

GV ORBIT ROUTING PANEL

CLIENT ROUTING CONTROL PANELS, V1.4.0

User Guide

Issue 1 Revision 4

2020-08-11 (Supersedes version dated 2020-07-08)

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About this Manual

Title	GV Orbit Routing Panel User Guide	
Part Number	13-03082-130 AD	
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Related Documents

The following GV Orbit manuals are related documents:

Part Number	Document Title
GVB-2-0860A-EN-DS	GV Orbit Datasheet
13-03082-010	GV Orbit Release Notes
13-03082-020	GV Orbit Welcome
13-03082-030	GV Orbit Client Quick Start Guide
13-03082-090	GV Orbit Admin Guide (Includes GV Orbit Services)
13-03082-130	GV Orbit Routing Panel User Guide (this document)
13-03082-160	GV Orbit Control User Guide

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1 Product Overview

Introduction

GV Orbit

GV Orbit is a monitoring and control system from Grass Valley which forms a configuration, control, routing and monitoring system for Grass Valley products and third-party devices. A GV Orbit system comprises one or more GV Orbit servers with one or more GV Orbit client applications running on client PCs. A GV Orbit server runs various GV Orbit applications and services, include a Routing service and a GV Orbit Control application.

Routing Control Panels

GV Orbit Client has user router control functionality and offers the following routing control panels:

- **Bulk Routing Panel** - a simple, non-editable soft panel for fast control of all router cross-points.
- **XY Routing Panel** - an editable and customizable soft panel, typically used for small custom panels for specific routing needs.

Routing control panels connect to a GV Orbit Routing service running on a GV Orbit server.

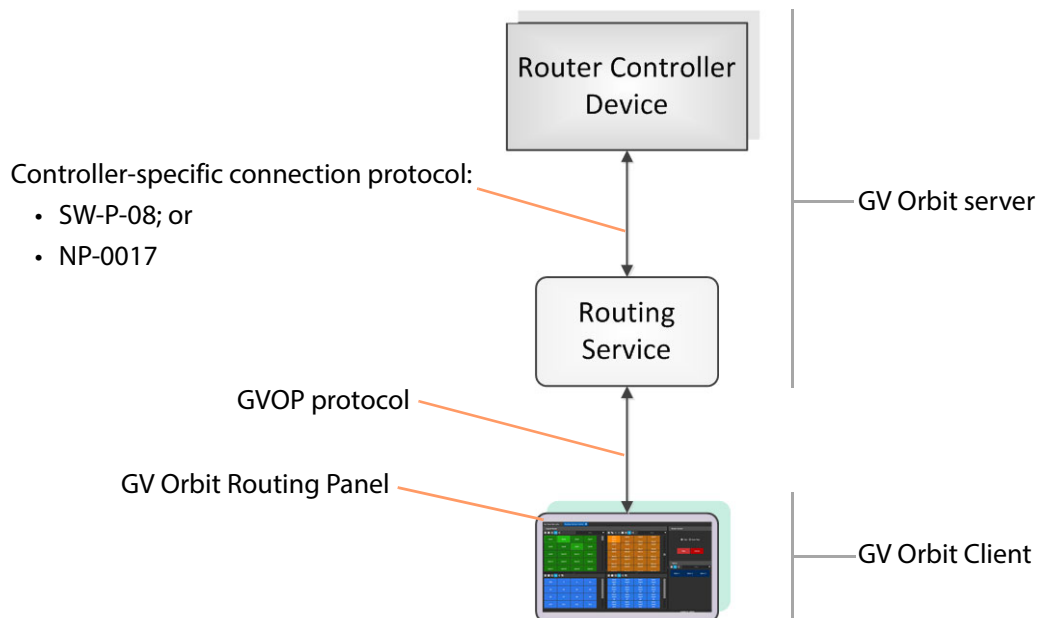


Fig. 1-1: GV Orbit Routing Panel, Routing Service and Router Controller

GV Orbit System

A GV Orbit system has one or more GV Orbit servers which run GV Orbit services. Routing panels in a GV Orbit Client connect to a router controller device via the GV Orbit Routing service. Router controllers include GV Orbit itself, a Grass Valley Router Controller device, or GV Convergent. The Routing service provides source/destination information to the client and acts on routing commands from the client. See Figure 1-2.

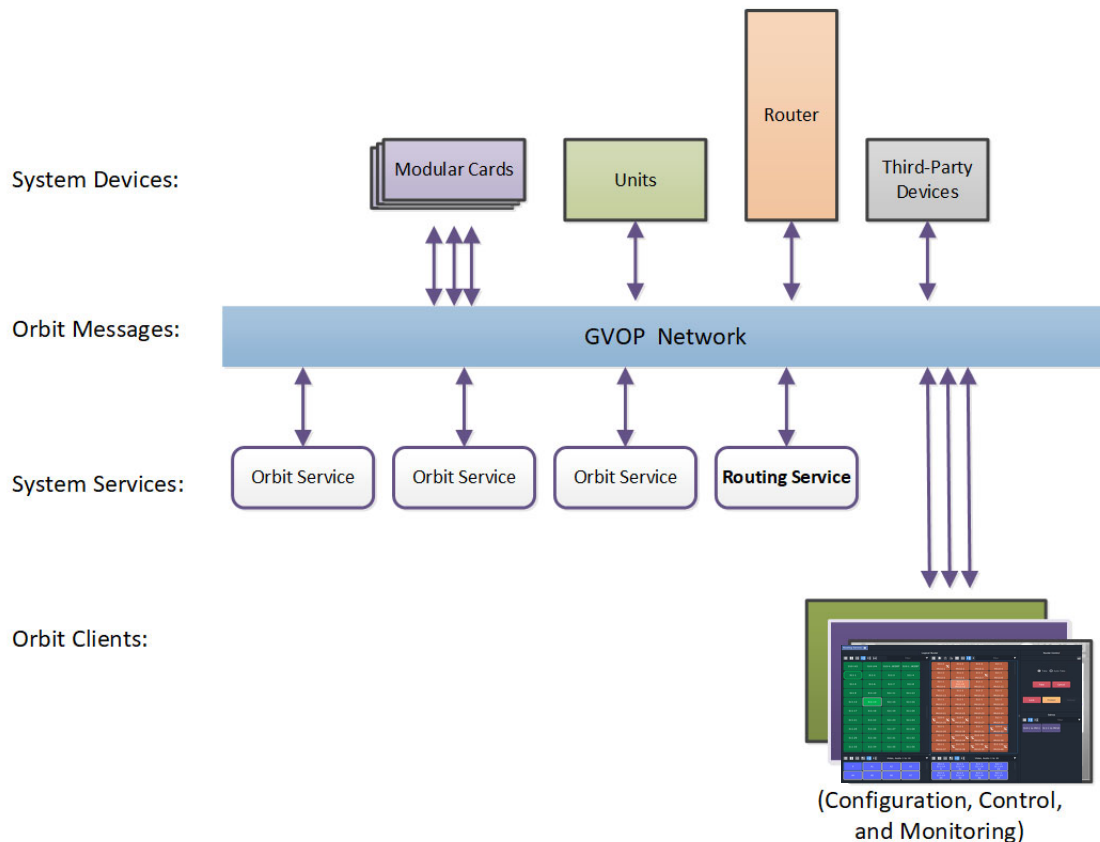


Fig. 1-2: GV Orbit System Diagram

Prerequisites

A GV Orbit server is required, running:

- A GV Orbit Control application.
- A GV Orbit Routing service configured for connection to a Router Controller using either NP0017 or SW-P-08 protocol.

Software Version

The routing panel described in this document is found in the following version of the GV Orbit software suite:

GV Orbit 1.4.0 or later

Bulk Routing Panel



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Bulk Routing Panel

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What is a Bulk Routing Panel?

The GV Orbit Bulk Routing panel is accessible from the GV Orbit Client application. This is a simple, quick, non-editable panel which has been designed to allow fast control of router cross-points and facilitate both keyboard and mouse navigation.

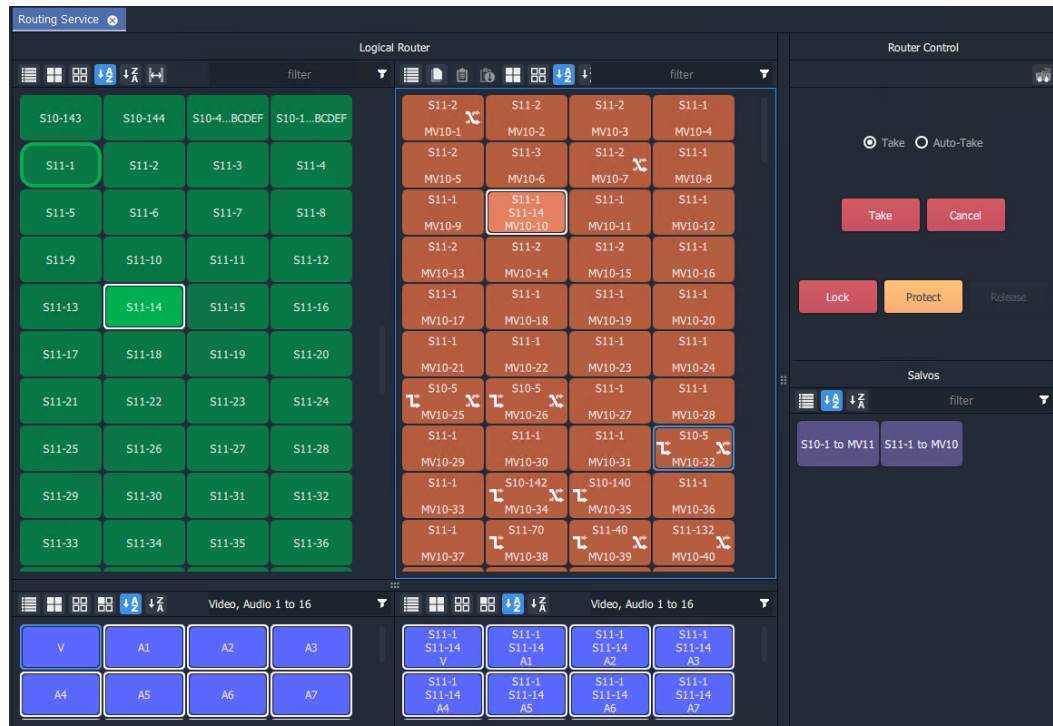


Fig. 2-1: Bulk Routing Panel Example

Key Features

- Keyboard navigation.
- Single source to single destination.
- Single source to multiple destinations.
- Multiple sources to multiple destinations.
- Copy Paste
- Take and Auto Take.
- Lock and Protect.
- Salvos.
- [List View](#) mode for level-focused routing.
- Shuffles and Breakaways.
- Filter Sources, Destinations, Levels and Salvos.
- Custom filtering.
- Filter destinations by routed source.
- Sort (ascending and descending).
- Source and Source-Level Dial-up.

Open a Bulk Routing Panel

The GV Orbit Bulk Routing Panel is accessible from the GV Orbit Client application:

- [From the Workflow Window](#)
- [From the Network Window](#)

Note: The Bulk Routing Panel is best viewed in full-screen on a 1080P 16:9 monitor screen with GV Orbit Client.

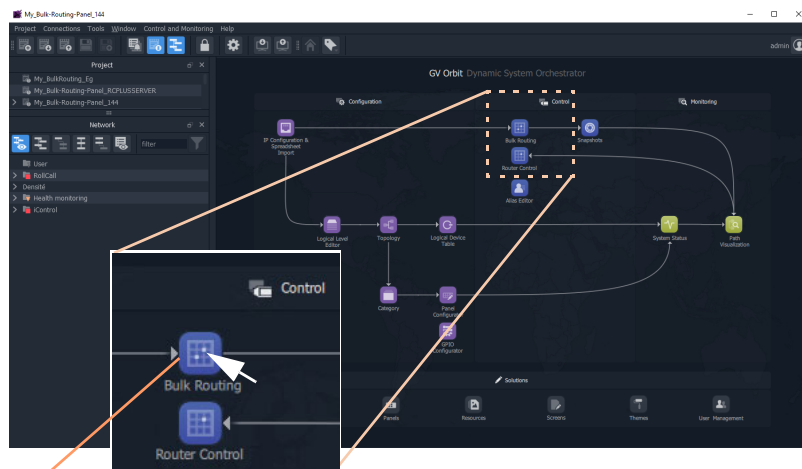
From the Workflow Window

To open the Bulk Routing Panel from the **Workflow** window:

- 1 Open a GV Orbit C&M project in GV Orbit Client and adjust the window size to be full-screen.

Full-size is the recommended window size for operation; all controls are visible.

- 2 Ensure the GVOP client domain is set to be the same as that being used by the GV Orbit Routing service on the GV Orbit server. (Main menu: 'Connections > GVOP')
- 3 In the **Workflow** window, click on the **Bulk Routing** icon. (See Figure 2-2.)



Click on **Bulk Routing** icon.

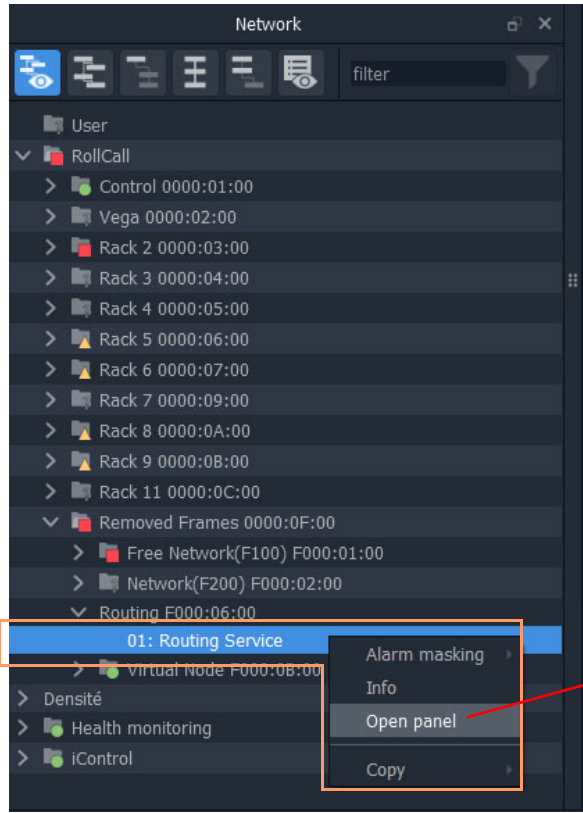
Fig. 2-2: Open a Bulk Routing Panel

The Bulk Routing Panel is opened. See Figure 2-4 for a sample Bulk Routing Panel.

From the Network Window

To open the Bulk Routing Panel from the **Network** window:

- 1 Open a GV Orbit C&M project in GV Orbit Client and set the window size to be full-screen.
- 2 Ensure the GVOP client domain is set to be the same as that being used by the GV Orbit Routing service on the GV Orbit server. (Main menu: 'Connections > GVOP')
- 3 Locate the **Routing** service item in the **Network** window of GV Orbit Client. And right-click on the item and select 'Open Panel'. See Figure 2-3.



Right-click on the **Routing** service item and select 'Open Panel'.

Fig. 2-3: Open a Bulk Routing Panel

Note: A 'Routing service' item in the **Network** window is formed when a **Routing** service is running on the GV Orbit server and is configured to talk to a router controller.

An example Bulk Routing Panel is shown in Figure 2-4.

Bulk Routing Panel

From the Network Window

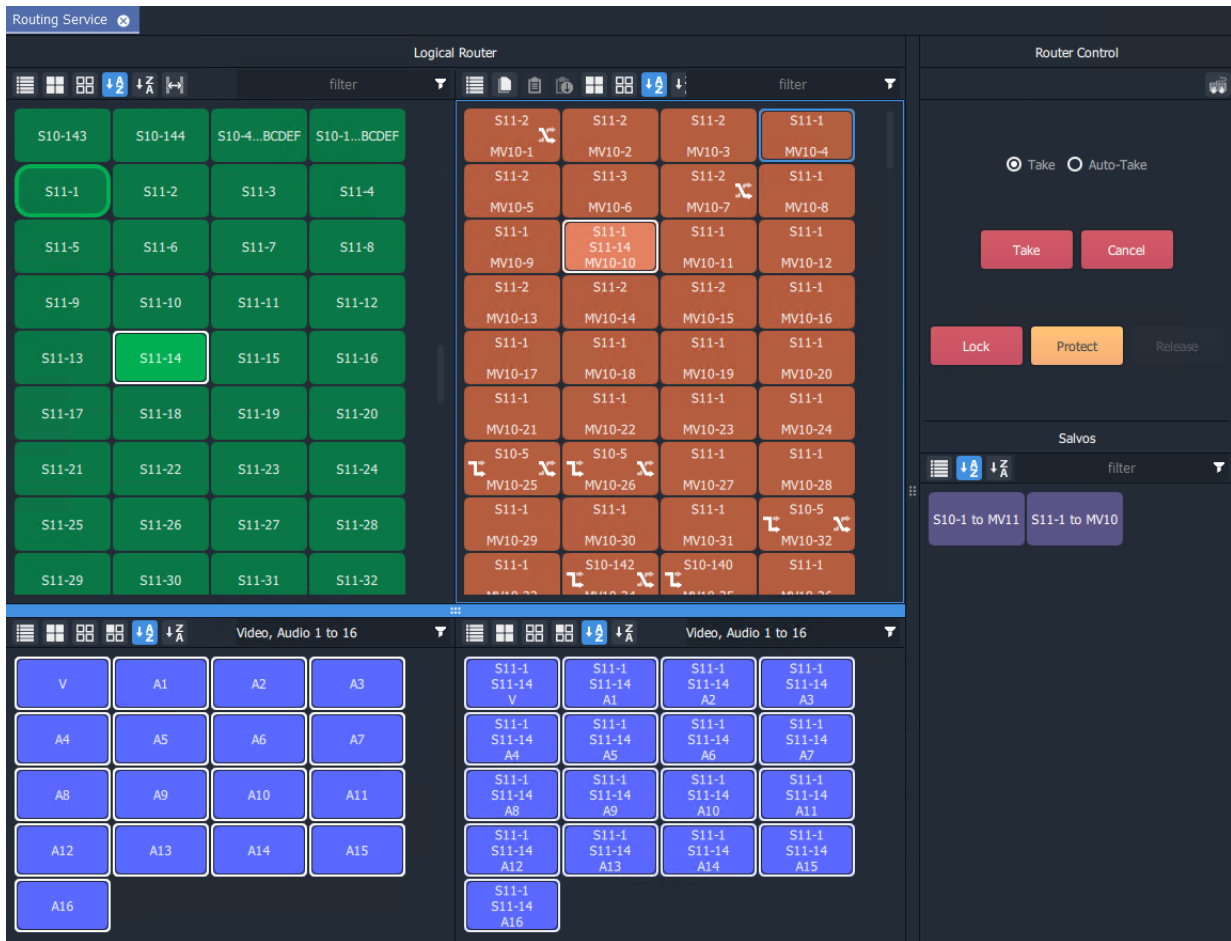


Fig. 2-4: Example Bulk Routing Panel

Bulk Routing Panel Layout and Controls

Keyboard Shortcuts icon

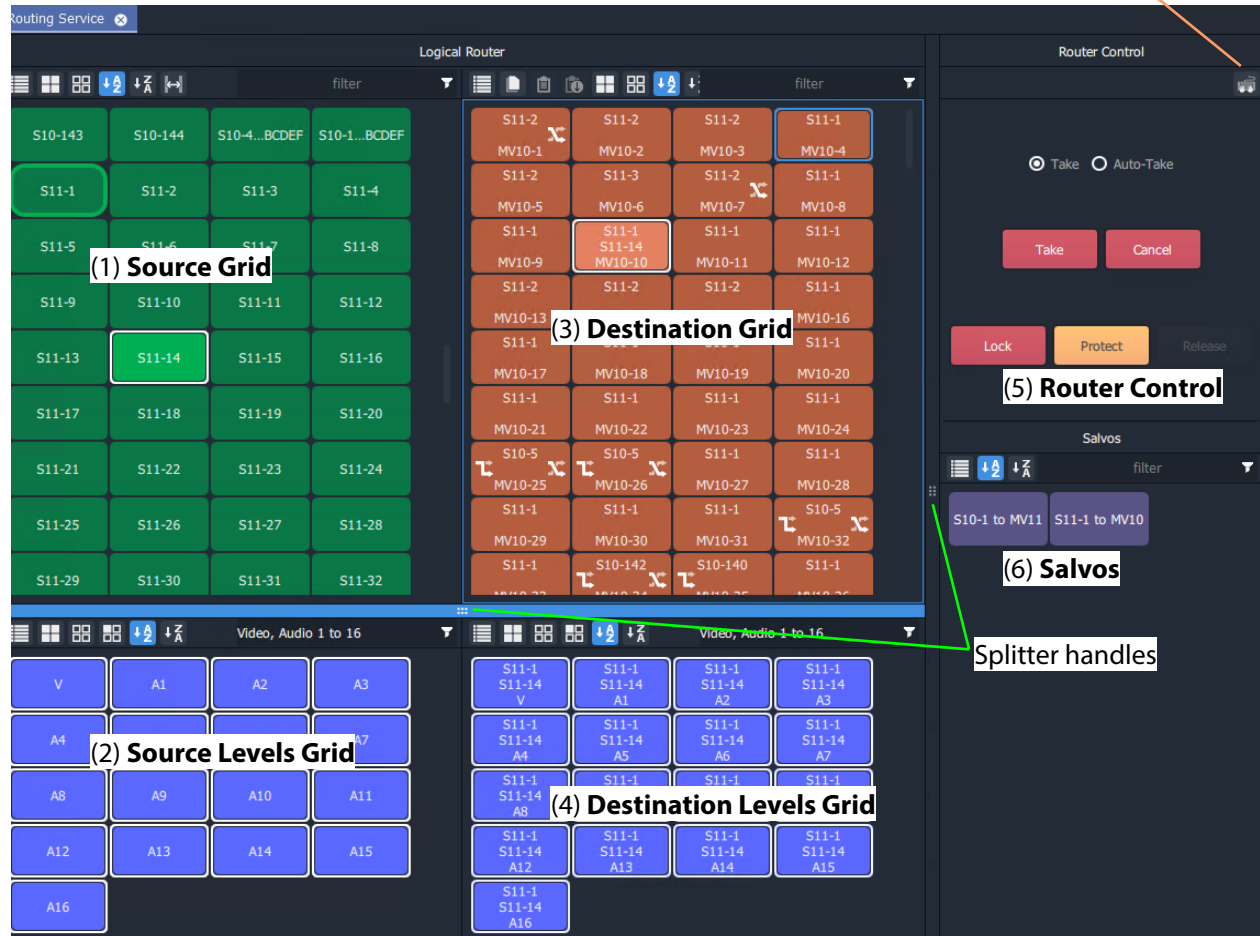


Fig. 2-5: Bulk Routing Panel Layout

The panel is laid out as six grids/panes (see Figure 2-5):

- (1) **Source Grid** – Scrollable list of all available sources.
- (2) **Source Levels Grid** – Scrollable list of available levels for selected source(s).
- (3) **Destination Grid** – Scrollable list of all available destinations.
- (4) **Destination Levels Grid** – Scrollable list of available levels for selected destination(s).
- (5) **Router Control Pane** – Take, Lock, and Protect functionality.
- (6) **Salvos Pane** – List of available Salvos when connected over the NP0017 protocol.

Vertical sizing of the Source and Destination grids can be altered by dragging a splitter handle up/down the screen. Horizontal sizing and sizing of the Router Control and Salvos panes can be altered by dragging a splitter handle left/right. Other sizing is handled automatically. See Figure 2-5.

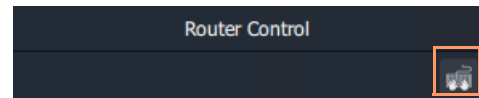
What are the Operational Keyboard Shortcuts?

Keyboard shortcuts are available when navigating and operating the Bulk Routing Panel, in addition to using a mouse. The user can freely mix 'mouse' and 'keyboard' methods.

A list of keyboard shortcuts may be displayed in a movable window which can remain on display while using the Bulk Routing Panel.

To see a list of keyboard shortcuts:

- 1 Click on the 'Keyboard Shortcuts' icon in the tool bar of the **Router Control** pane.



The **Bulk Routing Keyboard Shortcuts**

window is shown, see Figure 2-6. This window lists the keyboard shortcuts. It remains on display and may be moved.

Bulk Routing Keyboard Shortcuts	
Shortcut key	Description
Cursor keys	Navigate between source/destinations/levels of the the active panel
Ctrl + cursor keys	Navigate between source, destination, level and salvo panels
Space bar	Select
Enter	Take
Shift + cursor keys	From a previously selected source/destination/level select a series of sources/destinations/levels
Ctrl + space bar	Select multiple distinct sources/destinations/levels
Escape	Cancel, deselects all sources/destinations/levels
Tab	On a text filter, will show the filter drop down menu
Tab	On a source level selector, will toggle between source and level selection
Text input	On a destination shows a source selector, arrow up/down to select, enter to take
Text input	On a destination level shows a level selector, arrow up/down to select, enter to take
Home	Select first source/destination/level on the active panel
End	Select last source/destination/level on the active panel
Page up	Scroll up sources/destinations/levels on the active panel
Page down	Scroll down sources/destinations/levels on the active panel
Ctrl + A	Select all sources/destinations/levels on the active panel
Ctrl + D	De-select all sources/destinations/levels on the active panel
Ctrl + C	Copy the routed source for the selected destination
Ctrl + V	Paste the copied source to the selected destination(s)
Ctrl + Alt + V	Paste a series of sources incrementing from the copied source to the selected destinations
Ctrl + Alt + R	Paste a range of levels to the selected destination levels
Ctrl + F	Go to the filter box of the active panel
Ctrl + L	Lock the selected destinations
Ctrl + P	Protect the selected destinations
Ctrl + R	Release the selected destinations
Backspace	Clear the filter box of the active panel

Close

Fig. 2-6: Bulk Routing Keyboard Shortcuts Movable Window

Equivalent mouse clicks for some keyboard shortcuts are listed in Table 2-1.

Table 2-1: Bulk Routing Panel Operational Keys / Mouse operations

Operation	Keyboard	Mouse
Toggle Selection	Space bar	Mouse click
Take	Enter	Click Take
Panel Button Focus	Cursor Arrow Keys	Mouse movement/click
Panel/Grid Focus	CTRL + Arrow Keys	Mouse movement/click
Add a series of items to/remove from a multiple selection	SHIFT + Cursor keys	SHIFT + Mouse click
Add distinct items to/remove from a multiple selection	CTRL + Space bar	CTRL + Mouse click
Select Range (Select a contiguous range)	Space bar on first item then SHIFT + space bar on last item.	Mouse click on first item then SHIFT click on last item.
Paste Series	Alt-CTRL + V when a range of destinations are selected. See What is Copy-and-Paste Series Routing? , on page 35.	Click 'Paste Series' icon in panel.
Take	Return / Enter	Double-click
Dial Source	Begin to type the name of a Source when a destination is selected. See Dial Source Dialog , on page 25.	N/A
Dial Source-Level	Press any single alpha-numeric key when a destination <i>and</i> (one or more) levels are selected. See Dial Source-Level Dialog , on page 26.	N/A
Cancel	Escape	Click 'Cancel' button in the Router Control pane.
Select All in the focused panel	CTRL + A	Click 'Select All' icon in panel.
Select None in focused panel	CTRL + D	Click 'Select None' icon in panel.
Copy a Destination	CTRL + C when a destination is selected	Click 'Copy' icon in panel
Paste a Destination	CTRL + V when target destination, or destinations, are selected	Click on 'Paste' icon in panel

Select/Focus in a Bulk Routing Panel

Current Button-Focus

When the mouse cursor is moved over a button, or control item, the button/item is highlighted indicating the current item is in focus.

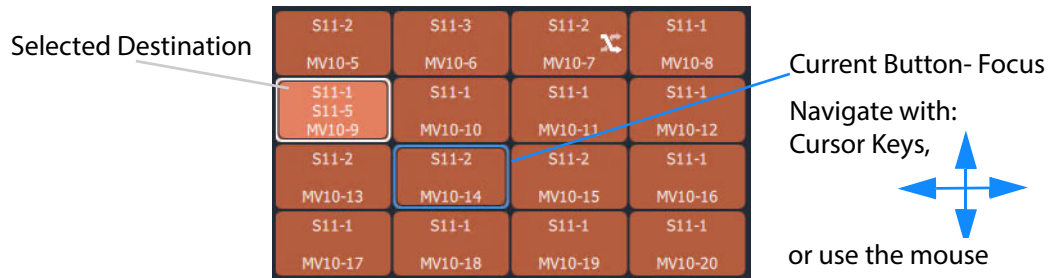


Fig. 2-7: Current Button-Focus Item

Select a Button

To select a button:

- click on a button; or
- press the space-bar key when a button is the current focus item.

De-select Buttons

To deselect all buttons:

- click Cancel in the Router Control pane; or
- press the ESC key.

Move Focus Between Grids/Panels of the Bulk Routing Panel

To move the focus between a grid/panel of the Bulk Routing panel:

- Use the CTRL key and one of the cursor arrow keys.
Focus is indicated by a border around the focused grid.



Fig. 2-8: Current Panel/Grid Focus Item

Selecting Multiple Items

Select Multiple Items (CTRL select)

Select multiple items (i.e. destinations, or sources, etc.) by selecting the first item and CTRL-selecting the others. For example, to select multiple destinations:

- 1 Select the first destination by clicking on the destination selection button.
- 2 CTRL-click on the next destination to add that to the selection.
- 3 Add other destinations.

Select Multiple - Alternative Method

Multiple items can be selected using the Control key, the Cursor Arrow keys and the Enter key.

- 1 With the cursor over the first item to be selected, press enter to select it.
- 2 Use the cursor arrow keys to move to the next item.
- 3 Select it with CTRL-Enter. This adds to the selection.
- 4 Add other items similarly.

Select a Range of Items (SHIFT select)

When selecting multiple items (i.e. destinations, or sources etc.), a range may be selected by selecting:

- 1 The first destination in the range by clicking on the destination selection button.
- 2 Selecting the last destination by SHIFT + clicking on its destination button.

Source ranges can be selected similarly.

Select a Range - Alternative Method

A range of consecutive sources or destinations can be selected using the Shift key, Cursor Arrow keys, and Enter key.

- 1 With the cursor over the *first* item to be selected, press Enter to select it.
- 2 Move to the *last* item in the range with the cursor keys.
- 3 Hold down the SHIFT key and press Enter to select it.

The last item and all the items from the first to the last are added to the selection.

Source/Destination Grid Buttons

The source/destination selection grid buttons and level-selection buttons are annotated to reflect the source/destination name or the level name. Additionally, the destination buttons may show the currently-routed source and currently-selected source for the selected destination. Buttons also change shape and are highlighted to show if they are selected or if sources are currently-routed or currently-selected. See Figure 2-9.

Note:

See [Breakaway and Levels](#) and [Shuffle and Levels](#) for examples of selecting levels.

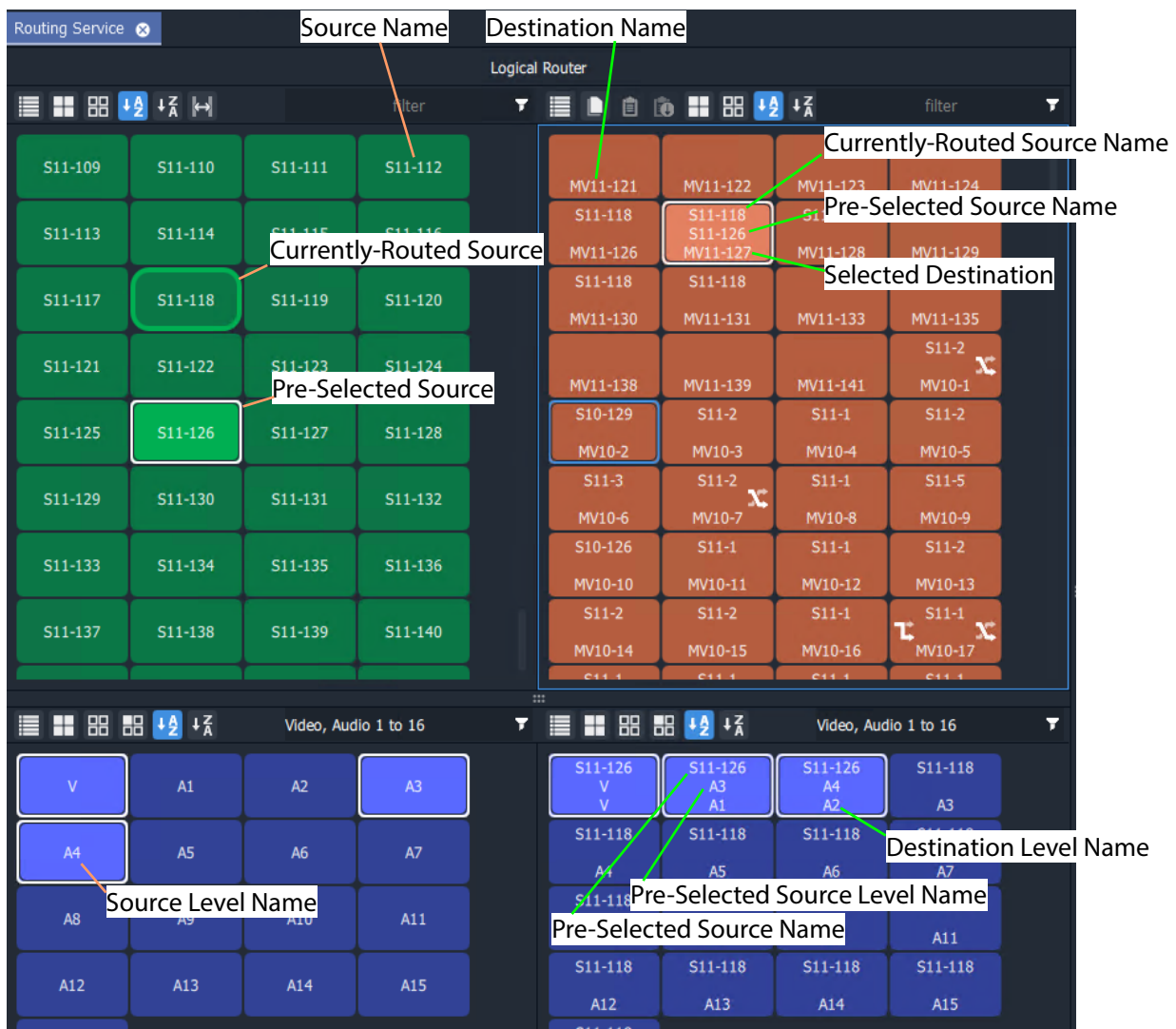


Fig. 2-9: Selection Buttons

Note: Select a Destination or a Source to see the corresponding Level selection buttons.

Level Selection

When a source or a destination is selected, the associated levels are shown in the corresponding 'Levels' grid. If *multiple* sources or destinations are selected, then only their *common levels* are shown.

All levels are selected by default. If the user selects one or more levels, then all other levels are deselected.

Keep Last Level Selection After Take

When a different source or destination is selected after a 'Take', the level selection is normally cleared. To keep the selected levels, select the **Keep Last Selection** button in the 'Levels Grid' pane tool bar (see Figure 2-10).

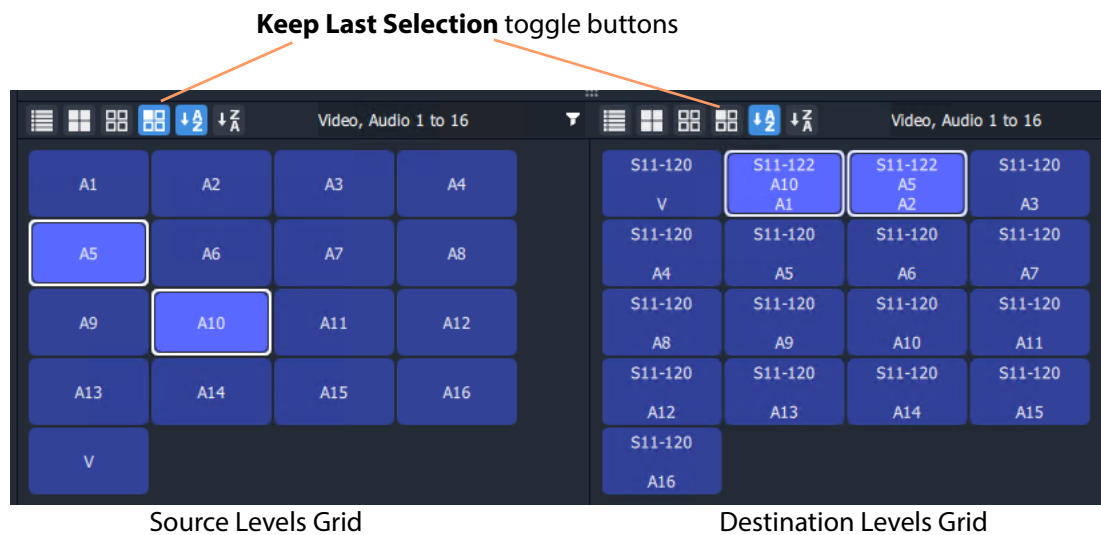
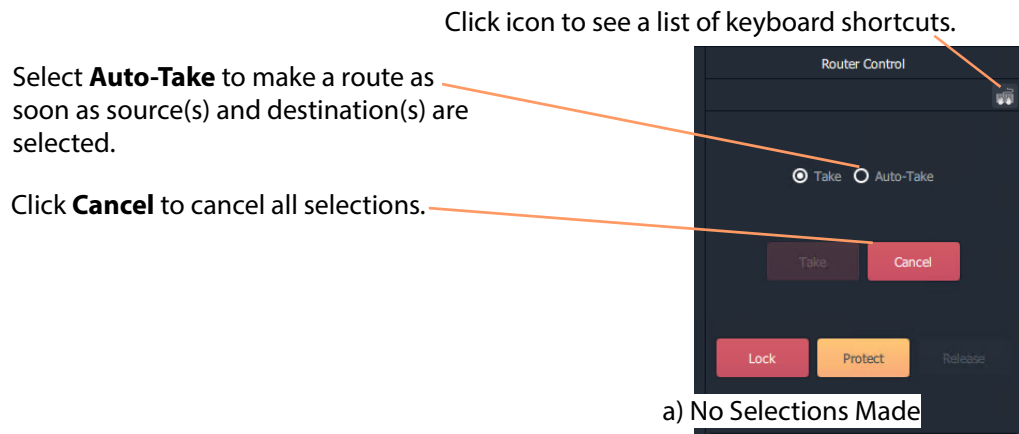


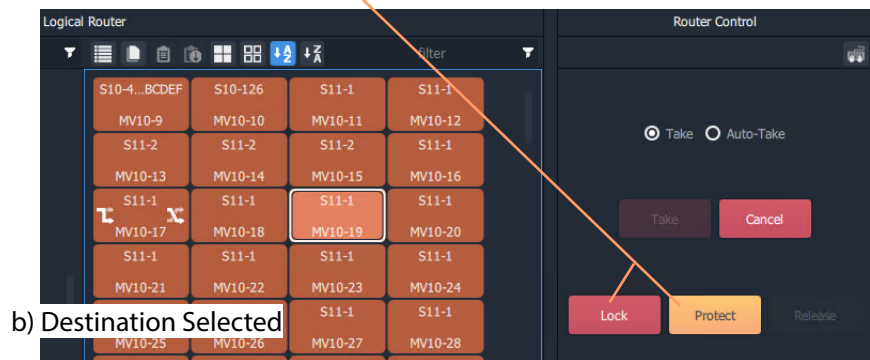
Fig. 2-10: Keep Last Selection Buttons

Router Control Pane

The **Router Control** pane in the Bulk Routing Panel contains the **Take**, **Lock** and **Protect** functions.



With a destination selected, **Lock** and **Protect** buttons are active.



After destination(s) *and* source(s) are selected, the **Take** button goes active (red).

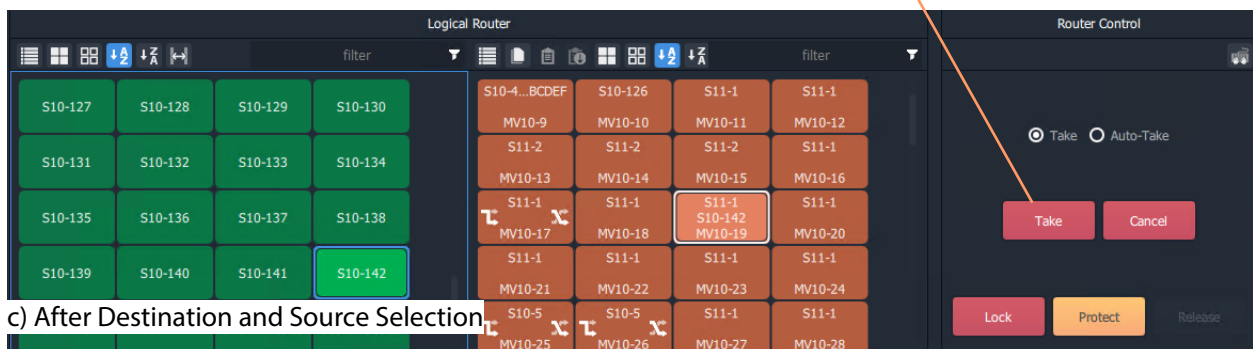


Fig. 2-11: Router Control Pane:
a) No Selections Made;
b) Destination Selected;
c) Destination and Source Selected.

Tool Bars in a Bulk Routing Panel

There is a small tool bar at the top of each grid/pane containing controls for selection/deselection, sorting and filtering.

Source Selection Grid Tool Bar

Click to see drop-down menu of tool bar items.

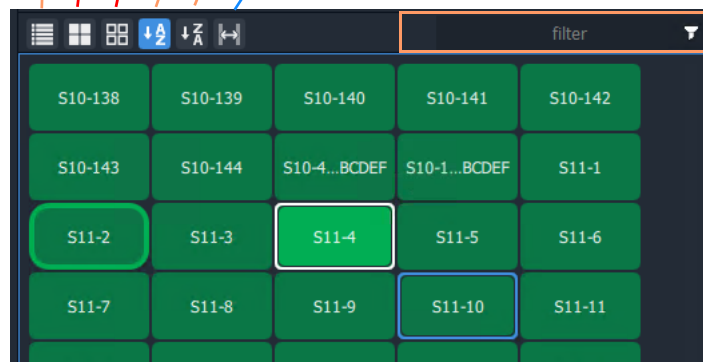
Click to Select all sources.

Click to Deselect all sources.

Click to Sort sources A-Z.

Click to Sort sources Z-A.

Click to toggle the optional display of [Wide Source and Destination Selection Buttons](#).



Filter control, see [What is Bulk Routing Panel Filtering?](#), on page 49.

Fig. 2-12: Source Selection Grid - Tool Bar

Source Levels Grid Tool Bar

Click to see drop-down menu of tool bar items.

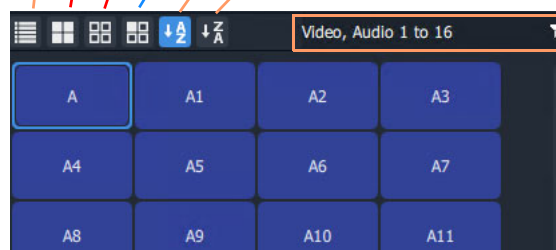
Click to Select all levels.

Click to Deselect all levels.

Click to keep the Levels selection after a Take.

Click to Sort levels A-Z.

Click to Sort levels Z-A.



Filter control, see [What is Bulk Routing Panel Filtering?](#), on page 49.

Fig. 2-13: Source Level Selection Grid - Tool Bar

Destination Grid Tool Bar

Click to:

- See a drop-down menu of all tool bar items.
- Copy routing information of a Destination selection.
- Paste routing information to a Destination.
- Paste a series of sources to a Destination range.
(See [What is Copy-and-Paste Routing?](#), on page 33.)
- Select all destinations.
- Deselect all destinations.
- Sort destinations A-Z.
- Sort destinations Z-A.
- Toggle display of wide selection buttons.
- Toggle **Hide Sources**. See [Hide Sources](#), on page 64.
- Toggle **List View** mode. See [List View](#), on page 66.



Fig. 2-14: Destination Selection Grid - Tool Bar

Destination Levels Grid Tool Bar

Click to see drop-down menu of tool bar items.

Click to Select all level.

Click to Deselect all levels.

Click to keep the Levels selection after a Take.

Click to Sort levels A-Z.

Click to Sort levels Z-A.

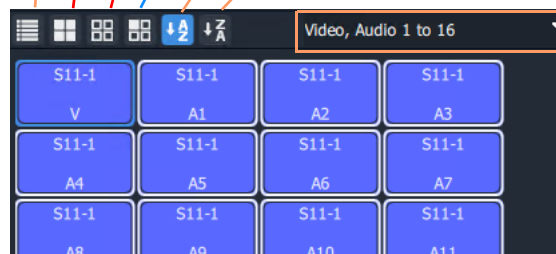


Fig. 2-15: Destination Level Selection Grid - Tool Bar

Router Control Pane Tool Bar

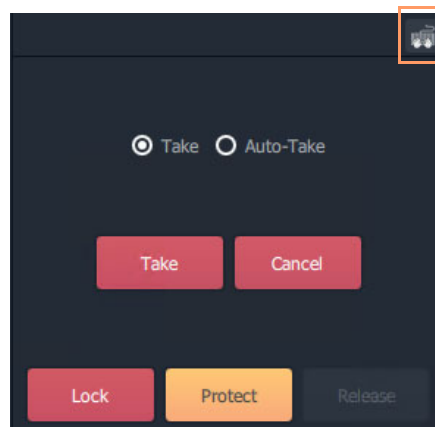


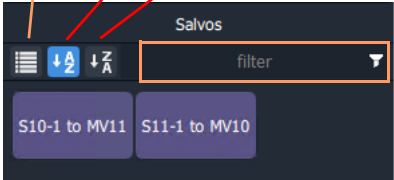
Fig. 2-16: Router Control Pane - Tool Bar

Salvos Pane Tool Bar

Click to see drop-down menu of tool bar items

Click to sort sources A-Z

Click to sort sources Z-A



Filter control,
see [What is Bulk Routing Panel Filtering?](#), on page 49

Fig. 2-17: Salvos Pane - Tool Bar

Wide Source and Destination Selection Buttons

To facilitate the display of longer source or destination names on selection buttons, there is a 'wide button' display option. This is selectable in the **Source Grid** and, independently, in the **Destination Grid**. The option is selected with a toggle button in the tool bar of each grid. See Figure 2-18.

The display option persists between sessions with the Bulk Routing Panel.

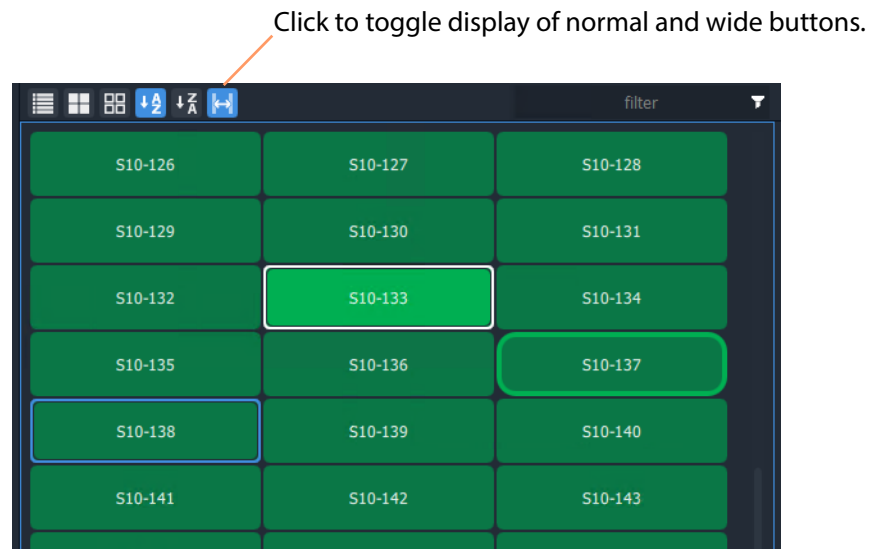


Fig. 2-18: Wide Buttons (Source Grid Shown)

Panel Pop-Up Items

Right-Click in a Bulk Routing Panel

Right-click on the Bulk Routing Panel to display a pop-up context menu. See Figure 2-19.

