



grass valley

A **BELDEN** BRAND

# **ICONTROL ROUTER**

POWERFUL ROUTER CONTROL OVER IP

## **User Guide**

M407-9900-228

2015-12-29

[www.grassvalley.com](http://www.grassvalley.com)

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# 1 Introduction

## Overview

The Grass Valley iControl Router Software allows you to create a virtual routing environment where actual physical router resources are deployed and controlled by software into a customized configuration optimized for your operational needs. Large routers can be operated as if they were multiple smaller routers. For example, a 64 × 64 router can be operated as if it were three separate smaller routers: for instance, a 64 × 15 router, a 12 × 5 router and a 32 × 44 router. Control and monitoring are handled by software, and are readily changed. Each operator benefits by seeing only the resources actually being used. This software can also be used as a bridge interface between a Kaleido or iControl Web system and a routing device. In this configuration, it will be used to update UMD text, and for router control functions initiated from the Kaleido or iControl Web user interface. The software includes the following features:

- bridge interface via TCP/IP for Kaleido and iControl Web software
- distributed architecture
- highly configurable
- unlimited router size<sup>1</sup>
- unlimited number of levels
- support for logical routers
- support for a mix of different frame types from different manufacturers

## Communications with Routers

The host computer and the routing devices you wish to control must be interconnected by a serial or Ethernet cable. Most of the supported routers are serial (RS-422 or RS-232) devices. Some newer devices may support TCP/IP connection.

Install the appropriate connection, either by using dedicated cabling or through an existing network.

### See also

For more information, see [Routing Switchers Tips and Tricks](#) on page 33.

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1. Exceptionally, the iControl Router driver for the SAM (Snell/Pro-Bel) SW-P-08 protocol does not support, by default, a matrix larger than 1024 × 1024. If your router matrix requirements exceed this upper limit using this protocol, contact Grass Valley technical support.

## User Interfaces Available with iControl Router Software

### Configuration Interface

The configuration interface, called *iControl Router Configurator*, is used for router setup and configuration. Use this application to define physical and logical routers.

Term	Description
Physical Router	A <i>physical router</i> represents the connection to your existing router (RS-232/422 or TCP). Configure one physical router for each device you wish to control from the iControl Router software.
Logical Router	A <i>logical router</i> represents an entire physical router, or a subset of a physical router. The operating interfaces handle logical routers. For instance, if you configured one 16 × 16 physical router, you can create two 8 × 8 logical routers with levels 0 and 1.

**See also**

For more information, see [Configuration Interface](#) on page 59.

### Operating Interface

The operating interfaces called *Matrix View* and *Single Bus* are client applications used to monitor and control the logical routers that you defined in iControl Router. They are available from the iControl Router Control Web page.

**See also**

For more information, see [Operating Interface](#) on page 3.

# Operating Interface

# 2

## Key Concepts

The operating interface consists of several components:

- **Matrix view** is designed to provide extended functionality and be a visual representation of the status for the whole logical router (see [page 3](#)).
- **Single Bus** window is an interface designed to control one router destination (or group of destinations) at a time (see [page 6](#)).
- **Router Status** window displays router status and labels of all destinations or groups of destinations (see [page 11](#)).
- **Exclusion Editor** allows you to exclude specified router inputs from appearing on specified outputs. For example, you may wish to inhibit a VTR's output from being fed back to its input (see [page 13](#)).
- **Salvo Editor** allows you to create and edit a configuration of crosspoint closures (see [page 17](#)).
- **Groups Editor** allows you to create and edit groupings of destinations (see [page 20](#)).

## Matrix View





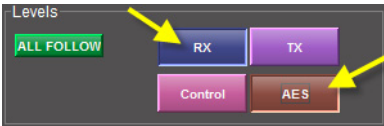
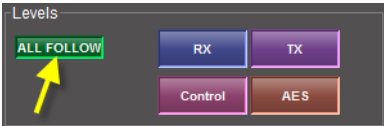

The **Matrix View** interface allows you to switch crosspoints during operation. Three areas at the bottom of the window enable crosspoint operation in different modes.

**See also**

For more information, see:

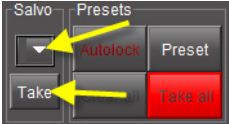
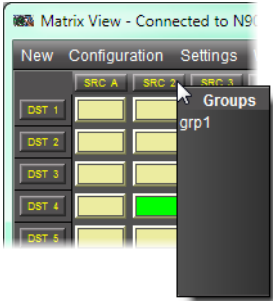
- [Matrix View Common Tasks](#) on page 4
- [Matrix Menus](#) on page 5
- [Destination locks](#) on page 23
- [Opening the Matrix View](#) on page 24

**Matrix View Common Tasks**

To do this...	...do this...
Set the system to store all changes made in Matrix view, but NOT implement those changes until <b>Take all</b> is clicked.	In the <b>Presets</b> area, select <b>Presets</b> . 
Set the system to implement all changes made in the Matrix view as soon as they are entered.	In the <b>Presets</b> area, clear <b>Presets</b> . 
Select one or more levels to be switched	In the <b>Levels</b> area, enable the button(s) corresponding to one or more levels, as required. 
Set the system to switch all levels	In the <b>Levels</b> area, enable <b>ALL FOLLOW</b> . 
Set the system to automatically lock changes once they are taken	In the <b>Presets</b> area, enable <b>Autolock</b> . 

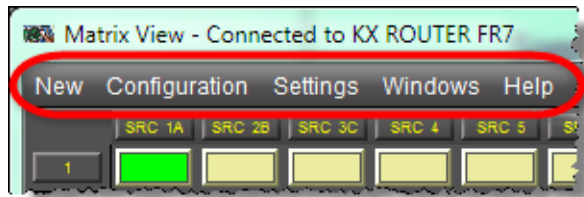


(Continued)

To do this...	...do this...
Apply a salvo	<p>In the <b>Salvo</b> area, select a salvo from the list, and then click <b>Take</b>.</p> 
Choose a destination group	<ol style="list-style-type: none"> <li>In the <b>Matrix</b> area, click on the column header box designating the source.</li> </ol>  <ol style="list-style-type: none"> <li>Select a group.</li> </ol>

### Matrix Menus

You may set some parameters of the Matrix View using the Matrix View menus located along the top of the **Matrix View** window.



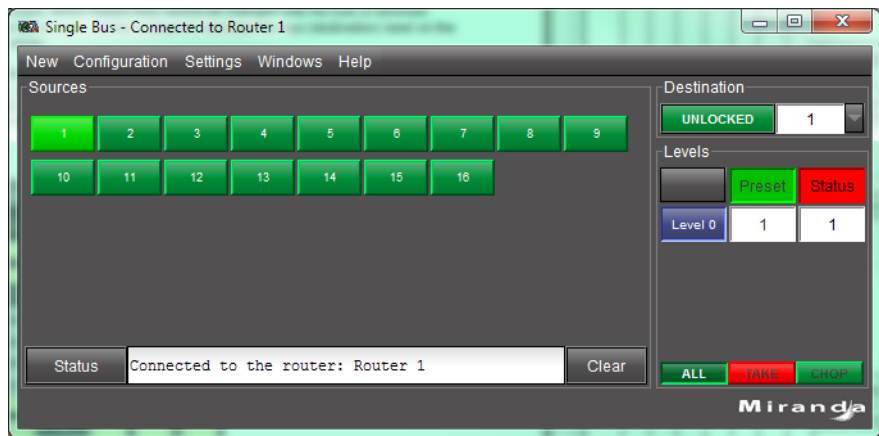
#### Matrix View menu items

Menu item		Action
<b>New</b>	Single Bus	Opens a new <b>Single bus</b> window with destination 1 selected.
	Matrix View	Opens a new <b>Matrix View</b> window.
	Status View	Opens a window showing the router status.

Matrix View menu items (*Continued*)

Menu item		Action	
<b>Configuration</b>	Salvo Editor	Invokes the configuration mode <b>Salvo editor</b> window.	
	Exclusion Editor	Invokes the configuration mode <b>Exclusion editor</b> window.	
	Group Editor	Invokes the configuration mode <b>Group editor</b> window.	
<b>Settings</b>	Status Bar	On	Displays status bar.
		Off	Hides status bar.
	Sound	On	Enables sound effects.
		Off	Disables sound effects.
	Header tip	On	Shows an enlarged version of the source and destination labels under the cursor tip, useful when the displayed labels are very small, e.g. when zoomed out on a large matrix
		Off	Disables the supplementary label display.
	Zoom	Zoom In	Makes matrix cells bigger. This is useful for big routers with many levels.
		Zoom Out	Shrinks matrix cells in order to show as much of the matrix as possible.
Default Size		Resizes matrix cells to the default size.	
Fit horizontally		Tries to fit all of the sources into the window.	
<b>Windows</b>		Contains a list of open windows. Selecting an entry will bring it to the front.	
<b>Close</b>		Closes current window. If the window is the last one open – then exit.	

Single Bus Window



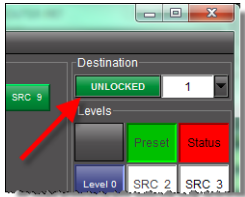
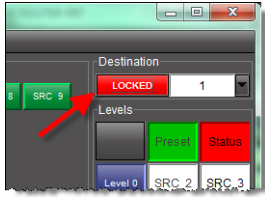
The **Single Bus** window shows sources on the left as a set of buttons, and destinations on the right. Destinations appear in the list in the **Destination** area (either a single bus, or a group with a defined name, or an *Anonymous* group created temporarily; the latter two from the **Destination/Group Selection** window).

**See also**

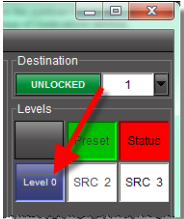
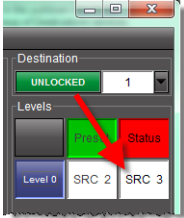


For more information, see:

- [Single Bus Window Common Tasks](#) on page 7
- [Single Bus Menus](#) on page 9
- [Destination locks](#) on page 23
- [Opening the Single Bus Window](#) on page 27

**Single Bus Window Common Tasks**

To do this...	...do this...
<p>Cycle the selected destination busses between <i>locked</i> and <i>unlocked</i> states.<sup>1</sup></p>	<ol style="list-style-type: none"> <li>1. In the <b>Destination</b> area, in the row corresponding to the desired destination, click the button so it displays <b>UNLOCKED</b> to effect an <i>unlocked</i> state.</li> </ol>  <ol style="list-style-type: none"> <li>2. Click the button so it displays <b>LOCKED</b> to effect a <i>locked</i> state.</li> </ol> 

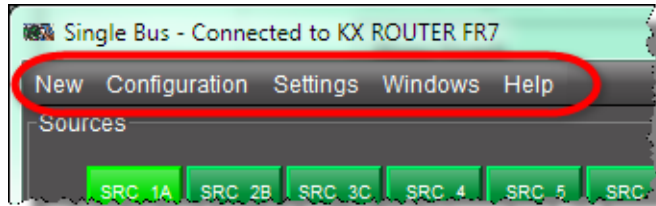
(Continued)

To do this...	...do this...
<p>Select which levels are switched</p>	<ol style="list-style-type: none"> <li>In the <b>Levels</b> area, enable the buttons corresponding to all the levels for which you would like to enable switching.</li> </ol>  <ol style="list-style-type: none"> <li>The current source at the output for each level is shown in the <b>Status</b> column.</li> </ol> 
<p>Select one or more groups of destinations</p>	<ol style="list-style-type: none"> <li>In the <b>Destination</b> area, click the <i>Down</i> arrow next to the list of destinations.</li> </ol>  <p><i>SYSTEM RESPONSE:</i> The <b>Destination/Group Selection</b> window appears.</p> <ol style="list-style-type: none"> <li>If you would like to select a single destination, click the desired destination.</li> <li>If you would like to select multiple destinations, click <b>Select group</b>, then either select the desired destinations by clicking on each of them or click <b>Select group</b> to select all of them.<sup>2</sup></li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b>.</li> </ol>

1. If part of a group is locked, the overall group will be unlocked; those that are unlocked do not change state.
2. If you would like to make this an anonymous group, click **Anonymous group**.

## Single Bus Menu

You may set some parameters of the **Single Bus** window using the menus located along the top.



Single Bus menu items

Menu item		Action
<b>New</b>	Single Bus	Opens a new <b>Single bus</b> window with destination 1 selected.
	Matrix View	Opens a new <b>Matrix View</b> window.
	Status View	Opens a window showing the router status.
<b>Configuration</b>	Salvo Editor	Invokes the configuration mode <b>Salvo editor</b> window.
	Exclusion Editor	Invokes the configuration mode <b>Exclusion editor</b> window.
	Group Editor	Invokes the configuration mode <b>Group editor</b> window.

Single Bus menu items (*Continued*)

Menu item			Action
<b>Settings</b>	Status Bar	On	Displays status bar.
		Off	Hides status bar.
	Sound	On	Enables sound effects.
		Off	Disables sound effects.
	Autolock	On	Shows an enlarged version of the source and destination labels under the cursor tip, useful when the displayed labels are very small
		Off	Disables the supplementary label display.
	Preset	On	Enables presets. The new selection appears in the <b>Preset</b> area, and is set at the output when the <b>Take</b> button is clicked. The take is inhibited if any exclusions are violated, or if the selected destination is locked.
		Off	Disables presets. The <b>Preset</b> area is dimmed. All selected outputs switch immediately to the source selected on the button in the left panel.
	Chop interval	No auto chopping	Disables autochopping
		Set chop interval to <b>0.5s</b>	Changes chop interval to 0.5 seconds
		Set chop interval to <b>1s</b>	Changes chop interval to 1 second
		Set chop interval to <b>1.5s</b>	Changes chop interval to 1.5 seconds
		Set chop interval to <b>2s</b>	Changes chop interval to 2 seconds
		Set chop interval to <b>2.5s</b>	Changes chop interval to 2.5 seconds
		Set chop interval to <b>3s</b>	Changes chop interval to 3 seconds
Set chop interval to <b>10s</b>		Changes chop interval to 10 seconds	
Set chop interval to <b>30s</b>		Changes chop interval to 30 seconds	
<b>Windows</b>			Contains a list of open windows. Selecting an entry will bring it to the front.
<b>Close</b>			Closes current window. If the window is the last one open – then exit.

## Router Status Window



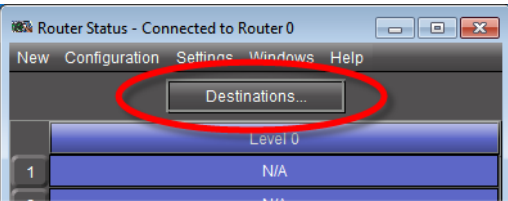
The **Router Status** window displays router status and labels of all destinations or groups of destinations.

### See also

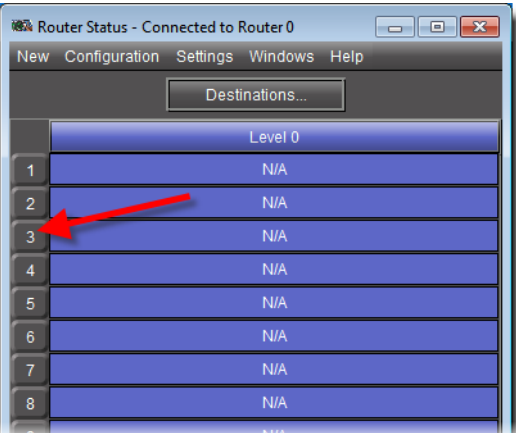
For more information, see:

- [Router Status Window Common Tasks](#) on page 11
- [Router Status Menus](#) on page 12
- [Opening the Router Status Window](#) on page 29

## Router Status Window Common Tasks

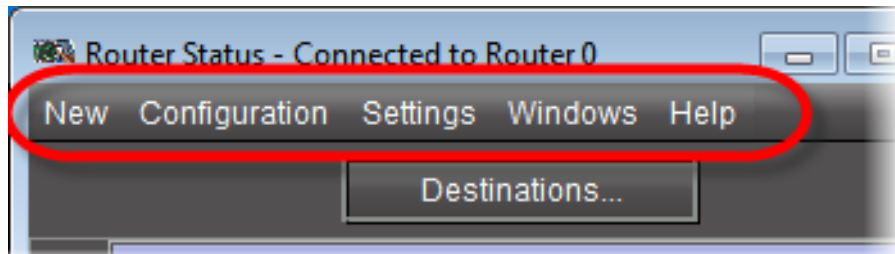
To do this...	...do this...
Display the <b>Destination/Group Selection</b> window	Click <b>Destinations</b> . 

(Continued)

To do this...	...do this...
Display the <b>Single Bus</b> window	Click the desired level. 

### Router Status Menus

You may set some parameters of the **Single Bus** window using the menu located along the top.



Router Status menu items

Menu item		Action
<b>New</b>	Single Bus	Opens a new <b>Single bus</b> window with destination 1 selected.
	Matrix View	Opens a new <b>Matrix View</b> window.
	Status View	Opens a window showing the router status.
<b>Configuration</b>	Salvo Editor	Invokes the configuration mode <b>Salvo editor</b> window.
	Exclusion Editor	Invokes the configuration mode <b>Exclusion editor</b> window.
	Group Editor	Invokes the configuration mode <b>Group editor</b> window.



Router Status menu items (*Continued*)

Menu item			Action
<b>Settings</b>	Status Bar	On	Displays status bar.
		Off	Hides status bar.
	Sound	On	Enables sound effects.
		Off	Disables sound effects.
<b>Windows</b>			Contains a list of open windows. Selecting an entry will bring it to the front.
<b>Close</b>			Closes current window. If the window is the last one open – then exit.

## Exclusion Editor



**Exclusion Editor** allows you to forbid user-specified router inputs from appearing on user-specified router outputs. Sources extend along the horizontal axis and are labeled across the top of the matrix. Destinations extend along the vertical axis and are labeled down the left side of the matrix.

**See also**

For more information, see:

- [Exclusion Editor Common Tasks](#) on page 14
- [Exclusion Editor Menus](#) on page 16

**See also** (Continued)

For more information, see:

- [Opening Exclusion Editor](#) on page 30

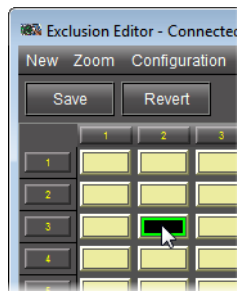
## Exclusion Editor Common Tasks

### To do this...

Configure an exclusion.

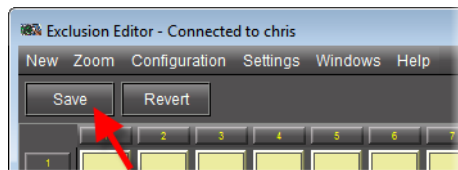
### ...do this...

1. Click the box corresponding to the intersection of the source and destination whose match you would like to exclude.

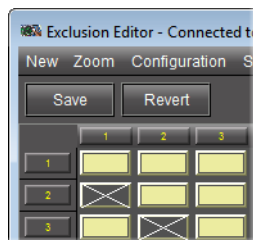


*SYSTEM RESPONSE:* A green outline appears around the selected box. Do this for all desired exclusions.

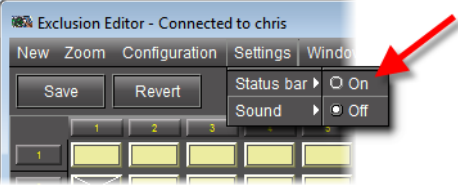
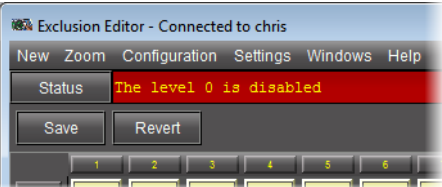
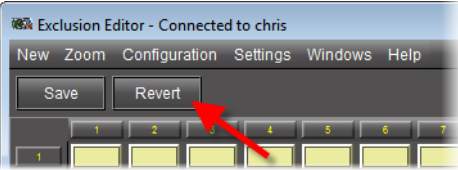
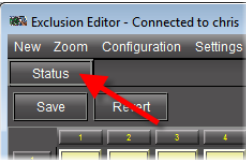
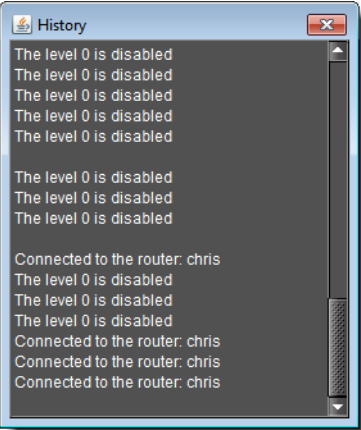
2. Click **Save**.



*SYSTEM RESPONSE:* The selected boxes appear with a grey background and a white x.<sup>1</sup>



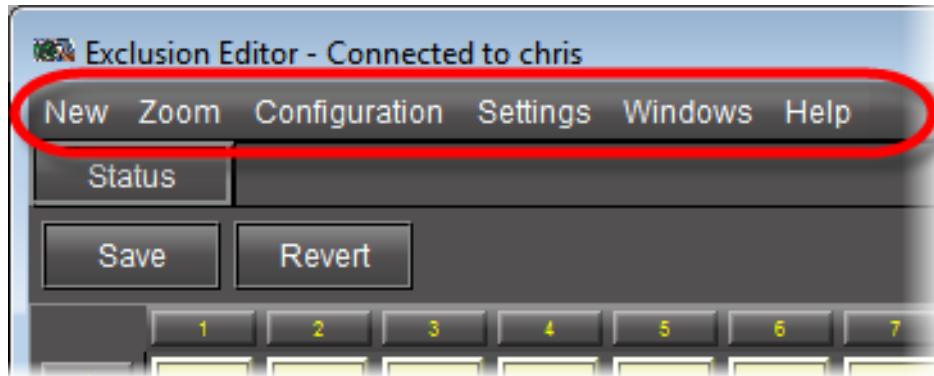
(Continued)

To do this...	...do this...
<p>Display the <b>Status</b> bar.</p>	<p>On the <b>Settings</b> menu, point to <b>Status bar</b>, and then select <b>On</b>.</p>  <p>The <b>Status</b> bar appears.</p> 
<p>Revert back to the last saved exclusion settings.</p>	<p>Click <b>Revert</b>.</p> 
<p>Display the status history log.</p>	<p>Click <b>Status</b>.</p>  <p>The <b>History</b> window appears.</p> 

1. If any exclusions are not allowed because of other choices made in the router definition, they will not appear on the matrix. Additionally, a note will appear (highlighted in red) in the Status box at the top of the pane. Click **Status** to see a list of all notes.

