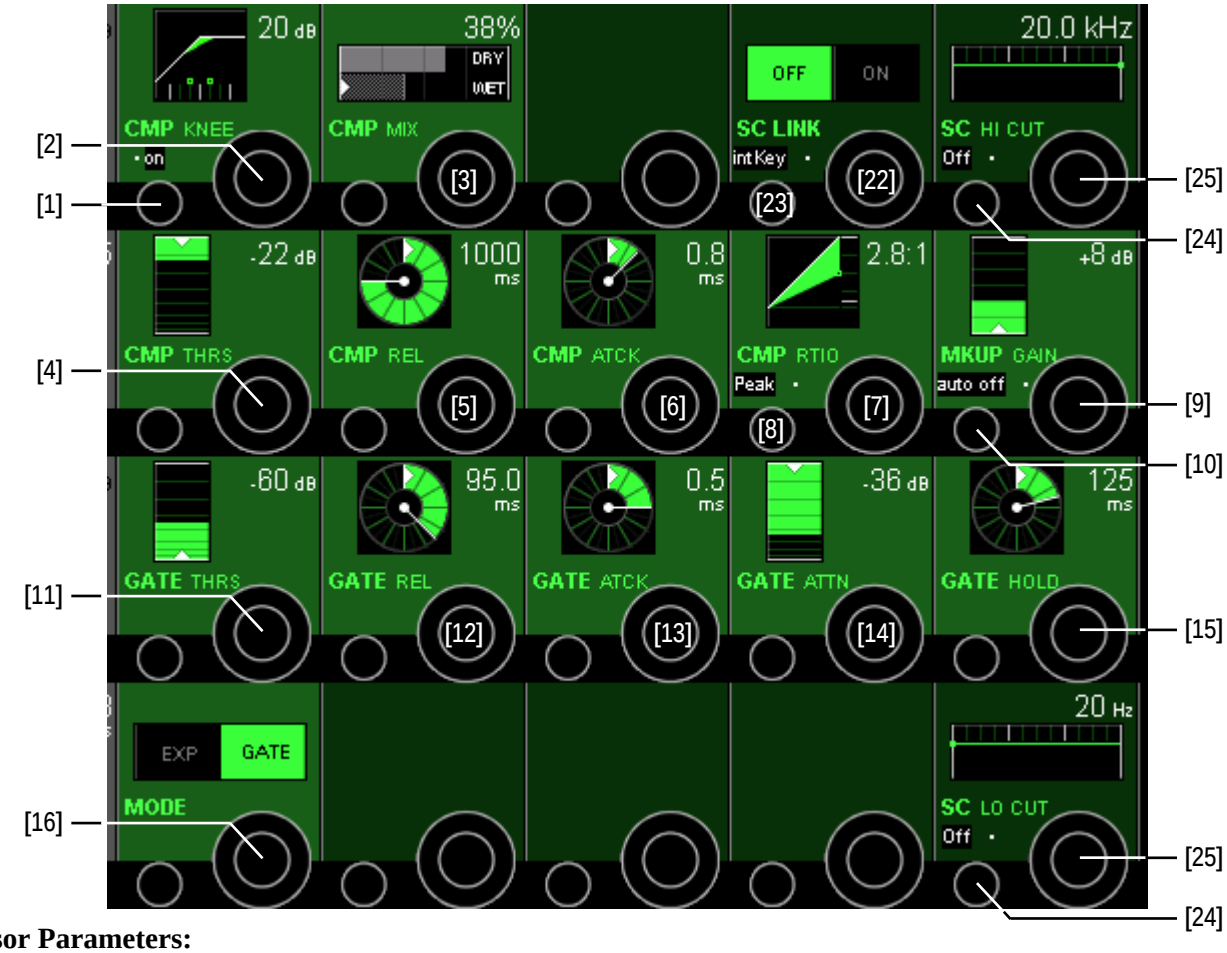
EXP RATIO [6] The expander ratio level can be adjusted from 1:1 (no expansion) to 1:40 (heavy expansion).

EXP ATCK [7] The expander attack time can be adjusted in 64 steps within a range of 0.2 ms to 5 ms.

EXP HOLD [8] The expander hold time can be adjusted in 64 steps from 0 ms to 2000 ms.

B.4 Channel-Related View

B.4.1 Vintage Dynamics Parameters



Compressor Parameters:

CMP KNEE On/Off [1] For smoother transitions between compressed and uncompressed signals around the threshold, the knee of the static curve can be "softened" -> "Soft knee" (also referred to as "OverEasy" compressor).

CMP KNEE Width [2] This smoothing takes place in a region around the threshold, the width of which can be adjusted (*soft knee width*). The width is measured symmetrically around the threshold point. Its range is 0 dB to 60 dB in steps of 1 dB.

CMP MIX % [3] To further increase the flexibility of the Vintage compressor, a mixing stage letting the user combine the processed with the clean signal was added. Heavy compression can produce some interesting effects, but the clarity and punch of the original might get lost. By mixing the processed signal with the clean signal, this can be partially remedied. This technique is sometimes referred to as *parallel compression*. The icon shows the relation between wet and dry (processed/unprocessed) signal. The % value is always reading the amount of the *wet* signal from 0% to 100%.

CMP THRS [4] The compressor threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

CMP REL [5] To overcome some of the compromises associated with setting a fixed release time for a given signal, the vintage compressor makes use of an auto-release mode that adjusts the recovery time dynamically. The release time parameter sets the *maximum* release time. This does not affect the automatic scaling of the release time in any way but just limits the

maximum time, and thus allows fine-tuning the automatic control in order to reach the desired behavior.The maximum release time ranges from 5 ms to 5000 ms in 64 steps.

CMP ATCK [6] The compressor attack time can be adjusted in 64 steps within a range of 0.2 ms to 250 ms.

CMP RATIO [7] The compressor ratio can be adjusted from 1:1 (no compression) to 40:1 (heavy compression or limiting).

CMP peak/RMS [8] Level detection mode: peak or RMS.
The level detection block has two modes of operation. This choice was implemented to allow a wide range of applications requiring different types of responses – for example, percussion or vocal recordings.
The RMS window size is coupled with the attack time. This is based on the observation that these two parameters have a relatively similar effect on the sound and tend to influence each other.

MKUP GAIN [9] Manual gain compensation from 0 dB to +24 dB

MKUP GAIN auto on/off [10] Auto Make-up Gain function on/off.
Compensates the decrease in loudness caused by the compression

Noise Gate Parameters:

GATE THRS [11] The gate threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

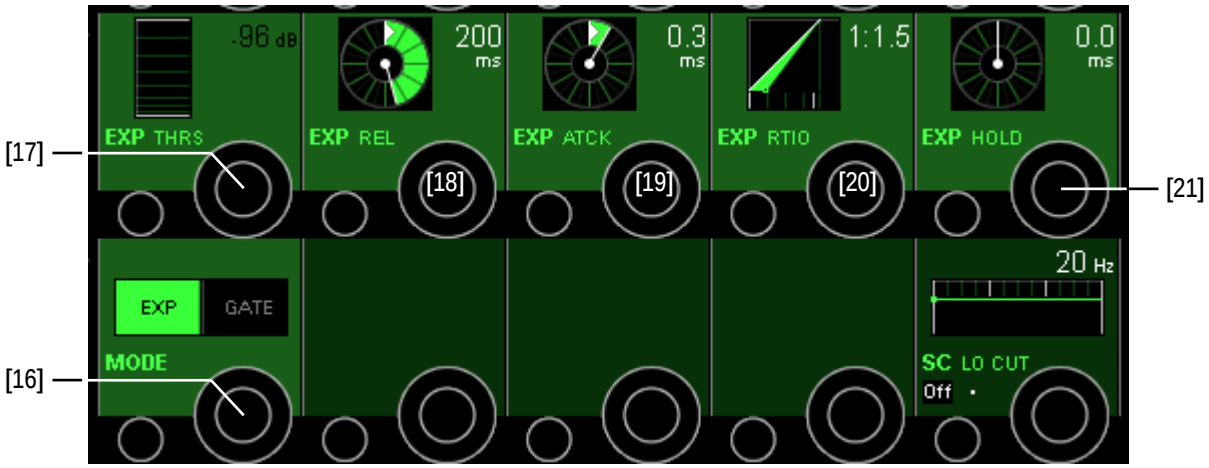
GATE REL [12] The gate release time can be adjusted in 64 steps within a range of 5 ms to 5000 ms.

GATE ATCK [13] The gate attack time can be adjusted in 64 steps within a range of 0.2 ms to 5 ms.

GATE ATTN [14] The Gate attenuation level can be adjusted in 1 dB steps from 0 dB_{FS} to +60 dB_{FS}.

GATE HOLD [15] The gate hold time can be adjusted in 64 steps from 0 ms to 2000 ms.

MODE [16] Switches the Expander/Gate section from Gate to Expander and back. Please note that *only one of the two functions can be active at the same time: either* Expander *or* Noise Gate.



Expander Parameters:

EXP THRS [17] The expander threshold level can be adjusted in 1 dB steps from 0 dB_{FS} to –96 dB_{FS}.

EXP REL [18] The expander release time can be adjusted in 64 steps within a range of 5 ms through 5000 ms.

EXP ATCK [19] The expander attack time can be adjusted in 64 steps within a range of 0.2 ms to 5 ms.

EXP RTIO [20] The expander ratio level can be adjusted from 1:1 (no expansion) to 1:40 (heavy expansion).

EXP HOLD [21] In the same way as with the noise gate, the expander hold time can be adjusted in 64 steps from 0 ms to 2000 ms.

MODE [16] Switches the Expander/Gate section from Gate to Expander and back. Please note that *only one of the two functions can be active at the same time: either* Expander *or* Noise Gate.

Parameters Shared by the Dynamics Functions:

SC LINK [22] The Side-Chain Link function allows forming a side-chain group from up to eight channels in order to control their dynamics by the maximum level of all side-chain group members. Side-chains are defined in the GC's Channel Patch window. The rotary encoder switches the side-chain link function on/off, if it is available for the specified channel.

SC LINK intKey/extKey [23] The key source input can be selected from either intKey (dynamics processing depends on the channel's input signal), or extKey (processing is controlled by a signal connected via the patch).

SC HI CUT/LO CUT On/Off [24] Low-cut and high-cut filters are available within the side-chain key signal. This facilitates frequency-dependent dynamic processing for creating effects, such as de-essing. Both side-chain filters can be switched on/off independently.

SC HI CUT/LO CUT [25] Both side-chain filters feature cut-off frequencies continuously adjustable between 20 Hz and 20 kHz.

Note: There are COMP/LIMIT and EXP/GATE hardware keys for activating or deactivating the compressor and expander/gate parts of the vintage dynamics section; *however, as opposed to the standard dynamics section, there are no individual On/Off keys in the channel-related Vistonics View.*

VISTA SW V4.1, DIFFERENCES AND NEW FEATURES

Please insert this document at the end of chapter 10 of your Vista operating instructions folder.

A STUDER RELINK (RESOURCE LINKING)

Studer RELINK is an I/O sharing network technology available for all Studer products (OnAir consoles, Vista consoles and Route 6000) allowing direct access to sources and targets throughout the entire network – provided that the desired sources and targets are configured as 'NetSources' and therefore available for remote components of the system.

RELINK allows the design of 'distributed' audio network systems – enabling Studer products to access all sources and targets of the complete system, and therefore enhancing the flexibility of your facility.

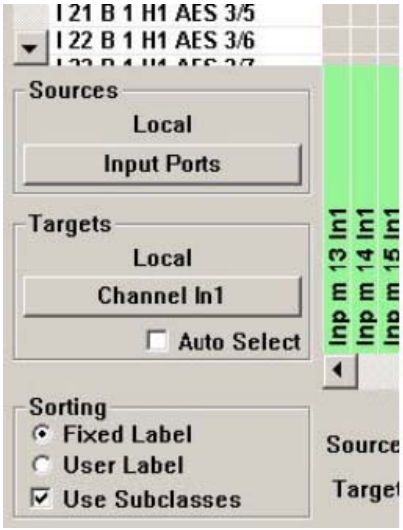
Mic control takeover mechanisms are implemented on both the OnAir and the Vista consoles.
On the OnAir consoles, signaling is coupled with the I/O sharing, this means that red light, fader start and signaling connections are automatically following any console where the audio signal is used, and correctly applied to the source (Studio, CD Player, etc) from anywhere.

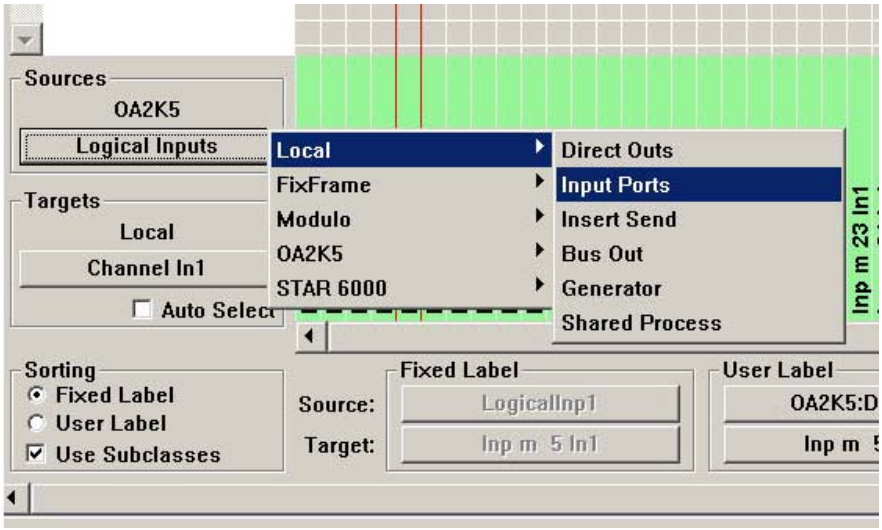
RELINK requires version V4.1 of the Vista SW – as well as V3.1 on the OnAir SW, and V2.0 on the Route 6000 SW. OnAir and Router releases are also available from now.

RELINK is a software functionality that, on the Vista side, is not depending on hardware, allowing systems still using a Performa DSP core being part of the network, too, as long as all the mic preamplifiers are of the D21m type.

A.1 Input Patching

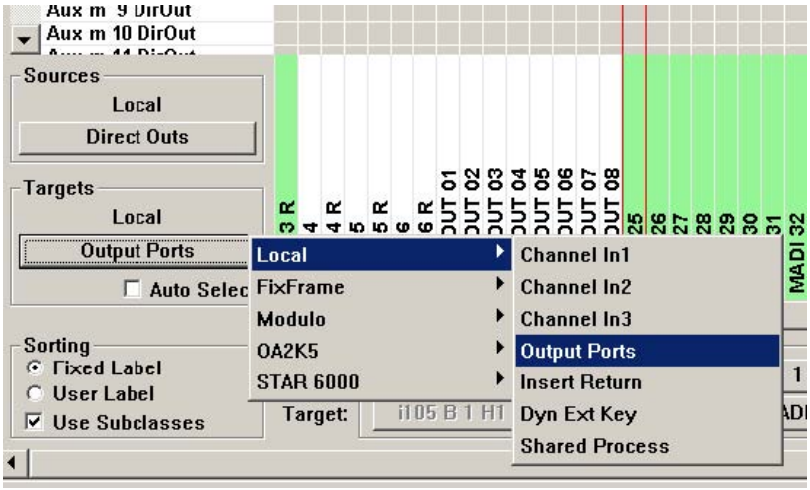
With SW V4.1, a new source and target navigator menu has been introduced. It still is a pull-down menu, but it shows not only local sources and targets, but also sources and targets of all systems connected via the network.



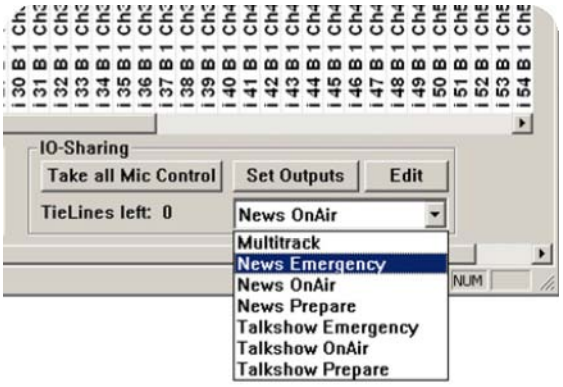


Shared inputs can be selected directly from any of the displayed systems. The sources of OnAir consoles – e.g. a DJ microphone – are appearing as 'Logical Inputs', and their output signals as 'Master Outputs'.

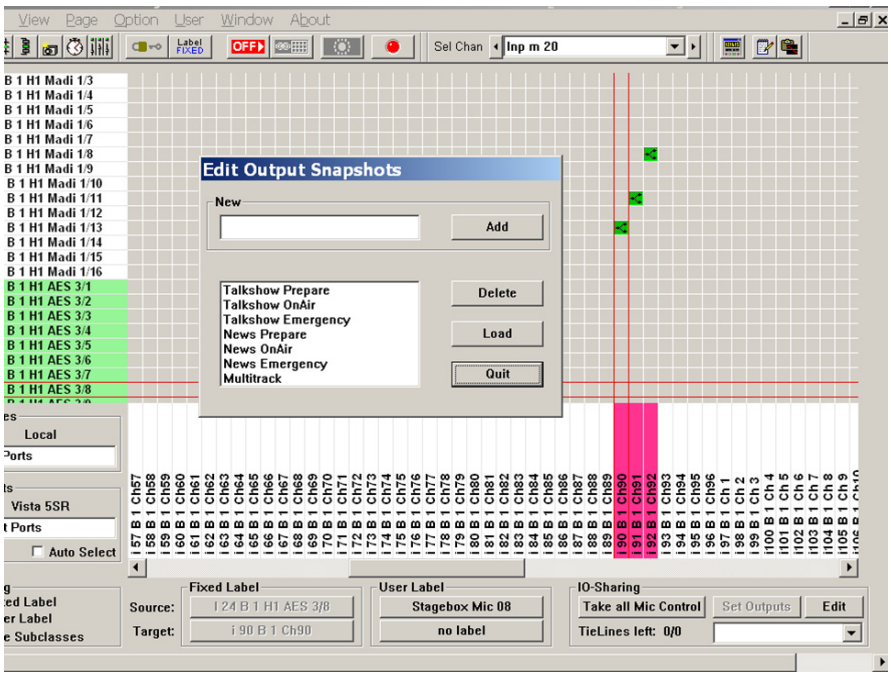
A.2 Output Patching



'Set Outputs' activates all preselected patch points to outputs on remote systems. This introduces an additional step in creating a patch connection, which the Vista SW did not know up to now.
The operator might want to switch several outputs to a different system (e.g. program outputs) at the same time. So when he is making the connections in the patch, they are marked in gray, indicating that the connection has not yet been established. Only when the 'Set Outputs' button is clicked, all the gray connections are set active at the same time. 'Set Outputs' only becomes active if some output patch connections are made to other systems.
This is only necessary when doing patch connections manually. When using snapshots, the connections are applied immediately.

