



GV ORBIT CLIENT

DYNAMIC SYSTEM ORCHESTRATOR
V1.5.0

User Guide

13-03082-170 AA

2020-10-15

www.grassvalley.com

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This document is available on the Grass Valley website at:

https://www.grassvalley.com/products/gv_orbit/

Related Documentation

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

Part Number	Document Title
GVB-2-0860A-EN-DS	GV Orbit Datasheet
13-03082-010	GV Orbit Release Notes
13-03082-020	GV Orbit Welcome
13-03082-090	GV Orbit Admin Guide (Includes GV Orbit Services)
13-03082-160	GV Orbit Control User Guide
13-03082-170	GV Orbit Client User Guide

Latest Software

You can obtain the latest GV Orbit software from Grass Valley Technical Support. See [Grass Valley Technical Support](#), on page 465.

Document History

Publication Date YYYY-MM-DD	Document Number	Issue and Revision	Notes
2020-10-15	13-03082-170 AA	Issue 1 Revision 1	<p>Formed from merging the <i>GV Orbit Client Quick Start Guide</i> and <i>GV Orbit Routing Panel User Guide</i>. This resulting <i>GV Orbit Client User Guide</i> supersedes these two documents.</p> <p>Added sections covering: User management, MV Cluster and Room Editor, MV Cluster tally configuration, and Audio bars configuration. Added a glossary of terms.</p>

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1 Introduction

Summary contents of this chapter:

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- GV Orbit Product Introduction* 2
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 - Options Codes* 2
- GV Orbit Client Introduction* 3
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Welcome to the GV Orbit Client User Guide

In this first chapter, there is a [GV Orbit Product Introduction](#) and [GV Orbit Client Introduction](#). The next chapter contains [Getting Started Steps](#) and subsequent chapters provide additional information and feature descriptions.

See [In This Document](#), on page 5, for a document overview.

GV Orbit Product Introduction

GV Orbit is a single, consolidated, overarching configuration, control and monitoring package specifically designed for the dynamic orchestration of broadcast media networks, whether they be SDI, hybrid or pure IP. The underlying client-server architecture is targeted at open standards-based IP systems with many features and functions specifically crafted to make IP easy.

'Dynamic Orchestration' is GV Orbit's core strength that differentiates it from competitive systems. The ability to build, configure and change systems on-the-fly is hugely powerful, whether it is the adding/removing of devices or simply changing a name. In today's cost-conscious world, fast and efficient deployment and re-purposing of systems for alternative scenarios or productions is a key requirement.

GV Orbit uses one or more GV Orbit servers running the GV Orbit services and one or more client computers running [GV Orbit Client Introduction](#) application(s), which provide the user interface(s) to a GV Orbit system.

GV Orbit Products

The product is offered in the following basic forms:

- GV Orbit **Lite**
- GV Orbit **Professional**
- GV Orbit **Enterprise**

The GV Orbit **Professional** and **Enterprise** products require a GV Orbit server (GVO-HW) and are shipped with various software license options preinstalled. The options purchased determine the overall functionality and feature set available in a GV Orbit deployment.

The GV Orbit **Lite** product is a free-of-charge download from the Grass Valley website; it operates without a GV Orbit server and has basic functionality.

Options Codes

Table 1-1 outlines the GV Orbit option codes available and their functionality.

Table 1-1: GV Orbit Products - Functionality and Options Codes

Functionality	Lite	Professional			Enterprise
	(Free of charge)	GVO-CFG-PRO	GVO-MON-PRO	GVO-CTL-PRO	GVO-CTL-ENT
Uses GV Orbit Client	●	●	●	●	●
Requires GV Orbit Control Client		●	●	●	●
Requires min. one GV Orbit server ^a		●	●	●	●
Functionality:					
Device Configuration	●	●	●	●	●
Device Upgrade	●	●	●	●	●
Design MV-8 Series Video Wall	●	●	●	●	●
Design MV Cluster Video Walls		●	●	●	●
Client Real-Time Video Wall ^b	●	●	●	●	●

Table 1-1: GV Orbit Products - Functionality and Options Codes (continued)

1 Seat GV Orbit Client/Control Client		●	●	●	●
Advanced Configuration		●			
Bulk Upgrade		●			
Custom Screens			●		
Custom Screens in Web View			●		
Alarm Logging			●		
Routing Configuration				●	●
Hardware Panel Support				●	●
Simple Routing				●	●
Advanced Routing					●
Third-party Device Routing Control					●

a. For system redundancy, purchase two **Professional** or **Enterprise** systems.

b. Displays H.264 video streams from compatible multiviewers (e.g. MV-8 series multiviewers).

Sections and/or sub-sections of this guide are marked accordingly as being *applicable to Lite*, and/or **Professional** (Pro), and/or **Enterprise** (Ent) users.

GV Orbit Client Introduction

GV Orbit Client comprises two client applications:

- 1 **GV Orbit Client**.
- 2 **GV Orbit Control Client**, launched seamlessly from within the GV Orbit Client.

Both client applications are installable on PCs running MS Windows™. All the steps required to download, install and get started are covered in this guide.

GV Orbit Client and Existing Orbit

GV Orbit Client may be installed on the same client PC as the older Orbit client application.

Legacy Orbit projects can be opened and run by GV Orbit Client. However, any new features offered by GV Orbit will *not* be available in legacy Orbit projects run in GV Orbit Client.

Note: GV Orbit projects *cannot* be opened by a legacy Orbit client.

GV Orbit Project Types

GV Orbit uses a project-based workflow.

The Control and Monitoring project (C&M project) is the *main* GV Orbit project type and is used for control and monitoring, and for routing control applications in GV Orbit **Professional** and **Enterprise**.

Table 1-2: GV Orbit Project Types

Project Type	Product			Description	Supported Devices
	Lite	Pro	Ent		
Multiviewer Project	●	●	●	Defines a video wall targeted at MV-8 series multiviewers.	MV-8 Series multiviewer devices.
IQ Multiviewer Project	●	●	●	Defines a video wall targeted at IQ-MV multiviewers.	IQ-MV multiviewer devices, e.g. IQUCP25-MV.
Connected Multiviewer Project	●	●	●	Pulls a Multiviewer project from a multiviewer into GV Orbit Client for video wall editing.	MV-8 Series and IQ-MV multiviewers.
Clustered Multiviewer	-	●	●	Defines video walls that are served by a cluster of MV-8 series multiviewer devices.	MV-8 Series multiviewer devices.
Control and Monitoring Project (C&M project)	-	●	●	<p>Main project type. Includes:</p> <ul style="list-style-type: none"> • Design and deployment of custom graphical operator screens. • Device configuration, control and monitoring. • Device routing control. <p>Uses services/applications running on GV Orbit server(s).</p>	<p>Densité-protocol and RollCall-protocol devices.</p> <p>Routing control:</p> <ul style="list-style-type: none"> • IP end-points (Grass Valley and NMOS). • Traditional/SDI (NP-0017 and SW-P-08 protocols).

Requirements

For a full list of requirements for running GV Orbit Client, please refer to the *GV Orbit Release Notes*, see [Related Documentation](#), on page iii.

Domain IDs and IP Ports

A GV Orbit system employs 'domains' to segregate internal communications. Domains are specified with a Domain ID number (1 to 252) and each Domain uses separate IP ports. (For further information about IP Ports and Domain IDs for the GV Orbit client and server, refer to the *GV Orbit Release Notes* see [Related Documentation](#), on page iii.)

Note:

Domain ID numbers may be changed by the user. When using changed Domain ID numbers, recalculate the IP port numbers (refer to the *GV Orbit Release Notes* in [Related Documentation](#), on page iii).

GV Orbit Services Requirements

Lite:

There are no GV Orbit servers in a GV Orbit **Lite** installation and, as a result, no GV Orbit services in a GV Orbit **Lite** system.

Professional and Enterprise:

GV Orbit Client requires at least one GV Orbit server running configured GV Orbit Services. Please refer to related GV Orbit documentation, see [Related Documentation](#), on page iii. In particular, for information on GV Orbit services, refer to the *GV Orbit Admin Guide*.

In This Document

This document describes some steps for getting started with GV Orbit Client and then proceeds to describe other features.

- Chapter 2, [Getting Started Steps](#), on page 7.
- Chapter 3, [Home Screen](#), on page 65.
- Chapter 4, [Manage Users](#), on page 141.
- Routing control panels:
 - Chapter 5, [Routing Control - Bulk Routing Panel](#), on page 171.
 - Chapter 6, [Routing Control - XY Routing Panel](#), on page 265.
- Clustered multiviewers (applications with multiple multiviewers):
 - Chapter 7, [Multiviewer Cluster](#), on page 333.
 - Chapter 8, [MV Cluster - Room Editor](#), on page 353.
 - Chapter 9, [MV Cluster - TSL Tally Configuration](#), on page 421.
 - Chapter 10, [Audio Bars Configuration](#), on page 447.
- At the end of the document there is a handy [Glossary of Terms](#).

Getting Started Steps



Summary contents of this chapter:

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The purpose of this chapter is to provide the minimum steps required to install, configure and get started with the GV Orbit Client application.

Step 1: Download, Install and Launch

Lite	Professional	Enterprise
●	●	●

This section describes how to download/install client installers and launch GV Orbit Client.

- [Step 1.1: Download Client Installers](#), on page 8.
- [Step 1.2: Installation of GV Orbit Client](#), on page 10.
- [Step 1.3: Installation of GV Orbit Control Client](#), on page 13.
- [Step 1.4: Launch GV Orbit Client](#), on page 15.

Step 1.1: Download Client Installers

Download Installer for GV Orbit Lite

On the client PC:

- 1 Go to https://www.grassvalley.com/products/gv_orbit/
The GV Orbit product web page is shown.
- 2 Select the 'Product Documents' tab and click on 'Software Downloads'.
- 3 On the next page, click on 'GV Orbit software downloads'.
The downloads page for GV Orbit opens and shows different GV Orbit versions.
- 4 Click on the required installer.
For example, for GV Orbit Lite v1.5.0, click on v4.5.0.

Note:

- 'GV Orbit' software version numbers start at v1.0.0; and
 - corresponding 'GV Orbit Client' versions start at v4.0.0.
-

Note:

The 'GV Orbit **Lite**' product uses solely 'GV Orbit Client'.

The software downloads page for the GV Orbit version is opened in a new browser tab. Software and release notes may be downloaded from this page. (Web address for a GV Orbit version is similar to: www.grassvalley.com/downloads/routers/gv_orbit_v1.5.0/

Note: The actual URL web address of the page might change in the future.)

- 5 Select the 'Software' tab and click on the link to download the installer to your computer.

Note:

Downloading of documentation or software may require logging into the GV website, or registering with the website if not already done so.

The GV Orbit **Lite** client installer has been downloaded.

Download Installers for GV Orbit Professional and Enterprise

GV Orbit **Professional** and **Enterprise** use one or more GV Orbit servers which are the source of client installers in GV Orbit **Professional** and **Enterprise** systems.

Note:

Downloading of the **GV Orbit Client** installer is separate from the downloading of the **GV Orbit Control Client** installer.

Download both the **GV Orbit Client** and the **GV Orbit Control Client** installer from the GV Orbit server. (Thus, client versions are kept compatible.)

(For full download instructions, refer to the *GV Orbit Admin Guide*, see [Related Documentation](#), on page iii.)

On the client PC:

- 1 Enter the GV Orbit server's IP address into a browser. (Chrome recommended.)
The GV Orbit server **Admin Login** screen appears. (See Figure 2-1.)
- 2 Click on each of the client installer download links to download the installers.

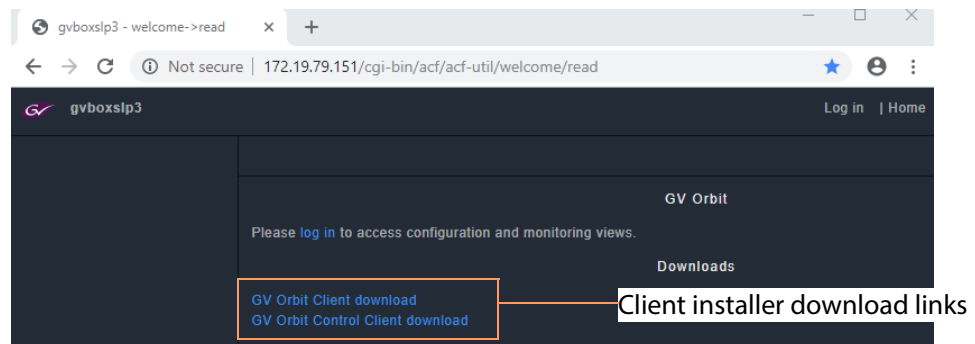


Fig. 2-1: GV Orbit Server Admin Login Screen

Note:

Client installers on the GV Orbit server are updated with a server update. After a server update, download and reinstall the clients (recommended).

Step 1.2: Installation of GV Orbit Client

Lite	Professional	Enterprise
●	●	●

Installation of GV Orbit Client and of GV Orbit Control Client is done separately. This section covers GV Orbit Client installation, including some information about any existing, legacy Orbit installs. (For GV Orbit *Control* Client, see [Step 1.3: Installation of GV Orbit Control Client](#), on page 13.)

Legacy Orbit Client Users

For users with the older, legacy 'Orbit' client already installed on the client PC, the following applies:

- GV Orbit Client may be installed on the same client PC as the legacy 'Orbit' client application.
- GV Orbit Client and the legacy 'Orbit' client may *not* be run together.
- At installation, GV Orbit Client inherits registry settings from any already-installed legacy 'Orbit' client (e.g. multicast/unicast discovery setting, and 'recent projects' list).

Install GV Orbit Client

Note: GV Orbit client installs into client PC's 'Program Files' folder by default.

- 1 Run the downloaded installer file on the client PC.

Allow the installer to run by responding to any Windows™ dialogs accordingly.

The GV Orbit Client installer 'Setup GV Orbit' screen is then shown.

- 2 Click **Next>** to begin the installation.



Fig. 2-2: GV Orbit Client's Setup Screen

- 3 Accept the License Agreement in the following dialog and click **Next>**.

The installer will install into the folder of an existing installation of GV Orbit Client.

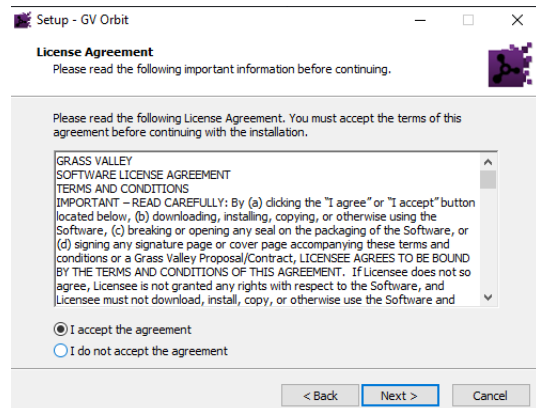


Fig. 2-3: GV Orbit Client's Setup Screen

- 4 If no previous GV Orbit Client is found, then an installation folder is prompted for. (Default folder location is C:\Program Files\Grass Valley\GV Orbit.)
- 5 Select a new folder, if required. Click **Next**.
- 6 At the next dialog, click **Install**.

GV Orbit Client installation begins and a progress bar is shown.

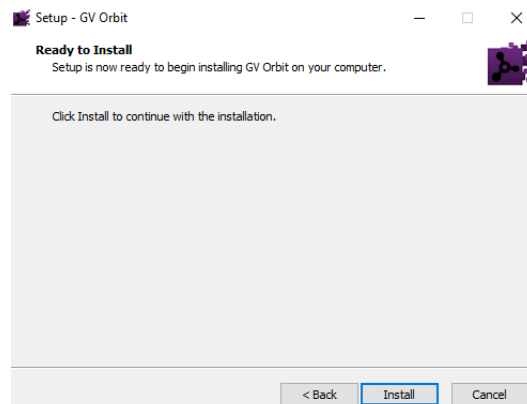


Fig. 2-4: GV Orbit Client Setup 'Completing' Screen

- 7 When GV Orbit Client installation is complete, the GV Orbit Client setup 'Completing' screen is shown.
- 8 Click **Finish** and the GV Orbit Client application launches and shows its initial screen. See Figure 2-6.
- 9 Close the GV Orbit Client application. GV Orbit Client is installed.

Note:

A shortcut is available from the Windows™ Start menu. (Start -> Grass Valley -> GV Orbit)

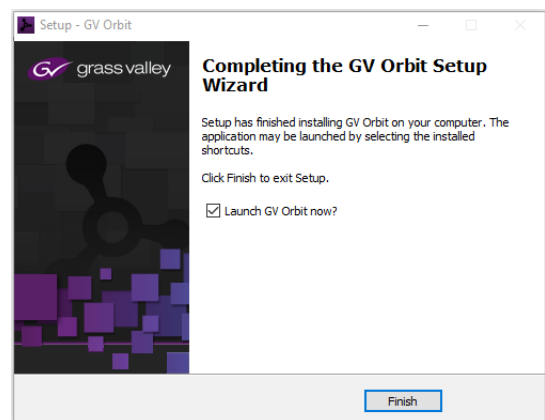


Fig. 2-5: GV Orbit Client Setup 'Completing' Screen



Fig. 2-6: GV Orbit Client Initial Screen

Firewall

- 10 Check that the GV Orbit Client application is not blocked by your client PC's firewall.

Note:Firewall:

'orbit.exe' should be on a list of allowed apps (or programs) that can communicate through the client PC's firewall.

These PC settings may be controlled by your network administrator.

Step 1.3: Installation of GV Orbit Control Client

Lite	Professional	Enterprise
-	●	●

This sub-section is applicable to GV Orbit **Professional** and **Enterprise** product versions.

Note:

The GV Orbit Control client installs into a *user* folder on the client PC. Thus it is normally only available to the user who carries out the installation.

- 1 Log into the client PC as the user who will be operating the GV Orbit clients.
- 2 Run the downloaded GV Orbit Control Client installer file.

Allow the file to run on the client PC by responding to any dialogs accordingly.

A splash screen is shown during installation:



- 3 When the installation is complete, the GV Orbit Control Client login screen appears.

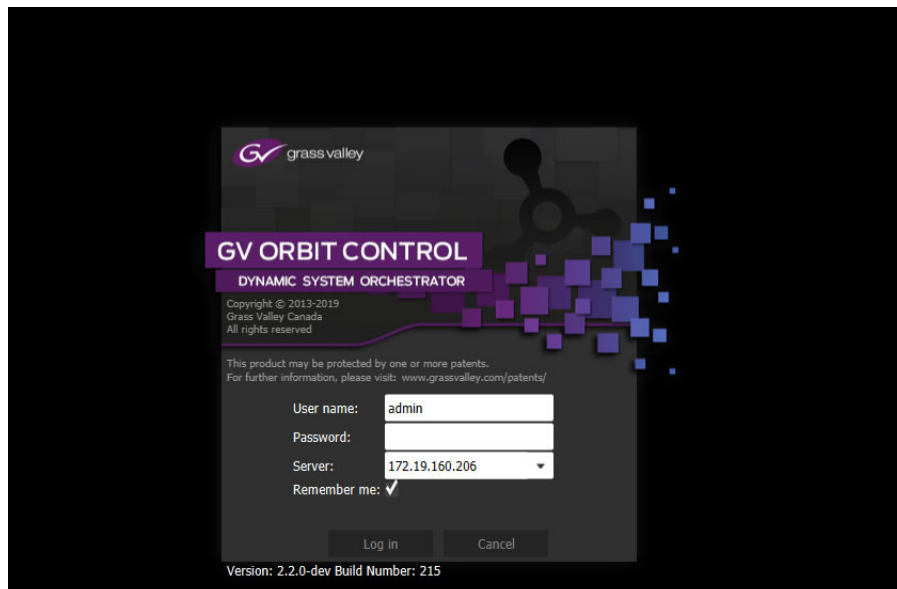


Fig. 2-7: GV Orbit Control Client Login Screen

- 4 Enter 'admin' for both the **User name** and the **Password**.
- 5 Enter the IP address of the GV Orbit server in the **Server** text box.
- 6 Click **Log in**.

A blank **GV Orbit Control Client** screen appears.

Getting Started Steps

Step 1.3: Installation of GV Orbit Control Client -

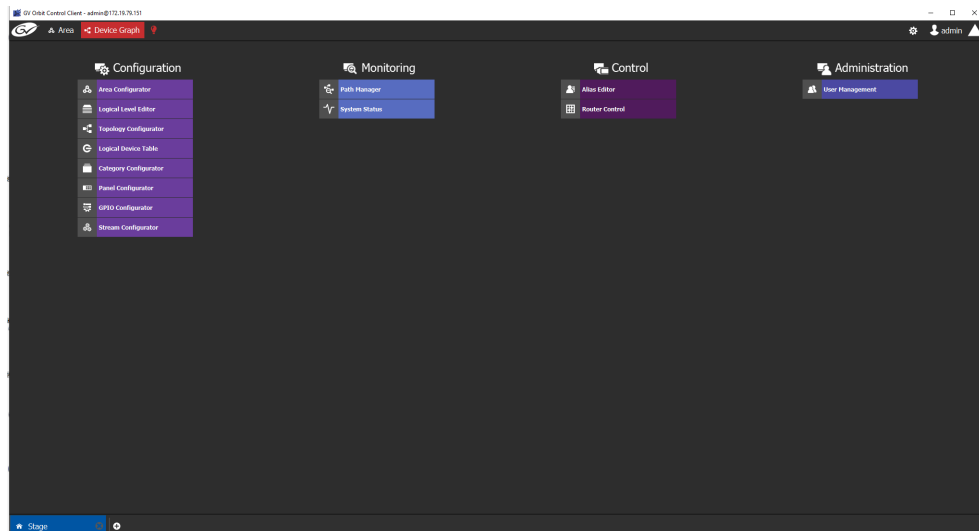


Fig. 2-8: GV Orbit Control Client Screen Example

7 Close GV Orbit Control Client.

GV Orbit Control Client installation is complete.

The installation folder is in the user folder, for example:

```
C:\Users\A_User\AppData\Roaming\JWrapper-GVOrbitControlClient\
```

CAUTION:

The GV Orbit Control Client is installed in a user folder and is therefore normally only available to the user who carried out the installation.

Note:

GV Orbit Control Client is *not* normally launched manually by the user. Instead, it is launched by the GV Orbit Client application. (Although a shortcut is available on the client PC desktop and from the Windows™ Start menu: Start -> Grass Valley -> GV Orbit Control Client)

Firewall

8 Check that the installed application is not blocked by your client PC's firewall.

Note:Firewall:

'GVOrbitControlClient.exe' should be on a list of allowed apps (or programs) that can communicate through the client PC's firewall. These PC settings may be controlled by your network administrator.

Step 1.4: Launch GV Orbit Client

- 1 GV Orbit Client may be launched from the Windows™ 'Start' button. ("GV Orbit")

A splash screen is shown during start up:

And then the GV Orbit Client initial screen is shown. See Figure 2-9.

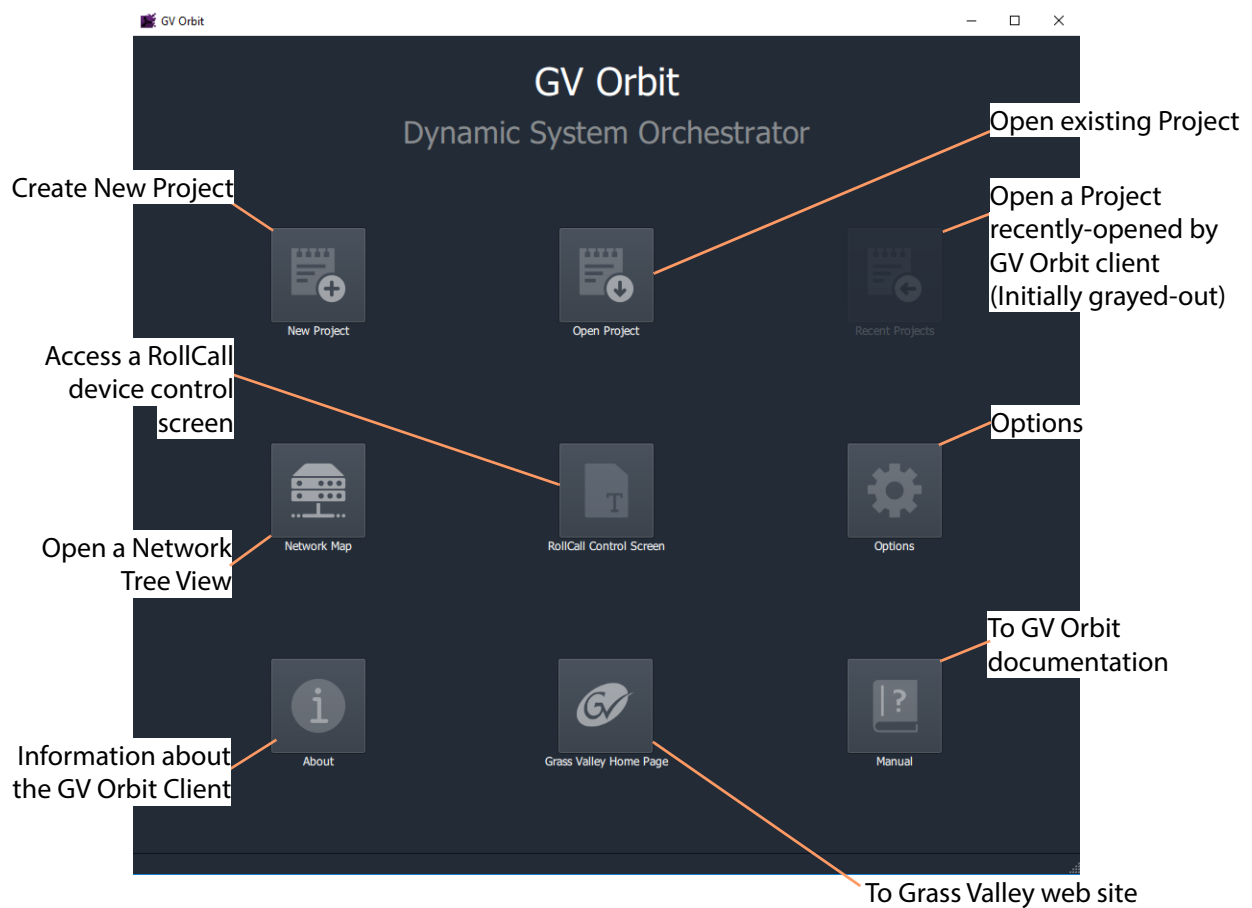
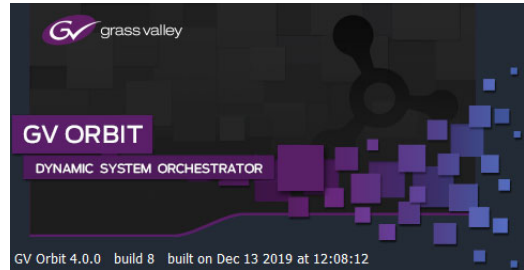


Fig. 2-9: GV Orbit Client Initial Screen

Step 2: GV Orbit Projects

Lite	Professional	Enterprise
●	●	●

Introduction

This section describes how to open a project. GV Orbit project types are listed in Table 1-2 on page 4. Once a project is created in GV Orbit Client, it can be saved locally on the client PC but it needs to be deployed for use by saving it (pushing it) to either:

- a multiviewer device (multiviewer projects; GV Orbit **Lite**, **Enterprise** and **Professional**); or to
- a GV Orbit server (C&M projects; GV Orbit **Professional** and **Enterprise** only).

Multiviewer project types are used to define a compatible multiviewer's video wall. These are applicable to GV Orbit **Lite**, **Enterprise** and **Professional**.

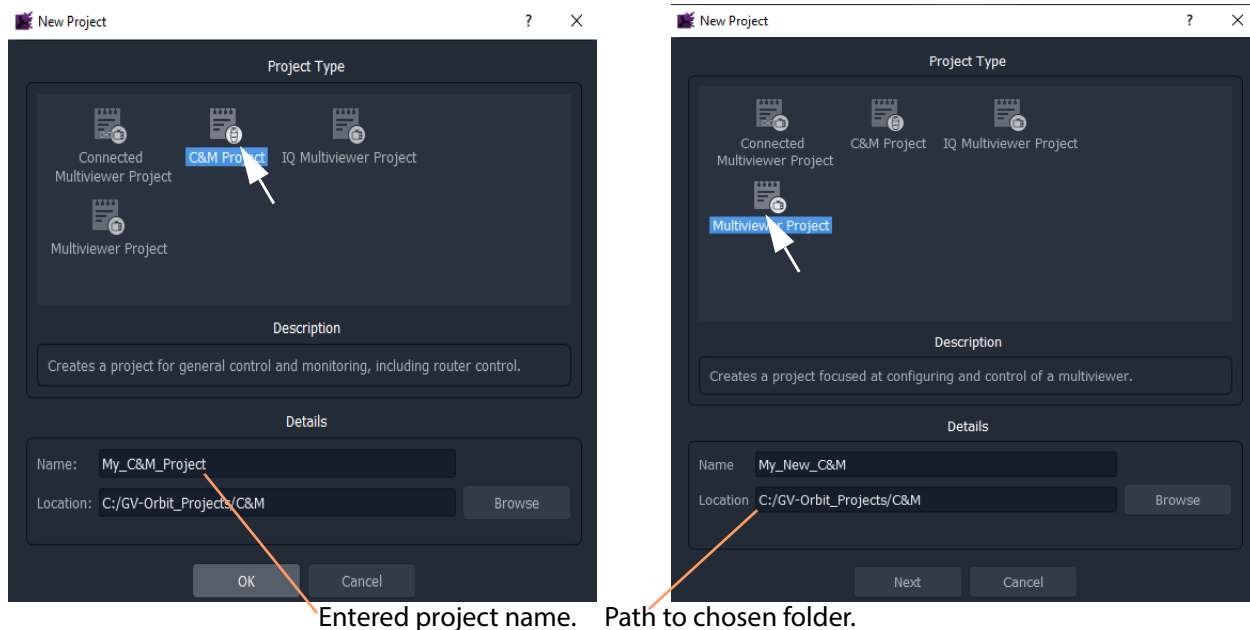
The main project type for GV Orbit is a 'Control and Monitoring' project (C&M project) which is used for control and monitoring applications, and for routing control. This project type uses services running on a GV Orbit server and is applicable to GV Orbit **Professional** and **Enterprise** only.

- [Step 2.1: New Project](#), on page 17.
- [Project Home Screens in GV Orbit Client](#), on page 22.
- [Step 2.2: Save, Push, and Close a Project](#), on page 23.
- [Open and Pull a Project](#), on page 24.

Step 2.1: New Project

To Open a Project from the Initial Screen

- 1 Click **New Project**.
The **New Project** dialog is shown.
- 2 Select a project type.



a) C&M project type selected

b) Multiviewer project type selected

Fig. 2-10: New Project Dialogs

- 3 Click **Browse** and browse to a local folder on the client PC (or to a network folder accessible from the client PC) where the new project files will be placed. Click **Choose**.

Note: The chosen folder is not on a GV Orbit server.

- 4 Enter a name for the new project.
- 5 Click **OK / Next**.
A sub-folder is created with the name of the project. It contains the new project files.
- 6 If prompted, answer **Yes** to create a directory (sub-folder).
 - For a Multiviewer project, see [For a Multiviewer Project \(GV Orbit Lite, Enterprise and Professional\)](#), on page 18.
 - For a C&M project, see [For a C&M Project \(GV Orbit Enterprise and Professional\)](#), on page 18.

For a Multiviewer Project (GV Orbit **Lite**, **Enterprise** and **Professional**)

A dialog is shown for setting up the resolution of the multiviewer head display outputs.

- 7 Select the **Output Size** (1920x1080 or 1280x720).
- 8 Click **OK**.

The new multiviewer project is created and its GV Orbit Client project **Home Screen** is shown. See [Project Home Screens in GV Orbit Client](#), on page 22.

For a C&M Project (GV Orbit **Enterprise** and **Professional**)

For a Control and Monitoring (C&M) project, a **Setup** dialog is shown.

(For more information about setting up a C&M project, see [Step 7: Control and Monitoring Project Setup \(Professional/Enterprise\)](#), on page 51.)

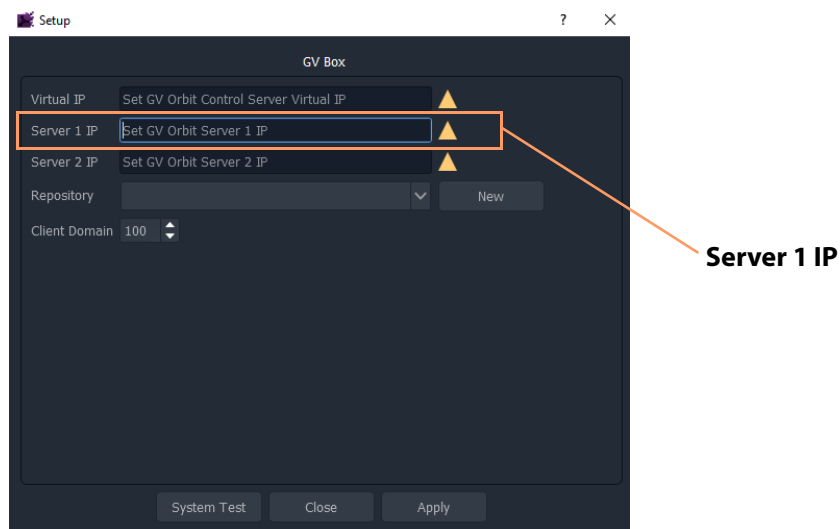
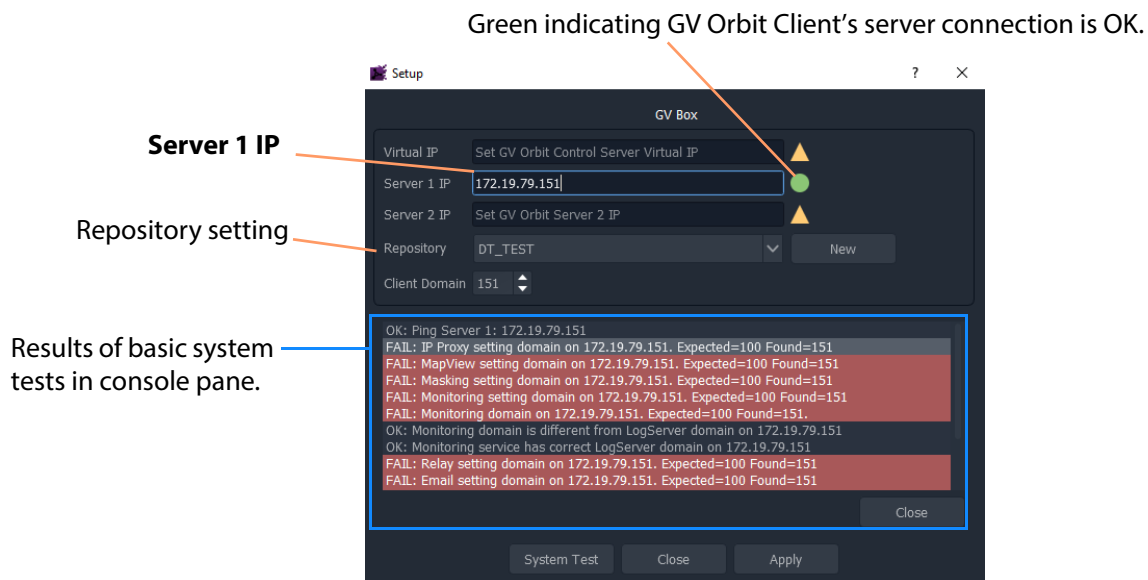


Fig. 2-11: C&M Project Setup Dialog

For the C&M project, in the **Setup** dialog:

- 9 Set **Server 1 IP** to the IP address of the GV Orbit server.
(For a dual-server GV Orbit system, still just enter the IP address of one server. The second server will be discovered automatically in the steps below.)
After the IP address is entered, GV Orbit Client carries out some basic system tests; it uses the current **Setup** dialog settings. System connectivity is checked and some basic system information is discovered from the GV Orbit server.
- 10 After these system tests are done, the results are listed in the dialog in a console pane. See Figure 2-12.



(For more information, see [Step 7: Control and Monitoring Project Setup](#))

Fig. 2-12: Example Basic System Test Results (Single Server Shown)

Note:

Some system test console items may be shown in 'red', indicating where discovered information disagrees with settings in the **Setup** dialog. In this case, settings in the dialog are then filled out automatically to be consistent with discovered settings.

A subsequent system re-test (performed below) *will clear these red items.*

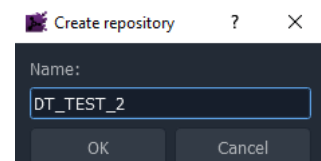
Repository in Setup Dialog

For deployment, a C&M project is saved to the GV Orbit server in a **Repository**, one project per **Repository**. This setting selects which **Repository** is used by the project.

- 11 For the **Repository** setting, click **New**.

The **Create Repository** dialog is shown:

- 12 Enter a name for the new repository and click **OK**.



System Re-Test

A system re-test will now remove any red items in the console pane. In the **Setup** dialog:

- 13 Click **System Test**.

This forces the GV Orbit Client to redo its basic system tests. The results are shown in the console. Any 'red' items from before should now be cleared.

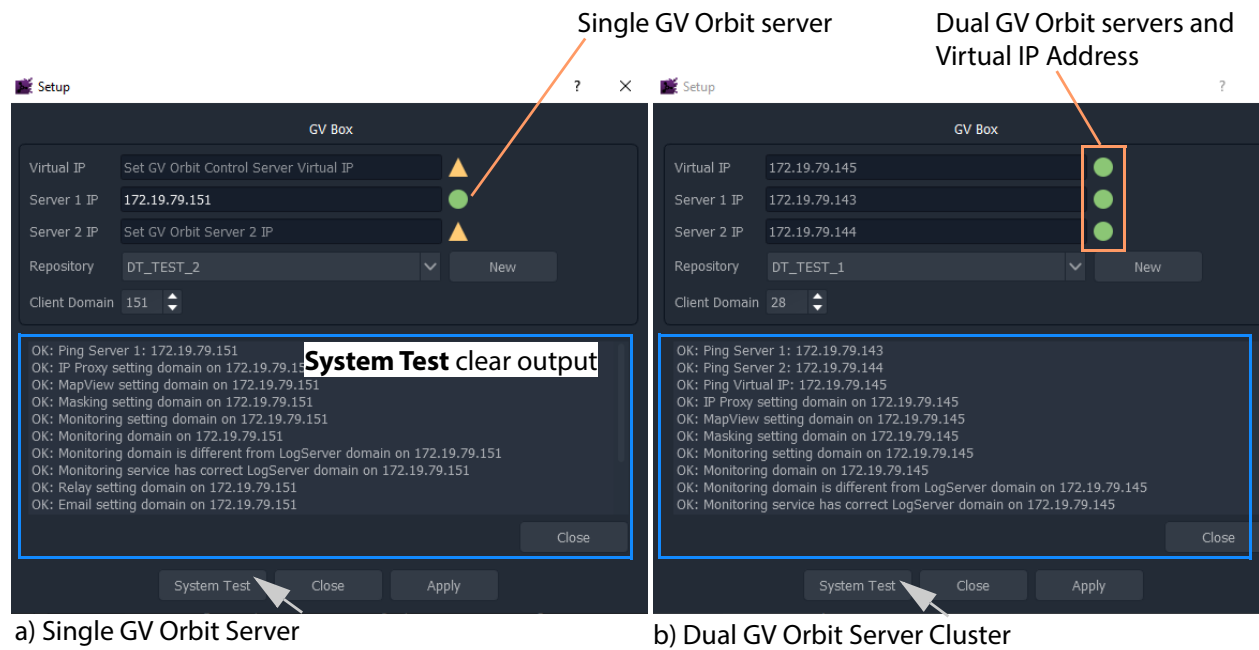
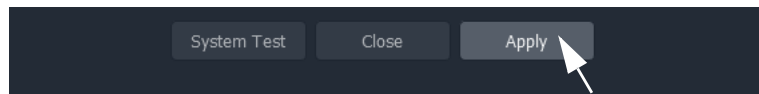


Fig. 2-13: System Test Console Output:
 a) Single GV Orbit Server.
 b) Dual GV Orbit Server Cluster.

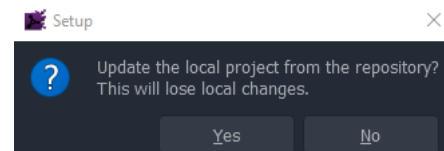
14 Click **Apply**.

The settings are applied to the project and a progress bar appears in the dialog.

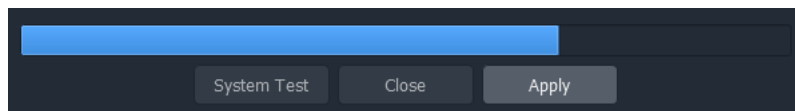


15 A pop-up dialog may appear, asking if the local project should be updated from the chosen repository.

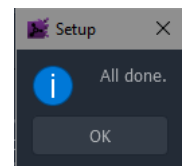
- Click **Yes** to update the local project (and lose any local changes made).
- Click **No** to keep the local project changes (and not pull the project from the repository on the server).



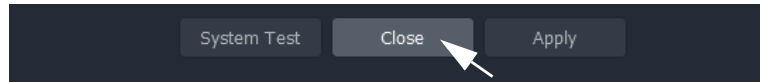
The applying of settings continues and progress is shown in the progress bar:



16 A pop-up dialog box confirms when the 'Applying' is all done. Click **OK** in the pop-up to proceed.



- 17 In the **Setup** dialog, click **Close**.



The new C&M project is created in GV Orbit Client and its **Home Screen** is shown. (See [Project Home Screens in GV Orbit Client](#), on page 22.)

Note:

The **Setup** dialog can also be viewed when a C&M project is open by clicking **Connections -> GV Server** in the main menu of GV Orbit Client.

Note:

Setting up and applying the GV Orbit server IP address for a project will automatically set up other comms settings for the project.

Project Home Screens in GV Orbit Client

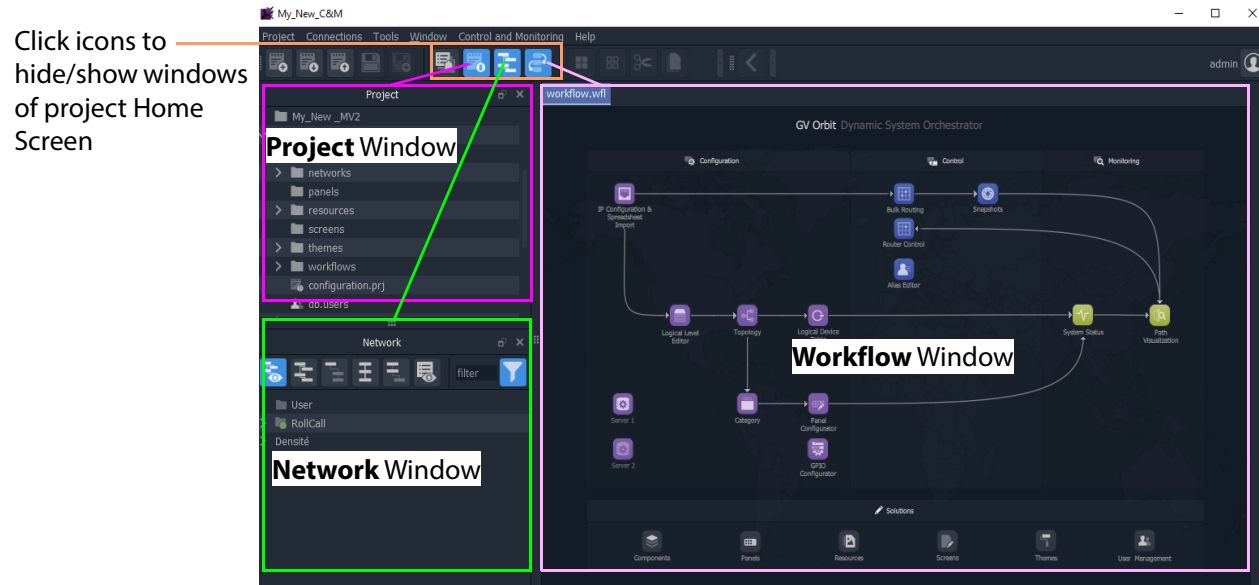
The project's **Home Screen** is shown and a new GV Orbit project has been created.

Note:

The **Home Screen** appearance varies according to project type and which GV Orbit Client windows are enabled and being shown.



a) Example New Multiviewer Project Home Screen



b) Example New C&M Project Home Screen (See [Project Home Screen](#) for Information)

Fig. 2-14: GV Orbit Home Screen Examples: a) Multiviewer Project; b) C&M Project.

Note: A GV Orbit 'Multiviewer' project type is typically for single-multiviewer designs. For video walls designs that are served by a cluster of multiviewers (MV Cluster), then use the GV Orbit 'Clustered Multiviewer' project type (described in Chapter 7, [Multiviewer Cluster](#), on page 333).

Note: A C&M project type is for GV Orbit **Professional** and **Enterprise** only. A C&M project can be created in GV Orbit **Lite**, but may not be used.

Step 2.2: Save, Push, and Close a Project

Step 2.2.1: Save a Project Locally

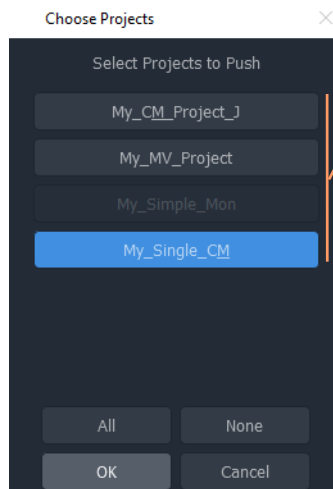
To locally save a project from GV Orbit Client:

- 1 Click **Project** -> **Save Project** in the main menu to save the project into the local folder on the client PC.

Step 2.2.2: Push Project (Save to Server)

To push an open project back into a repository (on the GV Orbit server, or on a multiviewer device):

- 1 Click **Project** -> **Push** in the main menu.
A **Choose Projects** dialog is shown.



Projects listed have been opened by the GV Orbit Client before. These appear in the **Project** window on the client.

Fig. 2-15: Choose Projects Dialog

- 2 Select the project to be pushed. (More than one may be selected.) Click **OK**.

The project is pushed to the repository.

Once a project is in a repository, it is deployed for use:

- **Multiviewer project** - A project is pushed to a multiviewer which can then adopt the project's video wall design.
- **C&M project** - A project is pushed to the GV Orbit server. Applications/services etc. on the server can then access the project. For example, the Web Renderer service can read the project and render its custom operator screens for viewing in a web browser.