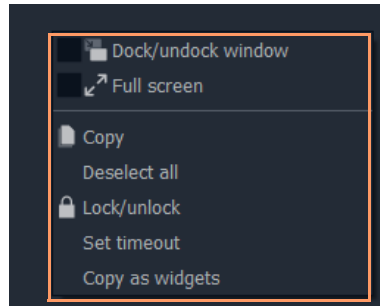


Fig. 2-19: Right-Click Context Menu

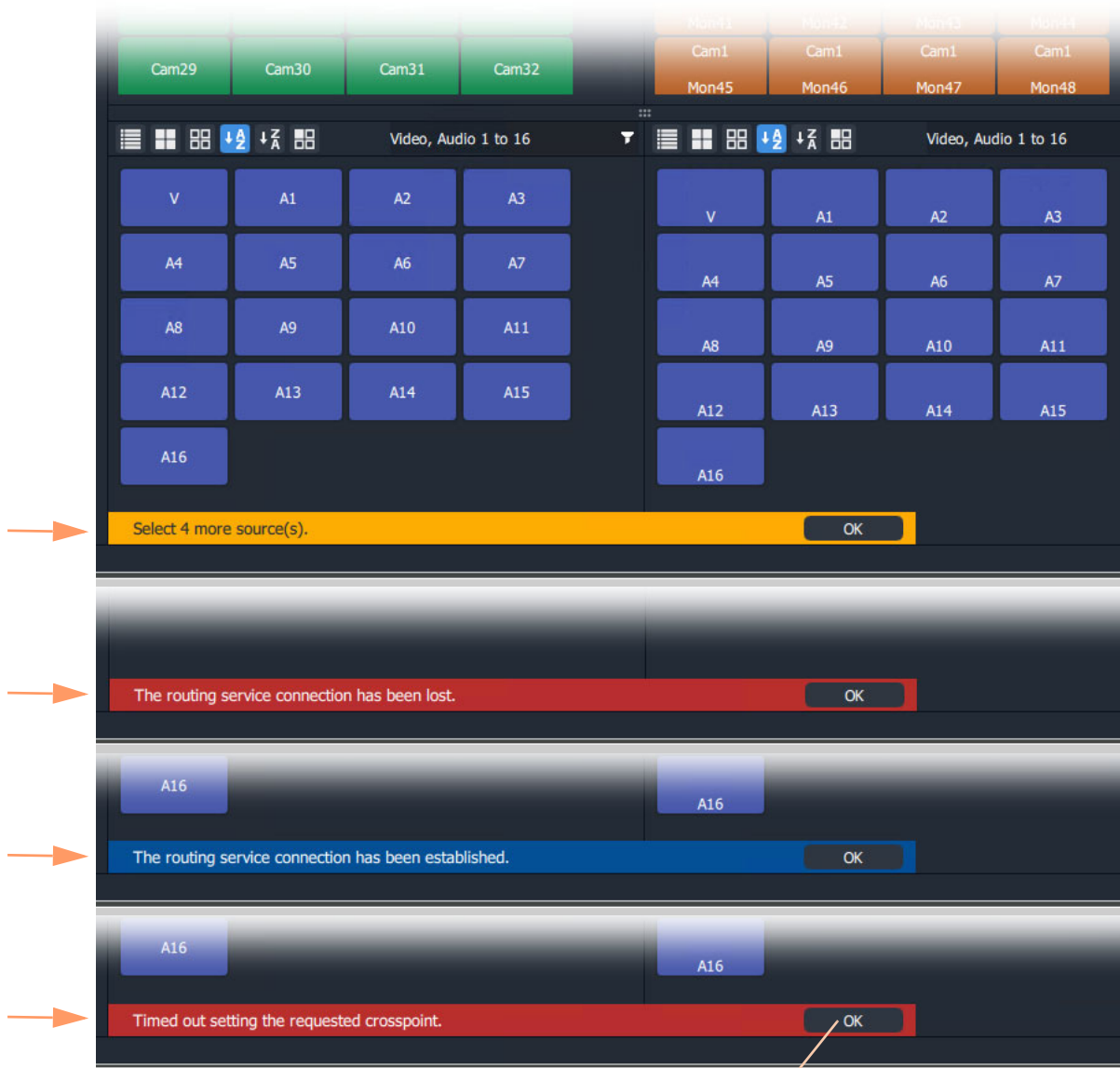
Table 2-2: Right-Click Context Menu Items

Item	Keyboard
Dock/Undock Window	Undock or dock the Bulk Routing Panel window from/to the GV Orbit Client window.
Full Screen	The Bulk Routing Panel window is shown full-screen. The control toggles full screen mode on/off.
Copy	Same as: <ul style="list-style-type: none"> • clicking on Copy icon in grid/pane tool bar; or • pressing Ctrl-C.
Deselect All	Deselects all items.
Lock/Unlock	Click to lock panel. When panel is locked, controls are grayed-out and user operation is disabled. The control toggles lock on/off
Set Timeout	Click to set a timeout (in seconds) for confirmation from the router controller of routing actions (i.e. the setting of router crosspoints). If the timeout is exceeded, a timeout notification is shown on screen. See Pop-up Notification Messages .
Copy As Widgets	Click to copy a selection of one or more buttons to the GV Orbit Client's copy-buffer. (This is used when designing an XY Routing Panel. See Chapter 3, XY Routing Panel , Quick Port-per-Button Assignment , on page 134.)

Pop-up Notification Messages

During Bulk Routing Panel operation, notification messages may pop up at the foot of the GV Orbit Client application window. These messages are informative to the user, advising, for example, on the setting up of a route, or of a broken/re-made Routing service connection. See Figure 2-20 for some example messages.

Click OK to clear a message.



Click OK to clear the message.

Fig. 2-20: Notification Message Examples

Dial Source and Dial Source-Level Dialogs

To help with source and source level selection when making a route, a 'dial-up' dialog allows the user to begin to type in a source name and see a filtered list of sources and source levels.

There are two 'dial-up' dialogs

- [Dial Source Dialog](#) for Source selection.
- [Dial Source-Level Dialog](#) for Source *and* Level selection.

These dialogs enable a user to select a source and/or level and route it to a destination.

Note: To clear a 'dial-up' dialog before making a route, click the ESC key.

Dial Source Dialog

Dial Source is a quick way of selecting a Source for a destination and routing it.

With a **Destination** selected, a **Source** may then be found by typing a part of a source name with the keyboard's alpha-numeric keys. A **Dial Source** dialog is displayed and, as characters are entered:

- **Sources** matching the entered characters are displayed in a drop down list; and the
- **Source Grid** is correspondingly filtered.

After a valid Source has been selected, a route can be made by pressing the Enter key.

Example

To see and use the **Dial Source** dialog:

- 1 Select a **Destination**.
- 2 Begin to type in a Source name.
A **Dial Source** dialog pops up. (See Figure 2-21.)
- 3 Continue typing in a valid source name and press Enter; and/or select a source from the (scrollable) filtered list in the dialog.

A route is made from the selected **Source** to the selected **Destination**. No 'Take' is required.

Note: Enter will execute the route if a valid source has been selected. A mouse click on a source will also execute the route.

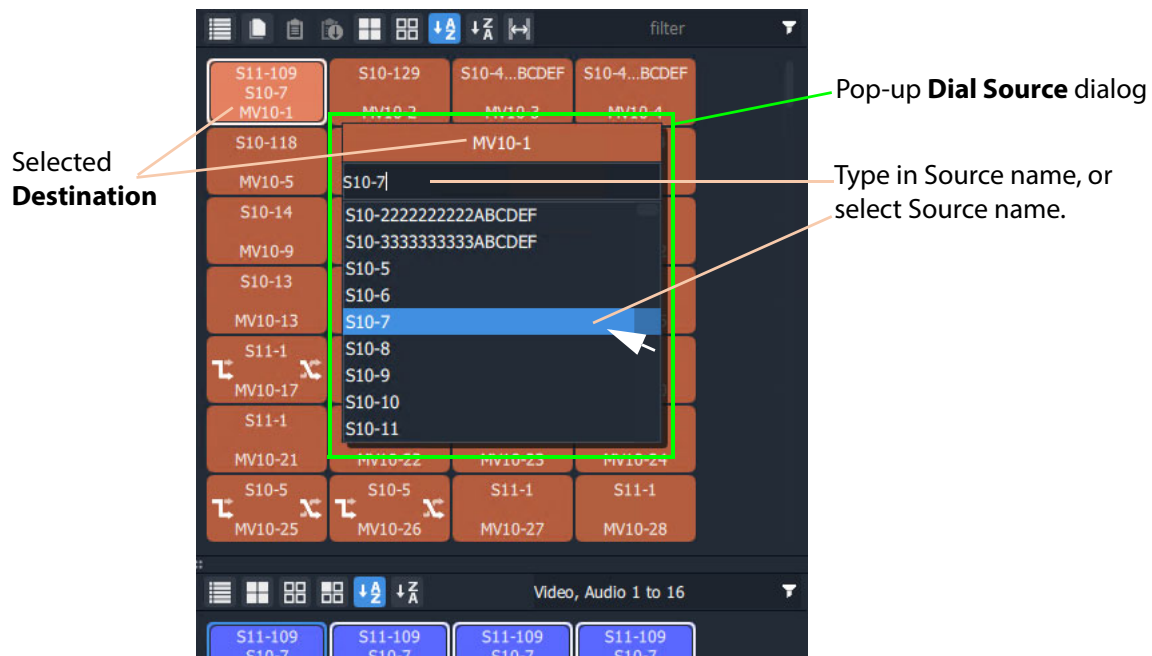


Fig. 2-21: Dial Source Dialog

Further routing examples can be found at:

- [Route with Dial Source](#), on page 30.

Dial Source-Level Dialog

Dial Source-Level is a quick way of selecting a Source and a Level for a destination and routing it. By default, the **Dial Source-Level** dialog shows the currently-routed Source and Source-Level.

With a **Destination** and a **Destination Level** selected, type a single alpha-numeric character to display the default **Dial Source-Level** dialog.

A **Source** may then be found by starting to type a source name. As the Source name is typed, the Sources listed in the dialog are filtered.

After a valid Source has been highlighted, press Tab to select a valid Source Level and a route can be made by pressing the Enter key.

Routing a level from a different source to a destination forms a breakaway (see [Breakaway and Levels](#)). Routing a different level from the same source forms a shuffle (see [Shuffle and Levels](#)).

Example

To see and use the **Dial Source-Level** dialog:

- 1 Select a **Destination**.
- 2 Select *one or more* **Destination Levels**.
- 3 Type a single alpha-numeric character.

A default **Dial Source-Level** dialog pops up and shows the currently-routed Source name and Level. (See Figure 2-22.)

(Note: It is assumed that level-based routing is required.)

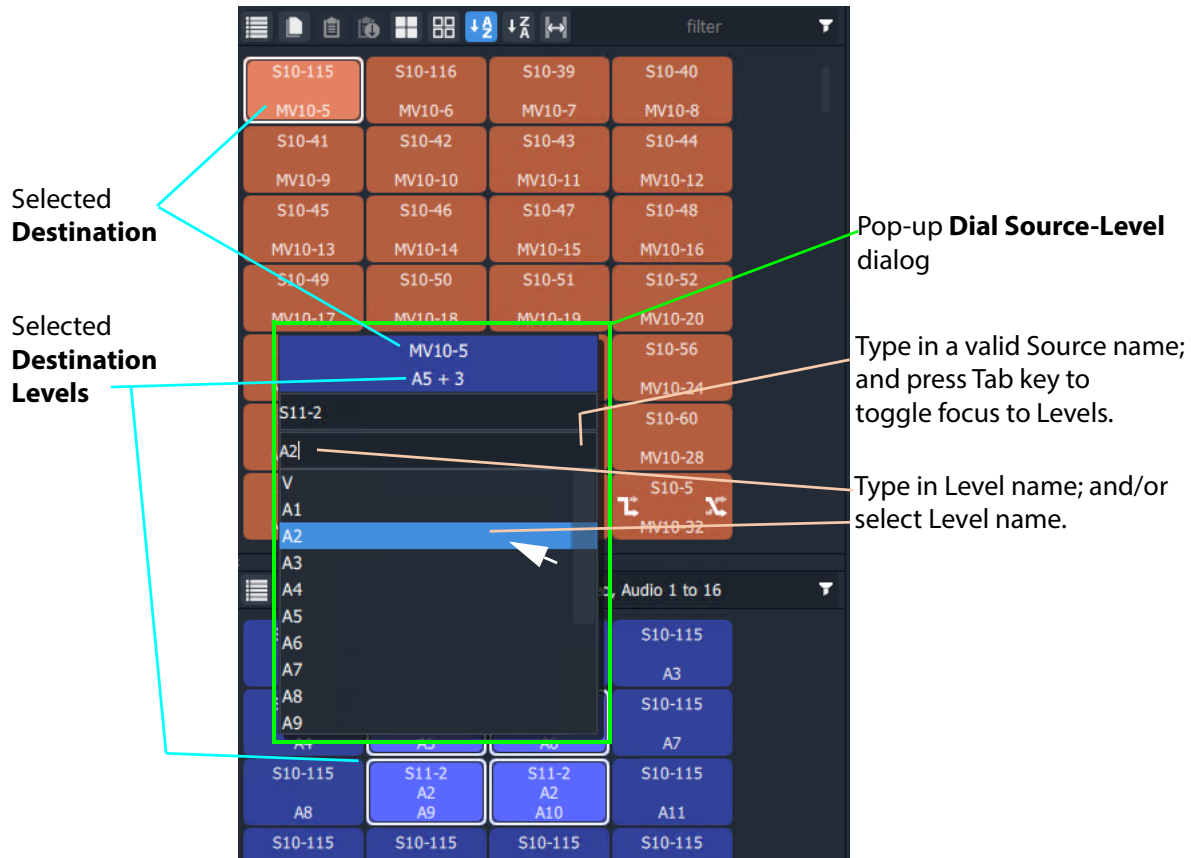


Fig. 2-22: Dial Source-Level Dialog

- 4 If a different Source Name is required, begin to enter the required Source name. The list of Source names is filtered on the typed text.
- 5 Either:
 - continue typing in a valid Source name (but *do not* press the Enter key); or
 - highlight a Source name in the list (do not select it).
- 6 When the required (and valid) Source name is in the upper text box of the dialog, press the Tab key. (See Figure 2-22.)
This toggles focus from 'Sources' to 'Levels'; the filtered list changes to listing Levels.

Note: To clear a 'dial-up' dialog *before* making a route, click the ESC key.

- 7 Type in the Level name required and press Enter; and/or select the Level from the filtered list in the dialog.
A route is made from the (one) selected **Source Level** to the selected **Destination Level(s)**. No 'Take' is required.

Note: Enter will execute the route if a valid source and level has been selected. A mouse click on a source or source level will also execute the route.

Further routing examples can be found at:

- [Quick Breakaway with Dial Source-Level](#), on page 41.
- [Quick One-Level Shuffle with Dial Source-Level](#), on page 47.

Bulk Routing Panel Operation

Make a Simple Route

To make a simple route:

- 1 Select a **Destination**.

The source currently routed to the selected destination is automatically highlighted in the Source Grid.

- 2 Select a **Source** to be routed to the selected destination.

See Figure 2-23.



Fig. 2-23: Make a Route Example - Before TAKE.

- 3 Click **Take**. (Click **Cancel**, to deselect the source/destination.)

The selected source (all of its levels) is routed to the selected destination. See Figure 2-24.

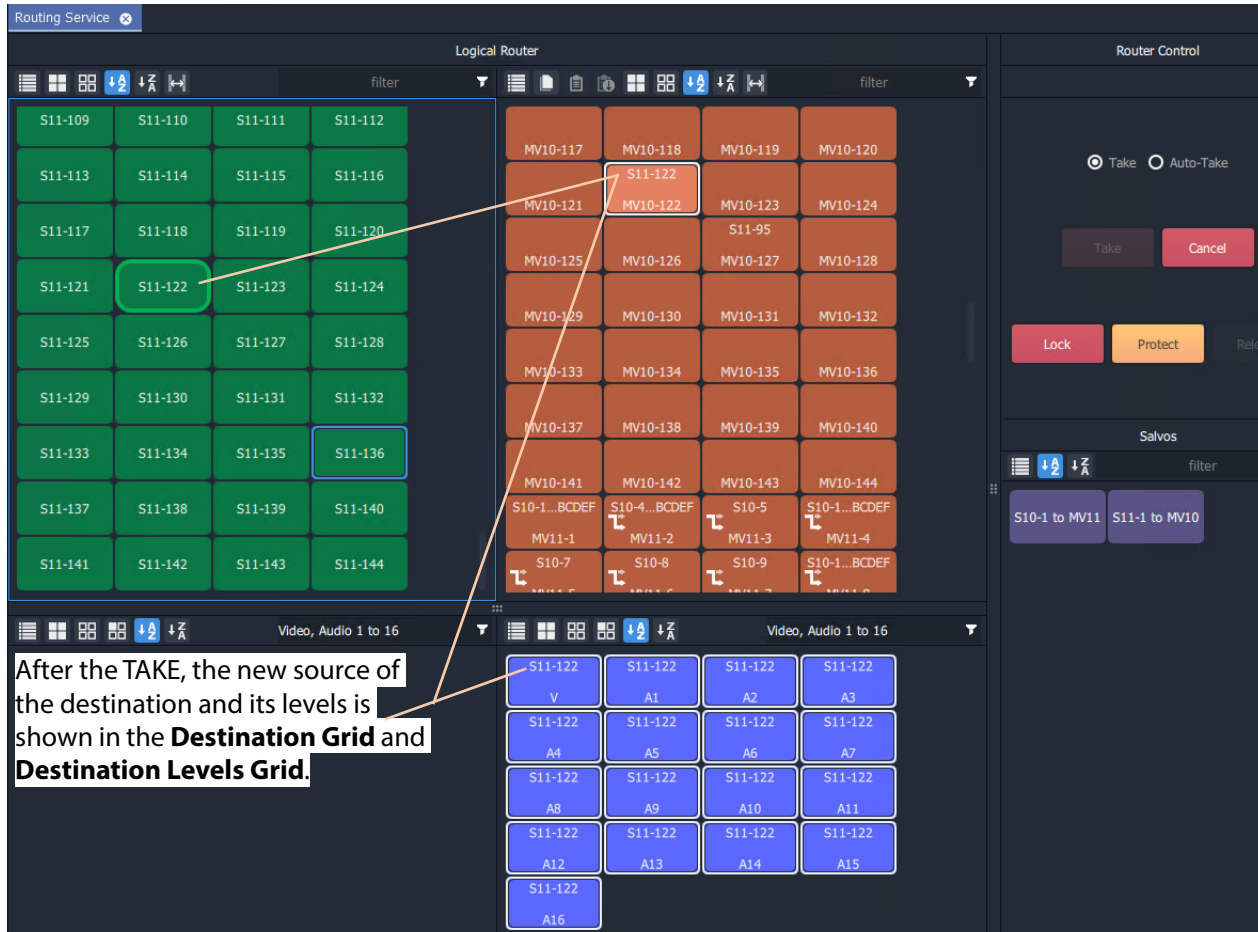


Fig. 2-24: Make a Route Example - After TAKE.

Simple Route - Alternative Method

Also, to make a route, the source may be selected first:

- 1 Select a **Source**.
- 2 Select a **Destination**.
- 3 Click **Take**.

Route with Dial Source

See [Dial Source Dialog](#), on page 25, for more information. To make a simple route:

- 1 Select a **Destination**.
- 2 Begin to type in a Source name.
A **Dial Source** dialog pops up.
- 3 Continue typing in a source name and press Enter; and/or select a source from the (scrollable) filtered list in the dialog.

A route is made from the selected **Source** to the selected **Destination**. No 'Take' is required.

Route One Source to Multiple Destinations

One to many.

Note: The Bulk Routing Panel may be operated with a mouse, or using keyboard shortcuts, or by using a mixture of both.

To route a single source to multiple destinations:

- 1 Select a **Destination** by clicking on the destination selection button.
(Equivalent keyboard shortcuts = cursor arrow keys and space-bar.)
- 2 Select a second **Destination** by CTRL + clicking on a destination button.
(Equivalent keyboard shortcuts = cursor arrow keys and CTRL-Space-Bar.)
- 3 Select further destinations with CTRL + click.

A selection of destinations has been made.

Note: Alternatively, a range selection may be made by:

- Selecting the first destination; and then
- SHIFT-selecting the last one.

This selects a sequential range of destinations, from first to last.

When all destinations have been selected:

- 4 Select a **Source**.
(Equivalent keyboard shortcuts:
Change to Source grid = CTRL-Cursor arrow keys.
Select Source = cursor arrow keys and space bar.)

- 5 Click **Take**.
(Equivalent keyboard shortcuts = Enter.)

The selected source is routed to all selected destinations.

One Source to Multiple Destinations - Alternative Method

Alternatively, the source may be selected first:

- 1 Select a **Source**.
- 2 Make a selection of Destinations (by CTRL-clicking, or SHIFT-clicking, or a combination).
- 3 Click **Take**.

Route Multiple Sources to Multiple Destinations

May to many.

To route multiple sources to multiple destinations:

- 1 Select a **Destination** by clicking on the destination selection button.
- 2 Select a second **Destination** by CTRL + clicking on a destination button.
- 3 Select further destinations with CTRL + click.

Note: Alternatively, a range selection may be made by:

- Selecting the first Destination; and then
- SHIFT-selecting the last one.

This selects a range, from first to last.

When all destinations have been selected:

- 4 Select a **Source** by clicking on the source selection button.
- 5 Select a second **Source** by CTRL + clicking on a source button.
- 6 Select further sources with CTRL + click.

Note: Alternatively, a range selection may be made by selecting the first Source and then SHIFT-selecting the last one. This selects a range, from first to last.

Note: Select the *same* number of sources as there are selected destinations. A reminding, pop-up notification message will appear.

- 7 Click **Take**.

The source is routed to all selected destinations.

Multiple Sources to Multiple Destinations - Alternative Method

Alternatively, the source may be selected first:

- 1 Select multiple sources.
- 2 Select multiple destinations.
- 3 Click **Take**.

Multiple Selection Type and Routing Order

Routing multiple Sources and/or multiple Destinations requires a selection of Sources and of Destinations to be made. This can be done as:

- a selection of multiple items (see [Select Multiple Items \(CTRL select\)](#), on page 14); or as
- a range selection of multiple items (see [Select a Range of Items \(SHIFT select\)](#), on page 14).

The selection order is different in each case and affects routing order.

CTRL-Selection Type Order

When routing multiple sources to multiple destinations and selecting multiple items with CTRL-clicks (i.e. not by using a range selection), then the *order* of selection is significant and affects the order in which routing is done.

For example, to route sources 1 to 8 to destinations 8 to 1:

- Select sources 1 to 8 by CTRL-clicking on each source button in the order 1 to 8.
- Select destinations 8 to 1 in that order by CTRL+clicking on each destination button in the order 8 to 1.
- Click **Take**.

SHIFT-Selection (Range) Type Order

When routing multiple sources to multiple destinations and using a selection range (a selection made with 'SHIFT'), then selection order is from the first to the last item of the range, in the order that the items (Source or Destination buttons) are shown. This is the routing order used.

What is Copy-and-Paste Routing?

Copy and paste allow routing information from one destination to be copied onto another destination. The **Copy** and **Paste** controls are in the **Destination Grid** tool bar.

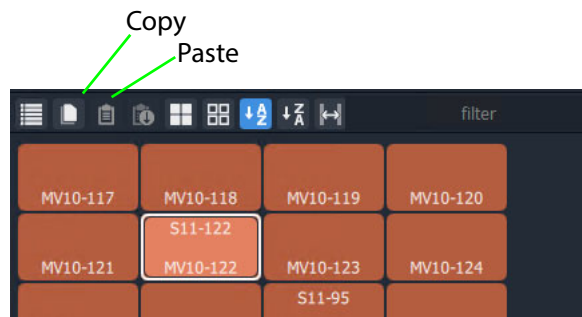


Fig. 2-25: Destination Grid Copy and Paste Controls

To Perform Copy-and-Paste Routing

- 1 Select a **Destination**.
- 2 Click the **Copy** icon in the tool bar of the **Destination Grid**, or press 'CTRL +C'.
The copy-selected Destination is shown highlighted with a 'crawling', dashed outline. See Figure 2-26.



Fig. 2-26: Copy-Selected Destination

Then:

- 3 Select a different **Destination** (the one to copy to).
- 4 Click the **Paste** icon, or press 'CTRL + V'.

The routing of the first destination is applied to the second destination and a route is made automatically. The routing done is 'all-levels'.

The copy-selection is still selected (the dashed outline indicates this), so further pastes can be made. To paste the same to further Destination(s):

- 5 Select a Destination (or select multiple destinations) and click on the Paste icon (or press 'CTRL-V')
- 6 Repeat for any further Destinations.

Finally:

- 7 To clear the copy selection, press ESC. (This can be done at any time.)

What is Copy-and-Paste Series Routing?

Paste Series fills a range of **Destinations** with a consecutive series of **Sources**.

To Perform Copy-and-Paste Series Routing

- 1 Select a **Destination**.
- 2 Click the **Copy** icon, or press 'CTRL +C'.
The routing information of the selected destination is copied.
- 3 Select a range of **Destinations**.
- 4 Click the **Paste Series** icon, or press 'SHIFT + V'.

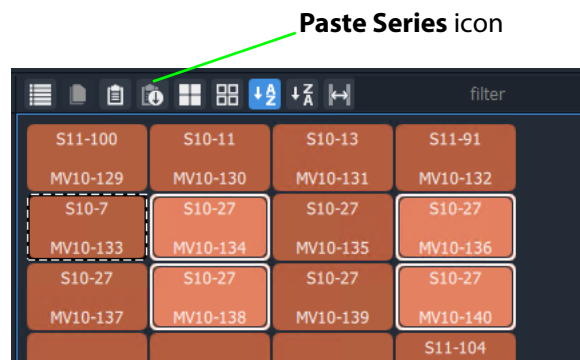


Fig. 2-27: Paste Series Icon

The routing of the first, 'copy-selected' destination is applied to the first destination in the selected range.

The *next sequential source* is routed to the next destination in the range and so on.

Routing is done automatically (no Take required).

Paste Series Example

- 1 Select destination **1** and click **Copy**.
- 2 Select destination range **11** up to **19**. (Select first and Shift-select last.)
- 3 Click **Paste Series**.

The following routing is done:

Source **1** to destination **11**, source **2** to **12**, **3** to **13**, **4** to **14**, ..., **9** to **19**.

Note: The rules of selection type and order apply. See [Multiple Selection Type and Routing Order](#), on page 32.

What is Quick 1-to-1 Routing?

Quick 1-to-1 routing can be used to make 1-to-1 routes quickly. This can be useful at system set up. For example, for the first 100 sources routed to the first 100 destinations.

To Perform Quick 1-to-1 Routing

To make a set of quick 1-to-1 routes:

- 1 Select destination **1**, select Source **1**, and click **Take**.

This routes the first destination.

- 2 Click **Copy**.

Destination **1**'s routing information is copied.

- 3 Select destination range **1** to **100**. (Select first and Shift-select last.)

- 4 Click **Paste Series**.

The following routing is done:

Source **1** to **1**, source **2** to **2**, **3** to **3**, ..., **99** to **99**, and **100** to **100**.

This has quickly copied Sources to all selected Destinations.

Destination Protect

What is Destination Protect?

When a destination is protected by a user, users of other types of routing control panel cannot route to it.

This means that users of Bulk Routing Panels in GV Orbit Clients *would* be able to route to a destination protected by another such Bulk Routing Panel. But hardware panel users *would not* be able to route to a destination protected by a Bulk Routing Panel. (And vice versa.)

To Protect a Destination

- 1 Select a Destination.
- 2 Click the **Protect** button in the Router Control pane.
The destination is protected.

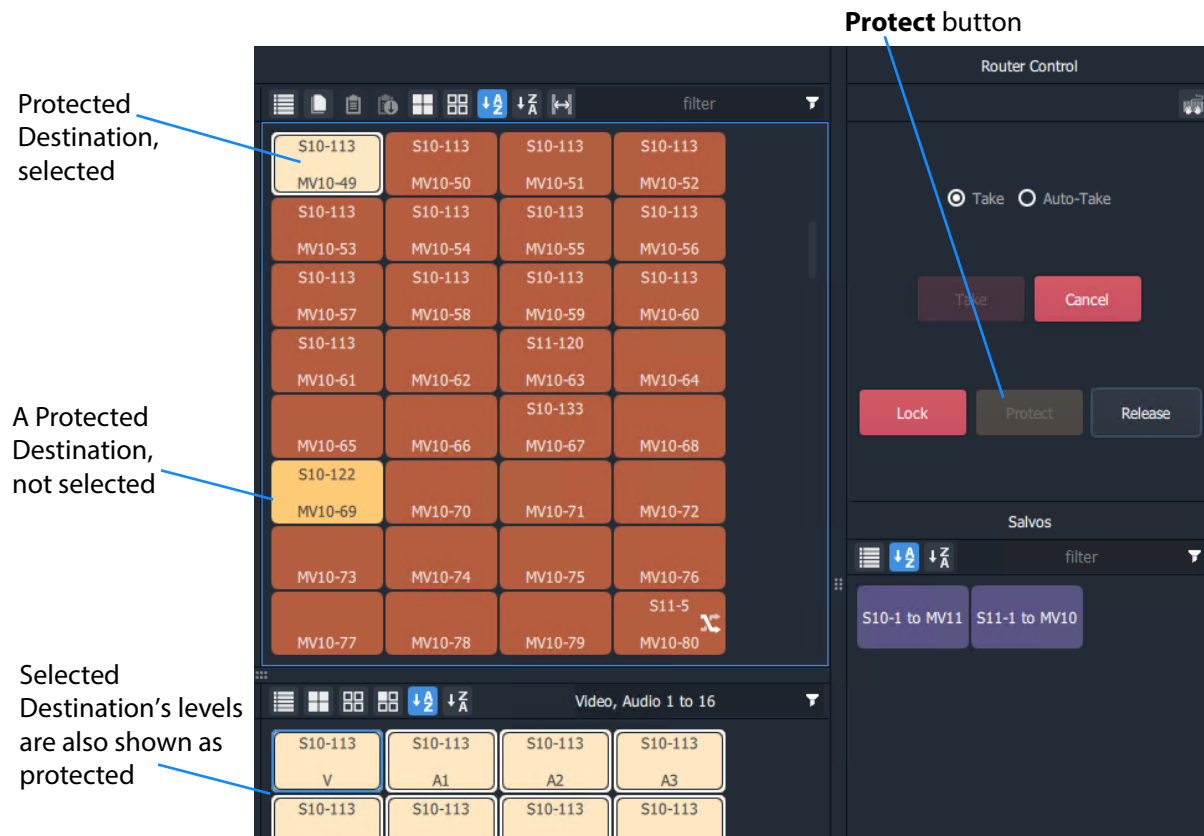


Fig. 2-28: Protected Destination

To Un-Protect a Destination

- 1 Select the protected destination.
- 2 Click the **Release** button in the Router Control pane.
The destination protection is removed from the selected destination.

Destination Lock

What is Destination Lock?

When a destination is locked, it cannot be routed to by any user.

To Lock a Destination

- 1 Select a destination.
- 2 Click **Lock** in the Router Control pane.
The destination is locked.

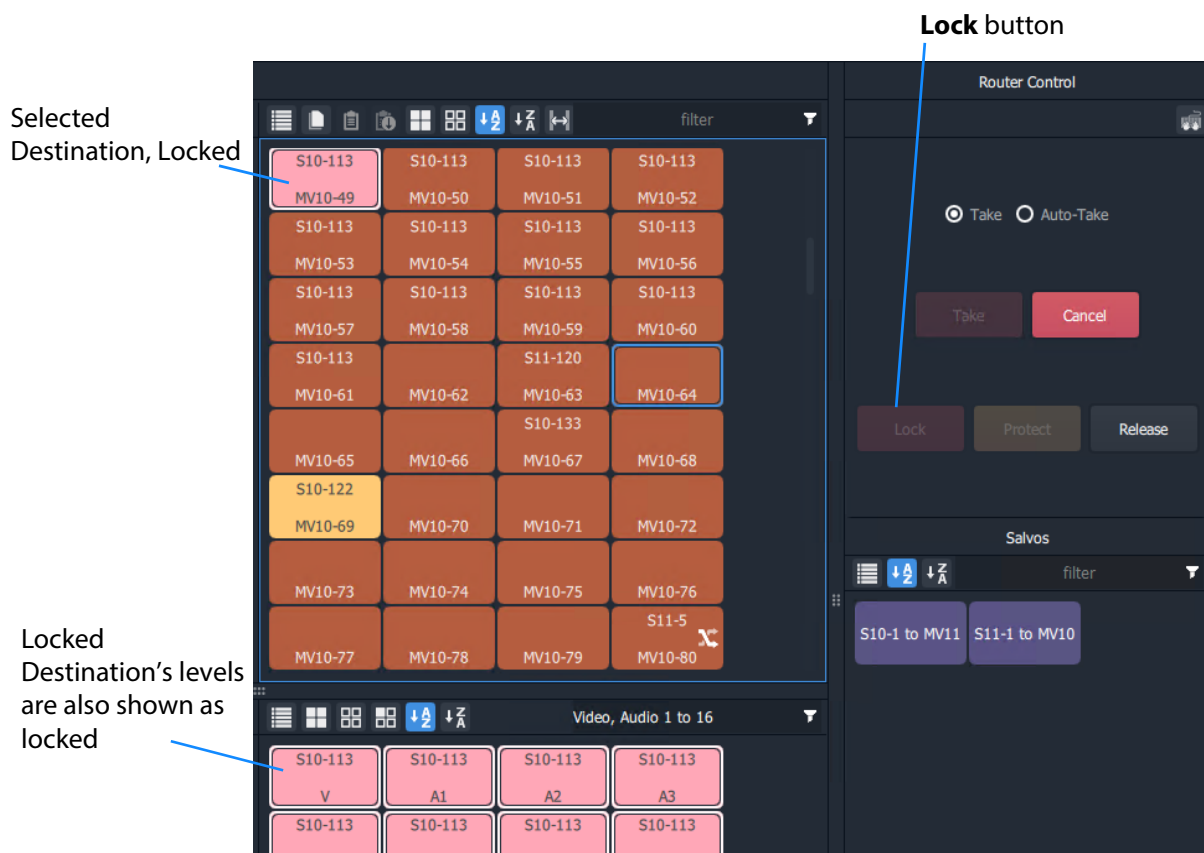


Fig. 2-29: Locked Destination

To Unlock a Destination

- 1 Select the locked destination.
- 2 Click the **Release** button in the Router Control pane.
The destination lock is removed from the selected destination.

Breakaway and Levels

What is a Breakaway?

A 'breakaway' occurs when all levels of a destination do not come from the same source. This is also referred to as the destination being 'unmarried'.

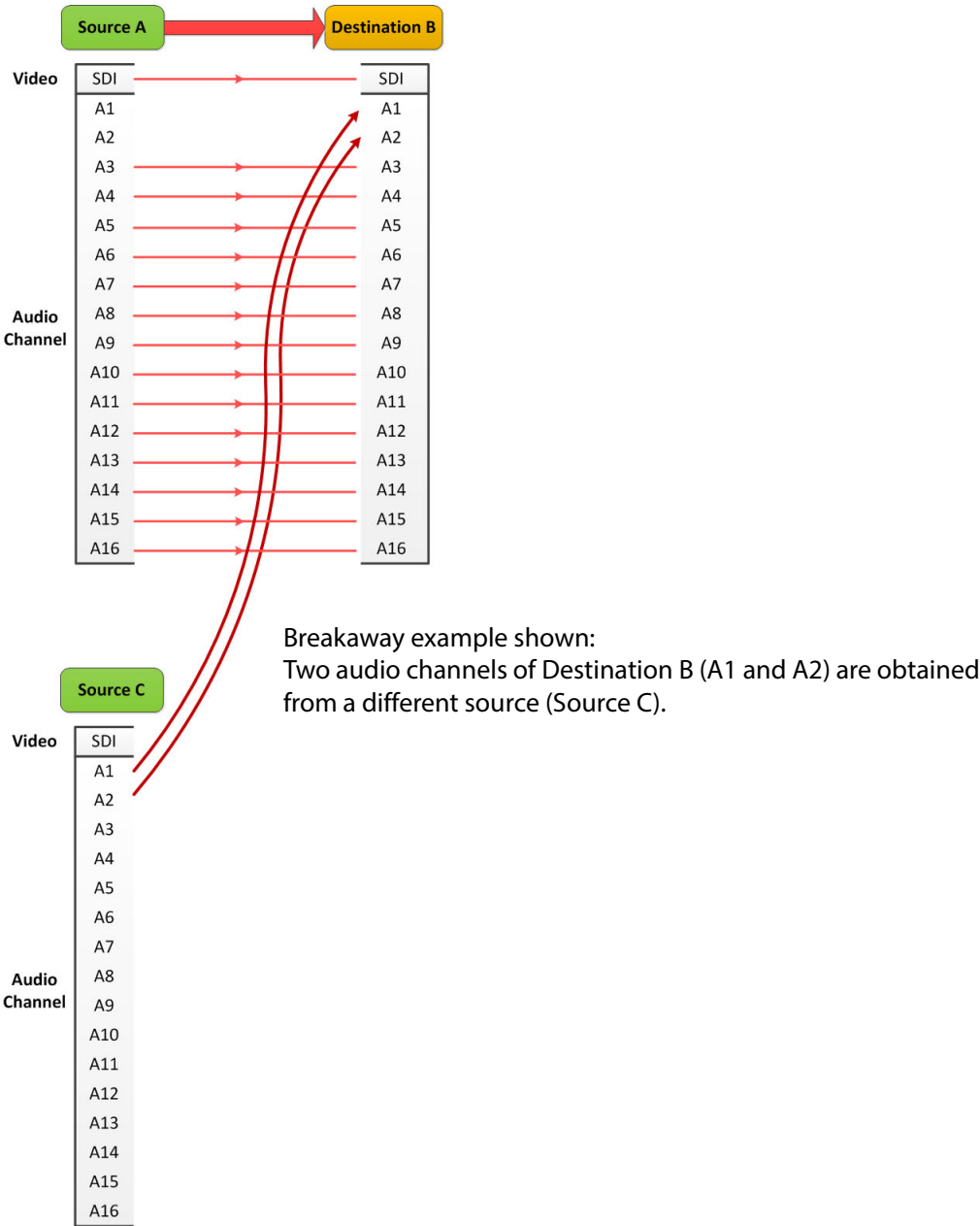


Fig. 2-30: Breakaway

Destinations which are 'unmarried' are indicated with a breakaway icon (Figure 2-31c) on the destination button.

Perform a Breakaway

To perform a breakaway:

- 1 Select a **Destination**.
- 2 Select the **Destination Levels** to make a route to (for example, audio channels A1 and A2). (See Figure 2-31a.)
- 3 Select a new **Source**.
- 4 Click **Take**.

The corresponding levels of the selected source are routed to the selected destination levels and a breakaway is formed. Figure 2-31b shows the breakaway result.

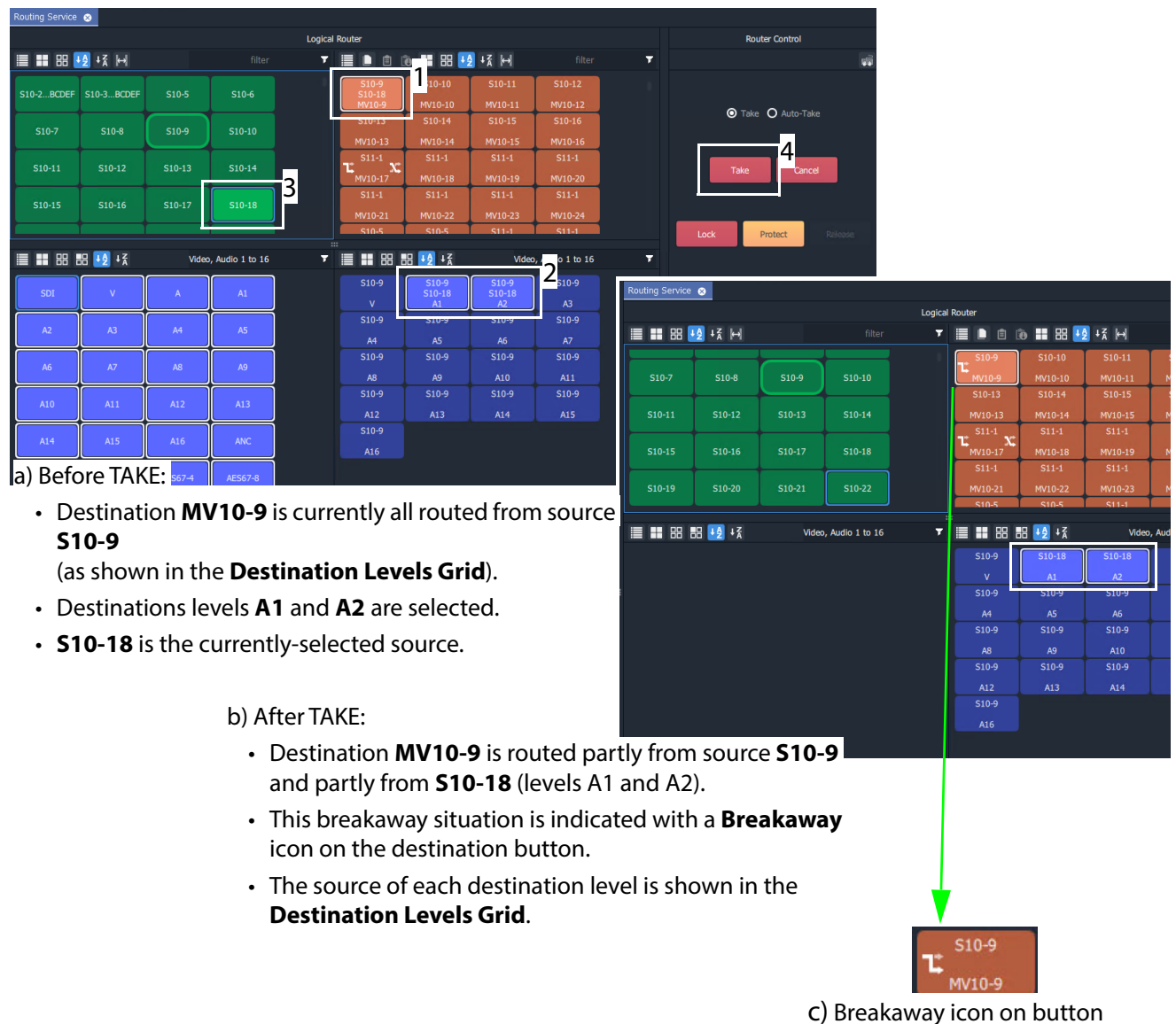


Fig. 2-31: Breakaway Example: a) Before TAKE; b) After TAKE; c) Breakaway Icon on Button.

Breakaway - Alternative Method

Also, to perform a breakaway, the source may be selected first:

- 1 Select a **Source**.
- 2 Select a **Destination**.
- 3 Select the **Destination Levels** to route.
- 4 Click **Take**.

Note: A 'breakaway' occurs when not all of a destination's levels are selected for routing.
This can also happen if a source with *fewer* levels than the selected destination is routed, this will result in a 'breakaway' (without selecting destination levels).

Quick Breakaway with Dial Source-Level

A quick single-level breakaway method uses the [Dial Source-Level Dialog](#).

To perform a quick video-level breakaway:

- 1 Select a **Destination**.
- 2 Select a **Destination Level**. (See Figure 2-32.)

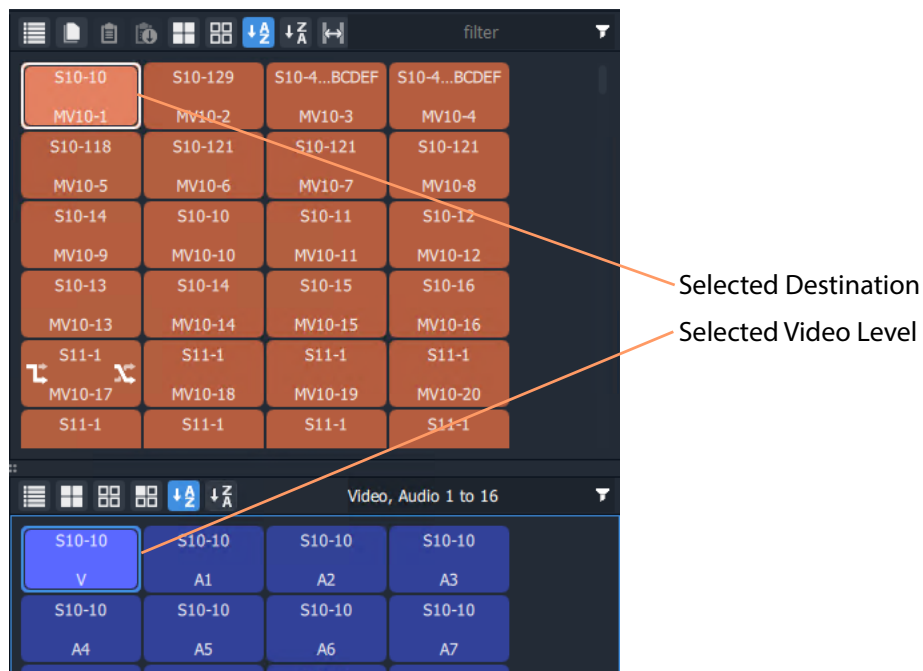


Fig. 2-32: Selected A Destination and a Level

- 3 Type a single alpha-numeric character.
A default **Dial Source-Level** dialog box appears showing the currently-routed Source and Level.
- 4 Begin to type a (new) Source name at the keyboard.
(For example, type "s" or "S" if source names begin with "S" - "S10-10", "S10-11", etc.)

A **Dial Source-Level** dialog box appears. See Figure 2-33.

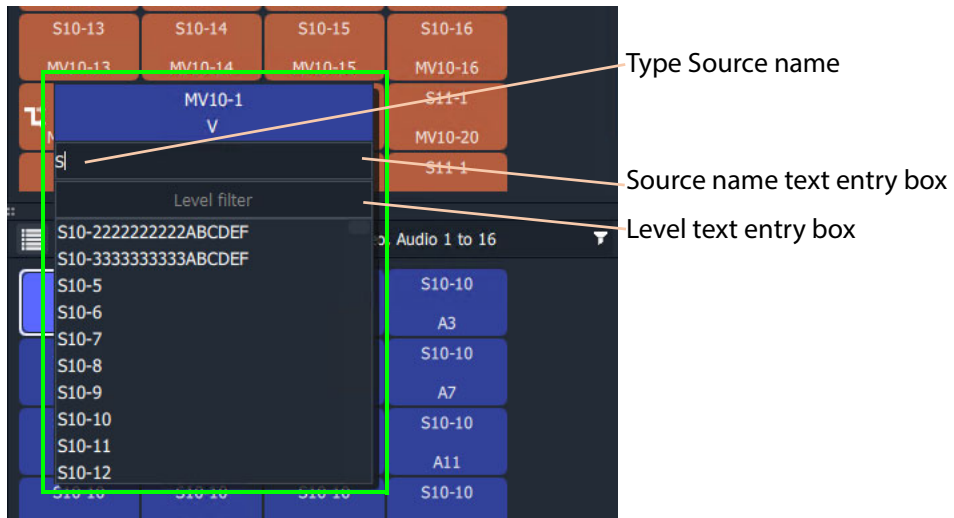


Fig. 2-33: Dial Source-Level Dialog

- 5 Type the new Source name into the dialog box. But *do not press* the Enter key yet.
- 6 When the Source name is typed, press the Tab key.

This toggles focus from 'Sources' to 'Levels' and to the lower dialog text entry box.

