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KMV-3901/KMV-3911

HIGH QUALITY, ULTRA-FLEXIBLE AND SCALABLE MULTIVIEWER

Installation & Service Manual

M866-9900-117

2017-08-11

www.grassvalley.com

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Title	KMV-3901/KMV-3911 Installation & Service Manual
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Electrostatic Discharge (ESD) Protection

Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Protection contre les décharges électrostatiques (DES)

Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Recycling

Visit www.grassvalley.com for recycling information.

Electromagnetic Compatibility

This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for class A digital devices.

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

This equipment has been tested and found to comply with the requirements of the EMC directive 2014/30/EU:

- EN 55022 Class A radiated and conducted emissions
- EN 61000-3-2 Limits for harmonic current emissions
- EN 61000-3-3 Limitation of voltage changes, voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity
- EN 61000-4-4 Electrical fast transient/burst immunity
- EN 61000-4-5 Surge transient immunity
- EN 61000-4-6 Conducted disturbances immunity
- EN 61000-4-8 Power frequency magnetic field immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

Table of Contents

1 Overview

Welcome to the Kaleido family of multiviewers! This Installation & Service Manual is designed to help you get your KMV-3901/3911 multiviewer up and running. The following chapters will guide you through the installation of a KMV-3901/3911 system in its default configuration. This chapter provides an overview of the KMV-3901/3911 unit.

Kaleido-Modular is the most space and energy efficient multiviewer system, with up to 20 multiviewer outputs per 3RU frame, consuming only 300 Watts in total. It also offers super silent operation, outstanding picture quality, and expansion up to 288 multiviewer outputs when connected to an upstream router.

The KMV-3911 multiviewer card is the central building block of the Kaleido-Modular system. It has replaced the earlier KMV-3901 models. Kaleido-Modular systems are available in the following sizes: 4 × 1, 4 × 2, 8 × 1, 8 × 2, 12 × 1, 12 × 2, 16 × 1, 16 × 2, 20 × 1, 20 × 2, 24 × 1 and 24 × 2. In addition to the earlier model's features, the KMV-3911 supports up to two HD-SDI monitoring outputs.

Related Documentation

Use the following related documentation to configure the multiviewer and to better understand the features available with this multiviewer. You can obtain the latest product documentation from the Documentation Library section of Grass Valley's website (www.grassvalley.com/docs/multiviewers).

Document Number	Title
M770-2800	Kaleido Software User's Manual
M770-2103	Kaleido Software Release Notes
M770-9904	Kaleido Software Product Comparison Charts
GVB-1-0228B-EN-DS	KMV-3901/3911 Datasheet
M770-9905	Kaleido Multiviewers Documentation Resource Guide
M866-9900	KMV-3901/3911 Installation & Service Manual
M866-9904	KMV-3901/3911 Cascade Step-by-Step Configuration
M844-9900Y	Densité 3 Frame Installation and Operation Guide
M713-9900	Densité 3 Mini Installation and Operation Guide
M735-9902	Kaleido-RCP2 Guide to Installation and Operation
M876-9900	RCP-200 Guide to Installation and Operation
M770-0900	Kaleido Remote Control Protocol (Gateway) User's Guide
M807-9700	KXI-DVI-Bridge User's Manual
M407-9900	iControl Router User Guide

Document Number	Title
Published online	iControl Online Help iControl Solo Online Help
M916-9900	DXF-200 DVI/HDMI Optical Extension System User's Manual

Software and Firmware Updates

You can obtain the latest software, drivers, and sample databases from the *Downloads* section of the Grass Valley's website (www.grassvalley.com/dl/multiviewers).

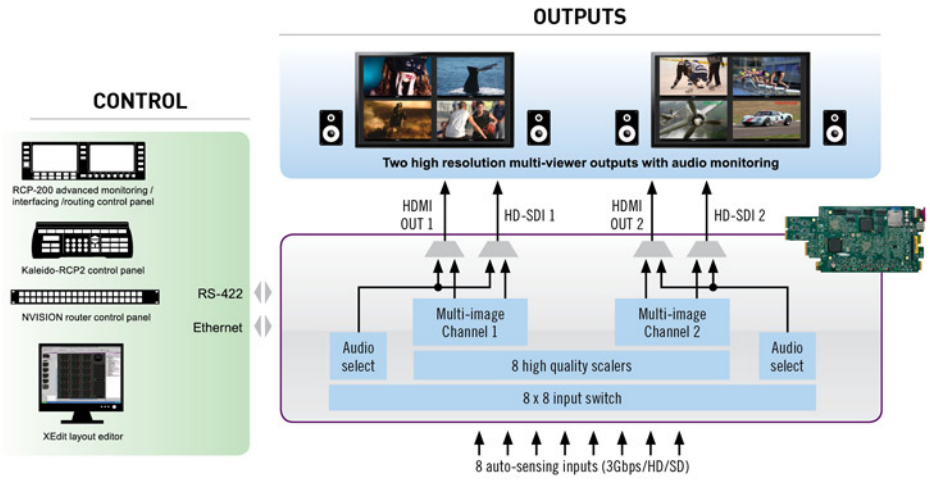
Introduction

The **Kaleido-Modular KMV-3911** and **KMV-3901** cards can display up to eight 3Gbps, HD, or SD inputs in up to eight video windows across one or two high-resolution outputs. By using optional cascading bridges, up to three KMV-3901/3911 cards can be configured into a single- or dual-output system supporting up to 24 inputs.

A Kaleido-Modular KMV-3901/3911 multiviewer system in its default configuration includes a number of layout presets. The default output head configuration is set to automatically detect the resolution of the associated display. If this information is not available, it will fall back to 1920 × 1080 @ 60 Hz (HDTV). The Kaleido-Modular range offers the most space- and energy-efficient multiviewer system.

Overview of the Kaleido-Modular-X System

Housed in a *Densité 3+ FR1*, *Densité 3* or *Densité 3 mini* frame, the expandable, eight-input, dual-output KMV-3901/3911 card replaces the earlier KMV-3901 model in the Kaleido-Modular range. A single 3 RU Densité 3 frame can hold up to 10 KMV-3901/3911 (or KMV-3901) multiviewer cards, providing up to 20 quad-split outputs. The highly compact, half-1 RU Densité 3 mini frame can hold a single multiviewer card, providing up to two quad-split outputs. The Densité 3+ FR1 frame can hold two multiviewer cards, providing up to four quad-split outputs. The Kaleido-Modular range is ideal for production monitoring in trucks. It integrates tightly with other Densité signal processing cards, routers and production switchers.



Overview of single card functionality

Features

Unmatched Space Efficiency

- 20 quad-splits, or ten 8-input KMV-3901/3911 multiviewer cards, per 3RU frame
- Fully loaded frame with 10 cards weighs only 9.9 kg (21.8 lbs)

Low Power Consumption

- 300 Watts for fully loaded 3RU frame with 10 cards and up to 20 outputs
- 24 Watts per dual-output card

Super Silent

- Ideal for installation within studios, control rooms and trucks

High Quality, Flexible Monitoring

- Outstanding multiviewer picture quality, based on award-winning Kaleido technology, with all essential display elements for production
- Choice of single multiviewer output per card with up to 8 pictures, or dual quad-split displays
- The KMV-3911 supports up to two HD-SDI monitoring outputs (one associated with Head 1, and one with Head 2 if enabled), with embedded audio

Router Integration

- Tight integration with NVISION and third party routers allows expansion up to 1152 inputs and 288 multiviewer outputs
- Multiple multiviewer outputs can be controlled from a single panel

Ultra-Resilient

- Hot-swappable cards with Auto-Recovery for configuring cold replacement cards during maintenance
- 3RU frame features dual hot-swappable power supplies and fans plus redundant Ethernet

3Gbps/HD/SD Operation

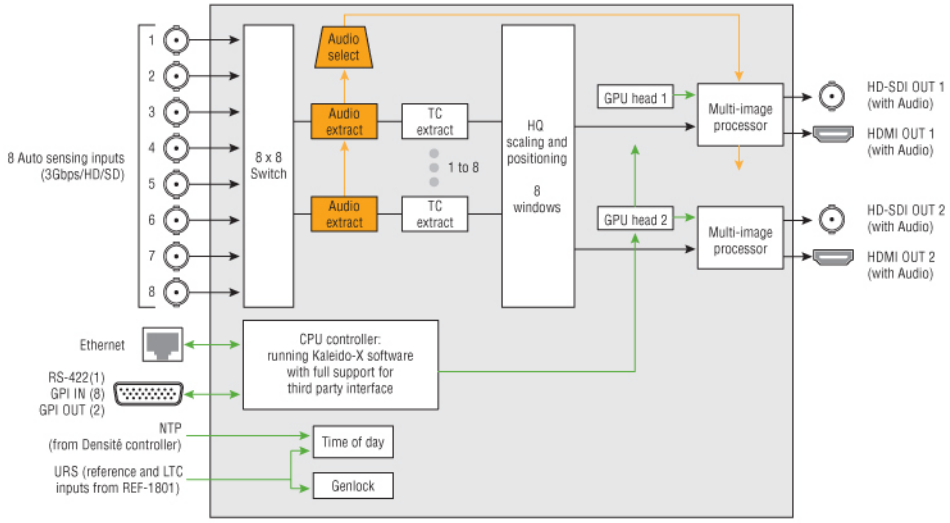
- Triple-rate, future-proof performance

Mix and Match Card Functions

- Kaleido-Modular multiviewer cards can be installed in a 3RU frame with other Densité Series cards, such as signal processors and DAs, for maximum space and cost-effectiveness

Functional Block Diagram

The following block diagram shows the functionality of the KMV-3911. Except for the HD-SDI monitoring outputs, the same diagram applies to the earlier KMV-3901 models.



Functional block diagram of the KMV-3911

2 Installation

This chapter provides information about system requirements, items shipped with your KMV-3901/3911 multiviewer and it will guide you through the installation of a KMV-3901/3911 multiviewer.

Getting Organized / Unpacking

This section provides information about system requirements, and items shipped with your KMV-3901/3911 card.

Required Materials

Make sure the following items have been shipped with your KMV-3901/3911. If any of the following items are missing, contact your distributor or Grass Valley.

Your KMV-3901/3911 system package includes the following:

- KMV-3911 or KMV-3901 3Gbps/HD/SD multiviewer card
- the appropriate rear connector panel for the card (see KMV-3911-8X2-3DRP rear panel, or KMV-3901-8X2-3DRP rear panel, on page 22)
- One or two 35-cm (14-inch) DIN-to-BNC cable adapters (for KMV-3901/3911 models with HD-SDI monitoring output option only)
- The Kaleido Multiviewers Documentation Resource Guide, which provides instructions on how to access the documentation you need to install and use your new multiviewer. See Related Documentation, on page 9.

> Note: In line with our commitment to environmental preservation, only the *Kaleido Multiviewers Documentation Resource Guide*, and some related documents (e.g., welcome letters, warranty cards) are distributed in printed form. You can obtain the latest version of the Kaleido Software User's Manual and Installation & Service Manual for this multiviewer model, as well as the Release Notes, from the *Documentation Library* section of the Grass Valley website. Software, drivers, and sample databases are available from the *Downloads* section of the website.

In addition to the above, you will need the following (not supplied):

- Up to 2 displays
- A dedicated 100Base-T Ethernet switch with enough ports for the KMV-3901/3911, client PCs, and Kaleido-RCP2 units
- Client PC (see System Requirements for a Client PC, on page 39)

- Cables (to connect your multiviewer to video sources, to displays, and to the network):

Cable type	Purpose
CAT-5	For Ethernet connectivity
Display cables	Either extension modules—for example Grass Valley's DXF-200 (part number DXF-200-C)—or standard HDMI cables (non-locking)
Video cables	Standard coaxial cables with BNC connectors

Notes

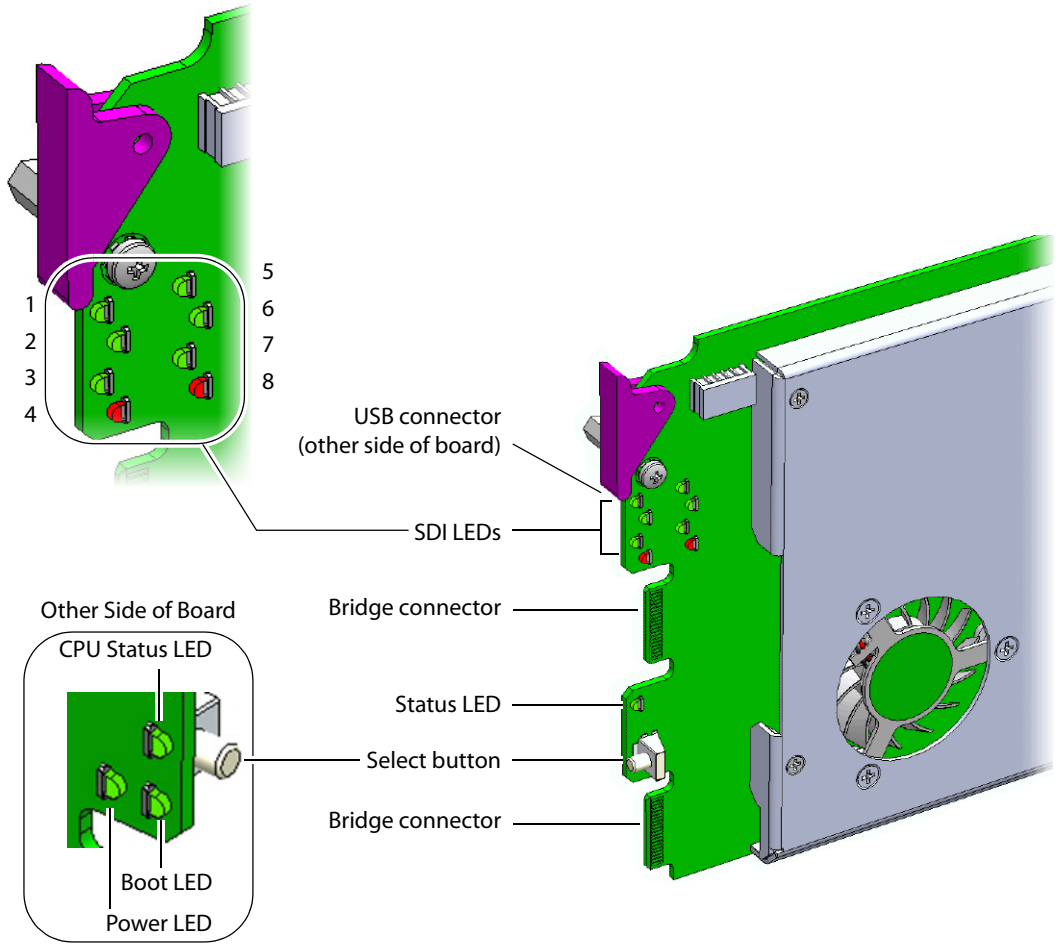
- On all Kaleido multiviewers, the network adapters are set to auto-negotiate. By default, the connection speed and duplex mode will be set automatically based on the corresponding port settings on the switch.
- If you have two displays, make sure the HDMI connectors on the multiviewer side have the same dimensions. Otherwise, the multiviewer's built-in locking mechanism will not be able to secure the smaller of the two connectors. You may order suitable HDMI cables from Grass Valley—HDMI to DVI female cable (1ft), part no. KXC-HDMI-DVI.

Optional Ancillary Equipment

The following optional equipment may be supplied with your order: Kaleido RCP-2 or RCP-200 multi-function remote control panel

Card Interfaces

The front card-edge of the KMV-3901/3911 incorporates several operational elements.



Front card-edge layout

Status LED

The Status LED is located on the front card-edge of the KMV-3901/3911, immediately above the Select button, and is visible through the front access door of the Densité frame. This multi-color LED indicates the status of the KMV-3901/3911 by color, and by flashing/steady illumination:

Status LED Color	Meaning
Green	Normal
Flashing orange	Booting (or the card is selected for local control)
Red	No Ethernet / SD card error
Flashing red	Fan failure / no rear / duplicate IP address

The Status LED always shows the most severe detected error status that it is configured to display (see Alarm Configuration Panel, on page 80), and in the table above error severity increases from top to bottom, with green representing no error/disabled, and flashing red the most severe error.

If the Status LED is flashing orange, it means that the card is selected for local control using the Densité frame's control panel, or that the card is booting up. See Using the Densité Frame Control Panel, on page 27 for details.

CPU Status LED

Monitors the status of the CPU operation.

CPU Status LED Color	Meaning
Green	OK
Red	CPU kernel error
Flashing red	Upgrading

Boot LED

Monitors the status of the system firmware.

Boot LED Color	Meaning
Flashing green	System OK (*heartbeat* signal)
Steady red	Beginning of start-up process (normal) Continuous - error
Steady green or OFF	Software not running

Power LED

Monitors the status of the power on board the KMV-3901/3911 card.

Power LED Color	Meaning
Green	OK
Red	Error detected This is a latched error and will remain displayed until the next reboot, even if the error was a brief glitch and the supply is OK. If the LED remains red after a restart, there is or has been a fault in the power source.

SDI LEDs

This group of eight LEDs monitors the status of the eight inputs to the KMV-3901/3911 card. The frame door must be open for the LEDs to be visible.

SDI LED Color	Meaning
Green	Input SDI signal detected
Red	Error - no input signal detected

USB Connector

This USB connector is accessible when the front panel of the Densité frame is open. The USB connector is used for the following tasks:

- Upgrading the Kaleido Software and KMV-3901/3911 firmware, by using a USB key prepared with the appropriate upgrade package. Refer to the Kaleido Software Release Notes for details. See Related Documentation, on page 9.
- Controlling some features on the monitor wall, by using a mouse (e.g. showing or hiding the monitor wall dashboard, dismissing the confirmation message that appears at the end of the upgrade process). Refer to the Kaleido Software User's Manual for details. See Related Documentation, on page 9.

> Note: The KMV-3901/3911 does not support USB hubs. Only one USB device (USB key or mouse) can be connected at a time. If an externally powered USB hub is connected to the KMV-3901/3911, then a mouse connected to the hub will not work.

Bridge Connectors

The bridge connectors are accessible when the front panel of the Densité frame is open.

They are used to interconnect two adjacent KMV-3901/3911 cards by using a cascade bridge (Grass Valley part no. KMV-3901-8XN-BRIDGE). Refer to the KMV-3901/3911 Cascade Step-by-Step Configuration guide for detailed instructions on setting up a cascade system. See Related Documentation, on page 9.

Mechanical Installation of KMV-3901/3911 Cards in the Densité Frame

The KMV-3901/3911 and its associated rear connector panel must be mounted in a Densité 3 frame or a Densité 3 mini frame. It is not necessary to switch off the frame's power when installing or removing the card. Refer to the Densité 3 frame manual or the Densité 3 mini frame manual for detailed instructions on installing cards and their associated rear panels. See Related Documentation, on page 9.

IMPORTANT

Keep the KMV-3901/3911 offline at initial setup to avoid conflicts.
Before powering up the Densité housing frame, make sure none of the KMV-3901/3911multiviewer cards it contains are connected to the network, to avoid IP-address conflicts during initial physical setup — i.e. make sure there is no cable connected to your cards' ETH port.

Densité CPU-ETH2 Enhanced Ethernet Controller Card
A Densité frame housing a KMV-3901/3911 multiviewer card must have a controller card (Densité CPU-ETH2 Enhanced Ethernet Controller Card) with firmware version 2.0.4 or later. A controller with an earlier version of the firmware cannot provide a time reference to the multiviewer card. Make sure the controller's internal clock is set to the correct date and time. The clock settings will persist for 10 days after a power loss. Should you need to change the time on a Densité CPU-ETH2 controller, then make sure to restart all multiviewers located in the same housing frame as the controller card. Refer to the Densité CPU-ETH2 Enhanced Ethernet Controller Card Guide to Installation and Operation for more information. See Related Documentation, on page 9.

To set up the multiviewer hardware

1 Referring to the Guide to Installation and Operation that shipped with your *Densité 3+ FR1*, *Densité 3 mini* or *Densité 3* housing frame, mount the KMV-3901/3911 multiviewer card and associated rear panel in the housing frame, and then power up the frame.

Leave the frame door open so that you can monitor all the card's LEDs.

Note: For more information on the card's LEDs, see Card Interfaces, on page 15.

The KMV-3901/3911 card starts up. The startup sequence takes approximately five minutes, during which time the Status LED is blinking orange. See Status LED, on page 15.

Once the startup has completed, the Status LED should be red (steady) because the card is not connected to the network yet:

Green	Blinking orange	Red	Blinking red
Normal	Booting (or the card is selected for local control)	No Ethernet / SD card error	Fan failure / no rear / duplicate IP address

2 Connect a client PC, and the Kaleido-RCP2 (if available) to a dedicated 100Base-T Ethernet switch (see Cabling Diagram, on page 21). You can also connect a mouse and a keyboard to your Kaleido-RCP2.

Notes

- The Kaleido-RCP2 is an optional device, and may not have been shipped with your KMV-3901/3911 system. For information on this and other options for your multiviewer system, contact your Grass Valley sales representative.
- You may need to upgrade your Kaleido-RCP2 devices (if available) to the latest firmware. See Software and Firmware Updates, on page 10. Refer to the *Kaleido-RCP2 Guide to Installation and Operation* for instructions on how to determine the firmware level, and how to perform the upgrade. See Related Documentation, on page 9.

The KMV-3901/3911 multiviewer has been configured to automatically detect the resolution of any connected display. If the required information is not available, then a fall-back resolution of 1920 × 1080 @ 60 Hz (HDTV) is used.

3 Connect at least one output of the multiviewer to a display that supports this resolution (see Cabling Diagram, on page 21).
   - **Monitor wall displays:** Connect the multiviewer's MV OUT outputs to the displays.
   - **Broadcast monitors:** If your installation involves broadcast monitors, connect them to the appropriate SDI outputs.[1] It is also possible to connect SDI outputs to a router. Refer to *Configuring the HD-SDI Monitoring Output Format,* in the Kaleido Software User's Manual, for instructions on setting the scan format. See Related Documentation, on page 9.

   If you wish to use a different resolution, see Changing the Mosaic Output Resolution, on page 100, for detailed instructions.

Note: If your display is not collocated with your Densité frame you may choose to employ a DXF-200 transmitter/receiver device that allows you to install a display up to 1,000 meters (3,300 feet) from the signal source. For more information on the DXF-200, refer to the *DXF-200 DVI/HDMI Optical Extension System User's Manual*. See Related Documentation, on page 9.

4 Connect one or more video sources to your multiviewer's inputs (see Cabling Diagram, on page 21).

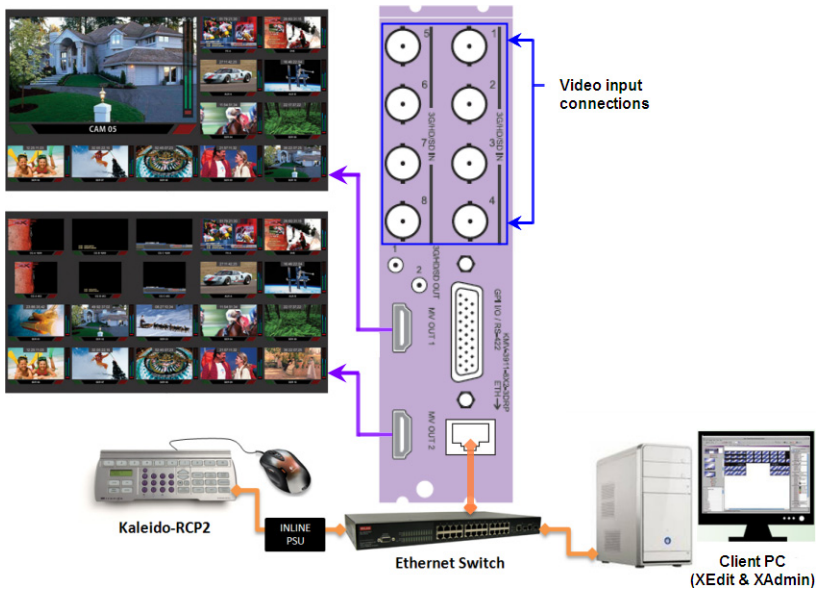
5 Check that all SDI LEDs associated with the connected video inputs are green. See SDI LEDs, on page 17.

1. Available on KMV-3901/3911 only.

3 Multiviewer Cabling

This chapter shows how to interconnect the multiviewer with its associated equipment.

Cabling Diagram



Cabling diagram showing KMV-3901/3911 rear panel.

> IMPORTANT
> If you need to install or momentarily remove a Densité card's rear module, make sure to first remove the card first from its slot.

Rear Connector Panel

The KMV-3901/3911 requires a dual-slot-width rear panel:

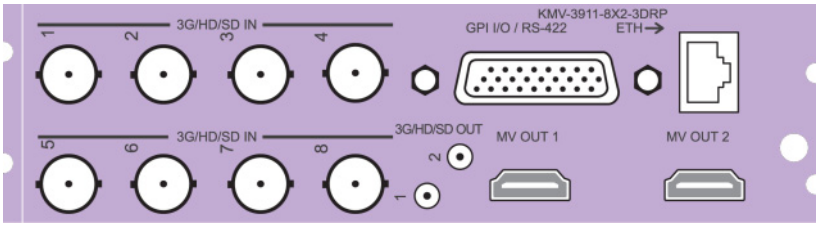
- Eight 3G/HD/SD inputs (BNC connectors). Optional inputs 5-8 are available only in the case of 8 × 2, and 8 × 1 models.
- Two 3G/HD/SD multiviewer outputs (HDMI connectors). Optional MV OUT 2 is available only in the case of 4 × 2, 8 × 2 cards.
- Two HD-SDI monitoring outputs (DIN 1.0/2.3 connectors). Only supported with the KMV-3911 models.
- One DB-26 connector for GPI I/O lines (8 in / 2 out) and RS-422 control. Grass Valley's NSH26M wiring terminal adapter can be used to connect the GPI lines to this connector.

- One RJ-45 for data transfer over Ethernet.

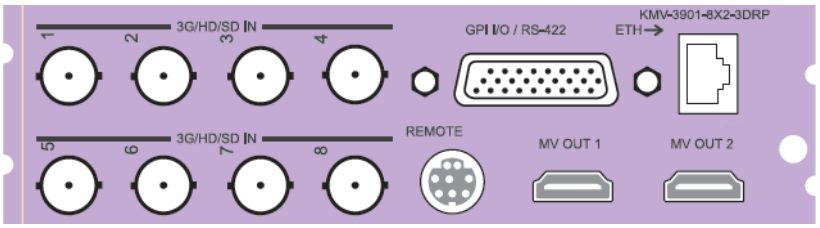
With the double-width rear panel installed in a Densité-3 frame, the KMV-3901/3911 must be installed in the rightmost of the two slots covered by the panel in order to mate with the panel's connectors.

In a Densité 3 mini frame, the card must be placed in the bottom slot.

If it is placed in the wrong slot, the front panel LED will flash red. Move the card to the other slot for correct operation. No damage will result to the card if this occurs.



KMV-3911-8X2-3DRP rear panel



KMV-3901-8X2-3DRP rear panel

Ethernet Port

The Ethernet port must be configured before it can be used to communicate with the KMV-3901/3911. See Network Settings Panel, on page 79.

GPI/RS-422 Connector

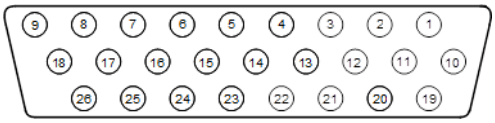
The DB-26 GPI connector carries 8 GPI IN and 2 GPI OUT lines, plus the RS-422 interface. The pinout of this connector is listed below.

:

Pin	Function
1	422 TX+
2	422 RX+
3	GPI IN2
4	GND
5	GPI IN7
6	NC
7	OUT 1-(emitter)
8	GND
9	NC

Pin	Function
10	422 TX -
11	422 RX -
12	GPI IN1
13	GPI IN4
14	GPI IN6
15	GND
16	GND
17	GND
18	OUT 2+ (collector)

Pin	Function
19	GND
20	GND
21	GPI IN3
22	GPI IN5
23	GPI IN8
24	NC
25	OUT 1+ (collector)
26	OUT 2- (emitter)



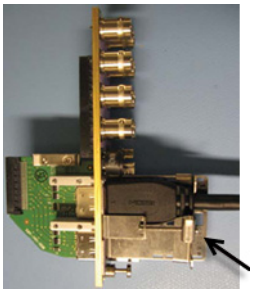
DB-26 GPI/RS-422 connector

> Note: Grass Valley's NSH26M wiring terminal adapter can be used to connect the GPI and RS-422 lines to this connector. The NSH26M comes with a label that identifies the pinout to make wiring easy.