Step 2.2.3: Close a Project

To close a project in GV Orbit Client:

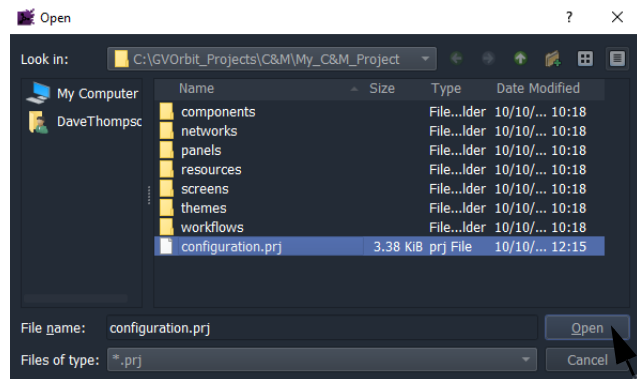
- Click **Project** -> **Close Project** to close the project.

Open and Pull a Project

Open Existing Local Project

To open an existing local project from the GV Orbit **Initial Screen**:

- 1 Click the **Open Project** icon.
The **Open** dialog is shown:
- 2 Browse *into* the local project folder required and select the 'configuration.prj' file within it.
- 3 Click **Open**.
A login screen is shown.
- 4 For a new project, enter **User name** 'admin' and **Password** 'admin' and click **Login**.
The project's **Home Screen** is shown.



Note: New GV Orbit projects have **User name** 'admin', **Password** 'admin'.

Pull a Project (Load from Server)

To pull a project from a repository (on the GV Orbit server, or on a compatible multiviewer):

- 1 Click **Project** -> **Pull** in the main menu.
A **Choose Projects** dialog is shown. (See Figure 2-15.)
- 2 Select the project to pull.
- 3 Click **OK**.
The project is pulled from the repository, stored locally on the client PC, and is opened by the GV Orbit Client.

Note: Pull and Push:

When connecting to a repository, the user may be prompted to **Pull** a project from a **Repository**. **Pull** a project in order to either:

- edit the project locally (any local project is overwritten); or
- run the project locally (for example, to run operator screens).

Do not Pull:

- if a local project has all been created or changed and which needs to be put into a **Repository**. (This requires a **Push**.)
-

Exit GV Orbit Client

Save the project locally and push it to be deployed, as required, before exiting GV Orbit Client.

To exit and close the GV Orbit Client application:

- 1 Click **Project -> Exit**.

The application shuts down and exits.

Step 3: Device Configuration

Lite	Professional	Enterprise
●	●	●

Introduction

This section describes how to access device control screens with GV Orbit Client. Devices can then be configured as required. RollCall- and Densité-protocol devices are covered.

- [Step 3.1: Direct Configuration of RollCall-protocol Devices](#), on page 26.
- [Step 3.2: Configuration of Densité and RollCall Devices](#), on page 27.

Step 3.1: Direct Configuration of RollCall-protocol Devices

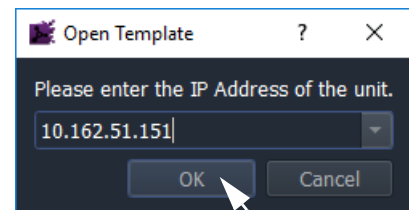
RollCall-protocol devices can be configured directly from GV Orbit Client with the device's IP address from the GV Orbit Client **Initial Screen**:

- 1 Click the **RollCall Control Screen** icon, (or, with a project open, in the main menu click **Connections -> RollCall -> RollCall Control Screen**).

The **Open Template** dialog is shown:

- 2 Enter the IP address of the target device.
- 3 Click **OK**.

The control screen is shown in a tab.



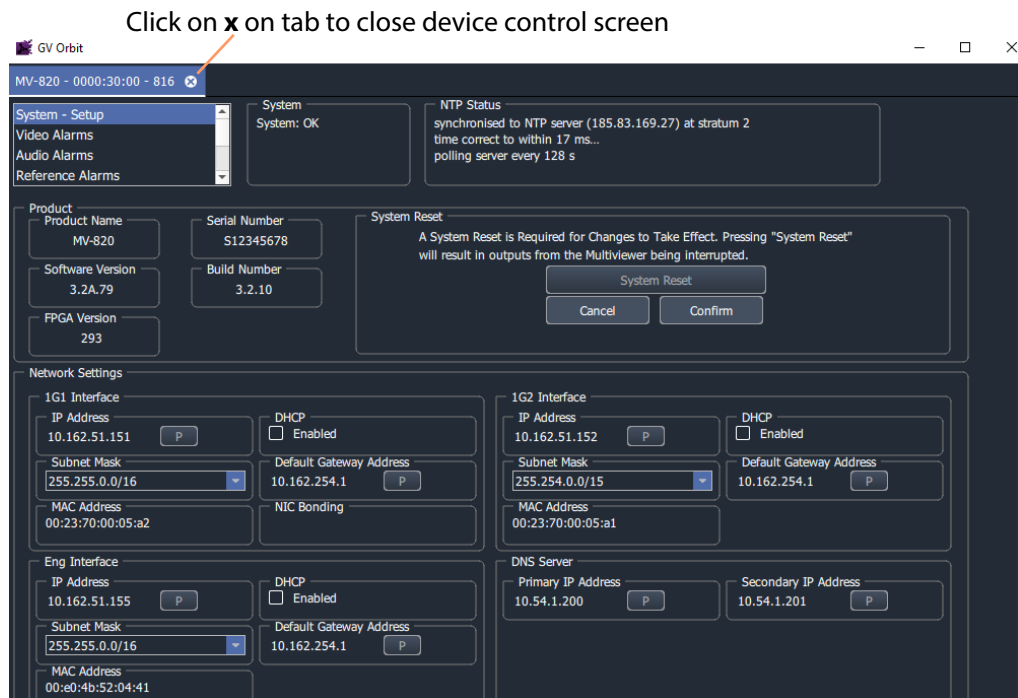


Fig. 2-16: Example Device Control Screen (RollCall-protocol Device shown)

- When all device configuration changes are complete, close the control screen tab.

Step 3.2: Configuration of Densité and RollCall Devices

With a GV Orbit project open in GV Orbit Client, GV Orbit **Professional** and **Enterprise** can show RollCall-protocol and Densité-protocol devices with full status indication listed in a **Network** window.

However, GV Orbit **Lite** can only *list* RollCall-protocol device items in the **Network** window and *without* any status indication.

Network Window Views

The **Network** window can show devices either in a tree-view or in a list-view. Toggle between these views with the tool bar controls shown in Figure 2-17.

See [Network Window](#) for a description of the Network window.

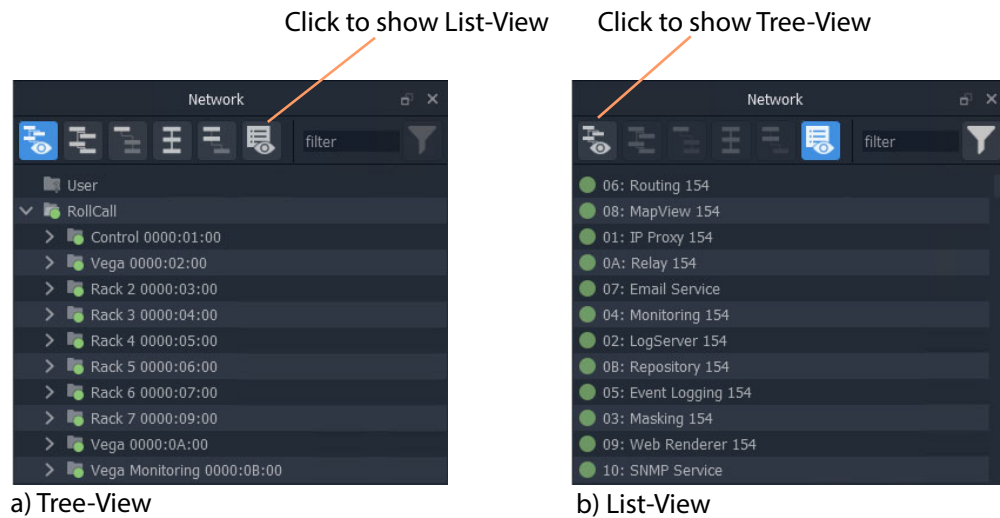


Fig. 2-17: Network Window Views

Note:

The **Network** window may already be showing system devices etc. for a C&M project open in GV Orbit Client if the GV Orbit services have been set up on the GV Orbit server, so no set up may be required here.

Initial set up of the **Network** window can be done in a project; this is done differently for RollCall-protocol devices than for Densité-protocol devices and each is described below:

- [Step 3.2.1: Network Window Setup For RollCall Devices](#)
- [Step 3.2.2: View a Device Control Screen - RollCall Devices](#)
- [Step 3.2.3: Network Window Setup For Densité Devices](#)
- [Step 3.2.4: View a Device Control Screen - Densité Devices](#)

Step 3.2.1: Network Window Setup For RollCall Devices

RollCall device control screens can be viewed with GV Orbit Client via a GV Orbit server (which runs a GV Orbit IP Proxy service).

To set up the **Network** window:

- 1 For GV Orbit:
 - **Lite** - From the GV Orbit Client **Initial Screen**, click the **Network Map** icon.
 - **Professional** and **Enterprise** and with a C&M project open - Click **Connections** -> **RollCall** -> **Network Map** in the main menu.

An **Open Network** dialog is shown. (See Figure 2-18.)

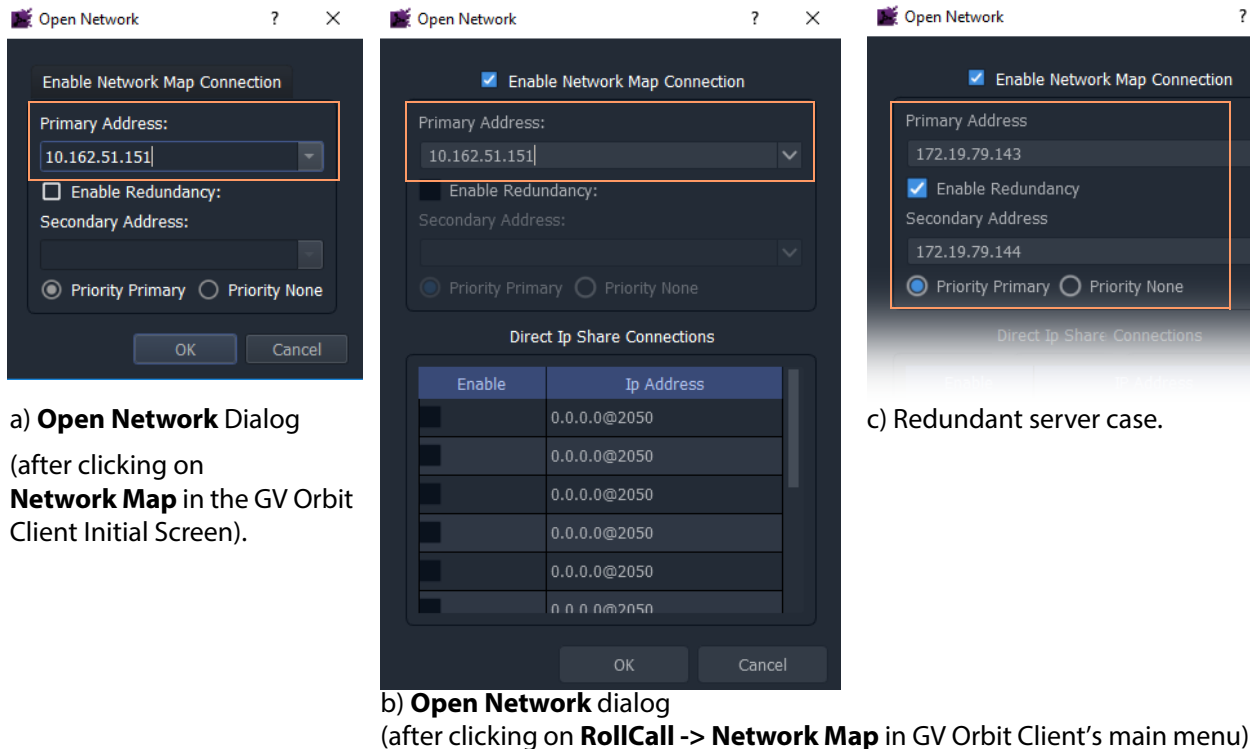


Fig. 2-18: Open Network Dialogs:

- a) After clicking Network Map icon in GV Orbit Client Initial Screen.
- b) After clicking RollCall -> Network Map in GV Orbit Client main menu.
- c) Redundant server case.

- 2 Select **Enable Network Map Connection**, if available in the dialog.
- 3 Enter an IP address for the **Primary Address**:
 - GV Orbit **Lite**:
Enter the address of an IQ frame controller to be able to access all devices in the frame.
 - GV Orbit **Professional** and **Enterprise**:
Enter the IP address of a GV Orbit server.
This will connect to the IP Proxy service running on the server and allow access to all devices connected to the IP Proxy service.

Note:

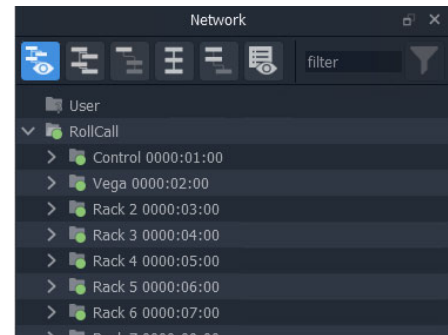
- The IP address entered in the **Open Network** dialog may be for either:
- a GV Orbit server, which runs a IP Proxy service; or for
 - a single device.
-

- 4 For redundant GV Orbit systems,
select **Enable Redundancy** and enter the IP address of a second GV Orbit server.

5 Click **OK**.

A **Network** window appears in the GV Orbit Client:

This can be re-sized. It can show an expandable tree-view of *all* devices attached to the IP Proxy service.



Step 3.2.2: View a Device Control Screen - RollCall Devices

To view a RollCall device control screen from the **Network** window:

- 1 Locate the target device in the **Network** window (tree-view or list-view). Right-click on the item and select 'Control'.

The control screen and its sub-menus are loaded and are then shown in a tab.

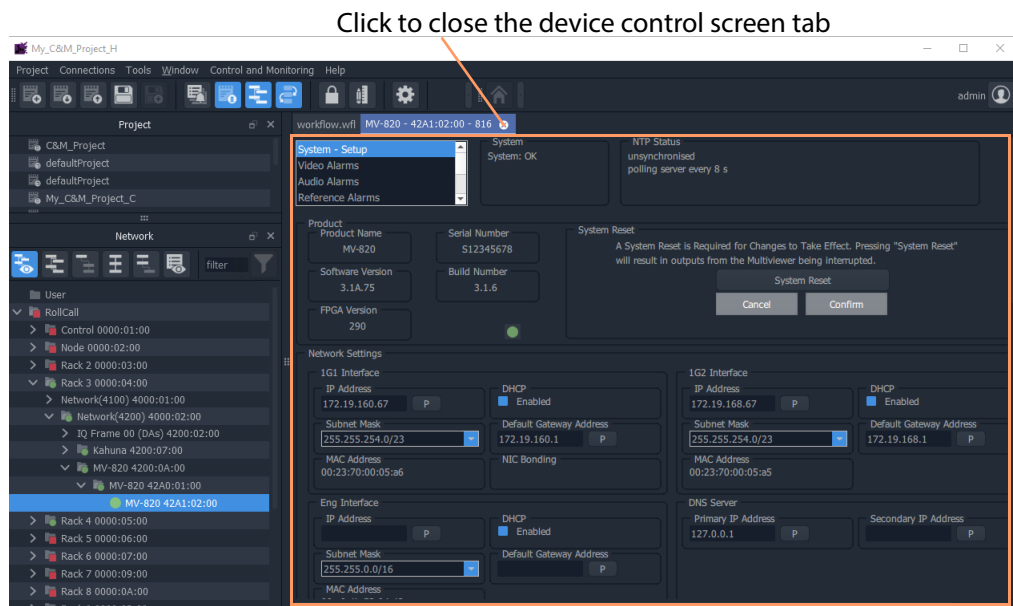


Fig. 2-19: Example Device Control Screen (RollCall-protocol Device Shown)

- 2 When all required user device configuration changes are done, close the control screen tab.

Right-click on any other device in the **Network** window to display/edit its control screen, as required.

Step 3.2.3: Network Window Setup For Densité Devices

Densité device control screens (card control panels) can be viewed with GV Orbit Client from the **Network** window via a GV Orbit server (which runs a GV Orbit Densité service). GV Orbit Client must be configured to connect to the Densité server/service.

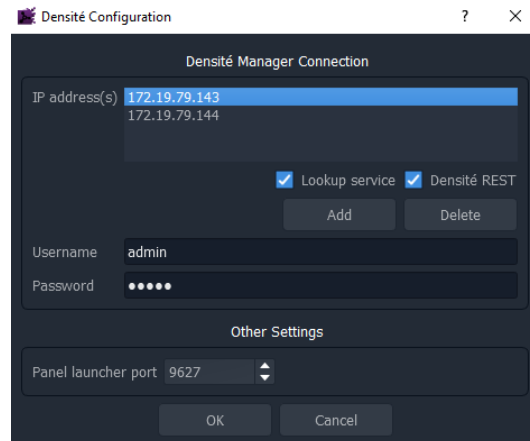
In a C&M project open in GV Orbit Client:

- 1 Click **Connections** -> **Densité** in the main menu.

The **Densité Configuration** dialog is shown:

- 2 Enter the GV Orbit server IP address.
- 3 Select:
 - 'Lookup Service'; and
 - 'Densité REST'.
- 4 Enter the **Username** and **Password** (if not already set up) to access the GV Orbit server (and hence the Densité service).

Note: These are *not* the same login credentials as those used when opening a GV Orbit project with GV Orbit Client.



Note: Densité service credentials are set up automatically if the **Setup** dialog (**Connections** -> **GV Server** in main menu) was used when creating the C&M project.

- 5 Click **OK**.
GV Orbit Client connects to the Densité service on the GV Orbit server.
- 6 Add all Densité frames to the Densité service. (Refer to the Densité Manager service chapter in the *GV Orbit Admin Guide* in the [Related Documentation](#).)
Added Densité frames become visible in the **Network** window.

This has set up the **Network** window in GV Orbit Client to show Densité frames and to show fitted cards supported by the GV Orbit server.

Note: Densité cards can appear in the **Network** window if the card is:

- present in a Densité frame that has been added into the GV Orbit Densité Manager service on the GV Orbit server; and is
 - supported by the GV Orbit server; and is
 - accessible by the GV Orbit server over the network.
-

If a Densité card is still not shown in the window, support for it may need to be added to the GV Orbit server. To add support for other Densité cards, if required, see [Step 5: Adding Support for Further Densité Cards](#).

Note: GV Orbit **Professional** and **Enterprise** ship with native support for some Densité cards. Refer to the GV Orbit release notes documentation for a list of natively-supported Densité cards. See [Related Documentation](#).

Step 3.2.4: View a Device Control Screen - Densité Devices

This step assumes that the Densité card is shown in the **Network** window (see [Step 3.2.3: Network Window Setup For Densité Devices](#)).

Note: Densité cards can appear in the GV Orbit Client **Network** window if the card is:

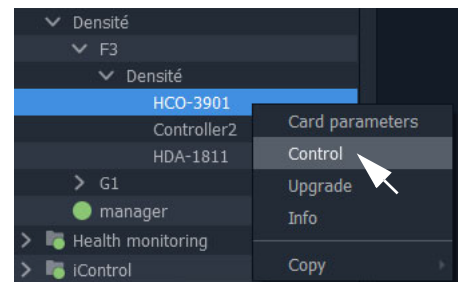
- present in a Densité frame that has been added into the GV Orbit Densité Manager service;
- supported by the GV Orbit server; and is
- accessible by the GV Orbit server over the network.

To add support for a card, see [Step 5: Adding Support for Further Densité Cards](#).

To access a Densité device control screen (device control panel) from the **Network** window:

- 1 Locate the target device in the **Network** window.
- 2 Right-click on the device and select 'Control'.

Note: An informative message appears (bottom left of GV Orbit Client) while the control screen is being accessed.



The Densité-protocol device's control screen opens in a *separate window* (i.e. not in the GV Orbit Client's overall window) and may be obscured on your client PC's screen. Check that this window is not behind the GV Orbit Client window or other windows.



Fig. 2-20: Example Densité Device Control Panel

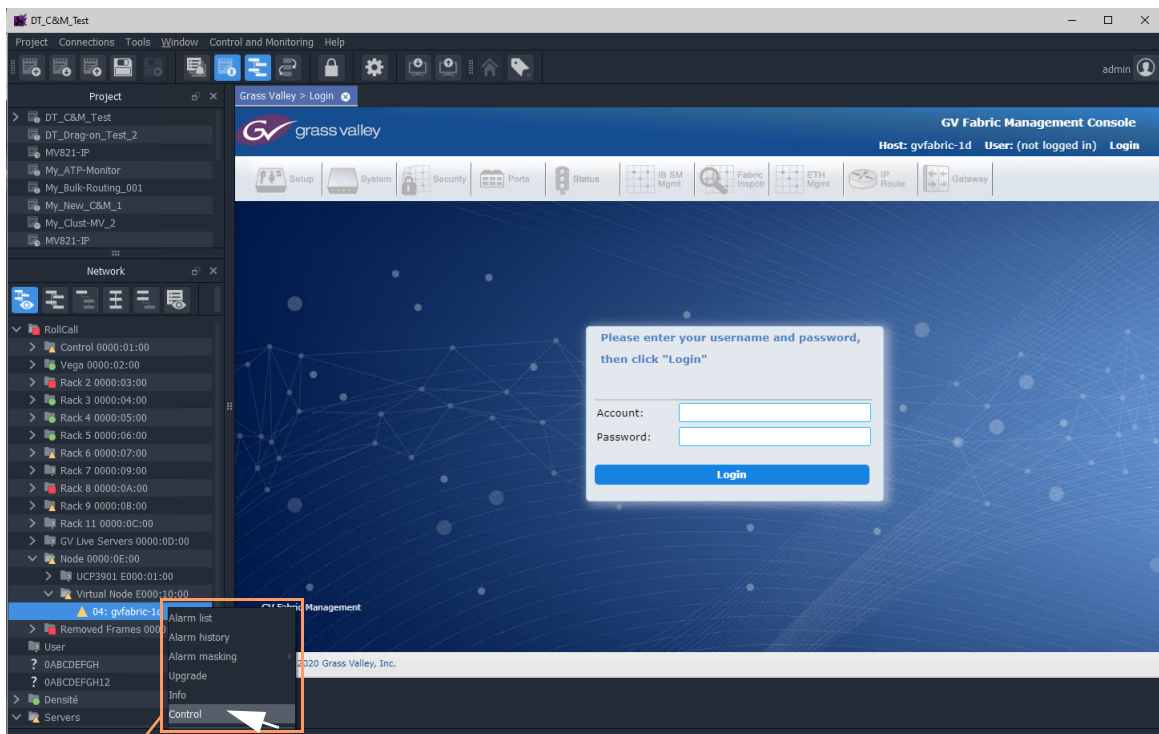
- 3 When all the required user device configuration is complete, close the control panel.

Right-click on any other device in the **Network** window to open its control screen, as required.

Step 3.3: Configuration of Other Devices

Devices in a GV Orbit system which may be configured via GV Orbit appear in the GV Orbit Client **Network** window and present a 'Control' drop-down menu option:

- Right-click on such a device and select 'Control' to open their web page in GV Orbit.



Right-click on device and select 'Control'

Fig. 2-21: Example GV Fabric Device Control Panel

Step 4: Device Upgrade

Lite	Professional	Enterprise
●	●	●

Introduction

This section describes how to upgrade software/firmware on a device using GV Orbit Client.

Upgrade packages for RollCall or Densité cards comprise a version of software and a version of firmware bundled together in a .zip file.

To upgrade a device (or unit), the **Network** window must be open and showing the system device to be upgraded. (See [Network Window Views](#), on page 27.)

Note:

Before starting, ensure that the upgrade package file is:

- accessible;
- for the correct RollCall or Densité card model; and is
- the correct version required.

Contact Grass Valley customer support for advice about upgrade packages.

- [Step 4.1: Upgrade RollCall-protocol Devices](#), on page 34.
- [Step 4.2: Upgrade Densité-protocol Devices](#), on page 38.

Also see [Change Functionality of a 'Software-Defined Core' Card](#), on page 41.

Step 4.1: Upgrade RollCall-protocol Devices

- **Lite** - Simple device upgrade is possible directly from GV Orbit Client.
- **Professional** and **Enterprise** - Simple device upgrade and advanced device upgrades are possible with the GVO-CFG-PRO option.

Simple Upgrade

Check the Current Software/Firmware Version

- 1 Open the **Network** window.
- 2 Locate the device to be upgraded, right-click on it and select **Info**.

A **Details** window is shown for the unit, displaying unit information which includes the device's current version of software/firmware.

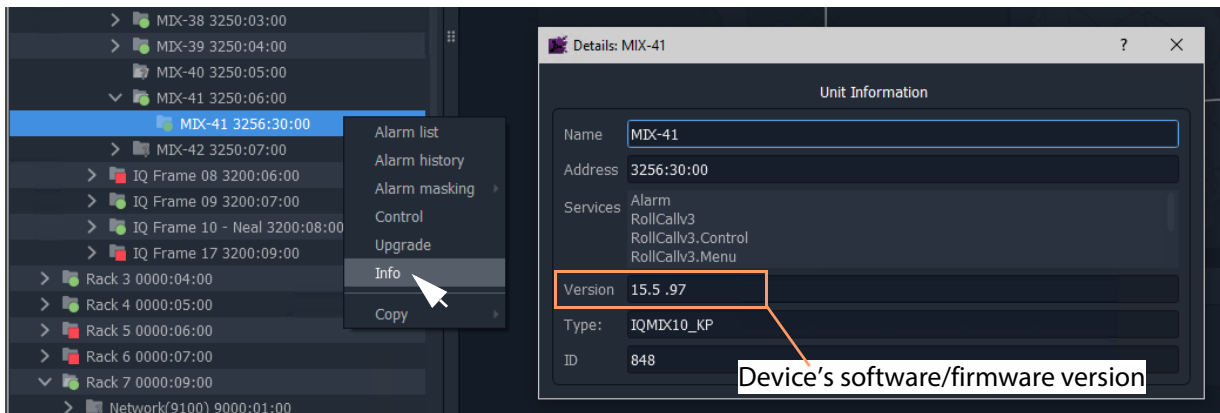


Fig. 2-22: Unit Information in Details Window

- 3 Close the **Details** window.

Import Upgrade Packages

- 4 Right-click on the tree-view device item and select 'Upgrade'.

The **RollCall Upgrade** window is shown. Any software/firmware upgrade packages that have been previously uploaded to the GV Orbit Client are shown listed on the left hand side. For a fresh install of GV Orbit Client, no packages are listed.

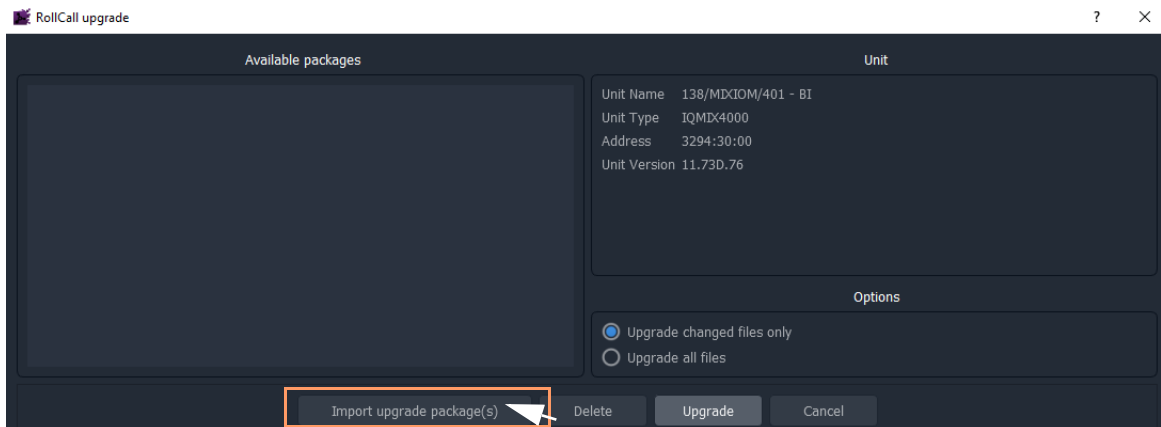


Fig. 2-23: RollCall Upgrade Window

- 5 Click **Import Upgrade Package(s)** and browse to the upgrade package to be uploaded. Select the package and click **Open**.

The package is imported into the GV Orbit Client.

After the package has been imported, it is listed under 'Available Packages' in the **RollCall Upgrade** window.

Upgrade the Device

- 6 Select a package in the 'Available Packages' list of the **RollCall Upgrade** window.
- 7 Select **Upgrade All Files** in the 'Options' pane to upgrade *all files* on the device, regardless of whether a file is the same on the device and in the upgrade package. (Deselect **Upgrade All Files** for a quicker upgrade.)

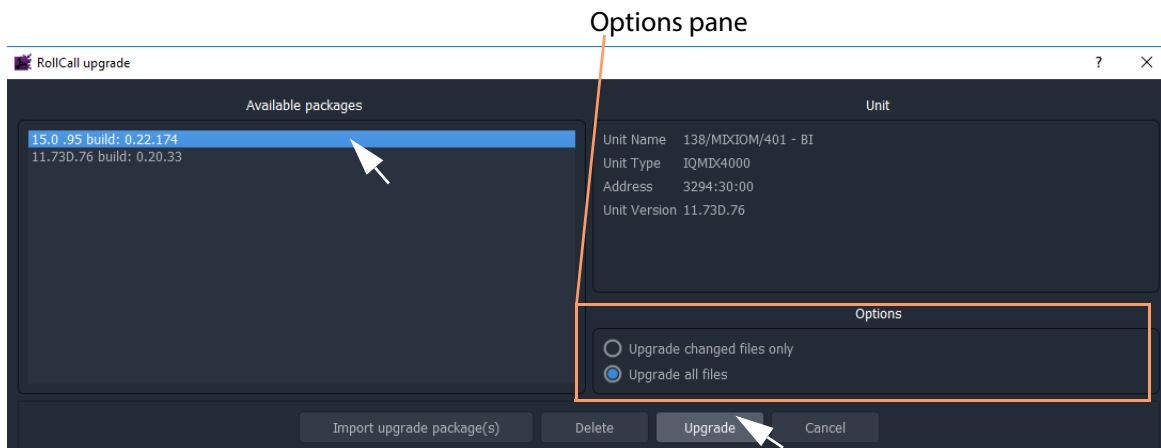
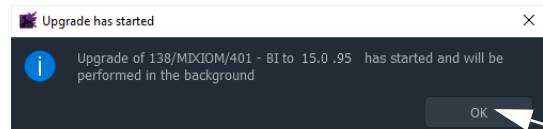


Fig. 2-24: RollCall Upgrade Window

- 8 Click the **Upgrade** button to start the upgrade of the device.

A message box appears informing you that the upgrade has started and will proceed in the background. Click **OK**.



Note:

The user may continue using the GV Orbit Client project while the upgrade proceeds.

However, *only one RollCall upgrade can be running at any one time.*

The progress of the upgrade is reported bottom left in the GV Orbit Client window.



Fig. 2-25: Upgrade Progress Messages (Bottom left in GV Orbit Client window)

- 9 When the device has been upgraded, this is indicated by:
- a final message at the bottom of the GV Orbit Client window; and also by
 - a pop-up notification message in the Windows™ system tray.

Check the Upgraded Software/Firmware Version

- 10 Right-click on the **Network** window upgraded-device item and select **Info**.
A **Details** window is shown displaying unit information.
- 11 Check that the device's current (upgraded) version of software/firmware is correct.

Note:

If the **Network** window is being presented through an IP Proxy then a GV Orbit server fail-over (in a dual server cluster system) during an upgrade will cause a failed upgrade.

Step 4.2: Upgrade Densité-protocol Devices

- **Lite** - Simple device upgrade of Densité devices is *not* possible via the GV Orbit Client.

Note:

Densité modular devices may still be upgraded independently of GV Orbit Client using Grass Valley's iControl Solo product.

- **Professional** and **Enterprise** - Densité device upgrade is possible via GV Orbit Client with the GVO-CFG-PRO option, including upgrade of single and multiple Densité devices.

Device Upgrade (GV Orbit Professional and Enterprise only)

This sub-section assumes that the Densité card is shown in the **Network** window (see [Step 3.2.3: Network Window Setup For Densité Devices](#)).

Note: Densité cards can appear in the GV Orbit Client **Network** window if the card is:

- present in a Densité frame that has been added into the GV Orbit Densité Manager service;
- supported by the GV Orbit server; and is
- accessible by the GV Orbit server over the network.

To add support for a card, see [Step 5: Adding Support for Further Densité Cards](#) to be able to see the card to upgrade.

Check Current Device Software/Firmware Version

- 1 Open the **Network** window and locate the device to be upgraded.
- 2 Right-click on the device item to be upgraded and select **Info**.

A **Details** window is shown for the unit, displaying unit information which includes the device's current version of software/firmware.



Fig. 2-26: Unit Information in Details Window

3 Close the **Details** window.

Import Upgrade Packages

4 Right-click on the tree-view device item and select 'Upgrade'.

The **Densité Upgrade Manager** window is shown.

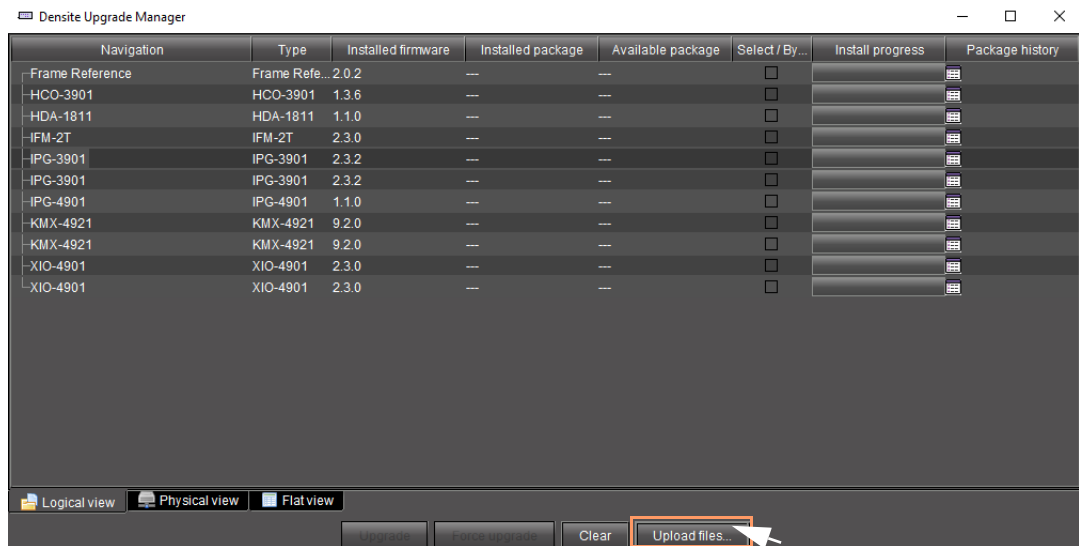


Fig. 2-27: Densité Upgrade Manager

5 Click **Upload Files...** and browse to the upgrade package to be uploaded. Select the package and click **Open**.

A message window appears prompting the user to start the upload.

6 Click **Upload** in the **Progress** window.

Progress of the upload is shown in the window and the package is uploaded to the **Densité Upgrade Manager**.

7 When complete, the **Progress** window shows 100% done, 'Operation finished':

Click **Close**.

8 Verify the uploaded package is present in the **Densité Upgrade Manager** window by clicking in the 'Available package' column and looking in the drop-down list.

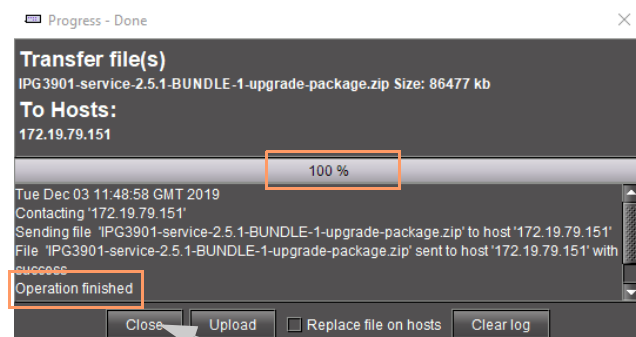


Fig. 2-28: Progress Window - Upgrade Package 100%

Note: After an upgrade package has been uploaded, it is available in a drop-down box in the 'Available Package' column, in all rows for Densité devices compatible with the newly-uploaded package. (I.e. for an IPG-3901 package, check in any IPG-3901 device row.)

Upgrade the Device

In the **Densité Upgrade Manager** window, in the row for the device to be upgraded:

- 9 Select an upgrade package in the 'Available Package' column's drop-down list.

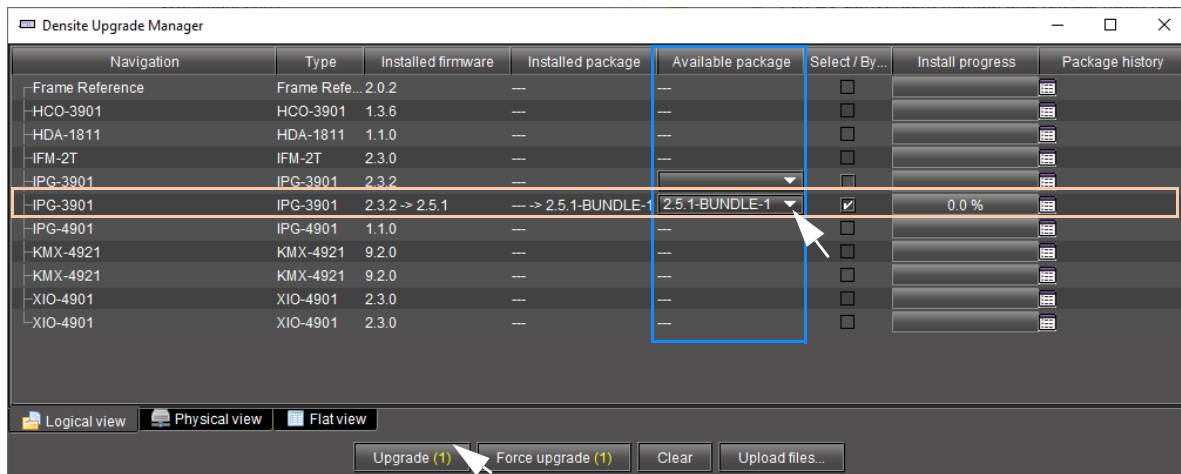
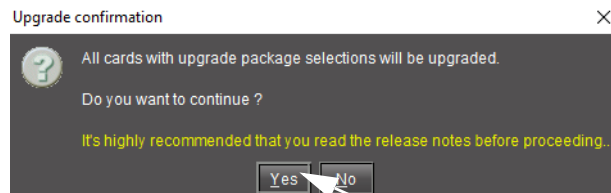


Fig. 2-29: Upgrade Window with Selected Upgrade Package

- 10 Click the **Upgrade** button to start the upgrade of the device.

An **Upgrade Confirmation** message box appears.

- 11 Click **Yes** to start the upgrade.



Progress is reported in the 'Install Progress' column as a progress bar and a percentage (%):

When done, a **Finished 100%** message appears in the 'Install progress' column.

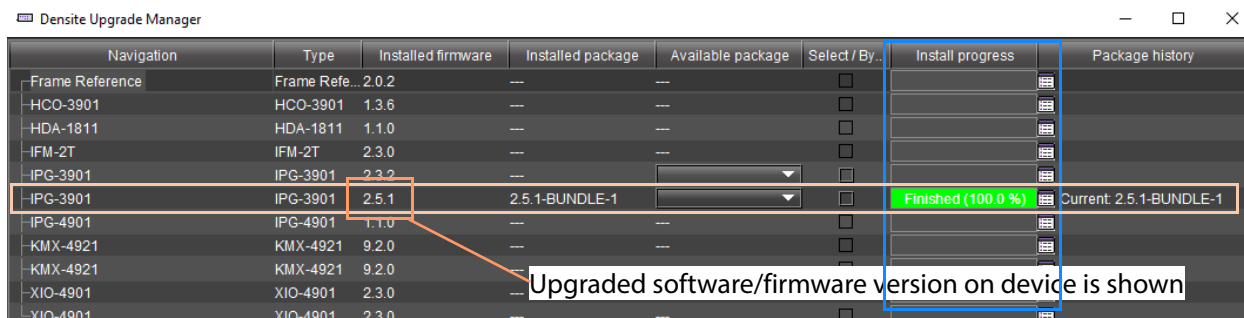


Fig. 2-30: Upgrade 'Finished 100%'

- 12 Close the **Densité Upgrade Manager** window.

Check Software/Firmware Version on Upgraded Device

- 13 In the **Network** window, right-click on the upgraded-device item and select **Info**.
A **Details** window is shown for the device/unit.
- 14 Check that the newly-upgraded device software/firmware version is correct.

Note: The **Densité Upgrade Manager** can upgrade multiple devices.

Change Functionality of a 'Software-Defined Core' Card

Grass Valley offer a range of cards which have a software-defined core, enabling a user to change the functionality of a card with core packages and licenses. GV Orbit Client enables a user to change such a 'software-defined core' card's functionality.

Note: Supported software-defined core cards include:

- UCP-3901, with various core packages, including Essence Processing (EP) cores and Multiviewer (MV) cores.

See the documentation on the respective cards for further information and instructions on how to add licenses etc.

Note: **License a card first** before loading a core package into the card. If a core package is loaded but a card is not licensed, then default, 'base' functionality results. See the documentation on the respective card for information.

To change a card's functionality, use the 'upgrade' mechanism in GV Orbit Client:

- 1 Locate the software-defined core card in the **Network** window.

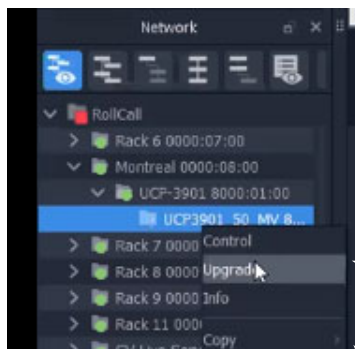


Fig. 2-31: Software-Defined Core Device in Network Window

- 2 Right-click on the card item in the tree-view and select 'Upgrade'.
The **RollCall Upgrade** window is shown for the card. The window shows:
 - the core package currently in use by the card; and
 - all available (imported) core packages.

See Figure 2-32.

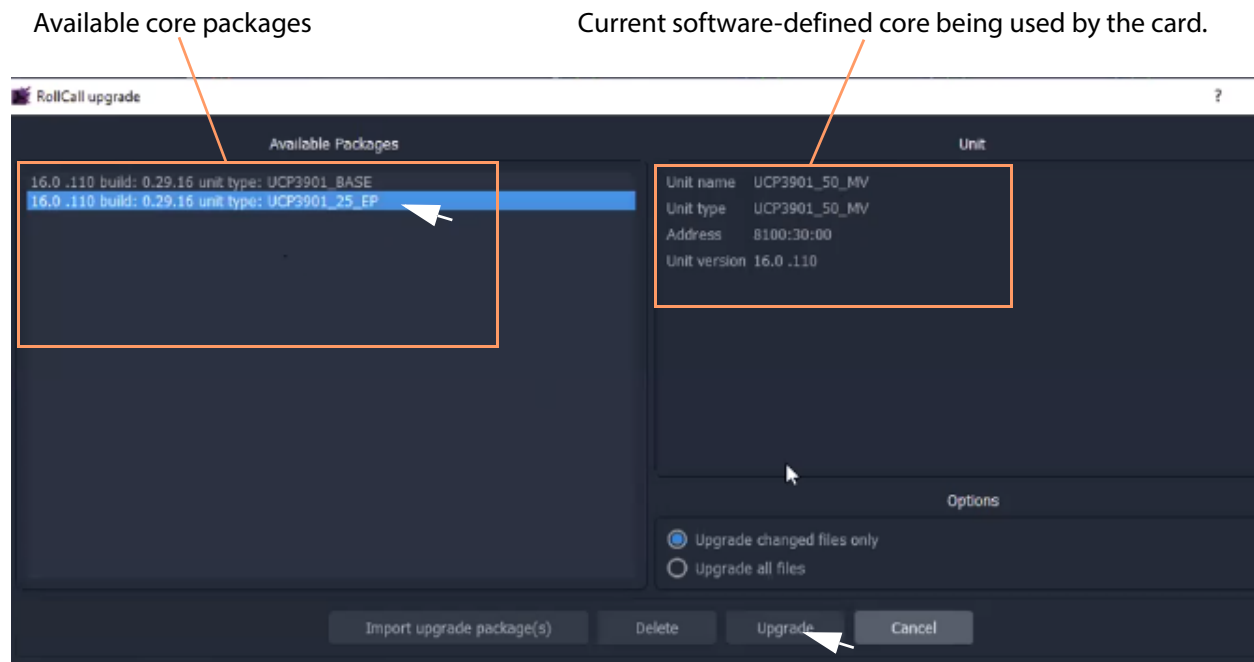


Fig. 2-32: RollCall Upgrade Window - Available Cores

To import further core packages:

- 3 Import the core package in a similar way to an upgrade package (see [Step 4.1: Upgrade RollCall-protocol Devices](#), on page 34).

To load an available (already-imported) core package into the card and change card functionality:

- 4 Select an available core package and click **Upgrade**. The procedure is similar to upgrading a card (see [Step 4.1: Upgrade RollCall-protocol Devices](#), on page 34).

The new core package is placed on the card; the card reboots and then adopts the functionality of the new core package if the card is licensed.

Step 5: Adding Support for Further Densité Cards

Lite	Professional	Enterprise
	●	●

Introduction

GV Orbit fully supports all Densité cards. GV Orbit **Professional** and **Enterprise** ship with native support for many Densité cards; for other cards, support needs to be added to your GV Orbit server. This section describes how to add support for Densité cards to your GV Orbit server.

Support is added by uploading the requisite Densité card software package. Once uploaded, the GV Orbit server can recognize the cards and they may be integrated into the **Network** window.

Carry out this procedure to add or to update support of a Densité card.

Add or Update Densité Card Support

Many Densité cards are automatically recognized by GV Orbit. However, some Densité cards may not show in the **Network** window, even though they are physically installed in a Densité frame. For example, a frame's controller card may be shown but one or more cards in the same frame are not shown (in the tree-view nor list-view). To make such cards available, the corresponding card software packages must be uploaded through the Densité Upgrade Manager tool.

Note: Refer to GV Orbit release notes documentation for a list of natively supported Densité cards. See [Related Documentation](#).