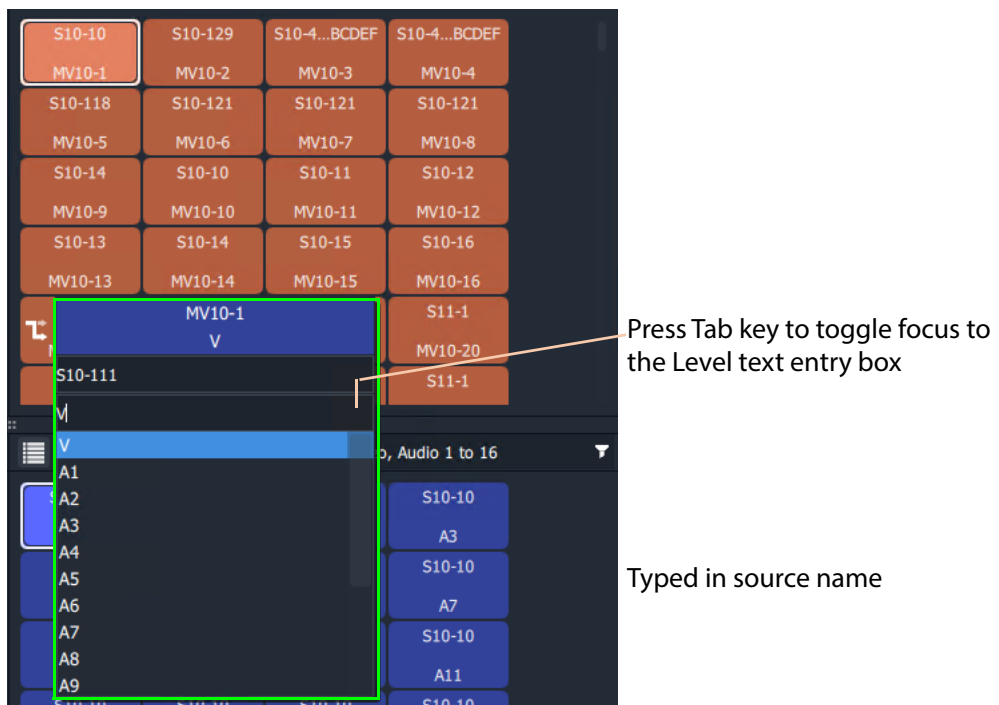


Fig. 2-34: Source and Level are Dialed-up

- 7 Type in the Level name, for example "V" and press the Enter key when done. Or select a level from the filtered list.

The route is made, connecting the dialed-up Source Level to the selected Destination Level and forming a breakaway. See Figure 2-35.



Video Level sourced from a different source. (Breakaway)
(Level sources:
'Video' - now from S10-111,
'other' - unchanged, S10-10.)

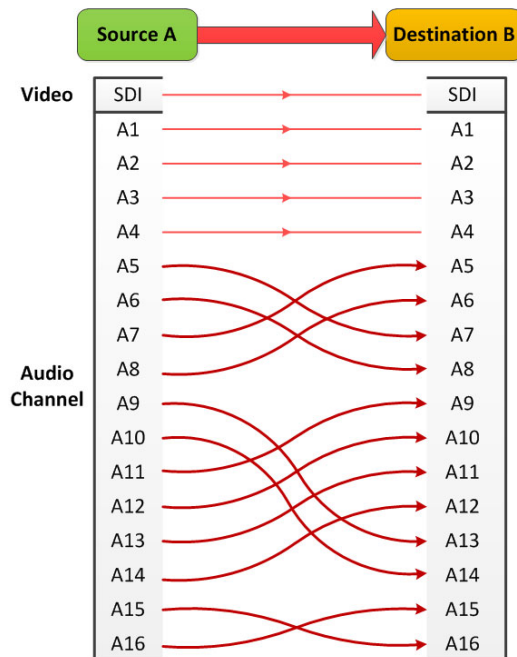
Fig. 2-35: Resulting Video Level Breakaway

Use this method to set up any breakaways (or shuffles, see [Quick One-Level Shuffle with Dial Source-Level](#), on page 47) required.

Shuffle and Levels

What is a Shuffle?

A destination is said to be 'shuffled' when one of its levels is routed from another level of the *same source*. For example, destination audio channel 5 from source audio channel 4. When this occurs, the Bulk Routing Panel indicates a 'shuffled' destination with a Shuffle icon on the destination button.



Shuffle example shown:

Audio channels of Destination B (A1 and A2) are obtained from a source (Source A) but not all levels are mapped "1 to 1".

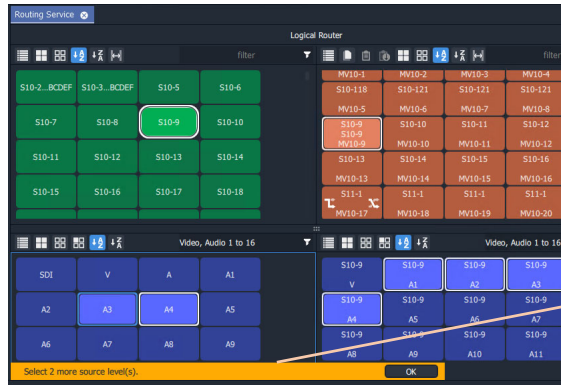
A source is routed to a destination and audio channels are 'shuffled' around, i.e. they are not routed '1-to-1'.

Fig. 2-36: Shuffles

To Perform a Shuffle

- 1 Select a **Destination**.
- 2 Select the **Destination Levels**.
For example, in Figure 2-38a, levels A1, A2, A3 and A4 are selected *in that order*.
- 3 Select a **Source**.
- 4 Now select the **Source Levels** in the *order* in which they shall apply to the destination Levels.
For example, in Figure 2-38a, levels A4, A3, A2 and A1 are selected *in that order*.

Note: Selecting just one source level will route this to *all* selected destination levels.
Otherwise select the same number of source levels as destination levels. A notification prompt appears at the bottom of the GV Orbit Client window, reminding the user to select source levels (see Figure 2-37).



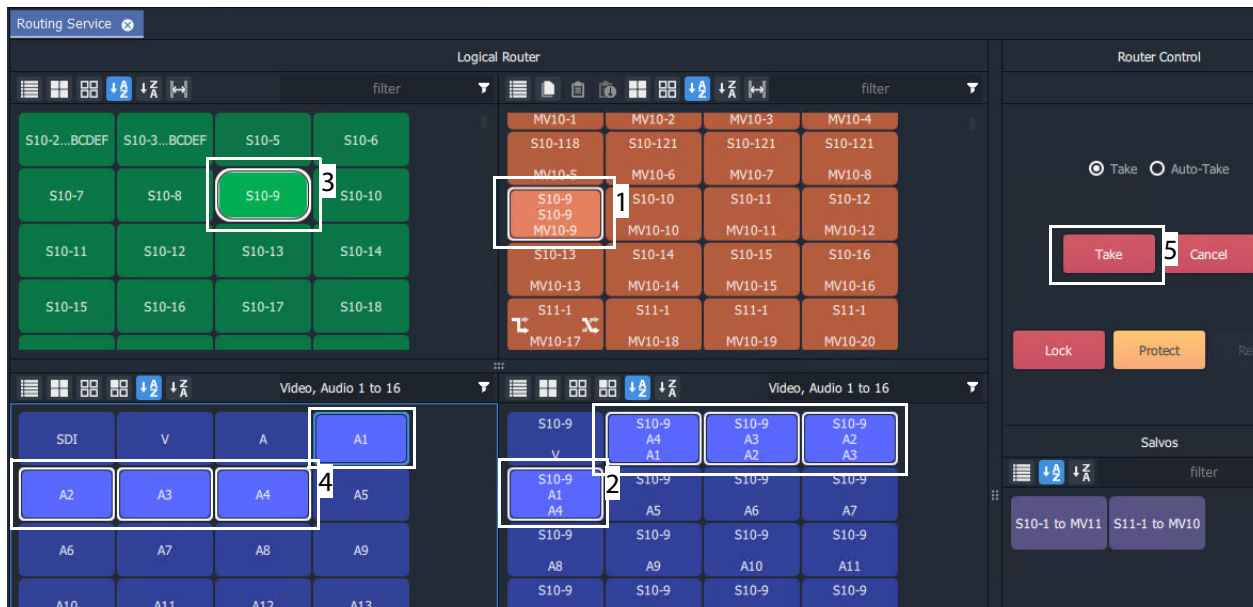
Notification prompt.

Fig. 2-37: Select Levels Notification

5 Click **Take**.

The selected source levels are routed to the selected destination levels and a shuffle is formed. Figure 2-38 shows a shuffle example reversing the order of the four audio channels (A1 to A4).

Bulk Routing Panel
To Perform a Shuffle

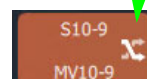
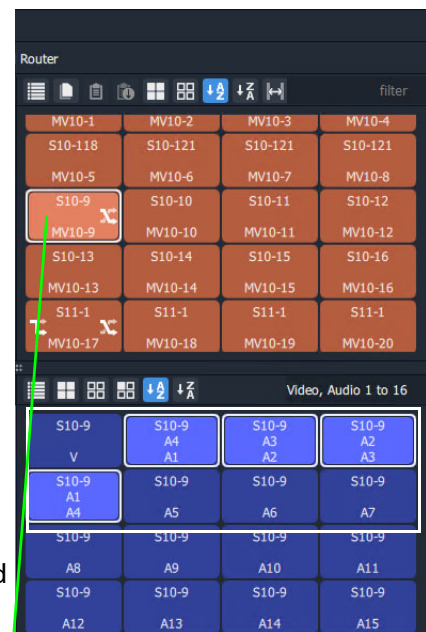


a) Before TAKE:

- Destination **MV10-9** is currently all routed from source **S10-9** (as shown in the **Destination Levels Grid**).
- Destinations levels **A1, A2, A3** and **A4** are selected.
- Source **S10-9** is selected.
- **Source Levels A4, A3, A2** and **A1** have been selected (in that reversed order).

b) After TAKE:

- Destination **MV10-9** is still all routed from source **S10-9**.
- This 'shuffled' situation is indicated with a **Shuffle** icon on the destination button.
- The source of each destination level is shown in the **Destination Levels Grid**. In particular, the destination's A1, A2, A3 and A4 are now routed from A4, A3, A2, and A1 respectively.



c) Shuffle icon on button

Fig. 2-38: Shuffle Example: a) Before TAKE; b) After TAKE; c) Shuffle Icon on Dest. Button.

Quick One-Level Shuffle with Dial Source-Level

To shuffle (route) one level using the [Dial Source-Level Dialog](#):

- 1 Select a **Destination**.

- 2 Select a **Destination Level**.

A Destination and one Level are now selected.

- 3 Type a single alpha-numeric character.

A default **Dial Source-Level** dialog appears and showing a filtered list of source names. The currently-routed Source and Level are shown.

Do *not* click; do *not* press Enter at this time.

Note: The currently-routed Source name is shown in the default dialog.

- 4 Press the **'Tab'** key.

Focus then moves (toggles) from Source to Levels in the dialog.

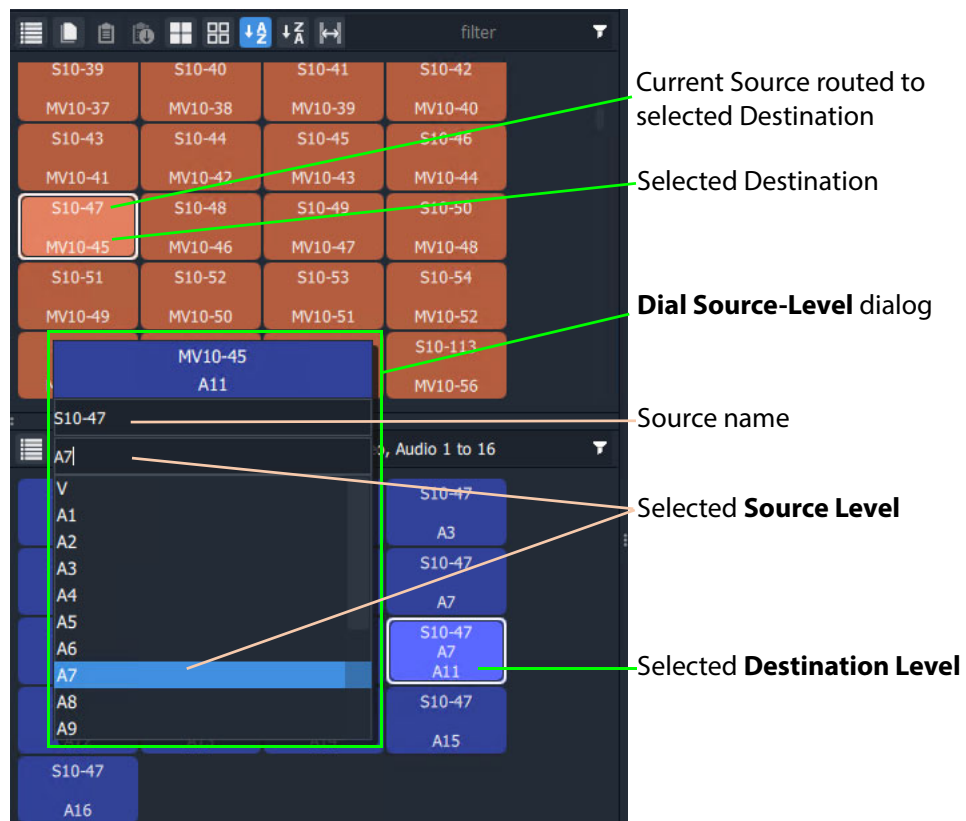
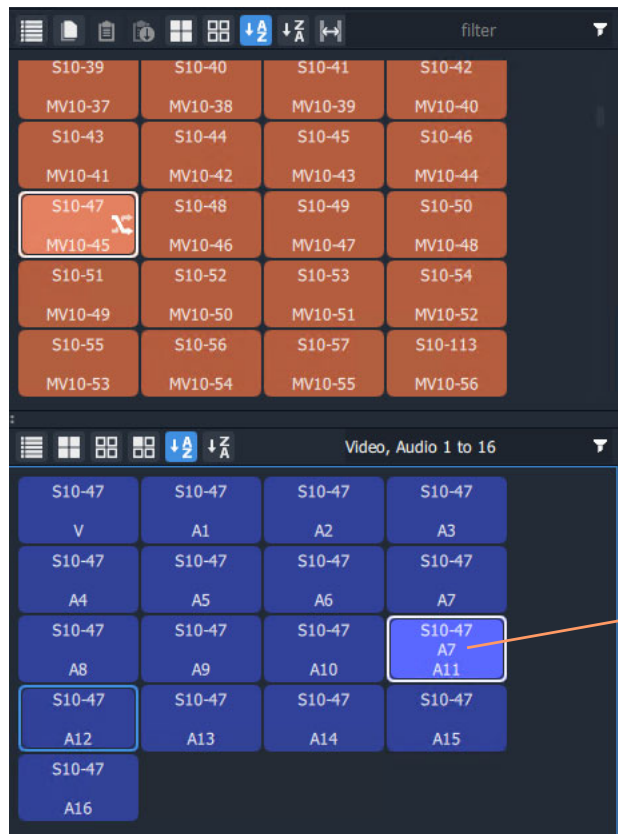


Fig. 2-39: Dial Source-Level Dialog

- 5 Type in a new Level name and press Enter, or select a new Level item in the filtered list, click to select.

A route is performed, connecting the selected Source Level to the selected Destination Level. A shuffle is made, see Figure 2-40.



Shuffle now made, audio level A11 at destination comes from audio level A7.

Fig. 2-40: Shuffle Routed

Note: Using this method, one Source Level can be routed to one or more Destination Levels.

Use this method to set up any shuffles (or breakaways, see [Quick Breakaway with Dial Source-Level](#), on page 41) required.

Filtering

What is Bulk Routing Panel Filtering?

Most grids/panes of the Bulk Routing Panel have a filter control on their tool bar. The filters control what items are shown in the grid/pane. Filters can be applied to the Source/Destination grids, the Level Selection grids and the Salvos pane. Custom filters can be created and applied. For destinations, filtering can also be by (routed) source. By default, level filtering is set up to show the usual video and audio levels.

Note: Filtered Lists:

When a filter is applied, a filtered (reduced) set of items is shown in a grid/pane.

Subsequent actions, such as 'select all items' or 'selecting a range', then all operate on the *filtered* items shown and not on the full list of items.

What are the Filter Controls in a Bulk Routing Panel?

Each grid/pane contains a similar filter text box and icon. These access a filter items list (also accessed by typing Ctrl-F when in a grid/pane), and filter options menu respectively.

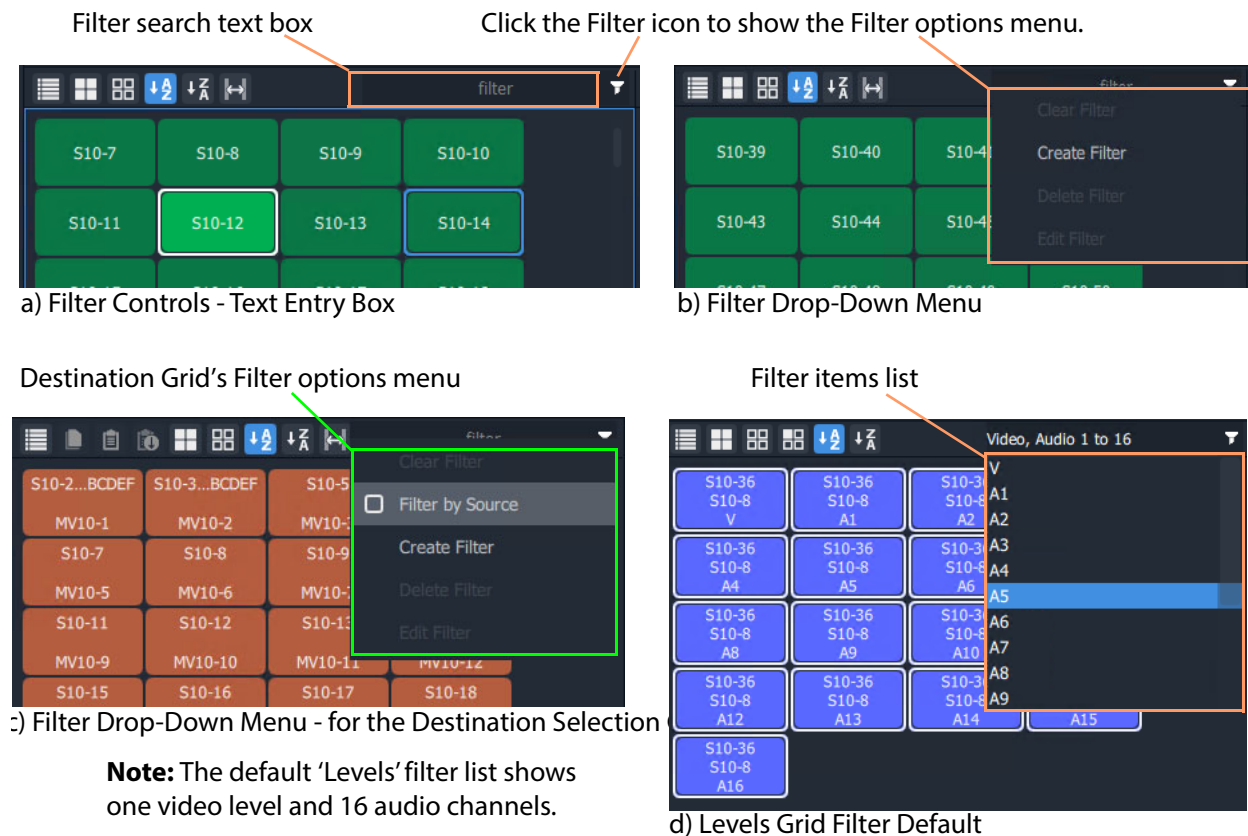


Fig. 2-41: Filter Controls:

- a) Filter Text Entry Box;
- b) Filter Drop-Down Options Menu;
- c) Drop-Down Menu for Destination Grid;
- d) Level Grid Filter Items List (Default).

Filtering Actions

Simple Filtering by Name

To simply filter items in a grid or pane by name:


- 1 Select the **Filter** text entry box.
- 2 Enter a filter search term into the **Filter** text box.
For example, type 'S11' to only show source names starting with 'S11'.
As the filter search term is typed, the number of displayed items in the Grid/Pane is reduced (filtered). The reduced number of items gives a *preview* of the filter's action.
- 3 To abort the filter set up, press the ESC key.
- 4 When the required filtering is reached, press the Return/Enter key to *apply* the filter.
The filter has been applied to the grid. Then only filtered items are shown in the grid/pane, with names which contain the search term.



Fig. 2-42: Example of Simple Filtering Applied to a Grid/Pane (Search Term = "S11")

Clear Applied Filtering in a Grid/Pane

To clear filtering that has been applied in a grid or pane:

- 1 Either:
 - click on the Filter icon () in the grid/pane's tool bar; or
 - in the Filter text entry box, press the Tab key.

And then select 'Clear Filter'.

The filtering is removed and all grid/pane items are shown.

The filter search term is also cleared and the Filter items drop-down list is shown.


- 2 At this point, a new search term may be entered.
Or the filter clearing action can be aborted by pressing the ESC key.

If no further filter set up is required:

- 3 Press the Enter/Return key to remove the Filtering and the Filter items drop-down list.

Set Level Filtering in a Grid/Pane

To set any applied Level filtering back to its 'default':

- 1 Either:
 - click on the Filter icon () in the Level grid/pane's tool bar; or
 - in the Filter text entry box, press the Tab key,

And select 'Video, Audio 1 to 16'.

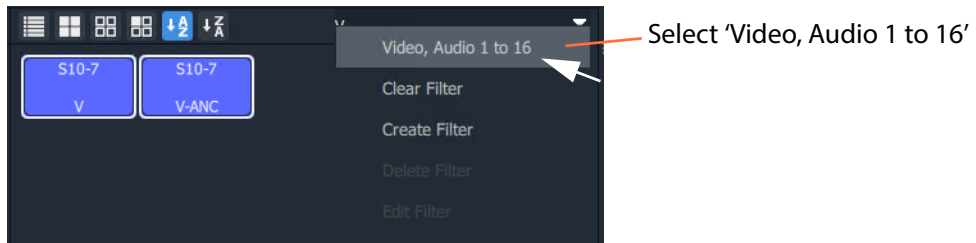


Fig. 2-43: Set Level Filtering to Default

Any filtering is replaced by the default 'Video, Audio 1 to 16' filtering and the filter search term reflects this.



Fig. 2-44: Level Filtering Default

- 2 Press Enter to apply this change (or press ESC to cancel this filter change).



Fig. 2-45: Level Filtering Default Applied

Dynamic Filtering By Name

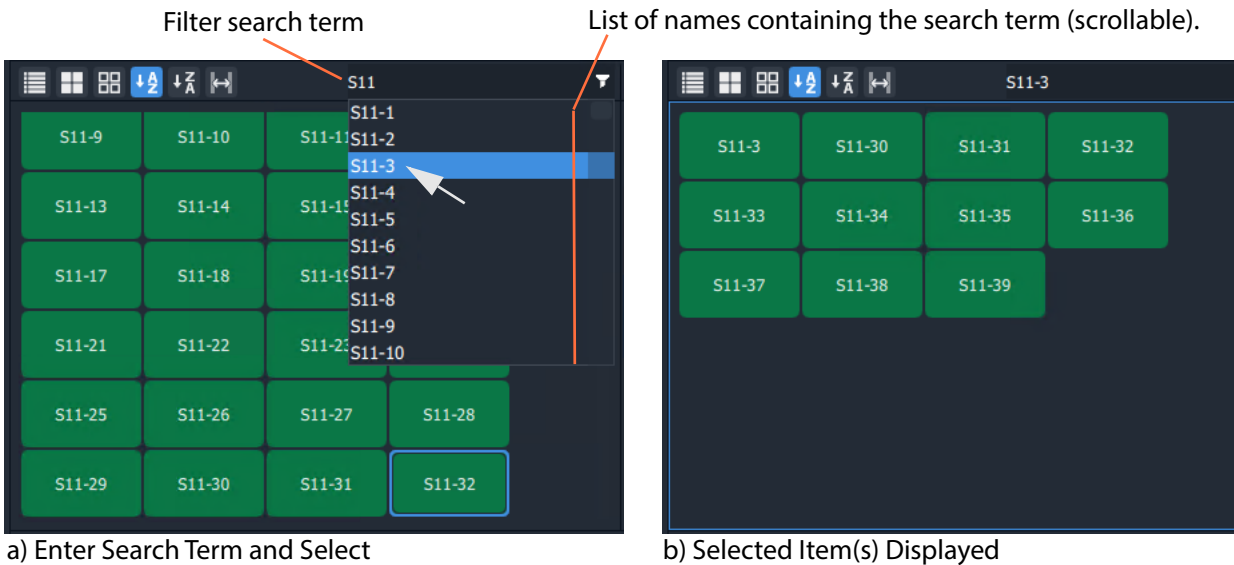


Fig. 2-46: Dynamic Filtering (Source Names Example):

- a) Enter Search Term and Select.
- b) Selected Item Displayed

To dynamically filter items by their name:

- 1 Enter the filter search term into the **Filter** text box.
GV Orbit looks for names which contain the filter search term.
A drop-down, scrollable filtered list of names is presented.
The list dynamically changes with the search term.
- 2 Find a name in the list by scrolling through the items.
(Use a mouse wheel, the scroll-bars, or up/down arrow keys to scroll through the list.)
- 3 Select an item.
(Click on it, or press the Return/Enter key when item is highlighted.)
The result of the selected filter item is shown in the grid.

Filtering Destinations by Source

Filtering of items by their names has been described so far. The filtering is extended for Destinations to enable Destination names to be filtered by the names of the *sources* that are routed to them. The filter drop-down menu of the Destination Grid contains an extra item, for this, 'Filter by Source'.

- 1 In the Destination Grid, click on the Filter icon () and select **Filter by Source**.

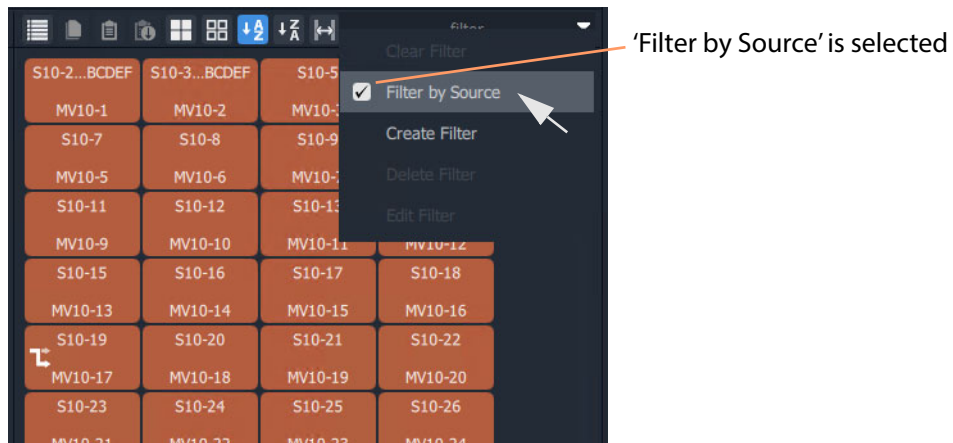


Fig. 2-47: Filtering of Destinations by Source is Enabled

- 2 Enter a search term in the Filter text box.

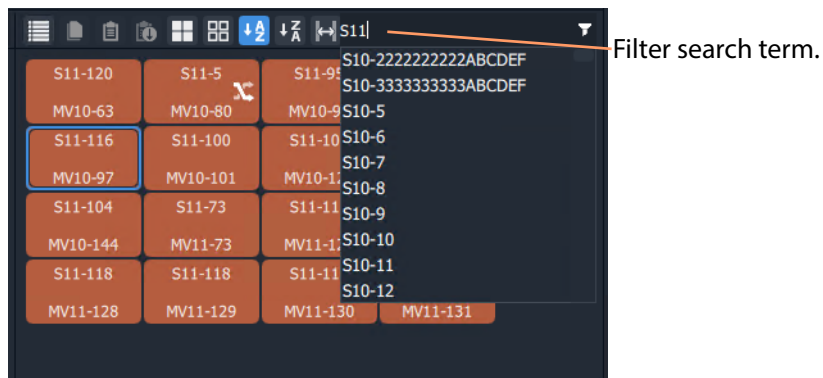


Fig. 2-48: Filter Destinations by Source

- 3 Press the Enter/Return key to apply the filtering.

With the **Filter by Source** option selected, the **Destination Grid** will show only destinations which have a filter-matching source routed to them.

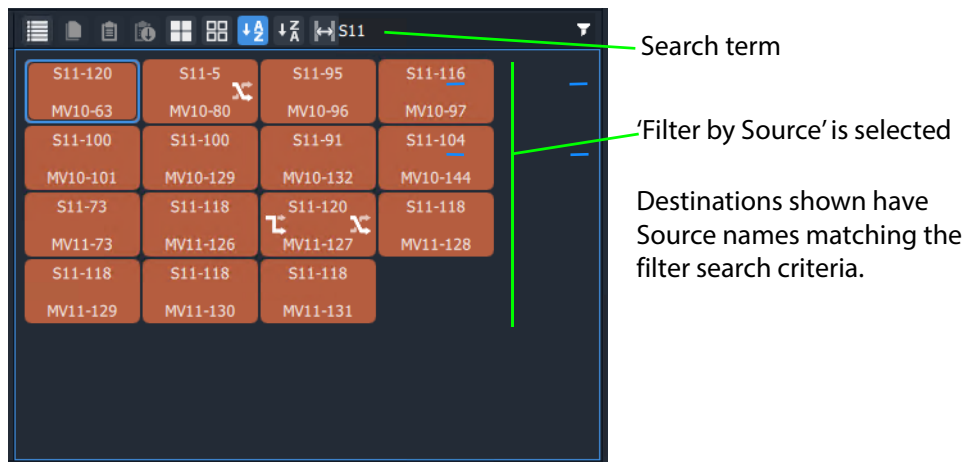


Fig. 2-49: Example Destination 'Filter by Source'

Preset Level Filters

The **Source Level** and **Destination Level** grids offer some preset filters to filter audio/video levels. For example, 'Video, Audio 1 to 16' which is for video and 16 audio channels. This preset filter is listed in the drop-down Filter items list, along with the names of the items (levels).

Custom Filters

What is a Custom Filter in a Bulk Routing Panel?

GV Orbit allows more complex and custom filters to be created. This can be done for any of the filterable grids/panes.

A custom filter can be:

- Created, given a name and saved.
- Edited or deleted.
- Re-named.

A custom filter is applied by entering the start of the custom filter name into the filter text box. The custom filter name will appear in the Filter items drop-down list for selection. Select the custom filter name to apply it.

Custom filters are stored in the GV Orbit Routing service for the currently-logged-in GV Orbit user. In this way, the filter will be available to the same user on other machines.

Note: Custom filters will not be seen by other users on other machines.

What is a Custom Filter Rule?

Filter expressions can be defined and combined together to form complex filter conditions, filter rules. The filter rule of a custom filter is designed in a Filter dialog.

Expressions can be combined to make rules by ANDing and ORing them together:

- **AND** - filter condition is met if *both* filter expressions are satisfied.
- **OR** - filter condition is met if *either* filter expression is satisfied.

Custom Filtering

Creating a Custom Filter

In a grid/pane:

- 1 Click on the **Filter** tool bar icon and select 'Create Filter'.

An empty **Filter** dialog is shown. See Figure 2-50.

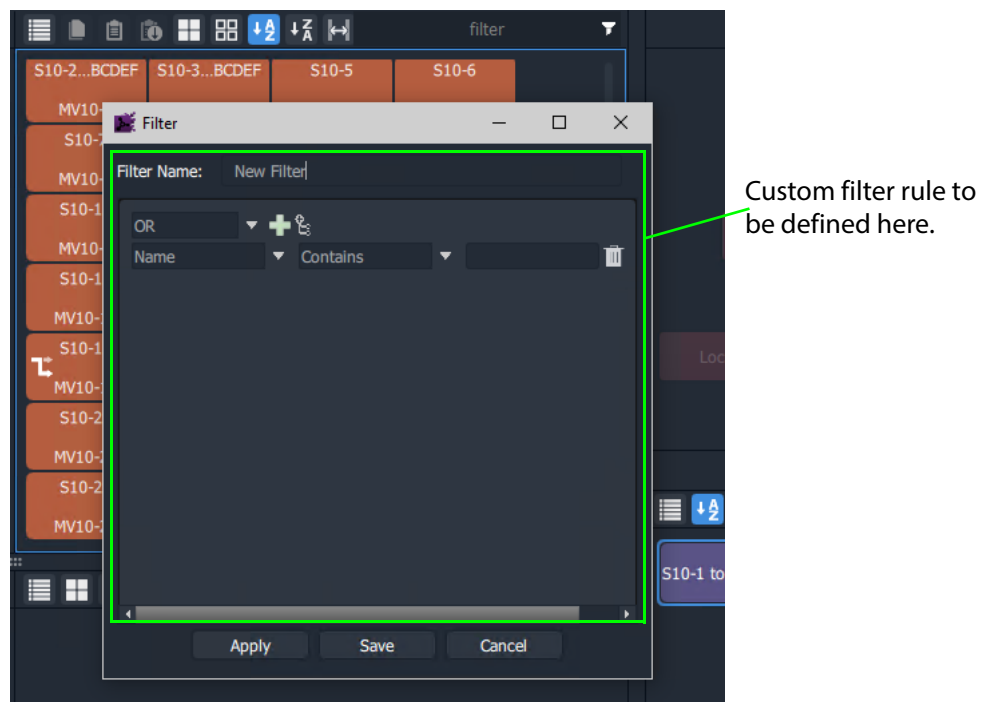


Fig. 2-50: Filter Dialog

- 2 Enter a Filter name for the filter.

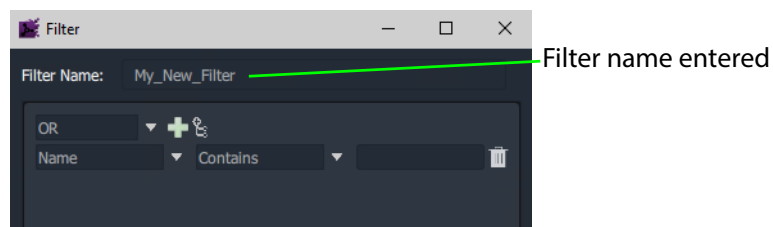


Fig. 2-51: Saving New Custom Filter

- 3 Click **Save**.

A new **Custom Filter** has been created.

Selecting a Custom Filter

A **Custom Filter** is listed in the drop-down Filter items list:

- 1 In the Filter text box, start to type the name of a **Custom Filter**.

The Filter items drop-down list contains the **Custom Filter** name.

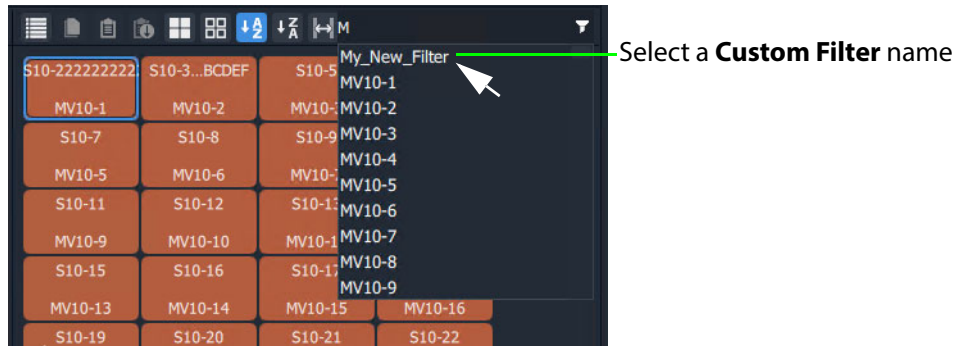


Fig. 2-52: Custom Filter in Filter Items List

Constructing the Rules for a Custom Filter

See [Filter Dialog and Custom Filter Rules](#), on page 58, for adding filter rules with the dialog to construct the filter.

To Edit an Existing Custom Filter

- 1 Click on the **Filter** tool bar icon and select **Edit Filter**.

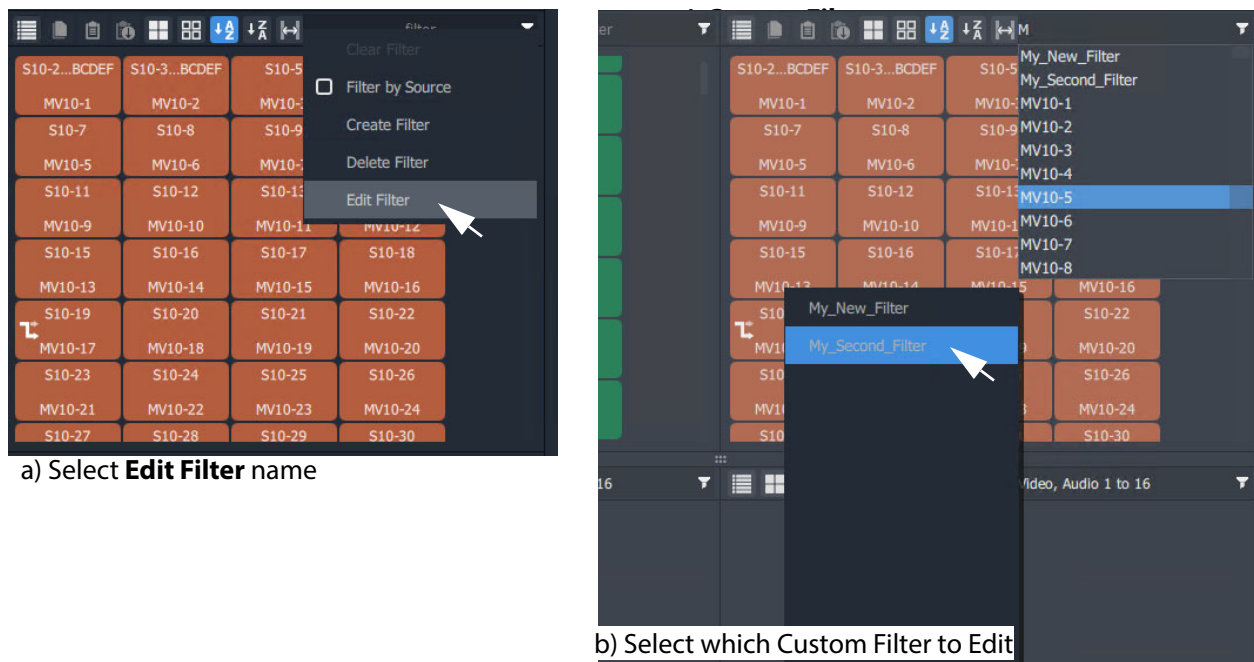


Fig. 2-53: Select Custom Filter to Edit

- 2 Select the filter to edit from the list shown. (See Figure 2-53b.)

The **Filter** dialog is shown for the selected custom filter.

To Delete a Custom Filter

- 1 Click on the **Filter** tool bar icon and select **Delete Filter**.
- 2 Select the filter to delete from the list shown.

The filter is deleted when the selection is made.

Filter Dialog and Custom Filter Rules

The filter rule of a custom filter is designed in the **Filter** dialog (see Figure 2-54). A rule is formed from the logical combination of filter expressions. Expressions can be ANDed or ORed together and complex AND/OR configurations can be defined for a custom filter:

- **AND** - filter condition is met if *both* filter expressions are satisfied.
- **OR** - filter condition is met if *either* filter expression is satisfied.

A worked example is given ([Example Custom Filter](#), on page 59) which shows how to construct Filter rules with the Filter dialog.

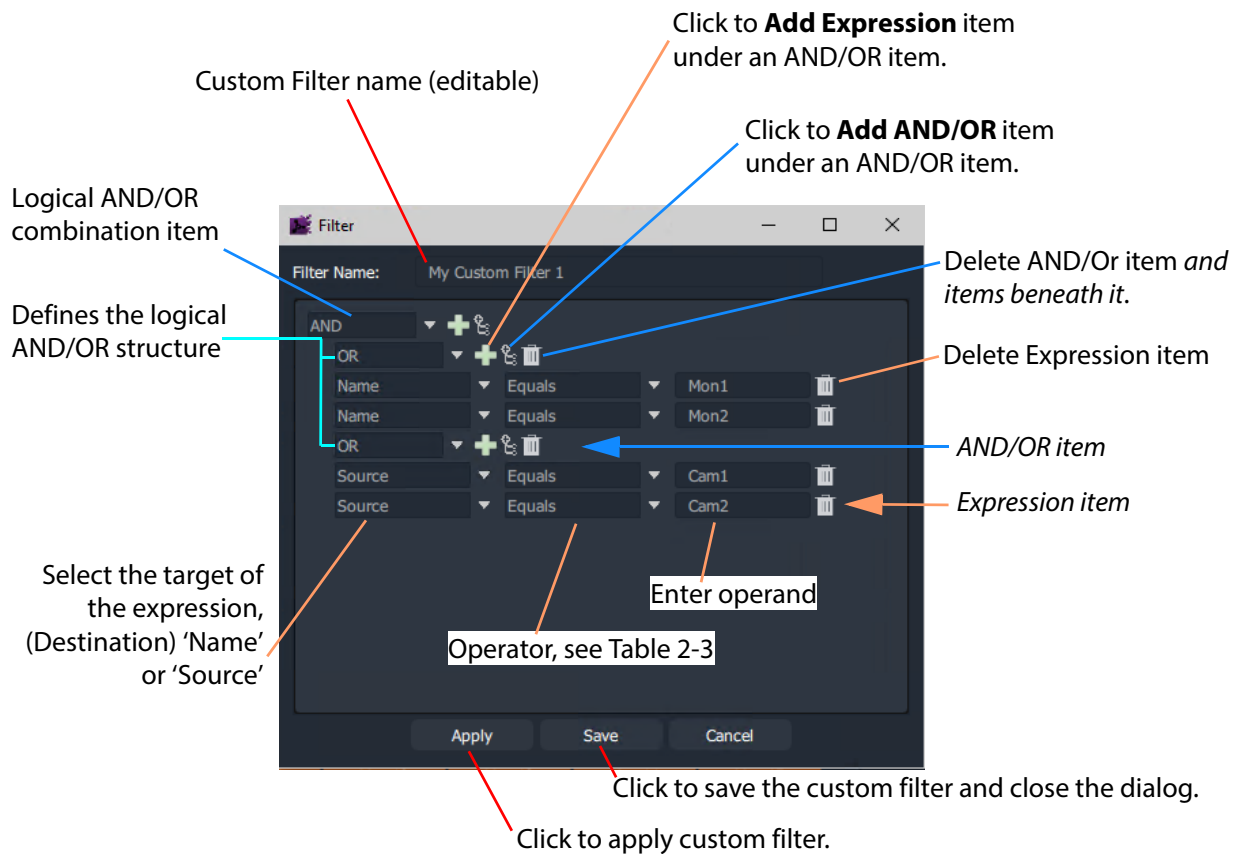


Fig. 2-54: Filter Dialog - Custom Filter Example

Logical AND / OR Combining

The **Custom Filter** being designed must be expressible in the form of a logical expression so that it can be captured in the **Filter** dialog.

A rule might be designed to filter:

- destination names that both start with a 'C' and contain a '6'.
- destination names that either end with a '4' or end with a '5'.
- destinations whose source names start with 'Cam'.
- destinations whose names end with a 'X' and whose source names are 'Cam12'.

Filter Expressions

An expression tests a Destination Name or Source Name with an operator and an operand.

Filter Expression Operators

The operators include:

Table 2-3: Operators - Name/Source and Operand

Operation	True when...
Equals	Name matches.
Not Equals	No match.
StartsWith	Starts with the operand.
EndsWith	Ends with the operand.
Contains	Contains the operand.
NotContains	Does not contain the operand.
Greater Than	Numerical part of name is greater than the operand.
Less Than	Numerical part of name is less than the operand.
GreaterThanOrEqualTo	Numerical part of name is greater than or equal to the operand.
LessThanOrEqualTo	Numerical part of name is less than or equal to the operand.

Example Custom Filter

This section explains [What the Filter Should Do](#) and [Defining the Custom Filter Example](#) via the **Filter** dialog.

What the Filter Should Do

"Display two destinations only if they have certain sources currently routed to them."

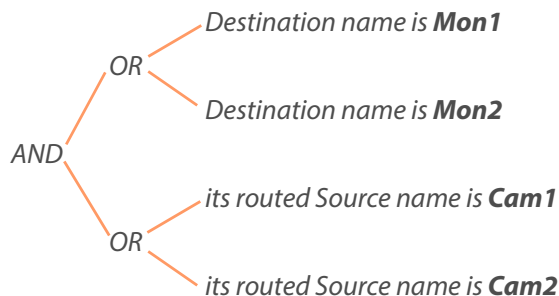
(Destinations **Mon1** and **Mon2** and sources **Cam1** and **Cam2** are used in this example.)

The filter for this example may be written:

*"Show a destination if the destination name is **Mon1** or **Mon2**, and its routed source name is **Cam1** or **Cam2**."*

This may be written out to show its logical expression structure.

Show a destination if the following is true:



Defining the Custom Filter Example

This example **Custom Filter** filter may be entered into the **Filter** dialog as follows:

- 1 Click on the Destination Grid's Filter tool bar icon and select **Create Filter**.
An empty **Filter** dialog is shown. See [Figure 2-50](#) on page 55.
- 2 Enter a **Filter Name** for the filter.
- 3 Select AND as the first (top-level) logical combination item with the drop-down menu button. See [Figure 2-55](#).

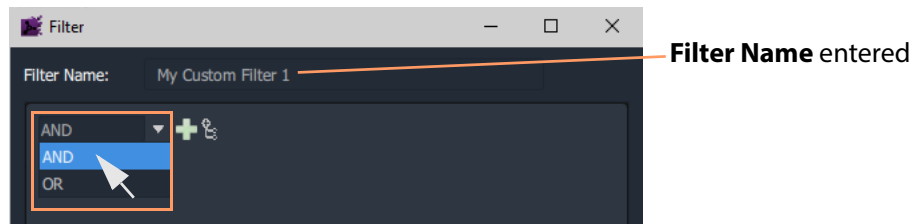
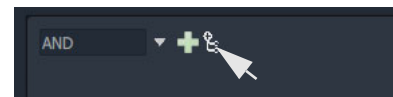


Fig. 2-55: Select AND

- 4 Click the **Add AND/OR** icon.
An indented AND/OR item appears.
An expression item also appears below the OR. See [Figure 2-56](#).



- 5 Select OR as the new, indented logical combination item.

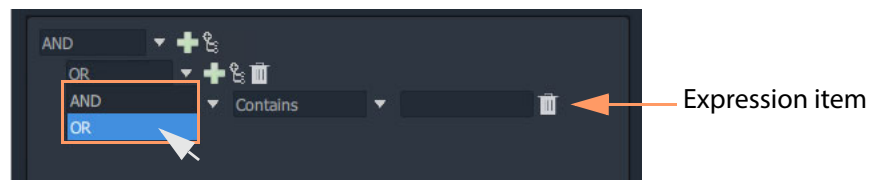


Fig. 2-56: Select OR

- 6 Click the new **Add Expression** icon.
A second expression item appears under the OR. See [Figure 2-57](#).

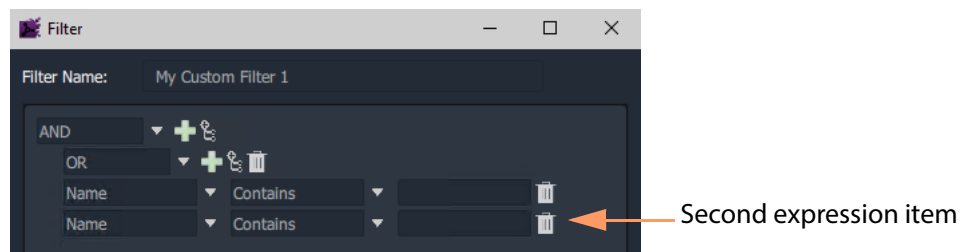
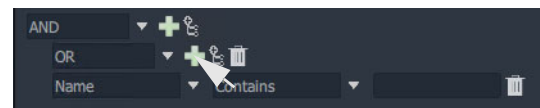
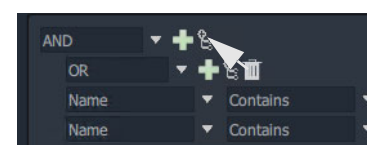


Fig. 2-57: Added a Second Expression Item

- 7 Click the first **Add AND/OR** icon again.
This adds a second OR logical combination item indented under the AND. See [Figure 2-58](#).



