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A BELDEN BRAND

SMP2

System Management Portfolio 2.0

PRODUCT MANUAL

Revision C, February 2020

SMP Software
SMP Appliance
SMP Module
SMP Client

Thinklogical, A **BELDEN** BRAND • 100 Washington Street • Milford, Connecticut 06460 U.S.A.

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Subject: System Management Portfolio 2.0 Product Manual
Revision: C, February 2020

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PREFACE

About Thinklogical A BELDEN BRAND

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Thinklogical, A BELDEN BRAND
100 Washington St.
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Thinklogical, a Belden brand, is the leading manufacturer and provider of fiber-optic and CATx video, KVM, audio, and peripheral extension and switching solutions used in video-rich, big-data computing environments.

Thinklogical offers the only fiber-optic KVM Matrix Switches in the world that are accredited to the Common Criteria EAL4, TEMPEST SDIP 24 Level B, and NATO NIAPC Evaluation Scheme: GREEN and the U.S. DoD DISA JITC UCR 2013 APL information assurance standards. And Thinklogical Velocity products are the first system with both KVM and video matrix switching capabilities to be placed on the Unified Capabilities Approved Product List (UC APL) under the Video Distribution System (VDS) category.

Thinklogical products are designed and manufactured in the USA and are certified to the ISO 9001:2015 standard.

CERTIFIED ISO 9001:2015 COMPANY | Common Criteria | TEMPEST | NATO Information Assurance Product Catalogue NIAPC

Thinklogical is headquartered in Milford, Connecticut and is owned by Belden, Inc., St. Louis, MO (http://www.belden.com). For more information about Thinklogical products and services, please visit https://www.thinklogical.com.

Note and Warning Symbols

Throughout this document, you will notice certain symbols that bring your attention to important information. These are **Notes** and **Warnings**. Examples are shown below.

Note: Important Notes appear in blue text preceded by a yellow exclamation point symbol, as shown here.

A **note** is meant to call the reader's attention to **helpful** information at a point in the text that is relevant to the subject being discussed.

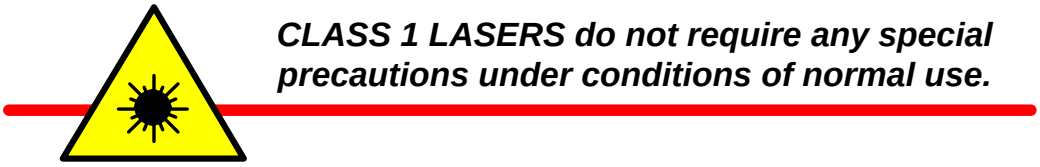
Warning! All Warnings appear in red text, followed by blue text, and preceded by a red stop sign, as shown here.

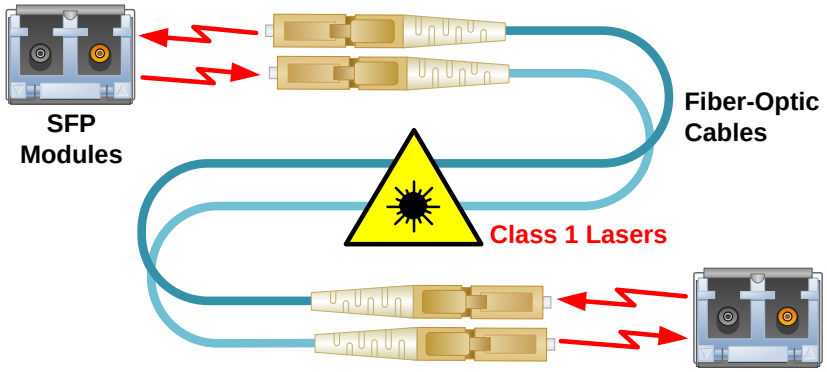
A **warning** is meant to call the reader's attention to **critical** information at a point in the text that is relevant to the subject being discussed.

READ THE INSTRUCTIONS THOROUGHLY BEFORE STARTING ANY PROCEDURE!

Class 1 Laser Information

Thinklogical® products are designed and identified as **Class 1 LASER products.** This means the maximum permissible exposure (MPE) cannot be exceeded when viewing the laser with the naked eye or with the aid of typical magnifying optics (e.g. telescope or microscope).





Scope

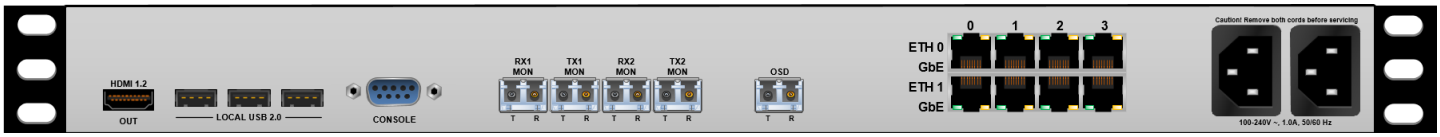
This document describes the functionality of ***Thinklogical's® System Management Portfolio 2.0***, also known as *SMP2*, a managed configuration and control system for Thinklogical's VX, MX and TLX line of Matrix Switches. (*See note, below*.)

Introduction

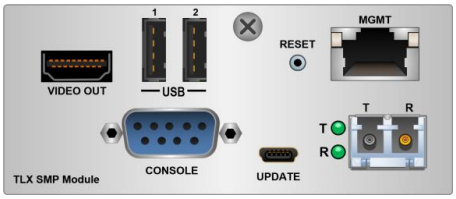
Thinklogical's® System Management Portfolio 2.0, or SMP2, includes the four components below, available in 6G** (VX) **and 10G** (TLX) **and in Multi-mode and Single-mode varieties:

▪ **SMP2 Software:** Matrix Switch-control application that runs on the *SMP Appliance* and the *SMP Module. (pg. 8)*

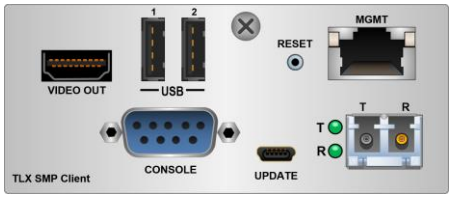
▪ **The SMP Appliance** is a 19" rack-mount unit that runs *Debian Linux* software. Like the *SMP Module,* it communicates with the *Matrix Switch* and other components to control system operation, but also features two *Ethernet hubs* and monitoring connections to the *Matrix Switch* and an *OSD (On Screen Display)* port *(pg. 9).* The *SMP Appliance* also supports *Overlay (pg. 46).*



▪ **The SMP Module** runs *Debian Linux* software. It communicates with the *Matrix Switch* and other components to control system operation. *(pg. 12)*



▪ **The SMP Client** runs *Debian Linux* software and a *Chrome* browser. It provides user-customized *OSD (On Screen Display)* functionality to the user's configuration. *(pg. 12)*

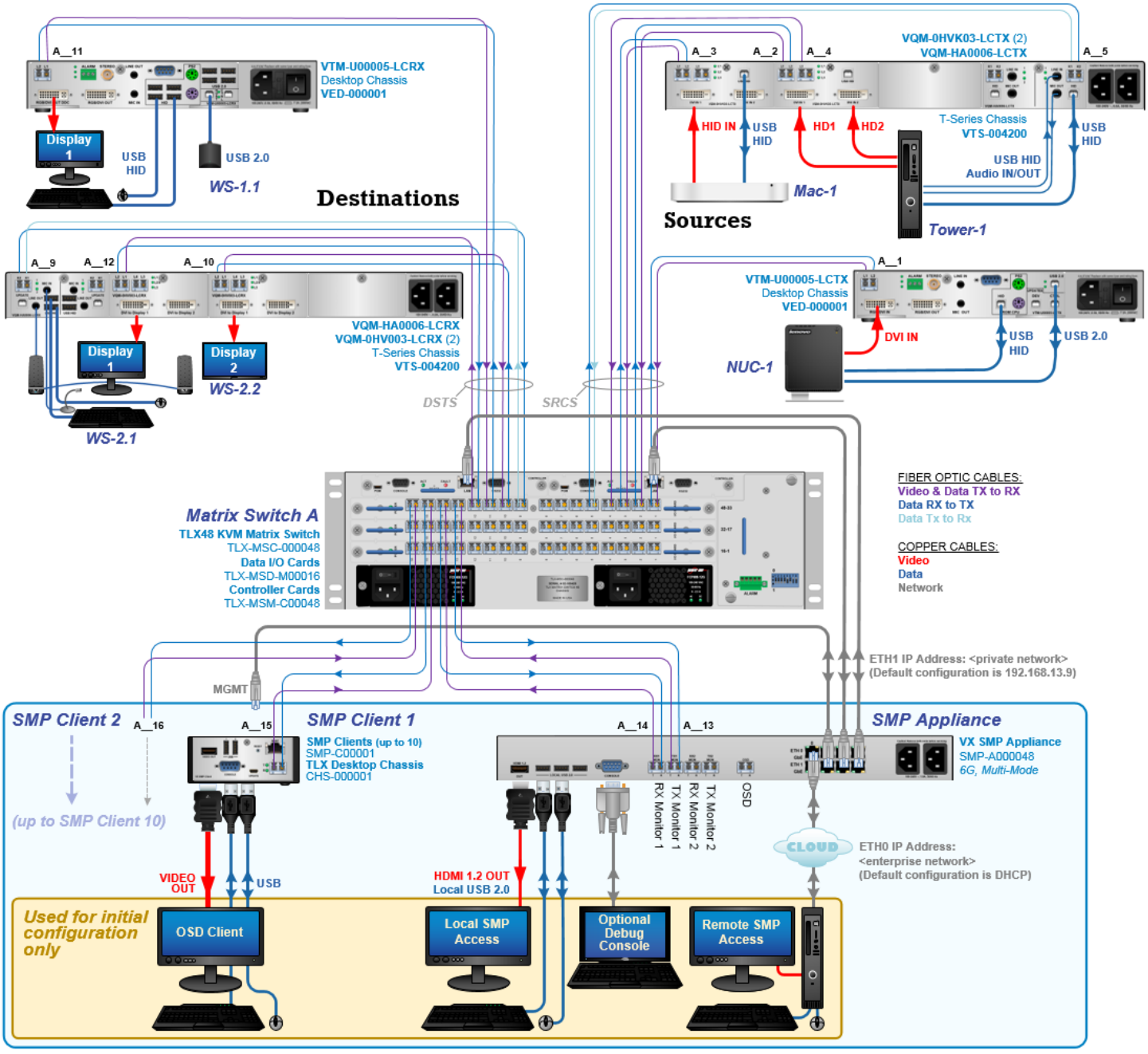


Note: SMP2 is NOT supported on the VX40, VX160 or VX320 Matrix Switches due to hardware restrictions.

Cable Connection Diagram

*Depicted below is a simple, but typical 6G system with **four Sources** (NUC-1, Mac-1 and Tower-1 HD1 & HD2), **three Destinations** (WS-1.1, WS-2.1 and WS-2.2), **TX Mon1** and **RX Mon1** from the SMP2 Appliance, through **Matrix Switch A** (TLX48), all of which are managed by the **SMP Appliance** (below, in blue). Two **SMP Clients** are used for this initial set-up. (Can use up to ten.)*

This is the configuration that is referenced in most screen-shots and other examples throughout this document.



THE SYSTEM MANAGEMENT PORTFOLIO 2.0

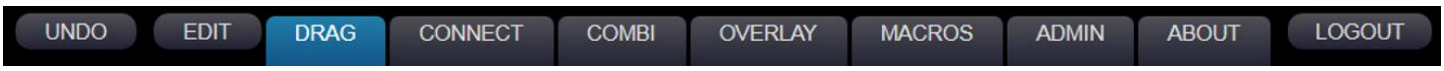
▪ The SMP2 Software Package

Thinklogical's *System Management Portfolio 2.0* includes a specialized software package that provides powerful remote management and maintenance capabilities, making it easier for users to configure, operate and update Thinklogical signal extension and switching systems of any size.

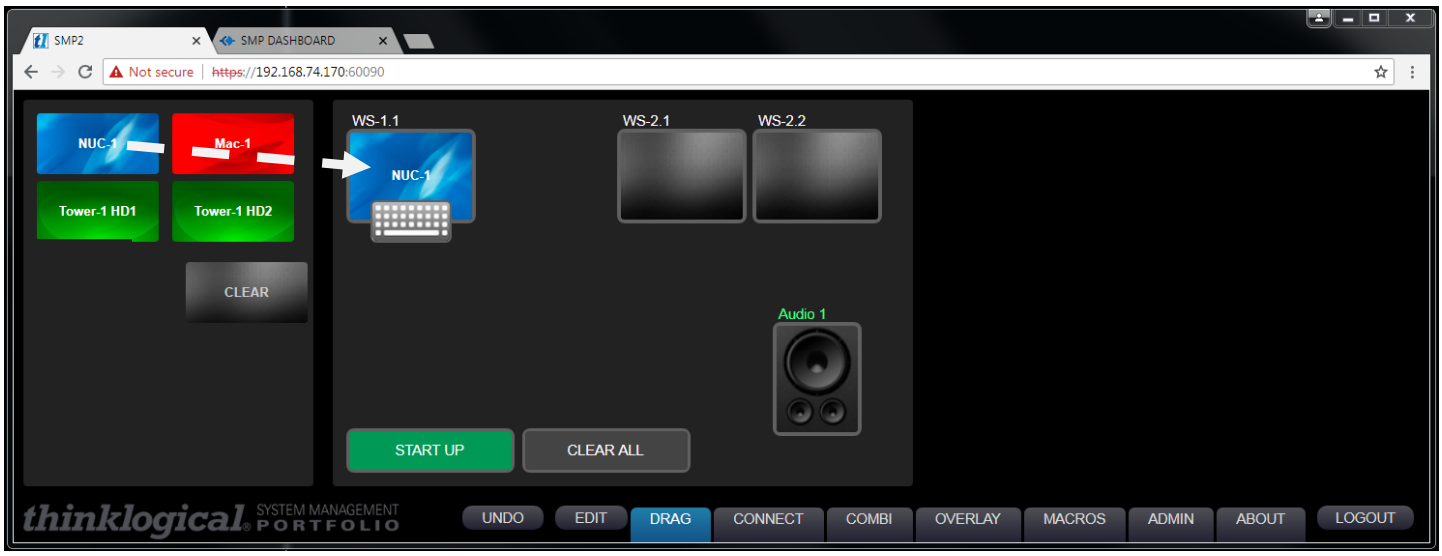
Among the key enhancements of SMP2:

- **The ability of the OSD to recognize the number of connected monitors** (pg. 13)**.**
- **The ability to create Pools** (pg. 37).
- **Configurable security classification levels** (pg. 45).
- **Includes *Dashboard*, a software package used to configure the network interfaces, manage services and to enable and manage redundancy and file synchronization** (pg. 57)**.**

The intuitive graphical user interface enables fast set-up and control of each Matrix Switch (also called a Switch or Router) in the system. Tabs along the bottom of the screen allow users to navigate effortlessly through the **Drag N Drop, Connection** and **Macros** pages.

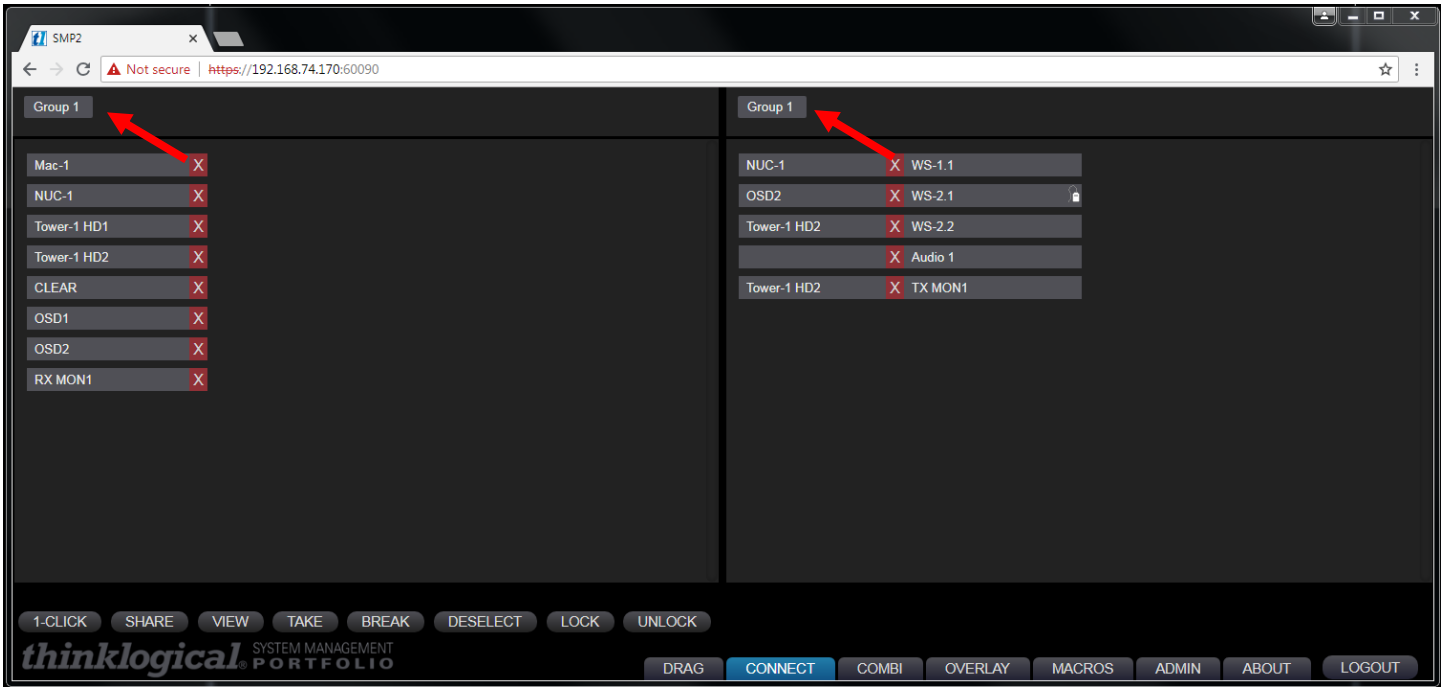


The **Drag N Drop** Graphical User Interface makes it easy for users to visualize their workstations on-screen and switch Sources and Destinations by simply moving an icon. **As room configurations evolve over time, icons representing Sources and Destinations can be added or removed from the layout as required,** making it simple to adapt to changing requirements without moving a single cable or wire. (See more on pg. 52.)



Four Sources (NUC-1, Mac-1 and Tower-1 HD1 and HD2) and three Destinations (WS-1.1, WS-2.1 and WS-2.2) are graphically depicted above in the Drag N Drop GUI, with Sources on the left, Destinations on the right, plus one Audio Output and two Macros (START UP and CLEAR ALL). Connections can be made or changed simply by clicking on an icon and dragging it to a desired location. Macros can be executed, or cleared, with a single click.

The same Sources and Destinations in the Drag N Drop GUI are also displayed on the **Connect** and **Combi** pages. These can be divided into **named sub-sets** that appear in the tabs along the top. This is useful for larger systems with many sources and destinations.



The remainder of this document will use screen shots, diagrams and text to describe in detail each of the hardware components and the on-screen tabs and windows that make up the System Management Portfolio 2.0 and how they can be used to manage Thinklogical deployments of any size.

▪ The SMP Appliance

The SMP Appliance, a major hardware component of the SMP2, is a system wide, non-intrusive monitoring and control device connected to a Thinklogical Matrix Switch serving both 10G (TLX) and 6G (VX) extenders and the connections between them. The SMP Appliance incorporates a core processor that runs System Management Portfolio 2.0. (See the *Cable Connection Diagram*, pg. 7.)

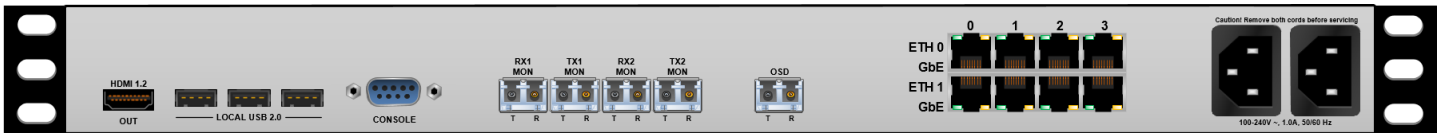
- **Collects system health and status information from all VelocityKVM and TLX equipment.** Can also set selective firmware updates to any remotely upgradeable Thinklogical modules.
- **The SMP Appliance is a stand-alone, rack mountable unit** in a 14.07” D x 17.49” W x 1.72” H chassis with four software-controlled cooling fans. There are no other externally-pluggable modules.
- **Can be used with a Matrix Switch of mixed rate Input/Output Cards** (i.e. both 10G and 6G), however, the MON and the OSD I/O ports are hardware configured as either 6G or 10G.
- **Has download capabilities for Thinklogical Firmware updates.** This includes the ability to send Firmware updates to any connected, upgradable Thinklogical module endpoint.

THE FRONT PANEL

SMP Appliance, front panel (see *Part Numbers*, *Appendix A*, pg. 65)

- **LCD and navigation buttons** for device configuration and download.
- **USB-mini B connector** for Thinklogical firmware updates**.**
- **Dual redundant hot-swappable, load-sharing 120W power supplies,** replaceable from the front panel.

THE REAR PANEL

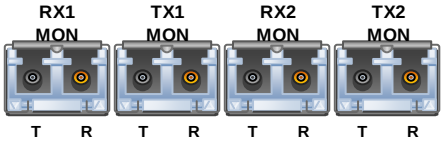


SMP Appliance back panel

- The Appliance can be viewed and controlled locally via an **HDMI 1.2 video Port** and either of three **USB 2.0 Ports** (keyboard, mouse and download).

- **The DB9 Serial Console Port** connects directly to the processor and can be used for software debug.

- **Monitoring ports for Dashboard and Overlay.** *For MON functions only and not required for other operations.* SFP ports are LC-type.

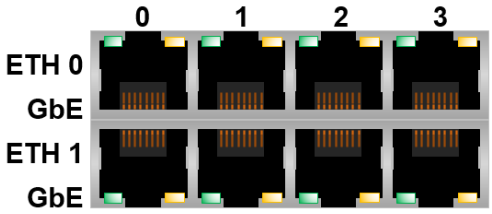


- The **OSD** provides a fiber-optic output that can be routed to any KVM extender. The OSD port provides access to the unit's desktop. *Used for initial set-up and installation*. *Thinklogical recommends NOT connecting the OSD to the Matrix Switch during normal operation*.

- **The SMP Appliance provides two separate internal 10/100/1000 gigabit Ethernet interfaces:**

  Eth0 is used for connecting to a site's enterprise network.

  Eth1 is reserved for a "private" LAN, which includes the Matrix Switches' Controller Cards. RJ-45 connector LEDs indicate the mode of operation (**1G orange, 100M green, or 10M yellow**) with blinking as an indication of activity.



- **SMP2 Eth1** default IP address *192.168.13.9**:60090**)*
- **DASHBOARD Eth1** default IP address *192.168.13.9**:**60083*

Navigating the SMP Appliance Front Panel LCD

Main Menu – The date and time is read from the Linux kernel. Change the date and time via the Linux command line.

Reboot/Poweroff – Use this function prior to unit power-down. This may also be done from a terminal session on the SMP2.

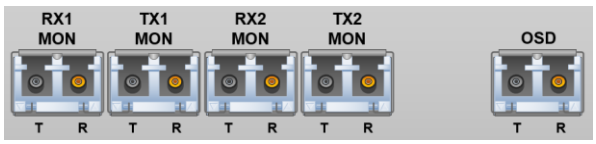
Program Network – Allows the Ethernet address parameters of Eth0 to be changed at the front panel. This may also be done from the SMP2 *Dashboard* browser page.

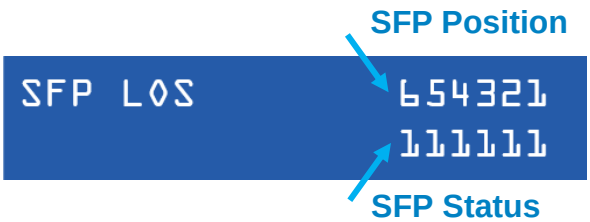
View Network - Allows viewing of the Ethernet address parameters of Eth0. This is useful if the IP address of Eth0 is unknown (changed from the default).

View System – Allows various system parameters to be viewed, including:

- **`smp-appl-release`** – The version of the Linux machine Appliance software that the SMP runs on.
- **`FPGA`** – The release of the FPGA software where **`2.x.xx`** is for 6Gb units and **`3.x.xx`** is for 10 Gb units.
- **`Serial Number`** – Serial number of the SMP2 Appliance.
- **`SFP LOS`** – SFP loss of signal where **`"1"`** indicates the loss of signal (see SFP table below).
- **`SFP DES OK`** – Indicates a valid connection to a destination such as a receiver or switch where **`"1"`** is a valid connection.
- **`PS1 IN OK  PS2 IN OK`** – Shows the power supply status where PS1 is near the power cord and PS2 is near the LCD panel. **`IN = "1"`** means the power supply is installed and **`OK = "1"`** shows it is operating and supplying power.
- **`Fan Alarm`** – The status of the four internal fans where **`"1"`** is an alarm condition.
- **`Temperature`** – Where **`imx`** is the processor temperature and **`FPGA`** is the FPGA chip temperature.
- **`Exit to Main Menu`** – Hit [**enter**] to return to the home menu level.

SFP Table –

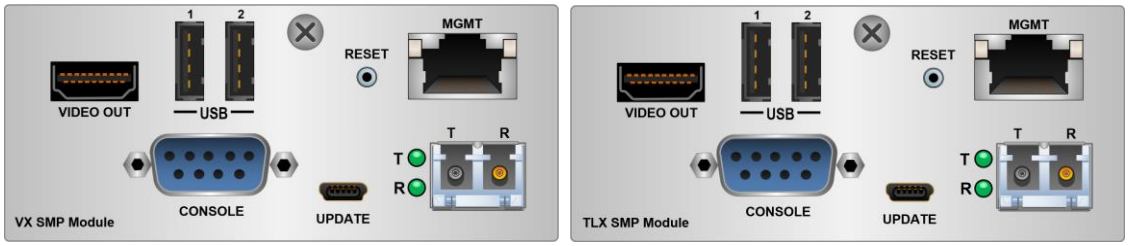




Note: These ports must be configured in the SMP2 to enable them.

▪ The SMP Module

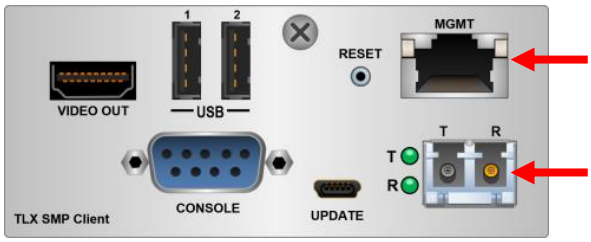
The SMP Module runs *Debian Linux* software. Like the *SMP Appliance,* it is available in 6G (VX) or 10G (TLX) and Multi-Mode or Single-Mode configurations and communicates with the *Matrix Switch* and other components to control system operation. The *SMP Module* has one Ethernet interface.



▪ The SMP Client

The SMP Client is a convenient way for users to remotely connect a workstation, or multiple workstations, to any of the sources assigned to a desk by the administrator. An SMP Client is required for OSD functions. The OSD must be configured in the *Sources Tab*. The URL must be correct and *Users*, *Tags* and *Hot Keys* must be filled in.

- Requires an **SMP Client** connected to the system with an Ethernet cable and a pair of fiber-optic cables.



- The **Out Of Band** (OOB) feature on the Rx Extender must be ON. (See *Appendix D*, pg. 67.)

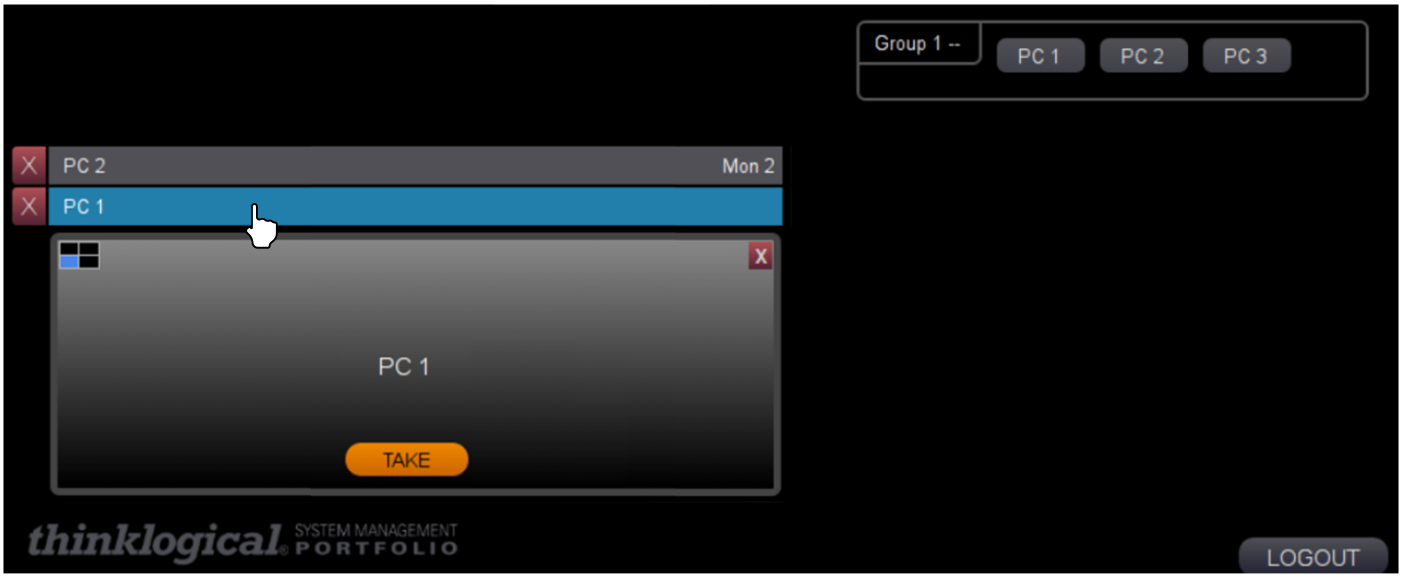
  Press **Scroll Lock** twice:

Note: Double Scroll-Lock is the default Hotkey configuration for the OSD. A different Hotkey may be programmed if desired.

1. A screen will appear with the assigned **source options to the right** (PCs 1-3 in this example).

2. Click on the desired sources to allocate them to a desk, and a bar for each source will appear above the OSD1 (**O**n **S**creen **D**isplay) window (PCs 1 and 2 in this example).

3. Note that, at the right end of the PC 2 bar, Monitor 2 appears, indicating that it is already connected. By clicking on PC 1, the bar becomes highlighted. In the window, OSD1 changes to PC 1 and the TAKE button appears.



4. Click on the TAKE button. PC 1 is now assigned to Monitor 1 and PC 2 remains assigned to Monitor 2. Clicking the X to the left will delete that selection.

The SMP Client supports up to four monitors per desk. A box in the upper-left indicates the relative position of each one with a shaded quadrant. In this case, there is one monitor, so only one quadrant is shaded.

Connecting Multiple SMP Clients to the System

In larger deployments it may be desirable to use multiple SMP Clients to allow several users access to the system simultaneously. Up to 10 SMP Clients can be supported in a single system. This is known as an "OSD Pool" in that if an OSD is in use, the system will deliver the next available OSD at a user's request. OSD Pooling requires each SMP Client Module to be configured separately.

OSD Pooling:

1. Add the SMP Clients (up to 10) to the *Sources* tab in the SMP configuration as `OSD1, OSD2, OSD3`, etc.
2. Configure each SMP Client with a unique IP address:
   - Connect a keyboard, monitor and mouse and power up the unit.
   - After booting, a browser page will display. Enter https://localhost:60083 to open the *Dashboard* application.
   - Enter **`admin`** for *username* and **`admin`** for *password*.
   - The *IP Config* page will appear. Enter the desired IP address.

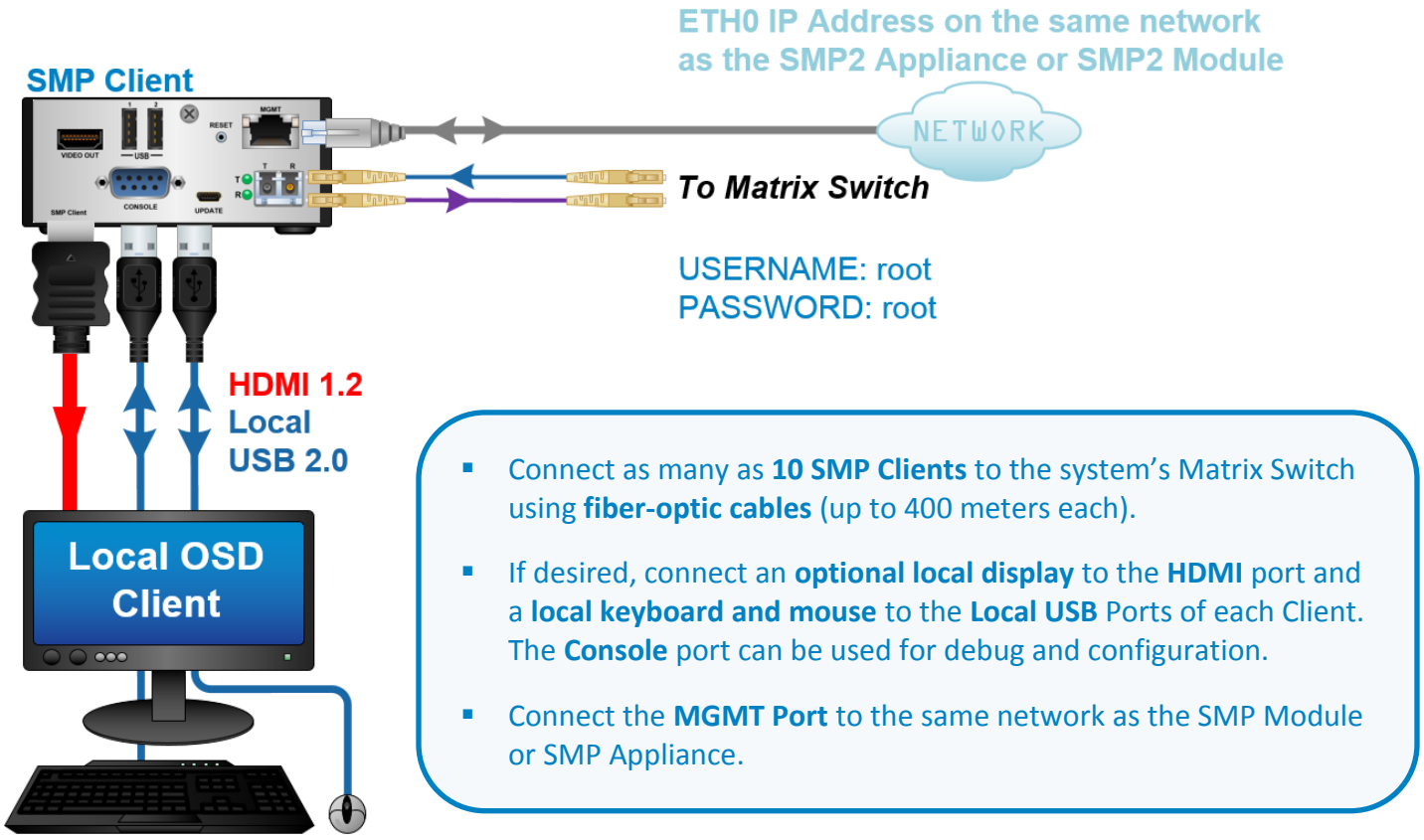
Warning! Avoid IP addresses that are already in use. For example, the default addresses for a matrix switch are **192.168.13.15** and **192.168.13.16.** The default address for the SMP Module or SMP Appliance is **192.168.13.9.**

3. Edit the `osd.desktop` file located in the `/home/user/.config/autostart` directory.

   The first SMP Client will contain the URL:
   https://192.168.13.9:60090/osd.html?sname=OSD1.

   The second SMP Client will contain the URL:
   https://192.168.13.9:60090/osd.html?sname=OSD2, then **...**=OSD3, etc.

These examples are for an SMP2 Appliance or Module with a default IP address of 192.168.13.9. Your configuration may vary.



- Connect as many as **10 SMP Clients** to the system's Matrix Switch using **fiber-optic cables** (up to 400 meters each).
- If desired, connect an **optional local display** to the **HDMI** port and a **local keyboard and mouse** to the **Local USB** Ports of each Client. The **Console** port can be used for debug and configuration.
- Connect the **MGMT Port** to the same network as the SMP Module or SMP Appliance.

SMP Client Kiosk Mode

Note: The SMP Client must run its browser in Kiosk Mode to be accessible to the system.

SMP Client Default Autostart File

SMP Client modules have a default autostart file in the following location:
`/home/user/.config/autostart/osd.desktop`

This file enables the OSD to power-up to the Chromium browser in Kiosk Mode with the following url:
https://192.168.13.9:60090/osd.html?sname=OSD1

`osd.desktop` file contents:

```
[Desktop Entry]
Encoding=UTF-8
Version=0.9.4
Type=Application
Name=osd
Comment=Launch browser for OSD
Exec=/usr/bin/chromium-browser --kiosk https://192.168.13.9:60090/osd.html?sname=OSD1
OnlyShowIn=XFCE;
StartupNotify=false
Terminal=false
Hidden=false
```

The Launcher

The SMP Client Linux desktop features an *OSD Client Restart* icon, also known as "The Launcher," that will bring the unit up in the normal OSD Kiosk Mode that is required for use by the system. The launcher can be used to bring the browser up in Kiosk Mode and avoid having to reboot the unit. If a user changes the IP address of the SMP Appliance or SMP Module, or the name of the SMP Client Module, then the new IP address and/or name must be configured in the launcher.

Automatically Restore the Kiosk Browser

Since the SMP Client is a Linux computer with a Chrome browser, a user might accidentally or intentionally close that browser to access the Linux desktop. This is a potential security vulnerability and will also make it unusable for the next user. To prevent this, the SMP Client can be configured to restore the kiosk browser automatically if it is closed:

This procedure is recommended for experienced administrators only.

1) Log into the SMP Client as **`user`**.
2) Create the directory **`/home/osd/bin`**.
3) Create and copy the file **`launchchrome`** into this directory.
4) Edit the IP address and module name in the **`launchchrome`** file if necessary.
5) Run the command: **`chmod 777 launchchrome`** to make the file executable.
6) On the desktop, go to *Applications/Settings/Session* and *Startup*.
7) At *Session* and *Startup*, choose the *Application Autostart* tab.
8) Select the *osd* application and click *Edit*.
9) Edit the command line to read: **`/home/osd/bin/launchchrome`**
10) Reboot the SMP Client Module and the OSD will come up normally.
11) Verify this new configuration by calling up the OSD at a console and then hitting <alt+F4> which will close the browser and show the desktop. After ~9 seconds the browser will return in Kiosk Mode.