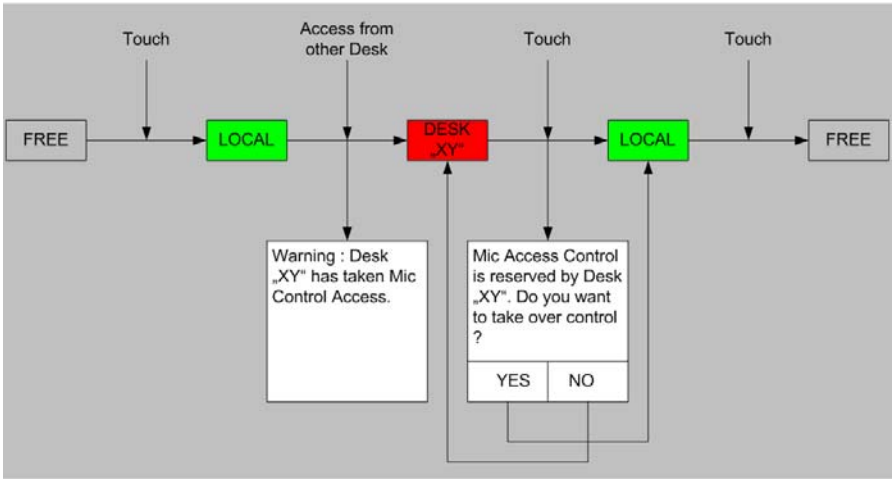


There is now also a new Edit dialog that allows saving multiple output patches to shared targets as 'Output Snapshots'. They must be given a name so that they can be recalled later from the lower right corner of the GC (graphic controller). An existing 'Output Snapshot' can be loaded as well, which means that the saved patch connections are not established but just shown in the gray, 'pending' state instead. In this state, the pending connections can now be edited and saved, e.g. under a new name.



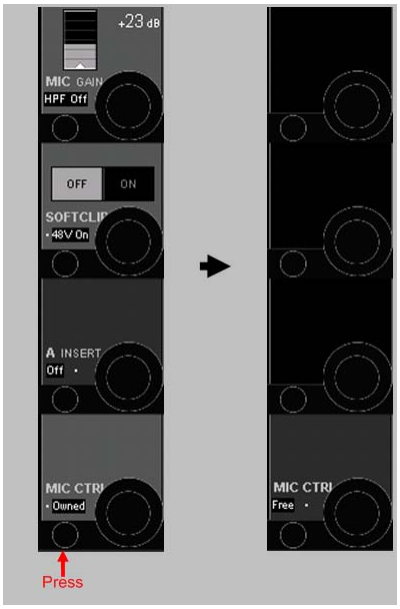
A.3 Mic Take-Over Procedure

The following status diagram shows how the mic control take-over mechanism is realized in the OnAir3000. This has to be followed, since it is firmly implemented in the DNet code.



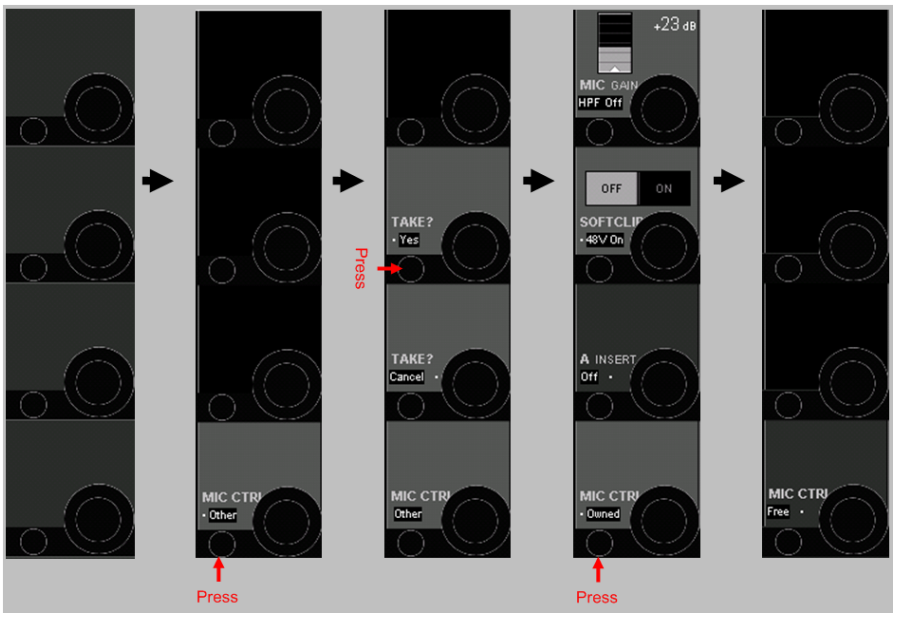
With the Vista desk, this dialog is handled in the channels Vistonics™ view in order to be able to link a number of channels and do the take-over handling for all of these channels at the same time (with a 'gang').
There is one difference to the OnAir behavior: When a mic source of another system is patched to a local input channel as long as the mic control is not taken by another desk (i.e., 'free' in the OnAir terminology), control is automatically given to the local Vista and the mic control parameters are displayed immediately.

There is a new parameter in the Vistonics™ view (Mic Ctrl) that allows setting the mic access control to 'Free', so that the mic can be controlled by other systems directly.

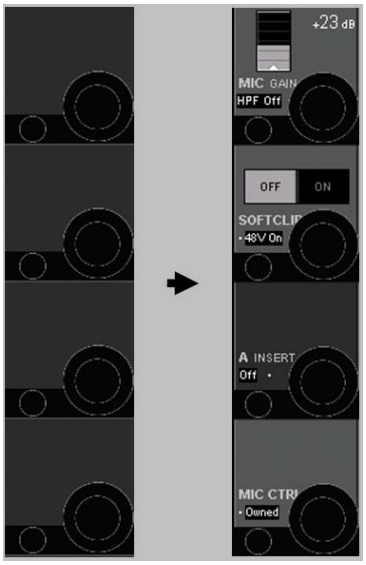


A description of how all the necessary states look like is given below.

1a First, no mic is connected to the channel. Then, a shared mic currently in use by another OnAir or Vista console is patched to input channel manually:

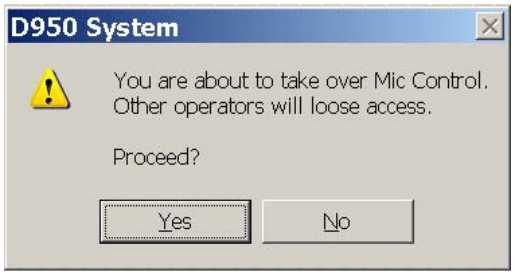


1b First, no mic is connected to the channel. Then, a shared mic currently *not* in use by another OnAir or Vista console is patched to the input channel manually:



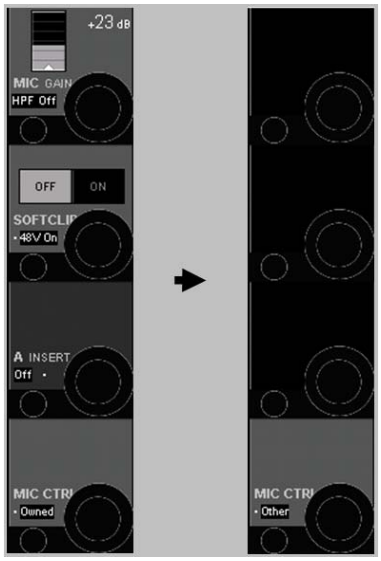
The same behavior is valid if one or more shared mics currently *not* in use by other systems is/are patched to the local input channel via a snapshot.

1c If one or several shared mics are used on other systems but then get patched to a local channel via a snapshot, the following message appears on the GC:

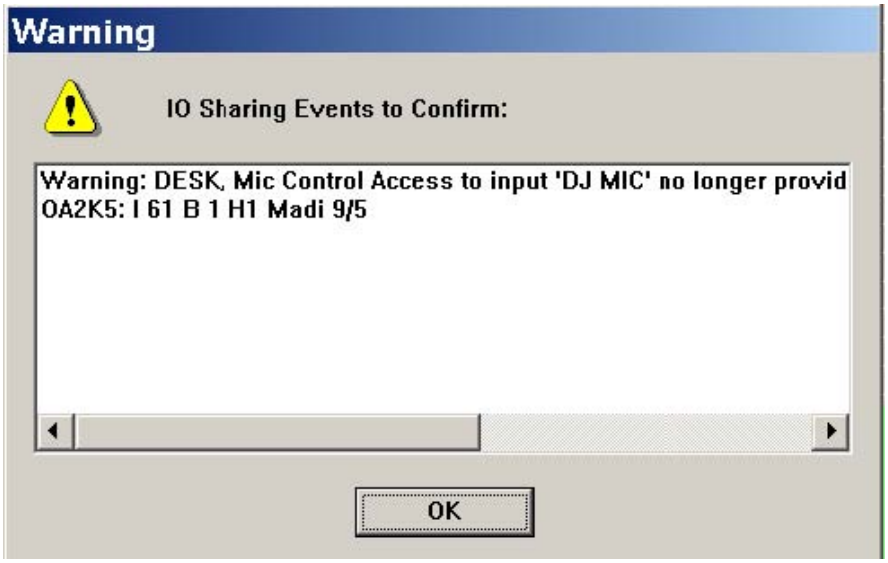


If confirmed with yes, the control for all the shared mics patched in the snapshot is taken over from the other systems.

2 A shared mic is patched to an input channel but then is taken over from a different desk:



If this happens (on one single channel or also on several channels at the same time), a warning message appears on the GC screen:



This is the window that shows all I/O Sharing events. It disappears after a click on the OK button.

A.4 Vista Restrictions

- Signaling, such as red light or fader start, is *not* combined with I/O Sharing.
- Vista systems cannot have any 'NETInputs' configured (chapter 2.1.7).
- 96 kHz sampling rate configurations on Vistas can only be used when *no OnAir console and no Router* is involved in the RELINK network. As long as only Vista systems are within the RELINK network, 96 kHz configurations can be used. However, *all Vistas* then need to run at 96 kHz.

A.5 Technical Details

A.5.1 Setting up the Vista for I/O Sharing

A.5.1.1 ConfigTool for DNet Applications

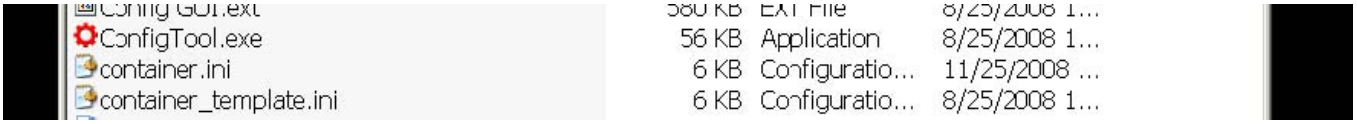
For configuring the tie lines necessary for I/O Sharing on the Vista system, we use the ConfigTool for DNet Applications known from the OnAir product range. This program now needs to be installed on the Vista's control computer (C:\Release ConfigTool\ConfigTool.exe). In the same folder there needs to be a file named container.ini with setup information for this DNet ConfigTool. Here is an example of the container.ini file for the ConfigTool:

```
##############################################################################
#
# container.ini: Necessary for initialization of each container (.exe)
#
# Digital Mixing Console: VISTA
# Studer Professional Audio GmbH, Regensdorf, Switzerland
#
#   Last modification       : Sep, 1st 2006
#   Compatible with OATreeLib : V2.1
#   Author                  : SIA
#
# Rules:
# ======
# - always leave one blank before and after the ‹=› (e.g. systemid=1 NO!)
# - never change the left expression
# - the right expression of systemid, containerid, systemname
#   and containername MUST be defined
#
##############################################################################


# The systemid identifies the mixing console system to which this container
# belongs to. The systemid is a unique number within a network.
# The serial number must be in the range 1...255

systemid = 36  ← this needs to be a unique number

# The systemname identifies the mixing console system in a readable way
# and must be unique within a company resp. network. It is recommended
# not to use more than 8 characters due to visualization aspects.
# «Undefined» is not allowed!

systemname = «ConfigTool»  ← the name of the system
```

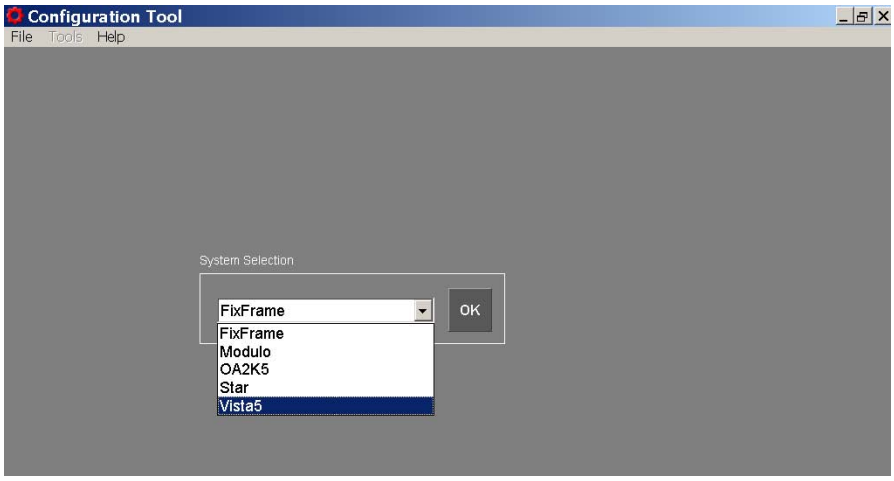
```
# The containerid identifies this container
# and must be unique within the mixing console system
# This id is fixed to ‹10› (CORE) for all VISTA desks

containerid = 20  ← ‚20' is always standing when the container.ini is belonging to a configtool

# The containername identifies this container in a readable way
# and must be unique within the mixing console system. It is recommended
# not to use more than 8 characters due to visualization aspects.
# «Undefined» is not allowed!

containername = «Config»  ← the name of the container

# Multicast
# ----------
# If you use IGMP multicasts instead of broadcasts in your network,
# you have to uncomment the lines below. It is possible that a
# container is member of one or more than one multicast groups.
#
# NOTE: For an optimal performance, make sure that all network resources
#       (Switches, Routers...) support IGMP.
#
# NOTE: To avoid IP conflicts, check the available addresses for
#       multicast groups (www.iana.org). Use preferable addresses from the
#       local scope (239.255.0.0/16) described in RFC 2365.
#
# NOTE: If the multicast should reach computers beyond the local subnet
#       Set MulticastTimeToLive > 1 (1 is default)

# MulticastGroup = 239.255.0.1
# MulticastGroup = 239.255.0.2
# MulticastGroup = 239.255.0.3
# MulticastTimeToLive = 10

# Multiple Network Adapters
# ---------------------------------
# When more than one network adapter is enabled on the computer, the MAC Address has to be specified
#
# MAC = 00-1A-A0-B9-F9-88
```

Note: There needs to be a second container.ini file on the Vista's control computer – the one which is belonging to the mixing console application (see chapter 7.1.4).

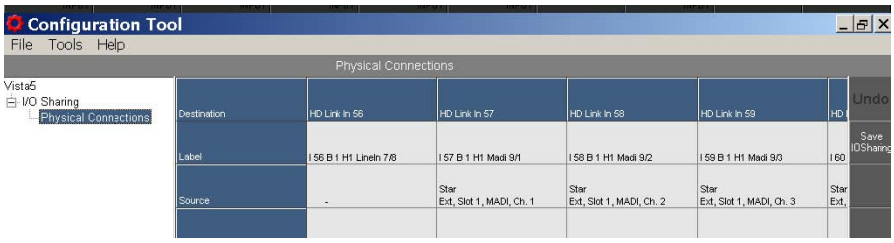
Start ‘Config tool for DNet applications’ in the Vista console’s C drive (C:\Release ConfigTool\ConfigTool.exe)



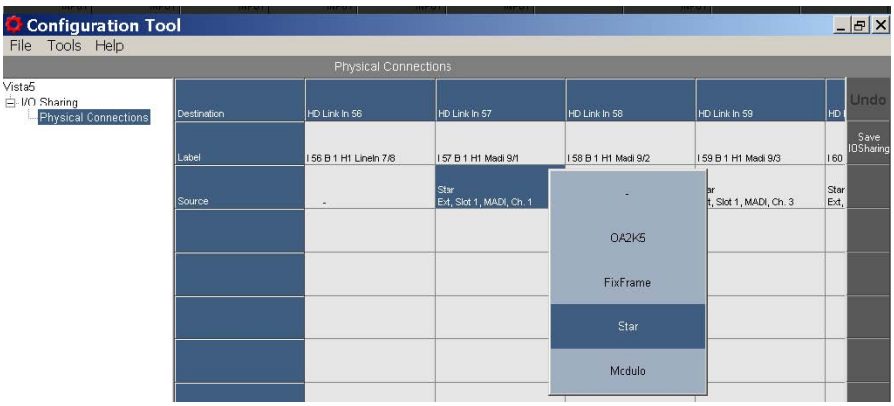
Select one of the DNet systems available in the network, select the appropriate Vista system.



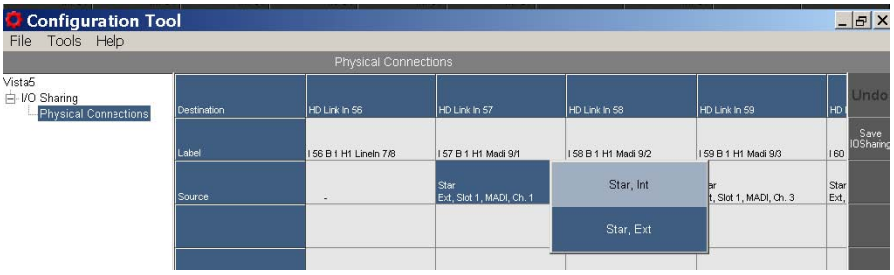
If the Vista or the other connected systems are not appearing, please refer to chapter 7.1.2 to verify the settings in the Container.ini file.
In the configuration tool, go to Physical Connections. Under Destination all HD links within your system are listed.



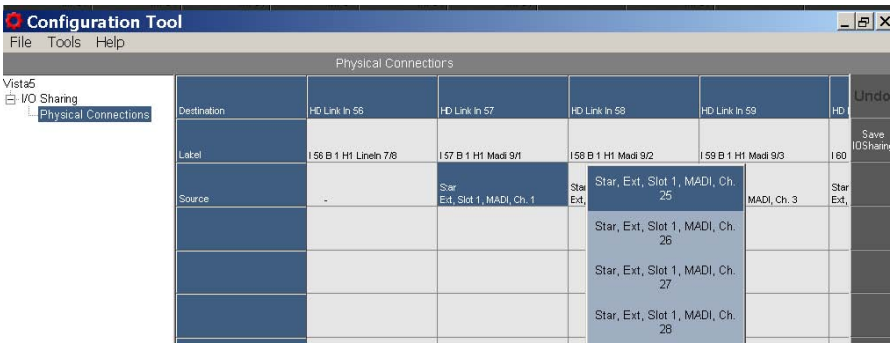
Select the physical inputs to be used as tie lines. Once they are configured as tie lines, they will no more be visible in the Vista general patch. *Configuration always takes place on the consumer system (target system).* Only the tie line inputs need to be configured, i.e., the tie lines that are directed *towards* our system. The tie lines that go away *from* our system are configured as inputs on the other systems, such as the router.
Select the appropriate *system* (e.g. the Star router, as shown below):



In the next step a D21m *frame* is selected (the external frame Ext in our example:



Now select the appropriate *interfaces* (e.g. MADI), one by one, for every single physical audio connection.



