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A **BELDEN** BRAND

ORBIT ROUTING PANELS

ROUTING CONTROL PANELS

User Manual

Issue 1 Revision 2

2019-07-16

www.grassvalley.com

Patent Information

This product may be protected by one or more patents.

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About this Manual

Title Orbit Routing Panel User Manual
Part Number ORBIT-RCP-UM, Issue 1 Revision 2
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The following Orbit manuals are related documents:

Table 1 Related Documents

Type	Title	Description
User Manual: Orbit - Introduction		General introduction to the Orbit software and description of common main menu items etc.
User Manual: Orbit for Multiviewers		Multiviewer-specific features of Orbit.
User Manual: Orbit MapView		Describes MapView features of Orbit.
User Manual: Orbit for IP Routing		Describes IP Routing Configuration with Orbit.
User Manual: Orbit Services		Describes Orbit Services.

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1 Product Overview

Introduction

Orbit is a suite of software packages and plug-ins from Grass Valley, a Belden brand, which forms a configuration, control and monitoring system for Grass Valley products and third-party devices. Orbit comprises one or more client applications and several services (running on a server); services include a Routing Service.

Orbit has client routing control functionality and offers the following routing control panels:

- Bulk Routing Panel.
- XY Routing Panel.

These routing panels are described in this document and they connect to a router controller device via the Orbit Routing Service.

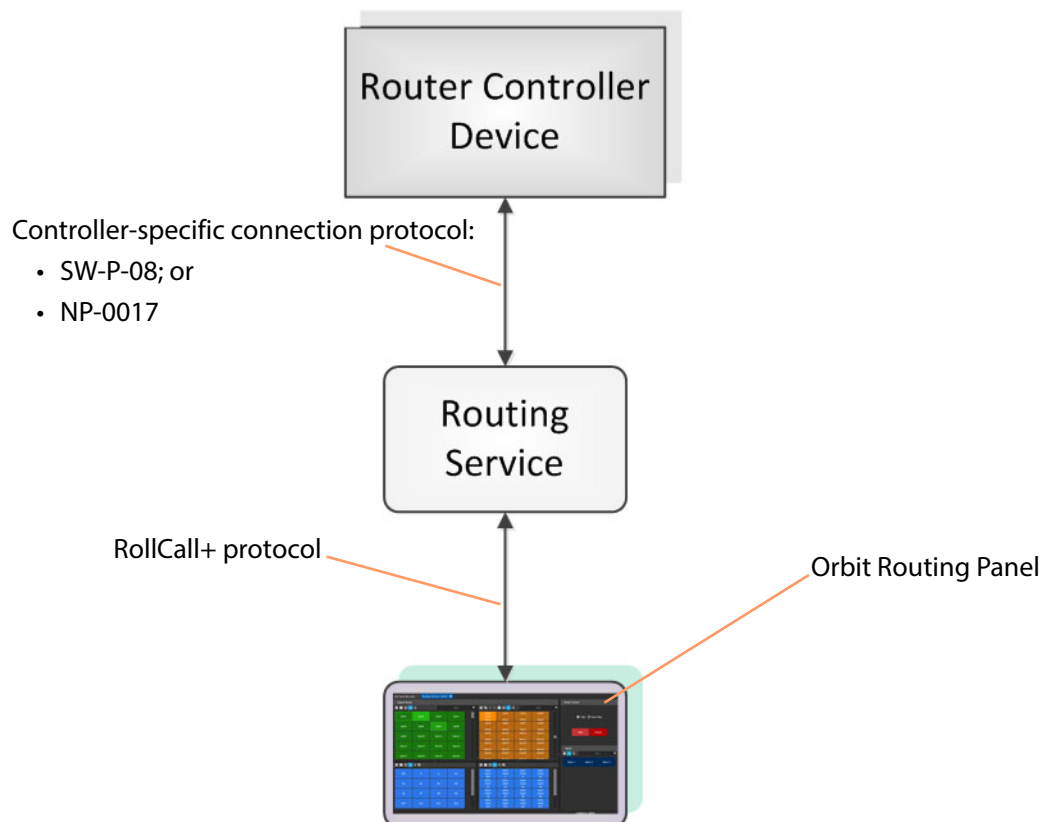


Fig. 1-1: Orbit Routing Panels and Routing Service

Bulk Routing Panel

The Orbit Bulk Routing Panel is a routing control panel that is accessible from the 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.

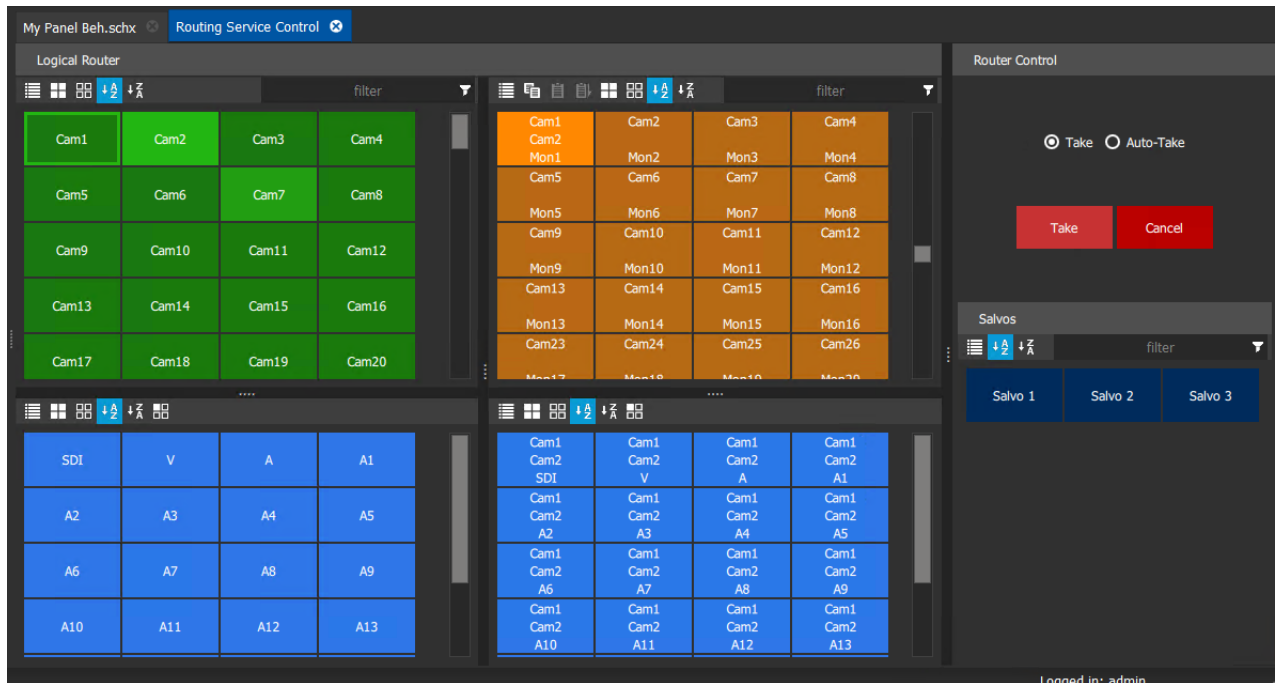


Fig. 1-2: Orbit Bulk Routing Panel Example

Key Features

- Keyboard navigation.
- Multiple selection modes:
 - Single source to single destination.
 - Single source to multiple destinations.
 - Multiple sources to multiple destinations.
- Take and Auto Take.
- Double-click to Take.
- Shuffles.
- Breakaways.
- Filtering:
 - Sources, Destinations and Salvos.
 - Custom filtering.
 - Filtering destinations by routed source.
- Sorting (ascending and descending).
- Source Dial-up.
- Copy, Paste and Paste Series.
- Salvos.

XY Routing Panel

The Orbit XY Routing Panel is a routing control panel that is accessible from the Orbit Client application. It can be created with a wizard and tailored to most needs. Additionally, a panel is fully editable and may be customized and/or created from scratch with the Orbit client. XY panels can be embedded in an Orbit MapView screen.



a) Example XY Routing Panel



b) Example Customized XY Routing Panel

Fig. 1-3: Orbit XY Routing Panel Examples

Key Features

- X/Y panel wizard.
- Customizable.
- Take, Undo, Redo.
- Source and Destination filtering.
- Pages of Sources and Destinations.
- Dial-up Source and Destination by port number (SW-P-08 protocol connections).
- Cancel, Protect, Panel Lock.
- Shuffles.
- Breakaways.

Orbit System

The Orbit Routing Panels in the Orbit Client connect to a router controller device via the Orbit Routing Service. (For example, controllers include a Grass Valley Router Controller, or IP Edge Routing Controller, or GV Convergent.) The Routing Service provides source/destination information and acts on routing commands. See Figure 1-4.

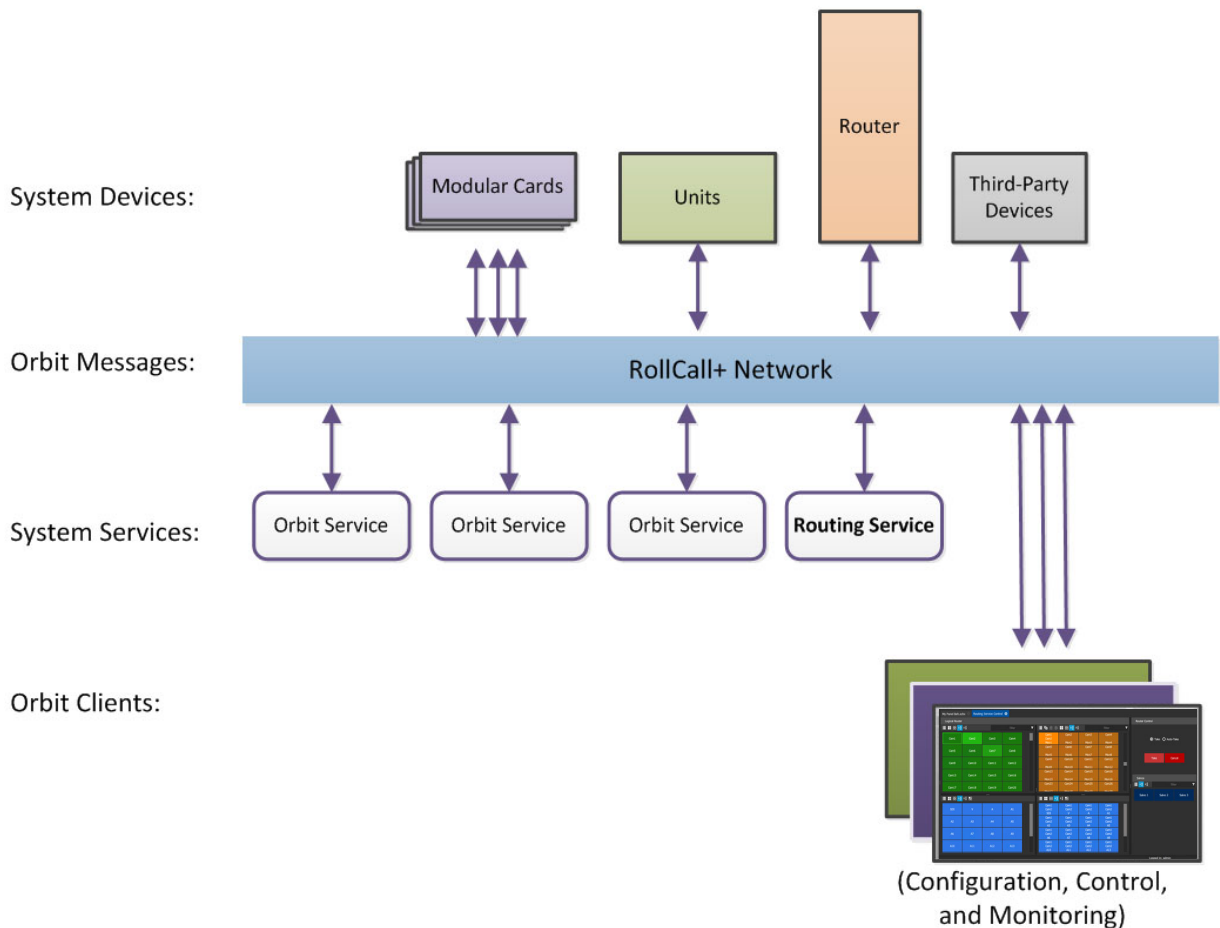


Fig. 1-4: Orbit System Diagram

Prerequisites

An Orbit Routing Service is required, configured for connection to a Router Controller using either NP0017 or SW-P-08 protocol.

Additionally, there is the following software requirement:

- GV Convergent Software Version 2.1
- IP Edge Router Controller Software Version 9.10.15

Software Version

Orbit Bulk Routing Panel described in this document is found in the following version of the Orbit software suite:

Orbit 3.1 or later

Bulk Routing Panel



Chapter contents:

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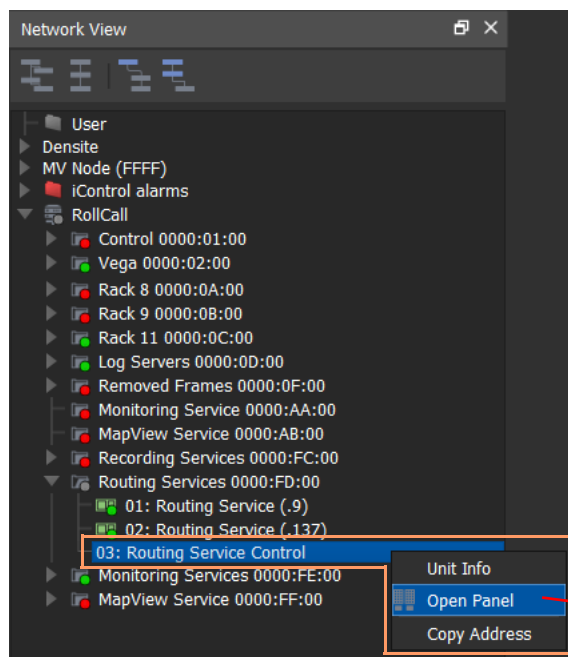
Open a Panel

The Orbit Bulk Routing Panel is the built-in Orbit router control panel accessible from the **Network View** pane from the Orbit Client software application.

To open the Orbit Bulk Routing Panel:

- Open an Orbit MapView project in Orbit Client.
- Ensure the RollCall domain is the same as that being used by the Orbit Routing service. (Main menu; 'Control and Monitoring' > Properties.)
- Right-click on a 'Routing' item in the **Network View** pane of Orbit Client and select 'Open Panel'.

Note: A 'Routing' item in Orbit Network View is formed when a Routing Service is running and is configured to talk to a router controller.



Right-click on a 'Routing' item in Orbit Network View and select 'Open Panel'.

Fig. 2-1: Open a Bulk Routing Panel

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

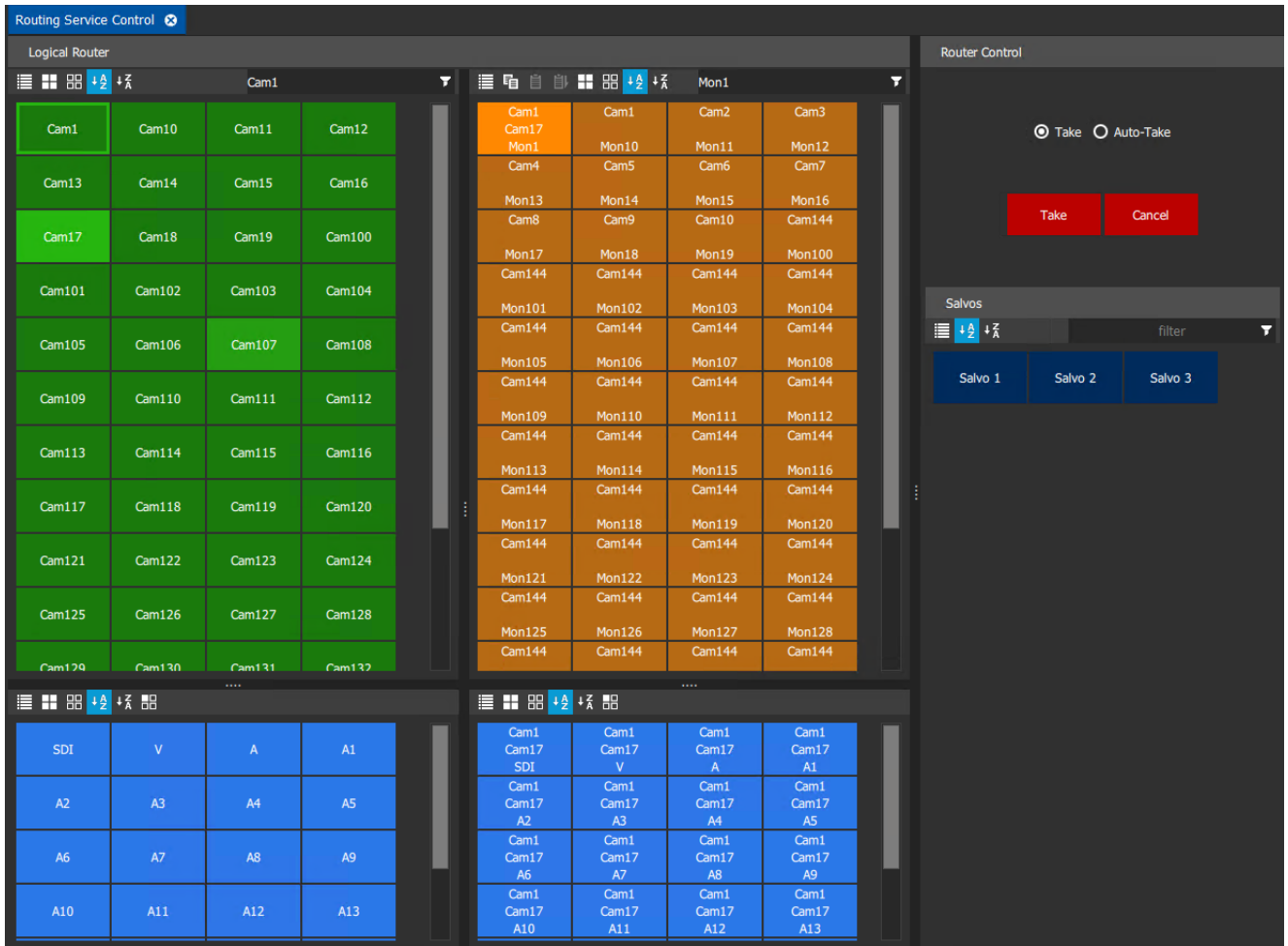


Fig. 2-2: Example Bulk Routing Panel

Panel Layout

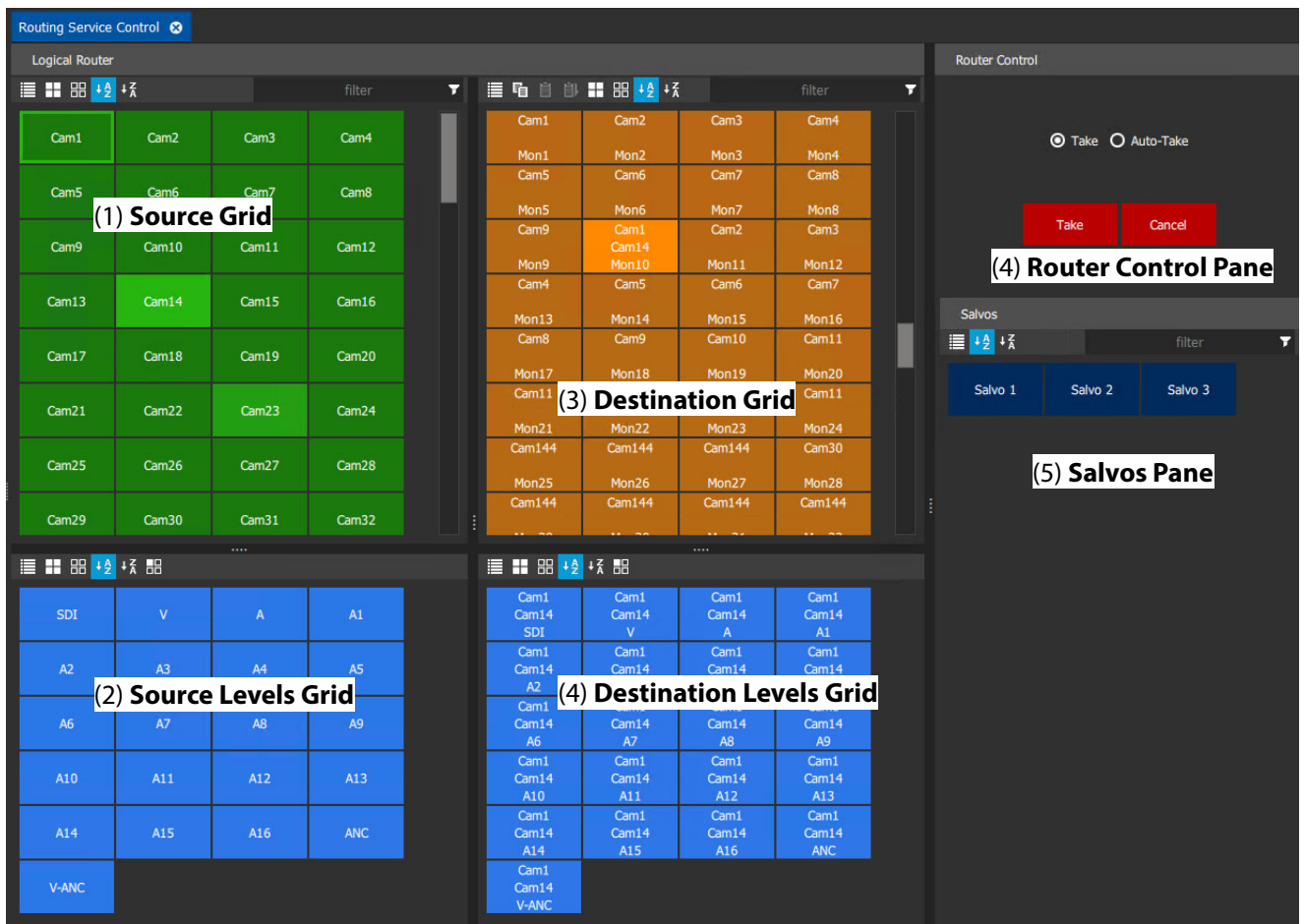


Fig. 2-3: Bulk Routing Panel Layout

The panel is laid out as six panels (see Figure 2-3):

- (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, Protect and Cancel buttons, and selection between 'Take' and 'Auto-Take' modes of operation.
- (6) **Salvos Pane** – List of available Salvos when connected over the NP0017 protocol.

The size of the panels can be altered by the user using dragging the splitter handles and panel size settings will be stored.

Other Operational Keys

Table 2-1: Bulk Routing Panel Operational Keys

Operation	Keyboard	Mouse
Toggle Selection	Space bar	Mouse click
Panel Focus	CTRL + Arrow	Mouse click
Add 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	SHIFT + V when a range of destinations are selected. See Copy and Paste Series , on page 25.	Click 'Paste Series' icon in panel.
Take	Return / Enter	Double-click
Dial Source	Press any alpha-numeric key when a destination is selected. See Dial Source , on page 41.	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

Click on the Bulk Routing Panel tab in the Orbit client window to select the Bulk Routing Panel. When the mouse cursor is moved over a button, or control item, the button/item is highlighted indicating the current item is in focus.

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.

Panel Focus

To move the focus between the panels of a Bulk Routing panel:

- Use the CTRL key and one of the arrow keys.

Focus is indicated by one of the buttons on the focused panel having a "current item" focus highlight.

Button Focus

To move the focus between Source/Destination buttons:

- Use the ALT key and one of the arrow keys.

Button focus moves up/down/left/right and is indicated by a highlighted button.

Focus Example

In the example of Figure 2-4:

- the source panel has focus; and
- “Cam41” is the current focus item (and would be selected if the space-bar key is pressed).
- “Cam19” is the currently selected source.
- “Cam3” is the currently routed source.

To move the focus to the Source Levels Grid panel:

- hold the CTRL key down and press the down-arrow key.

To move to the Destination Levels Grid panel from the Source Grid panel:

- hold the CTRL key down and press the down-arrow key and then press the right-arrow key.

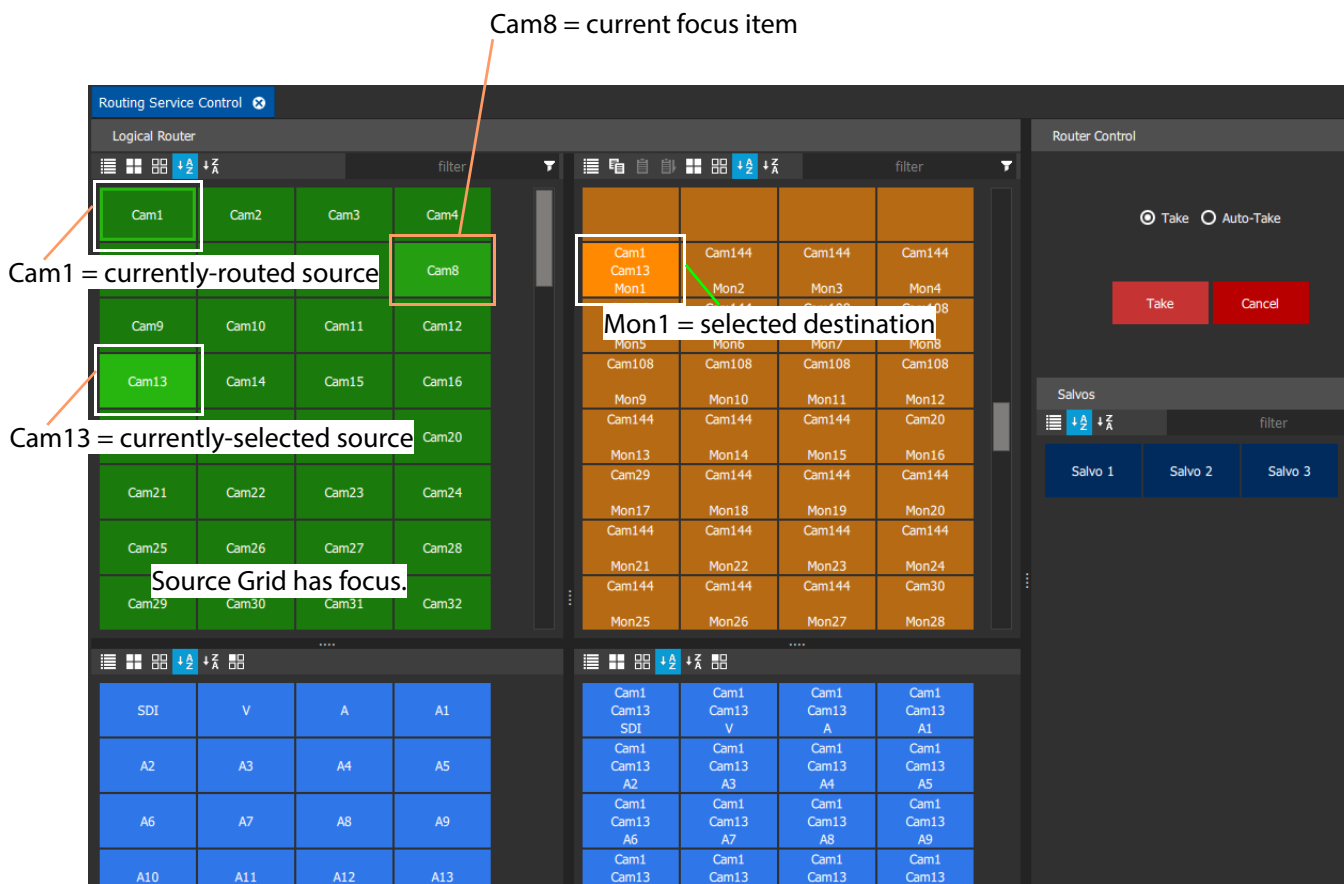


Fig. 2-4: Panel Focus Example

Selecting a Range

When selecting destinations (or sources), a range may be selected by:

- 1 Select the first **Destination** in the range by clicking on the destination selection button.
- 2 Select the last **Destination** by SHIFT + clicking on its destination button.

Source ranges can be selected similarly.

Source/Destination Selection Buttons

The source/destination selection and source/destination level selection buttons are annotated to reflect the source/destination name or level name.

Additionally, the destination buttons may show the currently-routed source and currently-selected source for the selected destination.

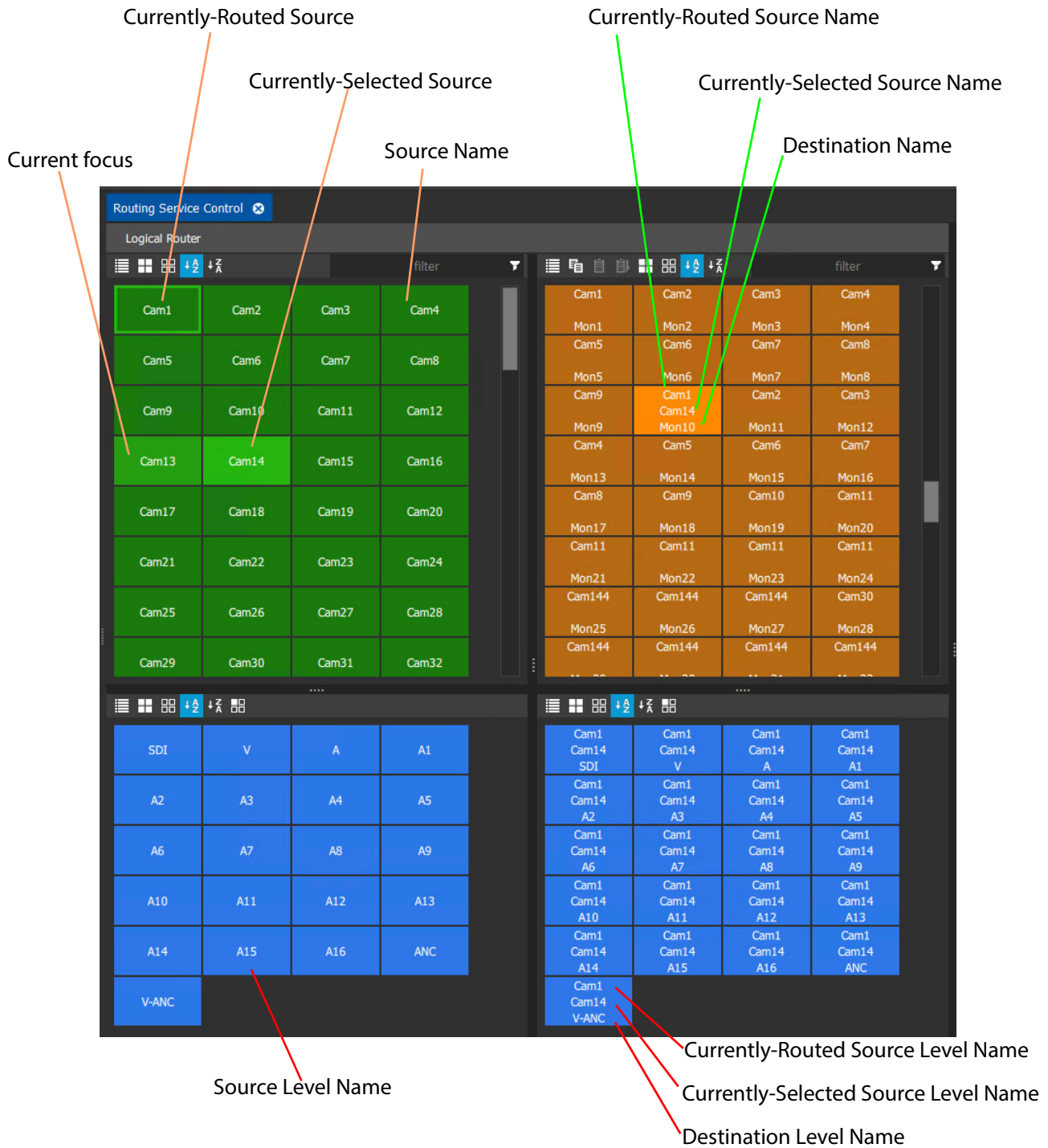
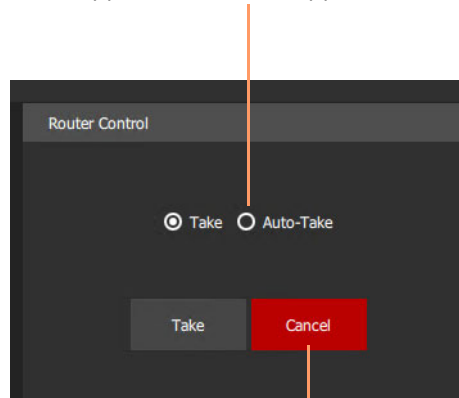


Fig. 2-5: Buttons

Router Control Pane

The Router Control pane contains the Take button.

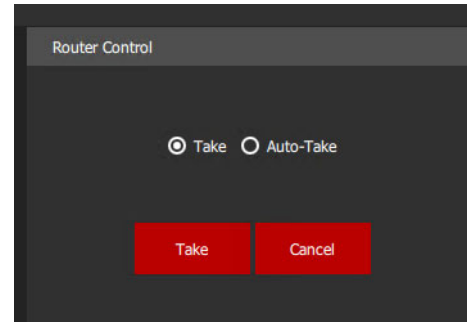
Select **Auto-Take** to make a route as soon as source(s) and destination(s) are selected.



a)

Click **Cancel** to cancel all selections ahead of a **Take**

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



b)

Click **Take** to make the route.

Fig. 2-6: Router Control Pane

Panel Tool Bars

There is a small tool bar at the top of each grid/pane.