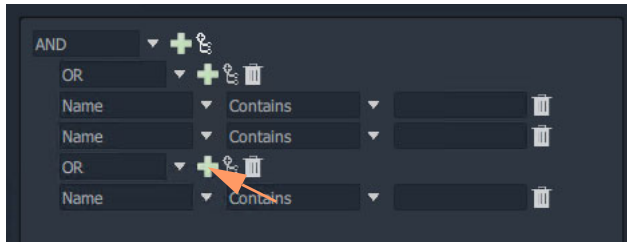


Fig. 2-58: Second OR Logical Combination Item Added

8 Add a second expression item under the new OR item. See Figure 2-59.

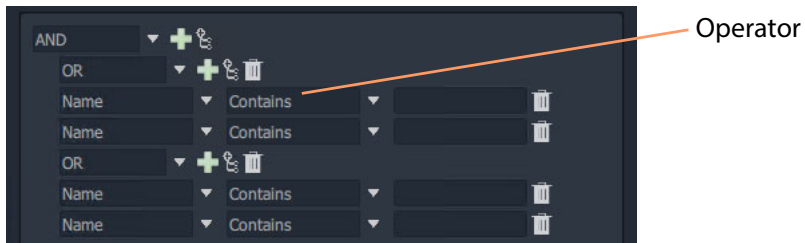


Fig. 2-59: Second Expression Item Added

The basic 'AND-OR-OR' logical combination structure for the example has now been entered for the Filter rule.

The next step completes the expression item and saves the filter:

9 Set up the expressions as shown in Figure 2-60.

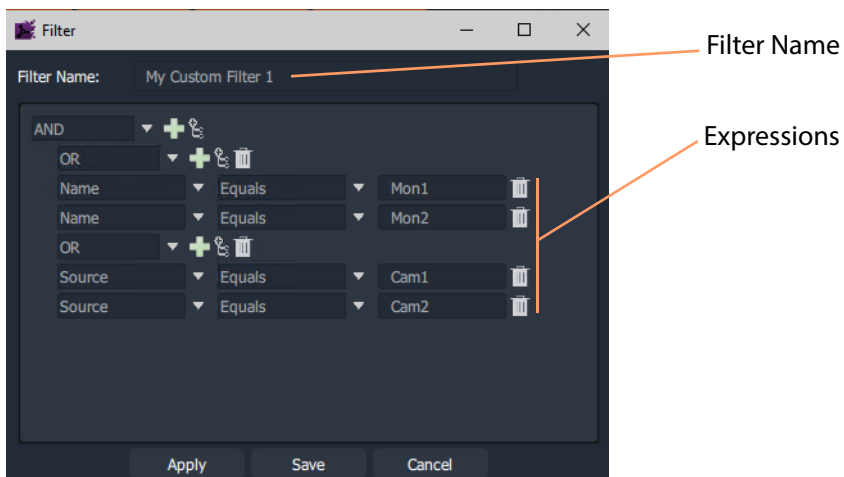


Fig. 2-60: Completed Custom Filter

10 Click **Save** in the **Filter** dialog to save the custom filter and close the dialog.

Custom filter rules have been entered; the **Custom Filter** has been created, ready to use. See [Using a Custom Filter](#).

Using a Custom Filter

To use the custom filter 'My Custom Filter 1':

- 1 Start entering the custom filter name into the **Filter** text box. ('My' in this example.) A list of possible matching custom filters is presented.

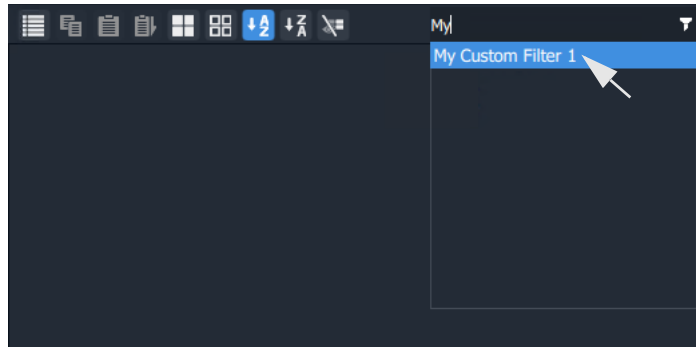


Fig. 2-61: Select Custom Filter

- 2 Select the 'My Custom Filter 1' item.

The filter is applied.

In this example, only destinations 'Mon1' or 'Mon2' are shown if they have sources 'Cam1' or 'Cam2' routed to them. See Figure 2-62.

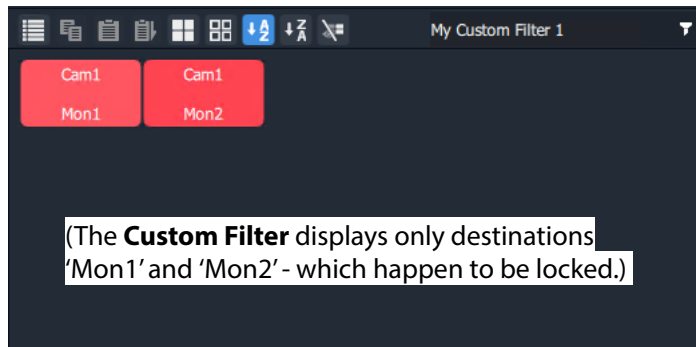


Fig. 2-62: Applied Custom Filter

To clear the filtering:

- 3 Click on the **Filter** tool bar icon and select **Clear Filter**.

Salvos

What is a Salvo?

Salvos are created and defined in Grass Valley's GV Orbit product and are available to the Bulk Routing Panel through the GV Orbit **Routing** service that the Bulk Routing Panel is connected to.

Salvos are shown in the **Salvos** pane of the Bulk Routing Panel. The list of Salvo names can be filtered using the tool bar controls. Filters can be set up in a similar way to the other grids/panes of the Bulk Routing Panel.

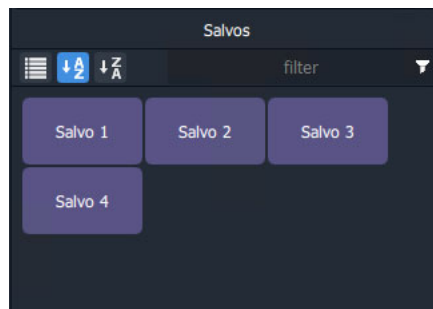


Fig. 2-63: Salvos Pane with Salvo Buttons

Executing Salvos

To Execute a Salvo

Either:

- double-click on the Salvo button;
- or,
- select the Salvo button (single-click) and click **Take**.

To Execute multiple Salvos

- 1 Select the first **Salvo**.
- 2 Select other **Salvos** with CTRL-click.
- 3 Press **Take**.

Hide Sources

What is the Hide Sources Mode?

In **Hide Sources** mode, the **Source Selection** and **Source Level Selection** grids may be hidden from view. Thus displays more destinations are shown to the user.

The **Hide Sources** icon in the Destination Grid's tool bar enables this mode.

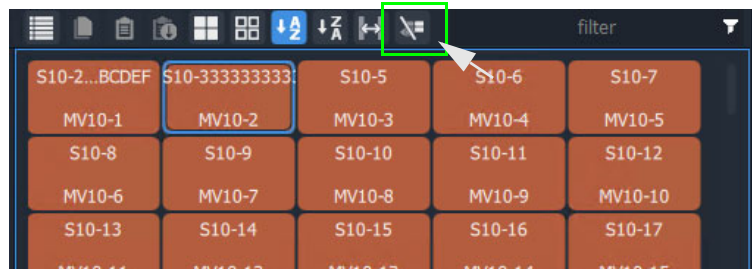


Fig. 2-64: Hide Sources Icon in Destination Grid Tool Bar

Enter Hide Sources Mode

Toggle **Hide Sources** on/off by:

- Click the **Hide Sources** icon in the **Destination Selection** grid tool bar.

The Bulk Routing Panel hides the Sources and more Destinations are shown. See Figure 2-65b on [page 65](#).

Routing in Hide Sources Mode

Use the **Dial Source** or **Dial Source-Level** facility to route sources signals and/or levels to destinations. See [Dial Source Dialog](#), on page 25 and [Dial Source-Level Dialog](#), on page 26.

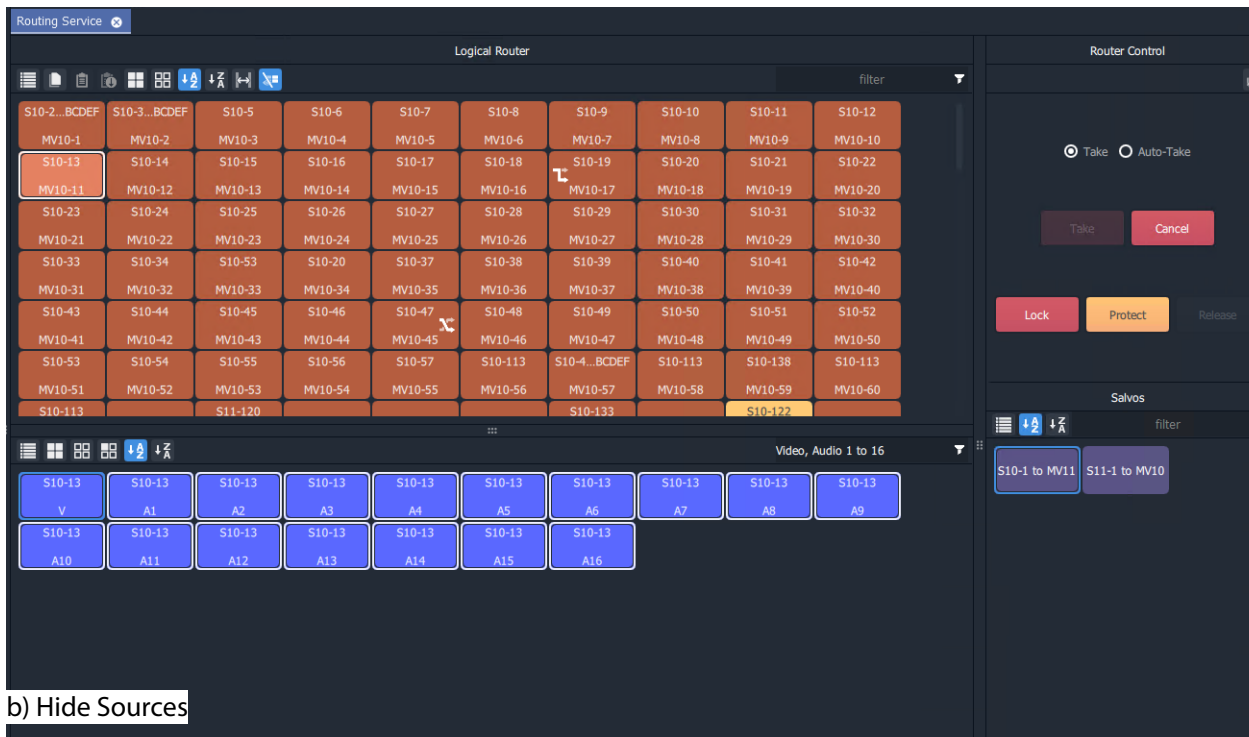
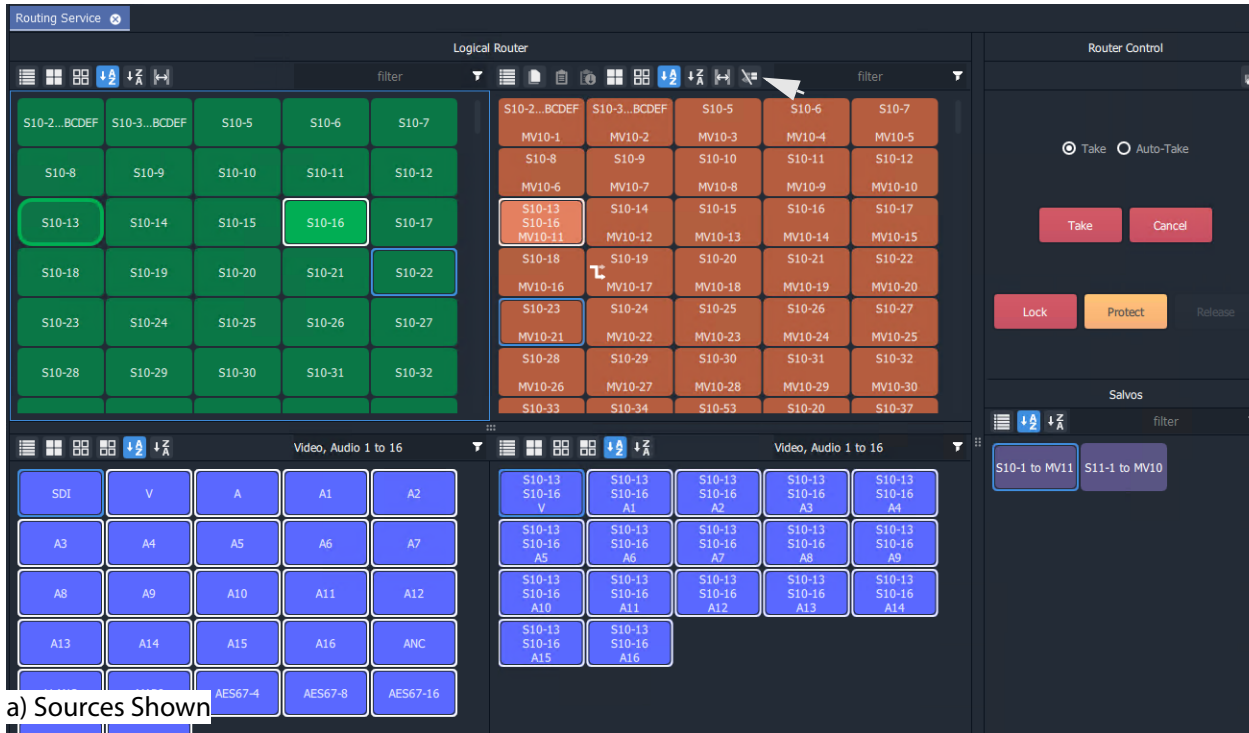


Fig. 2-65: Bulk Routing Panel:
a) Sources and Destinations Shown;
b) Hide Sources.

List View

What is List View Mode?

List View is a level-centric view of a Bulk Routing Panel, allowing a user to focus on routing to Destination Levels. **List View** hides Sources and Source Levels and presents all of the destinations in a 'list' format; each list item is a Destination with all of its Levels.

Figure 2-66a shows a normal Bulk Routing Panel view and Figure 2-66b shows a **List View**.

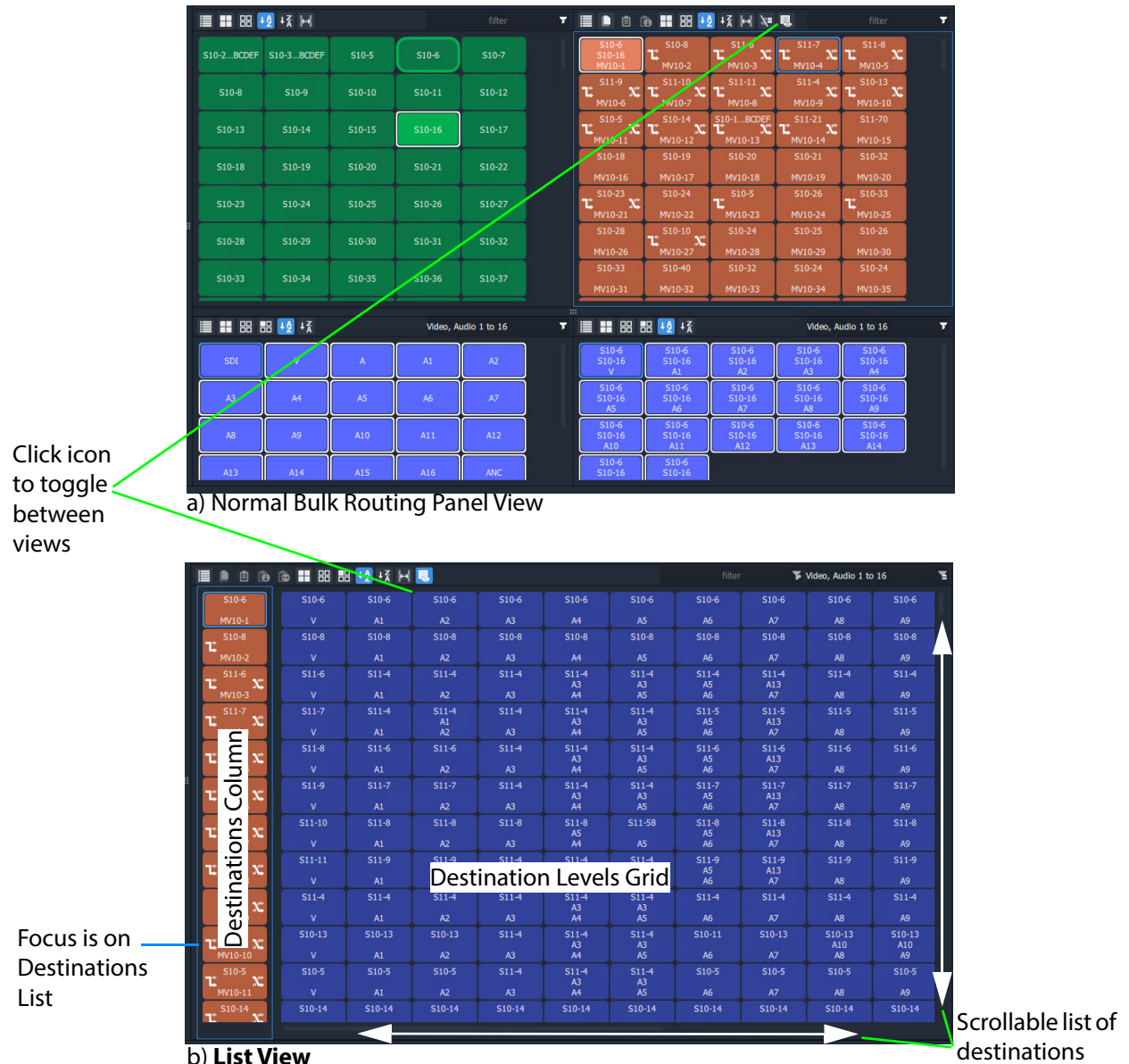


Fig. 2-66: Bulk Routing Panel: a) Normal View; b) List View

Focus between the Destination and Destination Levels sections can be moved with the CTRL-Cursor-arrow-keys, as usual. Focus is shown with a thin blue bounding box.

List View Tool Bar

The **List View** tool bar is an amalgamation of the tool bars of the normal Destination pane and Destination Level grid of a Bulk Routing Panel. Icons may be grayed-out according to panel focus. See Figure 2-67.

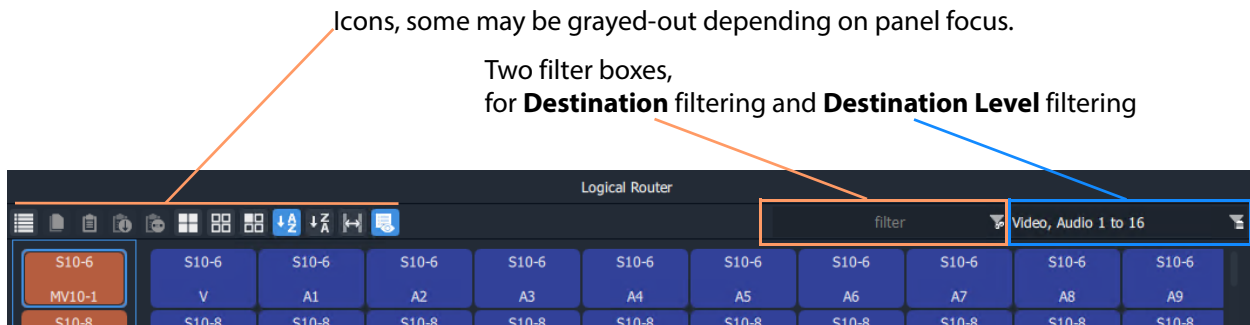


Fig. 2-67: List View Tool Bar

Destination Filtering

There are two filter boxes and these are for: **Destination** filter and **Destination Level** filter. See Figure 2-67. **List View** presents all of the destinations in a scrollable list. To aid selection of destinations and levels, and navigation of the list, the filter facility can be used to limit what is listed:

- **Destination** filtering may be done by name or by their routed Source.
- **Destination Level** filtering may be done by Level name.

See [Filtering](#), on page 49, for more information about using the filter facility.

A filter may be invoked by pressing CTRL-F according to where your panel focus is. In **List View**, with panel focus on:

- the **Destination** column, then CTRL-F invokes **Destination** filter; or on
- the **Level** grid, then CTRL-F invokes **Destination Level** filter.

Selection in List View

Select a Destination

- 1 Click on a Destination.
(Or move focus to the level with the cursor keys and press Space-Bar.)
All of the destination's levels are automatically selected.

Select a Destination, then all Levels are selected

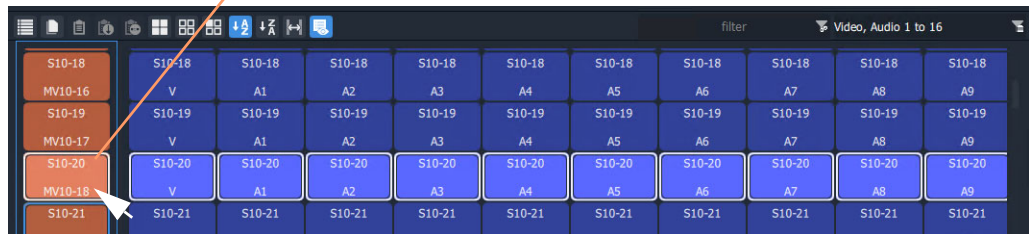


Fig. 2-68: Select a Destination

Select Multiple Destinations

- 1 Click on a Destination to select it.
(Or move focus onto the Destination with the cursor arrow keys and press the Space-Bar key.)
- 2 CTRL-click to add other Destinations.
(Or focus on another Destination and press CTRL-Space-Bar.)

Alternatively or additionally, SHIFT-select can be used when selecting a range.

Select a Destination Level

- 1 Click on a Destination Level.
The Level is selected and the Destination is selected automatically. No other Levels are selected.

Select a Level, then the Destination is selected.



Fig. 2-69: Select a Destination Level

Select Multiple Destination Levels

CTRL-Selecting

- 1 Select a Destination Level.
- 2 CTRL-Select other Levels to add further Levels to the selection.

Select a Level, then CTRL-Select others.

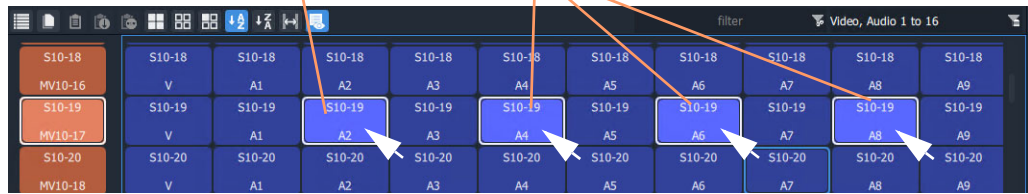


Fig. 2-70: Select Multiple Destination Levels

SHIFT-Selecting a Range of Destination Levels

To select a range of Levels:

- 1 Select the first Level in the range.
(Move button focus onto a Level and click on it, or press Space-Bar.)
- 2 SHIFT-Select the last Level in the range.
(To move focus from the first Level to the last, use the mouse or use SHIFT-cursor-left/right arrow keys. To select, click or press Space-Bar.)

Levels from the first to the last are selected.

Select the first Level, then SHIFT-Select the last.



Fig. 2-71: Select a Range of Destination Levels

SHIFT-Selecting a Block of Destination Levels

A block of Levels may be selected. This is similar to selecting a range, but it goes across more than one destination. To select a block of Levels:

- 1 Select the first, 'top-left' Level in the block.
- 2 SHIFT-Select the last, 'bottom-right' Level in the block.

Levels from the first selection to the last in a block are selected.

Select the first, 'top-left' Level, then SHIFT-Select the last, 'bottom-right'.



Fig. 2-72: Select a Block of Destination Levels

Selecting Source and/or Source Level

Source and Source Level selection is done via the **Dial Source** and **Dial Source-Level** dial-up dialog facility. After the required Destination(s) or Destination Level(s) are selected type in an alpha-numeric character to open one of the dial-up dialogs. (See [Dial Source and Dial Source-Level Dialogs](#), on page 25.)

For normal routing operation in **List View** mode, only a single Source or a Single Source Level can be selected.

Routing in List View

Routing in **List View** is done by selecting a Destination (and Levels) and then selecting a Source and Source Levels via the **Dial Source** and **Dial Source-Level** facility. (See [Dial Source and Dial Source-Level Dialogs](#), on page 25.)

Some Routing examples are provided, see:

- [Routing Examples - 'All Levels'](#), on page 71.
- [List View Routing Examples - One-Level](#), on page 73.
- [List View Routing Examples - Destination Copy-Paste](#), on page 78.
- [List View Routing Examples - Copy-Paste Levels](#), on page 81.

A brief summary of these examples is found at [List View Routing Summary](#), on page 84.

Routing Examples - 'All Levels'

Several routing examples are presented:

- Simple Route, One Source to One Destination ('All-Levels').
- One Source to Multiple Destinations ('All-Levels').

Routing utilizes the [Dial Source](#) and [Dial Source-Level Dialogs](#).

Simple Route, One Source to One Destination ('All-Levels')

To make a simple 'all-levels' route in **List View**:

- 1 Select a Destination.

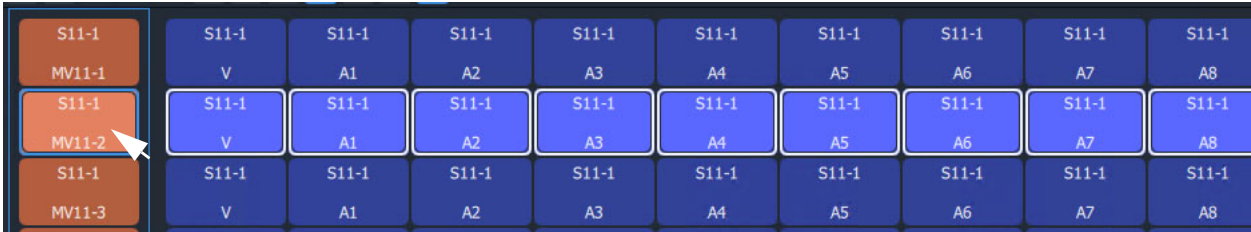


Fig. 2-73: Destination Selected

- 2 Begin to type a Source name, for example, 'S10-'.

A **Dial Source** dialog appears. Source names are listed in the dialog and are filtered on the typed text. See Figure 2-74.

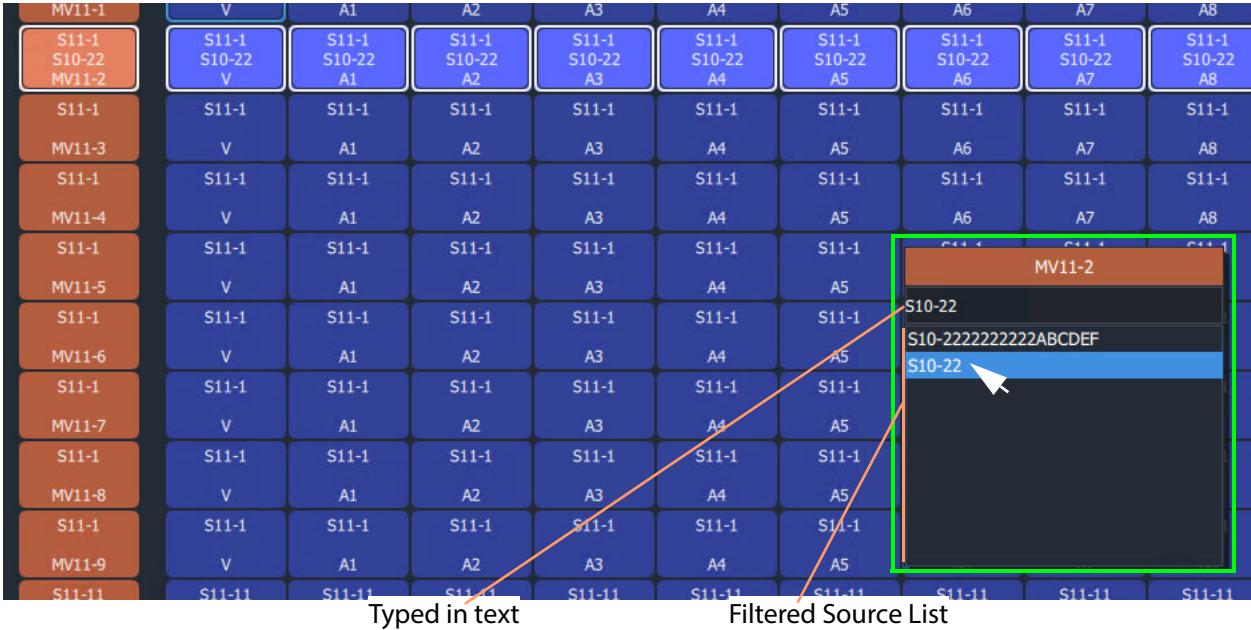


Fig. 2-74: Dial Source Dialog

- 3 Continue to type in ('dial-up') a Source Name and press Return; and/or select the required Source name from the filtered Source list in the **Dial Source** dialog. For example, 'S10-22'.

An 'all-levels' route is made to the selected Destination.

New source is routed to the destination, all levels.

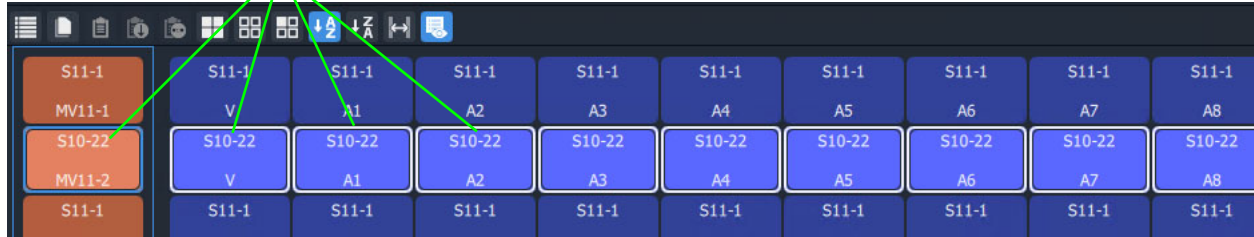


Fig. 2-75: Routed All-Levels

An 'all-levels' route has been made.

One Source to Multiple Destinations ('All-Levels')

To make a simple 'all-levels' route from one Source to multiple Destinations:

- 1 Select the first Destination.
- 2 CTRL-Select and/or SHIFT-Select other Destinations.

When all Destinations have been selected:

- 3 Begin to type a Source name, for example, 'S10'.

A **Dial Source** dialog appears. Source names are listed in the dialog and are filtered on the typed text.

- 4 Proceed to 'dial up' a Source name, as described in [Simple Route, One Source to One Destination \('All-Levels'\)](#).
- 5 Select a Source to make the route.

An 'all-levels' route is made to multiple Destinations.

List View Routing Examples - One-Level

Several routing level-based examples are presented:

- [Simple One-Level Route \(Breakaway\)](#).
- [One-Level Shuffle](#).
- [One Level to Multiple Levels](#).

Simple One-Level Route (Breakaway)

To make a 'one-level' route in **List View**:

- 1 Select a Destination Level.

MV10-28	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25
MV10-29	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26

Fig. 2-76: Destination Level Selected

The corresponding Destination is also selected.

- 2 Type a single alpha-numeric character.

A default **Dial Source-Level** dialog appears. User focus is in the (upper, Source-name) text entry box. The dialog shows the currently-routed Source name and Level.

- 3 Begin to enter a new Source name into the upper text entry box, for example, 'S11-'. Source names are listed, filtered on the typed text. See Figure 2-77.

S10-25	S10-25	S10-25	S11-100	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25
MV10-29	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26
MV10-30	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33
MV10-31	V	A1	A2	A3	A4	<div style="border: 1px solid black; padding: 5px;"> <p>MV10-29</p> <p>A2</p> <hr/> <p>S11-100</p> <p>A2</p> <hr/> <p>S11-99</p> <p>S11-100</p> <p>S11-101</p> <p>S11-102</p> <p>S11-103</p> <p>S11-104</p> <p>S11-105</p> <p>S11-106</p> <p>S11-107</p> <p>S11-108</p> </div>			
S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40
MV10-32	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-32	S10-32	S10-32	S10-32	S10-32	S10-32	S10-32	S10-32	S10-32	S10-32
MV10-33	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24
MV10-34	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24
MV10-35	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24
MV10-36	V	A1	A2	A3	A4	A5	A6	A7	A8

Select a Source, or type in the name fully and press Enter.

Fig. 2-77: Select a Source Name

- 4 Either:
 - select the required Source name in the filtered list; or
 - finish entering the Source name into the dialog and press Enter.

A 'one-level' route is made to the selected Destination Level from the selected Source, on the same Level. This forms a Breakaway.

MV10-27	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24	S10-24
MV10-28	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-25	S10-25	S10-25	S11-100	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25
MV10-29	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26	S10-26
MV10-30	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33

Fig. 2-78: One Level Routed from a Different Source, Breakaway

A one-level, breakaway, route has been made.

One-Level Shuffle

A shuffle is similar to a breakaway and, in **List View** mode, is routed in a similar way to [Simple One-Level Route \(Breakaway\)](#).

Note: When a **Dial Source-Level** dialog first appears, it shows the currently-routed Source and Level. For a Shuffle, the Source name simply needs to remain the currently-routed Source.

(Refer to [What is a Breakaway?](#), on page 39, and [What is a Shuffle?](#), on page 44, for general information.)

To do a one-level route:

- 1 Select a Destination Level.

The corresponding Destination is also selected.

- 2 Type a single alpha-numeric character.

A default **Dial Source-Level** dialog appears. User focus is in the (upper, Source-name) text entry box. The dialog shows the currently-routed Source and Level.

Note: The default dialog already shows the currently-routed Source name and Level name, regardless of the single alpha-numeric character typed.

- 3 Press the **Tab** key.

In the dialog, user focus changes from the (upper Source name) text entry box to the (lower, Source-Level-name) text entry box.

- 4 Either:

- begin to type in a (new) Source Level name and then *select* the required Source Level in the list (by clicking on it, or by highlighting the Level and pressing the Enter key); or
- fully type in the Source Level name (for example, 'A2') and press the Enter key.

A 'one-level' route is made from the selected |Source Level to the selected Destination Level, which forms a one-level Shuffle in this case.

A one-level shuffle route has been made.

Channel-Swap Shuffle

To do a channel-swap in **List View**, carry out two **One-Level Shuffle** routes. See Figure 2-79.

MV10-27	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33
MV10-28	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25
MV10-29	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-26	S10-10	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6
MV10-30	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-33	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40

a) Before one-Level routing

MV10-27	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33
MV10-28	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25
MV10-29	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-26	S10-10	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6
MV10-30	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-33	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40

b) After first one-Level route

Routed-Source's channel A3 is routed to Destination's Channel A2

MV10-27	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-24	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33	S10-33
MV10-28	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25	S10-25
MV10-29	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-26	S10-10	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6	S10-6
MV10-30	V	A1	A2	A3	A4	A5	A6	A7	A8
S10-33	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40	S10-40

c) After second one-Level route

Routed-Source's channel A2 is routed to Destination's Channel A3, and vice versa

Fig. 2-79: Forming a Channel-Swap Shuffle:

- a) Before any one-Level routing;
- b) After first one-Level route;
- c) After second one-Level route.

One Level to Multiple Levels

To route one Source Level to multiple Destination Levels:

- 1 Select a Destination Level.
- 2 CTRL-Select and/or SHIFT-Select other Destination Levels.
(**Note:** These Levels do not have to belong to the same Destination.)

Figure 2-80a gives an example of multiple selected Destination Levels.

This has selected the Destination Levels required.

Then:

- 3 Type a single alpha-numeric character.

A default **Dial Source-Level** dialog appears. User focus is in the (upper, Source-name) text entry box. The dialog shows the currently-routed Source and Level.

Note: The default dialog already shows the currently-routed Source name and Level name, regardless of the single alpha-numeric character typed.

- 4 Dial-up a Source Level with the **Dial Source-Level** dialog, see [Simple One-Level Route \(Breakaway\)](#) and make a one-Level route to all selected Destination Levels.

Figure 2-80b shows an example with Figure 2-80c showing the resulting route made.

	V	A1	A2	A3	A4	A5	A6	A7
MV11-4	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-5	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-6	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-7	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-8	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1

a) Multiple Selected Destination Levels

	V	A1	A2	A3	A4	A5	A6	A7
MV11-4	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-5	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-6	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-7	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-8	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-9	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-10	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1

MV11-5 + 2
A3 + 5

S11-117

A11

A11

b) Dialing Up the Source Level

	V	A1	A2	A3	A4	A5	A6	A7
MV11-4	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-5	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-6	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-7	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
MV11-8	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1
S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1	S11-1

c) Routed Levels

Fig. 2-80: One Level to Multiple Levels:

- Multiple Selected Destination Levels;
- Dialing Up the Source Level;
- Routed Levels.

List View Routing Examples - Destination Copy-Paste

With Copy-Paste routing, the Source assignments of a Destination (i.e. the current routing to all the Levels of a Destination) can be copied to other Destinations. Alternatively, the routing to just one or more Destination Levels can be copy-pasted to other Destination Levels.

Several routing Copy-Paste examples are presented:

- [Destination Copy-Paste](#).
- [Destination Paste-Series](#).

Destination Copy-Paste

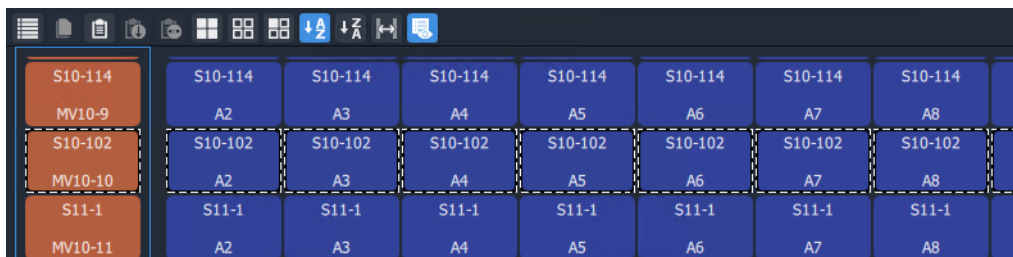
The routing to a Destination can be copied to one or more other Destinations. This operates on all levels and allows a routing to be quickly copied to other Destinations:

- 1 Select a Destination. (See Figure 2-81a.)
- 2 Copy the Destination by, either:
 - CTRL-C; or
 - right-click and select 'Copy'; or
 - click on the 'Copy' icon in the **List View** tool bar.

The selected Destination (with its Levels) is outlined with a 'crawling' dashed line. (See Figure 2-81b.)



a) Selected Destination



b) Destination Copied

Fig. 2-81: Destination Copy-Paste: a) Selected Destination; b) Destination Copied.

- 3 Select a Destination to 'copy to'. (See Figure 2-82.)

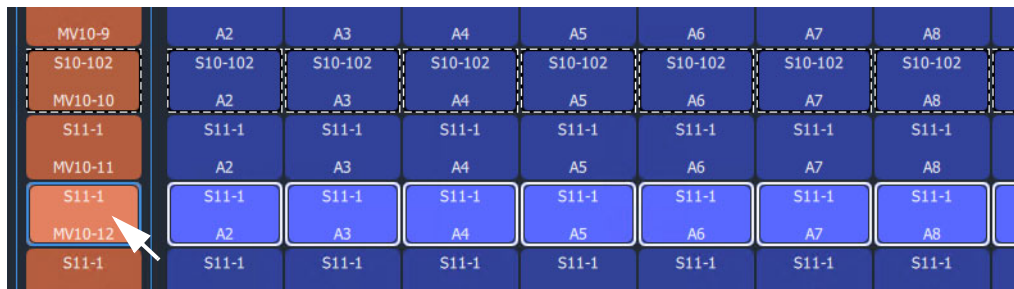


Fig. 2-82: 'Copy To' Destination Selected

- 4 If required, further 'copy-to' Destinations can be added to the selection with CTRL-Select and/or SHIFT-Select.

When all 'copy to' Destinations are selected, to paste the 'copied' Destination's routing to the selection:

- 5 Paste the 'copied' Destination's routing to the selection by either:
 - pressing CTRL-V; or
 - right-click and select 'Paste'; or
 - click the 'Paste' icon in the **List View** tool bar.

The routes are made (all levels) and the original copied Destination's routing is applied (pasted) onto all the selected Destination(s). (See Figure 2-83.)

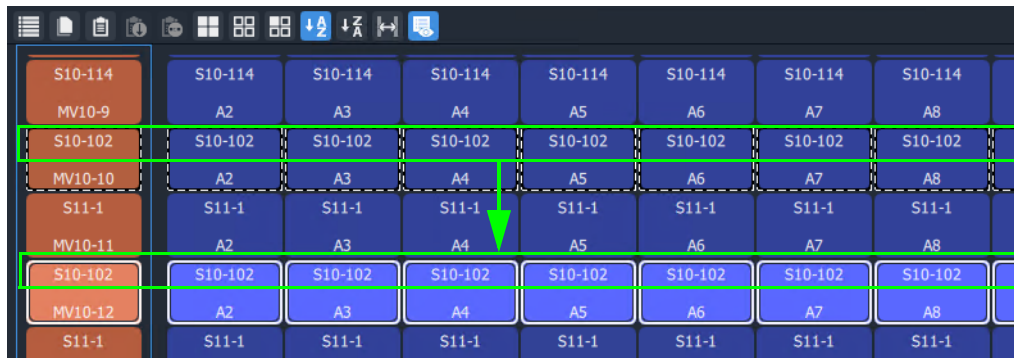


Fig. 2-83: Routing Pasted onto a Destination

Destination Paste-Series

Destination Copy-Paste applies the copied Destination into all of the selected 'Copy to' Destinations. Alternatively, a *series* of sources can be applied to several selected 'Copy to' Destinations. The series starts from the 'Copied' Destination's currently-routed Source and the Source increments.

The operation is similar to **Destination Copy-Paste**. To paste a series onto a selection of 'Copy to' Destinations:

- 1 Select a Destination and copy it.
- 2 Select a first 'Copy to' Destination and select a range of these by SHIFT-Selecting the last 'Copy to' Destination.

This has selected the 'Copy to' range.

At this point (with a Destination copied and several 'Copy to' destinations selected) a normal 'paste' would result in the copied routing being applied to all 'Copy to' Destinations. But, instead, to **Paste Series**:

- 3 Press Alt-CTRL-V, or click the **Paste Series** icon in the **List View** tool bar.

The currently-routed Source of the copied Destination is applied to the first 'Copy to' Destination in our 'Copy to' range. The next Source is applied to the next 'Copy to' Destination in the range, etc. See Figure 2-84 for an example.

Currently-routed Source of the copied Destination

Currently-routed Source applied to first 'Copy to' Destination.

Next Source applied to next Destination.

And so on.

S10-10 MV10-1	S10-10 V	S10-10 A1	S10-10 A2	S10-10 A3	S10-10 A4	S10-10 A5	S10-10 A6
S10-10 MV10-2	S10-10 V	S10-10 A1	S10-10 A2	S10-10 A3	S10-10 A4	S10-10 A5	S10-10 A6
S10-11 MV10-3	S10-11 V	S10-11 A1	S10-11 A2	S10-11 A3	S10-11 A4	S10-11 A5	S10-11 A6
S10-12 MV10-4	S10-12 V	S10-12 A1	S10-12 A2	S10-12 A3	S10-12 A4	S10-12 A5	S10-12 A6
S10-13 MV10-5	S10-13 V	S10-13 A1	S10-13 A2	S10-13 A3	S10-13 A4	S10-13 A5	S10-13 A6
S11-1 MV10-6	S11-1 V	S11-1 A1	S11-1 A2	S11-1 A3	S11-1 A4	S11-1 A5	S11-1 A6
S10-10	S10-10	S10-10	S10-10	S10-10	S10-10	S10-10	S10-10

Fig. 2-84: Result of Destination Paste-Series

List View Routing Examples - Copy-Paste Levels

The routing to one or more selected Destination Levels can be copied and pasted onto other Destination Levels. This allows a user to set up levels quickly on one or more Destinations.

The copy-paste is a two-step process:

- 1 **Copy** - Destination Levels are selected and copied.
- 2 **Paste** - A paste 'starting Level' is selected and pasting is done from this 'starting Level'.

With more than one Destination Level copied, the pasting of routing onto 'Copy to' Destination Levels can be done in two ways:

- [Paste Levels with CTRL-V](#) - pastes with no gaps.
- [Paste Levels with Alt-CTRL-R](#) - pastes preserving gaps.

Both paste types are done in the Levels grid from the 'starting Level'.

When pasting to more than one 'starting Level', a warning is given if there are any pasting conflicts. See [Levels Copy-Paste Footprint](#) and [Levels Paste Warning](#).

Paste Levels with CTRL-V

- 1 Select Destination Levels and copy them. For example, A3, A4, A6 and A8, see Figure 2-85.

This has copied the routing of these selected Destination Levels.

- 2 Select *one* 'Copy to' Destination Level. This is the 'starting Level'.
And click the **Paste** icon, or press CTRL-V, or select right-click 'Paste'.

Routes are made to consecutive Destination Levels and the copied routing is applied to the 'Copy to' Destination Level and to subsequent, consecutive Destination Levels. See Figure 2-85 for the result of CTRL-V paste from the copied Destination Levels.

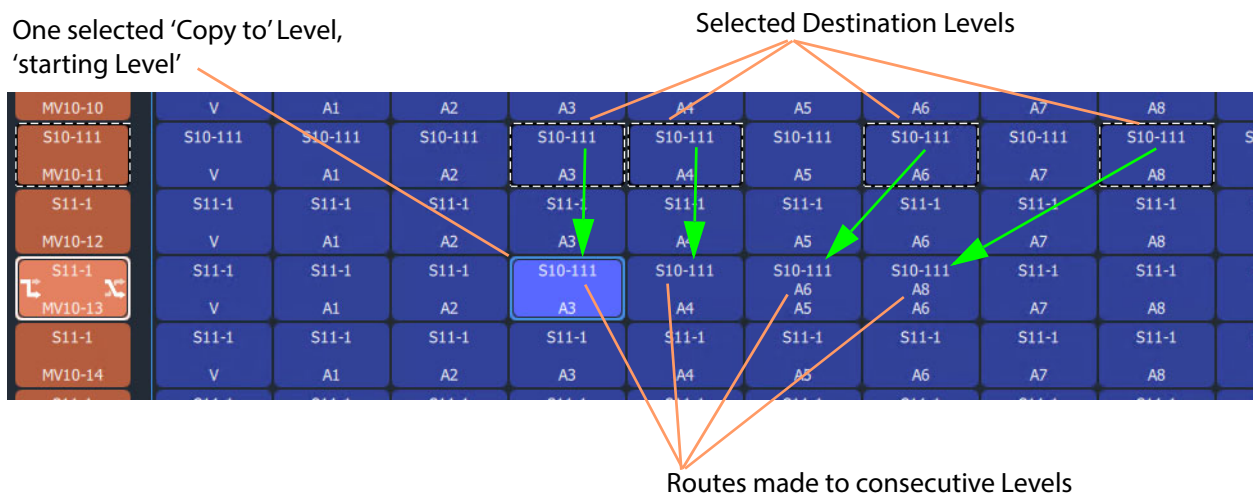


Fig. 2-85: Result of CTRL-V Paste

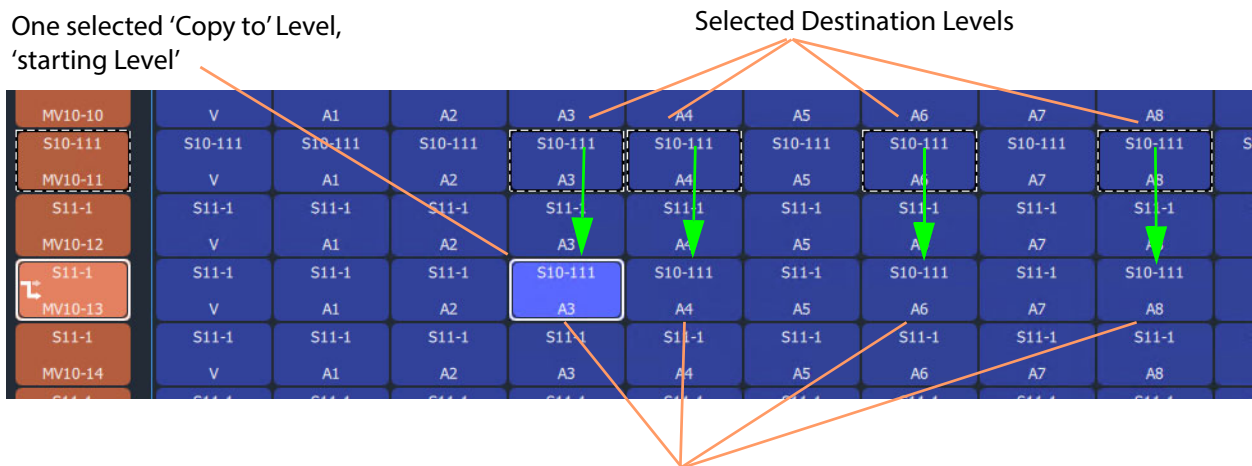
Paste Levels with Alt-CTRL-R

The CTRL-V pasting pastes into *consecutive* Destination Levels and ignores any gaps there might be in the original copied Levels. Whereas, pasting with **Alt-CTRL-R** retains the original copied Levels pattern, preserving any gaps in the original pattern. Pasting is still done from a 'starting Level'.