When finished, click the Save IO Sharing button at the right-hand edge of the Configuration Tool GUI.

This procedure only needs to be done once, during system setup. All these tie line configuration settings are saved on the consumer side and will remain after a system restart.

A.5.2 Restricting Shared I/O

Per default, all sources and targets attached to a Vista system can be seen and used by other systems that are part of the I/O Sharing network. Access to these I/Os may be restricted; they can then be used on the local Vista system only, but are not available to other systems within the network.

This is done with a text file containing a list of fixed labels of the I/Os that should be visible to others; the file must be named SharedPatches.iosharing and saved in the folder of the VMC configuration which it is valid for, such as D950SystemDB\Config1.

SharedPatches.iosharing **Example:**

```
...
I 17 B 1 Ch17
I 18 B 1 Ch18
I 19 B 1 Ch19
I 20 B 1 Ch20
I 21 B 1 Ch21
I 22 B 1 Ch22
I 23 B 1 Ch23
I 24 B 1 Ch24
...
```

Notes: The I/O configured as tie lines must also be added in this file.
If no file with this name is found in a configuration folder, all I/Os of this Vista system will be available for networked access.

A.5.3 Configuration Changes

Every VMC configuration change in a Vista console has an effect on the other consoles using this Vista's I/O at the same time. This means that an I/O can disappear and then reappear in a different constellation.

When using a file named CommonSharedPatches.iosharing located in the D950SystemDB folder, a number of sources and targets can be defined as I/O that must not change. This is useful for inputs or outputs that remain the same throughout all VMC configurations on the Vista. It contains a list of the fixed labels of the desired I/O.

CommonSharedPatches.iosharing **Example:**

```
...
I 65 B 1 Ch65
I 66 B 1 Ch66
I 67 B 1 Ch67
I 68 B 1 Ch68
I 69 B 1 Ch69
I 70 B 1 Ch70
I 71 B 1 Ch71
I 72 B 1 Ch72
...
```

This file needs to be created manually. If no file with this name is found in a configuration folder, all I/O will be reinitialized by a configuration change.

A.5.4 Container.ini

The container.ini file for the Vista system is found in C:\D950System\. This file contains some important entries making the I/O Sharing work. Here a list of these entries:

```
##############################################################################
#
# container.ini: Necessary for initialization of each container (.exe)
#
# Digital Mixing Console: VISTA
# Studer Professional Audio GmbH, Regensdorf, Switzerland
#
#   Last modification       : Sep, 1st 2006
#   Compatible with OATreeLib : V2.1
#   Author                  : SIA
#
# Rules:
# =====
# - always leave one blank before and after the '=' (e.g. systemid=1 NO!)
# - never change the left expression
# - the right expression of systemid, containerid, systemname
#   and containername MUST be defined
#
##############################################################################

# The systemid identifies the mixing console system to which this container
# belongs to. The systemid is a unique number within a network.
# The serial number must be in the range 1...255

systemid = 35  ← this needs to be a unique number

# The systemname identifies the mixing console system in a readable way
# and must be unique within a company resp. network. It is recommended
# not to use more than 8 characters due to visualization aspects.
# «Undefined» is not allowed!

systemname = «Vista5»  ← the name of the system

# The containerid identifies this container
# and must be unique within the mixing console system
# This id is fixed to ‹10› (CORE) for all VISTA desks

containerid = 10  ← ‚10' is always standing when the container.ini is belonging to a Vista desk

# The containername identifies this container in a readable way
# and must be unique within the mixing console system. It is recommended
# not to use more than 8 characters due to visualization aspects.
# «Undefined» is not allowed!

containername = «Desk»  ← the name of the container
```

```
# Multicast
# ------------
# If you use IGMP multicasts instead of broadcasts in your network,
# you have to uncomment the lines below. It is possible that a
# container is member of one or more than one multicast groups.
#
# NOTE: For an optimal performance, make sure that all network resources
#       (Switches, Routers...) support IGMP.
#
# NOTE: To avoid IP conflicts, check the available addresses for
#       multicast groups (www.iana.org). Use preferable addresses from the
#       local scope (239.255.0.0/16) described in RFC 2365.
#
# NOTE: If the multicast should reach computers beyond the local subnet
#       Set MulticastTimeToLive > 1 (1 is default)

# MulticastGroup = 239.255.0.1  ← Multicast groups should all be disabled
# MulticastGroup = 239.255.0.2
# MulticastGroup = 239.255.0.3
# MulticastTimeToLive = 10


# Multiple Network Adapters
# -------------------------------------
# When more than one network adapter is enabled on the computer, the MAC Address has to be specified
#
MAC = 00-AA-11-BB-22-CC  ← in case of a Vista 6/7/8 with multiple network adapters, they need to be specified here
```

A.5.5 D950System.ini

The following entry needs to be added in the D950system.ini file:

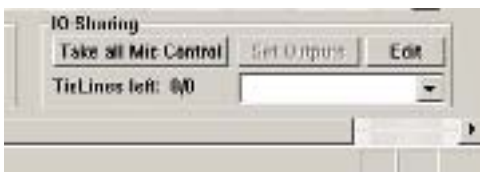
IsRelinkActive=Yes

A.5.6 Tie Line Management

On every Vista console, tie lines need to be configured with the OnAir configuration tool. They may be any type of I/O, the most efficient of them are HD links giving 96 channels in both directions per Cat5 cable pair. Furthermore, MADI interfaces with a maximum channel capacity of 64/64 are quite popular for tie lines. MADI tie lines may also be configured to use less than 64 I/O – any desired number smaller than 64. AES/EBU or Line interfaces can also be used as tie lines if only a small number of audio channels needs to be shared, such as for transmission lines.

Tie line management is dynamic, therefore only the maximum number of audio channels used simultaneously needs to be considered.

The total amount of configured tie lines is displayed in the I/O Sharing area of the general patch in the GC, as well as the number of the currently free tie lines.



A.5.7 Control Network

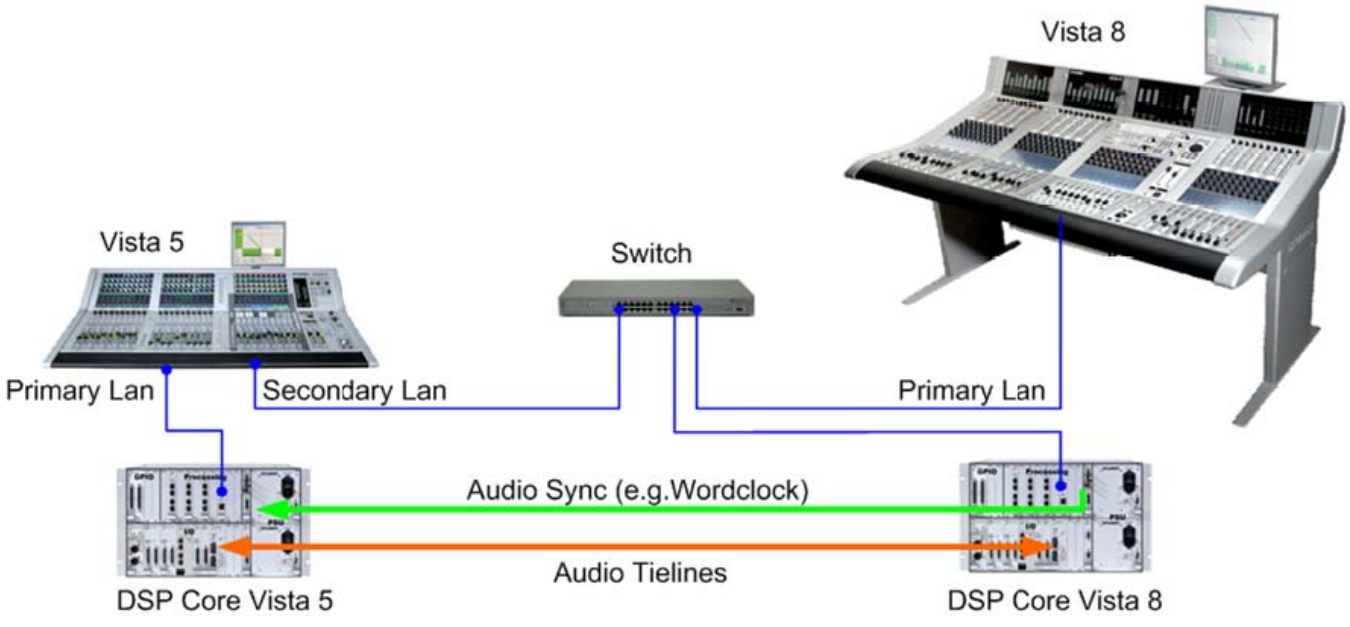
All systems that need to be part of the I/O Sharing network need to be interconnected via Ethernet. On the Vista side, it is always the desk that needs to be networked.

A.5.7.1 Vista 5

Vista 5 is by default equipped with two network ports: **Primary LAN** and **Secondary LAN**, the sockets thereof can be found on the rear side of the desk.
The simplest way is to use the **Secondary LAN** port for I/O Sharing. In that case, the **Primary LAN** port can still be wired directly to the bridge card of the SCoreLive. In case of cable redundancy to the bridge card (both ports of the desk are wired to both ports of the bridge card in parallel), an Ethernet switch needs to be placed between **Secondary LAN** port and bridge card. From this Ethernet switch, the connections are made to all the other I/O Sharing devices.
In case the I/O Sharing network only consist of two Vista 5 consoles, also a X-over network cable between both **Secondary LAN** ports of the two consoles could be used instead of an Ethernet switch.

A.5.7.2 Vista 6, 7, 8

Since Vista 6, 7 and 8 are not equipped with a second network port per default, an Ethernet switch needs to be used.
In the case of a Vista 8 with a redundant control system it is recommended to connect the Ethernet switch between the network port of the main control system and the bridge card of the SCoreLive. The network port of the redundant control system would then still be connected straight to the second port of the bridge card.



- Vista desk networked (Ethernet)
- Tie lines between cores (MADI, AES, or HD Links)
- DNET technology from OnAir product range

- Setup with the OnAir configuration tool also on the Vista side.

A.5.8 IP Addresses

The IP addresses of the SCore Live bridge cards should not be changed. They are always set to 192.168.1.60 for the primary network port, and to 192.168.2.60 for the secondary network port.
Please refer to chapter 9 for network examples with Vista and OnAir consoles in a RELINK setup.

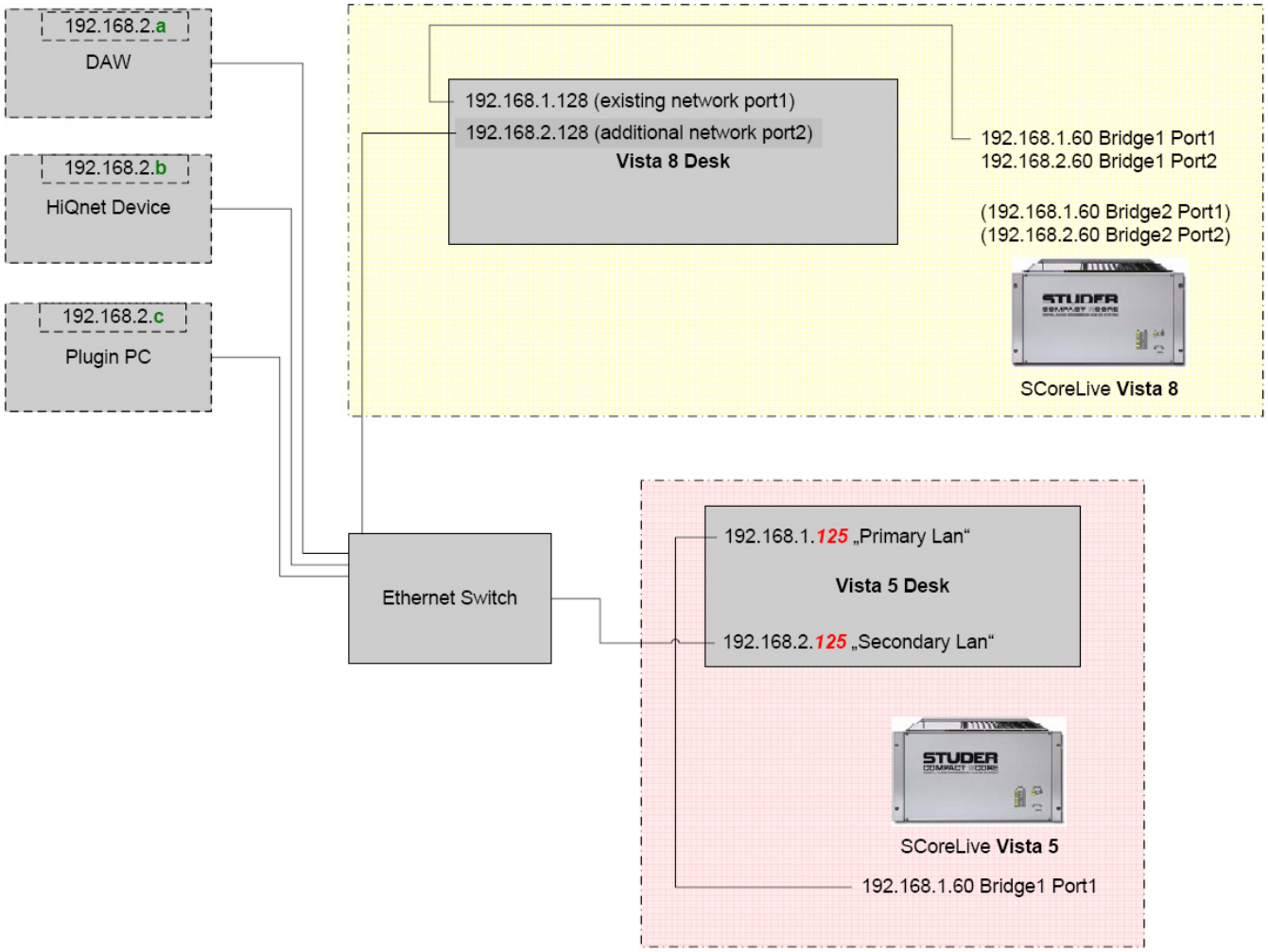
Note: *In case of a network design where more than one Vista console communicates with its SCore through one and the same Ethernet switch, the IP addresses may be changed as with the OnAir console range. But then the Vista's* D950System.ini *files need to be adapted accordingly.*

A.5.9 Audio Sync for all Systems

All systems being part of the network that can exchange audio via tie lines must be properly synchronized. The best option to do this is having a Studer D21 MasterSync unit feeding word clock in a star configuration to all the systems involved.
If a single system cannot be synchronized, either AES/EBU cards with SFCs or analog cards have to be used for tie lines.

A.6 Recommended Network Setup Examples

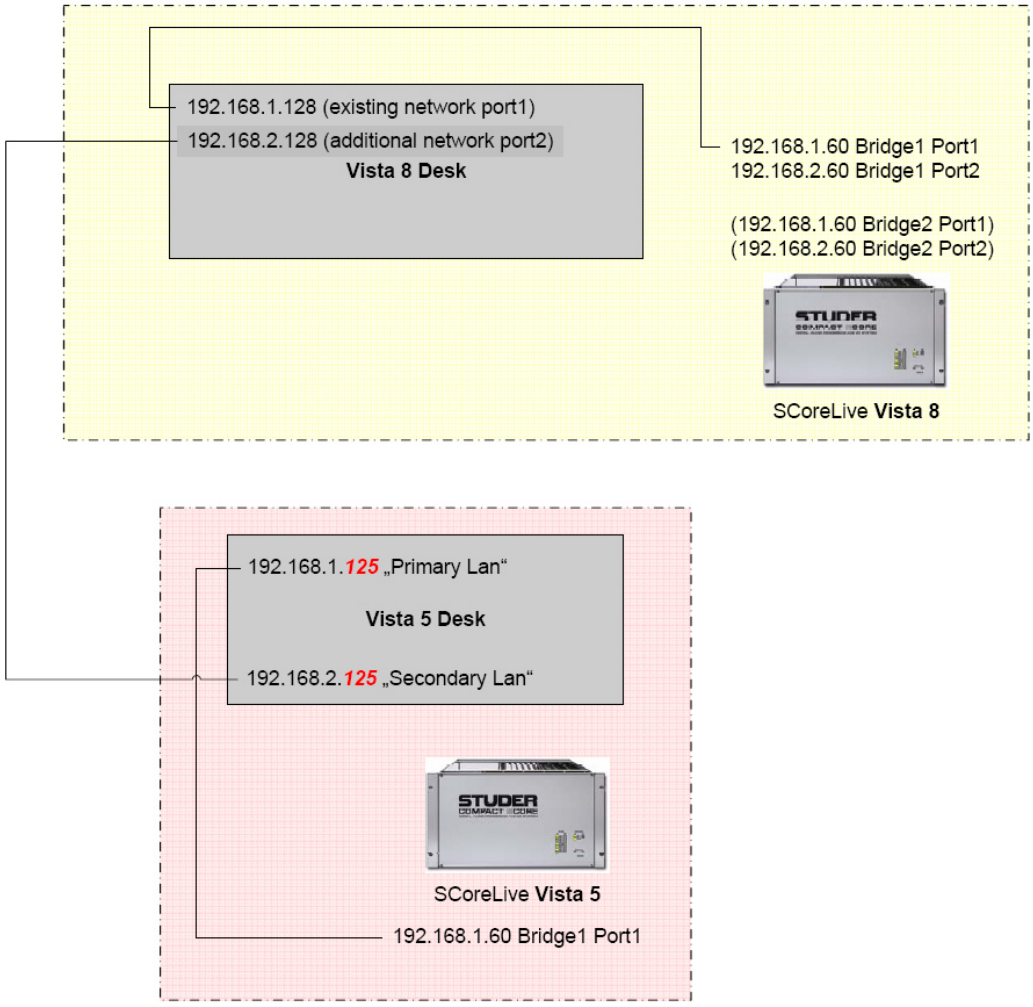
A.6.1 Vista 8 and Vista 5 – with a Switch



Setup Notes :

- The recommended setup is to use 2 network ports in the Vista 8 – then, the .1 subnet remains unaffected for the bridge links. RELINK and other applications are then using .2 subnet.
- The addressing of the nodes in the .2 subnet – 192.168.2.a-c – need to be unique numbers, different from 128 and 125 used on the Vista consoles.
- The Vista 5 IP addresses marked red, 192.168.1.***125*** are manually changed from its original setting 192.168.1.***128***.
- The subnet mask per default is 255.255.255.0 .
- Please note that with the Vista consoles when more than one network port is configured, the MAC address of the additional network port(s) need to be entered into the container.ini file of the Vista ! (when using a redundant control system – there is always an additional network port: the USB network connection between main- and redundant control system.) The MAC address of any network adapter can be shown with the „ipconfig /all“ command from a dos window.