Contents of launchchrome:

```
#!/bin/bash
while true
do
    /usr/bin/chromium-browser --kiosk https://192.168.13.9:60090/osd.html?sname=OSD1
Done
```

Note: To *undo* this modification, log into the SMP Client through the Console Port.

Navigating the SMP Module and SMP Client Front Panel LCD

Main Menu SMP_MC06

#Network Parameters

- Static IP Addr	IP = 000.000.000.000
- Static Subnet Mask	Subnet = 255.255.255.000
- Static Gateway Addr	GW = 000.000.000.000
- DHCP Mode	DHCP = DISABLED

#System Parameters

- Card Type	Type = 0xFD
-FPGA Rev.	Rev = 0001.00.04
- Software Rev.	Rev = 6
-Serial Number	S/N = 10-190212
- FPGA Temp. in C	39
- Board temp. in C	38
- Low Speed connected	No
- Local Ctrl Name	Name = OSD-01
-Remote Ctrl. Name	Name = Not Found
-Load Factory Defaults	Yes/No = No

#SFP1 Parameters

- SFP1 Vendor	Mfg = FINISAR CORP
- SFP1 Part Number	P/N = FTLF8528P3BNV
- SFP1 Wavelength	WL = 850
- SFP1 TX Power	TX Power = 0.467mW
-SFP1 RX Power	RX Power = 0.002mW
-SFP1 TX Bias	Bias = 7.318uA

#Alarms

- SFP1 Loss Of Signal	On
- Chassis Error	Off
- System Reboot	Off
- Configuration Changed	Off
- Remote Heartbeat Lost	On
- High Temperature Alarm	Off
- Clear Alarms	No

SMP Appliance Technical Specifications

PHYSICAL	*(See Appendix A on pg. 65 for part numbers)*
Rack-Mountable Chassis Dimensions	Rack Size: **EIA 19" (482.6 mm)** Depth: **14.00" (355.6 mm)** Width: **17.47" (443.8 mm)** Height: **1.72" (43.7 mm)** Weight: **9.5 lbs. (4.32 kg)** Shipping Weight: **18 lbs. (8.2 kg)**
Interfaces	Front Panel: **1 USB-mini** *Firmware Updates* **2 LEDs** *Power Indicators* **1 LCD/Nav. Buttons** *System Menu Navigation* Rear Panel: **1 HDMI-A** *Local Monitor* **3 USB-A** *Local Keyboard/Mouse/Firmware* **1 DB-9** *Console Port* **(5) SFPs** *Fiber connections to/from Matrix Switch* **8 GbE MagJack** *Gigabit Ethernet* **2 AC IN** *Power*
ELECTRICAL	
Input Rating	100-240VAC, 1.5A, 50-60Hz (current to nearest 0.1A)
Max. DC Power Consumption	80 Watts max. *(Equal to max. output of a single Power Supply.)*

SMP Module/Client Technical Specifications

PHYSICAL	*(See Appendix A on pg. 65 for part numbers)*
Rack-Mountable Chassis Dimensions	Depth: **6.875" (174.6 mm)** Width: **3.693" (93.8 mm)** Height: **1.72" (43.7 mm)** Weight: **.646 lbs. (.293 kg)** Shipping Weight: **2.0 lbs. (.907 kg)**
Interfaces	**1 USB-mini** *Firmware Updates* **1 HDMI-A** *Video Out* **2 USB-A** *Local Keyboard/Mouse/Firmware* **1 DB-9** *Serial Console Port* **1 SFP** *Fiber connections to/from Matrix Switch* **2 LEDs** *Valid-signal Indicators* **1 RJ45** *MGMT* **1 Reset** *Return-to-Default Button*
ELECTRICAL	
Input Rating	100-240VAC, 1.5A, 50-60Hz (current to nearest 0.1A)
Max. DC Power Consumption	20 Watts max. *(Equal to max. output of a single Power Supply.)*

SMP Hardware General Technical Specifications

ENVIRONMENTAL	
Temperature	Operating: **0° to 50°C** (32°F to 122°F) **Ambient** Storage: **-20°C to 70°C** (-4°F to 158°F)
Humidity	Operating: **5% to 95%, non-condensing** Storage: **Unlimited**
Altitude	Operating: **Thinklogical components are rated to 1000m max. elevation. Max. operating temp. de-rates by 3% for every 330m > 1000m** Storage: **Unlimited**
THERMAL	Heat load (BTU/HR): *Equal to DC Power consumption x 3.1412*
REGULATORY	US / Canada EN 90650, FCC 47 CFR Part 15, ICES, CE
WARRANTY	One year from date of shipment. Extended warranties available.

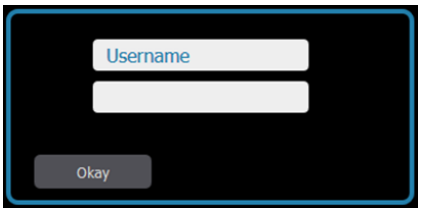
All values are absolute maximum.

BTU = Wattage x 3.1412, rounded up to the next 100.

LOGIN TO SMP2 AS AN ADMINISTRATOR

Note: For SMP2 software release 2.1.70 or greater, a Linux login is required after reboot or power up. Default is *user/user*. This step was added for increased security.

The System Management Portfolio 2.0 is accessed via a web browser from any computer on the same network as its server. The SMP2's port number is **:60090**. Set the browser's URL to your IP address (for example: `https://192.168.13.9:60090`) to load the page. Logins are required by default, so for initial access, the following will be displayed:



*The administrator's default Username and Password are both "**admin**" (This should be changed by the administrator.)*

How to Create or Modify a User or Password

1. Open a terminal window and become the root user by typing **`su`** without a username. The password is **`root`**.
2. Navigate to **`/opt/tl/tools`**
3. Enter **`ls`** to show the contents of the directory.
4. Use the **`cat`** command to view the file **`userpwd_README.txt`**. Follow the instructions that appear:

```
root@smp-appl:/opt/tl/tools#
root@smp-appl:/opt/tl/tools# cat userpwd_README.txt
#================================================================================
  userpwd README

Utility to create or update user/password entries in /opt/tl/setup/users.csv

#================================================================================
alex hansen for Thinklogical Inc. All rights reserved.
#================================================================================

This utility is required to generate hashed user passwords without
sending them in plain text across the network.

Users can be created using this utility or the web client ADMIN page.

If there is NO existing entry in users.csv with the username, this utility
will create one which can then be edited with the web client.

If there IS an entry with the username, this utility will set the password

This utility must be run as root or with sudo.

method:  node userpwd.js <username> <password>

As mentioned above, /opt/tl/setup/users.csv is modified by this utility.

#================================================================================
root@smp-appl:/opt/tl/tools#
```

Note: Special characters may be used for passwords if they are configured correctly. When defined with the node command, special characters must be preceded with a \ which is known as the 'literal character'. For example, if your password is to be p@$$w0rd then define it as p\@\$\$w0rd when using the node command above.

TECH NOTES: *Set or Change the Date, Time and Time Zone*

1. Log into the device as **root**.
2. Check the date, time and time zone by issuing a "**date**" command.
3. To change the time zone, issue a "**dpkg-reconfigure tzdata**" command. A menu will appear allowing you to easily update the time zone.
4. To set the date and time, issue the command in the format "date mmddhhmmyy" for month, day, hour, minute, year. For example: "**date 0128162019**" will set the module for January 28, 2019, 4:20PM. This sets the Linux clock. However, this will be lost after repowering the unit.
5. Check the date, time and time zone again to make sure it is correct.
6. Set the permanent hardware clock with the following command: "**hwclock --systohc**". Note there is a space and double hyphen between the parameters. Now when Linux boots it will read the H/W clock correctly.

Warning:
Make sure you double check your date & time setting after configuring it. Accidentally changing the date too far in the past will prevent Linux from booting at all. If this should ever happen, remove and replace the RTC battery to reset the date/time to a known state and then correct it.

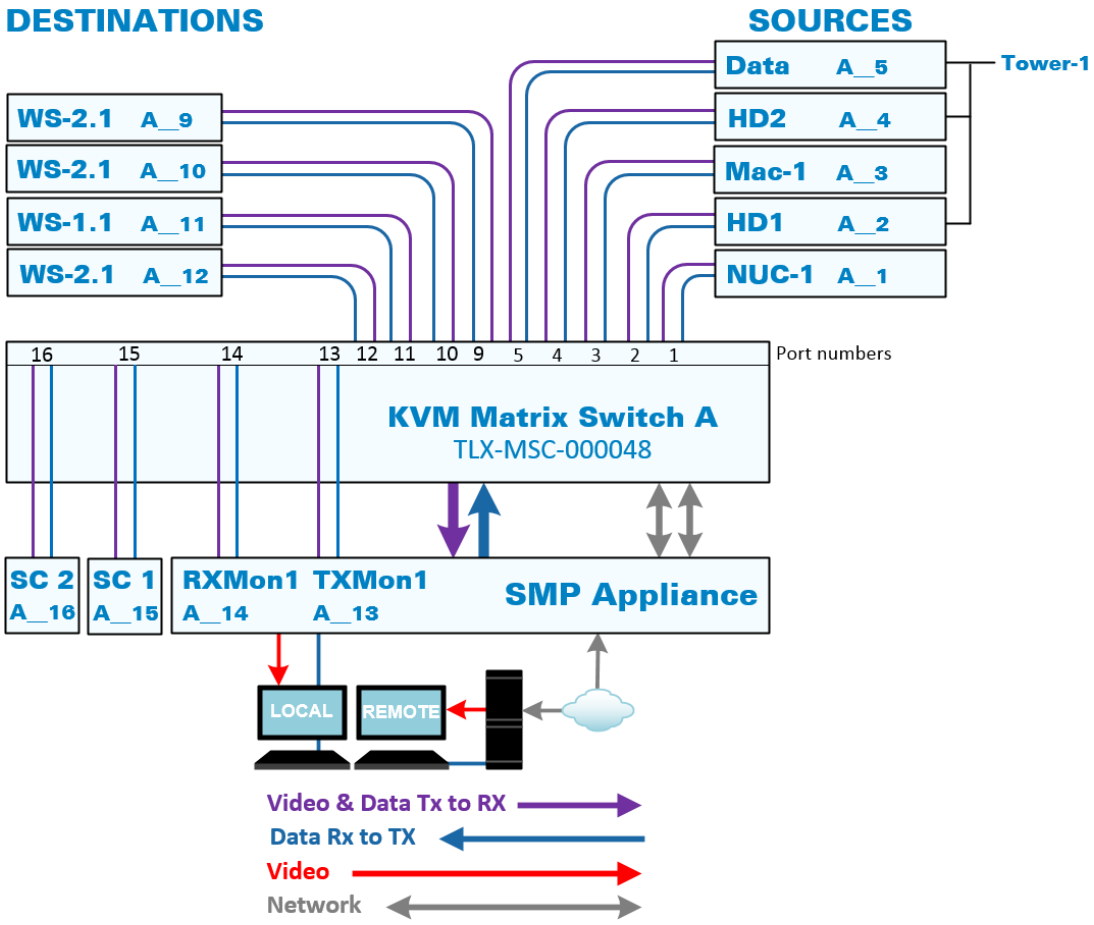
Additional benefit:
Having the clocks set on system devices ensures that the log entries will have accurate timestamps if the system needs troubleshooting and the logs need to be examined.

Please call us for help at any time: 203-647-8700

Warning! The SMP2 Appliance, SMP2 Module and SMP2 Client modules are Linux® based devices and should not be powered off without a controlled shut-down. Prior to powering down, issue a *poweroff* command from a terminal window.

USING SMP2

In the following scenarios we will use a typical, but not overly complicated, Thinklogical deployment with **one Matrix Switch** (also referred to as a *Switch* or *Router*) and **four Sources** (NUC-1, Mac-1, Tower-1 HD1 and HD2 with fiber for a Data module), plus **TX Mon1**, **RX Mon1** from the SMP Appliance and **three Destinations** (one fiber at Work Station-1.1, two fibers at Work Station-2.1 and one fiber at Work Station-2.2), as shown below. **Two SMP Client** modules (SC1 and SC 2) are used for initial configuration only. *This is the configuration represented by most of the screen-shots that follow.*



TECH NOTES: *Initial Set-Up of your thinklogical System Management Portfolio 2.0*

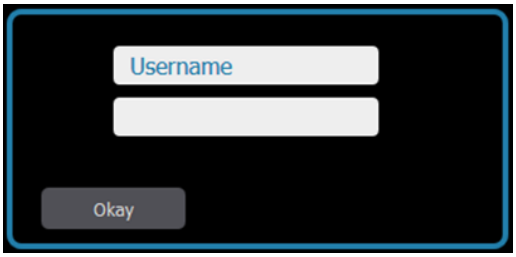
If you're setting up your SMP2 yourself, *thinklogical* recommends that you start "small," especially if your system has dozens, or even hundreds, of sources and destinations.

- You may wish to connect just a few of your sources and destinations to first get a feel for how connections are made and broken and how to name and group sources, destinations and matrix switches.
- As you become more familiar with the system, you can add more extenders, connect multiple matrix switches with tie-lines and create macros to help you better manage and maintain deployments of any size.
- **Please call us for help at any time: 203-647-8700**

When SMP2 opens with administration rights, there will be this selection of tabs along the bottom of the page. Clicking these tabs takes the administrator to the pages used to set-up and manage SMP2.

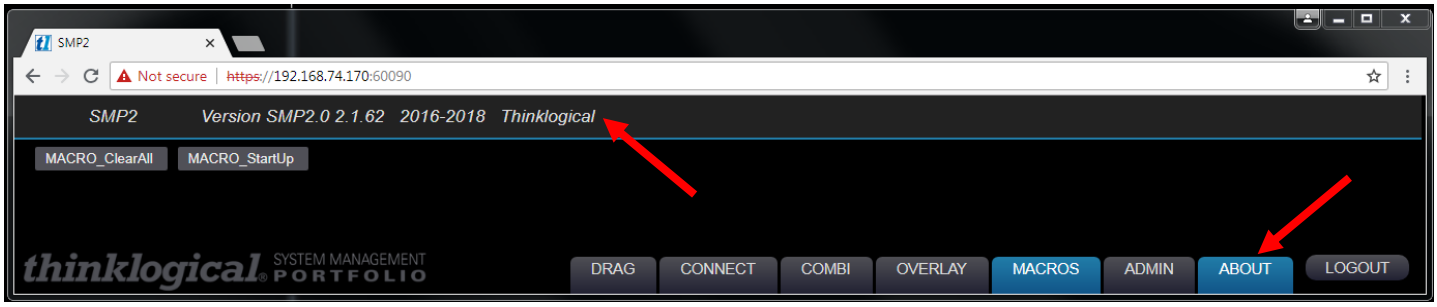
☐ THE LOGOUT TAB

The LOGOUT tab will take the user out of the current session and open a new Login window, where the user can begin a new session under a different log-in.

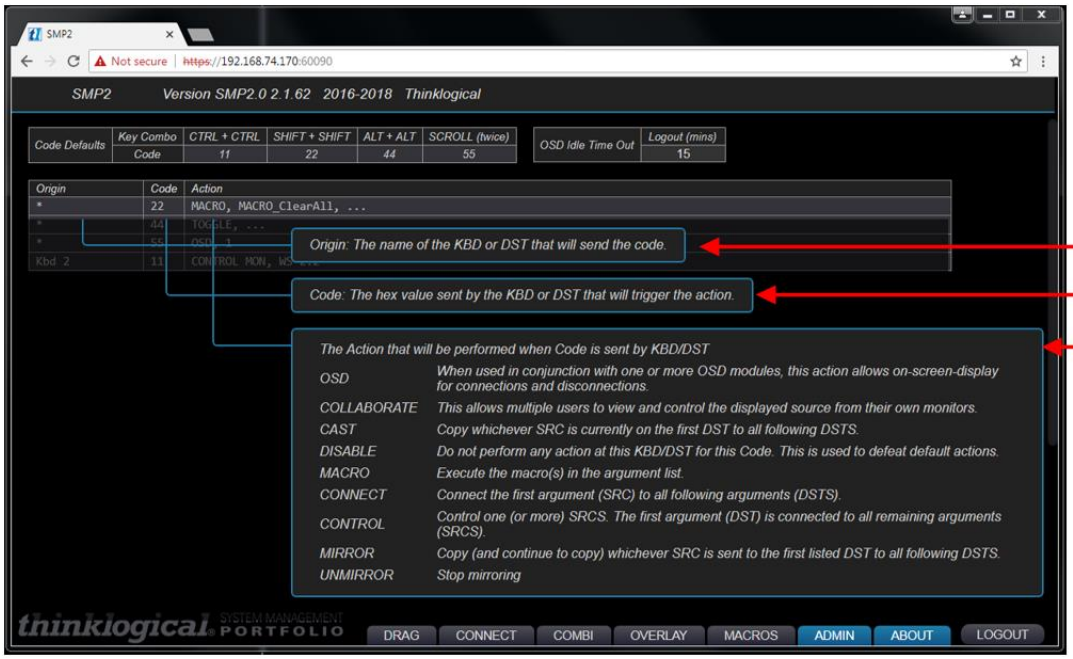


☐ THE ABOUT TAB

When clicked from any window, the ABOUT tab displays the installed version of SMP2 along the top of the page.

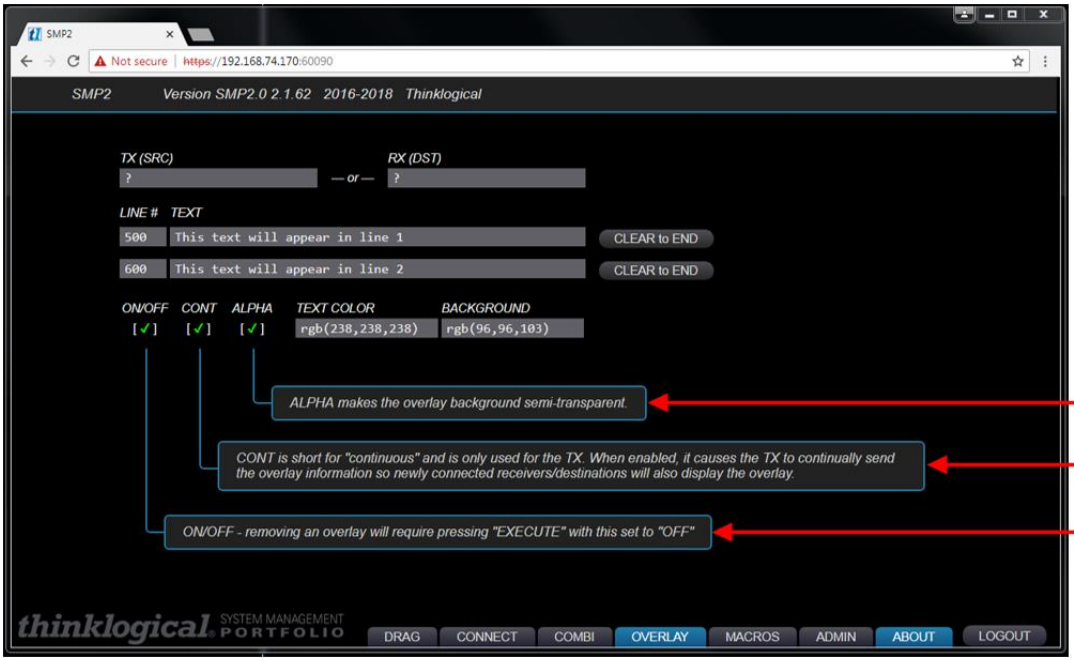


Additional ABOUT information is displayed in the ADMIN tab, with HOT KEYS selected (below).



Selecting **ABOUT**, while in the **ADMIN** Tab, with **HOT KEYS** selected, shows a description for each of the Hot Key fields that require an input.

The OVERLAY tab also displays additional information when the ABOUT tab is selected.

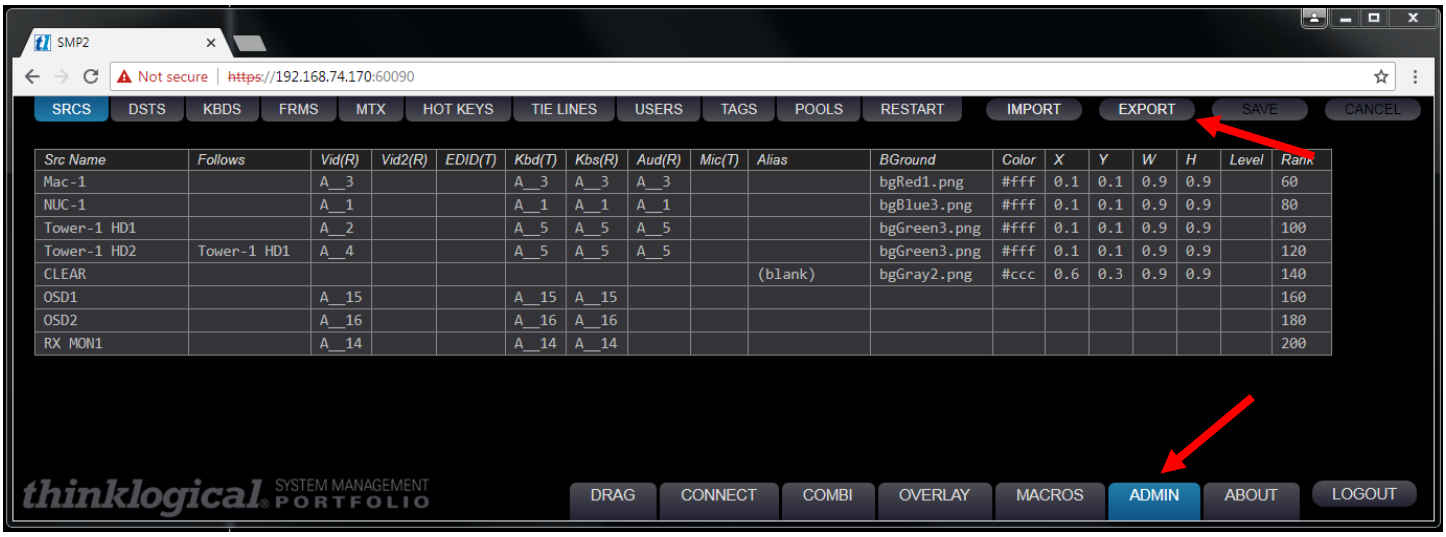


Selecting **ABOUT**, while in the **OVERLAY** Tab, shows a description for each of the selectable Overlay fields.

The ABOUT tab is continually evolving to better serve customers' changing needs and demands, so expect to see occasional additions or modifications to the helpful information on a variety of tabs.

☐ THE ADMIN (Administration) TAB

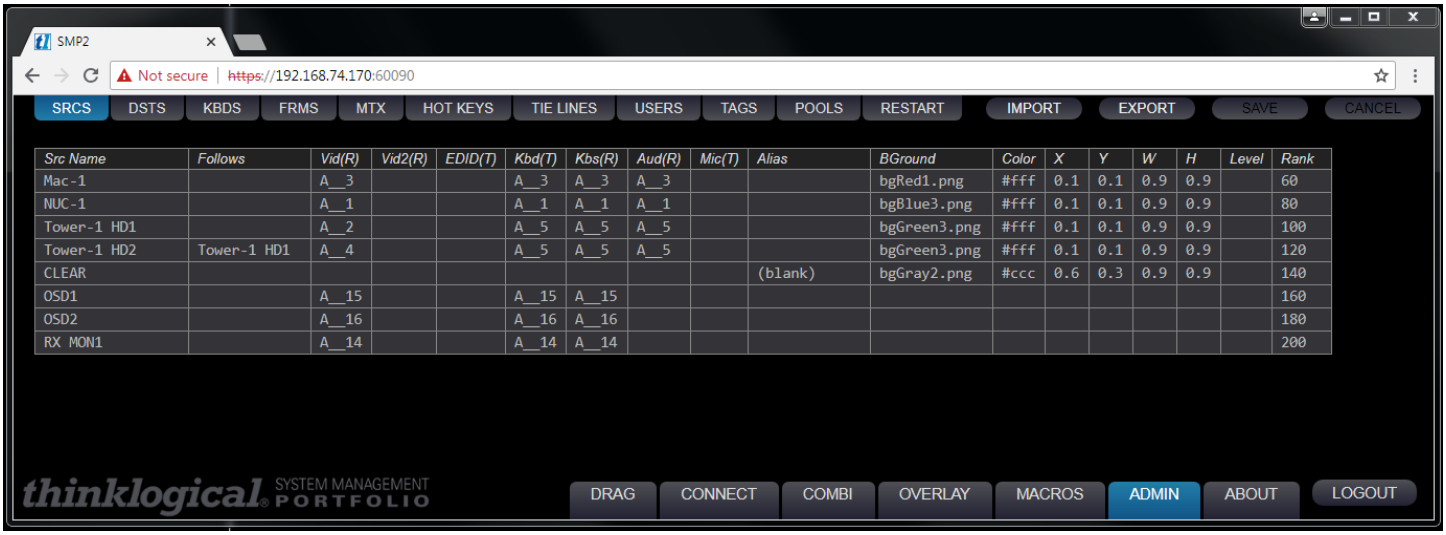
The ADMIN tab is only available to an administrator logged in as *admin* and is used to configure the SMP2 workstation environment. Most users will not see this tab. There are thirteen tabs along the top of the ADMIN page, each with a separate function. Each function is discussed below.



Warning! • Source names, Destination names and KBDS names must be unique and must not match. • Certain names are reserved for system functions and should not be used for site-specific Source and Destination names. These include: CLEAR, RX MON1, RX MON2, TX MON1, TX MON2, Src Name, Dst Name, or any other column header name.

The SRCS (Sources) Tab

SRCS is the primary mode for adding and deleting Sources to and from the system. Note that the SRCS Tab lists the **four Sources** (NUC-1, Mac-1, Tower-1 HD1 and HD2), two **OSD**s and **RX MON1** to the left. The Source names indicate the Matrix Switch (A) and Source number. In the next column is the Switch name, a double underscore and a Port Number, indicating the Fiber-optic cable connection points on each Switch. **The naming convention for Vid and Kb connections is *Switch Name-underscore-underscore-Port Number***, as in *A__1,* for example. The *double underscore* is a separator between the Switch name (which, in some cases, may contain its own underscore) and the Port Number. ***Double underscore*** *is not allowed for anything but* ***port numbers****.*



Src Name	Follows	Vid(R)	Vid2(R)	EDID(T)	Kbd(T)	Kbs(R)	Aud(R)	Mic(T)	Alias	BGround	Color	X	Y	W	H	Level	Rank
Mac-1		A__3			A__3	A__3	A__3			bgRed1.png	#fff	0.1	0.1	0.9	0.9		60
NUC-1		A__1			A__1	A__1	A__1			bgBlue3.png	#fff	0.1	0.1	0.9	0.9		80
Tower-1 HD1		A__2			A__5	A__5	A__5			bgGreen3.png	#fff	0.1	0.1	0.9	0.9		100
Tower-1 HD2	Tower-1 HD1	A__4			A__5	A__5	A__5			bgGreen3.png	#fff	0.1	0.1	0.9	0.9		120
CLEAR									(blank)	bgGray2.png	#ccc	0.6	0.3	0.9	0.9		140
OSD1		A__15			A__15	A__15											160
OSD2		A__16			A__16	A__16											180
RX MON1		A__14			A__14	A__14											200

On **NUC-1** for example, A__1 indicates Port 1 is used as a Source on Switch A. This carries video *Vid(R)* and data *Kbs(R)* and *Aud(R)* from the Source to the Destination. On the same SFP, a return fiber *Kbd(T)* carries data from the Destination back to the Source.

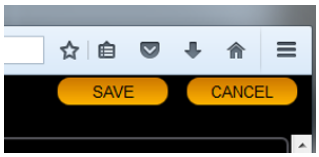
Src Name	Follows	Vid(R)	Vid2(R)	EDID(T)	Kbd(T)	Kbs(R)	Aud(R)
Mac-1		A__3			A__3	A__3	A__3
NUC-1		A__1			A__1	A__1	A__1
Tower-1 HD1		A__2			A__5	A__5	A__5
Tower-1 HD2	Tower-1 HD1	A__4			A__5	A__5	A__5
CLEAR							
OSD1		A__15			A__15	A__15	
OSD2		A__16			A__16	A__16	
RX MON1		A__14			A__14	A__14	

Also displayed are **colors, dimensions and positioning rank** for each connected device as shown on the Drag N Drop screen, which will be discussed in the DRAG Tab paragraph on pg. 52.

BGround	Color	X	Y	W	H	Level	Rank
bgRed1.png	#fff	0.1	0.1	0.9	0.9		60
bgBlue3.png	#fff	0.1	0.1	0.9	0.9		80
bgGreen3.png	#fff	0.1	0.1	0.9	0.9		100
bgGreen3.png	#fff	0.1	0.1	0.9	0.9		120
bgGray2.png	#ccc	0.6	0.3	0.9	0.9		140

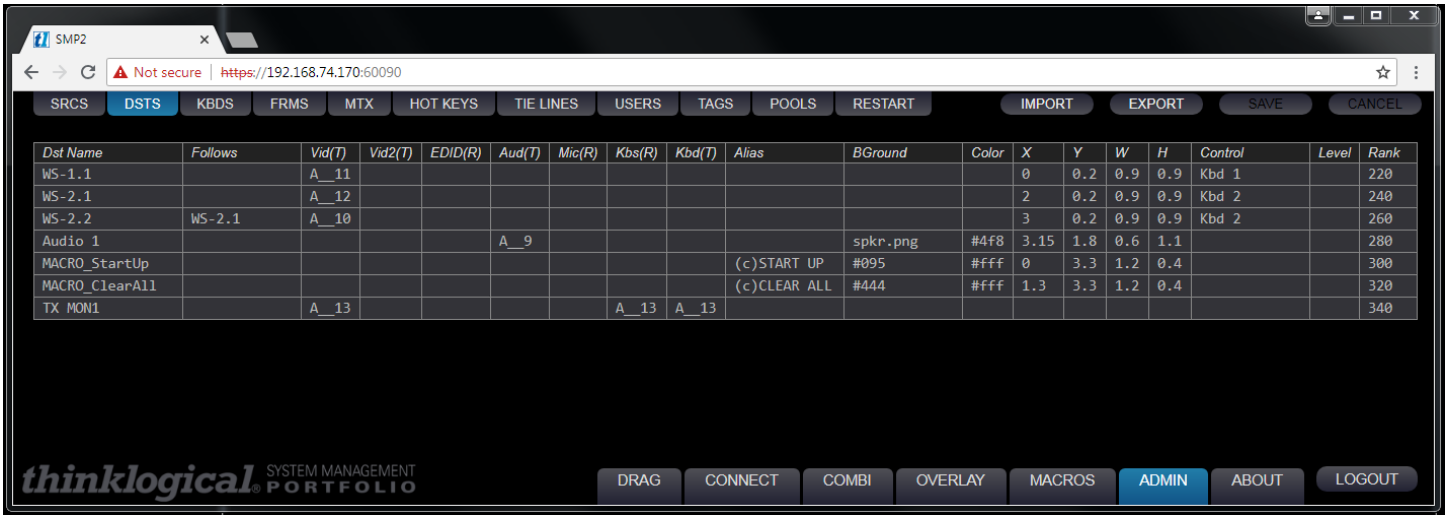
The SAVE Button

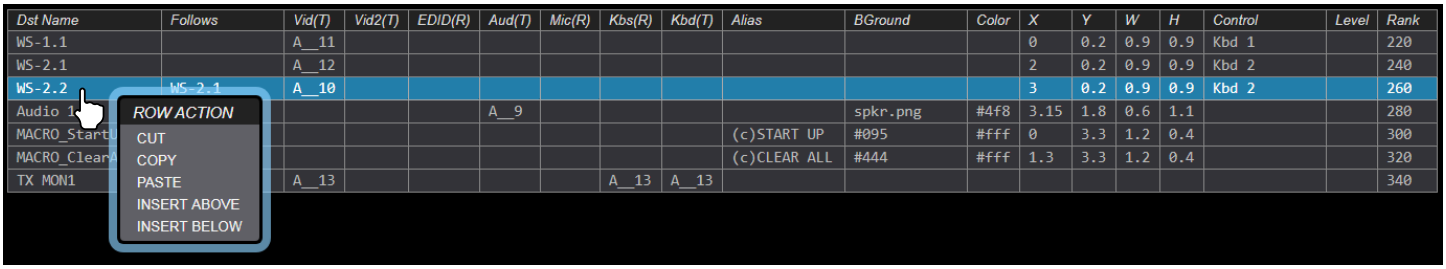
When making changes, click on the SAVE button in the upper right corner to preserve changes. Click CANCEL to disregard changes.



The DSTS (Destinations) Tab

Note that the DSTS tab lists the Destinations (as shown in the diagrams on pgs. 7 and 14), two Macros and TX MON1. The Destination rows include the Port Numbers for the fiber-optic cable connection points on the Matrix Switch (A__11, A__12, etc.).





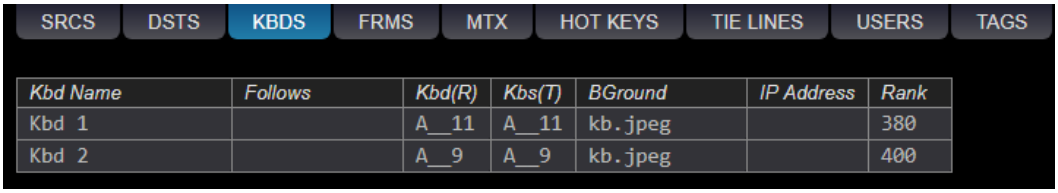
In most Tabs, users may right-click on a row and use the drop-down menu to make modifications to the list, such as adding or deleting rows, etc. Keyboards are not configured in the DSTS Tab. Use the KBDS Tab, below. (The *Kbs(R)* and *Kbs(T)* columns are only used by the Monitor feature. Keyboards are defined in the KBDS Tab.)

The KBDS (Keyboards) Tab

This tab defines where an active keyboard is located.

Kbd(R) =**d**ata from kybd/mouse to PC (Rx to Tx), *fiber **L2** or **K2** (data backchannels)*

Kbs(T) =**s**tatus from PC to kybd/mouse (Tx to Rx), *fiber **L1** (video/data) or **K1** (USB HID data)*



The *Follows* Column

From ADMIN ,the *Follows* Column is found under the SRCS, DSTS and KBDS tabs.

In this example, right, **Tower-1 HD1** has been added to the *Follows* column beside **Tower-1 HD2**. **Tower-1 HD2**, therefore, is said to "follow" **Tower-1 HD1**. This means that, if **Tower-1 HD1** is moved to a different destination, **Tower-1 HD2** will automatically move to the same destination.

Src Name	Follows	Vid(R)
Mac-1		A__3
NUC-1		A__1
Tower-1 HD1		A__2
Tower-1 HD2	Tower-1 HD1	A__4
CLEAR		
OSD1		A__15
OSD2		A__16
RX MON1		A__14

If a Source's row includes a Src Name in the *Follows* column, then the Source defined in the *Src Name* row is "following" the Source in the *Follows* column.

If a Source with a follower is then connected to a Destination with a follower, the *Following Source* will be connected to the *Following Destination*. This is used to switch both displays at a dual-linked source in one operation.

If a Destination's row includes a Dst Name in the *Follows* column, then the Destination defined in the *Dst Name* row is "following" the Destination in the *Follows* column.

The FRMS (Frames) Tab

This tab is where the Drag N Drop background colors and sizes are defined. (See more about changing these under *Modify the Backgrounds* on pg. 54.) *Refer to an RGB Color Table for more on the numeric codes.*

SRCS | DSTS | KBDS | FRMS | MTX | HOT KEYS | TIE LINES | USERS | TAGS | POOLS | RESTART

Frm Name	Xoff	Yoff	W	H	Xscale	Yscale	Xmargin	Ymargin	BGround	Color	Border
dstsBG	330	10	600	400	140	100	0.1	0.1	#222	#fff	
srcsBG	10	10	300	400	140	70	0	0.1	#222	#000	

The MTX (Matrix Switch) Tab

This tab indicates the ***Matrix** Switch **Name*** (A, B or C), the Matrix Switch ***Model*** (MX48s), the ***IP*** address of each Matrix Switch and the network ***Port*** used for communication with the switch.

SRCS | DSTS | KBDS | FRMS | MTX | HOT KEYS | TIE LINES

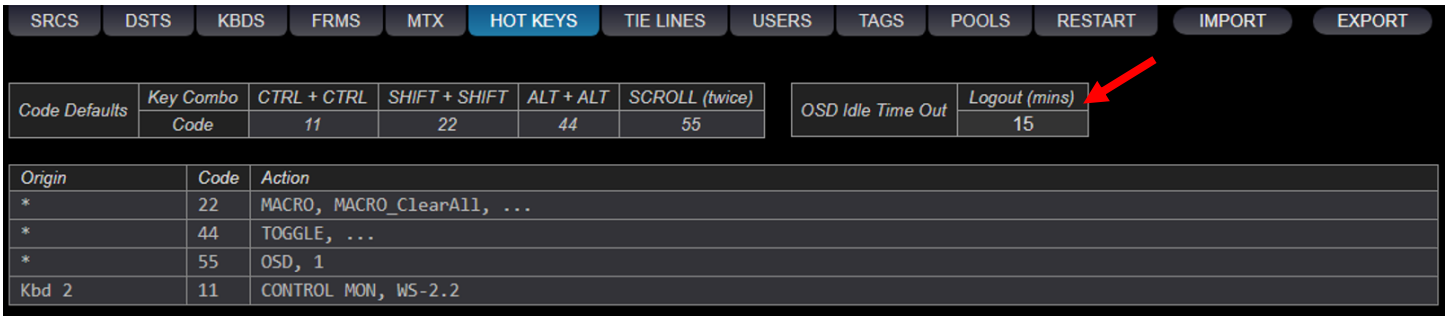
Mtx Name	Model	IP	Port	Rank
A	TLX48	192.168.13.15	17567	420

The HOT KEYS Tab

This tab provides access to the Hot Key Manager and displays the default Hot Keys loaded into each extender, plus any additional Hot Keys as defined by the user.

All Hot Key work is done through the USB HID port on the Thinklogical KVM Receiver. Most Thinklogical KVM Transmitters and Receivers are equipped with HID. *Hot Keys will not work on extenders without HID capabilities.*

The *OSD Idle Time Out* is also configured on this page. This feature makes an OSD available to other users after a set time. Set the time-out level here. (15 min. in this example.)



HOT KEYS Syntax

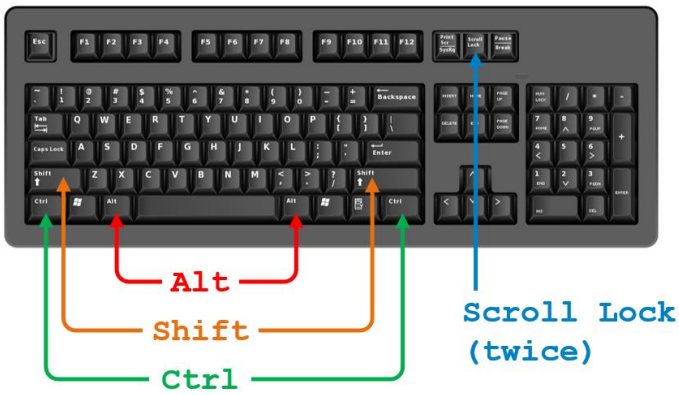
Users can customize their system's performance and functions by programming the Hot Keys using the four columns in the HOT KEYS tab as shown below.