To paste and preserve gaps:

- 1 Select Destination Levels and copy them. For example, A3, A4, A6 and A8, see Figure 2-86.
- 2 Select *one* 'Copy to' Destination Level. This is the 'starting Level'. And press Alt-CTRL-R.

Routes are made and the routing of the copied Levels is applied to the 'Copy to' Destination Level ('starting Level') and to subsequent Levels with any gaps preserved. See Figure 2-86 for the result of an Alt-CTRL-R paste from the two copied Destination Levels.



Routes made to Levels and the original copied pattern is retained, gaps are preserved.

Fig. 2-86: Result of Alt-CTRL-V Paste

Levels Copy-Paste Footprint

The copied Levels pattern and the pasting type determine a pasting 'footprint' in the **List View** Levels grid. The pasting footprint pattern

- retains or ignores any gaps in the copied Levels pattern, depending on pasting type (CTRL-V or Alt-CTRL-R);
- is applied in the **List View** Levels grid and is based at each 'starting Level' in turn, starting with the first 'starting Level'.
(**Note:** It is possible to select more than one 'starting Level'.)

Figure 2-87 shows 2x1 copied Levels pasted with various 'Copy to' starting Levels. In Figure 2-87d, the pasting footprints overlap.

- Figure 2-87a - Single starting Level and a resulting 2x1 pasting.
- Figure 2-87b - One column of four starting Levels which result in four 2x1 pasting footprints.

- Figure 2-87c - Two columns of four starting Levels which result in two columns of four 2x1 pasting footprints, which do not overlap.
- Figure 2-87d - Two *adjacent* columns of four starting Levels which results in two columns of four 2x1 pasting footprints which do overlap. The overlap is warned with a pop-up Levels Paste message, see [Levels Paste Warning](#).

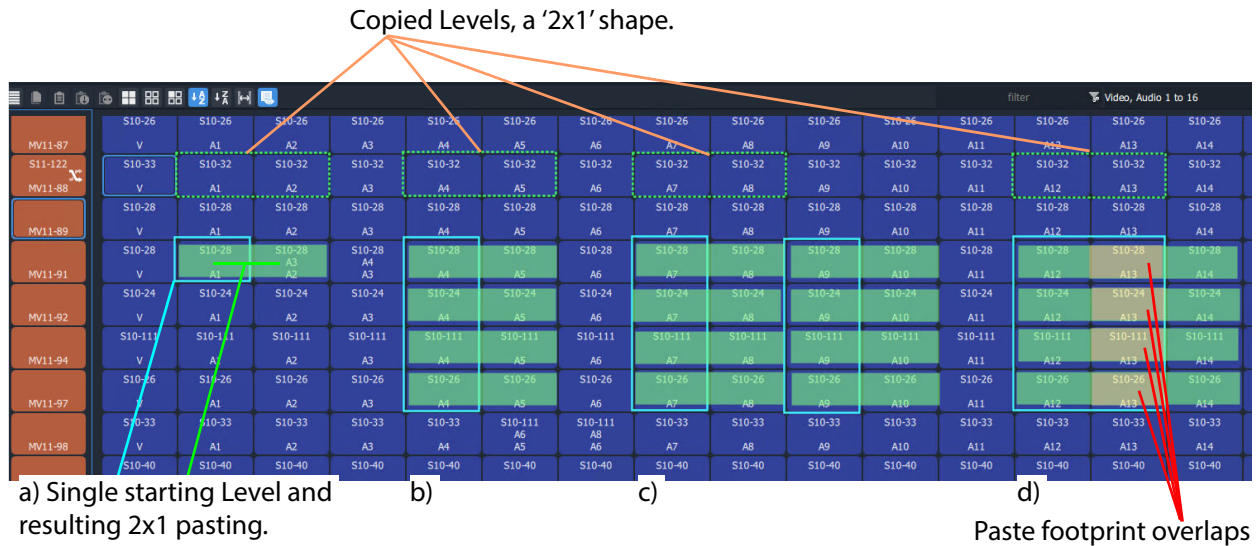


Fig. 2-87: Example Level Pasting

Levels Paste Warning

For a **Levels Copy-Paste** operation which has more than one 'starting Level', if the operation will result in overlapping paste footprints (see Figure 2-87d), a **Levels Paste** warning pops up. See Figure 2-88.



Fig. 2-88: Level Paste Warning

The user can choose to not paste, or to paste anyway, in which case the paste footprints are applied sequentially, starting with the first 'starting Level' in the selection. If there is overlap, then some of the **Levels Copy-Paste** routing may be overwritten. The later routing wins.

List View Routing Summary

List View Routing Summary - All-Levels

	One Source to One Destinations	One Source to Multiple Destinations
To make:	An 'all-levels' route to a destination:	An 'all-levels' route to multiple destinations:
1	Select a single Destination .	Select a Destination .
2	-	Select further with CTRL-Select and/or SHIFT-Select.)
3	Begin to type a Source name. A Dial Source dialog appears.	
4	Proceed to 'dial up' a Source name.	
5	Then either: <ul style="list-style-type: none">• select the typed-in Source by pressing Enter/Return; and/or: <ul style="list-style-type: none">• select a Source from the Dial Source filtered source list.	
Result:	An 'all-levels' route is made to the destination.	An 'all-levels' route is made to the destinations.

List View Routing Summary - One-Level

	Simple One-Level (Breakaway)	Simple One-level (Shuffle)
To route:	One level from another source:	One level from same destination.
1	Select a single Destination Level .	
2	Type a single alpha-numeric character. A default Dial Source-Level dialog appears showing currently-routed Source and Level .	
3	Begin to enter a new Source name into the dialog's upper text entry box.	Press the Tab key. User focus changes to the lower text entry box in the dialog, for Source Level entry.
4	Then in the dialog, either: <ul style="list-style-type: none"> • select the required Source name; or • finish entering the Source name and press Enter/Return. 	Then in the dialog, either: <ul style="list-style-type: none"> • begin to type in a (new) Source Level name and then <i>select</i> the required Source Level in the list; or • fully type in the (new) Source Level name (for example, 'A2') and press the Enter/Return key.
Result:	A one-level, breakaway route has been made. (For a channel-swap, do 2x Simple One-level (Shuffle)).	A one-level, shuffle route has been made.

One Level to Multiple Levels

To route:	One level to multiple destination levels:
1	Select a Destination Level .
2	And select further with CTRL-Select and/or SHIFT-Select.
3	Type any single alpha-numeric character. A Dial Source-Level dialog appears showing currently-routed Source and Level .
4	Press the Tab key. User focus changes to the lower text entry box in the dialog.
5	Then, either: <ul style="list-style-type: none"> • begin to type in a (new) Source Level name and then <i>select</i> the required Source Level in the list; or • fully type in the (new) Source Level name (for example, 'A2') and press the Enter/Return key.
Result:	A one-level route is made to all selected Destination Levels .

List View Routing Summary - Destination Copy

	Destination Copy-Paste	Destination Paste-Series
To:	Copy a Destination's Source-assignments to another Destination:	'Copy-Paste' a series of Destinations:
1	Select a single Destination .	
2	Either: <ul style="list-style-type: none"> • type CTRL-C; or • right-click 'Copy'; or • click on the 'Copy' icon in the List View tool bar. 	
	The Destination 's routing (all levels) is 'copied' and is outlined with a 'crawling' dashed line.	The Destination is copied.
3	Select a Destination to 'copy to'.	Select the first Destination in the range to 'copy to'.
4	(Optionally, select further 'copy-to' Destinations with CTRL-Select and/or SHIFT-Select.)	SHIFT-Select the last Destination in the range to 'copy to'. This has selected the 'Copy to' range. This has selected the 'Copy to' range.
5	Either: <ul style="list-style-type: none"> • press CTRL-V; or • right-click 'Paste'; or • click the 'Paste' icon in the List View tool bar. 	Then either: <ul style="list-style-type: none"> • press Alt-CTRL-V; or • click the Paste Series icon in the List View tool bar.
Result:	The 'copied' routing (all levels) is pasted to the selected Destination(s) .	The currently-routed Source of the copied Destination is applied to the first Destination in our 'Copy to' range. The next Source is applied to the next Destination in the 'Copy to' range, etc.

List View Routing Summary - Paste Levels

	Paste Levels with CTRL-V	Paste Levels with Alt-CTRL-R
To:	Copy multiple Destination Levels ' routing and to consecutive Destination Levels with no gaps	Copy multiple Destination Levels ' routing and to Destination Levels .with gaps.
1	Select a Destination Level .	
2	Select further with CTRL-Select and/or SHIFT-Select.	
3	Then either: <ul style="list-style-type: none"> • press CTRL-C; or • right-click 'Copy'; or • click on the 'Copy' icon in the List View tool bar. The routing of the Destination Levels is copied along with the <i>pattern</i> of levels.	
4	Select <i>one</i> 'Copy to' Destination Level (the 'starting level').	
5	And then either: <ul style="list-style-type: none"> • click the Paste icon; or • press CTRL-V; or • select right-click 'Paste'. 	And press Alt-CTRL-R
Result:	The copied routing is applied to the 'Copy to' Destination Level ('starting level') and to subsequent, consecutive Destination Levels . Any gaps in the copied pattern are not preserved.	The copied routing is applied to the 'Copy to' Destination Level ('starting Level') and to subsequent Levels with any pattern gaps preserved.

GV Orbit Custom User Panels

Can a Bulk Routing Panel be Opened from a Custom User Panel?

The Bulk Routing Panel may be opened from a GV Orbit custom user panel (created as part of a GV Orbit control and monitoring, C&M, project).

When the custom user panel is designed, a 'Load Panel' GV Orbit Routing Behaviour is used to invoke the Bulk Routing Panel when the custom user panel is run.

Typically, this GV Orbit 'Behaviour' would be invoked upon the press of a button on an GV Orbit C&M project custom user panel.

See:

- [Amend an Existing GV Orbit C&M Project](#)
- [Exercise the C&M Custom Screen](#)

Amend an Existing GV Orbit C&M Project

To prepare a GV Orbit C&M project to be able to open a Bulk Routing Panel:

- 1 Open/create a GV Orbit C&M project.
- 2 In the main menu, click on **Control and Monitoring > Connections > GVOP** and set the **Client Domain** to a domain with an GV Orbit Routing Service running.
- 3 Create a **New Screen**.
(I.e. in the **Project** window: expand the project item, right-click on 'screens', and select 'New Screen', enter a name, and click OK.)
A new blank C&M project screen opens as a tabbed screen.
- 4 In the new C&M project screen, add a **Button** widget.
(I.e. drag on a **Button** widget from the widget icons along the bottom edge of the GV Orbit Client application window.)
- 5 Edit the **Button** widget's **Caption** property. See Figure 2-89.

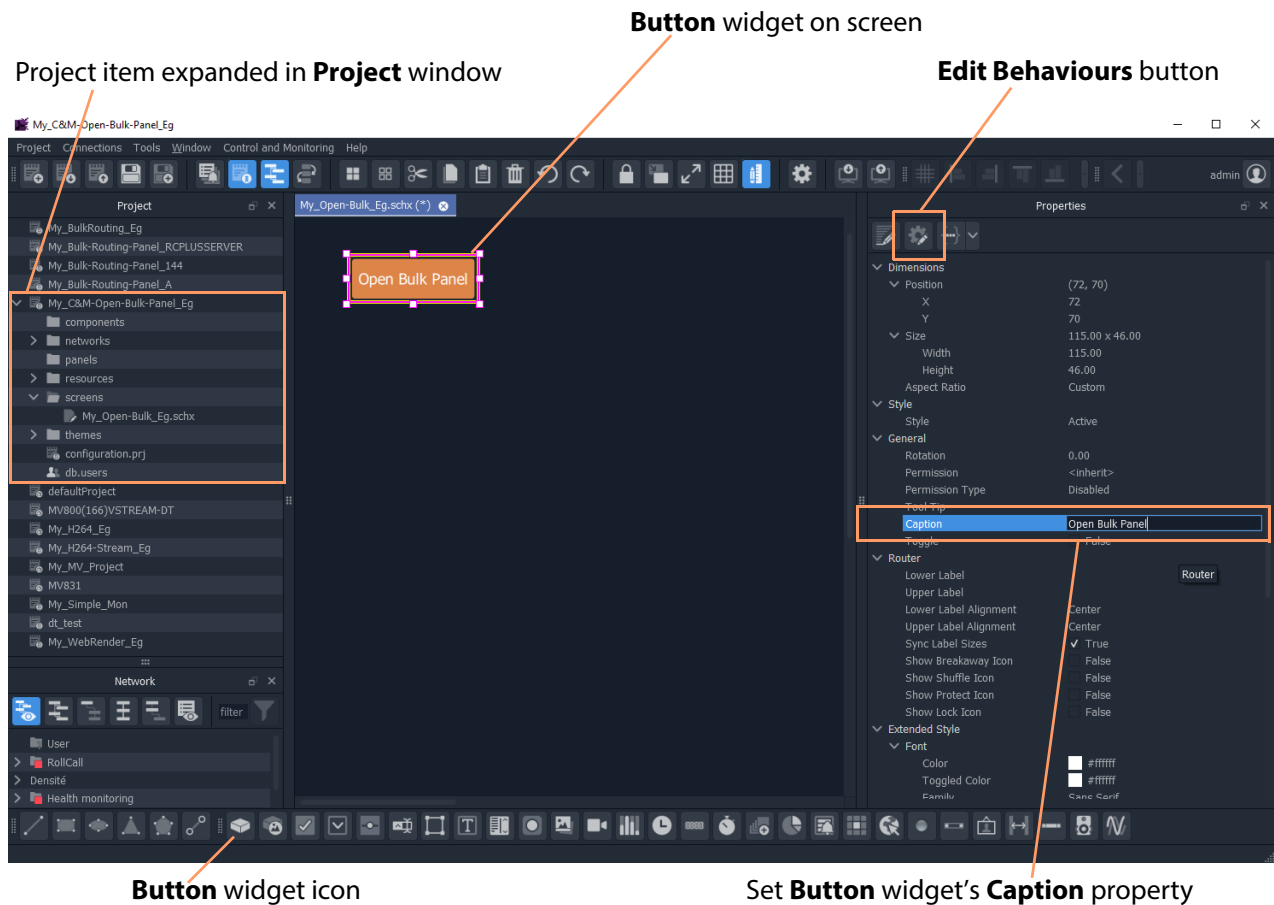


Fig. 2-89: C&M Project Screen with Button Widget

- 6 Select the **Button** widget on screen.
- 7 Click on the **Edit Behaviours** button.

The 'Behaviour and Bindings' graphical editor is shown. See Figure 2-90.

In the 'Behaviour and Binding' graphical editor:
- 8 Select to show 'Routing' Behaviours and click on the 'Load Panel' item.

A **Load Panel** Behaviour and a configured **Click Handler** Binding is automatically placed into the graphical editor. See Figure 2-90.

'Behaviour and Binding graphical editor'

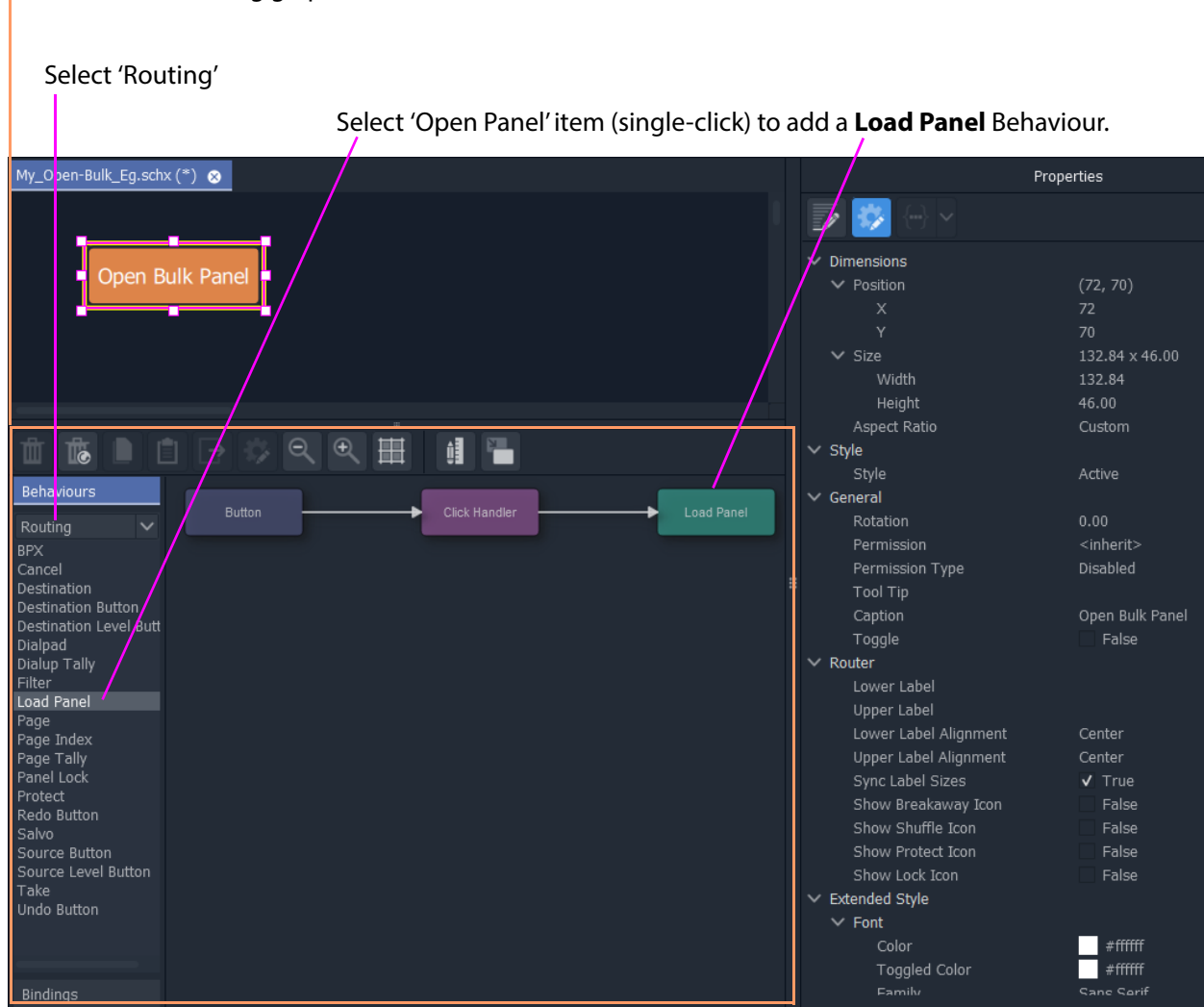


Fig. 2-90: Behaviour and Bindings Graphical Editor

9 Double-click on the added **Load Panel** Behaviour.

The Behaviour's configuration screen is shown in the graphical editor.

In the **Network** window:

10 Expand and locate the **Routing** service of the GV Orbit server being used.

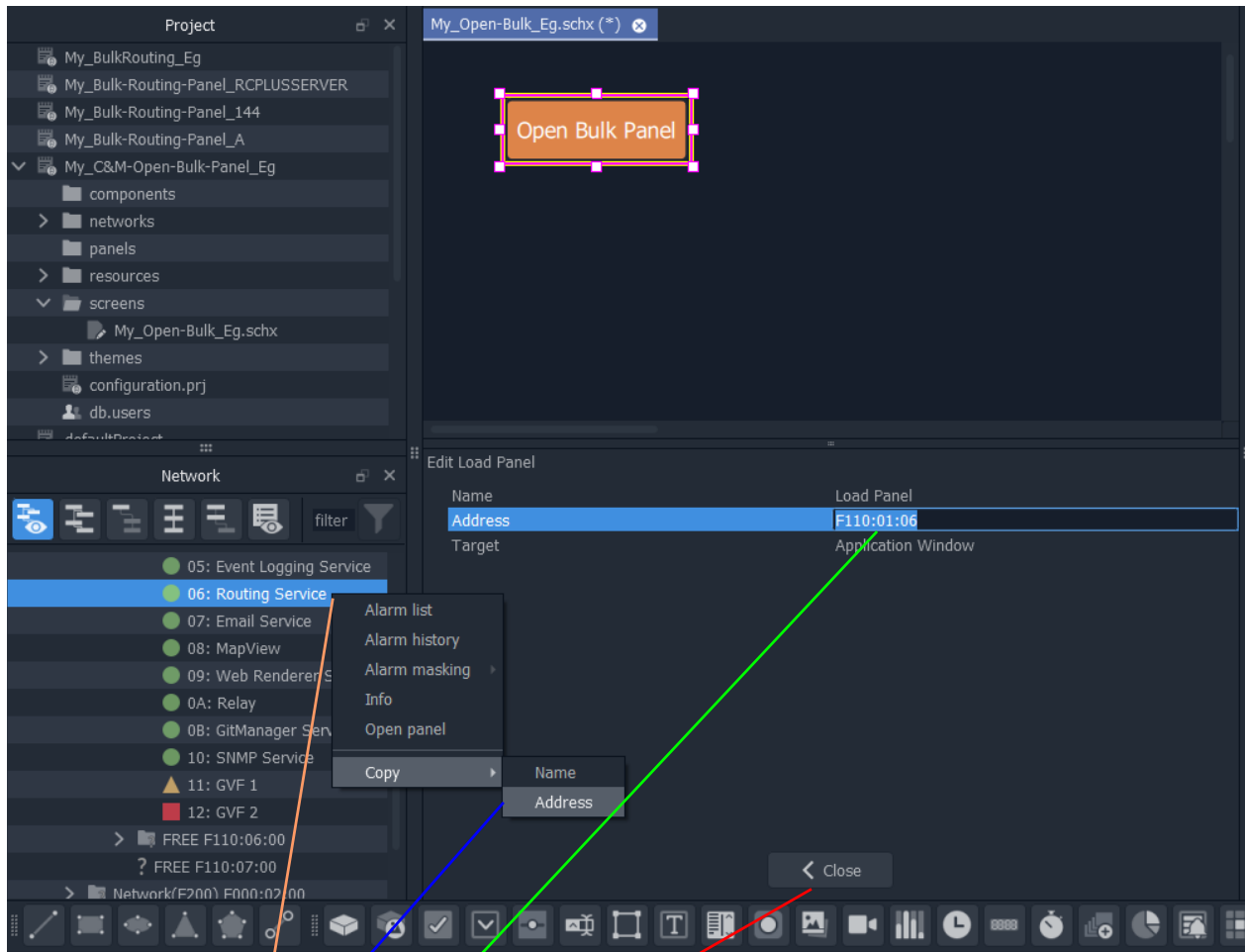
11 Right-click on the **Routing** service item and select 'Copy > Address':

This copies the RollCall address of the **Routing** service.

In the graphical editor:

12 Paste the copied address into the 'Address' property of the **Load Panel** configuration.

See Figure 2-91.



Right-click on a 'Routing Service' item in the **Network** window.

Select 'Copy > Address'.

Paste the address into the 'Address' property of the Load Panel configuration screen.

Click **Close in the Load Panel** configuration screen.

Fig. 2-91: Setting Load Panel Behaviour's RollCall Address

13 Click **Close** in the configuration screen.

To save this project change:

14 Click **Project > Save File** in the main menu

15 Click **Project > Save Project**.

This has designed (a simple) C&M custom screen which contains a button which will open the Bulk Routing Panel.

Exercise the C&M Custom Screen

With the designed C&M custom screen open in GV Orbit Client:

- 1 Click the **Design/Run Mode** button in the main tool bar of the GV Orbit Client application window. See Figure 2-94a.



Click to enter **Run** mode.

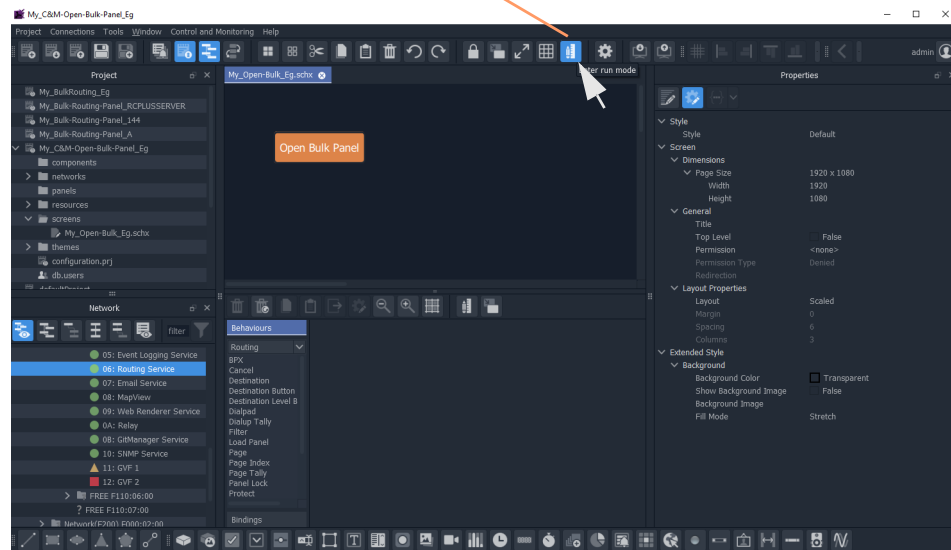


Click to enter **Design** mode.

Fig. 2-92: Design/Run Mode Icon (in Main Tool Bar)

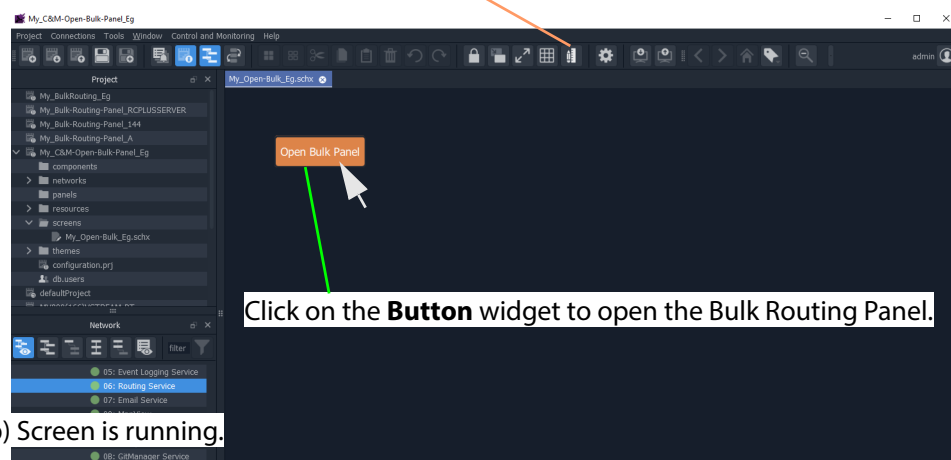
The GV Orbit Client enters **Run** mode and the custom screen is run. See Figure 2-94b.

Design/Run Mode icon indicates GV Orbit is in **Design** mode.



- a) Click to Enter Run Mode

Design/Run Mode icon indicates GV Orbit is in **Run** mode.



- b) Screen is running.

Fig. 2-93: Running the Custom Screen

- 2 Click on the **Button** widget to open a new tab containing an Bulk Routing Panel. See Figure 2-94.

Tab running C&M Custom Panel Tab running the opened Bulk Routing Panel

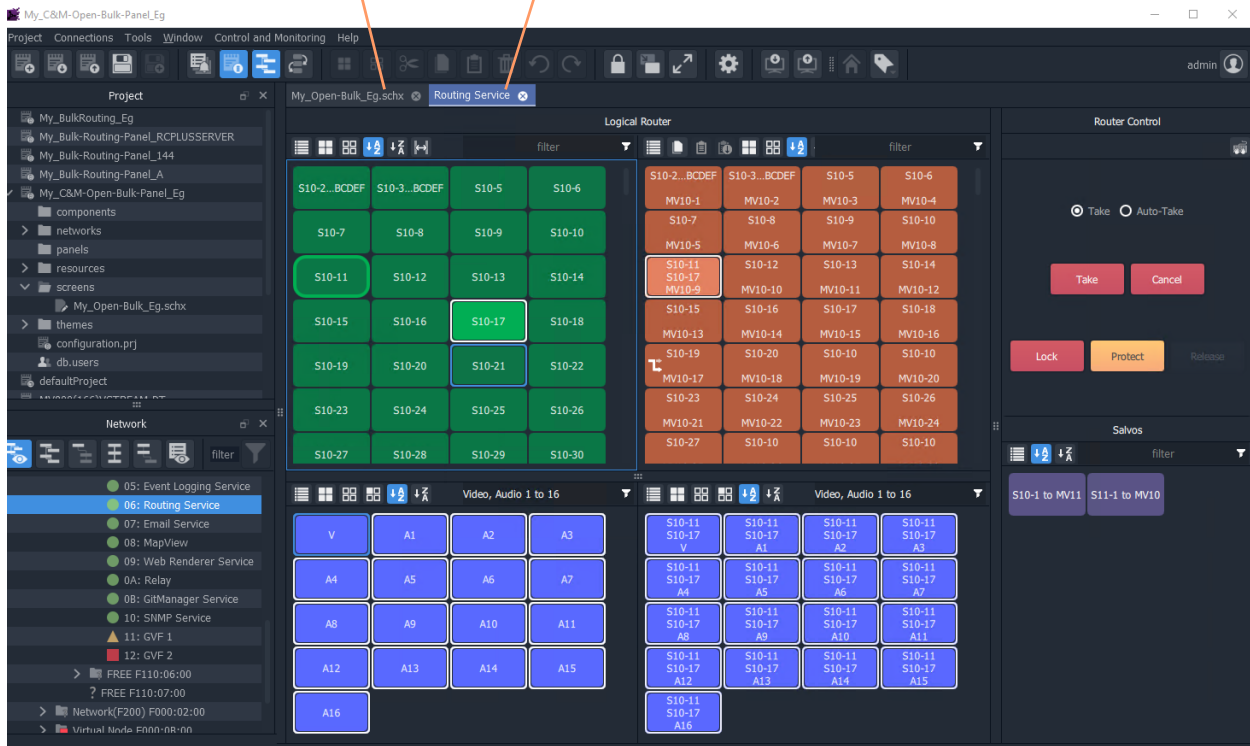


Fig. 2-94: Bulk Routing Panel Opened in a Tab

3

XY Routing Panel

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XY Routing Panel

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What is an XY Routing Panel?

An XY Routing Panel runs in the GV Orbit Client application. It is editable and customizable and is typically used for small, purpose-built routing panels for specific routing needs. It can be part of a custom soft user/operator panel in 1.4.0.

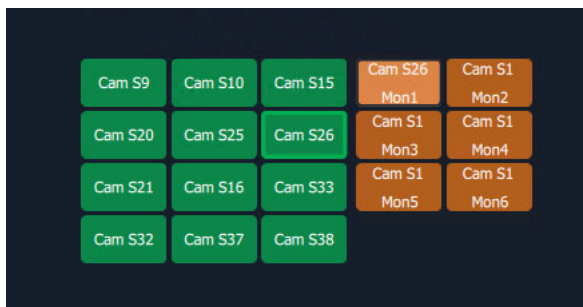
It can be created with a wizard and tailored to most needs. It is a flexible soft routing control panel which may be:

- Created with a wizard and used.
- Created and then edited for customized use.
- Created from scratch with the GV Orbit Client, in a similar way to a 1.4.0 C&M project user/operator soft control panel.

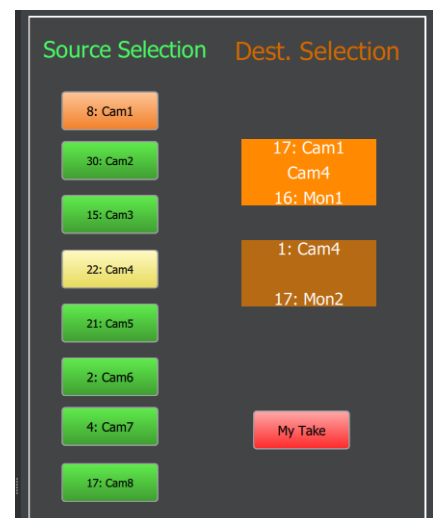
XY panels can also be embedded in GV Orbit soft custom operator/user panels.



a) Example XY Routing Panel from the Wizard



b) Example Customized XY Routing Panel



c) Example with Customized Layout

Fig. 3-1: XY Routing Panel Examples

Key Features

- X/Y panel wizard.
- Source and Destination filtering.
- Take, Auto-take, Cancel.
- Shuffles and Breakaways.
- Panel Lock.
- Customizable, editable.
- Source and Destination selection:
 - paged access to all ports; or
 - definable port-per-button.

This Chapter

This chapter describes:

- [How to Create a New XY Panel](#), on page 98.
- [Customizing with the XY Wizard](#), on page 101.
- [XY Panel Layout](#), on page 107.
- [Getting XY Routing Panel Running](#), on page 115.
- [XY Panel Operation](#), on page 119.
- [Assigning Ports to a Port-per-Button XY Panel](#), on page 130, including:
 - [Assigning Port-per-Button](#), on page 130.
 - [Assign Ports to Individual Buttons](#), on page 130.
 - [Quick Port-per-Button Assignment](#), on page 134.
- [Customizing an XY Panel](#), on page 138, including:
 - [Further Editing an XY Panel](#), on page 138.
 - [Creating a Custom XY Panel from Scratch](#), on page 139.
 - [Creating a Custom BPX Panel](#), on page 147.
 - [Enhancing the Appearance of a Panel](#), on page 153.
- [How to Embed an XY Panel into a Custom User Panel](#), on page 159.

How to Create a New XY Panel

One or more XY Routing Panels can be created in a GV Orbit C&M project.

XY Routing Panels are created in 1.4.0 Client and stored in a 'panels' folder in the **Project** window. (If your project does not contain a 'panels' folder, see [Creating a 'panels' Folder for Early 1.4.0 Projects](#) for instructions on creating one.)

For instructions on creating a new XY Panel, see [Create a New XY Routing Panel](#).

Creating a 'panels' Folder for Early 1.4.0 Projects

Some early GV Orbit C&M projects *do not* contain a 'panels' folder in the **Project** window. If this is the case, then one may be created. See below.

If your project *does* have a 'panels' folder in the Project window, go on to [Create a New XY Routing Panel](#).

To create a missing 'panels' folder:

- 1 Open a C&M project in the GV Orbit Client application.
- 2 Right-click on the project name item in the **Project** window and select 'New Folder'.

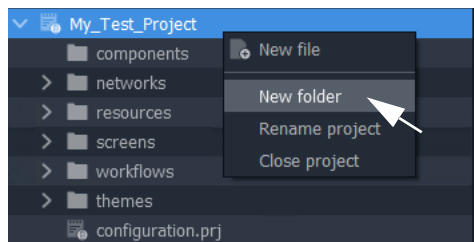


Fig. 3-2: Creating a New 'panels' Folder'

- 3 Enter 'panels' as the folder name, and click **OK**.

A new folder called 'panels' is added into the **Project** window.

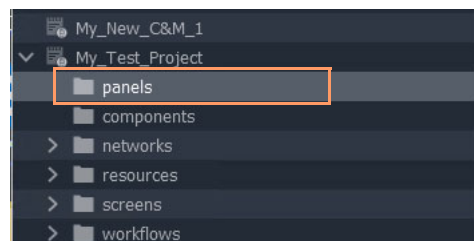


Fig. 3-3: New 'panels' Folder'

- 4 Click **Save File**. Click **Save Project**.

This has created a default new 'panels' folder in the project.

Now go on to [Create a New XY Routing Panel](#).

Note: A project folder named 'panels':

- allows only files of type 'panel';
- displays a 'New Panel' right-click menu item.

The folder name is case-sensitive.

Create a New XY Routing Panel

To create an XY panel in a C&M project in the GV Orbit Client application:

- 1 Expand the project name in the **Project** window and look for the 'panels' sub-folder.
- 2 Right-click on the 'panels' folder and select 'New Panel'. See Figure 3-4.

The **New X/Y Panel** dialog is shown.

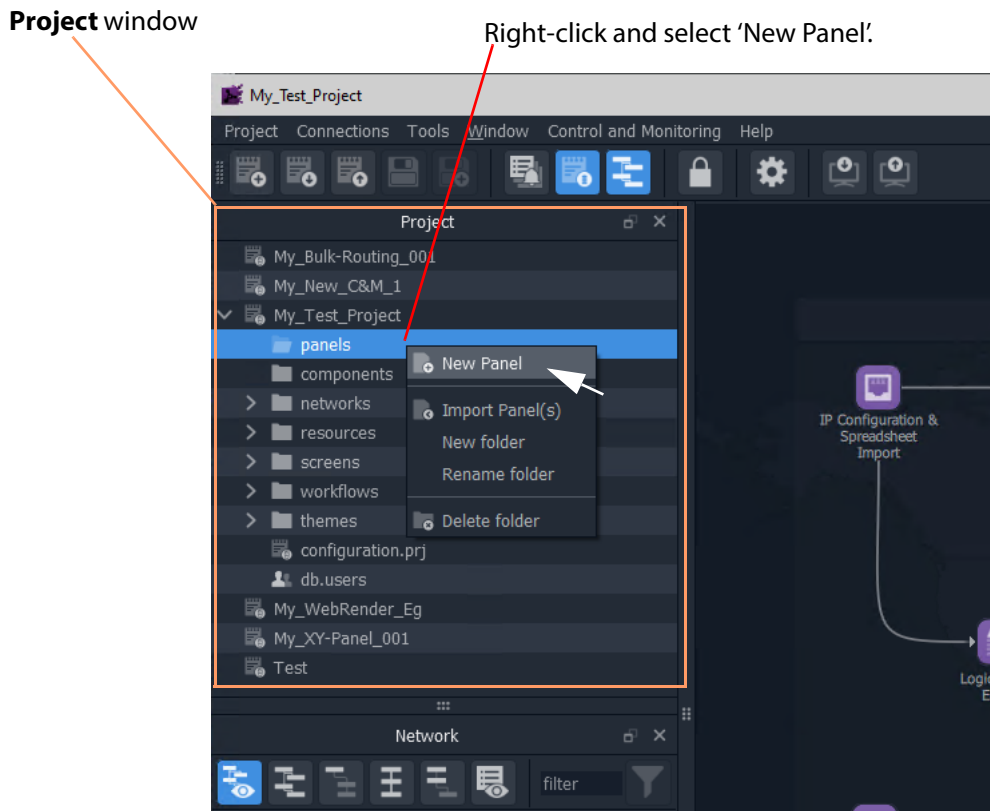


Fig. 3-4: Create a New XY Routing Panel

- 3 Enter a name for the new XY Panel in the **New X/Y Panel** dialog.
- 4 And click **OK**.

A new panel item is then added into the 'panels' folder and a new generic XY Panel is shown in a tab.

Figure 3-5 shows an example with GV Orbit shown in 'Design Mode' (not 'Run Mode').

- 5 Click **Save File**. Click **Save Project**.

This has created a default new, generic XY Panel (see example in Figure 3-5) which is editable and customizable, see [Customizing with the XY Wizard](#), on page 101. Various button types can be shown/hidden on the panel with the wizard.

XY Routing Panel

Create a New XY Routing Panel

1.4.0 Client shown in 'Design Mode'.

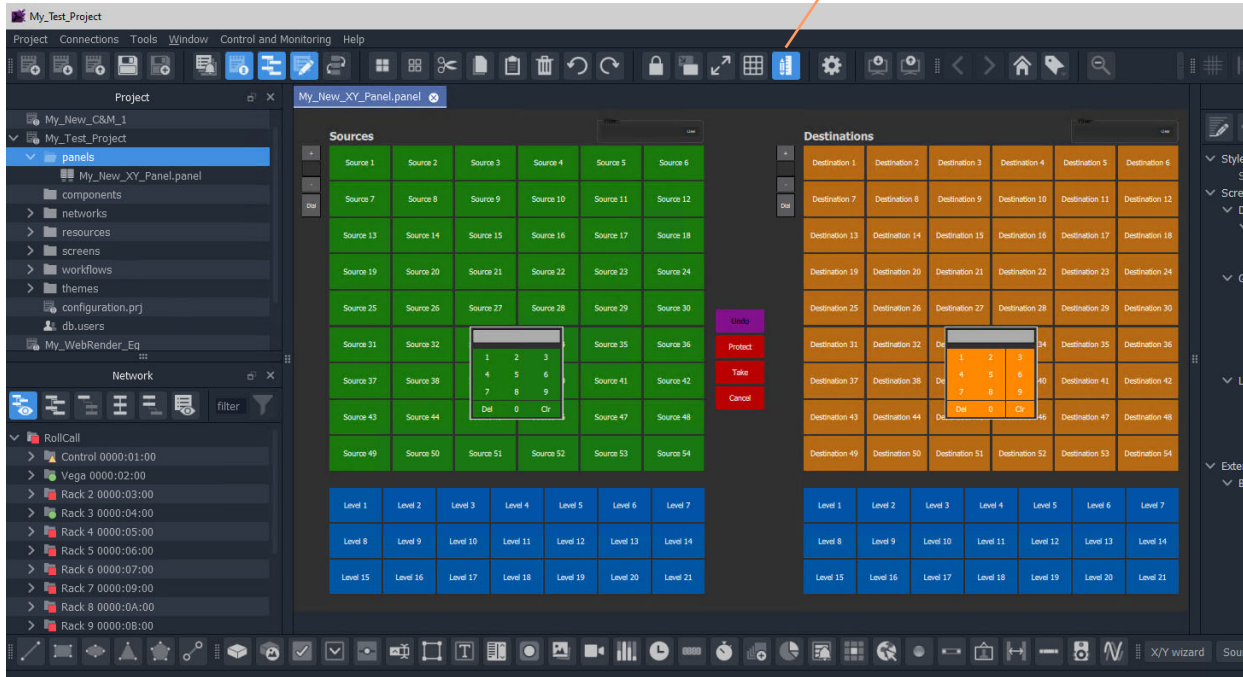


Fig. 3-5: Example New Generic XY Routing Panel

Customizing with the XY Wizard

A default new, generic XY Panel can be created (see [How to Create a New XY Panel](#), on page 98) which is editable and customizable. When an XY Panel is open in GV Orbit Client, the panel is editable with the client in 'Design Mode' (rather than in 'Run' mode).

Customizing may be done with the **XY Wizard** and editable items include the:

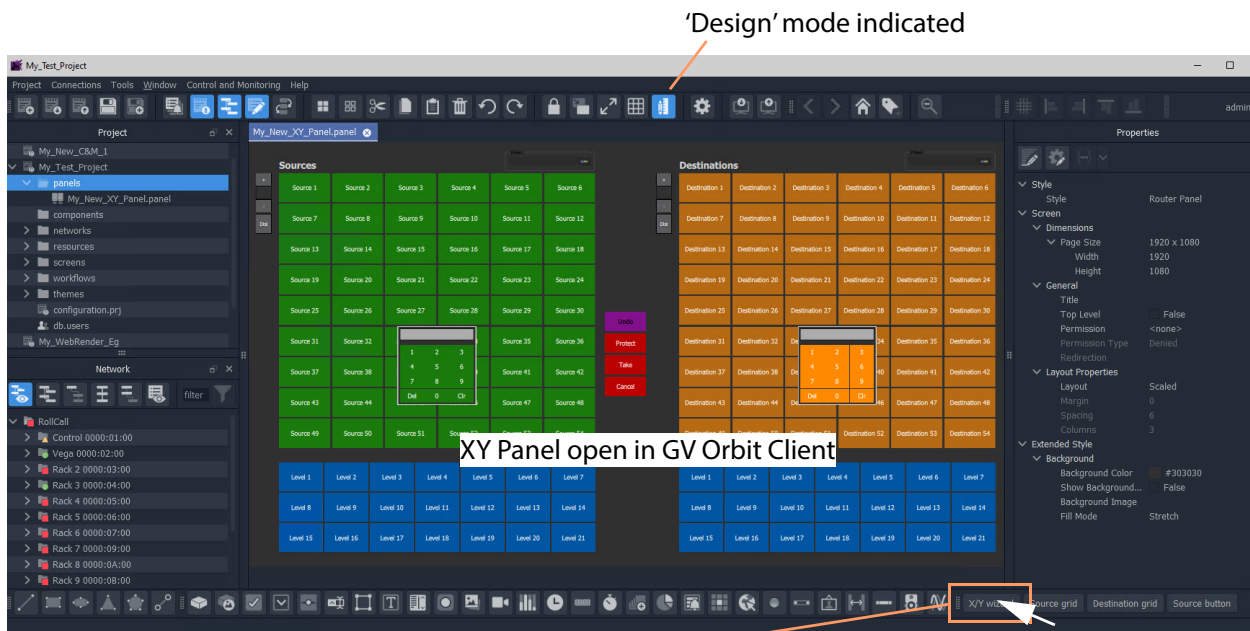
- panel size;
- number of and arrangement of Sources/Destinations; and
- enabling/disabling of other controls.

Use the **XY Wizard** on new, generic XY Panels.

To Open the XY Wizard

To open the **XY Wizard** for an XY Panel:

- 1 Open the XY Panel and go to 'Design' mode in 1.4.0 Client.
- 2 Click **XY Wizard** button. See Figure 3-6.

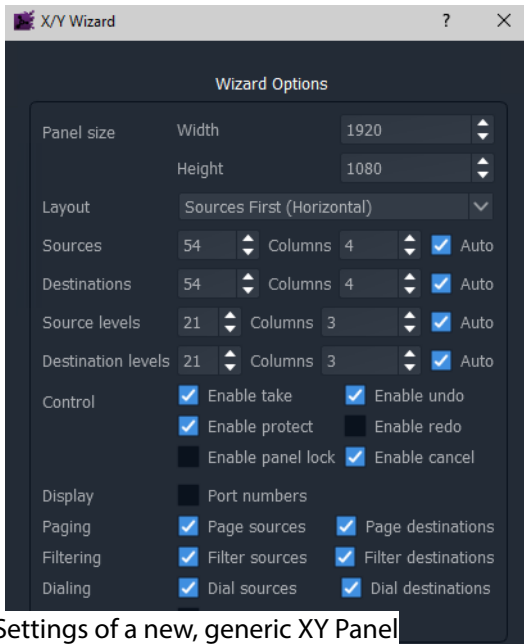


Click **XY Wizard** to open the **XY Wizard** dialog.