Source Grid Panel

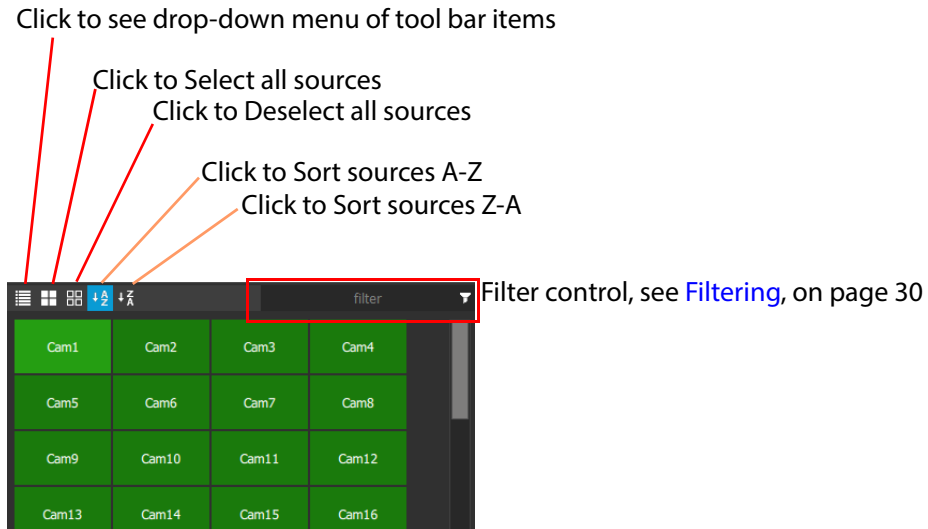


Fig. 2-7: Source Selection Grid - Tool Bar

Source Levels Grid Panel

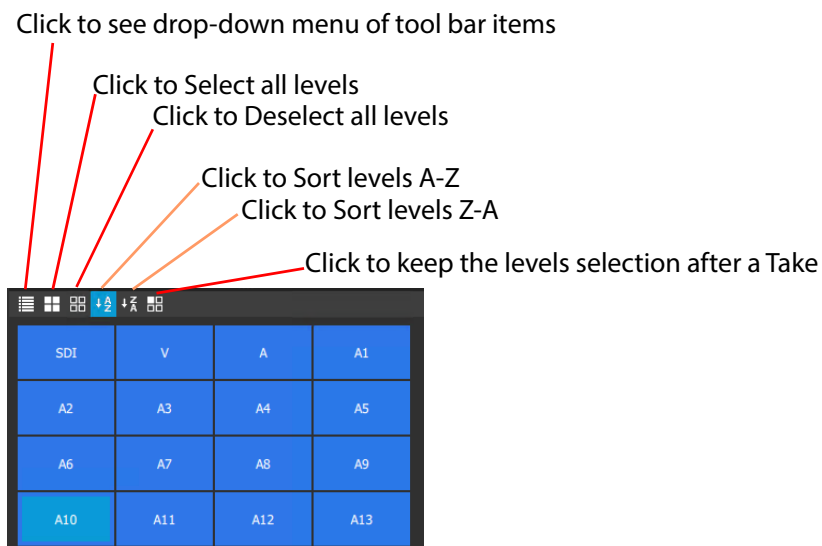


Fig. 2-8: Source Level Selection Grid - Tool Bar

Destination Grid Panel

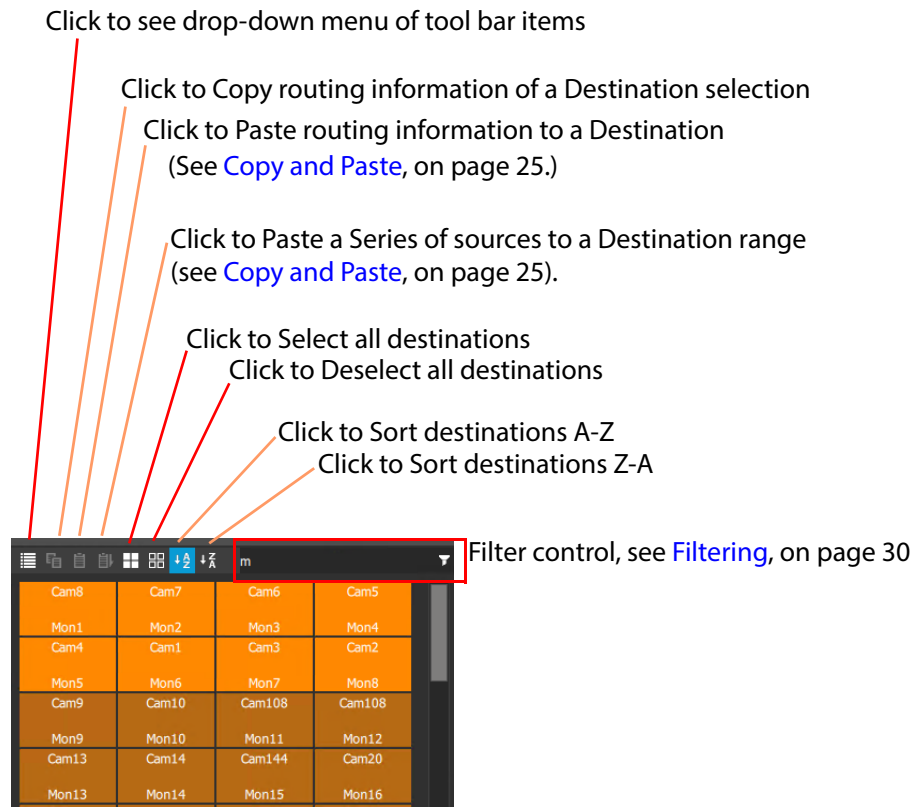


Fig. 2-9: Destination Selection Grid - Tool Bar

Destination Levels Grid Panel

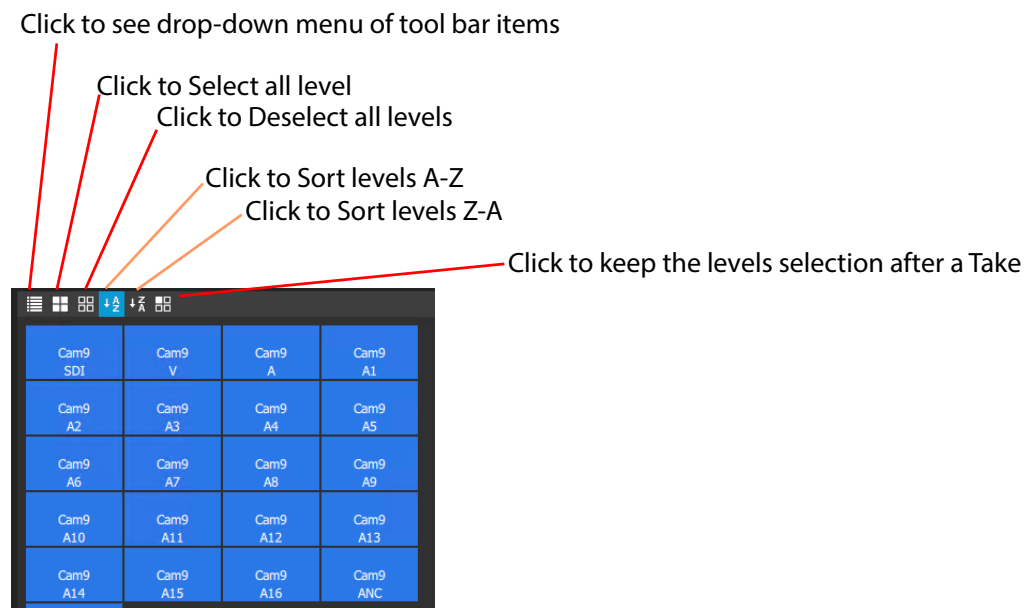


Fig. 2-10: Destination Level Selection Grid - Tool Bar

Salvos Pane

Click to see drop-down menu of tool bar items

Click to sort sources A-Z

Click to sort sources Z-A

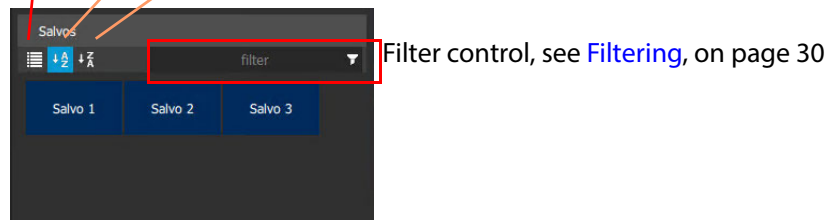


Fig. 2-11: Salvos Pane - Tool Bar

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.

When a different source or destination is selected after a 'Take', the level selection is normally. To keep the selected levels, select the "Keep Last Selection" button in the 'Levels Grid' panel tool bar (see Figure 2-12).

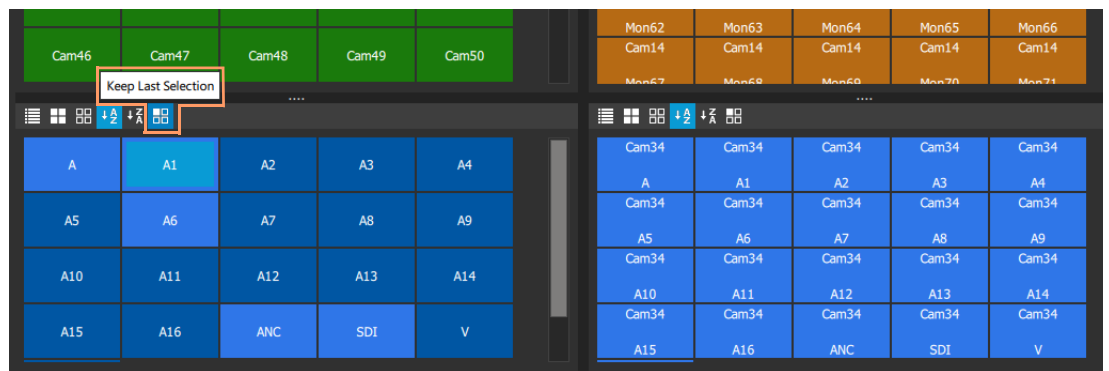


Fig. 2-12: Keep Last Selection Button

Right-Click

Right-click on the Orbit Bulk Routing Panel to show a drop-down context menu. See Figure 2-13.

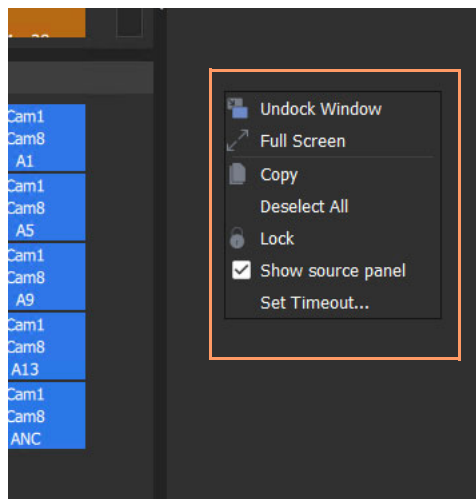
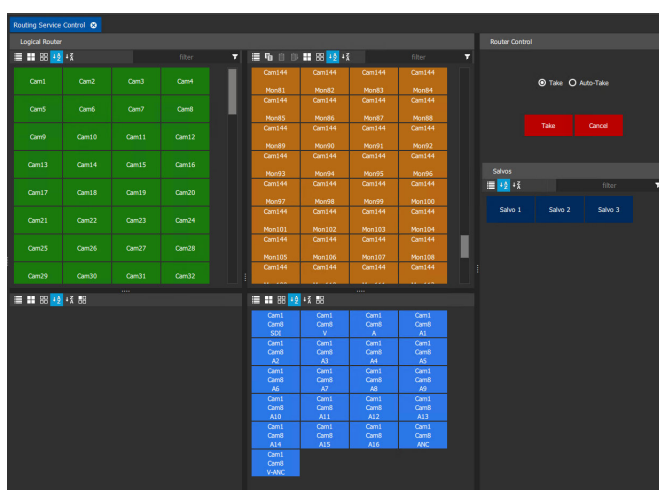
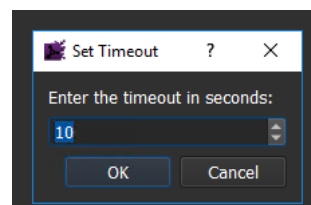


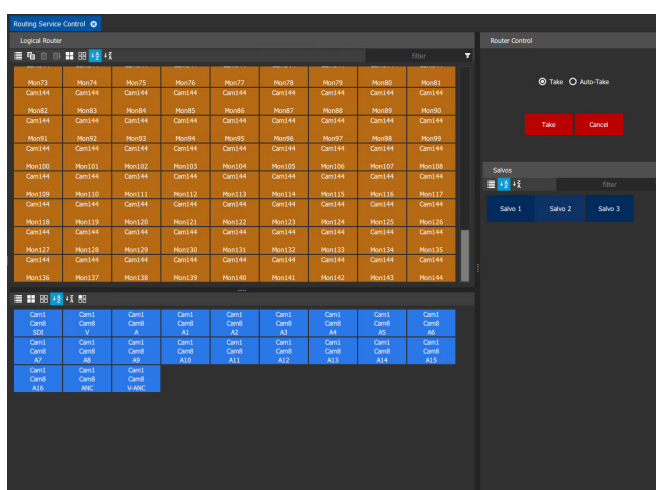
Fig. 2-13: Right-Click Menu

Table 2-2: Right-Click Menu Items

Item	Keyboard
Undock Window	Undock the Orbit Bulk Routing Panel window from the Orbit Client window. When undocked, right-click > Dock Window will re-dock the Bulk Routing panel.
Full Screen	The Orbit Bulk Routing Panel window is shown full-screen. When full-screen, right-click > Exit Full Screen .
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	Click to lock panel. When panel is locked, controls are grayed-out and user operation is disabled. When locked, right-click > Unlock will unlock the panel.
Show Source Panel	Select to show/hide the Source Grid and Source Levels Grid . See Figure 2-14. Note: To select a Source without a Source Grid , use the Dial Source feature.
Set Timeout...	Click to set a timeout (in seconds) for waiting for confirmation of routing actions before displaying a prompt on screen.



a) 'Show Source Panel' Selected



b) 'Show Source Panel' Deselected

Fig. 2-14: Right-Click 'Show Source Panel': a) Show Source Panel Selected, b) Deselected

Pop-up Notification Messages

During panel operation, notification messages may pop up at the foot of the screen. These 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 2-15.

Click OK to clear the message.



Fig. 2-15: Notification Message Examples

Bulk Routing Panel Operation

Make a Simple Route

To make a simple route:

- 1 Select a **Source**.
- 2 Select a **Destination**.
- 3 Click **Take**. (Click **Cancel**, to deselect the source/destination.)

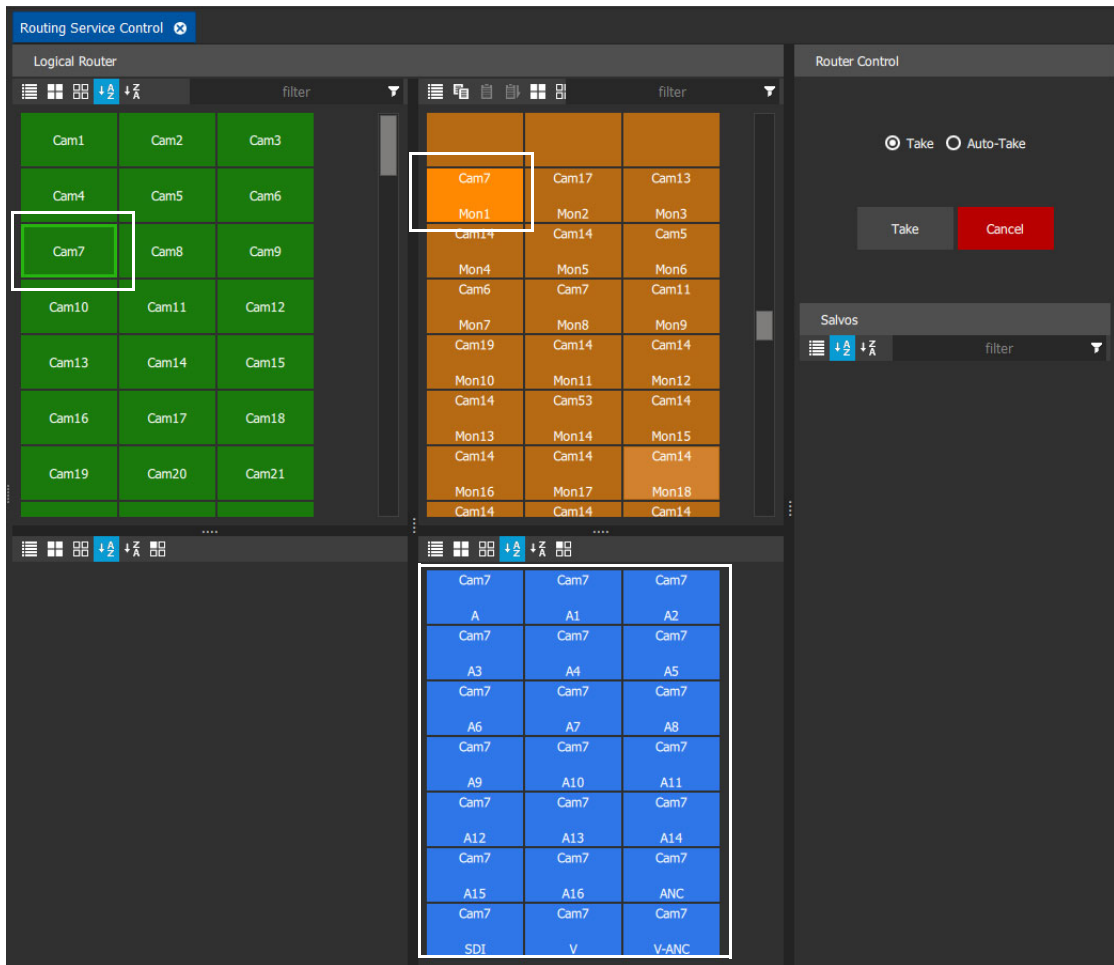
The selected source is routed to the selected destination. See Figure 2-16 and Figure 2-19.



Before TAKE:

- Select a source, **Cam7**.
- Select a destination, **Mon1**.
- **Cam1** is shown as the currently-routed source.
- The **Levels Grids** show level information for the selected source and destination.

Fig. 2-16: Make a Route Example -Before TAKE.



After the TAKE:

- Source **Cam7** is routed to destination **Mon1**.
- The source of each destination level is shown in the **Destination Levels Grid** pane.

Fig. 2-17: Make a Route Example - After TAKE.

Alternative Simple Route Method

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

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

Route One Source to Multiple Destinations

To route a single 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 a **Source**.
- 5 Click **Take**.

The source is routed to all selected destinations.

Alternative Method

Alternatively, the source may be selected first:

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

Route Multiple Sources to Multiple Destinations

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

- 7 Click **Take**.

The source is routed to all selected destinations.

Alternative Method

Alternatively, the source may be selected first:

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

Source Selection CTRL Order

When routing many sources to many destinations and making selections with CTRL-clicks (i.e. not by 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 selection
- Select destinations 8 to 1 in that order by CTRL + clicking on a destination button.
- Click **Take**.

(For selection ranges, the routes are made the order of the selections buttons.)

Copy and Paste

Copy and paste allow routing information from one destination to be copied onto another destination:

- 1 Select a **Destination**.
- 2 Click the **Copy** icon in the tool bar of the **Destination Grid**, or press 'CTRL +C'.
- 3 Select a different **Destination**
- 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.

Copy and Paste Series

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

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

The routing of the first 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.

For example:

- Select destination **1** and click **Copy**.
- 5 Select destination range **11** to **19**.
 - 6 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**.

Quick 1 to 1 Routing

This can be used to make quick 1-to-1 routes. For example for the first 100 sources to first 100 destinations:

- Select destination **1** and click **Copy**.
- 1 Select destination range **1** to **100**.
 - 2 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**.

Breakaways

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'.

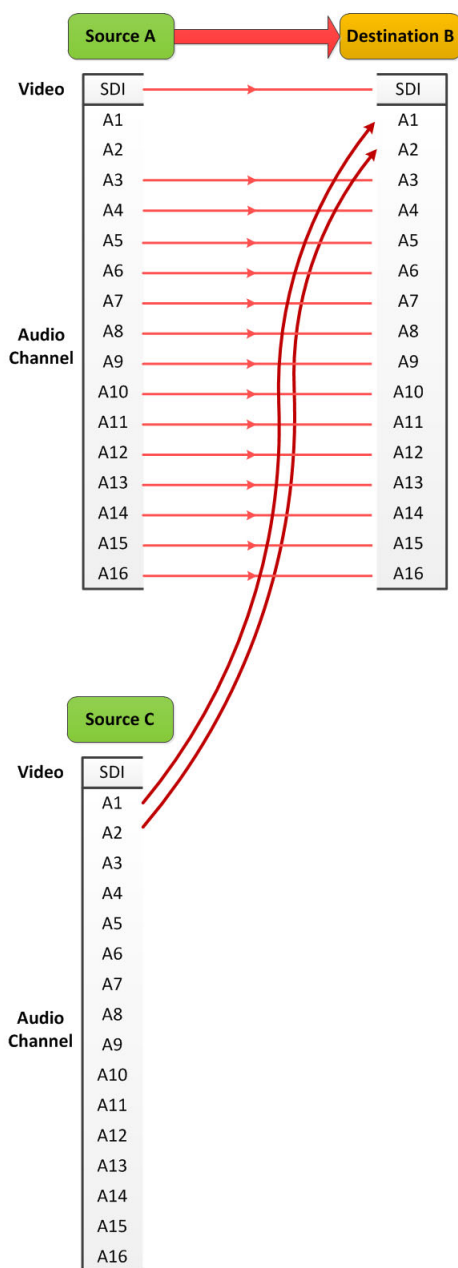


Fig. 2-18: Breakaway

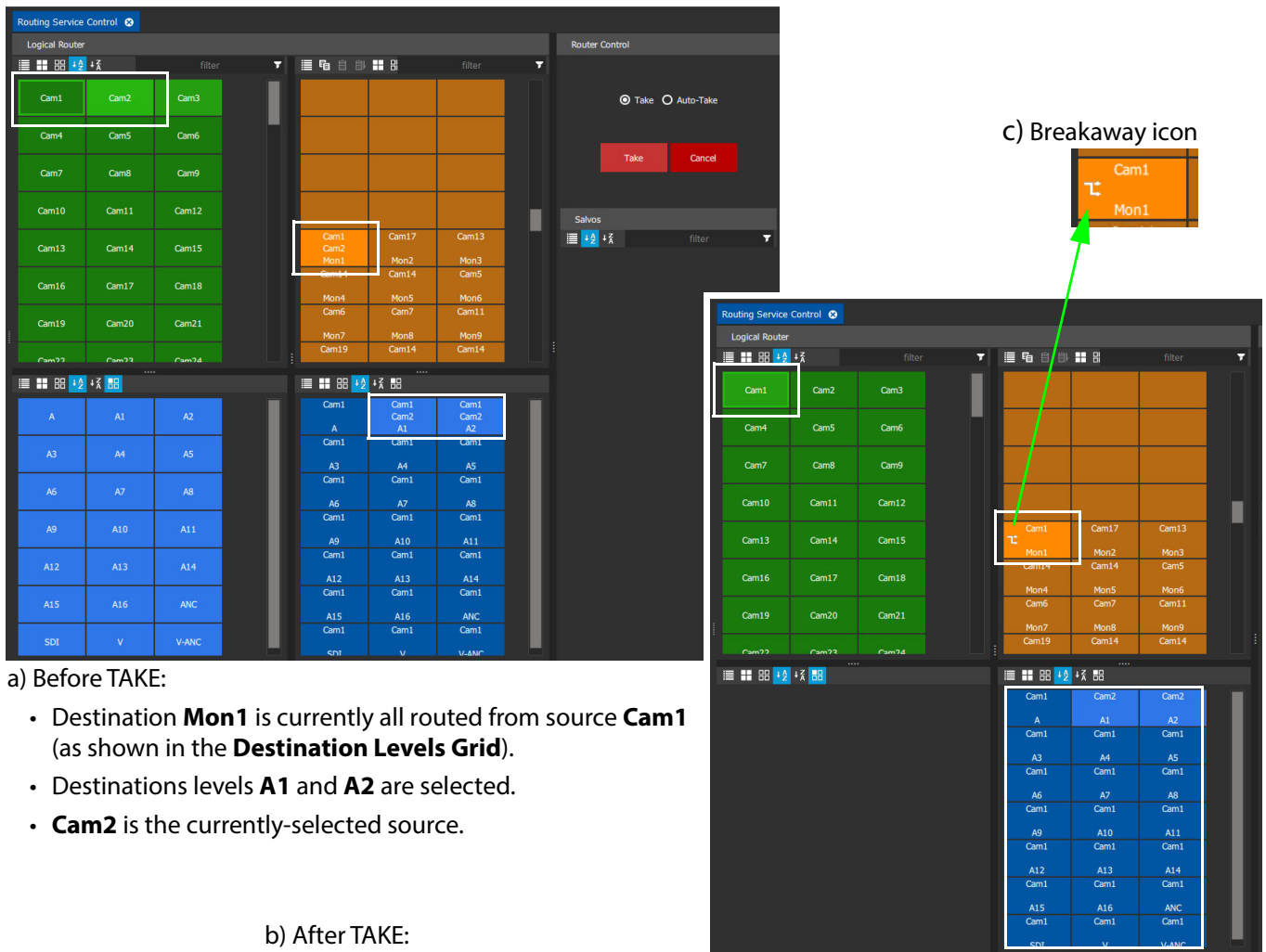
Destinations which are 'unmarried' are indicated with a breakaway icon (Figure 2-19c) on the destination button.

Perform a Breakaway

To perform a breakaway:

- 1 Select a **Destination**.
- 2 Select the **Destination Levels** to route (for example, audio channels 1 and 2 only).
- 3 Select a new **Source**.
- 4 Click **Take**.

The selected source is routed to the selected destination levels and a breakaway is formed. Figure 2-19 shows a breakaway example, before and after taking the route.



a) Before TAKE:

- Destination **Mon1** is currently all routed from source **Cam1** (as shown in the **Destination Levels Grid**).
- Destinations levels **A1** and **A2** are selected.
- **Cam2** is the currently-selected source.

b) After TAKE:

- Destination **Mon1** is routed partly from source **Cam1** and partly from **Cam2**.
- This breakaway situation is indicated with a **Breakaway** icon on the destination button.
- The source of each destination level is shown in the **Destination Levels Grid** pane.

Fig. 2-19: Breakaway Example: a) Before TAKE. b) After TAKE.
c) Breakaway Icon on Button (see top right in figure).

Alternative Method

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

- Select a **Source**.
- Select a **Destination**.
- Select the **Destination Levels** to route.
- 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).

Shuffles

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.

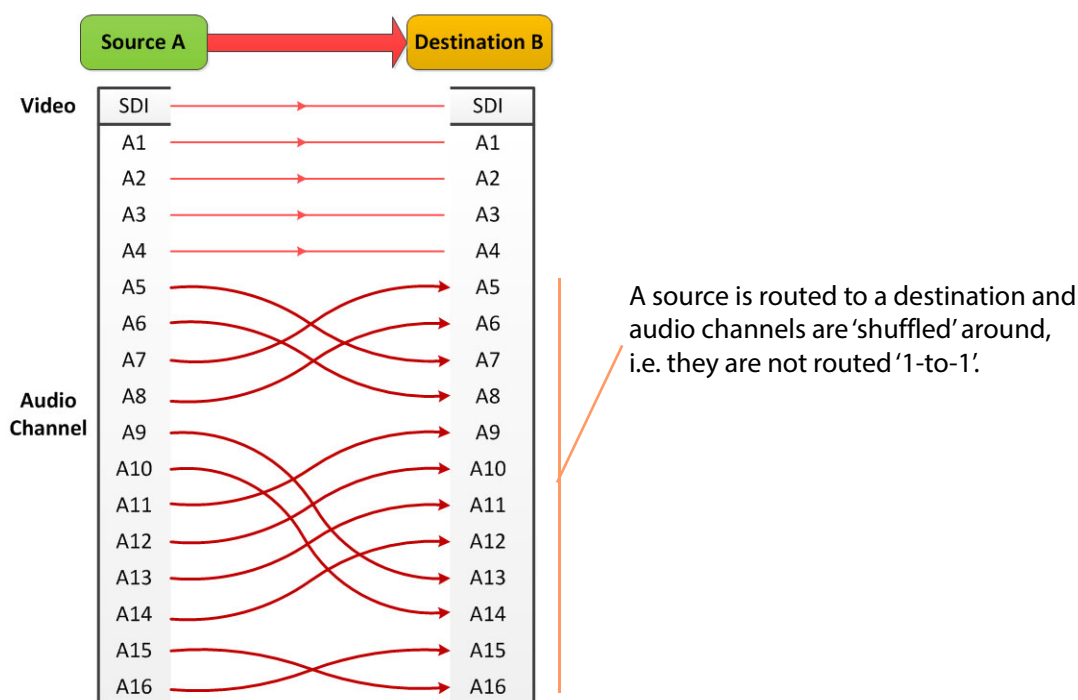


Fig. 2-20: Shuffles

Perform a Shuffle

To perform a shuffle:

- 1 Select a **Destination**.
- 2 Select the **Destination Levels**.
- 3 Select the **Source**.
- 4 Select the **Source Levels** in the *order* in which they shall apply to the destination Levels. (Selecting just one level will route this to all selected destination levels. Otherwise select the same number of source levels as destination levels.)
- 5 Click **Take**.

The selected source levels are routed to the selected destination levels and a shuffle is formed. Figure 2-21 shows a shuffle example reversing the order of four audio channels (A1 to A4).



a) Before TAKE:

- Destination **Mon1** is currently all routed from source **Cam1** (as shown in the **Destination Levels Grid**).
- Destinations levels **A1**, **A2**, **A3** and **A2** are selected.
- Source **Cam1** is selected.
- **Source Levels A4**, **A3**, **A2** and **A1** have been selected (in that reversed order).

b) After TAKE:

- Destination **Mon1** is still all routed from source **Cam1**.
- 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** pane.

Fig. 2-21: Shuffle Example:

a) Before TAKE.

b) After TAKE.

c) Shuffle Icon on Button (shown top right in figure).

Alternative Shuffle Method

To shuffle one level without selecting a new source via the keyboard:

- 1 Select a **Destination**.
- 2 Select the **Destination Level**.
- 3 Press the **Tab** key to display a list of **Source Levels** in the middle row of the **Destination Level** button.
- 4 Use the Up/Down arrow keys to scroll to a new **Source Level**.
- 5 Press the **Return** or **Enter** key to perform a Take.

The selected **Source Level** is routed to the selected **Destination Level**.

a) Before TAKE:

- Destination **Mon1** is currently all routed from source **Cam1** (as shown in the **Destination Levels Grid**).
- **Destination Level** selected.
- **Tab** key pressed to show a **Source Level** in the middle row of the button.

b) Before TAKE:

- **Source Level A10** Selected via Up/Down arrow keys.

c) After TAKE:

- **Return** or **Enter** key pressed to do a Take.
- Selected **Source Level, A10**, has been routed to selected **Destination Level**.
- **Shuffle** icon shown on button.
- Routed **Source Level, A10**, is shown in **Destination Levels Grid** pane.

Fig. 2-22: Shuffle Example: a) Before TAKE. b) Before TAKE, selected Source Level. c) After TAKE.

Filtering

Items in a grid or pane of the Bulk Routing Control Panel may be filtered to select/limit what is shown.

Operations such as 'select all items' and 'selecting a range of items' then all work on the *filtered* list that is shown and not on the full list of items.

Filters can be applied to the Source Grid, Destination Grid and Salvos pane.

Filter Controls

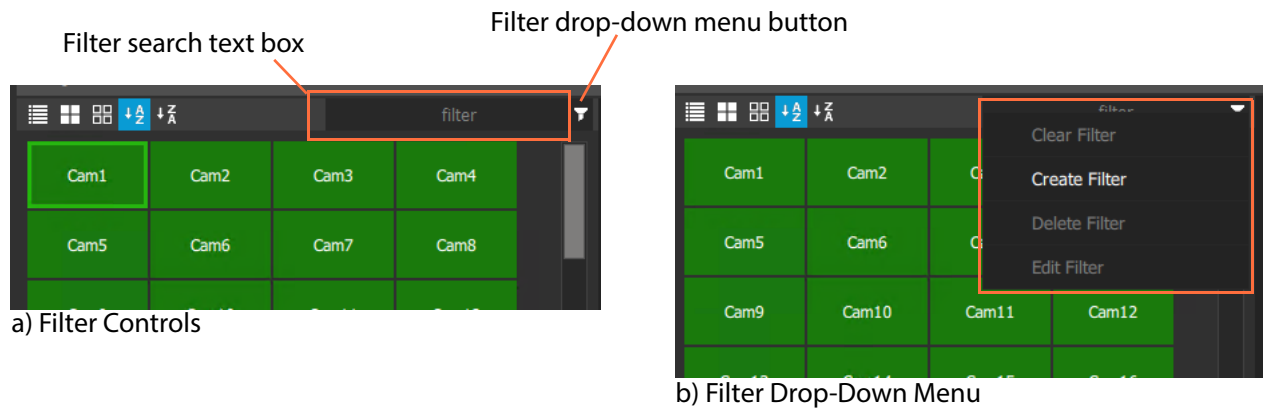


Fig. 2-23: Filter Controls

Filter Grid Items

To simply filter items in a grid or pane:

- Enter the search term into the **Filter** text box of the grid/pane.
- Press the Return or Enter key.

Orbit then only displays items with names which contain the search term.

Dynamically Filter Items

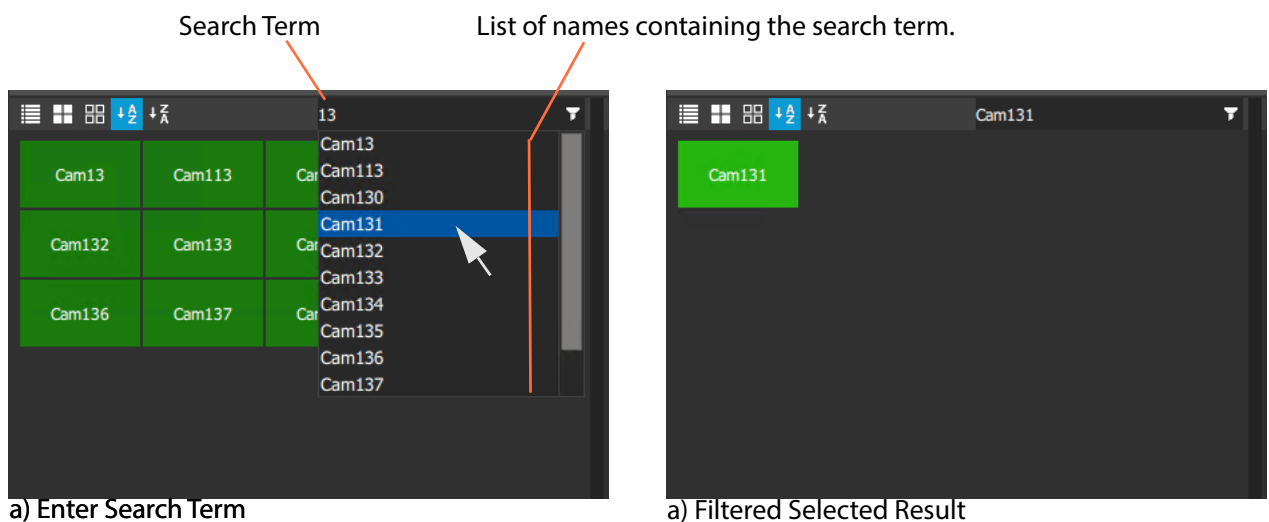


Fig. 2-24: Dynamic Filtering: a) Enter Search Term and Select; b) Selected Item Displayed

Figure 2-24 shown a filter example using the Source Grid. In this case, source names are filtered.

To dynamically filter:

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

Filtering Destinations by Source

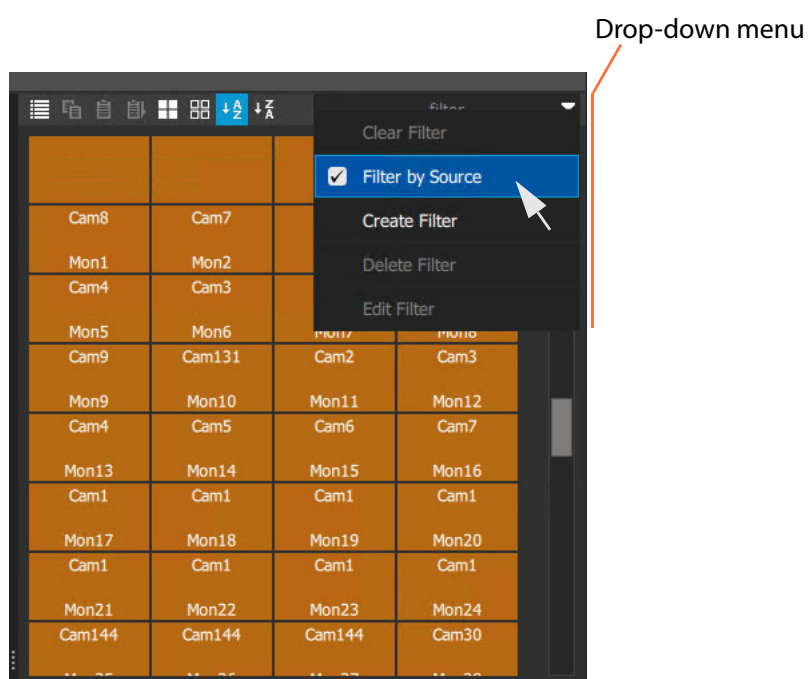


Fig. 2-25: Filter Destinations by Source

Select the **Filter by Source** option to *filter* destinations by their currently-routed source name, rather than by their own name. With the **Filter by Source** option selected, the filter in the Destination Grid will filter on Source names and a resulting filtered list of *Sources* is shown. The grid will show only destinations which have a matching source routed to them.

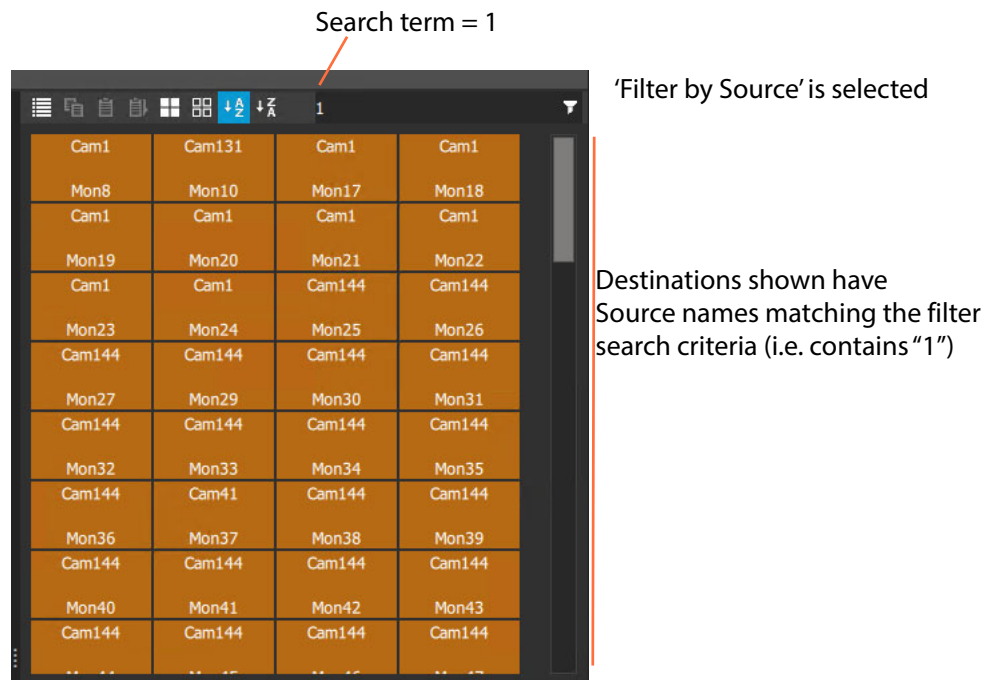


Fig. 2-26: Example with 'Filter by Source' Selected - Filter Search Term is "1"

Custom Filters

Orbit allows more complex, custom filters to be created for the **Destination Grid**. Filter expressions can be defined and combined together to form complex filter conditions. Expressions can be combined 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.

A custom filter can be created, given a name and saved. A custom filter can be subsequently edited or deleted. It may be re-named.

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

Custom filters are stored in the Orbit routing service for the currently-logged-in 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.

Create a Custom Filter

In the **Destination Grid** tool bar:

- 1 Click on the **Filter** drop-down menu button and select **Create Filter**.
- 2 An empty **Custom Filter** dialog is shown.