Prerequisite:

- All Densité frames are added to the Densité Manager service on the GV Orbit server. (Refer to the Densité Manager service chapter in the *GV Orbit Admin Guide*. See [Related Documentation](#).)
- Software package are available for each Densité card type to be added/updated. (See each separate card documentation for how to obtain each software package.)

The procedure is similar to upgrading Densité cards (see [Step 4.2: Upgrade Densité-protocol Devices](#)):

- 1 Locate a Densité frame item in the **Network** window *tree-view* and expand it to show all available cards.
- 2 If one or more cards are not shown in the **Network** window *tree-view*, right-click on a fitted card item (for example, on the frame controller card item) and select 'Upgrade'.

The Densité Upgrade Manager tool is opened showing all the cards in the Densité frame. Some cards may be grayed-out.

For each Densité card type for which support is to be added/updated:

- 3 Import the card's software package.
(See [Import Upgrade Packages](#) for how to do this.)
- 4 Upgrade each card.
(See [Upgrade the Device](#) for how to do this).

After a card type has been upgraded, it should appear in the Densité Upgrade Manager tool and *not* be grayed-out.

Support for the card has now been added to the GV Orbit server.

When the support for all cards has been added:

- 5 Close the Densité Upgrade Manager window.

Support for the Densité cards has now been added to the GV Orbit server and the cards are displayed in the GV Orbit Client's **Network** window.

Step 6: Multiviewer Project

Lite	Professional	Enterprise
●	●	●

Introduction

This section is applicable to GV Orbit Client and multiviewer applications with single multiviewers that use the GV Orbit 'Multiviewer' project type.

Note: A GV Orbit 'Multiviewer' project type is typically for single-multiviewer designs. For video walls designs that are served by a cluster of multiviewers (MV Cluster), then use the GV Orbit 'Clustered Multiviewer' project type (described in Chapter 7, [Multiviewer Cluster](#), on page 333 onwards).

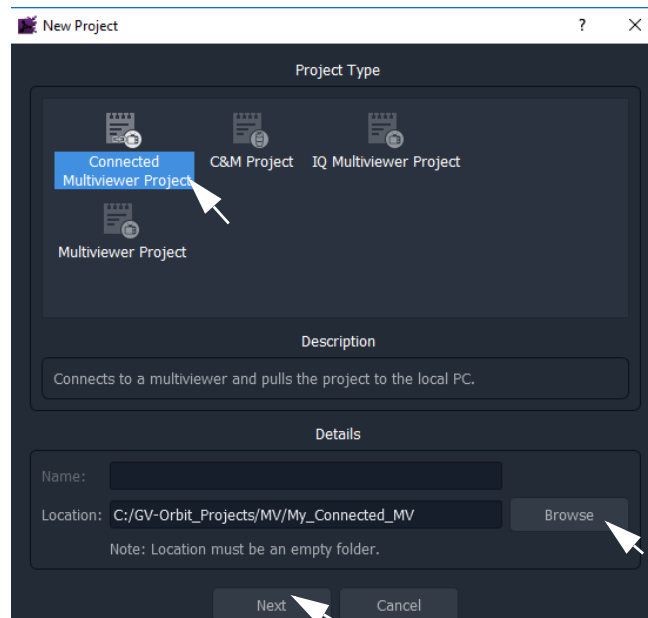
This section describes a simple edit to a GV Orbit (single-multiviewer) 'Multiviewer' project pulled from a multiviewer (MV-8 series or IQ-MV series multiviewer). The simple edit changes the appearance of the video wall and the project is pushed back to the device.

Note: GV Orbit 'Multiviewer' projects are pushed/pulled to/from a compatible (single) *multiviewer device* rather than to/from a GV Orbit server.

Simple Multiviewer Project Editing Example

Pull Project and Open

- 1 Open GV Orbit Client at the initial screen and click **New Project**.
The **New Project** dialog is shown.
- 2 Select **Connected Multiviewer Project** type.
- 3 **Browse** into a new, empty folder (into which project information will be placed).
- 4 Click **Choose**.
- 5 Click **Next**.
A list of available multiviewers is shown.



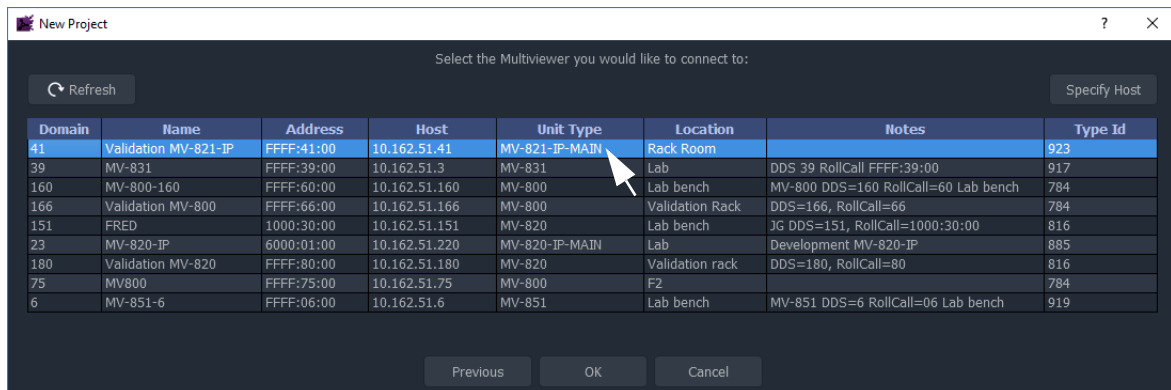


Fig. 2-33: Select Multiviewer to Connect To

Note: The IP network used needs to support multicast for automatic discovery of devices to occur (for example, for listing available multiviewers).

- 6 Select the multiviewer to connect to and click **OK**.
GV Orbit Client connects to the multiviewer, pulls the GV Orbit project from it, attempts to open the project, and shows the login screen.
- 7 Enter the correct **User name** and **Password** for the accessing the GV Orbit project.

Note: The default login for new projects is 'admin' 'admin'.

- 8 Click **Login**.
The project is opened and the multiviewer project **Home Screen** is shown.

Folder path where project is stored on the client PC.

Name of GV Orbit project (pulled from multiviewer)

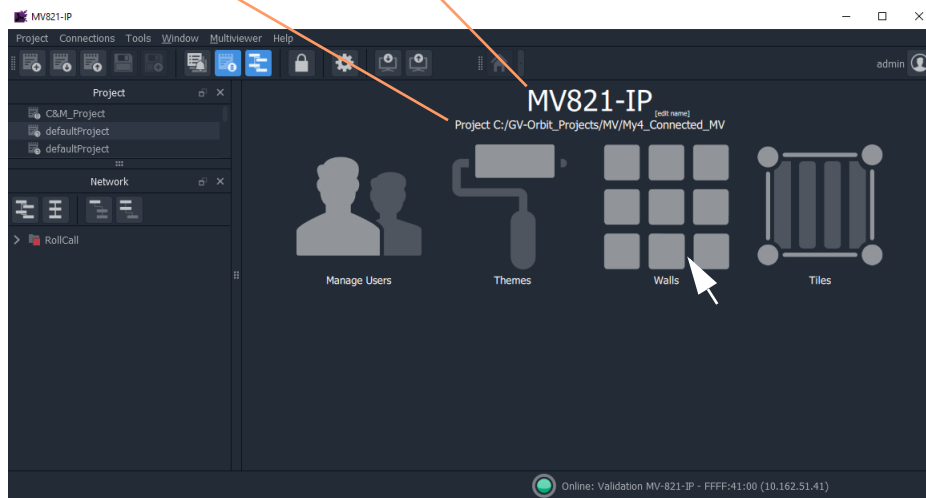


Fig. 2-34: Multiviewer Project Home Screen

The GV Orbit multiviewer project has been pulled from the target multiviewer device, locally stored on the client PC, and opened in GV Orbit Client.

The multiviewer video wall design may now be edited in GV Orbit Client.

Edit the Multiviewer Project

- 9 Click on the large **Walls** icon, and select one of the wall items that is shown listed. The multiviewer video wall design is opened in a tab in the overall GV Orbit Client window. See Figure 2-35.

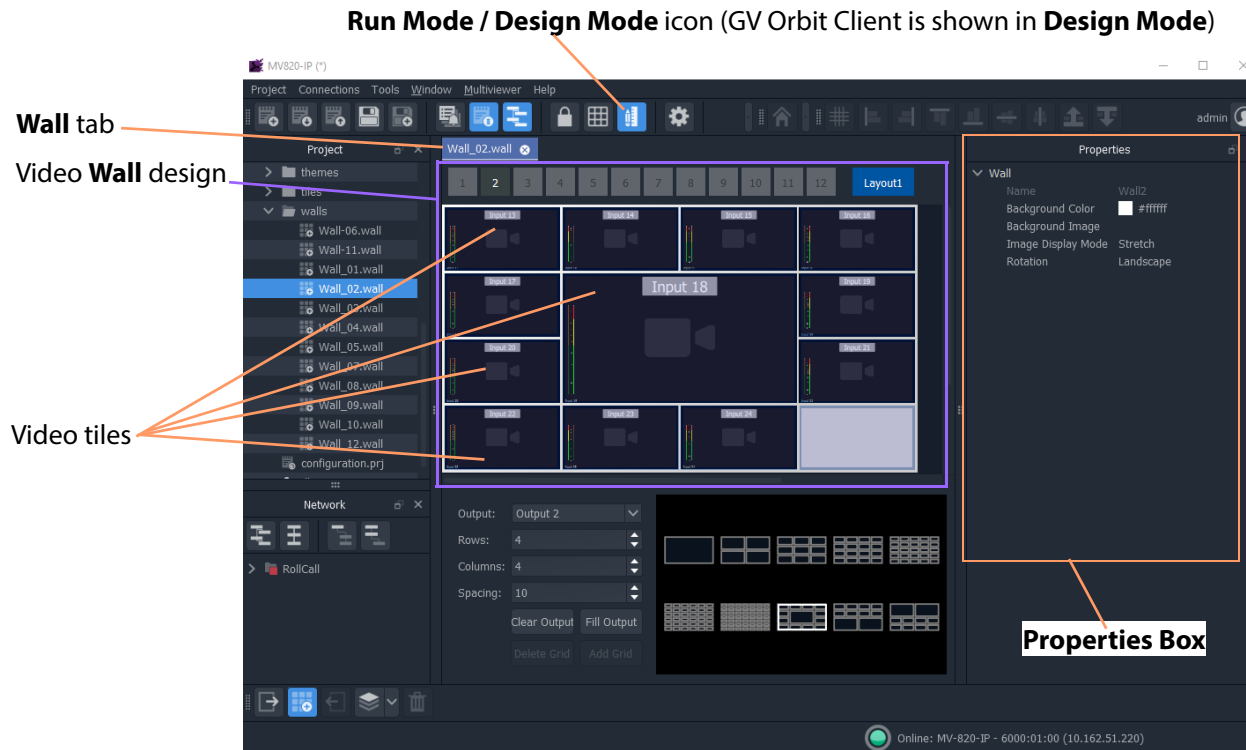


Fig. 2-35: Example Video Wall Tab in Wall Editor

The **Wall** tab is the stage on which a **Wall** is:

- designed and edited (in GV Orbit Client **Design** mode); and
- may be run and viewed (in GV Orbit Client **Run** mode).

Although a video wall is fully deployed when running on a compatible multiviewer device.

10 Click the **Run Mode / Design Mode** tool bar icon to select 'Design Mode'.

Note:

Clicking the **Run Mode / Design Mode** tool bar icon toggles between 'Run' and 'Design' modes of GV Orbit Client.

Click to *exit* Run Mode



a) Icon appearance when *in* **Run Mode**

Click to *enter* Run Mode



b) Icon appearance when *in* **Design Mode**

Note:

- In **Design Mode**, a project may be edited (for example, a video wall may be modified).
- In **Run Mode**, a project monitors log and alarm data and generates display screens in real-time.

Fig. 2-36: Run Mode / Design Mode Tool Bar Icon

This example edit will do a simple change to the video wall:

- 11 Click on one of the video tiles on the wall to select it. (E.g. the top-left video tile.)
- 12 In the **Properties Box**, change the **Preferences -> Type** property value to 'Analogue Clock' via the drop-down menu.

The selected tile changes to a round-faced clock within the **Wall** tab.

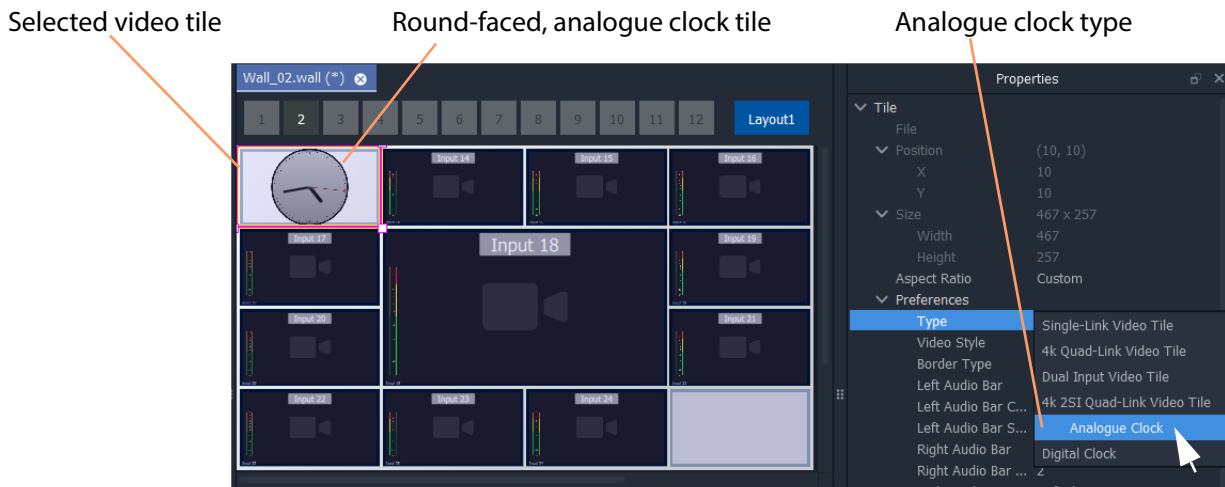


Fig. 2-37: Edited Wall Design

- 13 Click **Project -> Save Project** to save the whole project locally, including the video wall design.

Push Project Back to Multiviewer

- 14 Click **Project -> Push** in the main menu.

The **Choose Projects** dialog is shown.

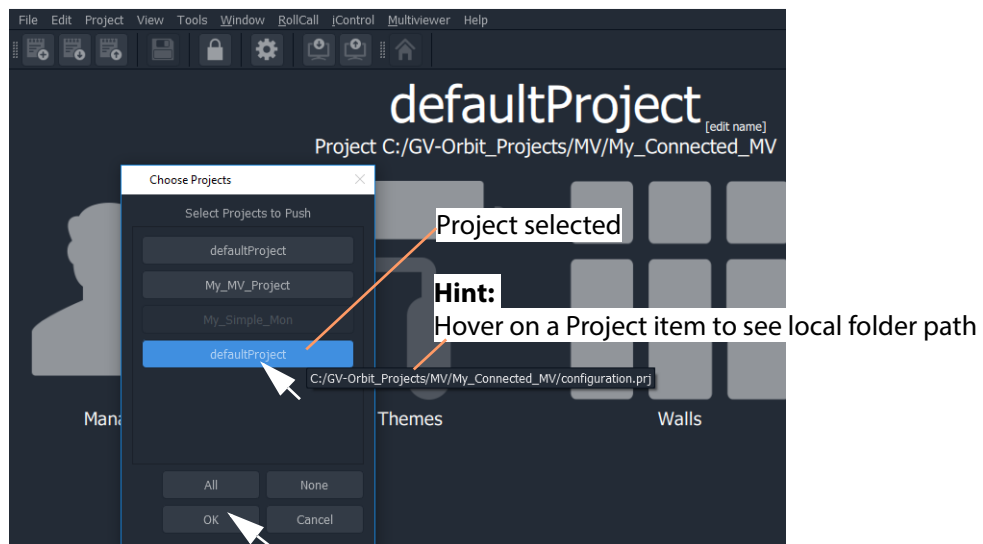


Fig. 2-38: Choose Projects Dialog

15 Select just the project to push to the multiviewer.

16 Click **OK**.

The selected project is pushed back to the multiviewer.

The edited video wall is then used and shown by the multiviewer device.

Step 7: Control and Monitoring Project Setup (Professional/Enterprise)

Lite	Professional	Enterprise
-	●	●

Introduction

This section is applicable to GV Orbit **Professional** and **Enterprise** only. It describes setting up a new 'Control and Monitoring' project (C&M project), which is the main project type applicable to GV Orbit **Professional** and **Enterprise**. Following its setting up, a C&M project is ready for use. For example, custom graphical operator screens etc. can be designed, created and used.

All C&M projects are centrally stored in and used from repositories on the GV Orbit server (one project per repository). The GV Orbit Client application needs to be configured to communicate with the GV Orbit server(s) (see [Step 7.2: C&M Setup Dialog](#), on page 52). A project is loaded by GV Orbit Client from a server repository and stored locally on the client PC.

Note:

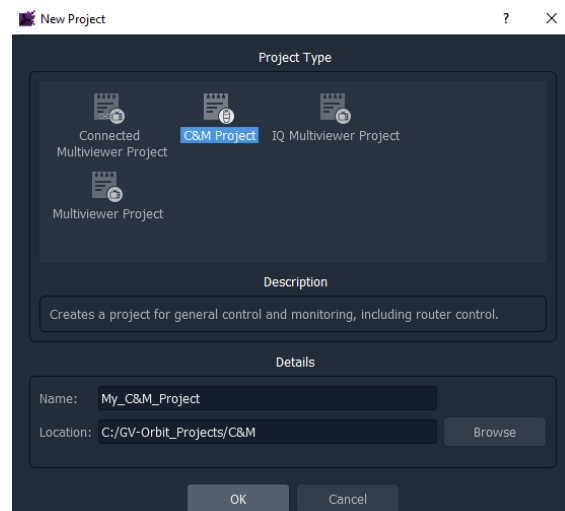
GV Orbit Client requires network access to one or more GV Orbit servers running configured GV Orbit services.

- [Step 7.1: New C&M Project](#), on page 51.
- [Step 7.2: C&M Setup Dialog](#), on page 52.
- [Step 7.3: Further Setup](#), on page 58.
- [Step 7.4: Saving and Pushing a Project](#), on page 62.

Step 7.1: New C&M Project

From the GV Orbit Client **Initial Screen**:

- 1 Click **New Project**.
The **New Project** dialog is shown.
- 2 Select the C&M project type.
- 3 Click **Browse** and browse to a folder where the project will be placed.
Click **Choose**.
- 4 Enter a name for the new project.
- 5 Click **OK**.
And, if prompted, answer **Yes** to create a directory.
The **Setup** dialog is shown. See [Step 7.2: C&M Setup Dialog](#), on page 52.



Step 7.2: C&M Setup Dialog

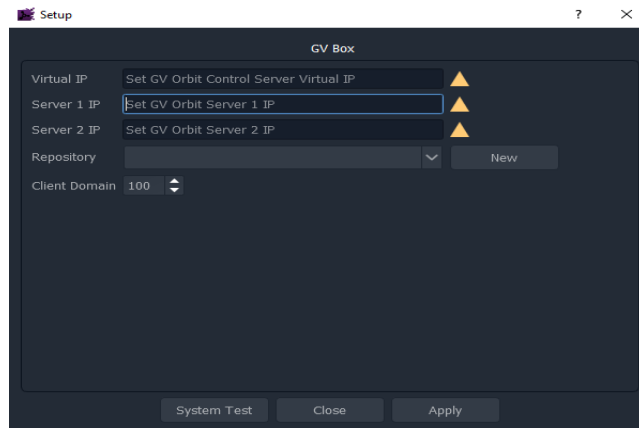


Fig. 2-39: C&M Project Setup Dialog

The C&M **Setup** dialog provides a quick way to enter key project parameters for a project. The dialog is shown automatically when creating a new C&M project. And it can be accessed when an existing C&M project is open by clicking **Connections** -> **GV Server** in the main menu.

Note:

Some key project parameters are entered in the **Setup** dialog and used for the project settings. Some settings may be subsequently edited by the user, if required. Refer to [Step 7.3.1: Project Variables \(Project -> Edit Variables\)](#), on page 58.

Server IP Address(es)

- 1 Enter the IP address of the GV Orbit server into the **Server 1 IP** text box. For dual-server systems, enter the IP address of one server. The second server's address will be discovered automatically in the steps below.

Check the address is correct.

The GV Orbit Client attempts to connect to the server and performs some basic system tests.

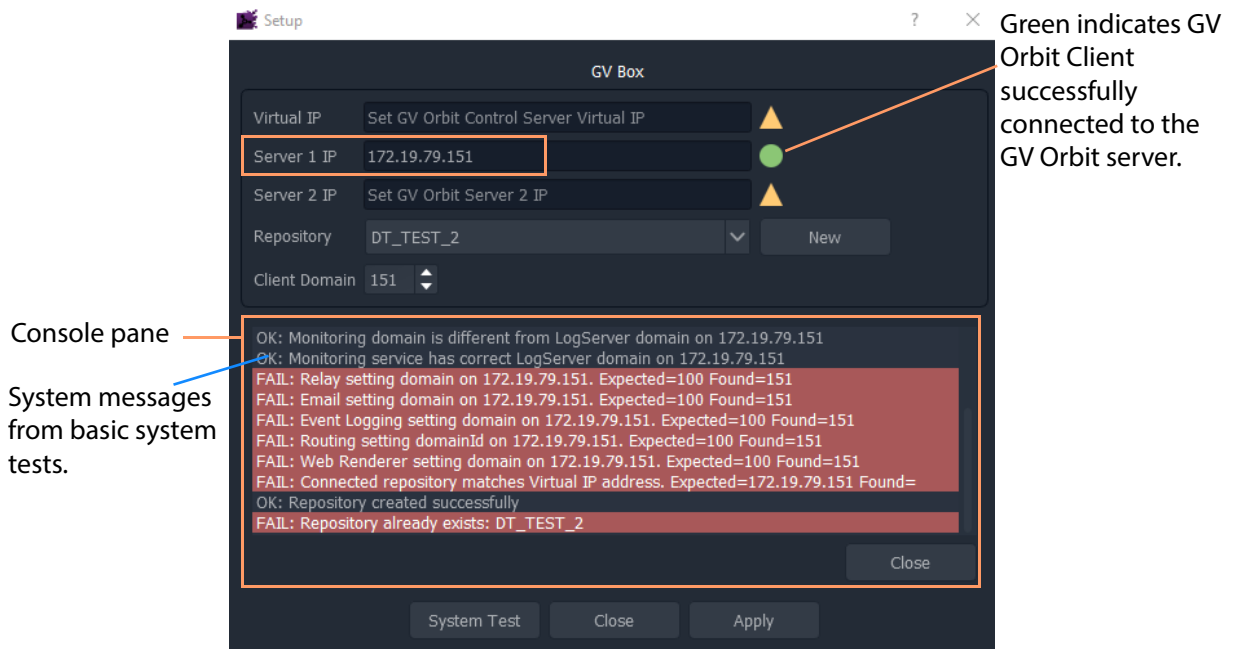
Note: Basic System Tests:

- a. Connect to the GV Orbit server.
A good connection status is shown with a green light indicator.
- b. Find out other GV Orbit system information from the server.
- c. Fill out settings in the **Setup** dialog.

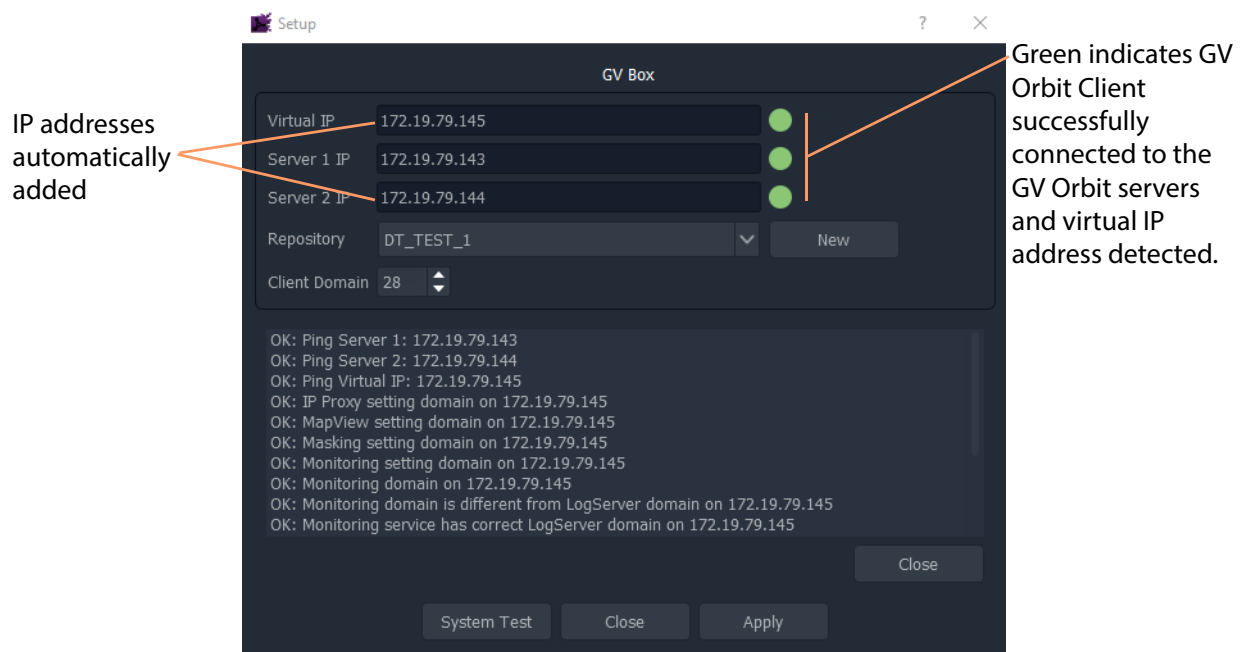
For example:

- **Client Domain** number being used (default is 100).
 - Available **Repositories** on the server.
 - IP address of any second GV Orbit server; and any IP address being commonly used by the servers ("Virtual IP").
-

The resulting connection status from the basic system tests is indicated in a console pane showing any system messages issued. See Figure 2-40a.



a) Single GV Orbit Server



b) Dual GV Orbit Server Cluster

Fig. 2-40: C&M Project Setup Dialog:
a) Single GV Orbit Server;
b) Dual GV Orbit Server Cluster

Select a Repository

Note: Repository:

Projects may be locally stored on the client PC but, for deployment, a C&M project must be saved to the GV Orbit server (Pushed) into a **Repository**, one project per **Repository**. Multiple clients can access the same project.

Note:

The **Repository Manager** service, running on the GV Orbit server, can be configured on the server and each repository may be set up from there. Alternatively, a **New** repository may be created from the C&M Project's **Setup** dialog. Available **Repositories** are listed in a drop-down box in the **Setup** dialog.

Note:

Pull a project from a **Repository** to load the project from a server.

Push a project to a **Repository** to save it back to the GV Orbit server.

- 2 In the **Setup** dialog, click **New**.

The **Create Repository** dialog is shown:

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

Alternatively, to select an *existing* repository:

- 4 Select a **Repository** in the 'Repository' drop-down list in the **Setup** dialog.

The C&M project will use the project from this **Repository**.

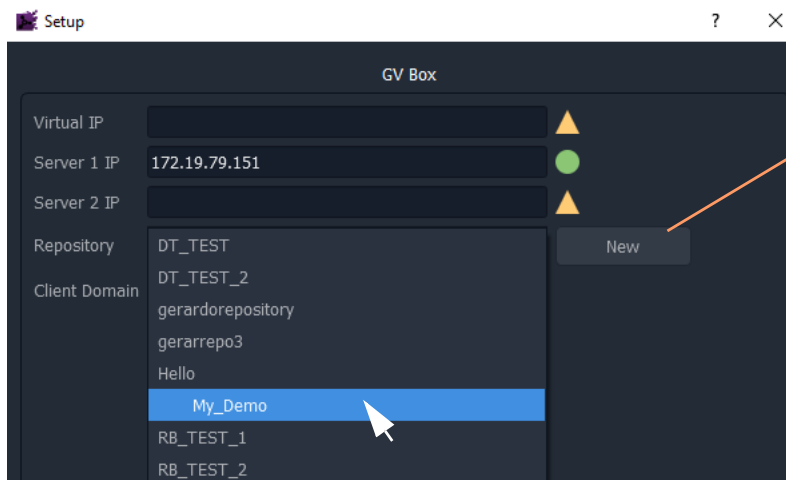
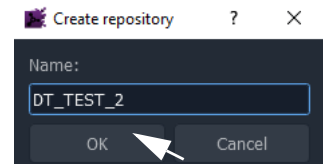


Fig. 2-41: Select a Repository in Setup Dialog

System Re-Test

- 5 Click **System Test** to *redo* the basic system tests.

For the basic system test, GV Orbit Client performs a:

- ping to each server;
- client-server communication check;
- services check on the server; and
- check of service Domain configurations (Monitoring and Log Server services).

The console pane in the **Setup** dialog may have shown some **red** messages which highlight differences between entered dialog settings and those of the GV Orbit system connected to. (For example, a Client Domain number difference.)

Re-do the basic system tests and the **red** messages should clear.

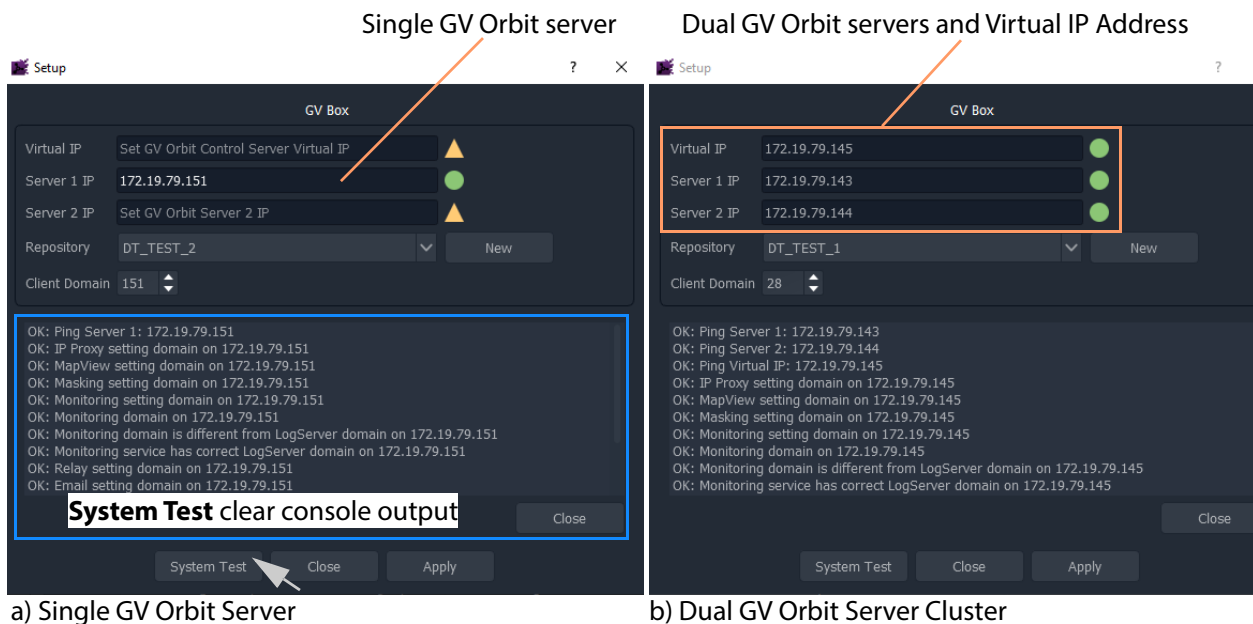


Fig. 2-42: System Test Re-done and Console Output OK:

- a) Single GV Orbit Server.
- b) Dual GV Orbit Server Cluster.

Apply Settings

6 In the **Setup** dialog, click **Apply** to apply these settings to the project.

Click **OK** to any pop-up message.

7 Click **Close** to close the dialog.

The GV Orbit pulls the project etc. from the repository and shows the **Home Screen**.

Note:

When connecting to a **Repository**, the user may be prompted to **Pull** a project from a **Repository**, i.e. get a project from the server.

Pull a project in order to either:

- edit the project locally (any existing local project is overwritten); or
- run the project locally (for example, to run operator screens).

Do not **Pull** if a local project has been created/changed and it needs to be put into a **Repository**. This requires a **Push** to a repository.

Step 7.3: Further Setup

Following initial set up, a C&M project is ready for use. Project settings and variables are set up from the settings in a C&M Project's **Setup** window.

This sub-section describes how to adjust the project settings (including project variables) further, if any parameters need changing for some reason.

Step 7.3.1: Project Variables (Project -> Edit Variables)

C&M projects have a set of project variables that are set up when using the C&M Project **Setup** window to establish connection to a GV Orbit server. This done as part of creating a new C&M Project. (The **Setup** window is also accessed by selecting **Connections -> GV Server** in the main menu.)

The **Project Variables** enable GV Orbit Client workflows, and other user graphical screens, to communicate with GV Orbit services and server(s).

Note:

Most **Project Variables** hold default values consistent with the default GV Orbit server and GV Orbit services settings. Do not change the values of these variables unless the items have been changed from their default.

To access the project variables from the project **Home Screen**:

- 1 Click **Project -> Edit Variables...** in the main menu.
 A **Variables** window is shown for the C&M project.

Name	Type	Value
GVOC IP	String	172.19.79.145
GVOC Launcher	String	%APPDATA%\JWrapper\GVOrbitControlClient\GVOrbitControlClientWinLauncher.exe
GVOC Password	String	admin
GVOC User	String	admin
IP Network	String	default.net
Routing Address	Address	F110:01:06
Server IP 1	String	172.19.79.143
Server IP 2	String	172.19.79.144

Fig. 2-43: C&M Project Variables Window

Note: For a multiviewer project there are fewer variables.

- 2 Click **OK** when project-variable value changes have been done.
- 3 Click **Project -> Save Project** in the main menu to save the project locally to disk.
- 4 Push the project to the repository when all changes are done.

Custom Project Variables

The **Variables** window also allows a user to create custom project variables for their own use. For example, the RollCall addresses of system devices, a company name, the TV channel/studio name, etc. These may each be set up as custom project variables and used in custom control and monitoring screens. Custom project variables can be created and deleted.

CAUTION

Do not delete any of the C&M project variables presented here.

Step 7.3.2: Client Domain Number (Connections -> GVOP)

To configure the **Client Domain** for the GV Orbit Client to use for the project:

- 1 Click **Connections -> GVOP** in the main menu.
The **GV Orchestration Protocol** dialog is shown.

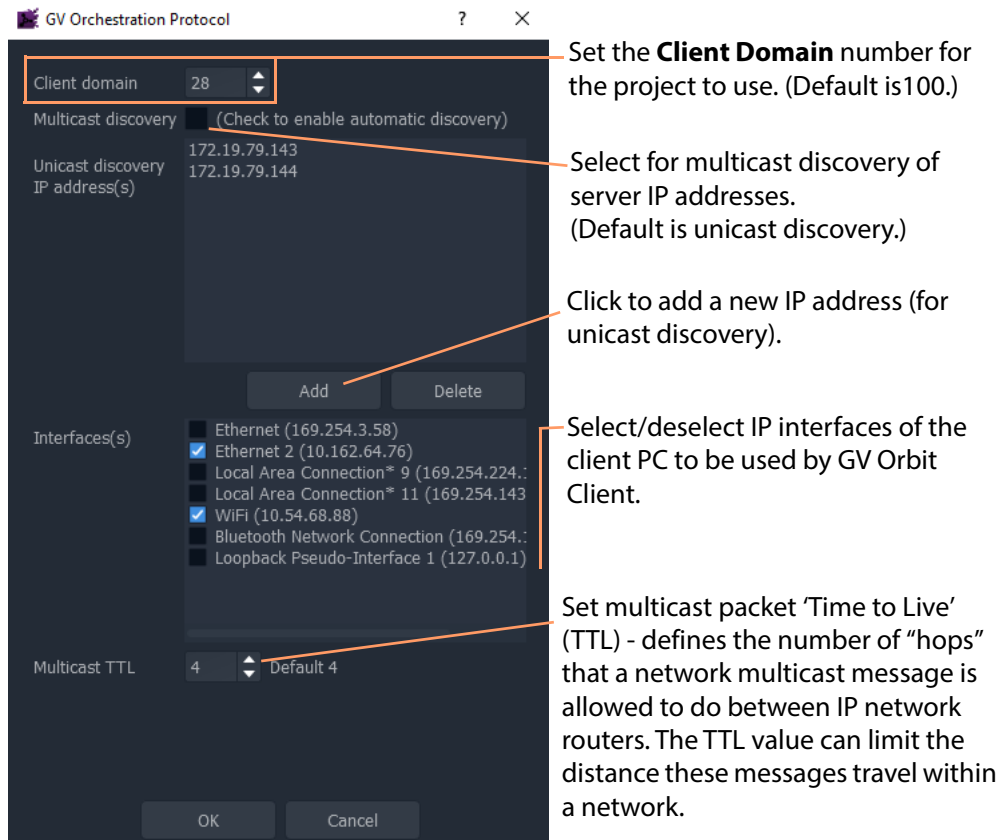


Fig. 2-44: GV Orchestration Protocol Dialog

- 2 Set the **Domain** number of the Client Domain that the C&M project will use. (Default is 100.)
- 3 Other project parameters can be changed in the dialog, see Figure 2-44.
- 4 Click **OK** to finish and close the dialog.

Step 7.3.3: Configure Network Window for RollCall-protocol Devices

- 5 Click **Connections** -> **RollCall** -> **Network Map** in the main menu.
The **Open Network** dialog is shown.

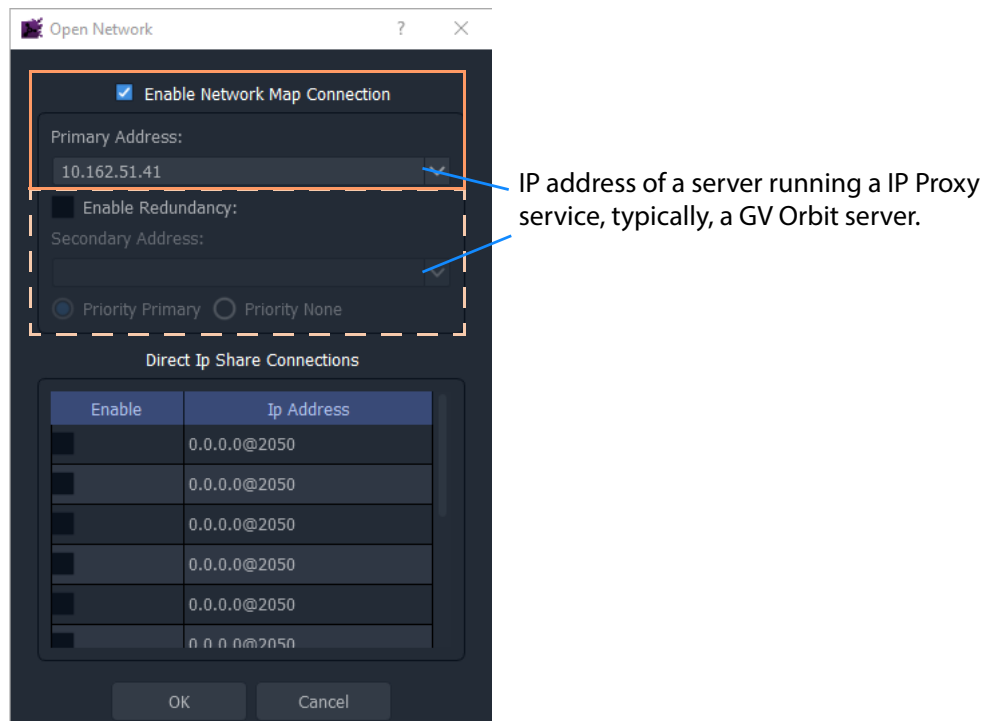


Fig. 2-45: Open Network Dialog

- 6 Enter the IP address of the server running an **IP Proxy** service as 'Primary Address'. Typically, this is the IP address of a GV Orbit server.
- 7 For a dual-redundant GV Orbit server system, select **Enable Redundancy** and enter the IP address of the second GV Orbit server.
- 8 Click **OK** to finish and close the dialog.

Step 7.3.4: Configure Network Window for Densité-protocol Devices

- 9 Click **Connections** -> **Densité** in the main menu.
The **iControl/Densité Configuration** dialog is shown.

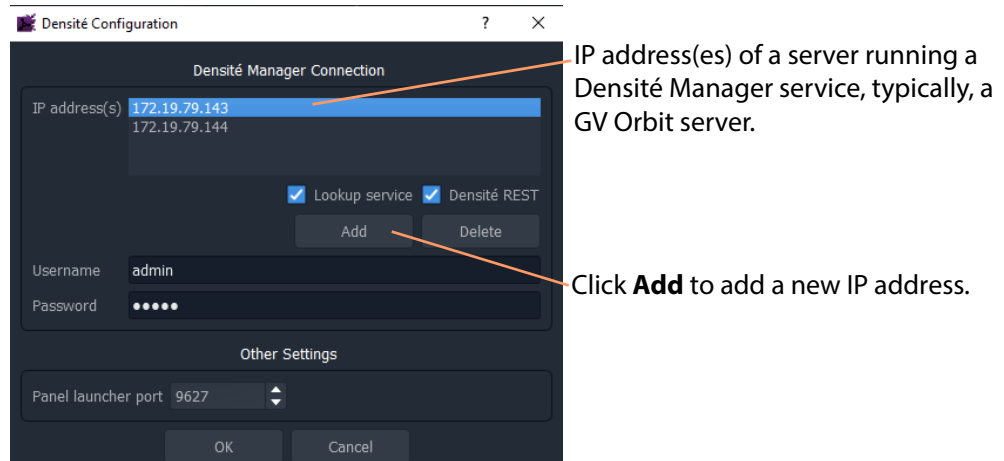


Fig. 2-46: iControl/Densité Configuration Dialog

- 10 Click **Add** and enter the IP address(es) of GV Orbit server(s) (which run a Densité Manager service), or add the IP address of a server.
- 11 Select 'Lookup Service' and 'Densité REST'.
- 12 Enter the **Username** and **Password** to access the Densité Manager service.
- 13 Click **OK** to finish and close the dialog.

Finally:

- 14 Click **Project** -> **Save Project** in the main menu to save the project locally.
- 15 Push the project to the repository when all changes are done. See [Step 7.4: Saving and Pushing a Project](#), on page 62.

Step 7.4: Saving and Pushing a Project

Save Project (Locally)

To save a project locally to the folder on the client PC:

- Click **Project** -> **Save Project** in the main menu.

Push Project (Save to Server)

To push a project back into a repository (on the GV Orbit server):

- Click **Project** -> **Push**. (See [Step 2.2.2: Push Project \(Save to Server\)](#), on page 23.)
In the **Choose Project** dialog, select the project to be pushed and click **OK**.

Pull Project (Load from Server)

To pull a project from a repository (on the GV Orbit server):

- Click **Project** -> **Pull** in the main menu.

Close Project

To close a project that is open in GV Orbit Client:

- Click **Project** -> **Close Project** in the main menu.

Getting Started Steps

Step 7.4: Saving and Pushing a Project -

3 Home Screen

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Project Home Screen

Lite	Professional	Enterprise
●	●	●

Home Screen Windows

The appearance of the GV Orbit Client project **Home Screen** varies according to project type and according to which GV Orbit Client windows are enabled and being shown. Use tool bar icons to show/hide windows.

Some tool bar icons to show/hide windows in the **Home Screen**:

-  **Alarm History** window icon
-  **Project** window icon
-  **Network** window icon
-  **Properties** window (shown when a C&M screen tab is selected)
-  **Workflow** window icon

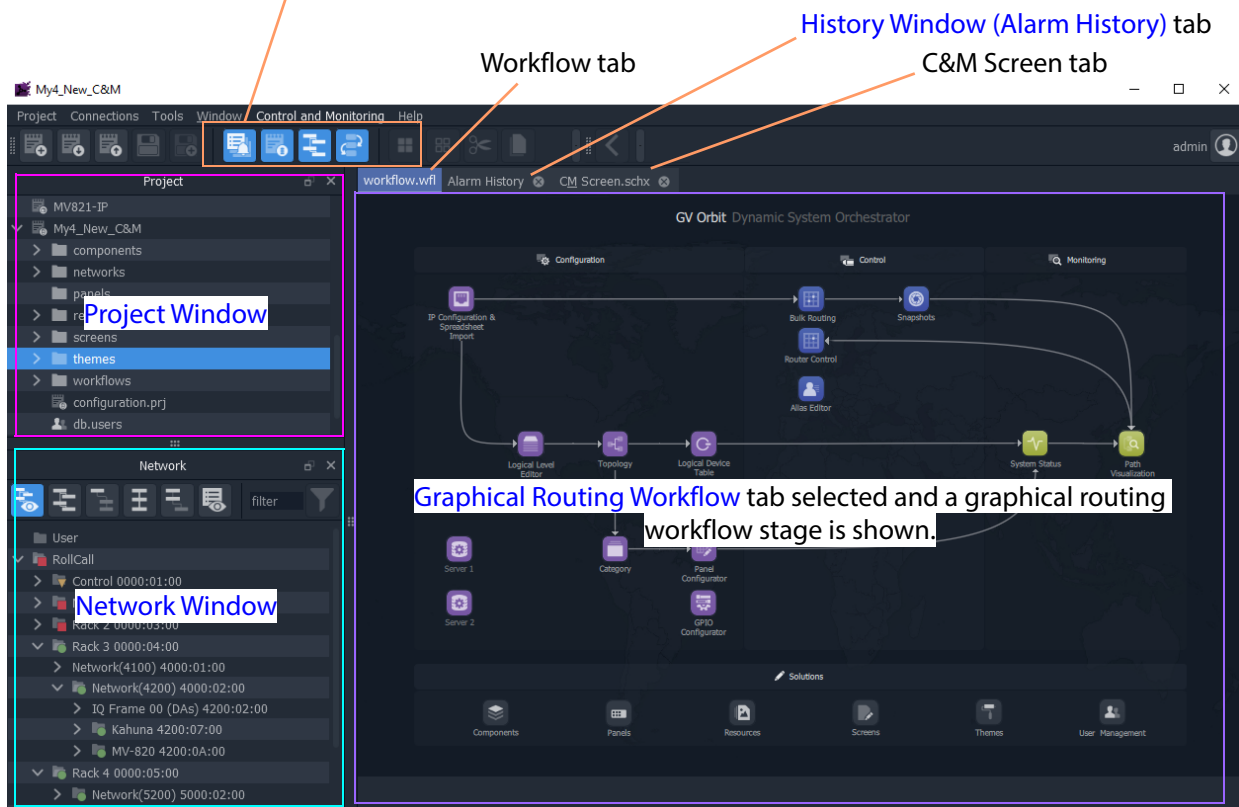


Fig. 3-1: GV Orbit Client Project Home Screen Windows

Table 3-1: Home Screen Windows

Window	Description	See
Project	A tree view of projects opened by the GV Orbit Client. Allows users to access aspects of the current project, or to load another project.	Project Window , on page 69.
Network	A view of devices/frames/services etc. in a GV Orbit system, presented in a tree-view or a list-view. A user can access device information and alarms.	Network Window , on page 70.
Alarm History	A list of alarms that have occurred across the system over time.	History Window (Alarm History) , on page 94.
Properties	Shows the properties of the selected graphical widget when designing a graphical C&M project.	Properties Window , on page 74.
Workflow	A graphical presentation of all the tasks and functions available in GV Orbit. Click on an icon to access a task or a function.	Graphical Routing Workflow , on page 98.