Fig. 3-6: XY Wizard Button

The **XY Wizard** dialog is displayed for editing the XY panel. For a new XY Panel, it is generic XY panel settings that are shown selected. See Figure 3-7.

XY Routing Panel
To Open the XY Wizard



a) Settings of a new, generic XY Panel



b) Corresponding XY Panel

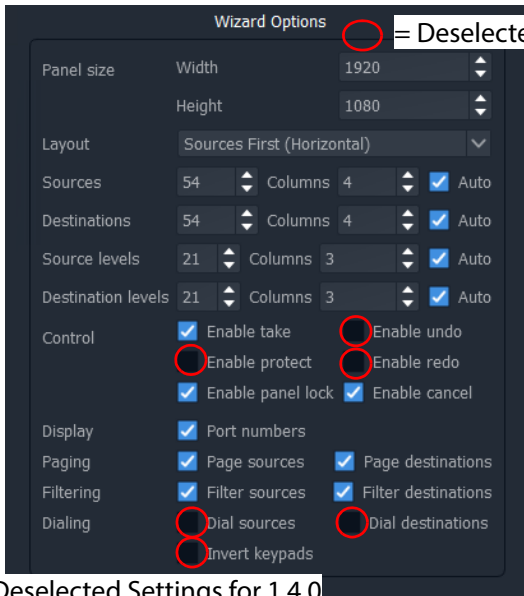
Fig. 3-7: XY Wizard Dialog (a) and Panel (b, New, Generic Panel Settings Shown)

Note:

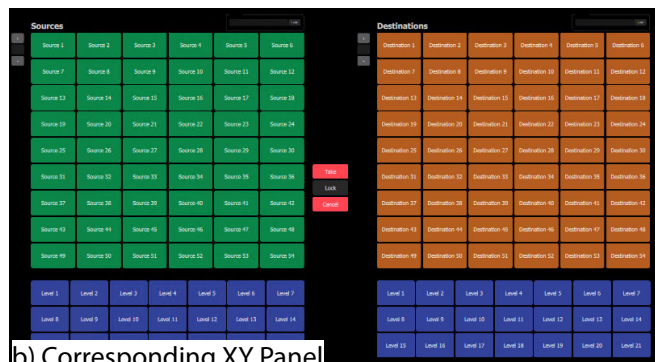
Some settings are *not* currently applicable to a 1.4.0 system, these include:
Undo, Re-do, Protect and Dial.

Recommendation:

Deselect these settings for 1.4.0 systems. See Figure 3-8.



a) Deselected Settings for 1.4.0



b) Corresponding XY Panel

Fig. 3-8: XY Wizard Dialog and Panel (Deselected Settings Shown for a 1.4.0 System)

- 3 Deselect the wizard options that are not applicable to 1.4.0. See Figure 3-8a.
The panel appearance changes in response to the settings changes as they are made. See Figure 3-8b.

For the remaining settings, these may be selected/deselected and configured as required:

- 4 Change the XY panel setting as required.
(See [XY Wizard Settings](#) and Table 3-1 for descriptions of each **XY Wizard** setting.)
The panel appearance changes in response to the settings changes as they are made.
- 5 Close the **XY Wizard** dialog when finished changing settings.
(This dialog can always be re-opened if required.)
- 6 Click **Save File**. Click **Save Project**.

The modified XY Panel has been saved.

XY Wizard Settings

Table 3-1: XY Wizard Dialog Settings

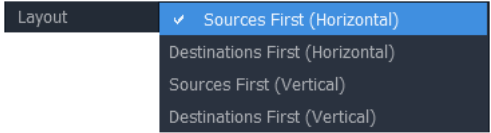
Item	For 1.4.0	Description
Panel Size:		Sets the overall size of the XY Panel (in pixels). Normally, set this to be the size of the monitor used to display the panel.
Width	✓	Text box. Enter the panel screen width (pixels). Default = 1920.
Height	✓	Text box. Enter the panel screen height (lines). Default = 1080.
Layout	✓	Select the left-right/top-bottom layout arrangement of the Source/Source-level and Destination/Destination-level grids: 
Sources Destinations Source Levels Destination Levels		For selection buttons on the XY panel:
Columns	✓	Text box. Select the number of items to control. (Sources, Destinations, etc.)
Auto	✓	Text box. Select the number of columns used to display items.
	✓	Check box. <ul style="list-style-type: none"> • Select to automatically arrange the items in columns.

Table 3-1: XY Wizard Dialog Settings (continued)

Item	For 1.4.0	Description
Control:		Enable various 'Routing Control' controls. Note: Some items do not apply to 1.4.0 systems and should be deselected.
Enable Take	✓	Check box. <ul style="list-style-type: none"> • Select to enable a Take button.
Enable Undo	✘	This does not apply to 1.4.0 systems. Check box. <ul style="list-style-type: none"> • Select to enable an Undo button. • Deselect for 1.4.0 systems.
Enable Protect	✘	This does not apply to 1.4.0 systems. Check box. <ul style="list-style-type: none"> • Select to enable a Protect button. • Deselect for 1.4.0 systems.
Enable Redo	✘	This does not apply to 1.4.0 systems. Check box. <ul style="list-style-type: none"> • Select to enable a Redo button. • Deselect for 1.4.0 systems.
Enable Panel Lock	✓	Check box. <ul style="list-style-type: none"> • Select to enable a Panel Lock button.
Enable Cancel	✓	Check box. <ul style="list-style-type: none"> • Select to enable a Cancel button.
Display:		Port Numbers Check box. <ul style="list-style-type: none"> • Select to show router port numbers on Source/Destination selection buttons.

Table 3-1: XY Wizard Dialog Settings (continued)

Item	For 1.4.0	Description
<p>Paging:</p> <p>Page Sources</p> <p>Page Destinations</p>	<p>✓</p> <p>✓</p>	<p>The Source selection and Destination selection button-grids can be independently configured for either:</p> <ul style="list-style-type: none"> • paging through all of the respective router sources/destination ports; or for • accessing a specific router source/destination port per button. <p>Check box.</p> <p>Control Source button-grid configuration:</p> <ul style="list-style-type: none"> • Select for 'Paged': Paged Source port selection. Button-grid gives paged access to all router Sources, indexed. See Paged Ports, on page 109. • Deselect for 'Port-per-Button': A 'fixed' specific Source port is assignable per button. Each button accesses a specific Source port, non-indexed. See Port-per-Button, on page 109. <p>Check box.</p> <p>Control Destination button-grid configuration:</p> <ul style="list-style-type: none"> • Select for 'Paged': Paged Destination port selection. Button-grid gives paged access to all router Destinations, indexed. See Paged Ports, on page 109. • Deselect for 'Port-per-Button': A 'fixed, specific Destination port is assignable per button. Each button accesses a specific Destination port, non-indexed. See Port-per-Button, on page 109.
<p>Filtering:</p> <p>Filter Sources</p> <p>Filter Destinations</p>	<p>✓</p> <p>✓</p>	<p>Check box.</p> <ul style="list-style-type: none"> • Select to show Sources filter control. <p>Check box.</p> <ul style="list-style-type: none"> • Select to show Destinations filter control.
<p>Dialing:</p> <p>Dial Sources</p>	<p>✗</p>	<p>For dial-up selection of a Source or a Destination via its router port number.</p> <p>Note: Dialing does not apply to 1.4.0 systems and these controls should be deselected.</p> <p>This does not apply to 1.4.0 systems.</p> <p>Check box.</p> <ul style="list-style-type: none"> • Select to show Sources dial-up controls. • Deselect for 1.4.0 systems.

Table 3-1: XY Wizard Dialog Settings (continued)

Item	For 1.4.0	Description
Dial Destinations	✘	This does not apply to 1.4.0 systems. Check box. <ul style="list-style-type: none">• Select to show Destinations dial-up controls.• Deselect for 1.4.0 systems.
Invert Keypads	✘	This does not apply to 1.4.0 systems. Check box. <ul style="list-style-type: none">• Select to show Dial-up numeric keypads with 7,8,9 on top row.• Deselect to show 1,2,3 on top row.

XY Panel Layout

The layout and controls of a newly-created XY Panel are shown in Figure 3-9.



Fig. 3-9: Example New XY Panel Layout

An XY Routing Panel is designed in and run from the 1.4.0 Client application. Figure 3-9 shows a view of the XY Panel in 'Design Mode' and Figure 3-10 shows an annotated view in 'Run' mode.

The panel is laid out with the following main grids/areas (see Figure 3-10):

- **Source Grid** – Sources are presented here, configurable in the XY Wizard to be a:
 - Paged list of all available sources.
 - Sub-set of defined sources.
- **Source Levels Grid** – List of available levels for selected source(s).
- **Destination Grid** – Destinations are presented here, configurable in the XY Wizard to be a:
 - Paged list of all available destinations.
 - Sub-set of defined destinations.
- **Destination Levels Grid** – List of available levels for selected destination(s).
- **Routing Controls** – Buttons are configured as shown/hidden in the **XY Wizard**, and include: 'Undo', 'Redo', 'Protect', 'Take', 'Panel Lock' and 'Cancel'.

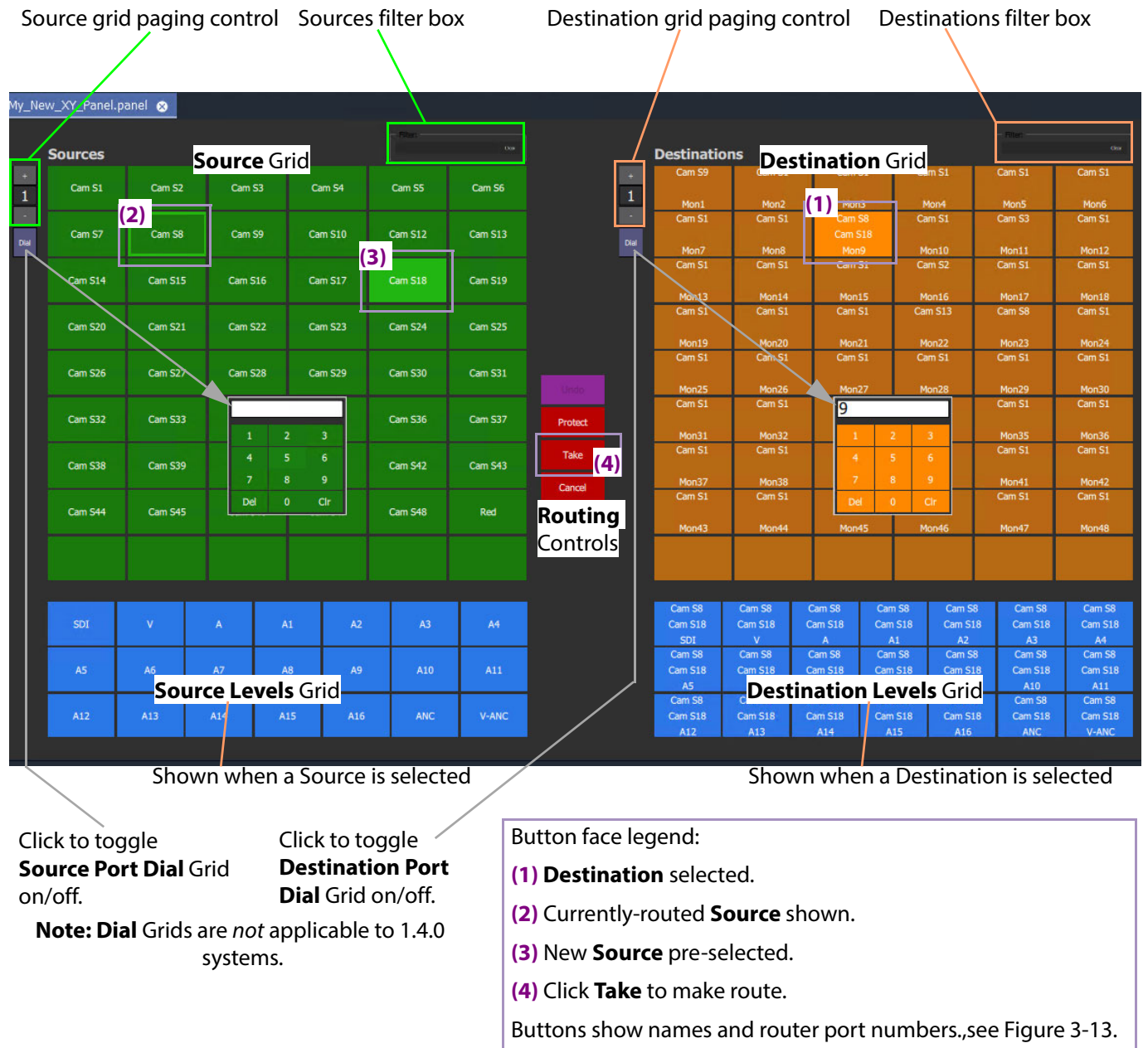


Fig. 3-10: New XY Panel Layout and Controls (Annotated, 'Run' Mode)

Note: The following controls on a newly-created XY Panel are not applicable to 1.4.0 systems:

- Undo, Re-do, and Protect buttons; and
- Source and Destination Dial Grids.

Source and Destination Selection Button-Grids

The Source and Destination button-grids can be independently configured with the [XY Wizard Settings](#) for either:

- [Paged Ports](#) operation; or for
- [Port-per-Button](#) operation.

When an XY Panel is running, buttons are annotated to reflect the source/destination names, see [Source/Destination Button Annotations](#).

Paged Ports

A Source or Destination button-grid can be configured for paging through all of the respective router sources/destination ports. (Configuration is done in the [XY Wizard Settings](#).)

Figure 3-11 shows a running example XY Panel with 12-button button-grids configured for 'paged ports' operation. Each paged button grid has paging controls to access all router ports (source or destinations accordingly). Page 1 starts at port 1 and shows consecutive ports on the button grid buttons.

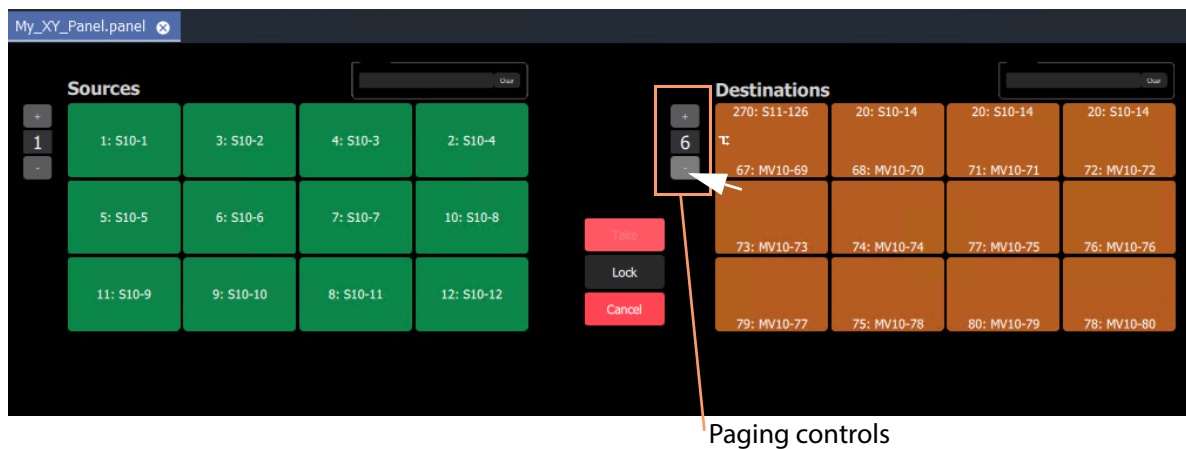


Fig. 3-11: Example Paged Ports Button Grid

Port-per-Button

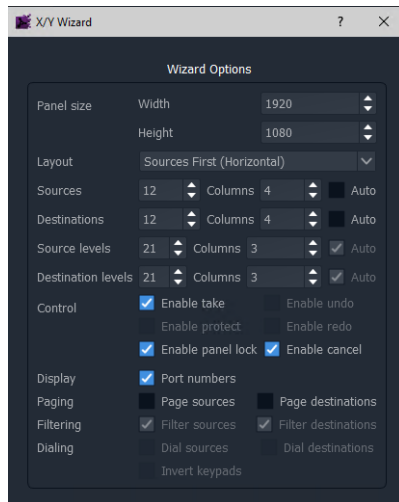
A Source or Destination button-grid can be configured for accessing a 'fixed', specific router source/destination port per button. (Configuration is done in the [XY Wizard Settings](#), on page 103.)

Figure 3-12 shows an example XY Panel with 12-button button-grids configured for 'port per button' operation. There is no paging here.

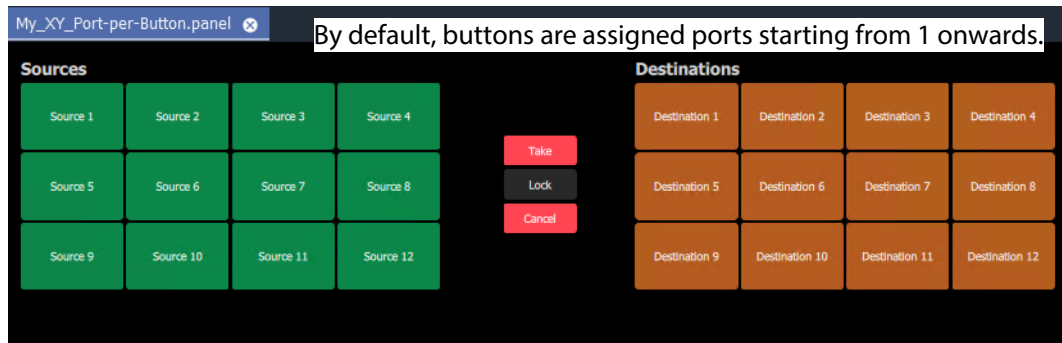
The example XY Panel is shown both in 'Design' mode and in 'Run' mode. This example has an initial, default assignment (from the XY Wizard) of ports-to-buttons, where buttons in each grid access ports starting from 1 onwards.

Each button can be further configured to access a specific port, as required. See [Assigning Port-per-Button](#), on page 130.

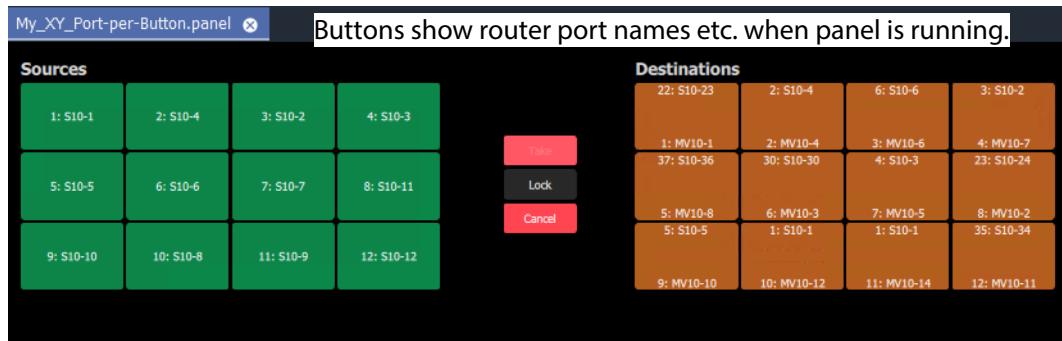
XY Routing Panel Source and Destination Selection Button-Grids



a) Wizard settings used in the example here



b) Example XY Panel, Port-per-Button, 'Design' mode



c) Example XY Panel, Port-per-Button, 'Run' mode

Fig. 3-12: Example Port-per-Button

Source/Destination Button Annotations

The source/destination selection and source/destination level selection buttons in 'Run' mode are annotated to reflect the source/destination name or level name etc. when the panel is running.

Additionally, when making a route, the selected destination button shows the currently-routed source and the current (pre-)selected source for that destination.

Buttons can be configured to show router port numbers and port names, see [XY Wizard Settings](#), on page 103.

Figure 3-13 shows button-face annotations.

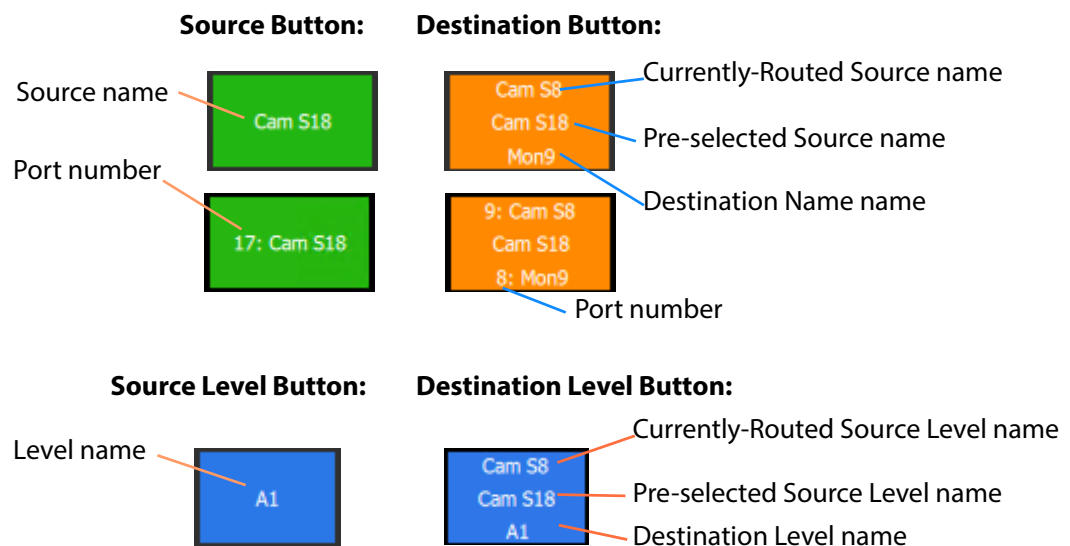


Fig. 3-13: XY Panel Buttons on a Running XY Panel

Routing Control Buttons

Note: **Undo, Redo, Protect** functions are not currently available in an XY Panel for GV Orbit systems. (Use the Bulk Routing Panel for these functions.)

Depending on the settings in the XY Wizard, the Routing Control section of the panel contains:

- **Take** button.
Click to make a route to the selected Destination from a pre-selected Source.
- **Cancel** button.
Click to deselect all Destinations and Sources.
- **Lock** button.
Click to lock the XY panel controls. Click again to unlock.

XY Routing Panel- Operational Keys

Table 3-2: XY Panel Operational Keys

Operation	Mouse
Select	Mouse click on a Source or Destination.
Select a Range	Mouse click on first item then SHIFT click on last item.
Add to/remove from a multiple selection	CTRL + Mouse click
Paste Series	Click 'Paste Series' icon in panel.
Take	Double-click on pre-selected Source; or click Take button.
Cancel	Click 'Cancel' button.

XY Panel Level Selection

When a source or a destination is selected, the associated levels are shown in the corresponding 'Levels Grid' panel. If multiple sources or destinations are selected, then only their *common* levels are shown.

All levels are selected by default. If the user selects one or more levels, then all other levels are deselected.

XY Panel Right-Click Menus

Right-click on background of a XY Routing Panel to show a drop-down context menu. See Figure 3-14.

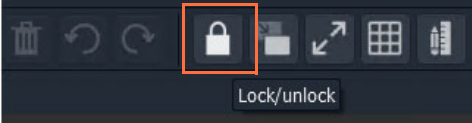
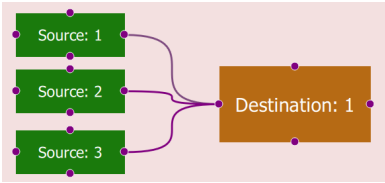


Fig. 3-14: XY Panel Background Right-Click Menu: a) in 'Run' Mode; b) in 'Design' Mode.

Table 3-3: XY Panel Right-Click Menu Items

Item	Shown in		Description
	'Run' Mode	'Design' Mode	
Dock/Undock Window	✓	✓	Undock or dock the XY Routing Panel window from the GV Orbit Client window.
Full Screen	✓	✓	Show the XY Routing Panel window full-screen. When full-screen, right-click > Exit Full Screen .
Exit Run Mode	✓		Click to exit 'Run' mode and enter GV Orbit 'Design' mode.
Enter Run Mode		✓	Click to enter GV Orbit 'Run' mode.
Scale to Fit	✓	✓	Click to fit the panel to the window.
Select All		✓	Selects all items.
Deselect All		✓	Deselects all items.

Table 3-3: XY Panel Right-Click Menu Items (continued)

Item	Shown in		Description
	'Run' Mode	'Design' Mode	
Lock/unlock	✓	✓	<p>Click to toggle locking/unlocking the panel. When the panel is locked, user operation is disabled.</p> <p>Note: Clicking the 'Lock' icon in the GV Orbit Client main tool bar also toggles panel lock.</p> 
Resize to Widgets		✓	Click to resize the XY panel background to fit to its constituent widgets.
Reset Panel Styles to Default		✓	Click to set widget styles all to 'default'.
Variables...	✓	✓	<p>Click to show the Variables dialog.</p> <p>Note: The Variables dialog is <i>not editable</i> in 'Run Mode'.</p>
Connection Mode		✓	<p>Note: This item is a generic widget feature, not routing-specific.</p> <p>Widget feature:</p> <p>When designing C&M project screens or XY Panels, the graphical widgets used may be shown to be visually connected together by a curved line.</p> <p>Click Connection Mode to show connection points on the widgets.</p> 
Edit Behaviours		✓	Click to toggle showing the Behaviours and Bindings graphical editor.

Getting XY Routing Panel Running

When an XY Panel runs on the 1.4.0 Client in a C&M project, it controls signal routing via the **Routing** service running on a 1.4.0 server.

What is a Routing Service?

As part of setting up a 1.4.0 system, a **Routing** service must be configured with a RollCall address and a GVOP domain, and started up to run on a 1.4.0 server. The **Routing** service uses its RollCall address and is visible in the **Network** window of a GV Orbit Client and see Figure 3-15.

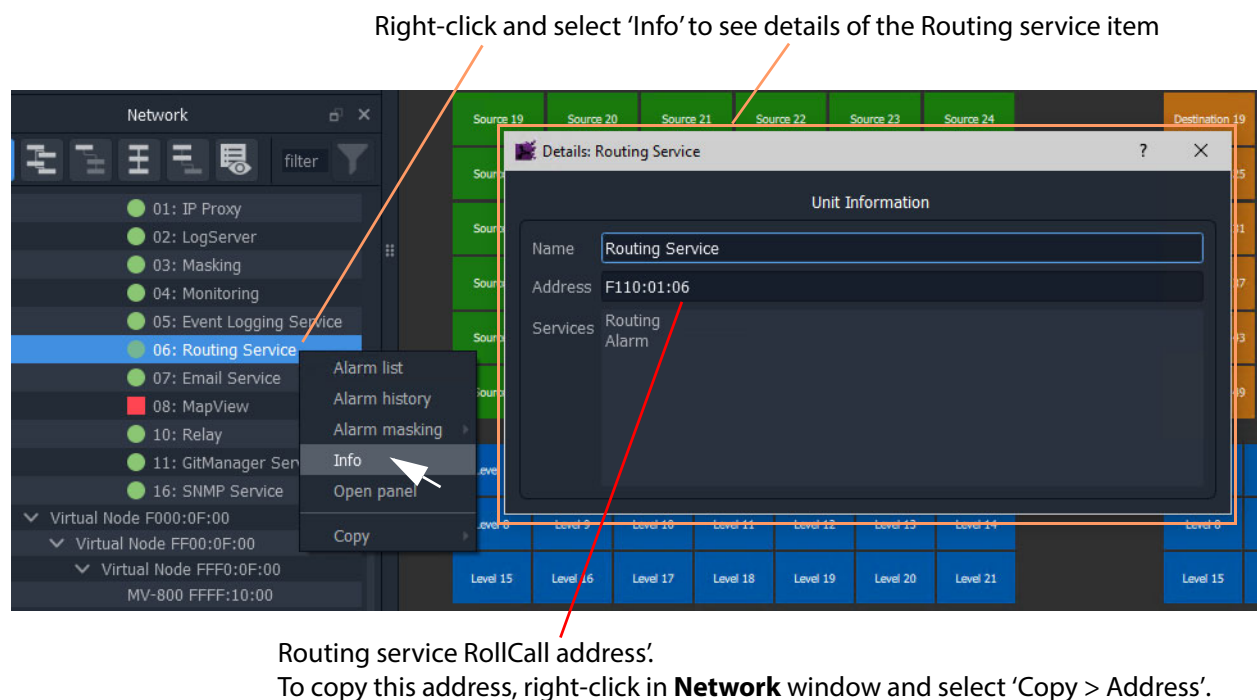


Fig. 3-15: Routing Service in Network Window

Note: The GVOP domain of the GV Orbit C&M project and the GVOP domain of the Routing service must be the same.

How to Connect an XY Panel to a Routing Service

Automatic Setup

To run in 1.4.0 Client, an XY Panel must point at a **Routing** service on a 1.4.0 server. This is usually automatically set up for the user, including:

- 1.4.0 C&M project GVOP domain the same as the Routing service. This should be set automatically.
(To see the project's GVOP domain number, go to the main menu item 'Connections > GV Orbit Server', and look at the 'Client domain' setting. Edit the domain number here if required.)
- XY Panel set with a RollCall address of the **Routing** service. This should be set automatically.
To do this, the XY Panel's 'Address' variable must be set to be the RollCall address of the target **Routing** service.

Manual Setup

To manually set up the XY Panel to point at a **Routing** service:

- 1 In the **Network** window, right-click on the **Routing** service item, and select 'Copy > Address'.
This copies the RollCall address of the service into your copy buffer.
- 2 Go to the XY Panel and right-click on the XY Panel background and select 'Variables...'. The **Variables** dialog is shown. See Figure 3-16.

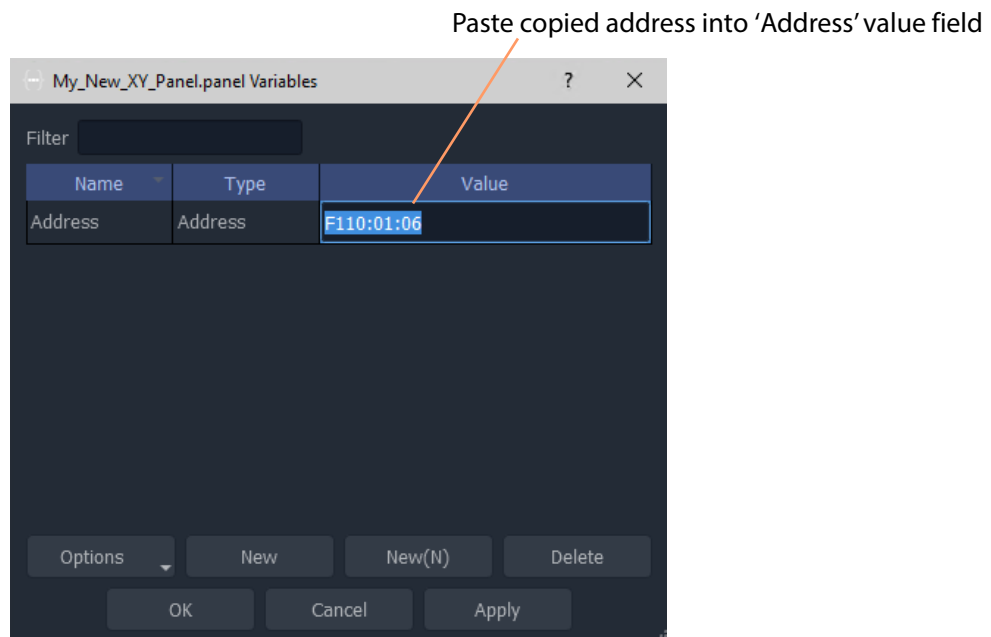


Fig. 3-16: Setting Routing Service RollCall Address for XY Panel

- 3 In the **Variables** dialog, paste in the copied RollCall address into the value of the 'Address' variable. See Figure 3-16. (Alternatively, simply enter the address manually.)
- 4 Click **OK**.
- 5 Click **Save File**. Click **Save Project**.

This has manually pointed an XY Panel at a **Routing** service.

To Run an XY Panel

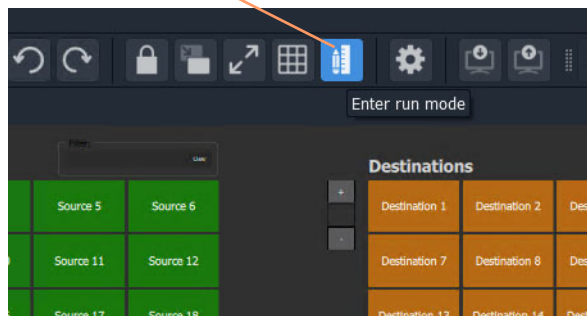
When an XY Panel runs, it connects to the **Routing** service and collects routing information and data (Source names/port numbers, Destination names/port numbers, routed source names etc.) and populates the panel buttons with names and router port numbers etc.

To run an XY panel:

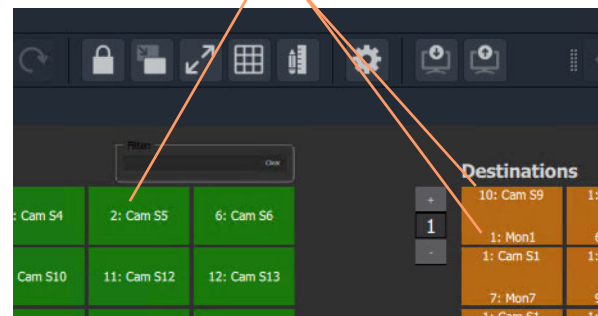
- 1 Open the panel in GV Orbit Client and click on the 'Run' mode/'Design' mode main tool bar icon to enter 'Run' mode. See Figure 3-18.

Click to enter 'Run' mode (from 'Design' mode)

Buttons show actual source and destinations name s etc.



a) XY Panel in 'Design' mode

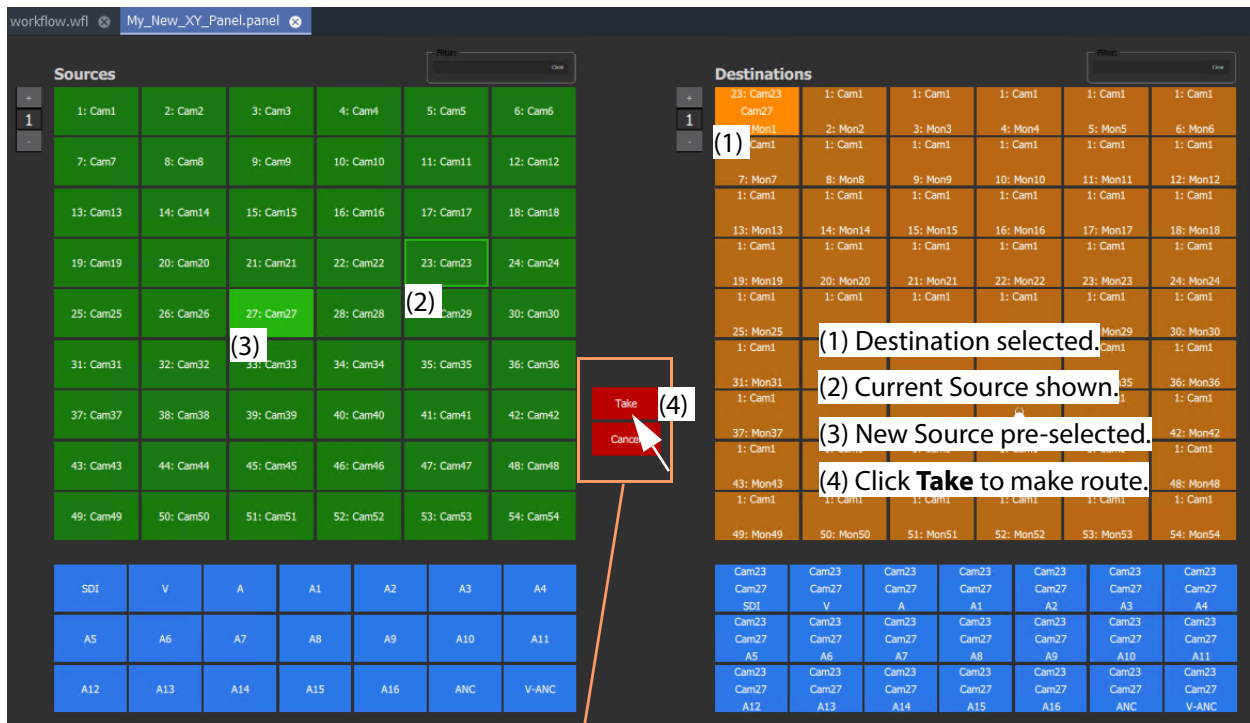


b) XY Panel in 'Run' mode

Fig. 3-17: Enter Run Mode

The XY Panel run and connects to the **Routing** service and gets source and Destination names etc. See Figure 3-18.

XY Routing Panel To Run an XY Panel



Note: Routing Control buttons can be shown/hidden with the XY Wizard.
(See [Customizing with the XY Wizard](#), on page 101.)

Fig. 3-18: Running XY Panel Example

XY Panel Operation

Make a Simple Route with an XY Routing Panel

Simple Route

To make a simple route:

- 1 Select a **Destination**.
The currently-routed Source is shown.
- 2 Select a **Source**.
The pre-selected Source is shown.
- 3 Click **Take**. (Click **Cancel**, to deselect the source/destination.)
The selected source is routed to the selected destination. The route is made.

Alternatively, select the **Source** first.

1) Select **Destination**

Currently-routed Source is shown.

2) Select **Source**

3) **Take**



Fig. 3-19: Making a Simple Route

Route One Source to Multiple Destinations

- 1 Select a **Destination** by clicking on the destination selection button.
- 2 Select a second **Destination** by CTRL + clicking on a destination button.
- 3 Select further destinations with CTRL + click.
- 4 Select one **Source**.
- 5 Click **Take**.

The source is routed to all selected destinations.

Note: A contiguous range of Destinations (or Sources) can be selected by clicking the first Destination (or Source) in the range and then SHIFT-click on the last Destination (or Source) in the range.

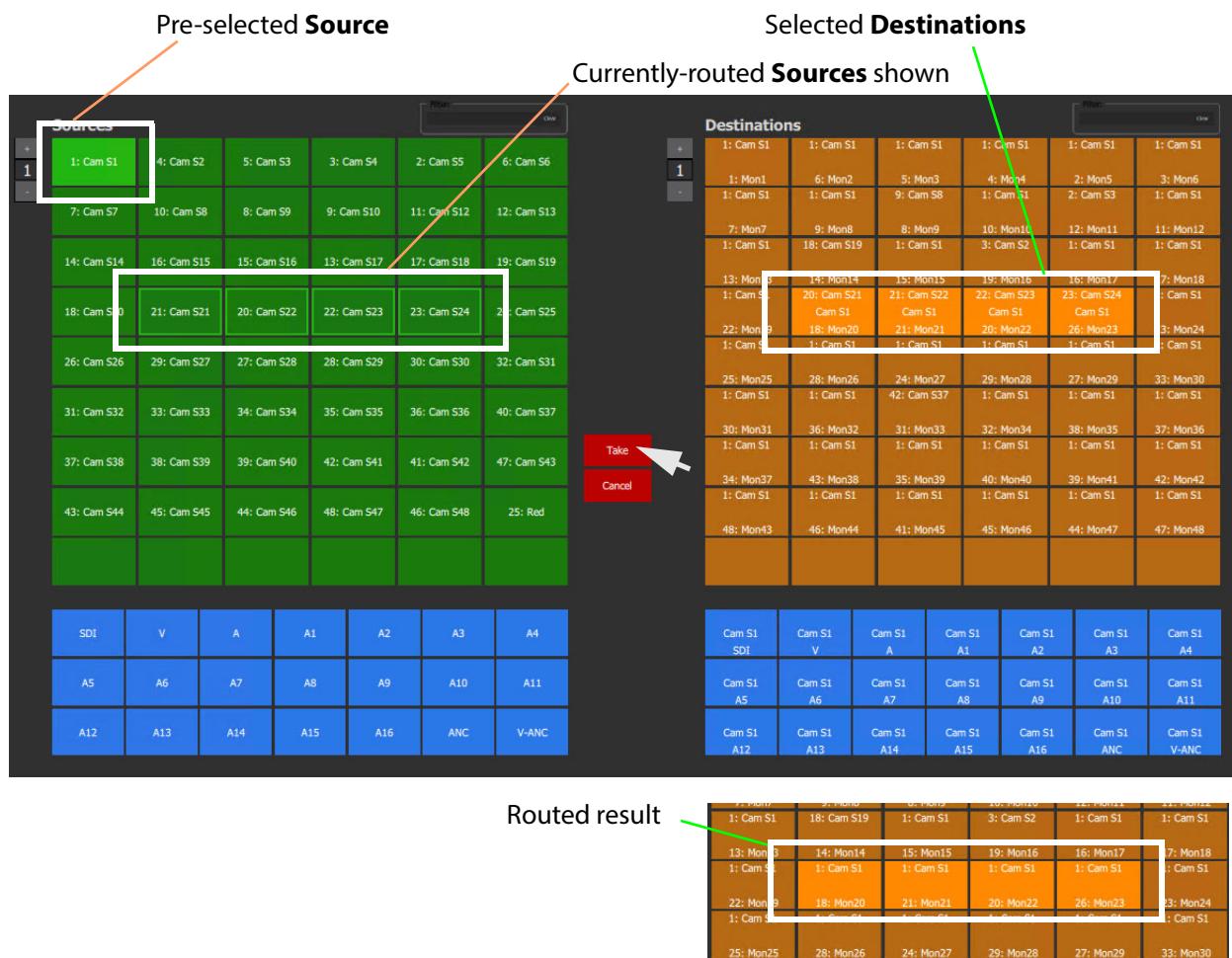


Fig. 3-20: One Source Routed to Multiple Destinations

Alternatively, the source may be selected first.

Route Multiple Sources to Multiple Destinations

- 1 Select a **Destination** by clicking on the destination selection button.
- 2 Select a second **Destination** by CTRL + clicking on a destination button.
And select any further destinations with CTRL + click.
- 3 Select a **Source** by clicking on the source selection button.
- 4 Select a second **Source** by CTRL + clicking on a source button.
And select any further sources with CTRL + click.

Note: Select the same number of sources as there are selected destinations.

- 5 Click **Take**.

The source is routed to all selected destinations.



Fig. 3-21: Making Multiple Routes

Alternatively, the **Sources** may be selected first.

Note: **Source** or **Destination** CTRL-selection Order:

When routing many sources to many destinations and making selections with CTRL-clicks, then the *order of selection* is significant and affects the order in which the routing is done.

For example, to route sources 1 to 8 to destinations 8 to 1:

- Select **Destinations** 1 to 8 by 'CTRL-clicking' on each button in the order 1 to 8.
- Select **Sources** 8 to 1 by 'CTRL-clicking' on each button in the order 8 to 1.
- Click **Take**.

Note: With the contiguous SHIFT-selection, the order used is that of the buttons on the panel, *not* the order of selection of buttons.

Breakaway

What is a Breakaway?

A 'breakaway' occurs when one or more levels of a destination do not come from the same source. This is also referred to as the destination being 'unmarried'.

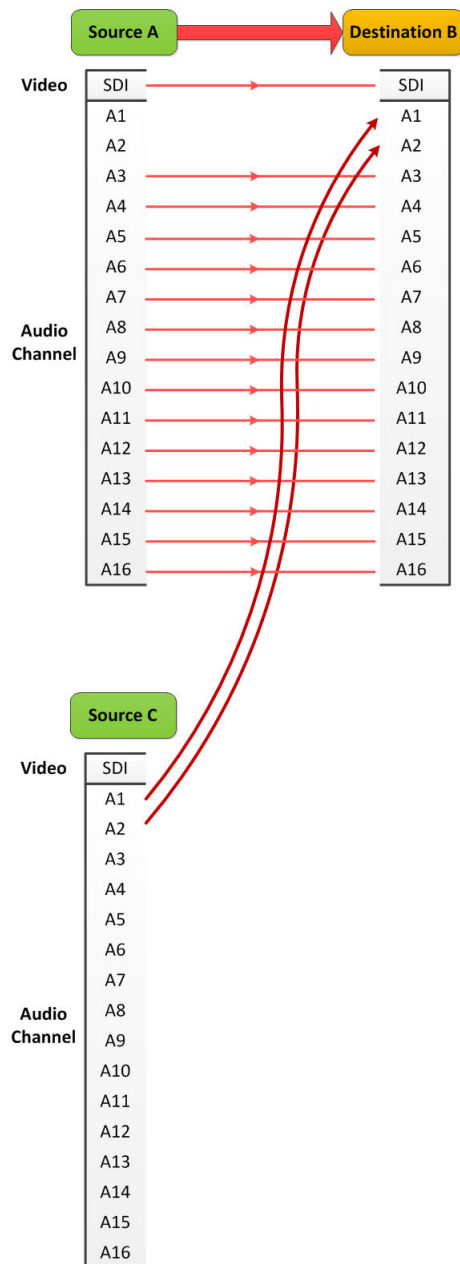


Fig. 3-22: Breakaway

Destinations which are 'unmarried' are indicated with a breakaway icon (Figure 3-23b) on the destination button.

Note: **Implied Breakaway:**

A 'breakaway' occurs when not all of a destination's levels are selected for routing. This can happen if a source with *fewer* levels than the selected destination is routed, this will result in a 'breakaway' (without explicitly selecting destination levels when routing).

Note:

Performing a 'normal' route to a Destination which already has a 'Breakaway' will over-ride the breakaway on the Destination, resulting in no 'Breakaway'.

Perform a Breakaway

To perform a breakaway (see Figure 3-23):

- 1 Select a **Destination**.
- 2 Select one or more **Destination Levels** to route (for example, audio channels A1 and A2).
- 3 Select a new **Source**. (Pre-selected source)
- 4 Click **Take**.

A routing is made: The selected **Destination Levels** have corresponding levels from the pre-selected **Source** routed to them. See Figure 3-23b.
The **Destination** button shows a 'Breakaway' symbol.

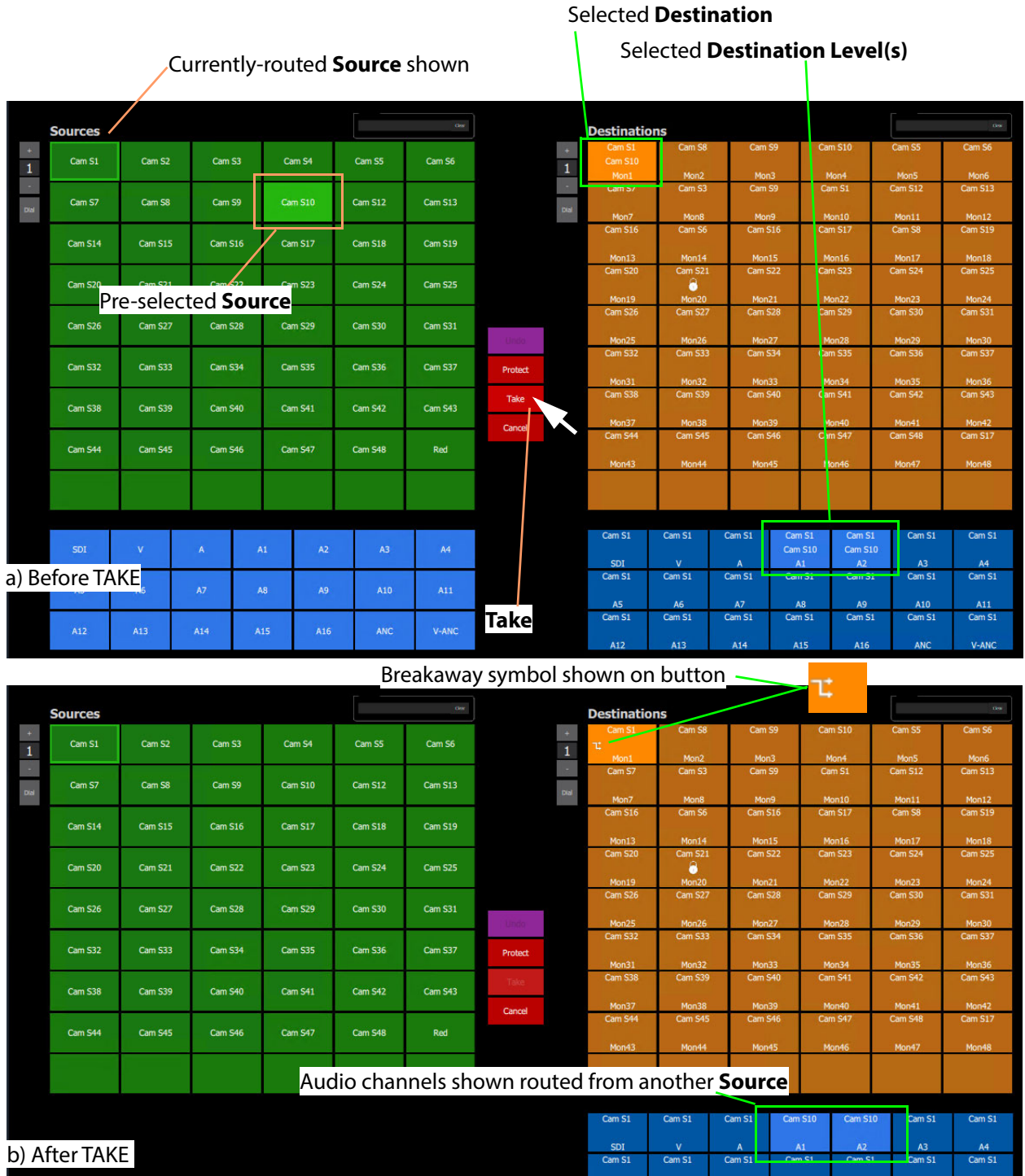


Fig. 3-23: Breakaway Example: a) Before TAKE; b) After TAKE.