HDMI Mosaic Output Connectors

Connect these outputs (MV OUT 1 and MV OUT 2) to video displays using HDMI cables.

Space constraints on the KMV-3901/3911 rear module do not allow HDMI connectors with a screw securing mechanism. For this reason, a special locking mechanism is incorporated on the rear panel. The mechanism is adjustable for many sizes of cables and shells.



Incorporated locking mechanism

In the case of a KMV-3901/3911 with both heads activated, the two HDMI cables should have same-size plug connectors; otherwise the locking mechanism will not hold the smaller connector securely. If your cables have long plug connectors that will not fit the special locking mechanism, you can secure them with a cable wrap threaded through the hole in the bracket.

HD-SDI Monitoring Output Connectors

There are two HD-SDI monitoring outputs: one associated with Head 1, and one with Head 2 if enabled. The HD-SDI output resolution depends on the current resolution at the corresponding HDMI output, and, in the case of a 1080-line resolution, on the scan format (interlaced, progressive) configured in XEdit for this output head.

HDMI output resolution	HD-SDI output (interlaced)	HD-SDI output (progressive)
1280 × 720 50 Hz	No output	720p 50 Hz
1280 × 720 59.94 Hz	No output	720p 59.94 Hz
1920 × 1080 50 Hz	1080i 50 Hz	1080p 50 Hz
1920 × 1080 59.94 Hz	1080i 59.94 Hz	1080p 59.94 Hz
Any other HDMI resolutions	No output	No output

Commissioning the Multiviewer

To make the multiviewer operational

1 With the KMV-3901/3911 frame installed in its designated rack position, and before powering up the unit, verify that each card is securely seated in its slot, and leave the frame door open so that you can monitor all the card's LEDs.

> Note: For more information on the card's LEDs, see Card Interfaces, on page 15.

2 Power up the frame.

The multiviewer starts up. The startup sequence takes approximately four minutes, during which time every card's status LED is blinking orange. See Card Interfaces, on page 15.

Once the startup has completed, the status LEDs on the *output cards* should be red (steady) because the cards are not connected to the network yet. See Card Interfaces, on page 15.

3 Connect the Kaleido-RCP2 and the Audio Bridge Terminal (if available) to a dedicated 100Base-T Ethernet switch (see Cabling Diagram, on page 21). You can also connect a mouse and a keyboard to your Kaleido-RCP2.

> Notes
>
> - You may need to upgrade your Audio Bridge Terminal and Kaleido-RCP2 devices (if available) to the latest firmware. See Software and Firmware Updates, on page 10. Refer to the *Kaleido-RCP2 Guide to Installation and Operation*, and to the *Audio Bridge Terminal Guide to Installation and Operation* for instructions on how to determine the firmware level, and how to perform the upgrade for these devices. See Related Documentation, on page 9.
> - The KMV-3901/3911 (1RU) supports only one ABT device.

4 Connect the multiviewer's outputs to your displays. See Cabling Diagram, on page 21. To change the display resolution, see Changing the Mosaic Output Resolution, on page 100.

5 Connect one or more video sources to the multiviewer's inputs (see Cabling Diagram, on page 21).

6 Connect a reference source (if available) to one or more reference inputs.

> Note: A reference is optional but, if minimal processing delay is required for your monitoring purposes, then you must reference your system. However, if you must monitor 50 Hz input signals on 60 Hz displays (or vice-versa), then do not reference your system.

7 Connect the controller card's ETH 1 port to your Ethernet switch (see Cabling Diagram, on page 21).

> Note: The KMV-3901/3911 does not support the controller card's second Ethernet port (ETHERNET 2).

8 Connect the output cards' ETH ports to your Ethernet switch.

> IMPORTANT
> Make sure to connect your Densité controller and output cards to the same subnet, and that your Ethernet switch remains isolated from the rest of your network (consult your network administrator if necessary) until all required networking setup is complete.

You can now proceed with the networking setup (see Networking Essentials, on page 30).

4 Frame Control Panel Operation and IP Network Setup

This chapter shows the multiviewer interfaces, explains the local operations that can be performed, and it explains how to implement IP network connectivity with the multiviewer.

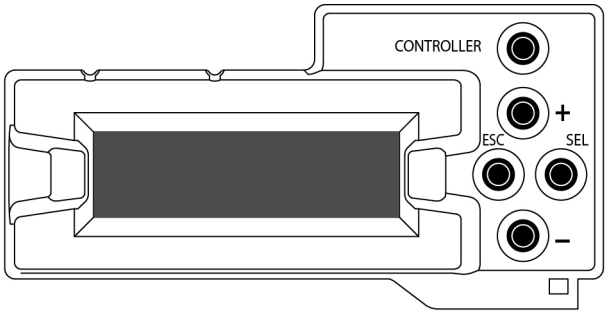
The KMV-3901/3911 can be controlled in the following ways:

- On the Densité frame, the local control panel and its buttons can be used to navigate menus and adjust parameter values (see Using the Densité Frame Control Panel, on page 27).
- Grass Valley's iControl system can be used to access the card's operating parameters from a remote computer, using a convenient graphical user interface (see Remote Control Using iControl, on page 75).
- The loading and management of layouts is handled via a Java-based application, XEdit, accessed through a dedicated Ethernet port (see the Kaleido Software User's Manual, (available on the Grass Valley support portal).
- A GPI interface allows remote layout selection.
- The output resolution of the card can be controlled automatically through the EDID interface with the display.
- The RCP-200 advanced remote control panel, and the Kaleido-RCP2 control panel allow you to perform operations on the monitor wall, either by themselves or in association with an external keyboard and a mouse. Refer to the RCP-200, Kaleido-RCP2, and Kaleido Software documentation. See Related Documentation, on page 9.

Using the Densité Frame Control Panel

All of the cards installed in a Densité frame are connected to the frame's controller card, which handles all interaction between the cards and the outside world. There are no operating controls located on the cards themselves. The controller supports remote operation via its Ethernet ports, and local operation using its integrated control panel.

The local control panel is fastened to the controller card, and consists of a display unit capable of displaying two lines of text, each 16 characters in length, and five buttons.



Densité CPU-ETH2 local control panel

The panel is assigned to operate any card in the frame by pressing the Select button *on the front edge of that card.* The Status LED on the selected card will then be flashing orange.

Press the CONTROLLER button on the control panel to select the controller card itself.

Navigating the Local Control Panel Menu

The KMV-3901/3911 has operating parameters which may be adjusted locally at the controller card interface. Press the Select button *on the KMV-3901/3911 front card edge* (see Card Interfaces, on page 15) to assign the local control panel to operate the card. Use the control panel buttons to navigate through the menu, as described below.

The complete menu structure is shown in Appendix 8 KMV-3901/3911 Local Control Panel, on page 53.

The local control panel displays a menu that can be navigated using the four buttons located next to the display. The functionality of the buttons is as follows:

[+] and [-] Used for menu navigation and value modification.

SEL Gives access to the next menu level. When a parameter value is shown, pressing this button once enables modification of the value using the [+] and [-] buttons; pressing a second time confirms the new value.

ESC Cancels the effect of parameter value changes that have not been confirmed; pressing ESC causes the parameter to revert to its former value.
Pressing ESC moves the user back up to the previous menu level. At the main menu, ESC does not exit the menu system. To exit, press the Select button on the front edge of the card being controlled.

If no controls are operated for 30 seconds, the controller reverts to its normal standby status, and the selected card's Status LED reverts to its normal operating mode. If a parameter was changed on the card but not submitted (SEL was not pressed) and the 30 second timeout occurs, the parameters will be confirmed as if the SEL button had been pressed.

Local Control Panel Menu Structure

KMV-3901/3911 user interface (local menu structure)

INPUT STATUS	1 {FORMAT}**	
	2 {FORMAT}**	
	3 {FORMAT}**	
	4 {FORMAT}**	
	5 {FORMAT}**	
	6 {FORMAT}**	
	7 {FORMAT}**	
	8 {FORMAT}**	
{CARD VERSION}**		
RESOLUTION	HEAD1	{List of resolutions;* = current}**

KMV-3901/3911 user interface (local menu structure) *(continued)*

	HEAD2	{List of resolutions;* = current}**
{LINK STATE}**		
GPIO STATUS	GPI INPUTS	LINE 1 {STATE}**
		LINE 2 {STATE}**
		LINE 3 {STATE}**
		LINE 4 {STATE}**
		LINE 5 {STATE}**
		LINE 6 {STATE}**
		LINE 7 {STATE}**
		LINE 8 {STATE}**
	GPI OUTPUTS	LINE 1 {STATE}**
		LINE 2 {STATE}**
{FAN STATUS}**		
NETWORK SETTINGS	IP ADDRESS EDIT	###.###.###.###
	NETMASK EDIT	###.###.###.###
	DEFAULT GW EDIT	###.###.###.###
	{MAC ADDRESS}**	

* All KMV-3901/3911 cards within a housing frame must have their output heads configured with the same refresh rate. If your frame is referenced, then the heads' refresh rate must also match the reference signal's refresh rate.
** Parameters shown here in braces { } will display the actual value of the item and not the text shown above.

Saving a Restore Point to the Controller's Non-Volatile Memory

The Densité CPU-ETH2 controller can be configured to automatically apply parameters from a previously saved restore point, when you replace a card with another card of the same type. The restore point includes the multiviewer's system name and networking parameters.

To save a restore point to the controller's non-volatile memory, proceed as follows:

1. On the Densité frame's local control panel, press the CONTROLLER button. See Using the Densité Frame Control Panel, on page 27.
2. Press the [-] button repeatedly until RESTORE POINTS appears on the display, and then press the SEL button.
3. Press the [-] button repeatedly until SAVE A CARD appears on the display, and then press the SEL button.
4. Press the [-] button repeatedly until CARD # N-where N matches the slot number for the Kaleido-Modular card whose configuration you wish to save-appears on the display, and then press the SEL button.

Networking Essentials

The following network prerequisites must be met:

- Any multiviewer you wish to configure or access by using XEdit or XAdmin must be connected to an Ethernet switch.
- A client workstation must be connected to the LAN or Ethernet switch to access the multiviewer by using XAdmin or XEdit.
- The Ethernet switch must support 100 Mbps full-duplex connections.
- The port on the Ethernet switch to which the multiviewer is connected should be configured to auto-negotiate. By default, multiviewers have their Ethernet ports set to auto-negotiate. If a switch does not support auto-negotiation, the recommended settings are 100 Mbps, full-duplex.

Assigning an IP Address to Each Device in your System

Multiviewers and most peripheral devices that are part of a KMV-3901/3911 system communicate through a TCP/IP network. Configuring your system's network parameters includes the following:

- Assigning an IP address, and specifying the appropriate network mask, gateway address, and a system name for each multiviewer. See Setting the Multiviewer's IP addresses, on page 30.
- Configuring the Kaleido-RCP2, if available. See Configuring the Kaleido-RCP2, on page 93.

Setting the Multiviewer's IP addresses

For the KMV-3901/3911 multiviewer to join a TCP/IP network, it must be configured with an IP address, a network mask, a gateway, and a system name. You must also configure any Kaleido-RCP2 units you may have ordered.

The KMV-3901/3911 is shipped with the following default settings:

System IP address	192.168.3.31
Network mask	255.255.255.0
Gateway	192.168.3.1

Once the networking parameters are correctly configured on all KMV-3901/3911 cards, it will not be necessary to switch off the Densité frame's power when installing or removing cards.

> Note: If the system IP address of the multiviewer has been changed (i.e. it no longer corresponds to the as-shipped configuration), it is still possible to determine the current setting. To determine the IP address of your KMV-3901/3911 multiviewer, see Verifying the Multiviewer's IP Address and Application Version, below.

Changing the Multiviewer's IP Address from the Densité Control Panel

> IMPORTANT
> Before changing a KMV-3901/3911 multiviewer's IP address, you must first make sure that the Densité controller's restore-point settings will not prevent you from doing so, and momentarily adjust the controller's settings if needed. See Enabling the Densité Controller's Restore-Point Settings, on page 33.

To change the IP address of a KMV-3901/3911 multiviewer card

1 Press the Select button on the front edge of the KMV-3901/3911 card. See Card Interfaces, on page 15.

The Status LED on the selected card flashes orange, and the associated control menu appears on the display of the Densité frame's local control panel. See Using the Densité Frame Control Panel, on page 27.

> Note: You can navigate the control menu by using the four buttons located beneath the display:
> - Press the [+] and [–] buttons, to navigate between menu options or between parameter values.
> - Press SEL to access the next menu level. When a parameter value is shown on the display, modify the value by using the [+] and [–] buttons, and then press SEL to apply the new value.
> - Press ESC to go back to the previous menu level.
> - Once you have completed your changes, press the Select button *on the front edge of the KMV-3901/3911 card* to exit the control menu.

2 On the local control panel, press the [–] button repeatedly until NETWORK SETTINGS appears on the display, and then press the SEL button.

IP ADDRESS EDIT appears on the control panel's display.

3 Press the SEL button again.

The current IP address appears on the display.

- Press the [+] and [–] buttons, to change the current value at the current input position.
- Press SEL to move one position to the right.
- Press ESC to move one position to the left.

> Note: Pressing ESC when the input focus is in the first position returns to the previous menu level.

4 When the LCD display shows the desired IP address, press SEL to apply your change.

5 Press ESC to return to the previous menu level.

IP ADDRESS EDIT appears on the control panel's display.

6 Press the [–] button.

NETMASK EDIT appears on the control panel's display.

7 Repeat step 3 to step 5 to configure the netmask.

8 Once you have set the network mask and navigated back to the previous menu level, press the [–] button again.

DEFAULT GW EDIT appears on the control panel's display.

9 Repeat step 3 to step 5 to configure the gateway.

10 Once you have set the gateway, press the Select button *on the front edge of the KMV-3901/3911 card* to exit the control menu.

Notes

- If you do not press any button on the Densité frame local control panel, the Densité controller will revert to its normal standby mode, and the selected card's Status LED will revert to its normal operating mode, after 30 seconds.
- If you changed a parameter from the card's control menu, but have not applied your change (you did not press the SEL button on the local control panel), once the 30-second timeout has occurred, the parameters will be confirmed as if you had pressed the SEL button.

The card restarts. The startup sequence takes approximately five minutes, during which time the Status LED is blinking orange. Once the startup has completed, the Status LED should be red (steady) because the card is not connected to the network yet.

11 Connect the KMV-3901/3911 card to your Ethernet switch (see Cabling Diagram, on page 21).

12 Check the card's Status LED again, and make sure that it does not indicate an error condition. See Status LED, on page 15.

If the Status LED indicates an error condition, see Card Interfaces, on page 15 to find out what the other LEDs might be indicating.

13 Verify that the new IP address is effective. See Verifying the Multiviewer's IP Address and Application Version, on page 100.

At this point, it is recommended to back up the new configuration to the controller's non-volatile memory by saving a *restore point*.

14 On the Densité frame's local control panel, press the CONTROLLER button. See Using the Densité Frame Control Panel, on page 27.

15 Press the [–] button repeatedly until RESTORE POINTS appears on the display, and then press the SEL button.

16 Press the [–] button repeatedly until SAVE A CARD appears on the display, and then press the SEL button.

17 Press the [–] button repeatedly until CARD # N—where N matches the slot number for the KMV-3901/3911 card whose configuration you wish to save—appears on the display, and then press the SEL button.

18 If you had to change the Densité controller's default action from *update settings* to *keep settings* in order to configure your card's network settings, then see Enabling the Densité Controller's Restore-Point Settings, on page 33 again, to revert the default action to *update settings*.

Enabling the Densité Controller's Restore-Point Settings

The Densité CPU-ETH2 controller can keep a restore point for some or all cards in the Densité frame. The controller's configuration includes a *default action* that determines what happens when a card is inserted or restarted. If the default action is set to *update card settings* then, if a restore point for the same model of Densité card is found on the controller card, the controller will automatically apply all parameters from the restore point to the Densité card. This prevents you from changing the card's network settings. To do so, you would need to momentarily set the default action to *keep card settings*.

To verify the restore-point settings, and adjust the default action if needed

1. On the Densité frame's local control panel, press the CONTROLLER button. See Using the Densité Frame Control Panel, on page 27.
2. Press the [–] button repeatedly until RESTORE POINTS appears on the display, and then press the SEL button.
3. Press the [–] button repeatedly until DEFAULT ACTION appears on the display, and then press the SEL button.
   - If the control panel's display shows KEEP SETTINGS, then the controller configuration will not prevent you from changing your KMV-3901/3911 card's IP address.
   - If the control panel's display shows UPDATE SETTINGS, navigate to KEEP SETTINGS by pressing the [+] button, and then press the SEL button to apply your change.
4. Press the CONTROLLER button to exit the controller's menu.

Network Considerations

This multiviewer generates a low to moderate amount of client-to-server data traffic, and therefore has a minimal bandwidth impact on a network.

TCP/UDP Port Usage

The various KMV-3901/3911 communication protocols require access to specific ports. In networks where a firewall is present between device A and device B, the ports used to communicate **from** device A **to** device B must be open on the incoming (external) side of the firewall.

> Note: All necessary ports are open by default on the multiviewer. There is no mechanism provided for changing the default settings.

From client to multiviewer

The following ports must be open on the Client (i.e., the workstation running XEdit):

Port	Used for	Transport	Notes
443	HTTPS	TCP	Used by XAdmin for secure access
7	HTTP	TCP	Used by XEdit for ping probing
80		TCP	Used by XEdit and XAdmin

Port	Used for	Transport	Notes
5122		TCP	Used by XEdit for *keepalive* (heartbeat)
5432		TCP	Used by XEdit for export operations
7600		TCP	Used for troubleshooting the REST API (remote control)
13000		TCP	Online connection
13100		TCP	Used for calibration data from XEdit
5120	RCP2	TCP	Used to listen for Kaleido discovery packets
10000		TCP	For RCP2 protocol
10001		TCP	For RCP2 protocol
5120		UDP	On multicast 230.8.8.9 for RCP2 protocol
5121		UDP	For RCP2 protocol

From multiviewer to client

Port	Used for	Transport	Notes
1024–5000[a] 49152-65535[b]	Java RMI	TCP	Remote Method Invocation (client/server communication). Dynamic Allocation of ports. Required for communication between client and Application Server.

a. For Windows XP and earlier
b. For Windows 7 and later

From multiviewer to multiviewer

The following ports, used for inter-frame communications, are open by default on all Kaleido Software systems:

Port	Used for	Transport	Notes
22	SSH	TCP	Secure Shell Login is required to login to a multiviewer for maintenance.
4160	Java Jini	TCP	Responsible for discovery and communications between devices/services on a network.
8080	HTTP	TCP	
8082		TCP	Internal communication
8083		TCP	Internal communication
8084		TCP	Internal communication
8085		TCP	Internal communication
8086		TCP	Internal communication
8087		TCP	Used for debugging purposes
8090		TCP	Web service
32769		TCP	filenet-rpc

Port	Used for	Transport	Notes
5120		UDP	On multicast 230.8.8.9 for RCP2
7572		UDP	On multicast 230.8.8.8 for “keep-alive” (heartbeat)
7571		UDP	For “keep-alive” (heartbeat)

From iControl to multiviewer

Port	Used for	Transport	Notes
4160	Java Jini	TCP	Responsible for discovery and communications between devices/services on a network.
32768–65535	Java RMI	TCP	Remote Method Invocation (client/server communication). Dynamic Allocation of ports. Required for communication between client and Application Server. This range can be restricted to match specific security requirements. A minimum of 4000 ports should be allocated.

Between multiviewer and remote control panel

The following ports, used for communications to/from RCP-200 and Kaleido-RCP2 control panels, are open by default on all Kaleido Software systems:

Port	Used for	Transport	Notes
5120	RCP2	TCP	Used to listen for Kaleido discovery packets
10000		TCP	For RCP2 protocol
10001		TCP	For RCP2 protocol
5120		UDP	On multicast 230.8.8.9 for RCP2 protocol
5121		UDP	For RCP2 protocol
80	HTTP	TCP	Used by the RCP-200 to obtain information from the multiviewer’s system database
13000		TCP	Used by the RCP-200 to control the multiviewer via the gateway

From multiviewer to peripheral devices

Port	Used for	Transport	Notes
25	SMTP	TCP	Simple Mail Transfer Protocol, for e-mail alerts.
8851	Alpermann+Velte	TCP	Used to obtain information from Plura (Alpermann+Velte) Studio Production Timer (SPT) systems.
5100	GPI-1501	TCP	Used to obtain information from GPI-1501 General Purpose Interface I/O modules.[a]
8910[b]	TSL (network)	TCP	Used to obtain information from TSL devices that use the TSL UMD version 5.0 protocol.

a. See also: From multiviewer to multiviewer, on page 34.
b. Configurable.

From peripheral devices to multiviewer

The following ports must be open on peripheral devices (e.g., router controllers):

Port	Transport	Notes
2000	TCP	Used to control the multiviewer's internal router via the SAM (Snell/Pro-Bel) SW-P-02 protocol
4381	TCP	Used to control the multiviewer's internal router via the Nevion (Network) protocol
5194	TCP	Used to control the multiviewer's internal router via the NVEP Router (NP0016) protocol.
14000	TCP	Used to control the multiviewer's internal router via the SAM (Snell/Pro-Bel) SW-P-08 protocol

Router drivers also use default ports:

Driver	Port	Transport	Notes
ETL	4000	TCP	
GVG 7000 Native	12345	TCP	
NVEP NV9000 (NP0017)	9193	TCP	
VikinX Modular	4381	TCP	
Quintech	9100	TCP	
Sony HKSPC	12345	TCP	GVGNP Emulator
Utah RCP-3	5001	TCP	SC-4 Ethernet
SAM (Snell/Pro-Bel) SW-P-02	2000	TCP	
SAM (Snell/Pro-Bel) SW-P-08	14000	TCP	

Note: This is configurable in XEdit—you can choose any UDP or TCP/IP port to use for communications between the multiviewer and an external router.

Between multiviewer and SNMP managers

Port	Used for	Transport	Notes
161	SNMP	UDP	Used for SNMP (Simple Network Management Protocol) communications between external SNMP managers and a multiviewer (e.g., sending get, get-next, and set messages to a multiviewer's SNMP agent, and receiving the response).
1161		UDP	Used for SNMP (Simple Network Management Protocol) communications between external SNMP managers and a *Kaleido-IP* multiviewer (e.g., sending get, get-next, and set messages to a multiviewer's SNMP agent, and receiving the response).

Between multiviewer and NTP server

The following ports, used for communications to/from Network Time Protocol servers, are open by default on all Kaleido systems:

Port	Used for	Transport	Notes
123	NTP	TCP	Used for Network Time Protocol synchronization. Port needs to be open in both directions.

Network Considerations for a Multiviewer Cluster

IMPORTANT
Before changing the system name or IP address of a multiviewer associated with a cluster, review the following.

- If you change the system name or IP address of a cluster member while another cluster member is offline or otherwise unavailable, the cluster's integrity will be broken. If you attempt to make such a change, XEdit will alert you of the situation, prompting you to cancel the operation and try again later, when all cluster members are available. However, in the advent that such a change was made by mistake, or that it as been forced for some reason, you will have to repair the broken cluster (see "Repairing a Cluster System" in the Kaleido Software User's Manual).
- Changing the system name or IP address of a KMV-3901/3911 multiviewer associated with a cluster, by using the card's control panel on the Densité housing frame, or by using the KMV-3901/3911 control panel in iControl, is not supported.
- To maintain the integrity of a cluster configuration, such changes must be made by using the system configuration features available in XAdmin.

5 System Configuration

This chapter shows how to configure the multiviewer.

System Requirements for a Client PC

A client PC or laptop meeting the following requirements is required to access the XAdmin Web client, and the other Kaleido Software client applications.

Operating system	Microsoft Windows 10, Windows 8.1, Windows 8, or Windows 7.
Processor	The minimum required by the operating system or better.
Memory	The minimum required by the operating system plus 2 GB or more.
Disk space	The minimum required by the operating system plus 2 GB or more.

Multiviewer Model Representation in XEdit and XAdmin

The name used to represent a multiviewer model is shown in the table below.

In XEdit Select	In XAdmin Select	To represent
KMV-3901/3911	KMV-3901	A KMV-3901 system
KMV-3901/3911	KMV-3901/3911	A KMV-3901/3911 system

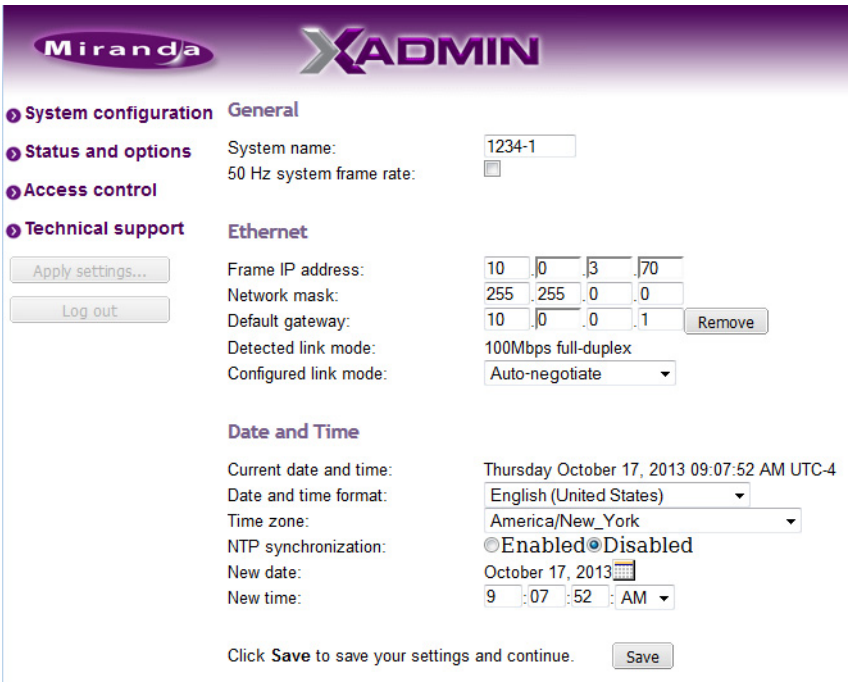
XEdit Installation

Configuring a Multiviewer's IP Settings with XAdmin

To change your system's IP address and other parameters

1. Open XAdmin. See Opening XAdmin on page 53.
2. Click **System configuration**, in the navigation area on the left side of the page.

   The System Configuration page appears, showing the current system name, IP settings, as well as the date and time settings.



3 Optionally, type a descriptive name for your system to make it readily identifiable.

If there are more than one multiviewer in the same network environment, it is important to assign each a unique system name, so that you can tell them apart (for example, when using a remote control panel such as the Kaleido-RCP2 or RCP-200).

> Notes
>
> Only lower-ASCII characters are allowed in the system name. Braces and tilde are not allowed.

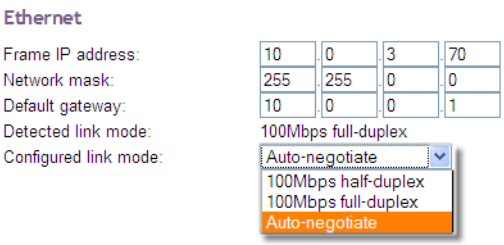
4 Adjust the date and time settings, as required.

Clocks in your layouts will then display date and time in the applicable format.

5 Enter the appropriate IP information: frame or card IP addresses, network mask, and default gateway.

By default, all network adapters are set to auto-negotiate. The connection speed and duplex mode will be set automatically based on the corresponding port settings on the associated switch. The current speed and link mode are displayed next to **Detected link mode**, for every network adapter.

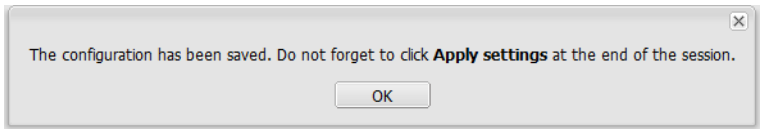
6 Should your network configuration require specific speed and duplex mode settings, select the appropriate value from the **Configured link mode** list.