Close All Windows

To close all windows and just see a default workflow:

- Click **Window** -> **Close All** in the main menu.

Project Window

The **Project** window lists the project currently open and any projects previously opened by the GV Orbit Client on the client PC.

The currently-open project is expandable in a tree view to show the various project items. The user can access and manage different aspects/functions of the project from this tree view item.

Currently-open project

Project is expanded

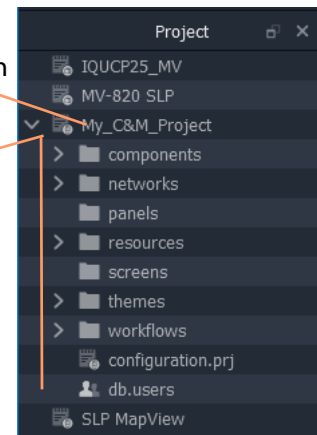


Fig. 3-2: Project Window

Project Tree-Items

Project items seen when a project is expanded include:

- **Components** - Graphical custom components that appear on GV Orbit Client graphical control and monitoring screens.
- **Networks** - IP End-point configuration files, used in IP routing control set up.
- **Panels** - Soft XY Router control panels, created with a wizard and user-customizable.
- **Resources** - Imported resource items used in the project (e.g. logo images etc.).
- **Screens** - C&M project user-defined graphical control/monitoring screens.
- **Themes** - The appearance of each graphical element on a GV Orbit custom graphical screen (multiviewer video wall screen, or C&M project control and monitoring screen) can have a style applied to it. A theme is a set of styles that can be applied to a project.
- **Workflows** - Workflow screen.
- **configuration.prj** - The GV Orbit project file. Select this file when opening an existing project in GV Orbit Client. Do not edit this file.
- **db.users** - Project users, user roles and their associated permissions can be managed. New user names and logins etc. can be set up.
- **Grids** - Imported tile-grid layouts for all multiviewer projects.
- **Tiles** - Video wall tile designs for all multiviewer projects.
- **Rooms** - Video wall designs for 'Clustered Multiviewer' projects.
- **Walls** - Video wall designs for 'Multiviewer' projects.

Note:

Some project items are also accessible via icons in the routing workflow window (see [Graphical Routing Workflow](#), on page 98).

Note:

Some project items may be specific to certain project types.

Project Window Actions

Right-click on a **Project** window tree-view item to open, import, or create a new item.

For example, right click on:

- **Screens** - Select **New** to create a new user screen in a C&M project.
- **Walls** - Select **New** to create a new video wall in a single-multiviewer project.
- **Resources** - Select **Import File(s)** to import an image file into a project.
- **db.users**
 - Select **Open** to open the User Management window in a tab to set up users and roles.
 - Select **Import user database** to import users from another project.
- <Project Name> - Select **Rename** project to rename the project.

Network Window

The **Network** window shows a tree-view or a list-view of devices/frames/services etc. in a GV Orbit system. A user can access control screens, information and alarms about these items from the window. For more information, see [Network Window](#) for more information.

Note:

To set up the **Network** window for a project, see [Network Window Views](#), on page 27 onwards.

Show/Hide Network Window

The **Network** window may be shown/hidden using a main tool bar icon, see Figure 3-8.

Click icon to hide/show the **Network** window (toggles).

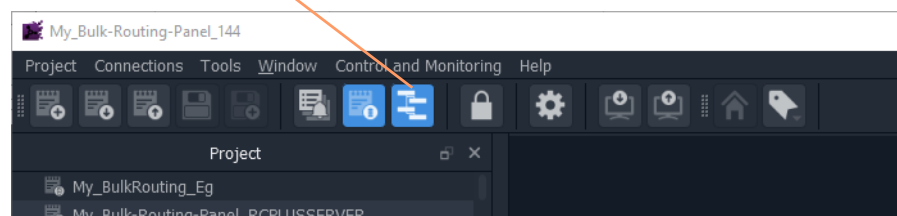
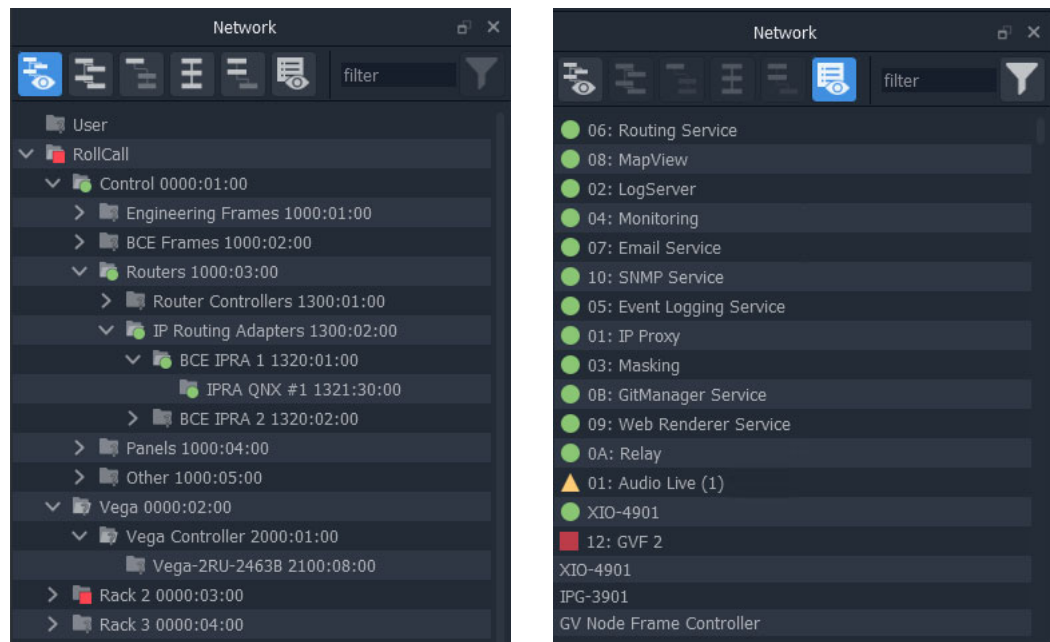


Fig. 3-3: Network Window Hide/Show



a) Tree-View

b) List-View

Fig. 3-4: Network Window Examples: a) Tree-View; b) List-View.

Network Window Actions

Locate a device in the **Network** window and right-click on the item. The following actions are possible in GV Orbit:

- **Lite, Professional and Enterprise:**
 - [Device Information](#) - View information about a device.
 - [Card Parameters](#) - View Densité-protocol device parameters.
 - [Device Control](#) - View and change device configuration settings. (**Lite:** RollCall devices only.)
 - [Upgrade Device](#) - Upgrade (or downgrade) device software/firmware.
- And for **Professional and Enterprise** only:
 - [Alarm List - Live Alarms/Status](#) - View a list of a device's live status and alarms.
 - [Alarm History for a Device](#) - View the alarm history of a device.
 - [Alarm Masking \(Professional and Enterprise\)](#) - Mask device alarms.

History Window (Alarm History)

Lite	Professional	Enterprise
-	●	●

The GV Orbit Client **History** window can show the history of *system-wide* alarms and status messages which are read from the **Event Logging** service on the GV Orbit server.

Note:

The **History** window is similar to the window shown for [Alarm History for a Device](#), on page 89.

For more information, see [History Window \(Alarm History\)](#).

View Alarm History for System-wide Alarms

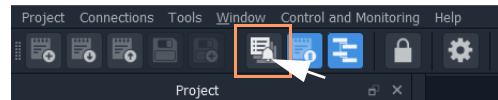
To view the **Alarm History** for GV Orbit system-wide alarms:

- 1 Click the **Alarm History** icon in the main tool bar.

The **History** window appears in a tab.

Note: The tab shows no specific device address when showing system-wide alarms.

Select the **History** tab to view it.



All Devices						
Time stamp range: 08/1/20 @ 12:13:00 - 08/1/20 @ 13:13:59						
Time stamp	Current ...	Current value	Previous ...	Previous value	Alarm	Address
08/1/20 @ 13:13:59	OK	WARN:TPG	OK	WARN:SD	INPUT_8_SDI_ERRCNT	B111:10:01
08/1/20 @ 13:13:59	Minor	WARN:Address change	Minor	WARN:Name Change	LOGGING_STATE	A111:0F:00
08/1/20 @ 13:13:59	OK	OK	Minor	WARN	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:59	OK	0	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:58	Minor	WARN	OK	OK	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:58	OK	1	OK	0	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:57	OK	0	OK	2	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:57	OK	OK	Minor	WARN	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:56	Minor	WARN	OK	OK	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:56	OK	2	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:55	OK	001:01:30:00	OK	001:01:29:00	RC_UPTIME	3291:20:0A
08/1/20 @ 13:13:55	OK	1	OK	0	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:54	OK	0	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:51	OK	1	OK	0	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:50	OK	OK	Minor	WARN	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:50	OK	0	OK	3	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:49	OK	OK	Critical	FAIL-LAN_2_STATE=FAIL-SFP_2_STATUS=FAIL-RX PWR LO	LAN_STATE	3291:20:07
08/1/20 @ 13:13:49	Minor	WARN	OK	OK	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:49	OK	3	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:49	OK	OK	Critical	FAIL-SFP_2_STATUS=FAIL-RX PWR LO	LAN_2_STATE	3291:20:07

1 - 20 of 7650 items

Fig. 3-5: Alarm History Window Example

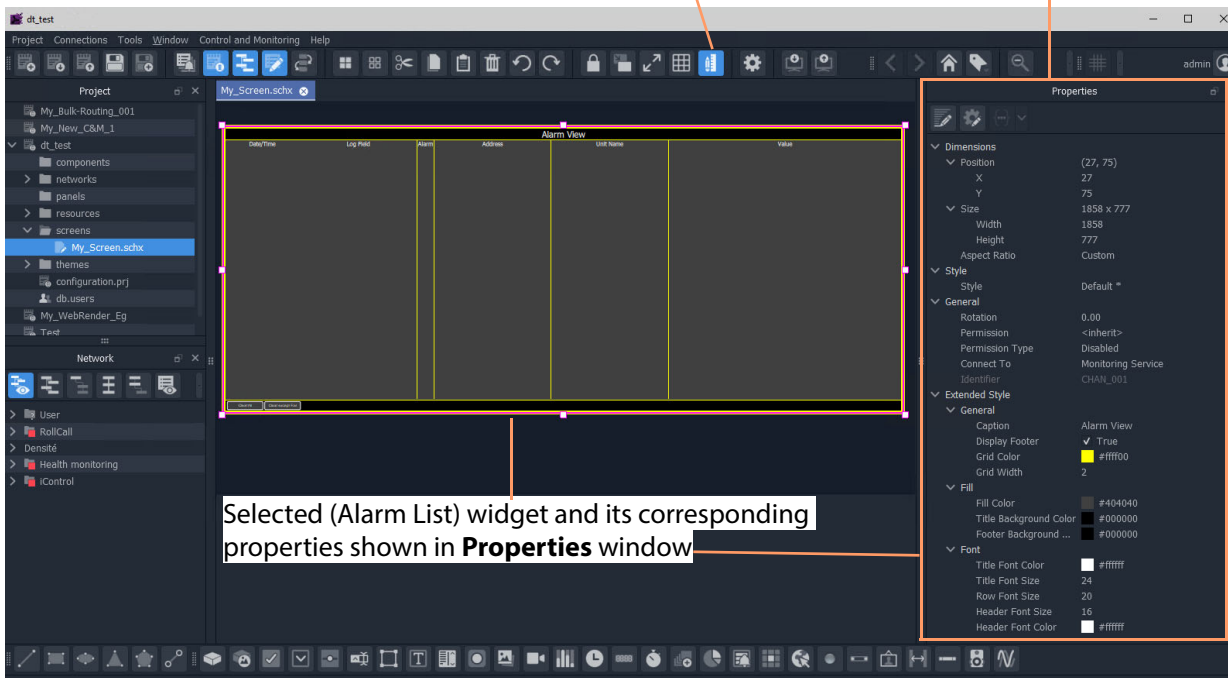
Properties Window

Lite	Professional	Enterprise
-	●	●

The **Properties** window shows the properties of a selected graphical widget or on-screen item when designing/editing a C&M screen in GV Orbit Client in 'Design' mode. The window may be shown when a C&M screen tab, or a multiviewer video wall, or other graphical GV Orbit project item is selected.

Run/Design Mode icon indicates GV Orbit Client is in 'Design' mode for graphical editing and design.

Properties Window



a) Example C&M Screen Running in 'Design' mode in GV Orbit Client

b) Example C&M Screen Running in GV Orbit Client

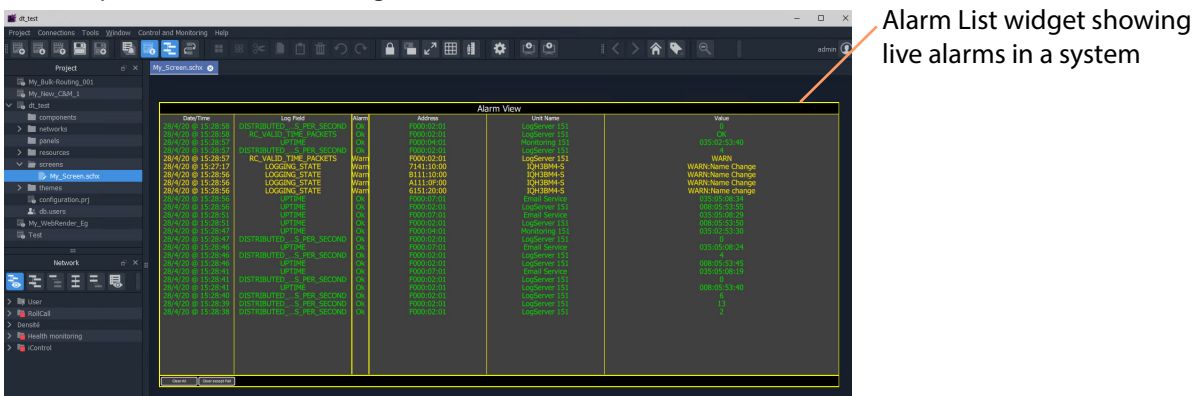


Fig. 3-6: Properties Window Example: a) In Design Mode; b) In Run Mode.

Workflow Window

Lite	Professional	Enterprise
-	●	●


Note:

A **Workflow** window may be visible in GV Orbit **Lite** but it is *not applicable* to the GV Orbit **Lite** product version.

A workflow window shows a graphical representation of all the tasks and functions available in GV Orbit **Professional** and **Enterprise** systems. The **Workflow** window is the stage which presents all the tasks and functions the system has to offer to the GV Orbit Client user. Click on a workflow icon for direct access to a task or a function.

View WorkFlow Stage

To view the **Workflow** stage:

- 1 Click the  icon in the tool bar.
Workflow stage is then shown in a tab.
- 2 Select the workflow tab (if it is not already selected) to view it.
The workflow in Figure 3-7 is available to all new projects.

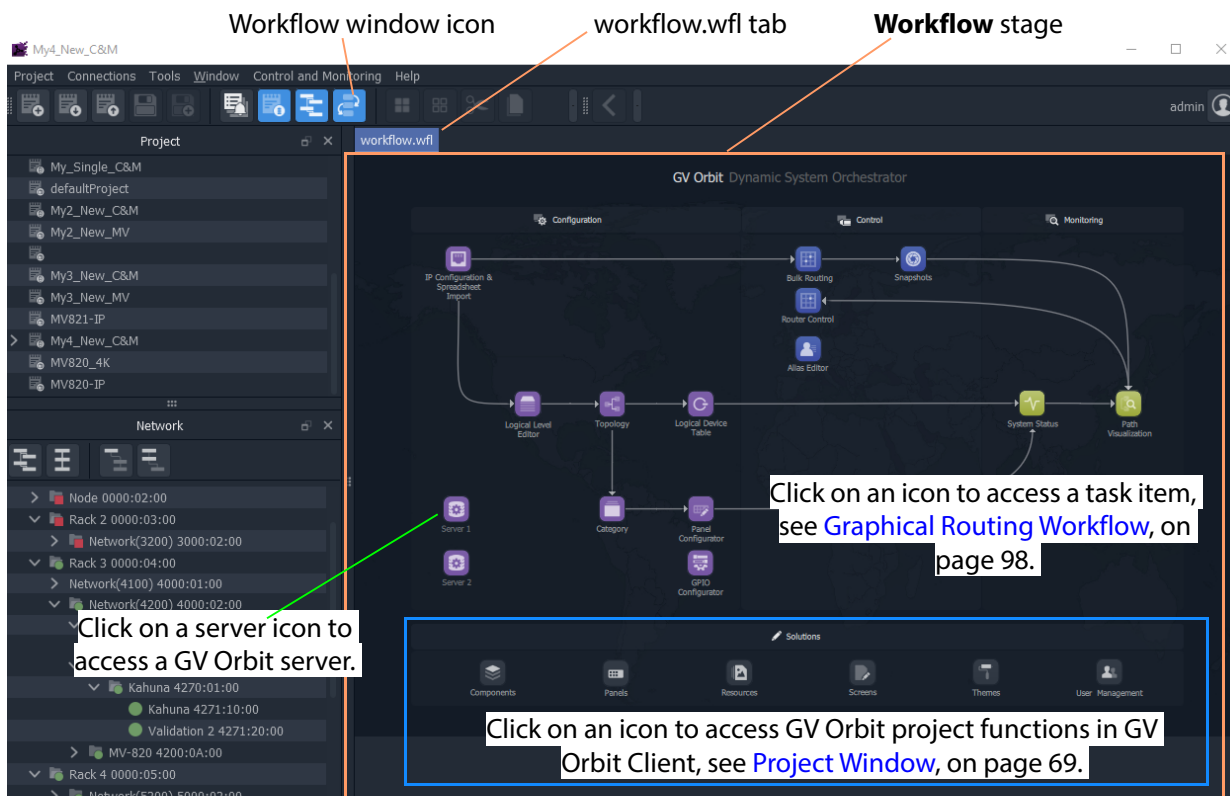


Fig. 3-7: Graphical Routing Workflow Stage

The graphical **Workflow** stage makes it easy to understand how tasks and functions are related and each icon provides direct access to the task/function it represents.

The workflow is optimized for carrying out the system configuration required:

- when re-purposing an existing routing infrastructure; or
- for the steps to set up a fresh, new routing environment.

Routing configuration and control is done via the GV Orbit Control application running on a GV Orbit server, which supports Grass Valley NP0017 and SW-P-08 protocols. Both IP and SDI routing etc. may be controlled. The GV Orbit Client communicates with the GV Orbit Control service via the GV Orbit Control Client, launched automatically from the GV Orbit Client.

Network Window

What is the Network Window?

The **Network** window shows a tree-view or a list-view of devices/frames/services etc. in a GV Orbit system. A user can access control screens, information and alarms about these items from the window.

Note:

To set up the **Network** window for a project, see [Network Window Views](#), on page 27 onwards.

(See [Step 3.2.1: Network Window Setup For RollCall Devices](#), on page 28; [Step 3.2.2: View a Device Control Screen - RollCall Devices](#), on page 30; [Step 3.2.3: Network Window Setup For Densité Devices](#), on page 30; and [Step 3.2.4: View a Device Control Screen - Densité Devices](#), on page 32.)

Note: Automatically discovered devices:

For devices that are automatically discoverable by a GV Orbit system, these are shown in the **Network** window. For example, GV Fabric IP switch.

Show/Hide Network Window

The **Network** window may be shown/hidden using a main tool bar icon, see Figure 3-8.

Click icon to hide/show the **Network** window (toggles).

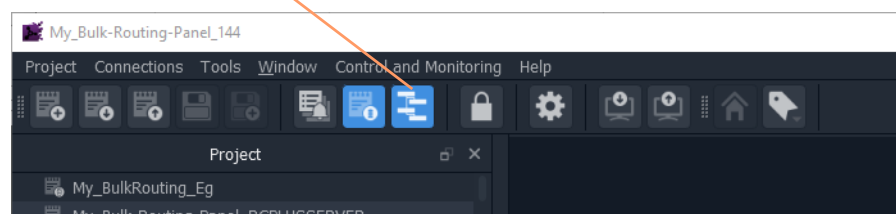


Fig. 3-8: Network Window Hide/Show

Tree-View and List-View

The tree-view and list-view forms of the **Network** window are shown in Figure 3-9.

The tree-view presents a hierarchical view of system devices/units/frames/services. See Figure 3-9a. The tree-view's expand/collapse controls are presented in Figure 3-9a.

The list-view is a flattened view, listing all system devices/units/frames/services. See Figure 3-9b. The list may be filtered, see [Network Window List-View Filter](#) for a description of the list-view filter controls.

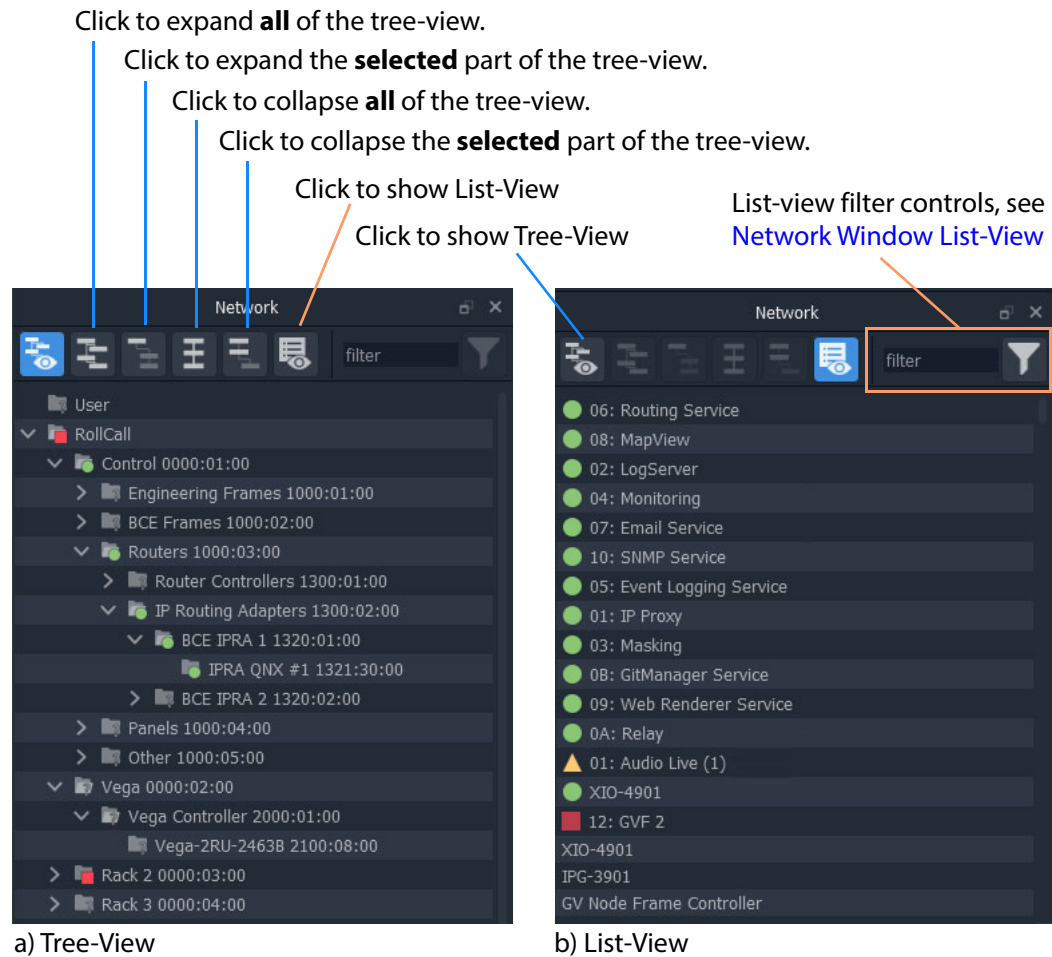


Fig. 3-9: Network Window: a) Tree-View; b) List-View.

Network Window List-View Filter

In the **Network** window, the displaying of items in the list-view can be filtered. Filtering can be done:

- with a text string; and/or
- by card type; and/or
- by alarm state.

The filter controls are shown in Figure 3-10.

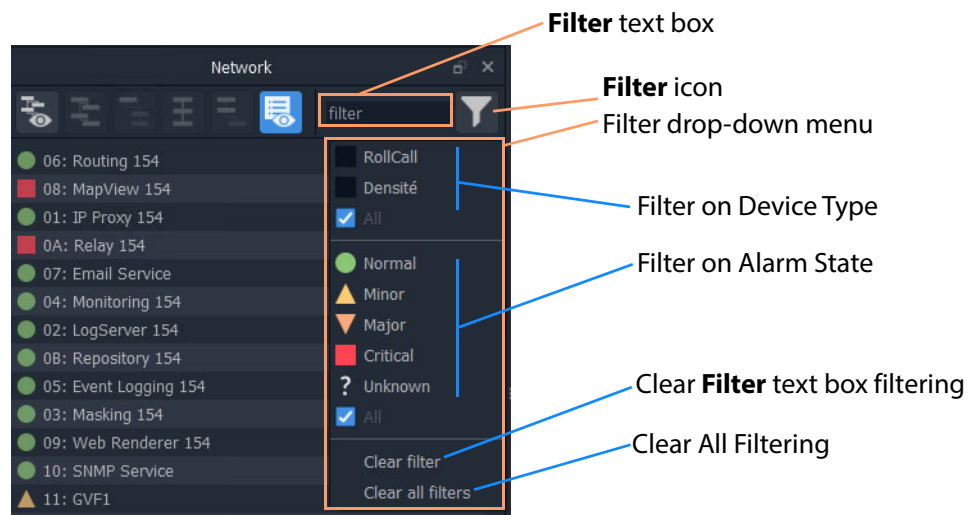


Fig. 3-10: List-View Filter Controls

Filter Example 1: Filter List Item Name

To filter the **Network** window list-view for a particular device by its name:

- 1 Enter a fragment of text in the **Filter** text box. For example, "UCP" or "XIO".
 The displayed names are those containing the entered text. See Figure 3-11b or c.

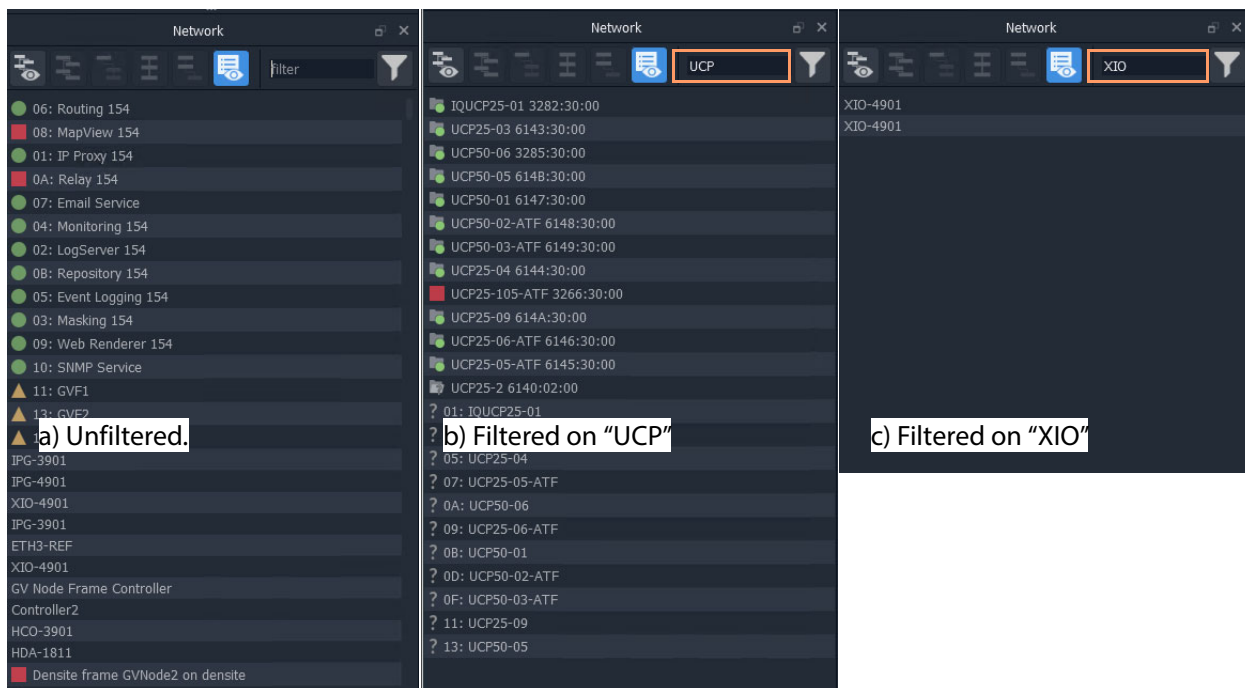


Fig. 3-11: List-View Filtered Names on Text

- 2 Click on the **Filter** icon and select 'Clear Filter'.

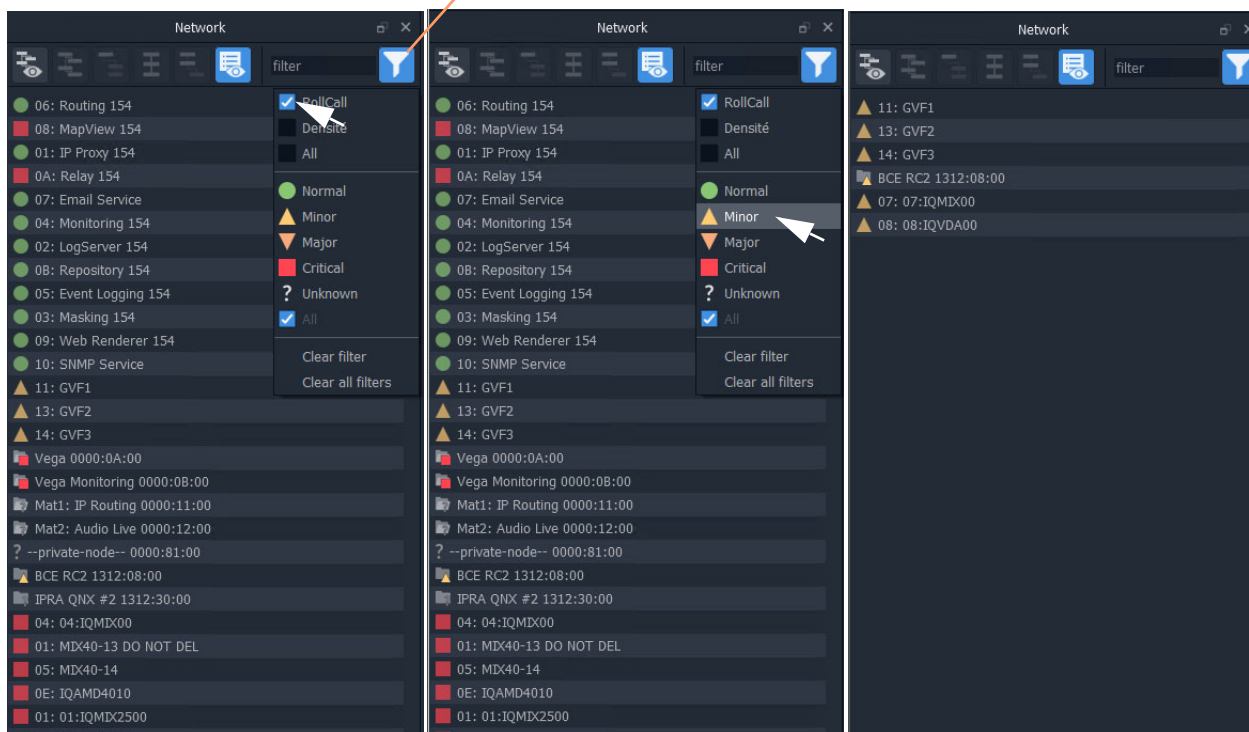
The text box is cleared and the text-box filtering is cleared.

Filter Example 2: Filter Device Type and then Alarm State

With all filters cleared, to filter on a device type and then their alarm states:

- 1 Click on the **Filter** icon and select 'RollCall'.
RollCall-protocol devices are shown. See Figure 3-12a.
- 2 Click on the **Filter** icon and select 'Minor'.
'Minor Warning' RollCall-protocol devices are shown. See Figure 3-12c.

Filter icon indicates some filtering is active



a) Filter RollCall-protocol devices

b) Select to Show Minor Warning Alarm States

c) Minor Warning RollCall-protocol devices shown

Fig. 3-12: Filter on Device Type and then Alarm State

To clear the alarms:

- 3 Click on the **Filter** icon and select 'Clear All Filters'.
All filters are cleared and all devices are shown.

Network Window Actions

Locate a device in the **Network** window and right-click on the item.

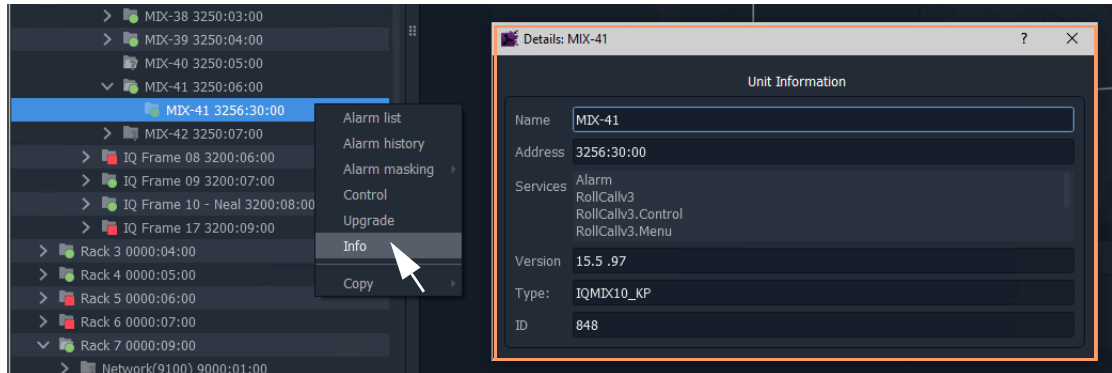
The following actions are possible in GV Orbit:

- **Lite, Professional and Enterprise:**
 - [Device Information](#) - View information about a device.
 - [Card Parameters](#) - View Densité-protocol device parameters.
 - [Device Control](#) - View and change device configuration settings. (**Lite:** RollCall devices only.)
 - [Upgrade Device](#) - Upgrade (or downgrade) device software/firmware.
- And for **Professional** and **Enterprise** only:
 - [Alarm List - Live Alarms/Status](#) - View a list of a devices' live status and alarms.
 - [Alarm History for a Device](#) - View the alarm history of a device.
 - [Alarm Masking \(Professional and Enterprise\)](#) - Mask device alarms.

Device Information

To inspect device information from the **Network** window (tree-view or list-view):

- 1 Right-click on a device and select 'Info'.
Device information is shown in a **Details** pop-up window.



a) RollCall-protocol Device - Details window



b) Densité-protocol Device - Details window

Fig. 3-13: Device Info - Details Pop-up Windows

Card Parameters

To view a Densité-protocol device's parameter settings from the **Network** window:

- 1 Right-click on a Densité-protocol device and select 'Card Parameters'.

A summary of the device's parameter settings is shown in a tab. See Figure 3-14.

Right-click and select 'Card Parameters',
a summary of card parameters is shown in a tab

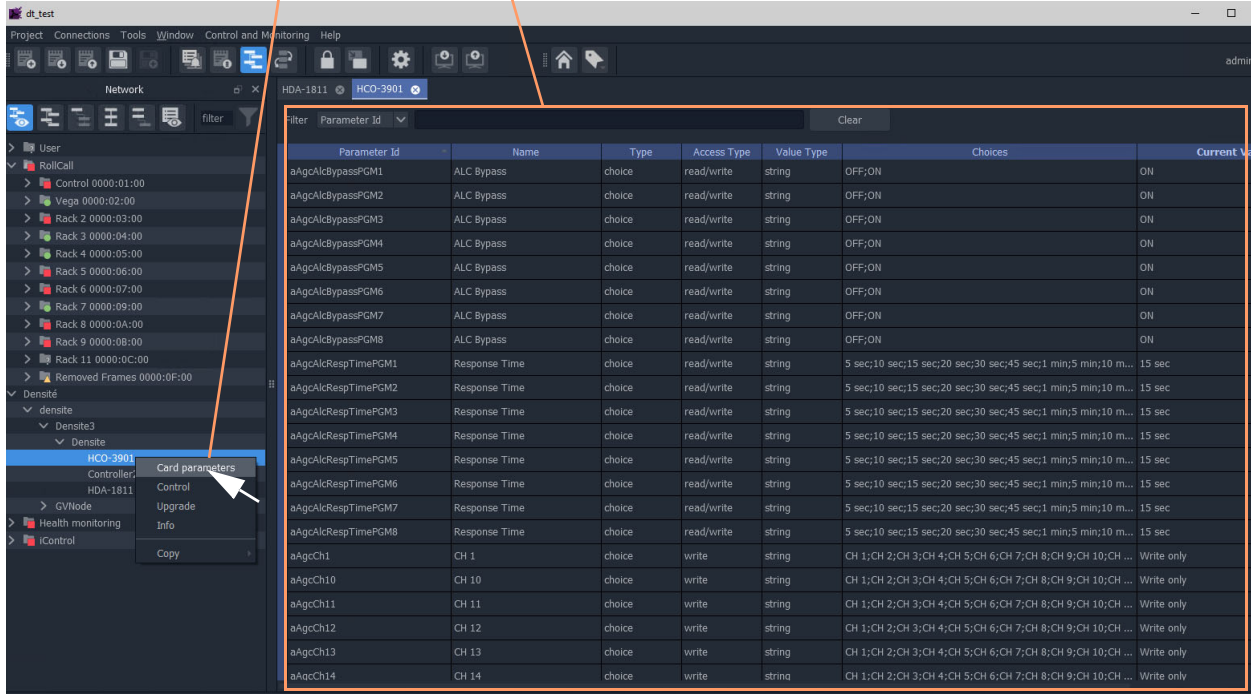


Fig. 3-14: Card Parameters Tab

- 2 Click on a column heading to sort the listed parameters on a column.
- 3 Use the filter controls to restrict the shown listed items. See Figure 3-15.

Example: Filtering on parameter name containing 'Resp'

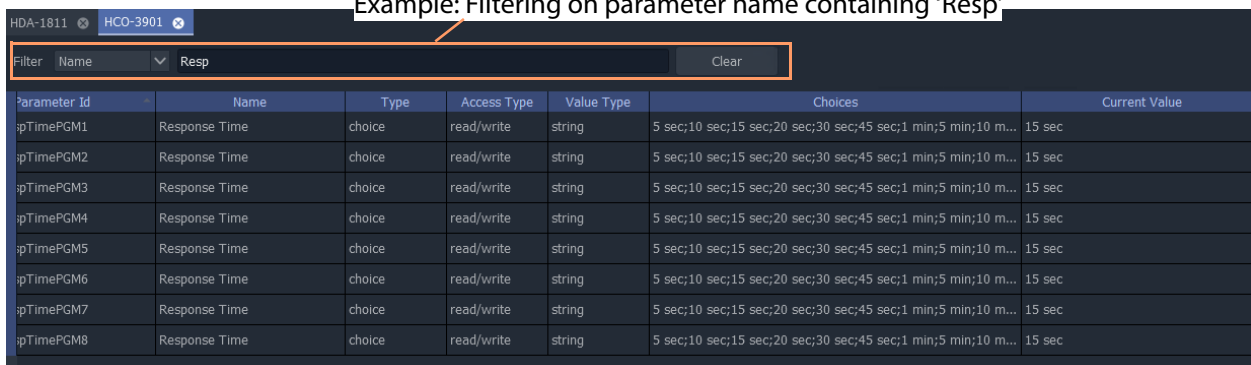


Fig. 3-15: Example Filtered Card Parameters

- 4 Read/Write card parameters can be entered via the 'Current Value' column.

Device Control

To inspect a device's configuration settings from the **Network** window:

- 1 Right-click on a device and select 'Control' to view the device's control screen. (See [Step 3.2: Configuration of Densité and RollCall Devices](#), on page 27.)

Note: For GV Fabric IP Switch devices, the control screen that is opened in the GV Orbit Client window is the device's web page.

Upgrade Device

To upgrade a device from the **Network** window:

- 1 Right-click on a device and select 'Upgrade' to open the device's upgrade screen. (See [Step 4: Device Upgrade](#), on page 34.)

Alarms

See [Alarms](#) section for more information.

Alarms

Note: Alarms in GV Orbit v1.2 onwards:

In GV Orbit systems, alarms are handled 'behind the scenes' with internal addresses. These addresses have changed for GV Orbit v1.2.0 onwards:

- **v1.2.0 onwards:** Alarm-addresses for Densité-protocol devices are now aligned with the respective device/card address.
- **Earlier than v1.2.0:** Densité-protocol device alarm-addresses are separate and are *not* aligned to device addresses.

CAUTION

As a result of this alarm addressing change, when upgrading to GV Orbit v1.2.0 onwards, addresses specified for alarms must be changed. This applies to custom operator panels of C&M projects and to Alarm Behaviours.

Alarm List - Live Alarms/Status

Professional and **Enterprise** only.

Alarm List Window

To inspect live alarms and status of a device/frame/service from the **Network** window:

- 1 Right-click on a device item in the **Network** window and select '**Alarm List**'.

The live status and alarms reported by the device/frame/service are listed in an **Alarm List** window. See examples shown in Figure 3-16a and b, and Figure 3-17a and b.

Sort by alarm name
Sort by value
Sort by status
Sort by mask
Sort by invert
Sort by recent

Click to select sorting of listed alarms from drop-down menu.

Clear filters on all columns.

Filter on a column (Name or Value or State).

Alarm Name	Value	Status	Latch
Card LED		Normal	Critical
Network/Interface/ETH1/Link		Normal	Major
Overall		Normal	Critical
STATE	1	Normal	Critical
Network/Interface/ETH1/Gateway	0.0.0.0	T Text	? Unknown
Network/Interface/ETH1/IP Addr...	192.201.205.37	T Text	? Unknown
Network/Interface/ETH1/MAC A...	00:50:1e:05:c4:b8	T Text	? Unknown
Network/Interface/ETH1/Mode	Static	T Text	? Unknown
Network/Interface/ETH1/Subnet ...	255.255.255.0	T Text	? Unknown

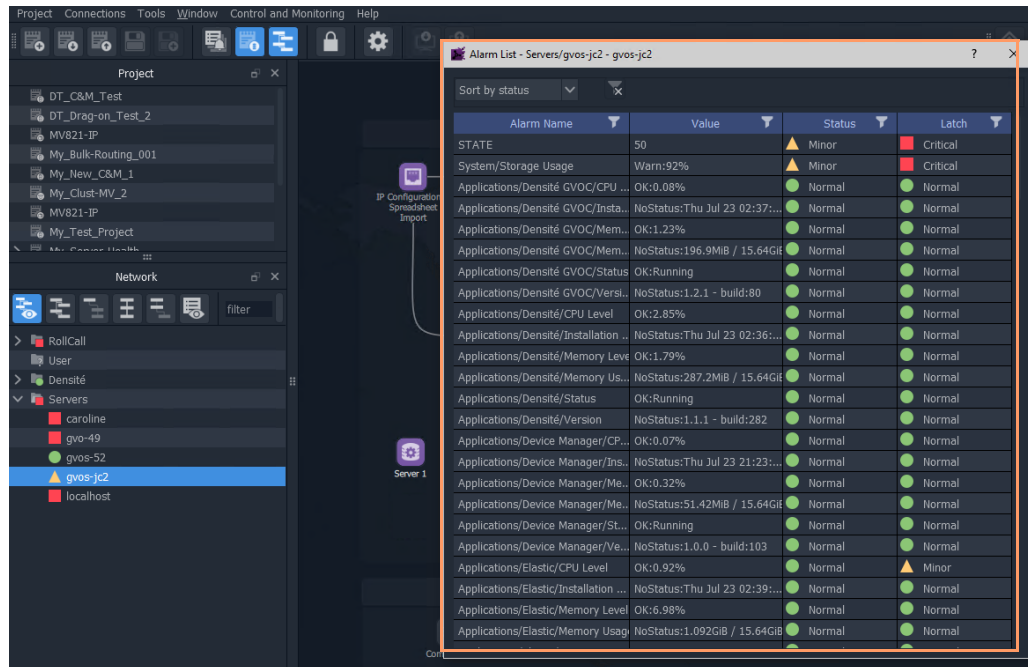
a) Alarm List example for a system device, XIP device

Alarm Name	Value	Status	Latch
LAN_STATE	WARN:LAN_PORT_3_STAT...	Minor	Minor
LOCATION	unknown	Minor	Minor
STATE	50	Minor	Critical
SYSTEM_CONTACT	unknown	Minor	Minor
ADDRESS	E000:10:04	Normal	Normal
CPU_1_LOAD	9% CPU loading	Normal	Minor
CPU_1_NAME	GenuineIntel: Intel(R) Atom...	Normal	Minor
CPU_2_LOAD	9% CPU loading	Normal	Minor
CPU_2_NAME	GenuineIntel: Intel(R) Atom...	Normal	Minor
CPU_3_LOAD	9% CPU loading	Normal	Minor
CPU_3_NAME	GenuineIntel: Intel(R) Atom...	Normal	Minor
CPU_4_LOAD	9% CPU loading	Normal	Minor
CPU_4_NAME	GenuineIntel: Intel(R) Atom...	Normal	Minor
CURRENT_TRAP_OID	-	Normal	Normal
FAN_1_NAME	MGMT/FAN1/F1	Normal	Minor
FAN_1_SPEED	OK: 6967 RPM	Normal	Minor
FAN_2_NAME	MGMT/FAN2/F1	Normal	Minor
FAN_2_SPEED	OK: 6859 RPM	Normal	Minor
FAN_3_NAME	MGMT/FAN3/F1	Normal	Minor
FAN_3_SPEED	OK: 7234 RPM	Normal	Minor
FAN_4_NAME	MGMT/FAN4/F1	Normal	Minor
FAN_4_SPEED	OK: 7234 RPM	Normal	Minor
ID	341	Normal	Normal
IDNAME	RollSNMP	Normal	Normal

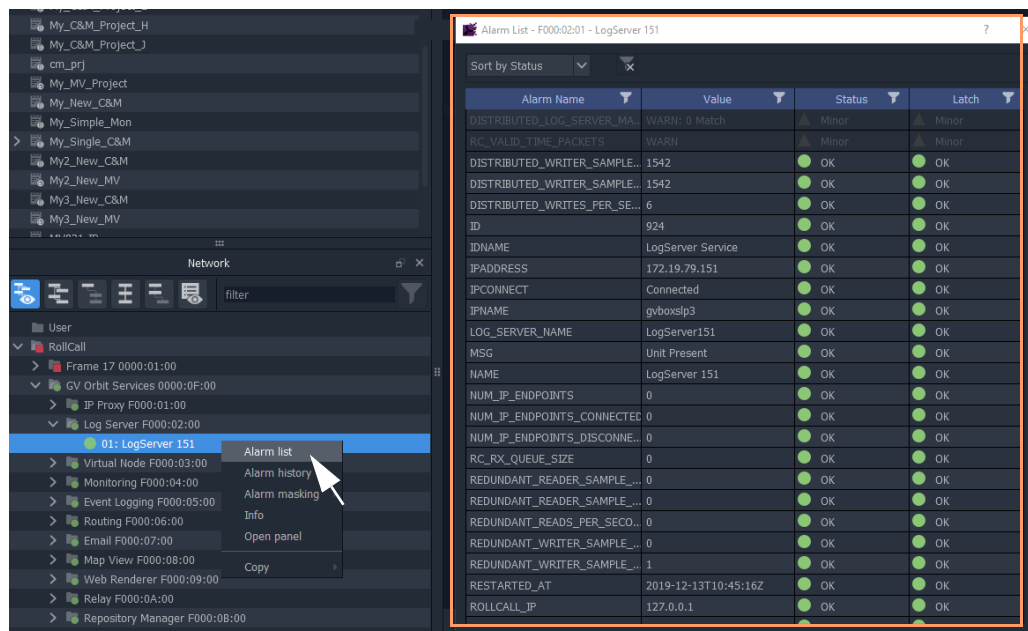
b) Alarm List for an Auto-discovered GV Fabric IP Switch

Fig. 3-16: Example Alarm List Windows for:

a) System Device (XIP shown); b) GV Fabric IP Switch.



a) Alarm List for a GV Orbit Server



b) Alarm List for a GV Orbit Service

Fig. 3-17: Example Alarm List Windows for:
 a) GV Orbit Server;
 b) GV Orbit Service.