As an alternative, to perform a breakaway, the source may be selected first.

Shuffle

What is a Shuffle?

A destination is said to be 'shuffled' when one or more of its levels is routed from other level(s) of the same source. For example, destination audio channel 5 from source audio channel 4. When this occurs, the XY Routing Panel indicates a 'shuffled' destination with a Shuffle icon on the destination button.

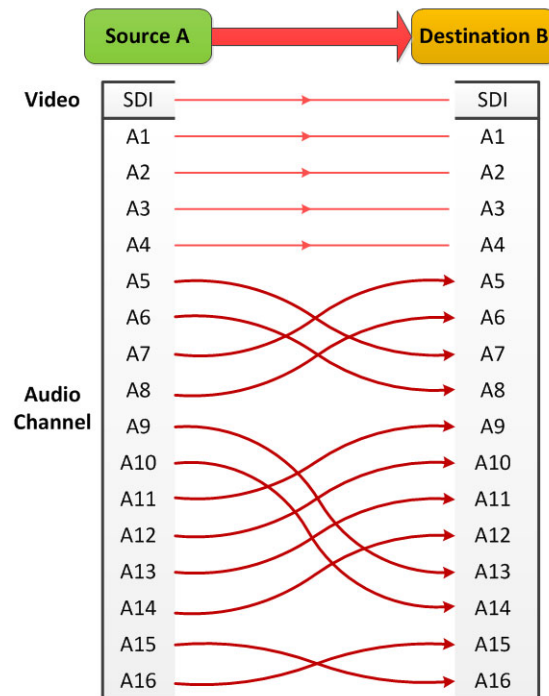


Fig. 3-24: Example Shuffles

Note: A shuffle is applied to a destination and stays with that destination when other routes are made to it until the shuffle is explicitly undone.

Example Shuffle

This example swaps two audio channels pairs.

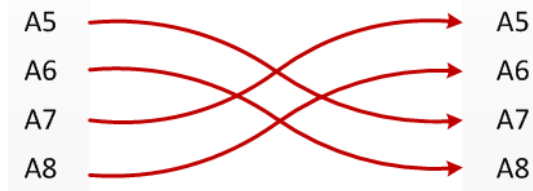


Fig. 3-25: Swap Two Audio Channel Pairs

- 1 Select a **Destination**.
- 2 Select one or more **Destination Levels**. (For example, click on audio channels A5, A6, A7 and A8. See Figure 3-26.)
- 3 Select the *currently-routed* **Source**.
- 4 Select the **Source Levels** in the *order* in which they shall apply to the destination Levels.
(For example, audio channels A7, A8, A5 and A6 *in that order*.)

Note: Selecting just one level will route this to all selected destination levels.

- 5 Click **Take**.

The selected source levels are routed to the selected destination levels and a shuffle is formed. Figure 3-26 shows a shuffle example, swapping the order of two audio channel pairs, as per Figure 3-25.

Select the currently-routed **Source**
Select **Source Levels A7, A8, A5 and A6 in that order.**

Selected Destination
Selected **Destination Level(s) A5 to A8**

a) Before TAKE

Take

'Shuffle' symbol shown on button

b) After TAKE

Audio channels shown shuffled

Fig. 3-26: Shuffle Example: a) Before TAKE. b) After TAKE.

Routing to a Shuffled Destination

When routing to a shuffled **Destination**, the 'Shuffle' persists.

For example, when a routing Source 'Cam S10' to the already-shuffled destination 'Mon1', created in [Example Shuffle](#), the Source is routed and the audio stereo pair swapping of Figure 3-25 still exists (but with the new source).

A 'Shuffle' persists on a **Destination** until it is explicitly undone with a new routing operation.

Undo Shuffle

This example describes a new routing operation to undo the shuffle of the [Example Shuffle](#), on page 127.

- 1 Click **Cancel** to cancel any selections already made.
- 2 Select the 'already-shuffled' **Destination**.
- 3 Select the shuffled **Destination Levels**.
- 4 Select the currently-routed **Source**.
- 5 Select the **Source Levels** in the *order* in which they shall apply to the **Destination Levels**.
So, to undo our [Example Shuffle](#), on page 127,
select audio channels A5, A6, A7 and A8 *in that order*.
- 6 Click **Take**.

The selected **Source Levels** are routed to the selected **Destination Levels**, undoing the shuffle. The 'shuffle' symbol no longer appears on the **Destination** button.

Assigning Ports to a Port-per-Button XY Panel

When creating an XY Panel, a Source button-grid or Destination button-grid can be defined for accessing a 'fixed', specific router source/destination port per button. (This 'fixed' definition is done in the [XY Wizard Settings](#).)

Following definition with the XY Wizard, each button of a 'port-per-button' button-grid then can be configured to access a specific port. This port assignment is described here.

Assigning Port-per-Button

Following creation from the XY Wizard, buttons in a 'Port-per-Button' button-grid can be assigned specific ports on a per button basis, as required.

There are two ways to perform the port assignments to the buttons:

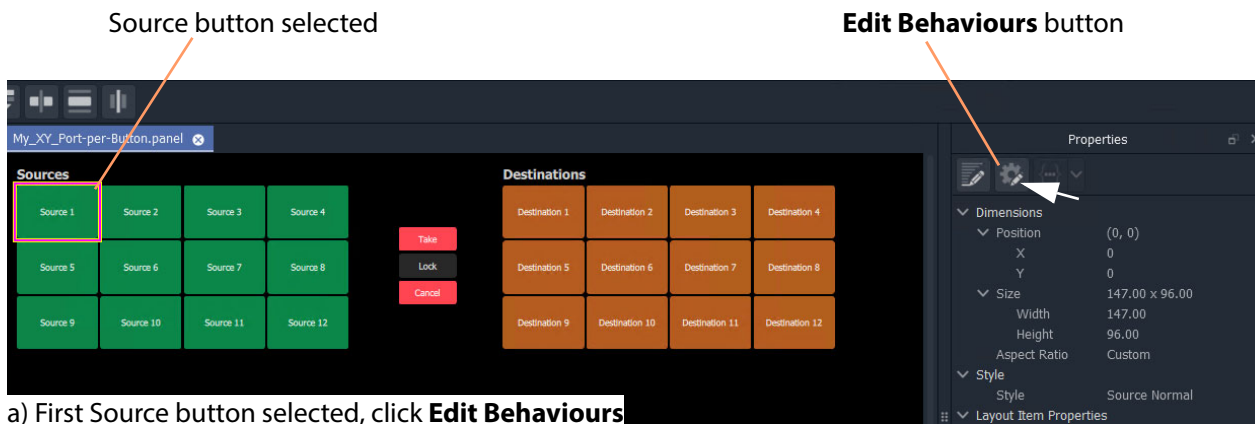
- 1 [Assign Ports to Individual Buttons](#), on page 130. This describes individual assignment of ports to buttons.
- 2 [Quick Port-per-Button Assignment](#), on page 134. This describes selecting all ports with the Bulk Routing panel and copy-pasting this into the XY Panel.

Assign Ports to Individual Buttons

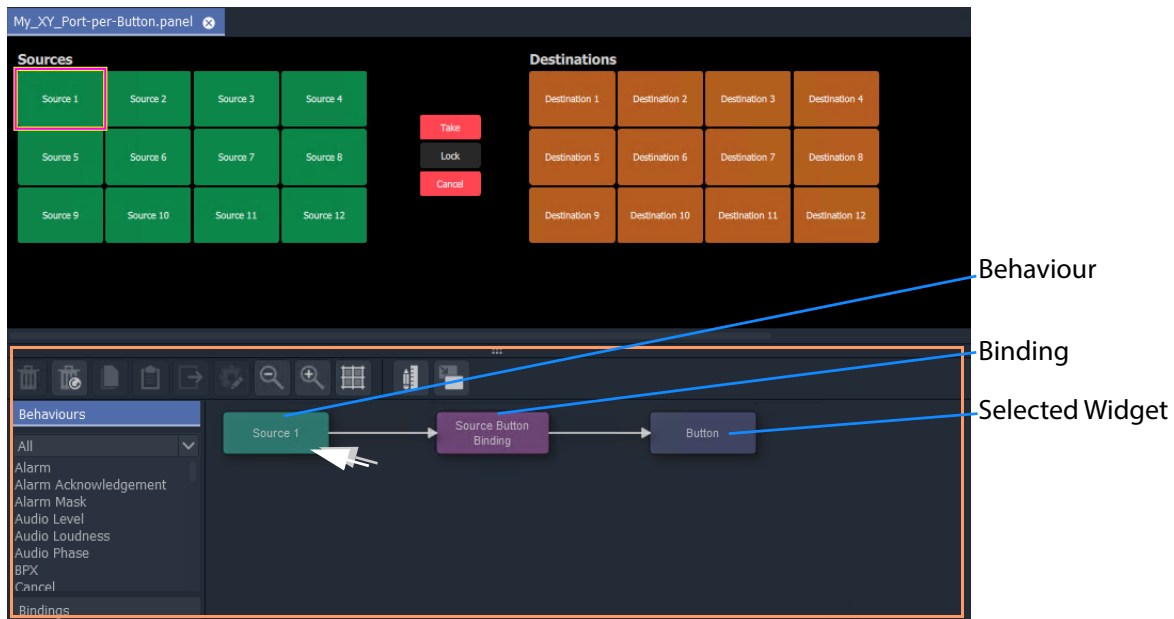
Assigning individual buttons done in the XY Panel in 'Design' mode.

The example of Figure 3-12 shall be used to show how to assign a port to a button:

- 1 In 'Design' mode, select the Source button-grid and 'Alt-select' its first button.
The first button is selected. See Figure 3-27a.
- 2 Click on the **Edit Behaviours** button in the **Properties** box. See Figure 3-27a.
The graphical Behaviours and Bindings editor is opened. See Figure 3-27b.
The editor shows the Behaviours and Bindings linked to the selected button widget.




a) First Source button selected, click **Edit Behaviours**



b) Graphical Behaviours and Bindings Editor

Fig. 3-27: Open Behaviour and Bindings Editor

- 3 Double-click on the Behaviour linked to the selected widget.
The properties of the Behaviour are shown. See Figure 3-28a.
- 4 Select the value of the 'Source' property (see Figure 3-28a) and enter a router port to use:
 - enter a port name and/or port number; or
 - click on the  icon and select a Source name from the filterable list; or
 - enter a 1.4.0 variable. (For example, {My_Source_Port})

A new 'Source' property value has been entered.

Note: The entered router port may be:


- a port number;
- a port name; or
- a 'Number:Name', e.g. 12:Cam1; or
- a 1.4.0 variable.

In the case of a port name, the name is looked up automatically to find the port number to assign.

In the case of 'Number:Name', then the port number is used to assign with.


In the case of a user variable, this should be defined as a port number.

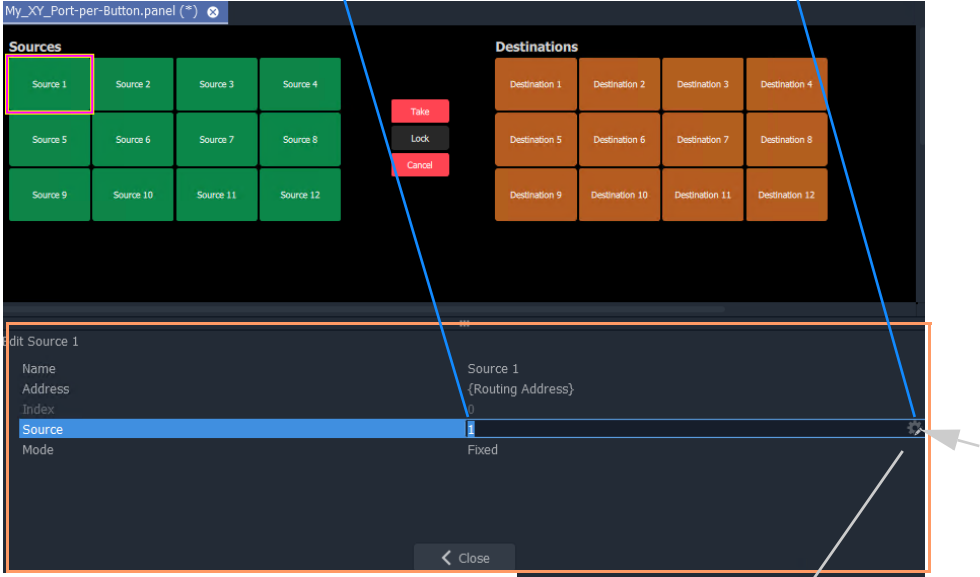
Note: To select a router port from a filterable list:

- Click on the  icon at the far end of the Source/Destination property value field (see Figure 3-28 a).

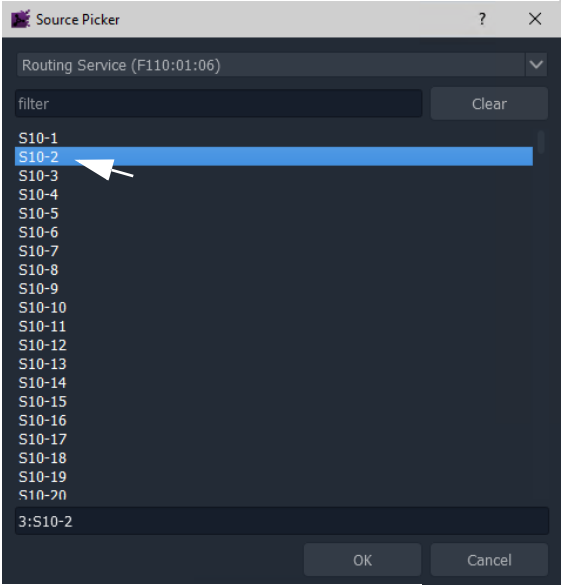
The **Source/Destination Picker** dialog is shown and displays a list of Sources/Destinations. See Figure 3-28b.

- The list is filterable.
 - Select a Source/Destination name from the filterable list.
 - Click **OK** when done.
-

Enter a Port Number, or Name, or Number: Name.
Alternatively, click on the  icon.



a) Setting 'Source' property of the Behaviour



b) Source Picker Dialog (Destination Picker is similar)

Fig. 3-28: Setting 'Source' or 'Destination' Property Value

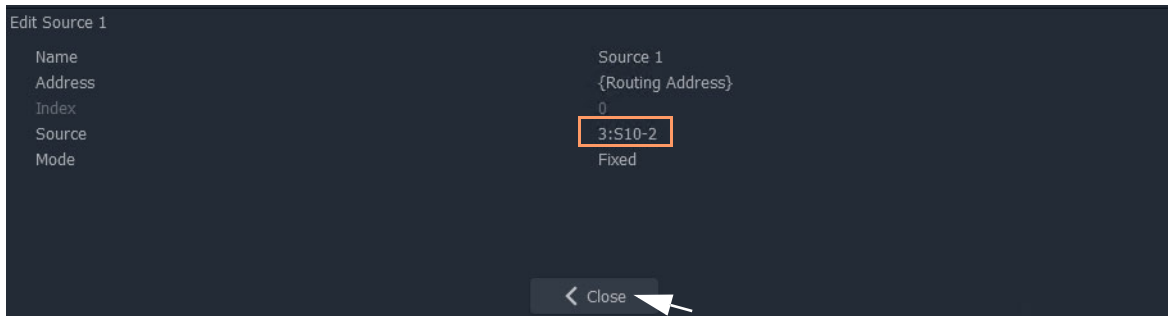


Fig. 3-29: New 'Source' Property Value

- 5 Click **Close**.
- 6 Click **Save File**. Click **Save Project**.
- 7 Enter 'Run' mode.
- 8 The XY Panel runs and the newly-assigned Source is assigned to the Source button, see Figure 3-30.

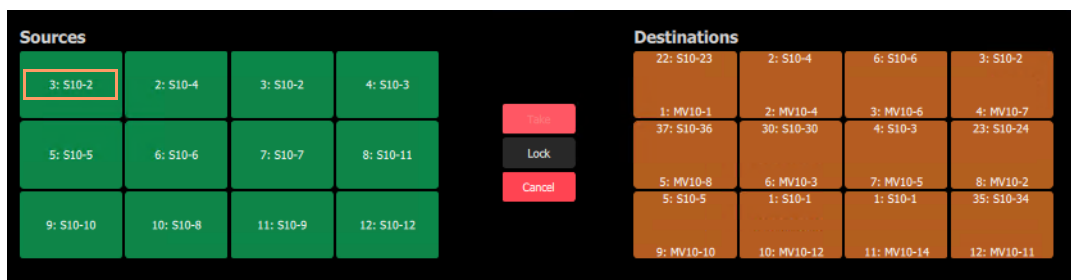


Fig. 3-30: Running XY Panel

Thus, a Source button can have a port assigned to it.

Destinations buttons are assigned similarly.

Assign all buttons as required.

There is a quicker way to make these assignments, which uses the help of the Bulk Routing Panel. See [Quick Port-per-Button Assignment](#).

Quick Port-per-Button Assignment

This describes a quicker method of assigning buttons to 'Port-per-Button' XY Panel button-grids. All ports are selected via the Bulk Routing panel and then simply 'copy-pasted' into the XY Panel.

Prerequisites:

- A new XY Panel with one or more button grids set to be 'Port-per-Button' (not 'Paged Ports', see 'Paging' setting in [XY Wizard Settings](#), on page 103).

The following example assumes that the buttons of both the Source button-grid *and* of the Destination button-grid require setting up in for 'Port-per-Button' operation. If an XY Panel just has one such button-grid, then that grid may be quickly set up in a similar way.

To quickly make port-to-button assignments:

- 1 Open a Bulk Routing Panel.
(Click the 'Bulk Routing' icon on the Router Workflow, see Figure 3-31.)

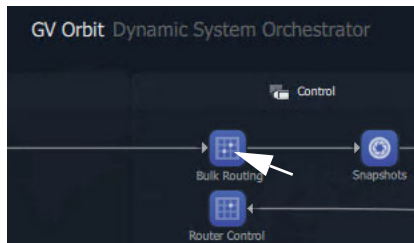
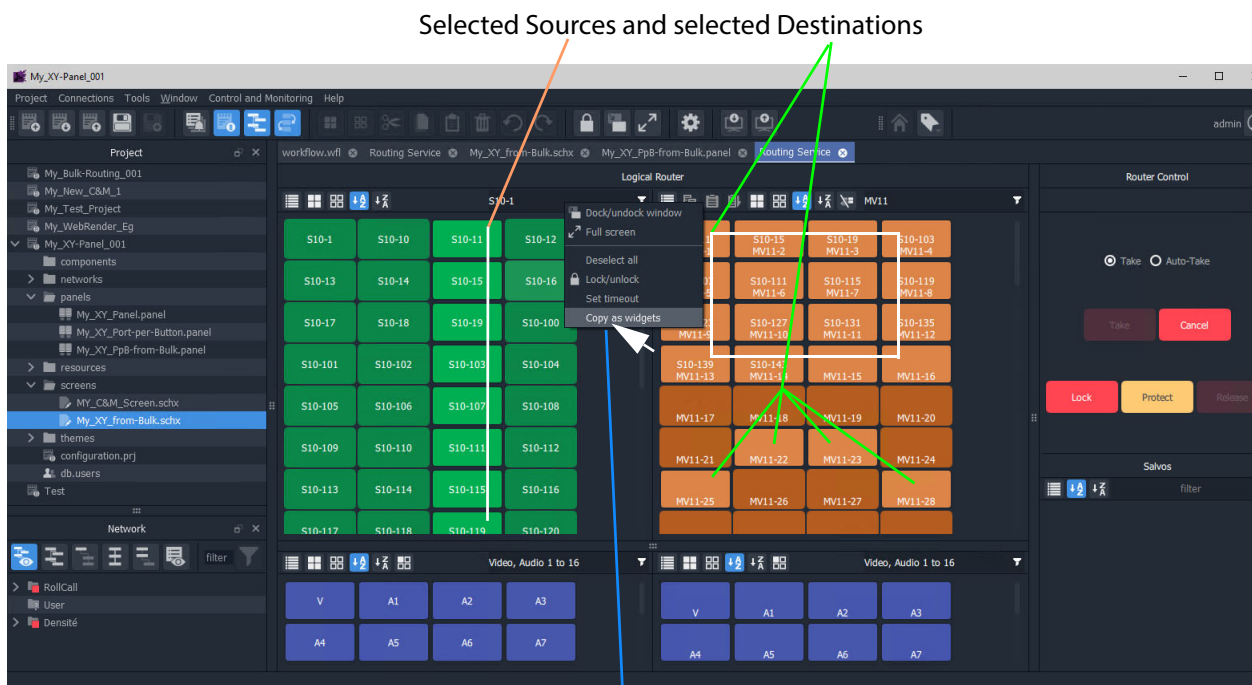


Fig. 3-31: Open Bulk Routing Panel

- 2 Select all the Destination and Source ports required.

Note: When selecting the ports in the Bulk Routing panel, the filtering may be used and ranges of ports and individual ports can be selected.

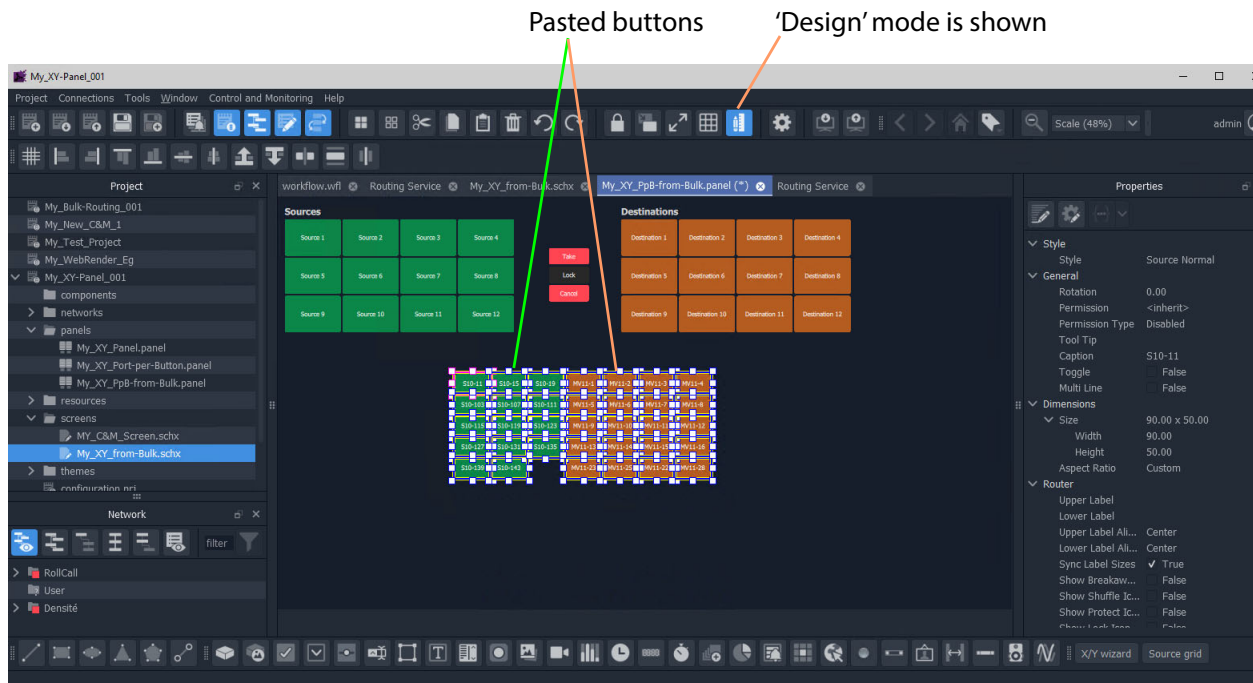


Right-click and select 'Copy as Widgets'

Fig. 3-32: Copy As Widgets in Bulk Routing Panel

- 3 When all ports are selected, right-click in the background of the Bulk Routing panel and select 'Copy as Widgets'. The selected buttons (Source and Destination ones in this example) are copied to your 1.4.0 Client's copy-buffer.
- 4 Open the target XY Panel.
- 5 Enter 'Design' mode in 1.4.0 Client.
- 6 Right-click in the background of the XY Panel and select 'Paste'.

The copied buttons are pasted into the XY Panel. See Figure 3-33.



Right-click and select 'Copy as Widgets'.

Fig. 3-33: Paste Buttons in from Bulk Routing Panel 'Copy as Widgets'

- 7 The buttons now in the XY Panel can be arranged as required and any previously-existing Source/Destination buttons may be deleted if required.
- 8 Click **Save File**. Click **Save Project**.
- 9 Go to 'Run' mode to exercise the XY Panel.

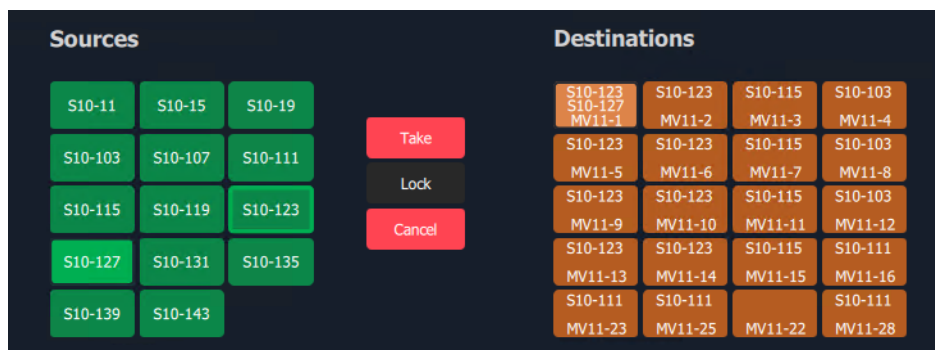


Fig. 3-34: XY Panel with Quick-Assigned Ports

Port-per-Button Pasting into C&M Custom Soft Panel

The example in [Quick Port-per-Button Assignment](#) pastes selected button widgets from a Bulk Routing Panel into an XY Panel. This selection of buttons may also be pasted into a 1.4.0 C&M user/operator custom panel.

:

Note:
In the 1.4.0 Client **Project** window:

- XY Panels are listed in the 'panels' folder; and
- Custom user/operator soft panels are listed in the 'screens' folder.

In this case, the pasted buttons are still functional and will select Destinations and Sources when the soft panel is run. There is no 'Take' button and 'auto-take' applies. See Figure 3-35

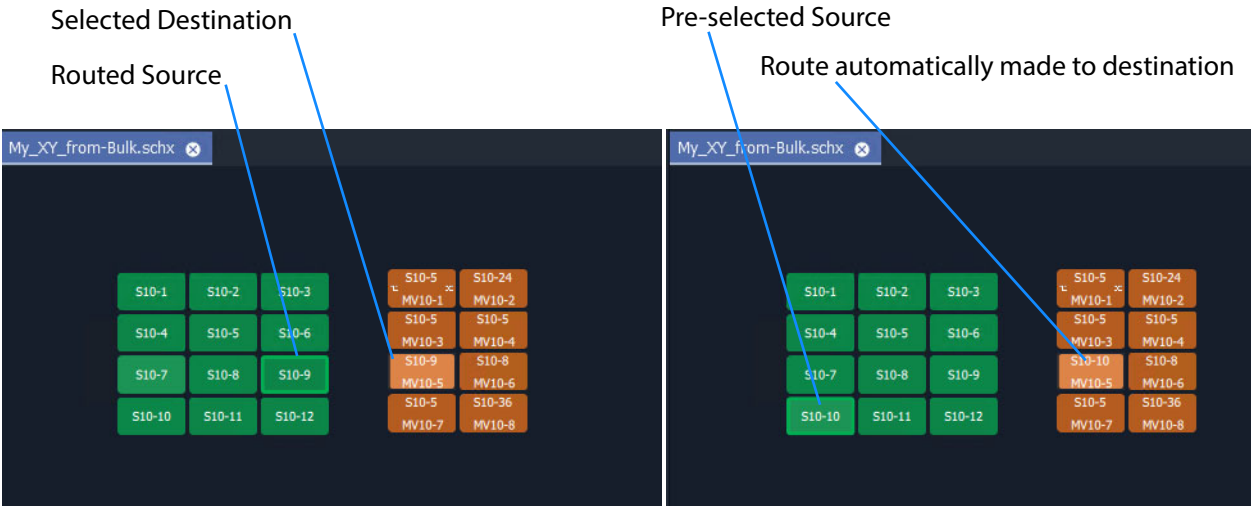


Fig. 3-35: Auto-Take with Pasted-in Routing Buttons (Running)

Customizing an XY Panel

An XY Panel may be modified and customized by simply using the XY Wizard. Additionally, an XY Panel may be further modified and customized by:

- Using the XY Wizard and *then* further editing the XY panel, see [Further Editing an XY Panel](#), on page 138.

An XY Panel may also be created from scratch without using the XY Wizard.

This is done with GV Orbit graphical widgets and 1.4.0 Behaviours and Bindings in a similar way to designing a custom user/operator panel in a C&M project.

See:

- [Creating a Custom XY Panel from Scratch](#), on page 139; and see
- [Creating a Custom BPX Panel](#), on page 147.

To enhance the appearance of a control panel, lines, labels etc may be added.

See [Enhancing the Appearance of a Panel](#), on page 153.

Further Editing an XY Panel

Editing an XY panel is done in a similar way to editing a 1.4.0 C&M Project custom user/operator screen and an XY Panel can be customized as required. For example:

- buttons may be re-positioned, re-sized;
- other widgets can be added (Labels, Tally Lamps, etc.);
- colors can be changed (background colors); and
- widget style themes can be selected.

Figure 3-36 shows an example XY Panel that has been edited after being started with the XY Wizard. See [Enhancing the Appearance of a Panel](#), on page 153, for further examples of enhancing the appearance of an XY Panel.



Fig. 3-36: Edited XY Panel Example

Creating a Custom XY Panel from Scratch

A custom **XY Panel** can be created from scratch in a GV Orbit Client C&M project. A custom panel can be made to be smaller and more suited to be embedded *into* a C&M project screen. An example small panel with two destinations and a handful of possible sources is given in Figure 3-37 and the steps to generate it are below.



Fig. 3-37: Custom XY Panel Example

Step1: New Empty Basic XY Panel

Firstly, create a new empty **XY Panel**:

- 1 Open an GV Orbit C&M project in the GV Orbit Client application.
- 2 Right-click on the 'panels' folder item in the **Project** window and select 'New Panel'.
- 3 Enter a name into the **New XY Panel** dialog and click **OK**. See Figure 3-38.

XY Routing Panel

Creating a Custom XY Panel from Scratch

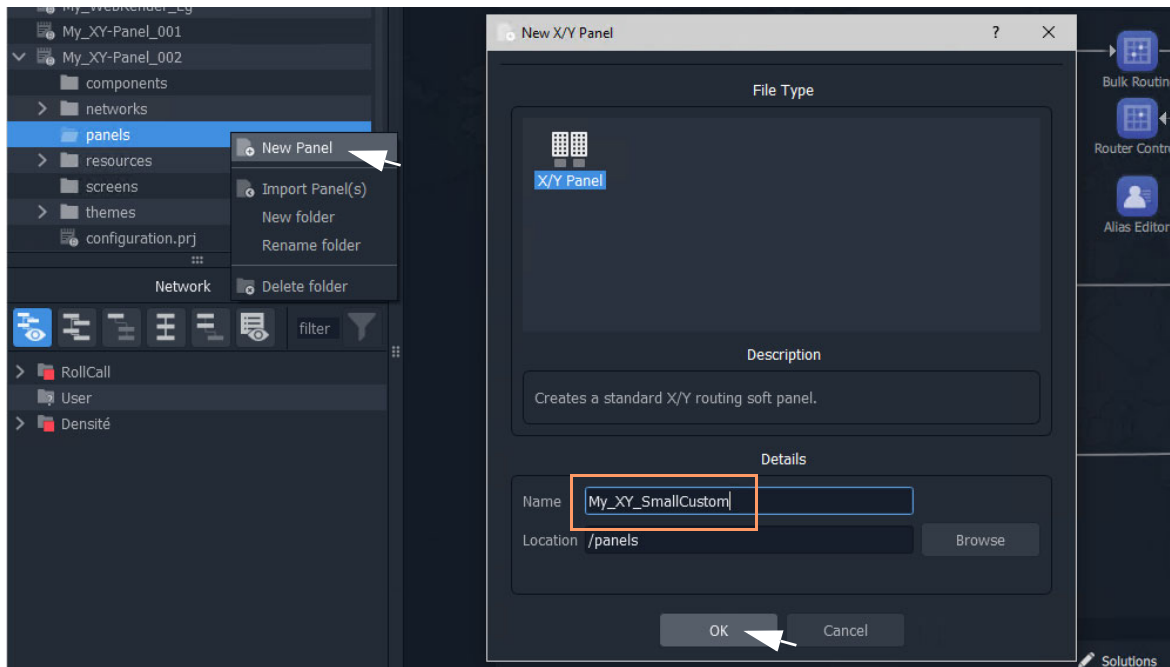


Fig. 3-38: Create New XY Panel

A new XY Panel is created in the 'panels' folder and is shown in the **Project** window and is open in a tab.

- 4 In the new XY Panel tab, delete all widgets.
(Type CTRL-A in the tab to select all widgets and then press the Delete key.)
An empty XY Panel results.
- 5 Click **Save File**.

This has created an empty XY Panel in the C&M project. See Figure 3-39.

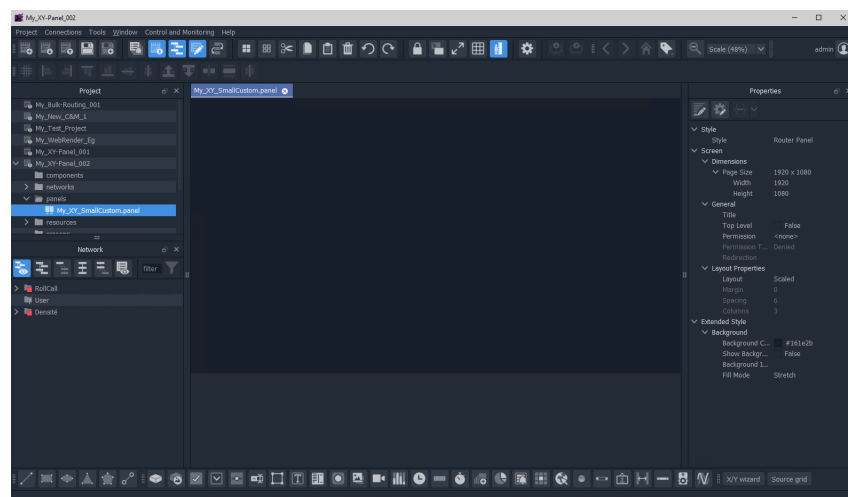


Fig. 3-39: Empty XY Panel

When editing the XY Panel, it is useful to adjust the position of the routing control widgets tool bar in the 1.4.0 Client, to make it more accessible. To do this:

- 6 Drag the routing control widgets tool bar by its handle to a convenient position. See Figure 3-40.

Drag handle and release to re-position Routing Control widget tool bar

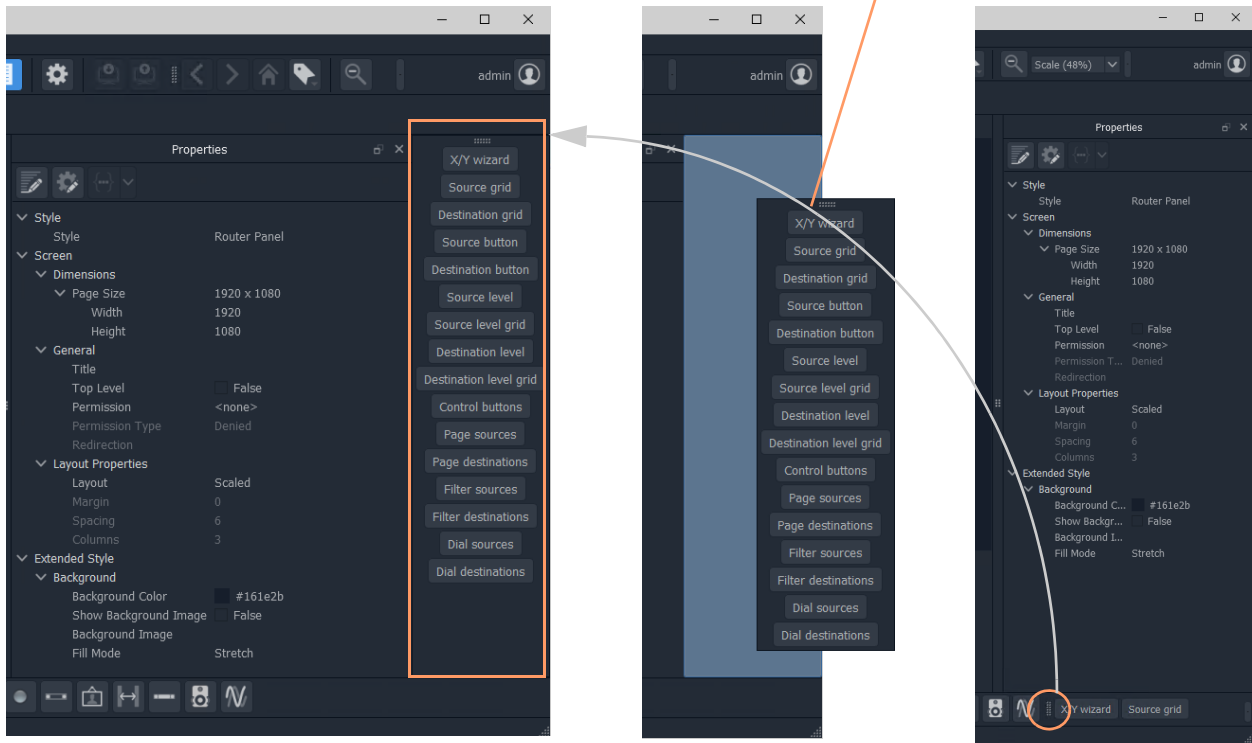


Fig. 3-40: Re-positioning the Routing Control Widgets Tool Bar

Step 2: Add Routing Control Widgets to (empty) XY Panel

With the empty **XY Panel** open in GV Orbit Client:

- 1 Add 8 **Source Button** widgets from the Routing widget tool bar (see Figure 3-41). (Click on 'Source Button' button on the tool bar and drag on button widgets.)
The button annotation names increment automatically for each added button.
- 2 Similarly add 2 **Destination Button** widgets.

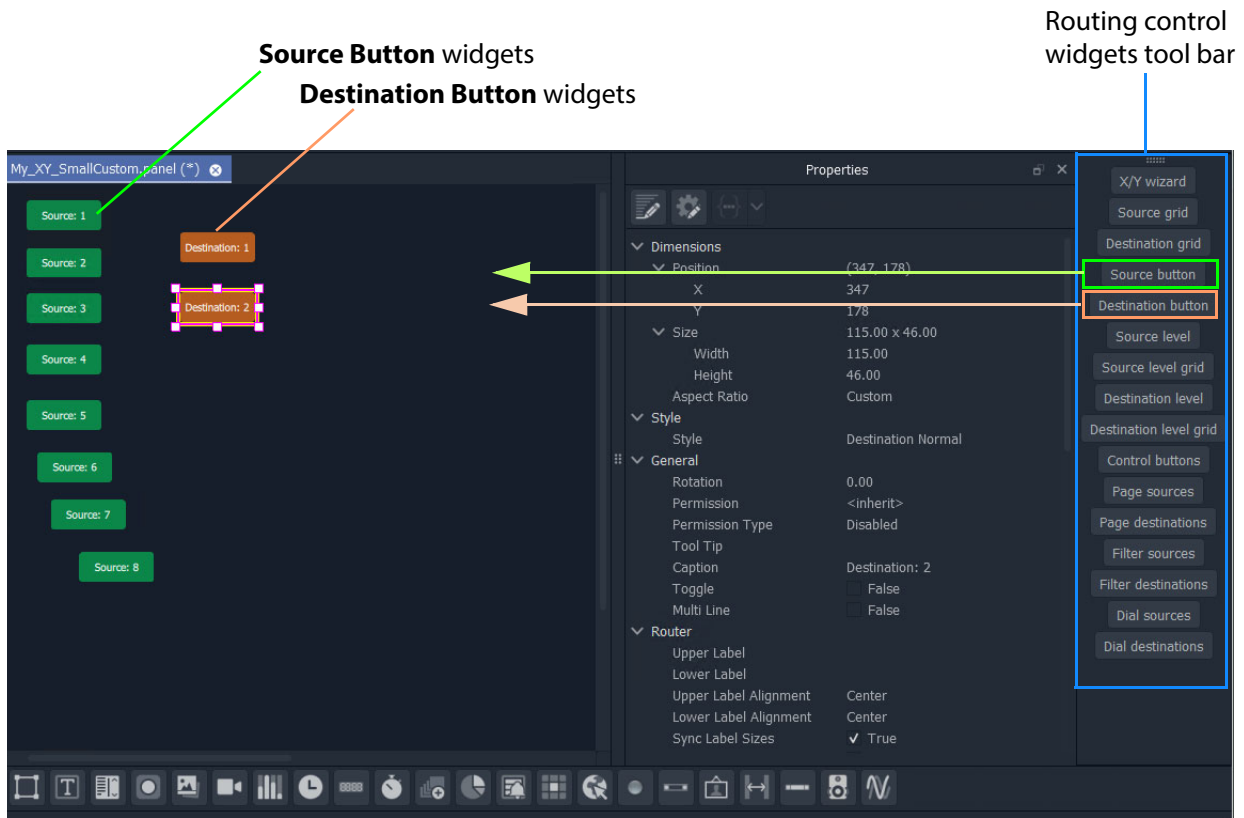


Fig. 3-41: Adding Source and Destination Buttons

Finally, add a **Take** button:

- 3 Select 'Control Buttons' in the tool bar.

A small dialog appears.

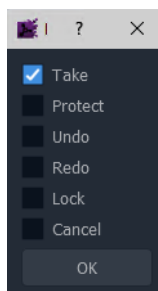


Fig. 3-42: Adding a Take Button

- 4 Select 'Take' and click **OK**.

A **Take** button widget appears at your cursor, drop this onto the XY Panel.

- 5 Arrange the buttons as required.
- 6 Click **Save File** and **Save Project**.



Fig. 3-43: Added Buttons

Step 3: Exercise Panel

This XY Panel, when run, will allow the user to select a source from sources 1 to 8 and route it independently to destinations 1 or 2.

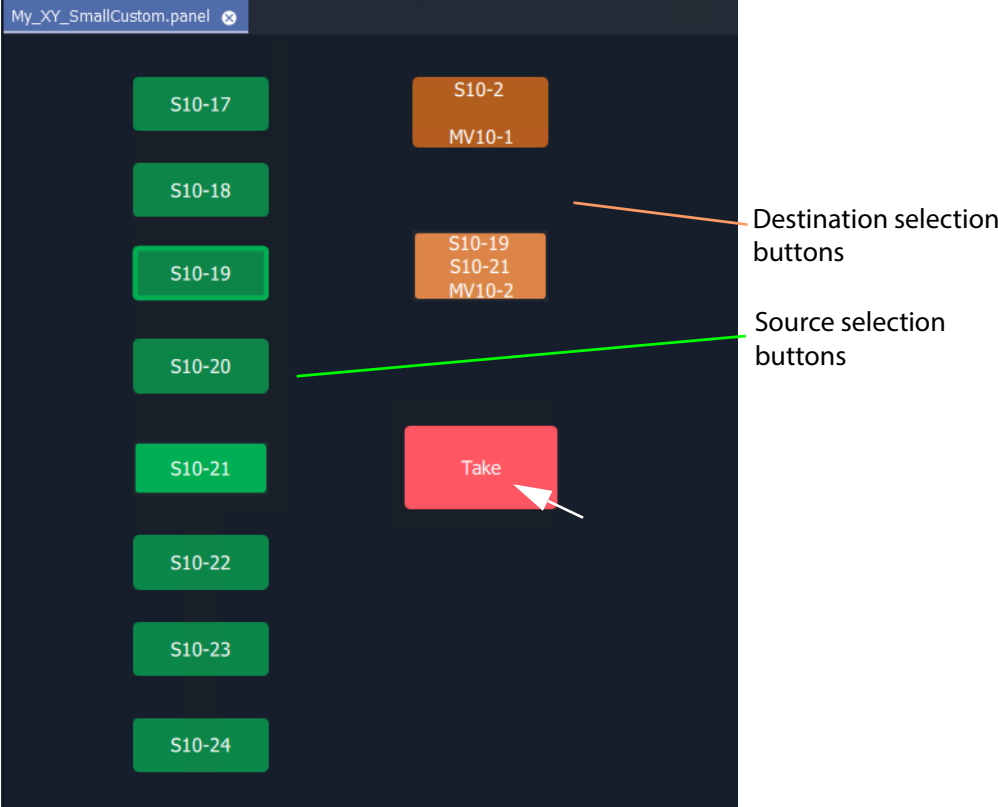


Fig. 3-44: Running the New XY Panel

Step 4: Assigning a Port-per-Button

With the XY Panel in 'Design' mode in 1.4.0 Client, the Source buttons and Destination buttons can be configured for other source or destination ports in the same way as in a 'Port-per-Button' panel (See [Assigning Ports to a Port-per-Button XY Panel](#), on page 130, for more information.)

To assign ports:

- 1 Right-click in the XY Panel's background and select 'Edit Behaviours'.
The 'Behaviours and Bindings' graphical editor is shown.

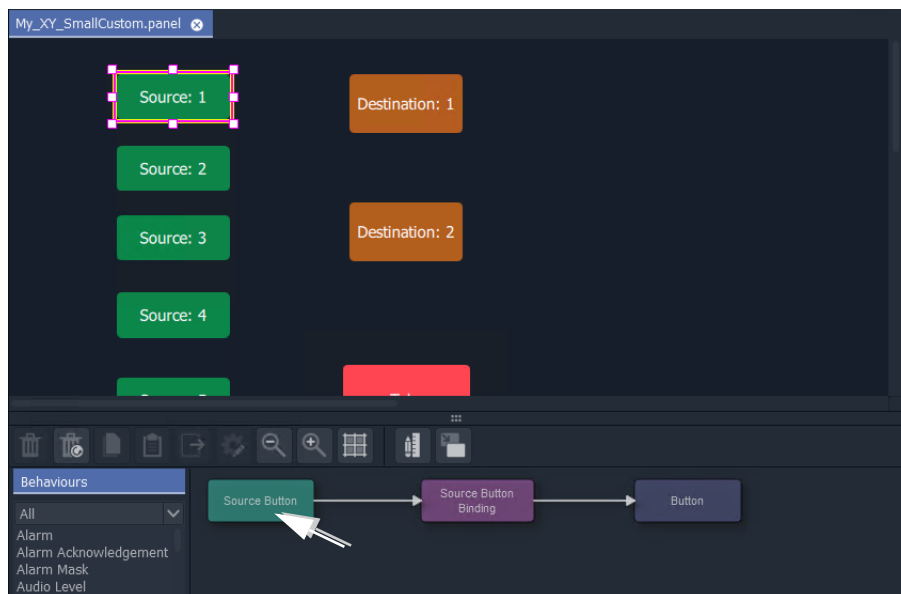


Fig. 3-45: Double-click on 'Source Button' Behaviour

- 2 Select a Source button in the XY Panel and double-click on the 'Source Button' Behaviour in the editor. See Figure 3-45.