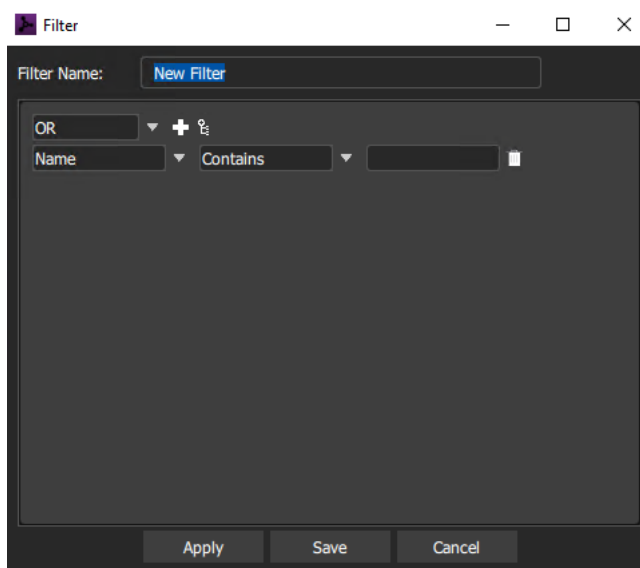


Fig. 2-27: Custom Filter Dialog

Edit a Custom Filter

- 1 Click on the Filter drop-down menu button and select **Edit Filter**.
- 2 Select the filter to edit from the list shown.
The **Custom Filter** dialog is shown for the selected custom filter.

Delete a Custom Filter

- 1 Click on the Filter drop-down menu button and select **Delete Filter**.
- 2 Select the filter to delete from the list shown.
The filter is deleted when the selection is made.

Custom Filter Dialog

The filter rule of a custom filter 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.

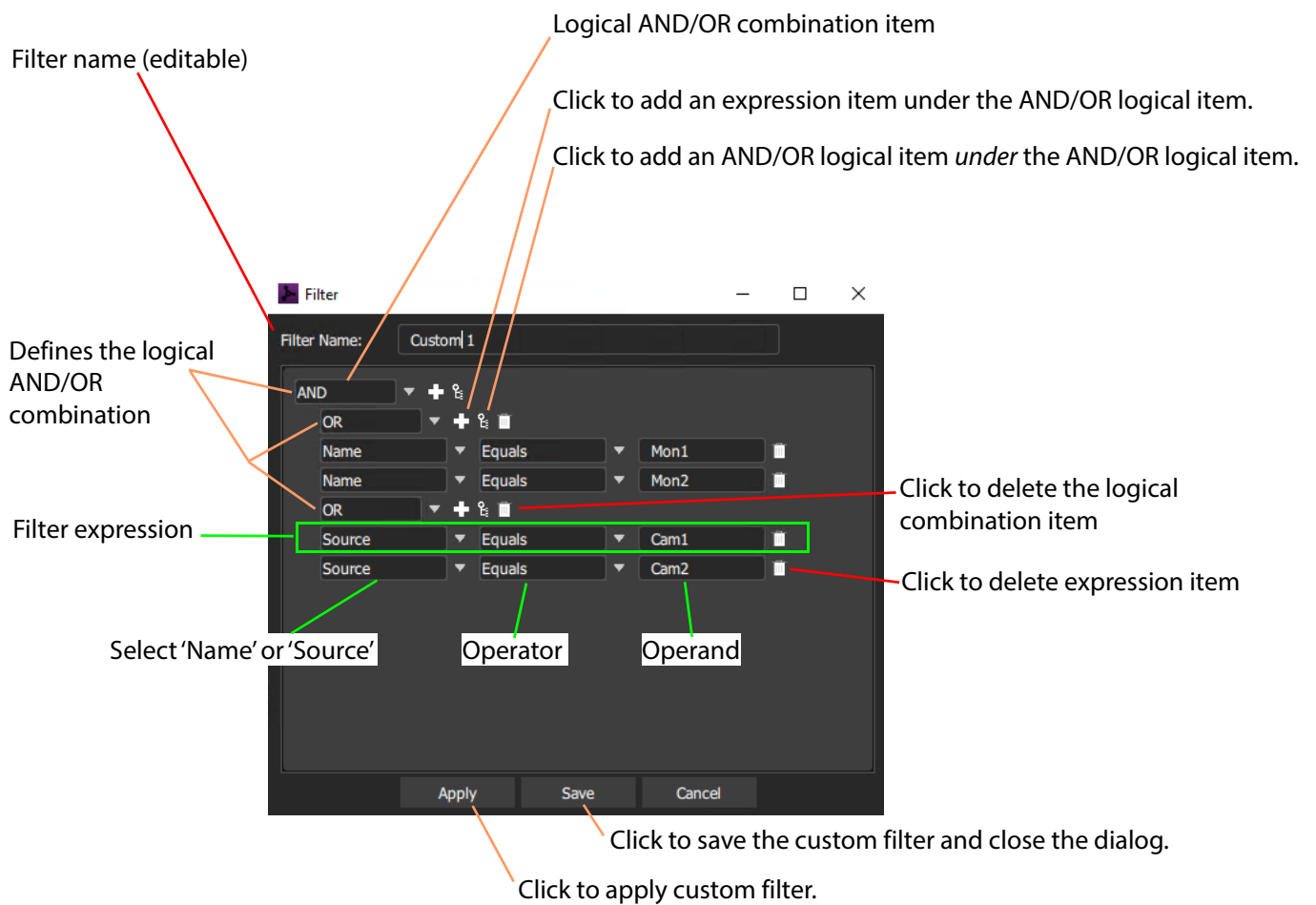


Fig. 2-28: Custom Filter Dialog - Example

Logical AND OR Combining

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

Examples:

A rule might be 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.

The operators include:

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

Operation	True when...
Equals	Name matches.
Not Equals	No match.

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

Operation	True when...
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.

Custom Filter Example

To display two destinations only if they have certain sources currently routed to them. We use destinations **Mon1** and **Mon2** and sources **Cam1** and **Cam2** in this example:

The filter conditions 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:

Show a destination if:

*Destination name is **Mon1***

OR

*Destination name is **Mon2***

AND

*its routed Source name is **Cam1***

OR

*its routed Source name is **Cam2***

Defining Custom Filter

This may be entered for a **Custom Filter** as follows:

- 1 Click on the Destination Grid's Filter drop-down menu button and select **Create Filter**. An empty **Custom Filter** dialog is shown. See Figure 2-29.

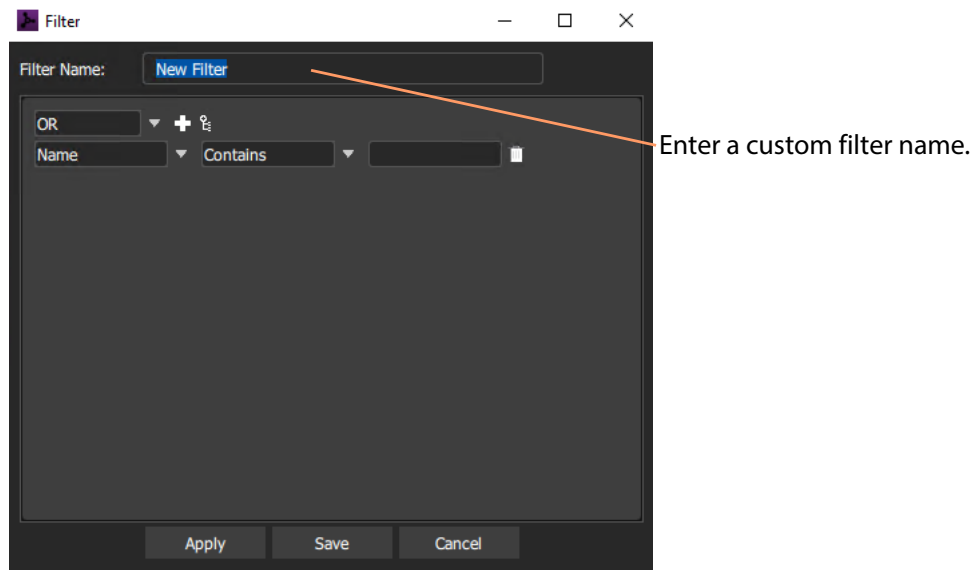


Fig. 2-29: Empty Custom Filter Dialog

- 2 Enter a name for the filter.
- 3 Select AND as the first (top-level) logical combination item with the drop-down menu button. See Figure 2-30.

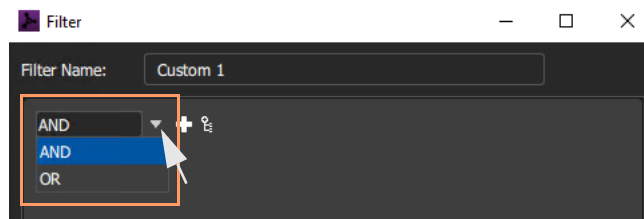


Fig. 2-30: Select AND

- 4 Select OR as the first 'next-level' logical combination item. An expression item also appears below the OR. See Figure 2-31.

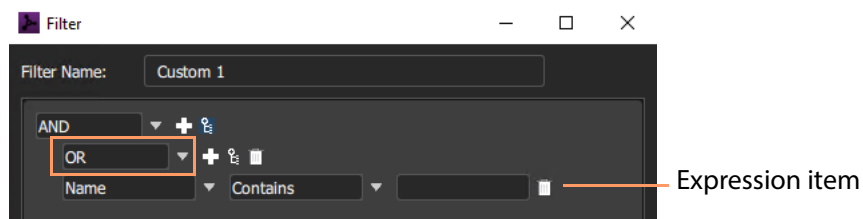


Fig. 2-31: Select OR

- 5 Add a second expression item under the OR. See Figure 2-32.

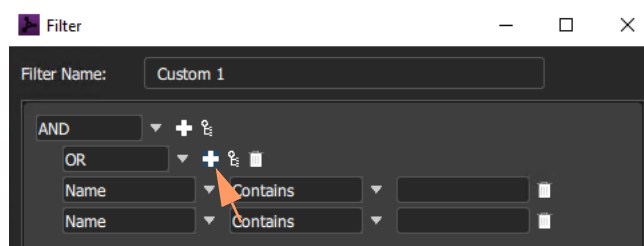


Fig. 2-32: Add a Second Expression Item

- 6 Add a second OR logical combination item under the AND. See Figure 2-33.

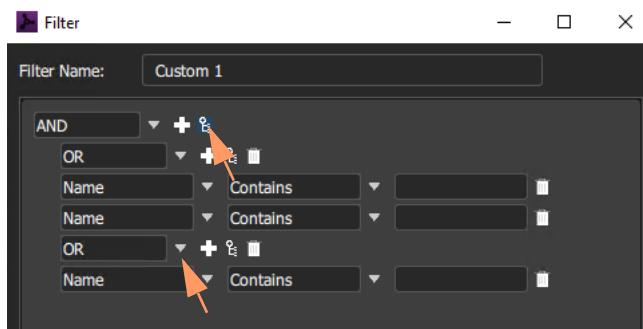


Fig. 2-33: Add a Second OR Logical Combination Item

7 Add a second expression item under the OR. See Figure 2-34.

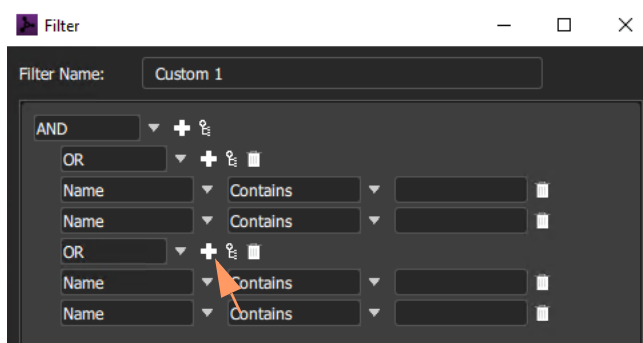


Fig. 2-34: Add a Second Expression Item

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

Now to complete the expression items.

The first two expressions default to use (destination) name - as needed for this example.

The second two expressions need to be changed to use 'Source':

8 Select 'Source' for the second two expressions, see Figure 2-35.

9 Select the expression operator 'Equals' in all expressions, see Figure 2-35.

10 Enter 'Mon1' and 'Mon2' as expression operands, see Figure 2-35.

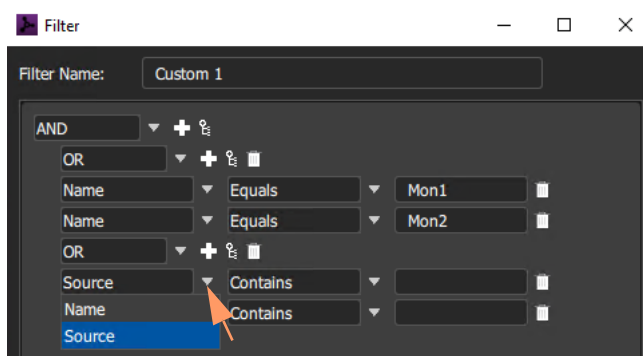


Fig. 2-35: Completing Expressions

11 Enter 'Cam1' and 'Cam2' as operands for the second two expressions, see Figure 2-36.

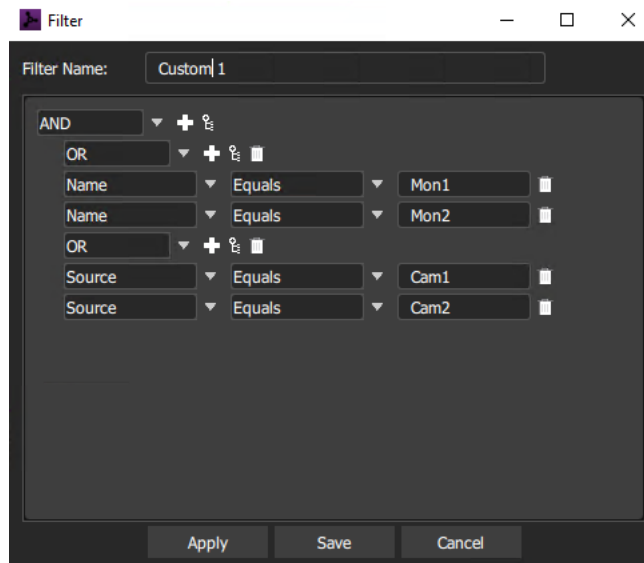


Fig. 2-36: Completed Custom Filter

12 Click **Save** in the **Custom Filter** dialog to save the custom filter and close the dialog. The custom filter rules have been entered.

Use the Custom Filter

To use the custom filter:

- 1 Enter 'Cust' in the **Filter** text box.
All possible matches appear in the drop-down list.
- 2 To apply the custom filter, click on 'Custom 1'. See Figure 2-37.

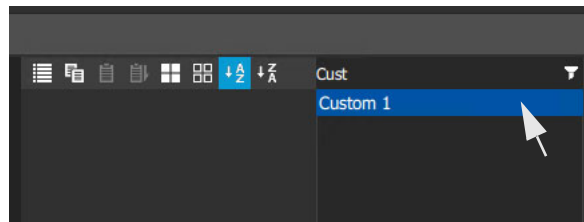


Fig. 2-37: Apply Custom Filter

The filter is now operating.

Reminder: This **Custom Filter** example displays two destinations ('Mon1' or 'Mon2') only if they have certain sources ('Cam1' or 'Cam2') currently routed to them.

To see the **Custom Filter** in action:

- 3 Route 'Cam1' and 'Cam2' to destinations 'Mon1' and 'Mon2'.
Both destinations are shown. See Figure 2-38a.

Now prepare to route a different source to 'Mon1':

- 4 Select **Destination** 'Mon1' and select **Source** 'Cam10'. See Figure 2-38a.
- 5 Press **Take** to make the route. See Figure 2-38b.

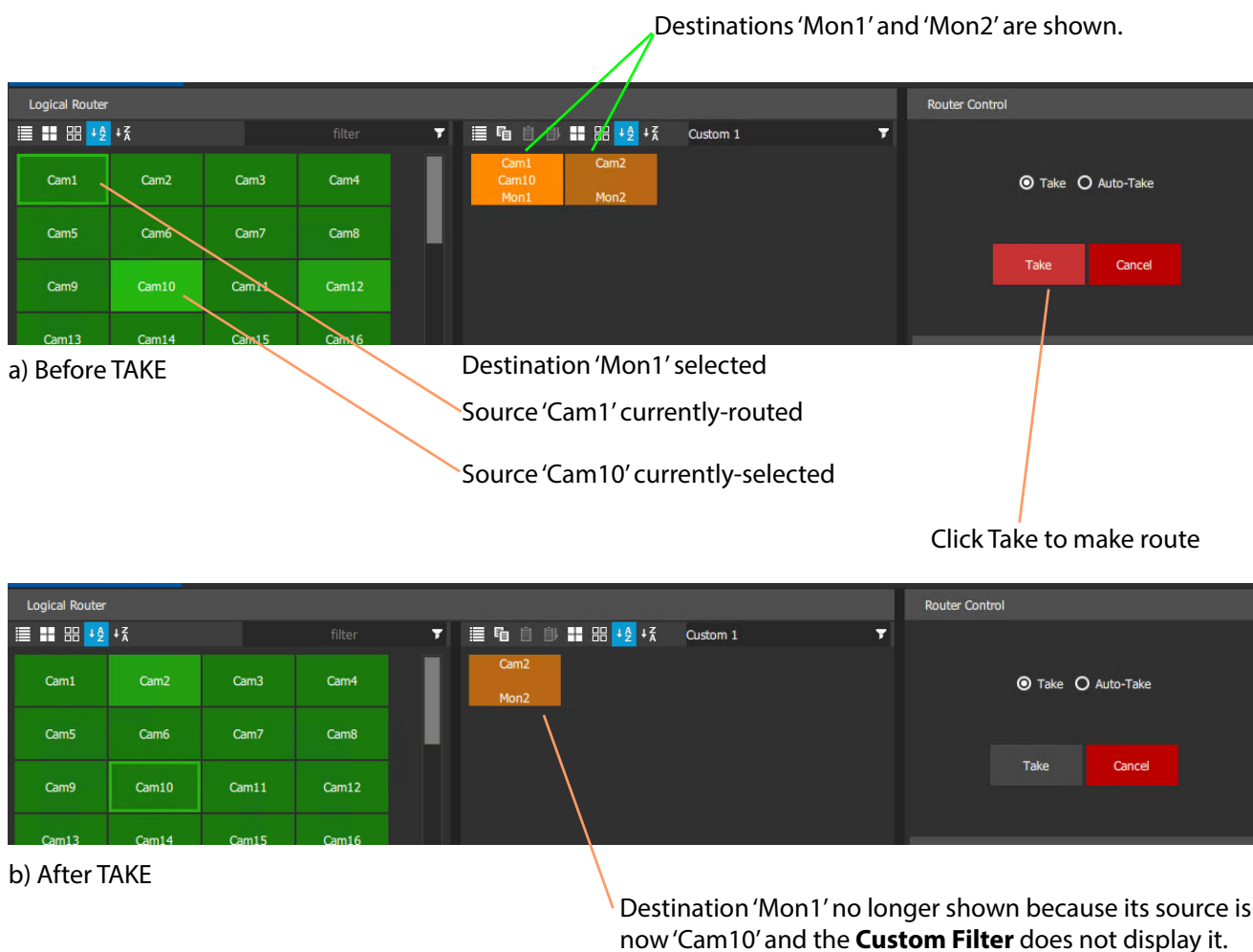


Fig. 2-38: Custom Filter in Action

To clear the filtering,

- 6 Click on the **Destination Grid's** Filter drop-down menu button and select **Clear Filter**. All destinations are now available in the **Destination Grid**.

Salvos

Salvos are created and defined in Grass Valley's GV Convergent product. These are available to the Orbit Bulk Routing Panel through the Orbit Routing service that the Bulk 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 of the Bulk Routing Panel.

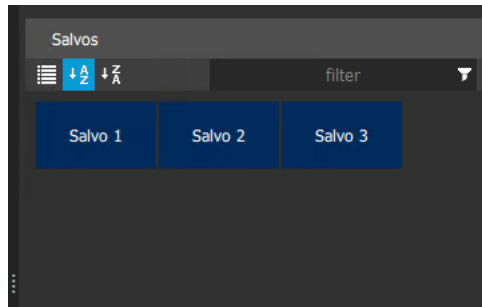


Fig. 2-39: Salvo Pane

To execute a salvo:

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

To execute multiple Salvos:

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

Dial Source

When making a route, after a **Destination** or **Destination Level** is selected first, a **Source** may then be found by typing alpha-numeric keys. As alpha-numeric characters are entered:

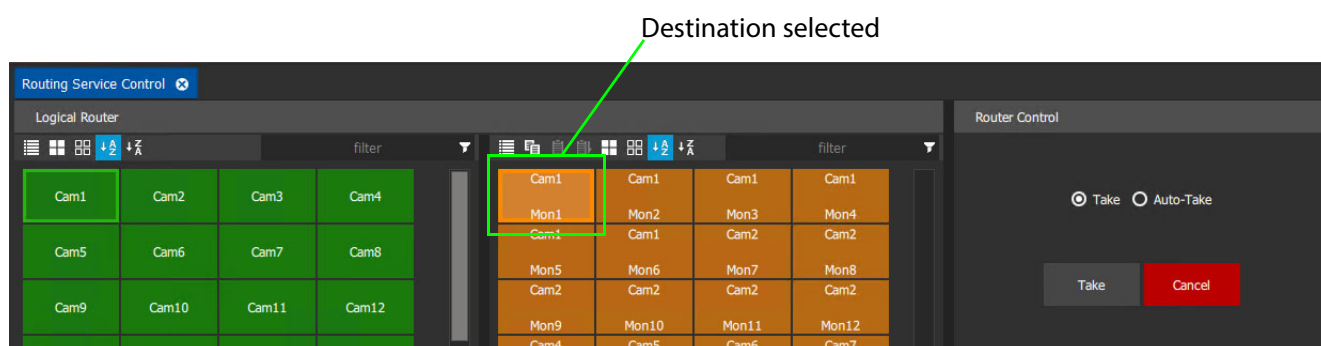
- **Sources** matching the entered characters are displayed in a drop down list; and the
- **Source Grid** is correspondingly filtered.

Make a Route

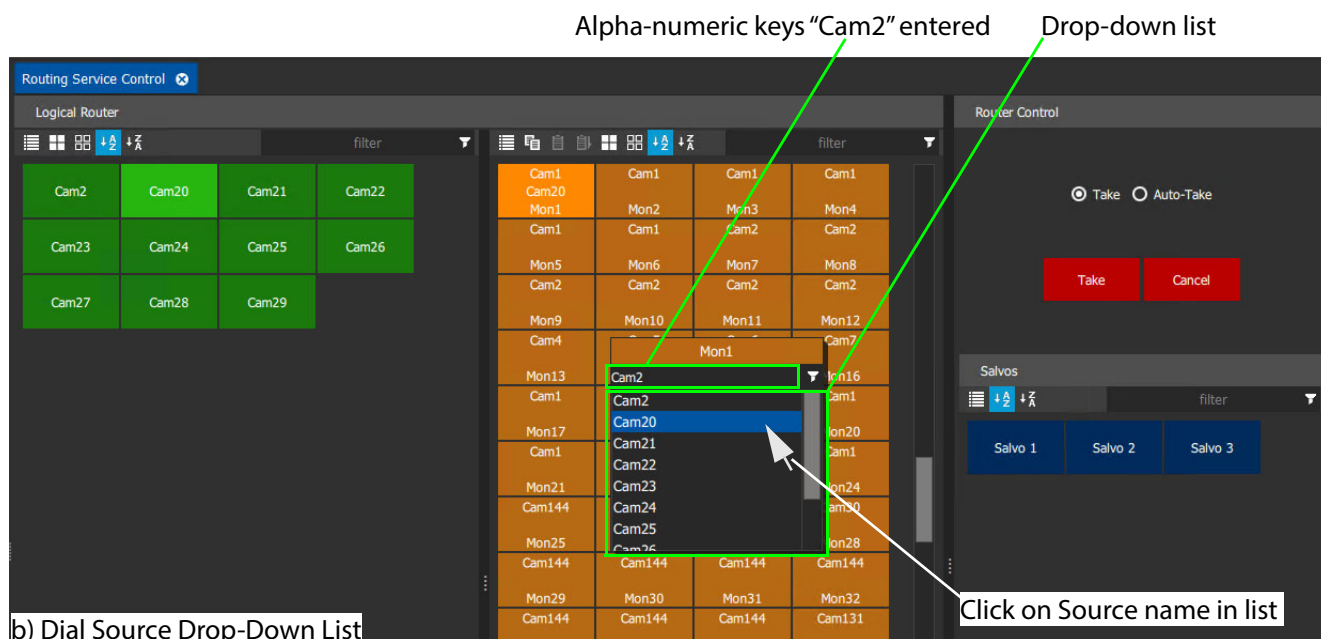
To make a route using the **Dial Source** feature:

- 1 Select a **Destination**. See Figure 2-40a.
- 2 Type alpha-numeric character keys for the start of the required source name (for example, "Cam2"; see Figure 2-40b).

All sources starting with the typed character string are listed in a drop-down list and the **Source Grid** is correspondingly filtered. See Figure 2-40b.



a) Destination Selected



b) Dial Source Drop-Down List

Fig. 2-40: Dial Source: a) Destination Selected. b) Dial Source Drop-Down List.

- 3 Navigate up/down the drop-down list with mouse or with up/down arrow keys to highlight the required **Source**.
- 4 Select the **Source** by either clicking on it or pressing the Return or Enter key. The route is made.

Alternative Route Method

- 1 Select a **Destination**, as before,
and type alpha-numeric character keys for the start of the required source name.
All sources starting with the typed character string are listed in a drop-down list and the **Source Grid** is correspondingly filtered. See Figure 2-41.

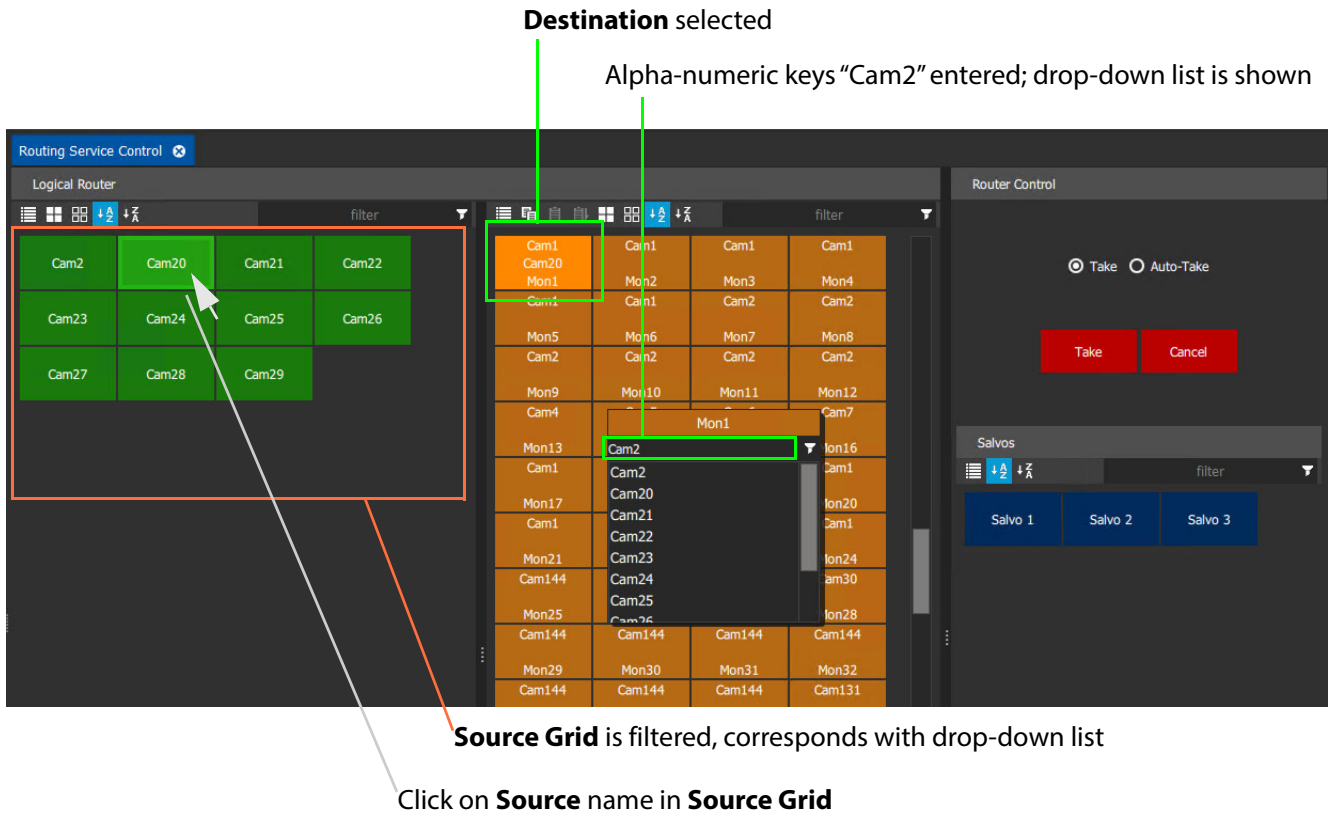


Fig. 2-41: Dial Source - Select in Source Grid

- 2 This time, do not navigate the drop-down list but, instead, locate a **Source** in the **Source Grid**.
- 3 Select a **Source** in the **Source Grid** by clicking on it, or hovering the cursor over the **Source** and pressing the Return or Enter key.
- 4 Click **Take** to make the route.

Dial Source and Level Routing

Make a Route

To route a level using **Dial Source**:

- 1 Select a **Destination**.
- 2 Select a **Destination Level**.
- 3 Type alpha-numeric character keys for the start of the required source name.

A filtered sources drop-down list appears displaying a 'breakaway' icon, because the route about to be made will not apply to all levels and will result in a breakaway.

And the **Source Grid** is correspondingly filtered.

See Figure 2-42.

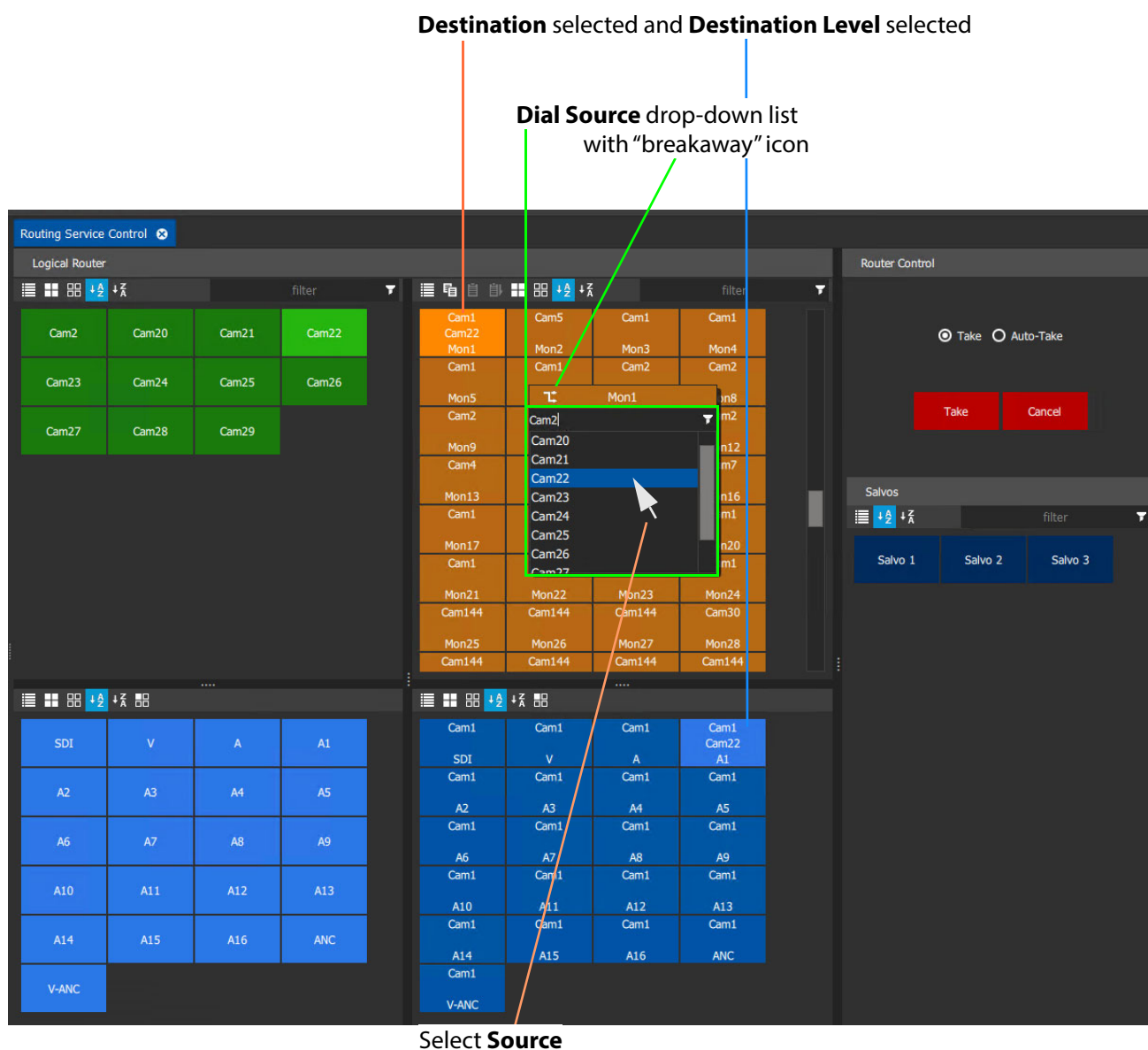


Fig. 2-42: Dial Source Drop-Down List from Destination Levels Grid

- 4 Select a **Source** in the drop-down list.
A route is made, but only on the selected level, and a breakaway is formed. See Figure 2-43.

Destination shows “breakaway” icon

Destination Level A1 routed from **Source Com22**

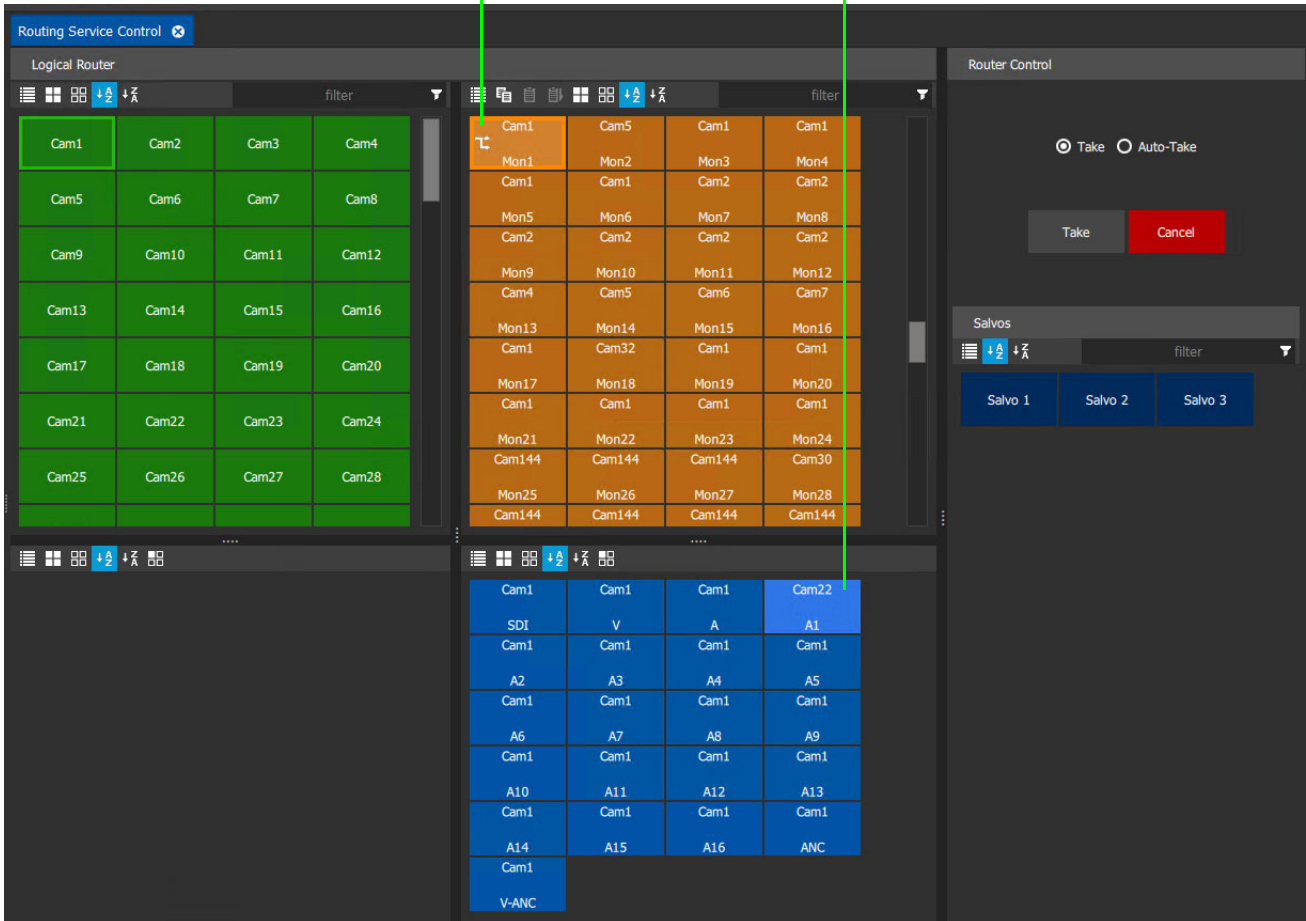


Fig. 2-43: Route Made and Breakaway Formed

Alternative Method

Alternatively, with **Dial Source**, when routing a level, source selection can be made on the **Source Grid**:

- 1 Select a **Destination** and then select a **Destination Level**.
- 2 Type alpha-numeric character keys for the start of the required source name.

A filtered sources drop-down list appears displaying a ‘breakaway’ icon, because the route about to be made will not apply to all levels and will result in a breakaway.

And the **Source Grid** is also correspondingly filtered.

See Figure 2-44.