Note: As required by the IEEE-802.3 standard, section 28D.5, 1000 Mbps full-duplex communication is only supported via auto-negotiation.

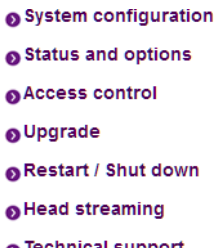
7 Click **Save**.

The new settings are saved locally.



8 Click **OK**.

The **Apply settings** button becomes available.



9 Click **Apply settings**.

The Kaleido system must be restarted for changes to the network configuration to take effect. A message appears prompting you to reboot the system immediately.

10 Click **OK**.

Note: Settings cannot be applied to a multiviewer system while an upgrade is in progress. If the multiviewer does not reboot after 10 seconds or so, try clicking **Apply settings** again after a minute or two, until the multiviewer reboots.

You will need to edit the XAdmin URL in your Web browser's address bar, in order to log on to the multiviewer again.

Installing Kaleido Software Client Applications

In addition to the XAdmin Web client, which does not require installation, the Kaleido Software includes the following client applications:

- XEdit is a client application used to create layouts for the monitor wall, and to configure your multiviewer system, from your PC. When this PC has network connectivity to the multiviewer, you can use XEdit to modify layouts and settings directly on the multiviewer, or you can work locally on the computer and then export your changes to the multiviewer.
- If you have only one multiviewer (or if you have more than one but you intend to always have the same version of the Kaleido Software on all of them), download the XEdit installer file from the multiviewer's home page. Whenever you install a new version of the Kaleido Software on the multiviewer, the next time you open XEdit, your copy of the application will be automatically updated from the multiviewer. See Installing XEdit from your Multiviewer's Home Page on page 42.

- The Router Control Software Single Bus and Matrix View applications (also part of the iRouter Router Control Software packaged with iControl Application Servers) can be used to control your multiviewer's logical sources and monitor wall destinations, via the *KX Router* logical router, or to control other logical routers configured within your multiviewer system. See Installing Router Control on page 47.
- Signal Path Viewer opens as a standalone panel, updated in real time, showing assignment information between router sources and multiviewer inputs. See Installing Signal Path Viewer on page 50.

Installing XEdit from your Multiviewer's Home Page

To install XEdit from your multiviewer's home page

1 With your PC, open a Web browser window and type the multiviewer's IP address in the address bar.

The multiviewer's home page appears.

2 Click the **XEdit** button.

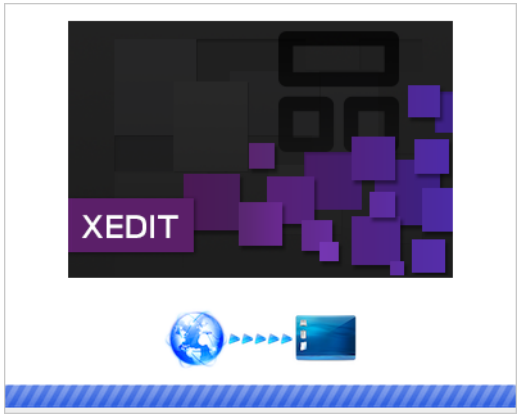
The browser prompts you to save an executable file to your hard drive (`Kaleido-windows32-online.exe`[1]). This file is an online installer, which will download XEdit and other companion elements from your multiviewer, and install them. Some browsers may allow you to run the file directly. Depending on your browser's security features, warnings may appear, which you may safely dismiss.

3 Unless your browser let you run the file (and you chose to do so), navigate to the location were you saved the installer file and open it.

More security warnings or prompts may appear, which you may safely dismiss or accept.

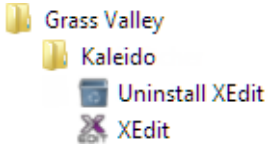
A window appears, showing the download and installation progress.

1. Installers for Linux or Mac OS X are not yet available.

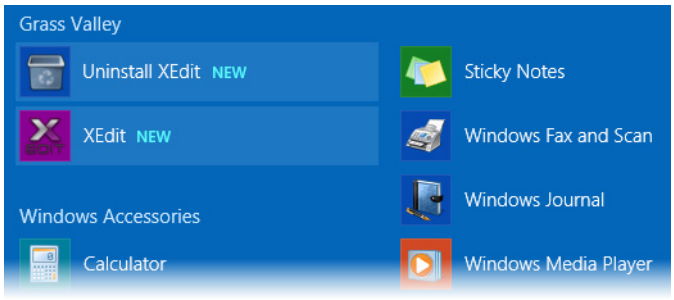


At the end of the installation process:

- If you have Windows 7, or Windows 10, shortcuts ( ) are added to your desktop and to the Start menu (under **All Programs**).



- If you have Windows 8.1, or Windows 8, XEdit will appear on your desktop, in the Apps view with all the other applications on your PC (Windows 8.1), or in your Start screen (Windows 8).

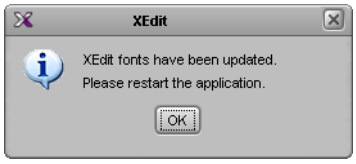


Once the installation has completed, the XEdit startup screen appears.

Depending on your Windows Firewall settings, a security alert may appear.

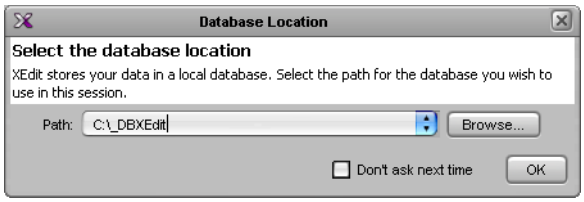
- Click **Allow access** to unblock the application.

If XEdit cannot find all of the fonts it needs already on your PC or laptop, it downloads them from the multiviewer automatically, in which case a message will appear to confirm the font update, and instruct you to restart the application.

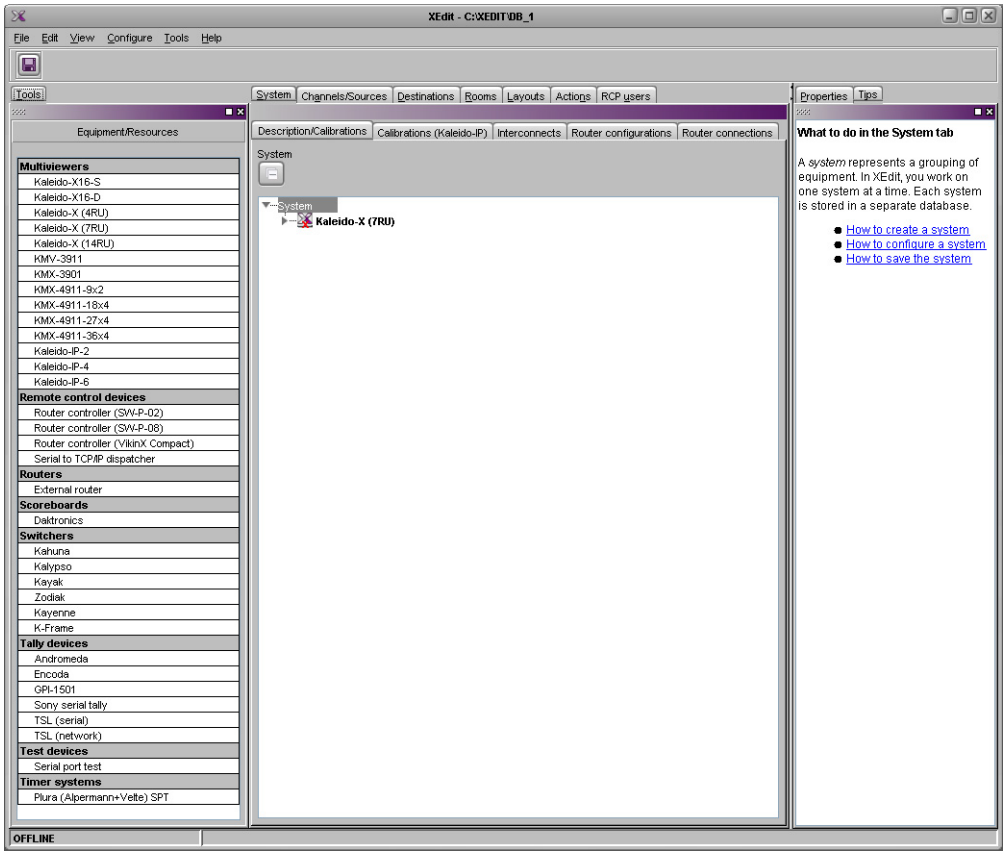


- Click **OK** to continue, and then open XEdit again, by using the shortcut on your desktop, in your Apps view (Windows 8.1) or Start screen (Windows 8), or from the Start menu (Windows 7, Windows 10).

4 When prompted to specify a database, choose one from the **Path** list, or click **Browse** to navigate to the database you wish to use as your local workspace, and then click **OK**.



Once the database has completed loading, XEdit's main application window appears.



Note: Once it has been installed from the multiviewer, XEdit remains on your PC or laptop, and can be launched from the shortcut that was added to your desktop, Apps view, or Start screen (see page 43), or from the Start menu. Whenever you install a new version of the Kaleido Software on the multiviewer, the next time you open XEdit, your installed copy of the application will be automatically updated from the multiviewer.

For more information about calibrating your system, configuring rooms, creating layouts, and operating the monitor wall, refer to the *Kaleido Software User's Manual*. See Related Documentation, on page 9.

Uninstalling XEdit

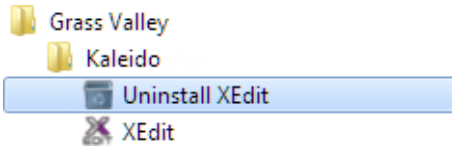
With recent versions of XEdit, an uninstall program is available from the Windows Start menu. If you installed XEdit from your multiviewer's home page, see Uninstalling XEdit (Dynamic Version 7.20 or Later), on page 46.

If you have been using XEdit versions *earlier* than 7.20 you may want to uninstall them by clearing the Java cache on your PC or laptop. See Uninstalling XEdit (Version 7.11 or Earlier) on page 47.

Uninstalling XEdit (Dynamic Version 7.20 or Later)

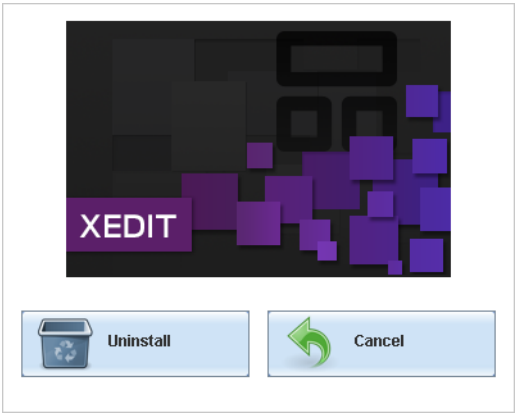
To uninstall XEdit (dynamic version 7.20 or later)

1. Close all XEdit windows you may have open.
2. Locate the **Uninstall XEdit** shortcut.
   - If you have Windows 7, or Windows 10: Open the Start menu, click **All Programs**, scroll to the **Grass Valley** (or **Miranda Technologies**[2]) folder, and then expand the **Kaleido** folder.



   - If you have Windows 8.1, or Windows 8: Switch to the App view or your Start screen.
3. Click **Uninstall XEdit**.

   An uninstall screen appears.



4. Click **Uninstall**.

   This removes XEdit, including all shortcuts, launchers, and other elements that were installed with it, from your system.

2. Launcher icons for versions 7.20–7.52 were installed in the Miranda Technologies folder.

Uninstalling XEdit (Version 7.11 or Earlier)

To uninstall XEdit (version 7.11 or earlier)

1 Close all Java applications you may have open.
2 On the Start menu, click **Control Panels**, and then click **Java (32-bit)**.
Java Control Panel opens.
3 In the **General** tab, click **Settings**.
4 In **Temporary Files Settings**, click **Delete Files**.
5 In **Delete Files and Applications** select all the check boxes, and then click **OK**.
6 Close **Temporary Files Settings**, and then **Java Control Panel**, by clicking their **OK** button.

Installing Router Control

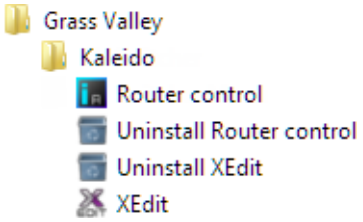
To install Router Control from your multiviewer's home page

1 From a workstation on the same subnet as the multiviewer, open a Web browser window and type the multiviewer's IP address in the address bar.
The multiviewer's home page appears.
2 Click the **Router Control** button.
The browser prompts you to save an executable file to your hard drive (`Kaleido__RouterControl-windows32-online.exe`[3]). This file is an online installer, which will download Router Control and other companion elements from your multiviewer, and install them. Some browsers may allow you to run the file directly. Depending on your browser's security features, warnings may appear, which you may safely dismiss.
3 Unless your browser let you run the file (and you chose to do so), navigate to the location were you saved the installer file and open it.
More security warnings or prompts may appear, which you may safely dismiss or accept.
A window appears, showing the download and installation progress.

At the end of the installation process:

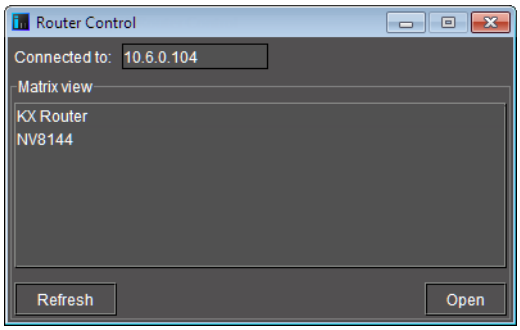
3. Installers for Linux or Mac OS X are not available.

- If you have Windows 7, or Windows 10, shortcuts ( ) are added to your desktop and to the Start menu (under **All Programs**).



- If you have Windows 8.1, or Windows 8, Router Control will appear on your desktop, in the Apps view with all other installed applications on your PC (Windows 8.1), or in your Start screen (Windows 8).

Once the installation has completed, the Router Control main application window appears. The application automatically connects to your multiviewer. The main window lists all logical routers configured within your multiviewer system, in addition to the *KX Router* logical router.

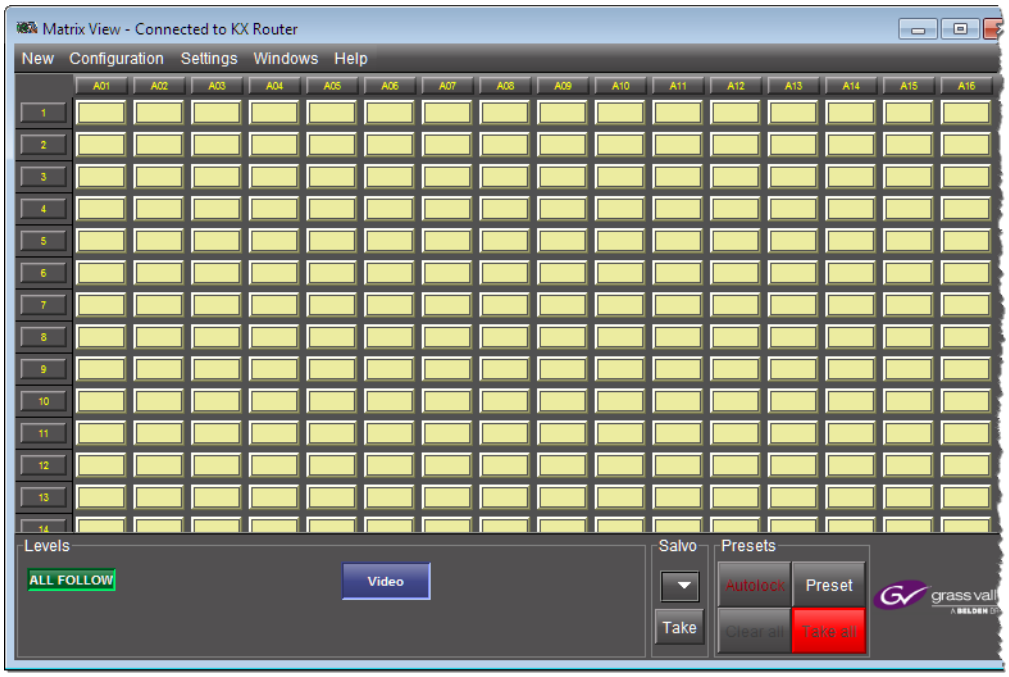


4 In **Router Control**, click the router you want to control, and then click **Open**.

Depending on your Windows Firewall settings, a security alert may appear.

- Click **Allow access** to unblock the application.

The Matrix View application window opens.



On the **Help** menu, click **Help** to access the online documentation, or refer to the *iControl Router User Guide*. See Related Documentation, on page 9.

Notes

- Once it has been installed from the multiviewer, Router Control remains on your PC or laptop, and can be launched from the shortcut that was added to your desktop, Apps view, Start screen (see page 47), or from the Start menu. Whenever you install a new version of the Kaleido Software on the multiviewer, the next time you open Router Control, your installed copy of the application will be automatically updated from the multiviewer.
- Router Control can also connect to other Kaleido multiviewers or iControl Application Servers, and control their routers.
- Routers configured within a Kaleido multiviewer system are compatible with the Router Control modules packaged with iControl Application Servers version 6.10 and later.
- When Router Control is connected to an Application Server, a router manager configuration application is available from the main application window. When Router Control is connected to a Kaleido multiviewer, this router manager configuration application is not available (router configuration is performed with XEdit, in this case).

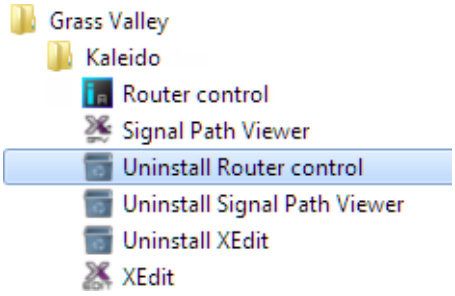
Uninstalling Router Control

To uninstall Router Control

1 Close all Router Control windows you may have open.

2 Locate the **Uninstall Router Control** shortcut.

- If you have Windows 7, or Windows 10: Open the Start menu, click All Programs, scroll to the Grass Valley folder, and then expand the Kaleido folder.



- If you have Windows 8.1, or Windows 8: Switch to the App view or your Start screen.

3 Click **Uninstall Router Control**.

An uninstall screen appears.

4 Click **Uninstall**.

This removes Router Control, including all shortcuts, and other elements that were installed with it, from your system.

Installing Signal Path Viewer

To install Signal Path Viewer from your multiviewer's home page

1 From a workstation on the same subnet as the multiviewer, open a Web browser window and type the multiviewer's IP address in the address bar.

The multiviewer's home page appears.

2 Click **Launch the Signal Path Viewer**.

The browser prompts you to save an executable file to your hard drive (`Kaleido__SignalPathViewer-windows32-online.exe`[4]). This file is an online installer, which will download Signal Path Viewer from your multiviewer, and install it. Some browsers may allow you to run the file directly. Depending on your browser's security features, warnings may appear, which you may safely dismiss.

4. Installers for Linux or Mac OS X are not available.

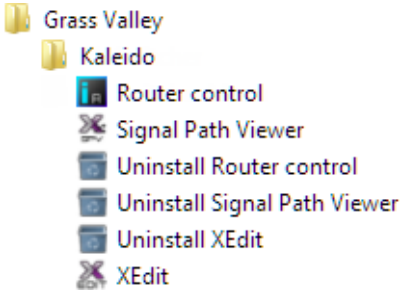
3 Unless your browser let you run the file (and you chose to do so), navigate to the location were you saved the installer file and open it.

More security warnings or prompts may appear, which you may safely dismiss or accept.

A window appears, showing the download and installation progress.

At the end of the installation process:

- If you have Windows 7, or Windows 10, shortcuts ( ) are added to your desktop and to the Start menu (under **All Programs**).

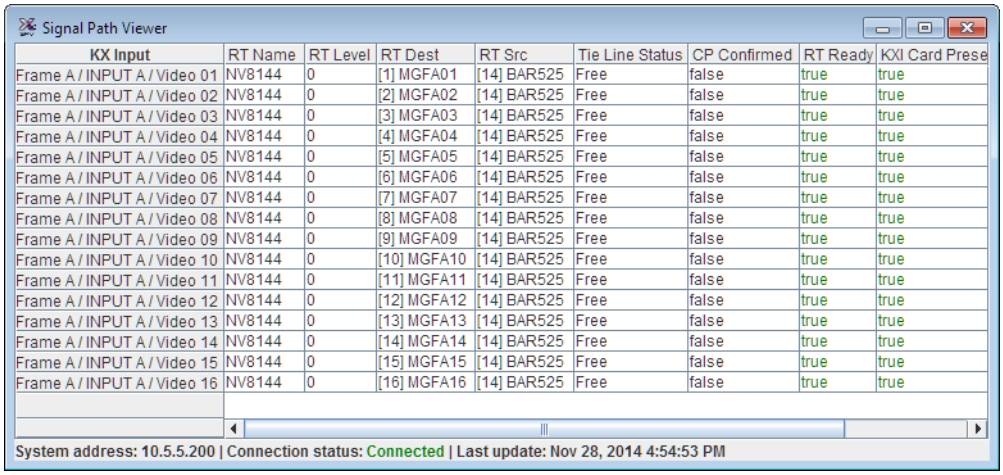


- If you have Windows 8.1, or Windows 8, Signal Path Viewer will appear on your desktop, in the Apps view with all the other installed applications on your PC (Windows 8.1), or in your Start screen (Windows 8).

Once the installation has completed, the Signal Path Viewer panel appears. Depending on your Windows Firewall settings, a security alert may also appear.

- Click **Allow access** to unblock the application.

The application automatically connects to your multiviewer.



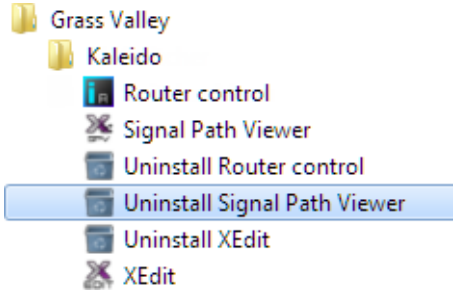
Notes

- Once it has been installed from the multiviewer, Signal Path Viewer remains on your PC or laptop, and can be launched from the shortcut that was added to your desktop, Apps view, Start screen (see page 51), or from the Start menu. Whenever you install a new version of the Kaleido Software on the multiviewer, the next time you open Signal Path Viewer, your installed copy of the application will be automatically updated from the multiviewer.
- Should you need Signal Path Viewer to connect to a different multiviewer, then you must install it again, from the other multiviewer's home page.

Uninstalling Signal Path Viewer

To uninstall Signal Path Viewer

1. Close all Signal Path Viewer windows you may have open.
2. Locate the **Uninstall Signal Path Viewer** shortcut.
   - If you have Windows 7, or Windows 10: Open the Start menu, click All Programs, scroll to the Grass Valley folder, and then expand the Kaleido folder.



   - If you have Windows 8.1, or Windows 8: Switch to the App view or your Start screen.
3. Click **Uninstall Signal Path Viewer**.

   An uninstall screen appears.

4 Click **Uninstall**.

This removes Signal Path Viewer, including all shortcuts, and other elements that were installed with it, from your system.

Opening XAdmin

Connecting to a Multiviewer with a Different XEdit Version from your PC's Version

When connecting to a multiviewer with your PC and your PC already has XEdit installed, the XEdit version installed on your PC and the Kaleido Software version on the multiviewer must be same as explained below.

The composition of a Kaleido Software / XEdit version numbering is explained in the following table.

Kaleido Software / XEdit Version Reference	Description
Version *M.mp*	**M** is the major revision number **m** is the minor revision number **p** is the patch revision number

When you connect to a multiviewer, the multiviewer's Kaleido Software major and minor version must match the XEdit major and minor version installed on your PC. When there is a version number mismatch between the multiviewer's Kaleido Software version and your PC's XEdit version, you will receive the following error when you try to connect to the multiviewer with your PC.

Under this circumstance, proceed as follows.

- There is no compatibility problem if only the patch revision number is different between the Kaleido Software version on the multiviewer and the XEdit version on your PC. Click **Yes** to the Software Version Check screen.
- There is a compatibility problem if the major version, minor version, or both are different between the Kaleido Software version on the multiviewer and the XEdit version on your PC. The solution is to downgrade / upgrade the XEdit version used on your PC to the Kaleido Software version used by the multiviewer. Proceed as follows:
  - Click **No** to the Software Version Check screen.
  - Unistall XEdit from your PC (see Uninstalling XEdit, on page 46).
  - Install XEdit from the multiviewer (see Installing XEdit from your Multiviewer's Home Page, on page 42).

If you regularly connect to different multiviewer systems that use different Kaleido Software versions, and as a result you receive the Software Version Check error message, the best solution to avoid this is to upgrade all of your multiviewer systems to the same Kaleido Software version.

Ways to Access XAdmin

Access the XAdmin Web client as follows:

- from a **Web browser** (see Opening XAdmin from a Browser on page 54),
- from **XEdit** (see Opening XAdmin from XEdit on page 55),

The first time you access XAdmin for a multiviewer (and every time the multiviewer's IP address has changed), you may see a security warning or a certificate error message. The procedures below include instructions on how to address these messages (see Registering your Multiviewer's Security Credentials with your Browser on page 55). Internet Explorer users may also need to enable compatibility view (see Enabling the Compatibility View in Internet Explorer on page 64).

Opening XAdmin from a Browser

To open XAdmin from a browser

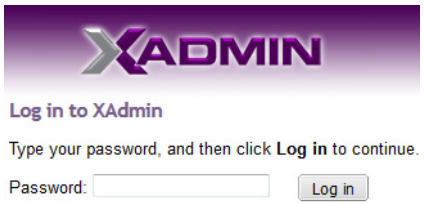
1 Open a Web browser window and enter the multiviewer's IP address in the address bar.

The Kaleido home page appears.

2 Click the XAdmin button.

3 If you see a security warning, or a certificate error message, then see Registering your Multiviewer's Security Credentials with your Browser, on page 55.

4 If the "Log in to XAdmin" page appears, type the password, and then click **Log in**.



5 **Internet Explorer users:** If a blank page appears, then see Enabling the Compatibility View in Internet Explorer, on page 64.

The XAdmin Status and Options page appears. You can access all XAdmin features, by clicking the links, in the navigation area on the left of the page.

Opening XAdmin from XEdit

To open XAdmin from XEdit

1 On the **Configure** menu, click **Use XAdmin**.

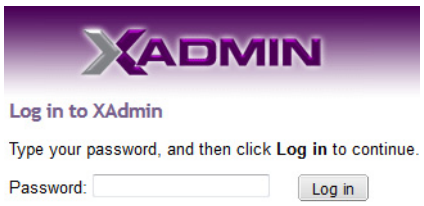
XEdit prompts you for the IP address of the multiviewer you want to access.

2 Type the IP address, and then click **OK**.

Your default Web browser opens.

3 If you see a security warning, or a certificate error message, then see Registering your Multiviewer's Security Credentials with your Browser, on page 55.

4 If the "Log in to XAdmin" page appears, type the password, and then click **Log in**.



5 **Internet Explorer users:** If a blank page appears, then see Enabling the Compatibility View in Internet Explorer, on page 64.

The XAdmin Status and Options page appears. You can access all XAdmin features, by clicking the links, in the navigation area on the left side of the page.