The Behaviour's properties are shown.

- 3 Set the 'Mode' property to 'Fixed'.
- 4 Set the 'Source' property to a chosen Source name.
- 5 Click **Close**.

A Source button now has a port assigned.

- 6 Repeat for the other Source buttons.

And then:

- 7 Perform similar steps for each Destination button.

The buttons now all have assigned ports.

Step 5: Styling

- 1 Arrange the buttons and resize as required.
- 2 Add any further labels/shapes/colors to enhance the panel's appearance, as required.

Finally:

- 3 Right-click on the XY Panel background and select 'Resize to Widgets'.

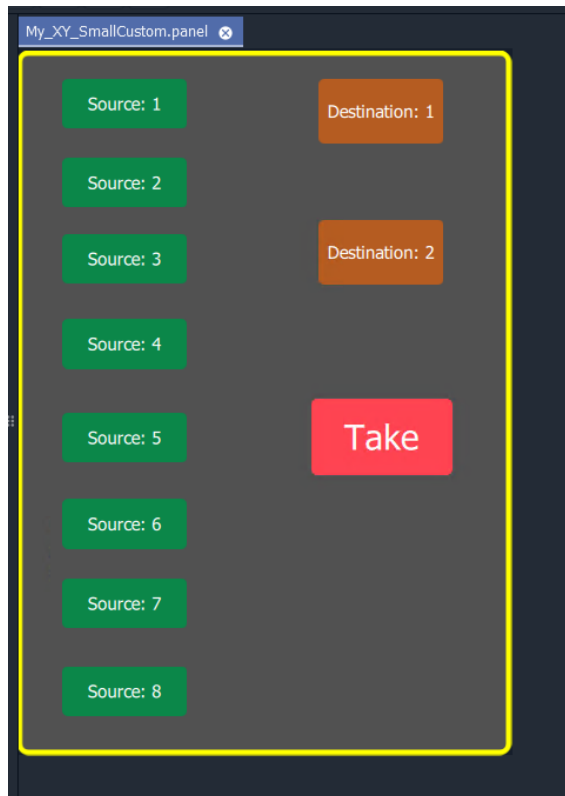


Fig. 3-46: Custom XY Panel

- 4 Click **Save File**.
Click **Save Project**.

Step 6: Exercise Panel

- 1 Click the 'Run Mode' icon in the main tool bar and exercise the panel.

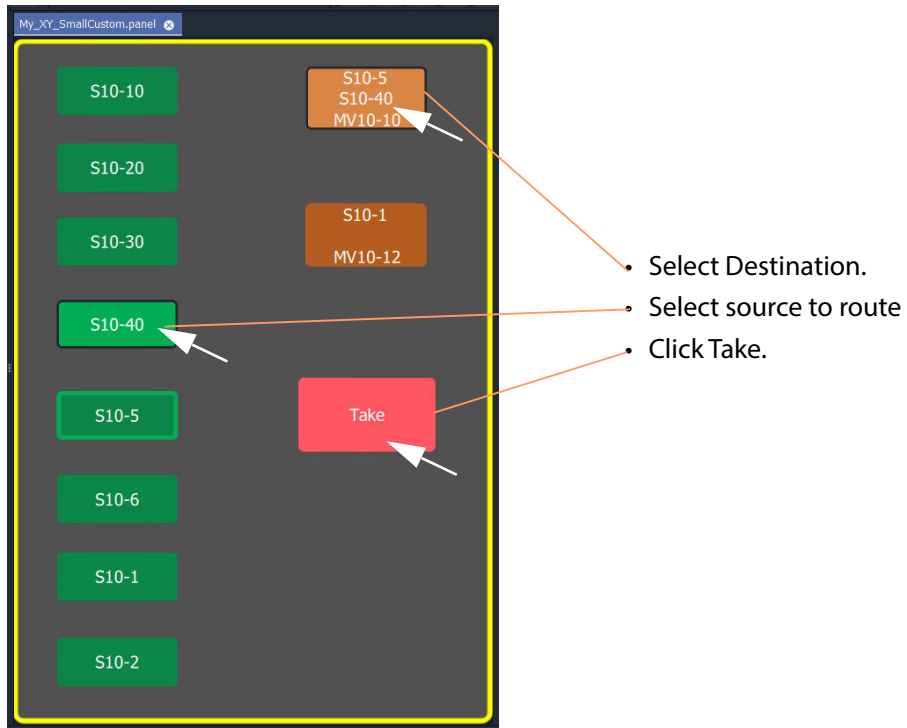


Fig. 3-47: Exercising the XY Panel

The small custom panel operates like a fixed, reduced-size XY Panel and may be dragged onto a C&M project custom user panel screen and embedded into it, if required. See [How to Embed an XY Panel into a Custom User Panel](#), on page 159.

Creating a Custom BPX Panel

What is a BPX Panel Type?

A **BPX** (BPX, button per crosspoint) panel enables a button-click to specify and make a route between a source and destination. A simple custom panel can be designed as part of a C&M project, for example, to route one of several sources to a single destination.

A **BPX** Behaviour is available in GV Orbit which can be associated with a button widget. This enables a button-click to make a route between a specific source and destination. BPX Panel Example

An example BPX panel is a simple panel where each button is configured to set a route to the same destination, but from a different source. This simple BPX panel is shown in Figure 3-48 and the steps to generate it in GV Orbit are given below.

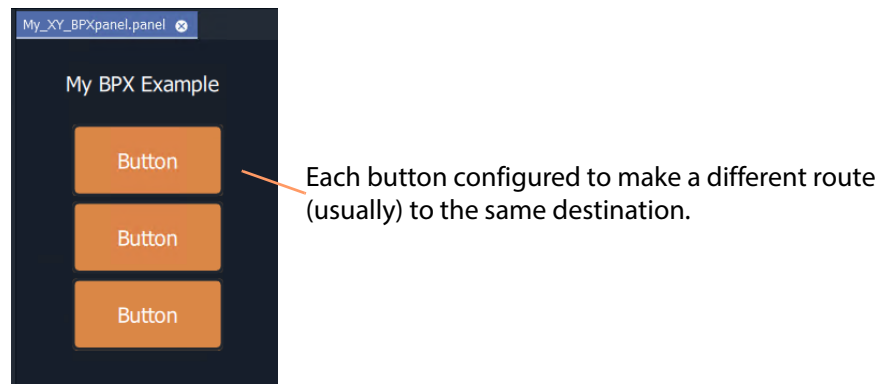


Fig. 3-48: Custom BPX Example

Basic BPX Panel

To create this panel:

- 1 Create a new empty **XY Panel**.
(This is described in [Step1: New Empty Basic XY Panel](#), on page 139 for the [Creating a Custom XY Panel from Scratch](#), on page 139.)
- 2 Add a graphical **Button** widget to the panel. (See Figure 3-49.)

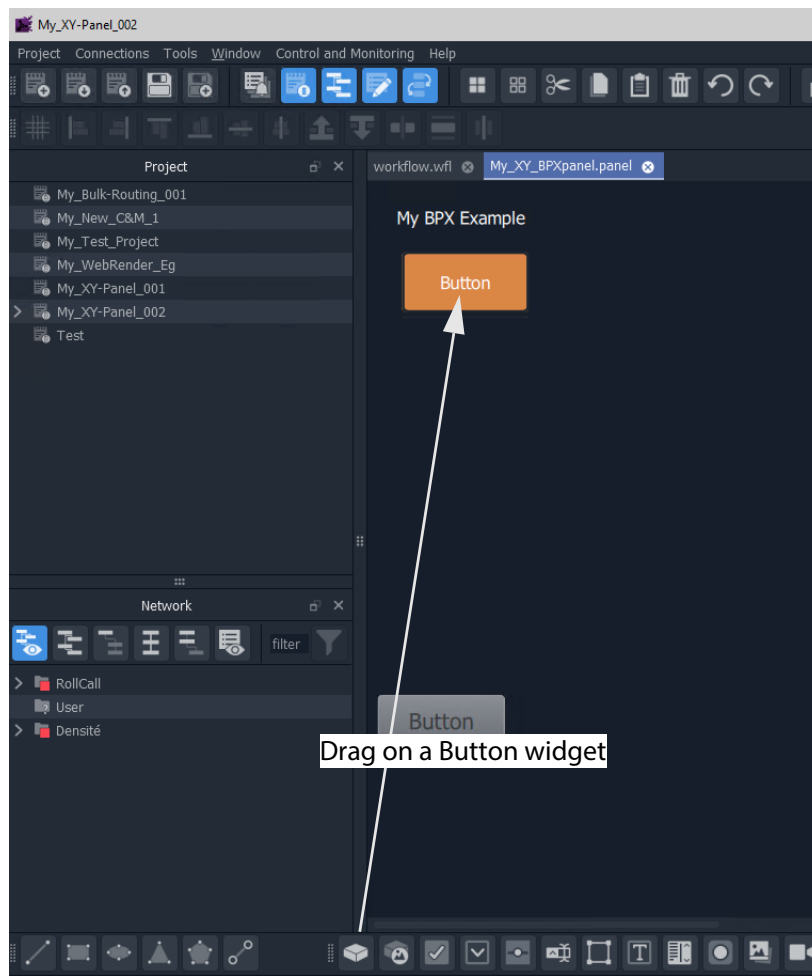


Fig. 3-49: Add a Button Widget

- 3 Right-click in the XY Panel's background and select 'Edit Behaviours'.
The 'Behaviours and Bindings' graphical editor is shown.
- 4 Select the **Button** widget.
The 'Behaviours and Bindings' graphical editor for the selected button is shown.

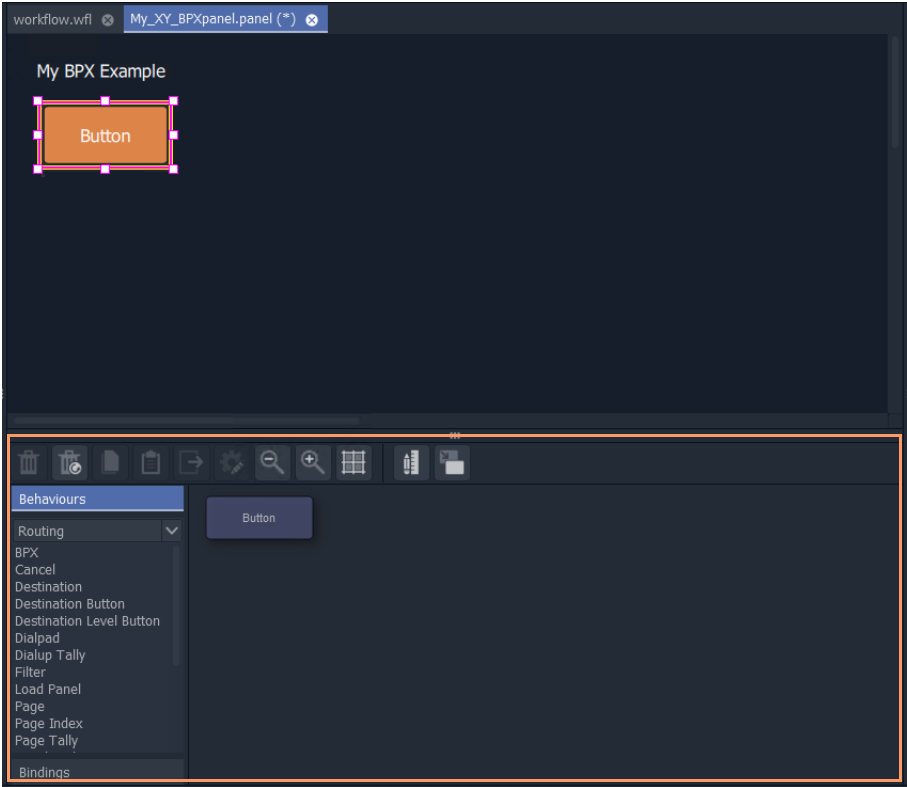
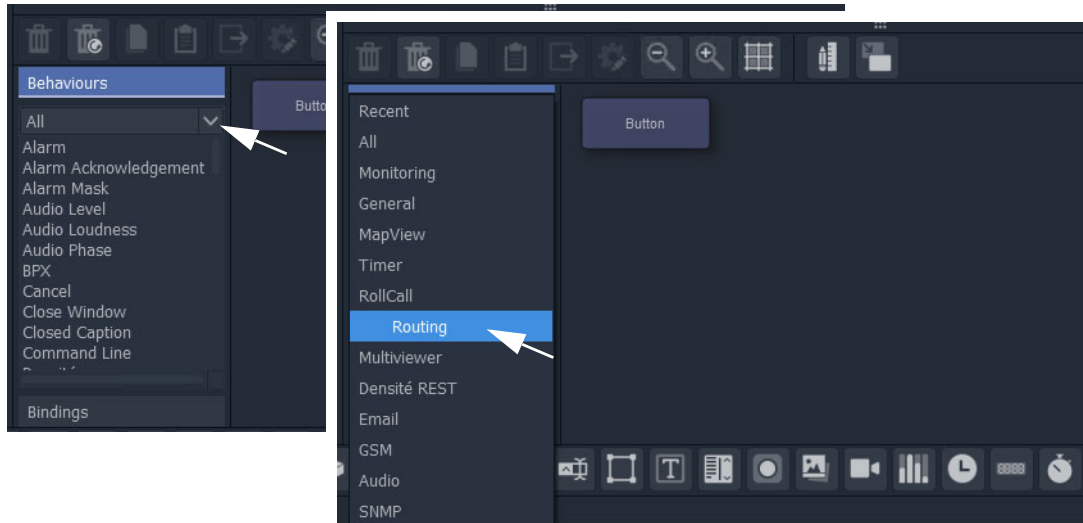


Fig. 3-50: Behaviours and Bindings of Selected Button Widget

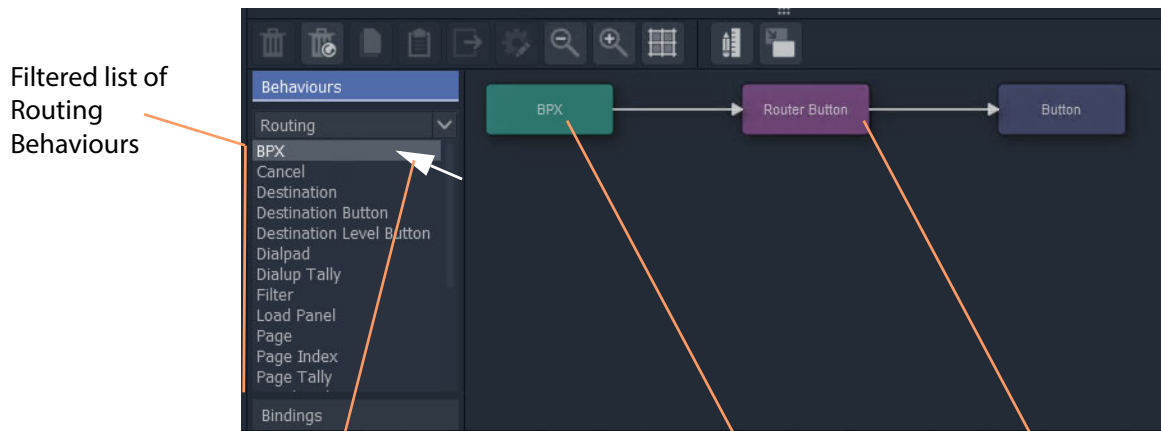
In the editor:

- 5 Filter the Behaviours on 'Routing'. See Figure 3-51a.
- 6 Select a BPX Behaviour. See Figure 3-51b.

A **BPX** Behaviour is added to the 'Behaviour and Bindings' editor and a Binding too. See Figure 3-51b.



a) Filter Behaviours on 'Routing'



b) Select a BPX Behaviour

BPX Behaviour is added and a Binding

Fig. 3-51: Adding a BPX Behaviour

A BPX button's function is to specify a Source and a Destination and a route between the two:

- 7 Double-click on the **BPX** Behaviour.
The Behaviour's properties are shown. See Figure 3-52.
- 8 Set the 'Source' property to a required Source.
- 9 Set the 'Destination' property to the required Destination.

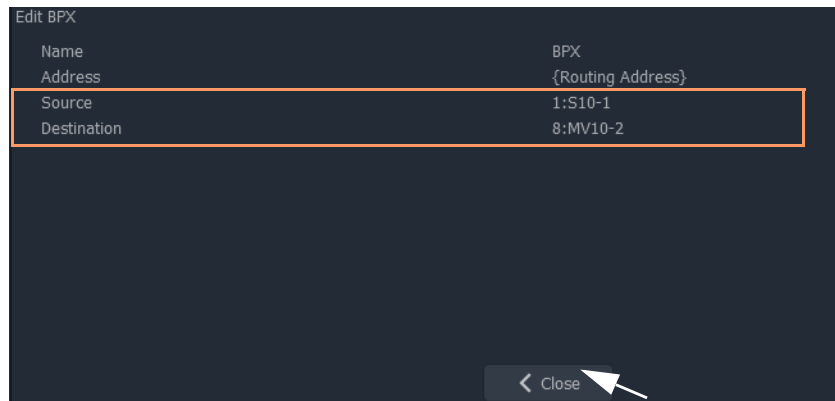


Fig. 3-52: Setting 'Source' and 'Destination' Property Values

- 10 Click **Close**.

This has defined one BPX button. (I.e. a route between the Source and Destination.)

Now we will copy this button (with its Behaviour/Binding settings) twice:

- 11 In the BPX panel, select the one **Button** widget, right-click on it and select 'Copy'.
- 12 Select the panel's background, right-click and select 'Paste'.
- 13 And again, select the panel's background, right-click and select 'Paste'.

This copies the button twice more on the panel.

- 14 Select the panel's background, right-click and select 'Edit Behaviours'.

For *each* button that was copied:

- 15 Select the button, and edit the button's **BPX** Behaviour.
- 16 Change the 'Source' property to select a different Source each time.

Then:

- 17 Click **Close**.
- 18 Click **Save File**.
- 19 Click **Save Project**.

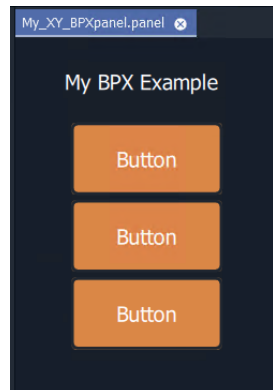


Fig. 3-53: BPX Panel, Designed

This has created a basic BPX panel with three buttons. Each button is configured to set a route to the same destination, but from a different source.

Exercise the BPX Panel

- 1 Enter 'Run' mode in 1.4.0 Client.
- 2 Operate the panel. See Figure 3-54.

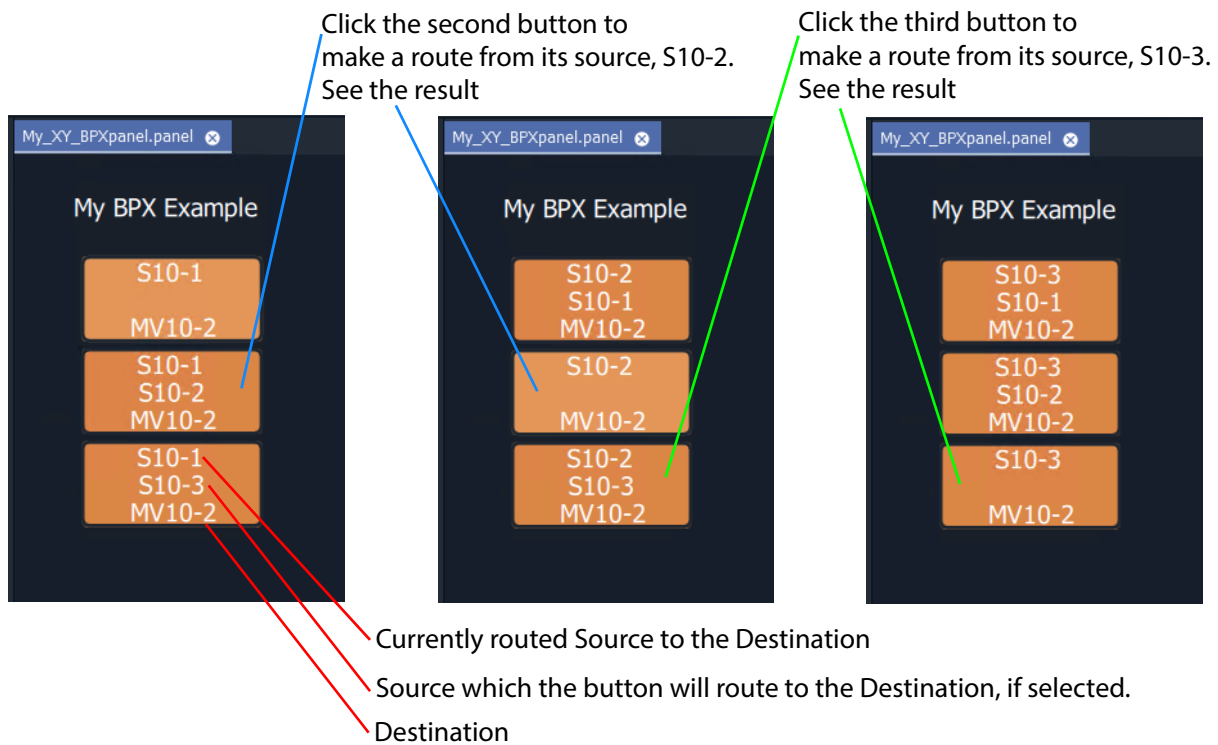


Fig. 3-54: BPX Panel Running

Enhancing the Appearance of a Panel

- [Panel Enhancement - Add Labels](#), on page 153.
- [Enhancement - Add Lines](#), on page 156.

Note: Carry out edits to the panel design in 1.4.0 Client in 'Design' mode.

Panel Enhancement - Add Labels

Label widgets can be added for the display of information. In this example, some text is added to the BPX panel to display the destination name and the source routed to it.

- 1 Add four **Label** widgets to the BPX panel. See Figure 3-55.
- 2 Set two labels to have fixed 'Caption' properties. See Figure 3-55.

Label widgets with fixed 'Caption' property

Label widgets using a Destination Behaviour

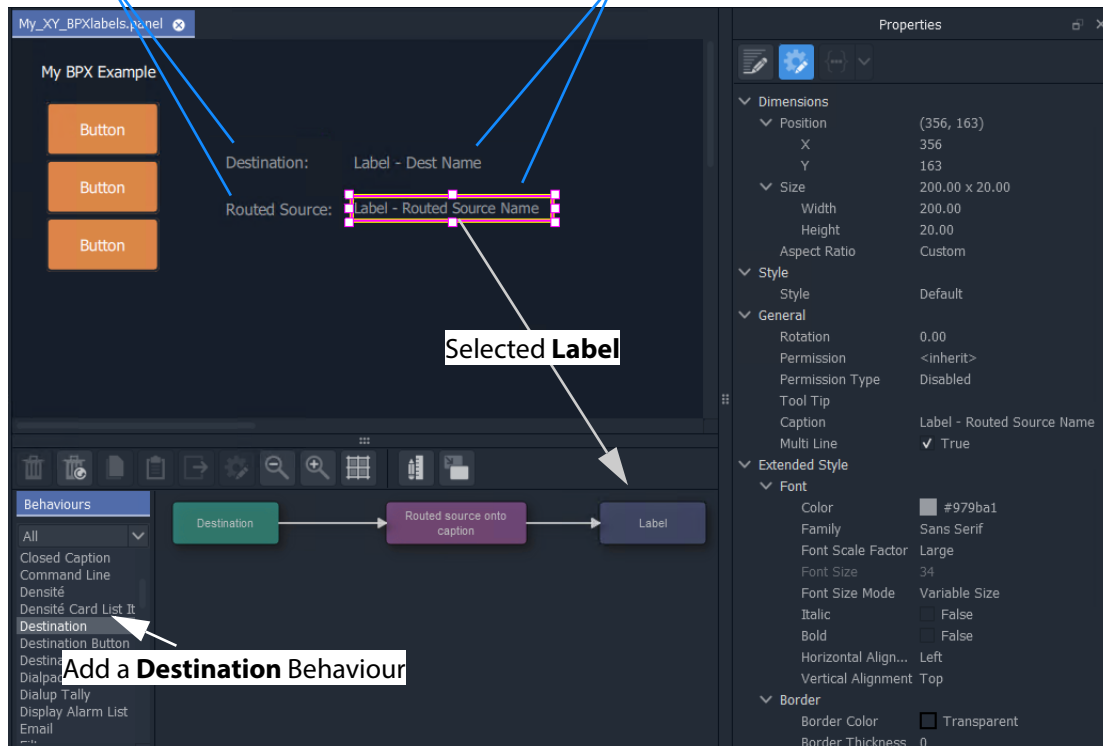


Fig. 3-55: Adding Labels

For each of the other two **Labels**:

- 3 Open the 'Behaviour and Bindings' graphical editor.
(Right-click and select 'Edit Behaviours' in the panel background.)
- 4 Select one of the **Labels**. See Figure 3-55.
- 5 Add a **Destination** Behaviour. See Figure 3-55.

A **Destination** Behaviour and a Binding are added to the 'Behaviour and Bindings' editor.

- 6 Double-click on the **Destination** Behaviour and set its 'Destination' property to the same destination that each of the **Buttons** control. See Figure 3-56.
- 7 Click **Close**.

Destination Behaviour pointed at the same destination monitored as the BPX buttons.

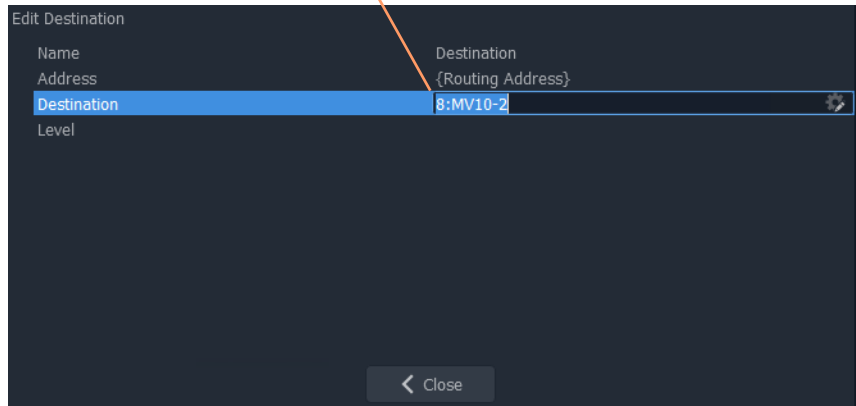


Fig. 3-56: Setting Destination for a Label's Destination Behaviour

This has set up both of the **Label** captions to show the Source name of the pointed-to Destination. To modify one of the **Label** captions to show the Destination name instead:

- 8 Select the Label to see its Behaviours and Bindings. See Figure 3-57.

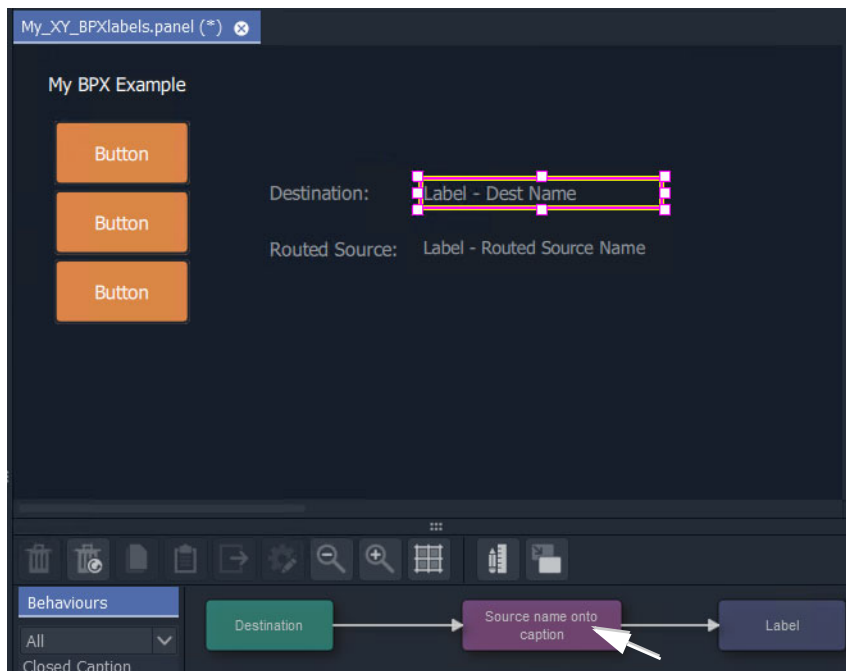


Fig. 3-57: Select a Label

- 9 Double-click on the Binding to see the Binding's properties.
See Figure 3-58.

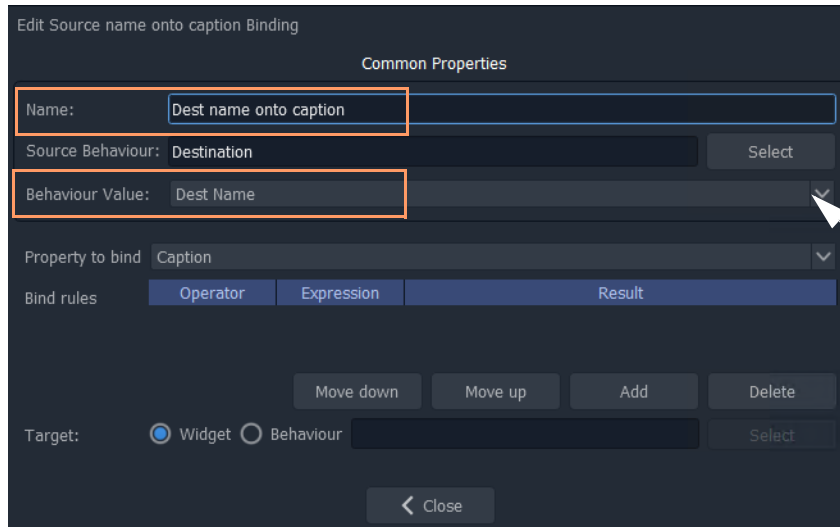


Fig. 3-58: Edit Binding Properties

- 10 Change the following properties of the Binding:
 - 'Behaviour Value' property from 'Source Name' to 'Dest Name'
 - 'Name' property from 'Routed source onto caption' to 'Dest name onto caption'
- 11 Click **Close**.
- 12 Click **Save File**. Click **Save Project**.

This has modified our BPX Panel design. See Figure 3-59a.

- 13 Exercise the BPX panel with the **Labels**.

When a button is clicked, the resulting route is shown by the labels. See Figure 3-59b.



a) Designed BPX Panel with Labels

b) Running BPX Panel with Labels

Fig. 3-59: BPX Panel with Labels: a) Designed; b) Running

Enhancement - Add Lines

Lines (**Line** widgets) or any shapes may be added to a panel.



Fig. 3-60: Added Lines

Additionally, **Line** widgets can have their visibility controlled from the state of the routing. This is shown by using the example panel from [Panel Enhancement - Add Labels](#), on page 153. To do this:

- 1 Open the panel and show the 'Behaviour and Bindings' graphical editor.
- 2 Add the required lines, in this example, three lines are added.

For each button:

- 3 Select the button and then view the properties of the associated **BPX** Behaviour; change the 'Name' property to a unique name. (E.g. to 'BPX-1', 'BPX-2', and 'BPX-3'.)

This gives each **BPX** Behaviour a unique name.

For each line:

- 4 Select the line and add a **Property** Binding. See Figure 3-61.

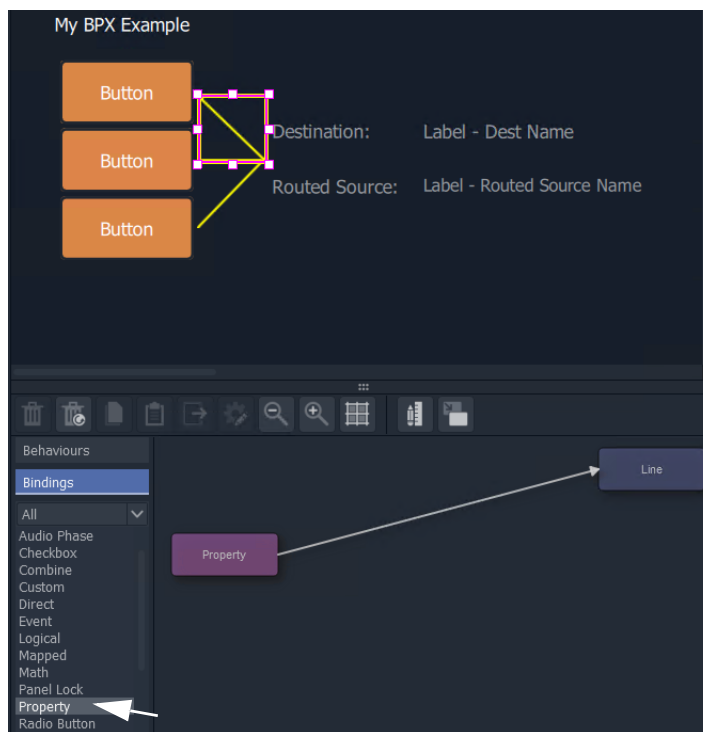


Fig. 3-61: Add Property Binding

- 5 Double-click on the added **Property** Binding to edit its properties.
- 6 Change the following **Property** Binding property values: (See Figure 3-62.)
 - 'Source Behaviour', select a unique BPX Behaviour (i.e. 'BPX-1', or 'BPX-2', or 'BPX-3').
 - 'Behaviour value' to 'Is Routed'.
 - 'Property to Bind' to 'Visibility'.

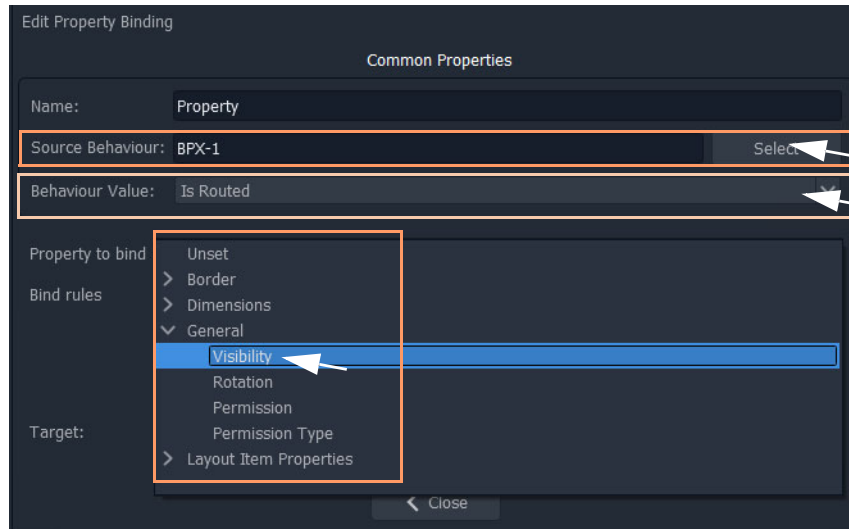


Fig. 3-62: Added Property Binding

- 7 Click **Close**.

This has set the visibility of a line to be controlled by the routing status of the **BPX** Behaviour associated to a **Button**.

Do this for each line and select a unique **BPX** Behaviour name each time.

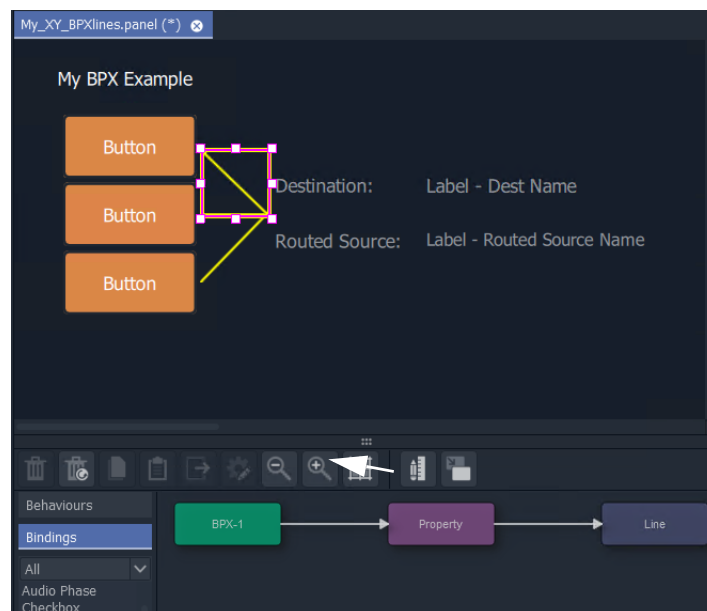


Fig. 3-63: BPX Panel Example

When the visibilities of all three lines are changed:

- 8 Click **Save File**. Click **Save Project**.
- 9 Exercise the panel. See Figure 3-64.

The lines simply indicate the route that is made when clicking buttons.

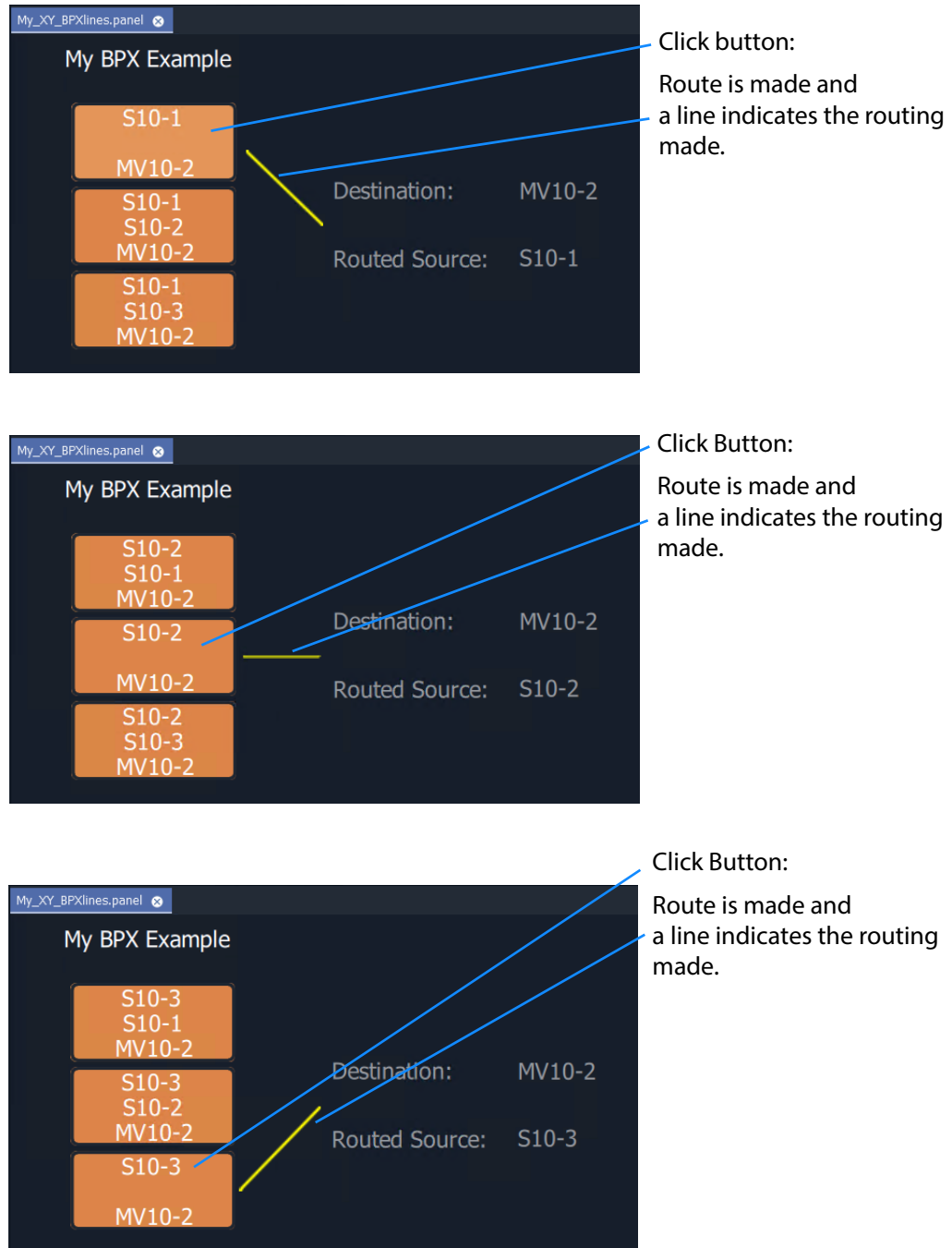


Fig. 3-64: Exercising BPX Panel with Lines

How to Embed an XY Panel into a Custom User Panel

An XY Panel may be embedded into an XY Routing Panel C&M project screen as an GV Orbit 'Component'.

To embed:

- 1 Open the GV Orbit project containing the XY Panel and a C&M project screen.

Firstly, check that the overall XY Panel size is just bigger than the widgets it contains. To do this:

- 2 Open the XY Panel and check the size values in the **Properties** box.
(**Properties** box: Screen > Dimensions > Page Size > 'Width' and 'Height')
- 3 If the panel size needs adjusting:
 - right-click in the panel background and select 'Resize to Widgets', and/or
 - adjust the background's screen 'Width' and 'Height' properties directly.
- 4 Close the XY Panel.

Now embed the XY Panel into a C&M project screen:

- 5 Open a C&M screen.
- 6 Drag an XY panel from the **Project** window onto the C&M project screen. and release. See Figure 3-65.

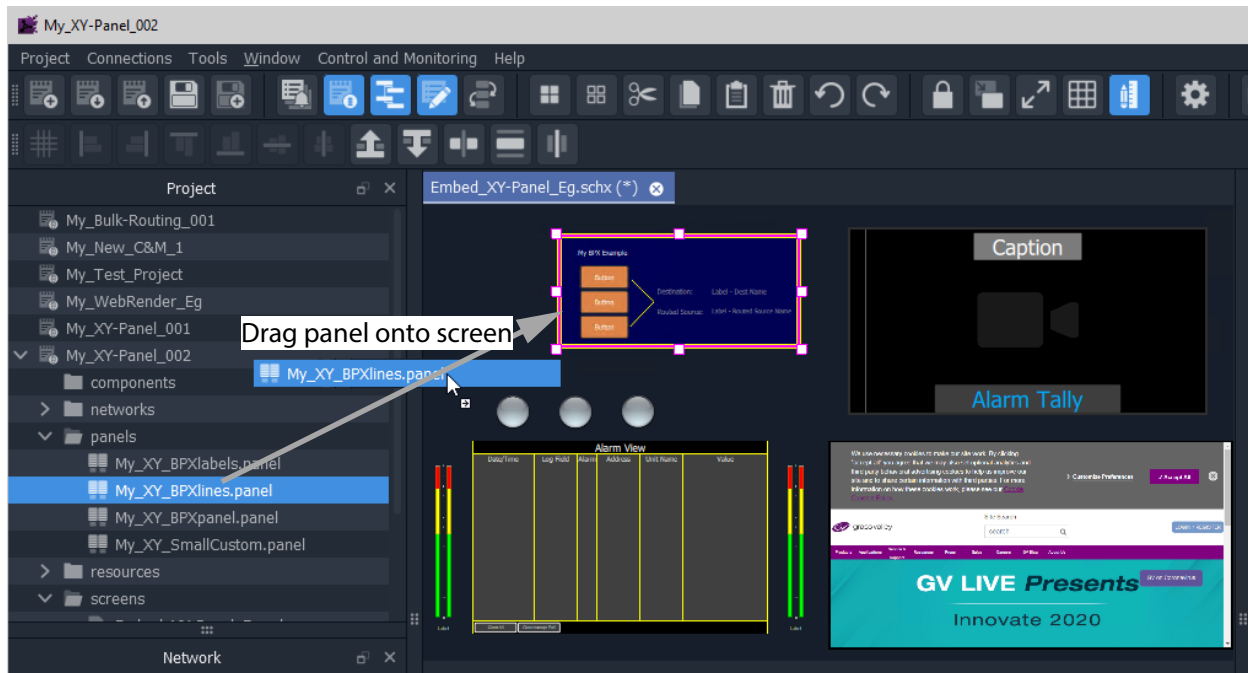


Fig. 3-65: Drag on an XY Panel

The panel object is like a GV Orbit component object on a C&M project screen.

- 7 Resize the panel object as required.
- 8 Click **Save File**. Click **Save Project**.
- 9 Run the C&M screen and exercise the XY Panel on the screen.

One or more instances of an XY panel on a screen can be used.

XY Routing Panel

How to Embed an XY Panel into a Custom User Panel

Routing Behaviours and Bindings

GV Orbit C&M projects contain C&M project screens and XY Panel screens which use on-screen widgets and 'behind-the-scenes' Behaviours and Bindings. Routing type Behaviours and Bindings may be used with Button widgets etc. on XY Panel screens to synthesize a custom router control panel.

These Routing Behaviours and Bindings are listed in Table A-1 and Table A-2 respectively.

Note: It is recommended that an XY panel screen created via the XY Wizard is used as the basis of a custom routing panel. This may be edited in GV Orbit and customized as required.

Routing Behaviours

Table A-1: Routing Behaviours

Behaviour	Parameters	Description
	Name, (RollCall) Address, +...	When triggered on an GV Orbit C&M project XY panel screen...
BPX	Source, Destination	Routes a defined Source to a defined Destination. (BPX, button per crosspoint)
Cancel	Mode	Cancels any selected Destination(s) and pre-selected Source(s).
Destination	Destination, Level	Provides access to information about a Destination, including its name, port number and the currently-routed Source.
Destination Button	Index, Destination, Mode	Enables a button to act like a Destination selection button.
Destination Level Button	Index	Enables a button to act like a Destination Level selection button.
Dialpad	Index, Sources, Clear, Delete	Enables a button widget to act like a Dial Pad button.
Dialup Tally	Sources	Allows the currently active Dialup value to be displayed (on a panel screen).
Filter	Sources	Applies a filter to the router Sources or Destinations.

Table A-1: Routing Behaviours (continued)

Behaviour	Parameters	Description
Load Panel	Name, (RollCall) Address, +...	When triggered on an GV Orbit C&M project XY panel screen...
Page	Page Sources, Page Offset	Opens the GV Orbit Client Routing Panel in the client window or on a monitor display.
Page Index	Page Sources, Index	Switches between router panel pages
Page Tally	Page Sources	Switches to a specific page index,
Panel Lock	Mode	Allows the current page value to be displayed (on a panel screen).
Protect	-	Toggles panel lock/unlock.
Redo Button	-	Protects a selected Destination.
Salvo	Salvo	Re-makes a route, used to implement a Redo button. (When placed on a panel schematic, enables Redo mode.)
Source Button	Index, Source, Mode	Executes a salvo.
Source Level Button	Index	Selects a Source.
Take	Mode	Enables a button to act like a Source Level selection button.
Undo Button	Undo Requires Take, Undo Timeout	Router Take: Makes a route, used to implement a Take button. (When placed on a panel schematic, enables Take mode.)
		Undoes a route, used to implement an Undo button. (When placed on a panel schematic, enables Undo mode.)

Routing Bindings

Table A-2: Routing Bindings

Binding	Parameters	Description
Panel Lock	Name, +... Source Behaviour, Locked Caption, Unlocked Caption	Binding binds a... ...Widget to Panel Lock function.
Router Button	Source Behaviour, Normal Style, Preset Style, Routed Style	...Routing Behaviour to a Button.



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).

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

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