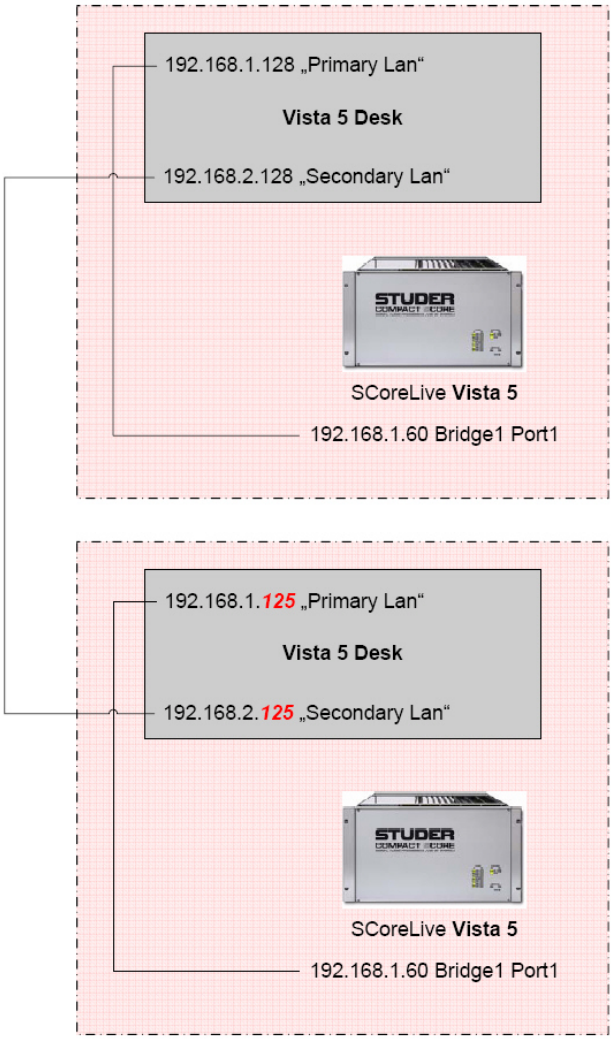
A.6.2 Vista 8 and Vista 5 – Peer-to-Peer



Setup Notes :

- The recommended setup is to use 2 network ports in the Vista 8 – then, the .1 subnet remains unaffected for the bridge links. RELINK and other applications are then using .2 subnet.
- The Vista 5 IP addresses marked red, 192.168.1.***125*** are manually changed from its original setting 192.168.1.***128***.
- The subnet mask should be 255.255.255.0
- Please note that with the Vista consoles when more than one network port is configured, the MAC address of the additional network port(s) need to be entered into the container.ini file of the Vista ! (when using a redundant control system – there is always an additional network port: the USB network connection between main- and redundant control system.) The MAC address of any network adapter can be shown with the „ipconfig /all“ command from a dos window.

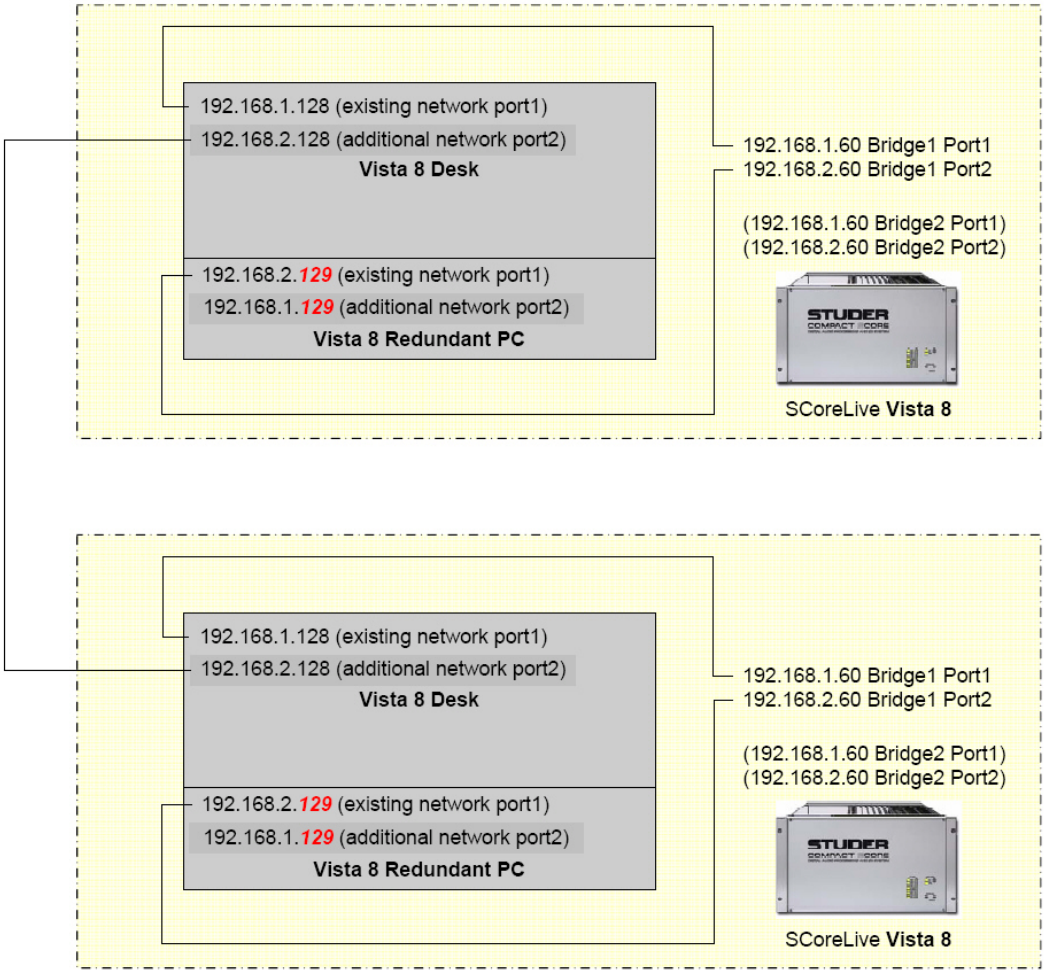
A.6.3 Vista 5 and Vista 5 – Peer-to-Peer



Setup Notes :

- The Vista 5 IP addresses marked red, 192.168.1.***125*** are manually changed from their original setting 192.168.1.***128***.
- The subnet mask should be 255.255.255.0
- Please note that with the Vista consoles when more than one network port is configured, the MAC address of the additional network port(s) need to be entered into the container.ini file of the Vista ! (when using a redundant control system – there is always an additional network port: the USB network connection between main- and redundant control system.) The MAC address of any network adapter can be shown with the „ipconfig /all“ command from a dos window.

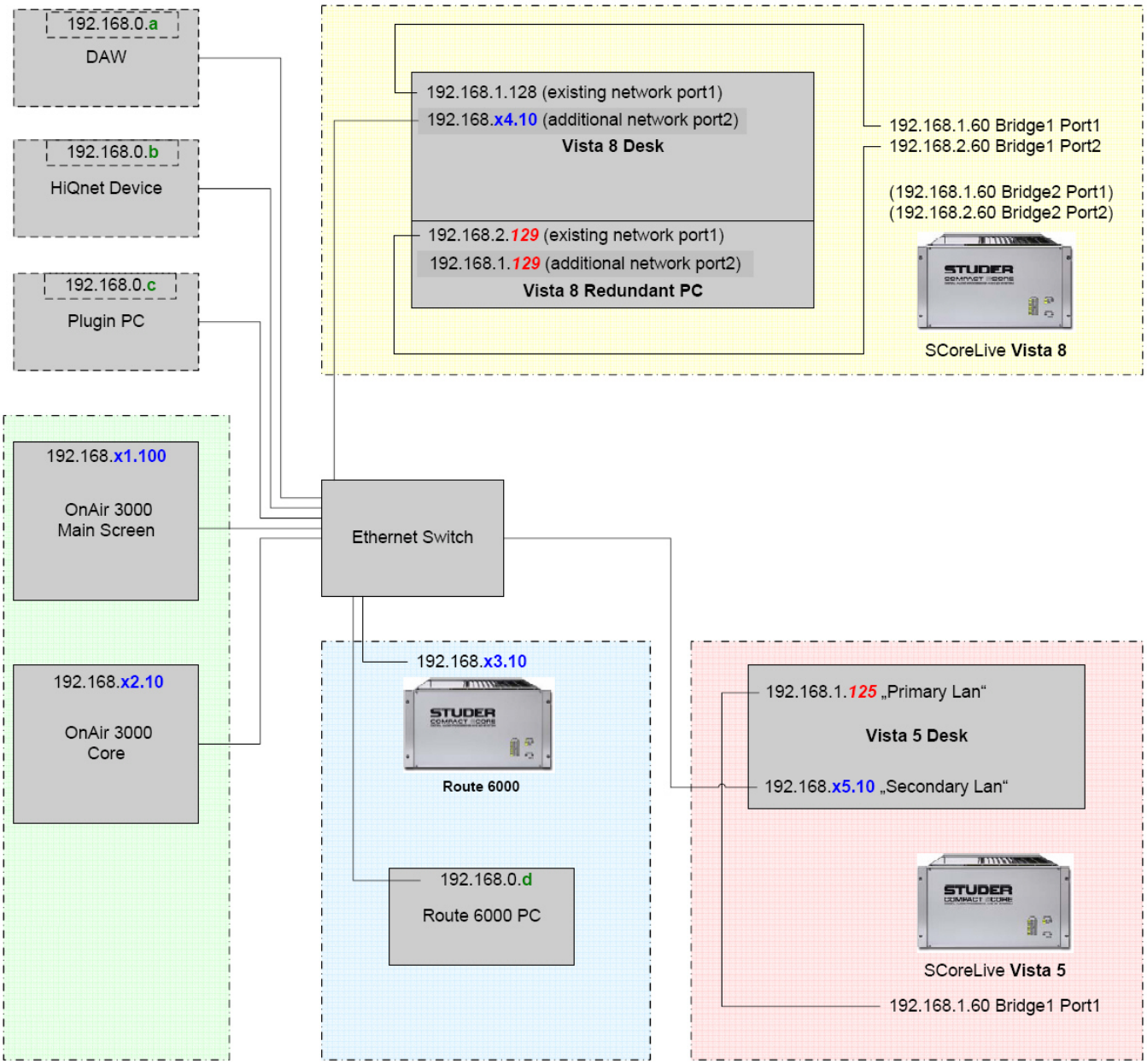
A.6.4 Vista 8 and Vista 8 – Peer-to-Peer



Setup Notes :

- The recommended setup is to use 2 network ports in the Vista 8 – then, the .1 subnet remains unaffected for the bridge links. RELINK and other applications are then using .2 subnet.
- The subnet mask should be 255.255.255.0
- Please note that with the Vista consoles when more than one network port is configured, the MAC address of the additional network port(s) need to be entered into the container.ini file of the Vista ! (when using a redundant control system – there is always an additional network port: the USB network connection between main- and redundant control system.) The MAC address of any network adapter can be shown with the „ipconfig /all“ command from a dos window.

A.6.5 Vista 8, Vista 5, Route 6000, OnAir 3000



Setup Notes :

- OnAir consoles have the following addressing convention: 192.168. x.y, where x is the SystemID, and y is the containerID. With OnAir consoles the SystemID is derived from their specific serial number (S/N mod 256 = SystemID). The containerID is always 10 for a Core and 100 for a desk.
- To allow this addressing scheme with Vista consoles as part of the network, subnet masks need to be set to **255.255.0.0** on all involved equipment.
- The recommended setup is to use 2 network ports in the Vista 8 – then, the .1 subnet remains unaffected for the bridge links.
- When OnAir consoles are part of the network, we can also use the OnAir addressing convention on the Vista consoles. With Vista consoles the containerID is always 10.
- Please note that with the Vista consoles, when more than one network port is configured, the MAC address of the additional network port(s) need to be entered into the container.ini file of the Vista! (when using a redundant control system – there is always an additional network port: the USB network connection between main- and redundant control system.) The MAC address of any network adapter can be shown with the „ipconfig /all“ command from a dos window.
- All other PCs in the network can have an address in the subnet 0 : e.g. 192.168.0.a-g . This clearly distinguishes them from consoles.

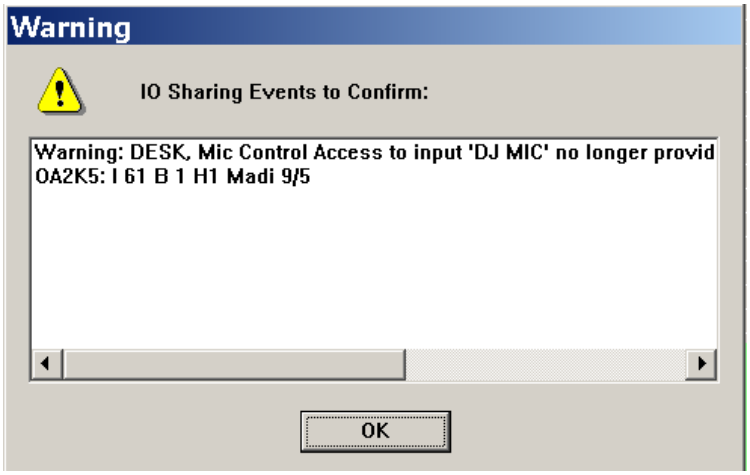
A.7 Messages from Other Systems

When there are patch connections to other systems in the RELINK network – e.g. when using a mic input of another Vista or OnAir console – or when outputs are patched to a Route 6000 or to an other console, the local Vista will receive status messages from these systems.

Vista systems receive and display the following message types from OnAir and Route 6000 systems:
- Power loss on Core and D21m frames
- D21m hardware change
- System shut down

Vista systems send the following message type:
- System shut down

These messages are all displayed in the same type of window that also shows mic control messages:



As long as no sources or targets of a remote system are used locally, no status messages of these systems are shown on the local Vista.

A.8 Labels from Other Systems

When patching remote inputs to a Vista system, the ‘user label’ of this input on the remote system is propagated to the Vista’s input channel label display.

A.9 Locked Patch Points

Locked patch points are treated in the same way as local sources.

A.10 Stereo and Surround Sources

The following remote sources can also be in stereo or 5.1 surround formats:

- Vista Direct Outputs (Input, Group and Master channels)
- Stereo and Surround Inputs from OnAir consoles.

These sources can be patched directly, with one single patch point connection, to a local target.

B DAW CONTROL

B.1 Basics

With the Vista consoles it is now possible to directly operate Digital Audio Workstations (DAW) from the desk surface.

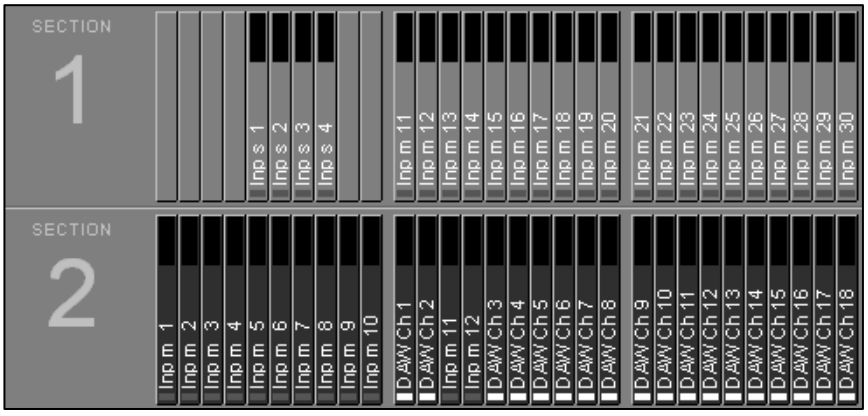
This is realized by using two different serial communication protocols: The more straightforward and simpler 'Mackie Control Protocol' and the more complex 'Mackie HUI Protocol'.
A choice of the most popular DAWs is supported and has been tested with the new Vista desk control:

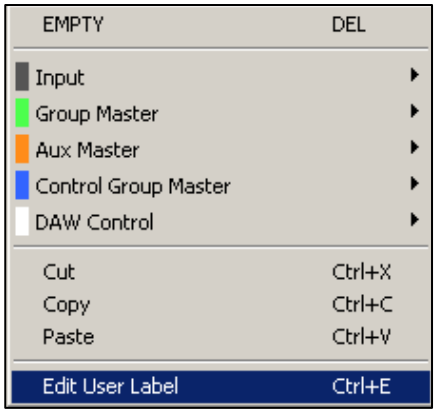
- Digidesign ProTools (HUI)
- Apple Logic Pro (Mackie Control)
- Merging Technologies Pyramix (HUI)
- Magix Sequoia (HUI)
- Magix Samplitude (HUI)
- Steinberg Cubase (Mackie Control)
- Steinberg Nuendo (Mackie Control)
- SADiE (Mackie Protocol)

Thanks to an extended strip setup, so-called DAW channels can be inserted into any desired slot of the setup. With a DAW channel a number of DAW controls can be operated, as provided by the Mackie Control protocol: The fader level as well as the status of mute, solo and track arming. The transport control keys on the desk can be used for transport commands to the DAW.

Note: *DAW channels are excepted from snapshots and presets, no DAW settings will be saved or can be recalled, apart from the channel strip position defined in the strip setup. In addition, DAW channels cannot be automated by the dynamic automation; however, this can be made on the DAW itself in an elegant way.*

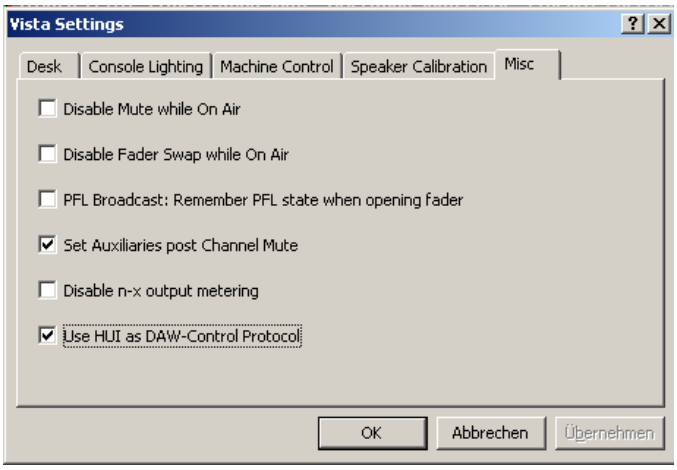
When controlling the DAW via HUI, an auto-label mechanism automatically copies the channel labels of the workstation project to the DAW channel strip on the Vista console.
If the DAW should not support HUI (see list above), user labels can be entered in the strip setup now for every DAW channel.