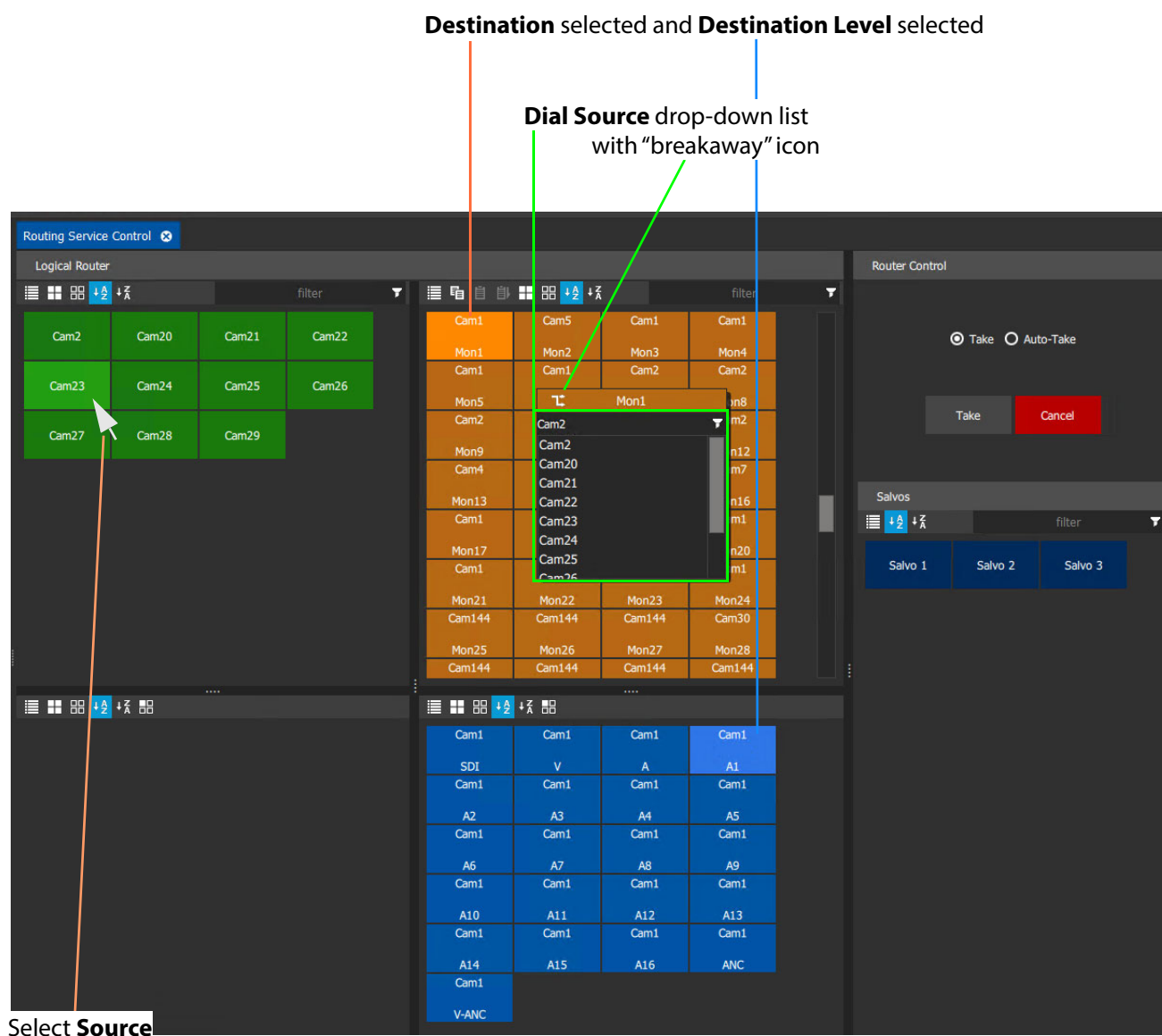


Fig. 2-44: Dial Source Drop-Down List from Destination Levels Grid

- 3 Select a **Source** in the **Source Grid**.
- 4 Select a **Source Level** in the **Source Level Grid**.
See Figure 2-45.

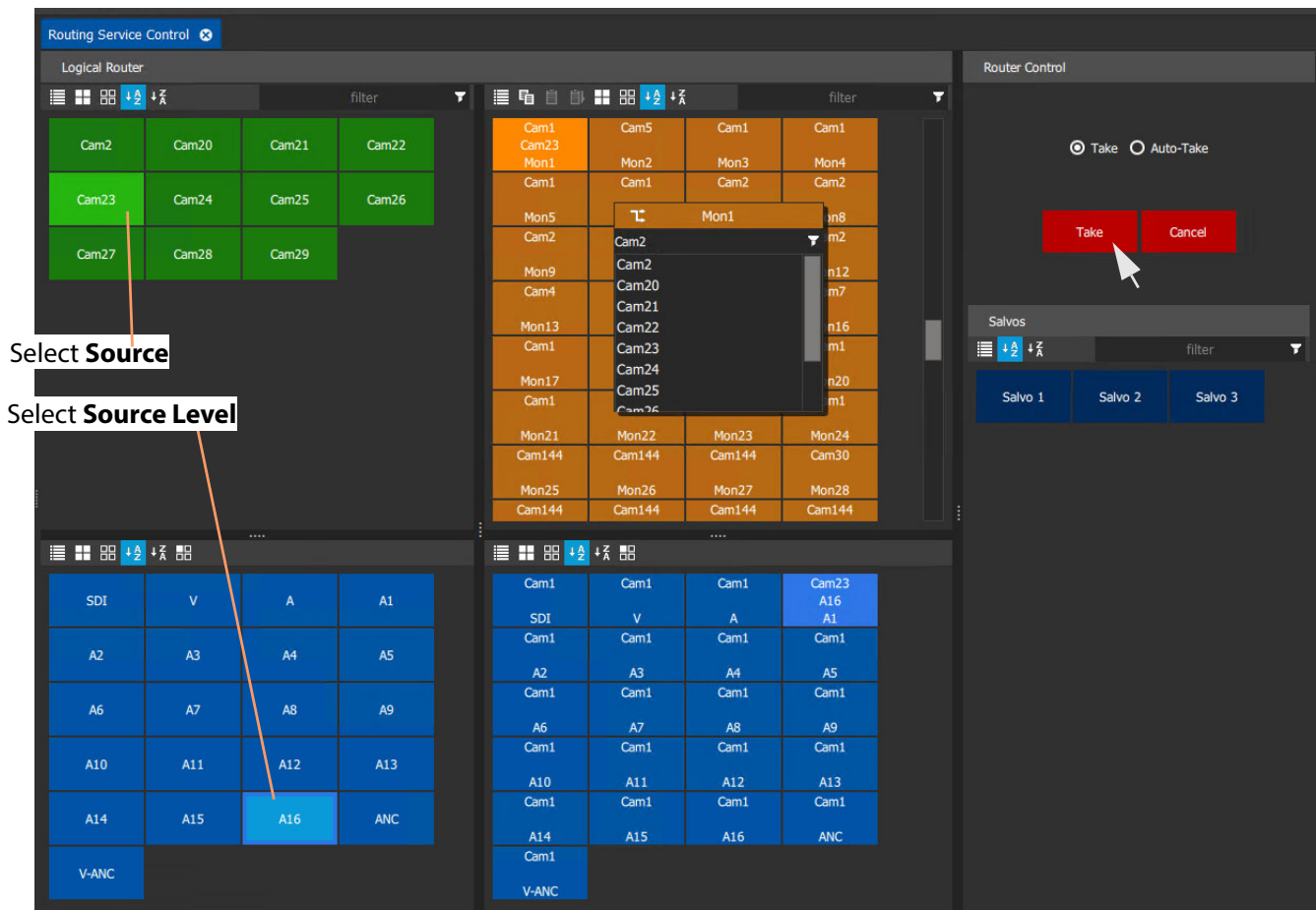


Fig. 2-45: Selected Source and Source Level

5 Click **Take**.

A route is made, but only on the selected level, and a breakaway (and a shuffle) is formed. The resulting **Destination** now displays small “Breakaway” and “Shuffle” icons. See Figure 2-46.

Destination show "Breakaway" and "Shuffle" icons.

Destination Level indicates a routing from a different **Source/Source Level**

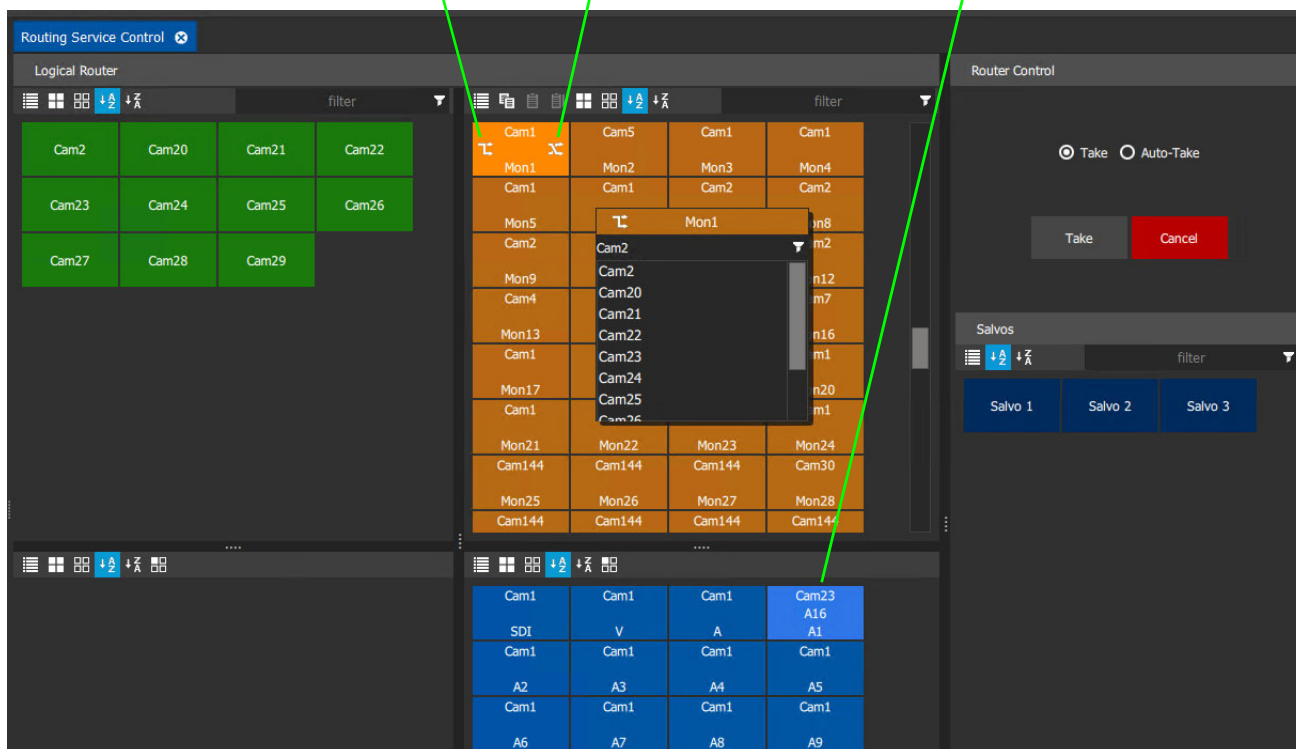


Fig. 2-46: Route Made, Breakaway and Shuffle Formed

Open a Panel from a MapView Screen

The Orbit Bulk Routing Panel may be opened by an operator from an Orbit MapView screen. The panel is opened using 'Load Panel' Routing Orbit Behaviour.

Typically, this Orbit 'Behaviour' would be invoked upon the press of a button on an Orbit MapView screen.

Orbit MapView Project

- 1 Open/create an Orbit MapView project
- 2 In the main menu, set '**Control and Monitoring**' > **Properties** > **RollCall Domain** to a domain with an Orbit Routing Service running.
- 3 In a new MapView screen, add a **Button** widget. See Figure 2-47.

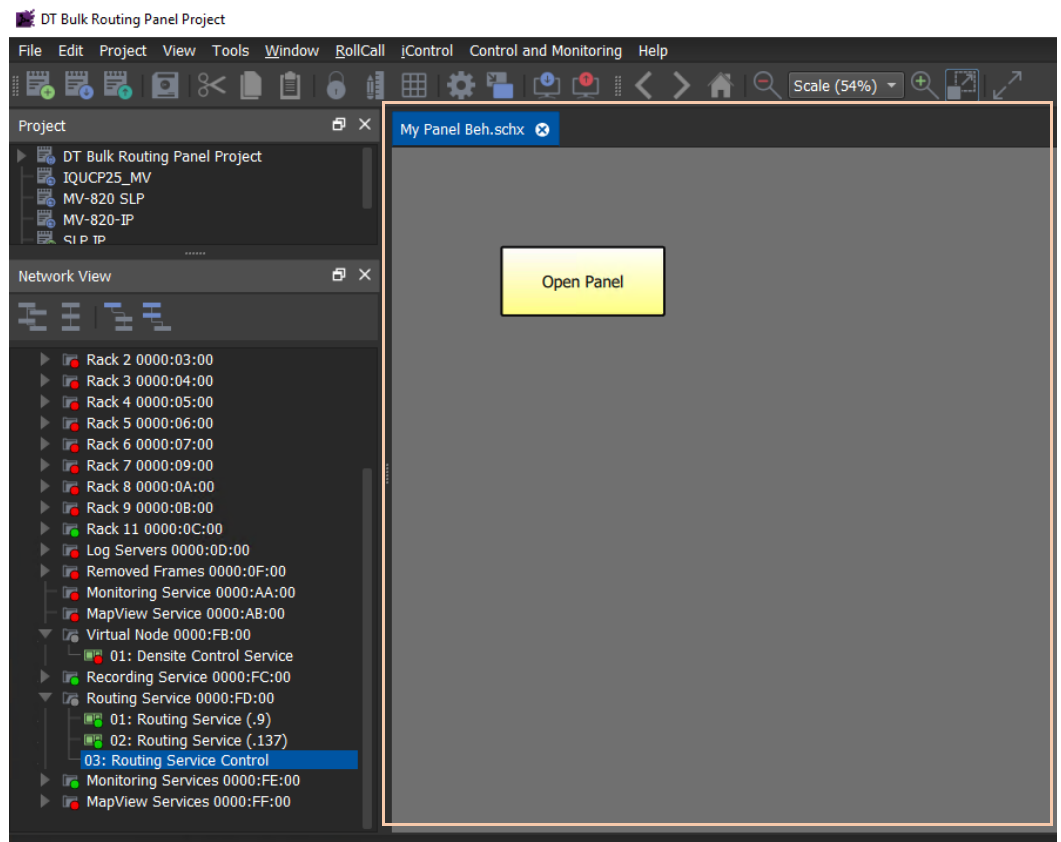
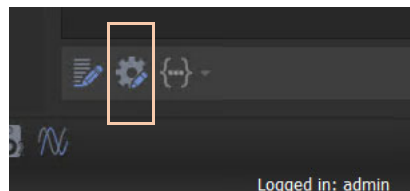


Fig. 2-47: MapView Screen with Button Widget

- 4 Click on the **Edit Behaviours** button.



The Behaviour and Bindings graphical editor is shown. See Figure 2-48.

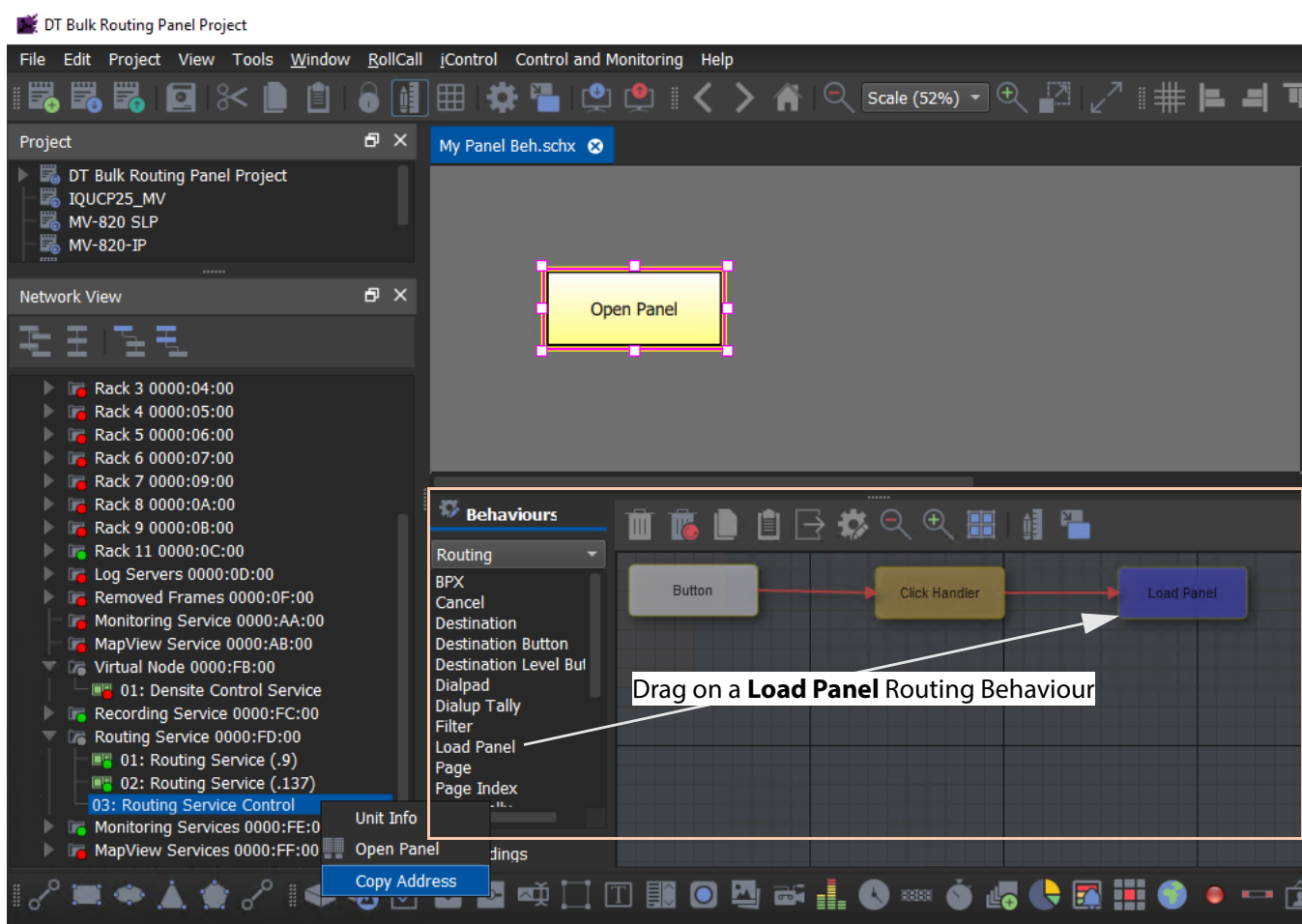
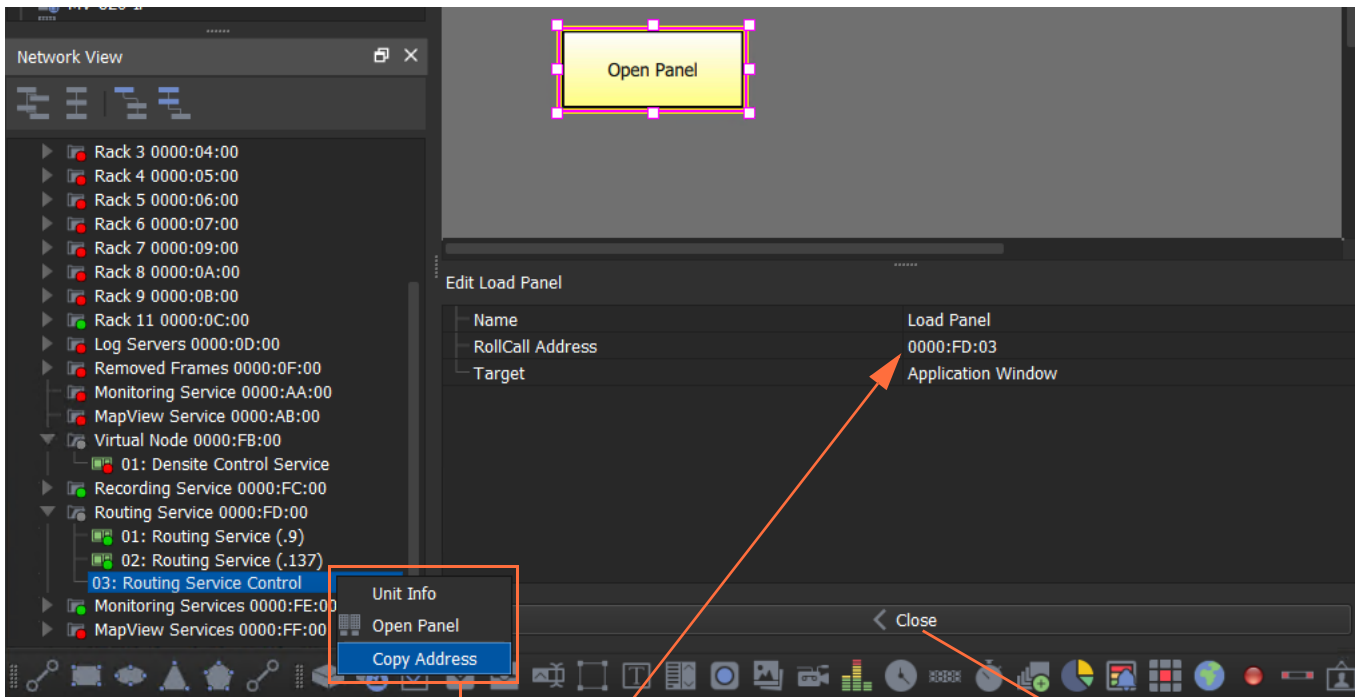


Fig. 2-48: Behaviour and Bindings Graphical Editor

- 5 Select the **Button** widget.
- 6 Add a **Load Panel** Routing Behaviour.
A configured **Click Handler** Binding is automatically placed.
- 7 Double-click on the added **Load Panel** Behaviour.
The Behaviour's configuration screen is shown.
- 8 Right-click on a Routing item in the **Network View** pane and select 'Load panel'.
- 9 Paste the address into the 'RollCall Address' of the **Load Panel** Behaviour.
See Figure 2-49.

Bulk Routing Panel

Open a Panel from a MapView Screen



Right-click on a 'Routing Item' in the **Network View** pane and select 'Copy Address'.

Paste address into the Behaviour's 'RollCall Address' item

Click Close.

Fig. 2-49: Setting Load Panel Behaviour's RollCall Address

- 10 Click **Close**.
- 11 Click **Save File**.
- 12 Click **Save Project**.

Exercise the Screen

- 1 Click the **Design/Run Mode** button to enter run mode to exercise the screen.
See Figure 2-51.

Click **Save File**.

Click **Design/Run Mode** to enter Run mode.

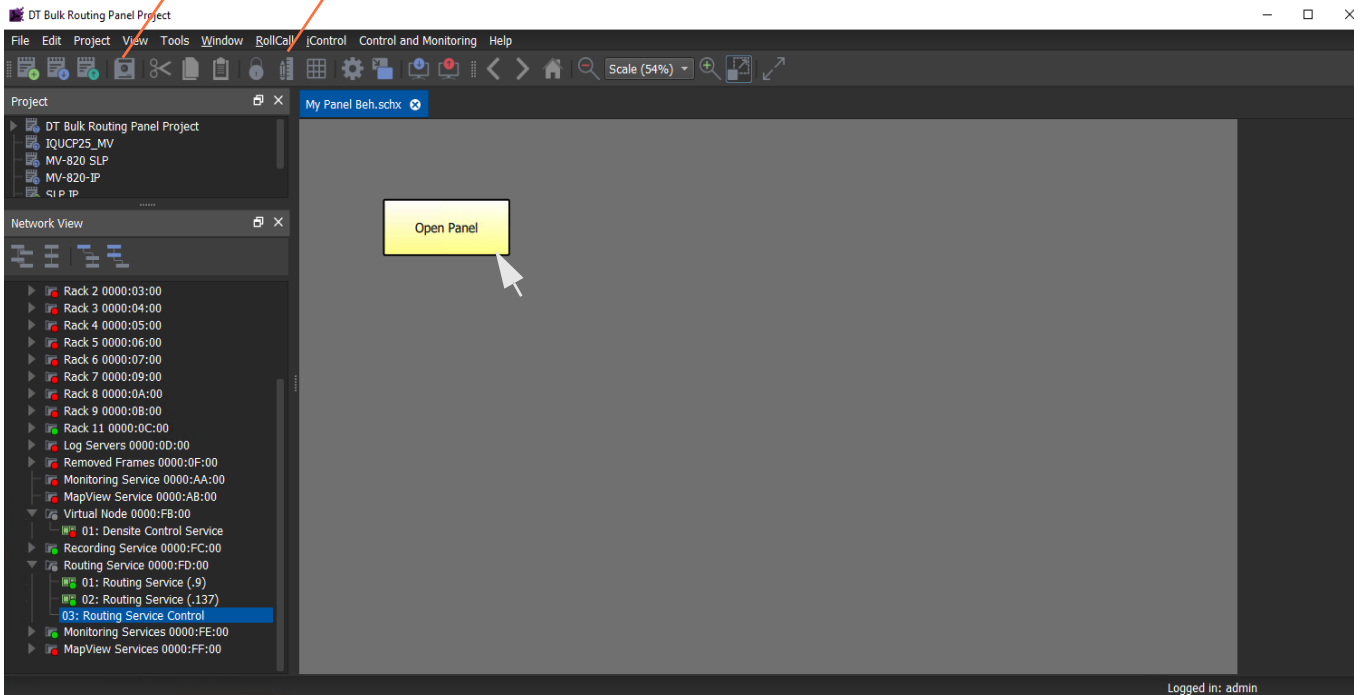


Fig. 2-50: Run Mode

- 2 Click on the **Button** widget to open a new tab containing an Orbit Bulk Routing Panel. See Figure 2-51.

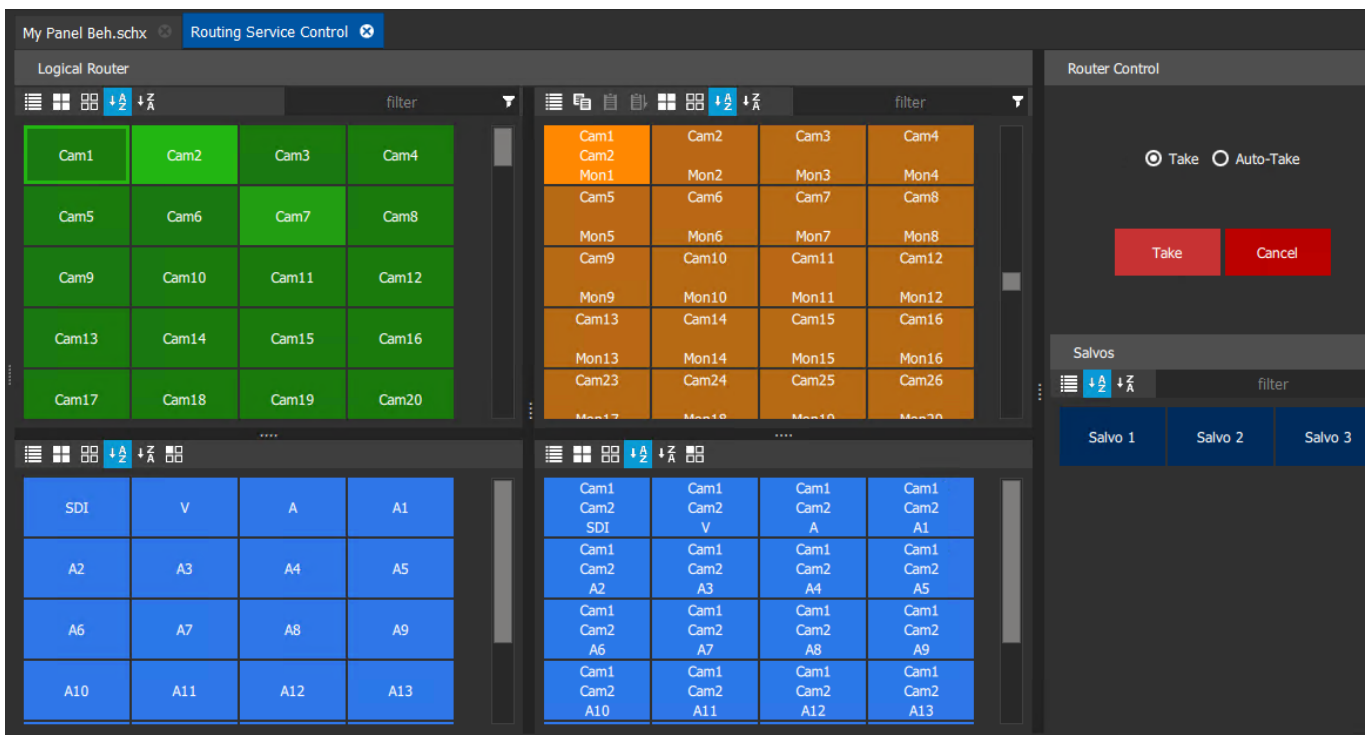


Fig. 2-51: Panel Loaded

3

XY Routing Panel

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Create a New XY Panel

One or more Orbit XY Routing Panels can be created in an Orbit MapView project.

New File

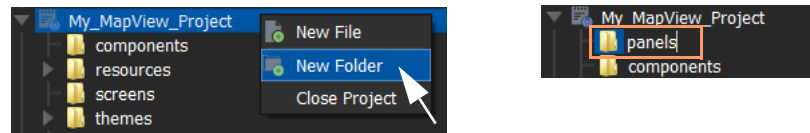
To create such an XY panel directly:

- 1 Open an Orbit MapView project in the Orbit client application.
- 2 Expand the project name item in the **Project View** and look for a 'panels' folder item.

Note: If there is no 'panels' folder item, then to create an empty 'panels' folder:

- right-click on the project name item;
- select 'New Folder';
- and enter 'panels' as the folder name;
- click OK.

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



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.

- 3 Right-click on the project name item in the **Project View** and select 'New File'.

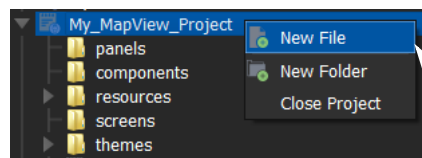


Fig. 3-1: Select 'New File'

The **New File** dialog is shown. See Figure 3-2.

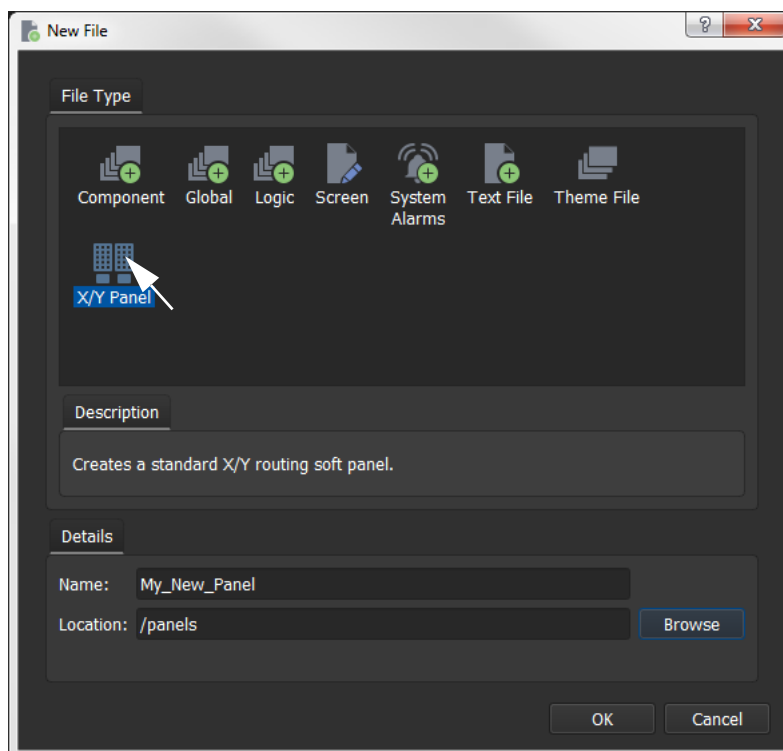


Fig. 3-2: New File Dialog

- 4 Select File Type 'X/Y Panel' in the **New File** dialog.
- 5 Enter a name for the new XY panel in the **New File** dialog.
- 6 Click **Browse**, select the 'panels' folder, and click **OK**.
- 7 Click **OK**.

A new panel item is added into the folder and a new generic XY Panel is shown. Figure 3-3 shows an example with Orbit shown in 'Run Mode' (not 'Design Mode').

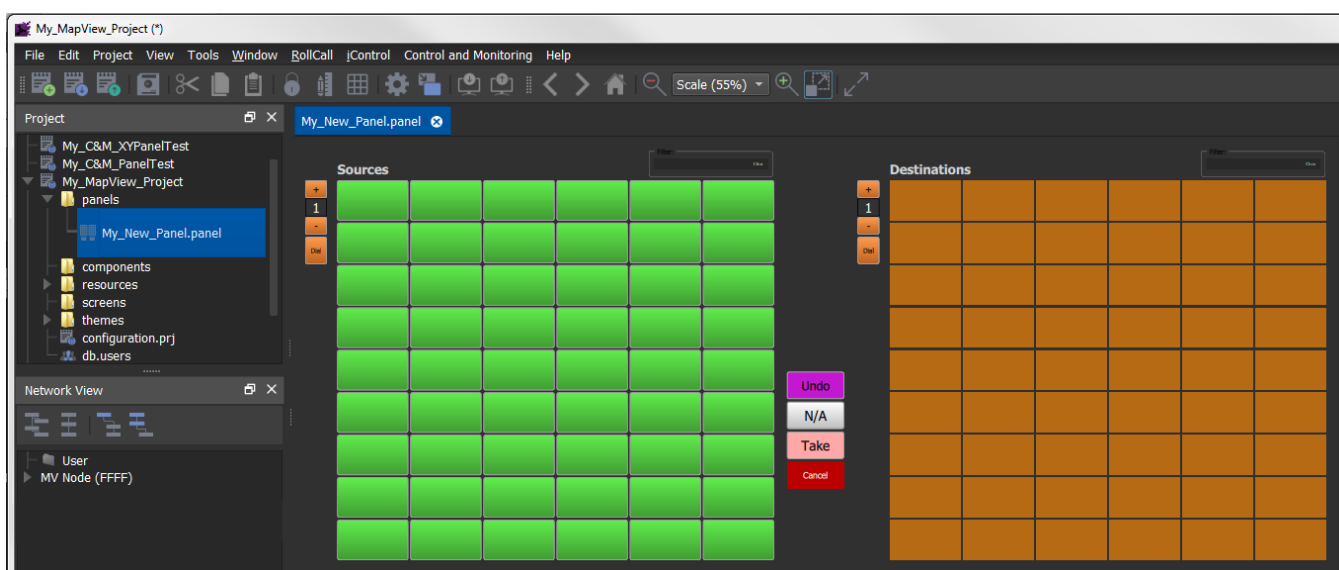


Fig. 3-3: New Generic XY Routing Panel

- 8 Click **Save File**. Click **Save Project**.
- This has created a default new XY Panel.

New Panel

To create such an XY panel:

- 1 Open an Orbit MapView project in the Orbit client application.
- 2 Expand the project name item in the **Project View** and look for a 'panels' folder item.
- 3 Right-click on the 'panels' folder item in the **Project View** pane and select 'New Panel'. See Figure 3-4. And click **OK**.

Project View pane

Right-click and select 'New Panel'.

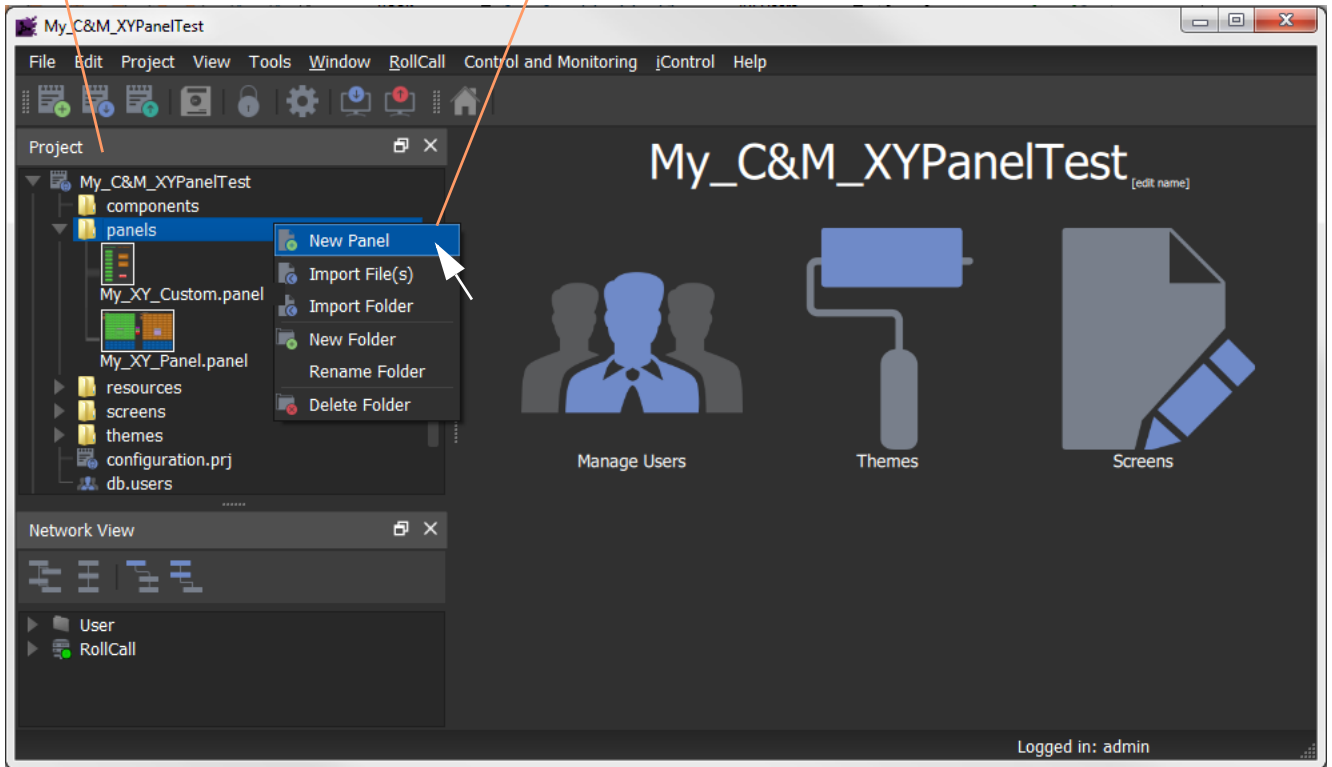


Fig. 3-4: Create a New Orbit XY Routing Panel

- 4 Enter a name for the new XY Panel in the **New X/Y Panel** dialog. See Figure 3-5.