Alarm List Window Masking

In the **Alarm List** window, alarms can be masked:

- at a *device-level*; or
- individual alarms for a device can be masked (*alarm-level*).

Right-click on an item in the **Alarm List** window to see masking options. See [Alarm Masking \(Professional and Enterprise\)](#), on page 91 for further information on masking.

Right-click options

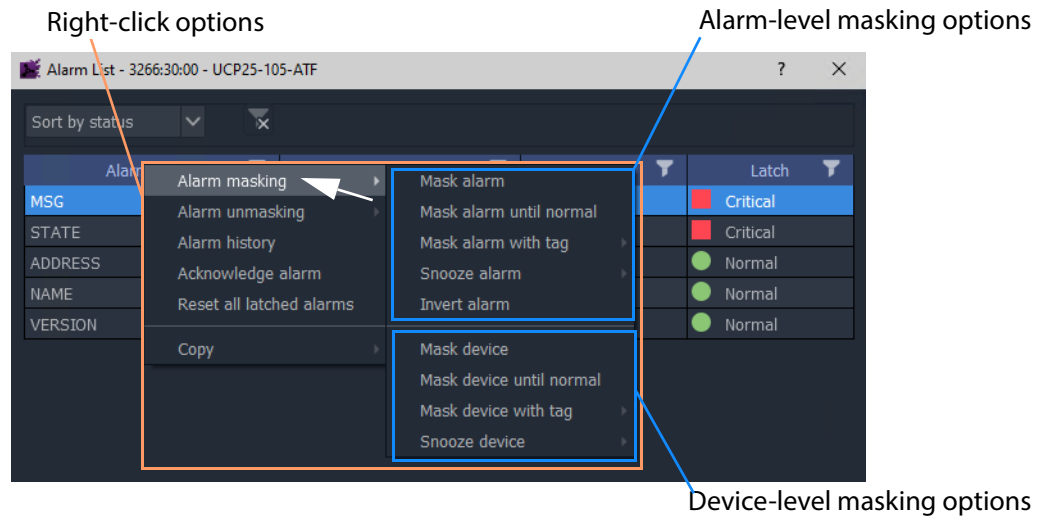


Fig. 3-18: Alarm List Window Right-Click Options

Alarm History for a Device

Professional and **Enterprise** only.


Note:

The **Alarm History** window uses the following GV Orbit services:
IP Proxy, Log Server, Monitoring, Event Logging, and Densité Manager.
These services are all required for **Alarm History**.

To inspect the history of device status and alarms from the **Network** window:

- 1 Right-click on a device in the **Network** window and select '**Alarm History**'.

The status messages and alarms etc. reported by the device are listed in a new **History** window tab. The address of the device is shown in the window tab. See Figure 3-19.

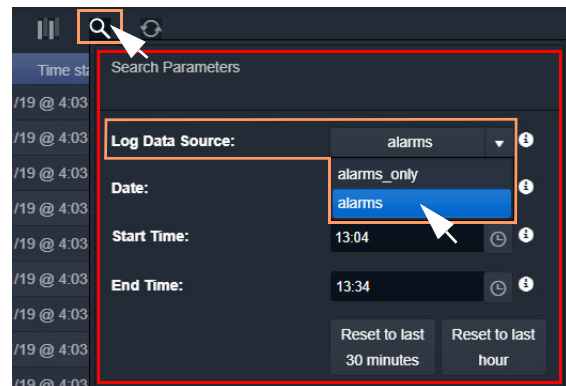
- 2 Click the search icon () in the **History** window.

The **Search Parameters** dialog is shown.

- 3 Select a **Log Data Source** from the drop-down menu.

Note:

The **Log Data Source** drop-down menu lists the **Event Logging** filters that are set up on the GV Orbit server's **Event Logging** service.

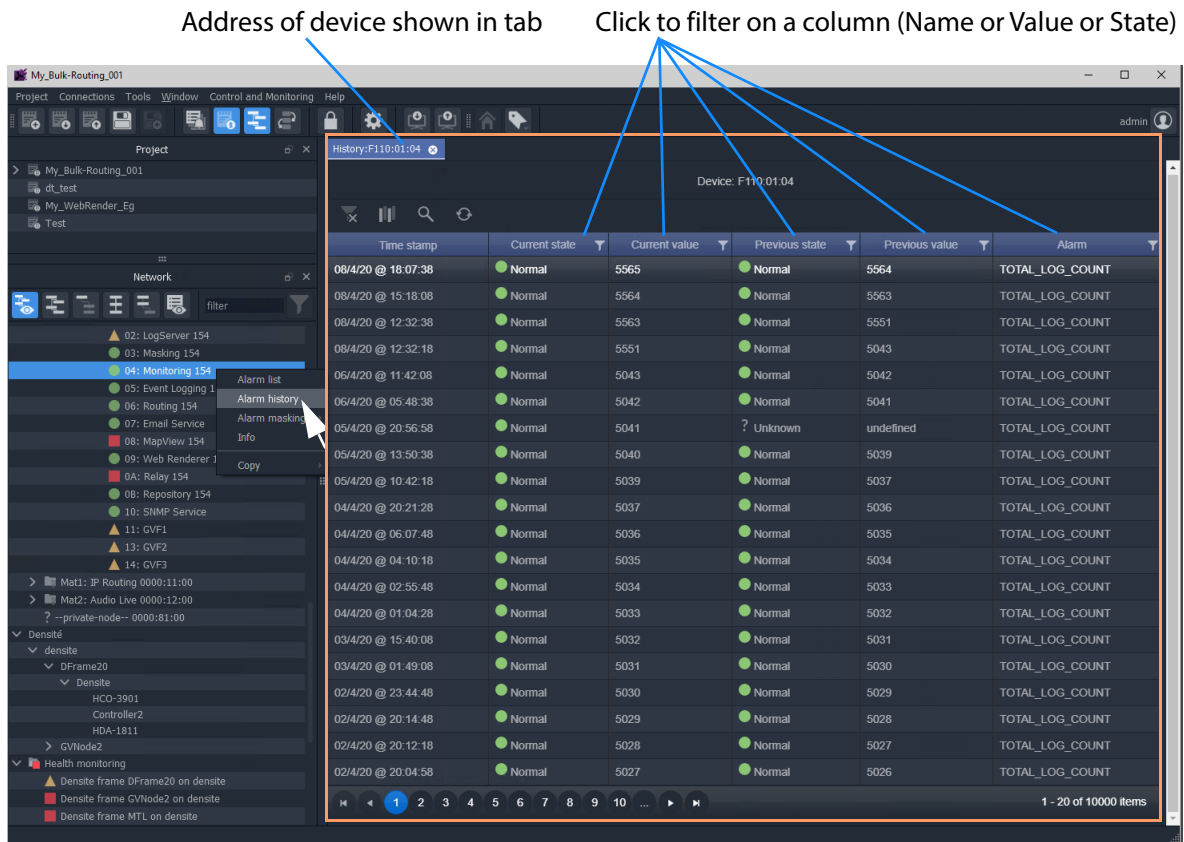


This selects an alarm data source to view in the window.

Note:

See [History Window \(Alarm History\)](#), on page 94 for further information on data sources and the controls in this tab window.

- 4 To close the **Search Parameters** dialog, (re-)click on the search icon (or click somewhere else in the **History** window).
The selected data source is shown in the **History** window.
(See [History Window \(Alarm History\)](#), on page 94 for further information.)



(See [History Window \(Alarm History\)](#), on page 94 for further information on the **History** window.)

Fig. 3-19: Example History Window

Note: Masked alarms are shown “grayed-out” in the **History** window.

Alarm Masking (Professional and Enterprise)

Alarm masking may be done on a device (**device-level** masking), or it may be done on an individual alarm from a device (**alarm-level** masking):

- **Device-level** masking/unmasking can be done from the **Network** window, or from the **Alarm List** window for a device.
- **Alarm-level** masking/unmasking may be done from a device's **Alarm List** window.

Device-level masking is applied separately and additionally to any alarm-level masking. For example, if an alarm-level mask is applied to alarm A for a device and then a device-level mask is applied to the device, when the device-level mask is removed, the alarm-level-mask will still apply.

Apply a Device-Level Mask

To mask alarms associated with a device, from the **Network** window:

- 1 Right-click on a device, select 'Alarm Masking'. See Figure 3-23.

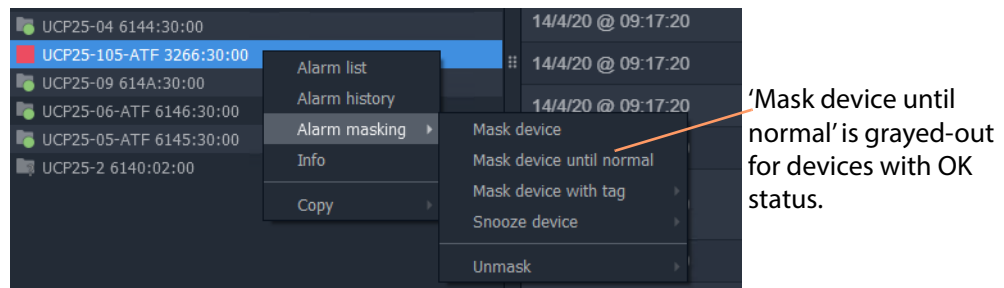


Fig. 3-20: 'Alarm Masking' Menu Options

- 2 Select one masking option from:
 - **Mask Device** - Mask all alarms from a device/unit/frame/service.
 - **Mask Device Until Normal** - Mask alarms from a device/unit until alarm state is OK ('green'). I.e. mask a device/unit until any fault/error is corrected.
Note: This menu item is grayed-out for devices with an OK Alarm state.
 - **Mask Device with Tag** - Mask a device with a **Masking Tag**. See [Alarm Masking Tags](#).
 - **Snooze Device** - Mask alarms from a device/unit for a period of time. See [Alarm Masking Snooze Times](#).
 - **Unmask** - Unmask a device or a set of tagged devices.

Note: Masking or unmasking menu options may be grayed-out in the menu.

Apply an Alarm-Level Mask

Mask an alarm from a device, from the device's **Alarm List** window. See [Figure 3-18](#) on page 88.

Alarm Masking Tags

A set of device(s) can be masked with a **Masking Tag**.

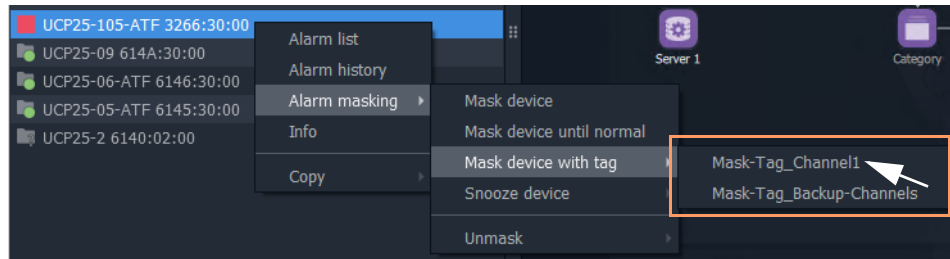


Fig. 3-21: Mask a Device with a Masking Tag

Masking Tags are created in the 'Tools > Options > Monitoring' dialog from the main menu and provide the user with a flexible, multiple and layered masking facility.

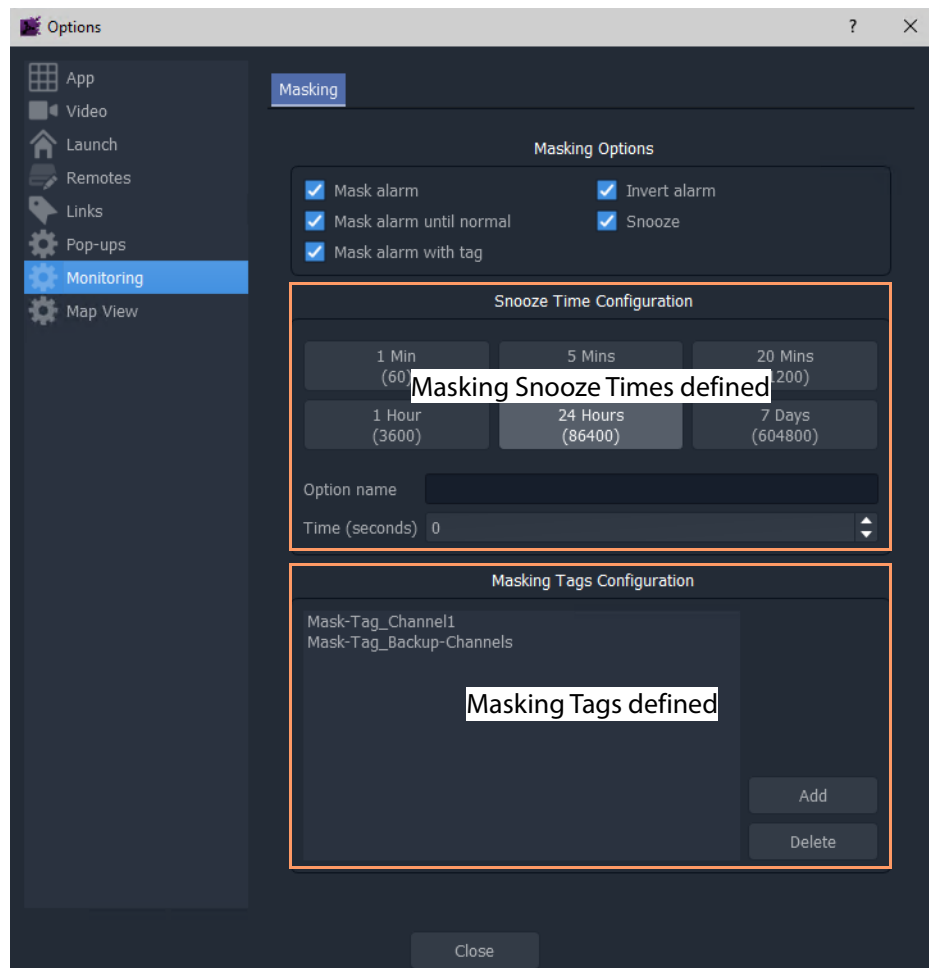
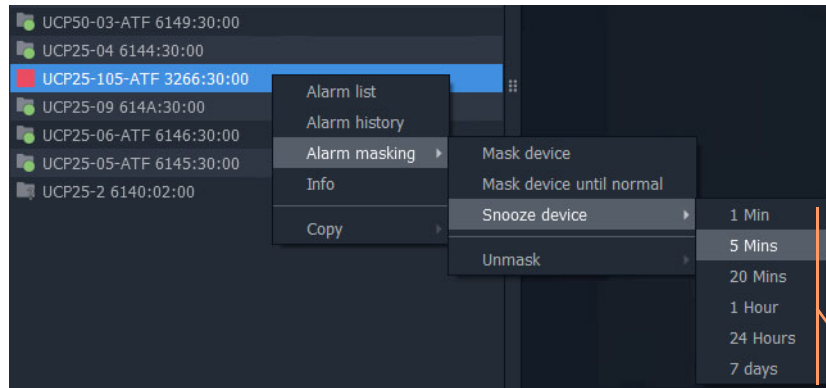


Fig. 3-22: Tools > Options > Monitoring Dialog

Alarm Masking Snooze Times

Alarms for a device/unit/frame/service may be masked for a period of time.



Masking 'Snooze' times

Fig. 3-23: Masking Snooze Times

The selectable masking snooze times are configurable, see 'Tools > Options > Monitoring' in main menu in [Figure 3-22](#) on page 92.

History Window (Alarm History)

Lite	Professional	Enterprise
-	●	●

Introduction

The GV Orbit Client **History** window can show the history of *system-wide* alarms and status messages which are read from the **Event Logging** service on the GV Orbit server.

Note:

The **History** window is similar to the window shown for [Alarm History for a Device](#), on page 89.

Note:

By default, the **History** window sources event log data from the event log store which is set up as default in the **Event Logging** service. (I.e. the event log for which the **Default Index** setting is selected.)
A user can change the event log data source for an **History** window (I.e. change **Log Data Source** in the **Search Parameter** dialog.)

A GV Orbit **Professional** or **Enterprise** user can:

- Select an event log data-set to use from the event log store.
- Search for messages from a particular time period.
- Filter what is shown in the pages (for example, to just display minor alarms).

Note: Log Data Sources:

A **History** window sources log data from the GV Orbit system event log store. All events are logged by an **Event Logging** service running on the GV Orbit server (see [Event Logs](#), on page 114). Depending on a log data-set's configuration, some and/or all events and alarms are logged. A store may be selected as the log data source for display in the **History** window.

View Alarm History for System-wide Alarms

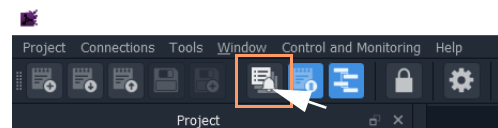
To view the **Alarm History** for GV Orbit system-wide alarms:

- 1 Click the **Alarm History** icon in the main tool bar.

The **History** window appears in a tab.

Note: The tab shows no specific device address when showing system-wide alarms.

Select the **History** tab to view it.



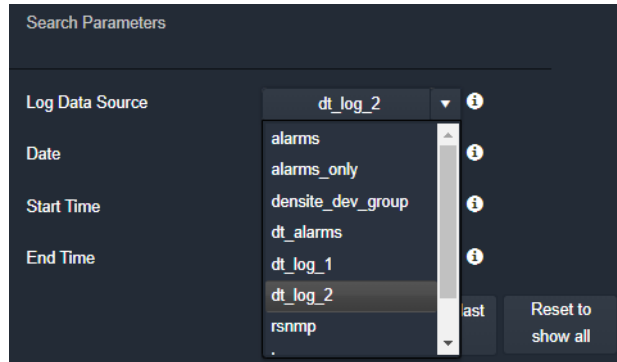
Search Parameters Dialog

The **Search Parameters** dialog appears in the **History** window for both system-wide alarms or for device alarms.

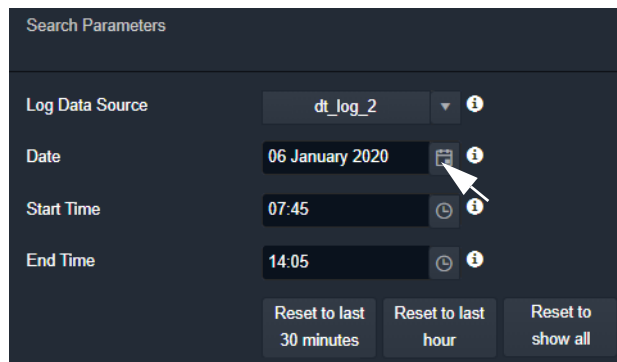
- 1 Click on the search icon (🔍).

The **Search Parameters** dialog is shown. See Figure 3-24.

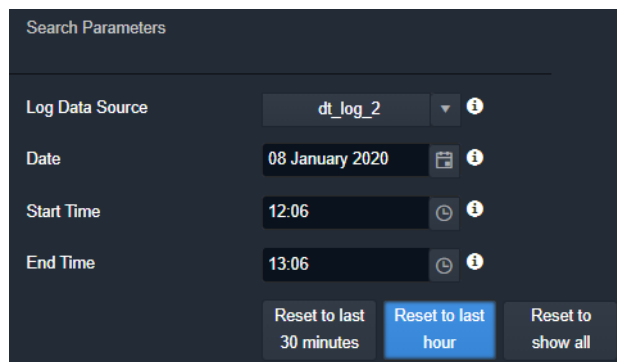
- 2 Set **Log Data Source** to the log data-set to use from the event log store.



- a) Select **Log Data Source** to display.



- b) Select **Date** and **Start Time** and **End Time** of messages to display.



- c) Display only messages from the last hour.

Fig. 3-24: Search Parameters Dialog


3 Select the date and time period to display.

This can be done by:





- setting **Date**, **Start Time**, and **End Time**; or by
- selecting to see a last period (**Reset to last 30 minutes**, or **Reset to last hour**).


All event logs, including alarm messages, are listed in time stamp order, most recent first. See Figure 3-25.

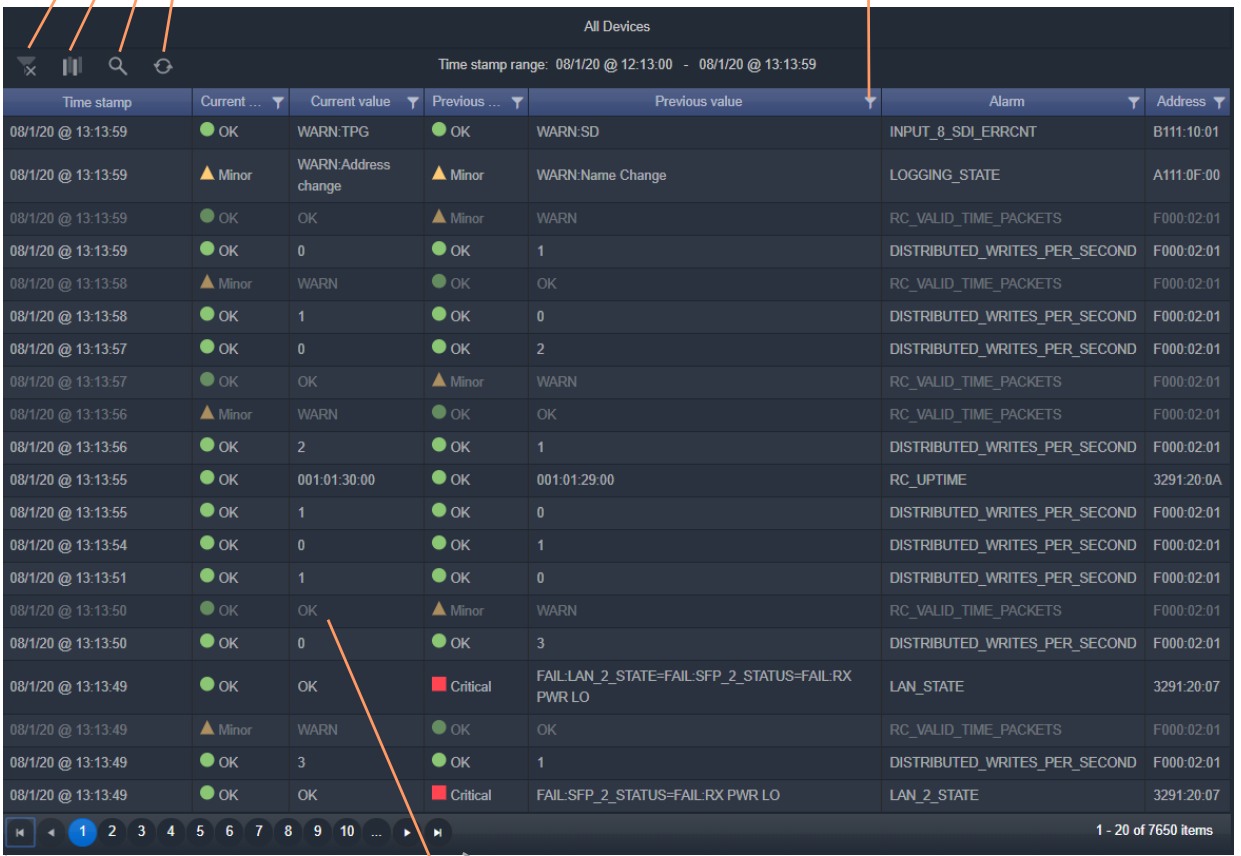
Click to:

- Clear column filter settings.
- Hide/show columns.
- Show Search Parameters  dialog, to select log file and time period to display. See Figure 3-24.)
- Refresh data in the table.

State alarm icons:

- OK 
- Minor 
- Major 
- Critical 

- Click  in a column heading on to filter displayed data on a column.



Time stamp	Current ...	Current value	Previous ...	Previous value	Alarm	Address
08/1/20 @ 13:13:59	OK	WARN:TPG	OK	WARN:SD	INPUT_8_SDI_ERRCNT	B111:10:01
08/1/20 @ 13:13:59	Minor	WARN:Address change	Minor	WARN:Name Change	LOGGING_STATE	A111:0F:00
08/1/20 @ 13:13:59	OK	OK	Minor	WARN	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:59	OK	0	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:58	Minor	WARN	OK	OK	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:58	OK	1	OK	0	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:57	OK	0	OK	2	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:57	OK	OK	Minor	WARN	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:56	Minor	WARN	OK	OK	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:56	OK	2	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:55	OK	001:01:30:00	OK	001:01:29:00	RC_UPTIME	3291:20:0A
08/1/20 @ 13:13:55	OK	1	OK	0	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:54	OK	0	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:51	OK	1	OK	0	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:50	OK	OK	Minor	WARN	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:50	OK	0	OK	3	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:49	OK	OK	Critical	FAIL:LAN_2_STATE=FAIL:SFP_2_STATUS=FAIL:RX PWR LO	LAN_STATE	3291:20:07
08/1/20 @ 13:13:49	Minor	WARN	OK	OK	RC_VALID_TIME_PACKETS	F000:02:01
08/1/20 @ 13:13:49	OK	3	OK	1	DISTRIBUTED_WRITES_PER_SECOND	F000:02:01
08/1/20 @ 13:13:49	OK	OK	Critical	FAIL:SFP_2_STATUS=FAIL:RX PWR LO	LAN_2_STATE	3291:20:07

Alarms which are masked are shown "grayed-out"

Page navigation

Click to go to:

- first page.
- previous page.
- a page
- next page.
- last page.

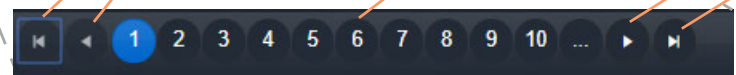


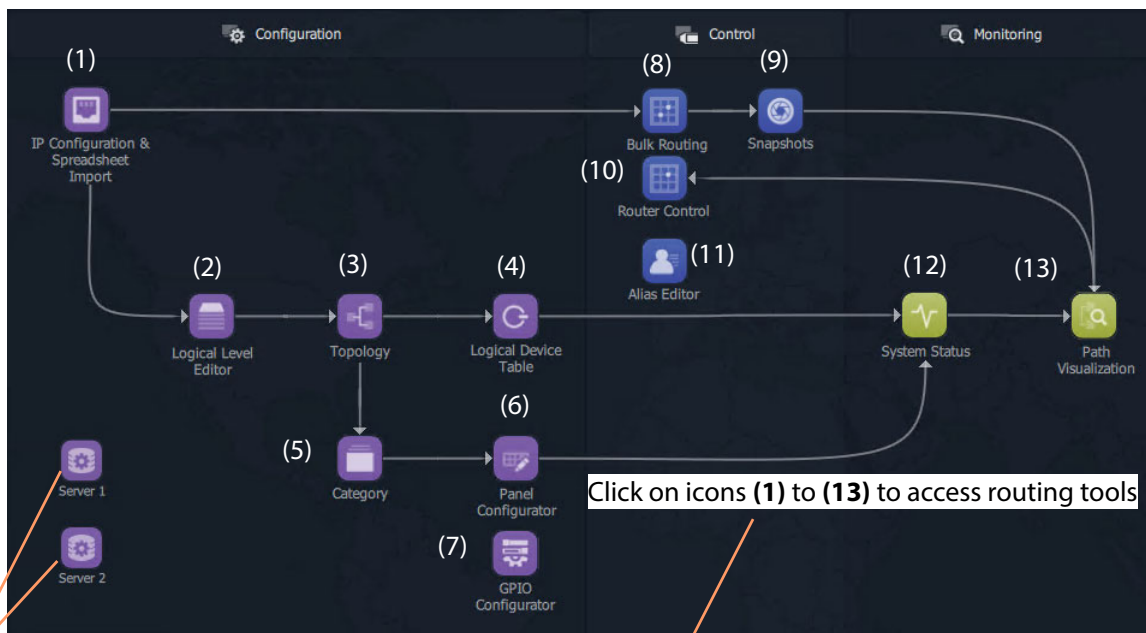
Fig. 3-25: Alarm History Window (History Tab Selected)

Graphical Routing Workflow

Lite	Professional	Enterprise
-	●	●

Introduction

The factory-set **Workflow** stage shows a graphical workflow for routing system configuration and control with clickable icons to access tools via GV Orbit Control Client.



Click on server icons to access landing pages for each GV Orbit server.

Each icon (1) to (13) is described in the [Steps for Graphical Routing Workflow Stage Icons](#) table, on [page 99](#).

Fig. 3-26: Graphical Routing Workflow Stage - with Icons (1) to (13)

Table 3-2: Steps for Graphical Routing Workflow Stage Icons

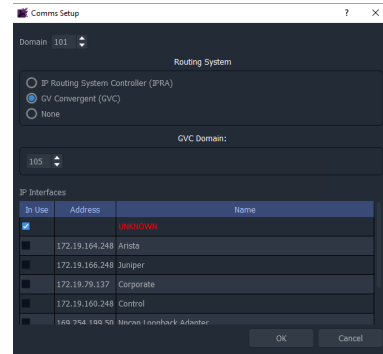
Steps relating to icons in Figure 3-26 Graphical Routing Workflow Stage - with Icons (1) to (13), on page 98

(1) IP Configuration and Spreadsheet Import



Access the IP Routing endpoint configuration editing tool and a new, default GV Orbit IP Routing project:

- 1 Click the **Comms Setup** button:
 - Select **Routing System** controller type to be 'GVC', (to work with the GV Orbit server).
 - Select **Domain** number for IP End-point setup (default '101').
 - Leave the GVC domain number at its default (105).
 - Select the client PC network **IP interfaces** to use.



- 2 Click **OK**.
GV Orbit Client will discover IP End-points and list them.
- 3 Click on the **Devices** tab to see the listed devices.
- 4 Click **Export** to export the discovered IP end-point devices and their current settings. (A spreadsheet file, .xlsx file, is exported and this shows the spreadsheet file format. Settings include: device names, router port numbers, source/destination IP flows, and multi-cast IP addresses etc.)
- 5 Edit the spreadsheet file to change settings and/or add more IP end-point devices.
- 6 Click **Import** to import IP End-point device settings via a spreadsheet.

6 **Project** -> **Save Project** from the main menu. Close the IP Endpoint Editor tab.

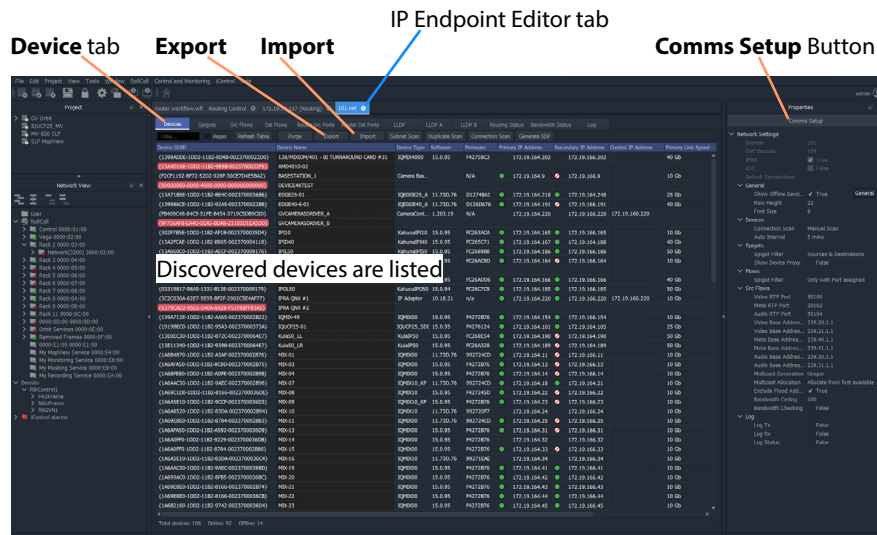


Fig. 3-27: IP Endpoint Configuration Editor tab in GV Orbit Client (Device sub-tab shown)

This screen also allows:

- Manual configuration of end-points, if required.
- Review IP End-point settings, edit settings, validate settings, make engineering routes, if required.
- Monitor bandwidths at device interfaces, if required.

Note: SDI 'end-point' configuration etc. is set up via GV Orbit Control in the remaining controls on the routing workflow.

Table 3-2: Steps for Graphical Routing Workflow Stage Icons (continued)

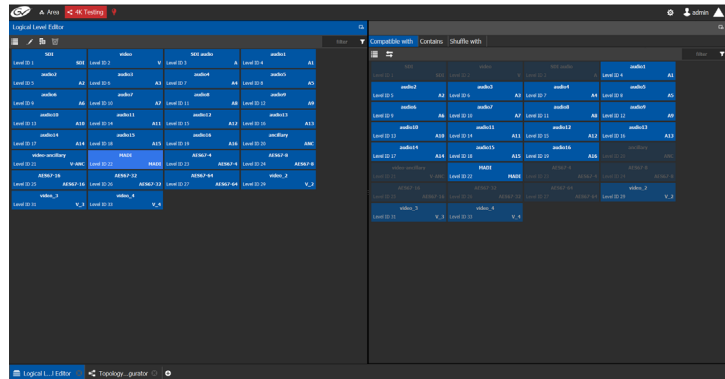
Steps relating to icons in Figure 3-26 Graphical Routing Workflow Stage - with Icons (1) to (13), on page 98

(2) Logical Level Editor



Access logical route editor tool in GV Orbit Control Client. For the target router:

- Define, review, edit logical routing levels. For example, levels for audio channel(s), video channels, SDI video, ancillary data etc.

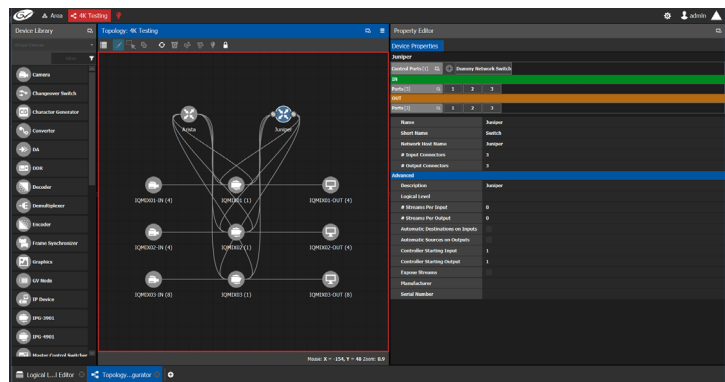


(3) Topology



Access router topology configurator tool in GV Orbit Control Client:

- Define router topology with the logical levels. I.e. how physical and logical devices are arranged in the broadcast facility.
- Select topology to use.



(4) Logical Device Table



Access the logical devices editor tool in GV Orbit Control Client:

- Define logical devices in a table.
- Configure levels and IP streams.
- Configure audio shuffled streams and break-away streams.
- Create virtual crosspoints and logical destination devices.

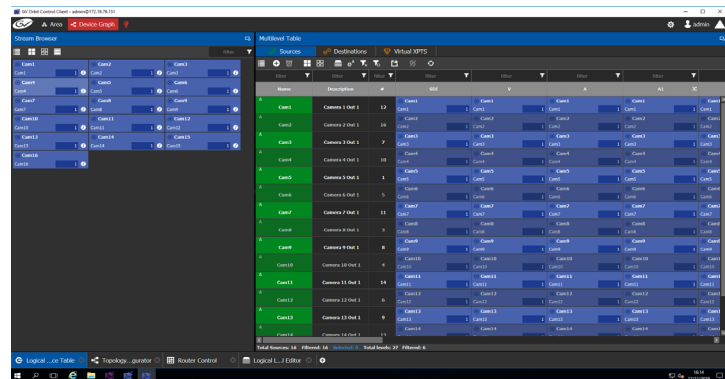


Table 3-2: Steps for Graphical Routing Workflow Stage Icons (continued)

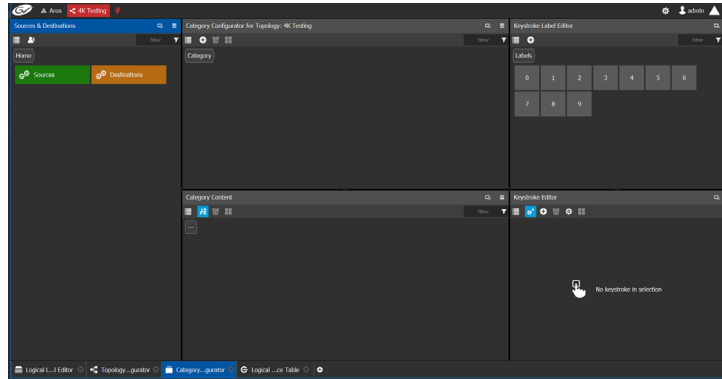
Steps relating to icons in Figure 3-26 **Graphical Routing Workflow Stage - with Icons (1) to (13)**, on page 98

(5) Category



Access the Category Configurator tool in GV Orbit Control Client:

- Manage sources and destinations with groups (or categories) based on type or usage. This is useful when there are multiple resources. Categories allow sources/destinations to be accessed quickly on a routing control panel.

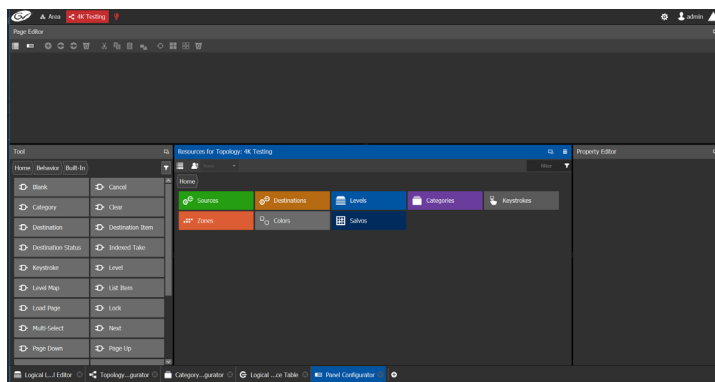


(6) Panel Configurator



Access the Panel Configurator tool in GV Orbit Control Client:

- Create soft router control panel designs.
- Add buttons and behaviors to a routing control panel.
- Push the design to soft or hard panels.



(7) GPIO Configurator



Access the GPIO Configurator tool for GPIs and GPOs on supported panels (e.g. GPI-1501) with GV Orbit Control Client:

- Add rules for GPIs to trigger events such as a salvo or routing a source to a destination.
- Add rules for GPOs to activate on combinations of conditions.

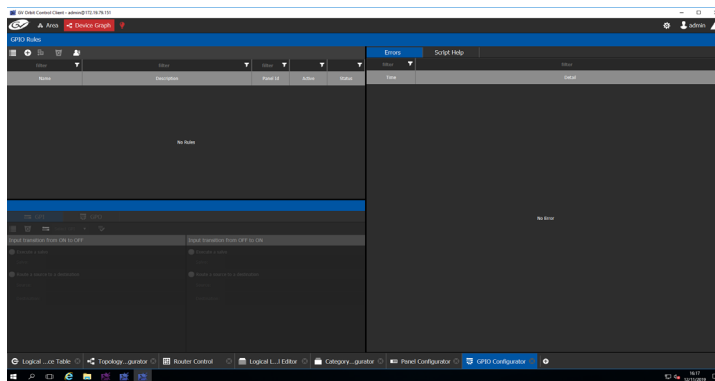


Table 3-2: Steps for Graphical Routing Workflow Stage Icons (continued)

Steps relating to icons in Figure 3-26 Graphical Routing Workflow Stage - with Icons (1) to (13), on page 98

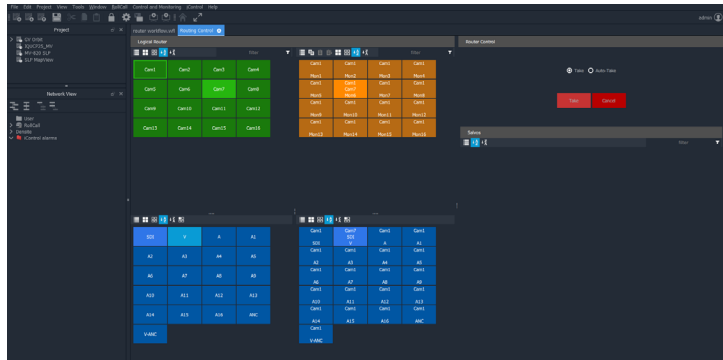
(8) Bulk Routing



Access the Bulk Routing Control Panel tool in GV Orbit Client:

- Make routes between sources and destinations.
- Form break-away routes and shuffled routes.
- Execute salvos.

For an introduction to the Bulk Routing Control panel, see [Bulk Routing Control Panel](#), on page 104.

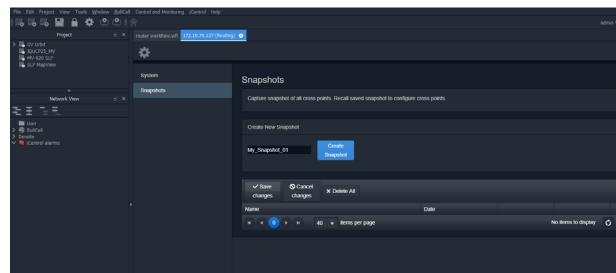


(9) Snapshots



Access the Snapshots tab of the GV Orbit Routing Service that runs on the GV Orbit server:

- Recall routing snapshots.
- Create and save new snapshots.



(10) Router Control



Access the Router Control Panel tool in GV Orbit Control:

- Make routes between sources and destinations.
- Create and execute salvos.

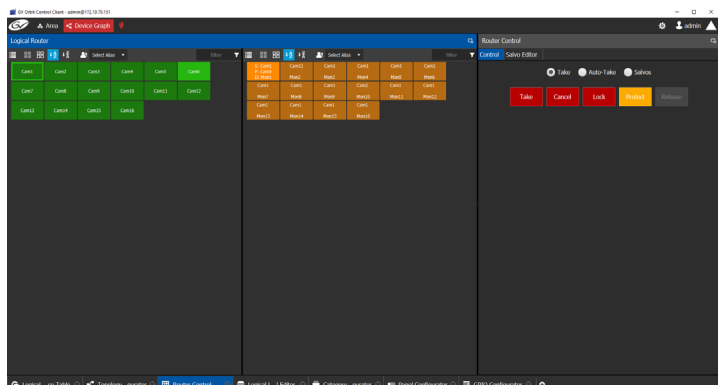


Table 3-2: Steps for Graphical Routing Workflow Stage Icons (continued)

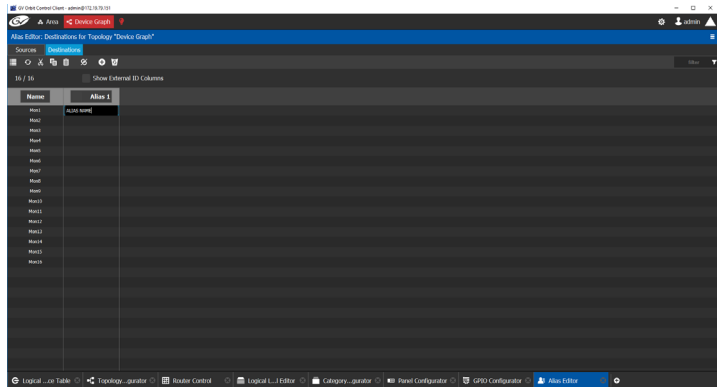
Steps relating to icons in Figure 3-26 Graphical Routing Workflow Stage - with Icons (1) to (13), on page 98

(11) Alias Editor



Access the Alias editor tool in GV Orbit Control:

- Assign aliases to sources and destinations (to support shorter length names, other languages, or different production staff needs).

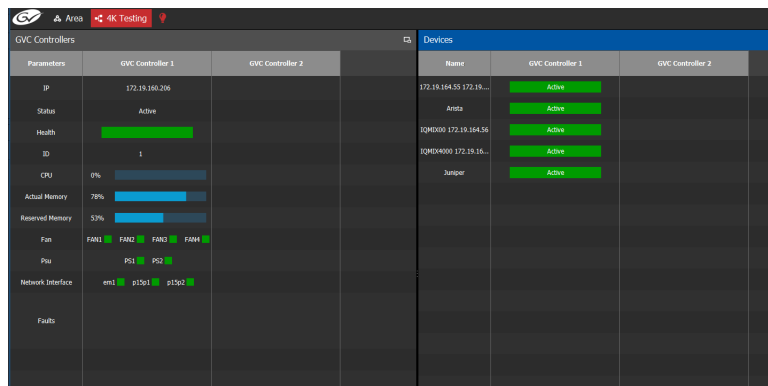


(12) System Status



Access the System Status screen of the GV Orbit Control router controllers:

- Monitor the health of GV Orbit Control router controller(s).
- View device health for a selected topology.
- Manual fail-over, if required.