Origin	Code	Action	Details
*	11	BLANK	Desk_1,Desk_2

Origin **:** The name of the keyboard where the Hot Keys sequence is entered. An asterisk * indicates *all keyboards*.

Code **:** Hexadecimal key combos as shown below:

Code Defaults	Key Combo	CTRL + CTRL	SHIFT + SHIFT	ALT + ALT	SCROLL (twice)
	Code	11	22	44	55



Action **:** The function(s) to be performed. Available *Actions* are:

OSD (On-Screen Display): Allows local workstation control access giving any authorized receiver on the Matrix Switch the ability to make a change. *Example:* **OSD, 1** routes the OSD browser to Monitor 1. Note that a SOURCE *must be a member of at least one* ***Tag*** *to be usable by the OSD. (See pg. 36.)*

CONNECT: Connects *SRCx* to *DSTx.*

CONTROL MON: Assigns KM control to *DSTx*.

MACRO: Run a pre-defined macro. This has the advantage of displaying a list of macros when *Details* is selected.

MACRO CYCLE: Sequentially executes one or more macros separated by commas. Each time the key sequence is entered, the program will execute the next macro in the list, then return to the first.

SHARE CYCLE: There are two modes for this operation, described below:

Src_1, Src_2 Connect first/only monitor associated with this keyboard (but not listed) to the first Source in the list (Src 2). Connect the keyboard named in *Origin* to the Source. Each subsequent Hot Key will cycle to the next Source listed, then back to the beginning.

Mon_A, Src_1, Src_2 If the first name in the list is a Destination, connect it to the second through Source names in the list. Connect the *Origin* keyboard to *Src* (like the first example, but with a named Destination as the first element).

VIEW CYCLE: Same as *SHARE CYCLE* but without the connecting keyboard.

TAKE CYCLE: Cycles through a string of 'taken' sources. Prior destinations are blanked.

CLEAR DST: Blanks the monitor at *DSTx*.

CLEAR KBD: Removes keyboard/mouse control.

CLEAR SRC: Blanks that source from all destinations.

COLLABORATE: Allows multiple users to easily exchange a single Source's KM controls. Note that Collaboration must also be enabled in the extender modules.

TOGGLE: Reset the Monitors/Destinations associated with this keyboard to their previous Sources. Alternates between two previous Sources called from the OSD.

CAST: Duplicates video on the 'From' destination to the 'To' destination.

MIRROR: Links one Monitor/Destination to one or more additional "mirrored" Destinations so that any time a Source is connected to the first Monitor/Destination, the same Source will also be connected to the remaining Monitors/Destinations.

Mon_1, Mon_2, Mon_3 Any time a Source is connected to Mon 1, it is automatically connected to Mons 2 and 3.

MIRROR OFF: Turns off mirroring.

INT MOUSE: Enables the **Int**uitive **Mouse** feature and shows a list of monitor names describing how the monitors are arranged. Commas separate monitors, and slashes (/) separate rows. *Examples:*

Desk_1, Desk_2 Two Desks, left and right.

Desk_1 / Desk_2 Desk 1 is on the top row; Desk 2 is on the bottom.

Desk_1, Desk_2 / Desk _3, Desk_4 Two rows: Desk 1 and 2 are on the top row and Desk 3 and 4 are below.

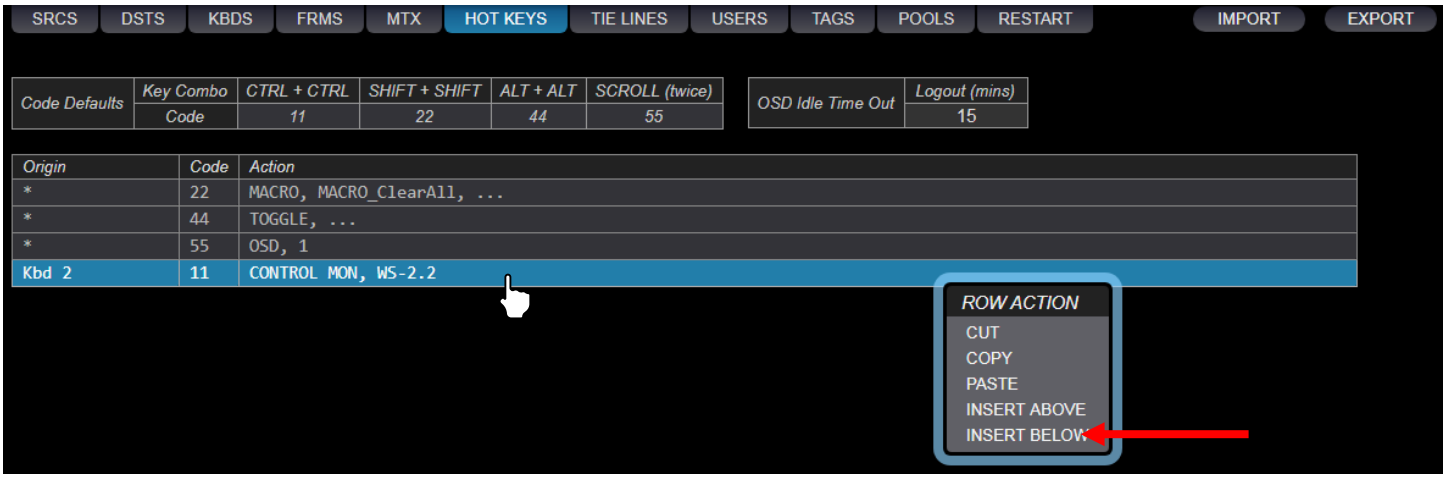
Desk_1, Desk_2, Desk_3 / Desk_4, , Desk_6 Two rows of three with a blank space in the bottom where Desk 5 would be (signified by empty space between the commas).

Note that Intuitive Mouse must also be enabled in the extender modules. See Appendix H, pg. 78.

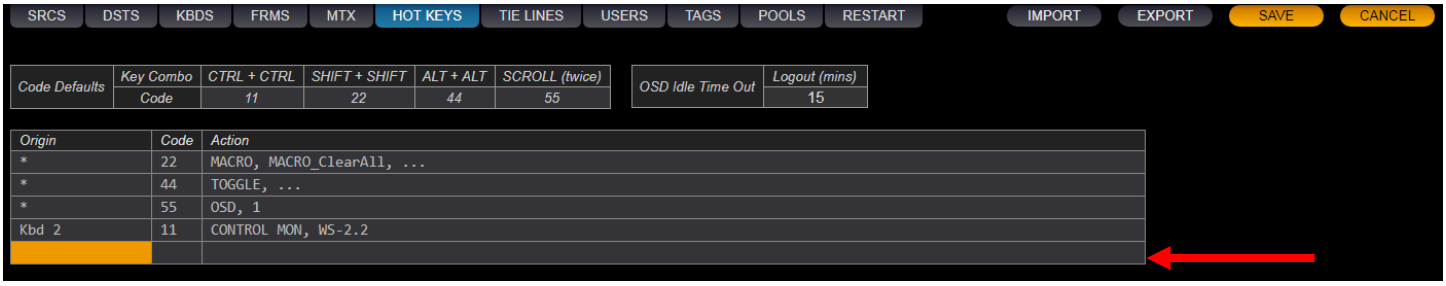
IGNORE: Causes a command to be ignored. This is used to exclude a destination from a wildcard (*) hotkey. (Enter the keyboard and the Code to be ignored.)

Adding HOT KEY Functions

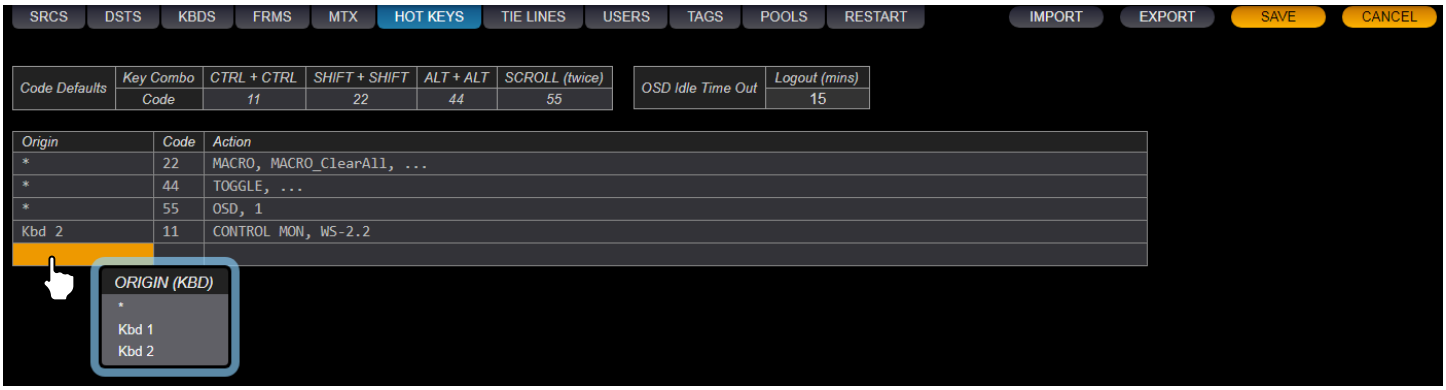
Add additional Hot Key functions by right-clicking on a field. For example, select INSERT BELOW to add Hot Key functions to the list of defaults. (See *Appendix D: Enable Hot Keys*, pg. 67 and *Appendix E: Flex Keys*, pg. 69.)



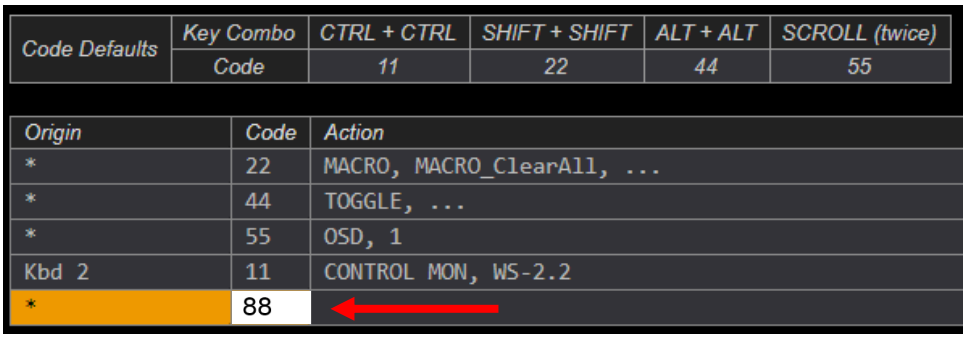
A new field will appear below the last row.



Origin: Left-click to select a keyboard from the drop-down menu. (* = all keyboards)



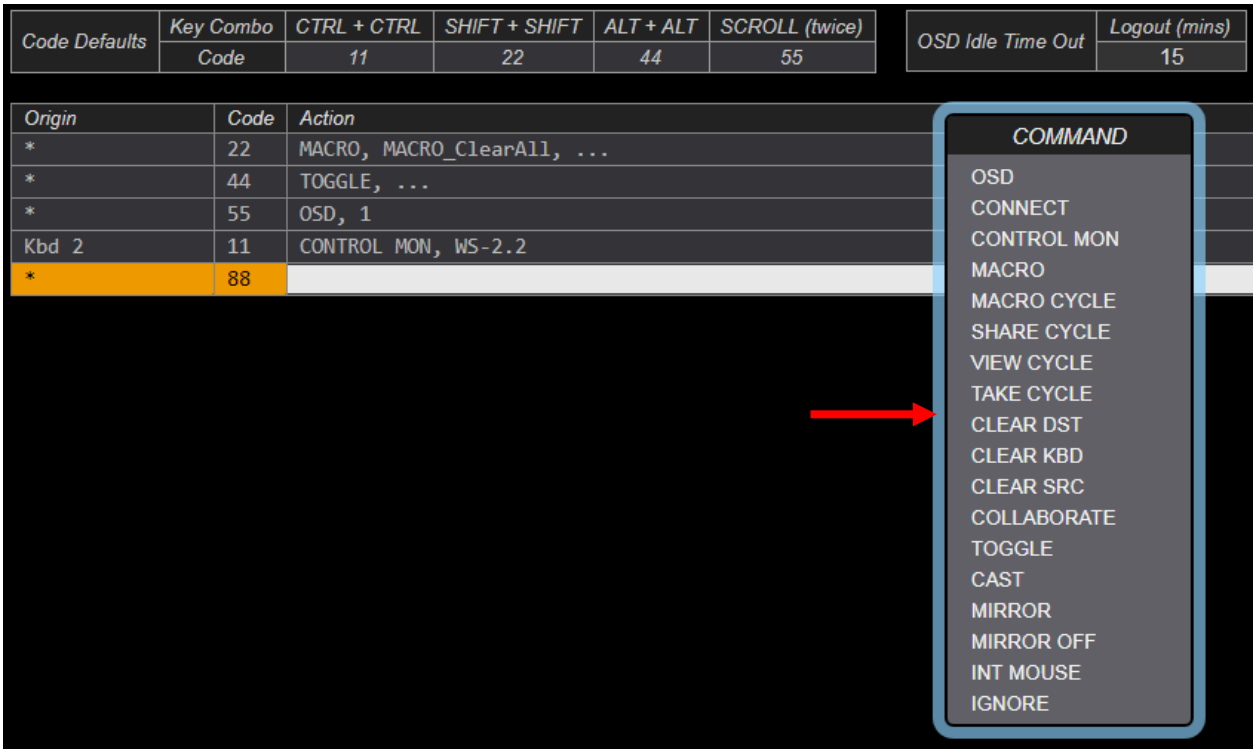
Code: Left-click within the *Code* field. Type in a hexadecimal key combo as shown below. (In this example code '88' was chosen for a new hotkey function.)



Code Defaults	Key Combo	CTRL + CTRL	SHIFT + SHIFT	ALT + ALT	SCROLL (twice)
	Code	11	22	44	55

Origin	Code	Action
*	22	MACRO, MACRO_ClearAll, ...
*	44	TOGGLE, ...
*	55	OSD, 1
Kbd 2	11	CONTROL MON, WS-2.2
*	88	

Action: Left-click within the Action field. Select from the drop-down menu. See more of what each *Action* does under *Details* on pgs. 20-21.



Code Defaults	Key Combo	CTRL + CTRL	SHIFT + SHIFT	ALT + ALT	SCROLL (twice)
	Code	11	22	44	55

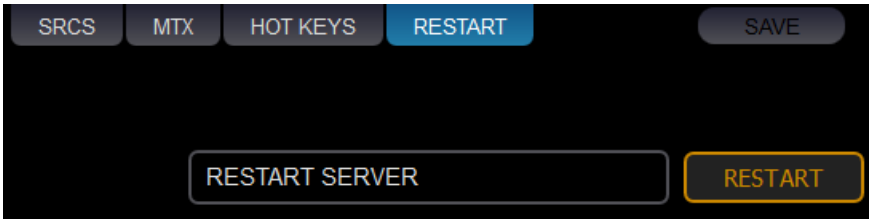
OSD Idle Time Out	Logout (mins)
	15

Origin	Code	Action
*	22	MACRO, MACRO_ClearAll, ...
*	44	TOGGLE, ...
*	55	OSD, 1
Kbd 2	11	CONTROL MON, WS-2.2
*	88	

COMMAND
OSD
CONNECT
CONTROL MON
MACRO
MACRO CYCLE
SHARE CYCLE
VIEW CYCLE
TAKE CYCLE
CLEAR DST
CLEAR KBD
CLEAR SRC
COLLABORATE
TOGGLE
CAST
MIRROR
MIRROR OFF
INT MOUSE
IGNORE

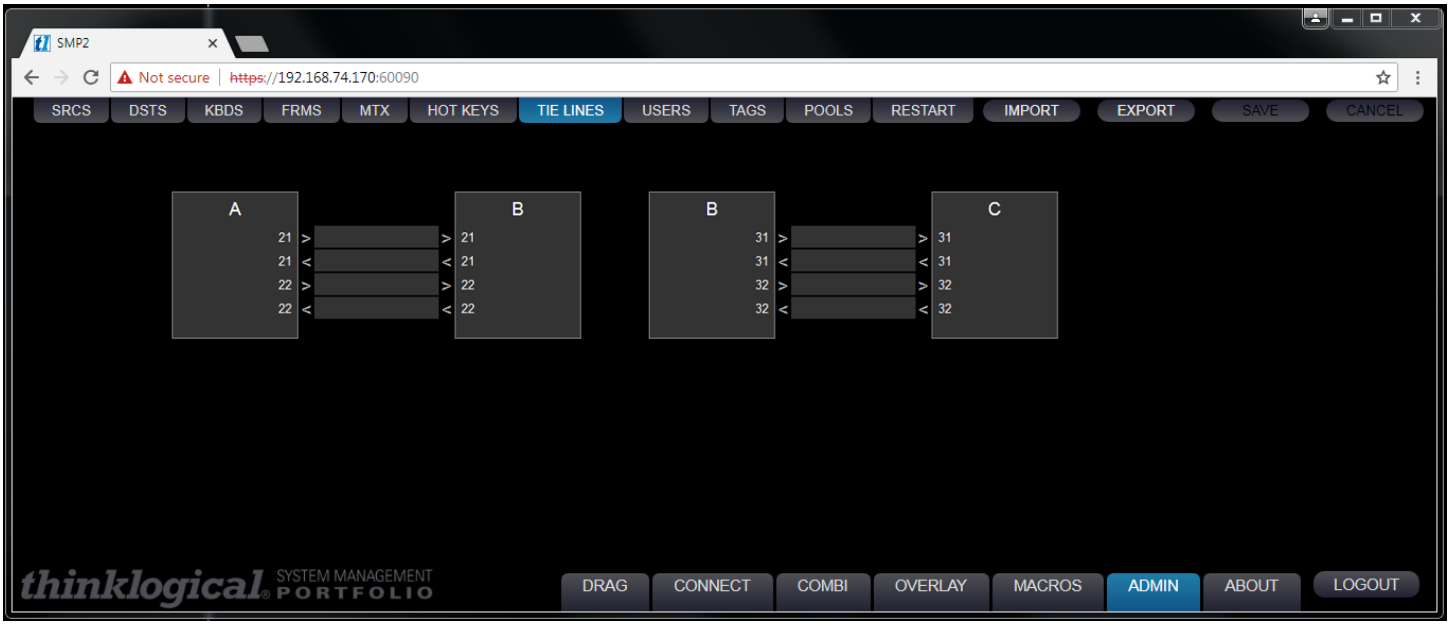
The RESTART Tab

This is a convenient way to restart the SMP2 server after certain conditions, such as when making edits or changes to the system that may require the system to restart.

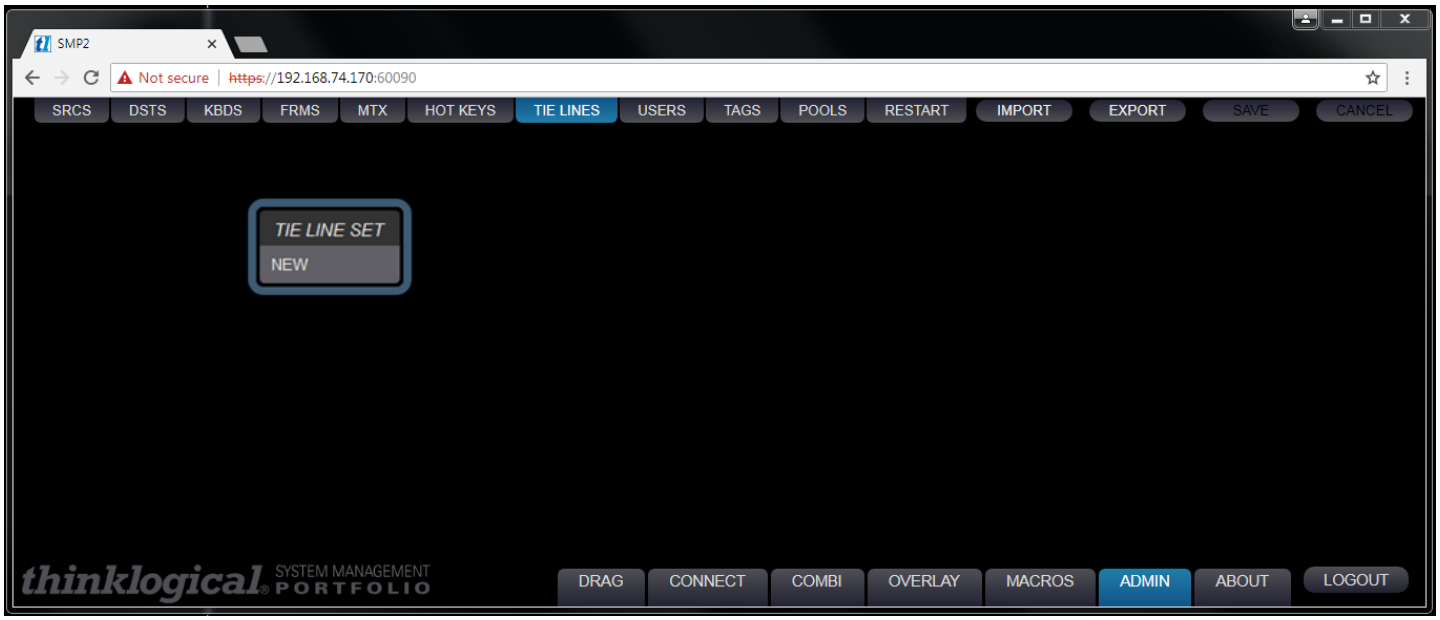


The TIE LINES Tab

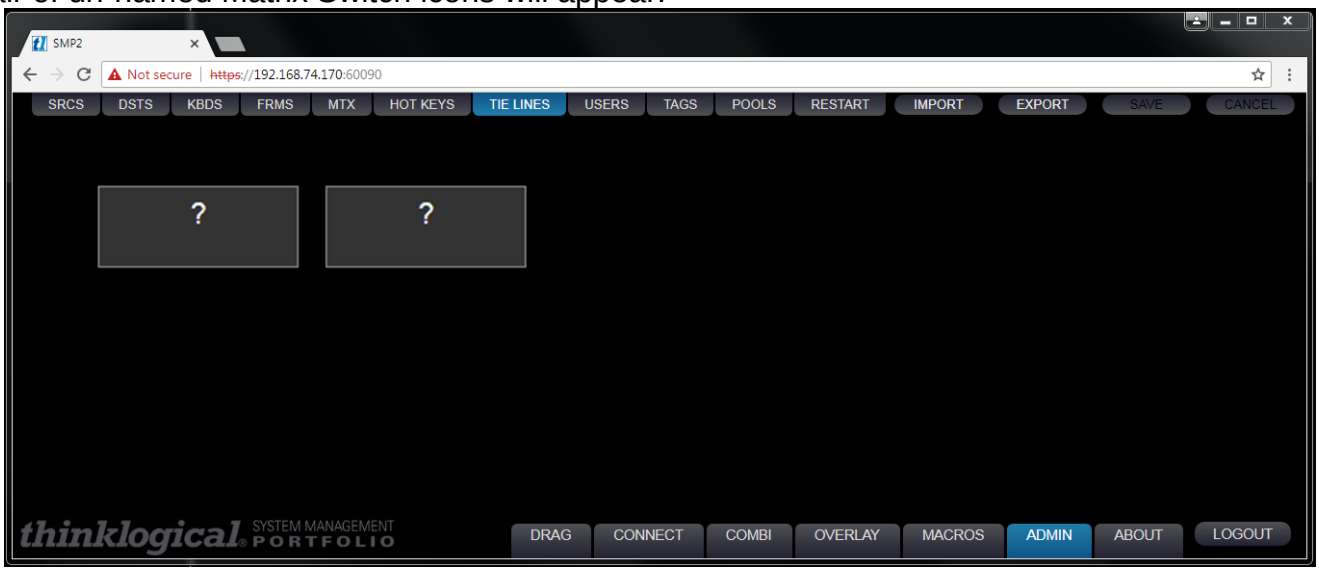
Tie lines provide a means for connecting sources and destinations across two or more Matrix Switches. This tab displays the tie lines that connect Matrix Switches together. Tie lines are typically bi-directional, providing video and data Tx to Rx and back-channel data Rx to Tx. *(SMP2 is not supported on the VX40, VX160 or VX320 Matrix Switches due to hardware restrictions.)*



To create tie lines, right click in the field and select NEW.

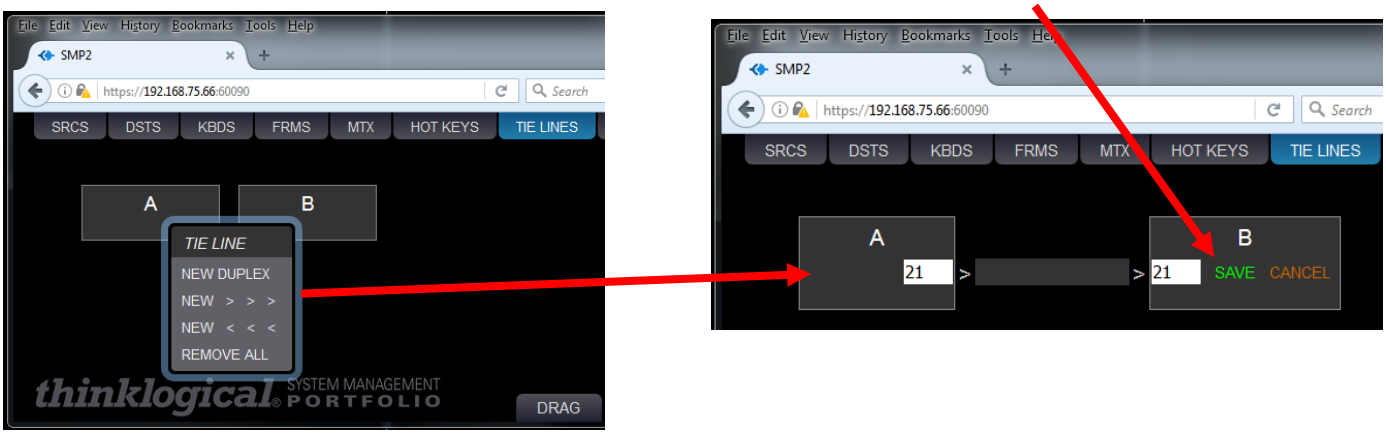


A pair of un-named Matrix Switch icons will appear.

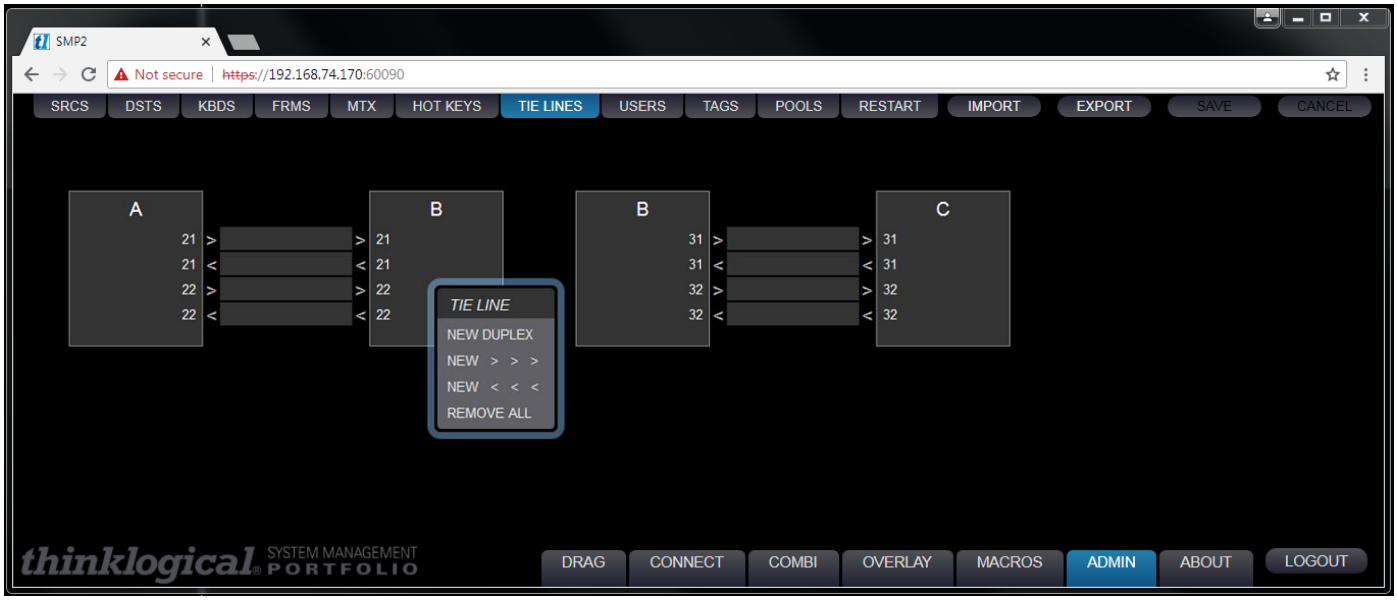


Click within a Switch icon to select from the list of Switches in the MTX tab.

Once the Switches are named, right click within an icon to select a tie line for either direction. Selecting NEW DUPLEX will create a bi-directional tie line using the T and R of the same SFP. Port numbers can be specified in the white fields in each Switch icon. Click SAVE to preserve changes.

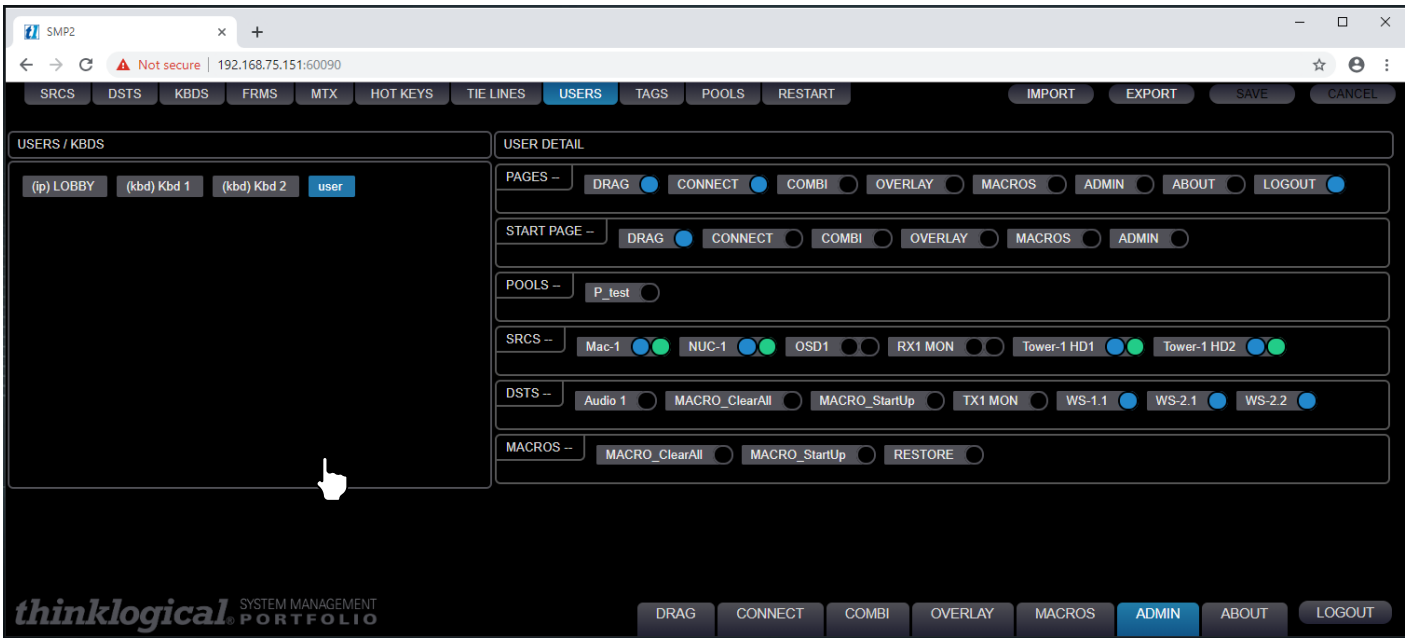


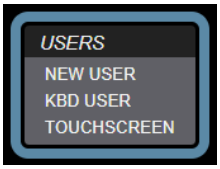
Add tie lines to as many Switches as needed. After the tie lines are created, users may click on them for a new menu: CLEAR, DELETE, AUTO, *MANUAL*. Selecting AUTO is required for the SMP2 to automatically use an available tie line when making routes. The *MANUAL* selection is used when the tie line is to be used by a third-party control system (such as AMX or Crestron, etc.).



The USERS Tab

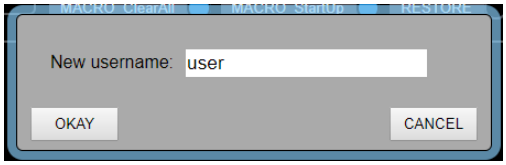
USERS defines which assets, Sources, Destinations and Pools are available to the *three user types**. This tab displays the Users on the left USER/KBDS and which Sources, Destinations and Pools are available on the right USER DETAIL. When a new keyboard is added under the KBDS tab, it will automatically appear here. Colored dots, pictured below, indicate a connection's availability status (see pg. 35).





*Right clicking in the left frame will display a menu to select of one of **three user types**.*

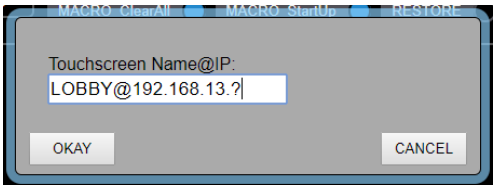
NEW USER This type of user applies to systems where asset availability is controlled by a log-in, such as the OSD and when logging into the SMP2 via a browser over the network. Selecting this item displays a window where a username is entered.



The default password for newly created users is also the username. To change this password, see *How to Create or Modify a User or Password* on page 14.

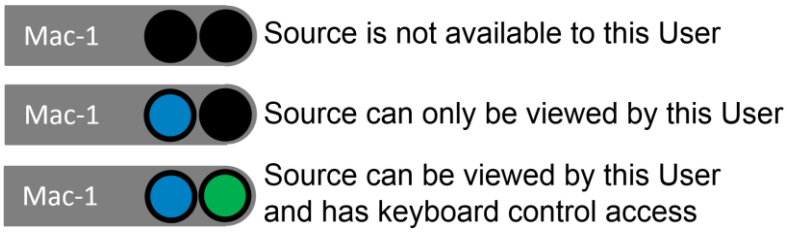
KBD USER Keyboard User applies to the physical keyboard and its location at a workstation console. This is normally not reconfigured unless the initially created names have changed under the KBDS tab.

TOUCHPANEL This is where Thinklogical Touchpanels are added and configured. The Touchpanel name (default name is LOBBY) and the IP address of the Touchpanel are entered here. The resulting USERS/KBDS icon will display this name and indicate that it is a Touchpanel by the **(ip)** designation.



For more information on installing Thinklogical Touchpanels, see Manual_Touch_Panels.pdf *at* https://www.thinklogical.com/downloads/

Assets: Once a new user is added, assets are then made available by selecting the appropriate colored-coded dot. In the case of *Sources,* there are two dots, defined as follows:

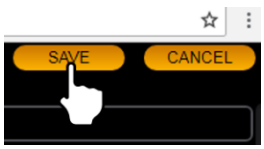


Note: To restrict assets (if necessary) via OSD or user login:
1) Deselect all assets for the kbd-user.
2) Enable selected assets for a User (otherwise they will be added together).

The right frame, USER DETAIL, has six categories that can be configured:

- PAGES – These are the pages that will be available on a Touchpanel or browser login for the operator to choose from. These options will appear as tabs at the bottom of their screen.
- START PAGE – Only one category may be configured here. This is the first page an operator will see upon Touchpanel or browser login.
- POOLS, • SRCS, • DSTS, • MACROS – System assets that can be made available to a User.

Click on SAVE to activate the change or CANCEL to discard changes.



The TAGS Tab

TAGS creates **named sub-sets** of Sources and Destinations that belong to a specific group. This is useful in larger systems with many sources and destinations. TAGS will be displayed and used on the CONNECT and COMBI pages.

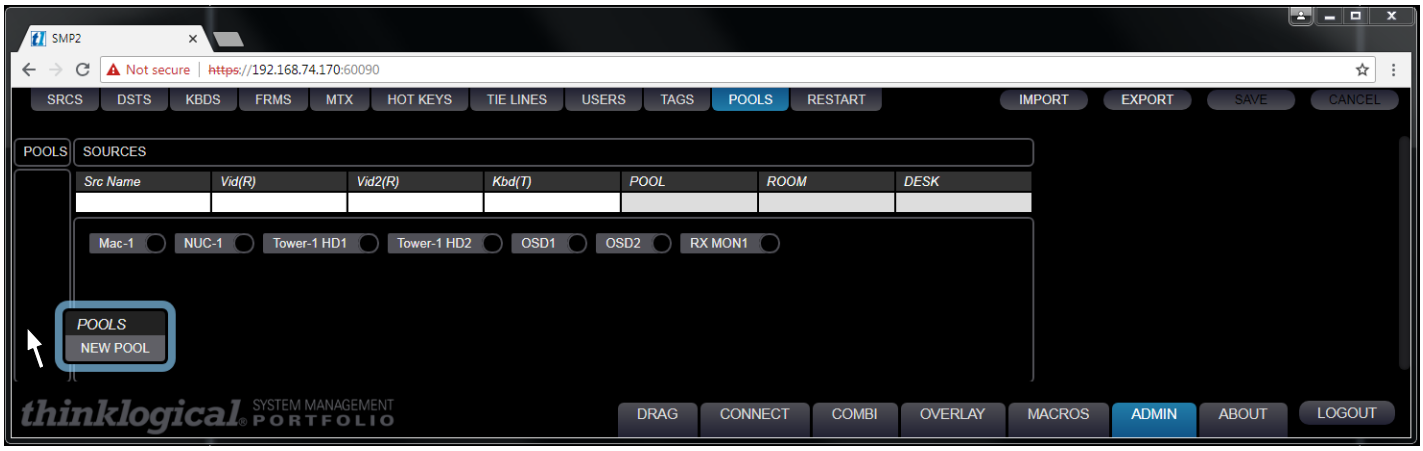
Note: A SOURCE must be a member of at least one Tag to be usable by the OSD

Click on a listed TAGS / CATAGORIES and any Sources or Destinations are highlighted. Changes are made by clicking the icons. Click on SAVE to activate the change.