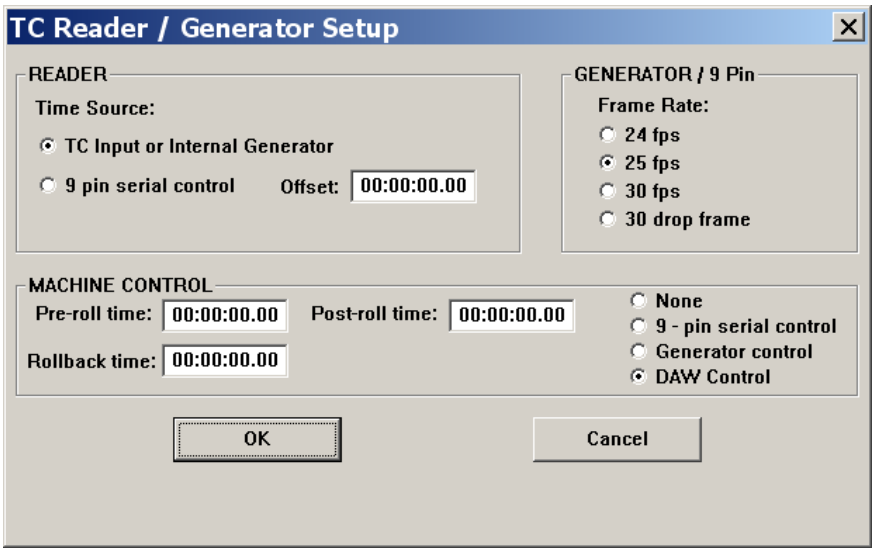


Note: Only *one* DAW can be controlled at a time. The Mackie protocols support *a maximum of 32 channels*, so this is also the maximum number of DAW channels that can be controlled.

Protocol selection (Mackie Control or Mackie HUI) is done in the Vista Settings dialog. This is not done automatically but has to be decided by the user:



To enable transport control specifically for the connected DAW, there is a new menu option in the TC Reader / Generator setup dialog. Please note that the 9-pin serial control is disabled as soon as the DAW Control setting is selected:

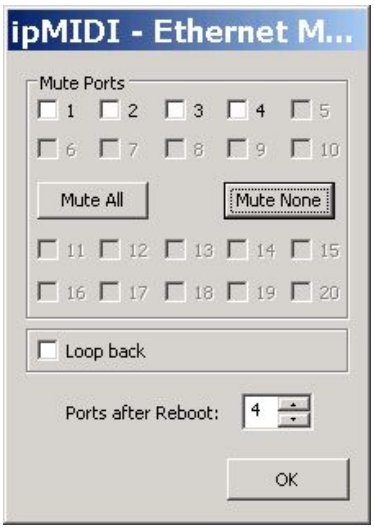


MIDI-Over-Ethernet: Instead of the MIDI connection normally used as the physical layer for the Mackie protocols, a MIDI-over-Ethernet solution is used that allows using one single Ethernet Cat5 cable instead of several MIDI cables. Therefore the 'ipMIDI' driver needs to be installed on both the Vista desk PC and on the DAW.

B.2 Vista Settings

ipMIDI (to be installed on Vista console PC)

- Install ipMIDI v1.6 (requires DirectX 8.1 or later)
- Deactivate 'Loop Back' (un-tick the checkbox in the ipMIDI monitor window)
- Define four ports in the ipMIDI monitor window



- Restart the Vista console PC

Specify MIDI Ports (i.e., MIDI ports used for DAW Control)

- While using ipMIDI, add the following two lines into D950system.ini as shown below. *(Please note: the entry is case sensitive).*

```
[Midi]
DawPorts="Ethernet MIDI"
```

Define Network Card Define which network card of the Vista is used for DAW control:

- Set a persistent route by entering the following command to the command line on the Vista

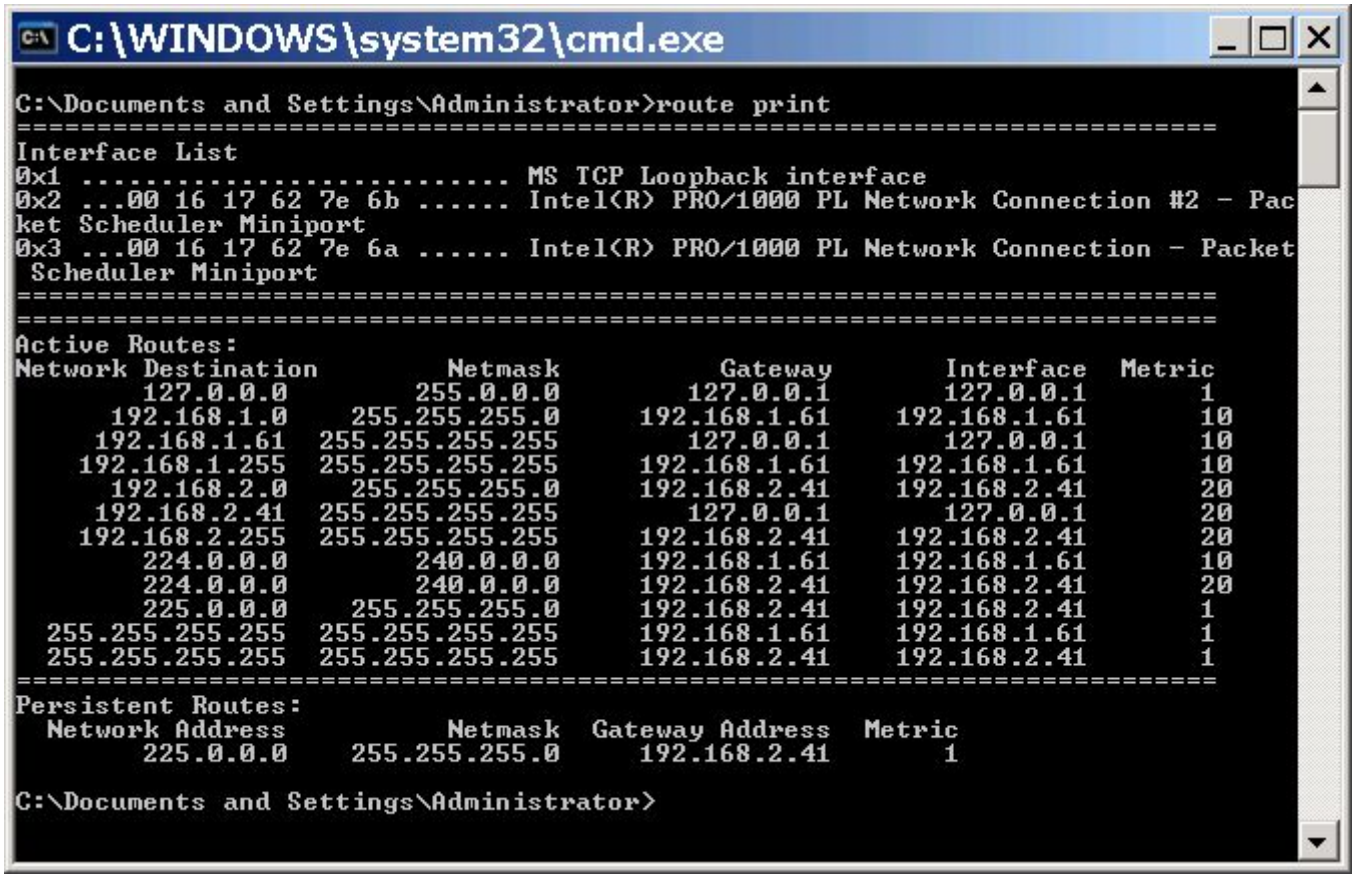
```
route add 225.0.0.0 MASK 255.255.255.0 x.x.x.x –p
```

(x.x.x.x is the static IP address of the network card connected to the DAW)

In order to check whether the route has been set correctly, use the command:

```
route print
```

(refer to the screenshot below)



The entered route will now appear under the Persistent Routes header, e.g. 192.168.2.41

B.3 DAW Settings

ipMIDI (to be executed on DAW)

- Install ipMIDI v1.6 (requires DirectX 8.1 or later)
- Deactivate 'Loop Back' (un-tick checkbox in the ipMIDI monitor window)
- Define four ports in the ipMIDI monitor window, as shown in chapter B.2
- Restart the DAW platform (PC or Mac)

B.3.1 General Recommendations

Startup Order

1 Vista
2 DAW *(otherwise the initialization of faders may fail)*

Shutdown Order

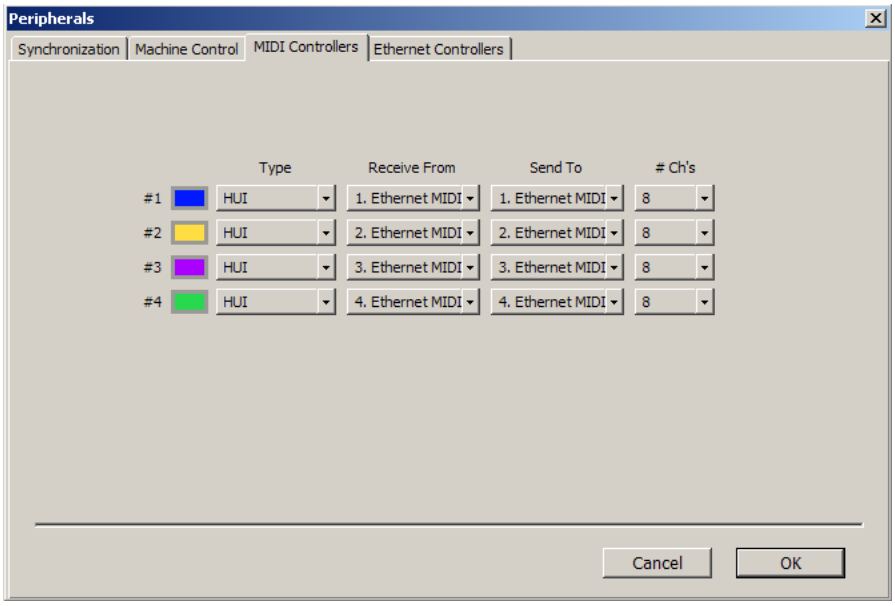
1 DAW
2 Vista *(otherwise all faders on DAW go to zero)*

B.3.2 Digidesign ProTools (tested with V7.4)

Protocols

Mackie HUI protocol: OK
Mackie control protocol: Not supported

Controller Settings



Known Issues

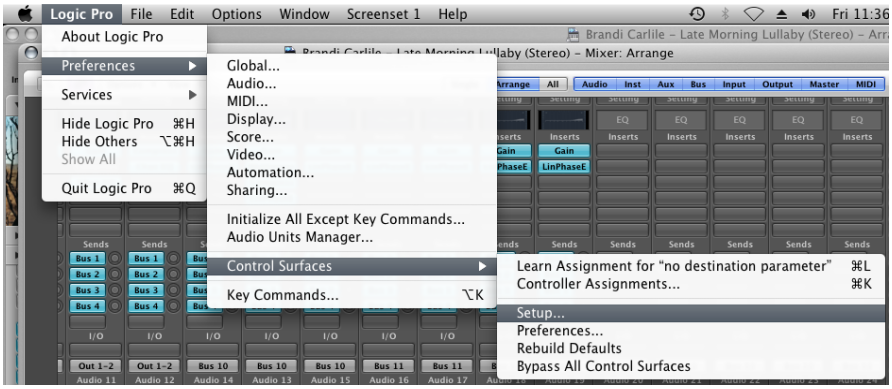
When closing Vista before ProTools: Access violation in ProTools, ProTools will not shut down correctly ⇨ the Windows Task Manager is then required to end the program.

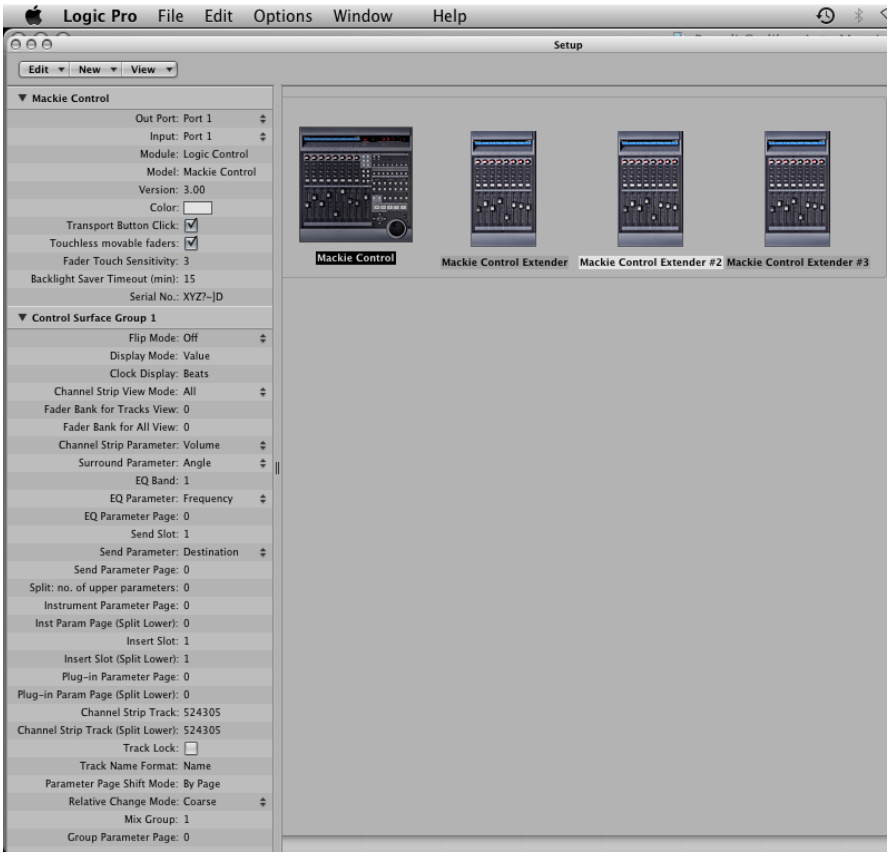
B.3.3 Apple Logic Pro (tested with V8.0.2)

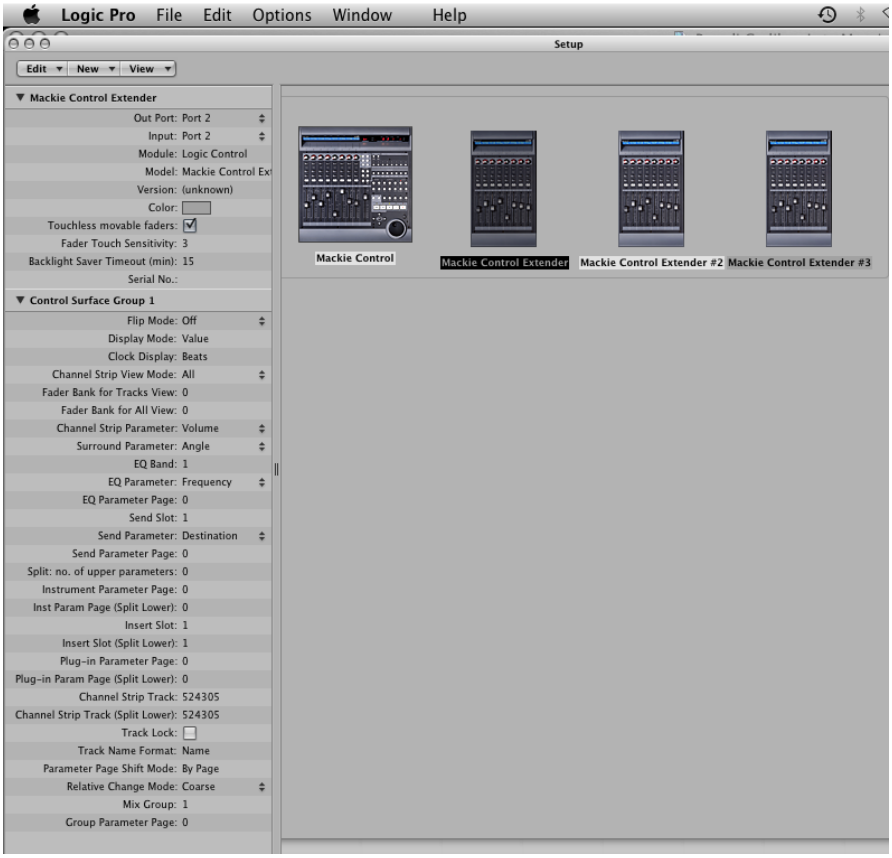
Protocols

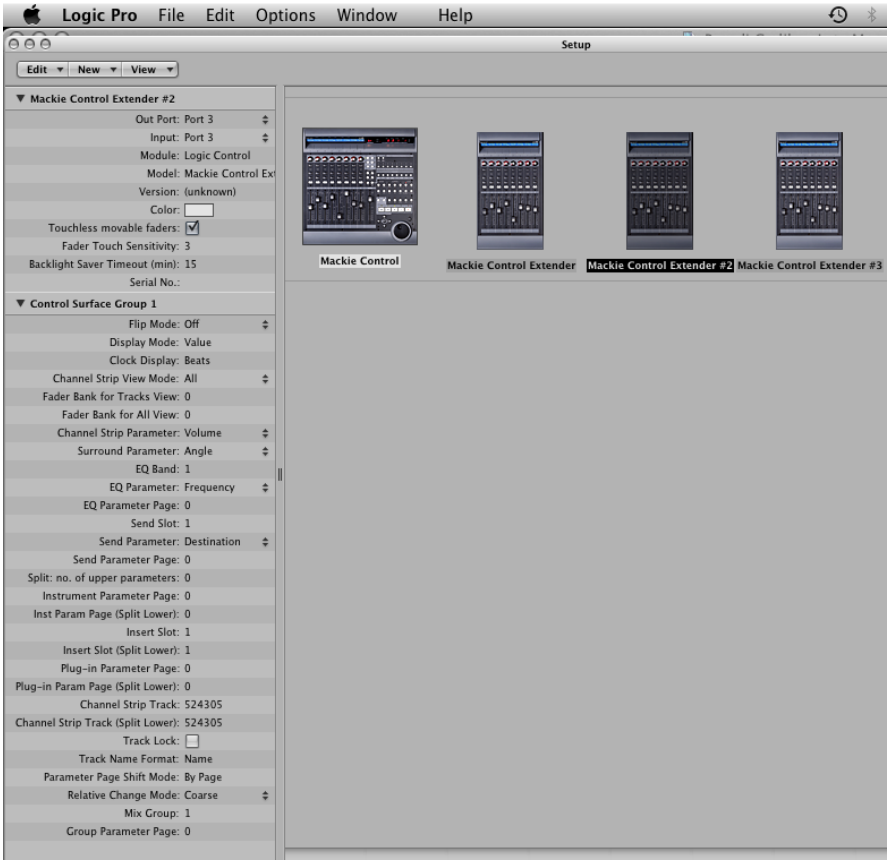
Mackie HUI protocol: Not supported
Mackie control protocol: OK