## Exclusion Editor Menus

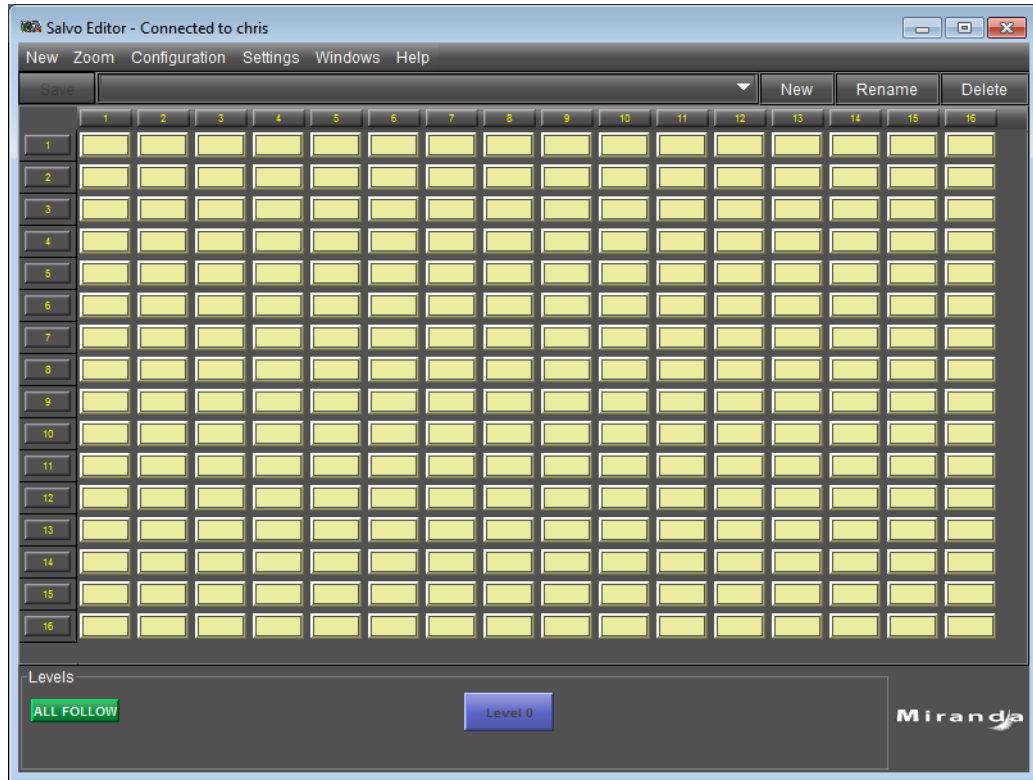
You may set some parameters of the **Exclusion Editor** using the menus located along the top.



Exclusion Editor menu items

Menu item		Action	
<b>New</b>	Single Bus	Opens a new <b>Single bus</b> window with destination 1 selected.	
	Matrix View	Opens a new <b>Matrix View</b> window.	
	Status View	Opens a window showing the router status.	
<b>Zoom</b>	Zoom in	Magnifies the view of the matrix by a set increment.	
	Zoom out	Demagnifies the view of the matrix by a set increment.	
	Default size	Reverts the magnification of the matrix to the default zoom setting.	
	Fit horizontally	Magnifies or demagnifies the view of the matrix so that it fits horizontally within the <b>Exclusion Editor's</b> window.	
<b>Configuration</b>	Salvo Editor	Invokes the configuration mode <b>Salvo editor</b> window.	
	Exclusion Editor	Invokes the configuration mode <b>Exclusion editor</b> window.	
	Group Editor	Invokes the configuration mode <b>Group editor</b> window.	
<b>Settings</b>	Status Bar	On	Displays status bar.
		Off	Hides status bar.
	Sound	On	Enables sound effects.
		Off	Disables sound effects.
<b>Windows</b>		Contains a list of open windows. Selecting an entry will bring it to the front.	
<b>Close</b>		Closes current window. If the window is the last one open – then exit.	

## Salvo Editor



**Salvo Editor** allows you to create and name a configuration of crosspoint closures. Individual levels may be specified at each crosspoint or the entire group may be specified.

---

**Note:** Exclusions are shown on the matrix and cannot be overridden.

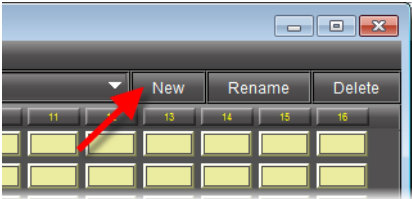
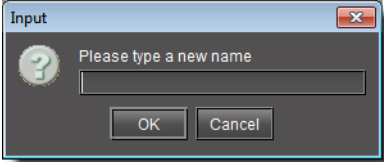
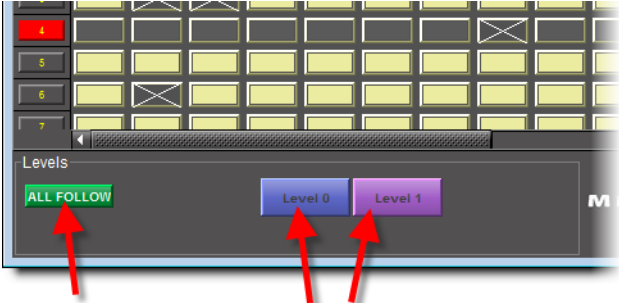
---

### See also

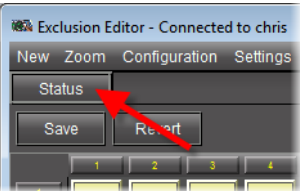
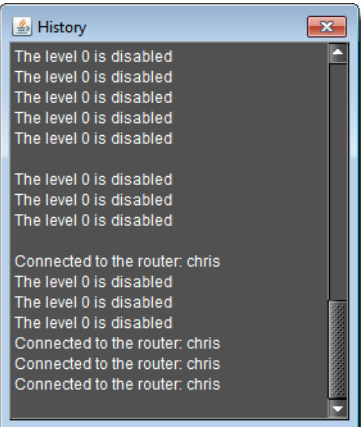
For more information, see:

- [Salvo Editor Common Tasks](#) on page 18
- [Salvo Editor Menus](#) on page 19
- [Opening Salvo Editor](#) on page 30

## Salvo Editor Common Tasks

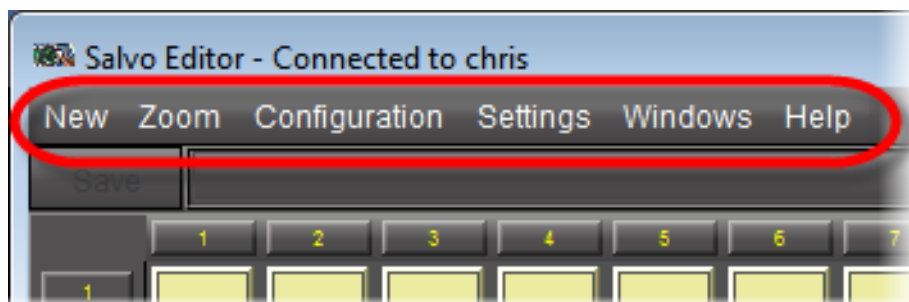
To do this...	...do this...
Create a salvo of crosspoint closures.	<ol style="list-style-type: none"><li>1. Click <b>New</b>.</li></ol>  <p><i>SYSTEM RESPONSE:</i> The <b>Input</b> window appears.</p>  <ol style="list-style-type: none"><li>2. Type a name for this salvo and then click <b>OK</b>.</li><li>3. Select one or more levels at the bottom of the window, or else click <b>ALL FOLLOW</b>, to associate this salvo with the desired levels.</li></ol>  <ol style="list-style-type: none"><li>4. Click all crosspoints you would like to include in this salvo.</li><li>5. Click <b>Save</b>.</li></ol>
Delete a salvo.	Select the salvo you would like to delete from the list, and then click <b>Delete</b> .

(Continued)

To do this...	...do this...
<p>Display the status history log.</p>	<p>Click <b>Status</b>.</p>  <p>The <b>History</b> window appears.</p> 

### Salvo Editor Menus

You may set some parameters of the **Salvo Editor** using the menu located along the top.



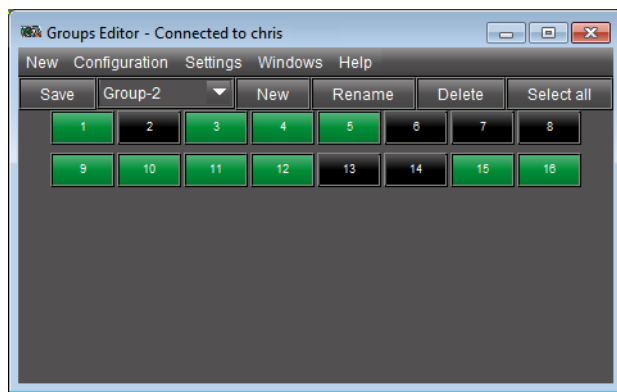
Salvo Editor menu items

Menu item		Action
<b>New</b>	Single Bus	Opens a new <b>Single bus</b> window with destination 1 selected.
	Matrix View	Opens a new <b>Matrix View</b> window.
	Status View	Opens a window showing the router status.

Salvo Editor menu items (*Continued*)

Menu item		Action	
<b>Zoom</b>	Zoom in	Magnifies the view of the matrix by a set increment.	
	Zoom out	Demagnifies the view of the matrix by a set increment.	
	Default size	Reverts the magnification of the matrix to the default zoom setting.	
	Fit horizontally	Magnifies or demagnifies the view of the matrix so that it fits horizontally within the <b>Exclusion Editor's</b> window.	
<b>Configuration</b>	Salvo Editor	Invokes the configuration mode <b>Salvo editor</b> window.	
	Exclusion Editor	Invokes the configuration mode <b>Exclusion editor</b> window.	
	Group Editor	Invokes the configuration mode <b>Group editor</b> window.	
<b>Settings</b>	Status Bar	On	Displays status bar.
		Off	Hides status bar.
	Sound	On	Enables sound effects.
		Off	Disables sound effects.
<b>Windows</b>		Contains a list of open windows. Selecting an entry will bring it to the front.	
<b>Close</b>		Closes current window. If the window is the last one open – then exit.	

## Groups Editor



**Groups Editor** allows you to create and edit groupings of destinations.

**See also**

For more information, see:

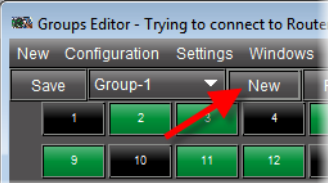
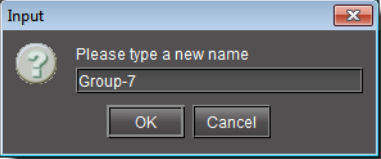
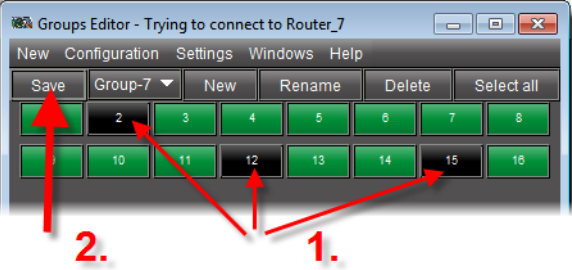
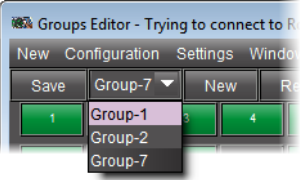
- [Groups Editor Common Tasks](#) on page 21
- [Groups Editor Menus](#) on page 22



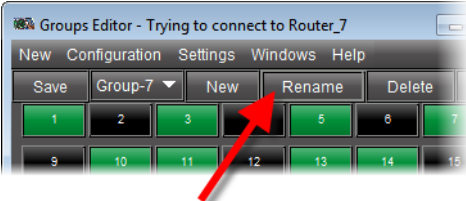
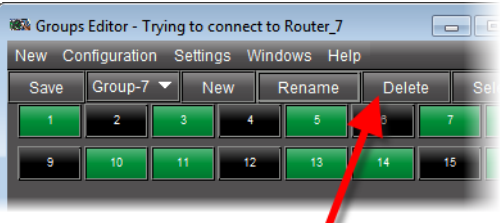
**See also** *(Continued)*

- For more information, see:
- [Opening Groups Editor](#) on page 31

## Groups Editor Common Tasks

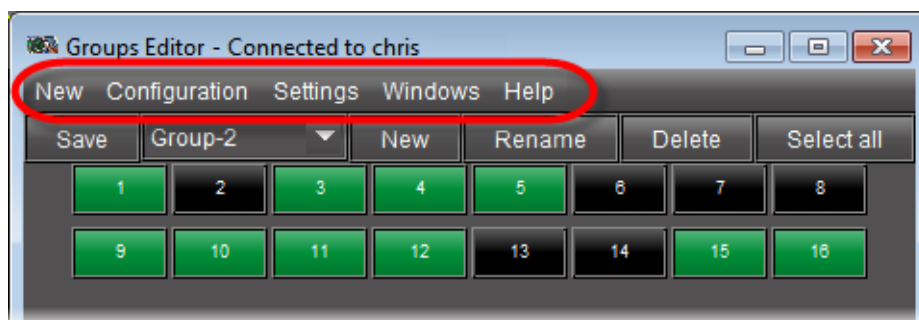
To do this...	...do this...
<p>Create a group.</p>	<ol style="list-style-type: none"> <li>1. Click <b>New</b>.</li> </ol>  <p><i>SYSTEM RESPONSE:</i> An <b>Input</b> window appears.</p> <ol style="list-style-type: none"> <li>2. Type a name for the new group, and then click <b>OK</b>.</li> </ol>  <ol style="list-style-type: none"> <li>3. In the matrix, select the destinations buttons you would like to include in this group, and then click <b>Save</b>.</li> </ol> 
<p>Edit a group.</p>	<ol style="list-style-type: none"> <li>1. Select the group you would like to edit in the group list.</li> </ol>  <ol style="list-style-type: none"> <li>2. Change the button selection for this group, and then click <b>Save</b>.</li> </ol>

(Continued)

To do this...	...do this...
Rename a group.	<ol style="list-style-type: none"> <li>1. Select the group whose name you would like to change in the group list.</li> <li>2. Click <b>Rename</b>.</li> </ol>  <p><i>SYSTEM RESPONSE:</i> The <b>Input</b> window appears.</p> <ol style="list-style-type: none"> <li>3. Type a new name for this group, and then click <b>OK</b>.</li> <li>4. Click <b>Save</b>.</li> </ol>
Delete a group.	<ul style="list-style-type: none"> <li>• Select the group you would like to delete from the group list.</li> <li>• Click <b>Delete</b>.</li> </ul>  <p><i>SYSTEM RESPONSE:</i> The group disappears from the group list.</p>

## Groups Editor Menus

You may set some parameters of the **Exclusion Editor** using the menus located along the top.



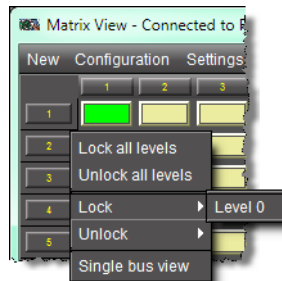
### Groups Editor menu items

Menu item		Action	
<b>New</b>	Single Bus	Opens a new <b>Single bus</b> window with destination 1 selected.	
	Matrix View	Opens a new <b>Matrix View</b> window.	
	Status View	Opens a window showing the router status.	
<b>Configuration</b>	Salvo Editor	Invokes the configuration mode <b>Salvo editor</b> window.	
	Exclusion Editor	Invokes the configuration mode <b>Exclusion editor</b> window.	
	Groups Editor	Invokes the configuration mode <b>Group editor</b> window.	
<b>Settings</b>	Status Bar	On	Displays status bar.
		Off	Hides status bar.
	Sound	On	Enables sound effects.
		Off	Disables sound effects.
<b>Windows</b>		Contains a list of open windows. Selecting an entry will bring it to the front.	
<b>Close</b>		Closes current window. If the window is the last one open – then exit.	

## Destination locks

The settings in the **Matrix View** window may be locked, and when locked, they cannot be changed until the lock is removed. Locked selections appear red on the screen. The crosspoint, and also the row (destination) label on the left is red. Locking can occur in two ways:

- Clicking on the row label box at the left of the screen opens a window which allows levels in that row to be locked. Options are: **Lock all levels**, **Unlock all levels**, **Lock** (with a subsidiary menu listing all currently unlocked levels in that row), and **Unlock** (with a subsidiary menu listing all currently locked levels in that row). The **Single Bus View** option is also found in this menu.



- If **Autolock** is selected in the **Preset** area, then any change which is taken, in either PRESET or TAKE mode, is automatically locked on all levels...

**Note:** Locking occurs immediately; the TAKE/PRESET rules do not apply.

## Detailed Directions

### Opening the Matrix View

**See also**

For more information about the **Matrix View**, see [page 3](#).

#### Opening a New Matrix View from iControl

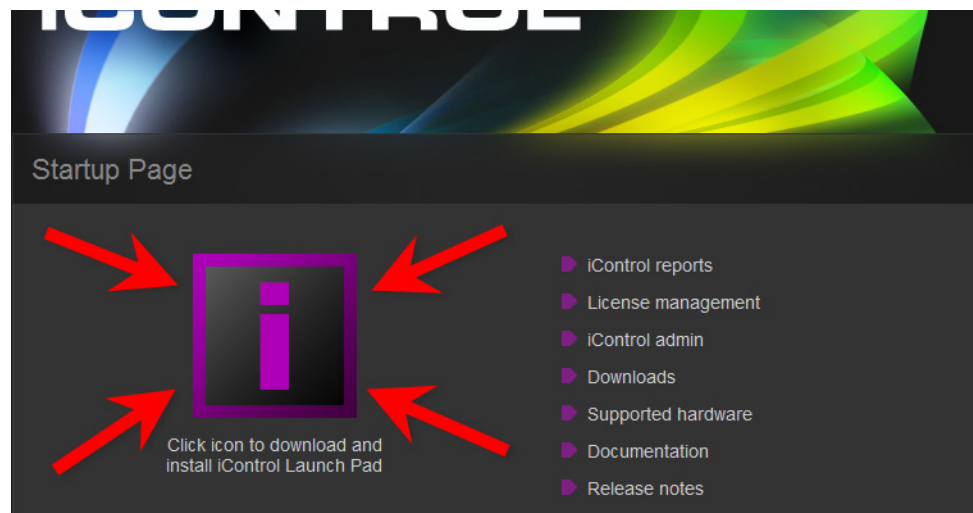
Perform this procedure if you would like to open a new **Matrix View** from iControl.

**REQUIREMENT**

Before beginning this procedure, make sure you have opened iControl.

#### To open a new Matrix View from iControl

1. On the *iControl—Startup* page, click the massive **i** icon.



**SYSTEM RESPONSE:** The *iControl Launch Pad* executable file is downloaded to your local file system.

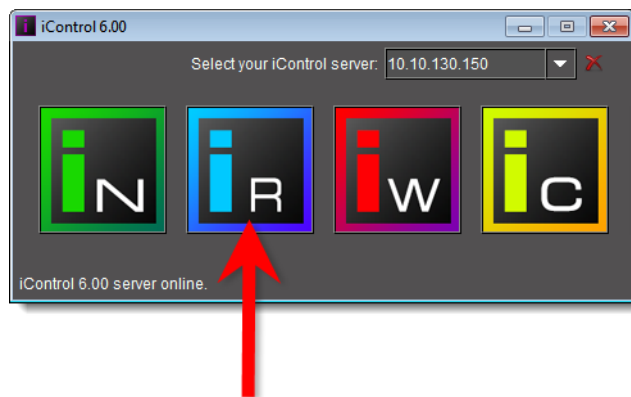
2. Double-click the executable file.

**SYSTEM RESPONSE:** **iControl Launch Pad** appears.

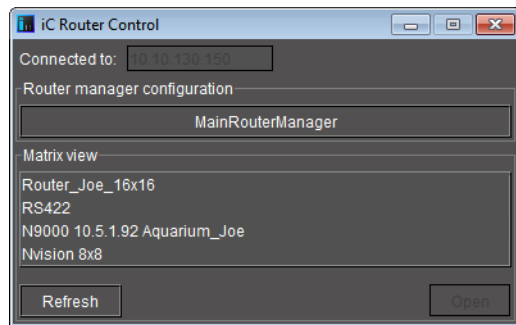
3. On **iControl Launch Pad**, either type in the IP address of your Application Server or select from the list of available IP addresses.



4. Click the **iC Router Control** icon.



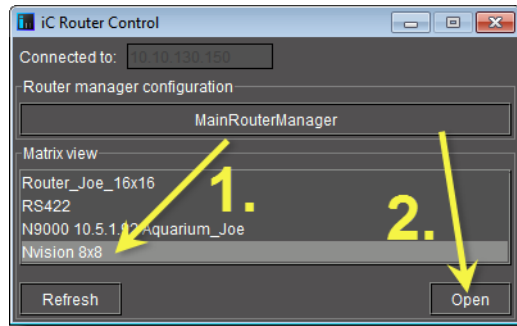
**SYSTEM RESPONSE:** The **iC Router Control** window appears.



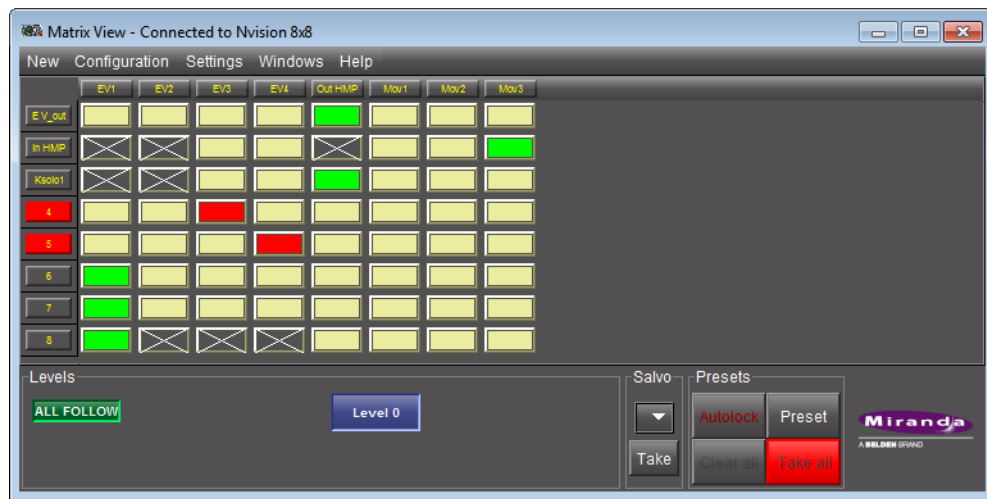
5. In the **iC Router Control** window, in the **Matrix view** area, select the router you wish to view.
6. Click **Open**.

## Operating Interface

### Opening a New Matrix View from Another Operational Window



**SYSTEM RESPONSE:** The **Matrix View** window for the selected router appears.



## Opening a New Matrix View from Another Operational Window

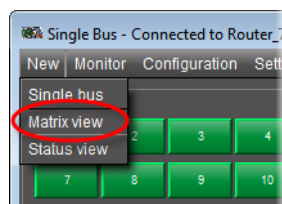
Perform this procedure to open a new **Matrix View** from a **Single Bus** window.