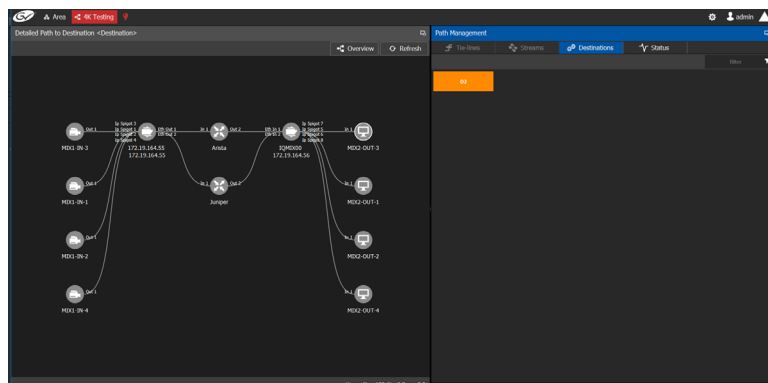


(13) Path Visualization



Access the Path Manager screen of GV Orbit Control:

- View source-destination paths of routed streams.
- View Tie-Line usage information, including % bandwidth used.



Bulk Routing Control Panel

Lite	Professional	Enterprise
-	●	●

Introduction

The Bulk Routing Control Panel is a built-in router control panel accessible from GV Orbit Client. It requires the GV Orbit **Routing** service to be running on GV Orbit server(s). IP routing or traditional (e.g. SDI) routing may be controlled.

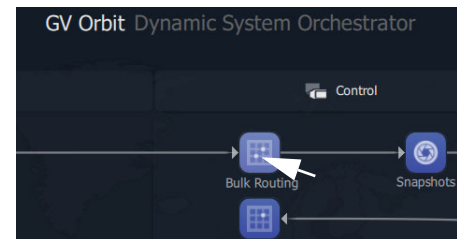
More Information on Bulk Routing Panel

For more information, see Chapter 5, [Routing Control - Bulk Routing Panel](#), on page 171.

Open Bulk Routing Panel

- 1 Open an existing C&M project and set the GV Orbit Client window size to 1920x1080.
- 2 Click on the **Bulk Routing** icon in the **Graphical Routing Workflow** stage.

A **Bulk Routing Panel** is shown in a window tab in the GV Orbit Client. See Figure 3-28.



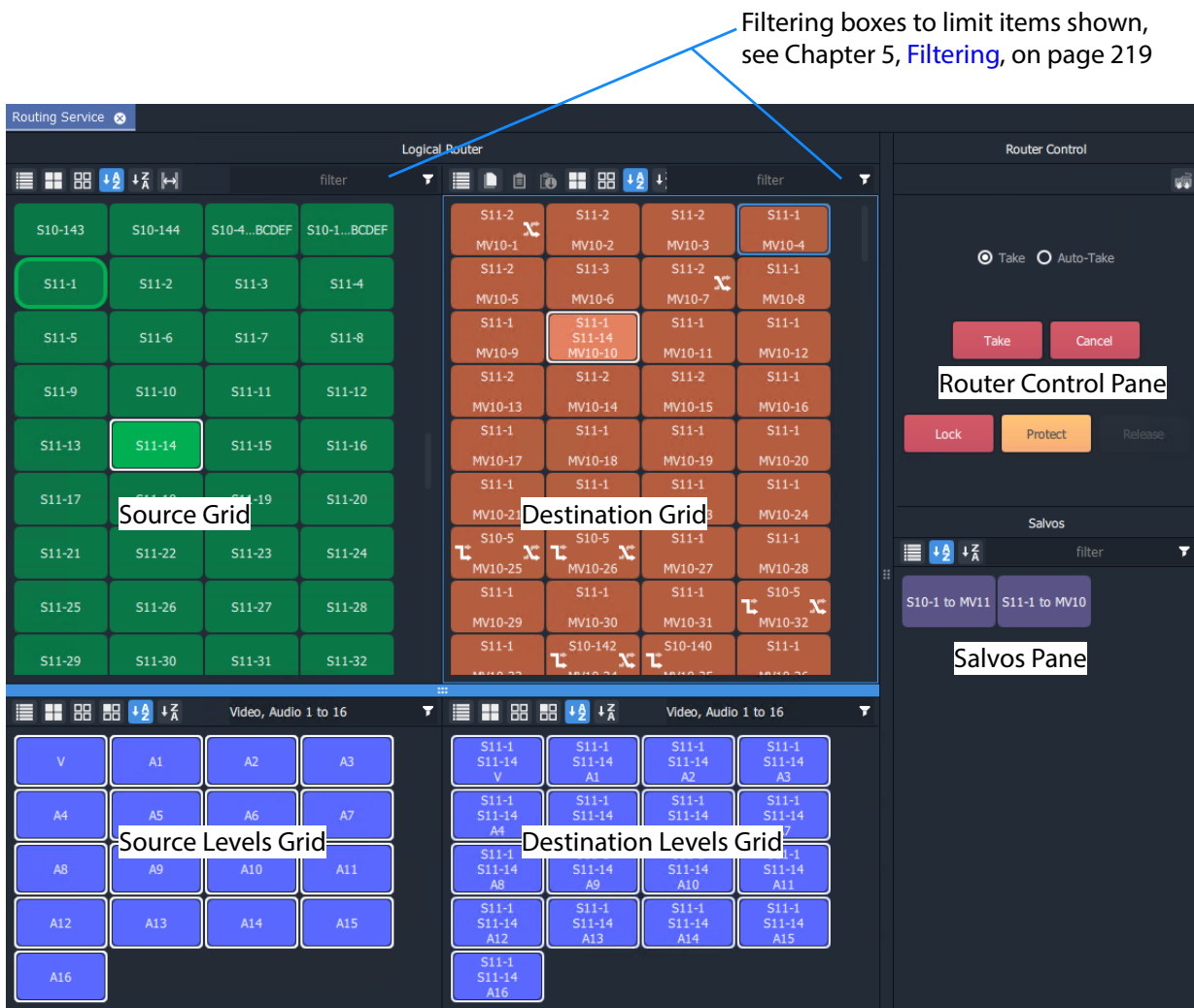


Fig. 3-28: Example Bulk Routing Panel

Troubleshooting

If problems are encountered when opening a Bulk Routing Panel, carry out the following checks:


- 1 Check that the project's **Client Domain** is set for the GV Orbit system.
(Click **Connections** -> **GVOP** in the main menu.
Set **Client Domain** to be the system's 'Client Domain' number.)
- 2 The project's **Routing Address** project variable (a RollCall address) should be set to the **Routing** service's **Logging Address**. To verify this:
 - To see the project variables, click **Project** -> **Edit Variables** in the main menu.
 - To see the **Routing** service's **Logging Address**:
Log into the GV Orbit server and access the **Routing** service's 'System' configuration screen. (See [GV Orbit Server Login](#), on page 111, and [Accessing Services Configuration Screens](#), on page 113.)

To save any changes made to the project settings:

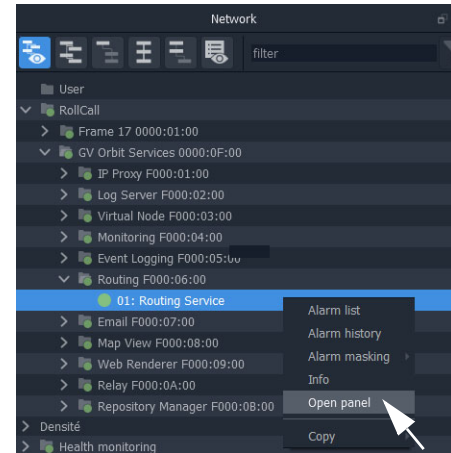
- 3 Click **Project** -> **Save Project** in the main menu to save the project locally.
- 4 Click **Project** -> **Push** to push and save the project to the GV Orbit server.

Alternative Open Bulk Routing Panel (Network Window)

The Bulk Routing Panel may also be opened from the **Network** window in GV Orbit Client:

- 1 Display the **Network** window tree-view (click  in the main tool bar to toggle displaying the window) and expand the tree-view.
- 2 In the **Network** window, locate the '**Routing** service' item. (The item's name is the **Routing** service's "Logging Name".)
- 3 Right-click on the **Routing** service item and select **Open Panel**.

A Bulk Routing Panel is shown in a window tab in the GV Orbit Client. See [Figure 3-28](#) on page 105.



Note: A '**Routing** service' item appears in the GV Orbit **Network** window when a **Routing** service is running on the connected GV Orbit server and is configured to talk to a router controller. Bulk Routing Panel 'Source' and 'Destination' buttons are annotated with router port names obtained through the **Routing** service.

Bulk Routing Panel - List View

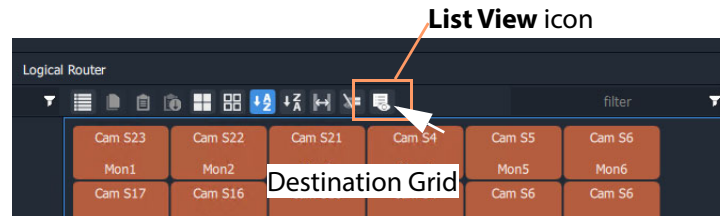
List View is a level-centric view of a Bulk Routing Panel, allowing a user to focus on routing to Destination Levels. **List View** presents all of the destinations in a 'list' format; each list item is a Destination with all of its Levels.

To access **List View** mode:

- 1 Open the Bulk Routing Panel and set the GV Orbit Client window size to 1920x1080.
- 2 In the Destination Grid's tool bar, click on the **List View** icon.

This toggles between the normal Bulk Routing Panel view and the **List View** mode.

The **List View** is shown. See Figure 3-29.



Click icon to toggle between **List View** and the normal view



Fig. 3-29: Bulk Routing Panel - List View

Bulk Routing Panel Information

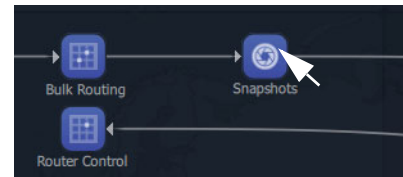
For further Bulk Routing Panel information, including about **List View** and about general operation, please refer to Chapter 5, [Routing Control - Bulk Routing Panel](#), on page 171.

Routing Snapshots

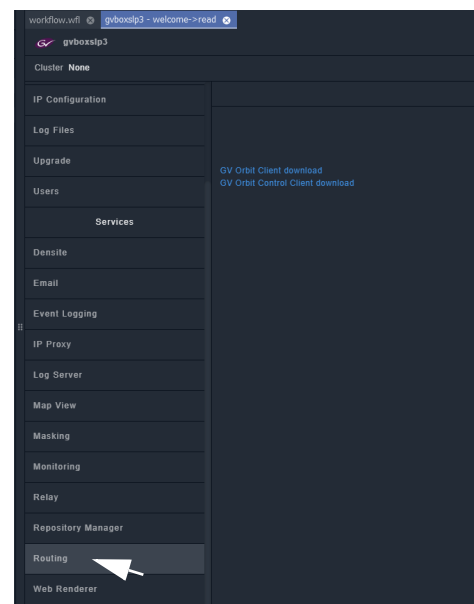
Snapshots of all routes and crosspoints in a GV Orbit system can be taken and restored from the GV Orbit Client with the **Routing** service configuration screen.

Access Routing Service Screen

- 1 Go to the GV Orbit Client workflow.wfl **Workflow** window.
- 2 Click on the **Snapshots** icon.
The GV Orbit server window is shown in a tab.



- 3 Scroll down the server window on the left and locate the 'Services' section and select 'Routing'.
The **Routing** service configuration screen is shown.



- 4 Select the 'Snapshots' side-tab on the left.
The **Routing** service's **Snapshots** screen is shown. See Figure 3-30.

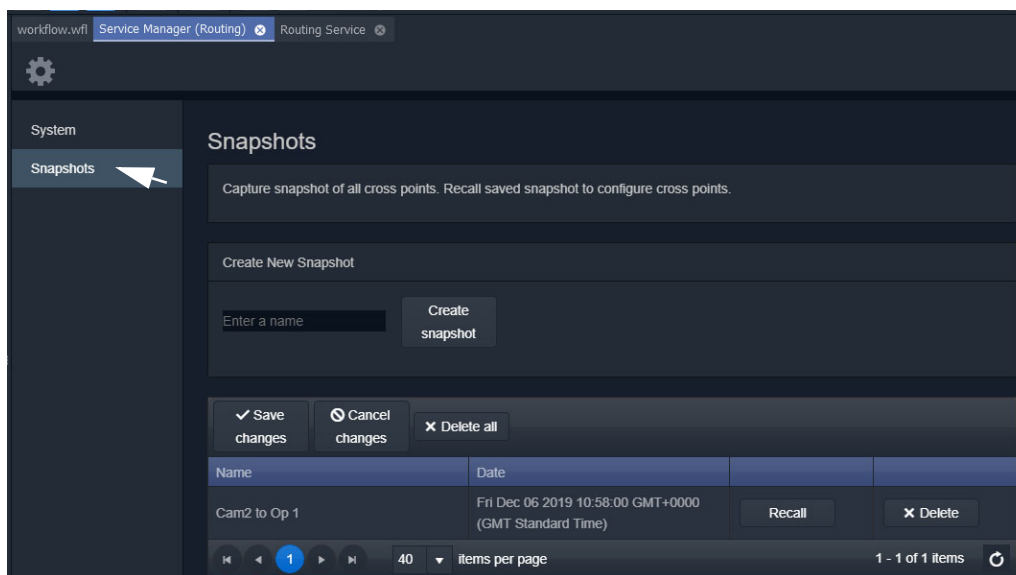


Fig. 3-30: Routing Service Snapshots Configuration Screen

To Take a Routing Snapshot

In the **Routing** service **Snapshots** screen:

- 1 Enter a name for the new snapshot.
- 2 Click **Create Snapshot**.

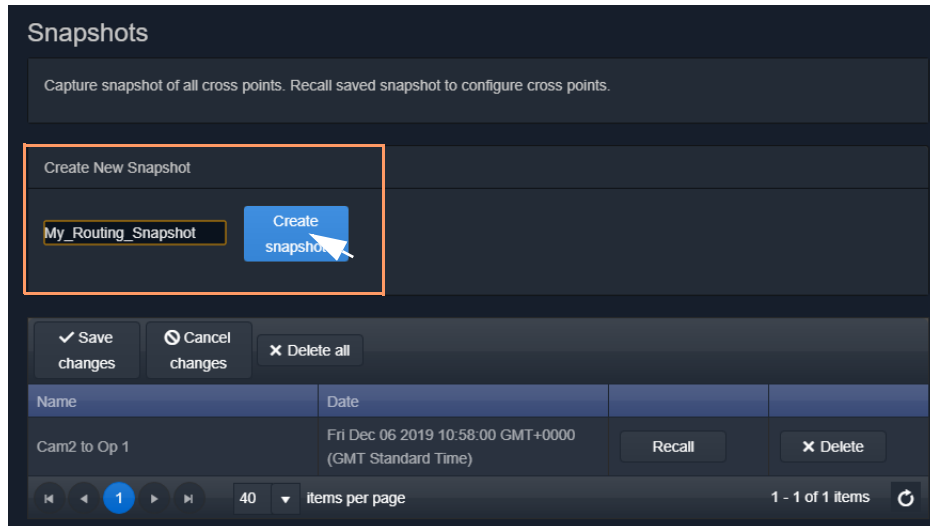


Fig. 3-31: Routing Service Snapshots Configuration Screen

A snapshot of all routes and crosspoints is taken. And the new snapshot appears in the list.

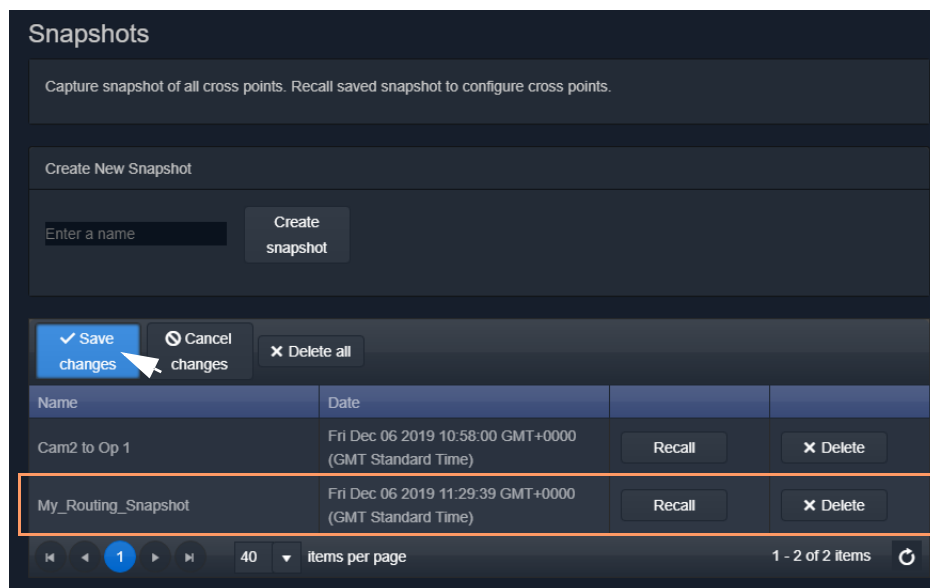


Fig. 3-32: New Snapshot Item in List

- 3 Click **Save Changes**.

To Recall a Snapshot

In the **Routing** service **Snapshots** screen:

- 1 Find a snapshot in the list and click **Recall**.

The signal routing and crosspoint settings present when the snapshot was taken are restored.

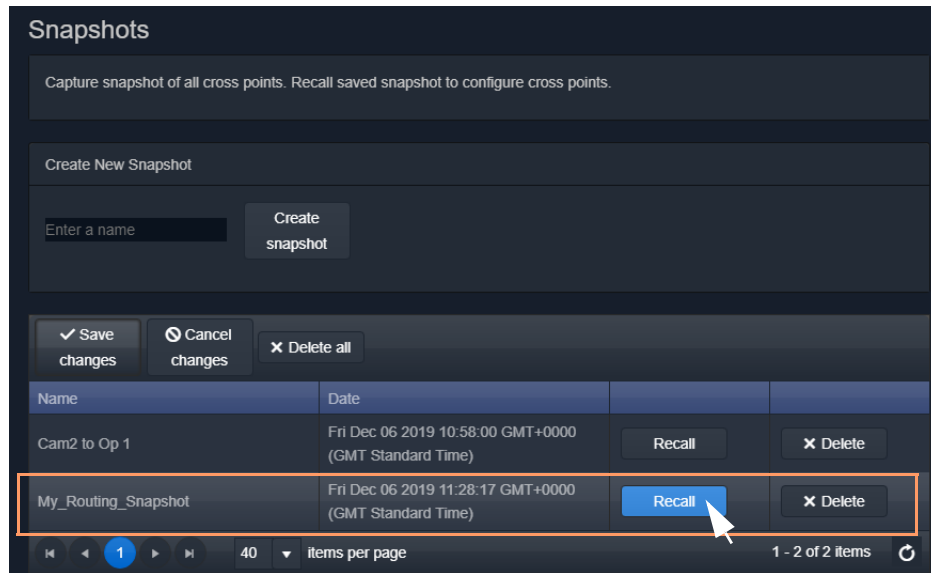


Fig. 3-33: Recall Snapshot

GV Orbit Server Login

Lite	Professional	Enterprise
-	●	●

This section describes how to log into a GV Orbit server from either the GV Orbit Client or with a web browser. When logged in, various configurations can be viewed, including settings for the GV Orbit services.

For more details, please refer to the *GV Orbit Admin Guide* in [Related Documentation](#), on page iii.

Login From GV Orbit Client

With a GV Orbit C&M project open in GV Orbit Client, to open a GV Orbit server's **Home** stage:

- 1 Either:
 - click **Project -> URLs** in the main menu and select the GV Orbit server item; or
 - click on a server icon in the **Workflow** stage (e.g. **Server 1**).



Fig. 3-34: Click on Server Icon in Workflow Stage

The GV Orbit server **Admin Login** screen is then shown. See [Figure 3-35](#) on page 112.

Login from a Browser

To log into a GV Orbit server from a browser:

- 1 Enter the IP address of a GV Orbit server into a web browser (Chrome recommended).

The GV Orbit server **Admin Login** screen is shown. See Figure 3-35.

Server Admin Login Screen

For more details about the GV Orbit server and logging in, please refer to the *GV Orbit Admin Guide* in [Related Documentation](#), on page iii.

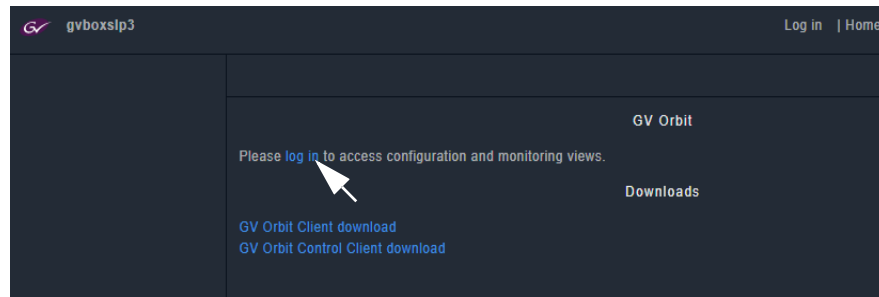


Fig. 3-35: GV Orbit Server Admin Login Screen

Note:

The GV Orbit Client and GV Orbit Control Client installers may also be downloaded from the GV Orbit server **Admin Login** screen.

- 1 Click **Log in**.
A login screen is shown.
- 2 Enter the **User ID** and **Password** (the default user ID is 'admin' with password 'admin').
Click **Login**.
The GV Orbit server **Home** stage is shown. See [Figure 3-36](#) on page 113.

GV Orbit Server Home Stage

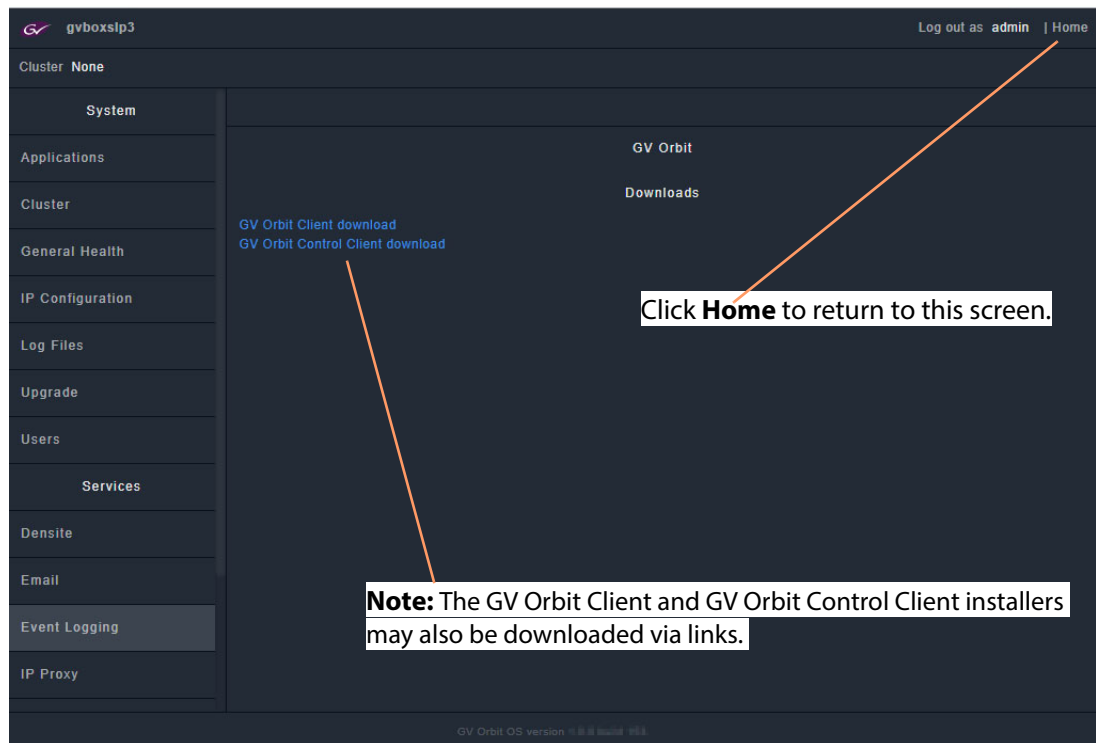


Fig. 3-36: Example GV Orbit Server Home Stage

Accessing Services Configuration Screens

Services should be set up by the GV Orbit system administrator. Services running on the GV Orbit server are configured via their configuration screens accessible from the GV Orbit server **Home** stage.

For information about the server and services, please refer to the *GV Orbit Admin Guide*. See [Related Documentation](#), on page iii.

Logs

Lite	Professional	Enterprise
-	●	●

Introduction

Logs are kept for system device status/alarm messages (events) and also for applications/services running on the GV Orbit server.

- **Event Logs** - In an operating GV Orbit system, GV Orbit device/service status, alarm messages and events are logged by a GV Orbit service running on a GV Orbit server. Events etc. are logged to an event log data set. This is set up when configuring the **Event Logging** service on the server.
- **Server Application and Service Log Files** - Each application/service running on the GV Orbit server also has a set of log files. Please refer to the *GV Orbit Admin Guide* in [Related Documentation](#), on page iii, for further information about the GV Orbit server and the available log files.

Event Logs

Instructions for quickly viewing event log files are presented here.

For full log file instructions, please refer to the *GV Orbit Admin Guide*.

A new GV Orbit system is set up with a default log file configuration. To set up custom event logging in the GV Orbit system, a new event log file configuration can be set up for the **Event Logging** service. This can be done on the GV Orbit server:

- 1 Log into a GV Orbit server. (See [GV Orbit Server Login](#), on page 111.) And view the GV Orbit server **Home** stage.

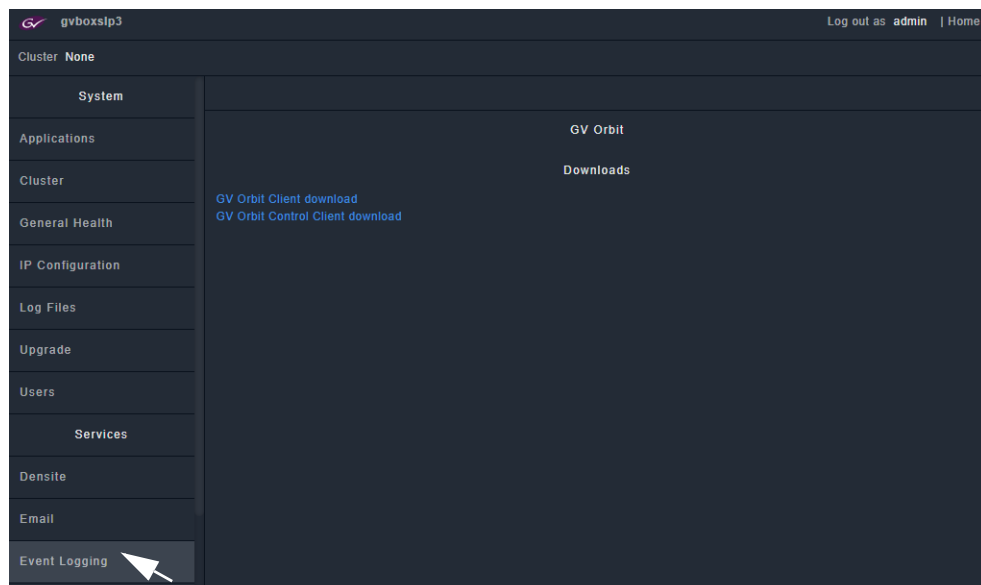


Fig. 3-37: Select Event Logging from the GV Orbit Server Home Stage

- 2 Select **Event Logging**. (Scroll down on the left-hand side, if required.)
The **Event Logging** service configuration screen on the GV Orbit server is shown.
- 3 Click on the **Event Log Setup** tab.
The **Elastic Search Setup** tab for the **Event Logging** service is shown.

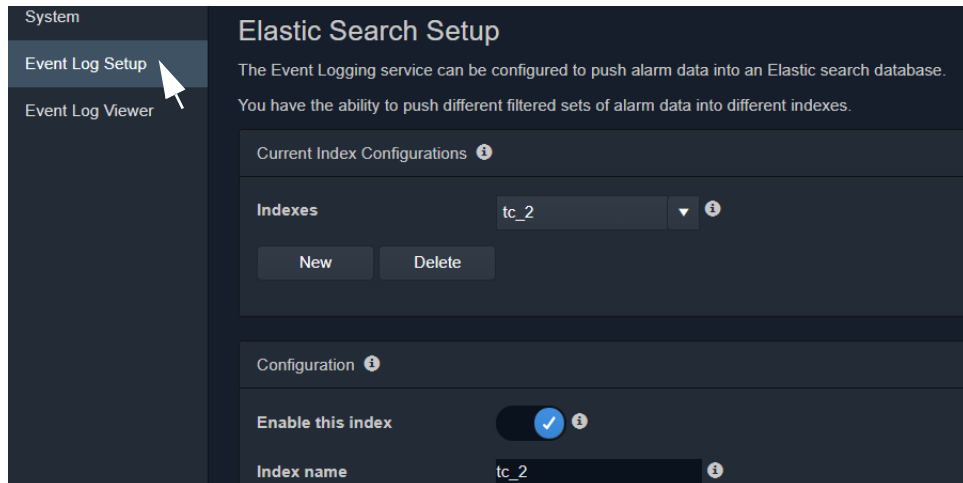


Fig. 3-38: Event Logging Service - Search Setup Tab

New log data-sets can be created. For more information, refer the **Event Logging** service information in the *GV Orbit Admin Guide* in [Related Documentation](#), on page iii.

Example New Event Log

To quickly create a new event log:

- 1 Click **New** to view the **Event Logging** service dialog.
- 2 Enter a name (identifier) for a new event log file configuration (index). For example, 'chan_001'. (The name acts as an identifier for the event log data-set to be created.)

Note: Event log naming rules:

- Lowercase only
- Cannot include \, /, *, ?, ", <, >, |, ` (space character), .., #
- Cannot start with -, _, +
- Cannot be . or ..
- Cannot be longer than 255

- 3 Click **OK** in the dialog.
The **Index name** field shows the new event log file configuration name.
- 4 Select **Enable this index**.
- 5 At the bottom of the screen, set **Delete Data After (days)** to '7'.
Log data will be kept for 7 days.

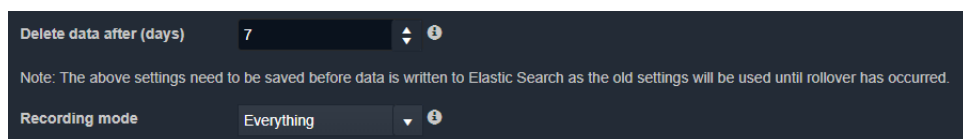


Fig. 3-39: Event Logging Service - Search Setup Screen Controls

- 6 Set **Recording Mode** to 'Everything'.

7 Click **Save**.

This has set up a new event log to record all events, alarms and log messages.

View Event Log

Event log data may be viewed from the:

- [Event Log Viewer \(on GV Orbit Server\)](#); or
- [Alarm History Window \(in GV Orbit Client\)](#).

Event Log Viewer (on GV Orbit Server)

- 1 Select the **Event Log Viewer** tab for the **Event Logging** service.

A log viewer screen is shown. (See [Event Log Viewer Screen](#), on page 116.)



Alarm History Window (in GV Orbit Client)

- 1 Open a C&M project in the GV Orbit Client.
- 2 View the **Alarm History** window (click on the **Alarm History** window tool bar icon) and select the required tab. (See [History Window \(Alarm History\)](#), on page 94.)

This is a log viewer screen. (See [Event Log Viewer Screen](#), on page 116.)

Event Log Viewer Screen

In the log viewer screen:

- 1 Click on the **Search Parameters** icon ().
The **Search Parameters** dialog is shown.
- 2 Set **Log Data Source** to the required event log name in the drop-down list.
- 3 Select **Reset to last 30 minutes**. (To show the last 30 minutes of log messages.)
- 4 Re-click on the **Search Parameters** icon () to close the dialog and view the resulting logged data.

Note:

For information about viewing the event logs, please refer to the *GV Orbit Admin Guide* in [Related Documentation](#), on page iii.

Simple Custom Monitoring Screen Example

Lite	Professional	Enterprise
-	●	●

Introduction

A simple custom graphical operator screen is presented here. The example describes a monitoring screen using a C&M project; device status is monitored by the screen.

This requires:

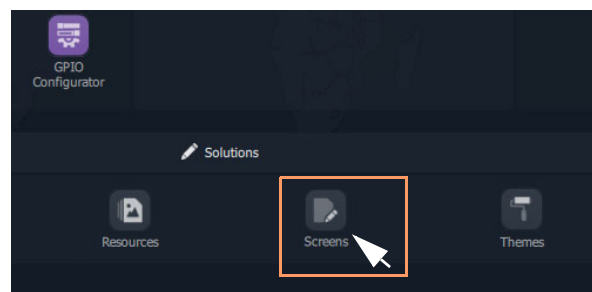
- a configured C&M project;
- a configured GV Orbit server; and
- the following minimum GV Orbit services to be running:
 - IP Proxy
 - Log Server
 - Monitoring
 - Densité.

Steps:

- [Step 1: Create a New Monitoring Screen Schematic](#), on page 117.
- [Step 2: Add Monitoring](#), on page 120.
- [Step 3: Save and Push Project](#), on page 125.
- [Step 4: Run Custom Monitoring Screen](#), on page 125.

Step 1: Create a New Monitoring Screen Schematic

- 1 Open the C&M Project and show the **Project** window and the **Workflow** window with the **Workflow** stage.
- 2 On the workflow stage, click on the **Screens** icon.
The **Screens** dialog is shown.



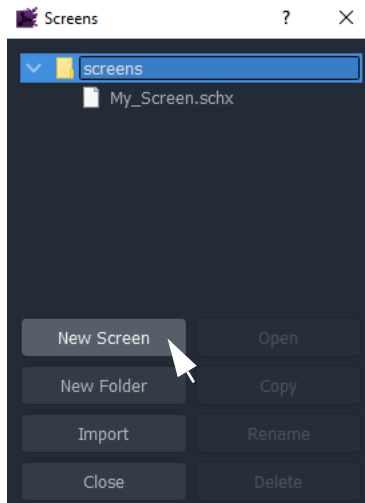


Fig. 3-40: Screens Dialog

3 Click **New Screen**.

The **New Screen** dialog is shown.

4 Enter a name for the new screen schematic and click **OK**.

A new, blank custom screen schematic is created. The new, blank schematic is shown in a window tab in GV Orbit Client. See Figure 3-41.

Note:

A custom screen schematic is shown in GV Orbit Client; this is the 'stage' on which the schematic is:

- designed when GV Orbit Client is in **Design Mode**; and
 - run and operated when GV Orbit Client is in **Run Mode**.
-

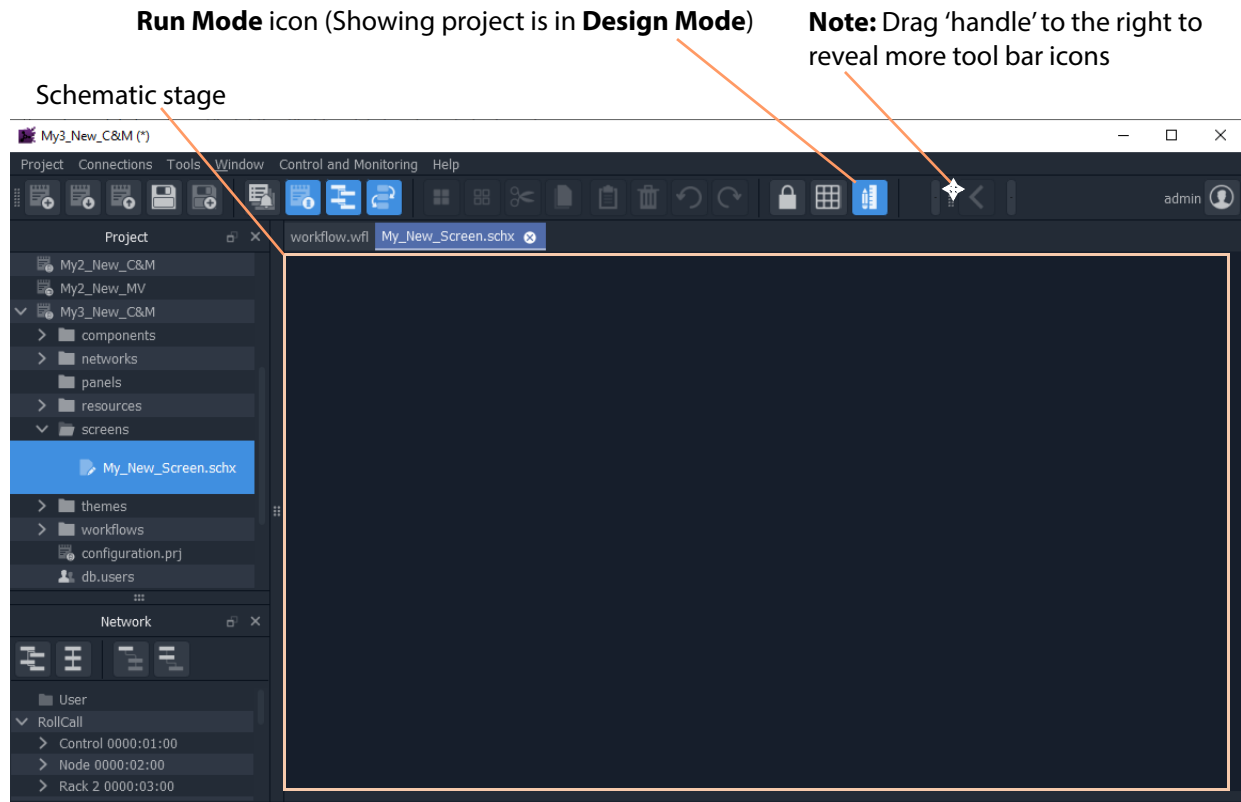


Fig. 3-41: New, Blank Custom Schematic

- 5 Click the **Run Mode** tool bar icon to select GV Orbit Client **Design Mode**. See Figure 3-42.

Note: A project's 'mode' toggles between **Run Mode** and **Design Mode**.

Click to *exit* Run Mode



a) Icon appearance when in **Run Mode**

Click to *enter* Run Mode



b) Icon appearance when in **Design Mode**

Fig. 3-42: Run Mode / Design Mode Tool Bar Icon

Note:

In **Design Mode**, a project may be edited (for example, a video wall may be modified).

In **Run Mode**, a project monitors log and alarm data and displays updated custom operator screens in real-time.

Step 2: Add Monitoring

A control and monitoring (C&M) screen will monitor items in a system with individual or aggregate alarms for a device (or collection of devices), or an individual alarm (or collection of alarms). This is quick and easy to achieve with GV Orbit Client.

Items to be monitored can be dragged onto a C&M screen either from the **Network** window or from an **Alarm List** window. One or more devices or device alarms can be monitored.

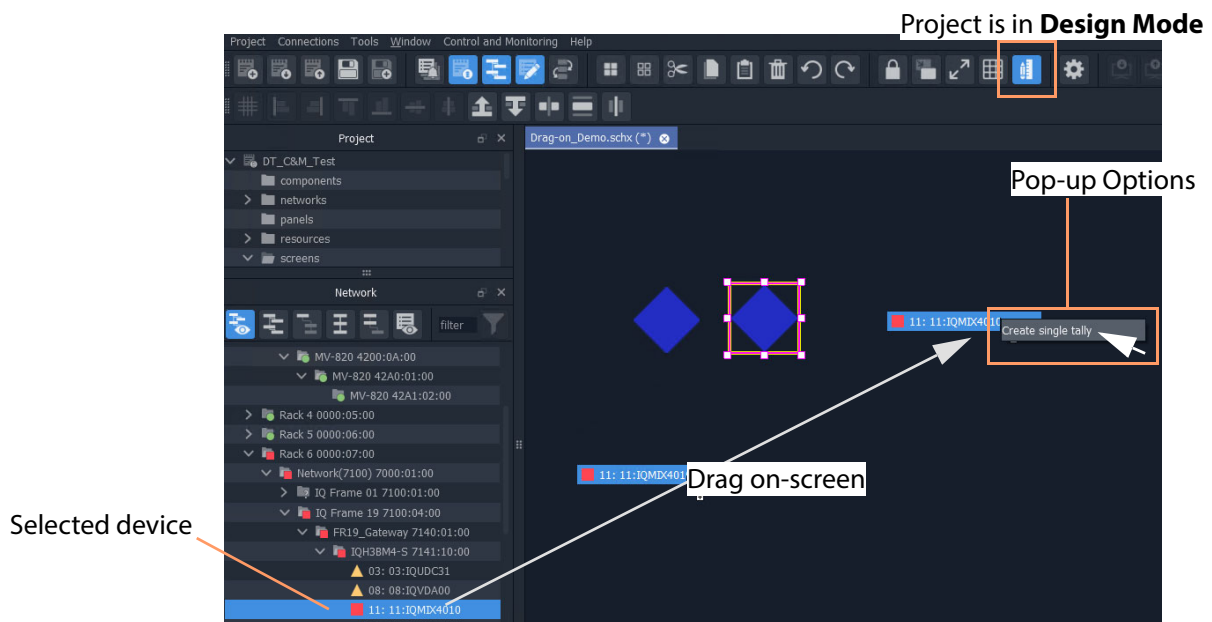
Add Monitoring of Devices

For a C&M screen schematic open in GV Orbit Client in **Design Mode**:

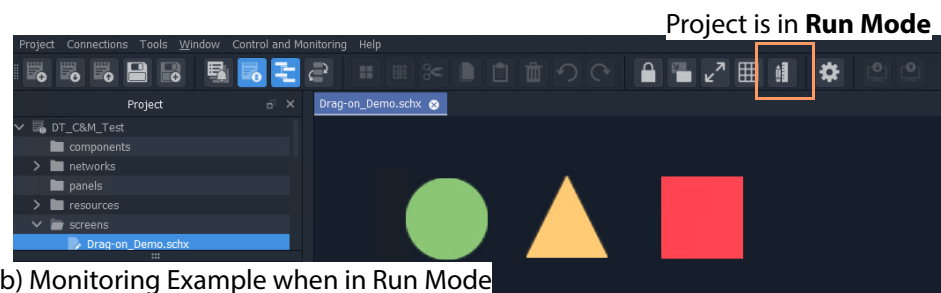
- 1 Expand the **Network** window to find a RollCall- or Densité-protocol device to monitor.
- 2 Drag a device onto the C&M screen schematic, and release.

At release, GV Orbit Client pops up a list of options. These control what will be created from the drag. See Figure 3-43a.

(Figure 3-43b shows the resulting Run Mode screen appearance, see later steps.)



a) Drag on Devices



b) Monitoring Example when in Run Mode

Fig. 3-43: Drag Device Monitoring onto the Schematic:

a) Drag on Devices; b) Monitoring Shown when in Run Mode

- 3 Click 'Create Single Tally' in the pop-up options list.

GV Orbit Client then infers a default, graphical Tally widget on the schematic which is automatically set up to graphically indicate the overall status of the device when in Run Mode.

- 4 Drag on more devices, as required.

(Figure 3-43b shows what the graphical items may look like in **Run Mode**.)

This has quickly added simple device alarm state monitoring to the C&M project.

Note: Add Device:

Dragging a device onto the schematic and releasing it on top of an *existing* monitoring Tally widget will *add* the device to the screen widget, thus creating an aggregate alarm.

Add Monitoring of Alarms

Device alarm monitoring can also be added:

- 1 Expand the **Network** window to find a device to monitor.
Then right-click on the device item and select 'Alarm List'.

The device's alarms are all shown in a pop-up **Alarm List** window.

- 2 Select one or more alarms in the **Alarm List** window and drag them onto the C&M screen schematic, and release.
(To select more than one alarm item, click on an item to select it, and select more with CTRL-click.)

At release, a list of options pops up which will control what will be created from the drag. See Figure 3-44.

Note: Pop-up Options:

These pop-up options are described in '[Drag-On' Options](#), on page 123.

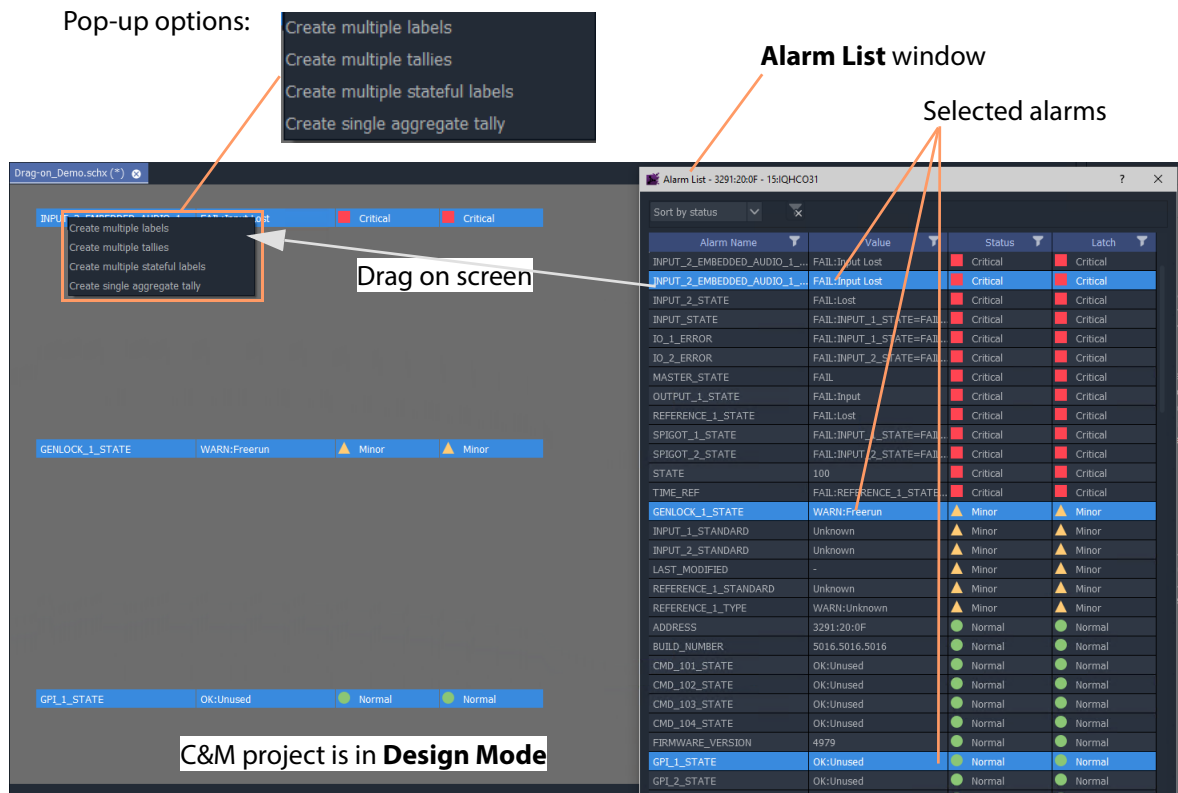


Fig. 3-44: Drag Alarm Monitoring onto the C&M Screen Schematic

3 Select the pop-up option required.

GV Orbit Client then infers graphical monitoring widget(s) on the schematic which are automatically set up to indicate the alarm status.