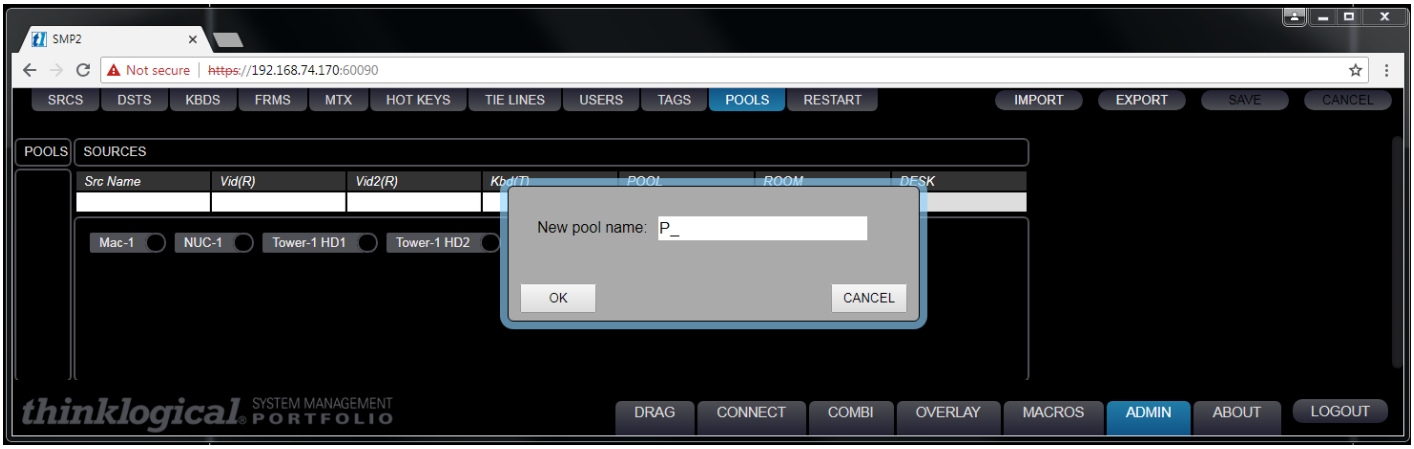
The POOLS Tab

This tab displays the Pools that have been created by an administrator and the members assigned to each Pool. **A Pool is a set of Sources (PCs) that all perform the same function** (i.e. graphics processor, etc.)**.** *Once assigned to a Pool, a source cannot be used as a separate source*.

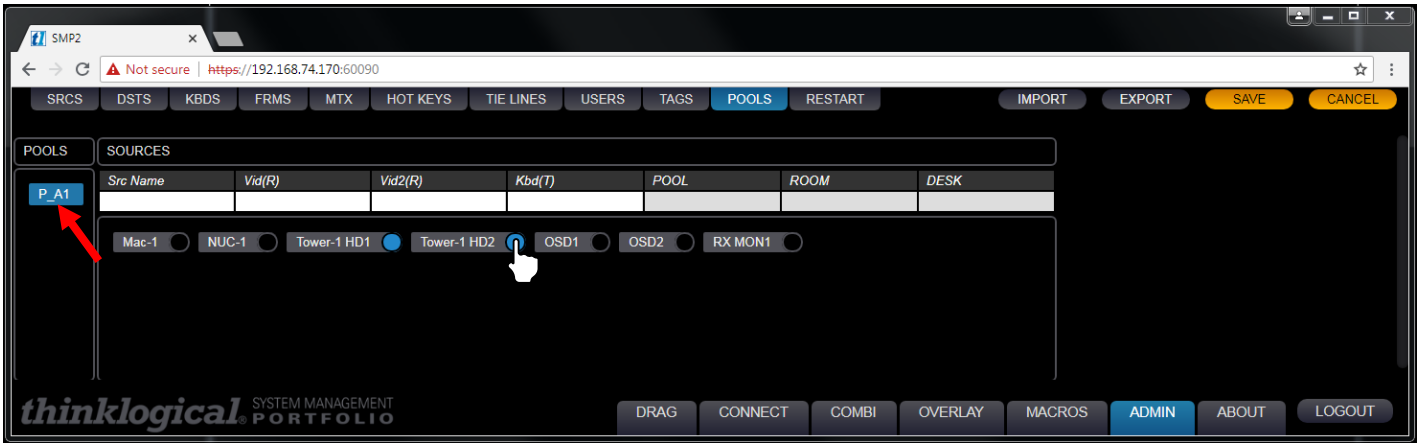
Users can reserve Sources from any number of Pools, each of which has its own functions. Using Pools requires the use of one or more OSDs. The SRCS Tab is where one *defines* sources. The POOLS Tab is where sources are *assigned* to Pools. An example of adding a Pool is shown below.



Right-click in the empty *POOLS* area and slect *New Pool* from the drop-down menu.



Enter a name for the new pool: P_*, then click OK.



The Pool has been named P_A1. Click on the *Src Names* to be added, then click SAVE.

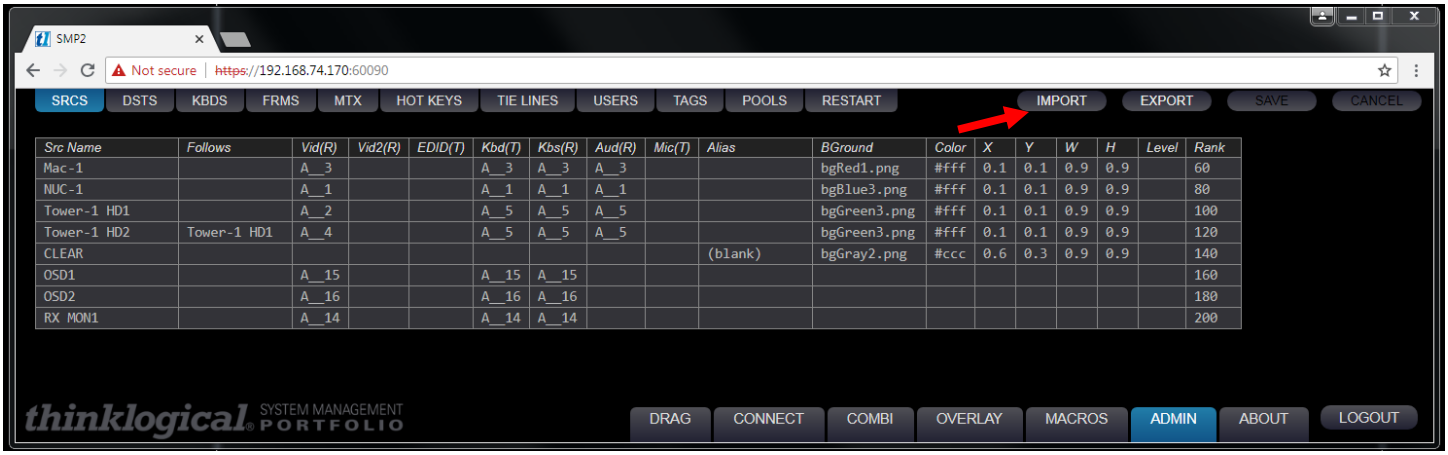
Pool buttons are color coded to display their status

Assigned to the displayed source pool.

Available.

Allocated to a source pool other
than the currently displayed pool.

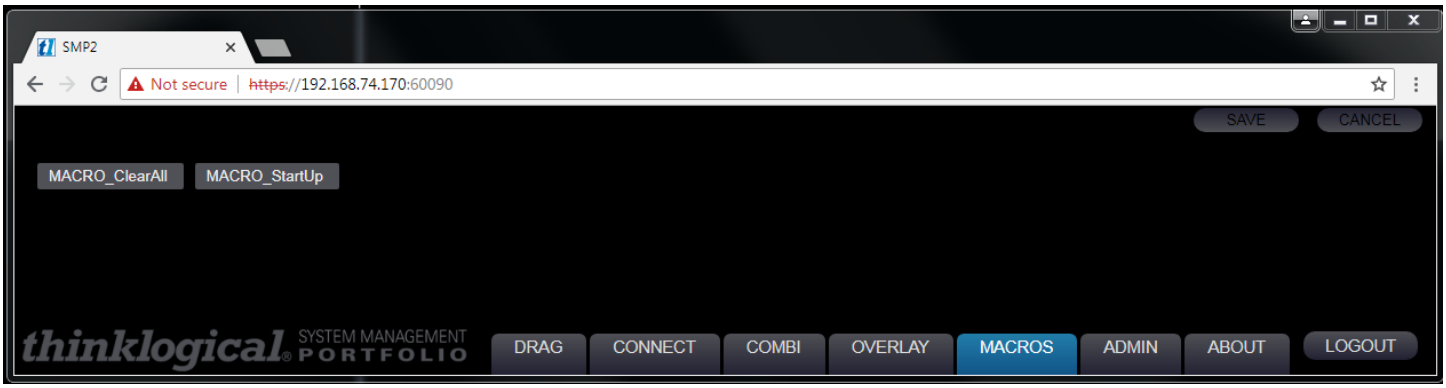
Allocated to a source pool and Reserved.
(Can only be used by the user who reserved it.)



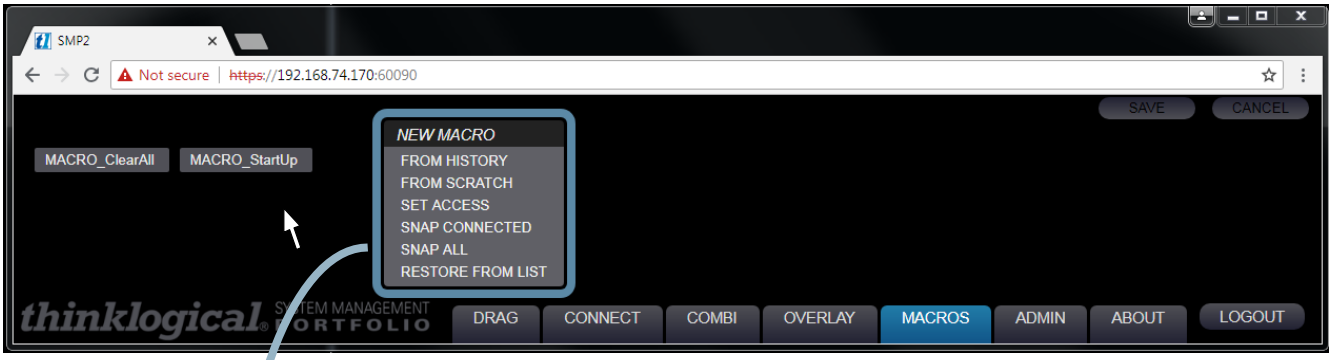
☐ THE MACROS TAB

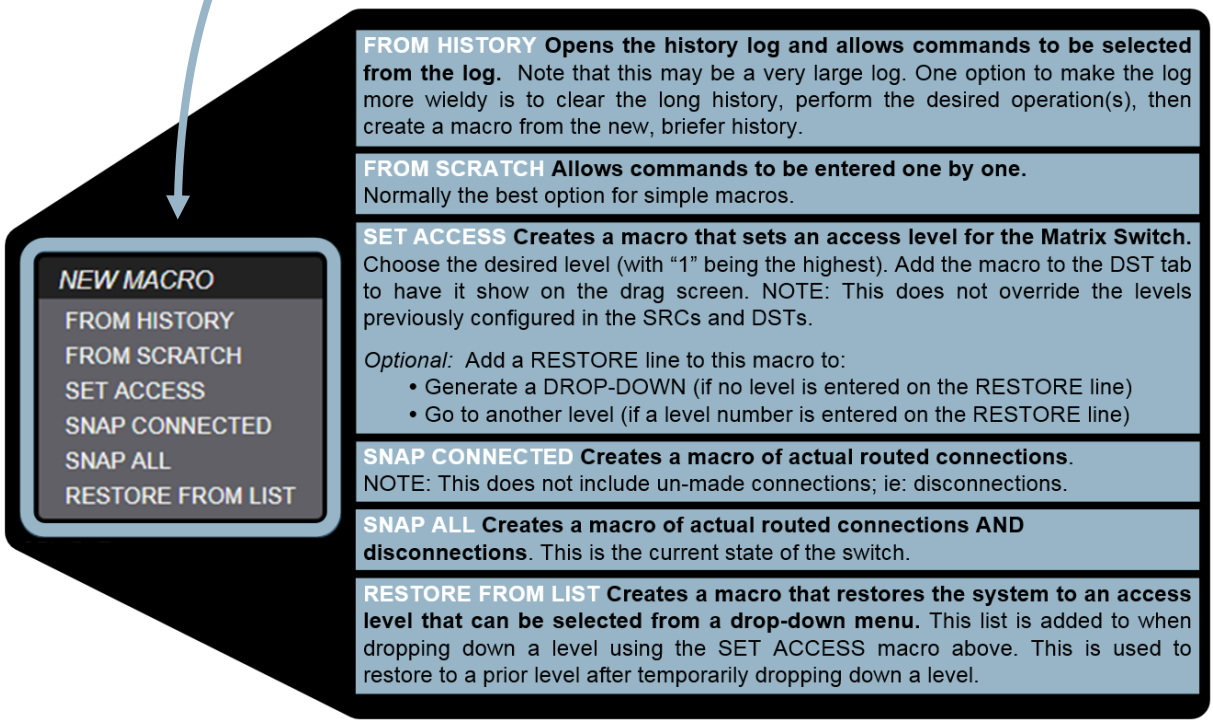
A macro is a set of programmed connection instructions that execute automatically with a single command. The Macros Tab displays any macros that have been created. These Macros are stored in the system under the `/opt/tl/setup/macros` directory.

SMP2 comes with two pre-installed macros (below) for making and breaking specific connections. These are labeled MACRO_ClearAll and MACRO_StartUp. Additional macros can be added by following a few simple steps.



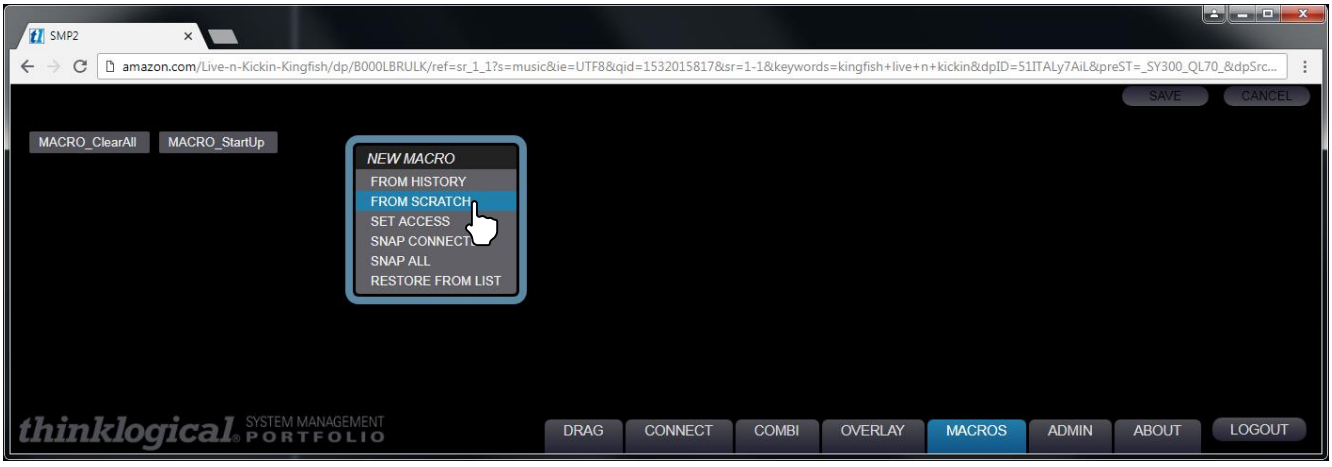
Right-click anywhere on the screen to get the drop-down menu for adding new macros.



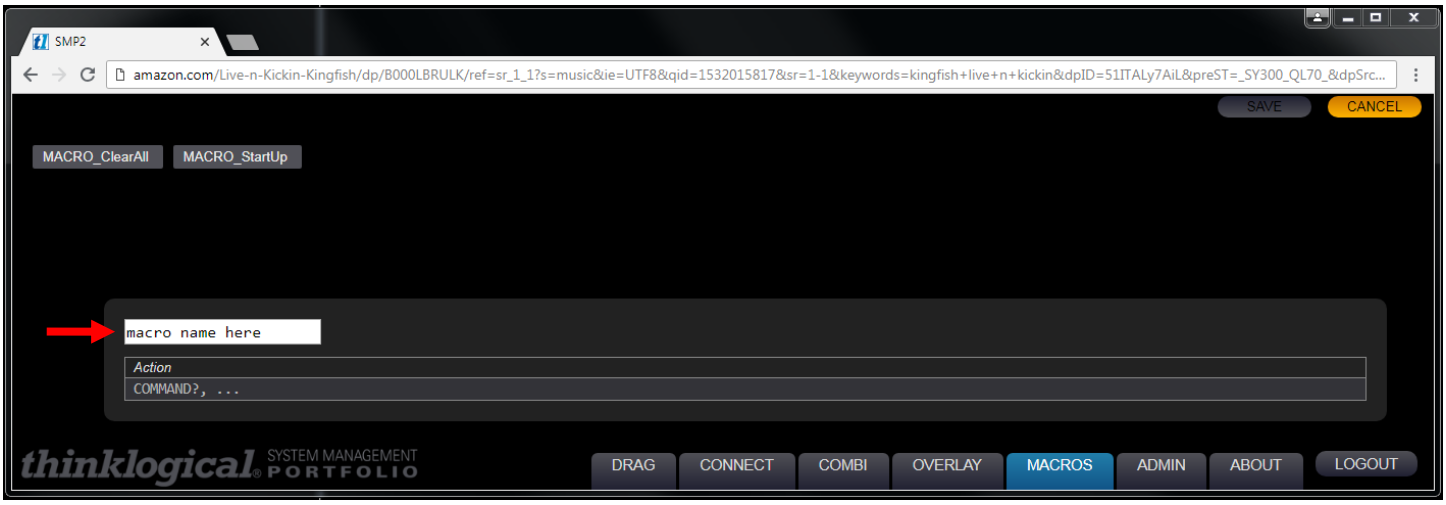


Pick the FROM HISTORY option to use previous operations. Connections that have been created from the *Connect* page or from *Drag N Drop* will appear here. *This will likely be a long list.* **Select all actions to be included in the macro.** Every CONNECT will have a CONTROL line below it. Selecting a CONTROL line gives KM control to that connection.

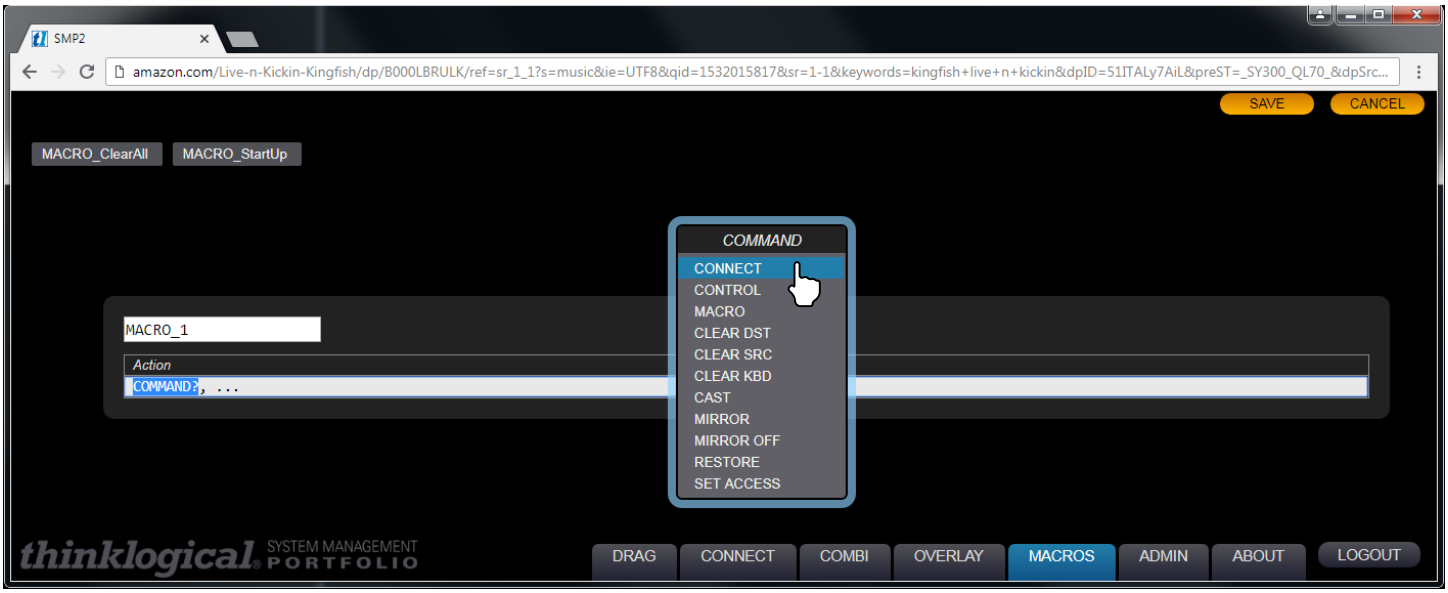
Pick the FROM SCRATCH option to create a new Macro by adding new commands as required.



Enter a name in the **`macro name here`** field. If this macro is used in *Drag N Drop*, it must follow the **MACRO_xxx** naming convention ("MACRO" is case sensitive).



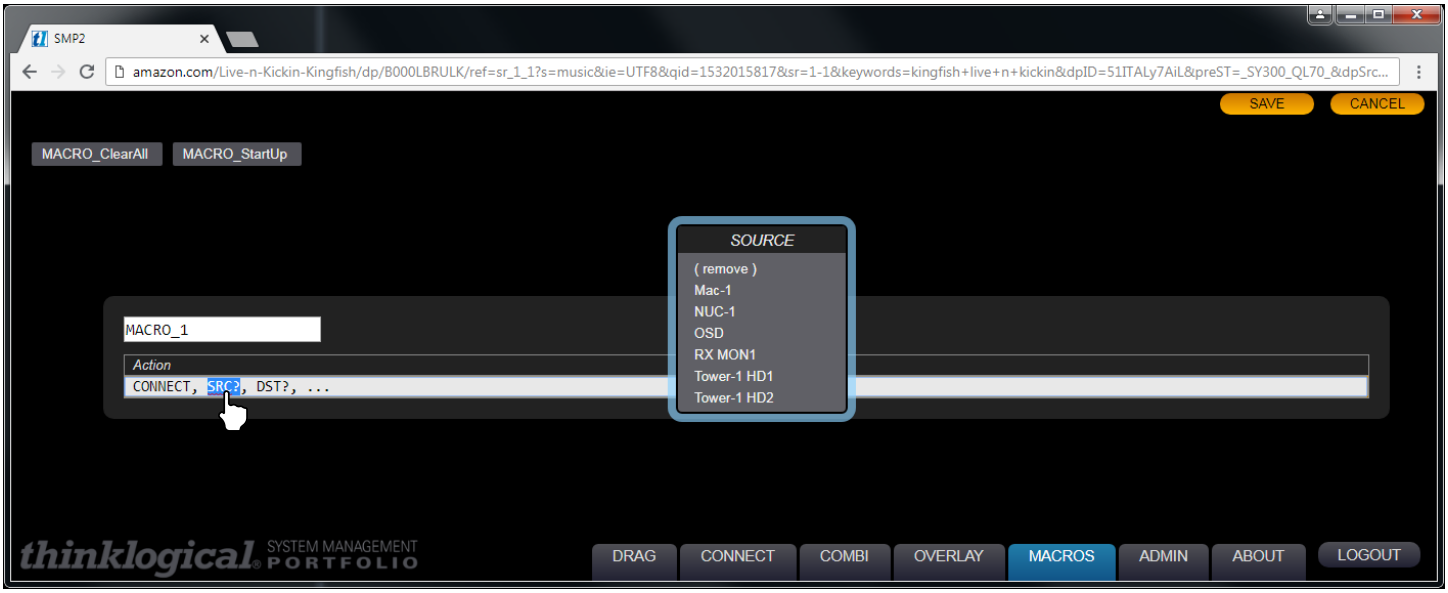
When choosing FROM SCRATCH, an *Action* line appears below the macro's name. Left-click on `COMMAND` and a drop-down menu appears. Here *Actions, Sources* and *Destinations* are defined manually. For example users can select CONNECT as below.

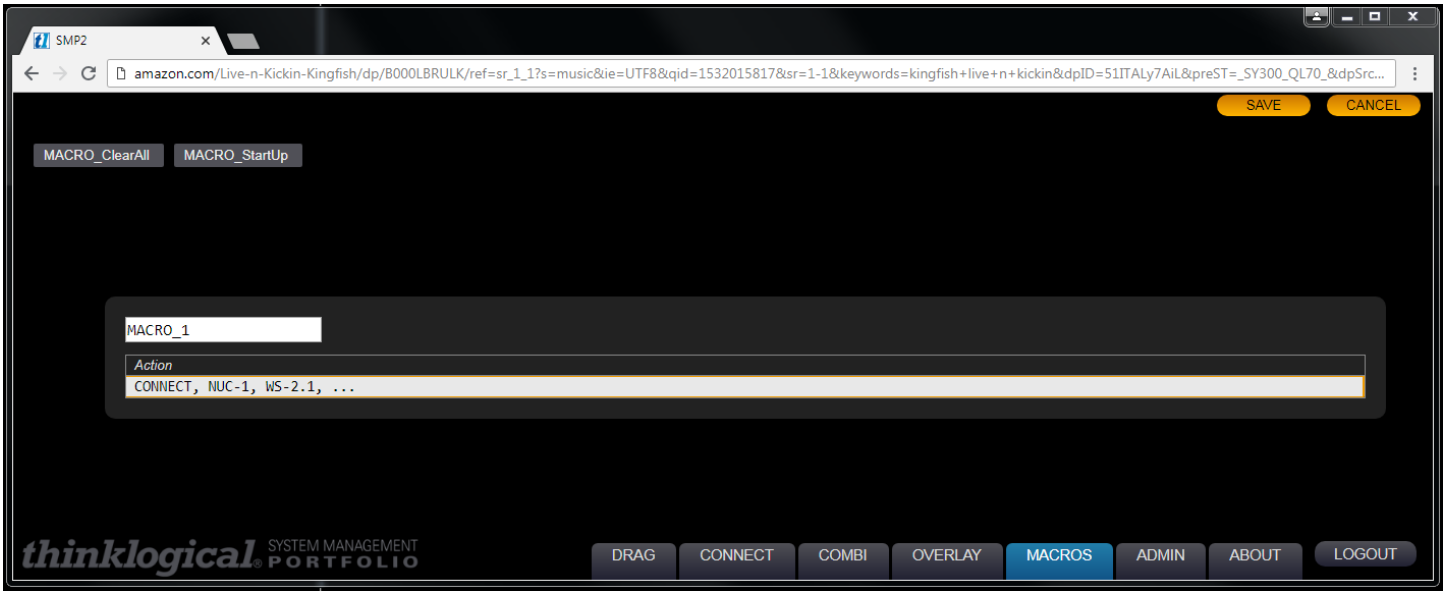


Note: The default CLEAR line on the SRCS page, while not requiring size and shape parameters, is necessary for the CLEAR actions to function properly.

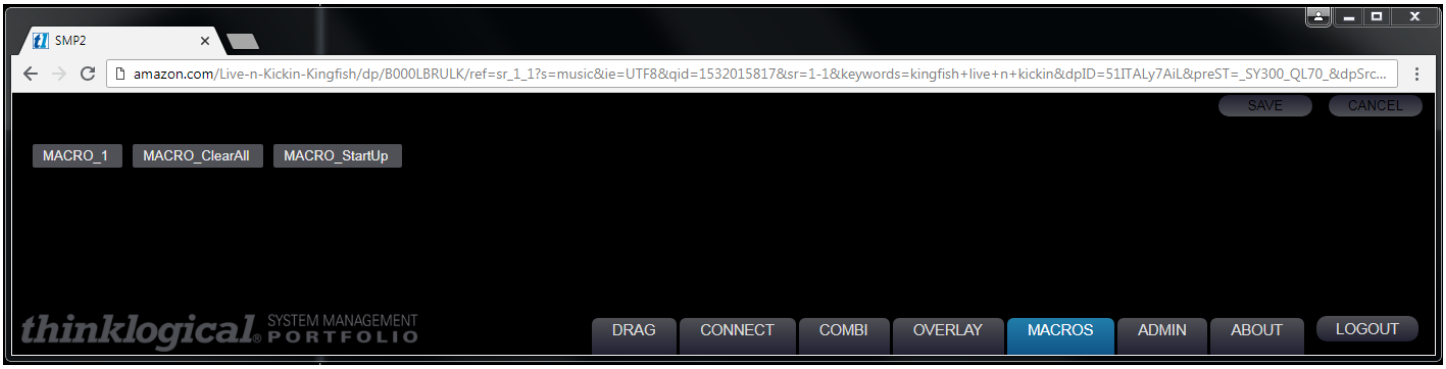
Src Name	Follows	Vid(R)	Vid2(R)	EDID(T)	Kbd(T)	Kbs(R)	Aud(R)	Mic(T)	Alias	BGround	Color	X	Y	W	H	Level	Rank
Mac-1		A__3			A__3	A__3	A__3			bgRed1.png	#fff	0.1	0.1	0.9	0.9		60
NUC-1		A__1			A__1	A__1	A__1			bgBlue3.png	#fff	0.1	0.1	0.9	0.9		80
Tower-1 HD1		A__2			A__5	A__5	A__5			bgGreen3.png	#fff	0.1	0.1	0.9	0.9		100
Tower-1 HD2	Tower-1 HD1	A__4			A__5	A__5	A__5			bgGreen3.png	#fff	0.1	0.1	0.9	0.9		120
CLEAR									(blank)	bgGray2.png	#ccc	0.6	0.3	0.9	0.9		140
OSD1		A__15			A__15	A__15											160

The Action will now display `CONNECT, SRC?, DST?, ...` Left-click on `SRC?` and another drop-down menu appears. Choose a source name from the menu. Likewise, left-click on `DST?` and choose a destination name from the drop-down menu. Left-click on `...` to select more *Destinations*. Click SAVE to keep changes.

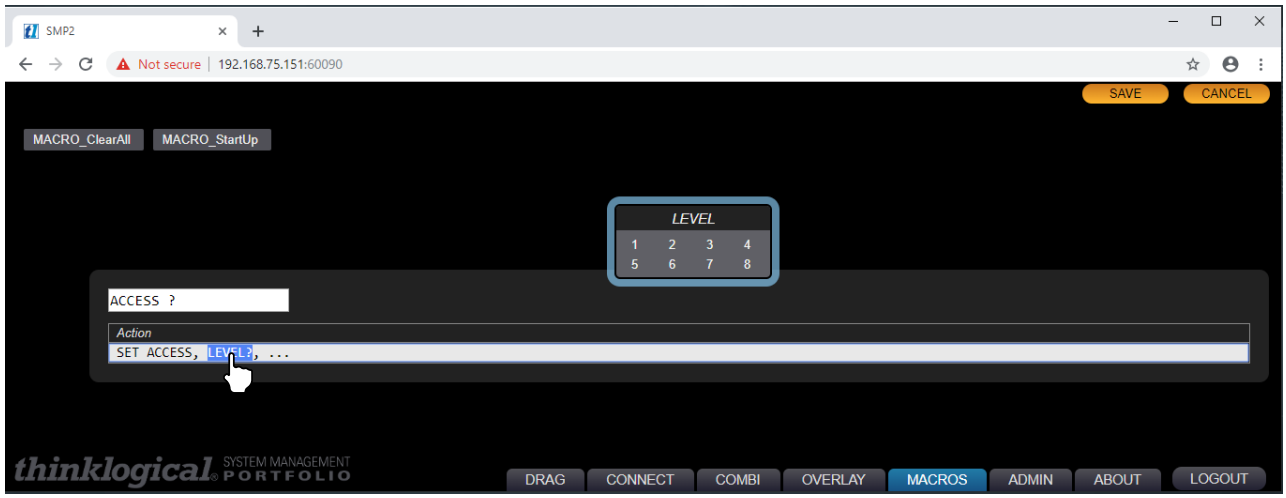




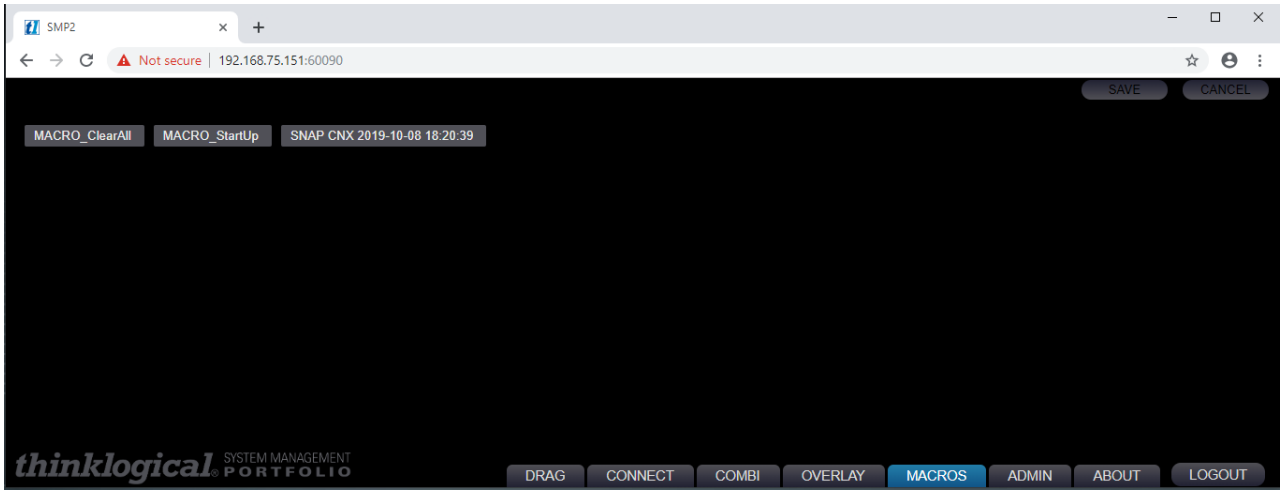
MACRO_1 now appears along with the original macros and can be executed with a single click.



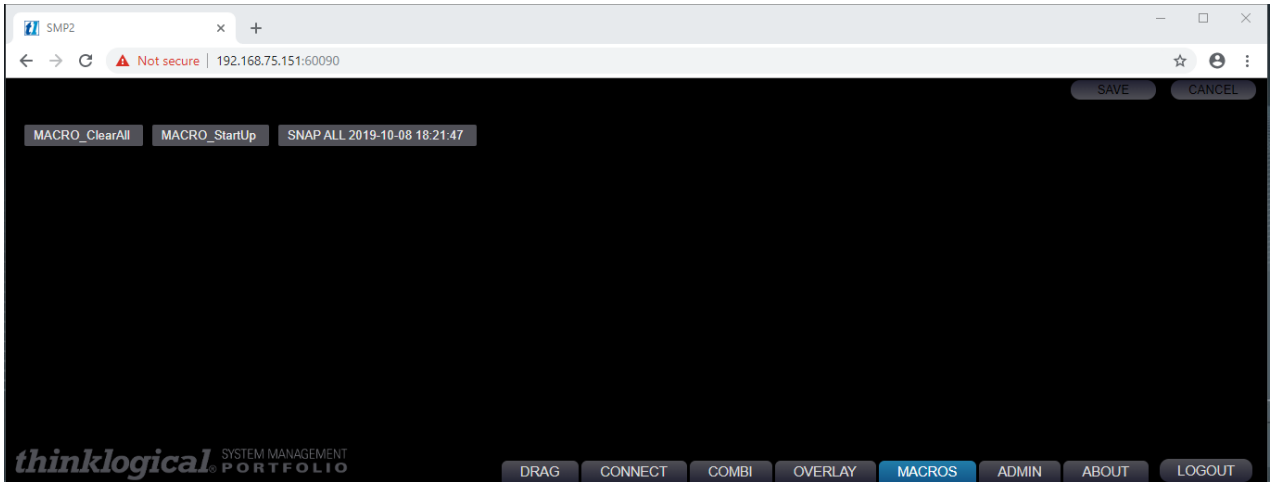
Pick the SET ACCESS option to create a new Macro that will set the access level of your Sources. Click on LEVEL to choose the level and then click on … to select the Source it applies to.



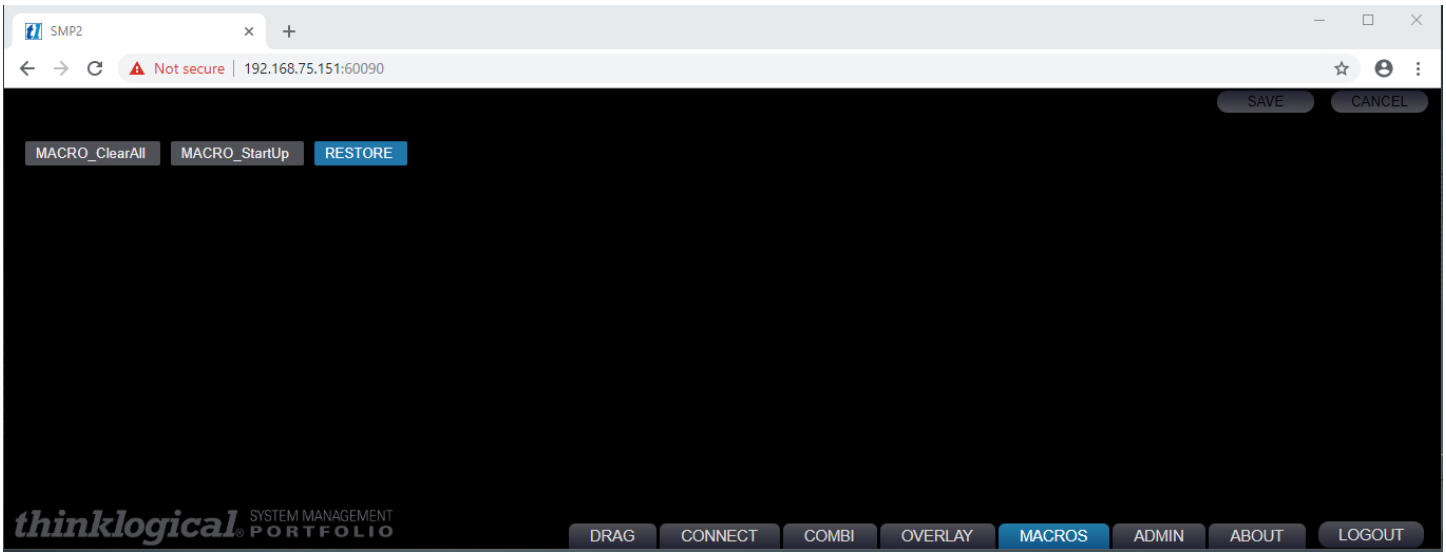
Pick the SNAP CONNECTED option to create a new Macro that will automatically create a Macro of all the active Matrix Switch connections.

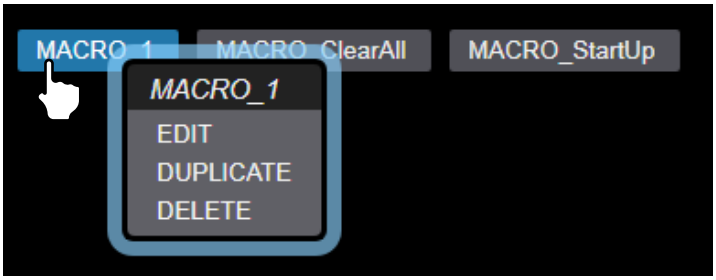


Pick the SNAP ALL option to create a new Macro that will automatically create a Macro of all the current connections *AND* disconnections. This may also be thought of as the current state of the Matrix Switch.