Registering your Multiviewer's Security Credentials with your Browser

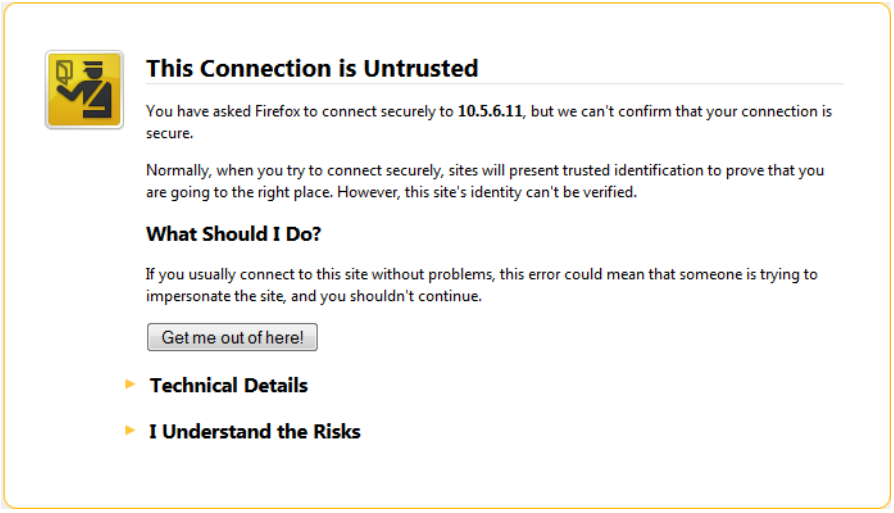
When you open your multiviewer's home page, or try to access XAdmin, your browser may report a certificate error (Internet Explorer), warn you about the site's security certificate (Chrome), or report an untrusted connection (Firefox). Follow the appropriate procedure below to register your multiviewer's security credentials with your browser:

- Suppressing untrusted connection warning in Firefox, on page 56
- Suppressing certificate error in Internet Explorer or Chrome, on page 57

You will be then able to access your multiviewer's client applications without seeing the error message again, as long as the multiviewer's IP address does not change.

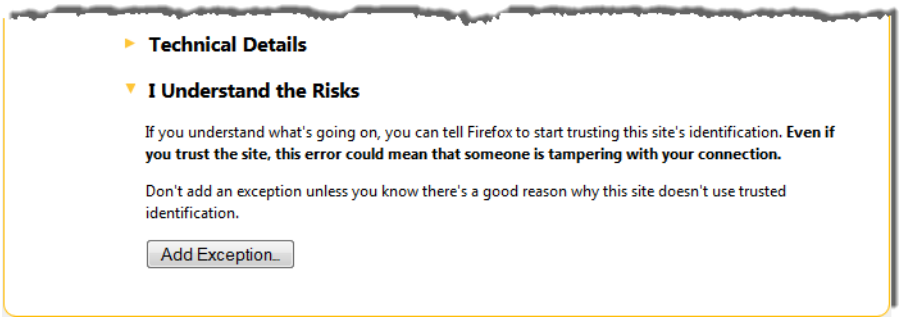
Suppressing untrusted connection warning in Firefox

The first time you try to access XAdmin in Firefox, the browser may display the following page instead, prompting you to confirm the multiviewer's security credentials.



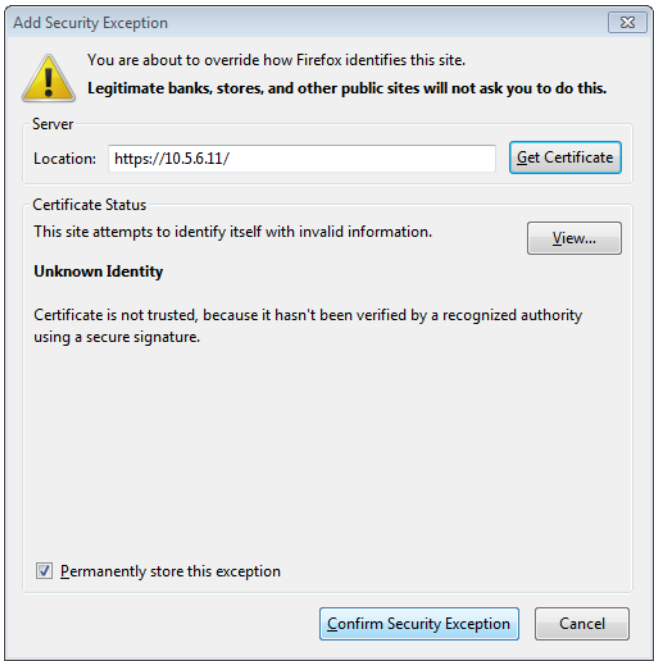
To register your multiviewer's security credentials with Firefox

1 Click **I understand the Risks**, at the bottom of the page.
The message expands.



2 Click **Add Exception**.

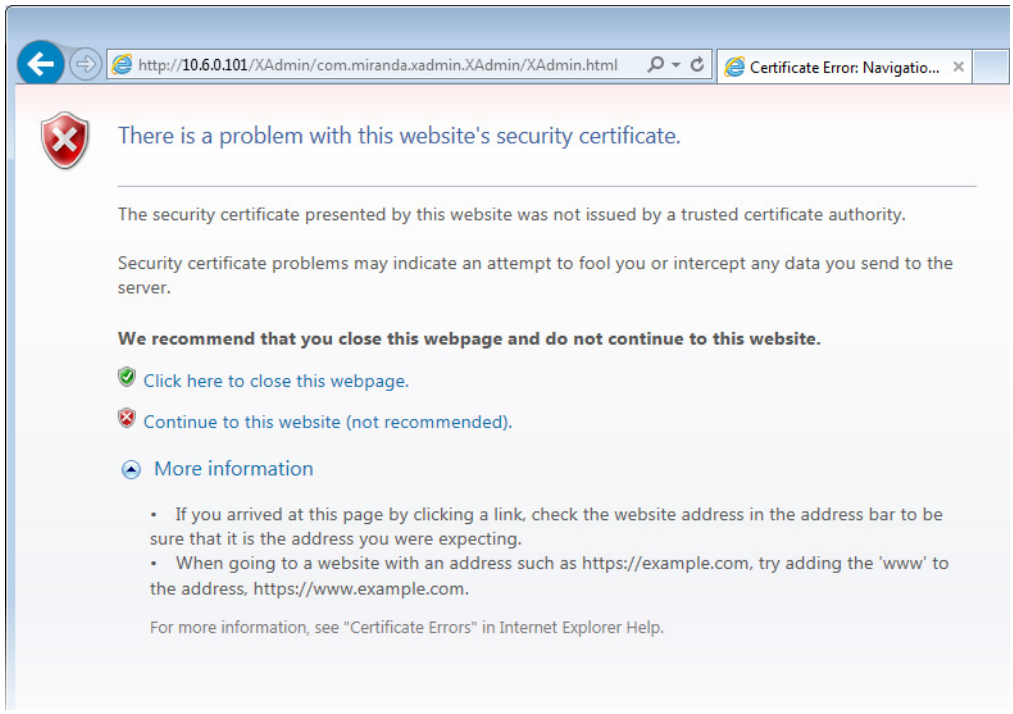
3 In **Add Security Exception**, click **Confirm Security Exception**.



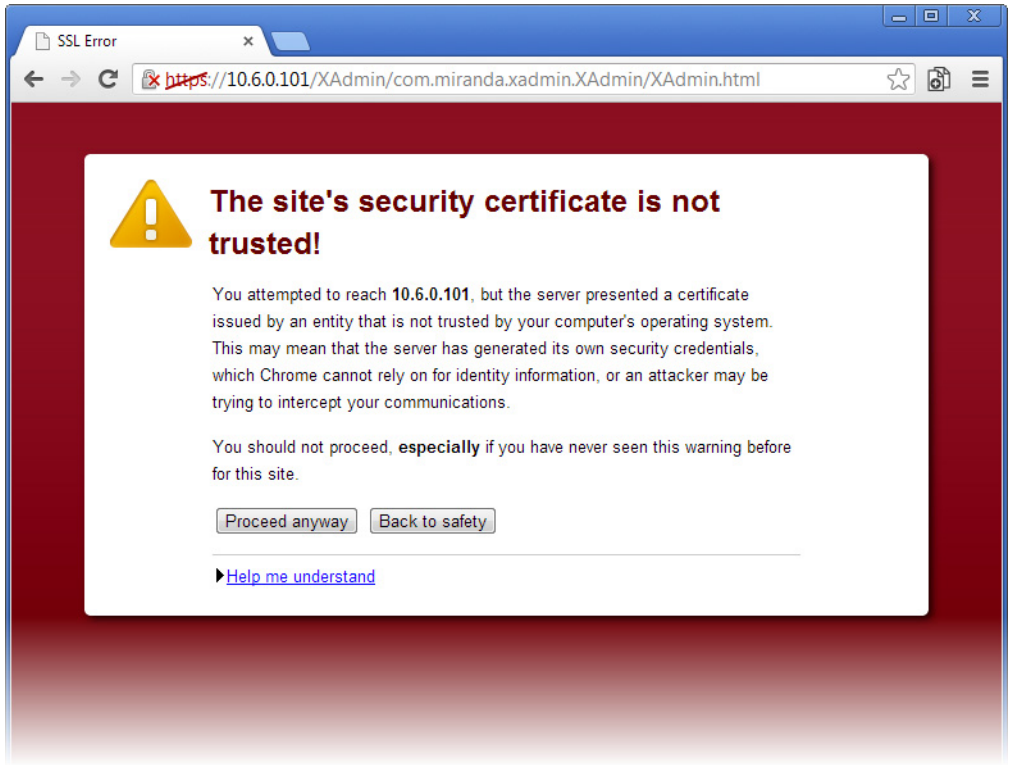
Your multiviewer's home page appears. You will now be able to access your multiviewer's client applications without seeing the warning. This will remain effective until the multiviewer's IP address is changed, in which case you will need follow the procedure again.

Suppressing certificate error in Internet Explorer or Chrome

The first time you try to access XAdmin in Internet Explorer or Chrome, the browser may prompt you to confirm the multiviewer's security credentials.



Internet Explorer's security warning



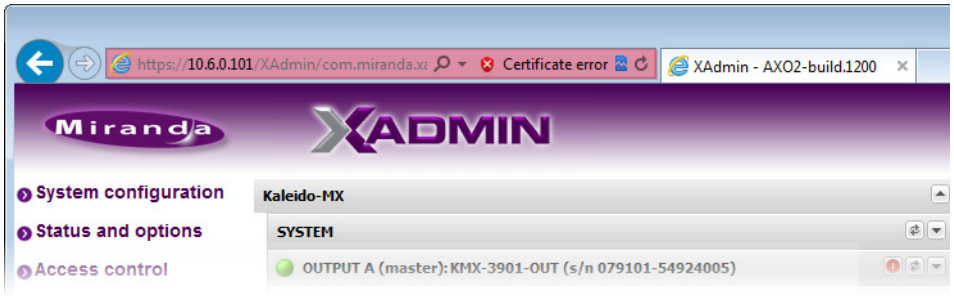
Chrome's security warning

Clicking **Continue to this website (not recommended)** (Internet Explorer), or **Proceed anyway** (Chrome) will let you access XAdmin but the browser's address bar will keep indicating that the multiviewer's identity is not verified. To suppress this warning, you need to perform the following, in Internet Explorer, *even if your preferred browser is Chrome*.

To register your multiviewer's security credentials with Internet Explorer

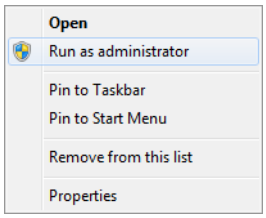
1 Click **Continue to this website (not recommended)**.

The address bar now indicates the certificate error.



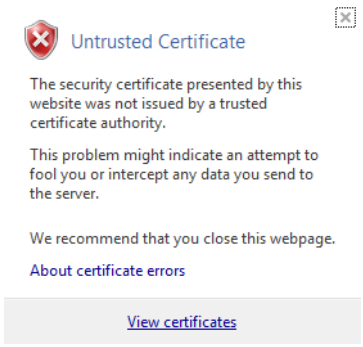
Special notes for Internet Explorer users

- If you see a blank page instead of XAdmin's Status and Options page, then see Enabling the Compatibility View in Internet Explorer, on page 64.
- You must have administrator status to accept the certificate error. If your user account does not have administrator status, then close your browser and, before you open it again, right-click the Internet Explorer icon, and then click **Run as administrator**:

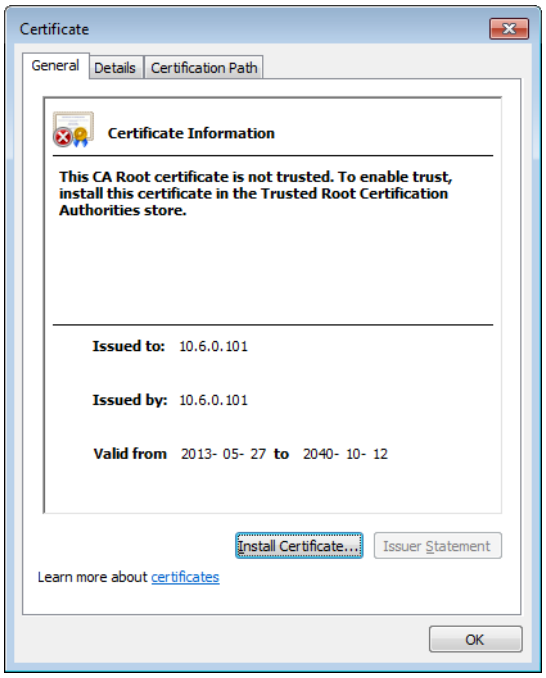


2 Click **Certificate error**.

3 In **Untrusted Certificate**, click **View certificates**.

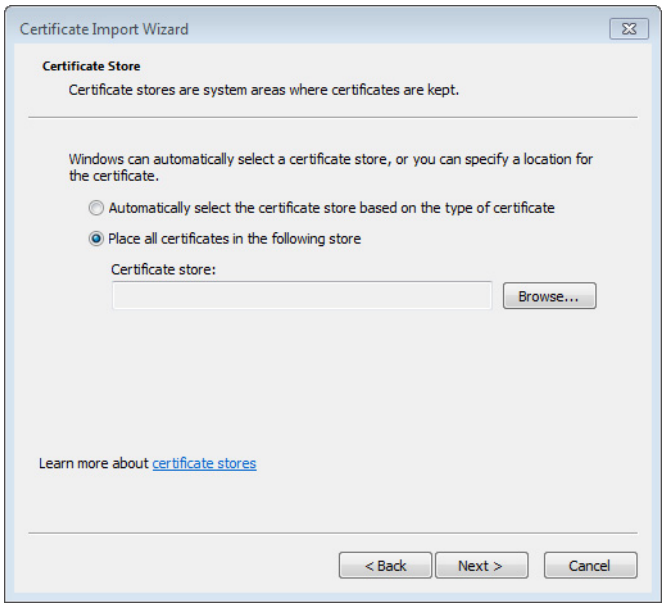


4 In **Certificate**, click **Install Certificate**.

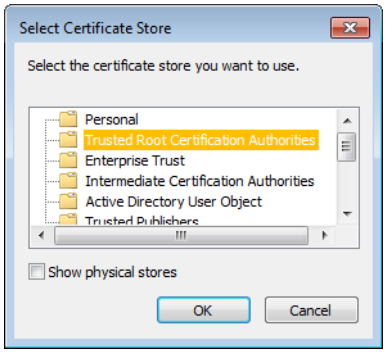


5 In **Certificate Import Wizard**, click **Next**.

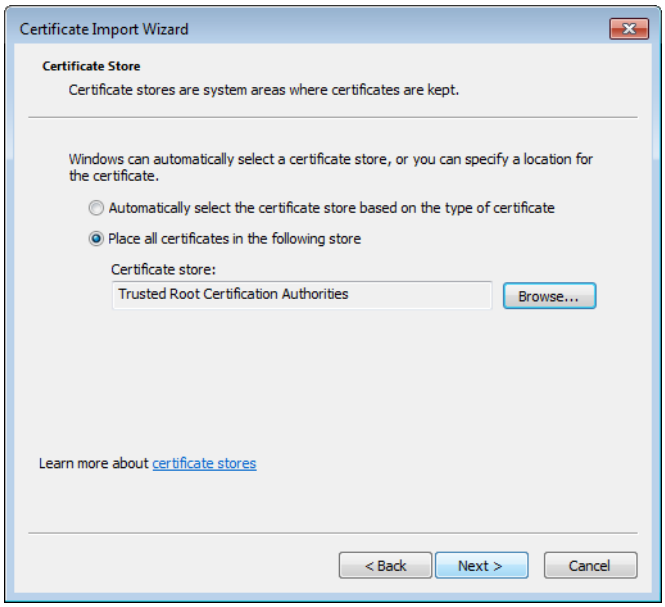
6 In **Certificate Import Wizard**, click **Place all certificates in the following store**, and then click **Browse**.



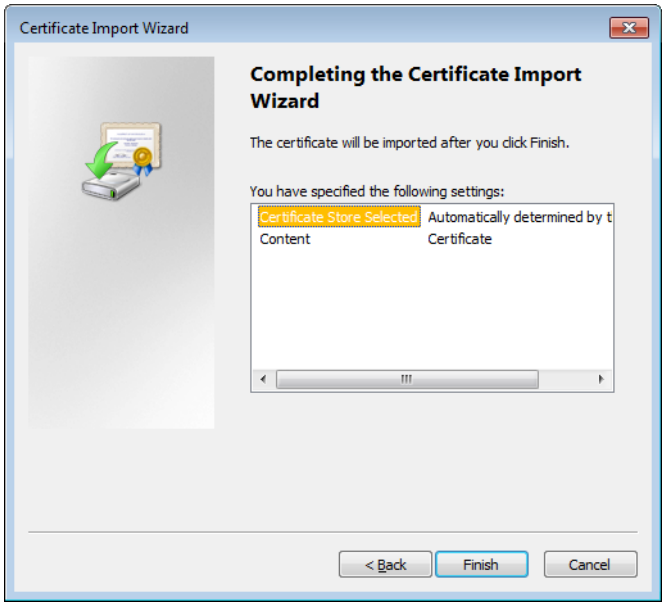
7 In **Select Certificate Store**, select **Trusted Root Certification Authorities**, and then click **OK**.



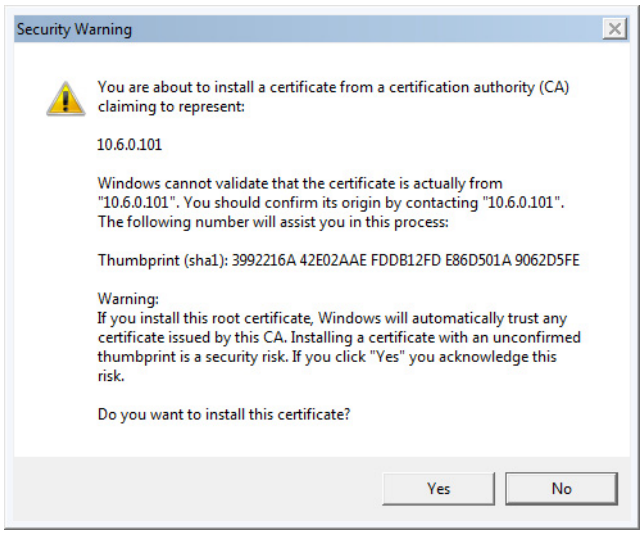
8 Back in **Certificate Import Wizard**, click **Next**.



9 Click **Finish**.

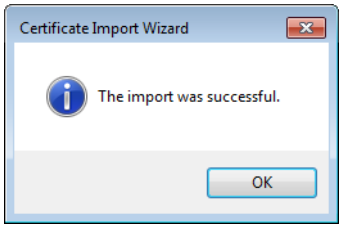


A security warning appears.



10 Click **Yes**.

11 **Certificate Import Wizard** reports that the import was successful.



12 Click **OK** to continue, and then click **OK** to close the **Certificate** window.

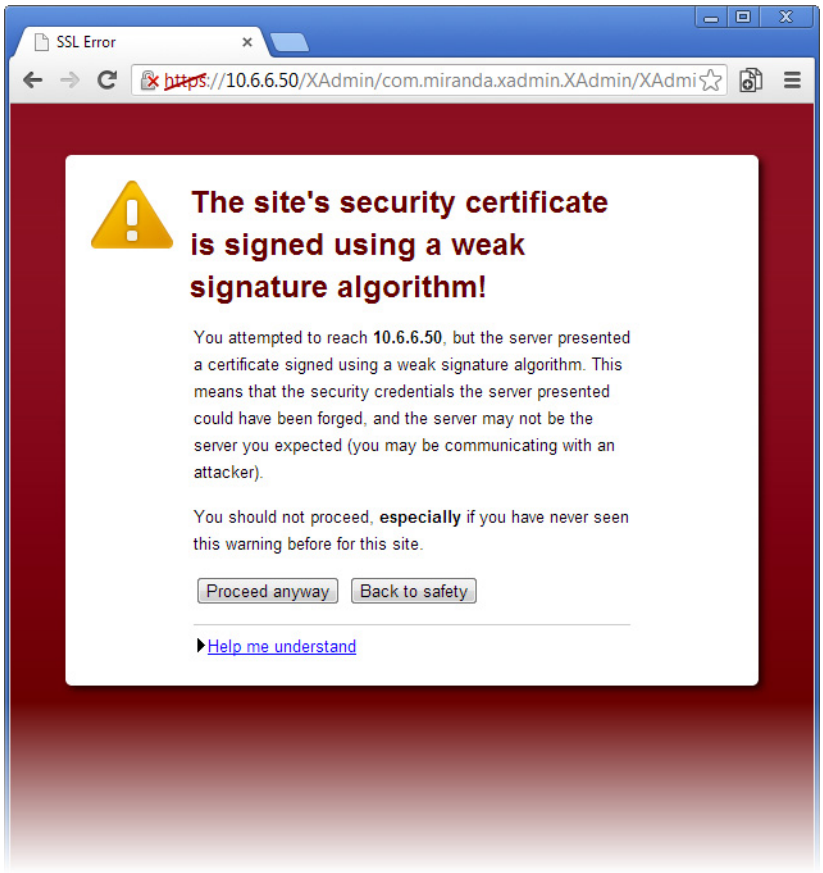
13 Close all Internet Explorer (and Chrome, if any) windows, and then open your browser again.

You should now be able to access XAdmin, from your multiviewer home page without ever seeing the security warning again, unless the multiviewer's IP address is changed, in which case you will want to repeat this procedure.

Special note for Chrome Web browser users

This multiviewer currently uses an older version of Java to generate their certificate. For this reason, *every time you open Chrome and try to access XAdmin*, you may see a warning about the site's security certificate. Click **Proceed anyway**.

Special note for Chrome Web browser users *(continued)*

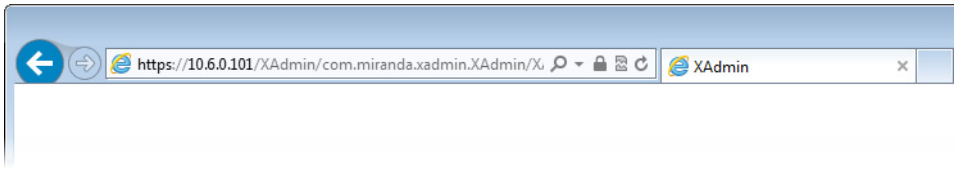


Enabling the Compatibility View in Internet Explorer

When you try to access XAdmin, from your multiviewer's home page, *in Internet Explorer 8, 9, or 10,* you may see a blank page instead of XAdmin's Status and Options page.[5]

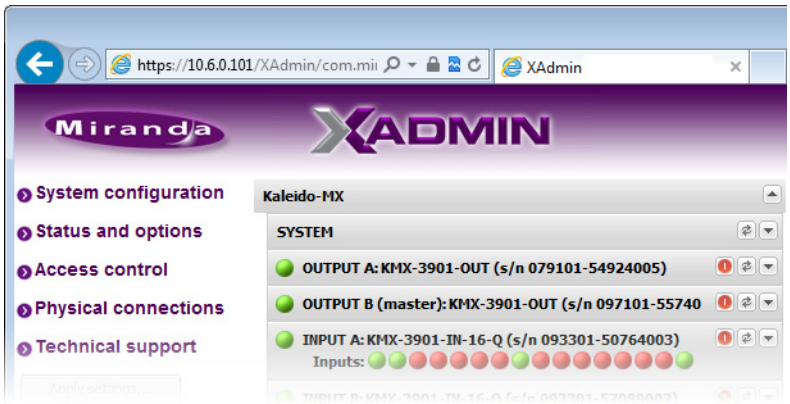
To enable the compatibility view for your multiviewer's XAdmin Web client

- Click the Compatibility View button at the end of your browser's address bar.



XAdmin's Status and Options page appears

5. Should this happen with Internet Explorer 11, refer to *Fix site display problems with Compatibility View,* at http://windows.microsoft.com/en-us/internet-explorer/use-compatibility-view#ie=ie-11



The Compatibility View mode will remain enabled for this multiviewer as long as its IP address does not change.

XAdmin Access Control

XAdmin supports a simple authentication mechanism to prevent unauthorized users from modifying a multiviewer's system configuration.

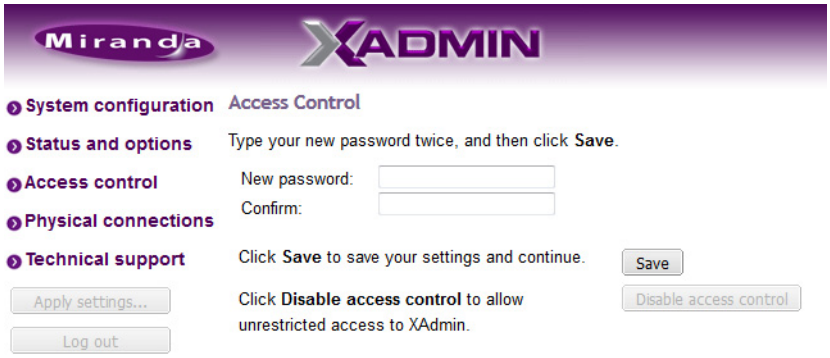
Enabling XAdmin Access Control

To enable access control in XAdmin

1 Open XAdmin. See Opening XAdmin on page 53.

2 Click **Access control**, in the navigation area on the left side of the page.

The Access Control page appears.

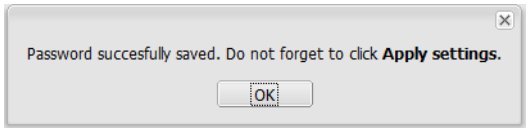


3 Type the password you want to enforce in both the **New password** and the **Confirm** boxes.

The password must contain between 6 and 20 alphanumeric characters or symbols.

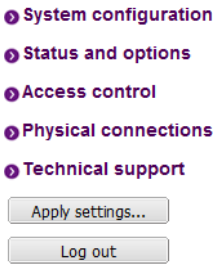
4 Click **Save**.

A confirmation message appears.



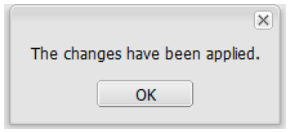
5 Click **OK** to close the message window.

The **Apply settings** button becomes available.



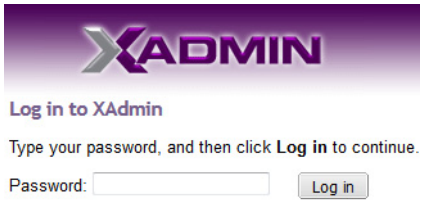
6 Click **Apply settings**.

XAdmin must upload the password to the multiviewer, for password enforcement to take effect. A progress indicator appears momentarily, followed by a confirmation message.



7 Click **OK**.

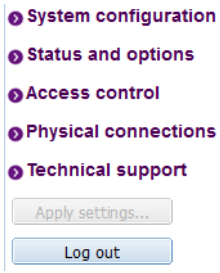
The Log in to XAdmin page appears. Other XAdmin sessions open against the same multiviewer are also redirected to the login page.



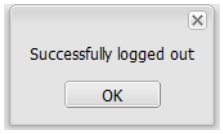
8 Type the password, and then click **Log in**.

The XAdmin Status and Options page appears.

9 Click **Log out**, when you are ready to close you session.



A confirmation message appears.



10 Click **OK**.

The login page appears. Only authorized users have access to XAdmin.

Changing the XAdmin Password

To change the password used to prevent access to your multiviewer from XAdmin

1 Open XAdmin. See Opening XAdmin on page 53.

2 Click **Access control**, in the navigation area on the left side of the page.

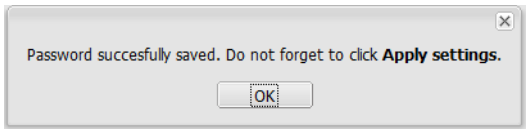
The Access Control page appears.

3 Type the new password you want to enforce in both the **New password** and the **Confirm** boxes.

The password must contain between 6 and 20 alphanumeric characters or symbols.

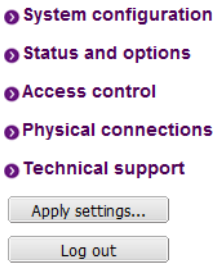
4 Click **Save**.

A confirmation message appears.