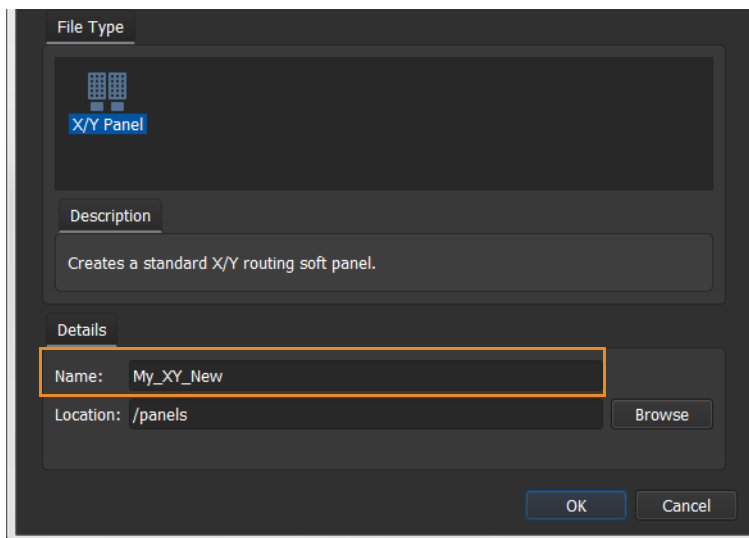
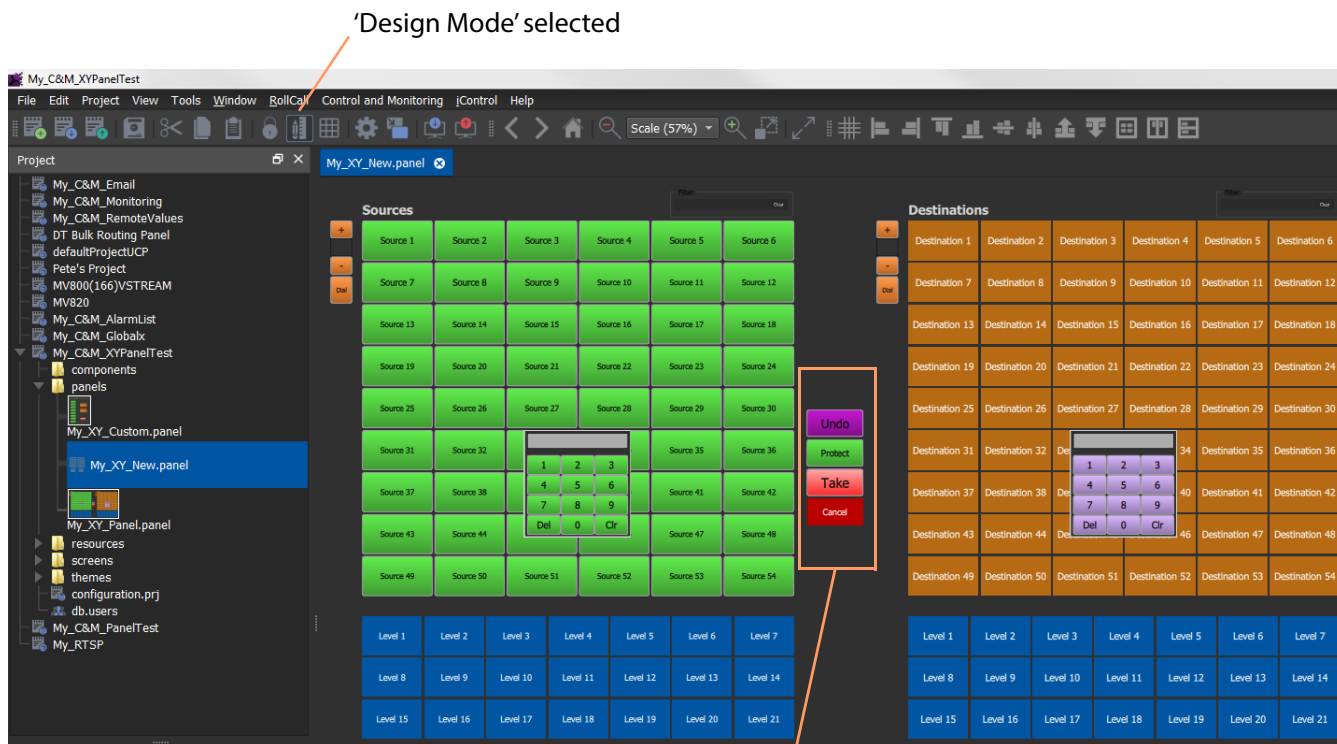


Fig. 3-5: New X/Y Panel Dialog

And click **OK**.

A new panel item is then added into the folder and a new generic XY Panel is shown. Figure 3-6 shows an example with Orbit shown in 'Design Mode' (not 'Run Mode').



Note: Routing Control buttons can be shown/hidden with the XY Wizard tool. (See [XY Wizard](#), on page 56.)

Fig. 3-6: New Generic XY Routing Panel

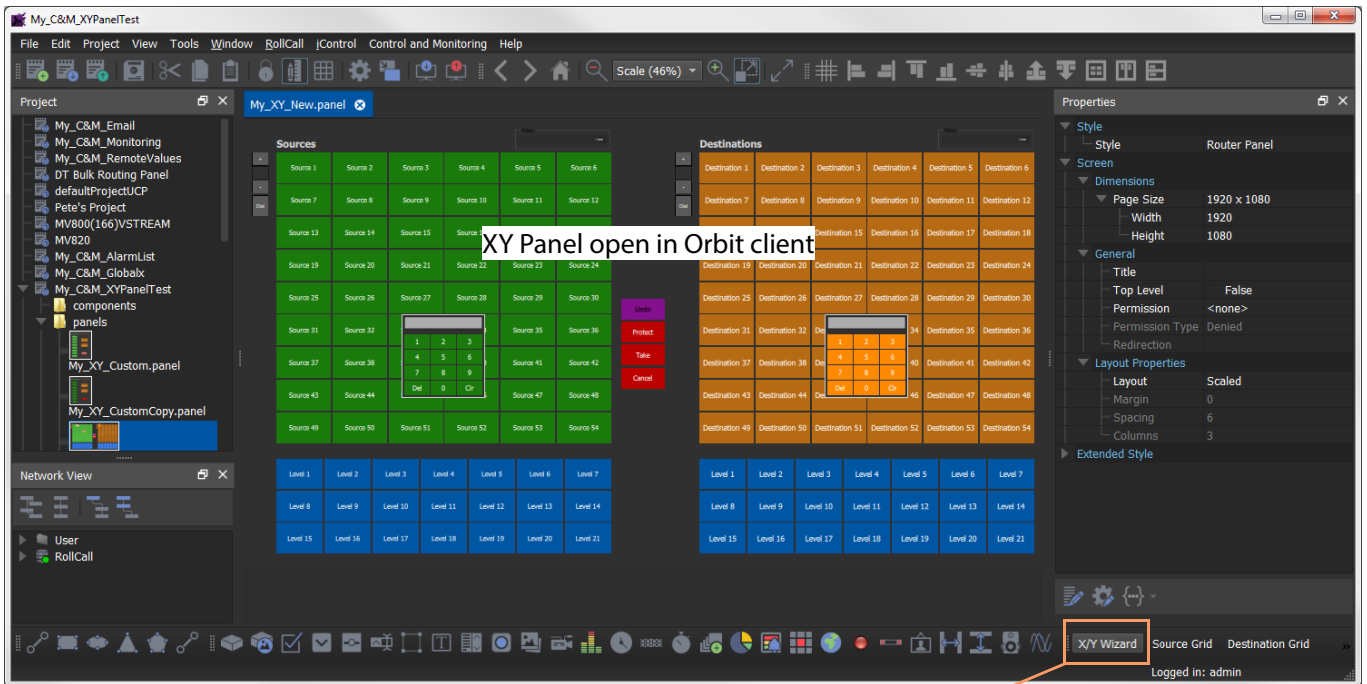
5 Click **Save File**. Click **Save Project**.
This has created a default new XY Panel.

XY Wizard

When an XY Panel is open in Orbit client (in 'Design Mode'), the panel is editable. Customizing may be done with a wizard, the **XY Wizard**. The panel size, the number of and arrangement of Sources/Destinations can be set, and other controls can be enabled/disabled.

To open the **XY Wizard**:

- 1 Click **XY Wizard** in the lower tool bar of the Orbit client window. See Figure 3-7.
The **XY Wizard** dialog is shown in Figure 3-8.



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

Fig. 3-7: XY Wizard Button

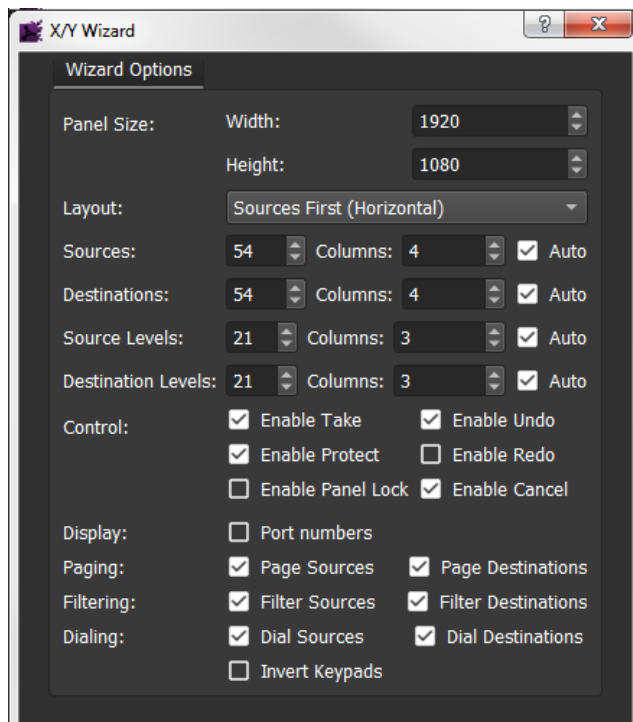


Fig. 3-8: XY Wizard Dialog

- 2 Change all the XY panel settings required.
(See Table 3-1 for descriptions of each **XY Wizard** setting.)
The panel appearance changes in response to the settings changes as they are made.
- 3 Close the **XY Wizard** dialog.
The XY panel reflects the new settings, still in Orbit client 'Design Mode'.
- 4 Click **Save File**.

The modified XY Panel has been saved.

Table 3-1: XY Wizard Dialog Settings

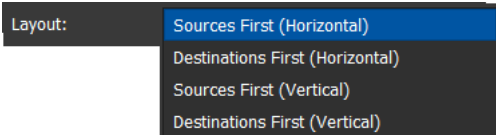
Item	Description
Panel Size: Width Height	Sets the overall size of the XY Panel (in pixels). Normally, set this to be the size of the monitor used to display the panel. Text box. Enter the panel screen width (pixels). Default = 1920. Text box. Enter the panel screen height (lines). Default = 1080.
Layout	Select the left-right/top-bottom layout arrangement of the Source/Source-level and Destination/Destination-level grids: 
Sources Destinations Source Levels Destination Levels Columns Auto	Text boxes. Select the number of items to control. Text box. Select the number of item columns to display with. Check box. Select to automatically arrange the items in columns.
Control: Enable Take Enable Undo Enable Protect Enable Redo	Enable various 'Routing Control' controls. Check box. Select to enable a Take button. Check box. (For router controller connections supporting the SW-P-08 protocol.) Select to enable an Undo button. Check box. (For router controller connections supporting the SW-P-08 protocol.) Select to enable a Protect button. Check box. (For router controller connections supporting the SW-P-08 protocol.) Select to enable a Redo button.

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

Item	Description
Enable Panel Lock	Check box. Select to enable a Panel Lock button.
Enable Cancel	Check box. Select to enable a Cancel button.
Display: Port Numbers	Check box. Select to show router port numbers on the Source/Destination selection buttons.
Paging: Page Sources Page Destinations	Check box. Select to show Sources in pages with paging controls. Check box. Select to show Destinations in pages with paging controls.
Filtering: Filter Sources Filter Destinations	Check box. Select to show Sources filter control. Check box. Select to show Destinations filter control.
Dialing: Dial Sources Dial Destinations Invert Keypads	Selection of a Source or a Destination via the router port number. (Only for router controller connections with SW-P-08 protocol.) Check box. Select to show Sources dial controls. Check box. Select to show Destinations dial controls. Check box. Select to show Dial numeric keypads with 7,8,9 on top row. Deselect to show 1,2,3 on top row.

Source and Destination Selection Buttons

The source/destination selection and source/destination level selection buttons are annotated to reflect the source/destination name or level name etc. Additionally, the destination buttons may show the currently-routed source and currently-selected source for the selected destination. Buttons can also show router port numbers. See Figure 3-10.

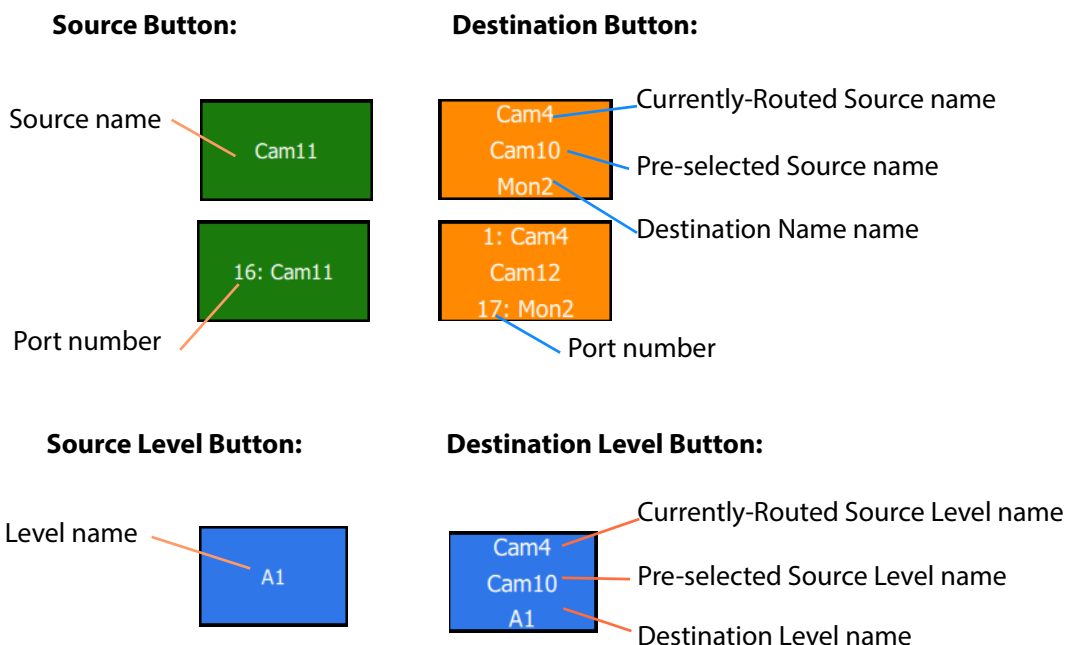


Fig. 3-10: XY Panel Buttons

Routing Control

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

- **Undo** button.
Click to undo the last route that has been made by the XY panel.
(**Note:** Only applicable to router controllers using the SW-P-08 protocol.)
- **Redo** button.
Click to re-do the last route that has been made by the XY panel.
(**Note:** Only applicable to router controllers using the SW-P-08 protocol.)
- **Protect** button.
Click to protect a selected Destination from being routed to (or click to unprotect).
Button is not active when no Destinations are selected.
(**Note:** Only applicable to router controllers using the SW-P-08 protocol.)
- **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.

Other 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.

Level Selection

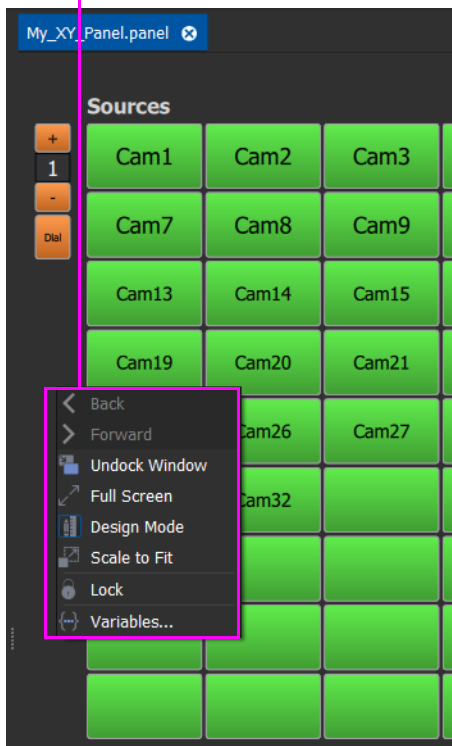
When a source or a destination is selected, the associated levels are shown in the corresponding 'Levels Grid' panel. If multiple sources or destinations are selected, then only their *common* levels are shown.

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

Right-Click Menus

Right-click on background of a Orbit XY Routing Panel to show a drop-down context menu. See Figure 3-11.

a) Right-Click drop-down menu in 'Run Mode'



b) Right-Click drop-down menu in 'Design'

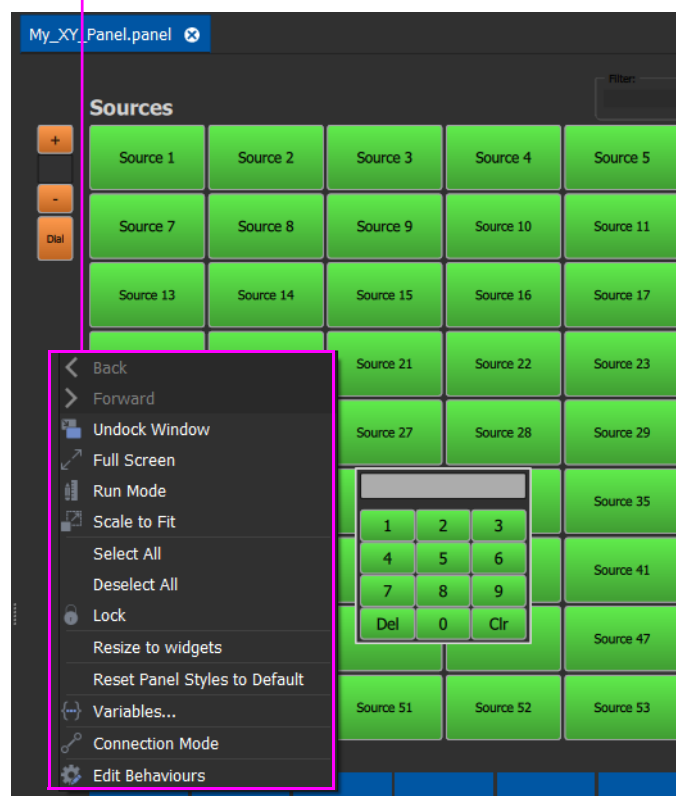
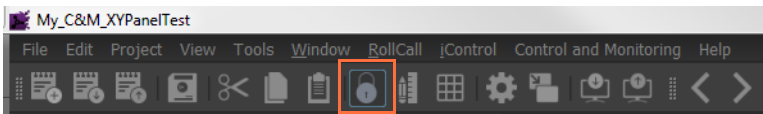
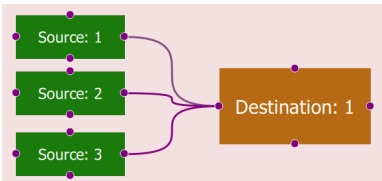


Fig. 3-11: XY Panel Background Right-Click Menu

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

Item	Description
Undock Window	<p>Undock the Orbit XY Routing Panel window from the Orbit Client window.</p> <p>When undocked, right-click > Dock Window will re-dock the Bulk Routing panel.</p>
Full Screen	<p>The Orbit XY Routing Panel window is shown full-screen.</p> <p>When full-screen, right-click > Exit Full Screen.</p>
Design Mode	<p>Click to enter Orbit 'Run Mode'.</p>
Run Mode	<p>Click to enter Orbit 'Design Mode'.</p>
Scale to Fit	<p>Click to fit the panel to the window.</p>
Select All	<p>Selects all items. (Only available in 'Design Mode')</p>
Deselect All	<p>Deselects all items. (Only available in 'Design Mode')</p>
Lock	<p>Click to the lock panel. When the panel is locked, user operation is disabled.</p> <p>When locked, 'right-click > Unlock' to unlock the panel.</p> <p>Note: Clicking the 'Lock' icon in the Orbit Client main tool bar toggles panel lock.</p> 
Resize to Widgets	<p>(Only available in 'Design Mode')</p> <p>Click to resize the XY panel background to fit to its constituent widgets.</p>
Reset Panel Styles to Default	<p>(Only available in 'Design Mode')</p> <p>Click to set widget styles all to 'default'.</p>
Variables...	<p>Click to show the Variables dialog.</p> <p>Note: Dialog is not editable in 'Run Mode'.</p>
Connection Mode	<p>(Only shown when in 'Design Mode')</p> <p>Note: This item is a generic widget feature, not routing-specific.</p> <p>Widget feature:</p> <p>When designing MapView 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	<p>(Only available in 'Design Mode')</p> <p>Click to toggle showing the Behaviours and Bindings graphical editor.</p>

Connect XY Panel to a Routing Service

An Orbit XY Routing Panel is part of an Orbit MapView project and has a built-in variable to hold the RollCall address of the Orbit Routing Service it must connect to.

A Routing Service must be configured with a RollCall address and a RollCall domain, and be running. The Routing Service is then visible in the **Network View** pane of the Orbit client and uses its RollCall 'Control Address', see Figure 3-12.

Note: The RollCall domain of the Orbit MapView project and the RollCall domain of the Routing Service must be the same.

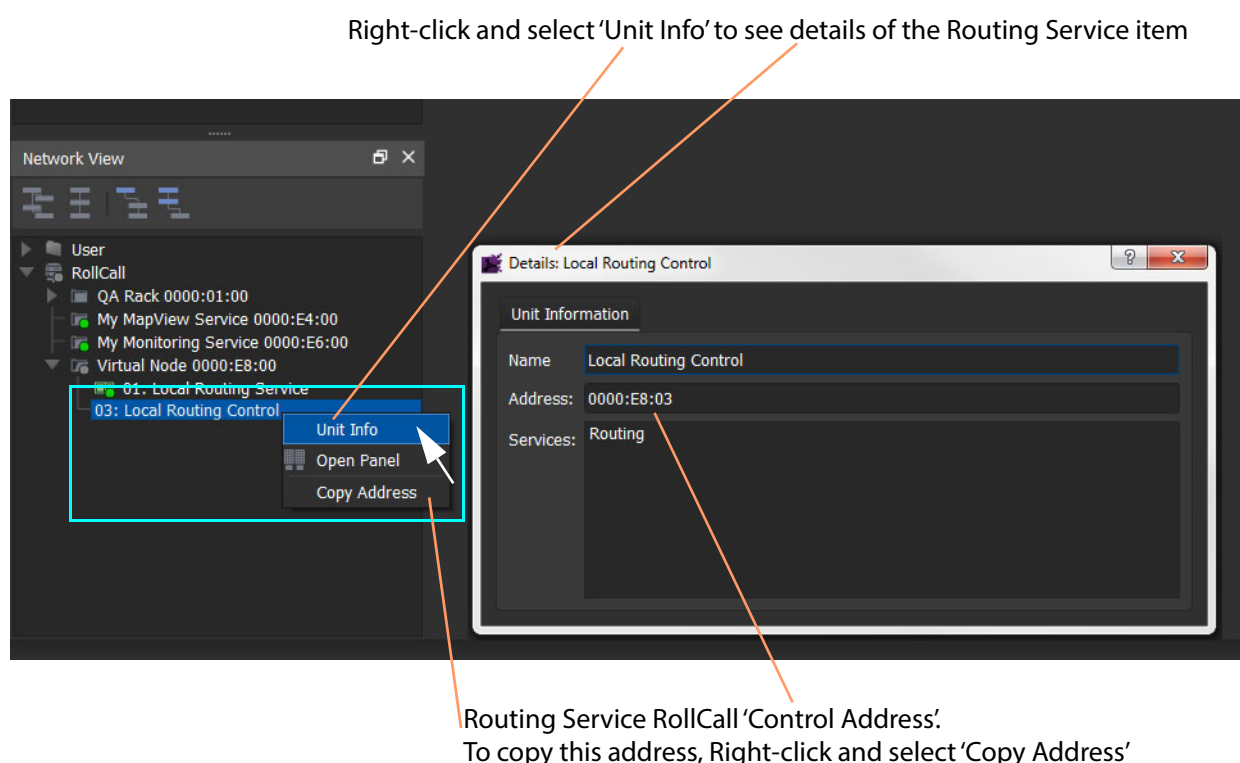


Fig. 3-12: Routing Service in Network View Pane

Note: Routing Service configuration web page
(http://<Server_IP_Address>:8080/routingnode/):

For an XY Panel, use:

- 'Control Address' setting for the RollCall address for the XY panel to connect to.
 - 'Client Domain' setting for the RollCall domain for the Orbit XY Panel MapView project to connect to.
-

To Set RollCall Domain:

- 1 Set the RollCall domain used by the XY Panel's MapView project to be the same as that being used by the Orbit Routing Service.

Note: For a MapView project's RollCall domain:
see the Orbit client application main menu item:
'Control and Monitoring' > Properties

To Set 'Address' Variable in XY Panel:

The XY Panel 'Address' variable must be set to be the RollCall 'Control Address' of the target Routing Service:

- 2 Right-click on the XY Panel background and select 'Variables...'. See Figure 3-13.

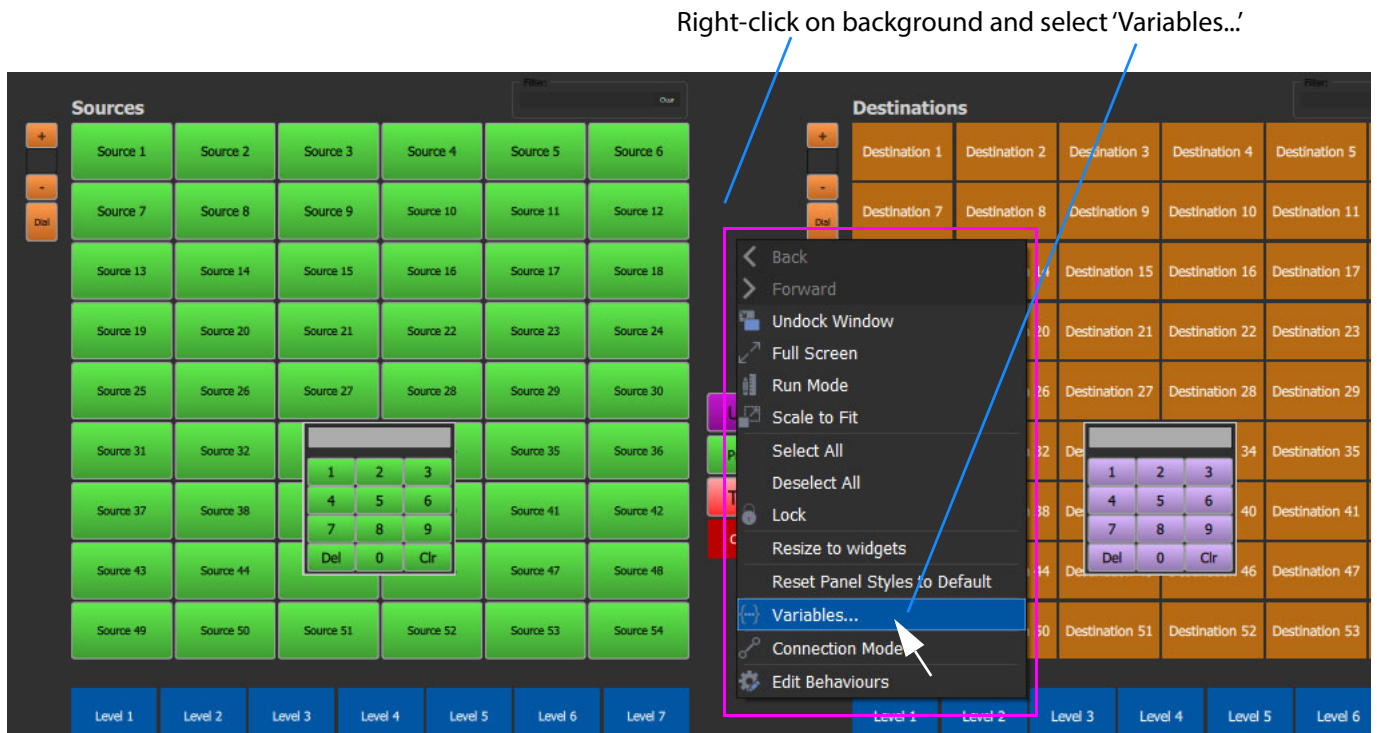


Fig. 3-13: Select 'Variables...'

The Variables dialog is shown.

- 3 In the **Orbit client Network View** pane, right-click on the Routing Service item, and select 'Copy Address'. (See Figure 3-14.)

This copies the RollCall address ('Control Address') of the service into your copy buffer.

Note: The Routing Service RollCall address to use is the 'Control Address' shown on the Routing Service configuration web page.
(At http://<Server_IP_Address>:8080/routingnode/)

- 4 In the Variables dialog, paste in the copied RollCall address into the value of the XY Panel 'Address' variable. See Figure 3-14. (Alternatively, simply enter the address manually.)

Right-click and select 'Copy Address' to copy the Routing Service's RollCall address

Paste copied address into 'Value' field

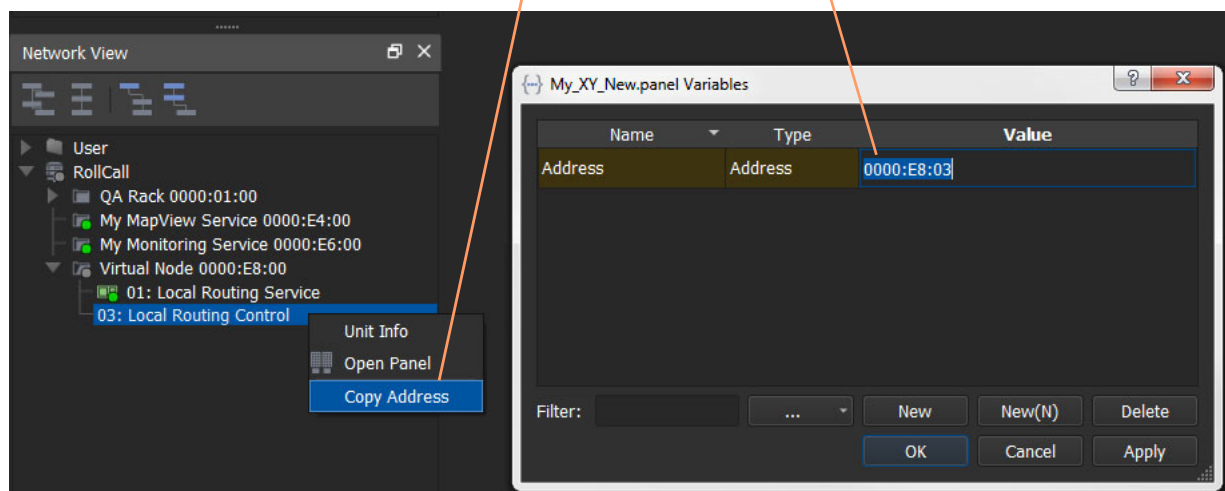


Fig. 3-14: Setting Routing Service RollCall Address for XY Panel

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

This has pointed the XY Panel at the Routing Service.

Run an XY Panel

When a panel runs, it connects to the Routing Service and collects Source and Destination names etc. and populates the panel buttons with names and router port numbers.

To run an XY panel:

- 1 Open the panel in Orbit and place Orbit into 'Run Mode'.

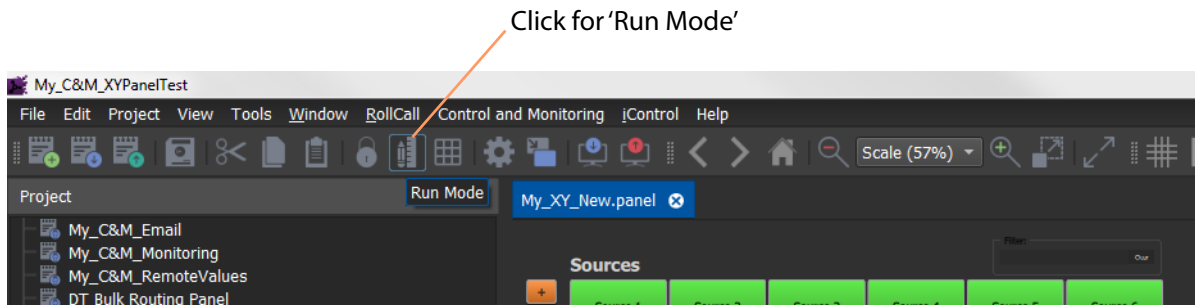
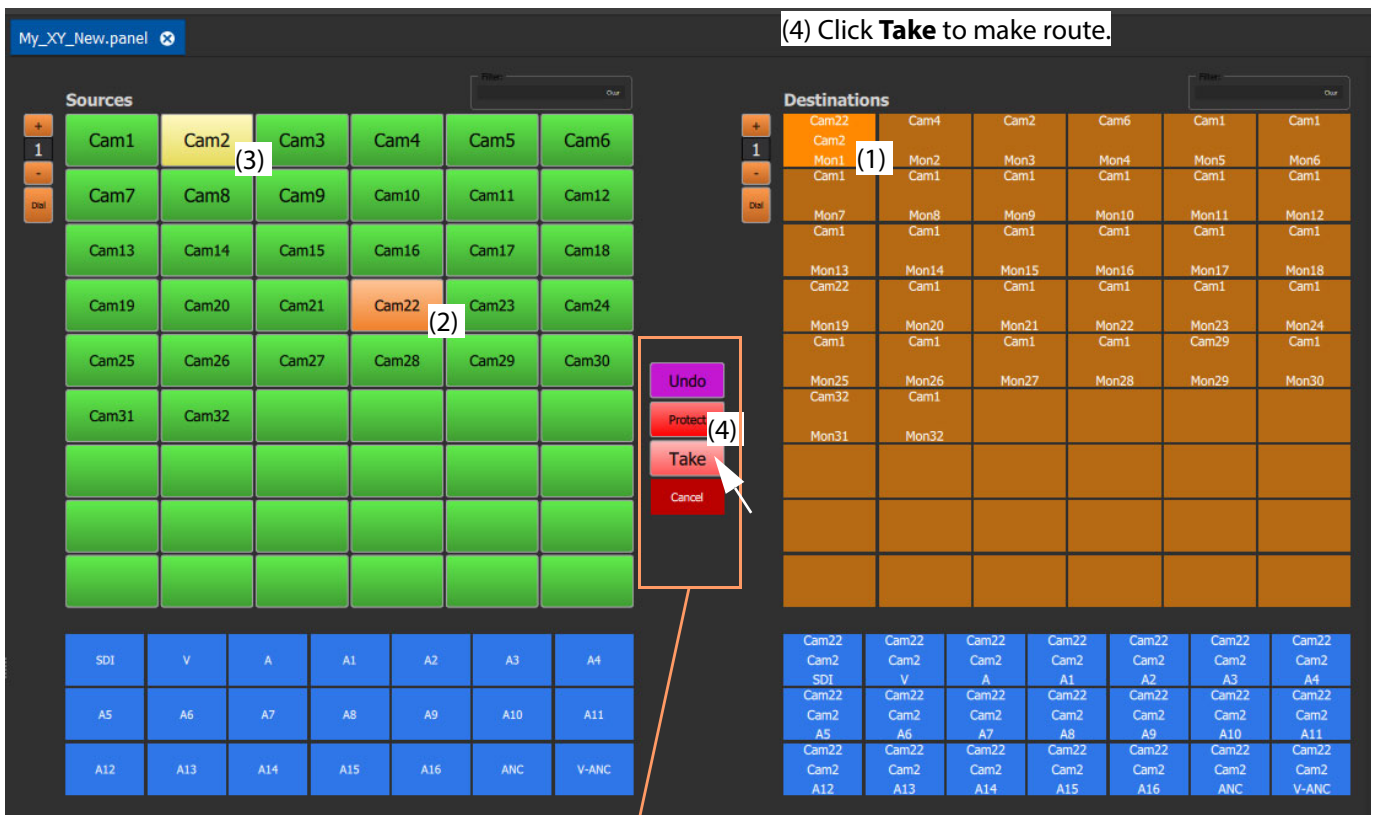


Fig. 3-15: Click for Run Mode

The XY Panel connects to the Routing service and gets source and Destination names etc. See Figure 3-16.