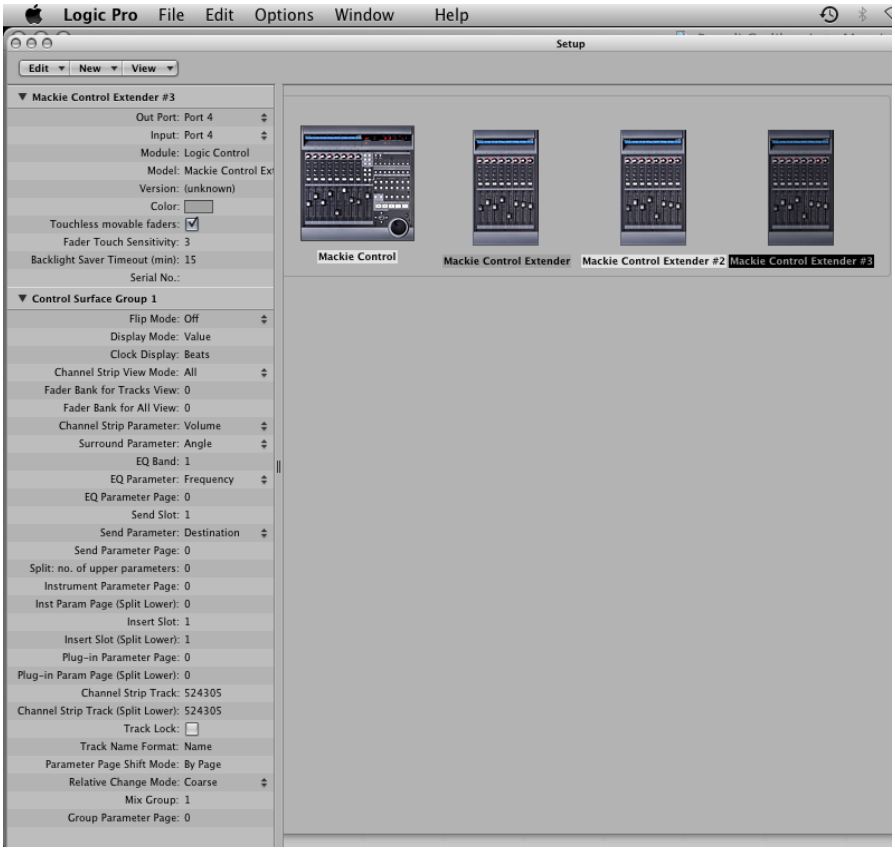
Controller Settings






Logic Pro File Edit Options Window Help
Setup
Edit New View
Mackie Control Extender
Out Port: Port 2
Input: Port 2
Module: Logic Control
Model: Mackie Control Ext
Version: (unknown)
Color:
Touchless movable faders:
Fader Touch Sensitivity: 3
Backlight Saver Timeout (min): 15
Serial No.:
Control Surface Group 1
Flip Mode: Off
Display Mode: Value
Clock Display: Beats
Channel Strip View Mode: All
Fader Bank for Tracks View: 0
Fader Bank for All View: 0
Channel Strip Parameter: Volume
Surround Parameter: Angle
EQ Band: 1
EQ Parameter: Frequency
EQ Parameter Page: 0
Send Slot: 1
Send Parameter: Destination
Send Parameter Page: 0
Split: no. of upper parameters: 0
Instrument Parameter Page: 0
Inst Param Page (Split Lower): 0
Insert Slot: 1
Insert Slot (Split Lower): 1
Plug-in Parameter Page: 0
Plug-in Param Page (Split Lower): 0
Channel Strip Track: 524305
Channel Strip Track (Split Lower): 524305
Track Lock:
Track Name Format: Name
Parameter Page Shift Mode: By Page
Relative Change Mode: Coarse
Mix Group: 1
Group Parameter Page: 0
Mackie Control
Mackie Control Extender
Mackie Control Extender #2
Mackie Control Extender #3


Logic Pro File Edit Options Window Help
Setup
Edit New View
Mackie Control Extender #2
Out Port: Port 3
Input: Port 3
Module: Logic Control
Model: Mackie Control Ext
Version: (unknown)
Color:
Touchless movable faders:
Fader Touch Sensitivity: 3
Backlight Saver Timeout (min): 15
Serial No.:
Control Surface Group 1
Flip Mode: Off
Display Mode: Value
Clock Display: Beats
Channel Strip View Mode: All
Fader Bank for Tracks View: 0
Fader Bank for All View: 0
Channel Strip Parameter: Volume
Surround Parameter: Angle
EQ Band: 1
EQ Parameter: Frequency
EQ Parameter Page: 0
Send Slot: 1
Send Parameter: Destination
Send Parameter Page: 0
Split: no. of upper parameters: 0
Instrument Parameter Page: 0
Inst Param Page (Split Lower): 0
Insert Slot: 1
Insert Slot (Split Lower): 1
Plug-in Parameter Page: 0
Plug-in Param Page (Split Lower): 0
Channel Strip Track: 524305
Channel Strip Track (Split Lower): 524305
Track Lock:
Track Name Format: Name
Parameter Page Shift Mode: By Page
Relative Change Mode: Coarse
Mix Group: 1
Group Parameter Page: 0
Mackie Control
Mackie Control Extender
Mackie Control Extender #2
Mackie Control Extender #3



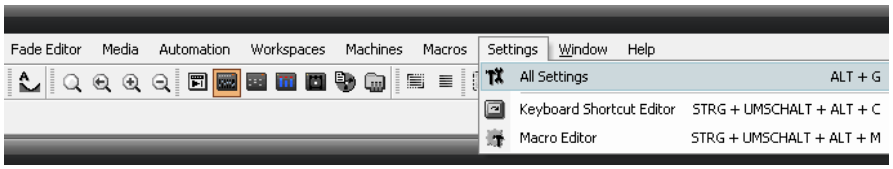
Known Issues Solo un-mutes the channel on the DAW.

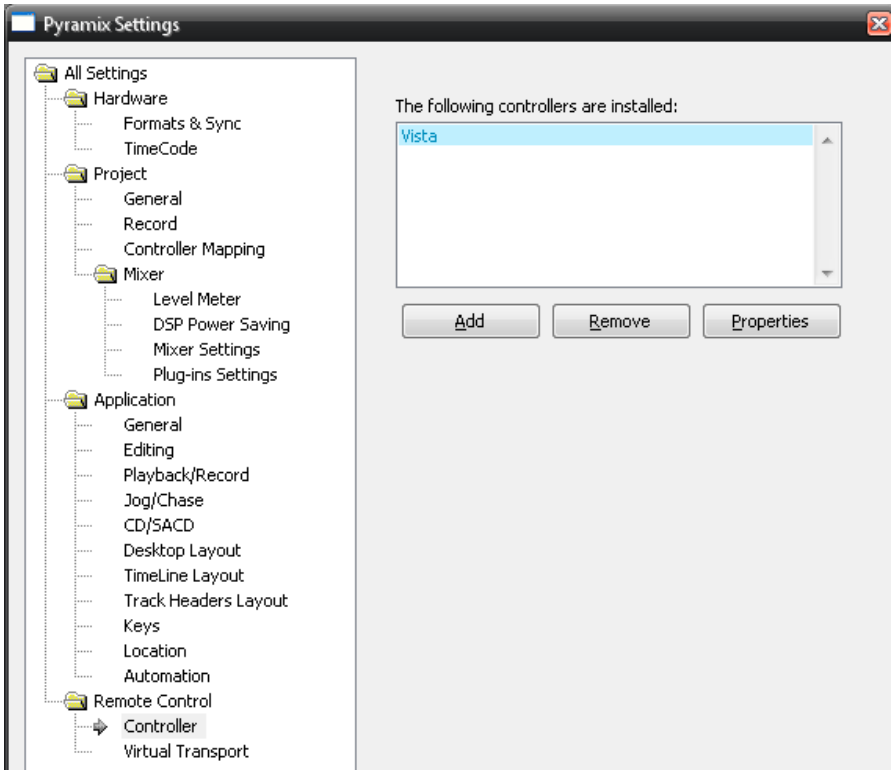
B.3.4 Merging Technologies Pyramix (tested with V6.0)

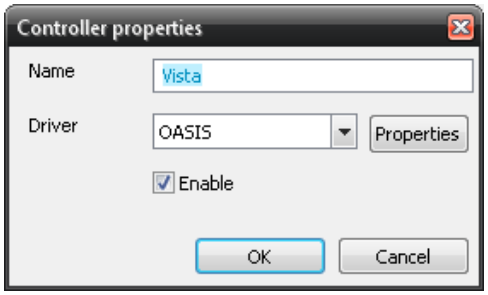
Protocols

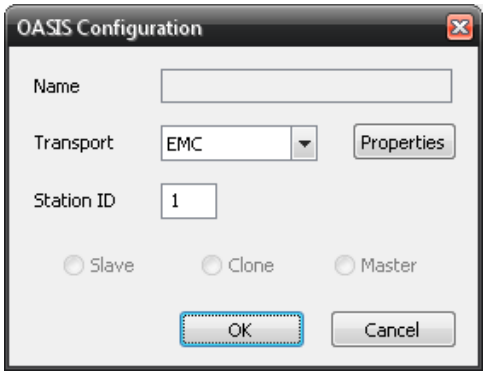
Mackie HUI protocol: OK
Mackie control protocol: Not fully supported

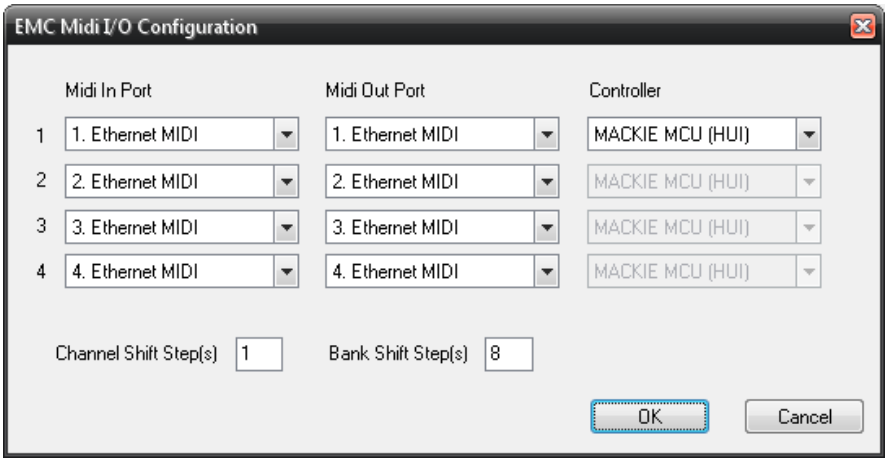
Controller Settings









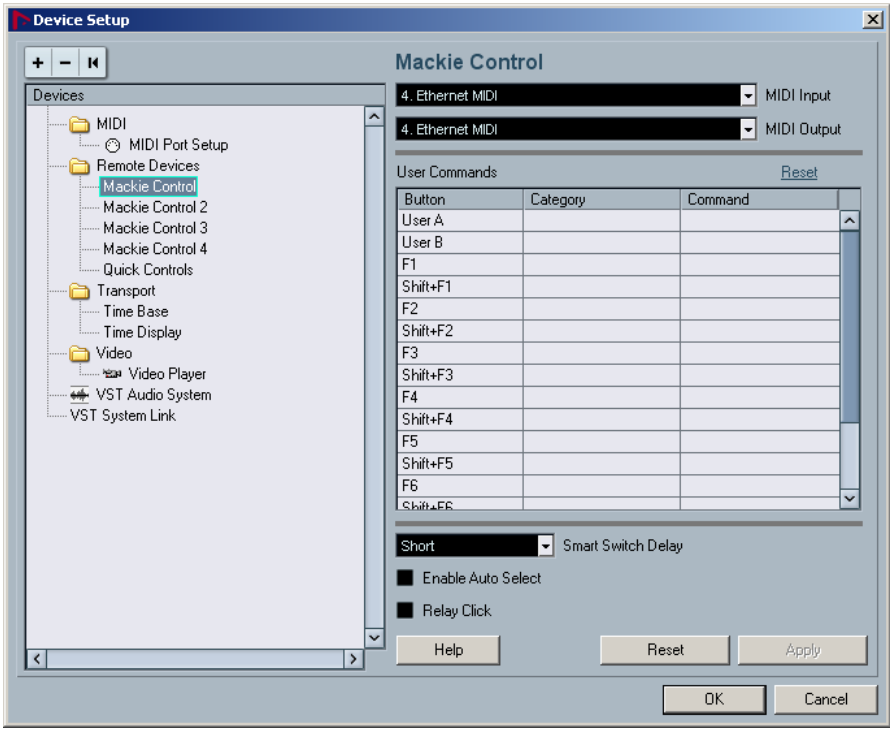


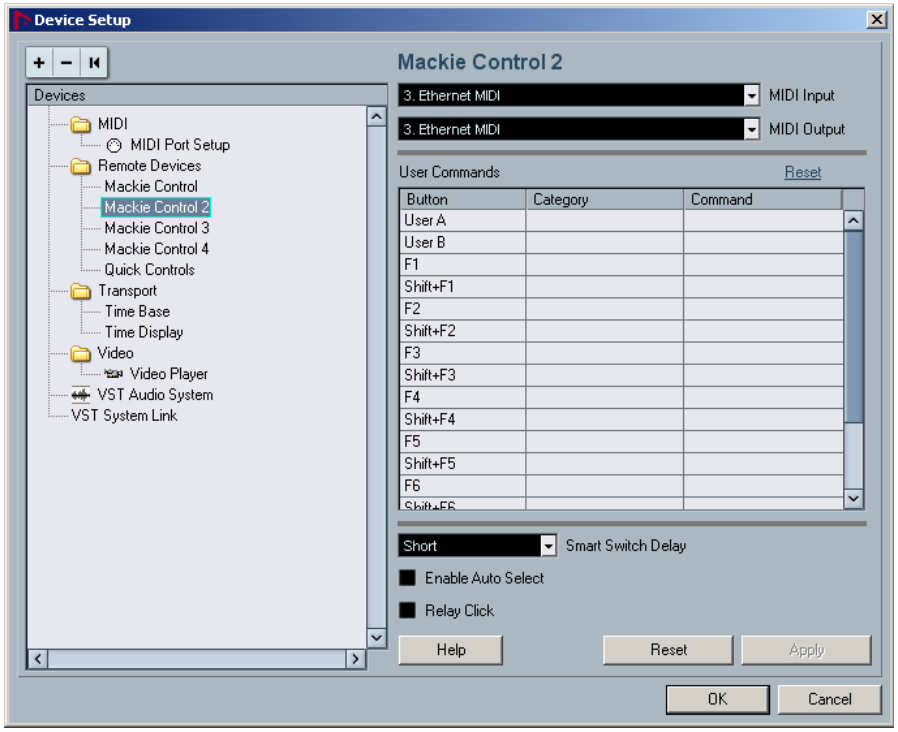
Known Issues When flooding Pyramix with messages (most commonly with a huge gang), a crash of Pyramix can be provoked.

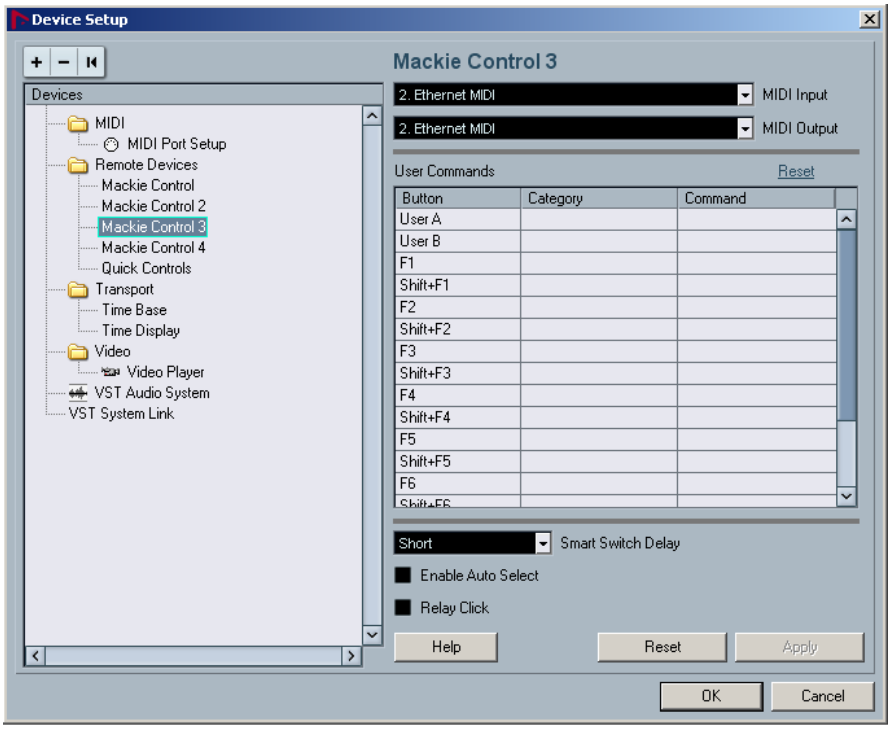
B.3.5 Steinberg Cubase (tested with V4.0) / Nuendo (tested with V4.2)

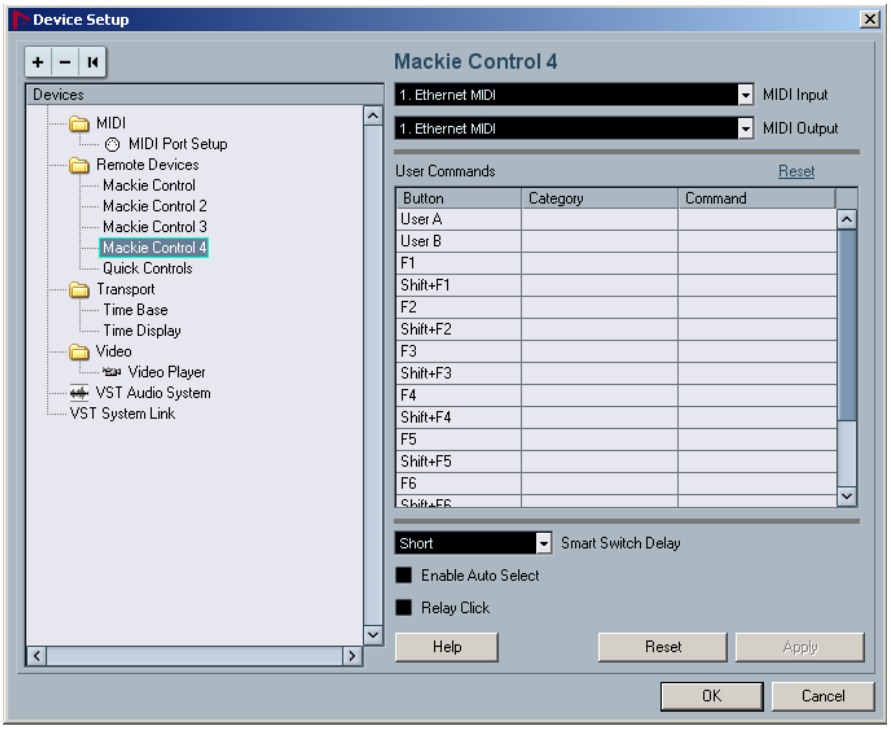
Protocols Mackie HUI protocol: *Only 8 channels supported* (Enable Auto Select must be disabled)
Mackie control protocol: OK (Enable Auto Select must be disabled)