Pick the RESTORE FROM LIST option to create a new Macro that will generate a pop up list. This list will contain access levels that were previously used when changing levels.



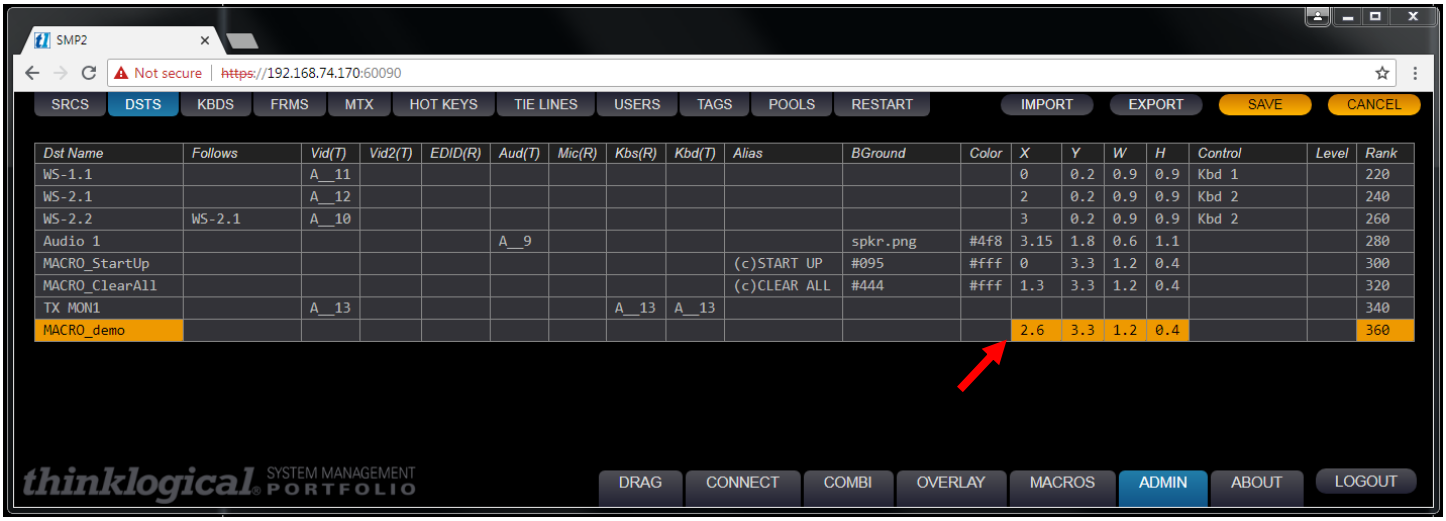


A Macro can be **edited, copied** or **deleted** by right-clicking on its name, then choosing from the drop-down menu.

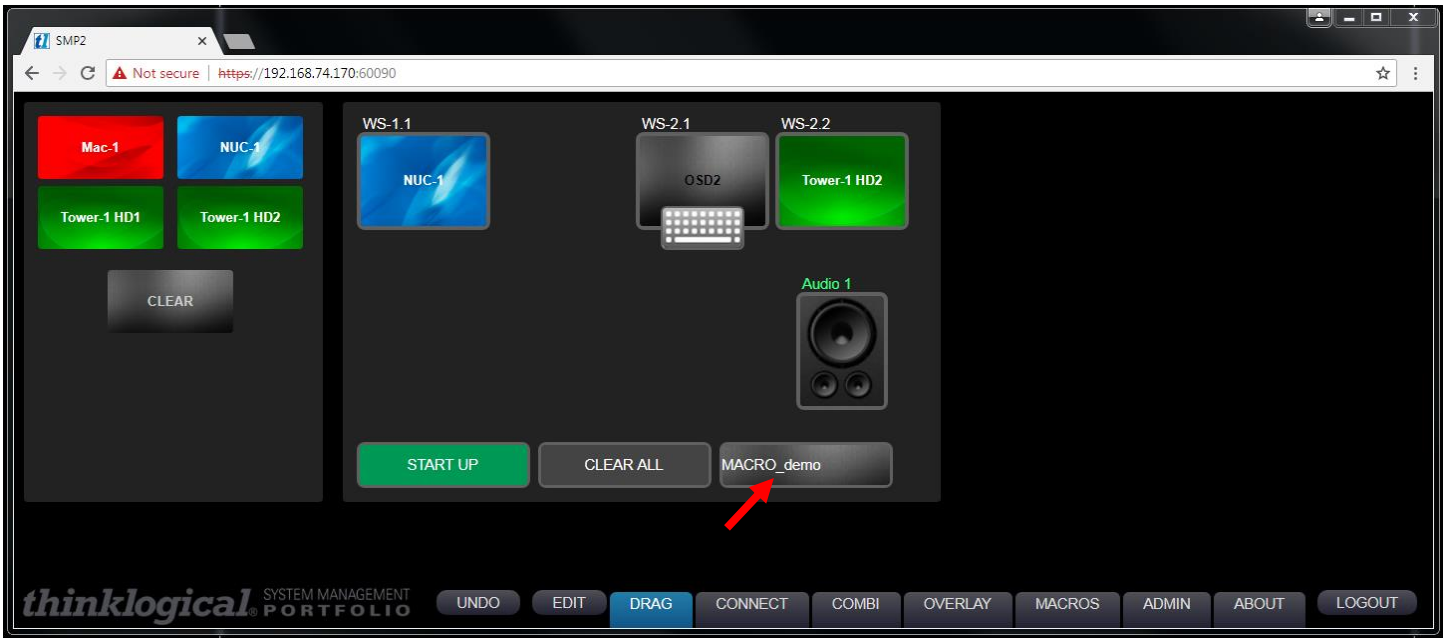
Add Macros to Drag N Drop

Under the ADMIN page, click on the DSTS (Destinations) Tab. Right-clicking on any row allows an ***Insert Above*** or ***Insert Below*** to create a new row. In the example below, a new row has been inserted below `TX MON1`.

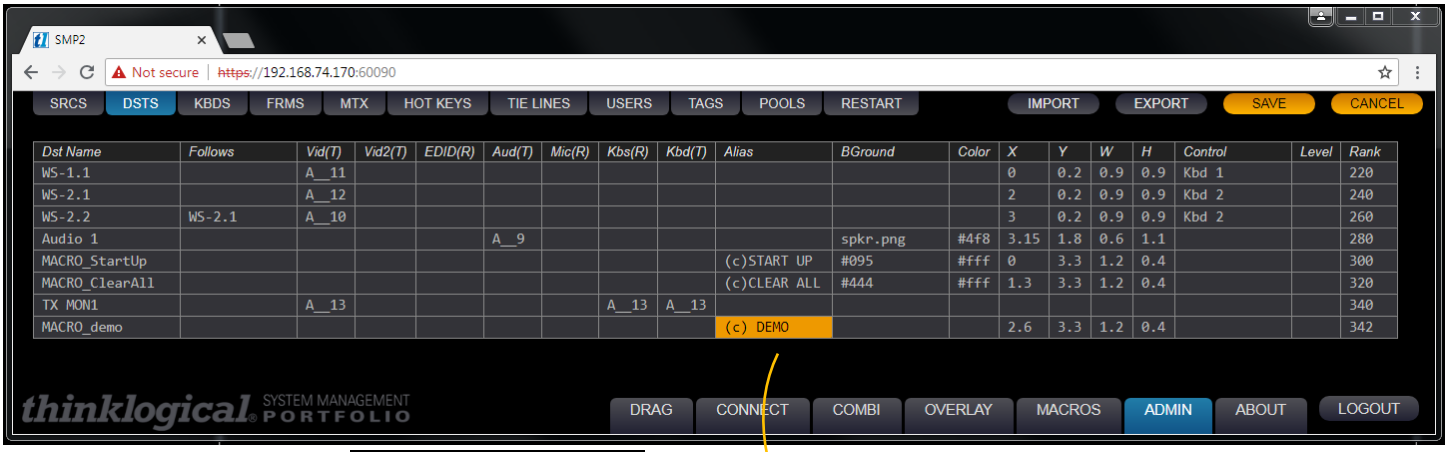
Enter the desired width and height of the macro's Drag 'N" Drop icon in the *W, H* columns. See more in *Modify the Icons* on pg. 54. Also enter the *X, Y* coordinates in the newly created row. The X and Y coordinates are the physical locations of each icon in the Drag N Drop window. The *Rank* column allows control over the order that sources are displayed. Sources with smaller rank values will appear on the page layout before sources with greater rank values when the *Rank* column header is selected.



The new macro now appears in the Drag N Drop destinations window with the name shown in the *Dst Name* column and in the position specified by the X and Y coordinates.



If a name is entered in the *Alias* column on the ADMIN page, the alias will be shown on the *Drag N Drop* page instead of the *Dst Name*. Note that preceding the name with (c) will center the name.



Control	Level
Kbd 1	
Kbd 2	
Kbd 2	

The *Control* column shows which destination has control of the keyboard.

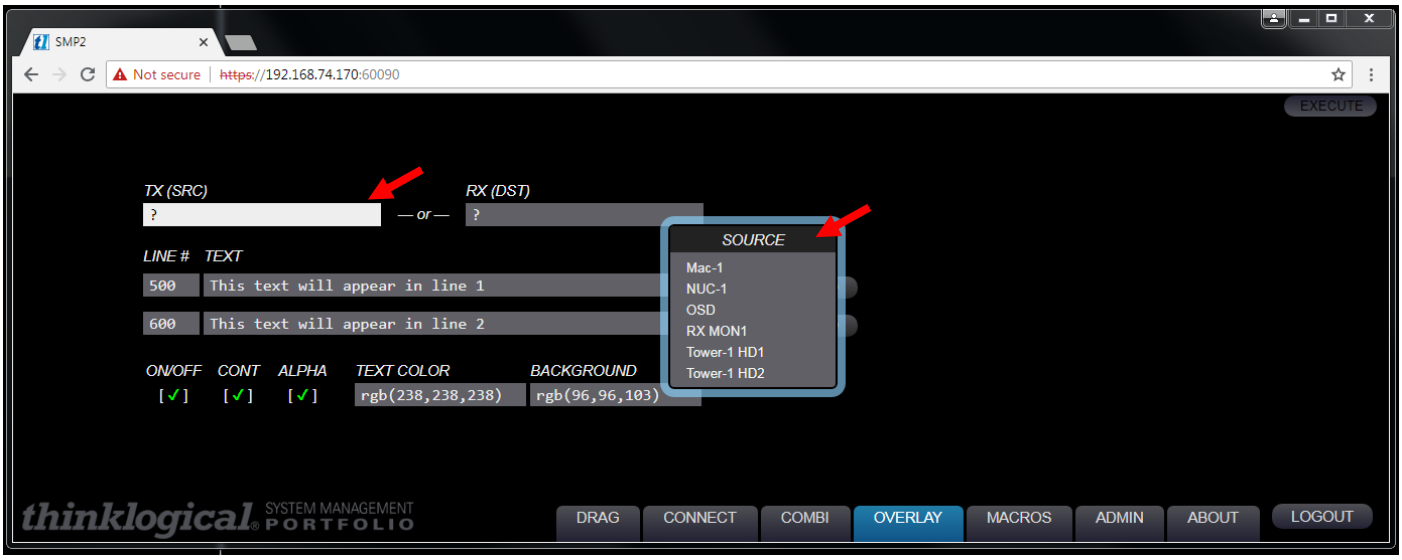
The optional *Level* column is commonly used for security levels 1 through 4. For example:

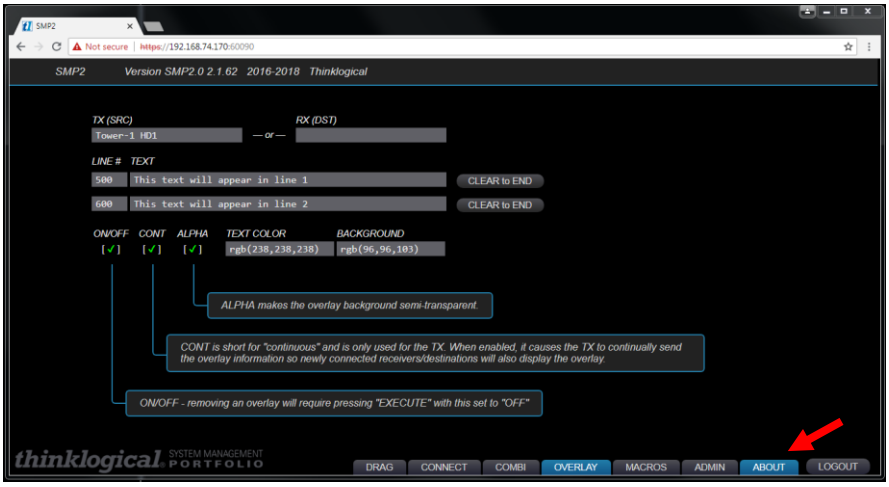
1 **Top Secret**
2 **Secret**
3 **Classified**
4 **Unclassified**

A user with level 1 clearance will have access to levels 1 and lower. A user with level 2 clearance will have access to levels 2 and lower, etc. However, any number of levels may be defined.

☐ THE OVERLAY TAB

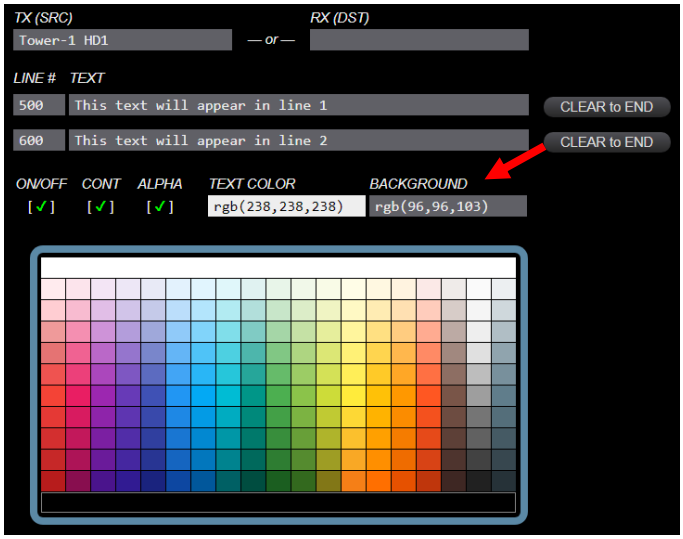
The Overlay Tab is used to format text that will show over the monitor display. Left-click in any field to select from a drop-down menu as shown below.





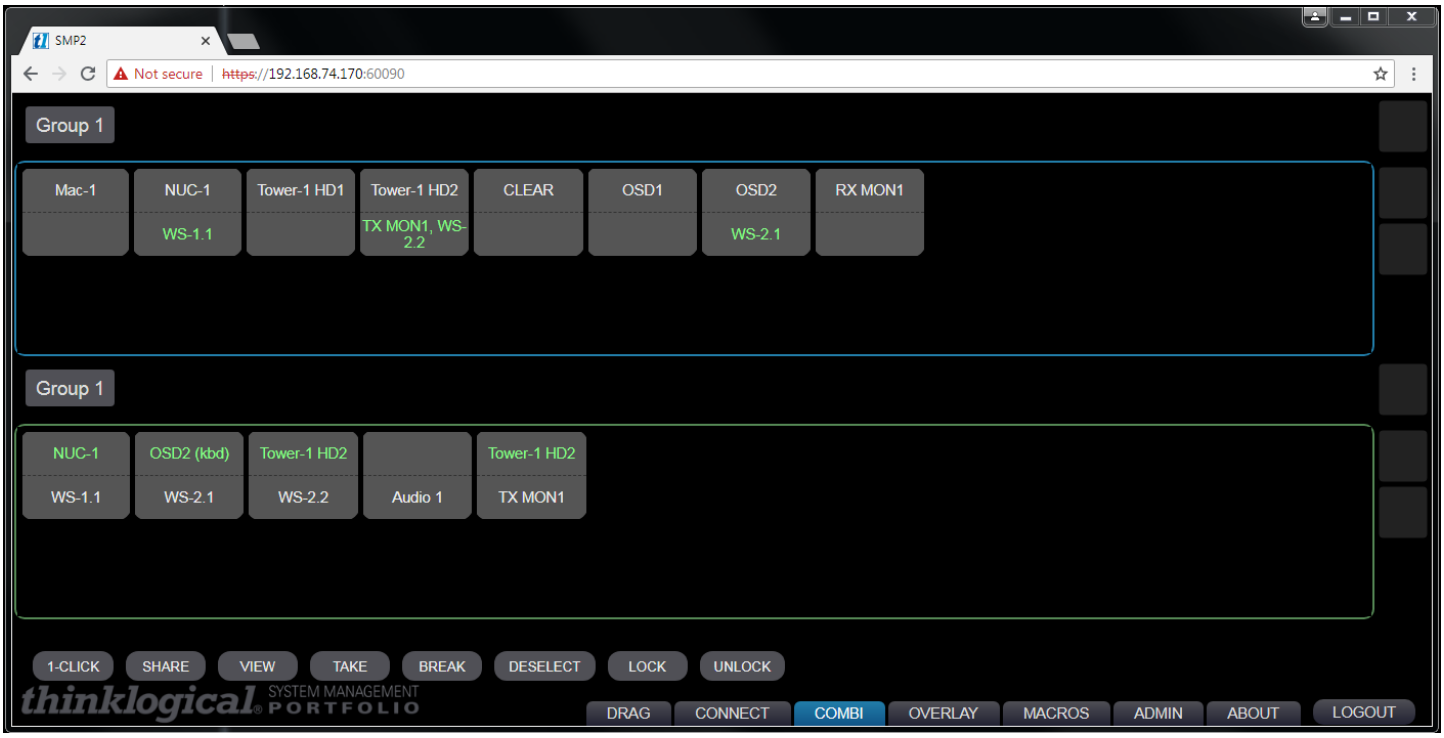
Click on the ABOUT Tab for more information about the various fields.

Choose from a range of colors for both the **overlay text** and **overlay background** by left-clicking on the *TEXT COLOR* and *BACKGROUND* fields.



☐ THE COMBI TAB

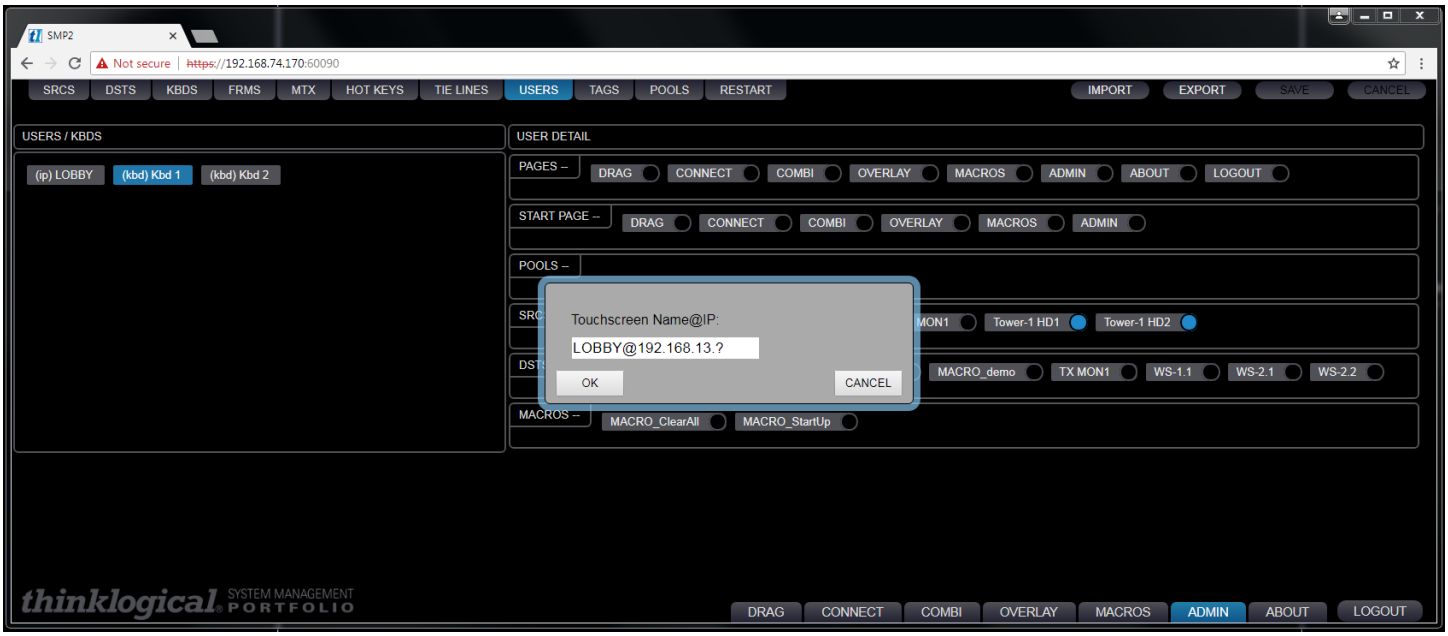
The COMBI Tab is functionally identical to the CONNECT Tab but is formatted to accommodate use on a Touchpanel Screen. See THE CONNECT TAB, below, for an explanation of functionality.



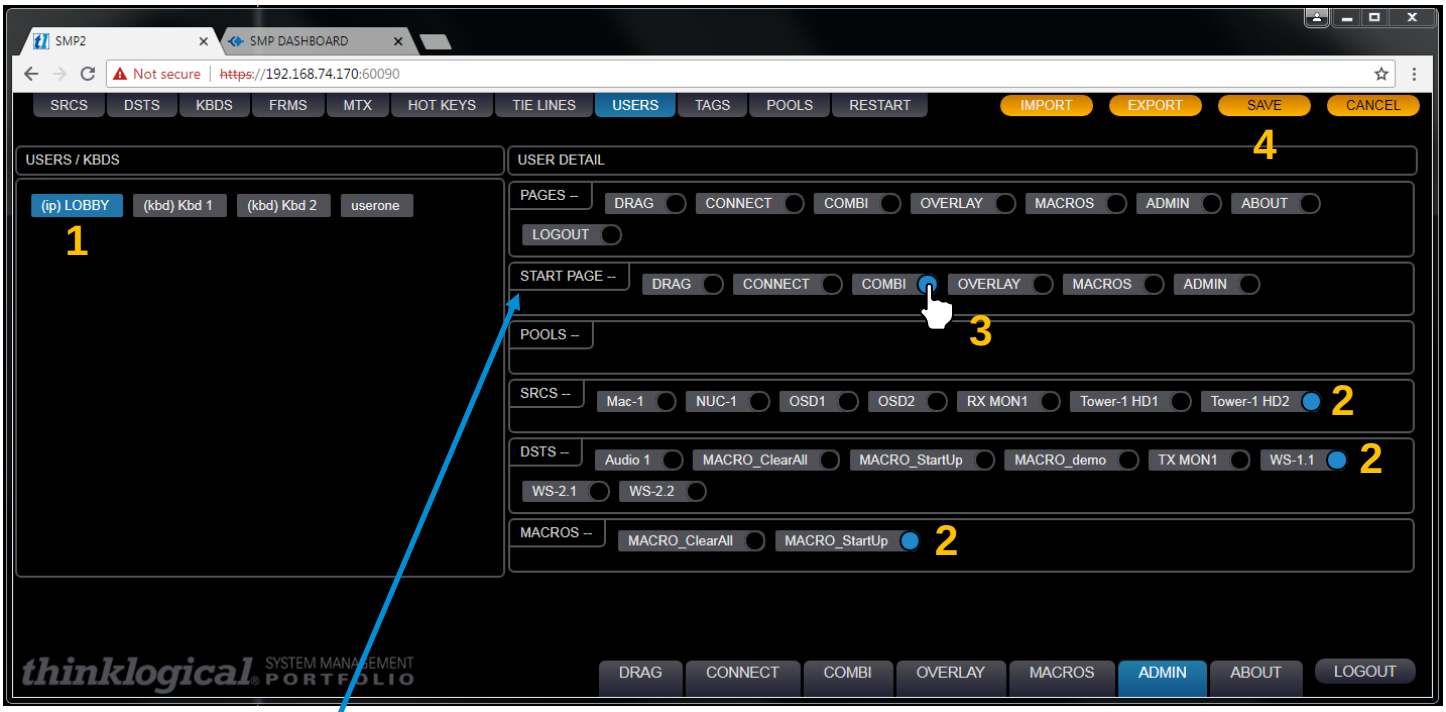
Adding a Touchpanel

In the ADMIN page, select the USERS Tab. Click in the USERS / KBDS window, then Click on TOUCHPANEL in the resulting drop-down menu.

Enter a Name and an IP address for the added Touchpanel, then click on OK.



The new Touchpanel will appear in the USERS / KBDS window (**1**). Select the desired SRCS--, DSTS – and MACROS— to connect to the new Touchpanel (**2**). Select COMBI under START PAGE (**3**). Click SAVE (**4**).

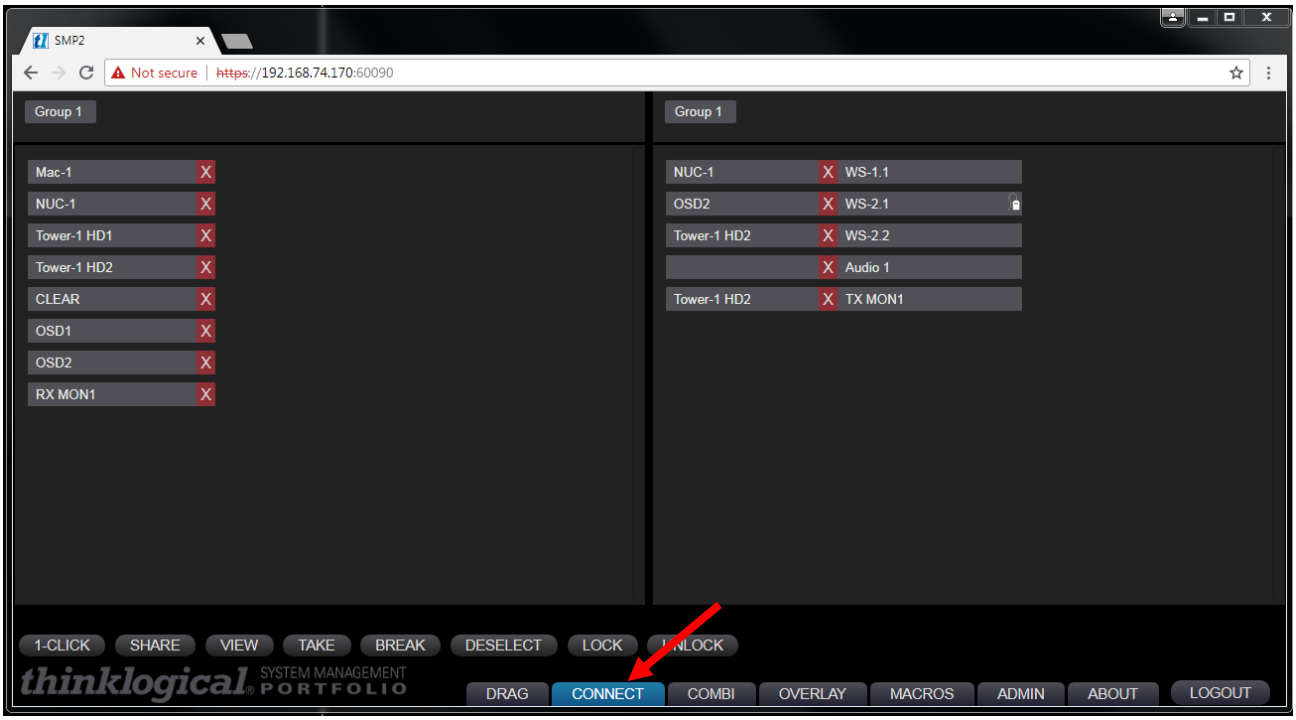


Note: After adding the touchpanel to your USERS tab, make sure to also select COMBI in the START PAGE row in the USER DETAIL section. Otherwise the touchpanel will be blank when it is powered up. (See the touchpanel manual Manual_Touch_Panels.pdf for installation information.)

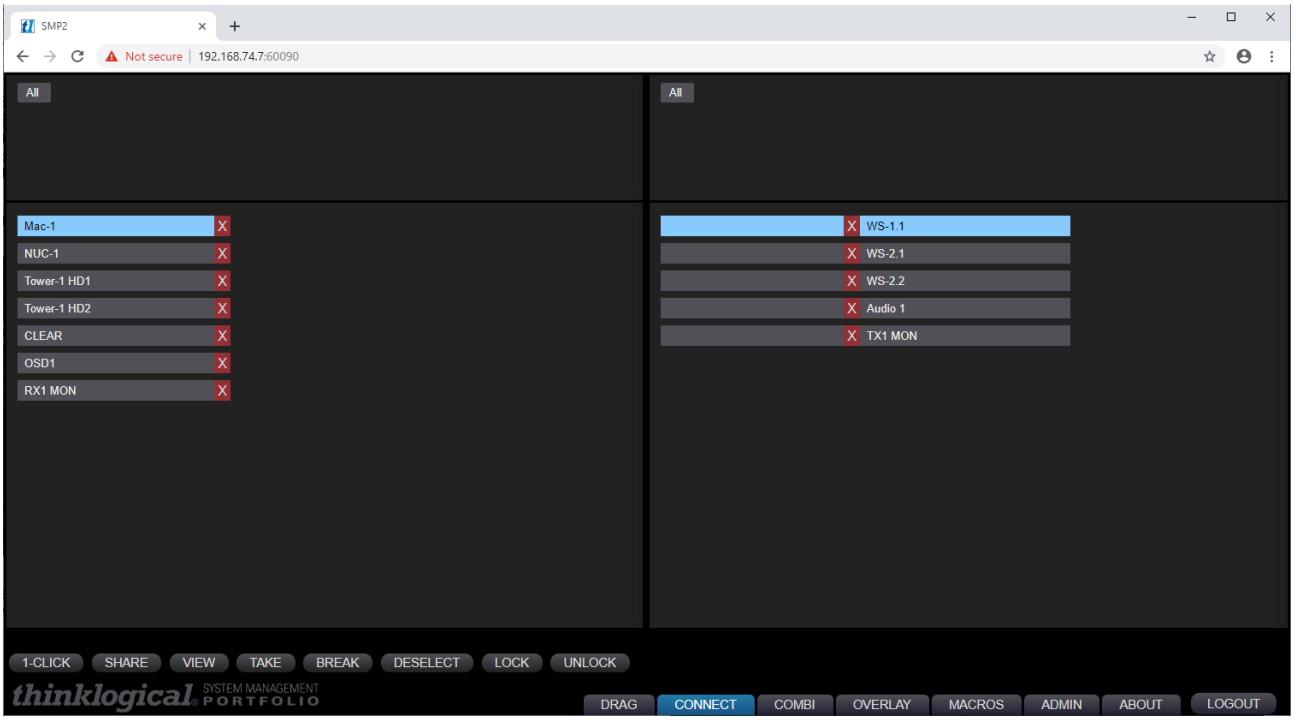
☐ THE CONNECT TAB

The CONNECT Tab's Graphical User Interface makes it easy for administrators to see connections on-screen and switch Sources and Rooms with a few mouse clicks.

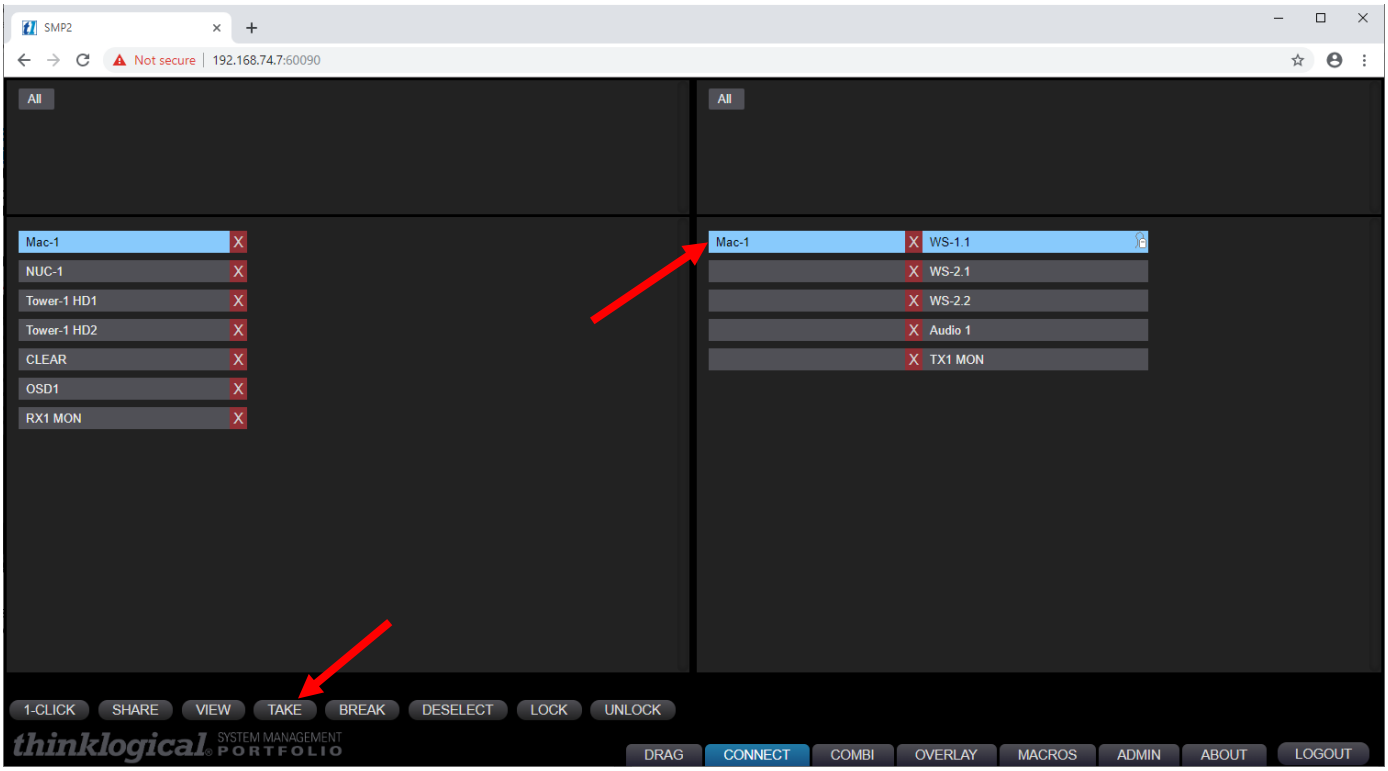
A sample CONNECT page is illustrated below. In this example, Source NUC-1 is connected to WS-1.1 (in View mode) and OSD2 is connected to WS-2.1 with KM control (note the mouse icon), etc.



A typical operation will select a Source from the left and a Destination from the right. The selected assets will then be highlighted in blue.



By clicking the TAKE button, Source MAC-1 will be switched to WS-1.1 with KM control.

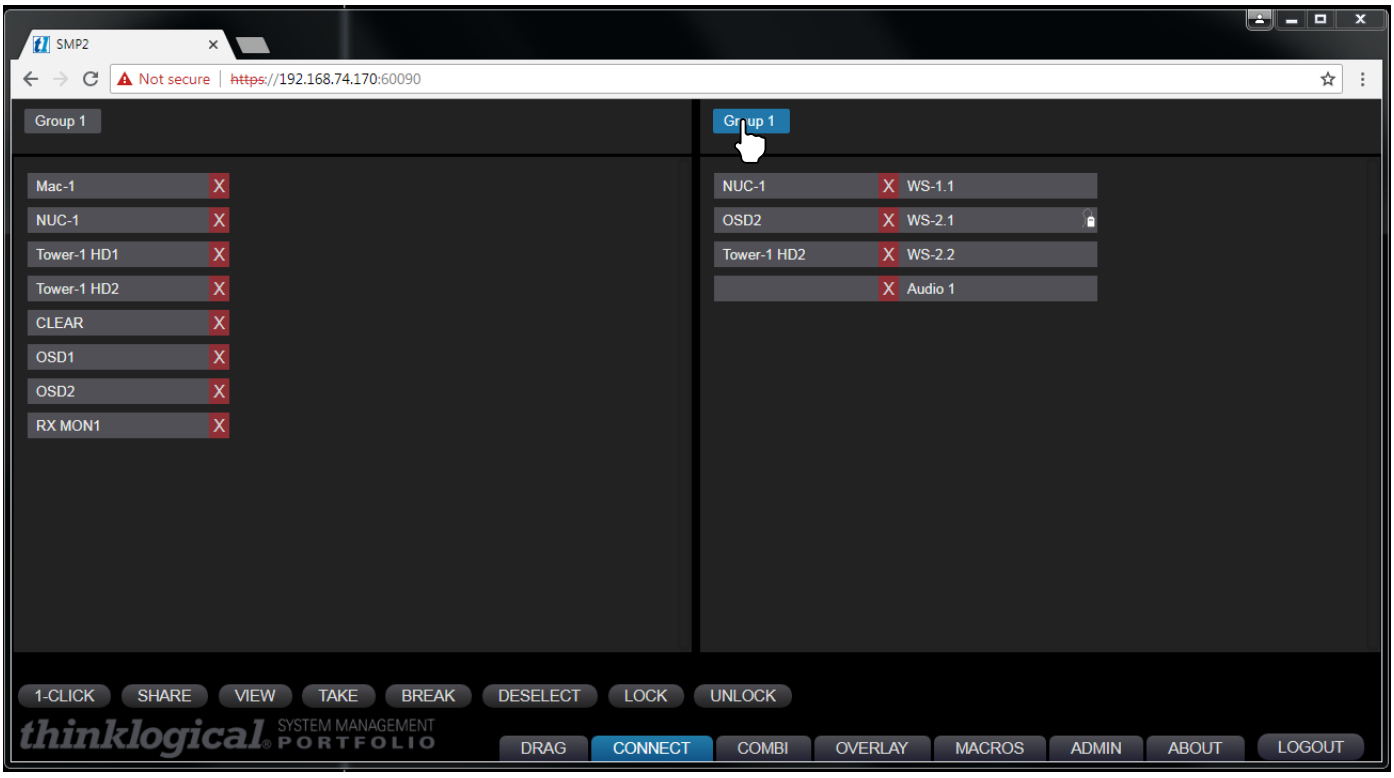


Destinations with active sources will show the names of those sources on the left side. Hovering the cursor over a source or destination will highlight in orange any connections involving that source or destination. Clicking on X will break that connection.

A set of tabs along the bottom, left portion of the page (below) gives users a variety of ways to make and break single or multiple video and data connections.

- **1-CLICK:** Click on any Source and any Destination to make a connection. **Must be used in conjunction with the other tabs**, listed below. *(If 1-CLICK and either SHARE, VIEW, TAKE, or BREAK are selected, as shown above, then the selected action (SHARE, VIEW, TAKE, or BREAK) will be executed immediately.)*
- **SHARE:** By default, when additional Destinations are connected to a previously connected Source, they will all share the video from the Source, but only the last one connected will have control of the mouse, or data return (as shown by the mouse icon).
- **VIEW:** Each newly connected Destination can view the video but will not take the data return.
- **TAKE:** Each newly connected Destination removes the video from all previous Destinations and the new Destination will take the data return.
- **BREAK:** Will break the connections of any highlighted Sources or Destinations.
- **DESELECT:** Clears all highlighted selections at once.
- **LOCK:** Prevents a source or destination from being “taken” or rerouted.
- **UNLOCK:** Removes a Lock condition.