- (1) Destination selected.
- (2) Current Source shown.
- (3) New Source pre-selected.
- (4) Click **Take** to make route.



Note: Routing Control buttons can be shown/hidden with the XY Wizard tool. (See [XY Wizard](#), on page 56.)

Fig. 3-16: Running XY Panel Example

Custom Panel Examples

An XY Panel may be modified using the XY Wizard (see [XY Wizard](#), on page 56) or a panel can be customized by:

- editing the panel screen in a similar way to a MapView screen (see [Editing In MapView Project](#), on page 67); and/or
- generating a panel screen for a MapView project (see [Custom XY Panel Example](#), on page 68).

Editing In MapView Project

An XY Panel may be edited in the Orbit client application and other widgets may be added. Editing is done in a similar way to MapView screens. Buttons may be moved. Widgets can be added (Labels, Tally Lamps), colors changed (background colors), widget style themes etc. In this way, an XY Panel can be customized as required.

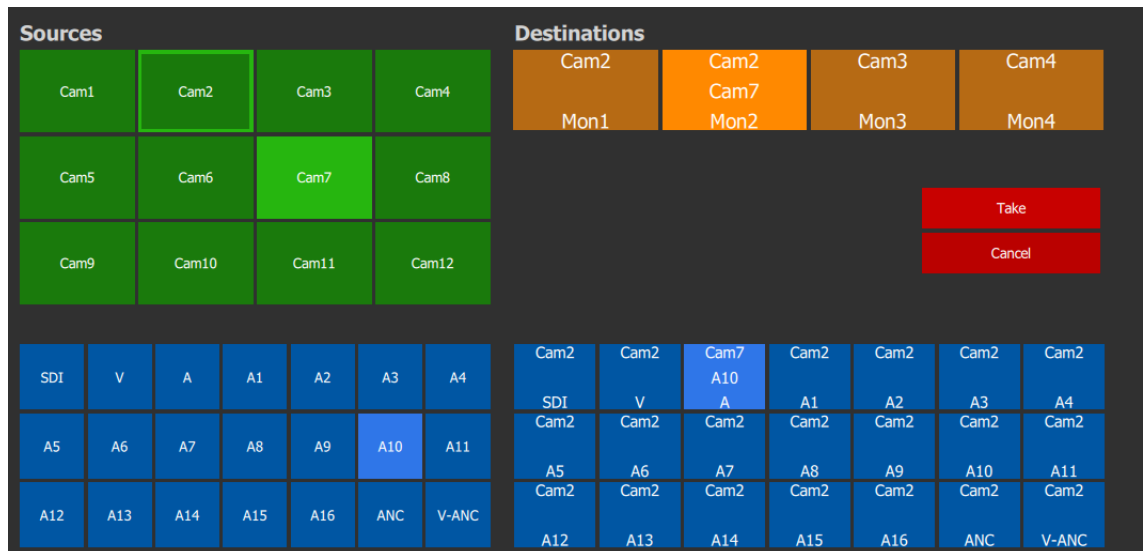


Fig. 3-17: Edited XY Panel Example

Custom XY Panel Example

A custom **XY Panel** can be created in Orbit client in as part of a MapView project. A custom panel can be made smaller and more suited to be embedded *into* a MapView screen. An example small panel is given in Figure 3-18 and the steps to generate it are below.



Fig. 3-18: Custom XY Panel Example

Step1: New Empty XY Panel

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

- 1 Open an Orbit MapView project in the Orbit client application.
- 2 Right-click on the 'panels' folder item in the **Project View** pane and select 'New Panel'.

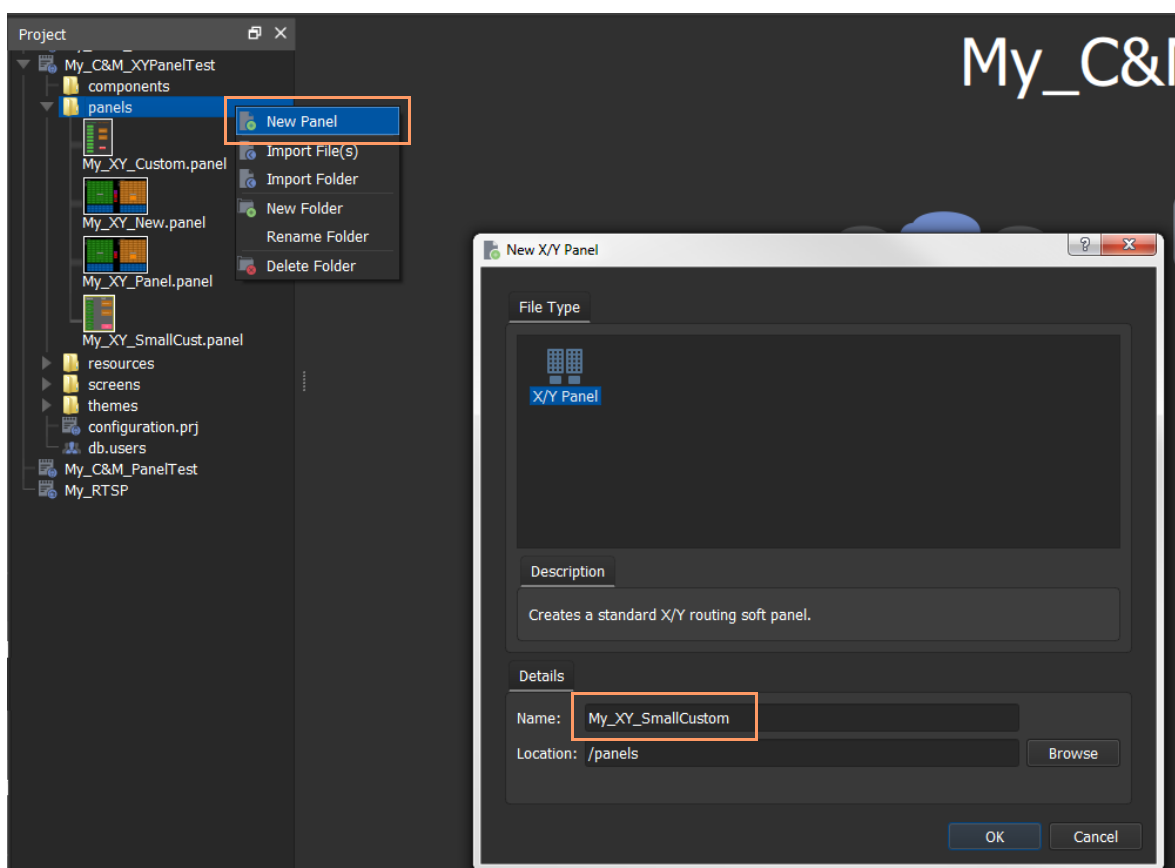


Fig. 3-19: Create New XY Panel

- 3 Enter a name for the new **XY Panel** and click **OK**.

A new XY Panel is created.

- 4 In the Orbit main menu,
 - click 'Edit > Select All' - all widgets are selected, see Figure 3-20;
 - click 'Edit > Delete' - all widgets are deleted.

An empty XY Panel results.

5

- 6 Click **Save File**.

This has created an empty XY Panel in the MapView project.

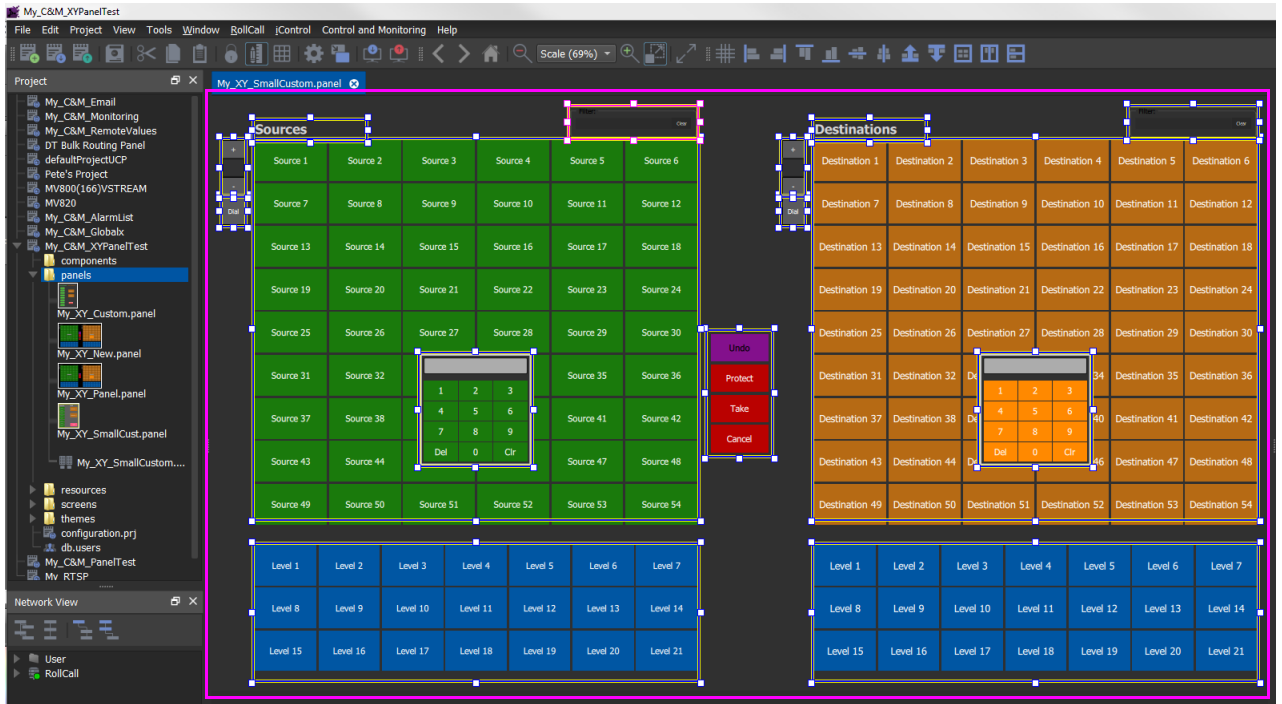


Fig. 3-20: All Widgets Selected

Step 2: Add Widgets to (empty) XY Panel

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

- 1 Add 8 **Source Button** widgets from the Routing widget tool bar (see Figure 3-21).
 The button source numbers increment automatically for each added button.

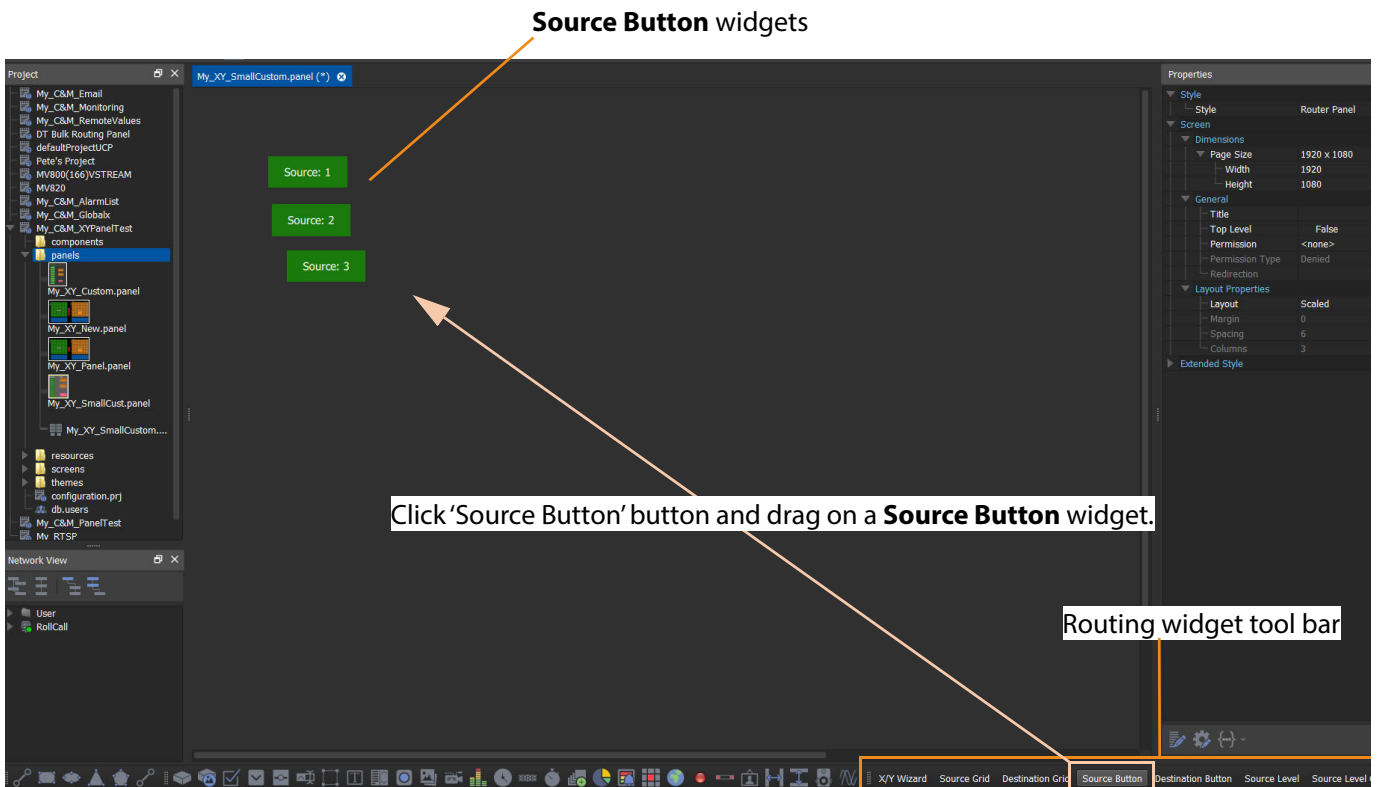


Fig. 3-21: Adding Source Buttons

2 Similarly add 2 **Destination Button** widgets.

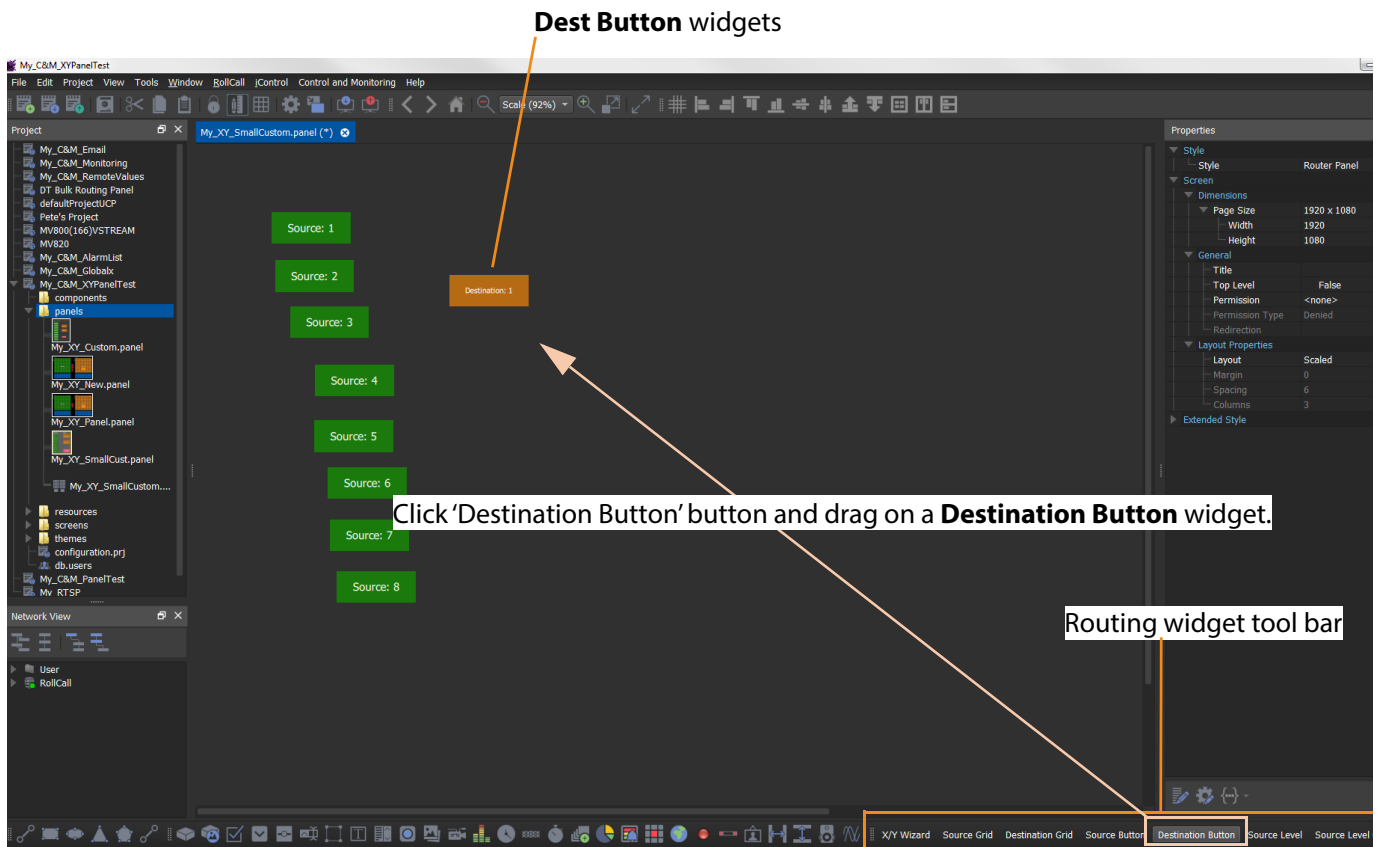


Fig. 3-22: Adding Destination Buttons

Finally:

3 Add a **Button** widget and set its caption property to 'TAKE' and set its fill color to red.

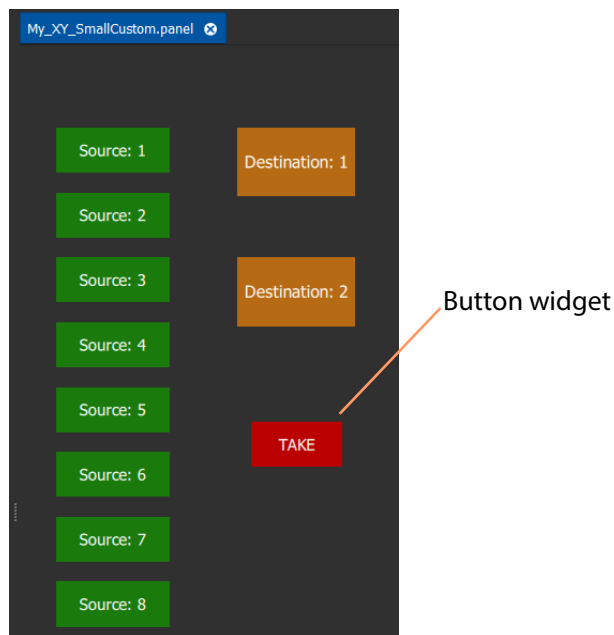


Fig. 3-23: Added Buttons

4 Right-click in the panel background and click 'Edit Behaviours'.

The 'Behaviours and Bindings graphical editor' is shown.

5 Select the **Button** widget and filter the Behaviours list on 'Routing', see Figure 3-24.

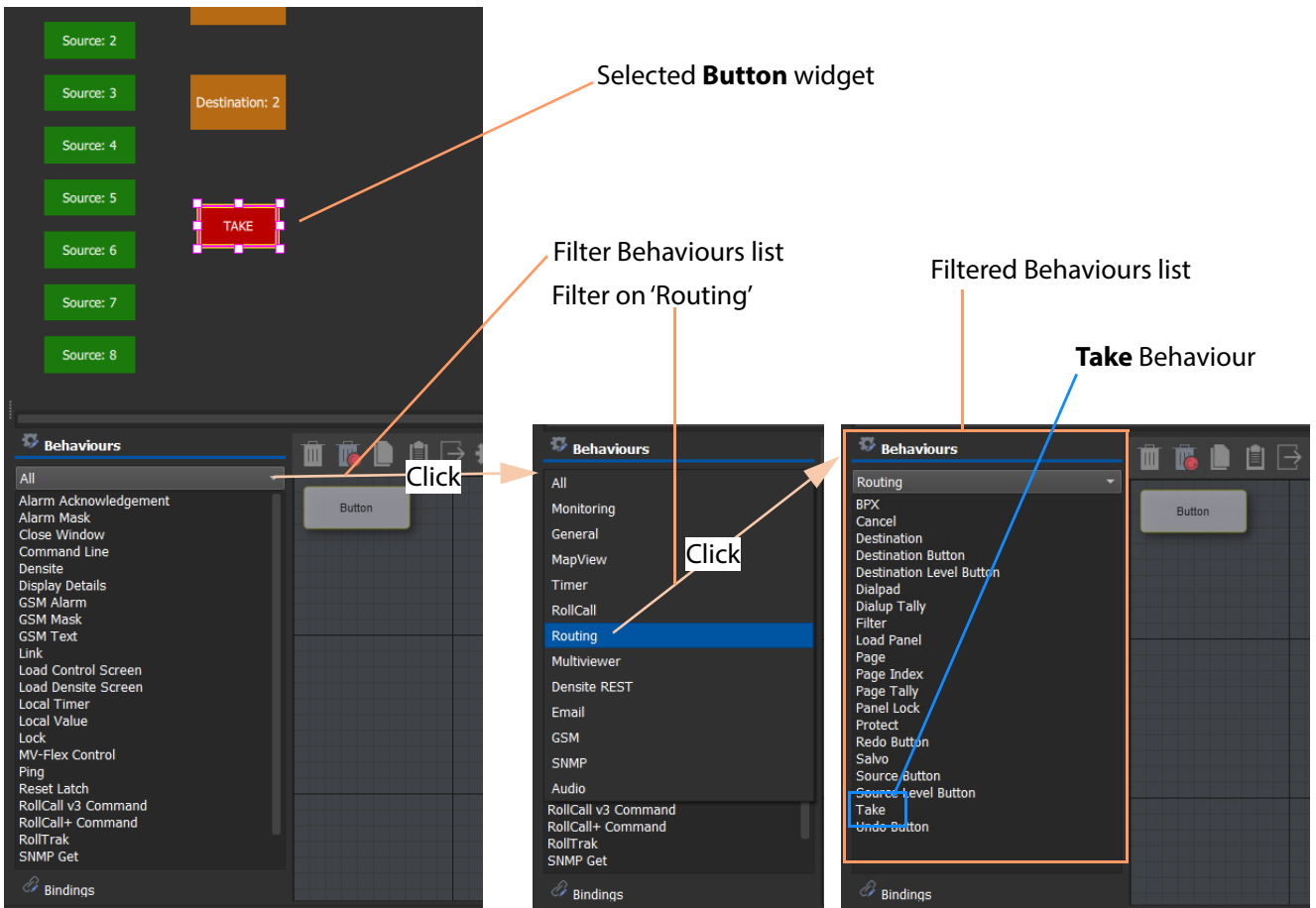


Fig. 3-24: Behaviours and Bindings Graphical Editor and Routing Behaviours

6 Add a **Take** Behaviour.

A **Take** Behaviour and a suitable Binding is added.

The automatically-added Binding connects the **Take** Behaviour to the **Button** widget. See Figure 3-25.

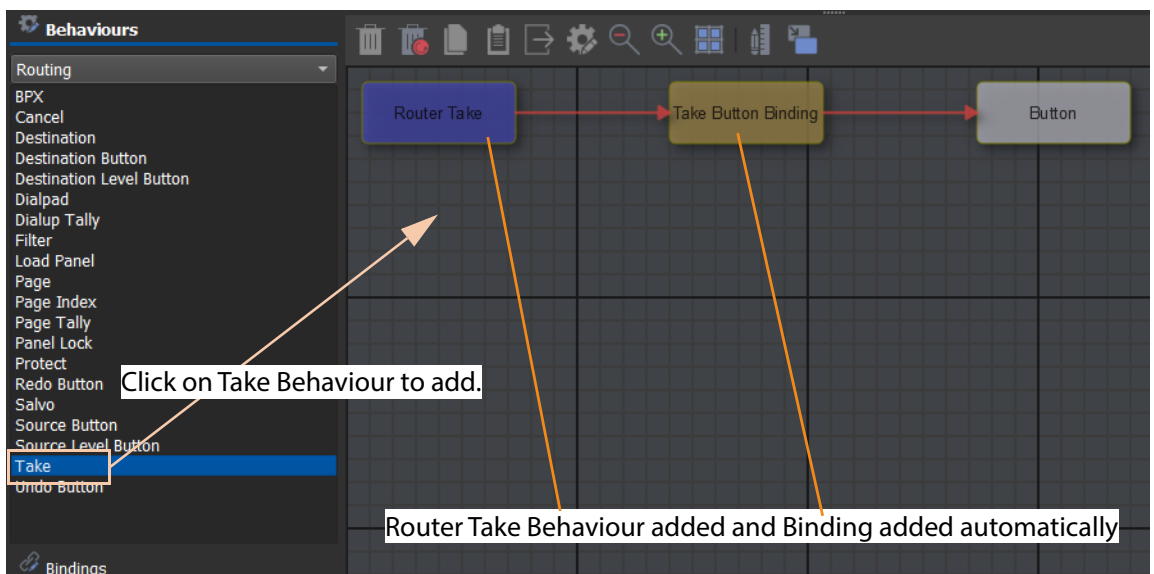


Fig. 3-25: Adding Router Take Behaviour

Step 3: Styling

- 1 Arrange the buttons and add any further labels/shapes/colors to enhance the panel's appearance, as required.
- 2 Right-click on the XY Panel background and select 'Resize to Widgets'.

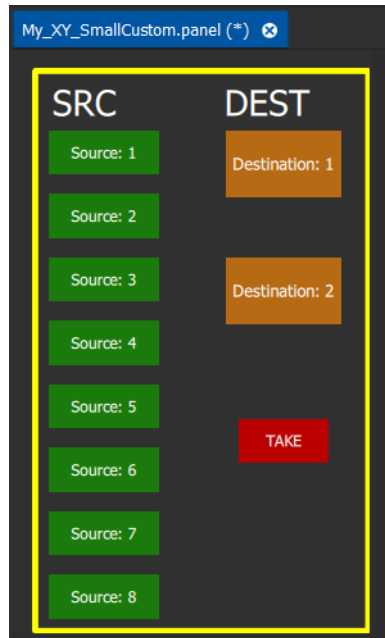


Fig. 3-26: Custom XY Panel

Step 4: Configure Address

Configure the XY Panel's Address variable to be the RollCall address of the Routing Service it will use:

- 1 Right-click on the XY Panel background; and select 'Variables...'; and set the 'Address' variable to the RollCall address of the Routing Service. See Figure 3-27.

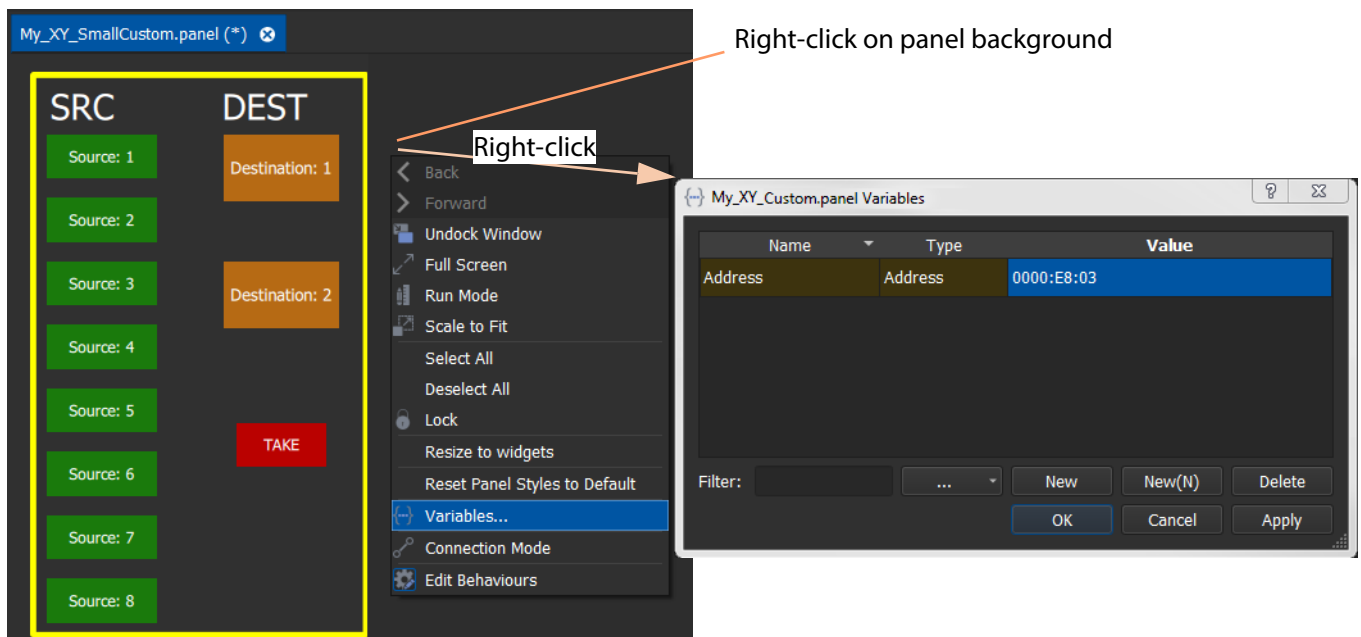


Fig. 3-27: Set Address Variable

- 2 Click **OK**.

- 3 Click **Save File**.
Click **Save Project**.

Step 5: Exercise Panel

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

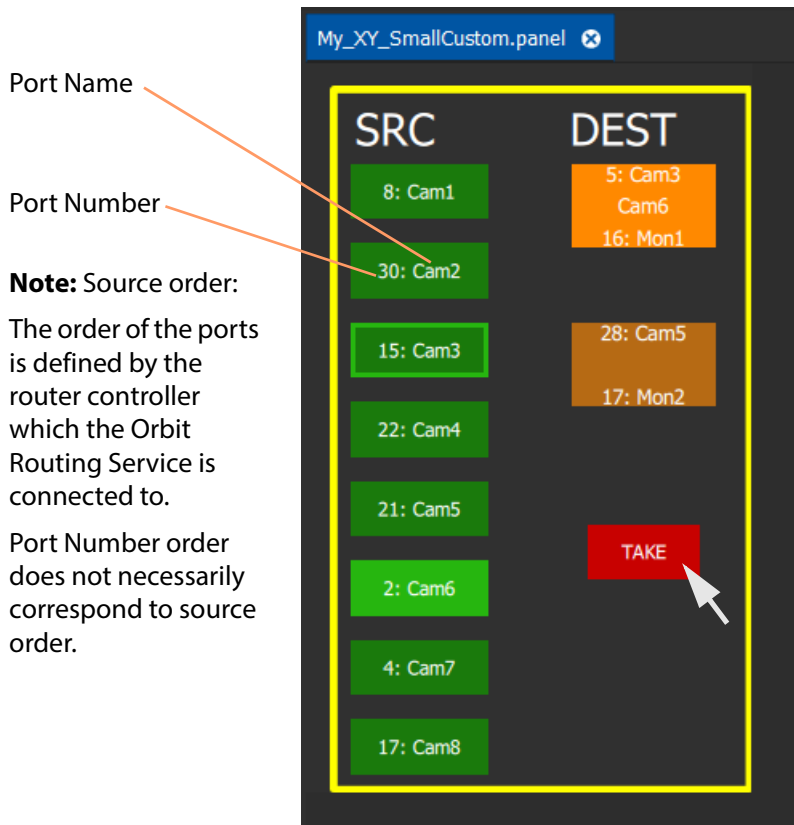


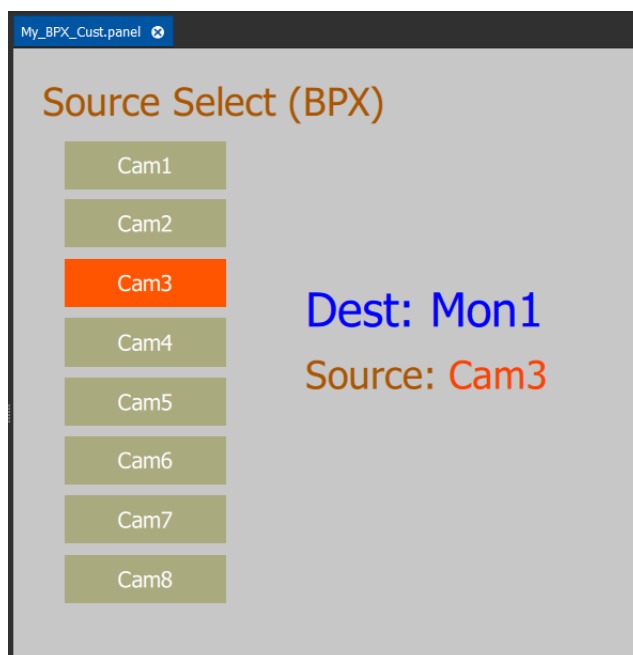
Fig. 3-28: Run the Custom XY Panel

The custom panel operates like a reduced-size XY Panel and may be dragged onto a MapView screen and embedded into it.

Custom BPX Example

A **BPX** (button per crosspoint) Behaviour is available in Orbit. This enables a button-click to make a route between a specific source and destination. A simple custom panel can be designed as part of a MapView project to route one of several sources to a single destination.

An example small BPX panel is given in Figure 3-29 and the steps to generate it in Orbit are given below.



Operation:

Click a button ("Cam1"... "Cam8") to route a source to destination "Mon1"

Fig. 3-29: Custom BPX Example

Basic BPX Panel

To create this panel:

- 1 Create a new empty **XY Panel**.
(This is described in [Step1: New Empty XY Panel](#), on page 68 for the [Custom XY Panel Example](#).)

Define Routing Service:

- 2 Right-click on the panel background and select 'Variables...'.
A **Variables** dialog appears.
- 3 Set the 'Address' variable to the RollCall address of the Routing Service.
And click OK.
See Figure 3-30.

Note: If there is no 'Address' variable, then:

- click the **New** button to add a new blank variable;
 - set the Name to 'Address';
 - set the Type to 'Address';
 - set the Value to the RollCall address of the Routing Service to use; and
 - click **OK**.
-

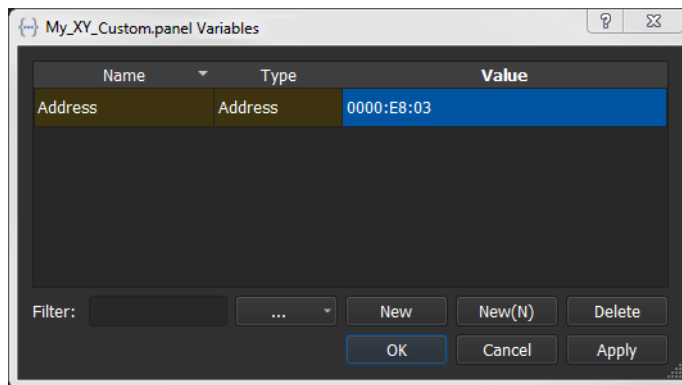


Fig. 3-30: Set Address Variable

Add Graphical Widgets Etc:

- 4 Add a **Button** widget to the panel.
- 5 Select the **Button** widget and click on the **Edit Behaviours** button to show the 'Behaviours and Bindings' graphical editor. See Figure 3-31.