### REQUIREMENT

Before beginning this procedure, make sure you have open either a **Single Bus** window or a **Router Status** window, each associated with the desired router (see [page 24](#)).

### To open a new Matrix View

- In the **Single Bus** window, on the **New** menu, click **Matrix view**.



## toggling to a Matrix View from Another Operational Window

Perform this procedure to toggle to an existing **Matrix View** from another iControl Router window.

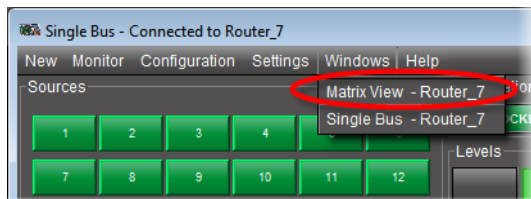
### REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have a **Single Bus** window open and in focus (each associated with the appropriate router).
- A **Matrix View** for the appropriate router is open.

### To toggle focus to an existing Matrix View

- In a **Single Bus** window, on the **Window** menu, click the desired Matrix View selection.



## Opening the Single Bus Window

### See also

For more information about the **Single Bus** window, see [page 6](#).

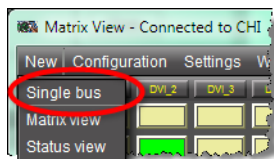
## Opening the Single Bus Window

### REQUIREMENT

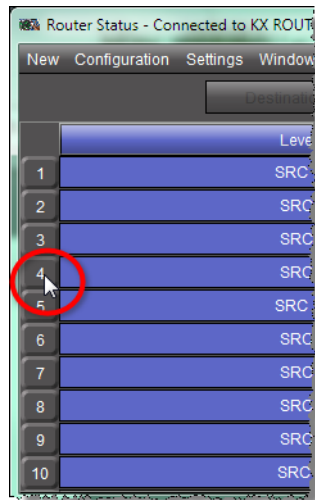
Before beginning this procedure, make sure you have opened the **Matrix View** associated with the appropriate router (see [page 24](#)).

### To open the Single Bus window

- In the **Matrix View**, on the **New** menu, click **Single bus**.



Alternatively, in the case where you are beginning from the **Router Status** window, you may also click the router level corresponding to the appropriate source.



---

**Note:** Choosing this second option opens the **Single Bus** window with the source you selected in the **Router Status** window pre-selected.

---

### Toggling to a Single Bus Window from Another Operational Window

Perform this procedure to toggle to an existing **Single Bus** window from another iControl Router window.

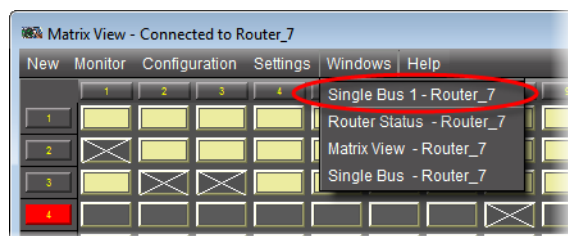
#### REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have either a **Matrix View** or a **Router Status** window open and in focus (each associated with the appropriate router).
- A **Single Bus** window for the appropriate router is open.

#### To toggle focus to an existing Single Bus window

- In either a **Matrix View** or a **Router Status** window, on the **Window** menu, click the desired Single Bus selection.





## Opening the Router Status Window

### See also

For more information about the **Router Status** window, see [page 11](#).

### Opening a New Router Status Window

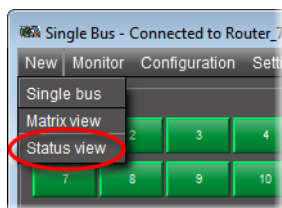
Perform this procedure to open a new **Router Status** window from either the **Single Bus** window or the **Matrix View**.

### REQUIREMENT

Before beginning this procedure, make sure you have open either a **Single Bus** window or a **Matrix View**, each associated with the desired router (see [page 24](#)).

### To open a new Router Status window

- In either the **Single Bus** window or the **Matrix View**, on the **New** menu, click **Status view**.



### toggling to a Router Status Window from Another Operational Window

Perform this procedure to toggle to an existing **Router Status** window from another iControl Router window.

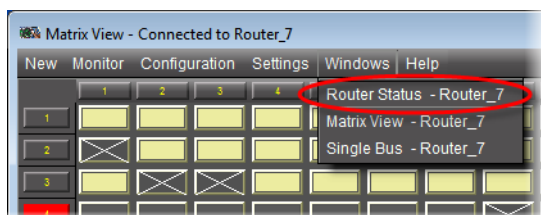
### REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have either a **Single Bus** window or a **Matrix View** open and in focus (each associated with the appropriate router).
- A **Router Status** window for the appropriate router is open.

### To toggle focus to an existing Router Status window

- In either a **Single Bus** window or a **Matrix View**, on the **Window** menu, click the desired Router Status selection.



## Opening Salvo Editor

### See also

For more information about **Salvo Editor**, see [page 17](#).

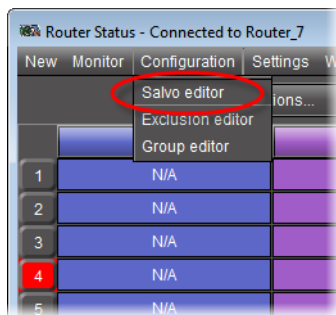
### REQUIREMENT

Before beginning this procedure, make sure you have open and in focus ONE of the following windows; each associated with the appropriate router

- **Router Status** window
- **Matrix View**
- **Single Bus** window

### To open Salvo Editor

- In one of **Router Status**, **Matrix View**, or the **Single Bus** windows, on the **Configuration** menu, click **Salvo editor**.



## Opening Exclusion Editor

### See also

For more information about **Exclusion Editor**, see [page 13](#).

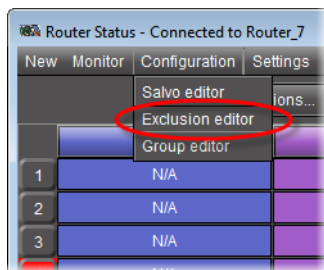
### REQUIREMENT

Before beginning this procedure, make sure you have open and in focus ONE of the following windows; each associated with the appropriate router

- **Router Status** window
- **Matrix View**
- **Single Bus** window

### To open Exclusion Editor

- In one of **Router Status**, **Matrix View**, or the **Single Bus** windows, on the **Configuration** menu, click **Exclusion editor**.



## Opening Groups Editor

### See also

For more information about **Groups Editor**, see [page 20](#).

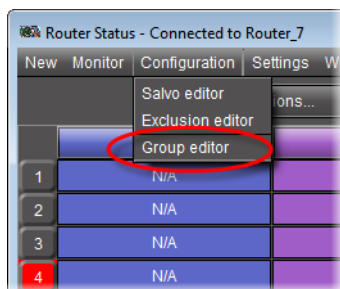
### REQUIREMENT

Before beginning this procedure, make sure you have open and in focus ONE of the following windows; each associated with the appropriate router

- **Router Status** window
- **Matrix View**
- **Single Bus** window

### To open Groups Editor

- In one of **Router Status**, **Matrix View**, or **Single Bus** windows, on the **Configuration** menu, click **Group editor**.





# Routing Switchers Tips and Tricks

# 3

## General

The current version of Grass Valley's Router Control Software supports serial, TCP/IP, and UDP/IP communications connections. There are several general considerations regarding routing switcher configuration.

If there is a choice between an RS-232 port and an RS-422 port, preference should be given to the RS-232 port in order to avoid cabling problems. If RS-422 is used be careful of the pinouts – *please check thoroughly*.

If the router can be configured to operate at different baud rates, in most cases the fastest setting should be used, unless a recommended baud rate is specified in your router's manual or in this document.

If the software cannot detect the levels, then it is necessary to attach a standard PC through a serial port, run HyperTerminal, switch some crosspoints from a physical control panel and check if there is any communication over the serial port. In some cases it is necessary to enable reporting over the serial port.

## Nevion

### Network Compact Protocol (Default Driver for VikinX Compact Routers)

Every VikinX Compact router is equipped with a RS-232 port. Although the panels are equipped with the port as well, it is not recommended to use it. It is possible to use a standard straight-through<sup>1</sup> modem cable with a gender-bender. Most of the routers are using baud rate 19200, but there are certain exceptions, so it is necessary to check the manual for your particular model. Other port settings are 8 bits, no parity, 1 stop bit, and no flow control. The DIP switches on the back of the router and the frame type define the address of the frame. Type the value set by the DIP switches in the Frame ID box when you define your levels in Grass Valley's Router Control Software.

The Network protocol supports two types of frames: video and audio. Telecom routers act like a video frame and the RS-422 Data router can be configured by DIP switches to work either as video or as audio. Please refer to your device's user manual for more information.

### Troubleshooting

The Network Compact protocol is a binary protocol. For each crosspoint on each level the router sends 3 bytes to the serial port. It means that you will see some kind of pseudographics in your HyperTerminal window.

---

1. A double cross-over should also work.

## Network Modular Protocol (Control Protocol for VikinX Modular Routers)

Please refer to the following document for more information about this protocol:

```
\\ca-ops-data\Groups\RD  
Software\Documentation\iControlRouter\Protocols\Network\VikinX_Control_Protoco  
l_rev3.pdf
```

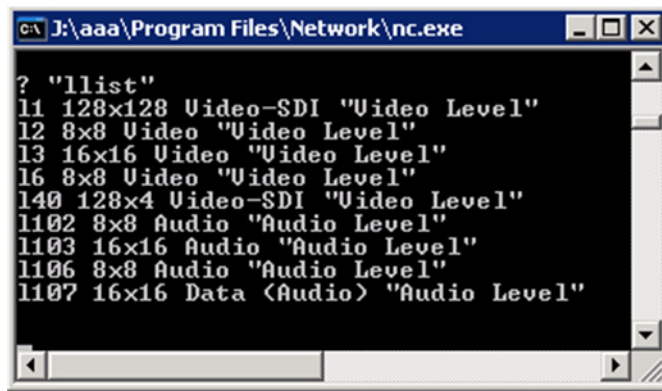
Select this driver if you wish to use a router controller such as your VikinX Modular router's SysCon card or an external ETH-CON device.

The Network Modular protocol is an Ethernet ASCII protocol, and uses port 4381.

### To confirm the router controller is properly configured

1. Connect to the controller using telnet.
2. In a telnet session, type:  
l1ist
3. Hit **Enter** twice.

*SYSTEM RESPONSE:* The response will be something like this:

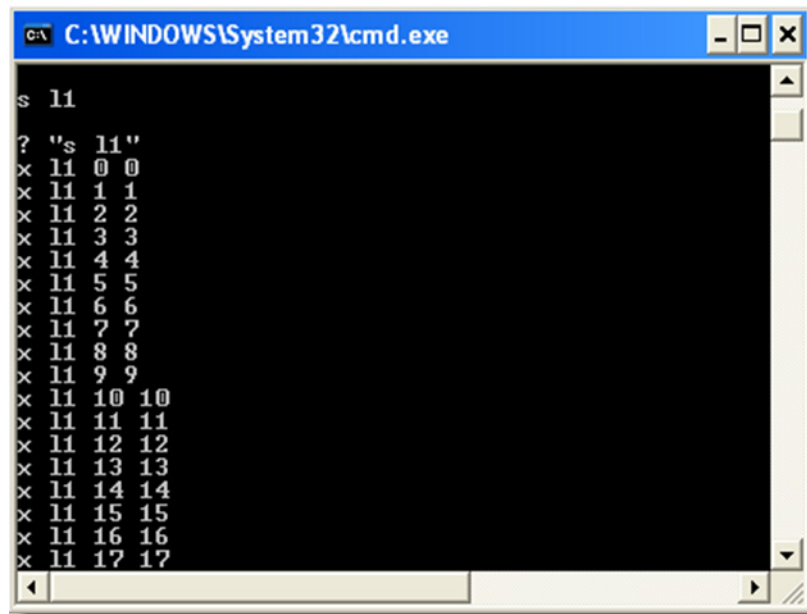


```
C:\J:\aaa\Program Files\Network\nc.exe  
?  
? "l1ist"  
11 128x128 Video-SDI "Uideo Level"  
12 8x8 Uideo "Uideo Level"  
13 16x16 Uideo "Uideo Level"  
16 8x8 Uideo "Uideo Level"  
140 128x4 Video-SDI "Uideo Level"  
1102 8x8 Audio "Audio Level"  
1103 16x16 Audio "Audio Level"  
1106 8x8 Audio "Audio Level"  
1107 16x16 Data <Audio> "Audio Level"
```

4. To get the status of all the crosspoints on a level, type s l<level>, and then press **Enter** twice.

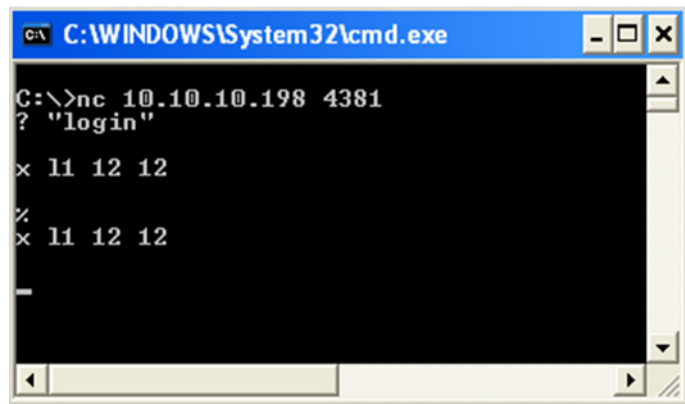
*SYSTEM RESPONSE:* The response will have the following form:

```
x l<level> <src> <dest>
```



5. You can also switch crosspoints, by typing `x 1<level> <src> <dest>`, and then pressing **Enter** twice.

*SYSTEM RESPONSE:* You will get a confirmation like this:



## Leitch

The software supports the Leitch ASCII Passthrough protocol. The application server can be connected to the Leitch system either directly or via an SPT (Serial Protocol Translator). The serial port on the SPT can be configured to act either as a RS-232 or RS-422 port using jumpers located under the cover of the box (see the manufacturer's manual). When using the 232 ports, it is necessary to use a null-modem cable. DIP switches located under the cover of SPT can be used to configure the baud rate. The other parameters are 8 bits, no parity, 1 stop bit, and no flow control. Some old versions of the SPT had a bug in the firmware that prevented

them from responding correctly. Leitch can replace the firmware chip and it may be best to upgrade to the latest firmware version in any case.

**IMPORTANT:** The echo mode *MUST* be ON for the driver to work properly. If the echo mode is off, you may not be able to switch crosspoints.

To support the Leitch protocol on TCP/IP, a login/password must be set. By default, the driver uses login=leitch and password=leitchadmin. To change the login/password values, add the following two lines:

```
DEF_OPTIONS=" ${DEF_OPTIONS} -  
Dcom.miranda.icontrol.routers.leitch.login=leitch"  
  
DEF_OPTIONS=" ${DEF_OPTIONS} -  
Dcom.miranda.icontrol.routers.leitch.password=leitchadmin"
```

## Troubleshooting

Leitch routers are using ASCII protocol to communicate with the router. In case of successful connection hitting <ENTER> will bring you to the command prompt (the > character). Press Q <ENTER> to display the menu. To enable echo on the terminal type T <space> O <ENTER>. To enable reporting type @<SPACE>?. Once you enabled reporting the router will send changes in its status back to the serial port.

---

**Note:** Do not type Z<ENTER> at the command prompt unless you really want to reset the router. If you do you will have to upload the configuration using the Leitch RouterMapper software.

---

## How to get Firmware Version Number?

From the Leitch shell, type SHOW RPARM followed by <ENTER>.

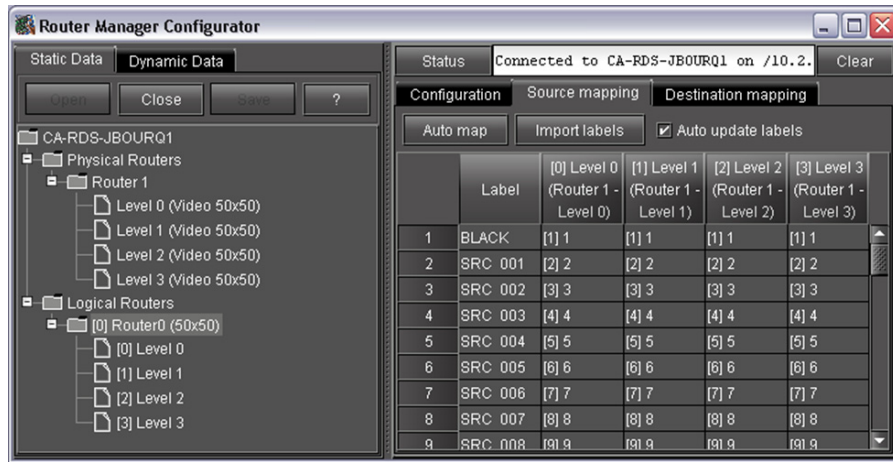
## Utah Scientific RCP-3 (SC-4 Controller Ethernet Only)

The RCP-3 protocol is supported by the following controller: UTAH-200, SC-3 and SC-4. However, the driver only works with SC-4 controllers using an Ethernet connection. The SC-4 does not support RCP-3 serial protocol at this time.

When configuring the physical setting of the SC-4 in the Router Manager Configurator, you must use the IP address of the System Controller with Port 5001.

The driver supports automatic labels and this means it will fetch them from the SC-4 controller when it starts. To get them displayed in iControl and iRouter applications, you must set the *Auto update labels* feature to ON in the configuration of the associated logical router in the Router Manager Configurator.





## Utah Scientific RCP-1 (SC-3 Controller)

For Utah routers we support the SC-3 controller and the RCP-1 (ASCII) protocol. Sometimes this protocol is referred as a UDI protocol. The software will not work with the SC-2 controller because the RCP-1 is not fully implemented for that controller but it will probably work with the UDI-1B converting panel. The ports for SC-3 can be configured to work as 422 or 232. In the case of 232, it is necessary to use a null-modem cable with a gender-bender. During configuration it is necessary to bind the UDI protocol to this port. Binding can be done either from the Utah's RMS software or via diagnostics serial port. The recommended port settings are:

- Baud rate is 38400
- 8 bits
- No parity
- 1 stop bit
- No flow control

When configuring the port it is necessary to turn off the Matrix Refresh Report mode. The Matrix Change Report and Matrix Take Report modes can be set to on, although it is optional because the software turns them on automatically. When using the RMS for configuration of the router, it is necessary to add the CSP table even when no CSP devices present. The diagnostics port is a RS-232 port with DTE pinouts and fixed parameters:

- 38400 baud
- 8 data bits
- No parity
- 1 stop bit

## Troubleshooting

Utah routers are using semi-ASCII protocol to communicate over serial port. Semi-ASCII means that in some cases it uses binary characters while for most purposes it uses normal ASCII. Note that all the commands are case sensitive. Here is the list of the commands that can be used during troubleshooting:

- Matrix Refresh Report. In this mode the controller will periodically (~5 sec) send the status of the router to the serial port. Typically should be disabled.
  - To enable this mode type **<Ctrl-]>@**
  - To disable this mode type **<Ctrl-]>A**
- Matrix Change Report. In this mode the controller will notify the serial port about changes in the router status. Typically should be enabled.
  - To enable this mode type **<Ctrl-]>B**
  - To disable this mode type **<Ctrl-]>C**

The characters you're typing will not be visible at the command prompt. The status updates have the format:

```
<SOH><Level 0-3><Level 4-7><Input><Output><CR>
```

where SOH is ASCII character with code 1, selected levels are represented with characters from @ (no levels) to 0 (all levels), input and output are represented as three digits. For example, for destination 5 levels 0 and 1 switched to source 7 will produce:

```
<SOH>B@007007<CR>
```

---

### Notes

- The **<CR>** character (**Enter**) is interpreted by the SC-3 as the end of set *crosspoint* command. As a result it will execute a take of the last crosspoint that was sent from that port. If no crosspoints were set before it will take bus 0 to source 0 on all available levels. Be careful!
  - One can experience delays when receiving response from the router after a crosspoint is taken. The delay can be 1-2 seconds. The crosspoint itself is taken immediately. This behavior was noticed when running the software on Linux while on Windows it works fine.
- 

## Utah Scientific AVS

This router is a predecessor of CS-3 series. The router is equipped with one 232 port (25 pin), one configurable 232/422 port (9 pin), one 422 port (9 pin) and one diagnostics RS 232 port. All the tests were done on the RS-232 port. To connect to a 232 port you will need a standard RS-232 cable with gender-bender on the router side. To connect to the diagnostics port you will need a null-modem RS-232 cable. The baud rates are set on the controller board using DIP switches. The other parameters can be set from the diagnostics port. As mentioned, this is very old and slow protocol.

## Troubleshooting

The easiest way to check the connection between the router and the server is to issue a **<Ctrl-[]>@** command that will switch the router refresh mode. In this case the router will periodically send its status to the service. To disable this mode type a **<Ctrl-[]>A** on a HyperTerminal.

## Philips

The software was tested with the Jupiter VM-3000 controller. Although the controller supports several different protocols, the RCS software implements only the ASCII protocol. The controller has 8 configurable serial ports. It is necessary to configure one of the ports to work with the ASCII protocol. That procedure is described in the Jupiter manual. The only trick is configuration of the input and output sets. Inputs and outputs should be numbered starting from 0 and there should be no gaps in numbering.

When specifying the Frame ID value in the RCS Configurator please note that in the case of Jupiter the levels are numbered from 1 to 8. Although the ports on the controller are RS-422 ports, it is possible to create a *cheater cable* to connect to a RS-232 port on the Application server. The wiring pinout can be found in the Jupiter manual in the section *Connecting to a PC*. Please note that the serial port uses software (XON/XOFF) flow control.

---

### Notes

- It is possible to use the *probe* port on the controller for diagnostics. But it is necessary to keep in mind that sending the hang-up command from the HyperTerminal will short the pins on the port and will cause reboot of the controller.
  - It is possible to telnet to the controller. This will provide exactly the same info as you can see on the probe port. It is necessary to send the bye command before disconnecting. There can be only one telnet session at a time.
  - For testing purposes it is possible to use the controller without any routers. In this case it is necessary to type the command `_confirmAll=1` at the command prompt at the terminal or telnet.
  - Use an RS-422 null modem cable between the Kaleido-X and the Philips router
  - On the Philips configuration side, there is a user define output set file which needs to be create. In this output set file, customer needs to provide the names for all outputs which are connected to the Kaleido-X. As for example: the file `display.out` is created with the list of `Prog1, Prog2, ..., Prog n`. Then the file of switcher output will be use to know which physical output bus are matching the `Prog1, Prog2..., Prog n`.
  - In iControl Router Configurator (Router Manager), in logical router mapping for output section, instead of using the physical output bus number, we should have the output bus numbers ranging from 1 to n (where n is the number of connections between Philips router outputs to Kaleido-X inputs)
-

## Troubleshooting

To start watching the changes in the status it is necessary to send the ZW999<CR> command. The status report has the form of ZS000IIILLLLLLLL<CR> where 000 specifies the destination, III specifies source and L specifies level. For example, destination 7 set to source 21 on levels 1 and 5 will produce status report ZS007002115<CR>.