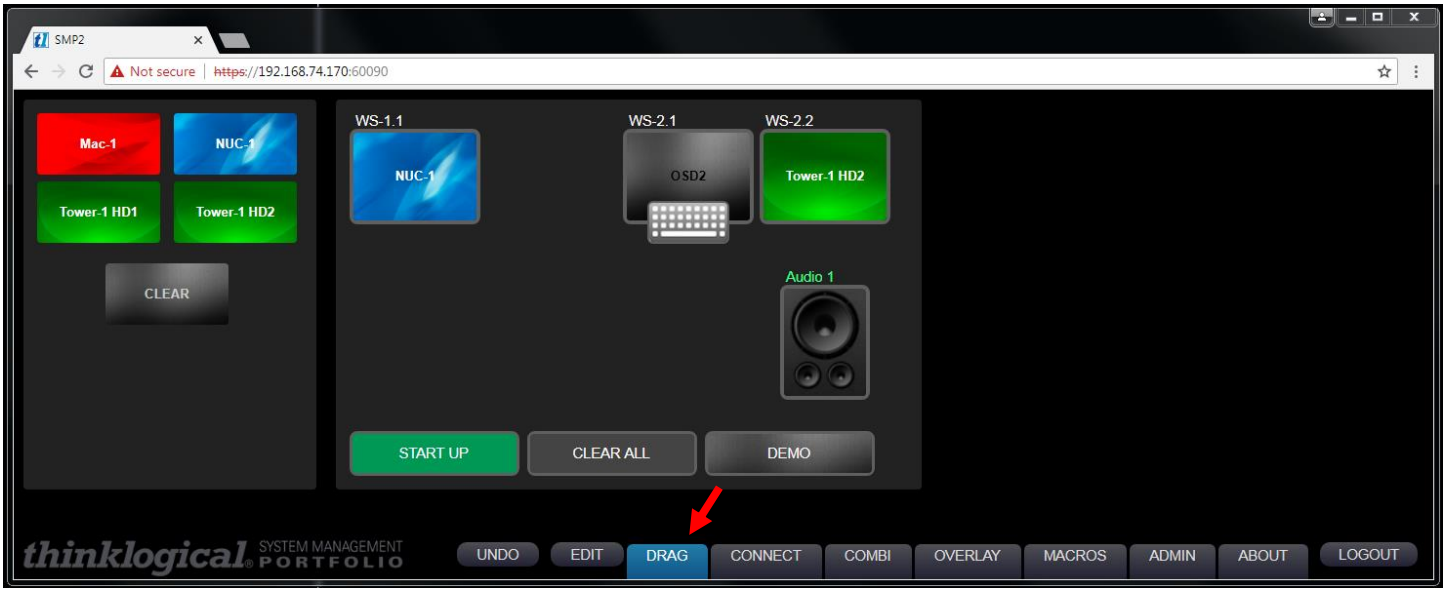
Connections can also be divided into **Tags** that appear in the tabs along the top. As shown in the example below, when the Group 1 Tag is selected on the Destination side, it will turn blue and only destinations that are members of Group 1 are displayed. This feature is most useful at larger sites with many Sources and Destinations. See the separate TAGS section for configuration.



☐ THE DRAG (Drag N Drop) TAB

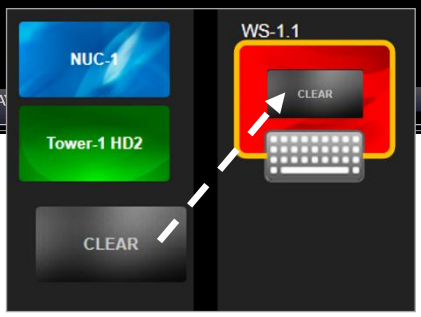
The Drag N Drop Graphical User Interface makes it easy for users to visualize their workstations on-screen and switch Sources and Destinations by simply moving an icon. **As room configurations evolve over time, icons representing Sources and Destinations can be added or removed from the layout as required,** making it simple to adapt to changing requirements.

Click on the DRAG Tab. The Souces, OSD and Destinations in the demonstration example are graphically depicted below in the Drag N Drop GUI, with Sources on the left, unconnected Destinations on the right, and Macros below.

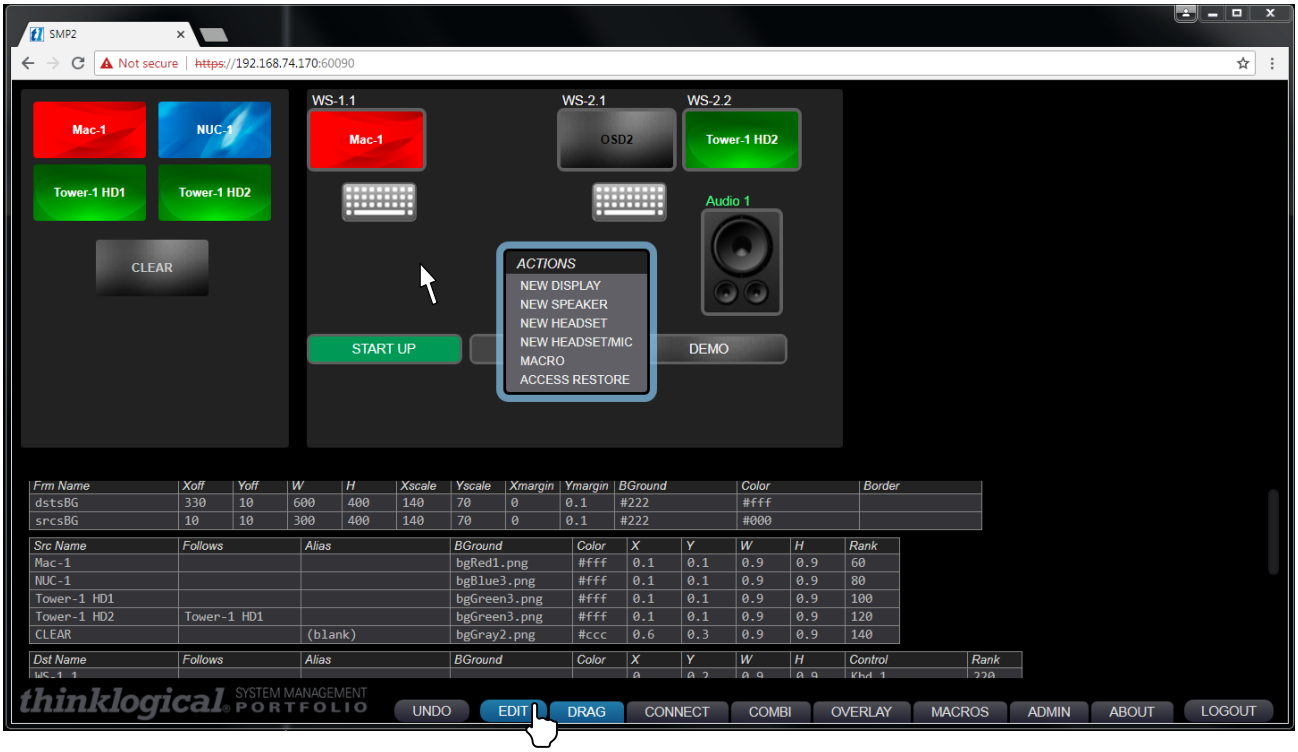


Connections are made by dragging a source icon, from the source frame or from another destination, to a desired destination. The Keyboard icon indicates that *Mac-1* has control of the keyboard.

To **clear** a Source or Destination, drag the CLEAR icon to the icon to be cleared.

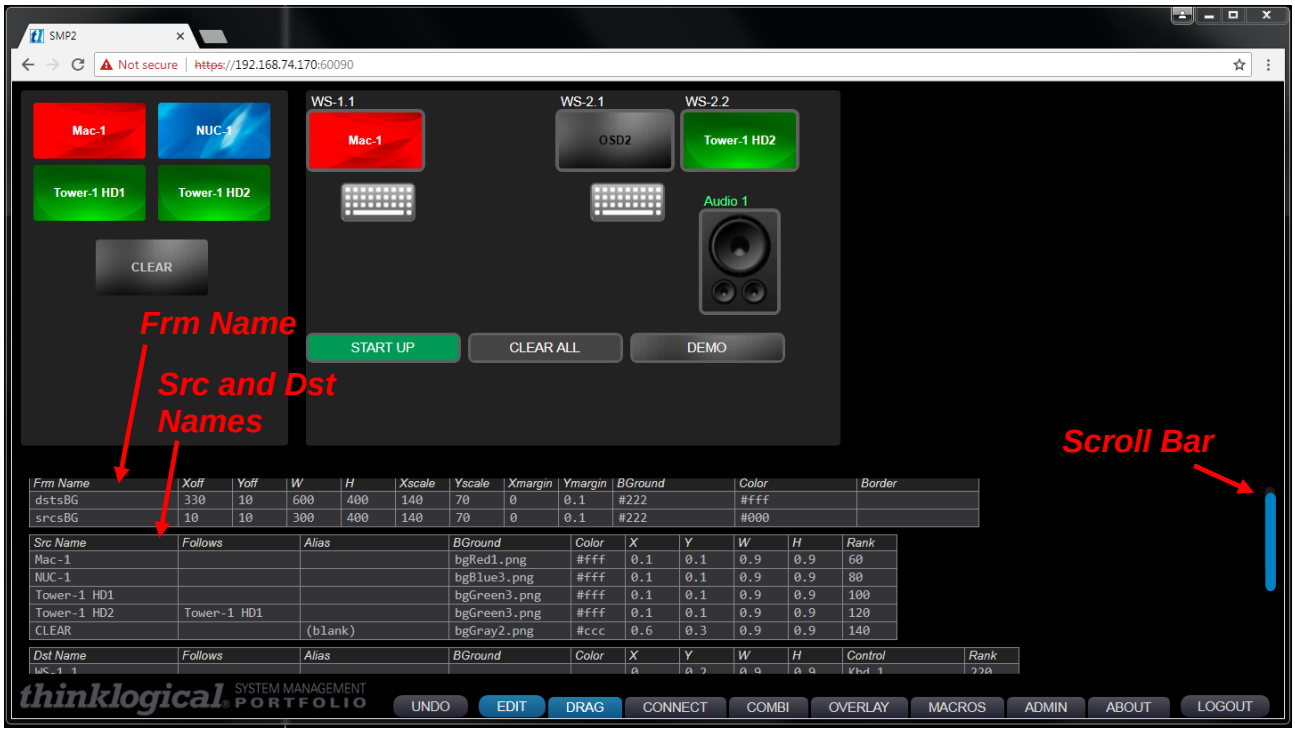


From the EDIT tab at the bottom of the screen, the colors, icon sizes, background color and other parameters can be modified. **This should be done by experienced administrators only!** These settings will be reflected in the ADMIN page SRCS tab. Right-click within the background to **add** new Source, Display or Audio elements.



Modifying the Appearance of Drag N Drop

The following screen shots demonstrate how users can modify the way a system is visualized. On the left side of the screen are four Sources. On the right are three Destinations, Audio and three Macros. The look and size of the icons can be modified from the EDIT Tab at the bottom of the screen.



Experienced administrators may select the EDIT Tab and a window will open with separate tables for editing sources, destinations, keyboards, etc. (previous page). It displays the Source and Destination names, along with the various modifiable parameters. Use the mouse wheel or the **scroll bar** at the right to scroll through the edit menus.

Warning! ***Edit is for experienced administrators only!*** **While making edits in the EDIT TAB, clicking SAVE or moving to another tab will cause the uncompleted edits to be saved, which may render some or all functions inoperable.**

Modify the Backgrounds

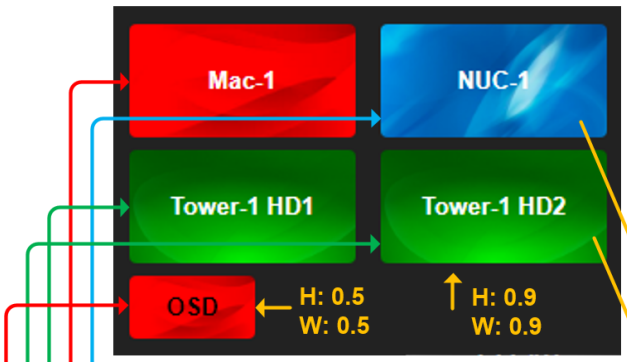
The top-most window, Frame Name *Frm Name*, allows changes to the dimensions and colors of the Destination **dstsBG** and Source **srcsBG** windows by entering new values in any field. *Xoff* and *Yoff* controls the position of the windows. *W* and *H* control the width and height of the windows. *Xscale* and *Yscale* control the size of the field that the icons in each window will occupy.

Frm Name	Xoff	Yoff	W	H	Xscale	Yscale	Xmargin	Ymargin	BGround	Color	Border
dstsBG	330	10	600	400	140	100	0.1	0.1	#222	#fff	
srcsBG	10	10	300	400	140	70	0	0.1	#222	#000	

Users can modify the background colors *BGround*, the text colors *Color*, and the border colors *Border* behind the Destination **dstsBG** (*destinations Back Ground*) and Source **srcsBG** (*sources Back Ground*) windows by entering new values in any of these fields. *Refer to an RGB Color Table for more on the numeric codes.*

Modify the Icons

Below the *Frm Name* window are the *Src Name* and *Dst Name* Edit windows. Using the icons in the Source window as an example, note that the background colors *BGround*, text colors *Color*, relative position *X* and *Y*, and icon dimensions *W* and *H* are specified in the EDIT fields below. (*A fifth source icon, OSD, has been added to this example to demonstrate how the width and height settings modify the displayed icon*.) Icon backgrounds can be an HTTP color description, such as #0f0 (green), or an image saved as a .jpg or .png file to **opt/tl/smp2/public/images** *(case sensative).*

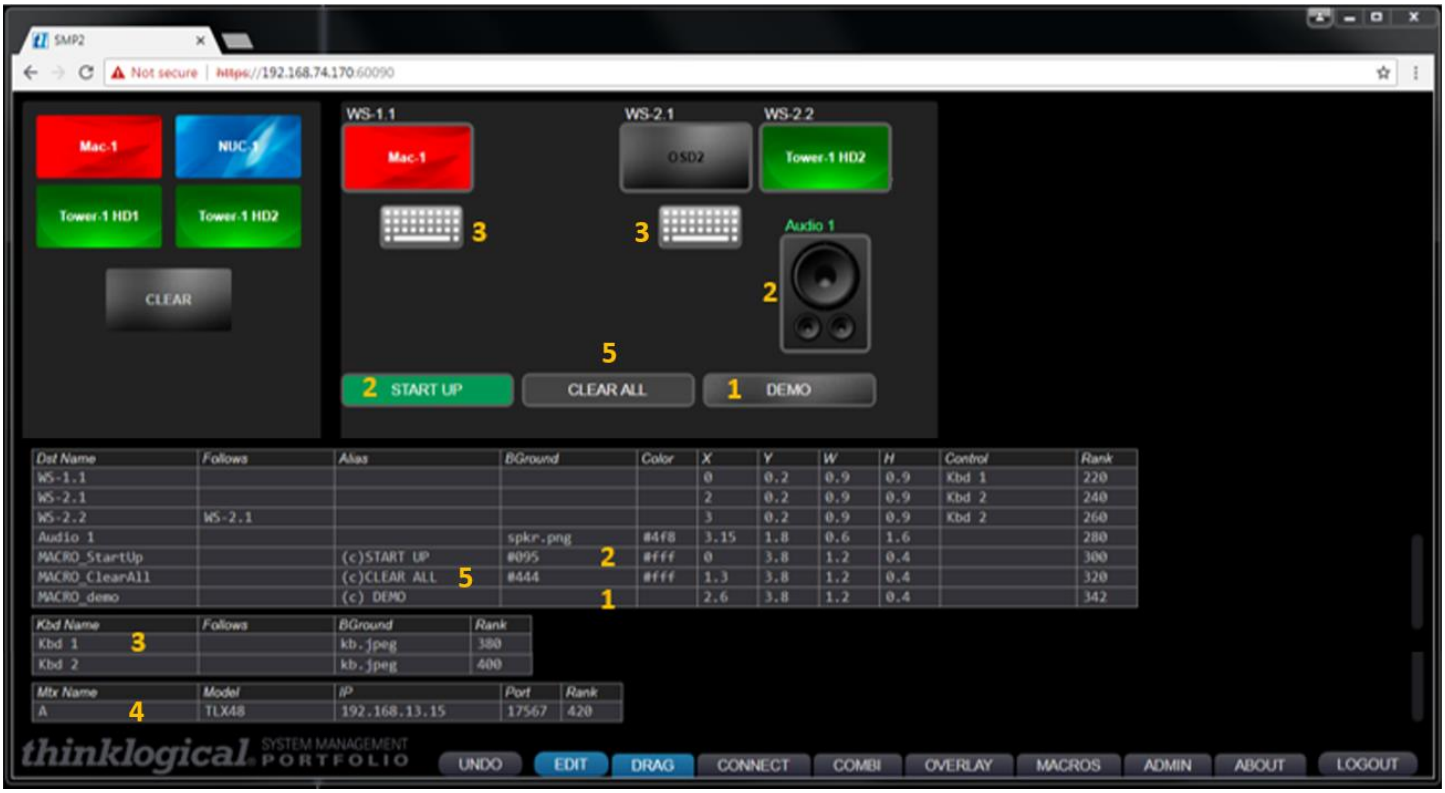


Src Name	Follows	Alias	BGround	Color	X	Y	W	H	Rank
NUC-1			bgBlue3.png	#fff	0.1	0.1	0.9	0.9	90
Mac-1			bgRed1.png	#fff	0.1	0.1	0.9	0.9	80
Tower-1 HD1			bgGreen3.png	#fff	0.1	0.1	0.9	0.9	100
Tower-1 HD2	Tower-1 HD1		bgGreen3.png	#fff	0.1	0.1	0.9	0.9	120
OSD			bgRed1.png		0.1	0.1	0.5	0.5	140

Sources can be re-ordered in the table and in the page layout by clicking on the column headers *BGround*, *Color*, etc. At the far right is the *Rank* column which allows complete control over the order. Sources with smaller rank values will appear on the page layout before sources with greater rank values, when the **Rank** column header is selected.

In the Destinations Table screen shot below:

1. If the *BGround* Column of a destination is left blank it will appear with a gray gradient when not connected and will take on the color or image of the source it's connected to (as in the DEMO macro).
2. If the *BGround* Column of a destination has a color (`#095` *in the Start Up Macro example*) or a .jpg or .png image name (`spkr.png` in the Audio example), then the source's name (or Alias) will appear inside the destination, but the background will be unchanged. The Color column determines the text color for the source name (or Alias) if *BGround* is defined (`#4f8` for green and `#fff` for white in this example). Standard HTML color codes may be used.
3. The *Kbd Name* column shows the names of the active keyboards at the destinations.
4. The *Mtx Name* column shows the name, Model, IP address and port of the Matrix Switch(es) connected to the system.
5. The *Alias* column allows optional names (or blanks) to be displayed instead of the *Dst Name*. See *TECH NOTES: Customize Drag & Drop* on pg. 56 for more appearance options.



TECH NOTES: *Customize Drag & Drop*

The appearance of the Drag & Drop page can be further customized:

1. Text in the **Alias** column can be centered by preceding it with (c), right justified with (r), or left justified with (l). You may also have multiple lines within an icon by entering
 between text strings. If you wish to have no label in the Destination icon, then enter (blank) in the Alias column.
2. Custom images may also be used, but sizing is important. The system will take a custom image and size it to match the width of the icon. If the aspect ratios are the same, then this will appear correctly. But if they are not, this may result in clipping of the image, so take care when creating custom images for use in Drag & Drop. One technique is to add extra border area to the image, where appropriate, to 'fine tune' it to size.
3. Drag & Drop icon Images are located in `/opt/tl/smp2/public/images`.

Please call us for help at any time: 203-647-8700

Configuration Backup

After completing the SMP2 configuration, Thinklogical recommends creating a backup using one of the following methods:

1. The IMPORT and EXPORT functions provide a fast and convenient means to save and reload the SMP2 configuration files. This facilitates offline editing and restoration of archived configurations and is a convenient way to save work as the system is being built. It is then relatively easy to 'go back one version' if an error is made.

Selecting EXPORT will save the appropriate file to the directory `/home/user/Downloads`
These functions are context sensitive. For example, the `stations.csv` file is exported when in either the SRCS, DSTS, KBDS, FRMS or MTX Tabs and contains all the information within those tabs.
The tabs HOTKEYS, TIE LINES, USERS, TAGS and POOLS will export their corresponding files.

Files that can be exported and imported are:

- `stations.csv`
- `hotkeys.csv`
- `tielines.csv`
- `users.csv`
- `tags.csv`
- `allocations.csv`

If MACROS are created, they cannot be archived using the IMPORT and EXPORT functions. These macros are located separately in the `/opt/tl/setup/macros` directory and a backup must be copied from there.

2. Create a backup of your ***entire*** configuration:
   Issue the following command from any directory (for example):
   `tar -cvzPf customer_20190718.tgz /opt/tl/setup`
   This will create a backup file of the entire setup directory with your name (`customer`) and date (`20190718`). This is also the preferred method for creating a backup to archive your configuration in a location separate from the SMP2 itself for safekeeping.

DASHBOARD

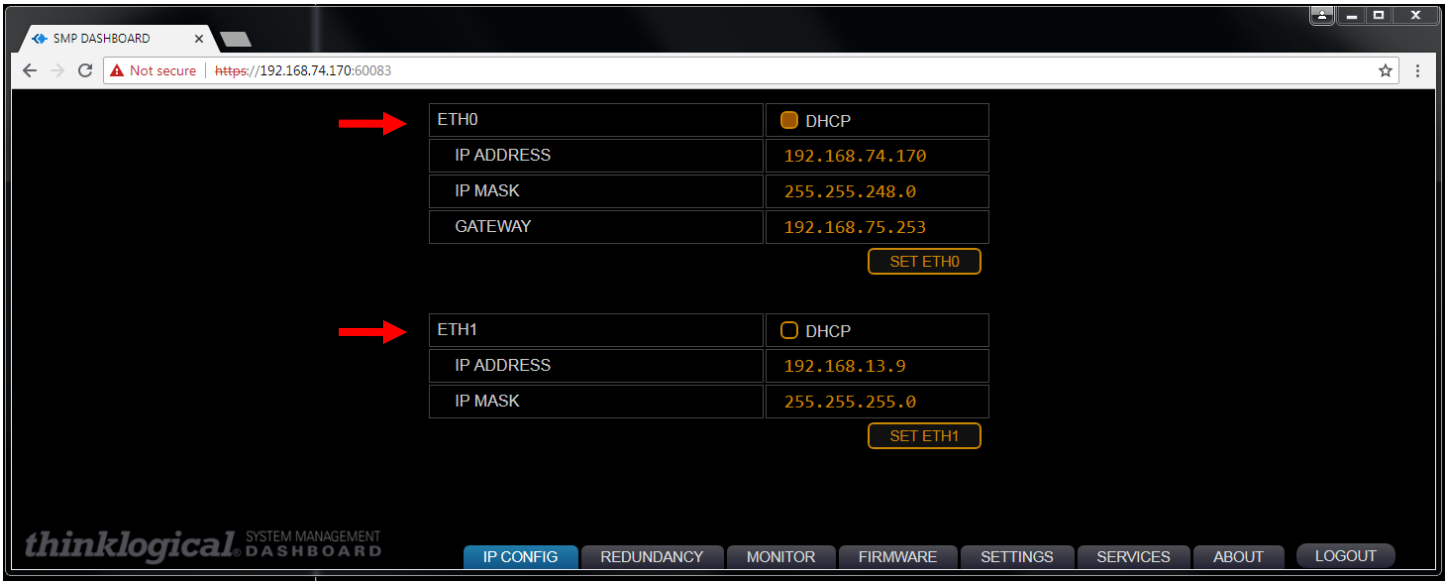
For experienced administrators only, Dashboard is included software that is used to configure the network interfaces, manage services and to enable and manage redundancy and file synchronization.

DASHBOARD Port :60083

Note: This example is with a 6G SMP Appliance. Available Dashboard selections will vary slightly for 10G or with an SMP Module.

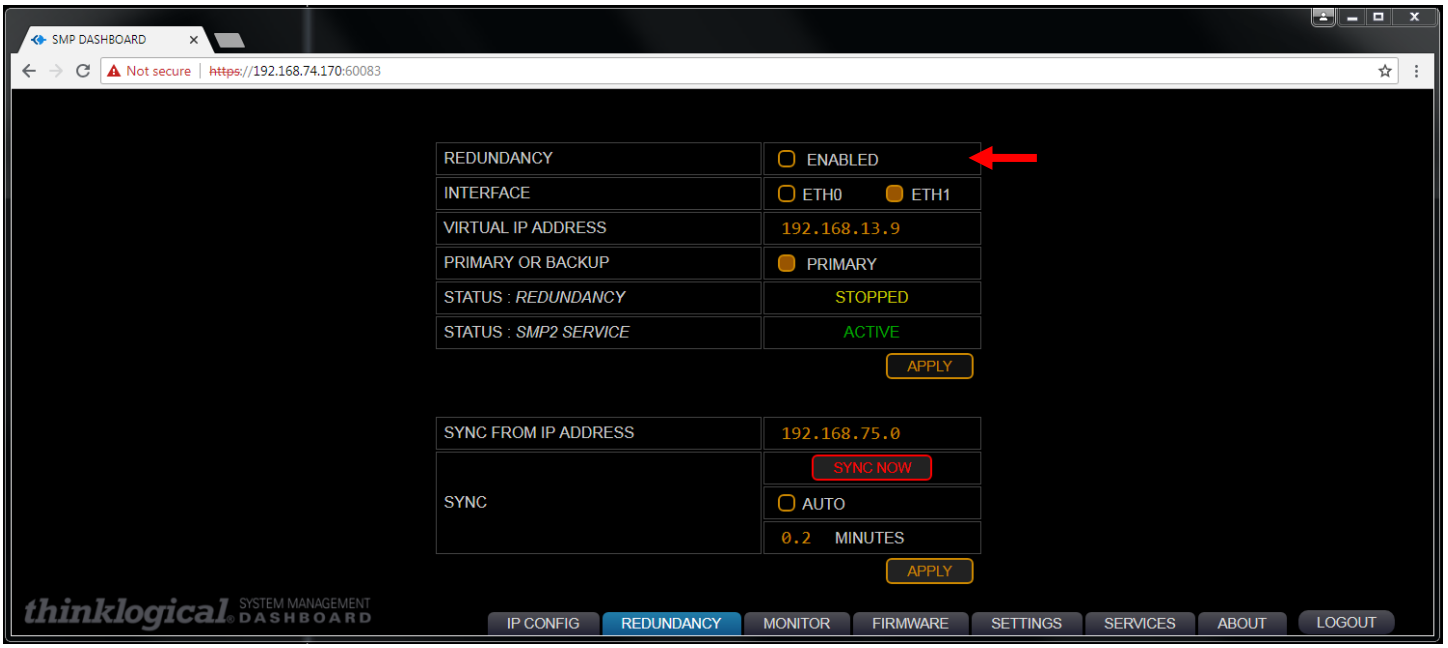
The IP CONFIG Tab

This is where the Network Interfaces ETH0 and ETH1 are configured.



The REDUNDANCY Tab

This is where the SMP Appliance Redundancy is enabled and the ETH0 or ETH1 Interface is chosen. The Virtual IP Address is always the active Controller Card in the Matrix Switch. *SMP2 Service* is ACTIVE. See *Appendix F: SMP2 Redundancy* on pg. 75 for configuration information.



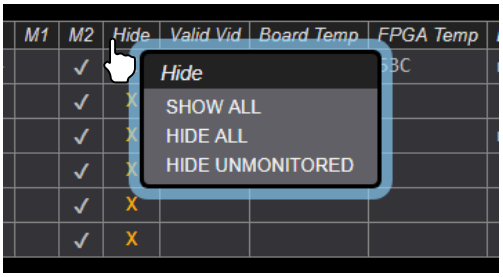
The MONITOR Tab

The MONITOR pages gather and display diagnostic information received from the extenders connected to the Matrix Switch (when available). Some extenders do not provide this information, so some table entries may be blank.

Note: This feature is available on the SMP2 Appliance, but not on the SMP Module. To enable this function, ports must be assigned in the SMP2 Source and Destination Tabs along with the corresponding ports. These ports must be connected between the Matrix Switch and the SMP2 Appliance. The Source tab must have "RX1 MON" and optionally "RX2 MON." The Destination tab must have "TX1 MON" and optionally "TX2 MON."

▪ The Transmitter (TX) Tab

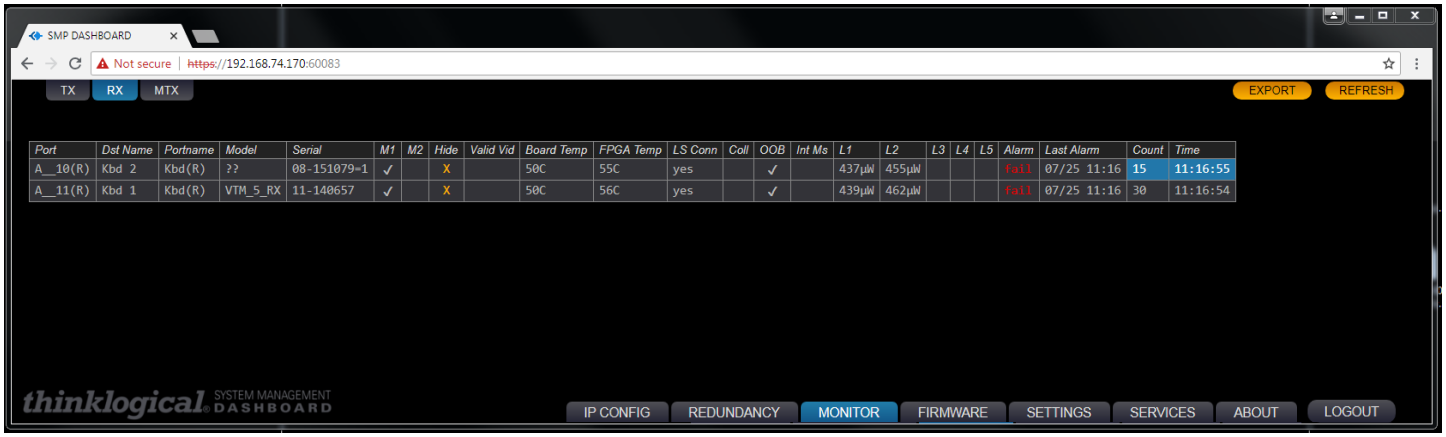
The MONITOR application scans each selected port approximately once per second and records the results. With large numbers of ports, this could take many minutes. It may be desirable to *Hide* some ports so not all are scanned at once. Also, the second MONITOR connection to the SMP2 Appliance may be enabled and connected to the switch to double the frequency of port monitoring to two ports per second.



Right-click on *Hide* and a drop-down allows show/hide options for the entire window.

Note: Users may left-click on any column heading to sort *in ascending order.*

▪ The Receiver (RX) Tab

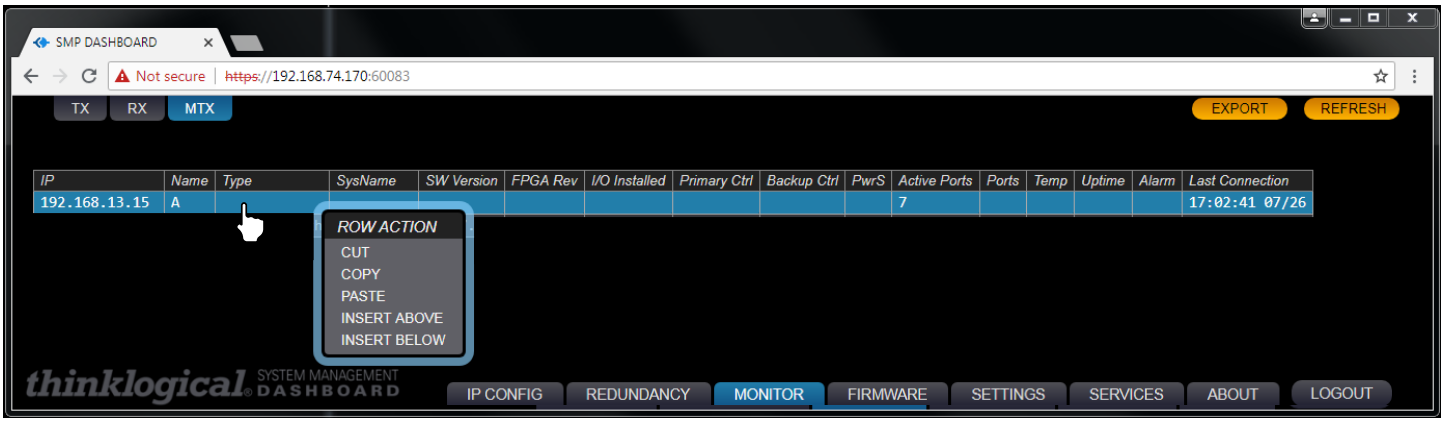


▪ The MONITOR Tab's TX and RX Columns:

- **Port name** - The matrix switch and port number that is being monitored.
- **Src Name/Dst Name** - The source/destination as named in the SMP2 configuration
- **Portname** - Functions being monitored on that port
- **Model** - Internal model number of the extender (if known).
- **Serial** - Serial number of the extender (if known).
- **M1** - Enables Monitor 1 for this port. Right-click allows the entire column to be modified at once.
- **M2** - Enables Monitor 2 for this port. Right-click allows the entire column to be modified at once.
- **Hide** - Allows the deselection of this port from being displayed.
- **Valid Vid** - Indicates a valid video signal at this port.
- **Board Temp** - Temperature of the extender board.
- **FPGA Temp** - Temperature of the extender FPGA.
- **LS conn** - Low speed connected.
- **Coll** - Collaboration enabled for this port.
- **OOB** - Out Of Band enabled.
- **DDC** - Indicates the DDC mode selected for the Tx extender.
- **Int Ms** - Indicates whether the *Intuitive Mouse* feature is enabled.
- **L1** - Power level of L1.
- **L2** - Power level of L2.
- **L3** - Power level of L3.
- **L4** - Power level of L4.
- **L5** - Power level of L5.
- **Alarm** - Indicates an alarm condition reported from the extender. Left-click for details.
- **Last Alarm** - Indicates the date and time of the latest alarm condition. Left-click on an entry to clear it. Right-click on the heading to clear all.
- **Count** - Number of packets received during the last scan.
- **Time** - Time of the last scan.

▪ The Matrix Switch (MTX) Tab

Additional Matrix Switches can be added or deleted by right-clicking a row and choosing from the drop-down menu. Multiple Matrix Switches can be connected to each other with tie lines. (See *the Tie Line Tab*, pg. 32.)



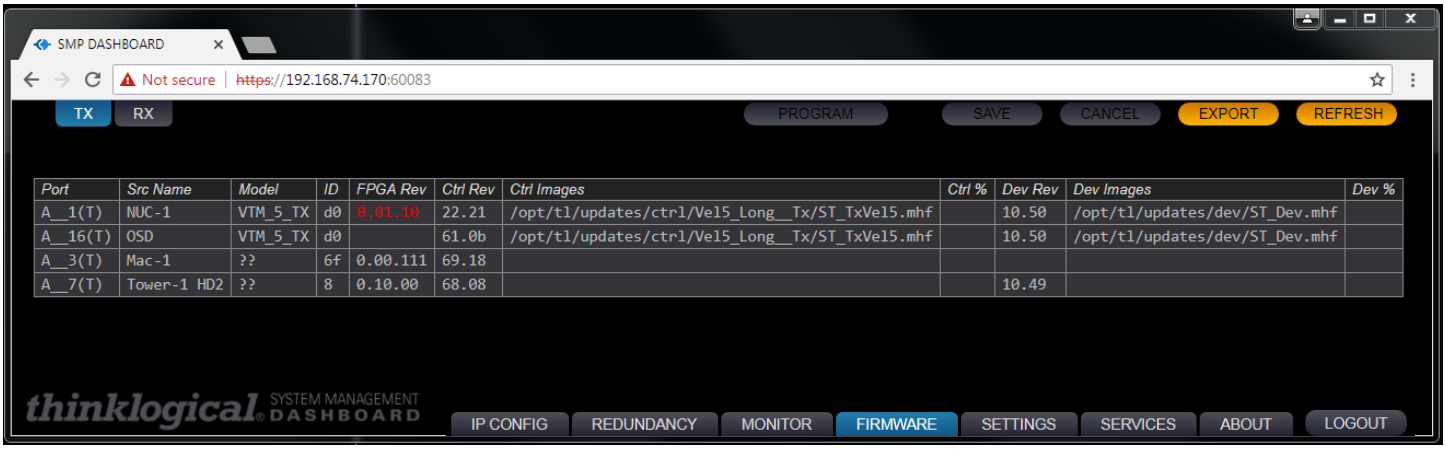
The FIRMWARE Tab

This feature allows firmware updates to be downloaded to extender modules directly from the SMP2 Appliance or SMP2 Module. Some extenders do not provide this information, so some table entries may be blank.

Prior to this operation, obtain the correct firmware update from Thinklogical Technical Support (**1-800-647-8700**) and copy the file to a location in the **`/opt/tl/`**updates directory.

Note: It is possible that the files in this directory may not be later versions than what you have installed. Check with Thinklogical Technical Support before updating.

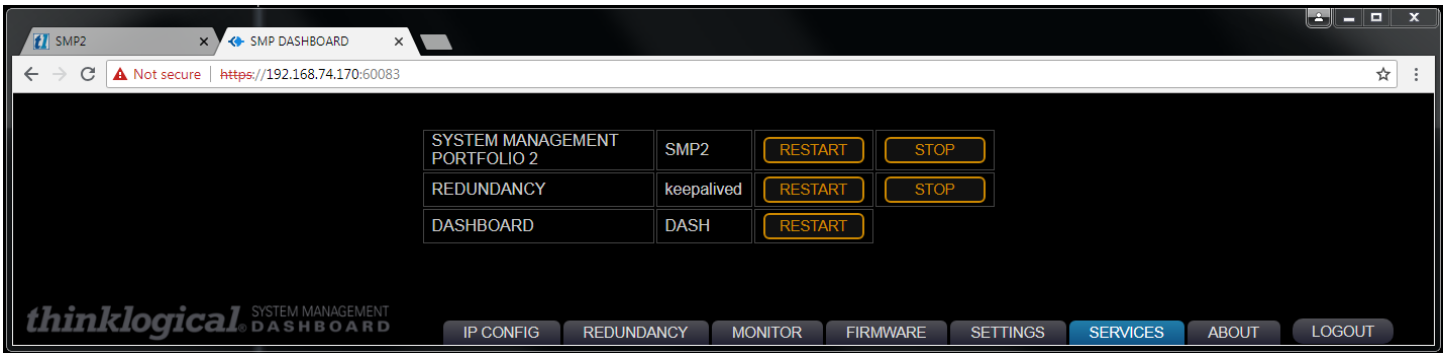
The TX Firmware Tab



The RX Firmware Tab

The SERVICES Tab

This is where the SMP2, Redundancy and Dashboard Services are stopped and restarted.