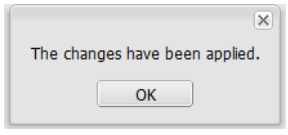
5 Click **OK** to close the message window.

The **Apply settings** button becomes available.



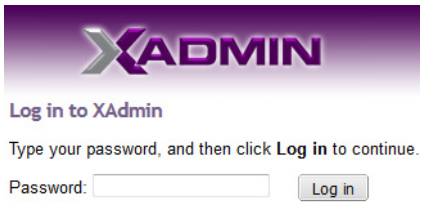
6 Click **Apply settings**.

XAdmin must upload the password to the multiviewer, for the password change to take effect. A progress indicator appears momentarily, followed by a confirmation message.



7 Click **OK**.

The Log in to XAdmin page appears. Other XAdmin sessions open against the same multiviewer are also redirected to the login page.



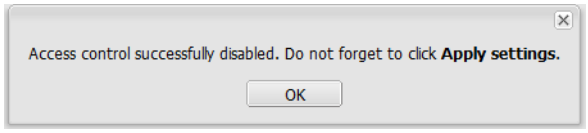
Disabling XAdmin Access Control

To disable access control in XAdmin

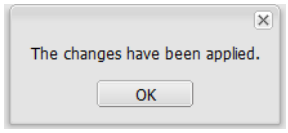
1 Open XAdmin. See Opening XAdmin on page 53.

2 Click **Access control**, in the navigation area on the left side of the page.
The Access Control page appears.

3 Click **Disable access control**.
A confirmation message appears.



4 Click **OK** to close the message window, and then click **Apply settings**.
A progress indicator appears momentarily, followed by a confirmation message.

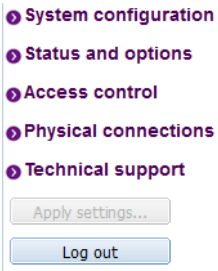


5 Click **OK**.
Unrestricted access to XAdmin is restored, for this multiviewer.

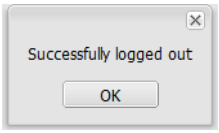
Closing a Password-Protected XAdmin Session

To close your XAdmin session

1 Click **Log out**, in the navigation area on the left side of the current page, when you are ready to close you session.



A confirmation message appears.



2 Click **OK**.

The login page appears. Only authorized users have access to XAdmin for this multiviewer.

Opening Signal Path Viewer

To open Signal Path Viewer

- Double-click the Signal Path Viewer shortcut on your desktop.

The application automatically connects to your multiviewer, and the Signal Path Viewer panel appears.

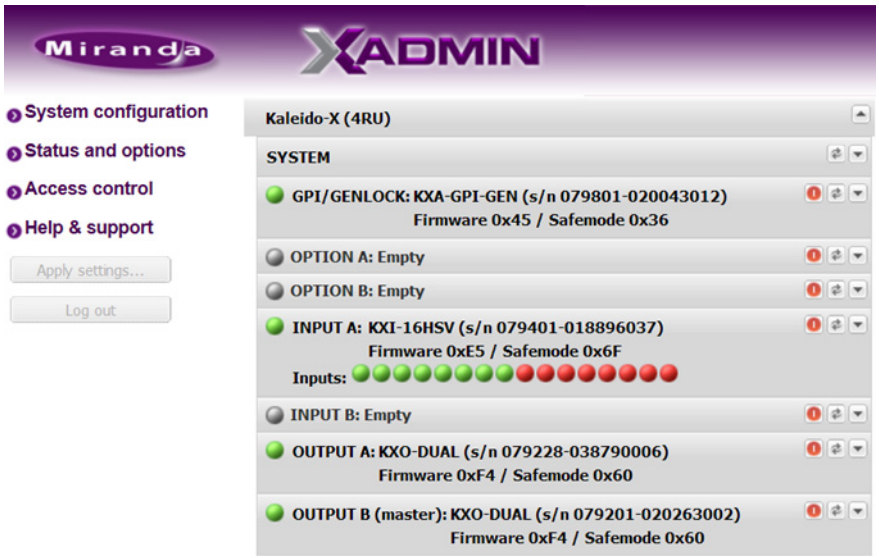
> Note: Should you need Signal Path Viewer to connect to a different multiviewer, then you must install it again, from the other multiviewer's home page. See Installing Signal Path Viewer on page 50.

Viewing a Multiviewer's Status Information

To view the status information for a multiviewer

1 Open XAdmin. See Opening XAdmin on page 53.

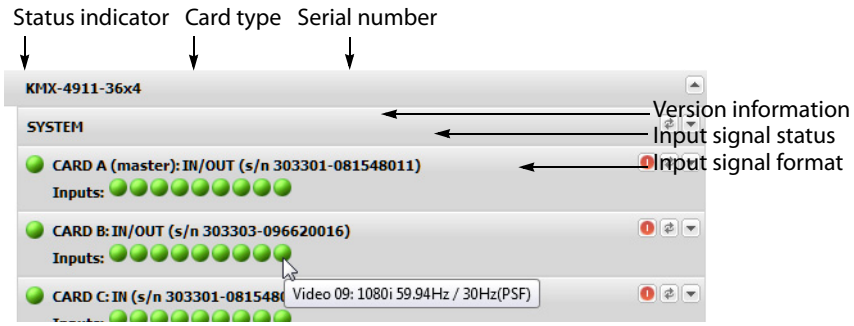
XAdmin's Status and Options page appears, showing the multiviewer model, and a list of all modules and their statuses.



Status and Options page for a Kaleido-X (4RU)

- Some heading rows may show a card type, serial number, firmware and safe mode versions, a module status indicator, and input signal status indicators.
- You can identify which output card currently assumes the *software master* role (and is thus assigned the multiviewer's IP address) by looking for the word "master" next to the card's identifier, for example: "OUTPUT A (master)".
- The module status indicator shows whether the card (or module) is running normally (green) or in safe mode (red).
- The signal status indicators reveals the presence of a valid input signal at the corresponding connector.

2 Move the pointer to an input signal status indicator to view the associated signal format.

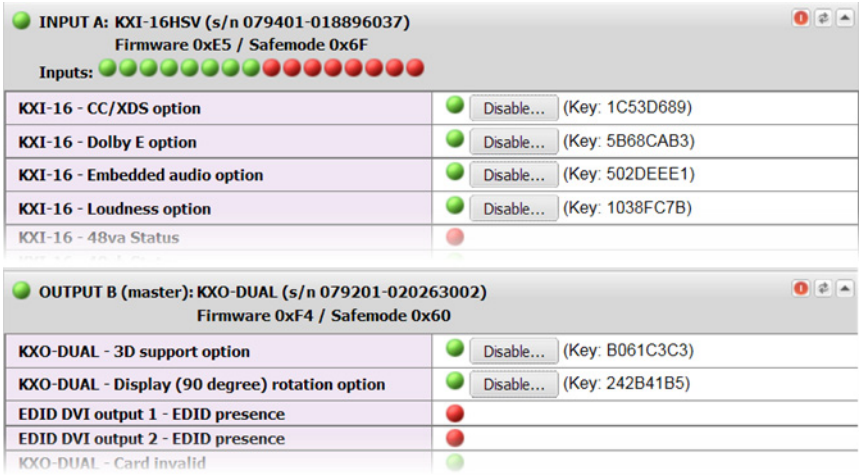


Note: The Kaleido Software does not distinguish neither between 1080PsF25 and 1080i50, nor between 1080PsF29.97 and 1080i59.94. Both 1080PsF25 and 1080i50 are reported as 1080i50, and both 1080PsF29.97 and 1080i59.94 are reported as 1080i59.94, on the monitor wall and in XAdmin's Status and Options page.

3 Click the arrow button at the end of a module's heading row to view more detailed information about this card or multiviewer.

- At any time you can click the Refresh button to make sure the data displayed for the selected module is up to date.
- Click the "Reset card" button to reset the card or reset the multiviewer remotely from your Web browser.

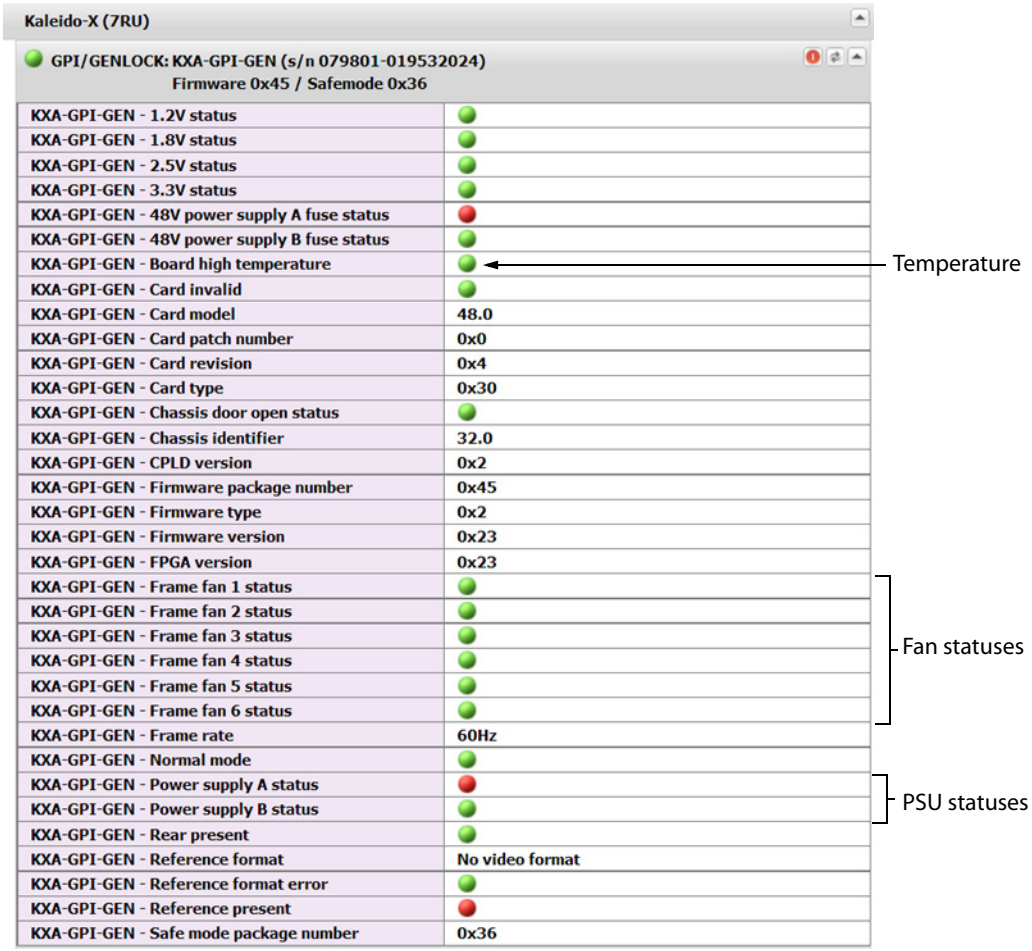
4 Review the enabled options for each module, and make sure that no error is reported.



Status and option information for a Kaleido multiviewer's input and output cards (partial view)

For more information about software options, see Available Hardware and Software Options, on page 96.

5 If your system supports a GPI interface, check the main system statuses of the multiviewer, to make sure that there are no errors or alerts related to system temperature, power supply status, fan operation, or other card fault conditions.



System status and option information

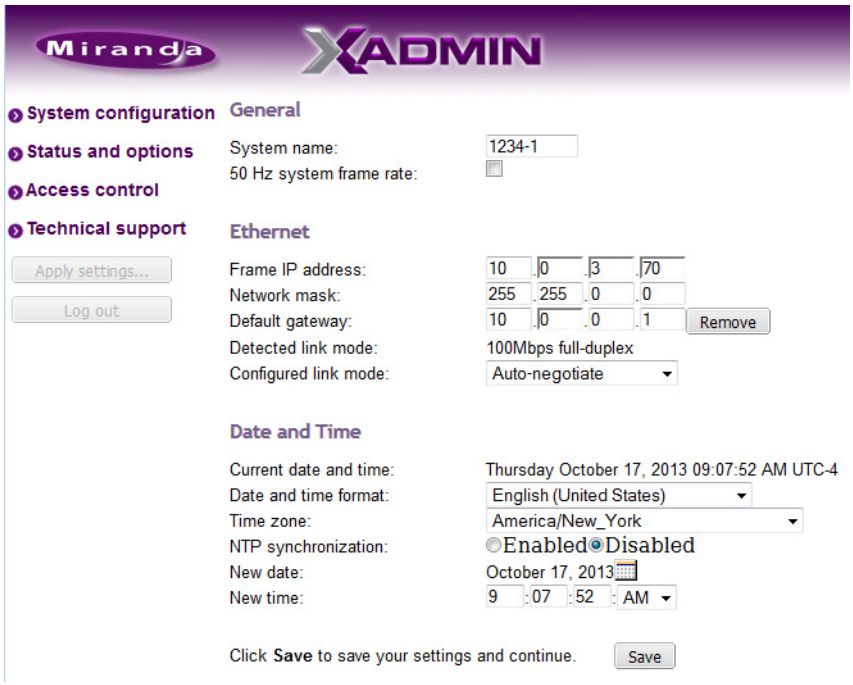
Configuring a Multiviewer's IP Settings with XAdmin

To change your system's IP address and other parameters

1 Open XAdmin. See Opening XAdmin on page 53.

2 Click **System configuration**, in the navigation area on the left side of the page.

The System Configuration page appears, showing the current system name, IP settings, as well as the date and time settings.



3 Optionally, type a descriptive name for your system to make it readily identifiable.

If there are more than one multiviewer in the same network environment, it is important to assign each a unique system name, so that you can tell them apart (for example, when using a remote control panel such as the Kaleido-RCP2 or RCP-200).

> Notes
>
> Only lower-ASCII characters are allowed in the system name. Braces and tilde are not allowed.

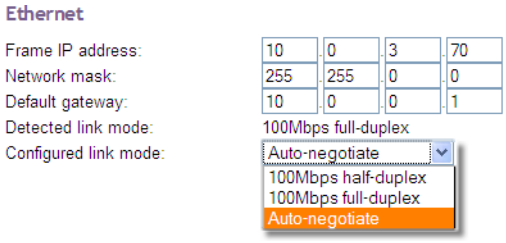
4 Adjust the date and time settings, as required.

Clocks in your layouts will then display date and time in the applicable format.

5 Enter the appropriate IP information: frame or card IP addresses, network mask, and default gateway.

By default, all network adapters are set to auto-negotiate. The connection speed and duplex mode will be set automatically based on the corresponding port settings on the associated switch. The current speed and link mode are displayed next to **Detected link mode**, for every network adapter.

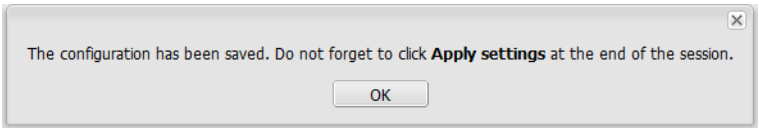
6 Should your network configuration require specific speed and duplex mode settings, select the appropriate value from the **Configured link mode** list.



Note: As required by the IEEE-802.3 standard, section 28D.5, 1000 Mbps full-duplex communication is only supported via auto-negotiation.

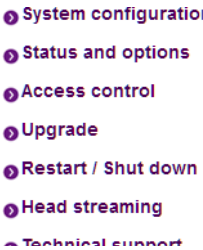
7 Click **Save**.

The new settings are saved locally.



8 Click **OK**.

The **Apply settings** button becomes available.



9 Click **Apply settings**.

The Kaleido system must be restarted for changes to the network configuration to take effect. A message appears prompting you to reboot the system immediately.

10 Click **OK**.

Note: Settings cannot be applied to a multiviewer system while an upgrade is in progress. If the multiviewer does not reboot after 10 seconds or so, try clicking **Apply settings** again after a minute or two, until the multiviewer reboots.

You will need to edit the XAdmin URL in your Web browser's address bar, in order to log on to the multiviewer again.

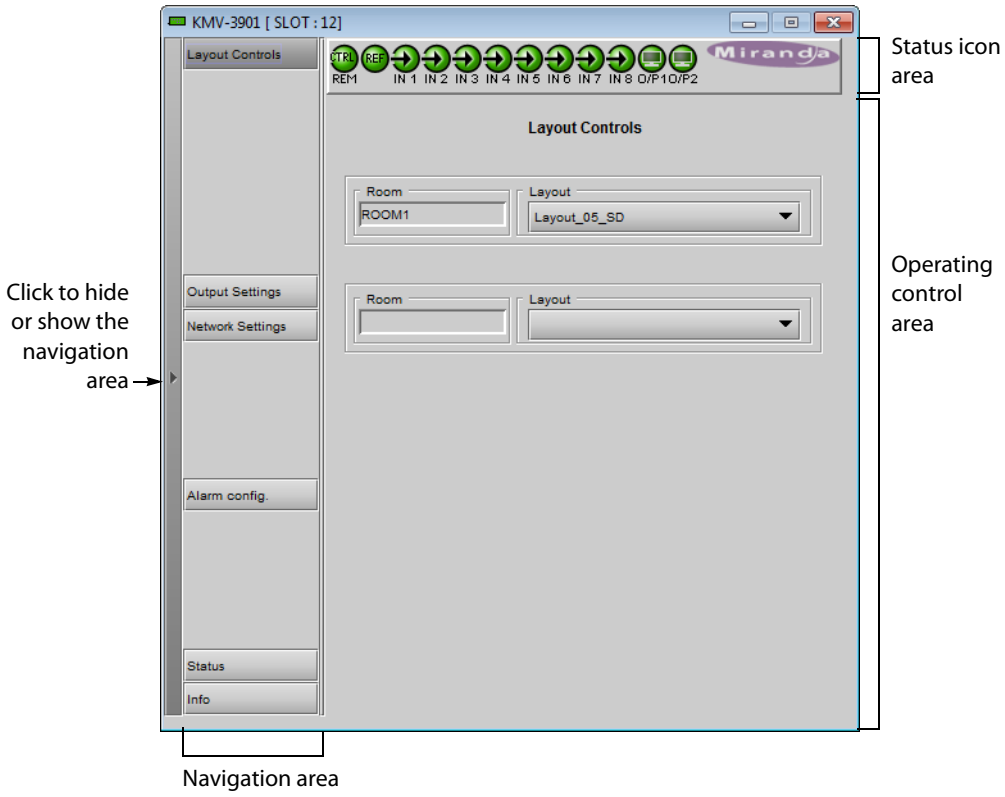
Remote Control Using iControl

The KMV-3901/3911 may be controlled by using Grass Valley's iControl version 3.60 or later. This section describes the control panel associated with the KMV-3901/3911 and its use. Refer to the iControl User's Guide for information about setting up and operating iControl. See Related Documentation, on page 9.

In iControl Navigator or iControl Web, double-click a KMV-3901/3911 icon to open the associated control panel.

KMV-3901/3911 Service Control Panel in iControl

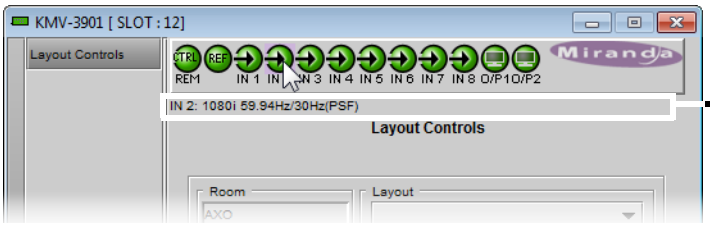
The card type (*KMV-3901* in this example) and the slot number where the card is installed in the Densité frame are indicated in the window's title bar. There are three main areas in the KMV-3901/3911 control panel window itself: the status icon area, the navigation area, and the operating control area.



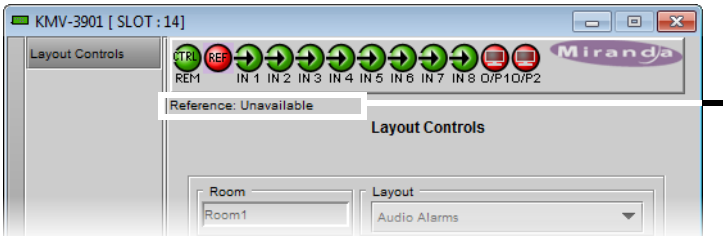
The status icon area shows a series of twelve icons that report the status of some card parameters.

Icon 1 - Control status	Icon 2 - Reference status	Icons 3 to 10 - Status of inputs 1 to 8	Icons 11 and 12 - Status of outputs 1 and 2
Green: Remote control via iControl	Green: Locked to frame reference (mouse over to see format)	Green: Input signal detected (mouse over to see details of the format)	Green: EDID information detected on the HDMI channel
Yellow: Local control at the Densité frame using the menu	Red: Unavailable	Red: No input signal detected	Red: No EDID information detected on the HDMI channel

Move the mouse over an icon and a status message appears below the icon area providing additional information.



Error status messages appear in the message area without mouse-over.



- If there are multiple errors, the error messages cycle so all can be seen.
- The icon whose status or error message is shown is highlighted with a mauve background.

The navigation area contains buttons that control the contents of the main area. Click a button to access the associated features. Click the left side border (identified by a small arrow icon) to hide or reveal this area.

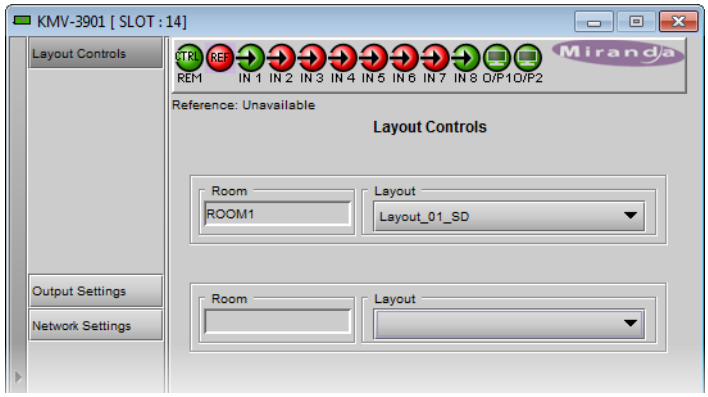
The operating control area contains the main operating controls for managing the KMV-3901/3911 multiviewer's feature set. The contents change depending on the button you clicked in the navigation area. The five panels are described individually in the following sections:

- Layout Controls Panel below
- Output Settings Panel, on page 77
- Network Settings Panel, on page 79
- Alarm Configuration Panel, on page 80

- Status Panel, on page 84
- Info Panel, on page 85

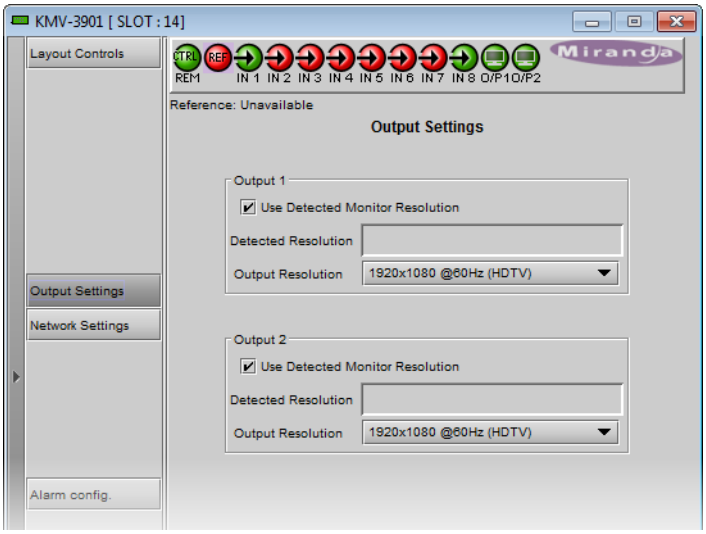
Layout Controls Panel

The two **Layout** lists are used to load layouts to the monitor wall displays. Depending on your configuration, you may have either one room with one or two displays, or two rooms with one display each. Sample layouts are available on the KMV-3901/3911 multiviewer as shipped, for immediate use. Additional layouts may be created in XEdit, and exported to the multiviewer. Refer to the Kaleido Software User's Manual for more information on creating rooms and layouts. See Related Documentation, on page 9.



Output Settings Panel

Set the resolution of the multiviewer output heads to an appropriate value based on the displays in use. If a display uses EDID (Extended Display Identification Data) to communicate its characteristics to the KMV-3901/3911 multiviewer via the HDMI connector, the matching can be done automatically, in which case the detected resolution appears in the **Detected resolution** box. Select the check box to use the detected resolution. If the detected resolution is not used (either because the check box is not selected or because the display does not make the information available) the value selected in the **Output resolution** list will be used.



The following table lists some (but not all) output formats supported at the HDMI connections. You can customize your own timing rates for resolutions ranging from 1280 × 1024 pixels up to 1920 × 1200 pixels (all progressive scan), by using XEdit.

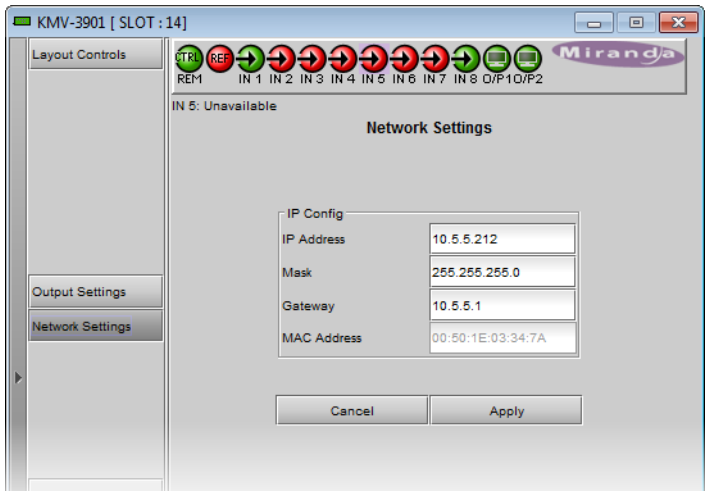
Supported Resolution and Refresh Rates

Resolution	Format name	Refresh rates (Hz)
1280 × 1024	SXGA	50.00, 59.94
1280 × 1024	BARCO	59.94
1360 × 768	NEC	50.00, 59.94
1480 × 1200	Christie	50.00, 59.94
1600 × 1200	UXGA	50.00, 59.94
1920 × 1080	Baycat	50.00, 59.94
1920 × 1200	WUXGA	50.00, 59.94

Note: All KMV-3901/3911 cards within a housing frame must have their output heads configured with the same refresh rate. If your frame is referenced, then the heads' refresh rate must also match the reference signal's refresh rate.

Network Settings Panel

The KMV-3901/3911 is shipped with default network settings, which will not work for your network and must be changed. You may need to consult your network administrator to get the correct values. Enter the appropriate IP address, mask and gateway information to configure this KMV-3901/3911 within your Ethernet network.



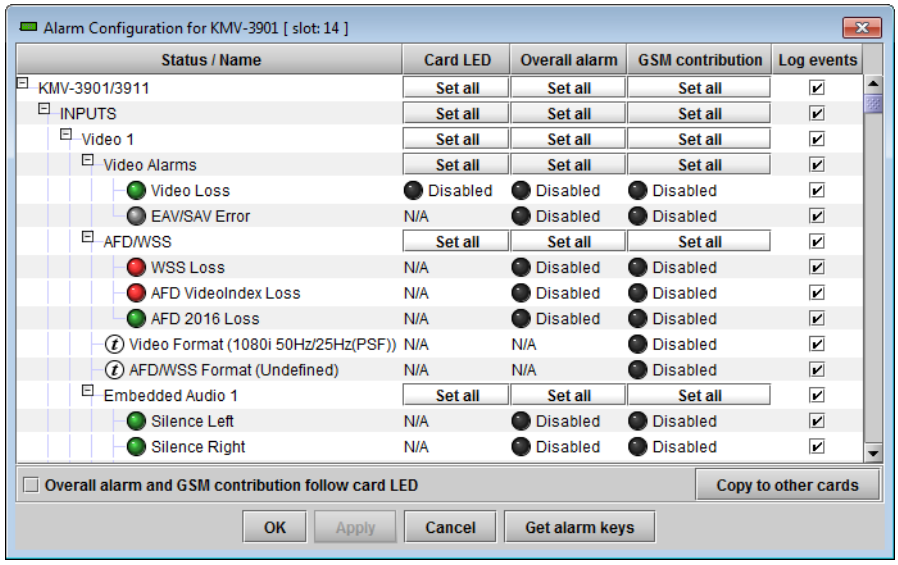
Notes

- These settings apply to the rear-panel Ethernet port of the KMV-3901/3911 itself; *not* to the Ethernet ports at the back of the Densité controller card.
- The MAC Address is a hard-wired attribute of the KMV-3901/3911 card, and is not configurable; the information is presented here for information only.