## Digipath

The Digipath router is equipped both with RS-232 and RS-422 ports. In order to connect to the RS-232 port you will need a straight cable. When using the RS-422 port, you may use the Addenda Electronics Rosetta Stone converter (<http://www.addenda-elect.com/>) or similar to connect the router to the PC. The default settings for the ports are:

- 19200 baud
- 8 data bits
- No parity
- 1 stop bit

## Troubleshooting

Digipath routers use binary protocol to communicate over serial port. When you're switching crosspoints from physical control panel you will see sequences of binary data in your HyperTerminal window

## Thomson / Grass Valley GVG Series 7000 Native Protocol

For GVG Series 7000 routing switchers we're supporting Native protocol on serial and Ethernet ports. However, our *GVG 7000 Native Protocol* driver only works with a serial connection. If you want to use an Ethernet connection, please use our *Sony HKSPC (GVGNP Emulator)* driver, which only works with an Ethernet connection. We will eventually merge these two drivers together, but since we don't currently have the equipment to test our changes, we can't do it now.

Because of performance issues, the Ethernet connections are considered more preferable. For an RS-232 connection it is necessary to prepare a custom cable according to GVG instructions. Recommended serial port configuration is 38400/8/N/1 without flow control. If using RS-232 to communicate to Encore, the manual wiring is wrong and it shows examples of **Y** cables being used to connect parallel controllers. This method is NOT supported for RS-232 as the terminators in the new controller frames prevent all communication.

For Ethernet, the port to connect to is 12345. It is necessary either to install an additional network card or to configure additional IP address for existing card. The default IP address for the GVG router is 192.0.2.2 and for the app server it is 192.0.2.1. GVG recommends that you add the following two lines to your hosts file:

```
192.0.2.1 pc
192.0.2.2 sms7000
```



## Routing Switchers Tips and Tricks

Thomson / Grass Valley GVG Series 7000 Native Protocol

REV 1.0	ADAPTER		RS-232					
Encore SIO (RJ45) COM1 and SIO 1-4	RJ45	WIRE COLOR	SMS7000 ENC1	SMS7000 ENC2	Quartz	Utah SC2	Utdan PL320	COM1
RTS	1	BLUE	-	-	-	-	-	-
DTR	2	ORANGE	-	-	-	-	-	-
TX	3	BLACK	8	3	3	3	3	2
GND	4	RED	6	5	6	5	7	-
GND	5	GREEN	-	-	-	-	-	5
RX	6	YELLOW	7	2	7	2	2	3
DSR	7	BROWN	-	-	-	-	-	-
CTS	8	WHITE	-	-	-	-	-	-

Table 2 (Frame PN 610088400)

Pinouts for frame 610088400 (RS-232)

REV 1.0	ADAPTER		RS-422									
Encore SIO (RJ45) COM2 and SIO 5-8	RJ45	WIRE COLOR	VM 3000 A/B/C	NVISION	Utah SC2	Quartz	KAL-EBS	SMS 7000 NC	Harris (Loutd)	RCL gui	SMS 7500	HX
TX+	1	BLUE	7	3	3	3	7	3	7	7	3	6
TX-	2	ORANGE	2	8	8	8	2	8	2	2	8	14
GND	3	BLACK	-	-	-	-	-	-	-	-	-	-
GND	4	RED	1	1	4	4	4	4	-	4	4	-
GND	5	GREEN	-	-	6	6	6	6	-	6	6	-
GND	6	YELLOW	-	-	-	-	-	-	-	-	-	-
RX-	7	BROWN	8	2	2	2	8	2	8	8	2	13
RX+	8	WHITE	3	7	7	7	3	7	3	3	7	5

Table 3 (Frame PN 610100000)

Pinouts for frame PN610100000 (RS-422)

REV 1.0	ADAPTER		RS-232				
Encore SIO (RJ45) COM2 and SIO 1-4	RJ45	WIRE COLOR	SMS7000 ENC1	SMS7000 ENC2	Quartz	Utah SC2	Utdan PL320
TX	1	BLUE	8	3	3	3	3
CTS	2	ORANGE	-	-	-	-	-
GND	3	BLACK	-	-	-	-	-
GND	4	RED	6	5	6	5	7
GND	5	GREEN	-	-	-	-	-
GND	6	YELLOW	-	-	-	-	-
RX	7	BROWN	7	2	7	2	2
RTS	8	WHITE	-	-	-	-	-

Table 4 (Frame PN 610100000)

Pinouts for frame PN610100000 (RS-232)

## Troubleshooting

To troubleshoot the serial connection, send the **<Ctrl + D>** character to the serial port. The router should respond with something like 72 or 75 with some special characters at the beginning and at the end. The first character has ASCII code 0 × 15 (NAK) and the last one is 0 × 04 (EOT). If you see something like that, then you can assume that the serial port is configured properly. To troubleshoot the Ethernet connection, try pinging the router first and if you succeed then try connecting to the router via telnet. To end the telnet session, type **logout**.

## Lightwave Matrix-Hub 1000

The Matrix-Hub can be connected to the app server by a standard RS-232 cable. The settings of the serial port are displayed on the router's screen. The Matrix-Hub router requires that the user should log on from the serial port. In order to automate this, set the name of the physical router to the password. The default password is **mh1**. If you want to do all switches in RS-422 mode, then the name of the serial level should contain the string 422, for example, you can name it **Serial-422**. If that string (422) is not found, then all the switches are done in RS-232 mode.

It is impossible to do both 422 and 232 switches. The system always assumes that the Video level has frame ID 1, the K/M level has frame ID 2 and the serial level has frame ID 3. Note that the K/M switch takes about 0.5 seconds, so there is a noticeable delay. The K/M and serial connections are unicast (that is, you can connect one source to only one destination although a bug in Matrix-Hub firmware sometimes allows you to do that). It means that if the source was connected to a destination, and then user connects it to another destination, the first destination is disconnected automatically. A video source can be connected to several destinations simultaneously.

## Troubleshooting

When you're connected, hit enter. The system should response either with a password prompt or with a command prompt (*MatrixHub#*).

## SAM (Snell/Pro-Bel)

### SW-P-08 (General Remote Control Protocol)

This driver uses the general remote protocol (SW-P-08) to communicate with any SAM (Snell/Pro-Bel) controller supporting that protocol (System2, System3, Aurora, Freeway, Nebula, etc.). You may use RS232 or RS422 to communicate with the controller. Data rates are typically 9600 bauds on an RS232 link and 38400 bauds on the RS422 link. The selection may be application-specific and it is usually configurable on the controller itself using the manufacturer's software. Data is transmitted asynchronously as 8-bit data bytes, no parity framed by one start bit and one stop bit to make a 10-bit data frame. Parity may be used if the controller supports it. Be aware that this protocol uses both matrix and level ID. You can set the matrix ID of a particular level in the level configuration panel when configuring physical router in Router Manager. Level and matrix ID are considered zero-based in Router Manager. You must specify the matrix ID for each level you define. Here is an example: You have one Aurora controller and two physical routers, each one containing three levels. Depending on how you configured the aurora controller, you can set it up so the first router is identified as Matrix 1 and the second one as Matrix 2. In Router Manager, you will add only one physical router that represents the Aurora controller. Then you will add three levels for Matrix 1 and three others for Matrix 2.

### SW-P-02 (General Switcher Communication Protocol)

This driver uses the general switcher communication protocol (SW-P-02) to communicate with any SAM (Snell/Pro-Bel) switcher supporting that protocol (e.g. Halo, Sirius, etc.).

---

**Note:** This driver can also be used with a router controller such as a VikinX Modular router's SysCon card or an external ETH-CON device provided you have purchased the appropriate license (P-88) from Nevia (Network Electronics) for your controller.

---

The default communication parameters are:

- RS485/RS422
- 8 bit DATA
- 1 STOP bit
- EVEN Parity
- 38.4K Baud

The parameters may be application-specific and they are usually configurable on the SAM (Snell/Pro-Bel) switcher itself, by using the associated software. Data is transmitted asynchronously.



This protocol is also supported over IP. The default port is 2000, but it may be configured to something else. If the switcher does not have an Ethernet port, you can use the Pro-Bel Babel Fish box:



### Troubleshooting

If you want to troubleshoot the SW-P-02 over IP connection, use the following Pro-Bel tools:

- HU-Babelfish Internal Protocol Conversion V03.pdf
- IPConfigurationTool V4.00.zip
- swp02\_test.zip

## NVISION

### NVISION Ethernet Protocol - Enterprise Router

NVISION Enterprise routers use TCP/IP to communicate with external devices. The port must be 9193. You also need to specify the NVISION controller's host name or IP address when configuring it in Router Manager.

To configure the NVISION controller, you must match the iControl Router frame ID with the unique ID of the router defined in the NVISION configuration. Also, the iControl router logical levels should match the levels defined in the NV9000 configuration.

#### Router Protocols that NV9000 Supports

The NV9000 router controller supports any of the following router protocols:

- Utah RCP-1
- Jupiter EBus
- GVG Horizon TCI
- SAM (Snell/Pro-Bel) SW-P-02
- SAM (Snell/Pro-Bel) SW-P-08
- Pesa
- ISIS Serial
- Datatek D-2815 Serial
- Sony CART+ Serial

- Jupiter ESSwitch
- Encore Router
- Sierra Video
- Stagetec Nexus

### Troubleshooting

There is a known issue with TCP/IP in iControl Router Standalone version 1.70. If you see a lot of exceptions in the console of the router service, please contact Grass Valley Technical Support. You may have to upgrade your iControl Router Standalone installation. The problem has been seen when running iControl Router Standalone version 1.70 on a K2.

If you cannot connect to an NV9000 controller, try the following command:

```
telnet IP_ADDRESS_OF_THE_CONTROLLER 9193
```

If you get a connect failed message, it means that the NV9000 is not properly configured for remote control.

### How To...

#### How to start SE Utilities

1. Connect to NV9000 either directly or via Remote Desktop.  
User name: EnvyAdmin  
Password: software.
2. On your desktop, double-click on the NV9000-SE Utilities icon.

#### How to create a physical router in SE Utilities to control a KX router

1. Open SE-Utilities (see [page 46](#)).
2. On the **Configuration** menu, point to **Router** and click **Add Router**.
3. Set the router name.
4. Set **Router Host** to NVCONFIG (default value).
5. Set protocol to NV Ethernet.
6. Set **Primary Control Point** to the KX IP address (for example, 10.6.6.50).
7. Leave **Secondary Control Point** blank.
8. Click **Add** to add Physical Level.
9. Set digit under # to match Physical level of KX router in XEdit (normally this would be 0).
10. Set **Input Start**, **Input End**, **Output Start**, **Output End** to match dimension of KX router. **Input Start** must be set to 1, **Output start** must be set to 1.
11. Click **Save**.
12. Go to **System Management** and select NV9000 node in left pane.
13. Click **Write Configuration to NV9000** to send config to NV9000.
14. Click **Restart Controller 1**.

15. Wait until the NV9000 has finished rebooting.  
*SYSTEM RESPONSE:* You should see all accessible routers visible in Left pane.

16. Select KX router in left pane.  
*SYSTEM RESPONSE:* You should see cross point status in central pane. You can also test switching KX router crosspoints by using Take area.

#### How to switch a crosspoint from SE Utilities

1. Go to **System Management** and under **Routers**, click on the router you want to control
2. If you can communicate with that router, in Connections panel, you will see the current crosspoint for each output
3. To change a crosspoint, select appropriate input and output inside Take section and click **Take**.

#### How to determine the physical level ID and matrix size you need to set up in Router Manager to control a router configured in SE Utilities

1. Start SE Utilities (see [page 46](#)).
2. Go to **Views | PhysLevels** and check value under **ID column** for matching router.
3. Check Input End and Output End fields to determine matrix size.

---

**Note:** Make sure **Input Start** and **Output Start** are set to 1

---

#### How to determine the virtual level ID and matrix size you need to set up in Router Manager to control a router configured in SE Utilities

1. Start SE Utilities (see [page 46](#)).
2. Go to **Level Sets -> Virtual Levels** and **Check ID** column.

#### How to find the NV9000 controller version

1. Log on to NV9000 using Remote Desktop.  
Default username: EnvAdmin  
Default password: software
2. Using Windows Explorer, navigate to c:/nvision/envy/bin.
3. Right-click the Explorer dialog column header and make the **Product Version** column visible.

#### How to set up virtual router from SE Utilities (or to change protocol used by NV9000 to control external router)

---

**Note:** This is useful, when not having actual router connected.

---

1. Start SE Utilities, and go to **Views | Router control** (see [page 46](#)).
2. Set router protocol to **Virtual router** (or to different protocol).
3. Export config on NV9000.

### How to export NV9000 backup database

1. Start SE Utilities (see [page 46](#)).
2. On the **File** menu, click **Export to Zip Archive**.
3. Browse, select and click **Save**.

### How to create a backup of NV9000 database

1. Start SE Utilities (see [page 46](#)).
2. Go to **System Management** and select **Read configuration from**.  
*SYSTEM RESPONSE:* You will be asked to open a configuration to receive data.
3. Select **New** and enter a name for the backup, and then click **OK**.  
*SYSTEM RESPONSE:* The name of your backup should appear in the SE Utilities menu bar.

### How to import an NV9000 backup database

1. Start SE Utilities (see [page 46](#)).
2. On the **File** menu, click **Import From Zip Archive**.
3. Browse, select, and then click **Open**.
4. Select a name for the imported config and click **OK**.
5. Go to **System Management** and click **Write configuration to** to load configuration on controller.
6. Click **Restart controller 1** (or **Stop controller 1** followed by **Start controller 1**).

### How to export a configuration from SE Utilities to NV9000

1. Start SE Utilities (see [page 46](#)).
2. On the **System Management** menu, click **Local Control System**.
3. Click **Write configuration to LOCAL CONTROL SYSTEM**.

### How to change source labels from SE Utilities

The purpose is to modify the source labels from the SE Utilities application so Router Manager is dynamically updated with this information.

1. Start SE Utilities (see [page 46](#)).
2. On the **Configuration** menu, click **Devices**.
3. Click on the device name you want to change and then click **Edit Selected Devices**.
4. Edit the name as desired, and then click **Save**.
5. Go to **System Management** and click on root node (in tree).
6. Click **Dynamic Update Apply changes to**.

---

**Note:** The NV9000 does not accept timeout values smaller than 500 ms.

---

### How to increase a timeout for NVEthernetProtocol

When the NV9000 is using nvethernet (np0016 over TCP/IP) to control a router, it is polling the router every 300 ms and it expects a response from the router within 500 ms. If the NV9000 doesn't receive the response within 500 ms, SE Utilities will show the router as being offline.

### To set the timeout value to a larger custom value

1. In SE Utilities, select **Views | Tables | Control Points** (see [page 46](#)).
2. By default, you should see a Parameter entry similar to: E, 10.0.9.39, T500, where 500 represents the timeout in milliseconds and 10.0.9.39 is the IP address of the router to control.
3. Edit the value and click **Save**.
4. Go to **System management**, select the root node, and then click **Write configuration to**.
5. Click **Restart controller** to apply your changes.

---

**Note:** The NV9000 does not accept timeout values smaller than 500 ms.

---

### How to downgrade a database on a controller

Downgrading NV9000 sometimes involves downgrading the database schema.

### How to determine controller version

To determine the NV9000 controller version, click on the **System management** tab, then mouse over your controller icon to reveal a tooltip. Version software will be the last item of the list.

### Where to find SE Utilities log file

The system log file is under *system management*.

### How to set up NVISION router

In order to configure a NVISION router, big router with a controller card, you have to run uniconfig software.

### How to set up tie lines

You can configure a tie line with SE Utilities under configuration tab and tie lines. Add upstream and downstream routers and bind them together by connecting output port to input port with your mouse.

If you want to free a tie line, click on system management tab, and under tie line status, you could right click on a tie line and free it.

### How to turn on Tieline Manager

Turning on the tie-line manager is simply a matter of installing the tie-line license and restarting all the software.

### How to display debug window when launching SE Utilities

If you hold down the **CTRL** key when you launch SE-Utilities it will also launch a console window. That console window will show debugging output from the application, and it will most likely tell us exactly what is failing.

### How to install SE Utilities on PC

Double-click the SEUtilitiesVx.x.xInstaller.exe file.

### How to upgrade NV9000 / NV915 software

Copy the NVSETUP directory on NV9000/NV915 and then double-click NV9000Setup.exe.

## NVISION Ethernet Protocol - Enterprise Router (Logical)

NVISION Enterprise routers use TCP/IP to communicate with external devices. The port must be 9193. You also need to specify the NVISION controller's host name or IP address when configuring it in Router Manager. After you have created the router and levels with the appropriate dimension and saved configuration, physical levels will be updated automatically for you.

Also, in order to fetch labels, take crosspoints or connect free source, NVISION Enterprise routers will use virtual device id for levels, destinations or sources.

### SE Utilities Configuration Hints

To determine the physical Level or frame ID value to set in Router Manager Configurator, from NV9000 SE Utilities, go to **View | Virtual Levels** and select the appropriate ID. In other words, level or frame id = column id in table Virtual levels in SE-utilities

The size is variable, and it can change each time you read mnemonics from the system. You would need to query the database to obtain the number of sources or destinations in advance of reading them all using 0x3022.

In order to set the right level size, save your config, open putty to your app server, enable debug for com.miranda.icontrol.routers.nv9000virtual.NV9000Virtual to debug in log4j and restart the iControl Router service. Then open log file router.log and use the grep command for string source size and destination size.

---

**Note:** To determine the physical Level matching this virtual level, from NV9000 SE Utilities, go to Views -> Level Set Details.

---

### Troubleshooting

If you cannot connect to an NV9000 controller, try the following command:

```
telnet IP_ADDRESS_OF_THE_CONTROLLER 9193
```

If you get a connect failed message, it means that the NV9000 is not properly configured for remote control.

### Configuring NV9000 Routers with Tie Lines

#### Steps to perform in SE-Utilities

1. Open SE Utilities (see [page 46](#)).

2. On the **File** menu, click **New**, and then type your configuration name (for example ROUTERS\_TIELINES)
3. Add new routers by clicking **Routers** on the left panel, and then clicking **Add router** on the right panel.
4. Type your router name for example ROUTER1 and select the proper protocol (for example *NV compact router ethernet* for compact router).
5. Click **Add** to add a physical level.
6. Do the following sub-steps for all routers:
  - a) Set values for *input start*, *input end*, *output start*, *output end* (for example 1, 32, 1, 32)
  - b) On the **Level sets** menu, click **add levelset**, and then type a level name (for example ROUTER1).
  - c) Select a virtual level (for example VIDEO) and select the physical level.

---

**Note:** It is important to have the same virtual level for all routers, since those routers will be bind together with tie lines

---

7. Do the following sub-steps for all routers:
  - a) On the **Devices** menu, click **Add device**.
  - b) Set a mnemonic name and choose the proper level set (for example DEV 1 and level set ROUTER1).
  - c) Set the proper input/output port (for example 1, 1).

---

**Note:** To go more quickly, you may also choose to add devices in **Tasks | Add multiple devices**.

---

- d) Select the proper prefix (DEV), set the proper number of devices (32) and select the proper level set (ROUTER1).
  - e) On the **Finish** menu, click **Finish**.
8. If you do not have free output and input ports, navigate to **Configuration | Device**, and then delete a device that will be used as a tie line (for example DEV 31, 32 and OUT 1, 2).
9. On the **Configuration** menu, click **Tielines**.
10. Add tie line, set tie-line name (for example tieline1).
11. Select upstream router (for example ROUTER1\_PL1).
12. Select downstream router (for example ROUTER2\_PL1).
13. Drag your mouse from an upstream port to a downstream port.
14. On the upstream panel (left side) and downstream panel (right side) make sure you check the check box where you see VIDEO level.
15. Click **Save**.

#### **Steps to perform in Router Manager Configurator**

1. Open Router Manager Configurator.

2. Add a physical router.
3. Select NV9000 virtual with the IP address of your controller.
4. Click **Save**.

### How to edit aliases (Name Sets)

1. Open SE Utilities (see [page 46](#)).
2. Go to **System Management**.
3. Click NV9000 (root node).
4. Right-click and the select **Edit name sets**.

## NVISION Ethernet Protocol - Compact Router

NVISION Compact routers uses UDP to communicate. The port must be 5194. You also need to specify the NVISION router's host name or IP address when configuring it in Router Manager.

### How To...

#### How to modify the IP address on a compact router

1. Start the CrConfigurator . jar application.
2. Go to the **CR Series Network Setup | CR Series Ethernet Settings** panel.

---

**Note:** Automatically discovered CR panels will appear in CR Series Ethernet Settings section.

---

3. Edit the IP address and click **Apply Updates**.

## Pesa

The Pesa router is equipped both with RS-232 and RS-422 ports. In order to connect to the RS-232 port you will need a straight cable. When using the RS-422 port, you may use an Addenda Electronics Rosetta Stone converter (<http://www.addenda-elect.com/>) or similar to connect the router to the PC. Note that the use of RS-422 has not been tested, so the use of RS-232 is recommended.

Grass Valley's Router Control Software supports two protocols for Pesa devices:

- CPU Link Protocol No. 1 or P1 (referred to as simply *Pesa* in Router Manager)
- Unsolicited Status Protocol or USP (referred to as *Pesa USP* in Router Manager)

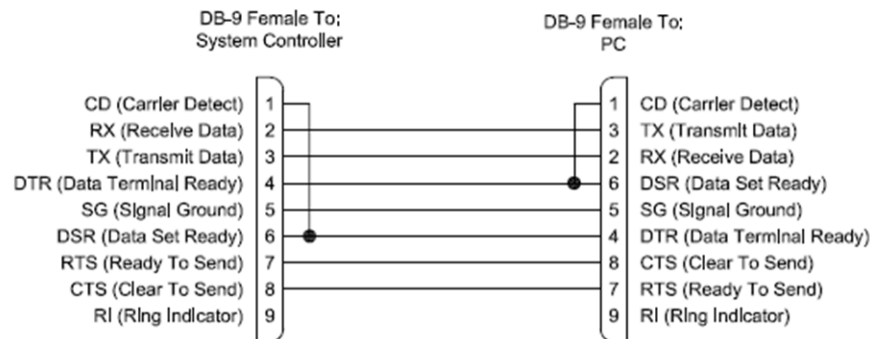
## CPU Link Protocol No.1 or P1 (Pesa)

The default settings for the ports are:

- 9,600 baud
- 8 data bits
- No parity



- 2 stop bit



#### RS-232 serial cable

Depending which Pesa router controller you have, it may be possible to change the bit rate to 38,400 baud. The Pesa driver has been tested at that speed but it seems to generate a lot of errors during transmission, so it is not recommended to use 38,400 baud. Please be sure to use 9,600 baud rate when configuring the Pesa controller. This driver uses the PESA checksum, as opposed to HEXA or NONE.