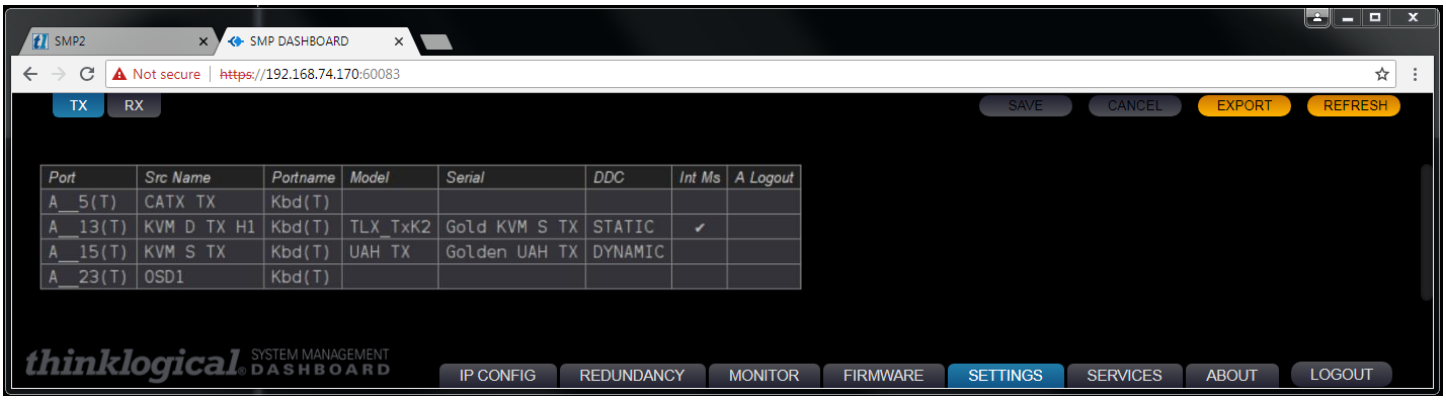


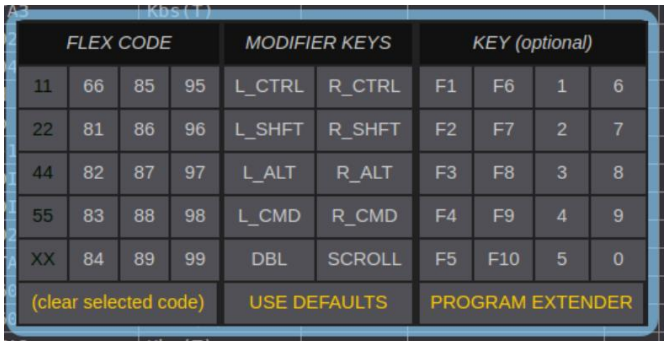
The SETTINGS Tab

Note: This tab is only supported by SMP2 Appliances with 10G optics (TLX). The features described here apply to E-series TLX Extender modules.

Allows users to enter such settings as:

DDC Mode	Tells the Tx what kind of monitor information to present to the computer. For more information see Manual_TLX_KVM_Extenders.pdf: https://www.thinklogical.com/downloads/
OOB	On / Off for the Rx
Collaboration	On / Off for the Rx
Intuitive Mouse	On / Off for the Rx and Tx
Flex Keys	Tells the Rx what OOB signal to send when a Hot Key sequences is entered.



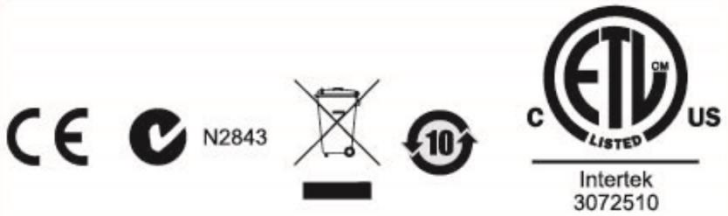


In the SETTINGS Tab's RX screen, left-click in *Flex Keys*, above, to get the *FLEX CODE* drop-down menu, left. Set up *Flex Keys* from here.

Regulatory & Safety Compliance

Symbols Found on Our Products

Markings and labels on our products follow industry-standard conventions. Regulatory markings found on our products comply with all required domestic and many international requirements.



Regulatory Compliance

Thinklogical's® products are designed and made in the U.S.A. These products have been tested by a certified testing laboratory and found compliant with the following standards for both domestic USA and many international locations:

North America

Safety
UL 62368-1:2014Ed.2
CSA C22.2#62368-1:2014Ed.2

LASER Safety
CDRH 21 CFR 1040.10
Class 1 LASER Product
Canadian Radiation Emitting Devices Act, REDR C1370
IEC 60825:2001 Parts 1 and 2
Class 1 LASER Product

Electromagnetic Interference
FCC 47CFR Part 15 Subpart B: 2013 Class A
Industry Canada ICES-003: 2016 Ed. 6

Australia & New Zealand

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take corrective action.

European Union

Declaration of Conformity

Manufacturer's Name & Address: **Thinklogical,** A **BELDEN** BRAND
100 Washington Street
Milford, Connecticut 06460 USA

Thinklogical's products comply with the requirements of the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU, the WEEE Directive 2012/19/EU and carry the CE marking accordingly.

Standards with Which Our Products Comply

Safety
IEC 62368-1:2014Ed.2+C1
CB Scheme Certificate

Electromagnetic Emissions
CENELEC EN 55022:2010 +AC:2011

Electromagnetic Immunity

EN 55024:2011+A1
CENELEC EN 55032:2015
EN 61000-3-2:2000 Harmonics
EN 61000-3-3:2008 Flicker
EN 61000-4-2:2009 Electro-Static Discharge Test
EN 61000-4-3:2006 A1:2008, A2:2010 Radiated Immunity Field Test
EN 61000-4-4:2004 Electrical Fast Transient Test
EN 61000-4-5:2006 Power Supply Surge Test
EN 61000-4-6:2009 Conducted Immunity Test
EN 61000-4-11:2004 Voltage Dips & Interrupts Test

Supplementary Information

The following statements may be appropriate for certain geographical regions and might not apply to your location:

- This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. *Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le matérial brouilleur du Canada*.
- This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take corrective action.
- This equipment has been tested and found compliant with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide 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 in which case the user may be required to make adequate corrective measures at their own expense.
- This Class A digital apparatus complies with Canadian ICES-003 and has been verified as compliant within the Class A limits of the FCC Radio Frequency Device Rules (FCC Title 47, Part 15, Subpart B CLASS A), measured to CISPR 22:1993 limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment.
- The user may notice degraded audio performance in the presence of electro-magnetic fields.

Product Serial Number

Thinklogical products have a unique serial number, which includes a date-code, printed on an adhesive label that is affixed to the unit. The format for the date-code is *2 digits for the month*, dash, *2 digits for the year*, plus *at least four digits for a unique unit number*. For example:
11-190128 indicates the unit was built in the **11**th month of 20**19** and is unit number **128**.

Connection to the Product

Connections and installation hardware for our products use industry-standard devices and methods. All wiring connections to the customer equipment are designed to minimize proprietary or customized connectors and cabling. Power connections are made with regionally appropriate power cords and approved methods.

How to Contact Us

Customer Support

Website: https://www.thinklogical.com

Check out our website for current products, support documents and useful information about all the products and services we offer, including:

- **Technical Specification Sheets**
- **Quick-Start Guides**
- **Product Manuals** (for viewing online or for download)
- **Chat live with a Technical Service Representative**

Email: mailto:support@thinklogical.com

For product support, technical issues or questions, product repairs and request for Return Merchandise Authorization.

Telephone: 1-203-647-8700

Please contact our expert sales staff in Milford, CT **Monday-Friday from 8:30am to 5:00pm**, Eastern Time Zone. If leaving a voice message, please provide a preferred time to call back.

Fax: 1-203-783-9949

Please indicate the nature of the fax on your cover sheet and provide contact information.

Product Support

Warranty

Thinklogical warrants this product against defects in materials and workmanship for a period of one year from the date of delivery, with longer terms available at time of purchase on most products. Thinklogical and its suppliers disclaim all other warranties. Please refer to your product invoice for the Warranty Terms & Conditions.

Defect remedy shall be the repair or replacement of the product, provided that the defective product is returned to the authorized dealer within a year from the date of delivery.

If you wish to return your device, contact the Thinklogical authorized dealer where you purchased the device, or if you purchased directly, call Thinklogical at **1-800-647-8700**.

Return Authorization

If you must return a product to Thinklogical directly, please contact us at **1-203-647-8700**. Customer Support will ask you to describe the problem and will issue you a **R**eturn **M**erchandise **A**uthorization **number** (RMA#). Pack the device in its original box, if possible, and return it with the RMA# printed on the outside of the box. **DO NOT return a product to Thinklogical without a *Return Merchandise Authorization*.**

Our Address

If you have any product issues or questions or need technical assistance with your Thinklogical system, please call us at **1-203-647-8700** and let us help. If you need to write us or return a product, please use the following address:

Please include the Return Merchandise Authorization number: **Thinklogical,** A **BELDEN** BRAND
100 Washington Street
Milford, CT 06460 USA
Attn: *RMA#*

Appendix A: System Management Portfolio 2.0 Part Numbers

VX SMP APPLIANCES

SMP-A000012	SMP 6G Multi-Mode Appliance with 12 Port Software Package
SMP-A000024	SMP 6G Multi-Mode Appliance with 24 Port Software Package
SMP-A000048	SMP 6G Multi-Mode Appliance with 48 Port Software Package
SMP-A000080	SMP 6G Multi-Mode Appliance with 80 Port Software Package
SMP-A000320	SMP 6G Multi-Mode Appliance with 320 Port Software Package
SMP-A000640	SMP 6G Multi-Mode Appliance with 640 Port Software Package

TLX SMP APPLIANCES

SMP-AX00012	SMP 10G Multi-Mode Appliance with 12 Port Software Package
SMP-AX00024	SMP 10G Multi-Mode Appliance with 24 Port Software Package
SMP-AX00048	SMP 10G Multi-Mode Appliance with 48 Port Software Package
SMP-AX00080	SMP 10G Multi-Mode Appliance with 80 Port Software Package
SMP-AX00160	SMP 10G Multi-Mode Appliance with 160 Port Software Package
SMP-AX00320	SMP 10G Multi-Mode Appliance with 320 Port Software Package
SMP-AX00640	SMP 10G Multi-Mode Appliance with 640 Port Software Package

VX SMP MULTI-MODE MODULES

SMP-M000012	SMP 6G Multi-Mode Module with 12 Port Software Package
SMP-M000024	SMP 6G Multi-Mode Module with 24 Port Software Package
SMP-M000048	SMP 6G Multi-Mode Module with 48 Port Software Package
SMP-M000080	SMP 6G Multi-Mode Module with 80 Port Software Package
SMP-M000320	SMP 6G Multi-Mode Module with 320 Port Software Package
SMP-M000640	SMP 6G Multi-Mode Module with 640 Port Software Package

TLX SMP MULTI-MODE MODULES

SMP-MX00012	SMP 10G Multi-Mode Module with 12 Port Software Package
SMP-MX00024	SMP 10G Multi-Mode Module with 24 Port Software Package
SMP-MX00048	SMP 10G Multi-Mode Module with 48 Port Software Package
SMP-MX00080	SMP 10G Multi-Mode Module with 80 Port Software Package
SMP-MX00160	SMP 10G Multi-Mode Module with 160 Port Software Package
SMP-MX00320	SMP 10G Multi-Mode Module with 320 Port Software Package
SMP-MX00640	SMP 10G Multi-Mode Module with 640 Port Software Package

VX SMP SINGLE-MODE MODULES

SMP-M0S0012	SMP 6G Single-Mode Module with 12 Port Software Package
SMP-M0S0024	SMP 6G Single-Mode Module with 24 Port Software Package
SMP-M0S0048	SMP 6G Single-Mode Module with 48 Port Software Package
SMP-M0S0080	SMP 6G Single-Mode Module with 80 Port Software Package
SMP-M0S0320	SMP 6G Single-Mode Module with 320 Port Software Package
SMP-M0S0640	SMP 6G Single-Mode Module with 640 Port Software Package

TLX SMP SINGLE-MODE MODULES

SMP-MXS0012	SMP 10G Single-Mode Module with 12 Port Software Package
SMP-MXS0024	SMP 10G Single-Mode Module with 24 Port Software Package
SMP-MXS0048	SMP 10G Single-Mode Module with 48 Port Software Package
SMP-MXS0080	SMP 10G Single-Mode Module with 80 Port Software Package
SMP-MXS0160	SMP 10G Single-Mode Module with 160 Port Software Package
SMP-MXS0320	SMP 10G Single-Mode Module with 320 Port Software Package
SMP-MXS0640	SMP 10G Single-Mode Module with 640 Port Software Package

SMP CLIENT

SMP-C000001	SMP 6G Multi-Mode Client
SMP-CX00001	SMP 10G Multi-Mode Client
SMP-C0S0001	SMP 6G Single-Mode Client
SMP-CXS0001	SMP 10G Single-Mode Client

Appendix B: SSL Certificates for HTTPS

Secure **S**ockets **L**ayer (SSL) Certificates provide secure, encrypted communications between a website (SMP2 web server) and an internet browser. SSL is the protocol that provides the encryption. The location for the SSL certificates and keys on the SMP2 computer are contained in the following two files:

Initial early version:	*Current version:*
`/opt/tl/smp2/file.pem`	`/etc/ssl/private/smp2.pem`
`/opt/tl/smp2/file.crt`	`/etc/ssl/private/smp2.crt`

These original files, `smp2.pem` and `smp2.crt`, are Thinklogical self-issued certificates and are intended to be place holders for a certificate from a recognized trusted certificate authority, to be installed by the SMP2 administrator.

Note: The file naming convention must be maintained for proper web server operation.

To **confirm the certificate's expiration date,** perform the following commands:

1.) From the Linux command line perform the '`su`' command to login as the *root user.*
2.) Change the directory to the location of the certificate: `cd /etc/ssl/private`
3.) Execute the following command: `openssl x509 -noout -in smp2.crt -dates`

To **generate new self-issued certificates**:

1.) From the Linux command line perform the '`su`' command to login as the *root user.*
2.) Change the directory to the location of the certificate: `cd /etc/ssl/private`
3.) Execute the following command:

```
openssl  req -x509 -nodes -days 9999 -newkey rsa:2048 -keyout
smp2.pem -out smp2.crt
```

Note: 9999 days = ~ 27 years.

Note: Once the certificates have been acquired from an authorized source, they should be stored in the location specified above (SSL Certificates), using the exact naming convention shown above.

Appendix C: Key SMP2 File Locations (Accessible by root user only)

Configuration files:

```
/opt/tl/setup/stations.csv
/opt/tl/setup/tags.csv
/opt/tl/setup/tielines.csv
/opt/tl/setup/users.csv
/opt/tl/setup/macros - directory
```

Scripts:

```
/opt/tl/tools/userpwd.js
/opt/tl/tools/userpwd_README.txt
```

Internal use only:

```
/opt/tl/setup/syncSettings.json
/opt/tl/setup/redundancySettings.json
/opt/tl/cache/
/opt/tl/tools/keepalivedMod.sh
```

SSL Certificates:

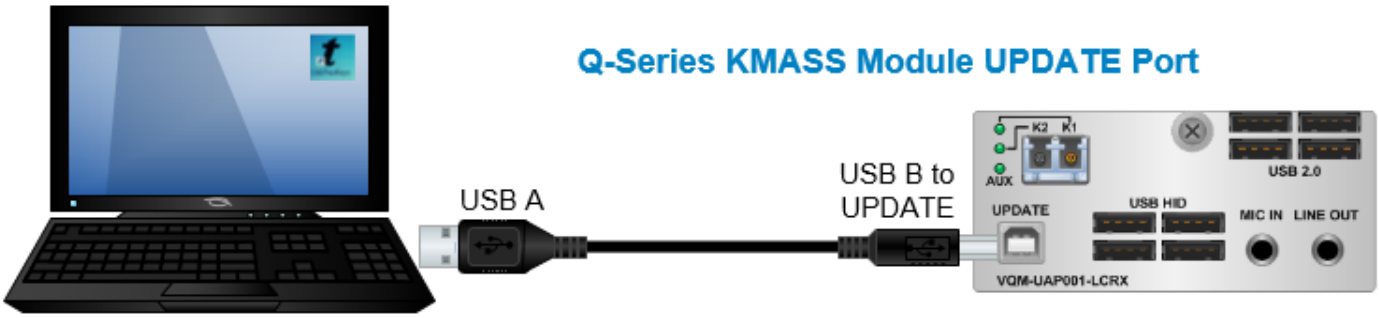
```
/etc/ssl/private/smp2.pem
/etc/ssl/private/smp2.crt
```

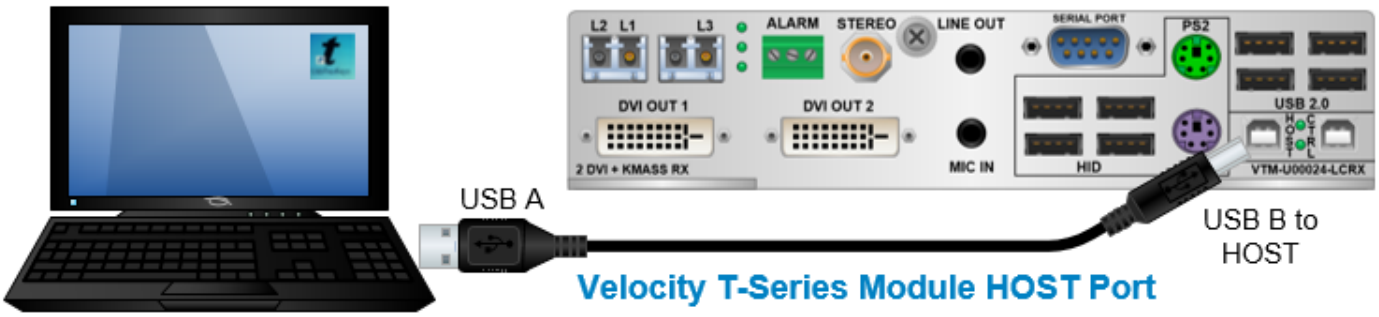
Log files:

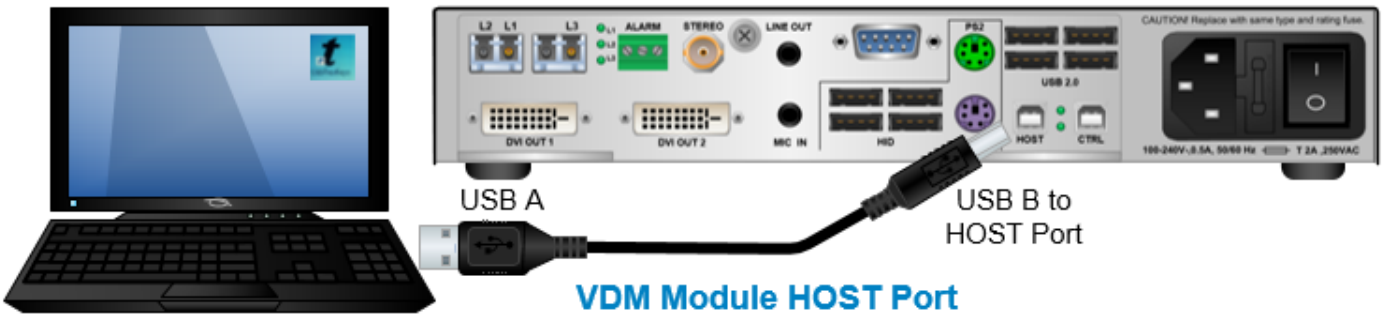
```
/var/log/tl-smp2.log
/var/log/tl-dash.log
```

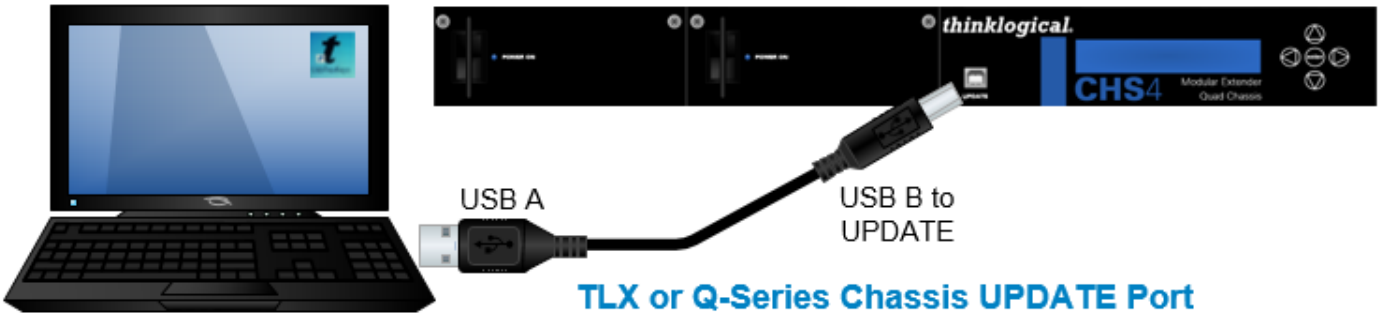
Appendix D: Enable Hot Keys (Out Of Band)

Connect the PC to the Rx HOST or Chassis UPDATE Port with a USB cable. Hot Keys can be enabled or disabled on a Receiver Module with HID capabilities using the Chassis front panel LCD and Navigation Buttons. See more about *Hot Keys* on pg. 28.

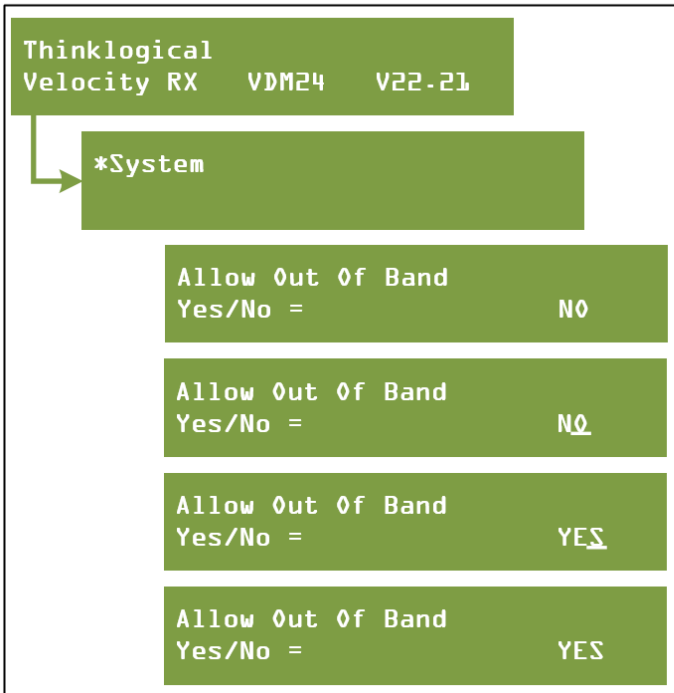


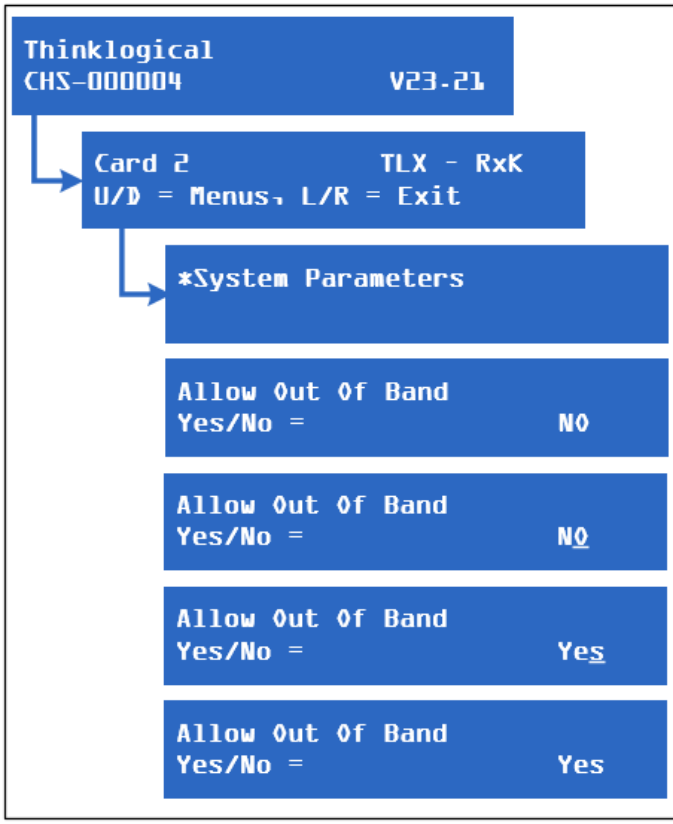






To Enable/Disable Hot Keys, follow the steps below:

Desktop Chassis Front Panel LCD Display	Description
	At **turn-on**, chassis type and current revision are displayed. Scroll Down to the ***System** menu. Press the **left arrow** button ~3 times to get to the *Allow Out Of Band* menu. If Out Of Band is disabled, NO will be displayed to the right. Press the **enter** button to select the YES/NO option. The last letter will display an underscore, indicating that it can now be changed or selected. Press the **up arrow** button to toggle to the YES option. The last letter will display an underscore, indicating that it can be changed or selected. Press the **enter** button to select the YES option. The underscore will disappear, indicating that *Allow Out Of Band* is now enabled.

CHS-4 and CHS-2 Chassis Front Panel LCD Display	Description
	At **turn-on**, chassis type and current revision are displayed. Scroll Down to access the menu for the **Receiver Module** to be enabled. (Must have HID capability.) Scroll Down to the ***System Parameters** menu. Press the **left arrow** button ~5 times to get to the *Allow Out Of Band* menu. If Out Of Band is disabled, NO will be displayed to the right. Press the **enter** button to select the YES/NO option. The last letter will display an underscore, indicating that it can now be changed or selected. Press the **up arrow** button to toggle to the YES option. The last letter will display an underscore, indicating that it can be changed or selected. Press the **enter** button to select the YES option. The underscore will disappear, indicating that *Allow Out Of Band* is now enabled.

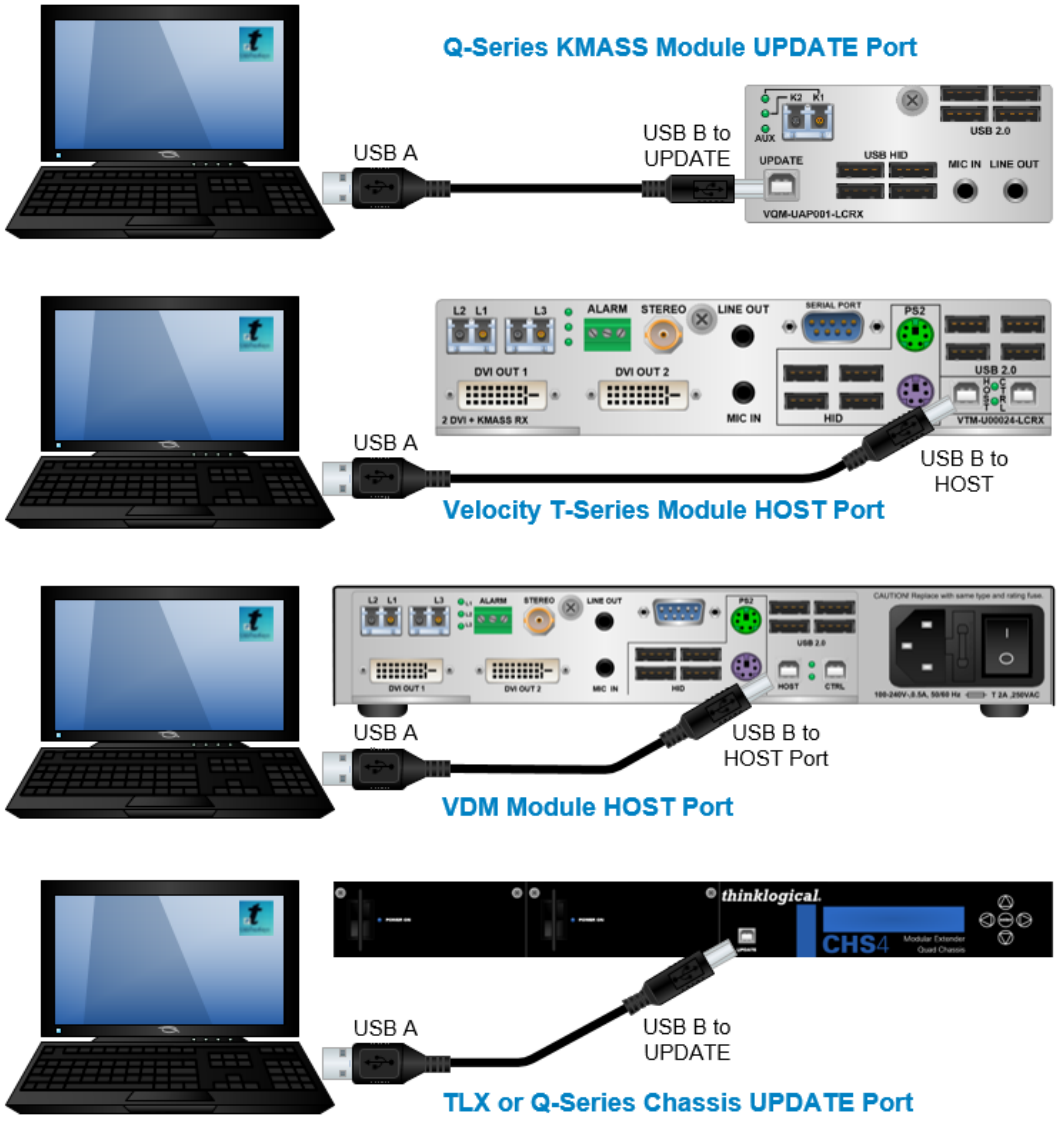
Appendix E: Flex Keys

Flex Keys is a Thinklogical Tool that installs onto a Windows PC. *Flex Keys* gives the administrator the ability to create unique **hot keys** to enable actions that are not in Thinklogical's default Hot Key Manager Legend. See more about *Hot Keys* on pg. 28.

Create Unique Flex Key Actions

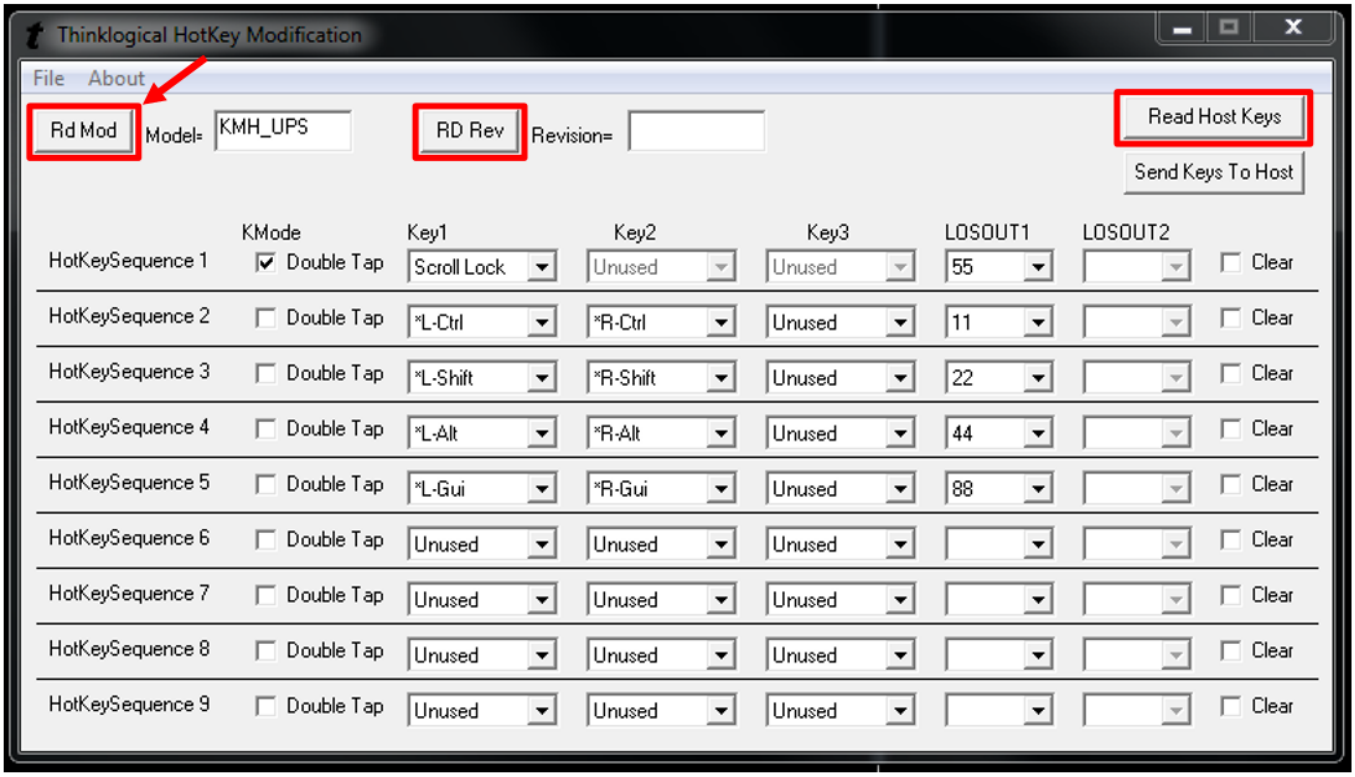
1. Connect a PC to the **HOST** or **UPDATE** port located on a Thinklogical Q-Series, T-Series or TLX Receiver or Chassis. Any changes will be saved to that Receiver.