This has quickly added simple device alarm monitoring to the C&M project.

Note: Add an Alarm:

Dragging an alarm (from the same or from a different device) onto an existing monitoring widget will add the alarm to the screen widget.

Note: Right-click Drag:

Right-click dragging will use the last pop-up option selected and will avoid the user having to select the same pop-up option each time.

Note: Label Style Change:

A text label is difficult to see against a black background. In this case, change the label's appearance by selecting it and changing its 'Style' property value, see [Text Label Style Change](#), on page 124.

When all monitoring widgets have been added, proceed to [Step 3: Save and Push Project](#), on page 125.

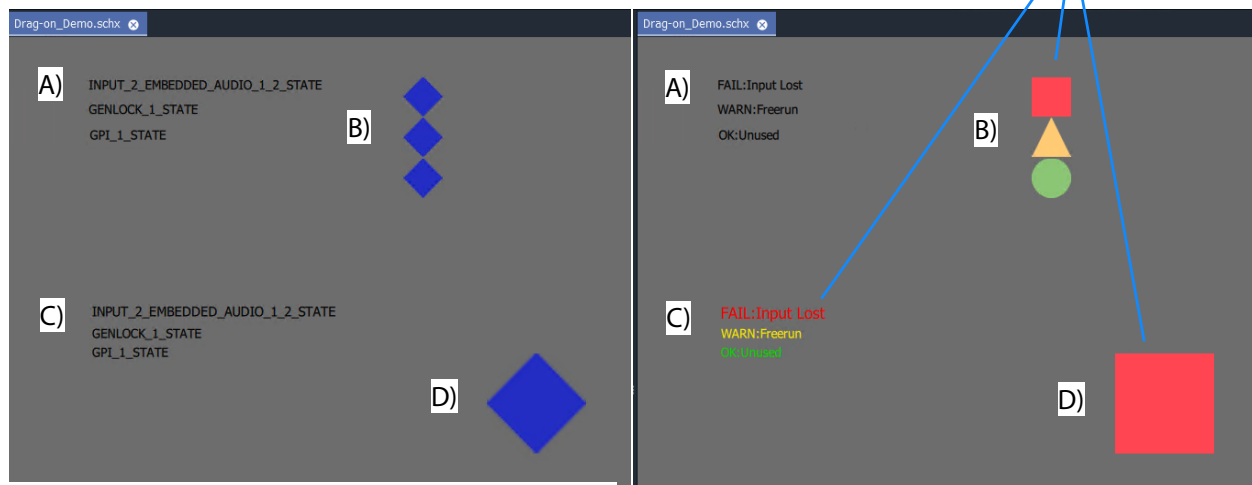
'Drag-On' Options

The pop-up options for creating graphical, on-screen from the 'drag-on' item(s) are shown in Table 3-3. Figure 3-45b and Figure 3-45c show the result of each option **Design Mode** and in **Run Mode** respectively.

Table 3-3: 'Drag-On Options

	Option	Description
A)	Create multiple labels	Creates a text label per item.
B)	Create multiple tallies	Creates a graphical Tally widget per item, to show the individual alarm state of each item.
C)	Create multiple 'stateful' labels	Creates a colorful text label per item, where the text color indicates each individual alarm state.
D)	Create single aggregate tally	Creates one graphical Tally widget to show a combined, aggregate alarm state of all the dragged-on items.

These graphical items show alarm state.



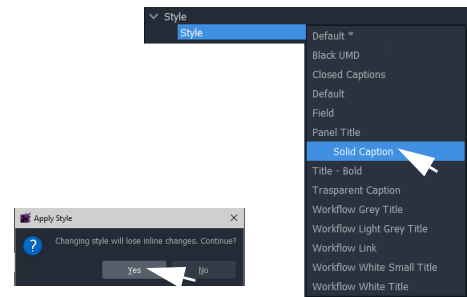
a) Result of options A), B), C), and D) in **Design Mode** b) Result of options A), B), C), and D) in **Run Mode**

Fig. 3-45: Dragged-on Monitoring Options A), B), C), and D) in:
 a) Design Mode;
 b) Run Mode.

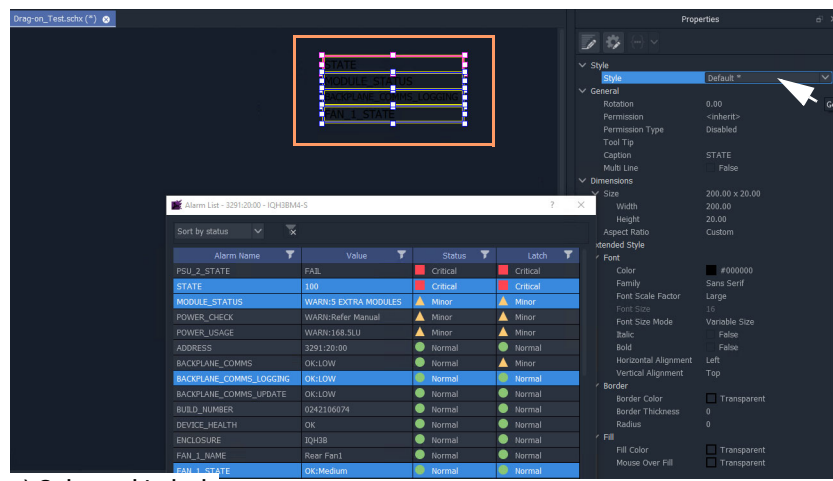
Text Label Style Change

When creating a text label with this 'drag-on' method, the resulting default label may be difficult to see (for example, if against a black background). In this case, change the appearance of the text label by changing its 'Style' property value, see Figure 3-46a and Figure 3-46b.

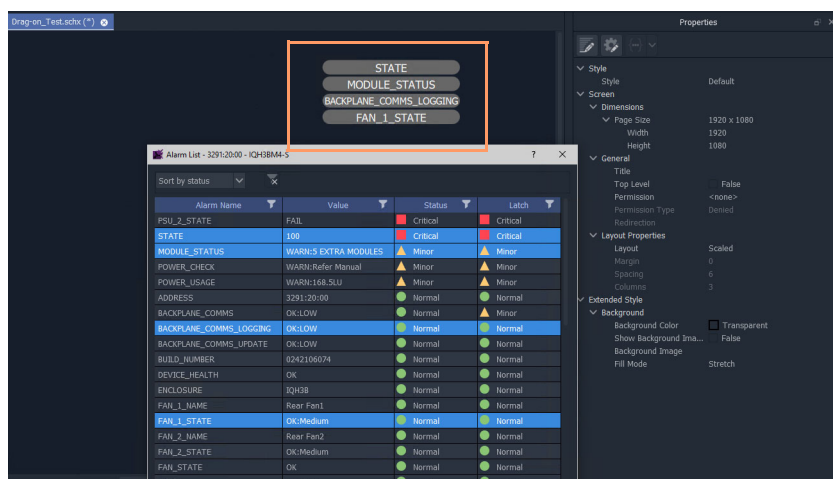
- Select the label(s) on the schematic.
- In the **Properties** box, click on the Style'-property's value (see Figure 3-46a).
- A drop-down menu is shown.
- Select a Style value from the drop-down menu, for example 'Solid Caption'.
- Click 'Yes' in the dialog that is shown.



The label appearance has been changed (see Figure 3-46b).



a) Selected Labels



b) New Text Label Style

Fig. 3-46: Changing Text Label Style Property

Step 3: Save and Push Project

When all the required device/alarm monitoring is added to the C&M project screen:

- 1 Click **Project -> Save Project** in the main menu to save the project locally.
- 2 Click **Project -> Push** to push the project to the GV Orbit server repository.

Step 4: Run Custom Monitoring Screen

- 1 Click the **Design/Run Mode** tool bar icon to take GV Orbit Client out of 'Design Mode' and into 'Run Mode':

GV Orbit Client runs the C&M project and gets device status information to display on the custom monitoring screen's **Lamp** widgets, which illuminate red/yellow/green to show device status. See Figure 3-47.

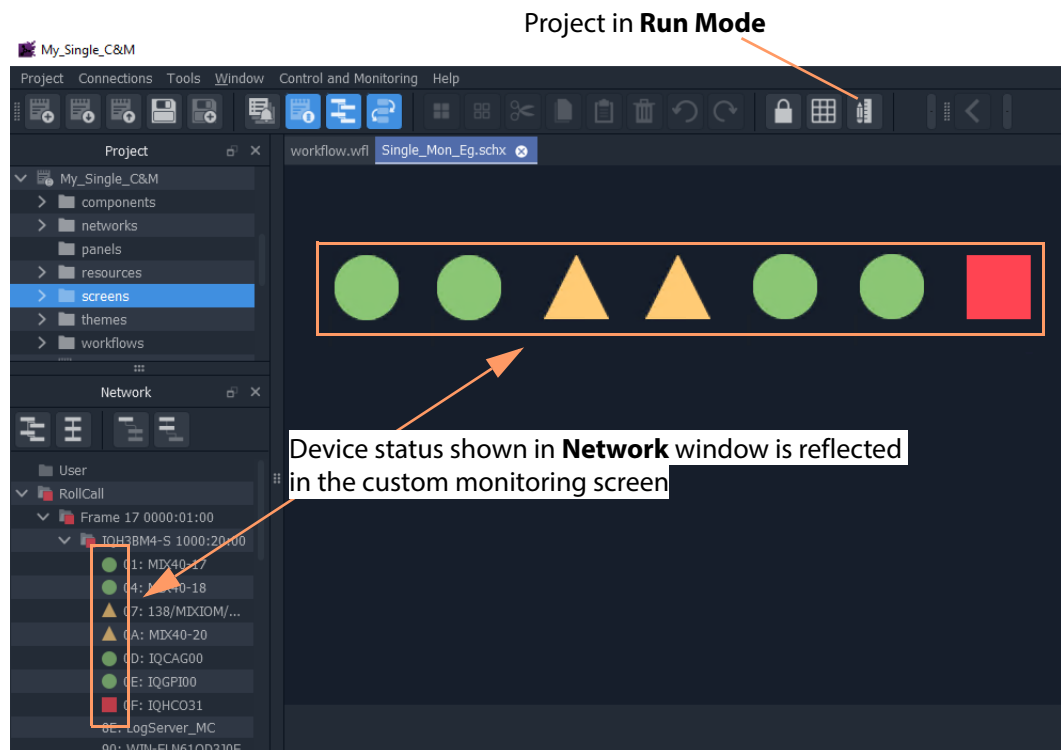



Fig. 3-47: Simple Custom Monitor Example Running in GV Orbit Client

Note: Tally Widget graphics:
 The graphics shown by these Tally widgets are:

Shape	Alarm Status
 Green circle	OK

	Yellow/amber triangle	Minor Warning
	Orange inverted triangle	Major Warning
	Red square	Failure/Error
	Blue diamond	Unknown

- 2 To go back to 'Design Mode', click the **Design/Run Mode** icon again.
- 3 To save the project locally, click **Project -> Save Project** from the main menu.
- 4 To push the project back to the GV Orbit server:
 - click **Project -> Push** from the main menu;
 - select the project name in the list (it may already be selected/highlighted); and
 - click **OK**.
- 5 To close the project, click **Project -> Close Project**.
- 6 To close the GV Orbit Client application, click **Project -> Exit**.

Main Menu and Tool Bar Items

This section describes the **Home Screen**'s main menu items and main tool bar items:

- [Main Menu Items](#)
- [Main Tool Bar Items](#)

And:

- [Common Operations in Graphic Editors](#)

Main Menu Items



Note: The main menu items shown depend on the type of GV Orbit project open in GV Orbit Client.

Project Menu

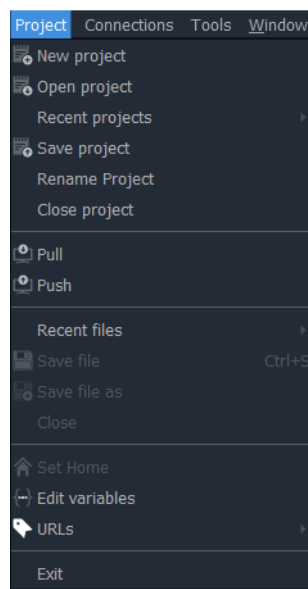


Fig. 3-48: Project Menu

Table 3-4: Project Menu Items

Menu Item	Description
New Project	Click to create a new project.
Open Project	Click to open an existing, locally-stored project.
Recent Projects	Click to see a list of recently opened projects.

Table 3-4: Project Menu Items (continued)

Menu Item	Description
Save Project	Click to locally save the current project with all recent changes.
Rename Project	Click to rename the open project.
Close Project	Click to close the open project.
Pull	Click to pull a project from a repository (on a GV Orbit server).
Push	Click to push a project to a repository (on a GV Orbit server).
Recent Files	Click to see a list of recently opened files.
Save File	Click to locally save the open file.
Save File As	Click to locally save the open file as a new file.
Close	Click to close the open file.
Set Home	Click to set the currently open schematic to be the home schematic.
Edit Variables	Click to see and edit project variables.
URLs	Click to see and access URLs defined in the project.
Exit	Click to close any project and exit GV Orbit Client.

Connections Menu

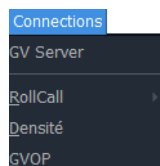


Fig. 3-49: Connections Menu

Note: Setting up GV Orbit server IP address:
When the GV Orbit server IP address is set up (either at the start of a project, or in the 'Connections > GV Server' menu) then the 'RollCall-', 'Densité-', and 'GVOP-Connections' > menu item settings are automatically filled out and applied.

Table 3-5: Connections Menu Items

Menu Item	Description
GV Server	Click to set up project connection to GV Orbit server. Note: Setting this up will automatically cause the other settings in the 'Connections' menu to be set up and applied.
RollCall	Click to set up RollCall connection settings and options.
Densité	Click to configure Densité connection settings.
GVOP	Click to set up GV Orchestration Protocol settings.

Tools Menu

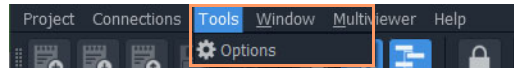


Fig. 3-50: Tools Menu

Table 3-6: Connections Menu Items

Menu Item	Description
Options	Click to set up options in GV Orbit Client, including: <ul style="list-style-type: none"> • Application - Graphical grid settings and font settings. • Video - Real time video rendering options. • Launch - Project launch options. • Remotes - Remote access options. • Links - Set URLs in project • Pop-ups - Name, size and position of any pop-up windows in project. • Monitoring - Alarm Masking options. • Map View - Options for C&M project MapView screens, including built-in links and alarm state colors.

Window Menu

These menu items apply when more than one window (tab) is open in GV Orbit Client. Menu options may be grayed-out if they do not apply.

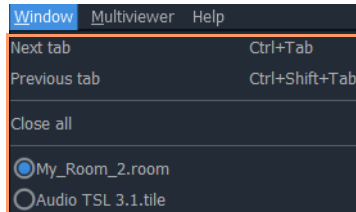


Fig. 3-51: Window Menu

Table 3-7: Window Menu Items

Menu Item	Description
Next Tab	Click to go to the next open window tab. Alternatively, press CTRL-Tab.
Previous Tab	Click to go to the previous open window tab. Alternatively, press CTRL-SHIFT-Tab.
Close All	Click to close all window tabs.
List of open tabs	Radio-button list: Click on a list item to go to that windows tab.

Multiviewer Menu Items

Multiviewer Menu (Single-Multiviewer Project)

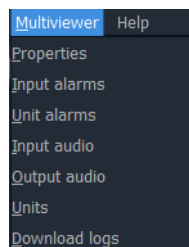


Fig. 3-52: Multiviewer Menu

Table 3-8: Multiviewer Menu Items

Menu Item	Description
Properties	Click to see multiviewer device information.
Input Alarms	Click to enable and configure alarms on each multiviewer input. Alarms include video alarms and audio alarms.
Unit Alarms	Click to enable and configure specific alarms for the multiviewer device. For example, 'genlock state'.
Input Audio	<p>Set up input audio related settings, including: 'audio metering type', digital audio reference level, audio loudness and phase engines.</p> <p>Note: The 'audio metering type' setting defines:</p> <ul style="list-style-type: none"> • the ballistics of <i>all</i> audio metering data generated by the device; and • the default audio meter scale for graphical Audio Bars widgets on the multiviewer's video wall. <p>CAUTION The audio metering data ballistics set up here applies globally for the multiviewer device. All audio metering data generated by the device will have the <i>same</i> ballistics. A GV Orbit multiviewer project may change an audio meter type locally on a video wall tile/schematic which locally changes the meter scale only; the audio metering data used will still have the <i>global</i> ballistics type.</p>
Output Audio	Set up the audio sources for each of the audio channels in each of the multiviewer outputs. Up to eight stereo channels are embedded in each output.
Units	Select the units published by a Grass Valley Log Server that a multiviewer may view.
Download Logs	Obtain logs from a multiviewer unit.

Note: The Alarm items are described in the user manual for the MV-8 Series multiviewer devices.
See the *MV-8 Series Core Multiviewer User Manual*.

Multiviewer Menu (Clustered Multiviewer Project)

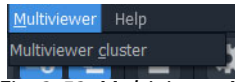


Fig. 3-53: Multiviewer Menu

Table 3-9: Multiviewer Menu Items

Menu Item	Description
Multiviewer Cluster	Click to see multiviewer cluster information.

Help Menu

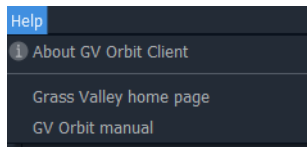


Fig. 3-54: Help Menu

Table 3-10: Help Menu Items

Menu Item	Description
About GV Orbit Client	Click to see information about GV Orbit Client software.
Grass Valley Home Page	Click to go to the Grass Valley web page.
GV Orbit Manual	Click to go to the GV Orbit documentation web page.

Main Tool Bar Items

Tool bar icons implement some main menu functions.

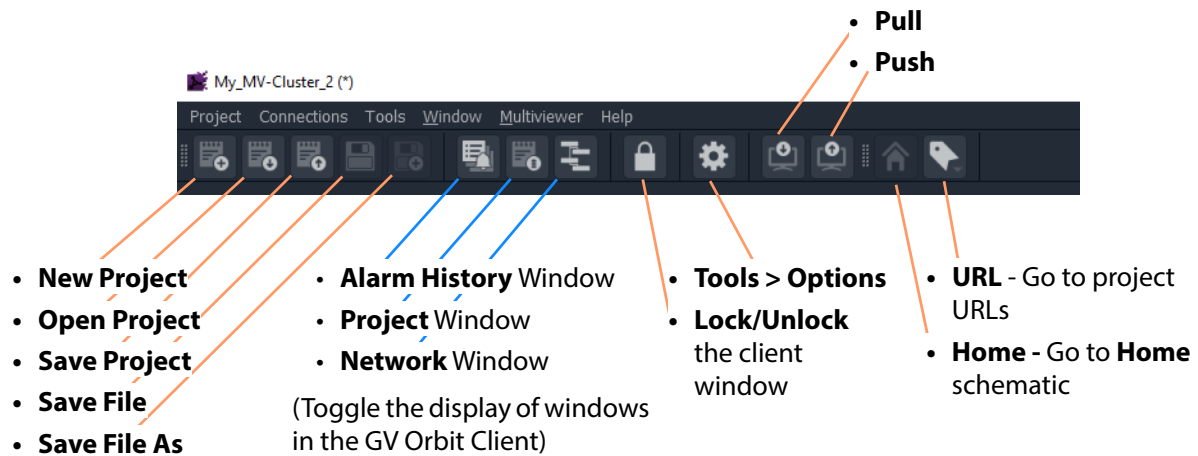


Fig. 3-55: Main Tool Bar Items

The tool icons shown depend on the type of project open in GV Orbit Client and on the editing function being carried out. For example, further Tool Bar items are shown when a multiviewer video wall is open. See [Main Tool Bar with a Graphic Editor Open](#).

Main Tool Bar with a Graphic Editor Open

Additional tool bar icons are shown here. See [Main Tool Bar Items](#) for the other icons.

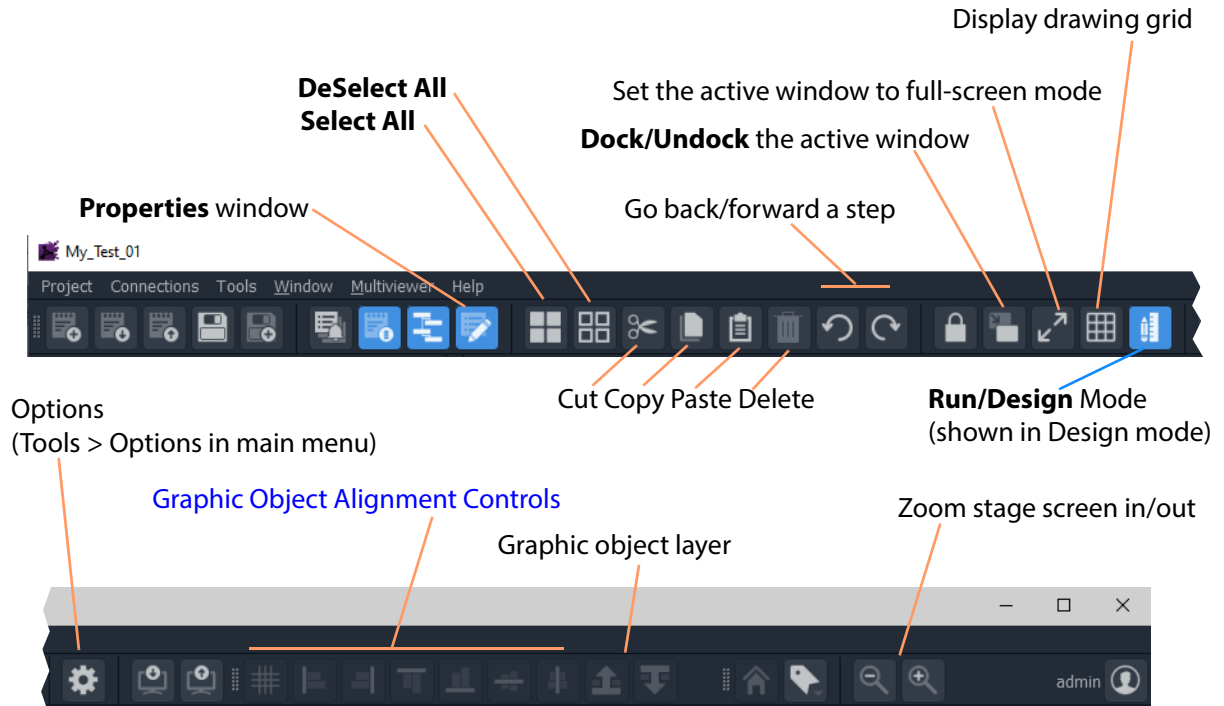


Fig. 3-56: Main Tool Bar with a Graphic Editor Screen Open

Note: Object selection/deselection operations used in graphic editors in GV Orbit Client are described [Selection/De-Selection of Objects in Graphic Editors](#), on page 138.

Graphic Object Alignment Controls

The graphic object controls are used in most graphical editing screens in GV Orbit Client. The controls are grayed out where they are not used.

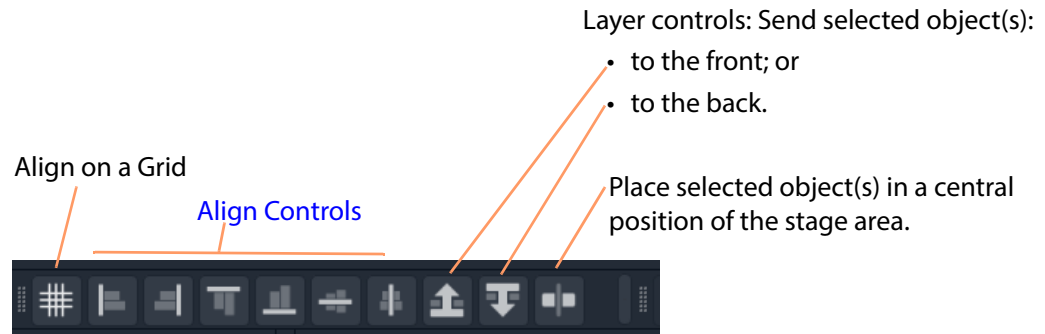


Fig. 3-57: Graphic Object Alignment Tool Bar Controls

Align Controls

Note: Object selection/deselection operations used in graphic editors in GV Orbit Client are described [Selection/De-Selection of Objects in Graphic Editors](#), on page 138.

To use an align control in one of the GV Orbit Client's graphical editor tools:

- 1 Select a graphical object. (See Figure 3-58a.)
This will be the object that will be aligned to.
- 2 SHIFT-select one or more further graphical objects. (See Figure 3-58b.)
- 3 Click on an align control in the main tool bar.
The alignment is done to the first object selected. (See Figure 3-58c.)

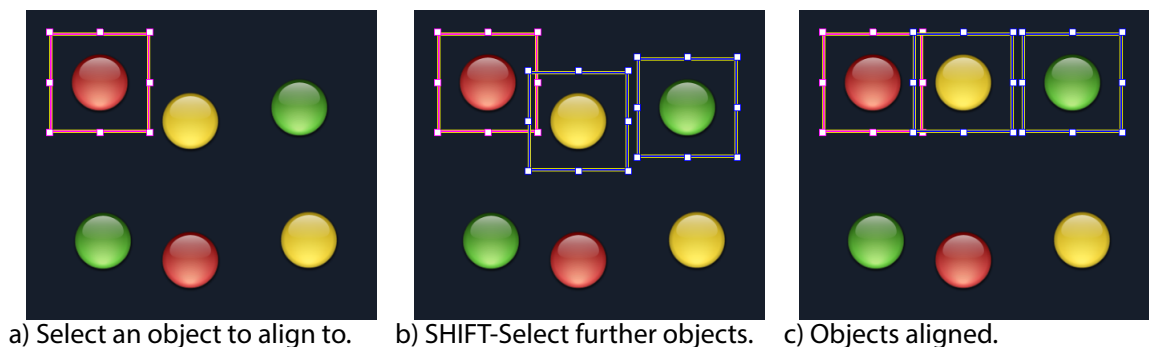


Fig. 3-58: Alignment Example

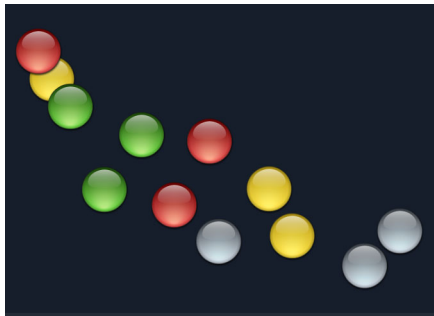
Align on a Grid

Use this control to arrange selected objects (see Figure 3-59a) in a grid arrangement.

In one of the GV Orbit Client's graphical editor tools:

- 1 Select all of the graphical objects to be arranged in a grid. (See Figure 3-59b.)
- 2 Click on the **Align to Grid** tool icon. (See Figure 3-59b.)
'Align to Grid' controls are shown in the **Properties** box. (See Figure 3-59c.)
- 3 Set the following 'Align to Grid' control values:
 - **Num Rows** - number of rows required in the resulting grid of objects.
(For example, = 3.)
 - **Row Spacing** - number of pixels between rows of the resulting grid.
(For example, = 50.)
 - **Col Spacing** - number of pixels between columns of objects in the resulting grid.
(For example, =20.)
- 4 Click **Apply**. (See Figure 3-59c.)

The object alignment is done to the specified grid. (See Figure 3-58d and Figure 3-58e.)

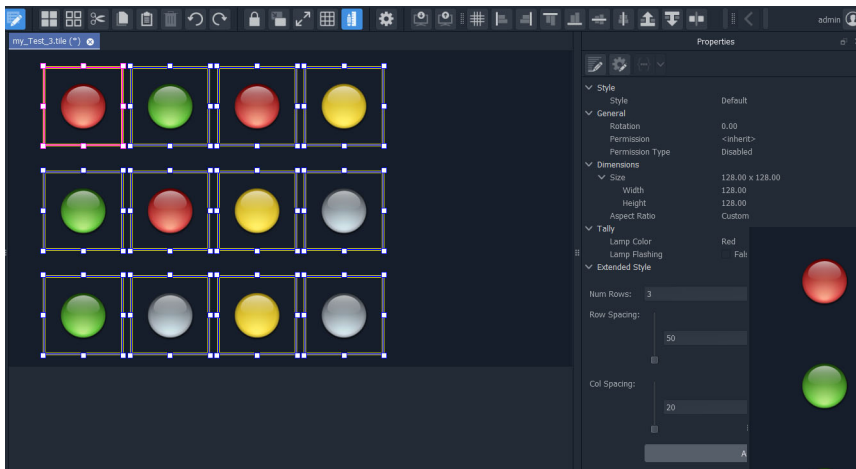


a) Objects

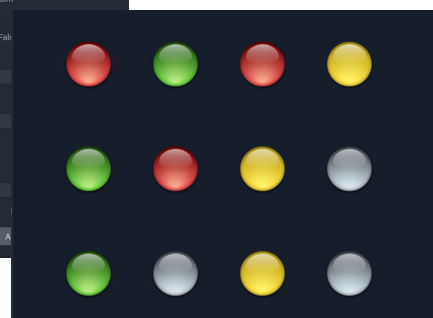
The screenshot shows the software interface. In the top toolbar, the 'Align to Grid' icon (a grid) is highlighted with a white arrow and a text box that says "Click Align to Grid". Below the toolbar, a group of spheres is selected, with a red box around them and a text box that says "Selected objects". To the right, the 'Properties' panel is open, showing various settings. The 'Extended Style' section is expanded, showing 'Num Rows: 3', 'Row Spacing: 10', and 'Col Spacing: 0'. A blue box highlights this section, and a white arrow points to the 'Apply' button at the bottom right of the 'Extended Style' section.

b) Select objects. Click Align to Grid icon.

c) Align to Grid settings in Properties box



d) Objects aligned to a grid.



e) Objects (deselected) aligned to a grid.

Fig. 3-59: Align to Grid Example

Common Operations in Graphic Editors

Selection/De-Selection of Objects in Graphic Editors

This section outlines actions to select and de-select objects in any of the graphic editors in GV Orbit Client. For example, in the Wall, Room, Tile, or Screen Editor tools.

Table 3-11: Object Selection / De-selection in a Graphic Editor

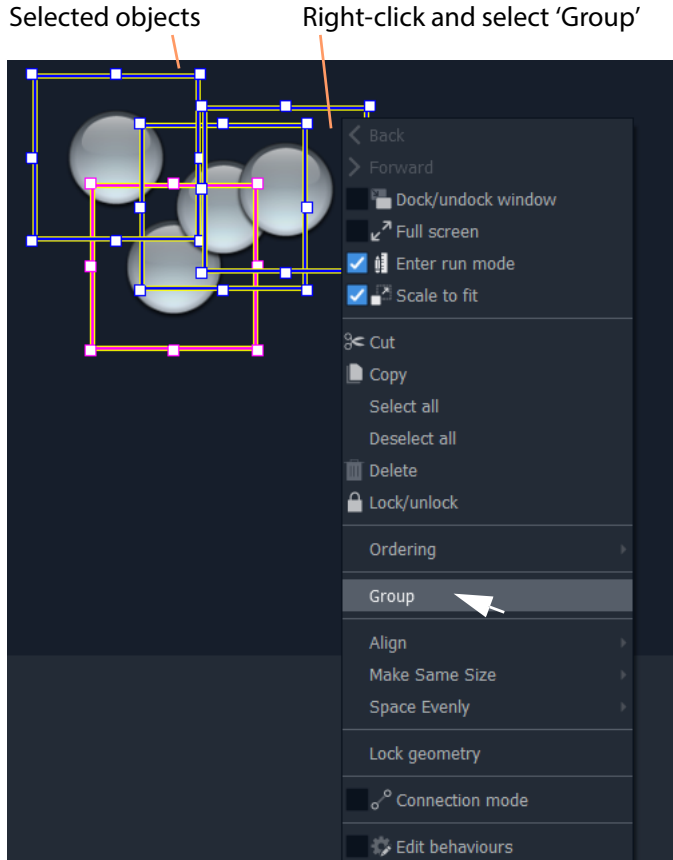
Action	Description
Click outside the schematic stage area.	Deselect All
ESC	
Click ' Deselect All ' in main tool bar.	
CTRL-A	Select All
Click ' Select All ' in the main tool bar	
Click on an item.	Select
ALT-Click on an item.	Select an alternative item from a layer-stack of items. Or: Select the group of objects that an item belongs to. (For information on groups of objects, see Selection Etc. in Groups of Objects , on page 138.)
SHIFT-Click on an item.	Add an item to the current selection.
SHIFT-ALT-Click on an item.	Add another item to the current selection from a layer-stack of items.
SHIFT-Click on an <i>already-selected</i> item.	Remove an item from the current selection
SHIFT-drag-cursor on screen to describe a rectangular area.	Select objects within a rectangular area. All objects wholly or partly within the area are selected.

Selection Etc. in Groups of Objects

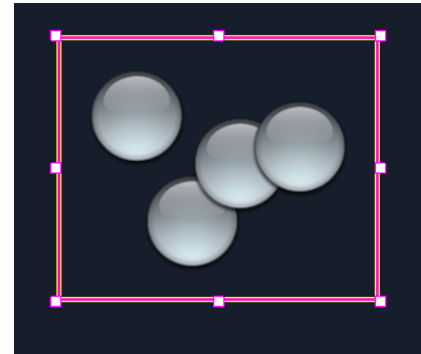
Grouping Objects Together

Graphical objects can be grouped together:

- 1 Select the objects. ('Select', and 'SHIFT-select' to add objects to selection.)
- 2 Right-click on the selected objects and select 'Group'. (See Figure 3-60a.)
 The objects are grouped together. (See Figure 3-60b.)



a) Selected objects



b) Grouped objects

Fig. 3-60: Grouping Objects

Un-Grouping Objects

Graphical objects can be un-grouped:

- 1 Select the group of objects.
- 2 Right-click and select 'Un-Group'.

Operations on Groups

Table 3-12: Operations on Groups of Objects

Action	Description
Select an object. Hold down Left-click and start to drag, and then additionally hold down SHIFT to drag into a Group.	Add an object to a Group. (Drag into a group.)
ALT-click to select an object in a group, and then hold Left-click and drag out of group.	Remove an object from a group. (Drag out of a group.)

4

Manage Users

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Introduction

GV Orbit Client provides user access control to GV Orbit projects. This controls who can open a GV Orbit project in GV Orbit Client and what editing or operational actions they may perform. Users of a project will require different access to aspects of a project depending on their role.

The GV Orbit Client **Manage Users** screen enables project user roles and levels of user access to be set up and managed.

When opening a project, a user is prompted for a user name and a password when accessing a GV Orbit project.

Default Admin Username and Password

By default, only an 'admin' user is initially configured in a new project. The 'admin' user has full permissions.

Default username = admin

Default password = admin

Note: The 'admin' user has administrator role permissions which enable all operations within GV Orbit Client to be carried out.
The default 'admin' user password should be changed as soon as you log in for the first time, [How to Change a User Password](#), on page 161.

Note: Administrator user passwords should be recorded and kept secure.

Accessing the Manage Users Tab

The **Manage Users** tab is accessible in several ways:

- From the [Workflow Screen](#).
- From the [Project Home Page](#).
- From the [Project Window](#).

From the Workflow Screen

To access the **Manage Users** screen from the GV Orbit Dynamic System Orchestrator workflow screen:

- 1 Click on the 'User Management' icon. See Figure 4-1.

The **Manage Users** tab is opened. See [Figure 4-2](#) on page 144.



Click **User Management** icon

Fig. 4-1: Workflow User Management Icon

From the Project Home Page

The **Manage Users** tab is accessible from a GV Orbit **Project Home** screen (for example, in a multiviewer project):

- 1 Start the GV Orbit Client application.
- 2 Open a (multiviewer) project and log in as an 'admin' user.
The GV Orbit **Project Home** screen is displayed.
- 3 Click on the large **Manage Users** icon. See Figure 4-2.
The **Manage Users** tab is shown. See [Figure 4-4](#) on page 145.

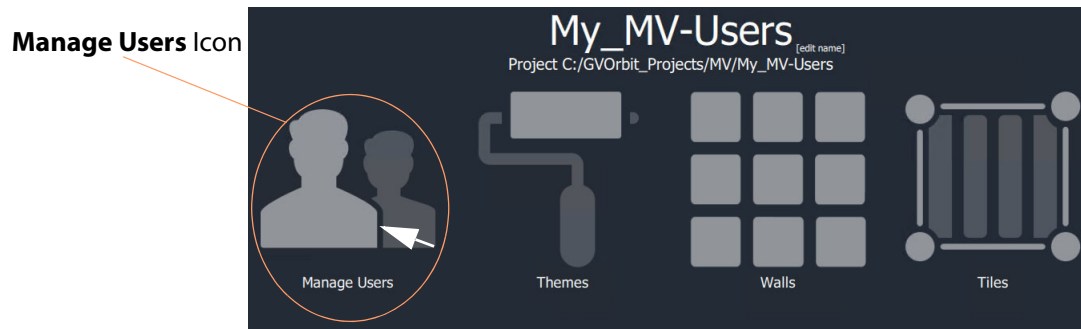



Fig. 4-2: Manage Users icon on Home Screen

From the Project Window

The **Manage Users** tab is accessible from the GV Orbit Client **Project** window:

- 1 Start the GV Orbit Client application.
- 2 Open a (multiviewer) project and log in as an 'admin' user.
- 3 Clicking on the icon in the main tool bar () toggles showing the **Project** window.

In the **Project** window:

- 4 Locate the name of the current project and expand the item.
- 5 Right-click on the 'db.users' item and select 'Open'. See Figure 4-3.

The **Manage Users** tab is shown. See [Figure 4-4](#) on page 145.

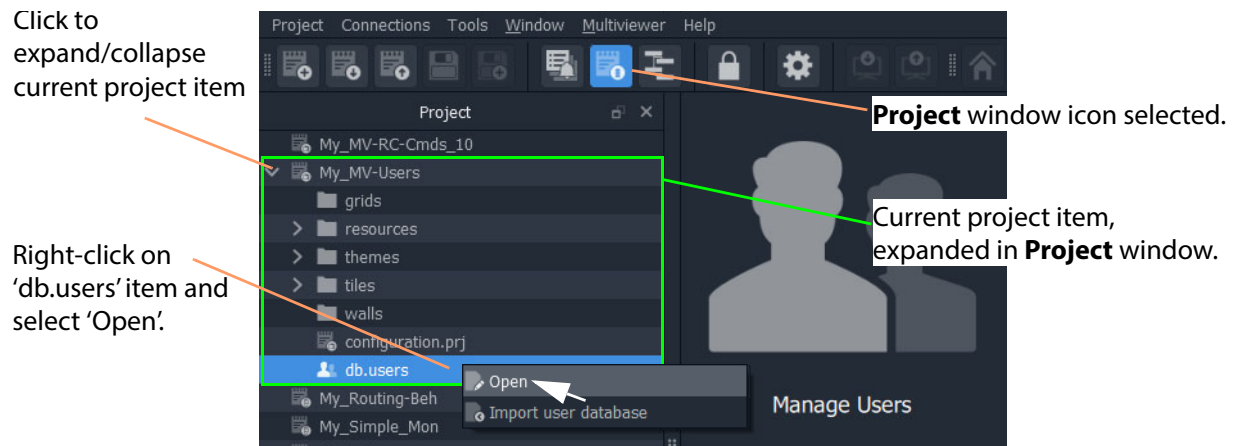


Fig. 4-3: Open Manage Users Tab from Project Window

Manage Users Tab

Note: Managing users:
Ensure that you are logged into the GV Orbit project with administrator permissions when managing users.

Note: The logged-in User name is shown in the main tool bar of each GV Orbit Client screen.

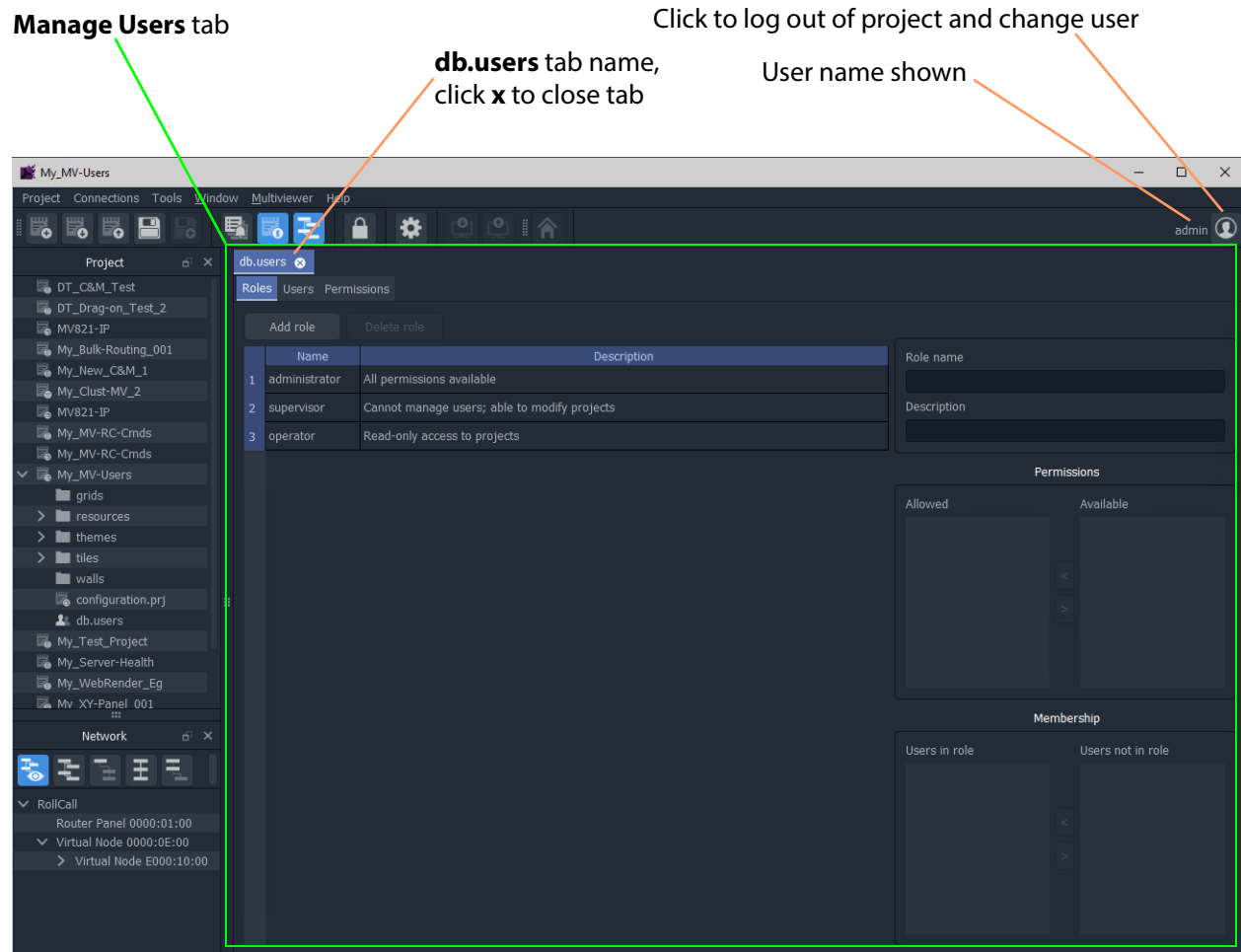


Fig. 4-4: Manage Users Tab ('Roles' Tab shown)

The **Manage Users** tab is labeled 'db.users' and contains the following 'sub-tabs':

- **Roles.**
- **Users.**
- **Permissions.**

A file with the name "db.users" appears in the **Project** window, see Figure 4-4.

This file contains encrypted project information, including user name and password details.

Changes to User Information

If a change has been made to settings in any of the **Manage Users** tabs, an asterisk (*) is appended to the "**db.users**" label.

Save changes by:

- 1 Clicking the **Save File** icon in the GV Orbit Client main tool bar.


Change Logged-in User

When logged into a project as a user, it is possible to quickly log out and log back in as another user.

- 1 Start the GV Orbit Client application, open a project and log in.

The project opens in GV Orbit Client and the currently logged-in User name is shown in the main tool bar.

In the main tool bar:

- 2 Click the **Change User** icon ().
A **Change User** dialog is shown. See Figure 4-5.
- 3 Click **Yes** to log out and log in (as another user).

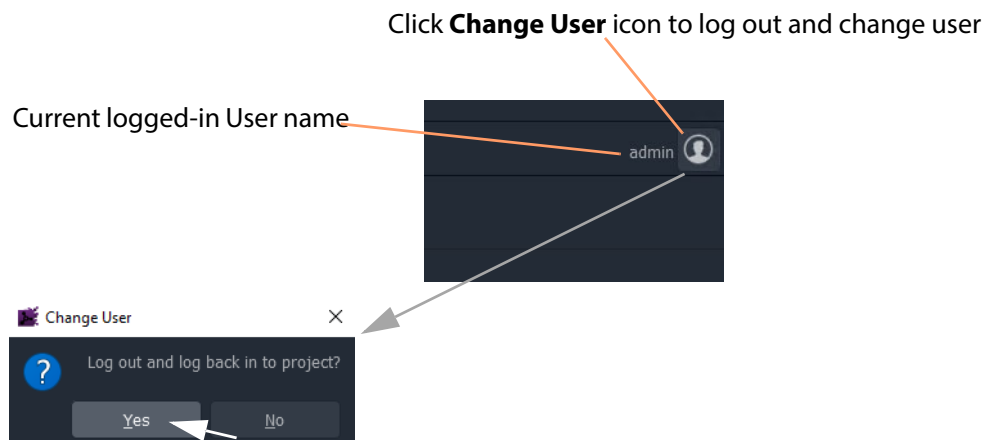


Fig. 4-5: User Name and Change Users Icon in Main Tool Bar

Roles Tab

To display the **Roles** tab in the **Manage Users** tab:

- 1 Click on the **Roles** tab.