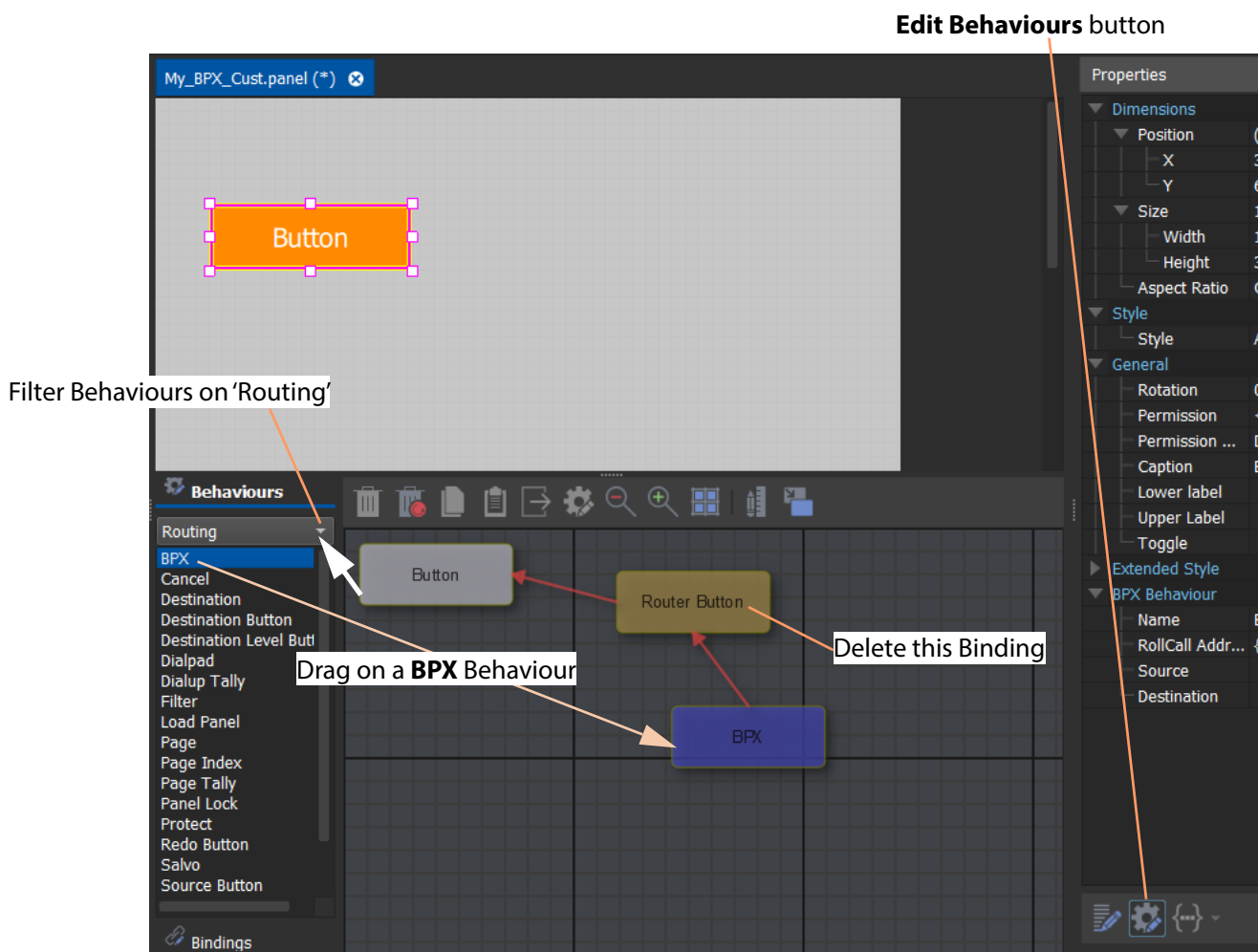


Fig. 3-31: Behaviour and Bindings Graphical Editor

- 6 Filter the Behaviours on 'Routing'.
- 7 Add a **BPX** Behaviour.
- 8 Select the 'Router Button' Binding and press the Delete key to delete the Binding.

Configure the BPX Behaviour:

- 9 Double-click on the **BPX** Behaviour to edit its properties.
- 10 Enter a source name as the 'Source' (for example, 'Cam1').
- 11 For the 'Destination', click on the cog icon to show the **Destination Picker** dialog. And select a destination to route to (for example, 'Mon1').

See Figure 3-32.

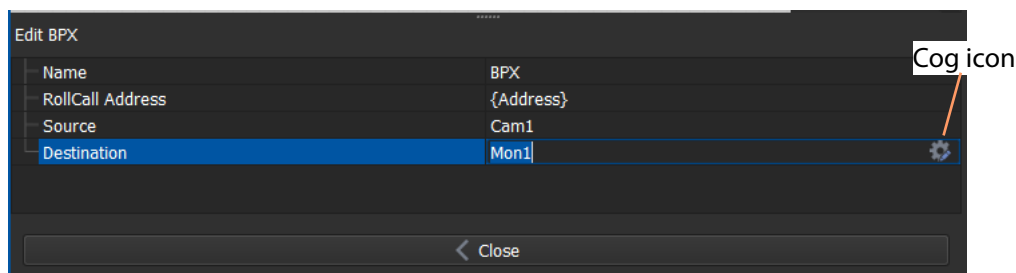


Fig. 3-32: Configured BPX Behaviour

- 12 Add an **Event** Binding and two **Property** Bindings.

See Figure 3-33.

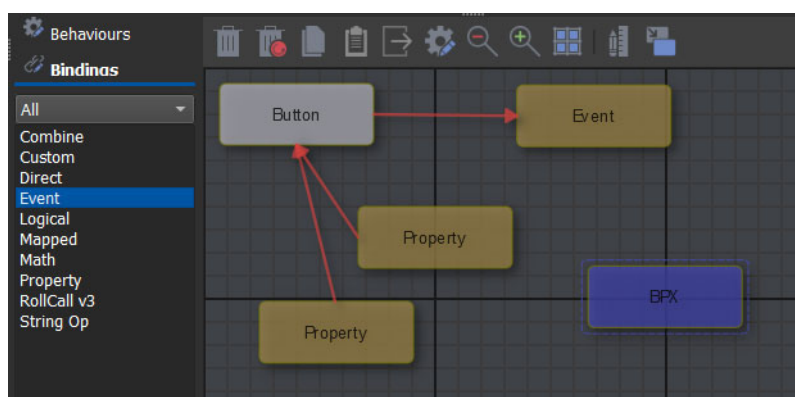


Fig. 3-33: Added Bindings with BPX Behaviour

Configure the Event Binding:

- 13 Double-click on the **Event** Binding. The Binding's parameter screen is shown.
- 14 Select the **BPX** Behaviour as the 'Target'. See Figure 3-34. Click **Close**.

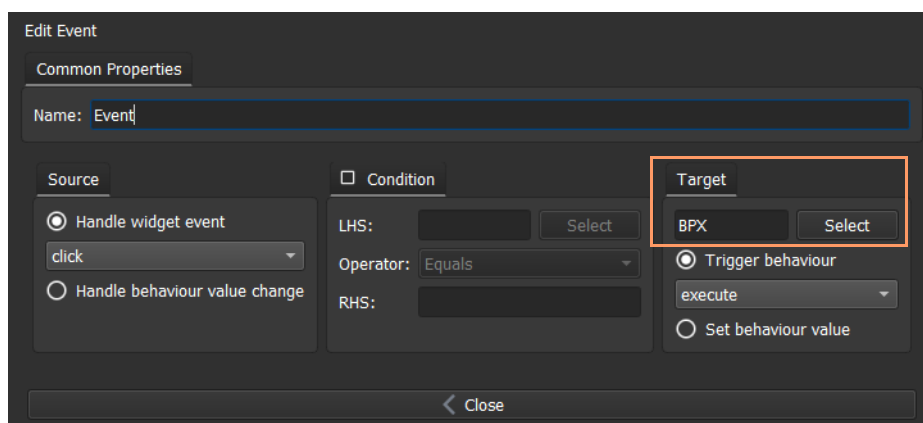


Fig. 3-34: Target Behaviour

Configure the Property Bindings:

15 Double-click on one of the **Property** Bindings to edit its parameters.

16 Select:

- The **BPX** Behaviour as the 'Source Behaviour'.
- 'Is Routed' for the 'Behaviour Value'.
- 'Fill Color' for the 'Property to bind'. (i.e. Fill -> Fill Color.)

17 To set up the 'Bind Rules':

- Click the **Add** button twice to add two rules.
- For the first rule:
 - Select 'Equals' for the 'Operator'.
 - Enter 'True' for the 'Expression'.
 - Double-click in the 'Result' column to select it, and click on the **...** button to show the **Select Color** dialog.
 - Select a color to use for the **Button** widget's button face when the **BPX** route is made (i.e. 'Is Routed').
And click **OK**.
- For the second rule:
 - Double-click in the 'Result' column to select it, and click on the **...** button to show the **Select Color** dialog.
 - Select a color to use for the **Button** widget's button face when the **BPX** route is NOT made.
And click **OK**.

See Figure 3-35.

(This has configured the Binding to indicate the 'routed'/'not routed' status of the **BPX** Behaviour with the **Button** widget's color.)

- Click **Close**.

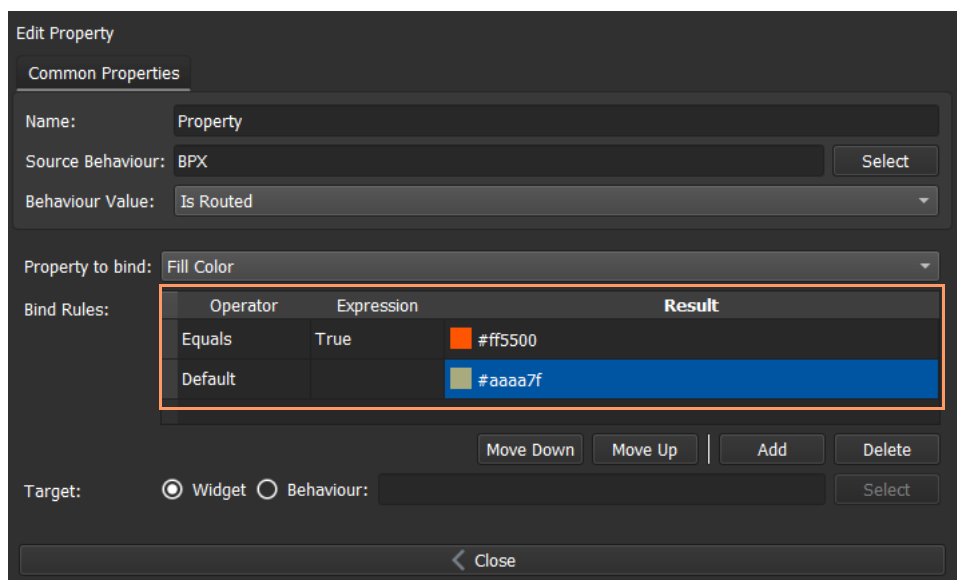


Fig. 3-35: Configured Bind Rules and Property Binding

18 Double-click on the other **Property** Binding to edit its parameters.

19 Select:

- The **BPX** Behaviour as the 'Source Behaviour'.
- 'Preset Source Name' for the 'Behaviour Value'.
- 'Caption' for the 'Property to bind'. (i.e. General -> Caption.)

See Figure 3-36.

(This has configured the Binding to show the source name on the **Button** widget.)

- Click **Close**.

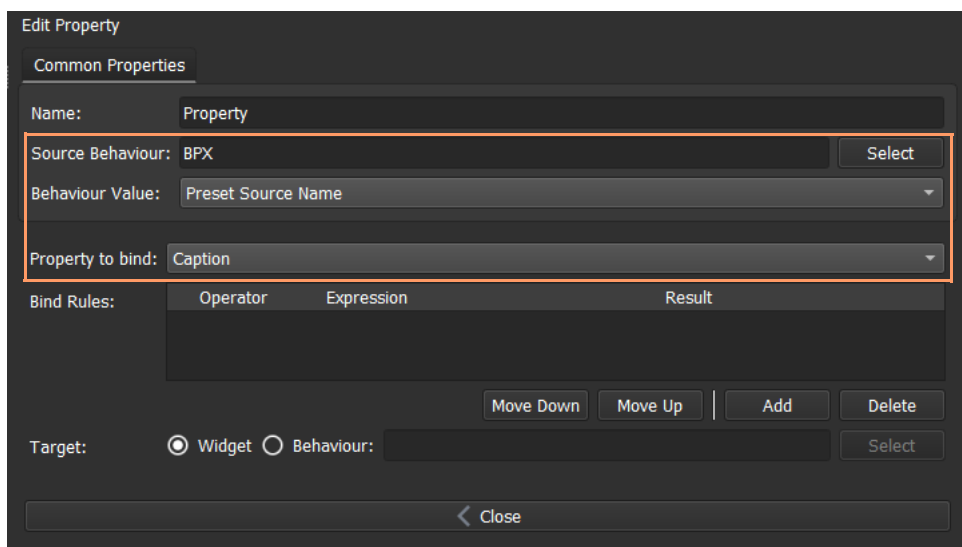


Fig. 3-36: Configured Property Binding

- 20 Click **Save File**.

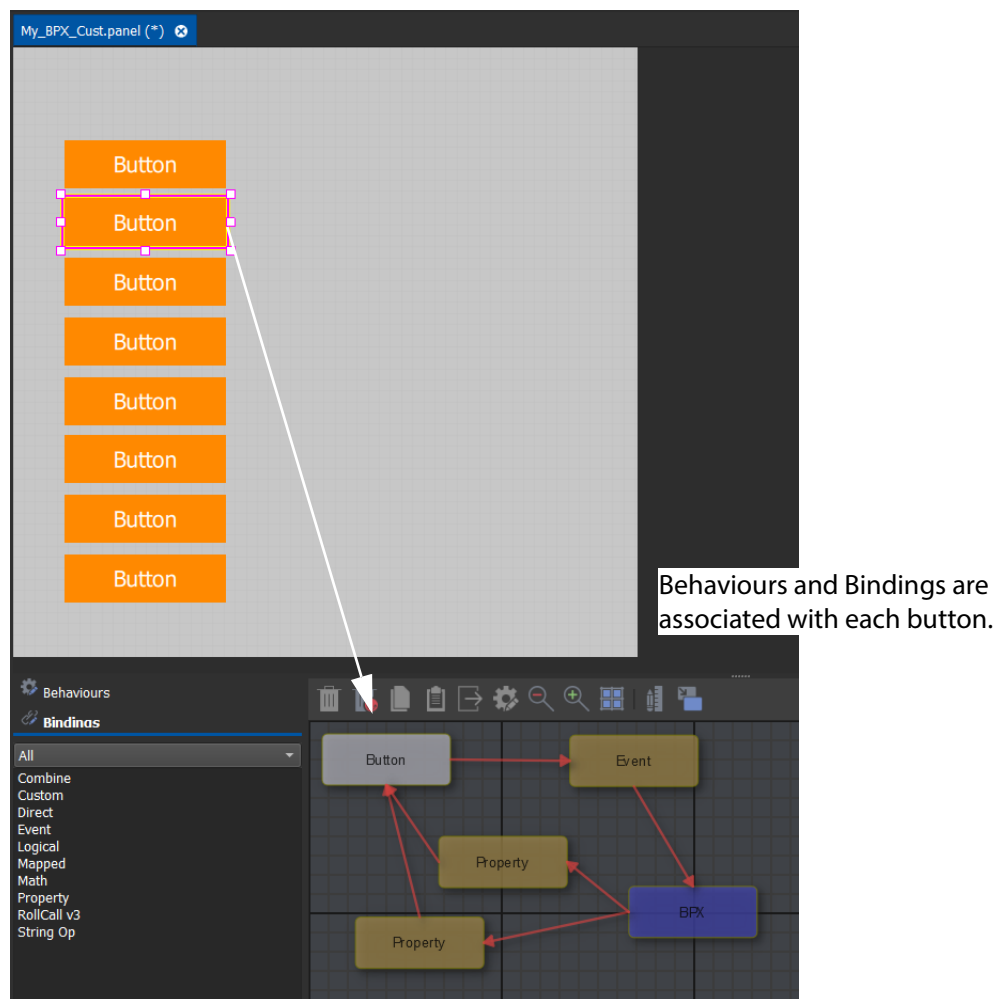
Copy to Make 7 Extra Buttons:

- 21 Copy the button widget on screen seven times.

(Select button, Edit -> Copy (or Ctrl-C), Edit -> Paste (or Ctrl-V))

This creates eight identical buttons, including a copy of the attached Behaviour and Bindings.

See Figure 3-37.



Each button to control a different source.

Fig. 3-37: Eight Buttons

Configure extra 7 buttons:

Configure each button's source (first button already set to control source "Cam1"):

- 22 Select the second button,
and double-click on its **BPX** Behaviour.
- 23 Change its 'Source' (for example, change it to 'Cam2').
And click **Close**.

The button will now route from this source.

- 24 For the remaining buttons, do the same, but use different source names
(for example, 'Cam3', 'Cam4', ... 'Cam8').
- 25 Click **Save File**.
Click **Save Project**.

This has created a basic BPX panel.

Exercise:

- 26 Click **Run Mode** to exercise the new panel.

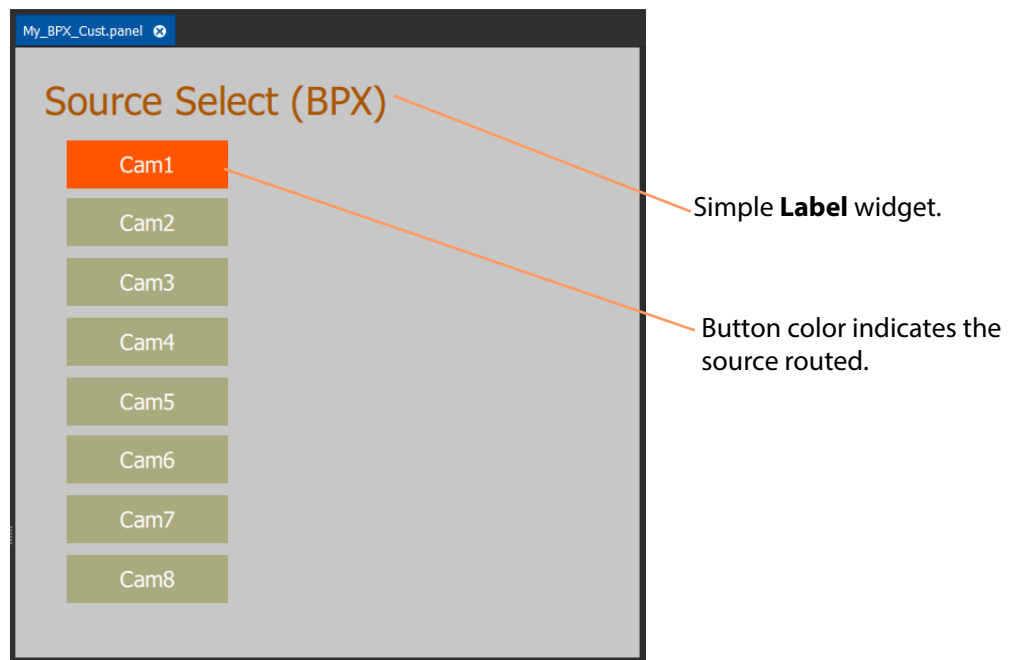


Fig. 3-38: Exercising Basic BPX Panel

Enhancement - Labels

Label widgets can be added for explicit information display. See Figure 3-39.

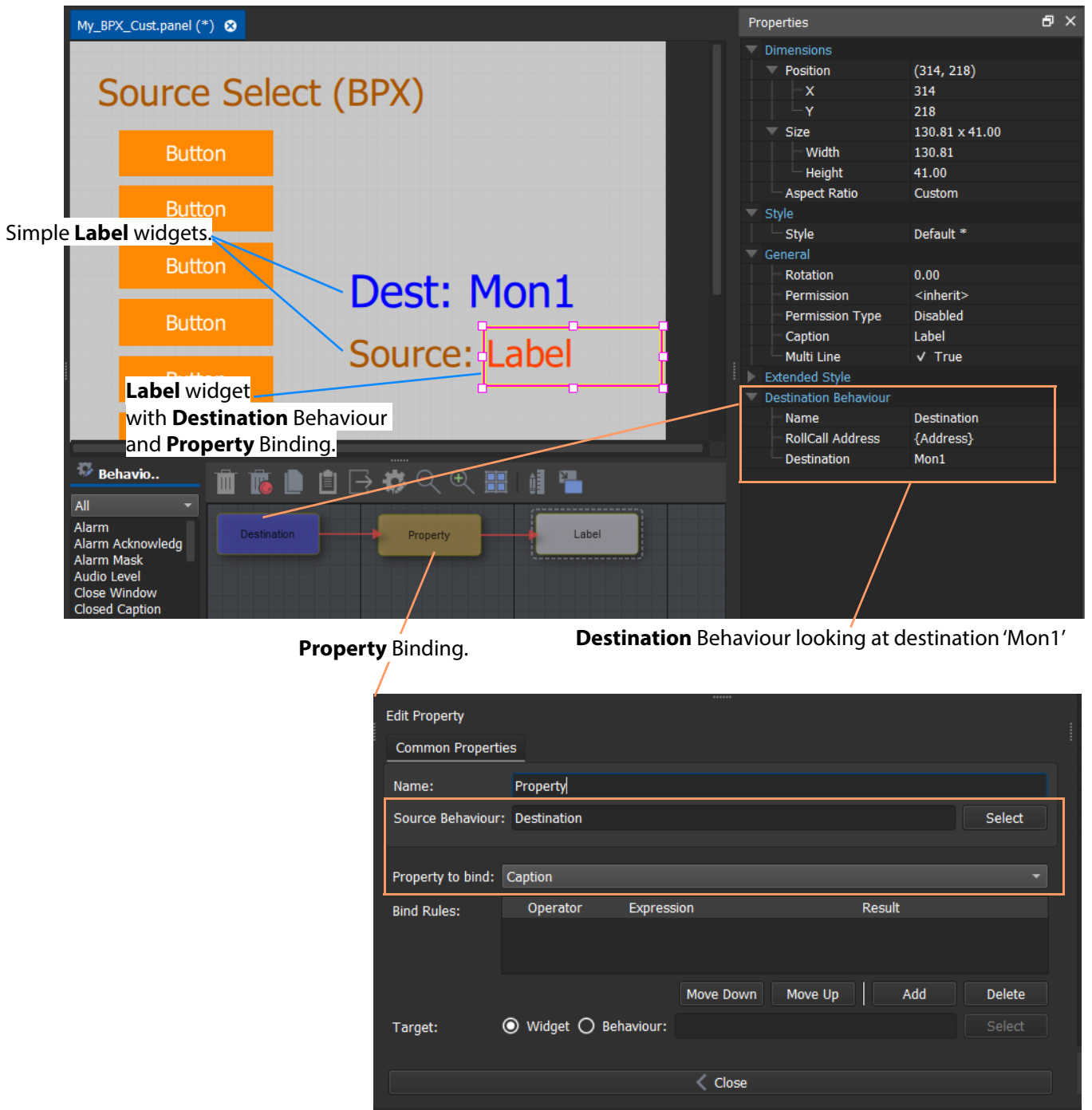


Fig. 3-39: Adding Labels

Exercising panel:

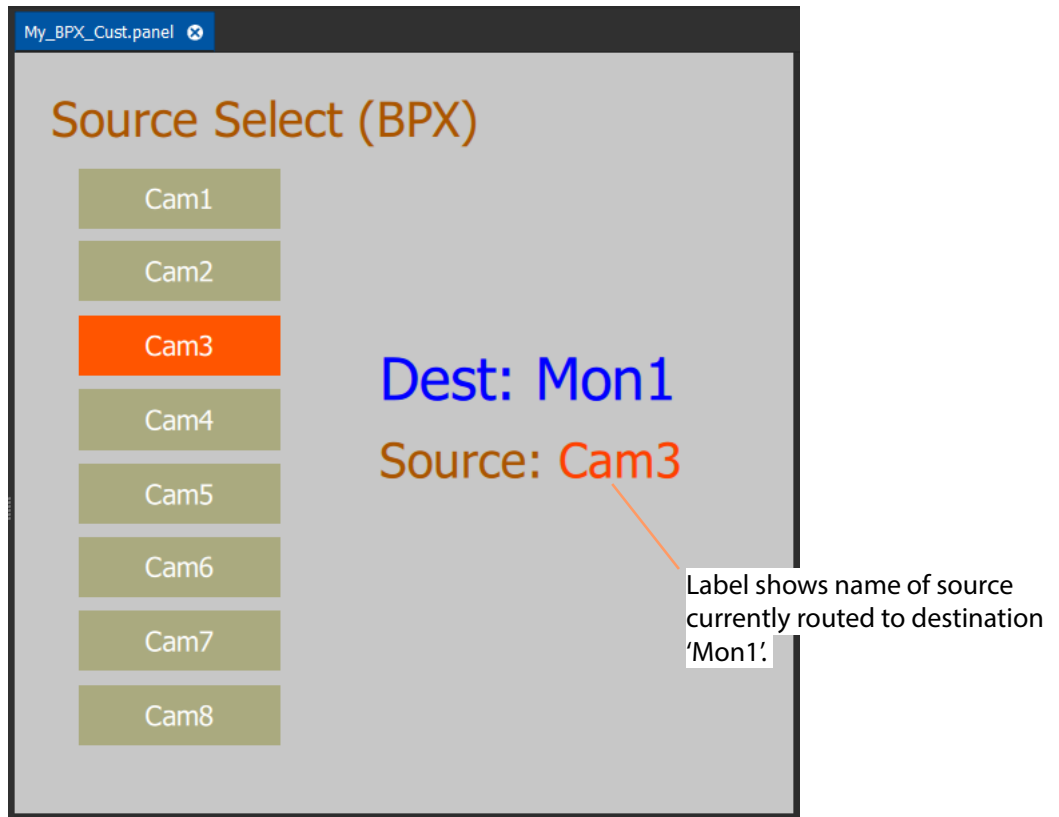


Fig. 3-40: Exercising BPX Panel with Labels

Enhancement - Lines

Additionally, **Line** widgets can be added with their visibility controlled by the 'Is Routed' status of each **BPX** Behaviour. See Figure 3-41. In order to achieve this, the BPX Behaviour associated with each button should be assigned a unique name (for example, "BPX 1", "BPX 2", etc.).

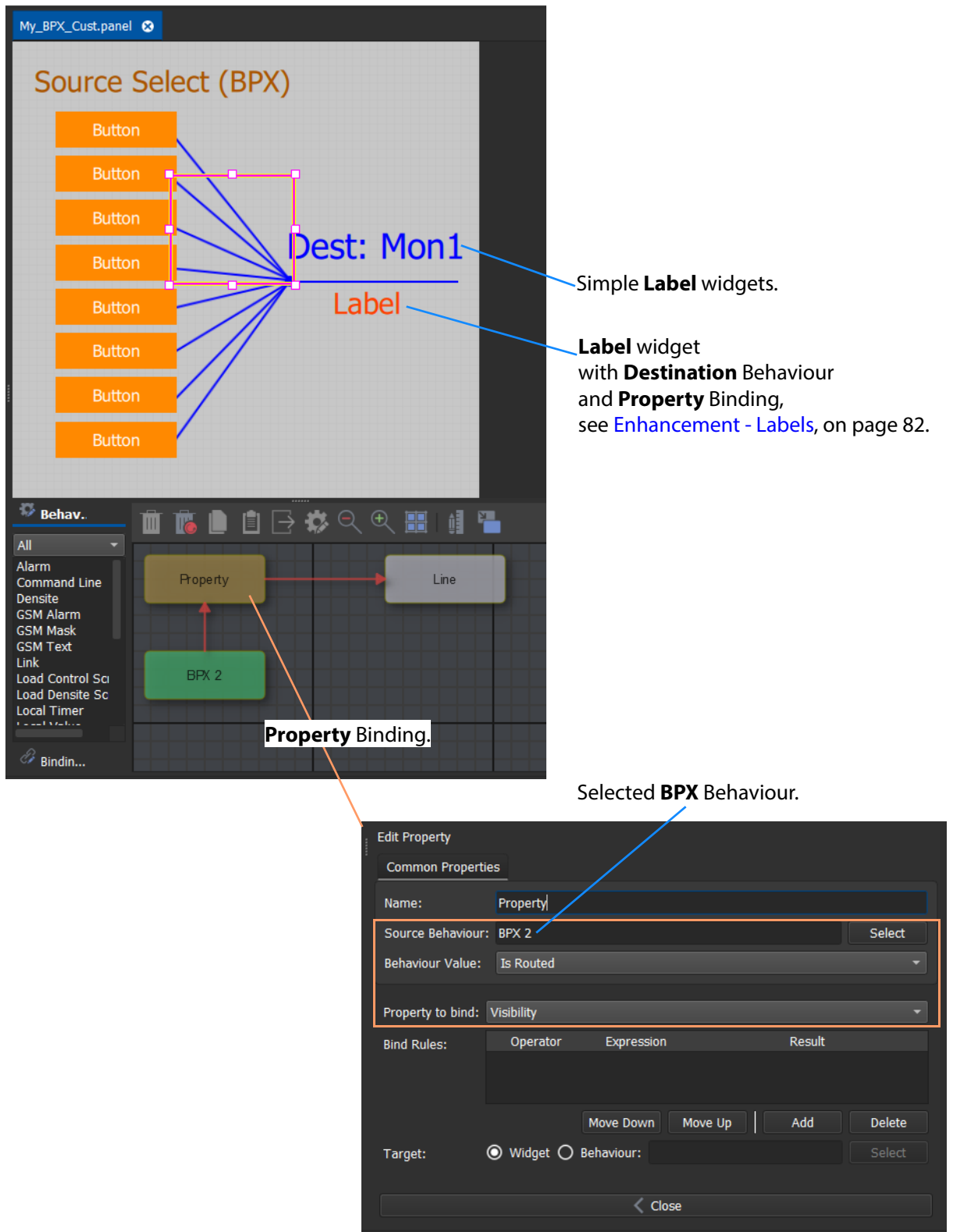
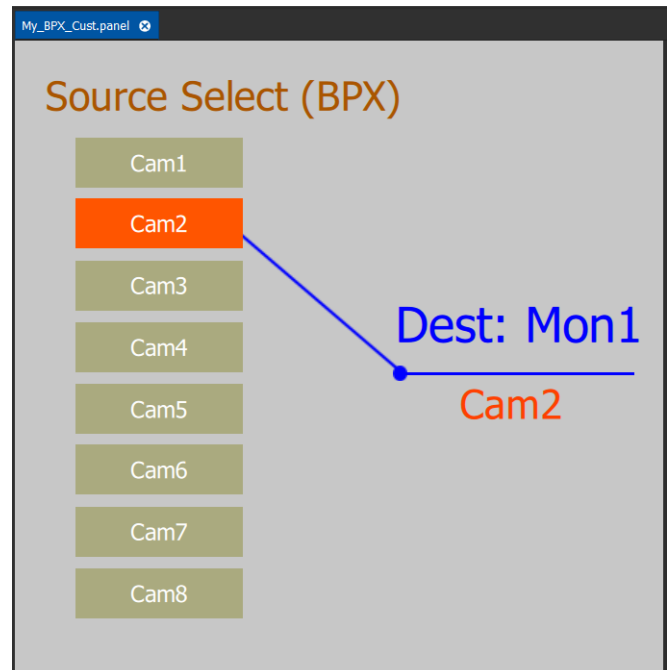
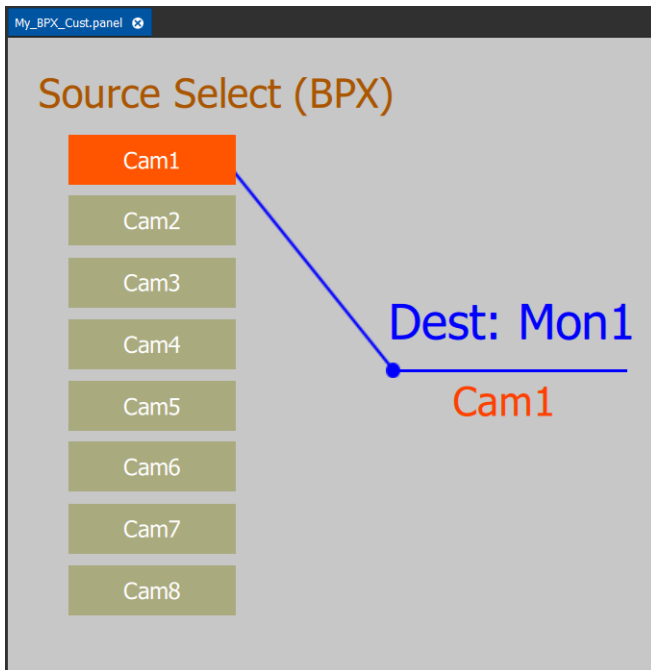


Fig. 3-41: Adding Lines

Exercising panel:



destination 'Mon1'.

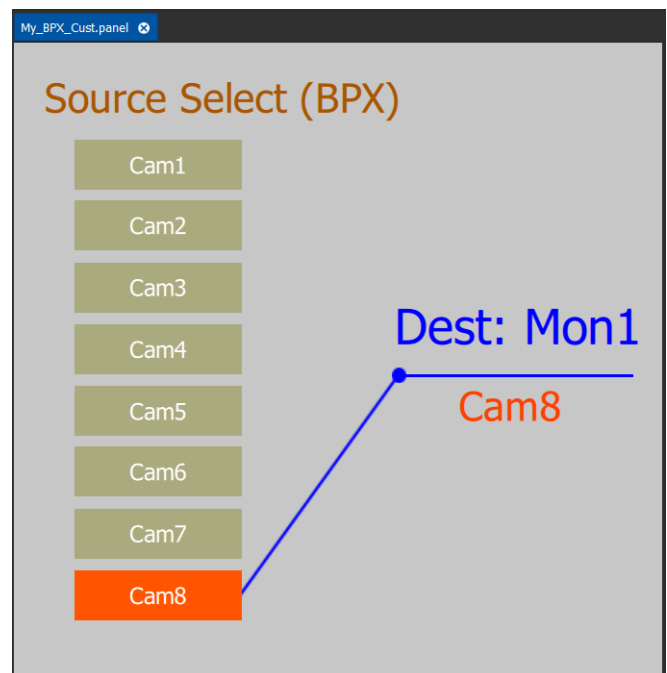
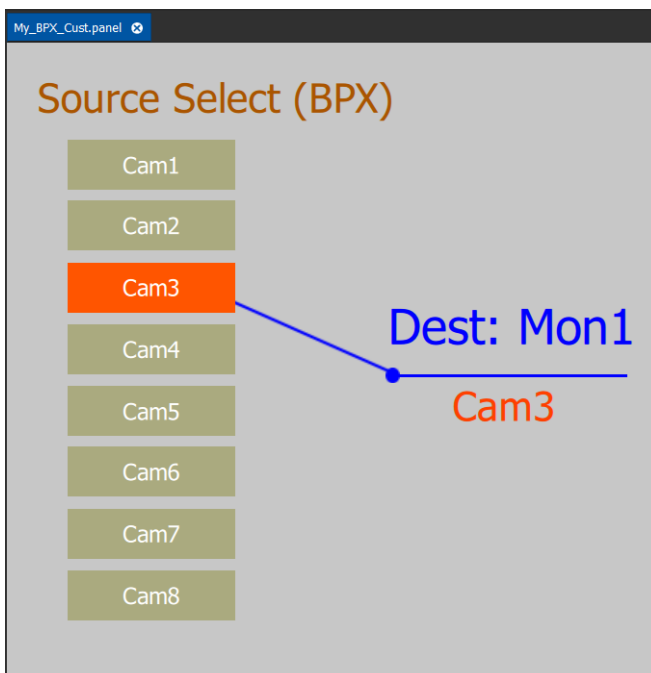


Fig. 3-42: Exercising BPX Panel with Lines

Embedding an XY Panel into a MapView Screen

An XY Panel may be embedded into an Orbit MapView screen as an Orbit 'Component'.

To embed, with a MapView screen open:

- 1 Open the Orbit project containing the XY Panel.
- 2 Open a MapView screen of the project.
- 3 Drag an XY panel file from the **Project View** pane onto the MapView screen.
See Figure 3-43.

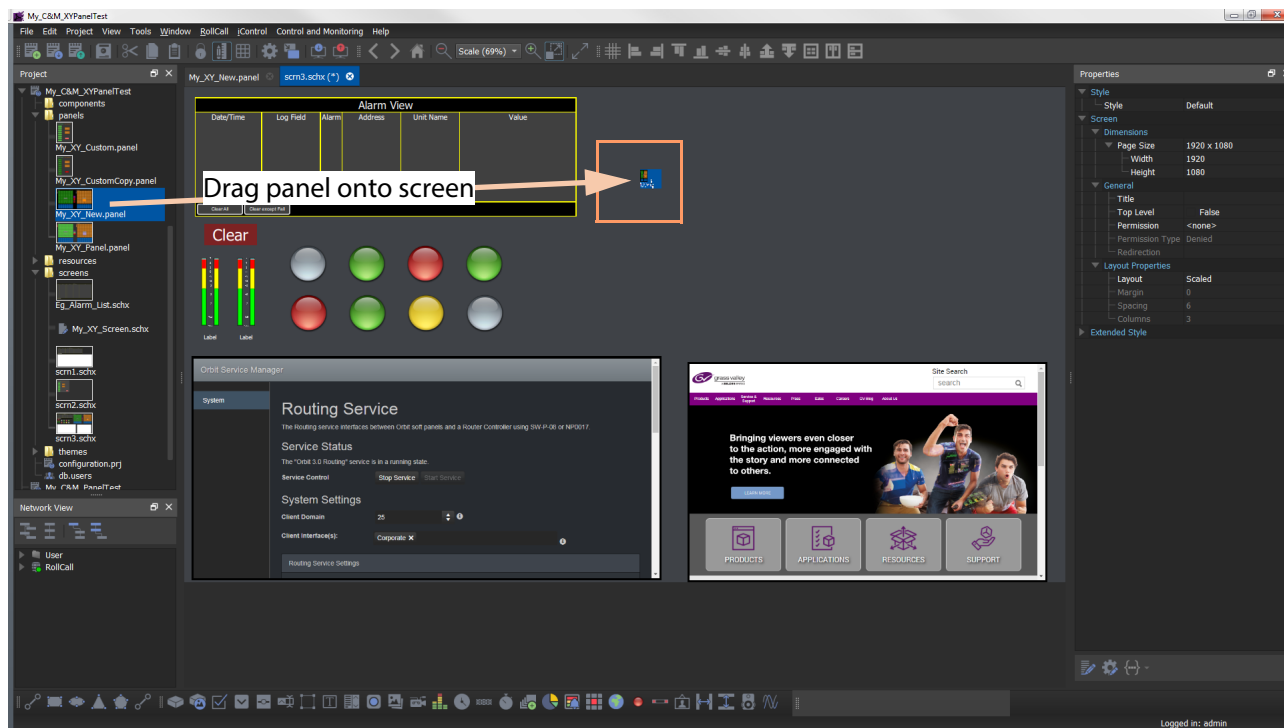


Fig. 3-43: Drag on an XY Panel

The panel object is then like an Orbit component object on the MapView screen. The panel's 'Address' variable can be set up for the component object. See Figure 3-45.

- 4 Resize the panel object as required.
Figure 3-44 shows an example embedding.