#### Notes

- This driver does not support unsolicited crosspoint changes. This means that a crosspoint changed via a control panel will not be reported to the other panels until the next polling. The polling is currently set to 5 sec.
- Crosspoint changes made using matrix or single bus are applied rapidly but the matrix button reporting the status will not be selected until the next polling. Thus a crosspoint status will take between 0 and 5 sec to display on the matrix.

When configuring a Pesa router in iControl Router, make sure you configure ALL levels starting with level #1. If your router is using level 1, 2 and 3 and you only want to control level 3, you must also configure physical levels 1 and 2 in iControl Router.

## Unsolicited Status Protocol (Pesa USP)

The primary medium for the USP is an asynchronous full-duplex connection that is usually run over RS-232 or RS-422 (this is dependent upon the control system). Data is transmitted over the bus asynchronously. The data is sent at user selectable baud rate (default to 38.4 K Baud) with 1 start bit, 8 data bits, no parity, and 1 stop bit. The default method of handshaking is RTS-CTS control though some controllers may allow for methods such as XON-XOFF.

If you want to use a high communication speed (for example, 38,400 baud), you should use this driver. However, be really careful because this protocol is label-based and you must correctly define all the physical source and destination labels in Router Manager in order to make this driver work properly. This driver does not use checksum.

With firmware version 3.3 and earlier, SD commands must be sent with a comma before the terminator.

---

### Notes

- The Pesa USP driver supports Matrix Controller firmware version 3.3 and earlier.
- Every physical router destination label defined in XEdit must match a destination label specified in the Pesa router's configuration.
- This driver does not support checksums. To turn off the checksum, open PERC2000 (version 2.1), click System Parameters, and then set the checksum options to NONE for every port.
- If your Pesa router has an older controller card that was upgraded to the PERC2000 software, the USP filtering could be enabled even if the configuration file indicates that it is not. If you notice that UMD statuses do not reflect crosspoint changes immediately, try enabling all filtering on the router, and then disabling all filtering. In some cases enabling filtering of all unsolicited status from the router will be necessary.
- Grass Valley's Router Control Software cannot communicate with the router when RTS-CTS flow control is enabled.
- In the 3500+ series controller for the Pesa router, RTS-CTS is enabled at the hardware level and cannot be disabled. In the case of PERC2000 controllers, flow control is optional and configured in the PERC2000 Software.
- Level or Frame ID designation in Router Manager or XEdit must be set to 1 when controlling a single Pesa router. Increment by 1 if there are multiple routers to be configured.
- You must use RS-232 communication to communicate to the router.
- In some instances, after a reboot of the router or the KX/iControl, the mnemonics will not update on the KX/iControl display automatically. Making a crosspoint change to the router will cause an update to occur.

---

### Troubleshooting

In the case where the driver is not working, you can always troubleshoot with HyperTerminal.

Using TeraTerm or HyperTerm, you can send commands to the serial port and see the responses coming back. Connect to the system controller's serial port using terminal program of choice. Press **Ctrl + j** to send an LF character and the controller should respond with an E indicating that the command was in error since there was no actual command.

Using the `checksumcalc.exe` program, enter a command in the command box. Press **Calc Checksum**, and press **Copy to Clipboard**. Switch to terminal program and paste the command, and press **<Enter>**. This will only work if you have the terminal program set to send a CR LF pair when enter is pressed. If this is not the case, then you can press **Ctrl + m** and then **Ctrl + j** to send the CR LF pair.

## Sony

The Sony protocol is not directly supported. However, a specific Sony card can be used to emulate the GVG Series 7000 Native Protocol. The card is named HKSPC and it only supports Ethernet connection. Please use the *Sony HKSPC (GVGNP Emulator)* driver with the HKSPC card and not our *GVG 7000 Native Protocol* driver.

## Quintech

### Quick Info

#### Ethernet vs. Serial Communications

The initial task in setting up the communications parameters involves specifying whether Ethernet or serial communications will be used. If you choose Ethernet, you will be prompted to set the Ethernet address and port. The default port is 9100. It should not need changed unless port 9100 is not allowed on your network. If a new port will be specified, make sure that it matches the port setting of the matrix controller. The default port value of the matrix controller is also 9100.

#### Serial Communication Settings

Use the *Control In* port on the controller (UCM). The serial port parameters are the same regardless of whether RS-232, RS-422, or RS-485 is being used. The parameters are fixed at 9600 baud, 8 data bits, no parity, and 1 stop bit (8N1).

Pin	Control In - RS 232 mode	Control In - RS 422/485 mode
1	GND	GND
2	TXD (transmit data)	not used
3	RXD (receive data)	Non-Inverting Transmit
4	DTR (data terminal ready)	Non-Inverting Receive
5	GND (signal ground)	GND
6	DSR (data set ready)	Inverting Transmit
7	CTS (clear to send)	not used
8	RTS (request to send)	not used
9	not used	Inverting Receive

*Pinout for Quintech serial port*

## Detailed Info

### System Access

A Quintech matrix switching system is controlled by a standard Universal Control Module (UCM). This is typically a separate 1 RU (1.75") module, but it may be built into a matrix module. The UCM accepts control commands from external sources that tell it how to switch the matrix or configure various system options. A standard UCM has five control ports that will accept commands:

#### **Local: Front panel keypad and LCD.**

**Remote:** The *Remote In* connector. This is typically where other UCMs are connected when they are configured to operate as remote control panels. If remotes are not going to be used in the system, this port can typically be used as an auxiliary serial port. It is configured as an RS-485 port and accepts 9600-baud 8N1 (8 data bits, no parity, 1 stop bit) data. Command data is sent as an STX/ETX bounded packet with checksum as defined in the protocol document. Note that the Remote In connector is directly connected to the Remote Out connector since this is an RS-485 bus connector.

**Control In:** The *PC Control In* connector. This is typically where a control computer or PC is connected. The port can be configured as an RS-232, RS-422, or RS-485 port and accepts 9600-baud 8N1 data. Command data is sent as an STX/ETX bounded packet with checksum as defined in the protocol document.

**QEC Port:** Ethernet. The exact Ethernet port is user-defined with the default Ethernet port set at 9100. It accepts the same command packet that is used on the serial port. This makes it easy for a single driver to be used for both serial and Ethernet connections.

**Telnet:** Telnet console window. This provides an ASCII interface with a cursor for keyboard entry of commands.

The system is highly flexible. The access control feature can be configured to be on/off for each of the five possible control ports on an individual UCM. This also holds true for a system with a main UCM and multiple remote UCMs. The control port access control must be set separately for the main unit and each of the remotes.

### UCM Control In Connection

The *Control In* port of the UCM is where serial port data from a PC is accepted. The Control In port can either be left unused or it can be used for serial communications control of the matrix. Serial control can be established using any UCM, including remotes.

All operations of the matrix can be controlled from the UCM Control In port which is typically connected to a PC. The connector is configurable and can communicate in one of three serial interface standards: RS-232, RS-422, and RS-485. Software configuration is covered later in the *Serial Interface Menu* section of this manual.

### UCM Control In Connector

The UCM has a standard DB-9 female serial connector labeled **Control In** on the back panel. The pin definitions depend upon how the serial port is being used. The connector's pinouts are shown in see [Figure](#) , on page 55.

### **UCM Control In Cable**

The UCM Control In port is shared for both RS-232 and RS-422/485 interfaces. A NULL MODEM or crossover cable is not required on this port and, in fact, the system will not work using a null modem adapter or null modem cable. Use only a straight through one-to-one cable.

### **UCM Control In Serial Communication Settings**

The serial port parameters are the same regardless of whether RS-232, RS-422, or RS-485 is being used. The parameters are fixed at 9600 baud, 8 data bits, no parity, and 1 stop bit (8N1).

### **UCM Control In RS-232 Description**

RS-232 was designed for communication of local devices. It supports one transmitter and one receiver. This standard uses single ended signals over unbalanced, unterminated wires. Single ended means the signal is sent over one wire with respect to a single ground source. Unterminated means the signal lines do not have impedance matching at the line ends. This interface is useful for point-to-point communication at slow speeds and over short lengths of cable. Most PCs come equipped with one or more RS-232 serial ports.

### **RS-232 Advantages / Disadvantages**

RS-232 is easy to implement and has been standardized and accepted for years. Due to the nature of RS-232, the signals are susceptible to noise and grounding problems. These problems set a limit to cable lengths. Quintech recommends that when using RS-232, the cable length be limited to 20 meters or approximately 60 feet. RS-232 employs point-to-point communications, so only two devices will typically communicate with each other over the RS-232 standard.

### **UCM Control In RS-422 Description**

In RS-422 communications, a pair of twisted wires is used to carry a signal. The data is encoded and decoded as a differential voltage between the two lines. As a differential voltage, the interface is, in principle, unaffected by differences in ground voltage between sender and receiver.

### **RS-422 Advantages / Disadvantages**

RS-422 differential signals over twisted pair wires are less affected by noise. They therefore can communicate at faster rates and over longer distances. RS-422 connectors are not standardized like RS-232. Although better than the RS-232, RS-422 is still limited to one master and up to ten receivers on the bus. Recommended maximum length is 4000 feet. The Quintech RS-422 standard is limited to 10 receivers.

### **UCM Control In RS-485 Description**

The UCM can be configured to communicate in RS-485 standard.



# Configuration Interface

# 4

## Overview

The **Router Manager Configurator** interface has two panes. The left pane always displays a hierarchical list of folders which can be expanded to expose more detailed information.

The Router Manager folder is always at the top level in the list, and typically includes the **Physical routers** and the **Logical routers** subfolders. The subfolder structure is variable and is established during the system setup. There are two tabs at the top of the left pane:

**Configuration** and **Dynamic Control**.

- Use the **Configuration** tab to set up and configure your system, after which the router service and clients must be restarted for changes to become effective.
- Use the **Dynamic Control** tab to perform any of a subset of live configuration changes, after which no restart is required.

In either tab, click a folder or a list item to select it; double-click a folder to open it. Both tabs also have a tool bar with buttons to open and close the *router manager* folder, at the top of the list (not the currently selected folder). The **Close** button is available when the router manager folder is open; conversely, the **Open** button is available when the router manager folder is closed. The **Configuration** tab also has a **Save** button which becomes available whenever you make some change to the system configuration.

The right pane displays data-entry zones and information areas associated with the current left-pane selection. When a logical router is selected in the left pane, the right pane has additional tabs.

## System Recommendations

Grass Valley recommends the following hardware specifications for optimal performance:

Recommended hardware specifications for optimal performance

Memory	Processor	Operating System
2 GB RAM	Intel Core i3 or better	Windows 7 or Windows XP Professional

Grass Valley requires that the following software is installed on your client PC:

Minimum software requirement

Java 2 Runtime Environment (JRE) version 1.5 or later.

## Detailed Directions

The procedures outlined in the following sample workflow are tasks performed exclusively on the **Configuration** tab:

Sample workflow: Configuring routers

1.	Open <b>Router Manager Configurator</b> (see <a href="#">page 60</a> ).
2.	Define all of your physical routers. Do one of the following, as required: <ul style="list-style-type: none"><li>• <a href="#">Adding Physical Routers</a> on page 64</li><li>• <a href="#">Importing an NVISION Physical Router Configuration</a> on page 67</li></ul>
3.	<b>[OPTIONAL]</b> Assign aliases to physical input and destination port (see <a href="#">Adding Aliases for your Physical Input Ports</a> , on page 75).
4.	<b>[OPTIONAL]</b> Remove any physical routers that you would like to remove (see <a href="#">page 81</a> ).
5.	<b>[OPTIONAL]</b> Modify any pre-existing physical router configurations, if required (see <a href="#">page 78</a> ).
6.	Define levels for your physical router definitions (see <a href="#">Adding Physical Router Levels</a> , on page 72).
7.	<b>[OPTIONAL]</b> Modify or remove any pre-existing physical router level definitions, if required (see <a href="#">Modifying Physical Router Configurations</a> , on page 78).
8.	Define all of your logical routers (see <a href="#">Configuring Logical Routers</a> , on page 82).
9.	<b>[OPTIONAL]</b> Remove any logical routers that you would like to remove (see <a href="#">Configuring Logical Routers</a> , on page 82).
10.	Define levels for your logical routers (see <a href="#">Configuring Logical Routers</a> , on page 82).
11.	<b>[OPTIONAL]</b> Modify any pre-existing logical routers and their levels, if required (see <a href="#">Configuring Logical Routers</a> , on page 82).
12.	<b>[OPTIONAL]</b> Remove any logical router levels, if required (see <a href="#">Configuring Logical Routers</a> , on page 82).

## Configuring Routers

### Starting Router Manager Configurator

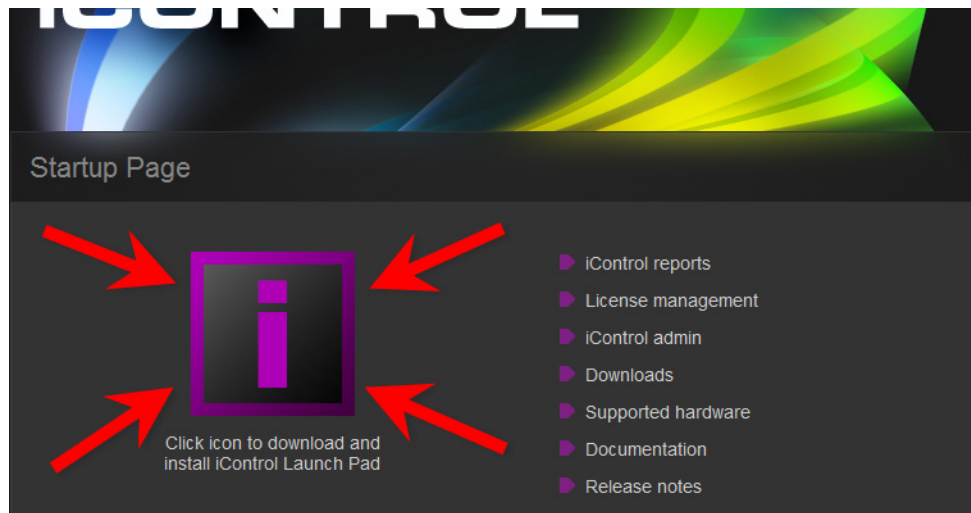
**REQUIREMENT**

Before beginning this procedure, make sure you have started iControl.

#### To start Router Manager Configurator

1. On the *iControl—Startup* page, click the massive **i** icon.



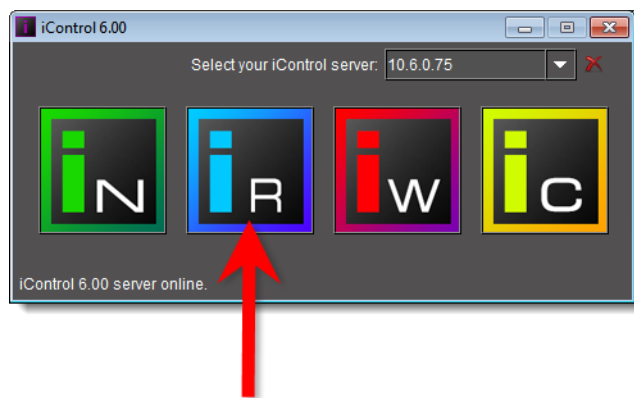


**SYSTEM RESPONSE:** The *iControl Launch Pad* executable file is downloaded to your local file system.

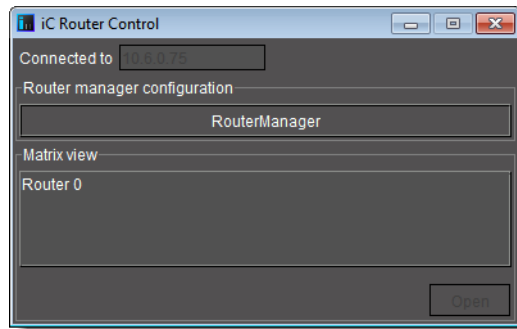
2. Double-click the executable file.
3. On **iControl Launch Pad**, either type in the IP address of your Application Server or select from the list of available IP addresses.



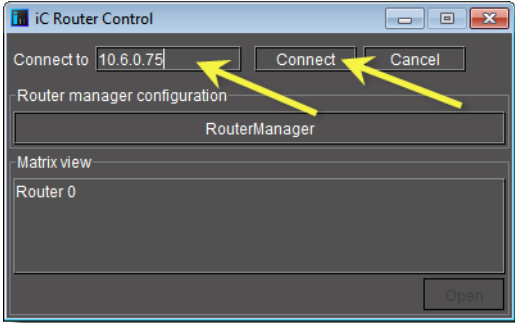
4. Click the **iC Router Control** icon.



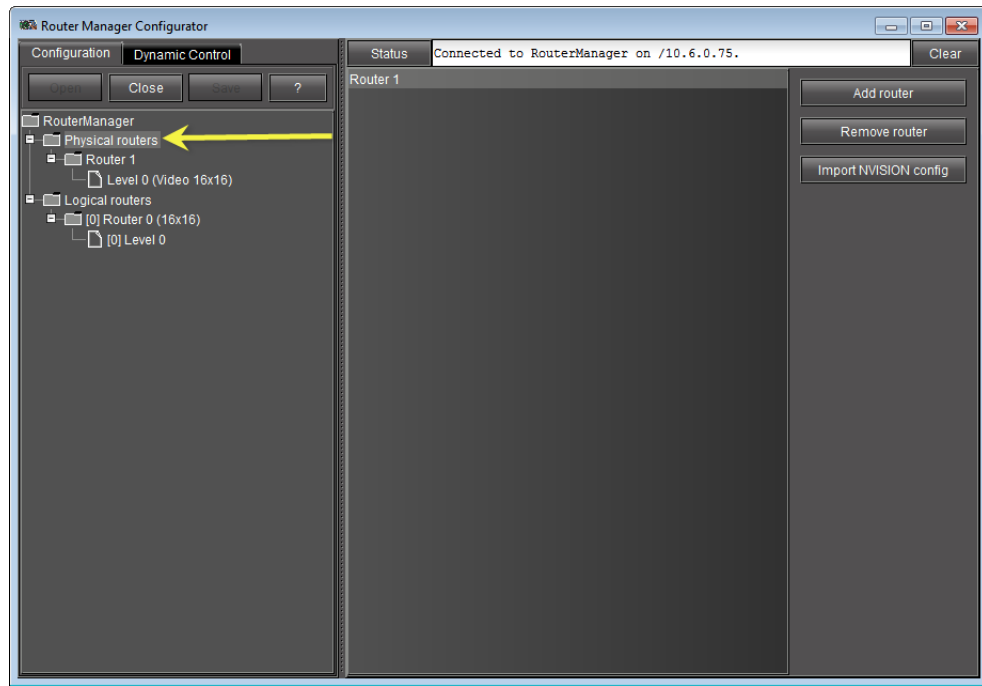
**SYSTEM RESPONSE:** The **iC Router Control Connection** window appears.



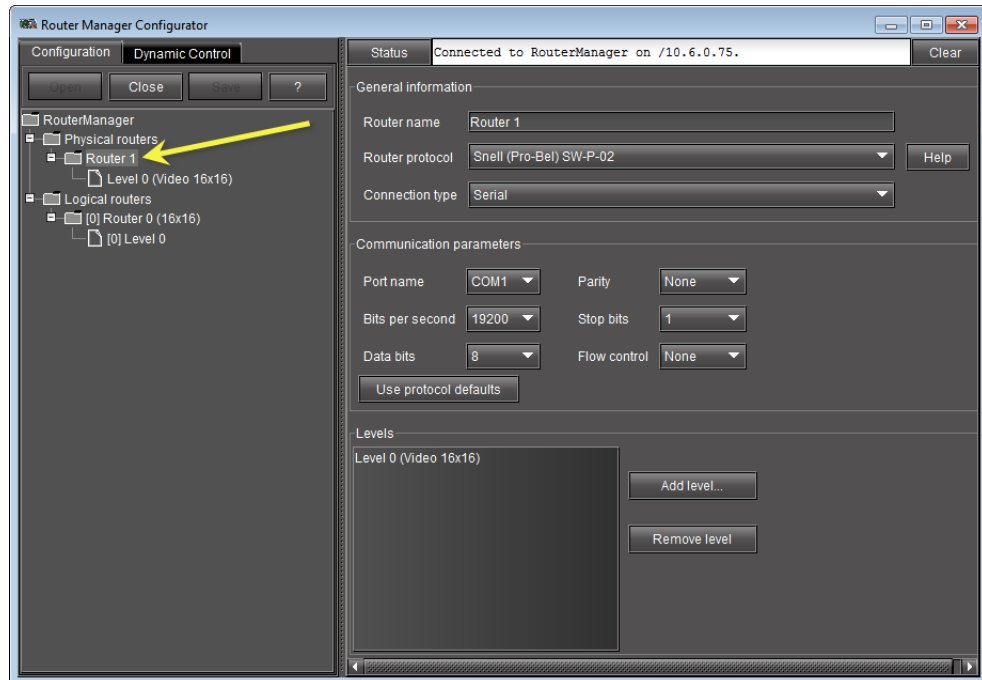
5. Perform the following tasks in the **iC Router Control Connection** window, as required:

To do this...	...do this...
Connect to a different Router Manager's IP address ( <i>other than the one currently displayed</i> )	<ol style="list-style-type: none"> <li>1. Click within the <b>Connected to</b> box.</li> <li>2. Delete the existing IP address.</li> <li>3. Type the new Router Manager's IP address.</li> <li>4. Click <b>Connect</b>.</li> </ol> 
Open <b>Router Manager Configurator</b>	<ul style="list-style-type: none"> <li>• Click <b>Router Manager</b>.</li> </ul>
Start router control software.	<ol style="list-style-type: none"> <li>1. Select the desired item under <b>Matrix view</b>.</li> <li>2. Click <b>Open</b>.</li> </ol>

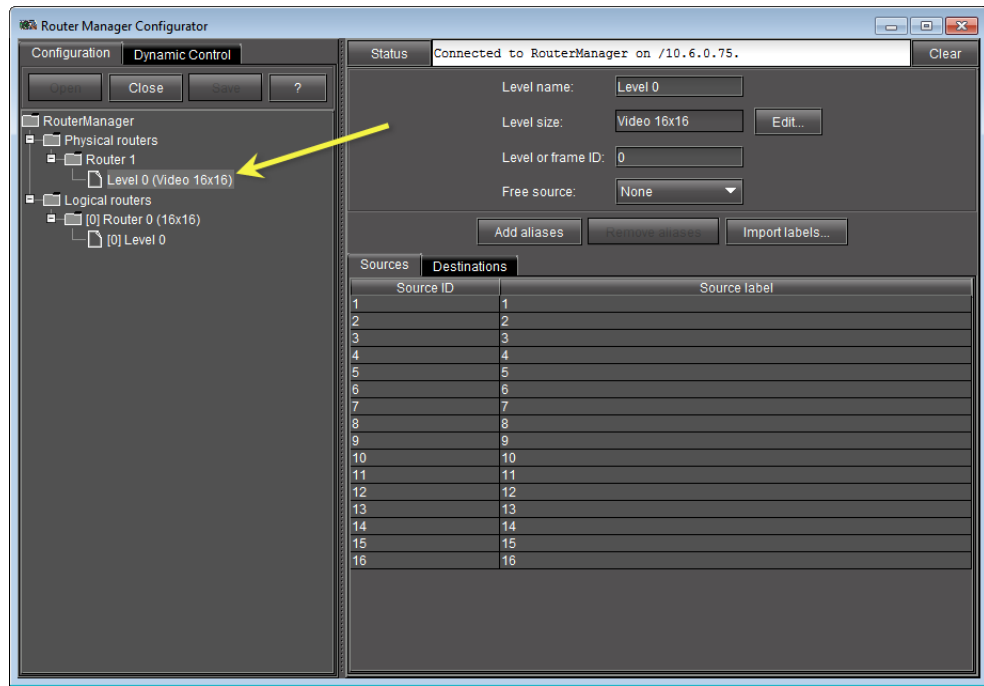
6. In Router Manager **Configurator**, select a router component on the left to view related information and options on the right.  
For example, click **Physical Routers** to view a list of routers currently defined in iControl.