Click **Apply** to set these values into the card, or **Cancel** to leave the original values unchanged.

Alarm Configuration Panel

This panel allows the alarm reporting of the KMV-3901/3911 to be configured. When you click the **Alarm config.** button, the panel opens as a separate window, which can be resized if needed.



Status/Name

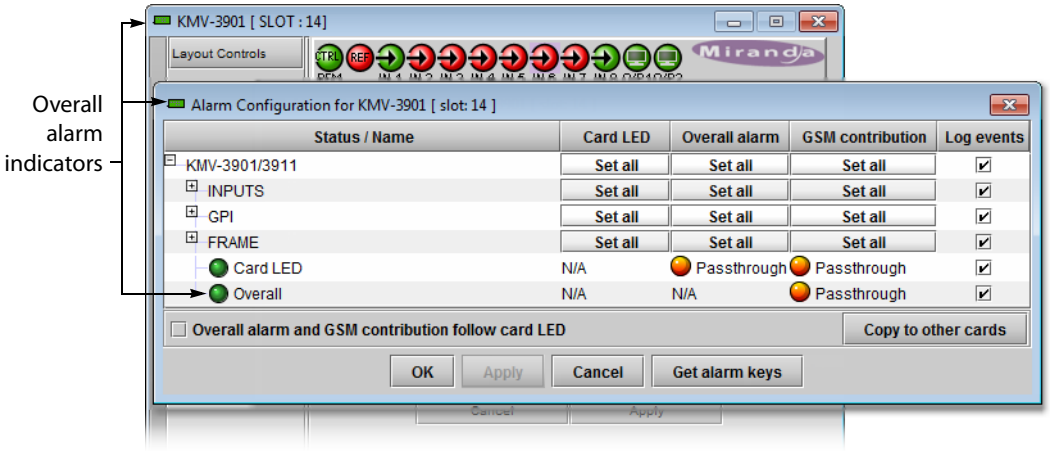
The **Status/Name** column lists all the alarms reported by this KMV-3901/3911 multiviewer. Next to each alarm name, an icon shows the alarm's current status.

Card LED, Overall alarm and GSM contribution

The **Card LED**, **Overall alarm** and **GSM contribution** columns contain lists that allow you to set the level of contribution of each individual alarm to the alarm named in the column heading.

Card LED — This column allows you to configure the behavior of the KMV-3901/3911's card-edge status LED.

Overall alarm — This column allows you to configure the contribution of each individual alarm to the *overall alarm* associated with this card. Indicators for the overall alarm appear in the upper left corner of the control panel windows, and at the bottom of the **Status/Name** column.



GSM contribution — This column allows you to configure the contribution of each individual alarm to the GSM alarm status associated with this card. The GSM is a dynamic register of all iControl system alarms, and is also an alarm provider for external applications. The possible values for the GSM contribution are related to the overall alarm contribution:

- If the overall alarm contribution is set to **Disabled**, then the GSM alarm contribution can be set to any available value.
- If the overall alarm contribution is set to any level other than disabled, then the GSM contribution follows the overall alarm.

Alternatively, select the **Overall alarm and GSM contribution follow card LED** check box, to have the same contribution in all three contexts for the corresponding individual alarm.

Note: *N/A* means the alarm is not user-configurable.

The lists may contain some or all of the following options:

Disabled	The alarm makes no contribution (black icon)
Minor	The alarm is of minor importance (yellow icon)
Major	The alarm is of major importance (orange icon)
Critical	The alarm is of critical importance (red icon)
Passthrough	The alarm exists but has no effect (used for text and composite alarms)

TIP

Click one of the **Set all** buttons beside a section heading to assign the same level to all alarms in that section of the column at once.

iControl maintains a log of alarm events associated with the card. The log is useful for troubleshooting and identifying event sequences. Select the **Log events** check box to enable logging of alarm events for an individual alarm.

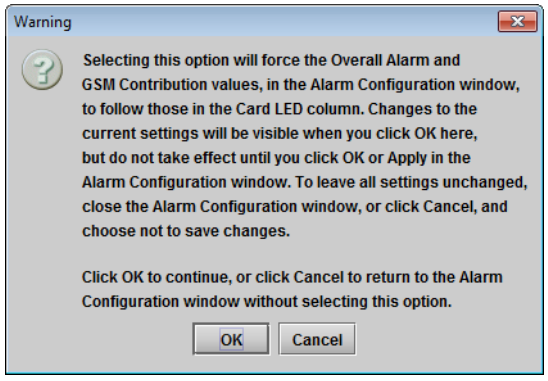
At the bottom of the window are several other controls.

Overall alarm and GSM contribution follow card LED

Select the check box to force the overall alarm and GSM contribution to be identical to the Card LED status:

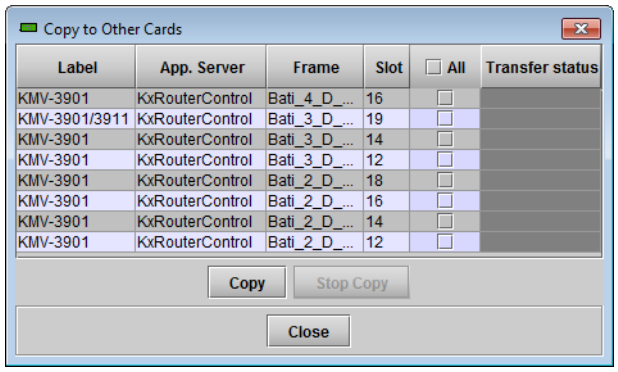
- All Overall alarms for which there is a Card LED alarm will be forced to match the Card LED alarm.
- All Overall Alarms for which there is no Card LED alarm will be Disabled.

A message prompts you to confirm the action, since it will result in changes to the configuration window that cannot readily be undone.



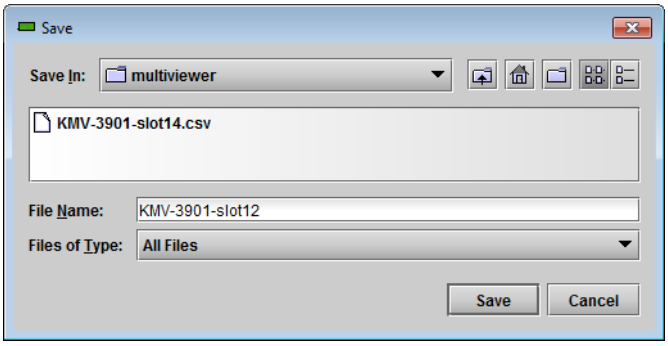
Copy to other cards

Click **Copy to other cards** to open a window that allows the alarm configuration set for this card to be copied into another KMV-3901/3911 card. Select one or more destination cards from the list in the window by selecting the corresponding check boxes, or all of them by selecting the **All** check box.



Get alarm keys

Click **Get alarm keys** to save a file containing a list of all alarms on this card and their current values, along with an Alarm Key for each. The alarm keys are useful for system integration and troubleshooting. The file is saved in CSV format.



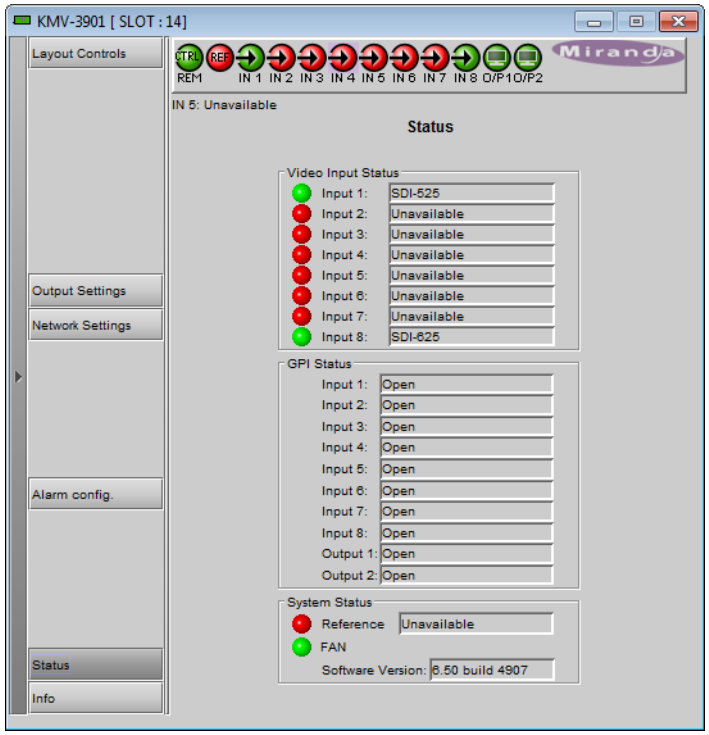
OK, Apply, Cancel

- Click **OK** to accept the settings and close the window once the card confirms that there are no errors.
- Click **Apply** to accept the settings, but leave the window open.
- Click **Cancel** to close the window without applying any changes, and leave the previous settings intact.

Status Panel

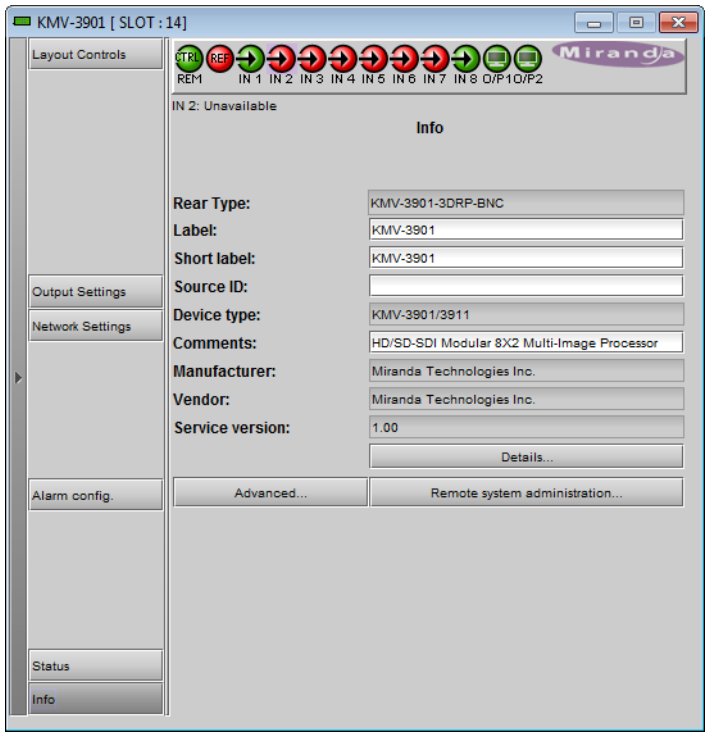
This panel reports on the status of the eight video input ports, with a status icon and text description of the format for each. Status of each of the eight GPI inputs and two GPI outputs is also reported, as *Open* or *Closed*. System status is reported at the bottom of the panel:

- **Reference**: status icon and text description
- **FAN**: status of the on-card cooling fan
- **Software version**: text description



Info Panel

When the KMV-3901/3911 is included in an iControl environment, certain information about the card may be made available to the iControl system. In the boxes with a white background, you can type labels and comments that will make this card easier to identify in a complex setup.



Label — Type a label to identify this KMV-3901/3911 when it appears in iControl applications.

Short label — Type the shorter label that iControl uses in some cases (8 characters).

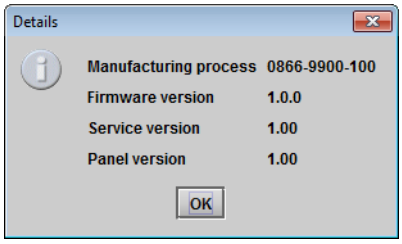
Source ID — Type a descriptive name for this KMV-3901/3911.

Comments — Type any desired text.

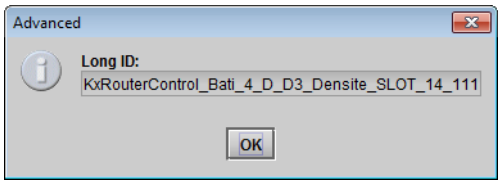
The remaining boxes show manufacturing information about this card.

Three buttons give access to additional information and controls:

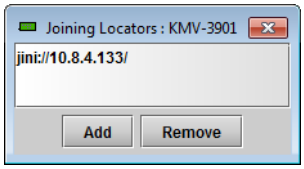
Details — Reports the firmware version, service version, and panel version for this card.



Advanced — Shows the Long ID for this card. The Long ID is the address of this KMV-3901/3911 in the iControl network.



Remote system administration — Opens the **Joining Locators** window, which lists remote lookup services to which this KMV-3901/3911 is registered.



- Click **Add** to force the iControl service for this KMV-3901/3911 to register itself on a lookup service, by using the following syntax in the **Input** window:

  `jini://<ip_address>`

  where `<ip_address>` is the IP address of the server running the lookup service.
- Select one of the services listed in the window by clicking on it, and then click **Remove** to remove it from the list.

Setting the System Name

Once you have configured the output cards from the local control panel, use XAdmin to complete your system's network setup.

To set your KMV-3901/3911 system name

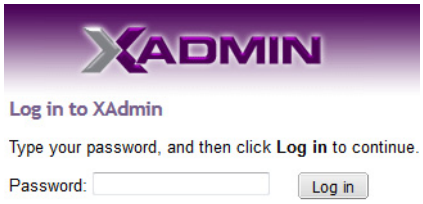
1 Open a Web browser window and enter the multiviewer's *system* IP address in the address bar (see Verifying the Multiviewer's IP Address and Application Version, on page 100, if needed).

2 The Kaleido multiviewer's home page appears.

3 Click the XAdmin button.

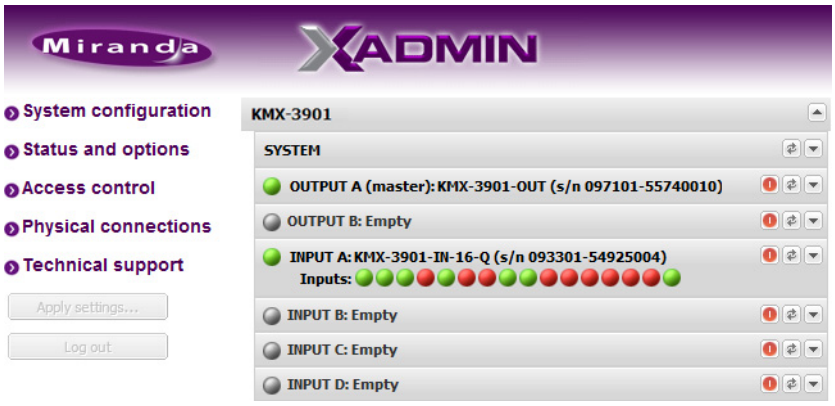
4 If you see a security warning, or a certificate error message, then see *Registering your Multiviewer's Security Credentials with your Browser*, on page 55.

5 If the "Log in to XAdmin" page appears, type the password, and then click **Log in**.



6 **Internet Explorer users:** If a blank page appears, then see *Enabling the Compatibility View in Internet Explorer*, on page 64.

The XAdmin Status and Options page appears.



7 Click **System configuration**, in the navigation area on the left of the page.

The System Configuration page appears, showing the current system name, IP addresses, network mask, default gateway, connection-speed and duplex-mode settings, information about your housing frame, the input cards and the output card you are currently connected to, as well as date and time settings.

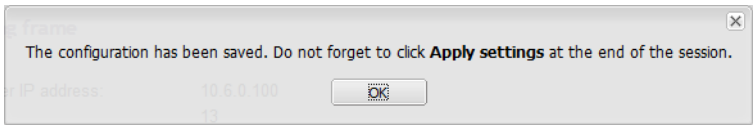
8 Under **General**, type the name you want to use for your system.

If there are more than one multiviewer in the same network environment, it is important to assign each a unique system name, so that you can tell them apart (for example, when using a remote control panel such as the Kaleido-RCP2 or RCP-200). Only lower-ASCII characters are allowed in the system name. Braces and tilde are not allowed.

> Note: Under **Ethernet**, you may review the IP addresses, network mask, gateway settings, and the detected connection speeds and duplex modes. Should you want to make any further changes to the network settings, you may find it more convenient to use XAdmin's System configuration page, from now on.

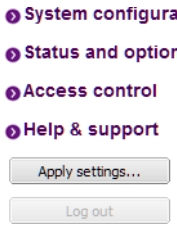
9 Click **Save**.

The new settings are saved locally, and XAdmin reminds you to click **Apply Setting** before closing your session.



10 Click **OK**.

The **Apply settings** button becomes available.



11 Click **Apply settings**.

The multiviewer must restart for changes to the network configuration to take effect. A message appears prompting you to restart the system immediately.

12 Click **OK**.

> Note: Settings cannot be applied to a multiviewer system while an upgrade is in progress. If the multiviewer does not restart after 10 seconds or so, try clicking **Apply settings** again after a minute or two.

Configuring the RCP-200

The RCP-200 is shipped with an IP address of 10.0.3.200. On installation, you should consult your system administrator and replace this address with an appropriate address for your local network configuration (see Configuring the RCP-200's IP settings on page 89). Once your RCP-200 has an active connection to the network, you must then register the multiviewers you want to operate from the RCP-200 (see Specifying multiviewers for the RCP-200 on page 90), and their respective *KX Router* logical routers (see Specifying lookup servers for the RCP-200 on page 90). Once this is completed, you will be able to control the monitor wall from the RCP-200 (see Logging on to the RCP-200 on page 90).

Configuring the RCP-200's IP settings

To assign an IP address to the RCP-200

1 Press the CONFIG button, located between the two screens on the front of the RCP-200.
2 Touch the COMM category at the top of the right-hand screen.
3 Touch the ETHERNET tab on the right-hand screen.
4 In the SELECT area, rotate the leftmost control knob to select IP ADDRESS.
5 Use the four control knobs in the CHANGE area to set the new address.

The current address is displayed in the CURRENT box for reference, and the new address you are setting appears in the MODIFIED box, as well as at the controls.

6 Press the SAVE control knob to store the new address.

7 Repeat from step 4 to configure the NETWORK MASK and GATEWAY settings.
8 Press the RESTART control knob to apply the changes.
The panel will go dark for about 15 seconds before the startup screens appear.

Specifying multiviewers for the RCP-200

To specify a multiviewer for the RCP-200

1 Press the CONFIG button, located between the two screens on the front of the RCP-200.
2 Touch the COMM category on the right-hand screen.
3 Touch the KALEIDO DISCOVERY tab on the right-hand screen.
4 Use the four control knobs in the ADD TO LIST area to dial in the IP address of the multiviewer you want to operate.
The address appears in the TO ADD box.
5 Press the ADD control knob.
The multiviewer's IP address appears in the LOOKUP LIST area.
6 Press the CONFIG button, located between the two screens on the front of the RCP-200 to end the configuration process and return to normal operation.

Specifying lookup servers for the RCP-200

The RCP-200 needs to connect to a lookup server in order to control devices, including a multiviewer's *KX router* logical router.

To specify a lookup server for the RCP-200

1 Press the CONFIG button, located between the two screens on the front of the RCP-200.
2 Touch the COMM category on the right-hand screen.
3 Touch the DISCOVERY tab on the right-hand screen.
4 Use the four control knobs in the ADD TO LIST area to dial in the IP address of the multiviewer you want to operate.
The address appears in the TO ADD box.
5 Press the ADD control knob.
The multiviewer's IP address appears in the LOOKUP LIST area.
6 Press the CONFIG button, located between the two screens on the front of the RCP-200 to end the configuration process and return to normal operation.

Logging on to the RCP-200

Note: In a default system configuration, a multiviewer's video outputs are assigned to ROOM1.

To log on to a Kaleido multiviewer room from the RCP-200

1 On an RCP-200 with an active connection to the network, press the LIST button.

All devices, and Kaleido multiviewer rooms, detected by the RCP-200 appear on the left screen. Kaleido multiviewer rooms are listed in the form [multiviewer name]\[room name].

If a room belongs to a cluster system, its name appears once for each of the member multiviewers (e.g., if two multiviewers, KX1 and KX2, are configured as a cluster, and ROOM1 includes displays fed by both multiviewers, then both KX1\ROOM1 and KX2\ROOM1 will be listed. To determine the one you should select, review the following:

- Has the RCP user configuration you want to use been replicated on every member of the cluster? RCP Users are not automatically propagated to all multiviewers. Before a user can log on to a room associated with a cluster system, the corresponding RCP user configuration must be manually replicated on all member multiviewers across the cluster. See *Managing RCP Users* in the Kaleido Software User Guide.
- Do you need to control an external router whose configuration is available only from one or some specific members of the cluster?
- Does your system configuration include actions that were configured only on one or some specific members of the cluster?
- Do you need to control a timer from the monitor wall in a cascade room?

If any of the above elements is available only from one or some specific members, then make sure you select the room name prefixed with the appropriate multiviewer name. In the case of a cascade room, unless you remember which multiviewer you were connected to when you added the timer you need to control, you will have to proceed by trial and error.

2 Touch the room you want to access (press the DOWN or UP soft keys to scroll the list as needed).

The list of users assigned to this room appears on the right-hand screen.

3 Touch the user name under which you want to log on, enter your password, and then touch LOG IN.

Note: By default, the user “Admin” has no password.

The following message appears on the right-hand screen: PLEASE SELECT A ROUTER FROM THE LEFT-HAND SCREEN, prefixed with the name of the multiviewer that appeared before the room name you selected in step 2.

4 In the list on the left-hand screen, touch the *KX Router* logical router associated with the same multiviewer (you can see the multiviewer name, its IP address, and the size of that particular KX Router).

5 Touch the Video level, in the area to the right of the router list, if it is not selected already, and then push SELECT.

The room’s monitor wall control panel appears on the right-hand screen, with the ASSIGN CHANNEL category selected. If a mouse is connected to the RCP-200, then after touching WALL MOUSE you should be able to see and move the mouse pointer on the monitor wall.

- If the room you selected belongs to a *cascade* system, touch a monitor showing a source you can identify as coming from a different multiviewer than the one indicated

with the room name you selected in step 2.

- If the room you selected belongs to a *cluster* system, rotate the HEAD knob (or touch the DISPLAY SELECT category) to display a head view from a different member of the cluster, and then touch a monitor.

  The ROUTER SELECT category becomes selected instead of ASSIGN CHANNEL, and the right-hand screen shows the message prompting you to select a router from the left-hand screen, prefixed with the name of the multiviewer, which means that you still need to complete the correlation between some monitor wall destinations and the representation of the KX Router logical router for this multiviewer. See Correlating Monitor Wall Destinations and KX Router Logical Routers for the RCP-200 on page 92. Repeat this for one head, with one layout, for every multiviewer that is part of the cluster of cascade. If you need to connect to a different instance of the same room then you will have to establish the correlation again, to be able to operate the monitor wall from the different context.

  Notes

  - The RCP-200 will remember your user credentials until you log out explicitly (by touching LOG OUT at the upper-right corner of the control panel).
  - The pointer may flicker when two RCP users access displays fed by the same multiviewer output.
  - Two users accessing the same display will be limited to sharing a single pointer.

For more information on the RCP-200, refer to the *RCP-200 Guide to Installation and Operation*. See Related Documentation, on page 9.

Correlating Monitor Wall Destinations and KX Router Logical Routers for the RCP-200

To operate the monitor wall from the RCP-200's category/index router view, your system must have been configured to be controlled as a router. In a layout, the RCP-200 can only control monitors that have been assigned a monitor wall destination. The first time you log on to a room from the RCP-200, you will be prompted to select a router from the left-hand screen. By selecting the appropriate KX Router logical router, you will establish the correlation between your multiviewer's monitor wall destinations and the RCP-200's representation of the multiviewer's *KX Router* logical router. In the case of a cluster or cascade system, you will also be prompted to select a router, the first time to try to assign a source to a monitor located in a part of the layout that belongs to a different member of the cluster or cascade. You only need to do this once, for every multiviewer that is part of a cluster (or cascade).

To correlate a monitor wall destination in a layout and the corresponding KX Router logical router

1 In the list on the left-hand screen, touch the *KX Router* logical router associated with the multiviewer whose name was indicated in the message prompting to select a router (you can see the multiviewer name, its IP address, and the size of that particular KX Router).

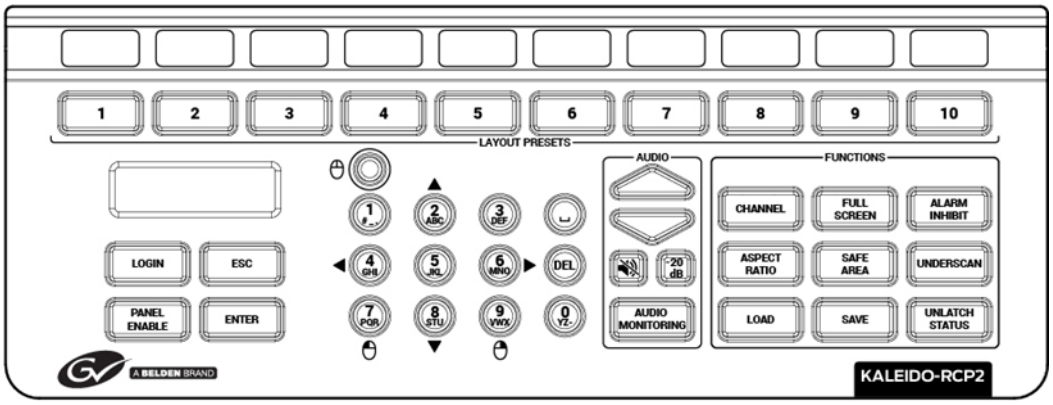
2 Touch the Video level, in the area to the right of the router list, if it is not selected already, and then push SELECT.

The RCP-200 will remember the association with the KX Router logical router's destinations for the current multiviewer's monitor wall destinations.

Configuring the Kaleido-RCP2

Note: The Kaleido-RCP2 unit is optional and is not included in the standard KMV-3901/3911 package.

The Kaleido-RCP2 is a multi-function remote control panel designed for use with Kaleido multiviewers. Ethernet connectivity allows multiple RCP users to access multiple Kaleido multiviewer systems, allowing convenient access to the real-time operating features. When logged on to a Kaleido multiviewer via its Ethernet connection, the RCP user can control various operating features.



Before you can use the Kaleido-RCP2 to operate your Kaleido multiviewer, you must set up the Ethernet connection between the two devices. By default, the Kaleido-RCP2 is shipped with DHCP enabled, so it will automatically be assigned an IP address by a DHCP server. If no DHCP server is present on the network, the Kaleido-RCP2 will default to the static IP address 10.0.3.191.

Notes

- The Kaleido-RCP2 is powered through the RJ45 Ethernet connector. There is no power ON/OFF button, so the device is ON whenever a powered Ethernet cable is connected.
- If you purchased more than one Kaleido-RCP2 units, keep in mind that they all ship with the same default static IP address. Make sure to assign them different static IP addresses before connecting them to the network if DHCP is not used. See the Kaleido-RCP2 User Guide for more information.
- The time-out period before the Kaleido-RCP2 defaults to its static address is 1 minute. To speed up the initialization, disable the DHCP option.

Assigning a static IP address to the Kaleido-RCP2

To assign a static IP address to the Kaleido-RCP2

1. Press and hold the ENTER button until the ESC button lights up, to display the configuration menu.
2. Press the **8** key (to move down the list) until ETHERNET OPTIONS appears on the LCD display.
3. Press the ENTER key to display the ETHERNET OPTIONS menu.
4. Select the IP ADDRESS menu using the **2** key (to move up in the list) or the **8** key (to move down the list), and then press ENTER.
5. Using the numeric keypad, type the chosen IP address, and then press ENTER.
6. Select the NETWORK MASK menu using the **2** key (to move up in the list) or the **8** key (to move down the list), and then press ENTER.
7. Using the numeric keypad, type the chosen network mask, and then press ENTER.

You have assigned a static IP address to the Kaleido-RCP2.