Many instances of an XY panel can be used to route, for example, different sets of sources/destinations via the same Routing Service.

Embedded XY Panel

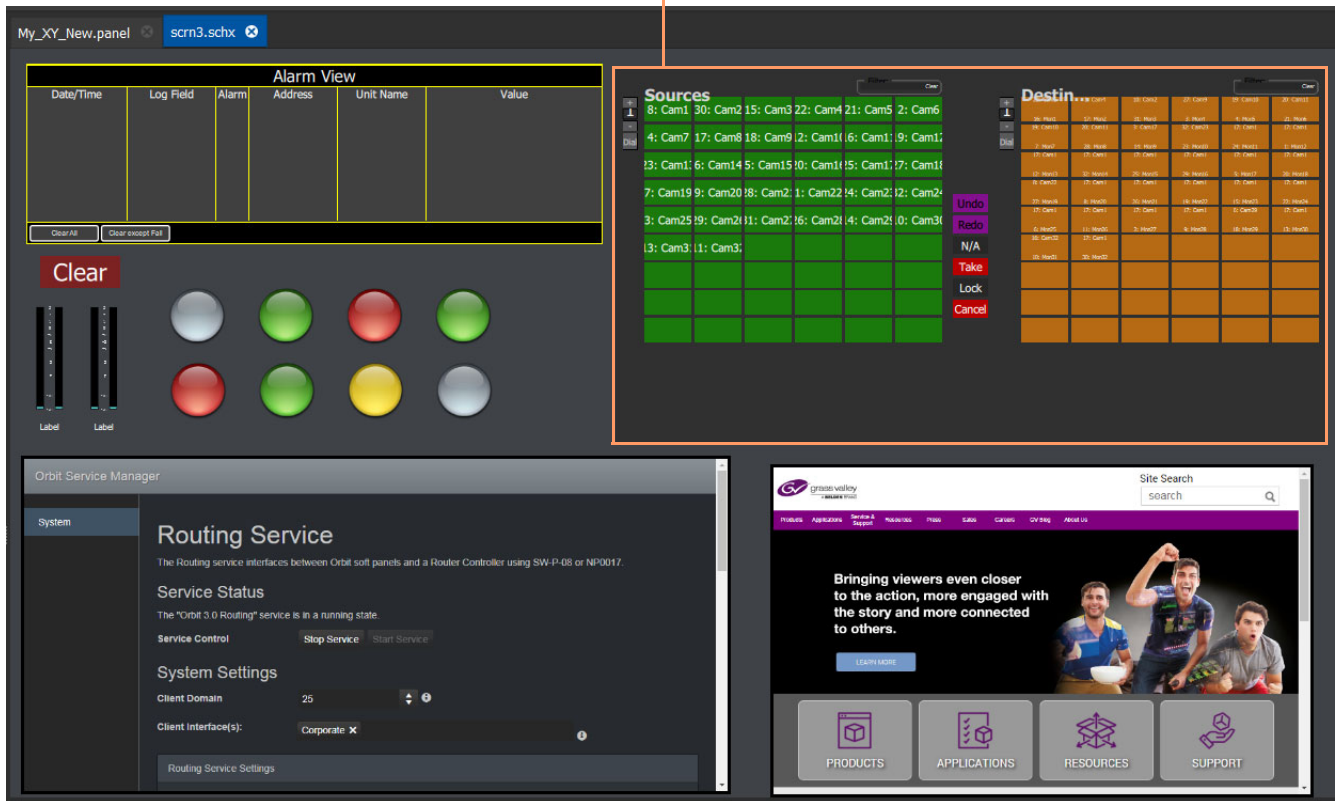


Fig. 3-44: MapView Screen with Embedded XY Panel

Embedded XY Panel

'Address' variable defined

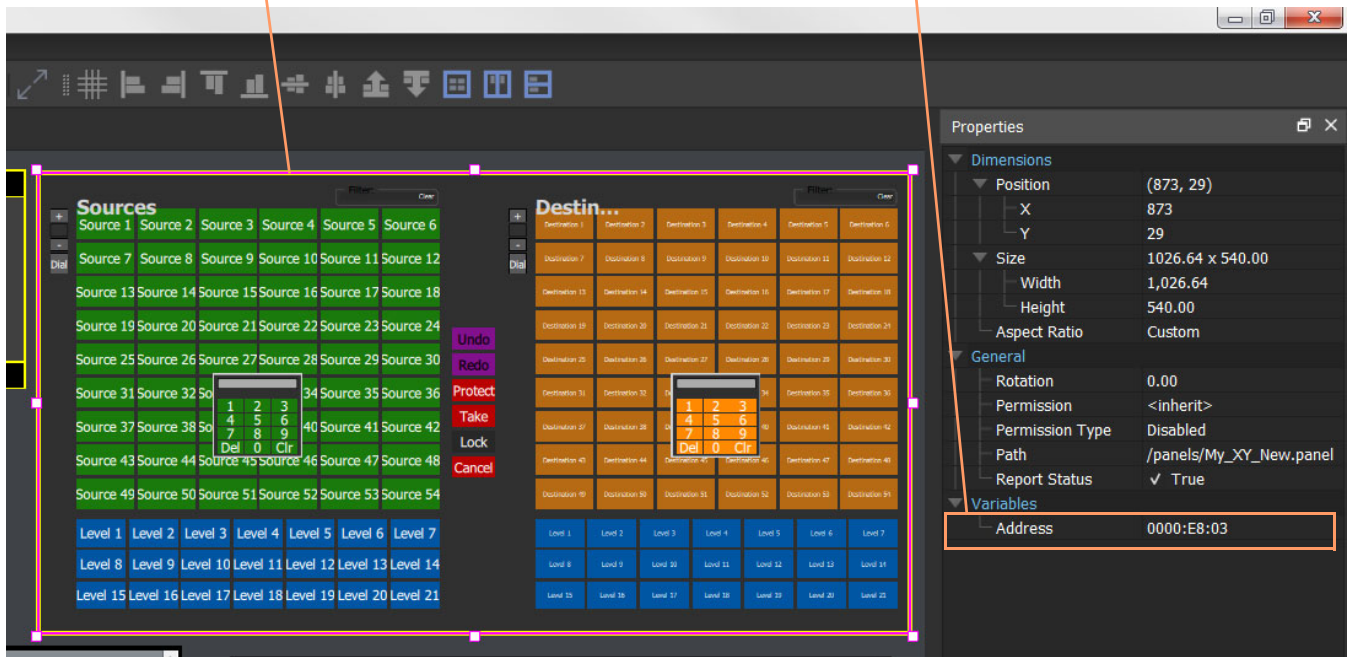


Fig. 3-45: Embedded XY Panel Address

A default XY Panel is often full-screen in size and too large to practically embed into a small part of a MapView screen. Typically, an embedded XY Panel would be a smaller-sized, custom XY Panel, see [Custom XY Panel Example](#), on page 68, for an example.

XY Panel Operation

Make a Route

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.

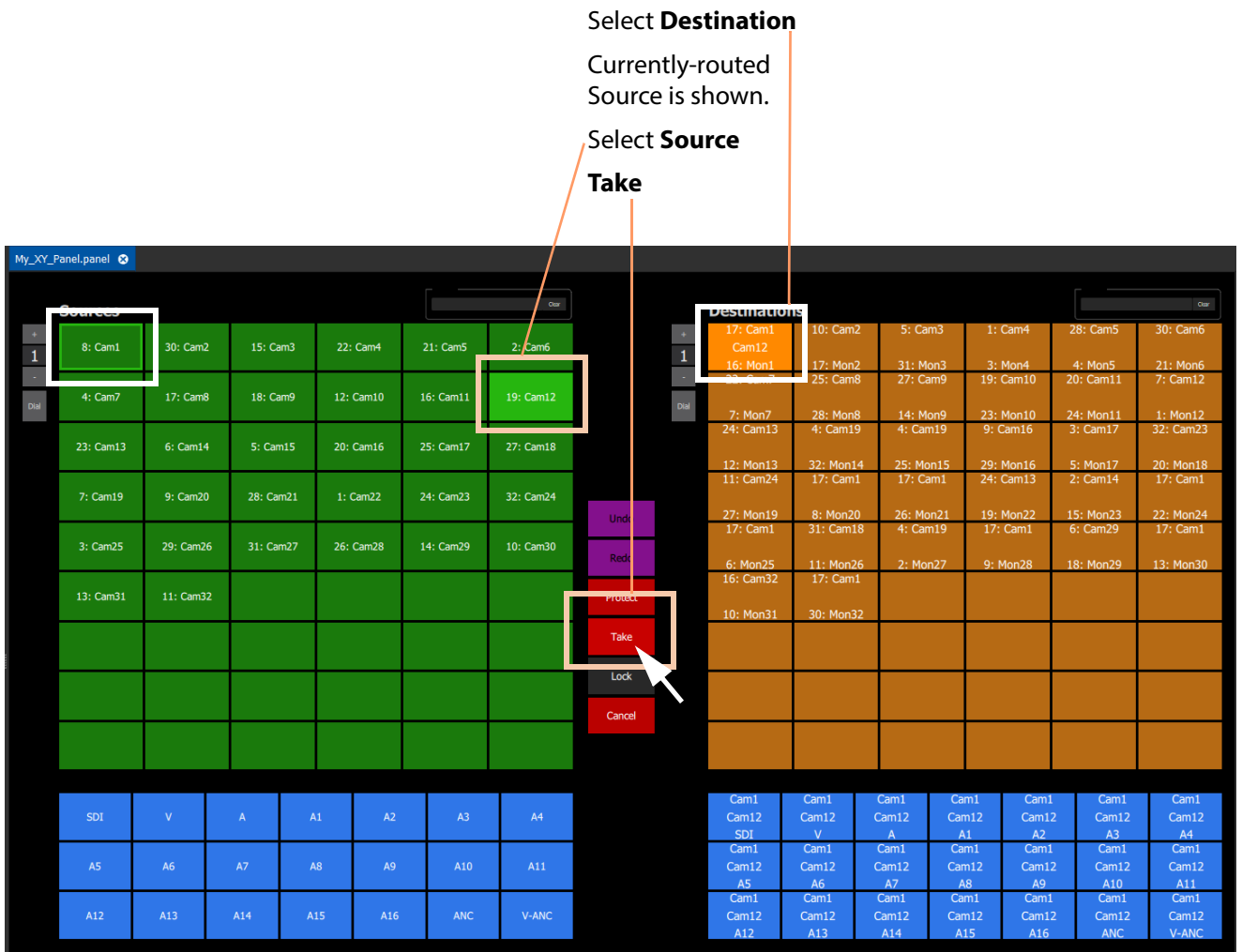


Fig. 3-46: Making a Simple Route

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 a **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.

Alternatively, the source may be selected first.

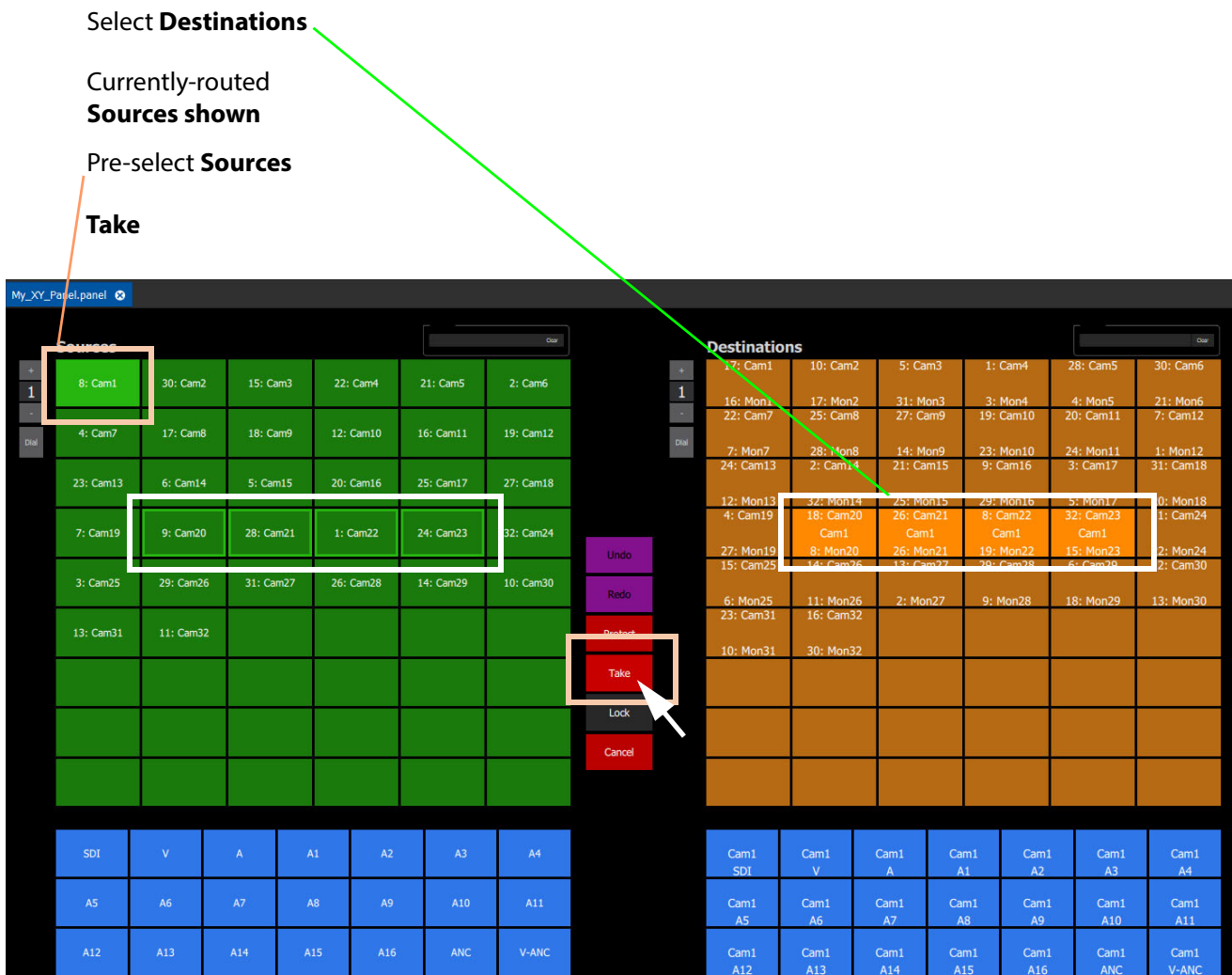


Fig. 3-47: One Source Routed to Multiple Destinations

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. 3-48: 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 is that of the buttons on the panel.

Dial a Route (Router Port Number, SW-P-08)

This is applicable to router controller connections with a SW-P-08 protocol.

To dial a simple route:

- 1 Click **Dial** at the Destination selection grid.
A '0 to 9' numeric keypad pops up.
- 2 Enter the router port number of the required **Destination** and press the 'Enter' or 'Return' key.
The **Destination** is selected and the currently-routed source is shown.
- 3 Click **Dial** at the Source selection grid.
Another '0 to 9' numeric keypad pops up.
- 4 Enter the router port number of the required **Source** and press the 'Enter' or 'Return' key.
The **Source** is pre-selected.
- 5 Click **Take**. (Click **Cancel**, to deselect the source/destination.)
The pre-selected **Source** is routed to the selected **Destination**. The route is made.

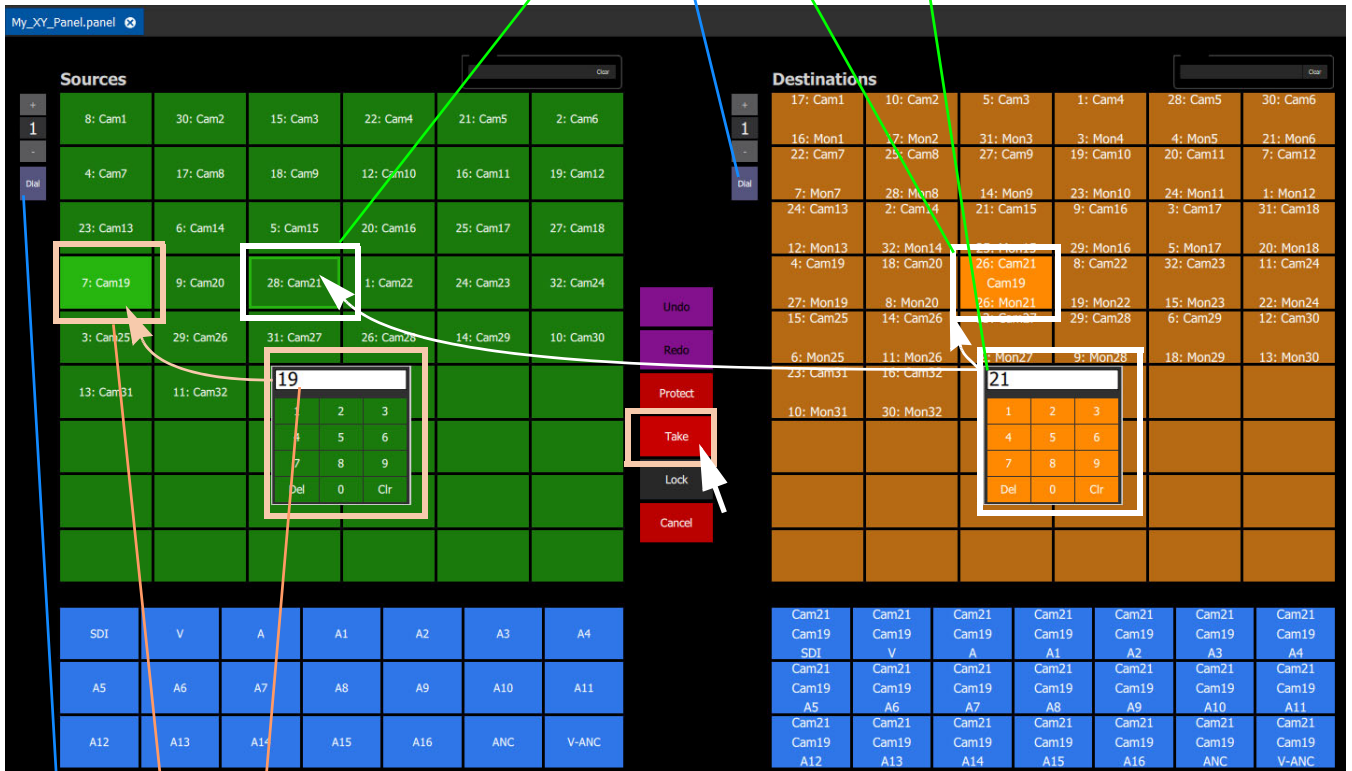
Alternatively, the **Source** may be selected first.

Click **Dial**.

Enter the **Destination** router port number and press 'Enter' or 'Return'.

Selected **Destination** router port is shown.

Currently-routed **Source** is shown.



Click **Dial**.

Enter the **Source** router port number and press 'Enter' or 'Return'.

Pre-selected **Source** is shown.

Take.

Fig. 3-49: Dial Route Example

Protect a Destination (SW-P-08)

This is applicable to SW-P-08 protocol connections to a router controller.

- 1 Select a **Destination** (with no pre-selected Source).
- 2 Click **Protect** to protect the Destination form being routed to (or click to 'unprotect').
The Destination is protected. the Destination button indicates this, see Figure 3-50.

Padlock symbol indicates Destination is protected.



Destinations	
50: V50	50: V50
1: V313	2: V314
50: V50	50: V50
7: V319	8: V320
50: V50	50: V50

Fig. 3-50: Protected Destination

Breakaway

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

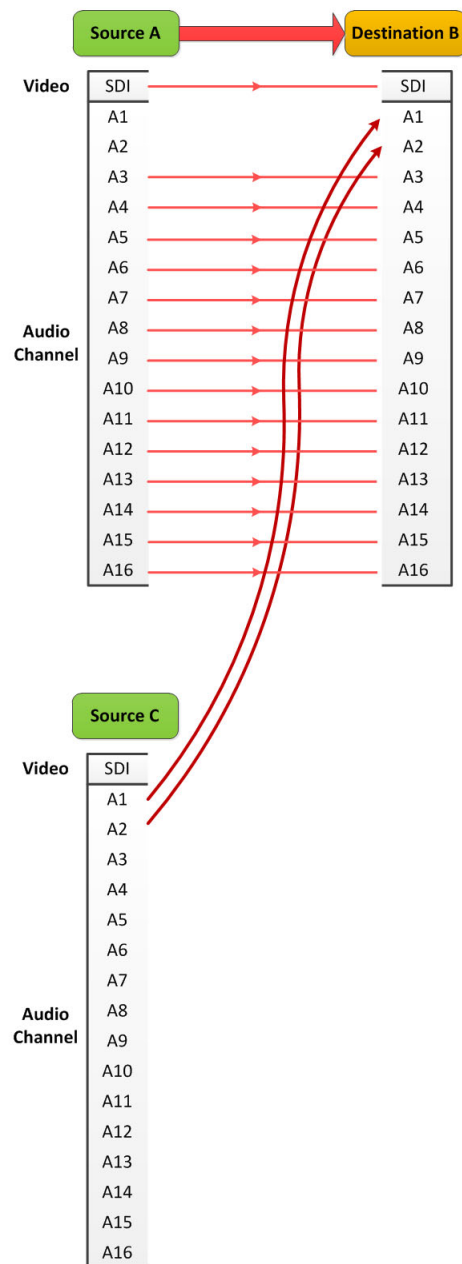


Fig. 3-51: Breakaway

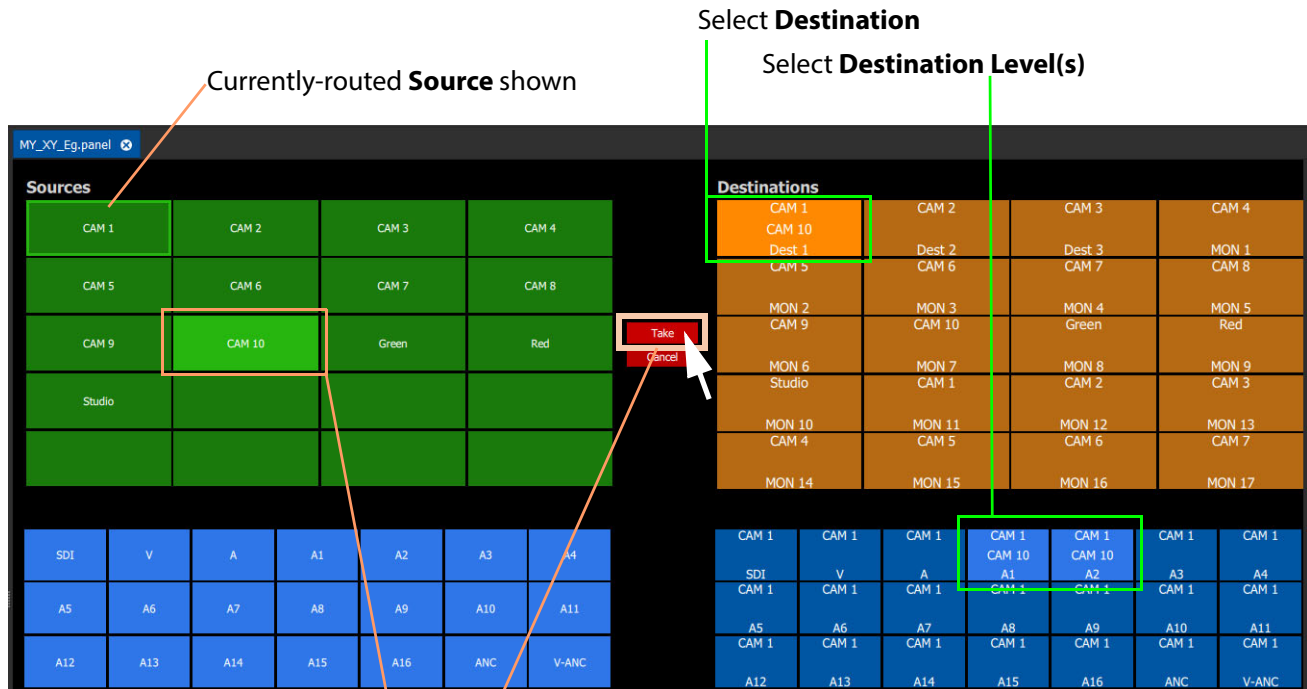
Destinations which are 'unmarried' are indicated with a breakaway icon (Figure 3-52b) on the destination button.

Perform a Breakaway

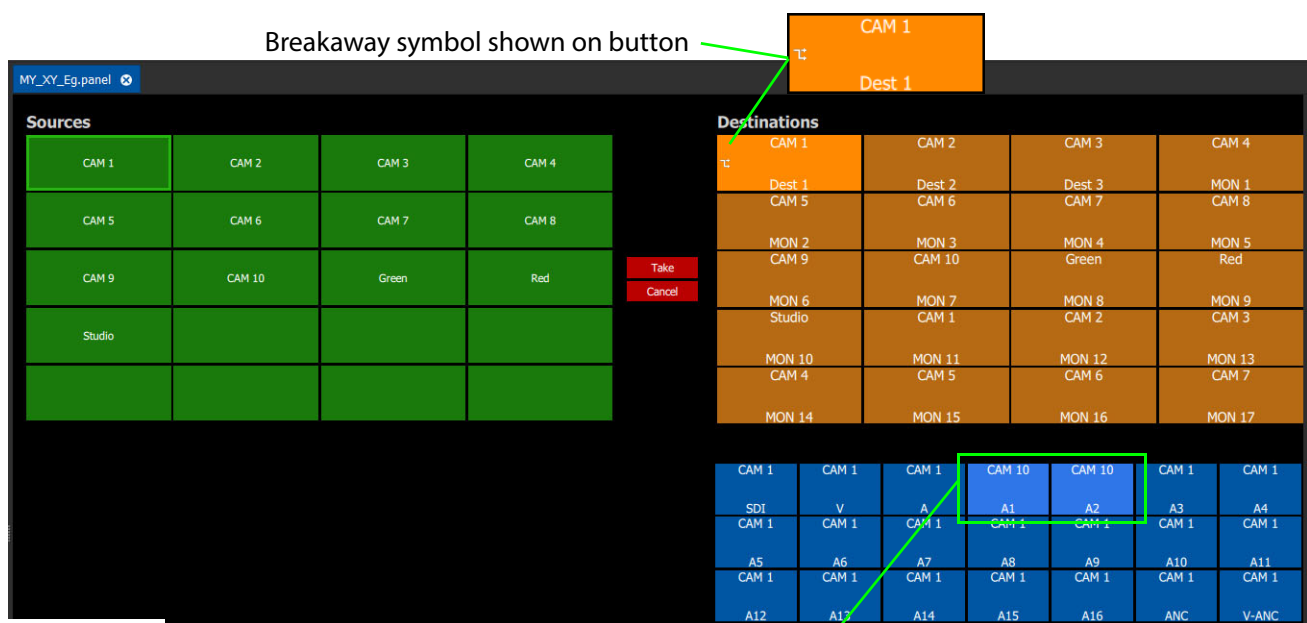
To perform a breakaway (see Figure 3-52):

- 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-select)
- 4 Click **Take**.

A routing is made: The selected **Destination Levels** have corresponding levels from the pre-selected **Source** routed to them. See Figure 3-52b.
The **Destination** button shows a 'Breakaway' symbol.



a) Before TAKE



b) After TAKE

Audio channels shown routed from another **Source**

Fig. 3-52: Breakaway Example: a) Before TAKE; b) After TAKE.

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

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).

Note: Performing a 'normal' route to a Destination which already has a 'Breakaway' will over-ride resulting in no 'Breakaway'.

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 Bulk Routing Panel indicates a 'shuffled' destination with a Shuffle icon on the destination button.

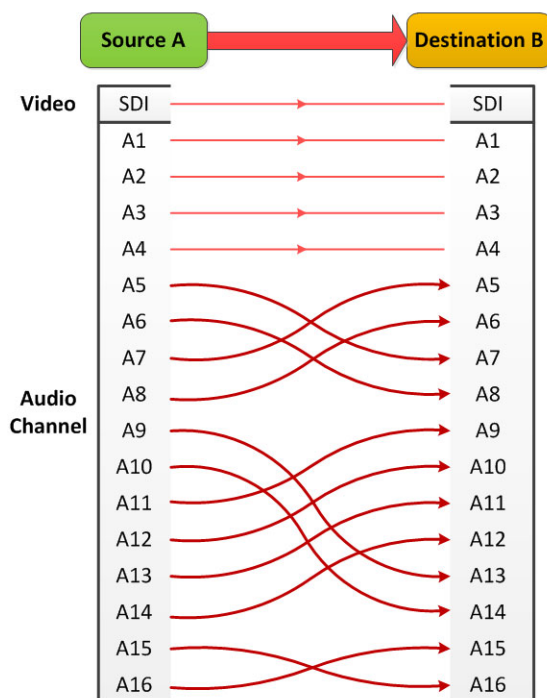


Fig. 3-53: Shuffles

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

Shuffle Example

This example swaps two audio channels pairs.

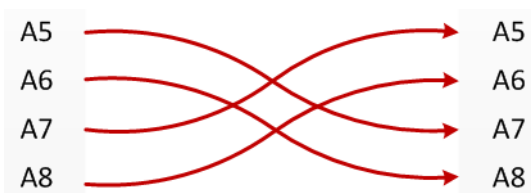


Fig. 3-54: Swap Two Audio Channel Pairs

- 1 Select a **Destination**.
- 2 Select one or more **Destination Levels**. (For example, audio channels A5, A6, A7 and A8. See Figure 3-55.)
- 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 3-55 shows a shuffle example, reversing the order of two audio channel pairs.

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

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

Take

Cancel

a) Before TAKE

Take

'Shuffle' symbol shown on button

Take

Cancel

Audio channels shown shuffled

A5 → A6
A6 → A5
A7 → A8
A8 → A7

b) After TAKE

Fig. 3-55: Shuffle Example: a) Before TAKE. b) After TAKE.

Route a Shuffled Destination

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

- 1 Click **Cancel** to cancel any selections already made.
- 2 Select an 'already-shuffled' **Destination**.
- 3 Do NOT select any **Destination Levels**.
- 4 Select a new **Source**. (For example, 'CAM 5')
- 5 Click **Take**.

A new **Source** is routed to the **Destination**, but the shuffling persists.
The result is shown in Figure 3-56.

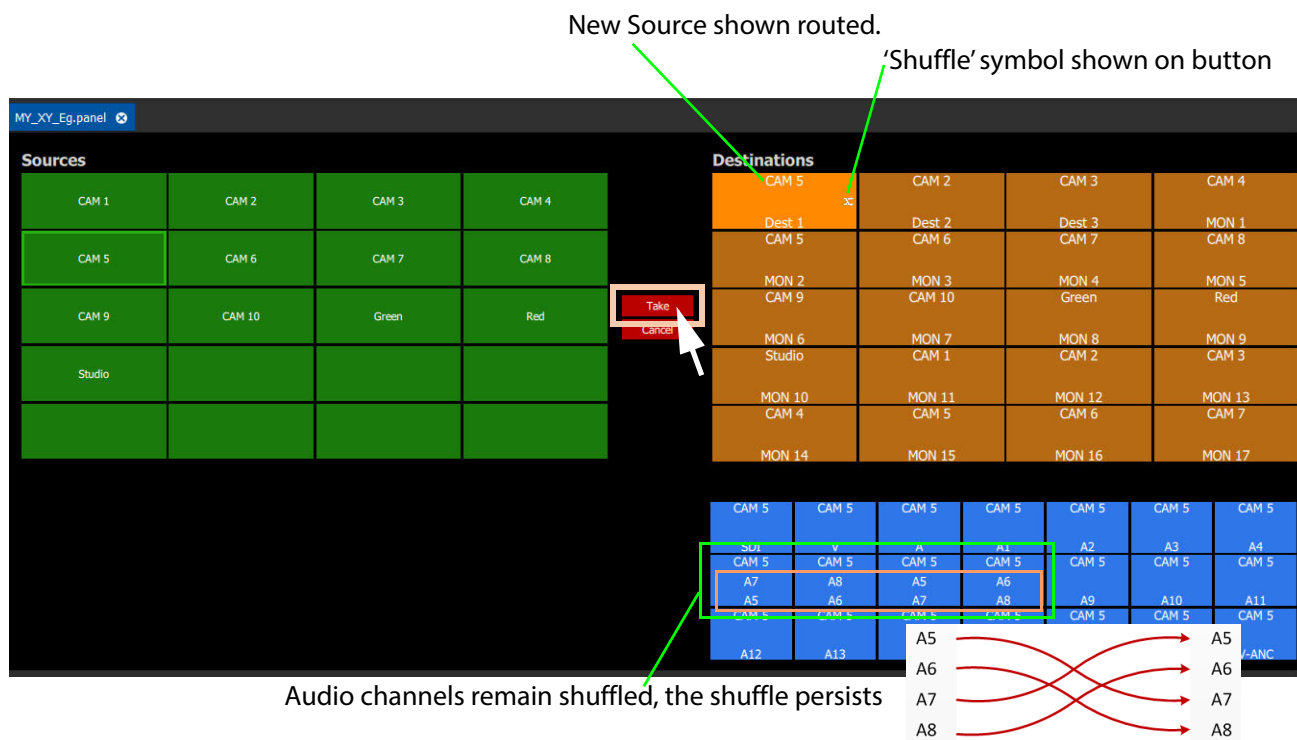


Fig. 3-56: Shuffle Persists

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 [Shuffle Example](#), on page 97.

- 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 [Shuffle Example](#), on page 97,
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. See Figure 3-57.

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

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

Sources				Destinations			
CAM 1	CAM 2	CAM 3	CAM 4	CAM 5	CAM 2	CAM 3	CAM 4
CAM 5	CAM 6	CAM 7	CAM 8	Dest 1	Dest 2	Dest 3	MON 1
CAM 9	CAM 10	Green	Red	CAM 5	CAM 6	CAM 7	CAM 8
Studio				MON 2	MON 3	MON 4	MON 5
				CAM 9	CAM 10	Green	Red
				MON 6	MON 7	MON 8	MON 9
				Studio	CAM 1	CAM 2	CAM 3
				MON 10	MON 11	MON 12	MON 13
				CAM 4	CAM 5	CAM 6	CAM 7
				MON 14	MON 15	MON 16	MON 17
SDI	V	A	A1	A2	A3	A4	
A5	A6	A7	A8	A9	A10	A11	
A12	A13	A14	A15	A16	ANC	V-ANC	

a) Before TAKE

Take Audio channels to be routed are not shown shuffled

No 'Shuffle' symbol shown on button

Sources				Destinations			
CAM 1	CAM 2	CAM 3	CAM 4	CAM 5	CAM 2	CAM 3	CAM 4
CAM 5	CAM 6	CAM 7	CAM 8	Dest 1	Dest 2	Dest 3	MON 1
CAM 9	CAM 10	Green	Red	CAM 5	CAM 6	CAM 7	CAM 8
Studio				MON 2	MON 3	MON 4	MON 5
				CAM 9	CAM 10	Green	Red
				MON 6	MON 7	MON 8	MON 9
				Studio	CAM 1	CAM 2	CAM 3
				MON 10	MON 11	MON 12	MON 13
				CAM 4	CAM 5	CAM 6	CAM 7
				MON 14	MON 15	MON 16	MON 17
SDI	V	A	A1	A2	A3	A4	
CAM 5	CAM 5	CAM 5	CAM 5	CAM 5	CAM 5	CAM 5	
A5	A6	A7	A8	A9	A10	A11	
CAM 5	CAM 5	CAM 5	CAM 5	CAM 5	CAM 5	CAM 5	
A12	A13	A14	A15	A16	ANC	V-ANC	

b) After TAKE

Audio channels no longer shown shuffled

Fig. 3-57: Undo Shuffle Example: a) Before TAKE. b) After TAKE.

Routing Behaviours

Orbit MapView projects contain MapView screens and XY Panel screens. Routing type Behaviours may be used with Button widgets etc. on a MapView XY Panel screen to synthesize a custom router control panel.

These Routing Behaviours are listed in Table A-1.

For each instance of a Behaviour, the following parameters are defined:

- Name for the instance.
- RollCall Address (of the Routing Service being used).

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 Orbit and customized as required.

Table A-1: Routing Behaviours

Behaviour	Parameters	Description
	Name, RollCall Address, +...	When triggered on an Orbit MapView XY panel screen...
BPX	Source, Destination	Routes a defined Source and Destination. (BPX, button per crosspoint)
Cancel	-	Cancels any selected Destination and pre-selected Source.
Destination	Destination	Provides access to information about a Destination, including the currently-routed Source.
Destination Button	Index	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.
Load Panel	Display Target Monitor	Opens the Orbit Bulk Routing Panel.
Page	Page Sources, Page Offset	Switches between router panel pages

Table A-1: Routing Behaviours (continued)

Behaviour	Parameters	Description
	Name, RollCall Address, +...	When triggered on an Orbit MapView XY panel screen...
Page Index	Page Sources, Page Index	Switches to a specific page index,
Page Tally	Page Sources	Allows the current page value to be displayed (on a panel screen).
Panel Lock	-	Toggles panel lock/unlock.
Protect	-	Protects a selected Destination.
Redo Button	-	Re-makes a route, used to implement a Redo button. (When placed on a panel schematic, enables Redo mode.)
Salvo	Salvo Index	Executes a salvo.
Source Button	Source Index	Selects a Source.
Source Level Button	Source Index	Enables a button to act like a Source Level selection button.
Take	-	Makes a route, used to implement a Take button. (When placed on a panel schematic, enables Take mode.)
Undo Button	Undo Requires Take, Undo Timeout	Undoes a route, used to implement an Undo button. (When placed on a panel schematic, enables Undo mode.)



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