Controller Settings


Device Setup
Devices
MIDI
MIDI Port Setup
Remote Devices
Mackie Control
Mackie Control 2
Mackie Control 3
Mackie Control 4
Quick Controls
Transport
Time Base
Time Display
Video
Video Player
VST Audio System
VST System Link
Mackie Control
4. Ethernet MIDI
MIDI Input
4. Ethernet MIDI
MIDI Output
User Commands
Reset
Button
Category
Command
User A
User B
F1
Shift+F1
F2
Shift+F2
F3
Shift+F3
F4
Shift+F4
F5
Shift+F5
F6
Short
Smart Switch Delay
Enable Auto Select
Relay Click
Help
Reset
Apply
OK
Cancel


Device Setup
Devices
MIDI
MIDI Port Setup
Remote Devices
Mackie Control
Mackie Control 2
Mackie Control 3
Mackie Control 4
Quick Controls
Transport
Time Base
Time Display
Video
Video Player
VST Audio System
VST System Link
Mackie Control 2
3. Ethernet MIDI
MIDI Input
3. Ethernet MIDI
MIDI Output
User Commands
Reset
Button
Category
Command
User A
User B
F1
Shift+F1
F2
Shift+F2
F3
Shift+F3
F4
Shift+F4
F5
Shift+F5
F6
Short
Smart Switch Delay
Enable Auto Select
Relay Click
Help
Reset
Apply
OK
Cancel





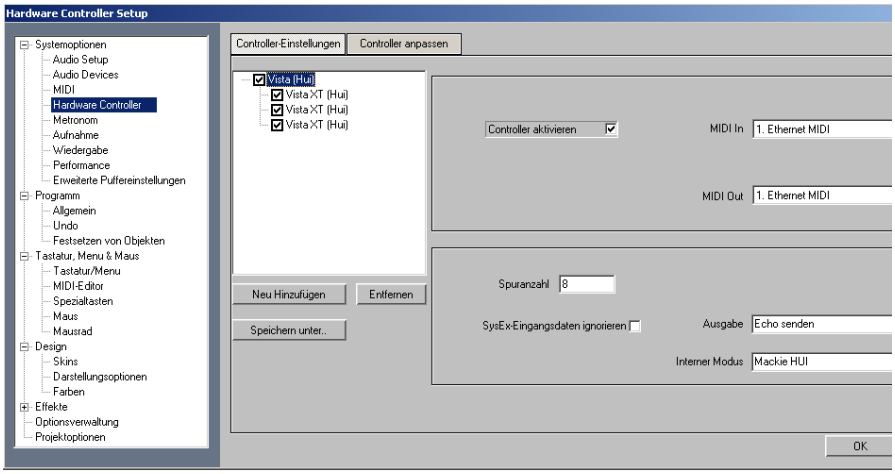
Note: In Cubase/Nuendo, the controller #4 must be mapped to Ethernet MIDI port 1, controller #3 to Ethernet MIDI port 2, etc., as shown in the screen-shots above, in order to get the correct order of DAW channels 1 through 32 on the Vista console.

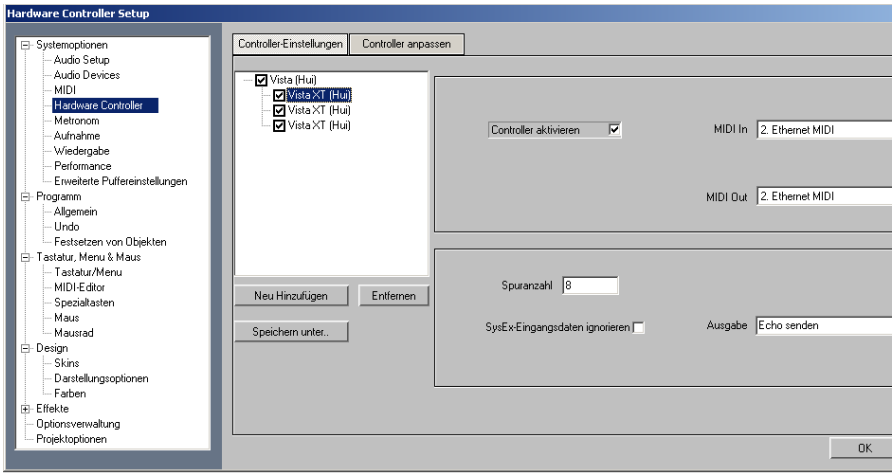
B.3.6 Magix Samplitude Pro (tested with V10) / Sequoia (tested with V10)

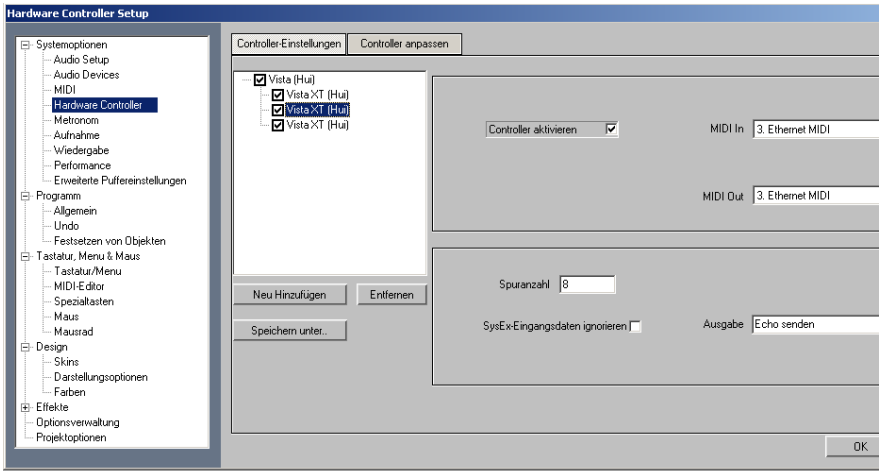
Protocols

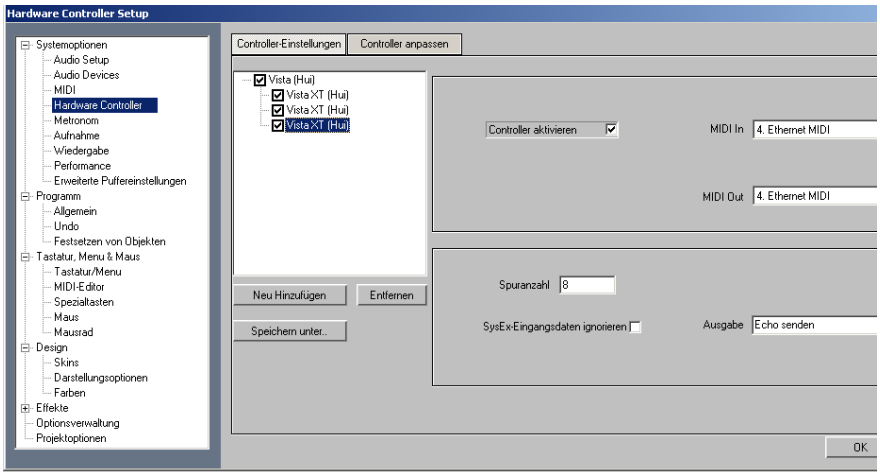
Mackie HUI protocol: Use the correct *.cps files (1 x Vista (HUI), 3 x Vista XT (HUI))
Mackie control protocol: Use the correct *.cps files (1 x Vista (MackieProtocol), 3 x Vista XT (MackieProtocol))
These *.cps files are provided by Studer with the Vista SW 4.1 release, they must be copied to the 'Controller' folder in Samplitude.
Please contact Studer Customer Service if these files are not available.

Controller Settings







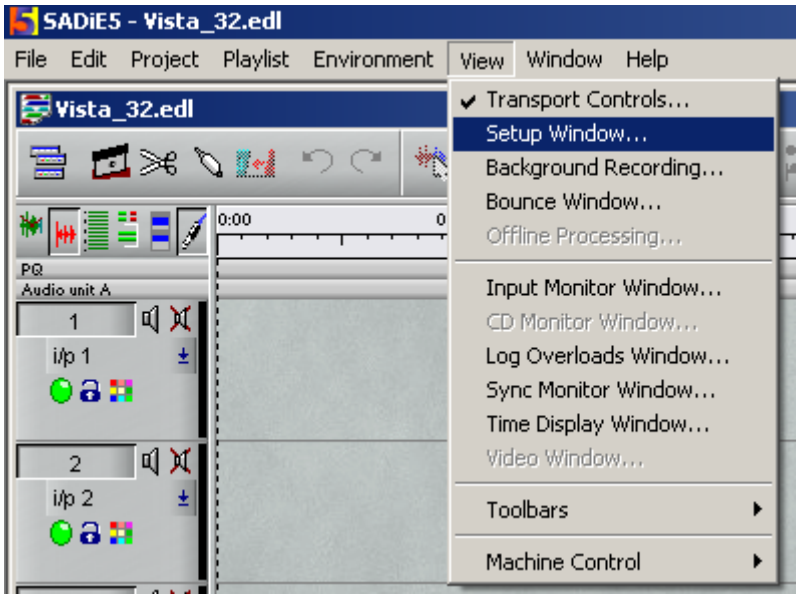


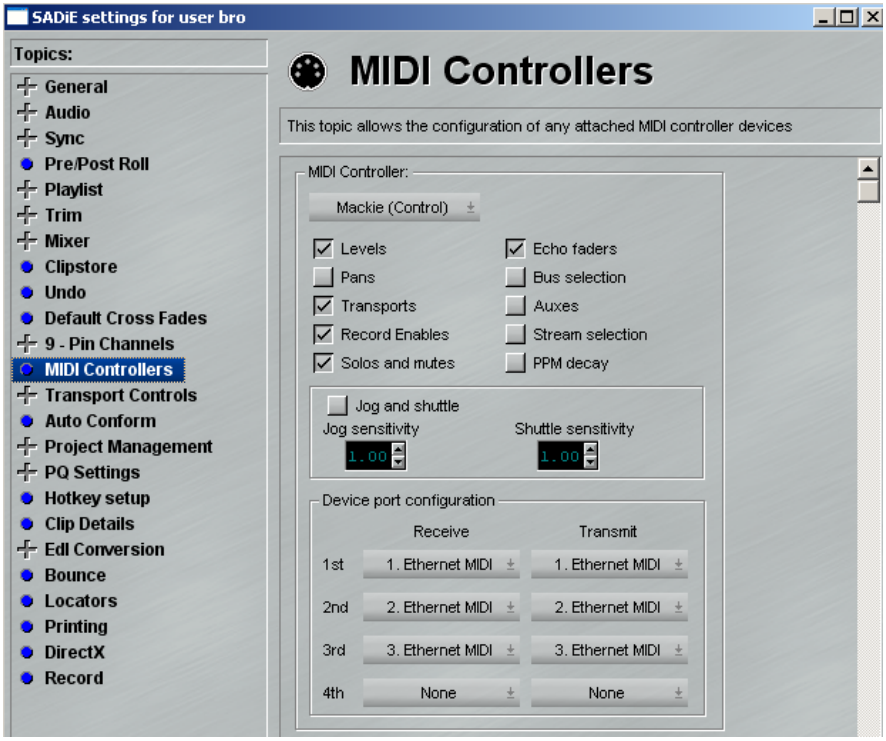
B.3.7 SADiE (tested with V5.6.2)

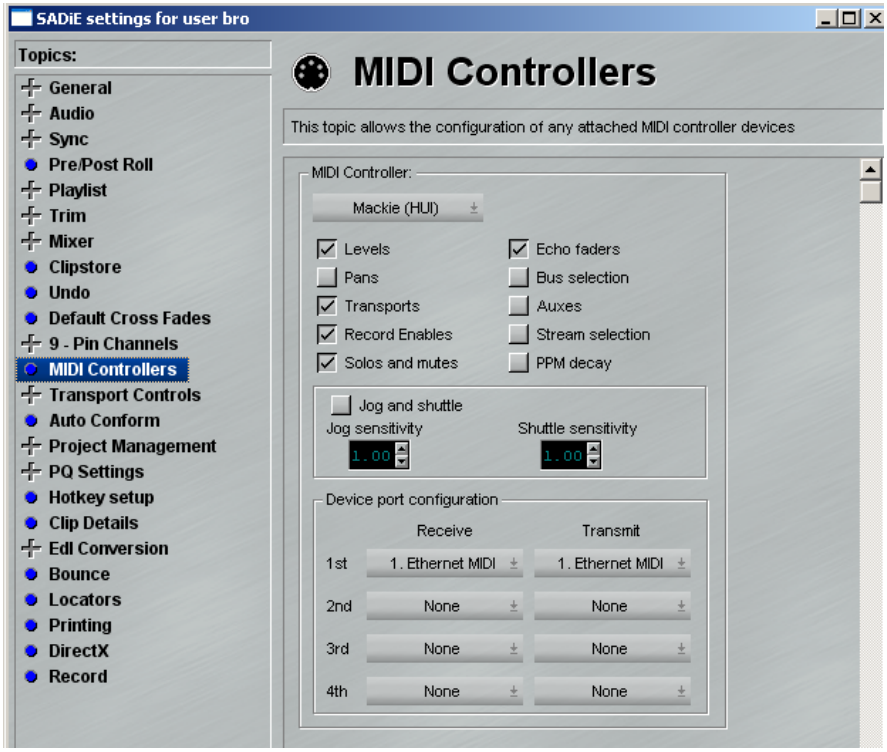
Protocols

Mackie HUI protocol: *Only 8 channels supported*
Mackie control protocol: *Only 24 channels supported*

Controller Settings







Notes: In theory, SADiE supports 32 channels to be controlled with both types of protocol (Mackie Control Protocol, Mackie HUI Protocol). During the tests, instabilities of SADiE were experienced when using more than 8 channels in HUI protocol mode, and more than 24 channels in Mackie Control Protocol mode. Therefore using max. 8 or 24 channels, respectively, is recommended.

The 'Heartbeat' message (90 00 00) is answered by Vista (answer: 90 00 7F) only if Vista is operating in HUI mode.

B.3.8 Troubleshooting

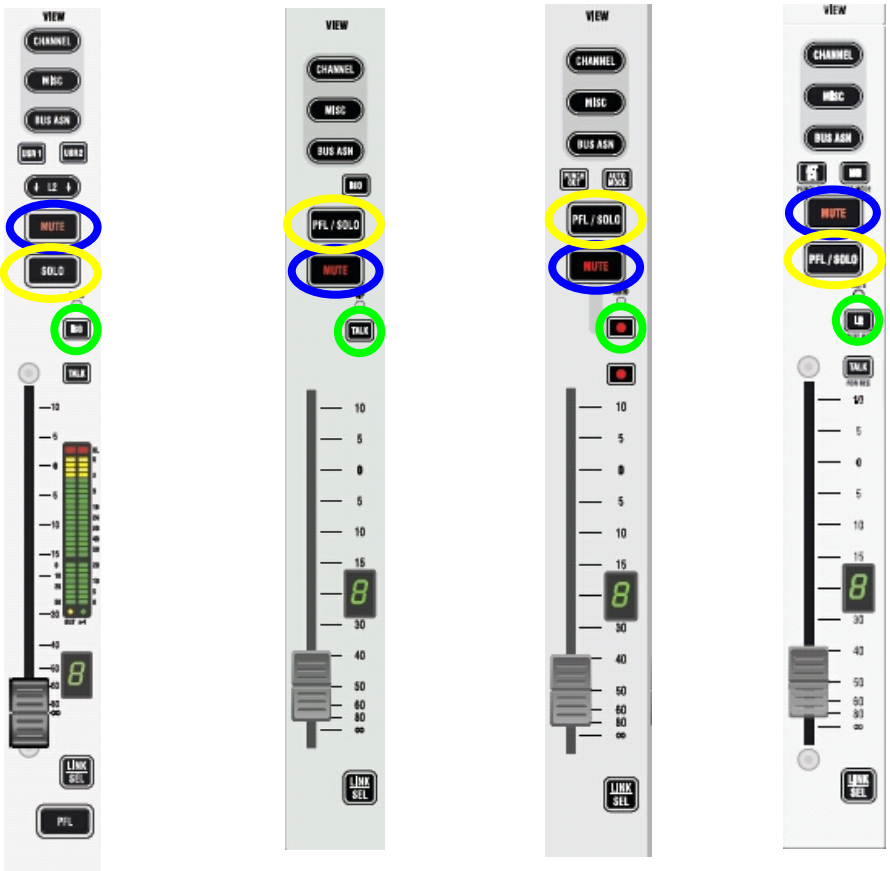
Problem Communication between Vista and DAW works only from DAW to Vista, but not vice versa.

Solution The 'persistent route' has not been set correctly (see chapter B.2).

B.4 Channel Strip Keys

Since DAW control is applicable for Vista 5, 6, 7 and 8, on all desk surfaces some of the channel strip keys can be used as channel control buttons for the DAW:

Vista 5: Vista 6: Vista 7: Vista 8:



The marked keys can be used to control the following DAW functions:

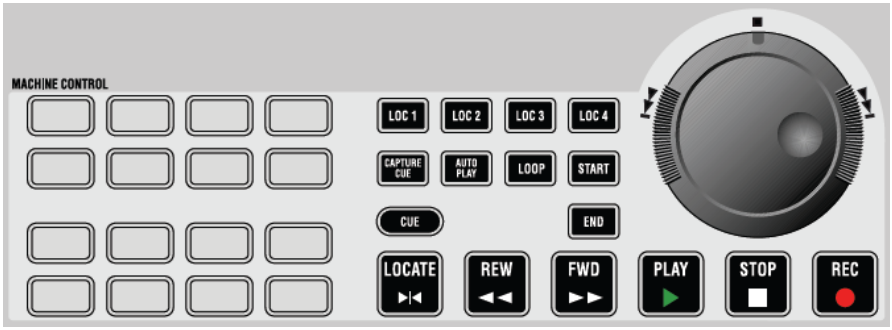
Blue: Mute

Yellow: Solo

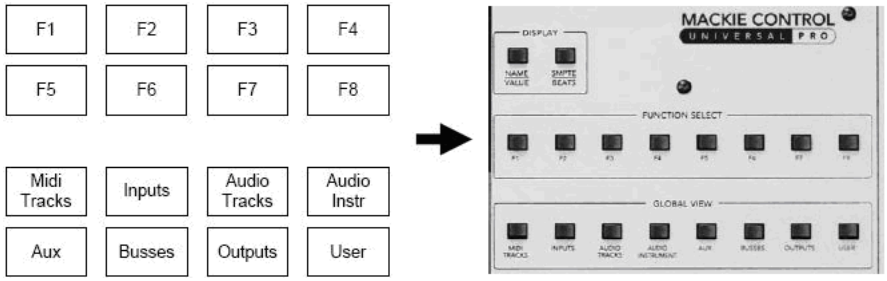
Green: Track Arming

B.5 Central Keys on Vista 7

The 16 MACHINE CONTROL keys available on the Vista 7 can, of course, also be used for controlling central DAW functions.