Selecting a room for the Kaleido-RCP2

To select a room for the Kaleido-RCP2

1. Press and hold the ENTER button until the ESC button lights up, to display the configuration menu.
2. In the ROOM SELECTION display, press ENTER again to get the room list from the Kaleido multiviewer systems that are currently available on the network.
3. In the room list, select the room you want to access by pressing the **2** key (to move up in the list) or the **8** key (to move down the list).

> Note: By default, a multiviewer's video outputs are assigned to specific rooms: the outputs are assigned to ROOM1.

4. When the appropriate room name is highlighted, press ENTER to accept the new selection.
5. When prompted, log on to the selected room. See Logging on to the Kaleido-RCP2 on page 95.

Connecting the Kaleido-RCP2 to Other Kaleido Multiviewer Systems

The unicast IP feature enables a Kaleido-RCP2 to find up to three Kaleido multiviewer systems on different subnets and connect to them (via network gateways), while maintaining connections to Kaleido multiviewer systems in its own subnet.

> Notes
> - To navigate the Kaleido-RCP2 menu, press the **2** key to move up, or the **8** key to move down.
> - There is no need to configure unicast IP addresses for Kaleido multiviewer systems on the same subnet as the Kaleido-RCP2.

To configure a unicast IP address on the Kaleido-RCP2

1 Press and hold the ENTER button until the ESC button lights up, to display the configuration menu.
2 Select ETHERNET OPTIONS on the LCD display, and then press ENTER.
3 Select **Unicast host IP**, and then press ENTER.
4 Select **Enable IP 1**, and then press ENTER.

   The Enable IP x parameter instructs the Kaleido-RCP2 to query the selected IP address for a list of rooms.
5 Select **Host IP ADDR**, and then press ENTER.
6 Using the numeric keypad, type the IP address of a Kaleido multiviewer on a remote subnet, and then press ENTER.
7 Repeat step 4 to step 6 to add unicast IP addresses for up to three remote Kaleido multiviewer systems.

Logging on to the Kaleido-RCP2

As a network device, the Kaleido-RCP2 provides access to any room configuration on any Kaleido multiviewer system on the network. As a security measure, access is controlled by a login procedure.

To log on to a Kaleido multiviewer system from the Kaleido-RCP2

1 Press the LOGIN key.

   The following message will appear on the LCD display:

   LOGIN Position
   Admin
2 Press ENTER to select "Admin".

   A message prompting you to enter a password will appear on the LCD display.
3 Press ENTER again (by default, there is no password).

   The message "Access granted" will appear on the LCD display if the login is successful. If a mouse is connected to the Kaleido-RCP2, then you should be able to see and move the mouse pointer on the monitor wall.

> Note: If at any time the message "Target system is offline" or "No login list available" appears on the LCD display, press the ESC, ENTER and DEL keys simultaneously and go back to step 1.

For more information, refer to the *Kaleido-RCP2 Guide to Installation and Operation*. See Related Documentation, on page 9.

Available Hardware and Software Options

You can purchase various software and hardware options to expand your multiviewer's capabilities. The following tables list options that can be enabled and disabled via the XAdmin Status and Options page (see Enabling Options on page 97).

KMV-3901/3911 input options

Option	Part No.	Feature
3G	KMV-39N1-8XN-OPT-3GBPS	3Gbps signal decoding option (8 inputs)
	KMV-39N1-4XN-OPT-3GBPS	3Gbps signal decoding option (4 inputs)
Embedded Audio	KMV-39N1-8XN-OPT-AUD	Embedded audio extraction license (8 inputs)
	KMV-39N1-4XN-OPT-AUD	Embedded audio extraction license (4 inputs)
Additional Inputs	KMV-3911-4X1-OPT-4IN	KMV-3911-4x1 additional inputs 5-8 license

KMV-3901/3911 output options

Option	Part No.	Feature
Second Head Activation	KMV-39N1-NX1-OPT-OP2	Output two enabled license
SDI Monitoring Output	KMV-3911-NX1-OPT-SDI O/P	SDI monitoring output for KMV-3901/3911 (1 output)
	KMV-3911-NX2-OPT-SDI O/P	SDI monitoring output for KMV-3901/3911 (2 outputs)
3D[a]	KMV-39NN-8x2-OPT-3DLA	Stereoscopic display license (line alternate mode) for KMV-3901/3911-8x2
	KMV-39NN-8x1-OPT-3DLA	Stereoscopic display license (line alternate mode) for KMV-3901/3911-8x1
	KMV-39NN-4X2-OPT-3DLA	Stereoscopic display license (line alternate mode) for KMV-3901/3911-4x2
	KMV-39NN-4X1-OPT-3DLA	Stereoscopic display license (line alternate mode) for KMV-3901/3911-4x1

a. After enabling the 3D support option in XAdmin, refresh the current layout or load another one, for the change to be reflected on the monitor wall.

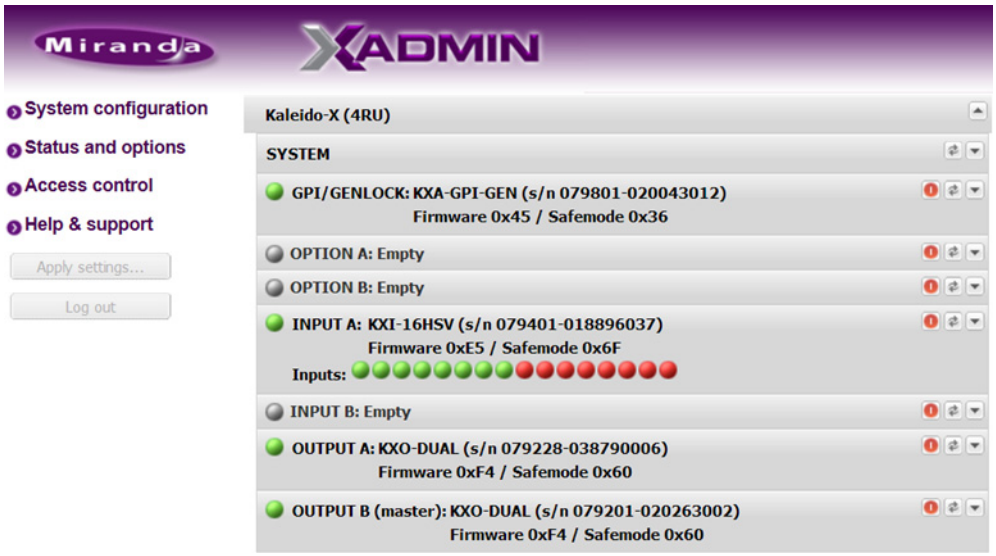
Enabling Options

To enable options on a multiviewer

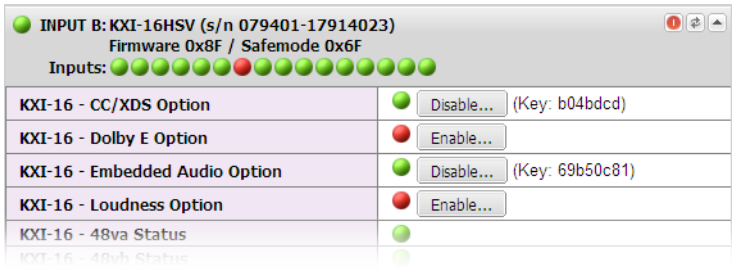
1 Obtain a license key from Grass Valley.

2 Open XAdmin.

The XAdmin Status and Options page appears.



3 Click the arrow button at the end of the heading row that corresponds to the module for which you want to enable an option.

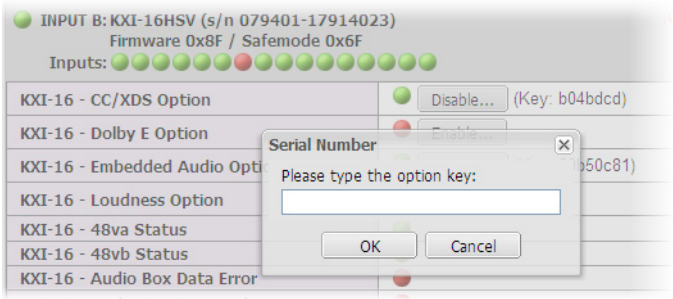


4 Locate the entry for the option you want to enable.

For example, to activate the Extraction of CC, Subtitling and XDS metadata option (CC/XDS Option) for an input card, you would need to locate the appropriate card in XAdmin's Status and Options page, expand it, and then locate the **KXI-16-CC/XDS option** line.

5 Click the **Enable** button.

A window appears prompting you for the option key.



6 Enter the key for the specific option in the box, and then click **OK**.

Once the option is enabled, the key is displayed, and a **Disable** button replaces the **Enable** button.

6 Maintenance & Troubleshooting

This chapter shows you the various maintenance operations and corrective actions that maybe required to be performed during system commissioning and over the multiviewer's lifetime.

System Verification

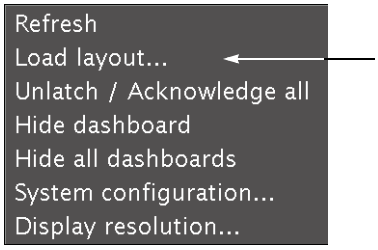
Loading a Layout

To load a layout on the monitor wall

1 Connect a mouse to the Kaleido-RCP2 (if available) and log on to the KMV-3901/3911 from the Kaleido-RCP2, if you have not already done so (see Configuring the Kaleido-RCP2, on page 93).

Alternatively, connect the mouse directly to the USB port at the front of the KMV-3901/3911 card.

2 Right-click anywhere on the monitor wall, point to **Monitor wall** (if you clicked a monitor), and then click **Load layout** on the shortcut menu.



Monitor wall shortcut menu

A layout browser appears on the displays associated with the current room.

3 Select the layout you wish to load from the list of available layouts for this room, and then click **OK**.

The selected layout appears on the room displays.

Customizing Layouts, Logical Sources, and other Kaleido-IP Elements

Refer to the *Kaleido Software User Manual* to learn how to customize the Kaleido-IP to suit your specific needs. See Related Documentation, on page 9.

Verifying the Multiviewer's IP Address and Application Version

To find the system IP address and application version

1 Press the Select button on the front edge of the KMV-3901/3911 card. See Card Interfaces, on page 15.

The Status LED on the selected card flashes orange, and the associated control menu appears on the display of the Densité frame's local control panel. See Using the Densité Frame Control Panel, on page 27.

2 On the local control panel, press the [–] button.

The version of the Kaleido Software that is running on the card (e.g. "5.00-build.21") appears on the display.

3 On the local control panel, press the [–] button repeatedly until NETWORK SETTINGS appears on the display, and then press the SEL button.

IP ADDRESS EDIT appears on the control panel's display.

4 Press the SEL button again.

The current IP address appears on the display.

5 Press the Select button *on the front edge of the KMV-3901/3911 card* to exit the control menu.

Changing the Mosaic Output Resolution

IMPORTANT
All KMV-3901/3911 cards within a housing frame must have their output heads configured with the same refresh rate. If your frame is referenced, then the heads' refresh rate must also match the reference signal's refresh rate.

To change a display's resolution from the Densité controller's local control panel

1 Press the Select button on the front edge of the KMV-3901/3911 card. See Card Interfaces, on page 15.

The Status LED on the selected card flashes orange, and the associated control menu appears on the LCD display of the Densité frame's local control panel. See Using the Densité Frame Control Panel, on page 27.

Note: You can navigate the control menu by using the four buttons located beneath the display:

- Press the [+] and [–] buttons, to navigate between menu options or between parameter values.
- Press SEL to access the next menu level. When a parameter value is shown on the display, modify the value by using the [+] and [–] buttons, and then press SEL to apply the new value.
- Press ESC to go back to the previous menu level.
- Once you have completed your changes, press the Select button *on the front edge of the KMV-3901/3911 card* to exit the control menu.

2 On the local control panel, press the [–] button twice, until RESOLUTION appears on the LCD display.

3 Press the SEL button.

HEAD 1 appears on the control panel's LCD display.

4 Press the SEL button again.

5 The current resolution for the display that is connected to the multiviewer's output head 1 (i.e. through the MV OUT 1 connector) appears on the LCD display.

6 Press the [+] and [–] buttons, to navigate to a suitable output resolution for your display.

7 Press SEL to apply the value shown on the display.

The selected resolution is applied to the display.

8 Press ESC to return to the previous level in the local control menu.

HEAD 1 appears again on the LCD display.

9 If you wish to change the resolution on the second display (if available), then press the [–] button.

HEAD 2 appears on the LCD display and you can repeat step 4 to step 8 above to verify or configure the resolution of the display that is connected to the multiviewer's output head 2 (i.e. through the MV OUT 2 connector).

10 When you are satisfied with the selected output resolution settings, press the Select button *on the front edge of the KMV-3901/3911 card* to exit the control menu.

Notes

- If you do not press any button on the Densité frame local control panel, the Densité controller will revert to its normal standby mode, and the selected card's Status LED will revert to its normal operating mode, after 30 seconds.
- If you changed a parameter from the card's control menu, but have not applied your change (you did not press the SEL button on the local control panel), once the 30-second timeout has occurred, the parameters will be confirmed as if you had pressed the SEL button.

Enabling EDID Auto-Detection from the Monitor Wall

Notes

- The monitor EDID auto-detection feature is enabled by default in order to facilitate the initial setup of a Kaleido Software system. Setting an output head to a specific resolution, from a multiviewer service panel in iControl (if available), or from a Densité controller's local control panel disables the EDID auto-detection for this head (see Using the Densité Frame Control Panel, on page 27.).

To enable EDID auto-detect for a display

1 Right-click the monitor wall background, and then click **Display Resolution** on the menu.

2 Select the **Use detected monitor resolution** check box.

3 Click **OK**.

Maintenance

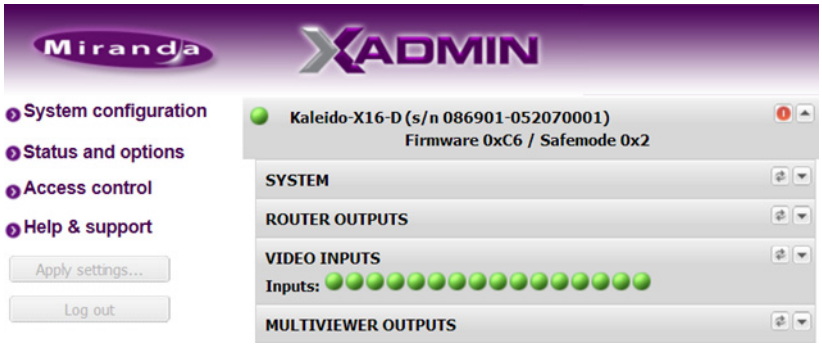
Generating a System Snapshot

A system snapshot creates a compressed file that contains information that can be used by Technical Support for troubleshooting purposes.

To generate a system snapshot

1 Open XAdmin. See Opening XAdmin on page 53.

The XAdmin Status and Options page appears.



2 Click the **Help & support** link in the navigation pane.

The Technical Support page appears.

3 Click **system snapshot**.

The system snapshot generation may take a few moments, after which your browser prompts you to save the resulting compressed folder to your hard drive.

4 Browse to the location where you want to save the ZIP file, and then click **Save**.

Upgrading the Multiviewer

IMPORTANT

Back up your system database

Before upgrading the multiviewer system, make sure you have a backup of the current system database. Refer to *Creating a Backup* in the Kaleido Software User's Manual, for details. See Related Documentation, on page 9.

Cluster and cascade systems

All multiviewers that are part of a cluster or cascade system must have the same Kaleido Software version.

For cluster systems, Kaleido Software versions 8.70 and 6.50 introduce a hard compatibility break with previous Kaleido Software versions.

Cluster backups you create with version 8.70 and 6.50 (or higher), cannot be restored by using an earlier version of XEdit. Grass Valley recommends you make a backup of the individual databases for every cluster member, *before upgrading* from a pre-8.70 or pre-6.50 version, to version 8.70 or 6.50 (or higher) respectively.

Virtual alarms used in iControl Web pages

The internal representation of virtual alarms has changed as of version 6.30 of the Kaleido Software. If you are upgrading the multiviewer from a version prior to 6.30, then, once the upgrade is completed, it will be necessary to reassign any virtual alarms that were created on the multiviewer before the change, and used in iControl Web pages. Virtual alarms created in iControl are not affected.

Upgrade packages are made available by download from a Grass Valley FTP server. The upgrade package contains:

- the Kaleido Software Upgrade Manager application required to upgrade the multiviewer.
- one or more Kaleido Software operating system (`.os`, `.zip`, or `.run`) files.
- documentation, including the Release Notes.

If you do not have the upgrade package, contact Grass Valley Technical Support (see Grass Valley Technical Support, on page 128).

If you have a **cascade system,** refer to the *Cascade Upgrade* section, in the Cascade Step-by-Step Configuration guide for your system (see Related Documentation, on page 9).

You will need a USB key (not supplied) and a mouse to perform an upgrade of the Kaleido Software system. The USB key should be USB 2.0 compliant, have a capacity of at least 1 GB, and must be formatted using the FAT32 file system. See Upgrading the Multiviewer Using a USB Key on page 104.

Upgrading the Multiviewer Using a USB Key

IMPORTANT

Before upgrading the multiviewer system, review the following.

Upgrading from a version prior to 6.60

Version 6.60 of the Kaleido Software introduced a change in the **alarm debouncing calibrations,** which could result in alarms being raised earlier and more frequently, after upgrading. The following properties have been removed from the list of configurable parameters: **Occurrences** and **Detection window**. After the upgrade, the system behavior will be based on *1* occurrence of an alarm event. A detection window is no longer used.

If, prior to the upgrade, the **Occurrences** parameter was set to a value other than *1,* then you will need to revise the **Set duration** value after the upgrade to take this change into account. For example:

- **Before the upgrade** — If you had the following settings: Occurrences = 3, Duration = 5 seconds, before the upgrade, then an alarm would be raised after 15 seconds.
- **After the upgrade** — The former settings will be replaced with the following: Set duration = 5 seconds, and the alarm will be raised after 5 seconds.

In this example, after the upgrade, you should set the **Set duration** parameter to 15 seconds to maintain the same behavior.

It is recommended to review and note down the alarm debouncing calibrations prior to the update, and to re-calibrate the alarm debouncing as needed after the upgrade.

IMPORTANT *(continued)*

Upgrading a KMV-3901/3911 from 6.50 (or earlier)

Upgrading to version 6.60 or later, from an earlier version of the Kaleido Software requires additional steps involving the CPU-ETH2 automatic restore feature:

1 Make sure the Densité controller's *default action* is set to *keep card settings* (see the multiviewer's *Installation & Service Manual*, "Disabling the CPU-ETH2 Automatic Restore Feature").
2 Upgrade the multiviewer to version 6.60 (or later) as described in this section.
3 Save a *restore point* to the controller's non-volatile memory (see the multiviewer's *Installation & Service Manual*, "Saving a Restore Point to the CPU-ETH2 for a Single Card").
4 If you wish to use the controller's automatic restore feature, then set the Densité controller's *default action* to *update card settings* (see the multiviewer's *Installation & Service Manual*, "Enabling the CPU-ETH2 Automatic Restore Feature").

KMV-3901/3911 multiviewers may require an additional restart after a system upgrade

After upgrading a KMV-3901/3911 to the current version of the Kaleido Software, it may be necessary to restart the multiviewer *twice,* for the monitor wall to be fully functional.

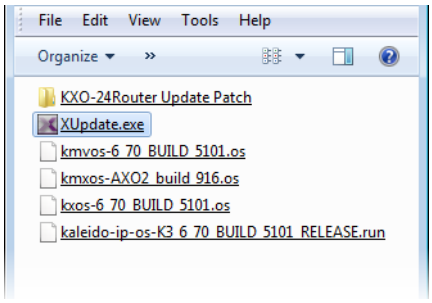
To upgrade your multiviewer

1 Copy the upgrade package files to a USB key (see Preparing a USB Key, on page 105).
2 Upgrade your multiviewer's Kaleido Software and firmware from the USB key (see Upgrading the Kaleido Software and Firmware, on page 107).
3 Verify the version number to confirm that the upgrade was successful (see Verifying the Version Number, on page 109).

Preparing a USB Key

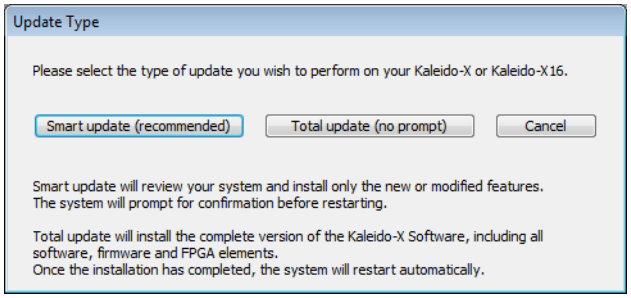
To copy all files required for the upgrade to a USB key

1 Download the update files onto your PC's hard drive. See Software and Firmware Updates, on page 10.
2 Insert a USB key into one of your PC's USB ports.
3 Locate and open the Kaleido Software Upgrade Manager application (XUpdate).



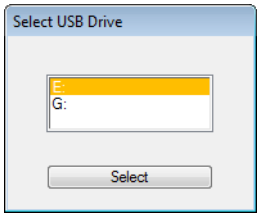
4 On the startup screen, click the appropriate update option for your multiviewer model: **KMV-3901/3911 update**

5 When prompted to select a type of update, click **Smart update (recommended)**.



> **Note:** If you click **Total update (no prompt)**, then the update process, once initiated, cannot be halted. This option should only be used to recover from a failed upgrade.

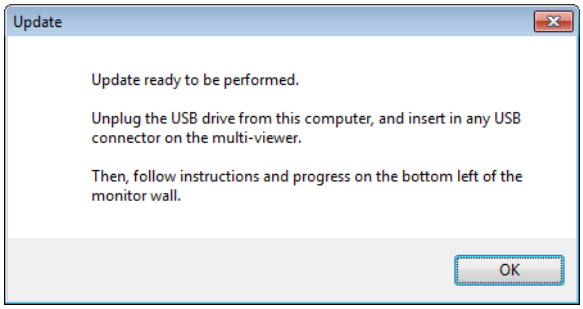
6 If the **Select USB Drive** window appears, click the letter corresponding to the USB key you inserted in step 2, and then click **Select**.



7 When prompted to select an update file, locate and open the following Kaleido Software operating system file: `kmvos-8.60_build_xxxx.os`

The `.os` file will be copied to the USB key. This may take a few minutes.

When the copying process has finished, a message appears.



8 Click **OK**.

9 Click **EXIT** on the startup screen.

10 Click the **Safely Remove Hardware** icon in your desktop's notification area, and then click the USB key on the menu. When a message informs you that it is safe to remove the key, do so.

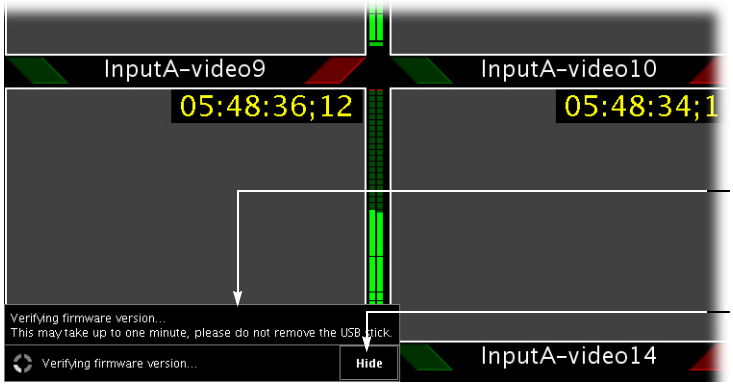
Upgrading the Kaleido Software and Firmware

At this point, you are ready to upgrade the Kaleido system software and firmware. The multiviewer should be powered up, with an active monitor wall display. You will need access to the monitor wall to observe the progress of the upgrade, and you will use a mouse to trigger a system restart from the monitor wall, once the upgrade has completed:

- If you have a Kaleido-RCP2, make sure that it is connected, and that you can use the mouse to move the pointer on the monitor wall. If the mouse is unresponsive, try rebooting the Kaleido-RCP2 by pressing ENTER+ESC+DEL on the Kaleido-RCP2's keypad.
- If your system does not include a Kaleido-RCP2, connect the mouse directly to a USB port on the multiviewer, and then make sure you can move the pointer on the monitor wall. See Troubleshooting with the card's front edge USB connector, on page 111 for more information about using the USB port on the multiviewer.

To upgrade the Kaleido Software and Firmware

1 Insert the USB key into any USB port on the multiviewer. After a while, a message appears at the bottom left corner of the monitor wall, reporting that the Upgrade Manager is verifying software, firmware, and safe mode versions.



> **Note:** You can click the **Details** button to view more information. The button label alternates between **Details** and **Hide**.

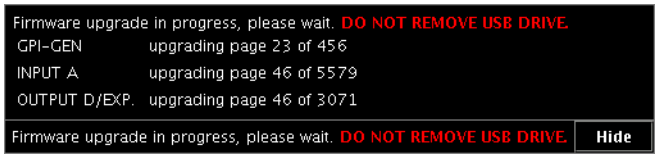
The firmware verification process may take a minute or so.

2 Once the verification process is complete, you will be advised what upgrade action, if any, needs to be performed.

> IMPORTANT
> **To cancel the upgrade process, you must click to ABORT within 30 seconds.**

3 The upgrade process begins automatically, starting with the software upgrade.

4 Once the software upgrade is complete, the firmware upgrade begins.



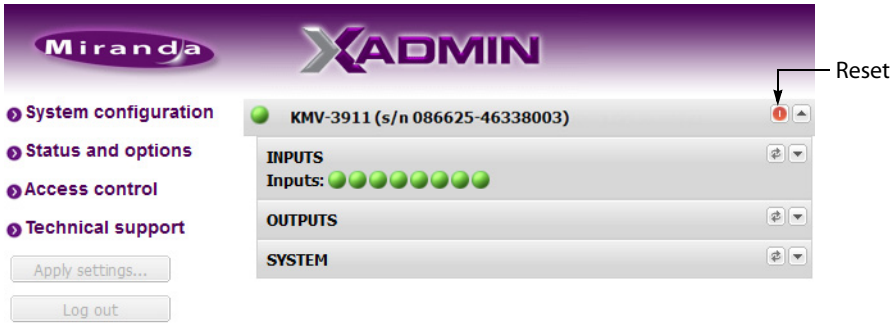
When the entire upgrade process has successfully completed, a red button appears at the bottom of the dashboard on all displays that are connected to the system.

5 Click any of the **Upgrade complete** buttons to restart the system.

> **Note:** When the firmware upgrade (or downgrade) process involves several cards (for example, a fully populated expansion system), the dashboard may still be displaying firmware upgrade progress messages while the **Upgrade complete** button has already appeared. You can safely click the button to restart the system at this point.

The multiviewer now restarts.

6 If you are upgrading a **KMV-3901/3911** card and notice a lack of luminance or corrupted video on the monitor wall, you should now restart your system *once more,* by clicking the Reset button on XAdmin's Status and Options page.



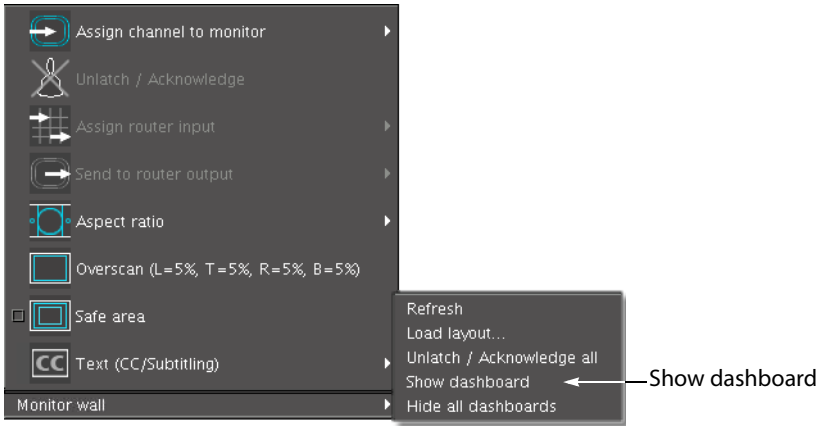
Verifying the Version Number

You can verify the new version number by displaying the dashboard on the monitor wall or, by using the control panel on the Densité housing frame (see Displaying the System's Version Number for a Kaleido-Modular Multiviewer, below).