Click the folder corresponding to a specific router to view its configuration details.



Click on a level to view its configuration details.



## Adding Physical Routers

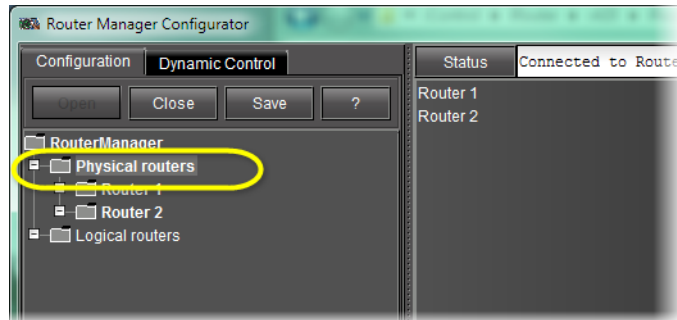
**Note:** Although it is possible to perform the following procedure as a stand-alone task (assuming all stated requirements are met), Grass Valley recommends you familiarize yourself with the sample workflow on [page 60](#) in which this procedure is only one step within a sequence.

### REQUIREMENT

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

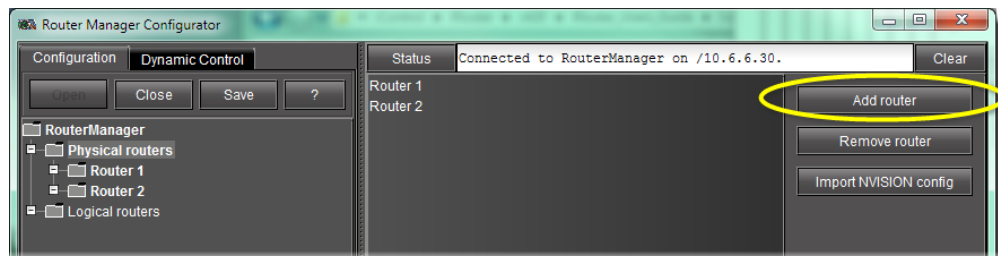
### To add a physical router

1. In **Router Manager Configurator**, on the **Configuration** tab, select the router manager folder (named *RouterManager* in the graphic, below), and then click **Open**.
2. Select the **Physical Routers** folder.

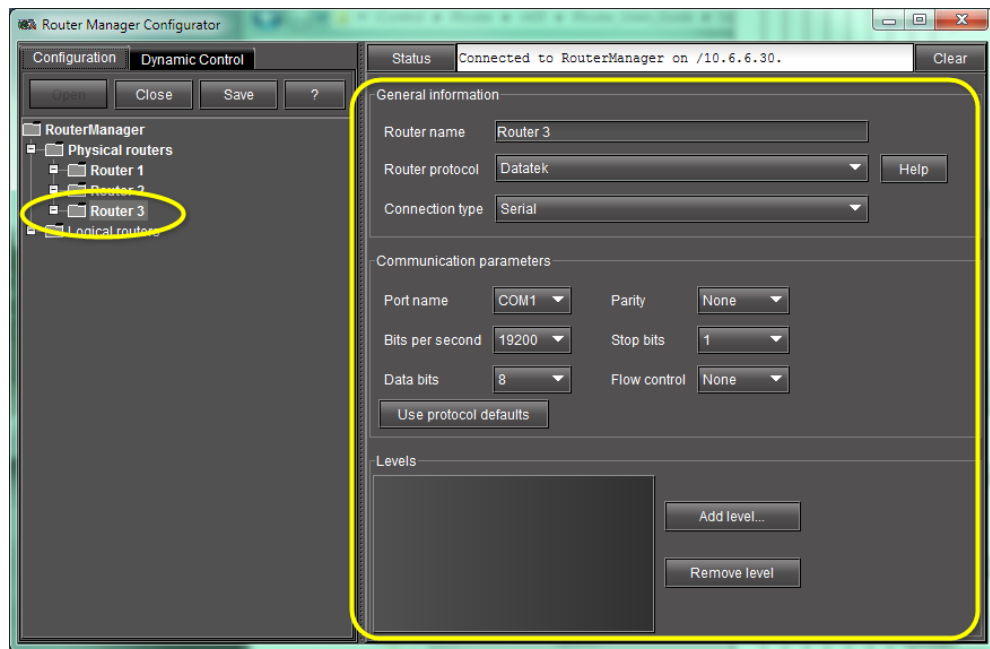


**SYSTEM RESPONSE:** A list of all physical routers added so far to your system appears in the right pane.

3. Click **Add Router**.



**SYSTEM RESPONSE:** A new **Router N** folder appears in the **Physical Routers** folder on the left, and detailed data-entry areas appear in the right pane.

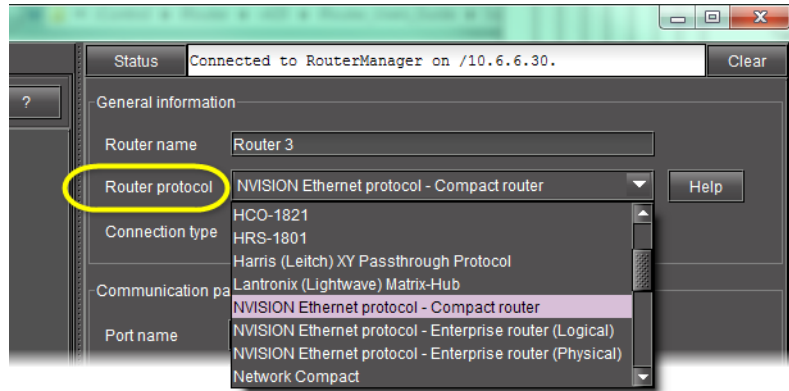


4. In the **Router name** box, type a name for the router.

**IMPORTANT: Naming Restrictions**

Do not use special characters in the router name. Spaces are allowed.

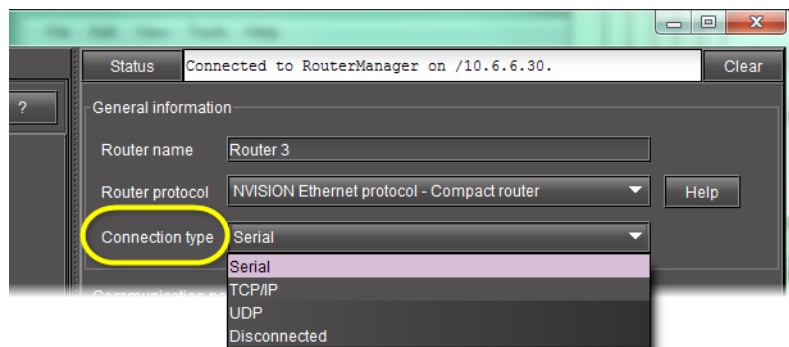
5. In the **Router protocol** list, select a protocol.



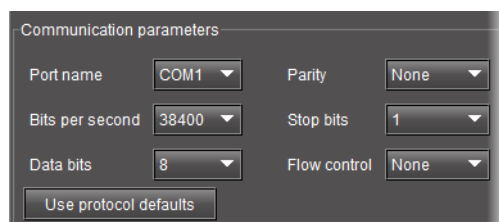
6. Click **Help** to review information about the selected protocol.

**Note:** Presently, there are several protocols for which online help is unavailable.

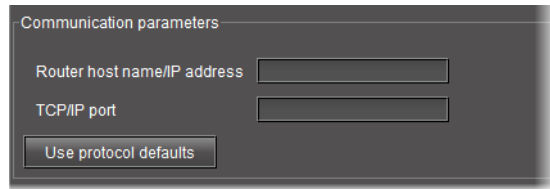
7. Under **Connection type**, select **Serial**, **TCP/IP**, or **UDP**, as appropriate for the selected protocol.



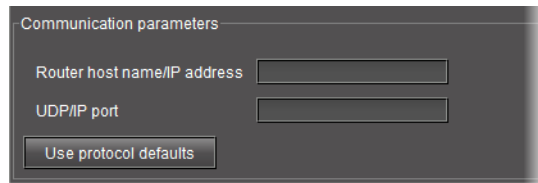
**SYSTEM RESPONSE:** The **Communication parameters** zone varies according to the selected connection type, as follows:



*Communications settings for a serial connection*

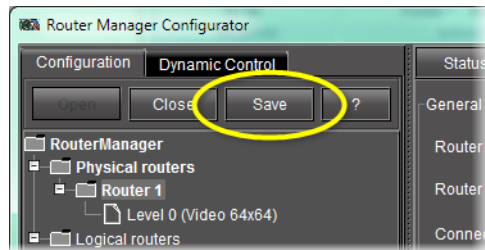


*Communications settings for a TCP/IP connection*



*Communications settings for a UDP/IP connection*

8. In the **Communications parameters** area, specify all required information, or click **Use protocol defaults** to apply the selected protocol's default communication settings.
9. Click **Save** at the top of the left pane.



### Notes

- The collection of protocol-specific information, that you can read by clicking **Help** for each protocol, can also be found at the end of this manual (see [Routing Switchers Tips and Tricks](#), on page 33).
- The RS-232 baud rates for Network routers differ from model to model. Although the standard value is 19200, you should refer to your router's user manual to verify the appropriate value for your specific model.

## Importing an NVISION Physical Router Configuration

### **IMPORTANT:** Risk of Deleting Router Configuration Data

If, after adding aliases, you are importing router configuration data in which there is a physical router with the same name as one of your own in iControl Router, the alias data you configured for that router will be overwritten.

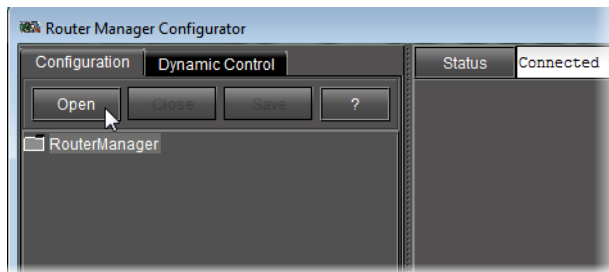
### REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have available the host name or IP address of the NVISION router controller whose configuration you would like to import.
- You have opened Router Manager Configurator (see [page 60](#)).

### To import an NVISION configuration

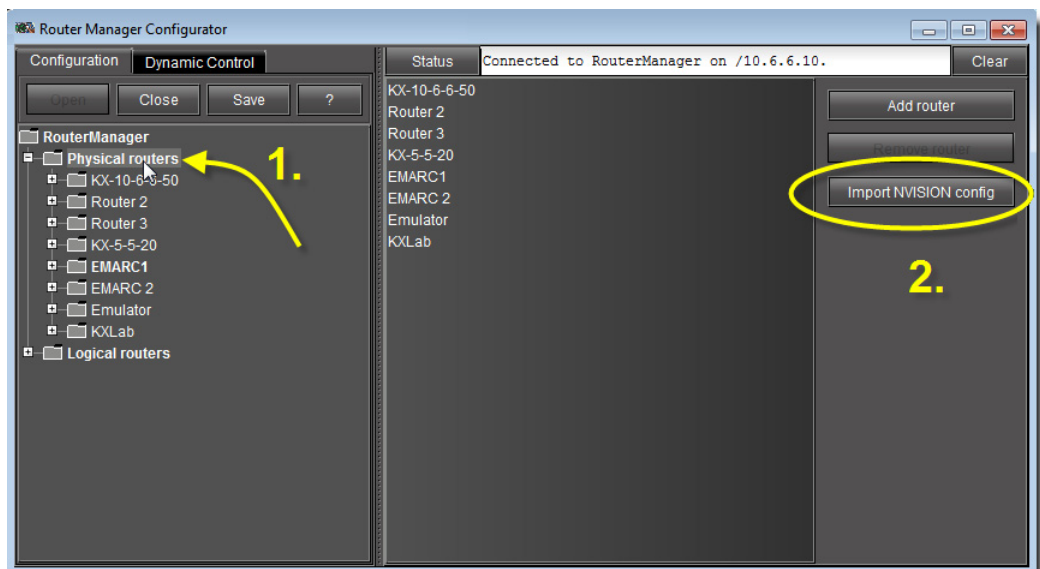
1. Select the **RouterManager** folder, and then click **Open**.



2. Select the **Physical routers** folder.

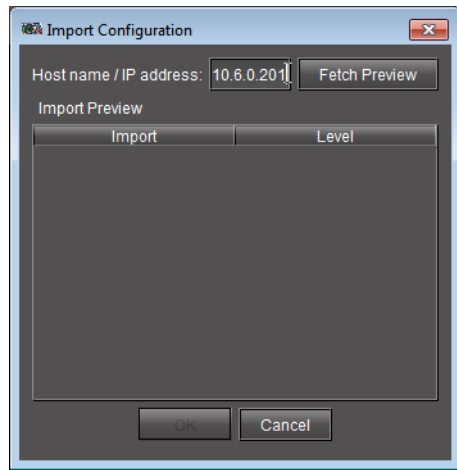
*SYSTEM RESPONSE:* The list of all physical routers added so far to your system appears in the right pane.

3. Click **Import NVISION config**.



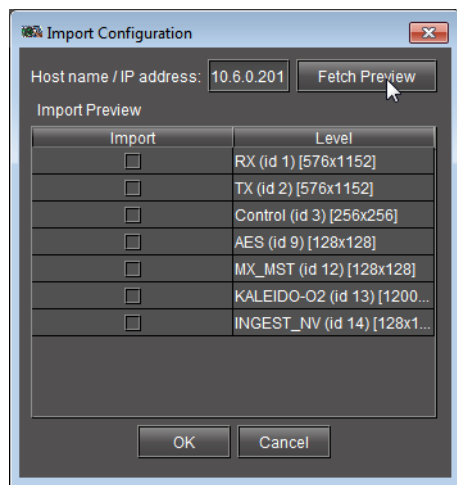
*SYSTEM RESPONSE:* The **Import Configuration** window appears.



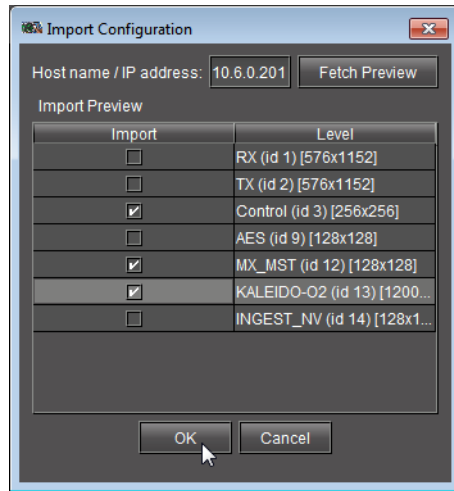


4. In the **Host name / IP address** box, type the host name or IP address of the NVISION router controller whose configuration you would like to import.
5. Click **Fetch preview**.

*SYSTEM RESPONSE:* The levels of the NVISION router appear listed in the **Import preview** area.



6. Select the levels you would like to import, and then click **OK**.

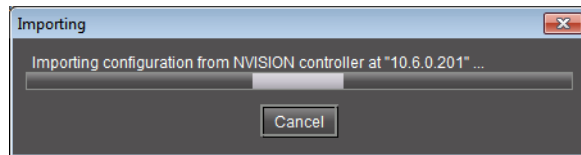


**SYSTEM RESPONSE:** A confirmation window appears.

**IMPORTANT: Risk of losing current router configuration data**

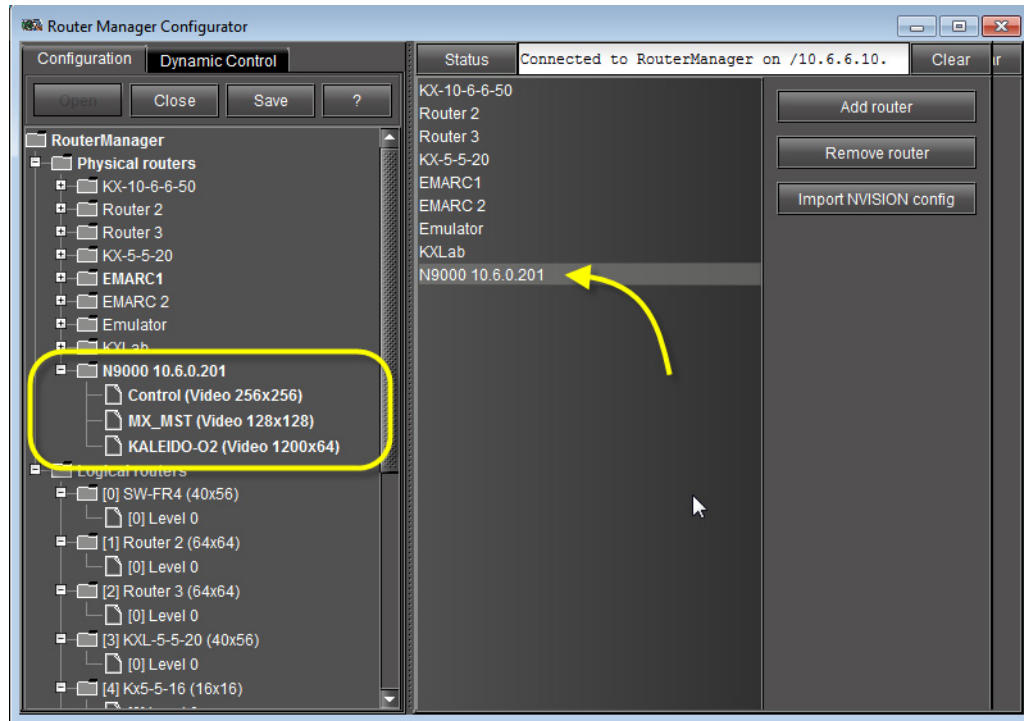
If you click **OK** in the confirmation window and then click **Save** in **Router Manager Configurator**, the imported NVISION data will permanently overwrite any existing configuration data.

**SYSTEM RESPONSE:** A progress window appears, allowing you to cancel the operation if required.

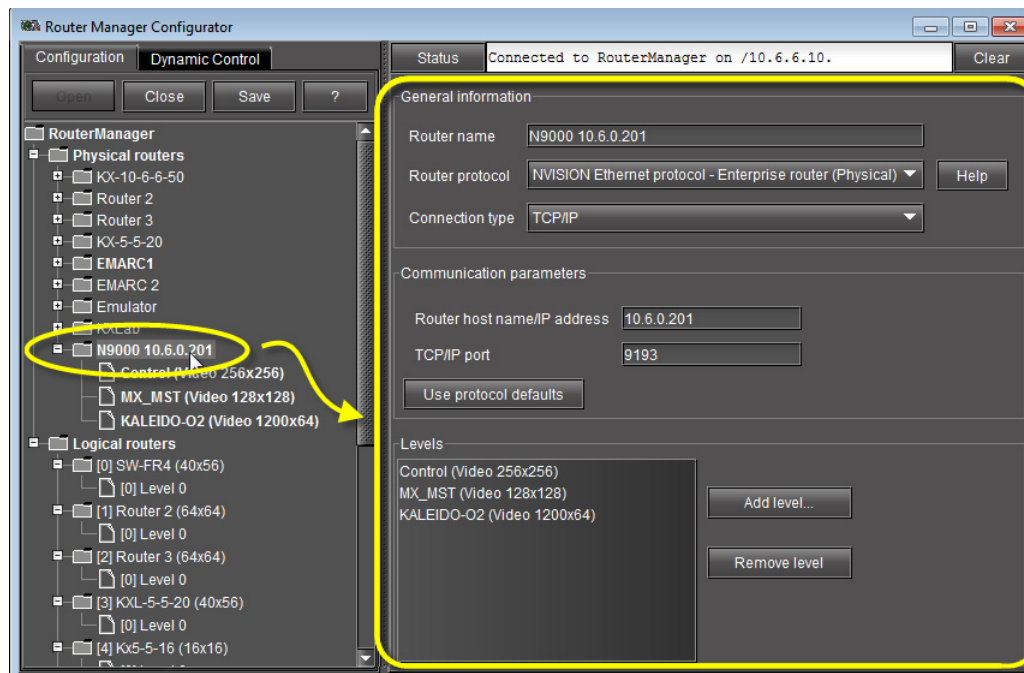


7. After the confirmation window disappears, click **Save** to overwrite your configuration data with the newly imported data.
8. Refresh your browser.

**SYSTEM RESPONSE:** The NVISION router controller's level configurations are listed among the physical routers in the left and right panes of the **Router Manager Configurator**.



**SYSTEM RESPONSE:** Selecting the physical router in the left pane yields general information, communication parameters, and a list of levels imported from the router.



## Adding Physical Router Levels

The physical levels from which the router is going to be built must be defined. Typical levels include video, audio 1, audio 2, etc. These levels each represent a physical device. Each level must be named, and its type and size specified.

### IMPORTANT: Using Telecom and Data Routers

- Network series RS-422 Data routers have to be configured as an audio level. Select an appropriate audio frame type. For example, if you have an 8 × 8 RS-422 router, you should select **Network Audio 8 × 8 frame type**.
- Network series Telecom routers are configured to work as a video level so you can use an appropriate video frame. For example, if you have an 8 × 8 Telecom frame then you should select **Network Video 8 × 8 frame type**.

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**Note:** Although it is possible to perform the following procedure as a stand-alone task (assuming all stated requirements are met), Grass Valley recommends you familiarize yourself with the sample workflow on [page 60](#) in which this procedure is only one step within a sequence.

