

# KMV-3901 / KMV-3911 Cascade

## Step-by-Step Configuration

M866-9904-106

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# KMV-3901/3911

## 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.

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### 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. In the case of a Kaleido-X (7RU) or Kaleido-X (4RU) multiviewer, you could add inputs by adding more input cards to the frame. In the case of a Kaleido-X (7RU), once all input card slots are full, you could also use the Expansion feature to increase the number of inputs even more. However, it is not possible to add more inputs to a KMV-3901/3911 or Kaleido-X16 multiviewer.

Another 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 Kaleido-X16 or 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

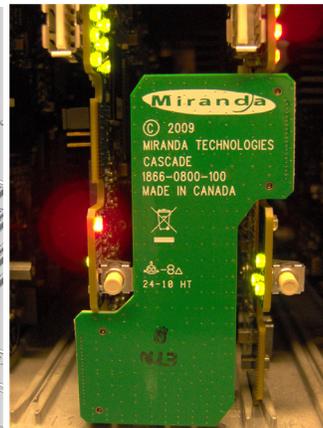
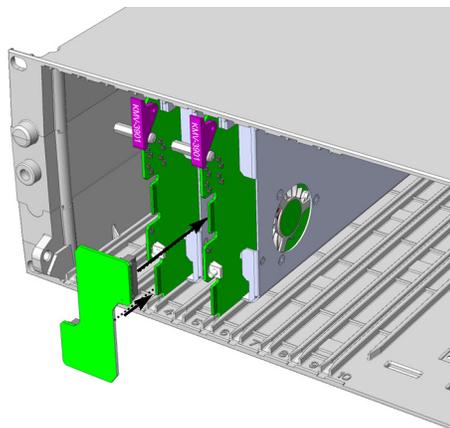
The cascade bridge connects directly to static-sensitive components on the KMV-3901/3911. Miranda recommends using static-control measures, such as a properly-grounded wrist strap, or conductive footwear and flooring, while you handle cascade bridges.

#### 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

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#### Notes

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

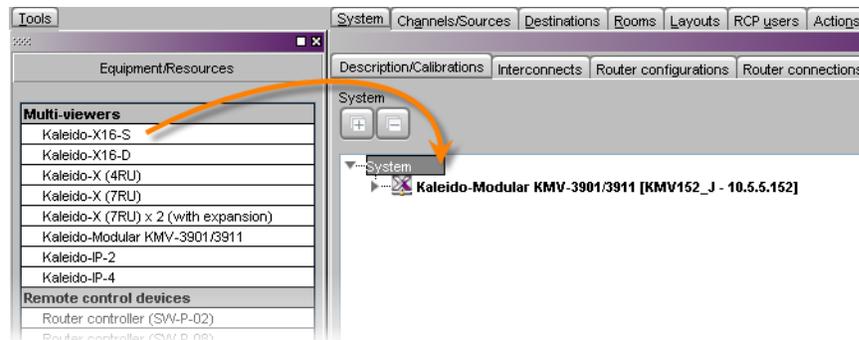
- The multiviewers you wish to add to a cascade must have the Kaleido-X software version 5.20 or later, and all cascade members must have the same version of the software.
  - Each multiviewer you wish to add to a cascade must have a unique name.
  - *Do not change* the system name of a multiviewer or 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 7).
  - 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.
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**To add multiviewers to a cascade:**

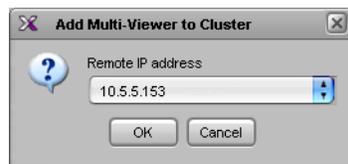
- 1 Open XEdit, and then click **Connect** on the **Configure** menu, to access the multiviewer that will output directly to the monitor wall (i.e. the multiviewer whose HDMI outputs are connected to the display monitors).

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.

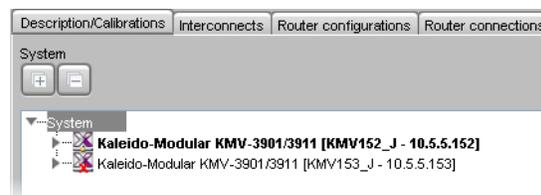


The **Add Multiviewer to Cluster** window appears.



- 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.

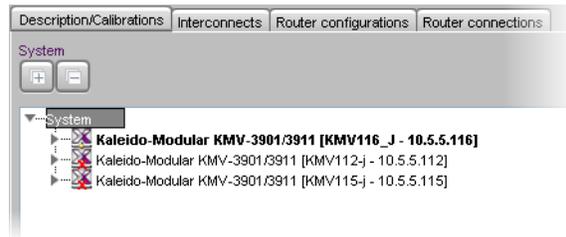


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**Note:** The system type is automatically adjusted based on the actual target system.