Displaying the Dashboard

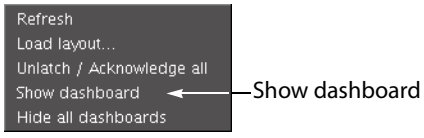
To display the dashboard

1 Right-click anywhere on the monitor wall. On the menu, point to **Monitor wall**, and then click **Show dashboard** to display the dashboard associated with the current head.



Monitor wall menu (within composite monitor menu)

Note: If you right-click the monitor wall background directly, then the monitor wall menu appears immediately. Click **Show dashboard**.



After a brief delay, the dashboard appears at the bottom-right corner of the monitor, and the command **Hide dashboard** replaces **Show dashboard** on the menu.

Dashboard on the monitor wall

Displaying the System's Version Number for a Kaleido-Modular Multiviewer

To display the system's version number on the Densité control panel

1 Press the Select button on the front edge of the Kaleido-Modular card.

The Status LED on the selected card flashes orange, and the associated control menu appears on the display of the Densité frame's local control panel.

2 On the local control panel, press the [–] button.

The version of the Kaleido Software that is running on the card (for example, "8.70???-build.21") appears on the display.

3 Press the Select button on the front edge of the Kaleido-Modular card to exit the control menu.

Downgrading the Multiviewer System

IMPORTANT
Before downgrading your Kaleido Software system, review the following.

- **Alarm debouncing may need to be recalibrated:** before downgrading from version 6.60 (or later) to version 6.50 (or earlier) of the Kaleido Software, make sure to review your system's alarm debouncing calibrations, some of which you may have to modify if you wish to maintain the same behavior. See Upgrading from a version prior to 6.60, on page 104 for details.
- A **KMV-3901/3911** with Kaleido Software version 6.60 or later cannot be downgraded to version 6.50 (or earlier).
- The **KMV-3901/3911** cannot be downgraded to a version earlier than 5.30. Downgrading to an earlier version would cause the monitor wall displays to remain blank or only show video (no graphics). In the advent that such a downgrade was attempted by mistake, reseat the card to revert the changes and restore functionality. Should this fail, contact Technical Support (see Grass Valley Technical Support, on page 128).
- The **KMV-3901** cannot be downgraded to a version earlier than 5.00.
- **Router control:** as of Kaleido Software version 4.00, router configuration changes made in Router Manager Configurator are not compatible with earlier versions of the software. Downgrading is supported but any change to the router configuration made in Kaleido Software version 4.00 or later will be lost during the downgrade. After downgrading, any router configuration will have reverted to what it was before the last upgrade.

To downgrade your multiviewer to an earlier version of Kaleido Software

- Follow the upgrade instructions in the Release Notes that were published for the Kaleido Software version you want to downgrade to.

Troubleshooting

Troubleshooting with the card's front edge USB connector

A USB mouse can be directly connected to the multiviewer card for troubleshooting purposes (as opposed to connecting the mouse to a Kaleido-RCP2, for instance) with the following conditions.

- The pointer can only travel between the displays supported by that card.
- When more than one display is connected to the card, the required mouse movement to go between displays does not always follow the wall layout set in XEdit. For example, you will have to move the mouse pointer horizontally or vertically in order to go from one display to the next.

Dashboard Messages

The following tables explain messages that may appear in the *Status dashboard* (lower right corner) and in the *Upgrade dashboard* (lower left corner), on the Monitor wall.

Status dashboard messages

Message	Description
Duplicate IP Address Detected	Another equipment on the network shares the same IP address as an output card.
Ethernet Link Down	The output card to which this display monitor is connected has lost its network connection.
Fan Fail	One of the input card's fan is running too slow or not at all.

7 Configuring a KMV-3901/3911 Cascade

This document explains how to connect up to three KMV-3901/3911 multiviewers in cascade mode, and how to configure and operate them as a single system.

Introduction

The number of sources that can be monitored concurrently on a single monitor wall display is limited by the number of inputs supported by your specific multiviewer model. One KMV-3901/3911 multiviewer supports 8 inputs. Depending on your purposes, you may wish to monitor more sources on a single display.

The way to increase the number of inputs is to use more than one multiviewer to build the output to a single head, by configuring a multiviewer *cascade*. It is possible to configure up to three KMV-3901/3911 multiviewers as a cascade system: the first multiviewer provides some parts of the monitor wall image, sends it to the second one (if any), which adds some more elements to the output, and then forwards it to the last multiviewer, which sends the resulting output to the monitor wall display. Unlike the *cluster,* whose purpose is to increase the number of output heads in a room, the cascade increases the maximum number of inputs that can be displayed to a single head.

To configure up to three multiviewers as a cascade system, you need to physically connect each multiviewer to the next, by using cascade bridges (Miranda part no. KMV-3901-8XN-BRIDGE), and then connect a display to the appropriate output on the leftmost KMV-3901/3911 card when facing the rear of the Densité frame. Remember that this card is the one on the right when facing the front of the Densité frame. Once you have defined your cascade system and room in XEdit, you will be able to operate the cascade as a single multiviewer.

Physical Installation

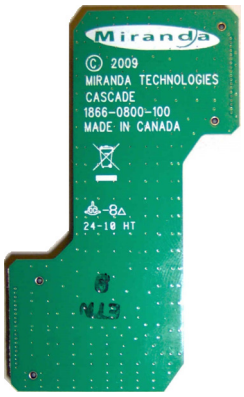
Installing Cascade Bridges

Before you interconnect two KMV-3901/3911 cards by using the cascade bridge (Miranda part no. KMV-3901-8XN-BRIDGE), make sure the cards are placed in locations adjacent to one another inside the Densité frame, and firmly seated into their respective slot. It is not necessary to switch off the frame's power when installing or removing a cascade bridge.

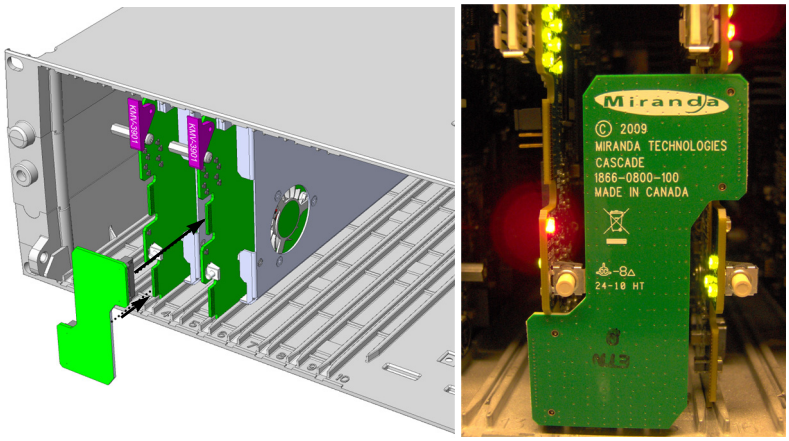
IMPORTANT
Precautions should be taken to avoid electrostatic discharges
The cascade bridge connects directly to static-sensitive components on the KMV-3901/3911. Miranda recommends using static-control measures, such as a properly-grounded wrist strap, or conductive footwear and flooring, while you handle cascade bridges.

To install a cascade bridge:

1 Facing the front of the Densité frame where your KMV-3901/3911 cards are installed, hold the cascade bridge so that you can read the text normally:



2 Align the bridge's connectors with the matching connectors on the front edge of the two cards you wish to associate, and then press gently until the connectors are properly seated:



3 Repeat the procedure if you have a third multiviewer card that is to be part of this KMV-3901/3911 cascade.

Removing Cascade Bridges

If you need to remove cascaded KMV-3901/3911 multiviewer cards from their housing frame, you must first disconnect the bridges, while leaving the cards properly seated.

To remove a cascade bridge:

- Carefully pull the cascade bridge straight away from the cards, to disengage the connectors.

Connecting the Displays

In a KMV-3901/3911 cascade system, you must connect the displays to the appropriate HDMI outputs on the card that is on the *left* when facing the rear of the Densité frame. Remember that this card is the one on the *right* when facing the front of the Densité frame.

Cascade Configuration in XEdit

Adding Multiviewers to a Cascade

Notes

The Kaleido Software's support for cascade systems is based on the cluster feature. Therefore, like a cluster, a cascade system must meet the following requirements.

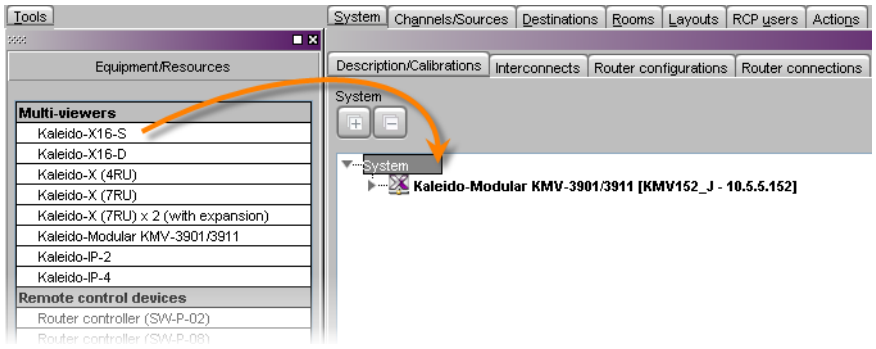
- The multiviewers you wish to add to a cascade must have the Kaleido Software version 5.20 or later, and all cascade members must have the same version of the software.
- Each multiviewer you wish to add to a cascade must have a unique name.
- *Do not change* the system name of a multiviewer or its IP address, once it has been added to a cascade, if other multiviewers in the cascade are offline or otherwise unavailable. This would cause all head assignments to become unknown. If you must rename a multiviewer, or change its IP address, while another member of the cascade is unavailable, remove it from the cascade configuration first, and then add it again after you made the required change. You will then need to reconfigure the head assignments for any room that includes display screens associated with the renamed multiviewer (see Repairing a Cascade Configuration on page 118).
- A multiviewer can only be part of one cascade or cluster system at any time. XEdit will not let you add a multiviewer that is already included in a different cascade or cluster system.

To add multiviewers to a cascade:

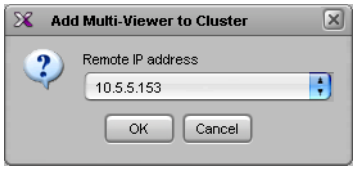
1 Open XEdit, and then click **Connect** on the **Configure** menu, to access the multiviewer that will output directly to the monitor wall (i.e. the multiviewer whose HDMI outputs are connected to the display monitors).

You can now add the other multiviewers you wish to be part of this *cascade* (one or two KMV-3901/3911) to a *cluster*.

2 In the equipment library, select any multiviewer type, and then drag it onto the root of the System hierarchical list.

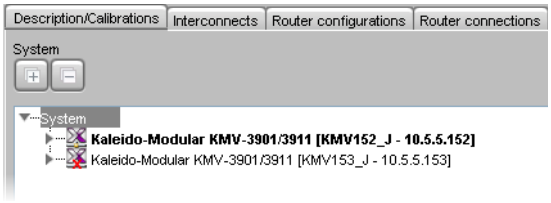


The **Add Multiviewer to Cluster** window appears.



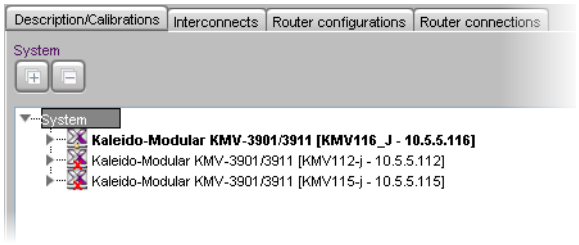
3 If your PC and the multiviewer you wish to add are on the same subnet, then you can select the multiviewer's IP address from the list. Otherwise type the appropriate IP address in the box.

The multiviewer is added to the System list.



Note: The system type is automatically adjusted based on the actual target system.

4 Repeat from step 2 if this cascade system includes a third multiviewer.



Note: Each member of a cluster has its own database where both common information about the cluster and information local to the individual cluster member are stored. Room and layout definitions are automatically replicated to all cluster members, whereas the configuration for devices connected to a specific system is only stored in this system's database.

Configuring Cascade Rooms

In a cascade room, each cascaded display is assigned heads from the other multiviewers, configured as *layers*, by setting the display's **Layer 2 head** and **Layer 3 head** properties to match the actual head order in your physical configuration.

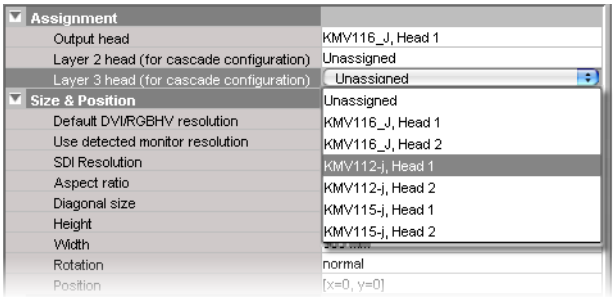
To configure a cascade room:

1 In XEdit, while connected to the multiviewer that will output directly to the monitor wall (i.e. the multiviewer whose HDMI outputs are connected to the display monitors), open the room you wish to configure.

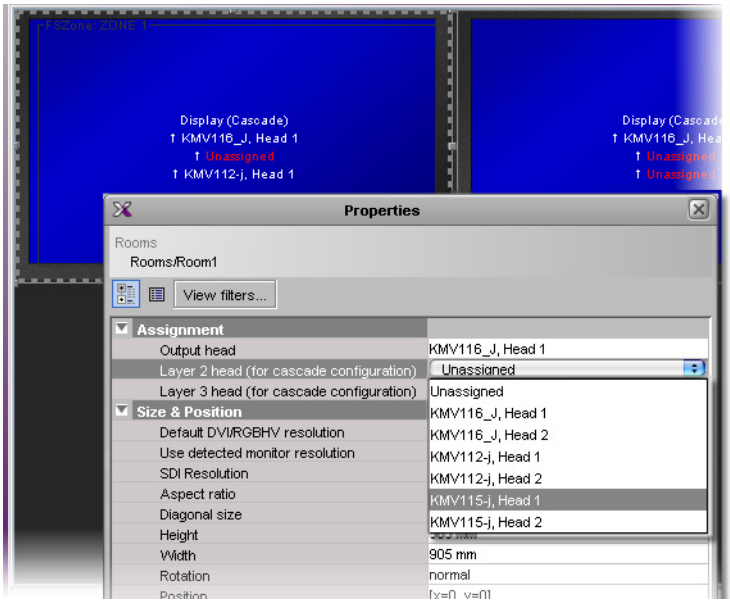
> Note: If the room does not exist yet, create it by adding the appropriate number of displays, and then assign heads *from the current multiviewer* to the displays in the usual fashion.

2 Click a first head. In the **Properties** pane, its name appears in the **Output head** box.

- In the case of a cascade with three multiviewers, select the first multiviewer (i.e. the one farthest from the monitor wall) from the **Layer 3 head (for cascade configuration)** list:



and then select the next multiviewer from the **Layer 2 head (for cascade configuration)** list:



- In the case of a cascade with two multiviewers, select the other multiviewer (i.e. the one farthest from the monitor wall) from the **Layer 2 head (for cascade configuration)** list.

3 In the case of a dual-head cascade, repeat the procedure to configure the head assignments for the other head.

4 On the **File** menu, click **Save**.

The updated room configuration is automatically propagated to the other multiviewers in the cascade.

Configuring Layouts for a Cascade Room

Creating cascade layouts is no different than creating any regular layout. The only limitation is that all layout creation and configuration must be performed in online mode, while connected to one of the cascade members.

- When you configure layouts for a cascade room, all channels from all the multiviewers associated with this cascade room are available.
- When you save a cascade layout, any changes are automatically propagated to the other multiviewers in the cascade.

Repairing a Cascade Configuration

While connected in XEdit to a multiviewer that is part of a cascade, if you change the system name or IP address of this multiviewer while another cascade member is offline or otherwise unavailable, the underlying cluster's integrity will be broken. If you attempt to make such a change, XEdit will alert you of the situation, prompting you to cancel the operation and try again later, when all cascade members are available. Changing the system name or IP address of a KMV-3901/3911 multiviewer associated with a cascade, by using the card's control panel on the Densité housing frame, or by using the KMV-3901/3911 control panel in iControl, is also not supported. To maintain the integrity of the underlying cluster configuration, you must use XAdmin to make any such changes.

However, in the advent that such a change was made by mistake, or that is had to be forced for some reason, you will have to repair the broken cascade.

> Note: In the procedure below, *System A* refers to the system whose name or IP address was changed while another multiviewer, referred to as *System B*, was unavailable.

To repair the cascade configuration:

1. In XEdit, connect to *System B,* the multiviewer that was unavailable when the change was made, once it is available again.
2. In the **Description/Calibrations** tab, remove *System A* from the cluster, and then add it back to the cluster.

   If only the IP address was changed then no further action is required. Otherwise, if the system name was changed, then proceed as follows.
3. Connect to *System A*.
4. Change something in every room (e.g. move a display and then bring it back to its initial position) to enable the **Save** button, and then save the room.

   This will replicate the proper room configuration to the other members of the cascade. (At the same time, the layouts will also be updated on all multiviewers in the cascade.)

Cascade Upgrade

Update the multiviewers that are part of a cascade in sequence, *starting with the multiviewer farthest from the monitor wall*, and finishing with the one connected to the monitor-wall displays. In the case of a KMV-3901/3911 cascade, this means starting with the card on the left when looking at the front of the Densité frame, then proceeding with the next card on its right, and finally the rightmost one if any. When you restart one multiviewer at the end of its update process, you can start updating the next multiviewer without waiting for the restart to be completed.

> IMPORTANT
> **Canceling a cascade upgrade is not supported.**
> The current version of the Kaleido Software does not fully support dashboard interaction in the context of a cascade system. Therefore, you may not be able to cancel the upgrade process, once you have inserted the USB key. Do not insert the USB key unless you really want to update your system. When you prepare the USB key, you may select the **Total update (no prompt)** option to avoid the 30-second delay after the verification process (see step 3 below).

To upgrade a cascade system:

1. Copy the upgrade package files to a USB key (see Preparing a USB Key on page 105).
2. Load an empty layout on the monitor wall, or make sure that the bottom area of the current layout is empty.
3. Insert the USB key into any of the USB ports on the first multiviewer.

   After a while, a message appears at the bottom left corner of the monitor wall, reporting that the Upgrade Manager is verifying software, firmware, and safe mode

versions. Once the verification process is complete, you will be advised what upgrade action, if any, needs to be performed. Then, after 30 seconds, the upgrade process begins automatically, starting with the software upgrade.

When the entire upgrade process has successfully completed, a red button appears at the bottom of the upgrade dashboard, prompting you to restart the system.

4 From a workstation on the same subnet, open a Web browser window and type the IP address of the multiviewer, in the address bar.

The Kaleido Software home page appears.

Firefox users:
If you see a security warning instead of the home page, then see Registering your Multiviewer's Security Credentials with your Browser on page 55.

5 Click the XAdmin button.

The XAdmin Status and Options page appears.

Internet Explorer users:
- If the page remains blank, then see Enabling the Compatibility View in Internet Explorer on page 64.
- If you see a certificate error message instead of the Status and Options page, then see Registering your Multiviewer's Security Credentials with your Browser on page 55.

6 Click the Reset button ( ) at the end of the top heading row to restart the multiviewer remotely, directly from your Web browser.

7 Remove the USB key from the current USB port, insert it in any USB port on the next multiviewer, and repeat the procedure (from step 3), until you have updated all multiviewers in this cascade.

Note: If you notice a lack of luminance or corrupted video on some monitor wall displays, then restart the corresponding multiviewer card once more, by clicking the Reset button on XAdmin's Status and Options page.

Limitations

In the current version of the Kaleido Software, cascade systems are subject to the following limitations:

- XAdmin may fail to report the system's genlock source, reference format, and related statuses for the second- and third-layer cards (i.e. the ones that are not directly connected to a monitor wall display). iControl alarm browsers, and filtered system lists that display alarms in XEdit may also incorrectly report a reference input loss for these cards.
- Restarting one of the cards may result in a blank monitor wall display. If you restart the card associated with the third layer of a cascade, then restart the card associated with the second layer. Once the card associated with the second layer has restarted, then restart the card associated with the first layer as well.
- An output resolution of 1600 × 1200 is not supported.
- Full screen layouts are not supported.
- **Changing the system name or IP address** of a KMV-3901/3911 multiviewer associated with a cascade, by using the card's control panel on the Densité housing frame, or by using the KMV-3901/3911 control panel in iControl, is not supported. To maintain the integrity of the underlying cluster configuration, you must use XAdmin, or the monitor wall menu, to make any such changes. In the advent that such a change was made by mistake, or that is had to be forced for some reason, you will have to repair the broken cascade (see Repairing a Cascade Configuration on page 118 for details).
- **Changing a display resolution from the monitor wall menu** is not supported and will break the underlying cluster's integrity. You must use XEdit to configure the display resolution (see "Changing Room Display Resolutions" in the Kaleido Software User's Manual; see Related Documentation on page 9). In the advent that such a change was made by mistake, you will have to repair the broken cascade as follows:
  1. Connect to the multiviewer associated with the display whose resolution was changed by mistake, and open the corresponding room.
     - If you wish to *restore the previous resolution*, then set this display to its previous resolution.
     - If you wish to *apply the new resolution*, then change something in the room to enable the **Save** button (e.g. move a display and then bring it back to its initial position).
  2. On the **File** menu, click **Save**. Alternatively, click the **Save** button on the toolbar.
- **Some changes are not automatically propagated to all members of a cascade.** If you wish to have the same configuration for every multiviewer in a cascade, then the following elements must be manually replicated: system calibrations, audio monitoring output assignment for each RCP user, sources/channels and router configurations, pointer size configuration.

  Note: After changing the pointer size for a room, on all multiviewers in a cascade, you must restart every multiviewer, for the change to become effective across the cascade system.

- If two multiviewers in a cascade are connected to the same router, then the router name should be the same in both configurations. Conversely, two different routers in the same cascade must not have the same name.
- Serial ports are not shared between cascade members. A serial device connected to one multiviewer in a cascade is not known to the other cascade members.
- **RCP operation:** In the case of a cascade system, monitor wall functions performed via the associated buttons on a Kaleido-RCP2 or RCP-200 (ASPECT RATIO, UNDERSCAN, FULL SCREEN, etc.) only work in parts of the layout associated with the multiviewer that is directly connected to the displays.
  Workaround: Use the monitor wall menu.
- In the case of a KMV-3901/3911 cascade room with two heads, spanning monitors across the two displays is not supported.
- Working against the same cascade system in concurrent XEdit sessions is not supported.
- EDID auto-detection is not supported. When configuring a cascade room, make sure the **Use detected monitor resolution** check box is not selected for any of its displays. Refer to "Enabling EDID Auto-Detection from the Monitor Wall", or "Enabling EDID Auto-Detection in XEdit", in the Kaleido Software User's Manual, for details. See Related Documentation on page 9.

8 Specifications

Video Inputs

Connector	BNC
Signal inputs	8 per KMV-3901/3911 card (auto-detected)

SD-SDI

Signal	SMPTE 259M-C (270 Mbps), SMPTE 272M-1994
Formats	525 and 625
Return loss	> 15 dB up to 270 MHz
Jitter	< 0.2 UI
Cable length	250 m (820 ft) (Belden 1694A)

HD-SDI

Signal	SMPTE 292M-C (1.485, 1.485/1.001 Gbps), SMPTE 272M-1994
Formats	720p24, 720p25, 720p29.97, 720p50, 720p59.94 1080i50, 1080i59.94 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97 1080p23.98, 1080p24, 1080p25, 1080p29.97 Note: The Kaleido Software does not distinguish between 1080PsF25 and 1080i50, and neither between 1080PsF29.97 and 1080i59.94. Both 1080PsF25 and 1080i50 are reported as 1080i50, and both 1080PsF29.97 and 1080i59.94 are reported as 1080i59.94, on the monitor wall and in XAdmin's Status and Options page.
Return loss	> 15 dB up to 1.5 GHz
Jitter	< 0.2 UI
Cable length	100 m (328 ft) (Belden 1694A)

3G-SDI

Signal	SMPTE 424M-2006 (2.97, 2.97/1.001 Gbps)
Formats	1080p50 (level A only) 1080p59.94 (level A only)
Return loss	> 10 dB up to 2.97 GHz

3G-SDI *(continued)*

Jitter	< 0.3 UI
Cable length	100 m (328 ft) (Belden 1694A) Note: If you wish to use the HD-SDI *monitoring outputs* (see HD-SDI monitoring outputs (2), on page 125) and configure them for a 1080p format, then the multiviewer supports a maximum cable length of 85 m (279 feet) *at the video inputs.* Refer to "Configuring the HD-SDI Monitoring Output Format" in the "Setting Up Rooms" chapter of the Kaleido Software User's Manual, for more information. See Related Documentation, on page 9.

Graphic converted to HD-SDI from KXI-DVI-Bridge[a]

Signal	SMPTE 292M-C (1.485, 1.485/1.001 Gbps)
Formats	1024 × 768 @ 60 (XGA) 1280 × 1024 @ 60 (SXGA) 1366 × 768 or 1368 × 768 @ 60 (WXGA) 1680 × 1050 @ 60 (WSXGA+) 1600 × 1200 @ 60 (UXGA)
Cable length	100 m (328 ft) (Belden 1694A)

a. A *Dual Channel DVI to HD Bridge* must be connected between the multiviewer and the PC or laptop that provides the graphics to the multiviewer. The highest supported resolution is 1600 × 1200 in 4:3, and 1680 × 1050 in 16:9. To order this optional device (Part No. KXI-DVI-BRIDGE), contact your Grass Valley sales representative.

Mosaic Outputs

HDMI outputs (2)

Signal	HDMI V1.3
Format	1280 × 1024 up to 1920 × 1200p configurable (all progressive scan)[a] Supported refresh rates: 50 Hz and 59.94 Hz See Supported Resolution and Refresh Rates, on page 78 for a list of supported formats.
Cable length	15 feet
Connector	HDMI type connector
Signal path	8 bits output

a. In the case of a KMV-3901/3911 cascaded system, an output resolution of 1600 × 1200 is not supported.

HD-SDI monitoring outputs (2)

Signal	4:2:2 SMPTE 292M-C (1.5 Gbps), SMPTE 424M
Formats	720p50, 720p59.94 1080i50, 1080i59.94 1080p50 (level A only), 1080p59.94 (level A only) Note: If you configure an HD-SDI monitoring output for a 1080p format (see page 23), then the multiviewer supports a maximum cable length of 85 m (279 feet) *at the video inputs.* Refer to "Configuring the HD-SDI Monitoring Output Format" in the "Setting Up Rooms" chapter of the Kaleido Software User's Manual, for more information. See Related Documentation, on page 9.
Audio	SMPTE 299M (limited to one pair, embedded on group 1, pair 1)
Cable length	100 m (328 feet) for 3G or HD, 256 m (840 feet) for SD (Belden 1694A)
Alignment jitter (100 KHz)	< 0.2 UI
Connector	DIN 1.0/2.3

Reference

Internal	Universal Reference from the Densité frame Note: If your housing frame is referenced, then all KMV-3901/3911 cards within the frame must have their output heads configured with a refresh rate that matches the reference signal's refresh rate.

GPI I/O

GPI inputs (8)

Description	Contact closure to GND
Pull-up voltage	3.3 Volts
Source current	30 µA when input shorted
Low-level activation	0.8 Volts max
Over voltage	24 Volts max
Connector	Terminal block interface PCB via DB-26

GPI outputs (2)

Description	Contact closure to GND
Signal	Open collector 5 to 12 VDC
Contact closure current	50 mA max
Reverse voltage	-15 Volts max
Reverse current	-50 mA max
V out low	0.6 Volts at 1.5mA
Connector	Terminal block interface PCB via DB-26

Communication

Ethernet (1)

Connector	RJ-45

Serial port (1)

Signal	RS-422 (SMPTE 207M, EBU-3245)
Connector	Terminal block interface PCB via DB-26

Video Processing Performance

Signal path	8-bit YCbCr to 24-bit RGB
Processing delay	~ 1 field in genlock mode; 1 - 2 fields in non-genlock mode

Audio Processing Performance

Quantization	20-24 bits
Sampling	48 kHz
THD+N	80 dB
SNR	98 dB

Electrical

Power consumption	24W max

Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

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