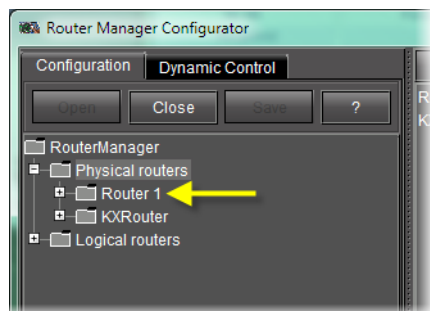
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### REQUIREMENT

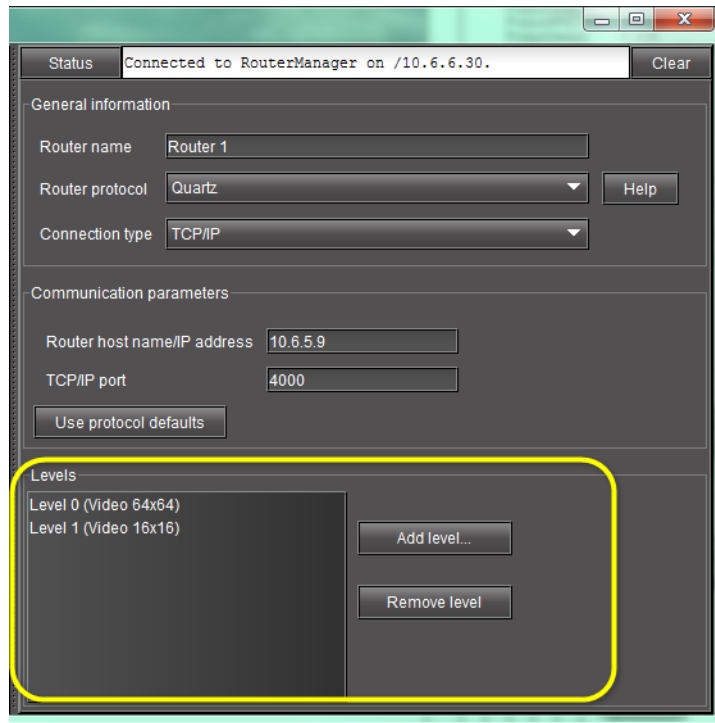
Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

### To add a level to a physical router

1. In **Router Manager Configurator**, in the left pane, select the physical router you wish to configure.

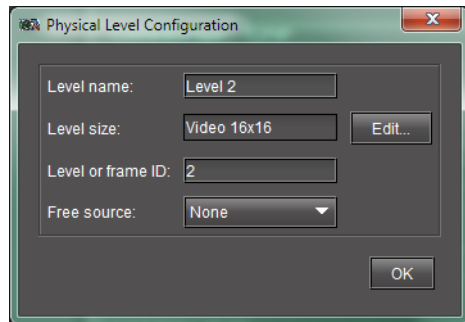


**SYSTEM RESPONSE:** The list of existing levels appears under **Levels**.

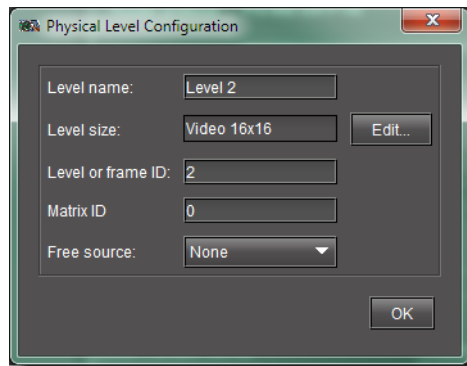


2. Click **Add level**.

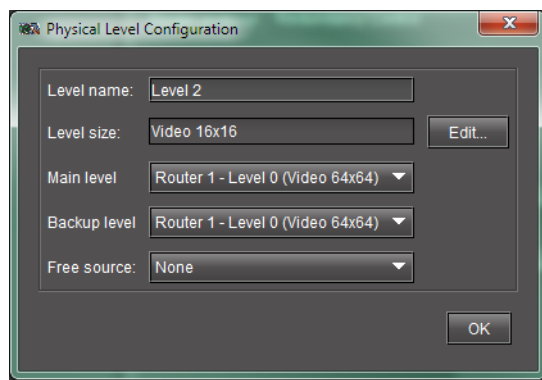
**SYSTEM RESPONSE:** The **Physical Level Configuration** window appears. Its content varies according to the selected router protocol:



*Physical Level Configuration window (for most protocols)*



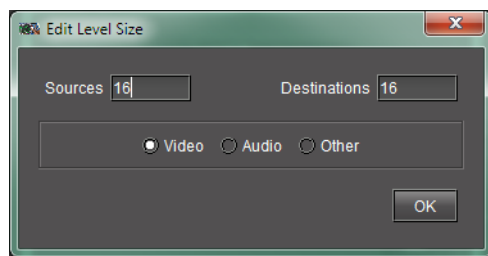
Physical Level Configuration window—for a SAM (Snell/Pro-Bel) SW-P-08 device



Physical Level Configuration window (for a Redundancy Control device)

3. In the **Level name** box, type a name for this level.
4. Click **Edit**.

*SYSTEM RESPONSE:* The **Edit Level Size** window appears.



5. Specify the number of sources and destinations associated with the physical level.

---

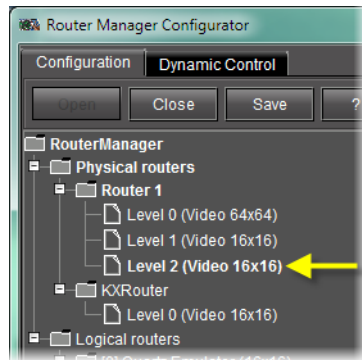
**Note:** The three option buttons labeled **Video**, **Audio** and **Other** are used for Network Electronics routers only, for which levels must be classified as either *Video* or *Audio*. These settings are ignored by routers from other manufacturers.

---

6. In the case of a SAM (Snell/Pro-Bel) SW-P-08 device, type the appropriate value in the **Matrix ID** box (click **Help** for more information).

7. In the case of a *Redundancy Control* device, select the appropriate main level and backup level from the lists (click **Help** for more information).
8. Click **OK** to close the **Edit Level Size** window.
9. Click **OK** to close the **Physical Level Configuration** window.

**SYSTEM RESPONSE:** At this point, you have added a level to a physical router, which appears in the **Levels** list under the **Configurations** tab.



*Newly added physical router level*

### Notes

- If you have several  $16 \times 2$  frames configured to work together then you have to add only one frame and select an appropriate frame type on the **Edit Physical Level** window. For example, if you have three  $16 \times 2$  video frames configured to make a  $48 \times 2$  router then you should select a *Network Video  $48 \times 2$*  frame type.
- When the tab is opened, data boxes will appear in which the name, Frame Type, Frame ID and Physical Level ID can be entered, and two charts (tab-accessed) will appear below in which the Sources and Destinations can be identified and labeled.. These should conform to the actual physical connections made to the router being controlled.

The Frame ID in the physical level configuration is the frame address that is set by the DIP switches on the router frame. The Physical Level ID is the internal identifier of the frame and should be unique within each physical router. If it's not unique, then you will get an error message when you try to save the changes. The Matrix ID is an optional entry for a SAM (Snell/Pro-Bel) router.

The Physical Router definition is now complete.

### Adding Aliases for your Physical Input Ports

Aliases are names assigned to input and destination ports. Aliases are useful when trying to remember specific ports on different routers or devices, or on different physical levels, that have identical port numbers. For example, input port 1 on Router 1 can be assigned the alias *router1on1* and input port 1 on Router 2 can be assigned the alias *router2on1* so that each port can be easily distinguished.

**IMPORTANT: Risk of Deleting Router Configuration Data**

If, after adding aliases in iControl Router, you decide you would like to import router configuration data in which there is a physical router with the same name as one of your own in iControl Router, the alias data for that router will be overwritten.

**Notes**

- If you would like to add aliases, you may either create your own or import them from an NVISION router configuration.
- In iControl Router Web, you may create alarm consumer plug-ins that are triggered by the alarms of aliases.

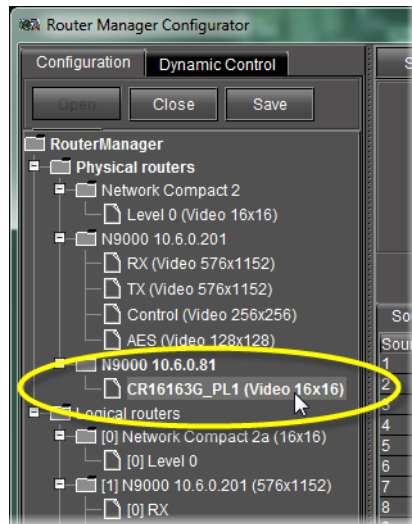
**REQUIREMENTS**

Make sure you meet the following conditions before beginning this procedure:

- You have opened **Router Manager Configurator** (see [page 60](#)).
- The physical router and level to which you would like to add an alias is visible in the navigation pane of the **Router Manager Configurator**.

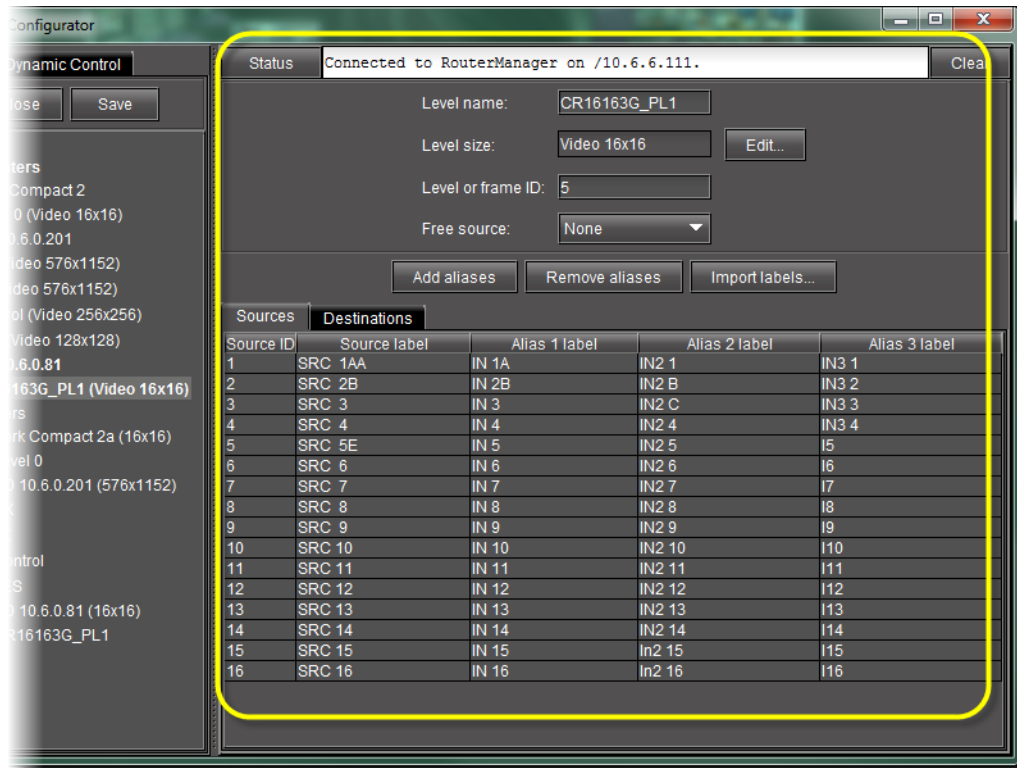
**To add an alias for an input or destination port**

1. In **Router Manager Configurator**, in the navigation pane, click the level of the physical router to which you would like to add an alias.

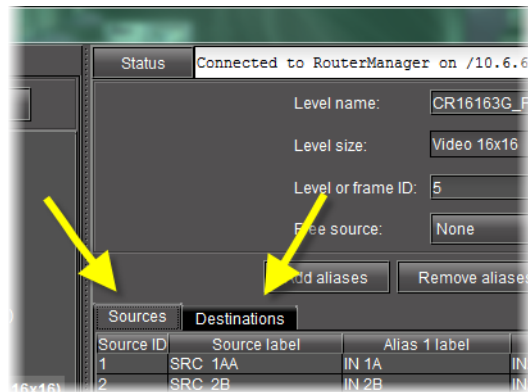


**SYSTEM RESPONSE:** Information about the selected level appears in the right pane, including labels and aliases for sources and destinations.

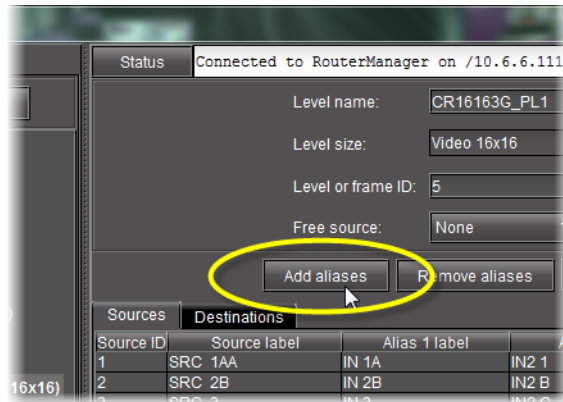




2. If you would like to add an alias for an input port, click the **Sources** tab. If you would like to add an alias for a destination port, click the **Destinations** tab.



3. Click **Add aliases**.



**SYSTEM RESPONSE:** An empty alias column appears to the far-right side of the label area.



## Modifying Physical Router Configurations

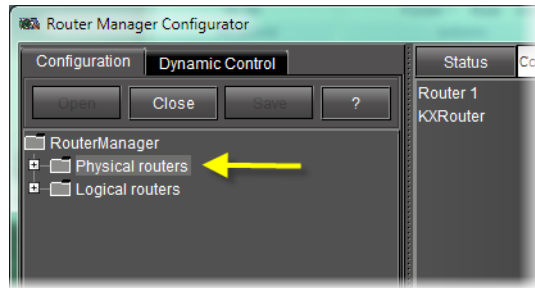
**Note:** Although it is possible to perform the following procedure as a stand-alone task (assuming all stated requirements are met), Grass Valley recommends you familiarize yourself with the sample workflow on [page 60](#) in which this procedure is only one step within a sequence.

### REQUIREMENT

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

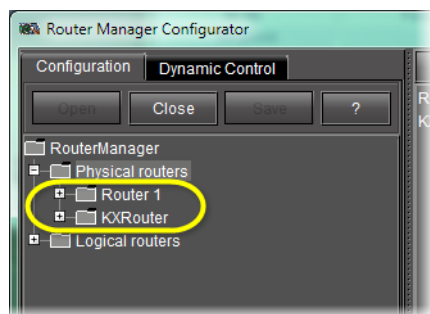
### To modify a physical router's configuration

1. In **Router Manager Configurator**, in the router manager folder, double-click the **Physical Routers** sub-folder.



Router Manager Configurator (Physical routers folder indicated)

**SYSTEM RESPONSE:** A series of folders appears, one for each physical router.

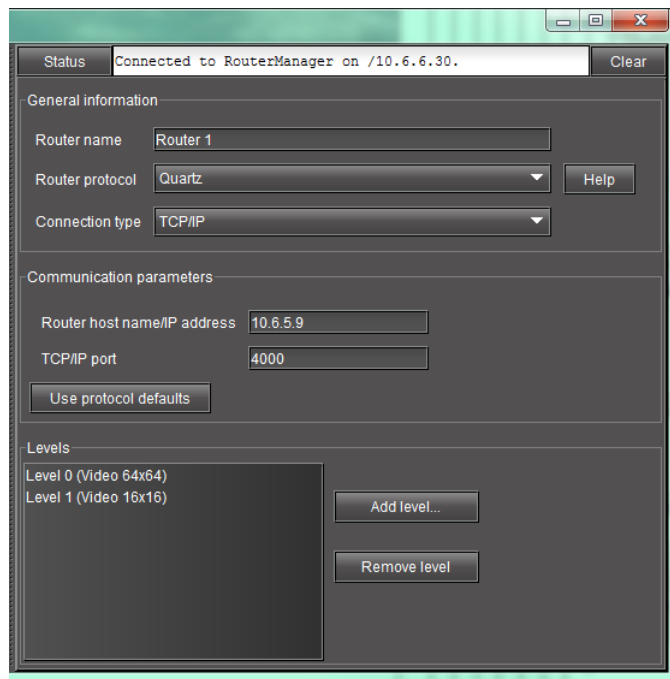


Expanded Physical routers folder (physical routers circled)

2. If you would like to modify router settings (as opposed to router *level* settings), perform the following sub-steps:

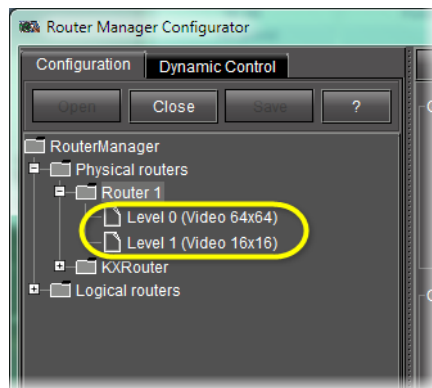
- a) Select the appropriate physical router in the left pane.

**SYSTEM RESPONSE:** The right pane is populated with the current settings for the selected physical router.



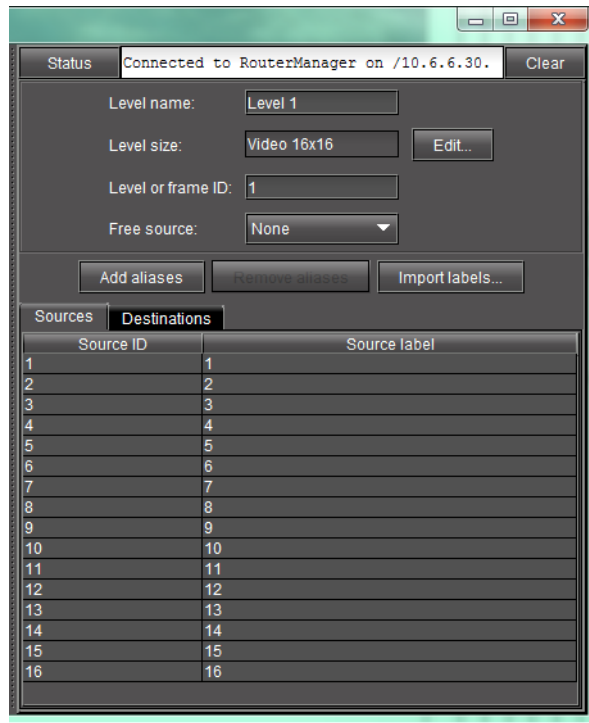
Right pane of Router Manager Configurator (physical router settings)

- b) Modify the physical router settings as required.
3. If you would like to modify the settings of a particular level belonging to a physical router, perform the following sub-steps:
  - a) In the left pane, double-click the appropriate physical router.  
**SYSTEM RESPONSE:** The levels within the router become visible.



Expanded router folder (levels circled)

- b) Select the level whose settings you would like to modify.  
**SYSTEM RESPONSE:** The right pane is populated with the current settings for the selected level.



Right pane of Router Manager Configurator (physical router level settings)

- c) Modify the level settings as required.
4. Click **Save**.

## Removing Physical Routers

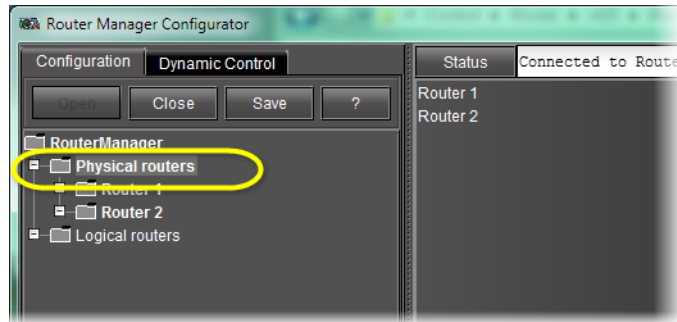
**Note:** Although it is possible to perform the following procedure as a stand-alone task (assuming all stated requirements are met), Grass Valley recommends you familiarize yourself with the sample workflow on [page 60](#) in which this procedure is only one step within a sequence.

### REQUIREMENT

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

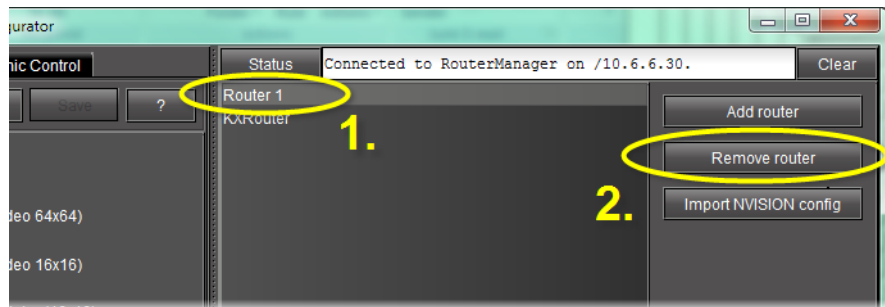
### To remove a physical router

1. In the **RouterManager** folder, select the **Physical routers** sub-folder.



**SYSTEM RESPONSE:** The list of physical routers appears in the right pane.

2. Select the router you wish to remove from the list, and then click **Remove Router**.



3. Click **Save**.

### Configuring Logical Routers

A *Logical Router* is a virtual router whose functionality is determined by the software. Logical routers have a name, sources and destinations. See the following table for common tasks associated with logical routers.

**Note:** Although it is possible to perform any of the following as stand-alone tasks, Grass Valley recommends you familiarize yourself with the sample workflow on [page 60](#) in which these tasks comprise only one step within a sequence.

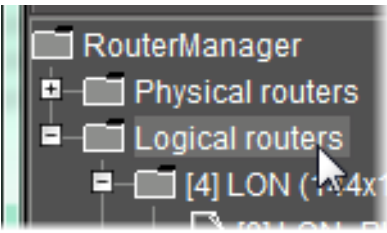
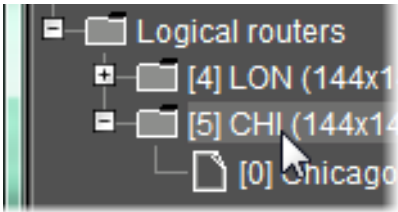
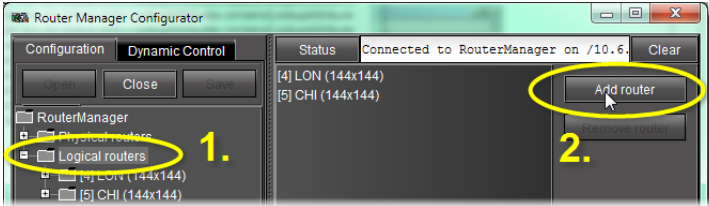
**IMPORTANT:** Once you have configured the logical router, it is important not to change its name. Doing so will disable any settings that refer to the existing router name, including:

- logical source assignments for source or destination label
- external router connection configurations
- monitors and background actions associated with the logical router
- automatic crosspoint changes on video monitors (router source property)

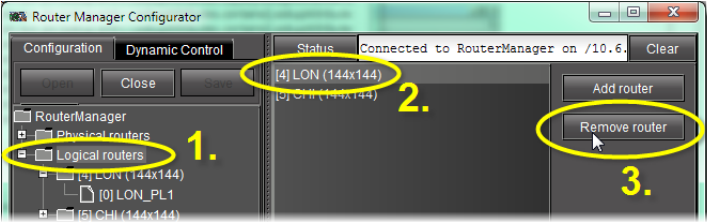
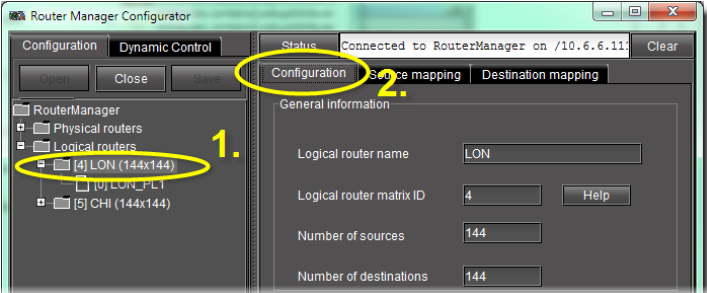
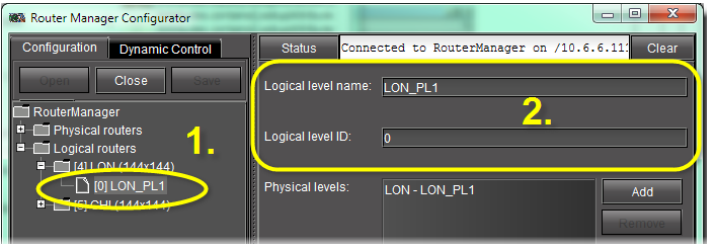
**Note:** If you change the name back to the original, everything should work as before.