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- 4 Repeat from [step 2](#) if this cascade system includes a third multiviewer.



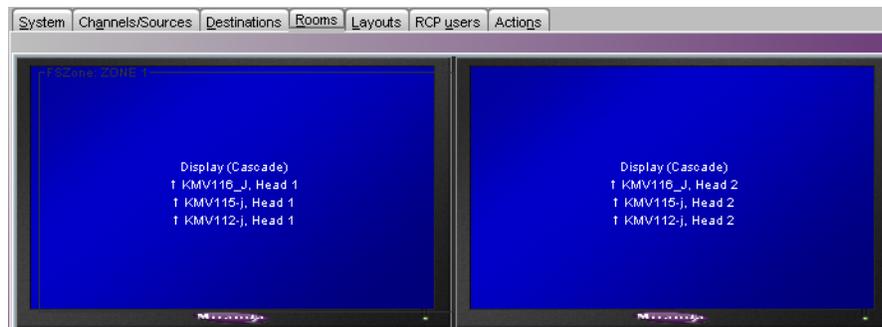

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**Note:** Each member of a cluster has its own database where both common information about the cluster and information local to the individual cluster member are stored. Room and layout definitions are automatically replicated to all cluster members,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

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## 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:

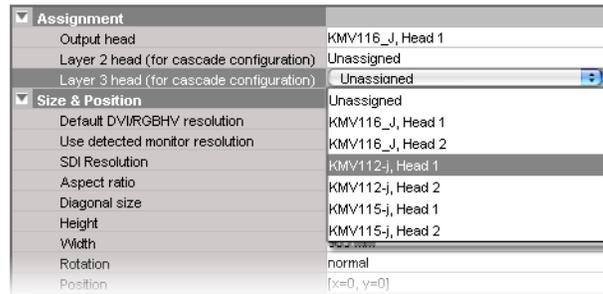
- 1 In XEdit, while connected to the multiviewer that will output directly to the monitor wall (i.e. the multiviewer whose HDMI outputs are connected to the display monitors), open the room you wish to configure.

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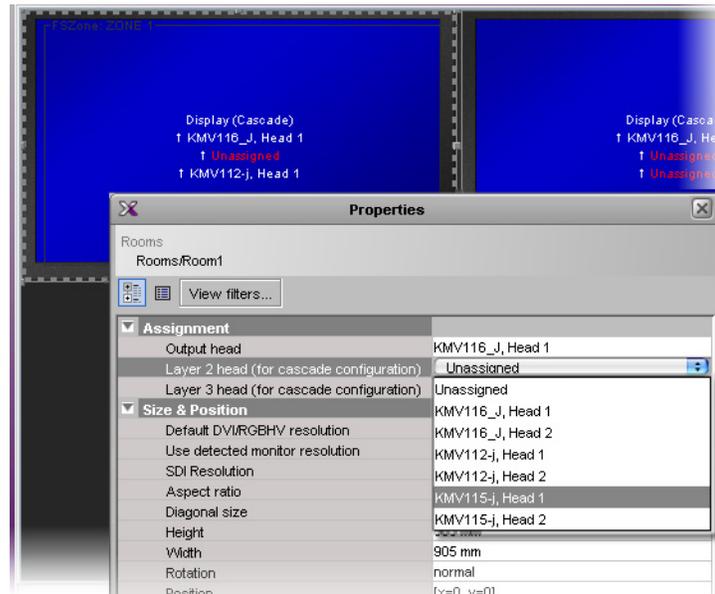
**Note:** If the room does not exist yet, create it by adding the appropriate number of displays, and then assign heads *from the current multiviewer* to the displays in the usual fashion.

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- 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 it had to be forced for some reason, you will have to repair the broken cascade.

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**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.

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### 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.

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**IMPORTANT**

**Canceling a cascade upgrade is not supported.**

The current version of the Kaleido-X 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).

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**To upgrade a cascade system:**

- 1 Copy the upgrade package files to a USB key (see “Preparing a USB Key” in the Release Notes).
- 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-X home page appears.

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**Firefox users:**

If you see a security warning instead of the home page, then refer to *Registering your Multiviewer's Security Credentials with your Browser*, in the Kaleido-X User's Manual.

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- 5 Click the XAdmin button.  
The XAdmin Status and Options page appears.

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**Internet Explorer users:**

- If the page remains blank, then refer to *Enabling the Compatibility View in Internet Explorer 10*, in the Kaleido-X User's Manual.
  - If you see a certificate error message instead of the Status and Options page, then refer to *Registering your Multiviewer's Security Credentials with your Browser*, in the Kaleido-X User's Manual.
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- 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.

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**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.

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## Limitations

In the current version of the Kaleido-X 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 7 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-X User's Manual). 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.

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**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.

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- 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-X User's Manual, for details.



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