Note: Use a USB 2.0 port only. *DO NOT use a USB 3.0 port.*

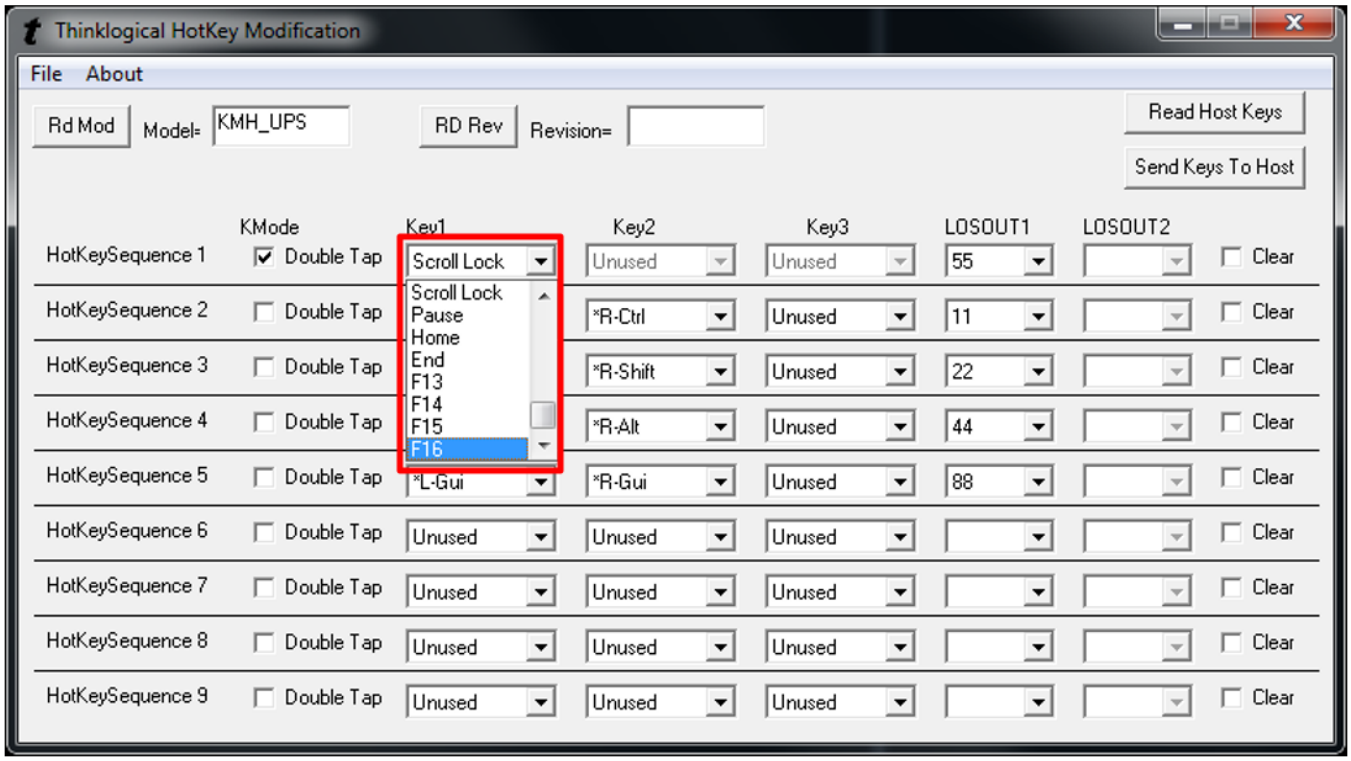


2. Click on the **UsbFlexKeys** icon. 

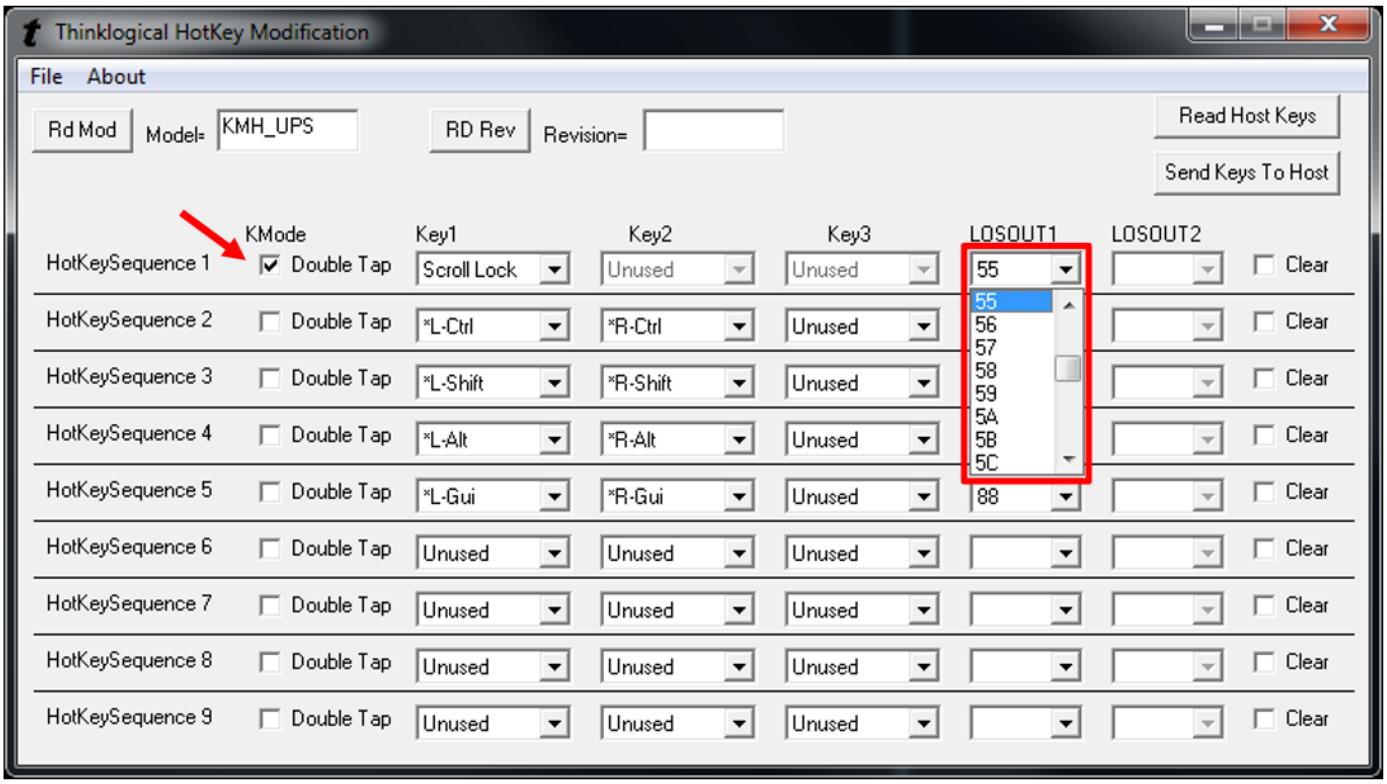
3. The saved HOST or UPDATE settings are read here. Click on *Rd Mod* to establish a connection to the Host. Then click on *Read Host Keys* to read the existing Flexkeys from the module. *The default keys are shown here. They may be used as they are or modified for your application.*



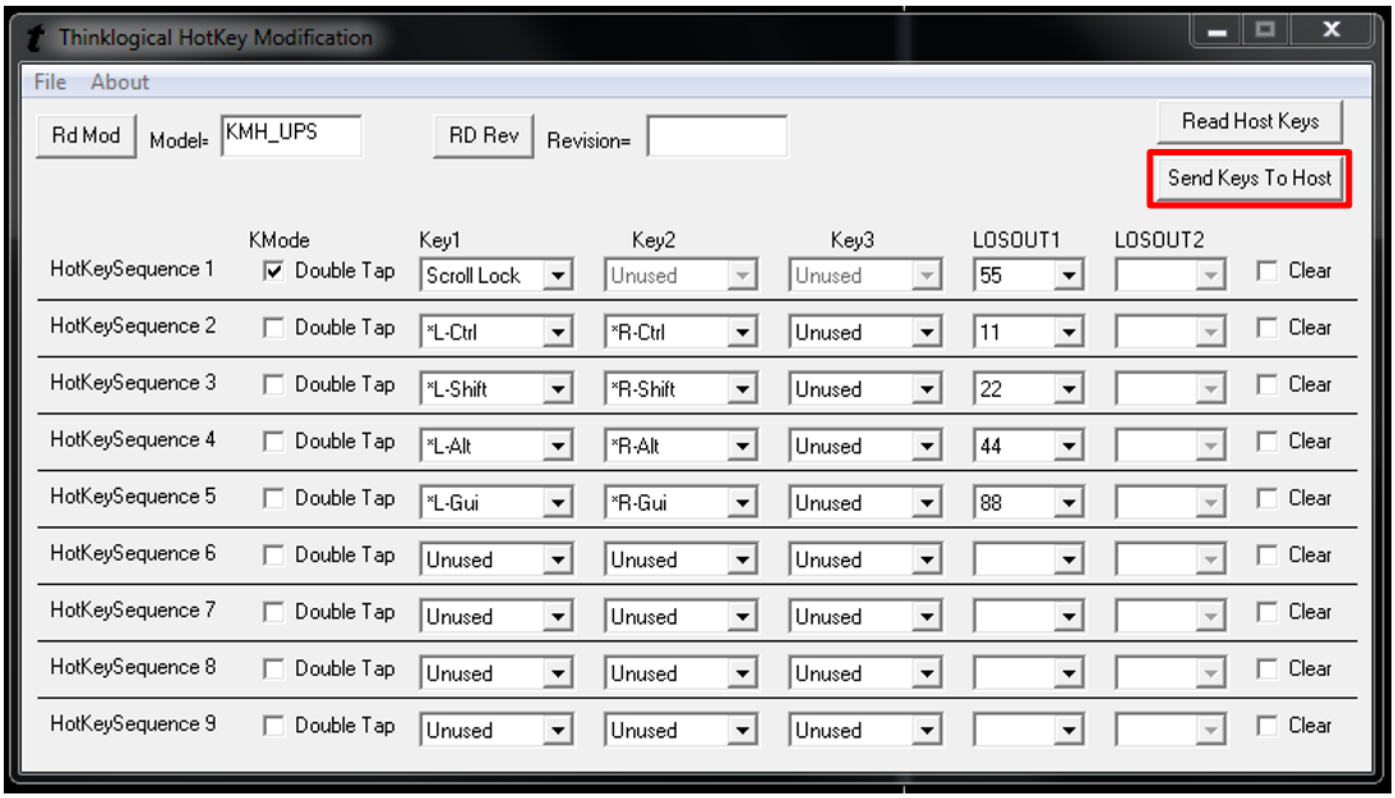
4. Left-click on the pull-down menus under *Key1, Key2* and *Key3* to select an **action** key.



5. Select the **code** desired, which may reflect a matching code in the SMP2's Hot Key Manager or may be a unique code for this application. *A Code used here must be **entered manually** into the* SMP2's *Hot Key Manager for the action to be applied.* Selecting **Double Tap** (as in "Scroll lock/Scroll lock") requires only one key. Non-Double Tap can use a sequence of up to three keys.



6. When the desired settings are selected, click on *Send Keys to Host* to **apply** the new settings.

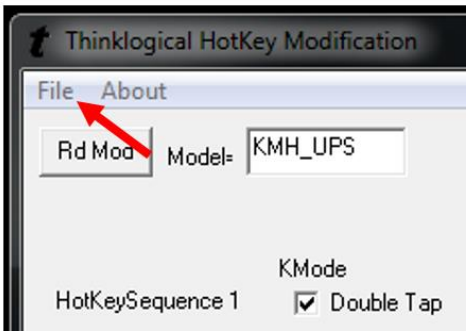


7. To **restore** a Receiver to its **default** settings:

a. Open Flex Keys without reading the device. (No USB cable to the PC.)
b. Click on *Send Keys to Host*. This will send the default Key Table to the device.
c. Click on *Rd Mod* to verify that the keys have returned to their default settings.

Or:

a. Click on *File* (Upper left)
b. Open **default.conf**
c. Click on *Save*

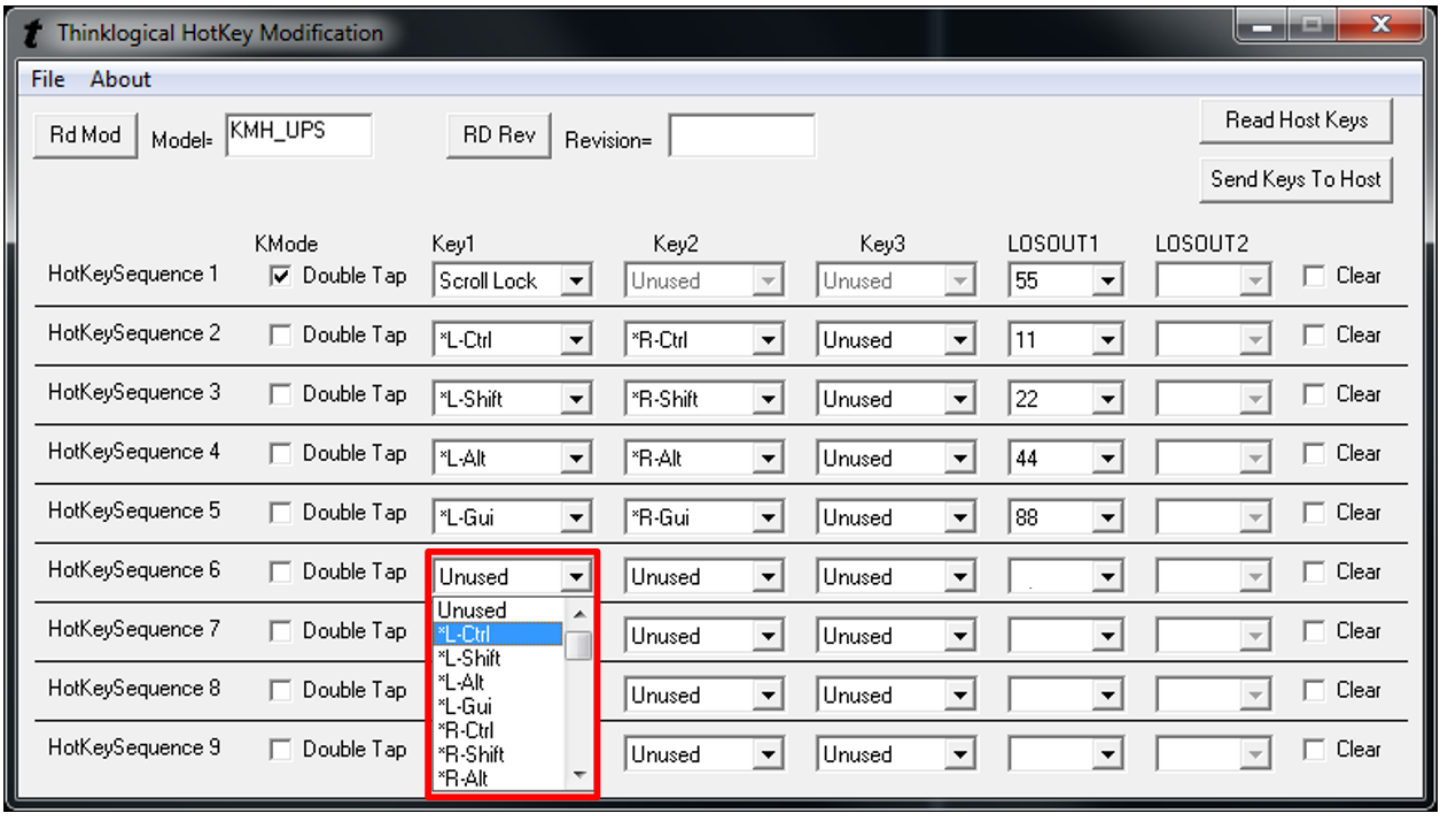


Creating Custom Actions

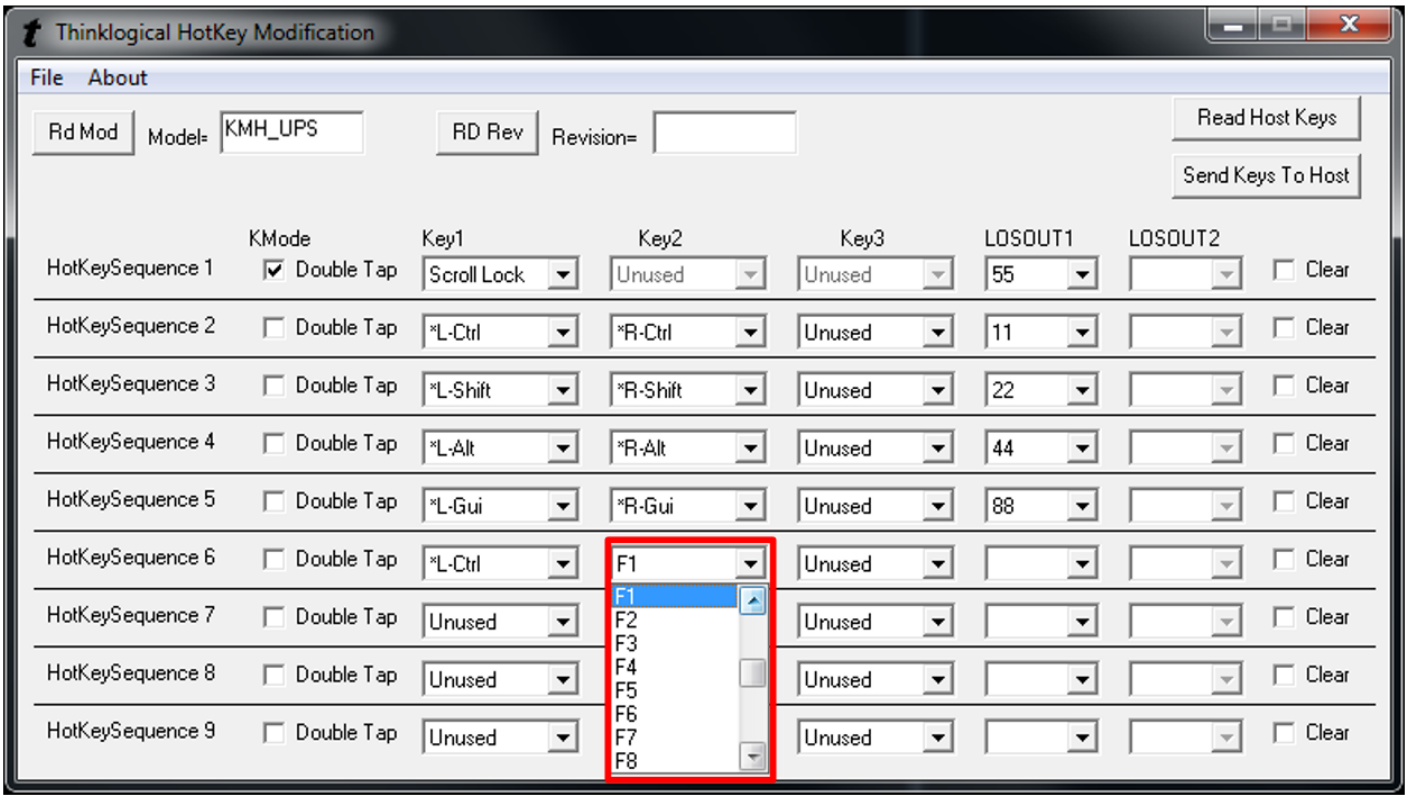
Some situations may require more than (9) key sequences. Users can then create a special key sequence requiring a two-digit number from 1 to 99, entered by the user.

Note: If using single digit numbers, then 01 through 09 are entered here. Corresponding SMP2 code values in the HOT KEYS tab will be 1-9.

By left-clicking on an "unused" **Key1 drop-down menu**, users can select from a list of key sequences. In this case, *Left Ctrl* is selected for Key 1.

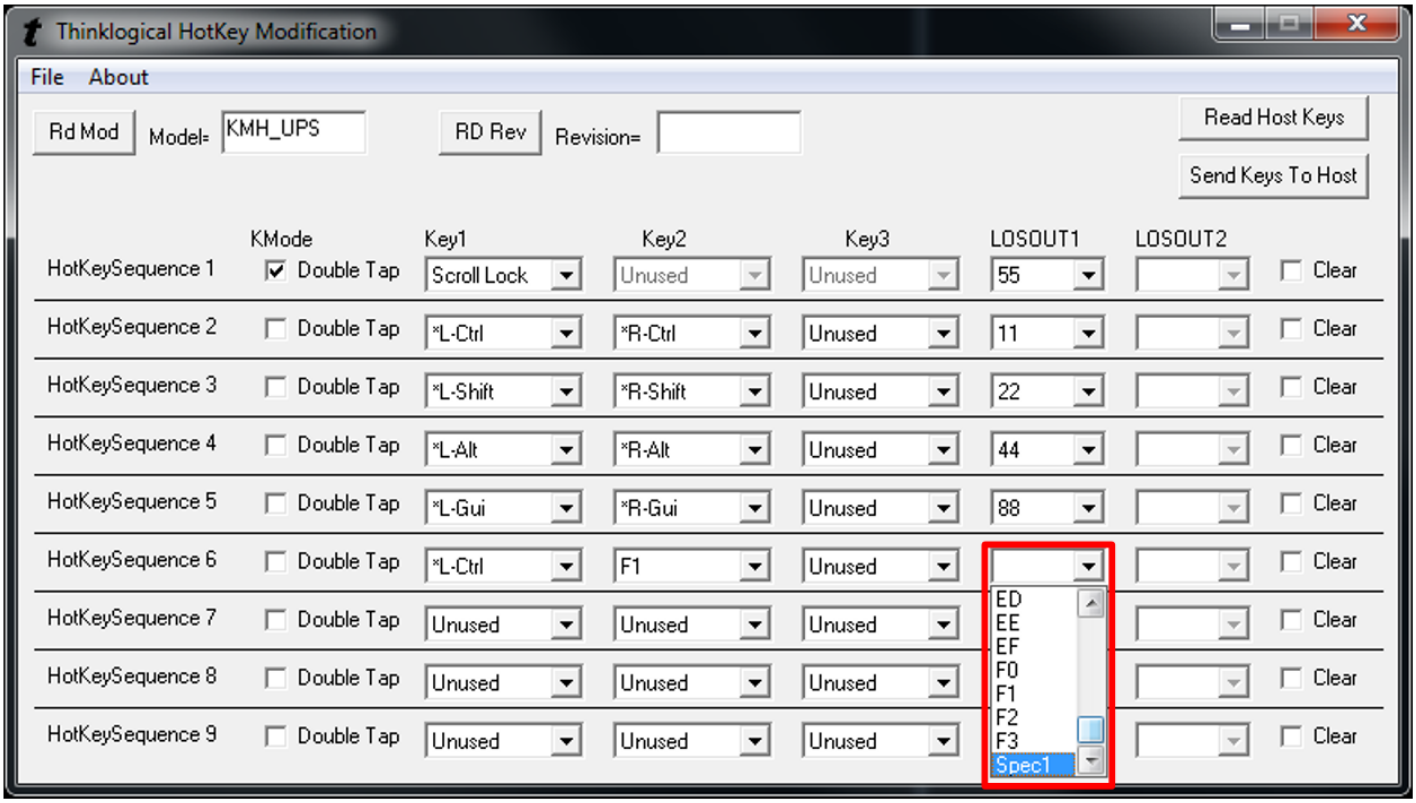


Left-click on the **Key2 drop-down menu** to select the Key 2 sequence. In this case, *F1* is selected for Key 2.

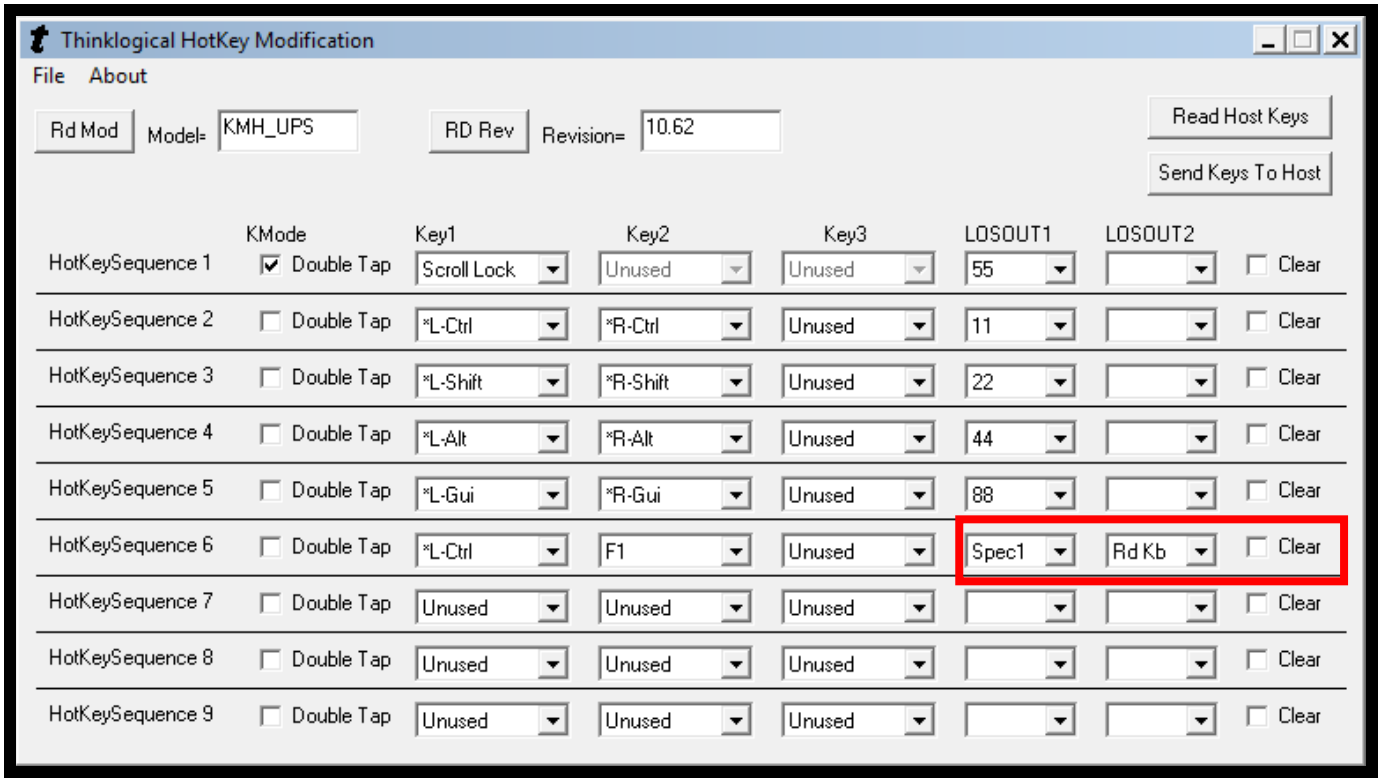


By left-clicking on the **LOSOUT1 drop-down menu**, users can select from a list of hex values, so that pressing *L-Ctrl* and *F1* will execute the function associated with that value.

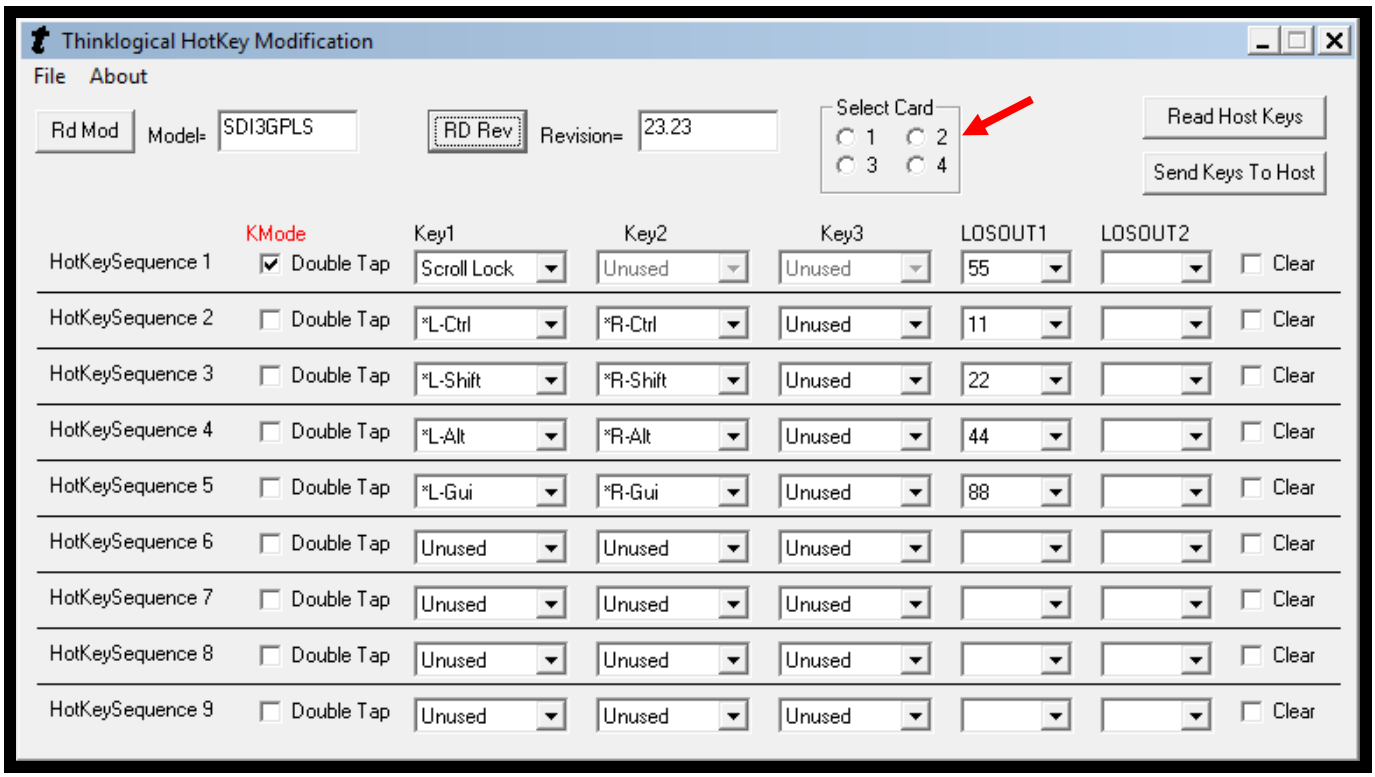
Users can also enter a non-hex value by scrolling to the bottom of the list and clicking on *Spec1*.



By selecting *Spec1*, the value in LOSOUT2 will automatically become *Rd Kb* (Read Keyboard), meaning it will "read" the next thing typed. **The user must now enter a non-hex numerical value, which will become an action associated with *L-Ctrl* and *F1.*** To clear the entries, click in the *Clear* box to the right.



For **Q-Series Systems**, connect to the Q4300/4200 chassis via the front panel Update port. A *Select Card* box allows changes to a specific module in one of the four available card slots.



Appendix F: *SMP2 Redundancy*

There is typically only one SMP Appliance or SMP Module controlling the system, which may also be in conjunction with a third-party control system. However, it is possible for two SMP Appliances or Modules to be installed and configured in a redundant fashion as Primary and Backup units. In this case, the Backup SMP Appliance or Module will take control of the system if the Primary SMP Appliance or Module should fail.

Three configuration areas must be set up for SMP2 Redundancy:

1. Install the Redundancy package on both SMP2 units.

2. Install the Linux sync utility on each unit.

3. Configure each SMP Appliance or SMP Module as Primary or Backup.

1. Installing Redundancy (this is done on both units)

- Open a terminal window, login as **`root`**.
- Navigate to `/home/user/pkg`.
- Unpack the install files: **`tar -xvzf redundancy_install_010004.tgz`**
- Change directories: cd redundancy
- Install the package: **`sh red_install.sh`**

2. Installing SYNC

- Connect the Matrix Switch and both SMP2 units (eth0 for the SMP2 Module, eth1 for the SMP2 Appliance) to the same network, but with different static IP addresses.
- On the Primary SMP2:
  - Open a terminal window, login as **`root`**.
  - Navigate to `/home/user/pkg`.
  - Unpack the install files: **`tar -xvzf sync_install_010004.tgz`**
  - Change directories: **`cd sync`**
  - Install the package: **`sh sync_install.sh`** [secondary IP address]
  - The administrator must enter the default password **`thinkl`**
- On the Secondary SMP2 unit:
  - Open a terminal window, login as **`root`**.
  - Navigate to `/home/user/pkg`.
  - Unpack the install files: **`tar -xvzf sync_install_010004.tgz`**
  - Change directories: **`cd sync`**
  - Install the package: **`sh sync_install.sh`** [primary IP address]
  - The administrator must enter the default password **`thinkl`**
- On the Primary SMP2:
  - Install the package again: **`sh sync_install.sh`** [secondary IP address]
- SYNC is now installed and running on both units.

Note: During the installation of the SYNC application a user is created with the password '`thinkl`.' For security purposes, it is recommended that this password be deleted by running the command '`passwd -d thinkl`' at the Linux prompt.

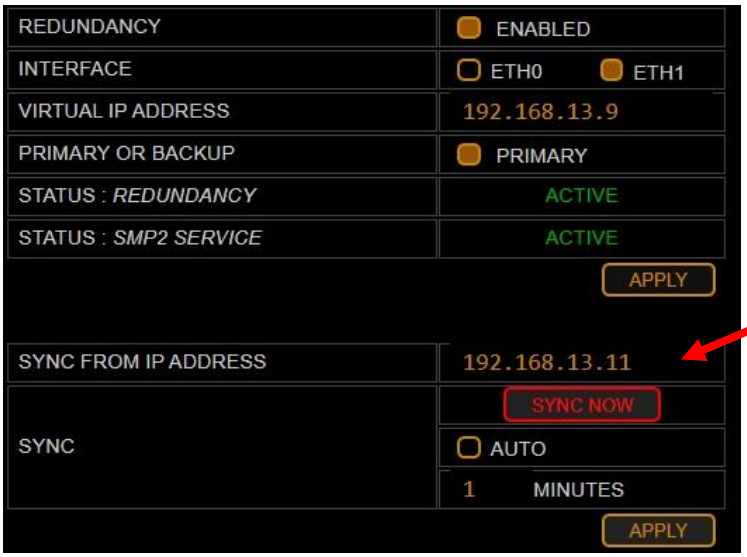
3. Configuring the SMP2 units

If available, install the desired SMP2 configuration files on the Primary SMP2 unit. If not completed, they can be installed later.

For this example, we have chosen:

- IP address 192.168.13.9 as the virtual IP address.
- IP address 192.168.13.10 as the Primary IP address.
- IP address 192.168.13.11 as the Secondary IP address.

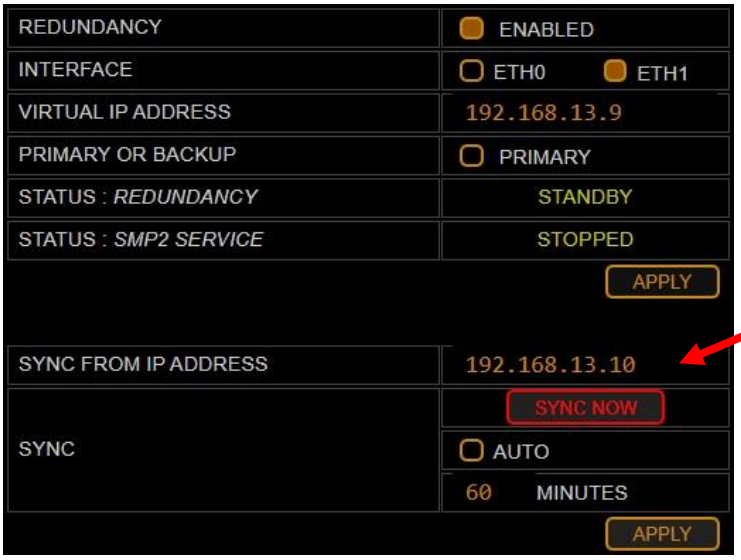
Configure the Primary SMP2 as shown:



Address of Eth1 (TLX Control) on Backup

Primary Dashboard REDUNDANCY Tab

Configure the Secondary SMP2 as shown:



Address of Eth1 (TLX Control) on Primary

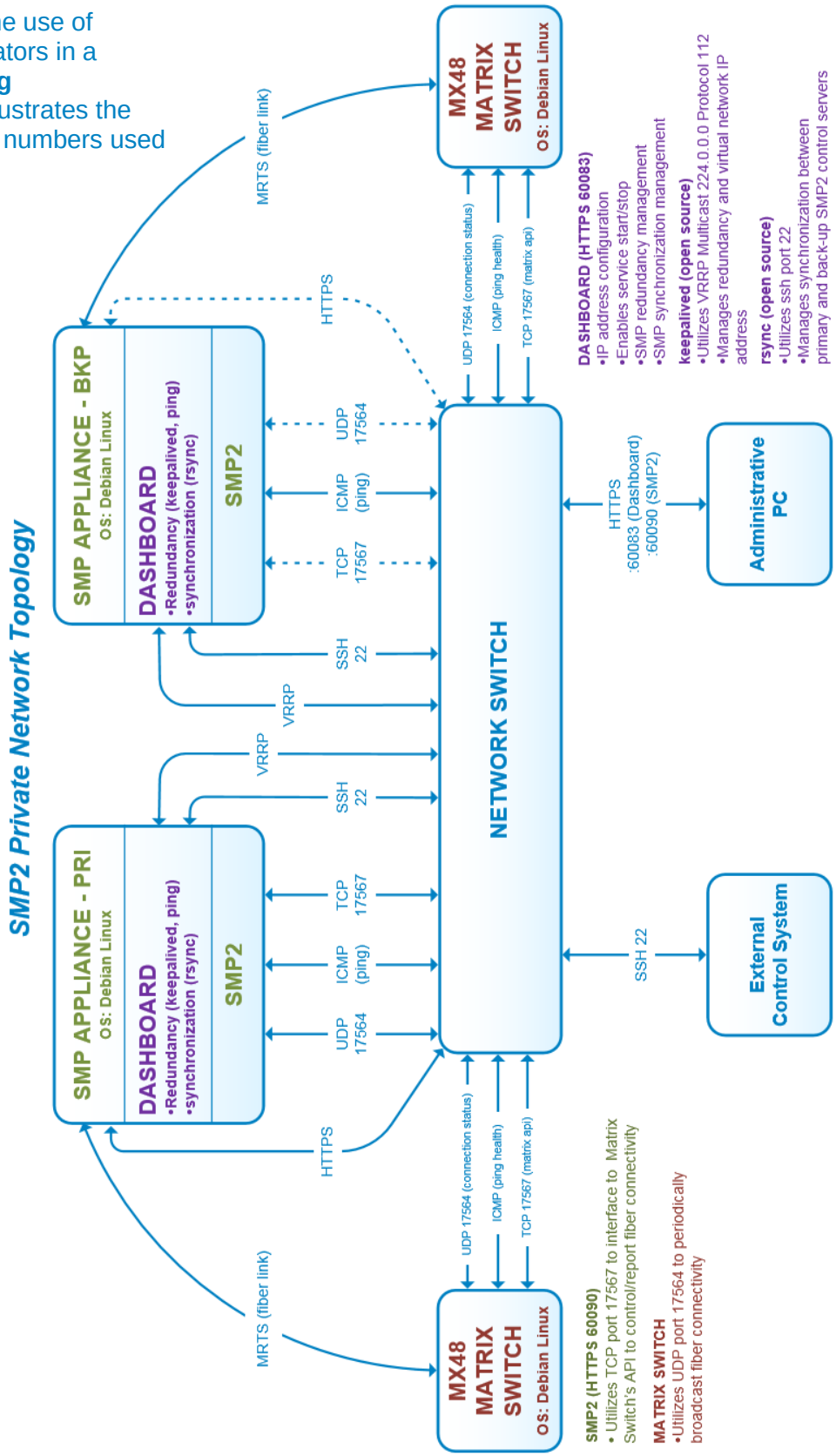
Secondary Dashboard REDUNDANCY Tab

Warning! If an SMP2 Appliance or SMP2 Module is configured and running and then a Backup is added, do NOT sync the Primary to the Backup. The configuration may be lost.

Note: If testing your Redundancy setup, click APPLY on the SMP2 unit that is currently active. This will temporarily stop the SMP2 service and the other SMP2 unit will take over.

Appendix G: *Protocols and Port Numbers*

This figure is for the use of network administrators in a **secure computing environment**. It illustrates the protocols and port numbers used



Appendix H: *Intuitive Mouse Setup*

If the Intuitive Mouse feature is being setup in the system, it must first be configured in the SMP2 as described on pg. 29. The extenders must also have this feature enabled.

Hardware Settings:

- On the chassis LCD supporting an Intuitive-Mouse-capable Transmitter, the **`MS Screen Select`** must be set to **`YES`**. This lets the computer know that it should use *Absolute Position* for the mouse.

```
MS Screen Select
Yes/No                    YES
```

- On an Intuitive-Mouse-capable Receiver, **`MsScrn Sel Disable`** must be set to **`NO`**.

```
MsScrn Sel Disable
Yes/No                    NO
```

- On an Intuitive-Mouse-capable Receiver, **`Allow Out of Band?`** must be set to **`Y`**.

```
Allow Out of Band?
Yes/No                    Y
```

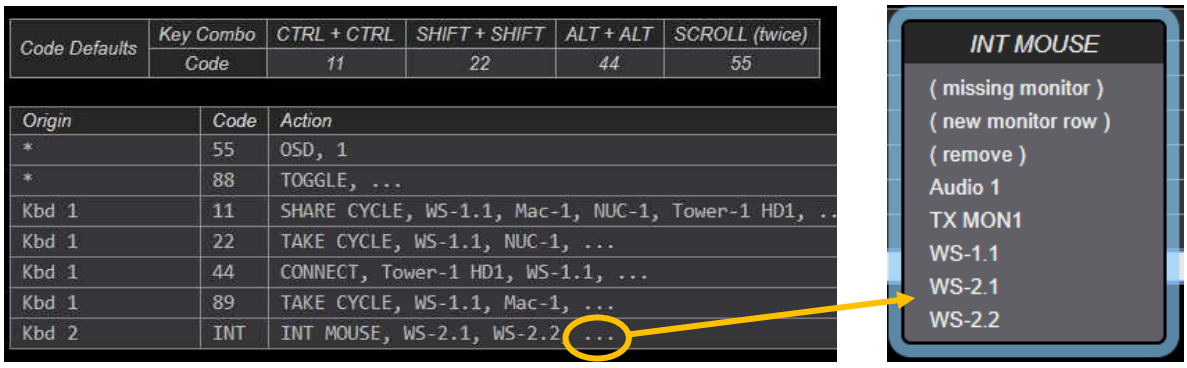
Note: All TLX Extenders support Intuitive Mouse, as do some Velocity extenders, such as the VQM-HA0006-LCRX.

- **Extenders support Intuitive Mouse at the HID ports, not the USB 2.0 ports.**
- **The back channel is required for Intuitive Mouse; both fibers connected.**

Software Configuration:

Each keyboard requiring INT Mouse must create a Hotkey. This is done in the SMP2 application admin/hotkeys tabs as shown below. This example is for two monitors mounted side by side.

- Add a new line for the hotkey and select the keyboard.
- Select “INT MOUSE” in the Action column. The Code column will autofill with “INT.”
- Monitors must now be defined in the Action column. They must be in the same order as they are installed at the desk.
- Left-click on the ellipsis (…) and a menu will pop up that includes provisions for monitor and row selection.



Code Defaults	Key Combo	CTRL + CTRL	SHIFT + SHIFT	ALT + ALT	SCROLL (twice)
	Code	11	22	44	55

Origin	Code	Action
*	55	OSD, 1
*	88	TOGGLE, ...
Kbd 1	11	SHARE CYCLE, WS-1.1, Mac-1, NUC-1, Tower-1 HD1, ..
Kbd 1	22	TAKE CYCLE, WS-1.1, NUC-1, ...
Kbd 1	44	CONNECT, Tower-1 HD1, WS-1.1, ...
Kbd 1	89	TAKE CYCLE, WS-1.1, Mac-1, ...
Kbd 2	INT	INT MOUSE, WS-2.1, WS-2.2 ...