**REQUIREMENT**

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

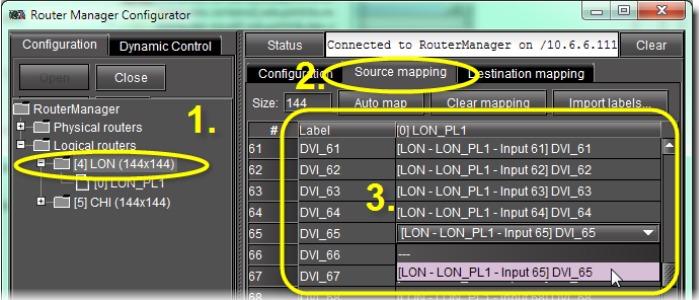
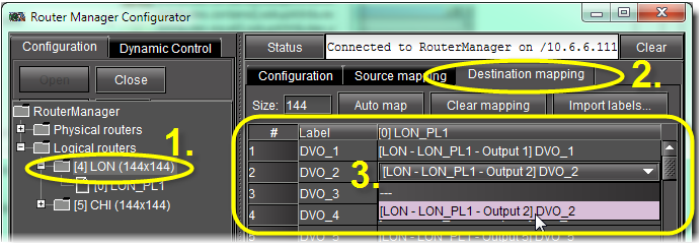
To do this...	...do this...
<p>Display all currently defined logical routers</p>	<p>Select the <b>Logical routers</b> folder in the left pane.</p> 
<p>Display general information about a logical router</p>	<ol style="list-style-type: none"> <li>1. Expand the <b>Logical routers</b> folder in the left pane.</li> <li>2. Select the appropriate logical router.<sup>1</sup></li> </ol> 
<p>Define a new logical router</p>	<ol style="list-style-type: none"> <li>1. Select the <b>Logical routers</b> folder in the left pane.</li> <li>2. Click <b>Add router</b> in the right pane.</li> </ol> 

(Continued)

To do this...	...do this...
Delete a logical router	<ol style="list-style-type: none"> <li>1. Select the <b>Logical routers</b> folder in the left pane.</li> <li>2. Select the logical router you wish to remove in the right pane.</li> <li>3. Click <b>Remove router</b> in the right pane.</li> </ol> 
Modify the general settings of a logical router	<ol style="list-style-type: none"> <li>1. Select the appropriate logical router in the left pane.</li> <li>2. Modify its general settings under the <b>Configuration</b> tab in the right pane.<sup>2</sup></li> </ol> 
Modify the settings of one of a logical router's levels	<ol style="list-style-type: none"> <li>1. Expand the appropriate logical router folder in the left pane.</li> <li>2. Select the appropriate level, and then modify the settings in the right pane.<sup>3</sup></li> </ol> 



(Continued)

To do this...	...do this...
<p>Map physical sources to logical levels</p>	<ol style="list-style-type: none"> <li>1. Select the folder of the appropriate logical router in the left pane.</li> <li>2. Click on the <b>Sources mapping</b> tab in the right pane.</li> <li>3. Type and select the desired labels<sup>4</sup> and physical sources, as required.<sup>5</sup></li> </ol> 
<p>Map physical destinations to logical levels</p>	<ol style="list-style-type: none"> <li>1. Select the folder of the appropriate logical router in the left pane.</li> <li>2. Click on the <b>Destination mapping</b> tab.</li> <li>3. Type the desired label.</li> <li>4. Select the desired physical destinations.</li> </ol> 

1. The list of levels is blank when a new router is selected.
2. The name of the logical router should be unique within the LAN.
3. The logical level ID is the internal identifier of the logical level and should be unique within a logical router. If it's not unique, then you will get an error message when you try to save changes.
4. You may alternately choose to import labels.
5. You may alternately choose to use the Auto Map feature to automatically generate mapping based on the information available. The results of automapping may be manually overridden, if necessary.

## Configuring Routers Dynamically

It is essential that the router configuration procedures (those performed on the **Configuration** tab) are completed prior to putting the virtual router into service. However, another process is available which permits some configuration changes while the router is in service. This process is called *Dynamic Configuration*.

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**Note:** If changes are made to the configuration on the **Configuration** tab, the service must be restarted before dynamic control can be used.

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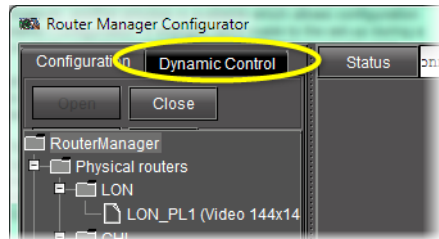
## Starting a Dynamic Configuration Session

### REQUIREMENT

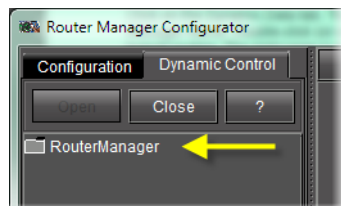
Before beginning this procedure, make sure you have launched **Router Manager Configurator** (see [page 60](#)).

### To start a Dynamic Control router configuration session

1. In **Router Manager Configurator**, click on the **Dynamic Control** tab in the left pane.

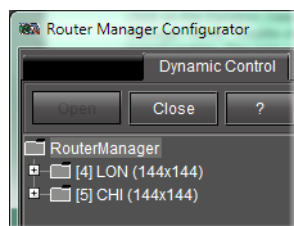


*SYSTEM RESPONSE:* The closed root folder name appears in the left pane.



2. Double-click the router manager folder.

*SYSTEM RESPONSE:* The root folder for the router manager expands to show closed folders for each of the named logical routers.



3. Double-click one of the logical router folders.

*SYSTEM RESPONSE:* The folder expands to show the following branches:

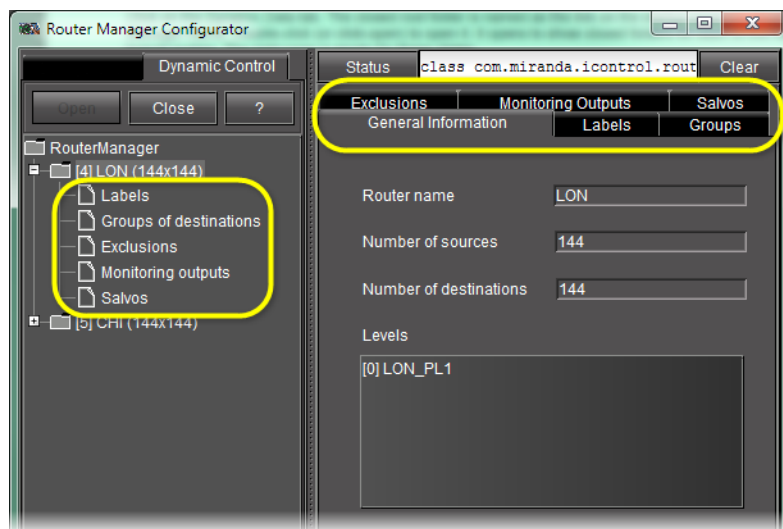
- Labels
- Groups of destinations
- Exclusions
- Monitoring outputs
- Salvos

*SYSTEM RESPONSE:* The right pane shows a **General Information** tab, which reports router name, number of sources and destinations, and defined levels, as well as five other tabs

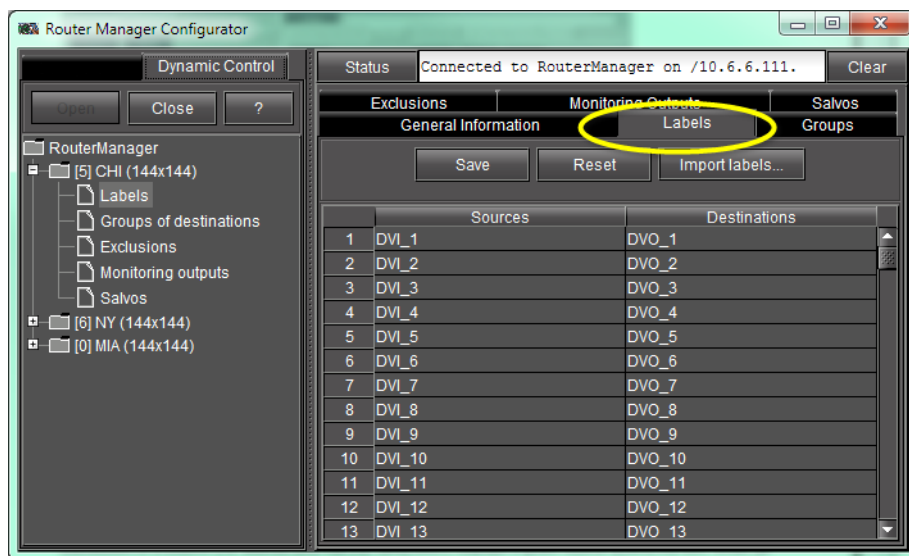
which open windows allowing configuration of the operating controls and system functionality. These tabs repeat the names of the branches, as follows:

- Labels (see [page 87](#))
- Groups (see [page 88](#))
- Exclusions (see [page 89](#))
- Monitoring Outputs (see [page 91](#))
- Salvos (see [page 92](#))

**Note:** The branch name *Groups of Destinations* is shortened to **Groups** in the tab.



## Labels Tab



The following tasks can be performed on the **Labels** tab:

**REQUIREMENT**

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

To do this...	...do this...
Import labels.	1. Click <b>Import labels</b> . 2. In the Browse window, navigate to the desired *.csv file.
Save labels.	Click <b>Save</b> .
Reset	Click <b>Reset</b> .

**Groups Tab**

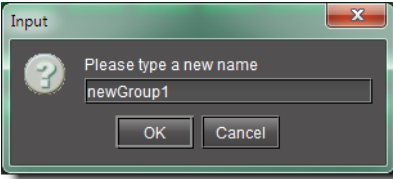
This tab shows a button for each output on the logical router, labelled with its number or name if assigned.



The following tasks can be performed on the **Groups** tab:

**REQUIREMENT**

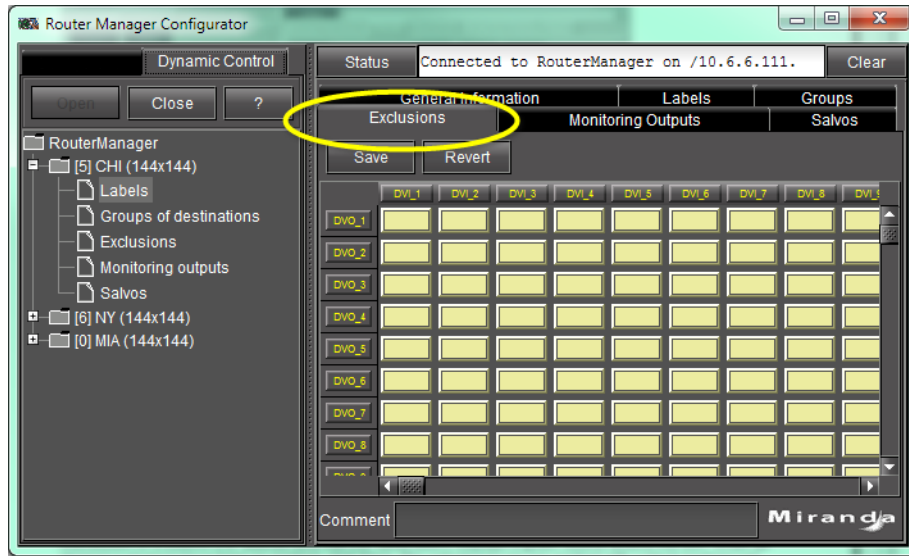
Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

To do this...	...do this...
Create a group.	<ol style="list-style-type: none"> <li>1. Click <b>New</b>.</li> <li>2. Type the name of the new group in the box.</li> <li>3. Click <b>OK</b>.</li> </ol>  <p><i>SYSTEM RESPONSE:</i> The new name appears in the list at the top of the menu.</p> <ol style="list-style-type: none"> <li>4. Click the destination buttons you would like to include in this group.</li> <li>5. Click <b>Save</b>.</li> </ol> <p><i>SYSTEM RESPONSE:</i> The group is stored under that name.</p>
Change the button selection.	<ol style="list-style-type: none"> <li>1. Select the name in the list.</li> <li>2. Adjust the button selection.</li> <li>3. Click <b>Save</b>.</li> </ol>
Change the group name.	<ol style="list-style-type: none"> <li>1. Click <b>Rename</b>.</li> <li>2. Type the new name in the box.</li> <li>3. Click <b>OK</b>.</li> </ol>
Delete a group.	Select the group you would like to delete in the list, and then click <b>Delete</b> .

## Exclusions Tab

This tab allows you to exclude certain router inputs from appearing on certain outputs. For example, one might inhibit a VTR's output from being fed back to its input.

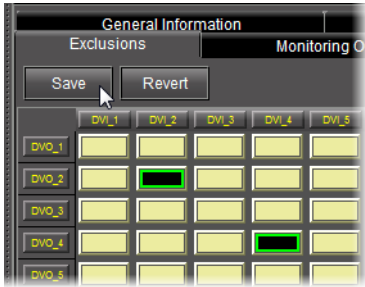
A matrix shows sources across the top, and destinations down the left side.



The following tasks can be performed on the **Exclusions** tab:

**REQUIREMENT**

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

To do this...	...do this...
Configure exclusions.	<ol style="list-style-type: none"> <li>In the matrix on the right pane, click the box at the intersection of the appropriate column and row (source and destination, respectively) for each exclusion you would like to configure. <i>SYSTEM RESPONSE:</i> The selected boxes are marked with a black background and a white X.</li> <li>Click <b>Save</b>.<sup>1</sup></li> </ol> 
Undo changes and revert to the original status (before saving).	On the right pane, click <b>Revert</b> .

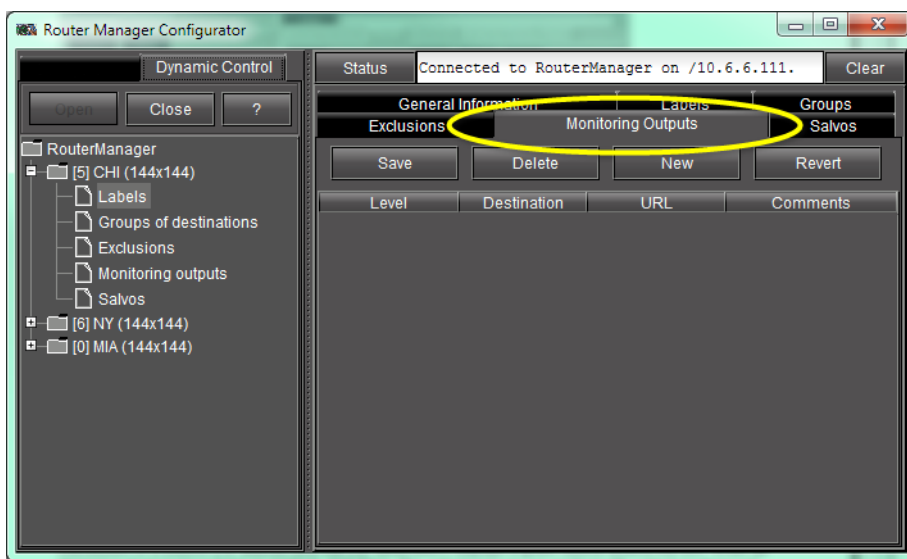
(Continued)

To do this...	...do this...
Change an existing exclusion.	In the matrix on the right pane, double-click the box corresponding to the exclusion you would like to remove.

1. If any exclusions are not allowed because of other choices made in the router definition, they will not appear on the matrix. A note will appear (highlighted in red) in the Status box at the top of the pane.

## Monitoring Outputs Tab

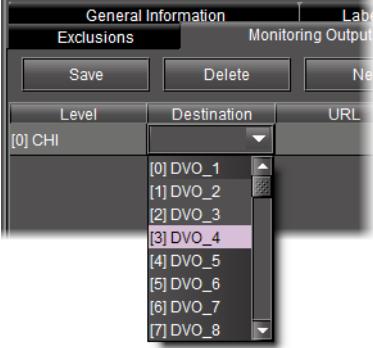
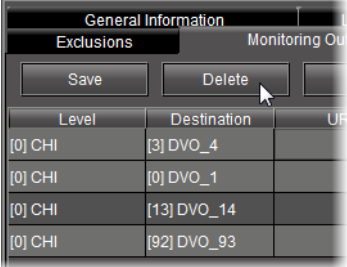
This window allows you to discriminately specify outputs as monitoring outputs.



The following tasks can be performed on the **Monitoring Outputs** tab:

### REQUIREMENT

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

To do this...	...do this...
<p>Create a new entry by specifying a particular output as a monitoring output.</p>	<ol style="list-style-type: none"> <li>1. Click <b>New</b>.</li> <li>2. In the new row, select the appropriate level and destination from the lists.</li> <li>3. In the new row, click the cell in the <b>URL</b> and <b>Comments</b> columns, and type the appropriate address<sup>1</sup> and comments<sup>2</sup>, respectively.</li> <li>4. Click <b>Save</b>.</li> </ol> 
<p>Delete an entry.</p>	<ol style="list-style-type: none"> <li>1. Select the row corresponding to the entry you would like to delete.<sup>3</sup></li> <li>2. Click <b>Delete</b>.</li> <li>3. Click <b>Save</b>.</li> </ol> 
<p>Return the list of entries to its original state (before you began making changes).</p>	<p>Click <b>Revert</b>.</p>

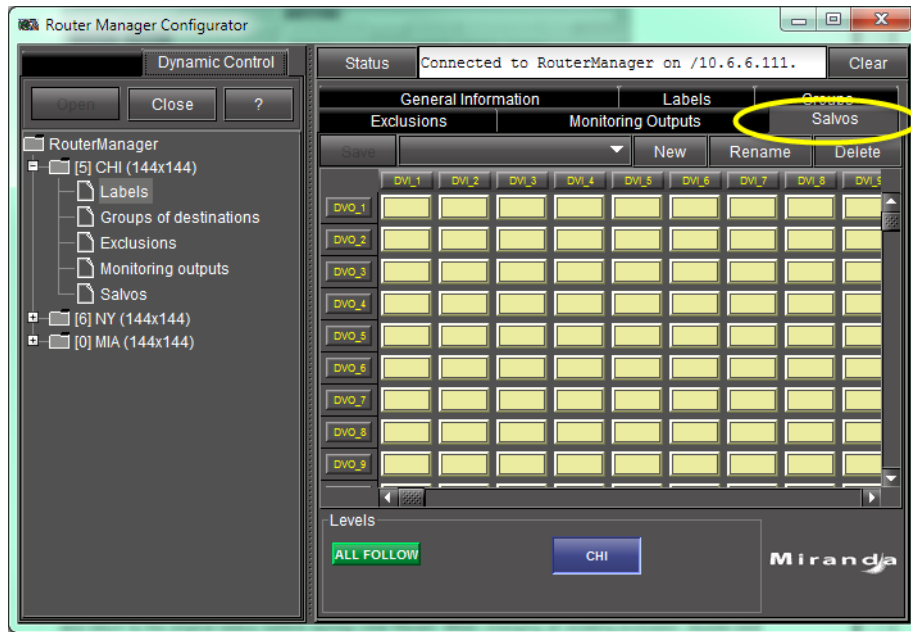
1. For example, for an ATI card installed in the server host computer, the address is `rtp://hostname:3200/video`.
2. This is the note that appears in the pull-down box on the opening menu.
3. Alternatively, you may use the **Ctrl** key to discriminately select and delete several entries at once.

### Salvos Tab

This tab permits you to create and name a configuration of crosspoint closures. Individual levels may be specified at each crosspoint, or else the entire group may be specified (all follow). These are essentially presets, and can be invoked from the operating window.




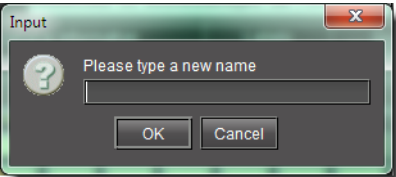

**Note:** Exclusions are shown on the matrix, and these cannot be overridden.



The following tasks can be performed on the **Salvos** tab:

**REQUIREMENT**

Before beginning this procedure, make sure you have opened **Router Manager Configurator** (see [page 60](#)).

To do this...	...do this...
<p>Create a new salvo.</p>	<ol style="list-style-type: none"> <li>1. Click <b>New</b>.</li> </ol>  <ol style="list-style-type: none"> <li>2. In the <b>Input</b> window, type the name of the new salvo.</li> </ol>  <ol style="list-style-type: none"> <li>3. Click <b>OK</b>.</li> <li>4. Click <b>Save</b>.</li> </ol>
<p>Rename a salvo.</p>	<ol style="list-style-type: none"> <li>1. Select the salvo you would like to rename from the list.</li> <li>2. Click <b>Rename</b>.</li> </ol>  <ol style="list-style-type: none"> <li>3. In the <b>Input</b> window, type the new name for this salvo.</li> <li>4. Click <b>OK</b>.</li> <li>5. Click <b>Save</b>.</li> </ol>
<p>Remove a salvo from the list.</p>	<ol style="list-style-type: none"> <li>1. Select the salvo you would like to remove from the list.</li> <li>2. Click <b>Delete</b>.</li> <li>3. In the confirmation window, click <b>OK</b>.</li> </ol>



## 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, please consult the *Contact Us* section of Grass Valley's website ([www.grassvalley.com](http://www.grassvalley.com)).

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

## Corporate Head Office

Grass Valley  
3499 Douglas-B.-Floreni, St-Laurent, Québec H4S 2C6, Canada  
Telephone: +1 514 333 1772  
Fax: +1 514 333 9828  
Web: [www.grassvalley.com](http://www.grassvalley.com)