These keys are mapped to fixed MIDI commands, as on the Mackie control surface:



These commands are interpreted differently from DAW to DAW. Some DAWs also offer a 'learn' mode, i.e., a desired DAW function can be mapped to one of these keys.

The programmed MIDI commands are given below:

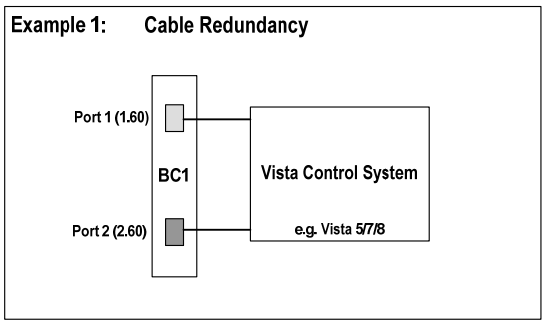
	Mackie Control Protocol		Mackie HUI Protocol	
	Key Press	Key Release	Key Press	Key Release
F1	90 36 7F	90 36 00	B0 0F 09 B0 2F 41	B0 0F 09 B0 2F 01
F2	90 37 7F	90 37 00	B0 0F 09 B0 2F 40	B0 0F 09 B0 2F 00
F3	90 38 7F	90 38 00	B0 0F 09 B0 2F 42	B0 0F 09 B0 2F 02
F4	90 39 7F	90 39 00	B0 0F 09 B0 2F 43	B0 0F 09 B0 2F 03
F5	90 3A 7F	90 3A 00	B0 0F 09 B0 2F 45	B0 0F 09 B0 2F 05
F6	90 3B 7F	90 3B 00	B0 0F 1A B0 2F 41	B0 0F 1A B0 2F 01
F7	90 3C 7F	90 3C 00	B0 0F 1A B0 2F 45	B0 0F 1A B0 2F 05
F8	90 3D 7F	90 3D 00	B0 0F 1A B0 2F 40	B0 0F 1A B0 2F 00
MIDI Tracks	90 3E 7F	90 3E 00	B0 0F 18 B0 2F 42	B0 0F 18 B0 2F 02
Inputs	90 3F 7F	90 3F 00	B0 0F 18 B0 2F 44	B0 0F 18 B0 2F 04
Audio Tracks	90 40 7F	90 40 00	B0 0F 18 B0 2F 45	B0 0F 18 B0 2F 05
Audio Instr	90 41 7F	90 41 00	B0 0F 18 B0 2F 41	B0 0F 18 B0 2F 01
Aux	90 42 7F	90 42 00	B0 0F 18 B0 2F 40	B0 0F 18 B0 2F 00
Busses	90 43 7F	90 43 00	B0 0F 18 B0 2F 43	B0 0F 18 B0 2F 03
Outputs	90 44 7F	90 44 00	B0 0F 19 B0 2F 42	B0 0F 19 B0 2F 02
User	90 45 7F	90 45 00	B0 0F 0C B0 2F 41	B0 0F 0C B0 2F 01
(Values in Hex)				

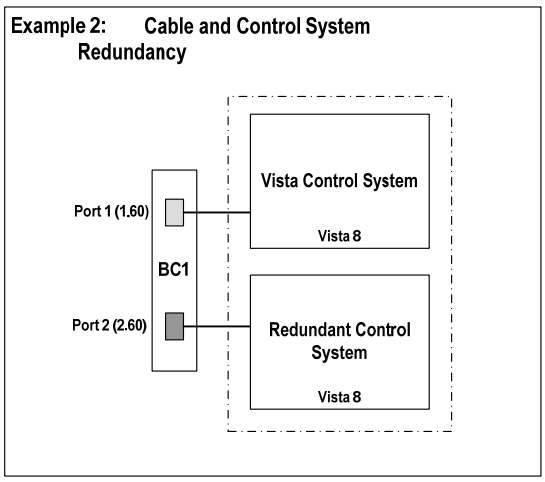
C REDUNDANT BRIDGE CARD (FOR SCORE LIVE)

Since SW V4.1, a redundant Bridge card can be used in the SCoreLive, so not only cable redundancy can be provided now, but also true bridge card redundancy.
Order no. of the bridge card with this functionality is A943.0370.35; earlier bridge cards cannot be updated to this level.

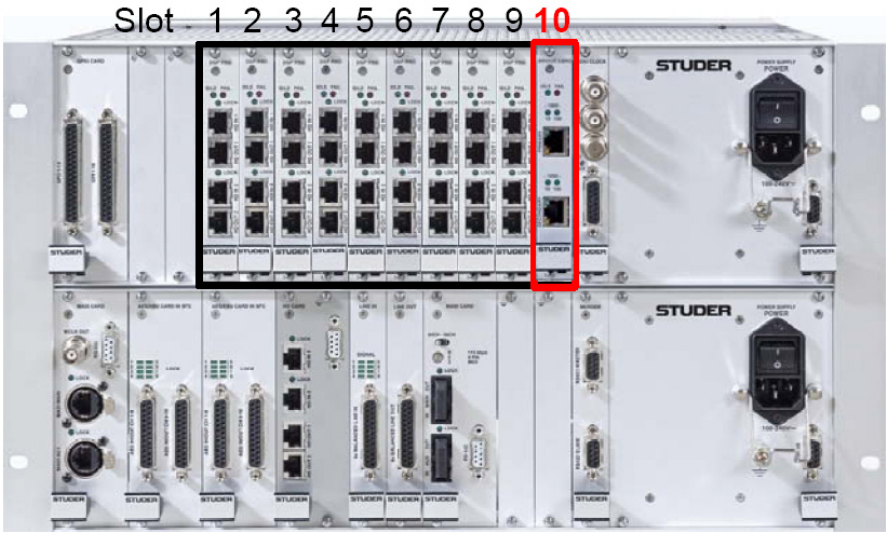
Note: When using a redundant bridge card, the SCoreLive's maximum capacity for DSP cards is reduced from 9 to 8 cards.

Setup Possibilities up to Now (i.e., pre-V4.1)

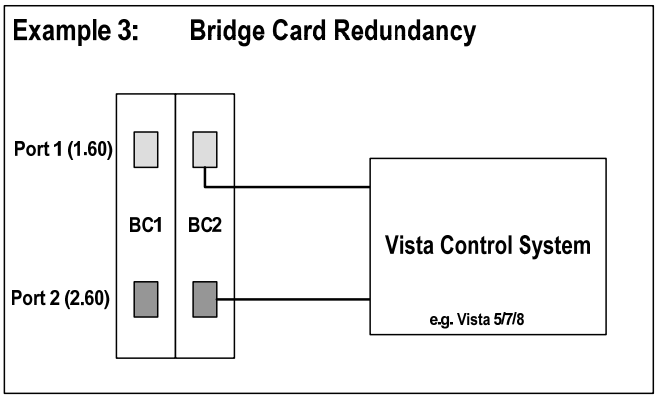


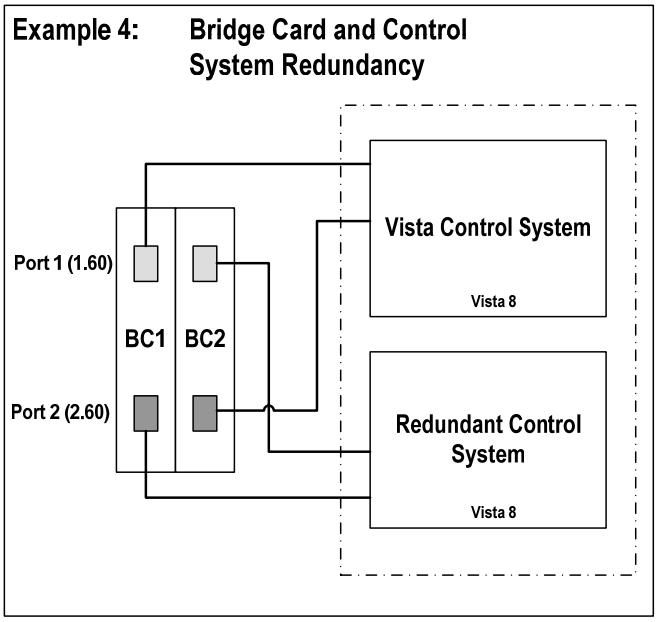


In the examples above, the (single) bridge card *must be installed in slot 10* of the SCoreLive frame; *the maximum number of DSP cards is 9.*

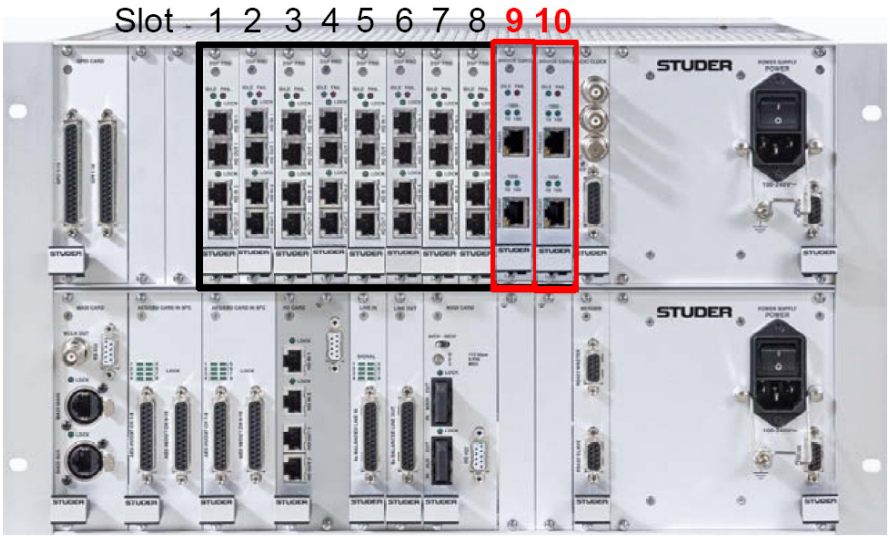


Additional Setup Possibilities (since SW V4.1)





In these examples, the *dual* bridge cards are installed *in slots 9 and 10, so the maximum numbers of DSP card is 8.*



D LABELS IN STRIP SETUP

As can be seen in the DAW Control chapter above (chapter B), there is a new possibility for labeling console channels from the strip setup page.
Not only DAW channels can be labeled in this way, but also the user labels of the following channel types:

- CGM/VCA masters
- Aux masters
- Matrix masters
- Group masters
- Masters

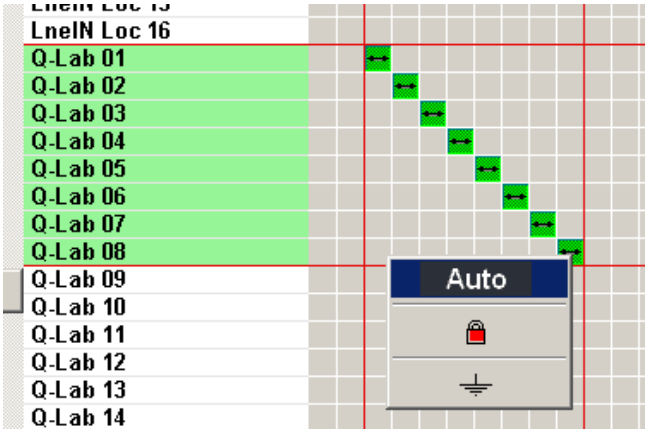
Up to now, these labels had to be edited all in the channel patch view, except for the CGM/VCA label that is edited in its own setup dialog window.

Important: Input channels are the only channels that cannot be labeled in the strip setup. This is because the input channels use a special mechanism always propagating the name of the Input interface (e.g. mic input) to the channel patched to this particular interface. This is very helpful since the user names need not be relabeled whenever the patch is changed.
Therefore, it is of no use when manually changing the user label of an input channel – it will always get overwritten automatically.

E GENERAL PATCH

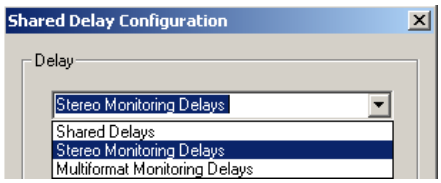
Establishing connections in the General Patch view has been improved and simplified:

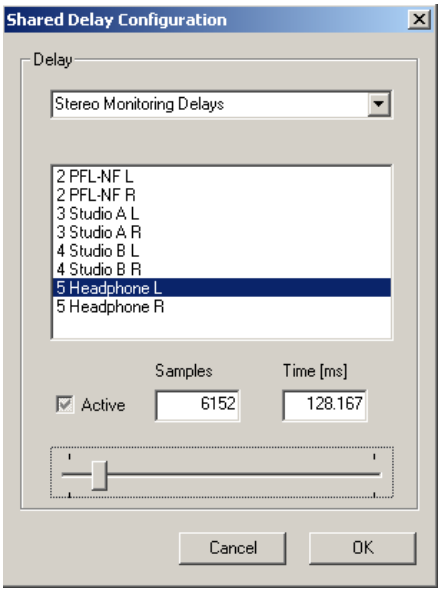
- By *keeping the left trackball button pressed* while dragging the pointer across a region in the General Patch view, multiple connections can be selected now.
- Once the (multiple) selection has been made as shown in the picture below, a *right-click* opens a selection window; when Auto is selected, any desired number of patch points can be connected at the same time.
- A *double-click* on a patch point allows either connecting or disconnecting this patch point *immediately*.



F MONITORING DELAYS

The settings of the Stereo and Multi-format Monitoring Delays (for control room, PFL, headphones etc.) can now be made in the same dialog window where the 'Shared Delay' processes are set.





In addition, the shared delays are no more saved in snapshots, but are valid for the whole title. The monitoring delays, however, remain identical throughout all titles (if desired), they are still saved in the monXxx.ini file.

G CONFIGURATION EDITOR

G.1 Optimized Stereo Channels

In the latest version of the Config Editor that is also part of this SW release, the load balancing process handling the stereo channels has been improved.
Therefore if existing configs containing stereo channels are recompiled, resources can be set free, then being available for other purposes, such as increased channel count, etc...

G.2 Vintage Dynamics at 96 kHz

The Vintage Dynamics processing module introduced with SW 4.0 is now also available for configurations with a sampling rate of 96 kHz.

G.3 New 'Upmix' Panner Version

The Upmix panner in stereo channels also introduced with SW 4.0 now uses an improved panning law, where the 'spreading' of the stereo signal to a surround signal is optimized.

Note: Please refer to chapter J 'Improvements and Fixed Bugs' below, where bug fixes relating to the configuration editor are listed.

H CHANGES

H.1 Configuration Change

When a configuration is changed – either by changing a title or manually – since SW V4.1 the Vista application automatically gets restarted. This is required in order to have the configured I/O system initialized properly, so that it is available for other systems within the RELINK network immediately.

H.2 Modified Vistonics™ Mic Ctrl View

Due to the microphone take-over mechanism for the RELINK functionality, the layout of the Vistonics™ mic control view has changed.
For details please refer to chapter A.3.

H.3 Improved AUX Send Level Resolution

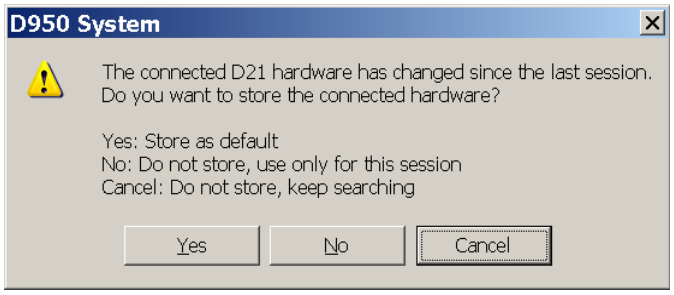
Several users reported that the AUX send level resolution is too coarse; the resolution of the level-type Vistonics™ elements has been increased around the 0 dB region.

Note: No more excuses now for bad monitor mixes! ☺

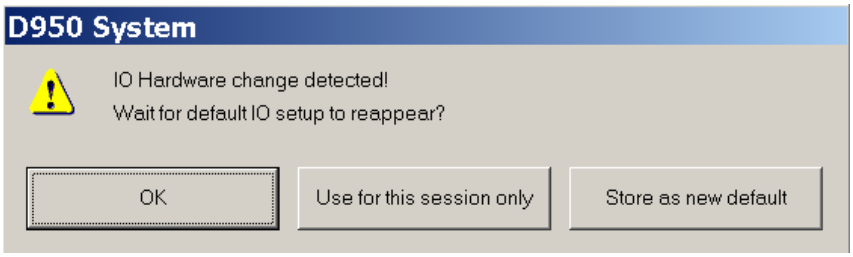
H.4 D21m Dialog

A new version of the notorious dialog window reporting a change in the I/O setup has been introduced with SW 4.1:

Earlier Version:



Current Version:



So the ‘OK’ button has the same function now as the ‘Cancel’ button had before – this should make the operation somewhat easier to understand.

H.5 Automated ‘title.ini’ File Backup

In case of a corrupted title.ini file, up to now the affected title could no more be loaded through the normal application load mechanism. Now a backup file of the title.ini is created automatically that enables opening the title under any circumstances.

I CHANGED FILES

Some changes in the following *.ini files are also part of the SW release V4.1.
These files must be installed on your system in order to allow for the new functionality and improvements.
For more details, please refer to the 'Installation Notes' paper.

Signalling.ini
Introduction of simplified signaling logic:
'Option Channel Mute' logic simplified and automated reset to previous value

D950System.ini
RELINK enabling added
DAW port definition added

J IMPROVEMENTS AND FIXED BUGS

Description	Comment
VSP 'User' mode microphone settings not working	fixed
System instability on loading Strip Setup while in channel view on Control Bay	fixed
System instability while using Contribution view and 'View follow PFL/Solo'	fixed
Wrong message text on restoring a backup with already existing session configuration	The wrong message 'A non identical session configuration..' is now corrected to: 'An identical session configuration ..'
Global snapshots were sometimes not recalled correctly after changing titles	fixed
Vista 5 and Vista 5 SR only	
Fixed producer level setting missing in Vista5 mon template	Fixed with new Mon.ini template file
SCore Live	
Stereo Channels with Upmix panner are unable to be assigned to Multitrack Enh. Busses.	fixed
Vintage Dynamics: Makeup Gain doesn't work when SC link is on	fixed