The **Roles** tab lists the defined user roles for the GV Orbit project with a brief description of each, see Figure 4-6.

Select a listed **Role** for full role details.

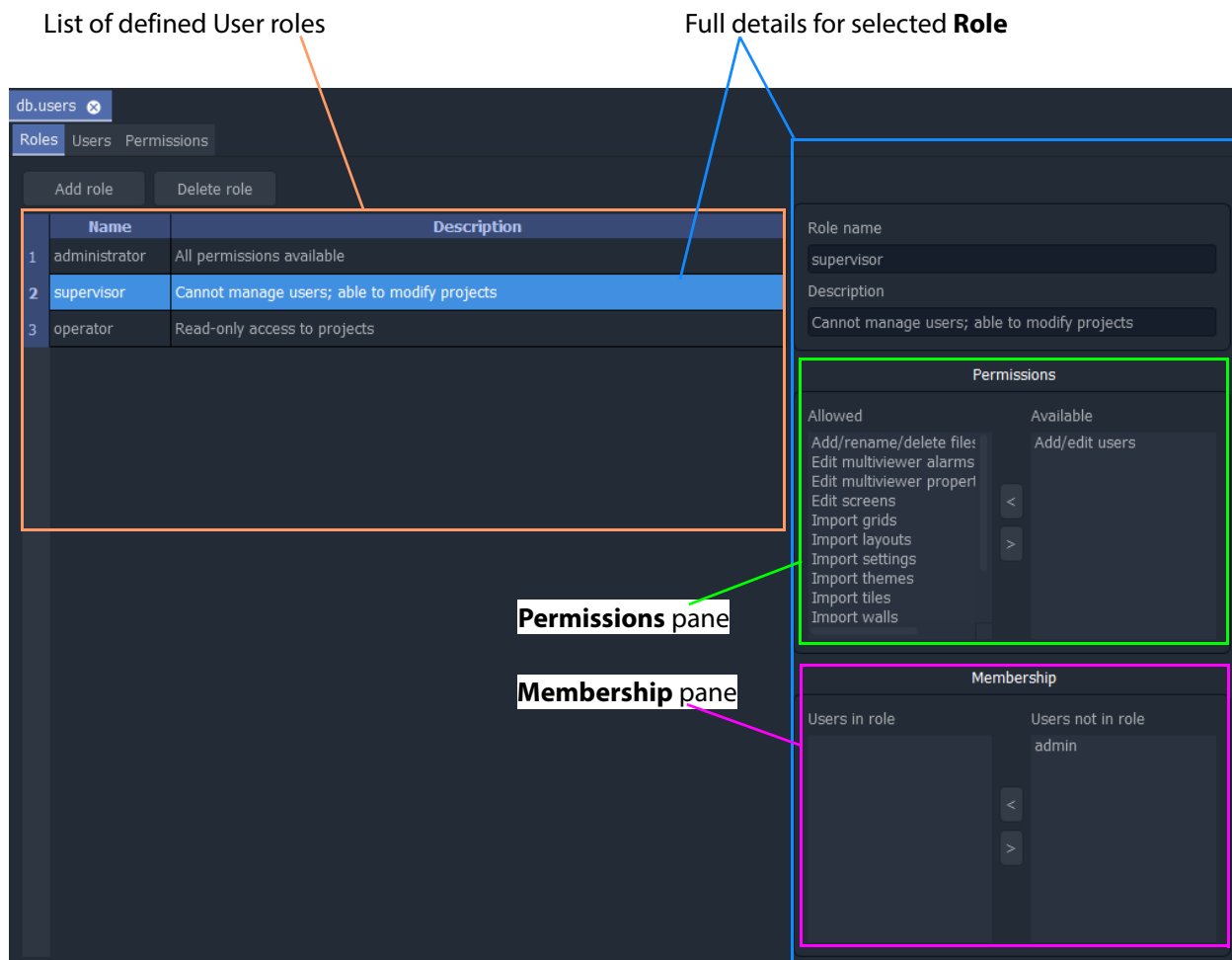


Fig. 4-6: Roles Tab

The **Roles** tab allows the roles to be viewed, created and edited; it is used to:

- Add and delete roles - New roles can be created and roles can also be deleted. See [Roles Tab](#), on page 147.
- Edit permissions for each role - This defines which operations may be carried out in a role with the **Permissions** pane. See [Edit Role Permissions](#), on page 152.

- Edit user roles - This assigns a role to each user name.
See [Roles Tab](#), on page 147.

Pre-defined User Roles

The following user **Roles** are configured by default in a new GV Orbit project:

- **Administrator** - role with all default permissions.
- **Supervisor** - role as administrator, but no user management role.
- **Operator** - role limited to read-only access to projects.

The permissions for each of these roles are listed in Figure 4-7.

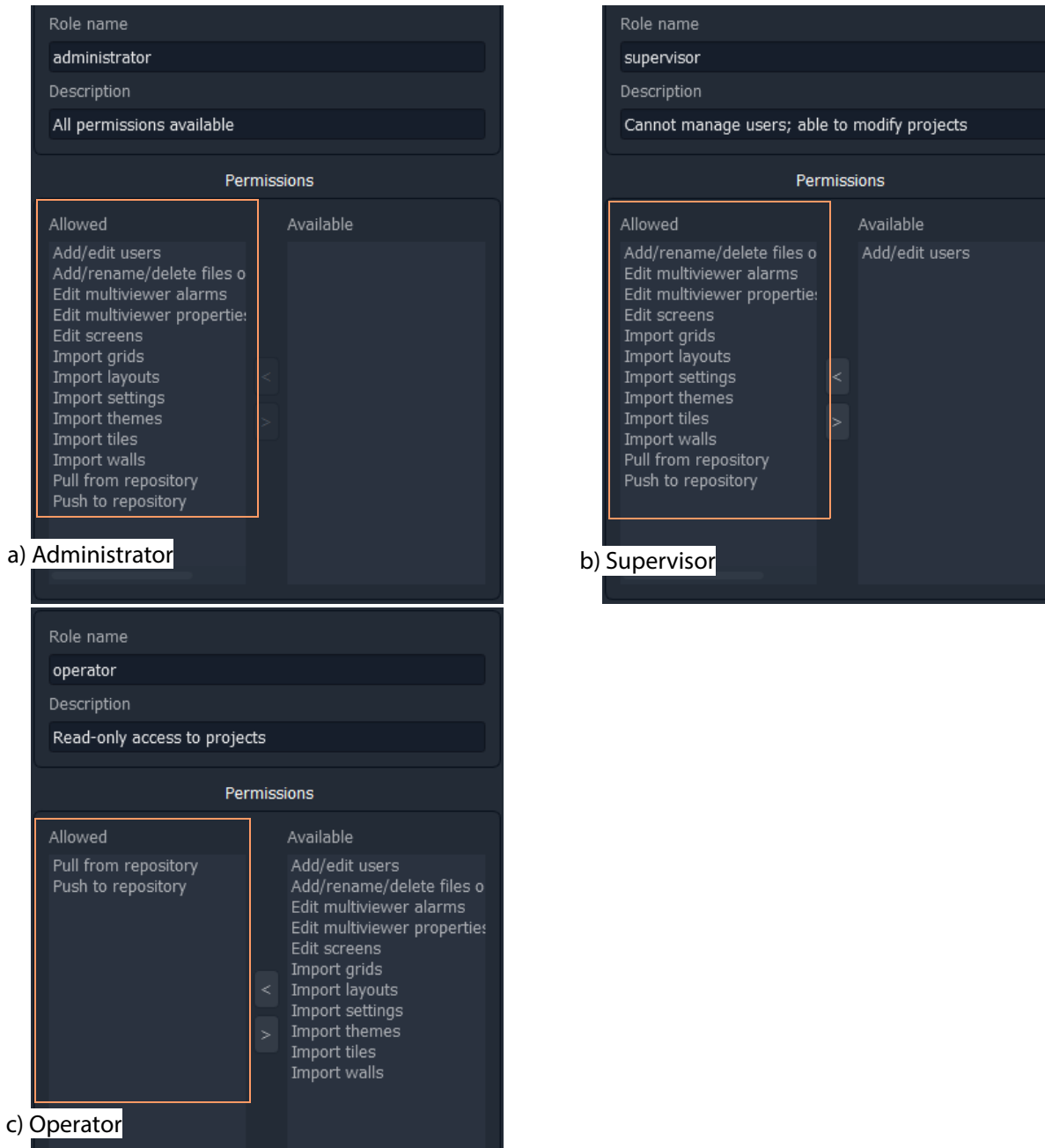


Fig. 4-7: Predefined User Role Permissions (Multiviewer project shown):
a) Administrator; b) Supervisor; c) Operator.

Role Permissions (Permissions Pane)

A role's permissions are set up in the **Permissions** pane.

Permissions are operations that can be carried out on a GV Orbit project in the GV Orbit Client application. When applied to a user, they form the user's privileges, i.e. what each user is allowed to do.

Note: A default new project's 'administrator' role has permissions to add/edit users.

- 1 Select the **Role** in the list in the **Roles** tab.

Permissions information for the selected **Role** is shown in the **Permissions** pane. Permissions that are 'allowed' for the role and others that are 'available' are listed in the **Permissions** pane. See Figure 4-8.

Note: The list of all permissions varies between GV Orbit project types.

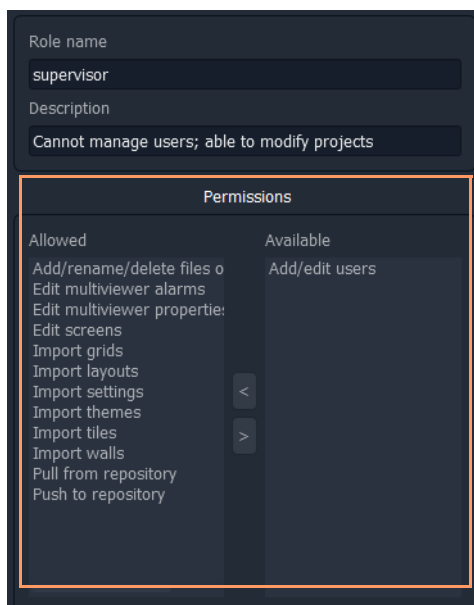


Fig. 4-8: Permissions (Supervisor Role in a Multiviewer Project Shown)

Table 4-1: Permissions - GV Orbit project types Multiviewer (MV)/ IP Routing (IP)

Permission	The ability to...	Project Type	
		MV	IP
Purge ALL	Purge all off-line devices.		IP
Change multicast options	Change automatic multicast assignment options.		IP
Export ALL	Export settings for all devices.		IP
Change flow options	Change the options used for automatic flow enabling.		IP
Assign device ports	Assign ports for a device.		IP
Assign ALL ports	Assign ports for all devices.		IP

Table 4-1: Permissions - GV Orbit project types Multiviewer (MV)/ IP Routing (IP)

Permission	The ability to...	Project Type	
		MV	IP
Edit source multicast	Edit individual multicast settings for a source flow.		IP
Enable flows for source device	Enable flows for a source device.		IP
Edit port number	Edit a port number for a spigot.		IP
Edit device name	Edit a device name.		IP
Import ALL	Import settings for all devices.		IP
Disable flows for source device	Disable flows for a source device.		IP
Edit port name	Edit a port name for a spigot.		IP
Enable source flow	Enable/disable individual source flows.		IP
Export device	Export settings for a device.		IP
Enable flows for all source devices	Enable flows for all source devices.		IP
Import device	Import settings for a device.		IP
Clear multicast for source device	Clear multicast settings for a device.		IP
Clear multicast for all source devices	Clear multicast settings for all source devices.		IP
Assign multicast for source device	Assign multicast settings for a source device.		IP
Assign multicast for all dest devices	Set 1:1 or 1:All routes for all destination devices.		IP
Clear multicast for all dest devices	Clear multicast settings for all destination devices.		IP
Transfer device	Transfer settings from one device to another.		IP
Edit schematics	Modify video wall and tile designs.	MV	IP
Import user database	Import a user database		IP
Clear device ports	Clear ports for a device.		IP
Disable flows for all source device	Disable flows for all source devices.		IP
Clear multicast for dest device	Clear multicast settings for a destination device.		IP
Edit destination multicast	Edit individual multicast settings for a destination flow.		IP
Assign multicast for dest device	Set 1:1 or 1:All routes for a destination device.		IP

Table 4-1: Permissions - GV Orbit project types Multiviewer (MV)/ IP Routing (IP)

Permission	The ability to...	Project Type	
		MV	IP
Assign multicast for all source devices	Assign multicast settings for all source devices.		IP
Change comms settings	Change network domain and change IP interfaces.		IP
Purge device	Purge an off-line device.		IP
Pull from repository	Move a project from a product unit to GV Orbit Client. For example, pulling a project from a multiviewer.	MV	
Push to repository	Move a project from GV Orbit Client to a product unit. For example, pushing a project to a multiviewer.	MV	
Add/rename/delete files or folders	Manage project files and folders.	MV	
Edit multiviewer properties	Edit properties for video wall themes, tiles and walls.	MV	
Edit multiviewer alarms	Create and delete alarms.	MV	
Add/edit users	Manage users and roles.	MV	
Import themes	Import themes into a project from another GV Orbit Client project.	MV	
Import walls	Import walls into a project from another GV Orbit Client project.	MV	
Import layouts	Import wall layouts into a project from an GV Orbit Client project.	MV	
Import settings	Import project settings from another GV Orbit Client project.	MV	
Import tiles	Import tiles into a project from another GV Orbit Client project.	MV	
Import grids	Import grids into a project from another GV Orbit Client project.	MV	

Edit Role Permissions

To edit the permissions for a **Role**:

- 1 Select a permission on the **Permissions** pane. See Figure 4-9.
- 2 Click > or < in the pane to move the selected Permission to/from the set of 'allowed'/'available' permissions for the role.

3 Add/remove permissions as required.

When done:

4 Click **Save File** in the main menu to save changes.

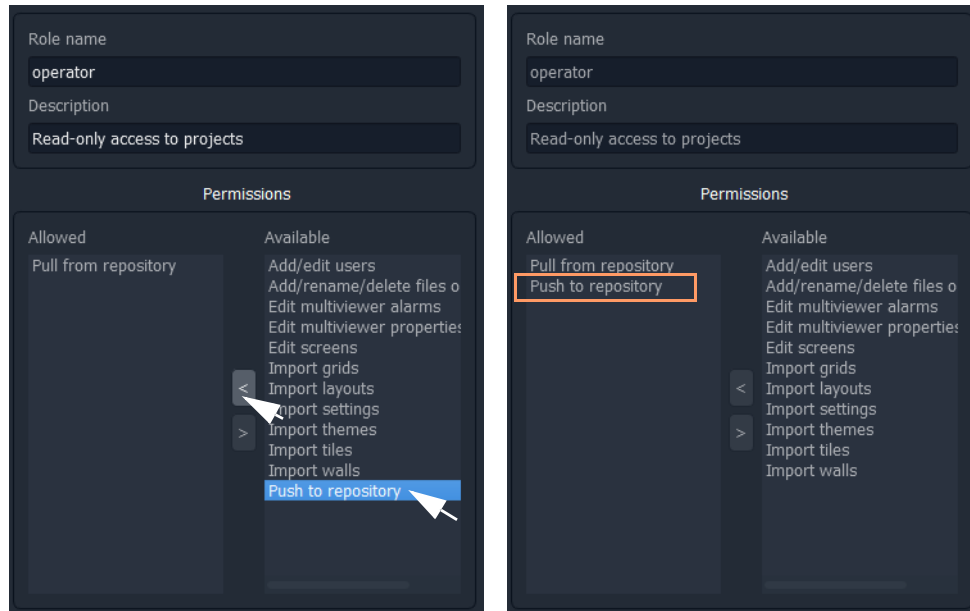


Fig. 4-9: Edit Role Permissions

Assign Users to Roles (Membership Pane)

The **Membership** pane displays the following for the selected **Role**:

- User names assigned in the role - These are listed in the “**Users in Role**” list.
- User names not assigned in the role - These are listed in the “**Users not in Role**” list.

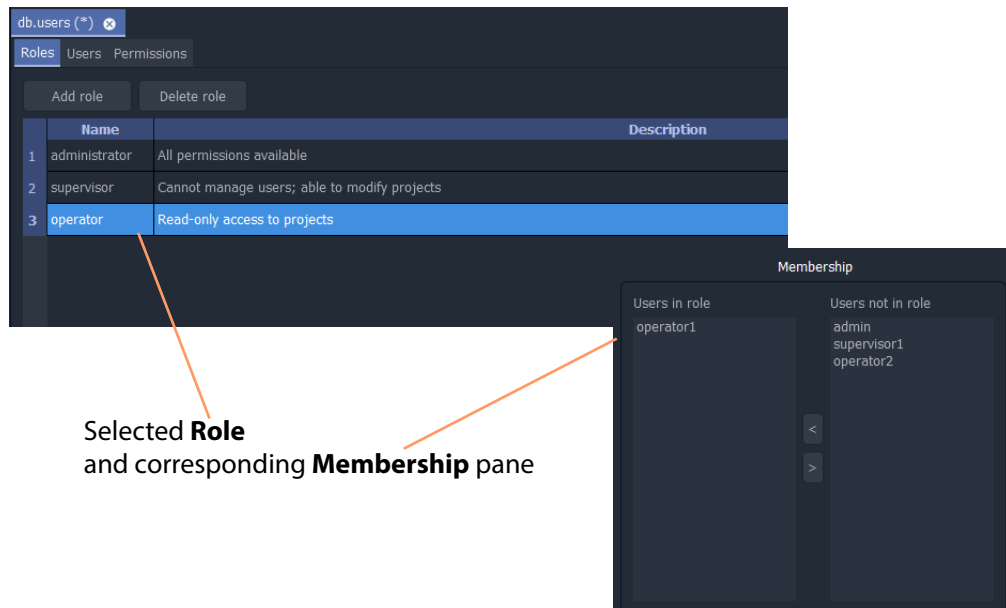
To assign a role to a user, in the **Roles** tab,

1 Select a **Role** in the list.

This selects a role to be edited. (See Figure 4-10.)

Manage Users

Assign Users to Roles (Membership Pane)



Selected **Role**
and corresponding **Membership** pane

Fig. 4-10: Selected Role and Membership Pane

To assign a user into a role:

- 2 Click on the user name item in the **"Users not in Role"** list to select an user.
(More than one user may be selected. To deselect an item, click on the selected item.)
- 3 Click on the < button to add the selected user name(s) to the **"Users in Role"** list.
The selected user(s) move from the **"Users not in Role"** list to the **"Users in Role"** list.

To remove a user from a role:

- 4 Select the user name item in the **"Users in Role"** list.
- 5 Click on the > button to remove it from the **"Users in Role"** list.
The selected user name moves to the **"Users not in Role"** list.

Lastly:

- 6 Save any changes by clicking on the **Save File** in the main menu.

Note: Click the **Save File** icon in the GV Orbit Client screen's main tool bar to save changes made in the **Roles** tab.

How to Delete Roles

Note: A user will lose permissions if they are assigned to a role when the role is deleted. Ensure that no users are assigned in any role to be deleted.

To delete a **Role**, in the **Roles** tab:

- 1 Select the **Role** to be deleted.

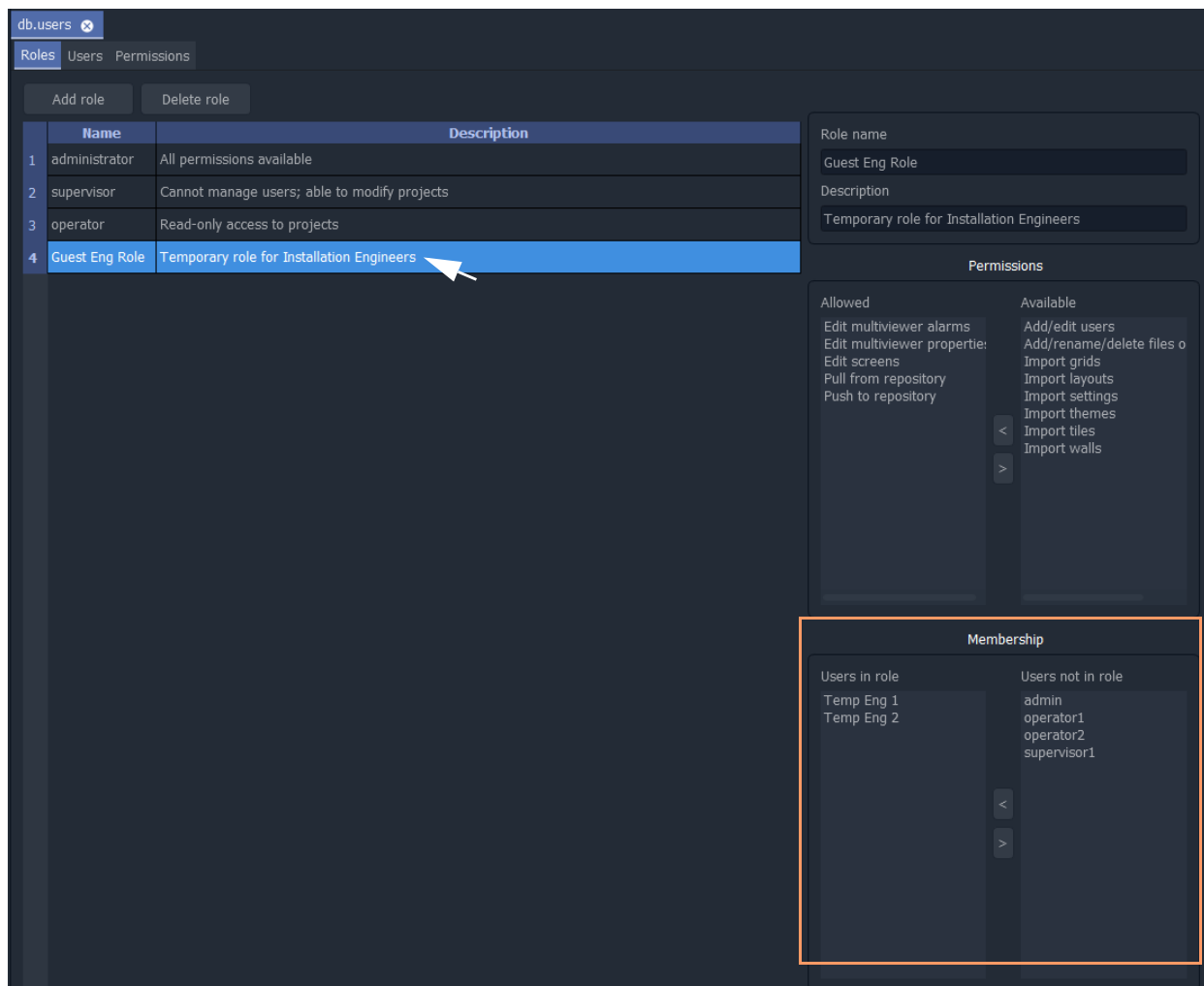


Fig. 4-11: Select a Role for Deletion

- 2 Review the **Role's** user details in the **Membership Pane**.
Before deleting a **Role**, there should be no users assigned to that **Role**.
- 3 Remove any users from the role using the **Membership Pane**.

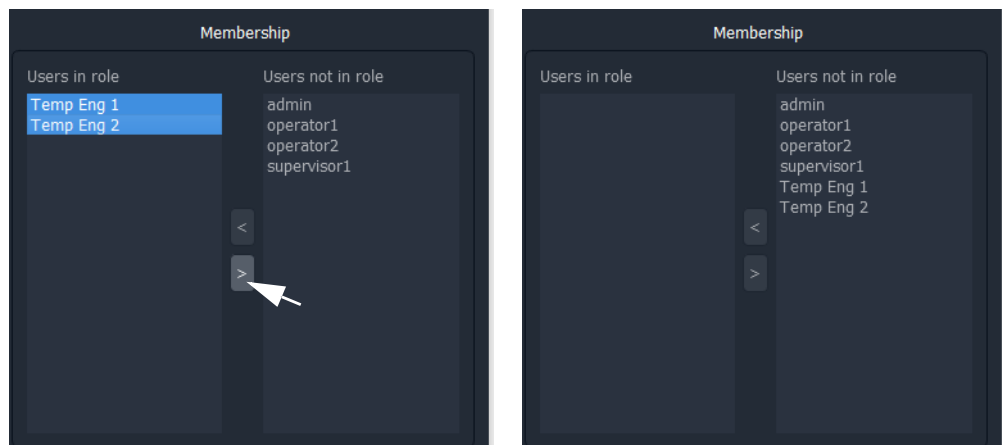


Fig. 4-12: Remove All Users from the Role

- 4 Click on the **Delete Role** button, see Figure 4-13.
A confirmation **Delete Role** dialog box will appear.

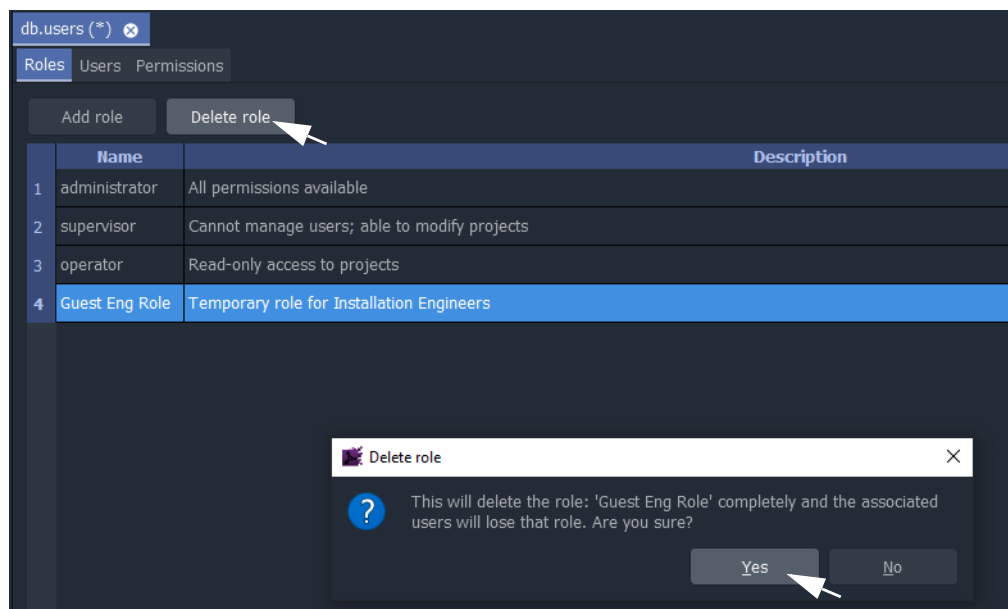


Fig. 4-13: Delete Role

- 5 Read the message in the dialog.
If you wish to proceed, click "**Yes**" to confirm that the role should be deleted, otherwise, click "**No**".
The **Role** is deleted from the **Roles** tab.

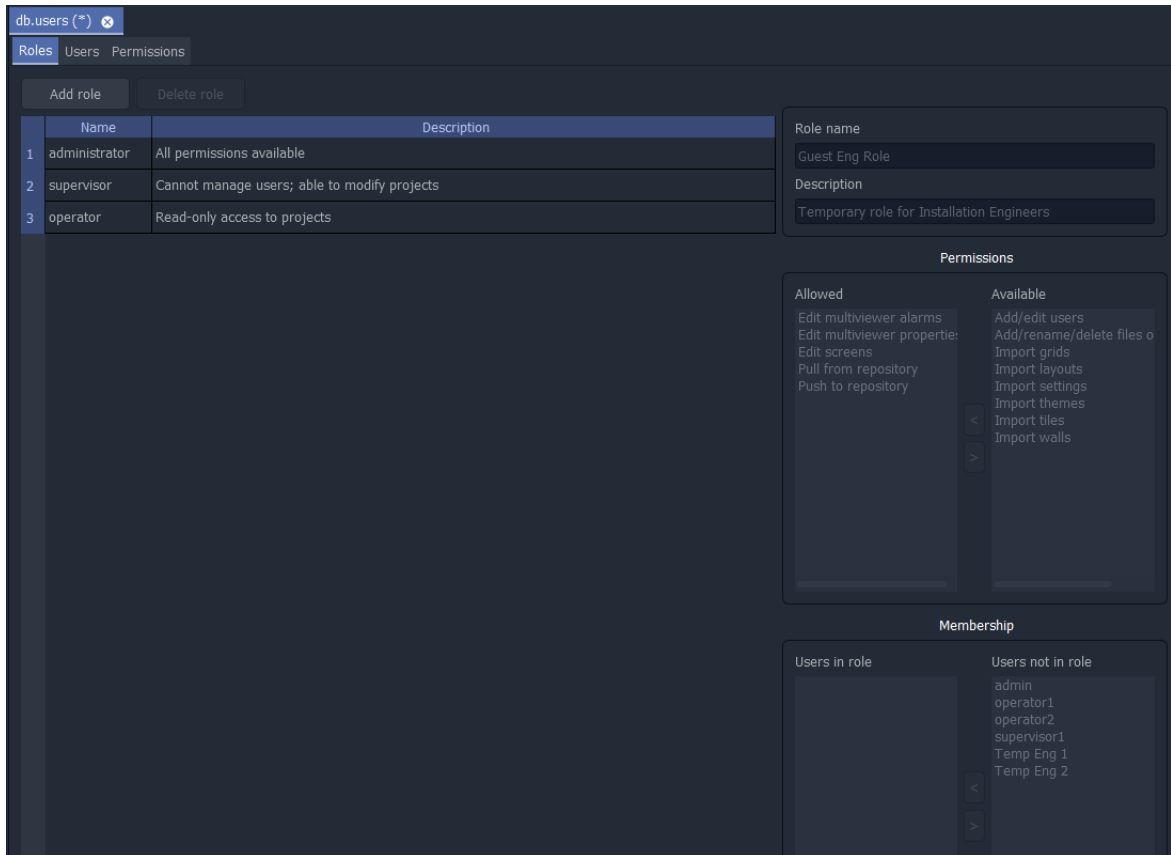


Fig. 4-14: Deleted Role

- 6 Save any changes by clicking **Save File** in the main tool bar.

Note: Click the **Save File** icon in the GV Orbit Client screen's main tool bar to save changes made in the **Roles** tab.

How to Add a Role

New roles can be added. In the Roles tab:

- 1 Click **Add New Role**.

A new blank role item is added to the bottom of the roles list in the **Roles** tab.

New blank role item

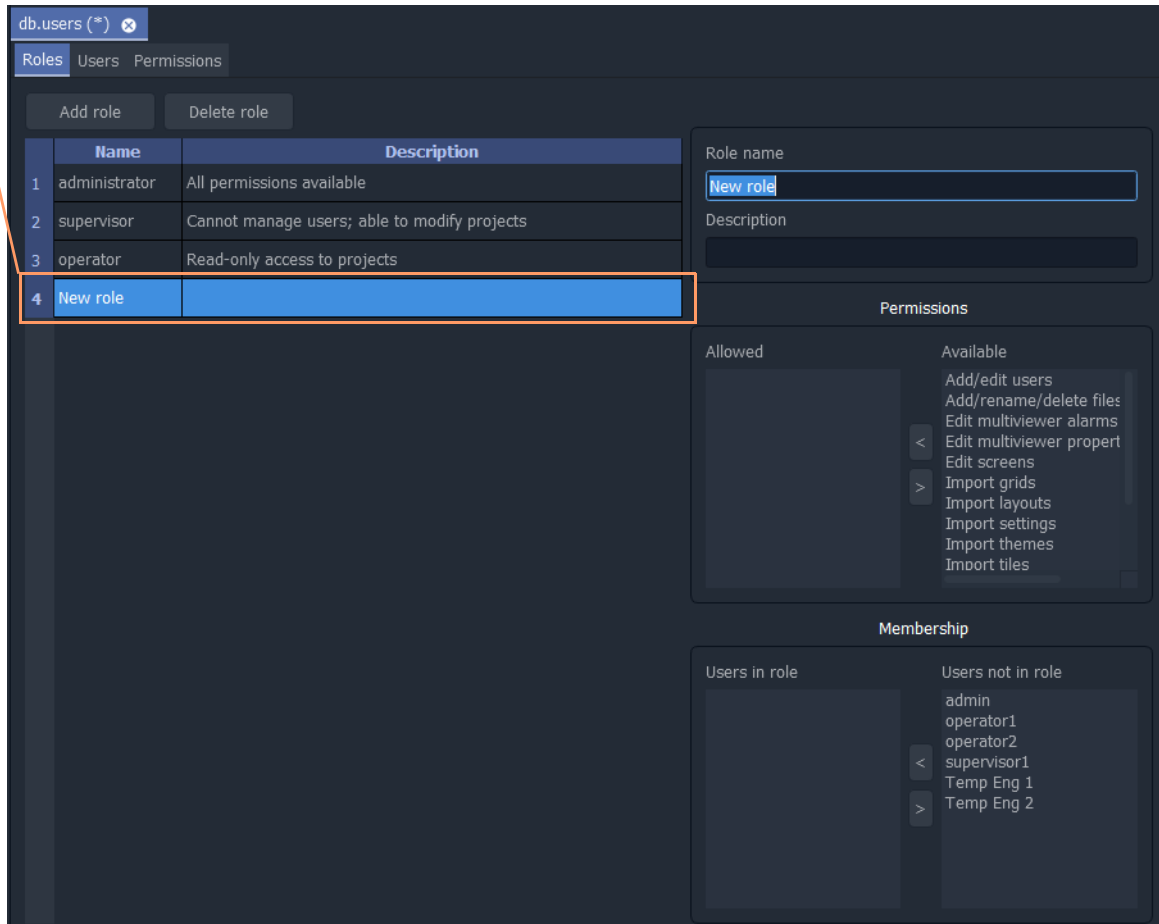


Fig. 4-15: Adding Role

On the right-hand side of the screen:

- 2 Enter a name for the new role in the **Role name** text box. Use a short, descriptive name. (Use characters 'a' to 'z', 'A' to 'Z', 'space' and '0' to '9'.)
- 3 Enter a brief description of the role in the **Description** text box.

The new role's name and description are shown in the list of roles.

- 4 With the new role highlighted, add the permissions required - see [Role Permissions \(Permissions Pane\)](#), on page 149.
- 5 With the new role still highlighted, assign any users - see [Assign Users to Roles \(Membership Pane\)](#), on page 153.

6 Save any changes by clicking **Save File** in the main tool bar.

A finished new role screen is shown in Figure 4-16.

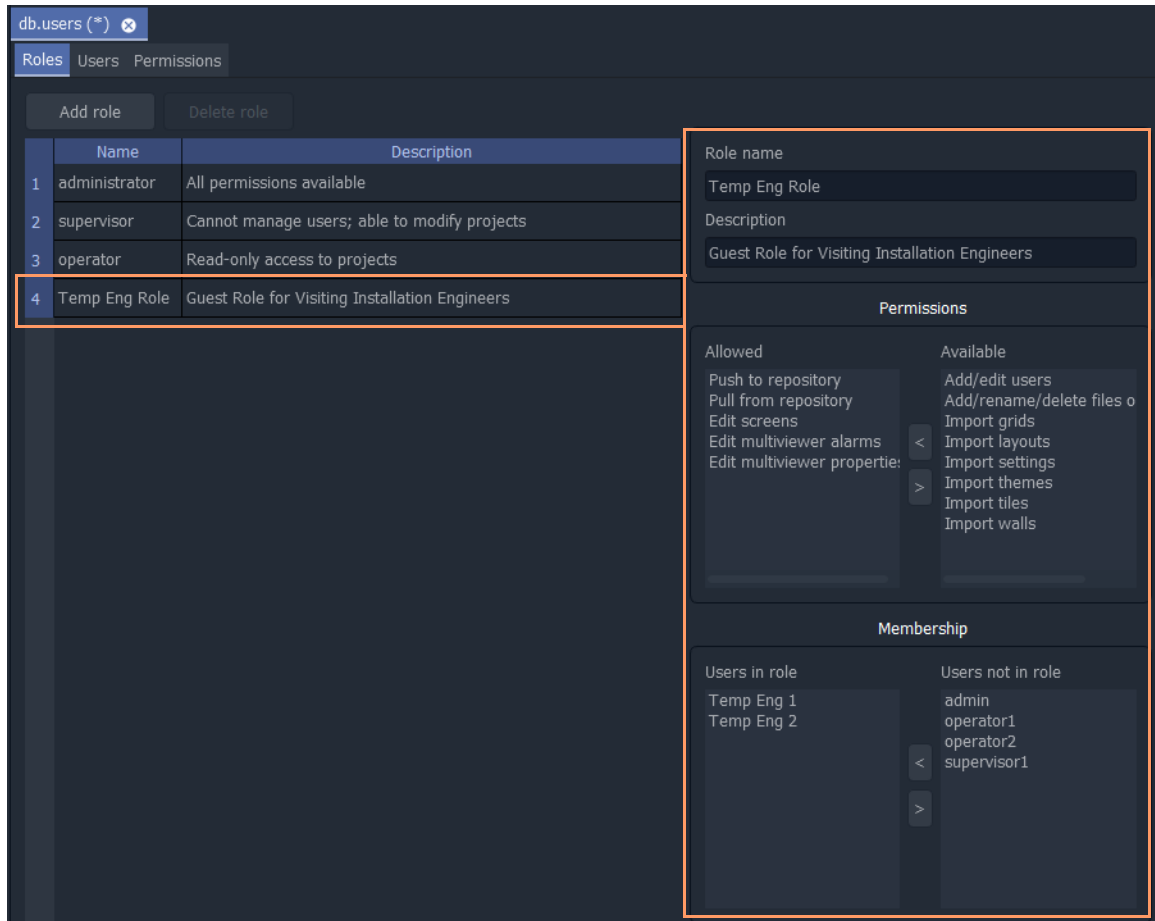


Fig. 4-16: New Role Added

Users Tab

Click on the **Users** tab at the top of the **Manager Users** tab to display the **Users Tab** tab, see Figure 4-17. The users of a GV Orbit project can be viewed, edited and created. Users are listed in the main screen area in a graphical **Users List** - a list of icons.

The **Users** tab is used to:

- Change the password of an existing user, see [How to Change a User Password](#).
- Add a new user, see [How to Add a User](#).
- Delete an existing user, see [How to Delete a User](#).

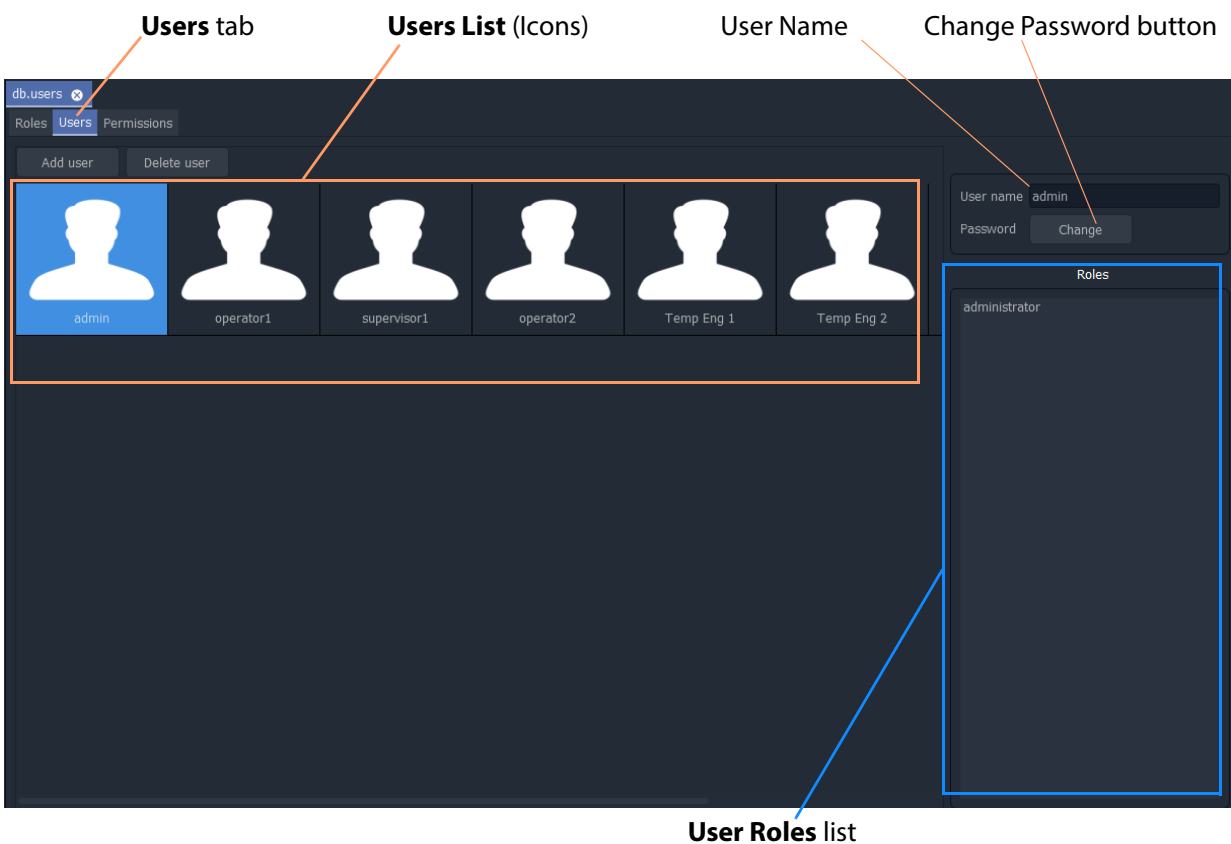


Fig. 4-17: Users Tab

Pre-defined Users

Initially, in a new GV Orbit project, a user named 'admin' is already defined with full administrator role permissions. This enables all operations within GV Orbit Client to be carried out.

Default username - admin

Default password - admin

The default password for user 'admin' should be changed as soon as you log into a new project, see section .

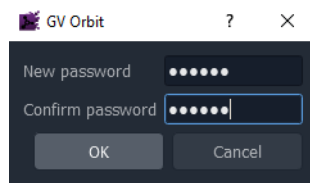
Record the user names and passwords somewhere safe and secure.

Note: Keep a record of the administrator user name and password used.

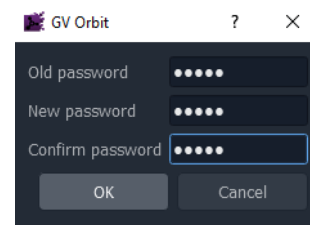
How to Change a User Password

In the **Users** tab:

- 1 Click on a user icon in the **Users List**.
This selects the user to be edited.
- 2 Click on the **Change** button, located below the **User name** text box.
The change password dialog is displayed. See Figure 4-18.



a) Add Password for a new user



b) Change Password for a user

Fig. 4-18: Change Password Dialogs

- 3 Enter the original password in the **Old password** text box, if this is shown.
Enter the new password in both the **New password** text box
and also in the **Confirm password** text box.
- 4 Click **OK** to change the password or click **Cancel** to abandon the change.
If a new password has been set, a "Password changed successfully" message is displayed; click **OK**. See Figure 4-19.

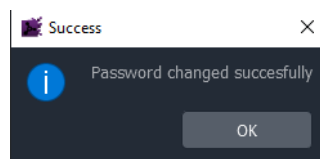


Fig. 4-19: Password Changed Successfully Message

- 5 Save any changes by clicking **Save File** in the main tool bar.

How to Add a User

In the **Users** tab:

- 1 Click **Add User**.
A new **User Icon** appears in the graphical **Users List**. See Figure 4-20.

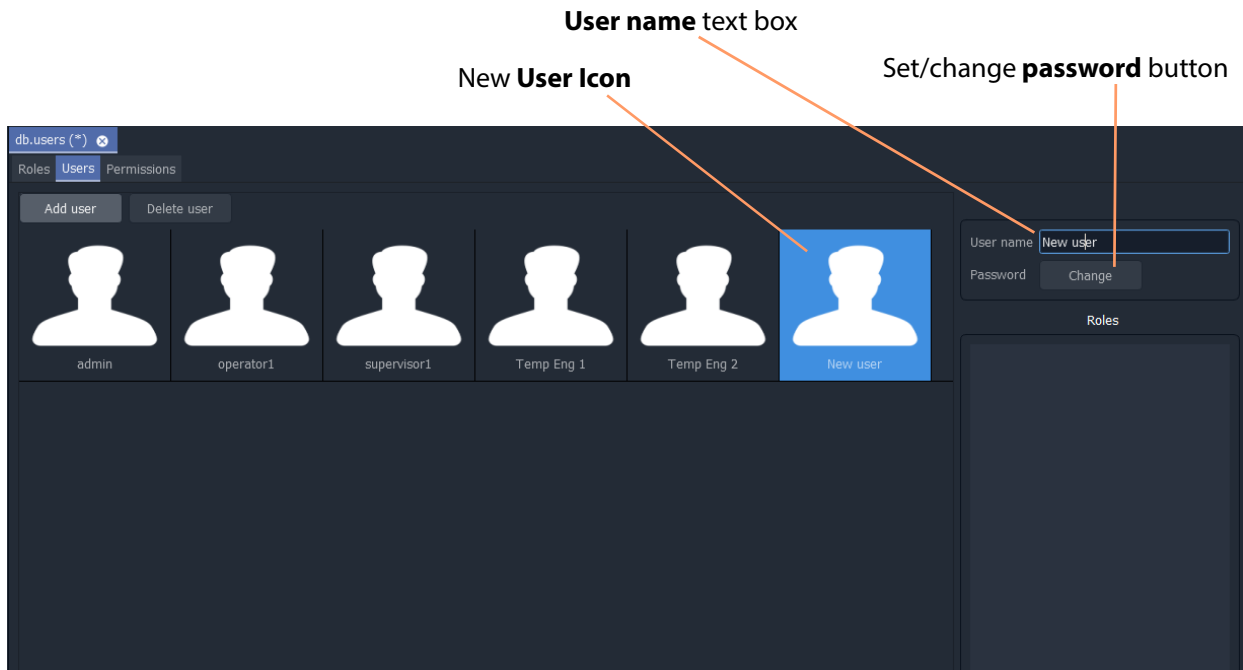


Fig. 4-20: Adding a New User

- 2 Enter a name for the new user in the **User name** text box.
(Use characters 'a' to 'z', 'A' to 'Z', 'space' and '0' to '9'.)
- 3 Click on the **Change** button below the **User name** text box.
The **Set New Password** dialog is displayed.
- 4 Enter a new password in the **New password** text box
and re-enter it in the **Confirm password** text box.
- 5 Click **OK** to set the password, or click **Cancel** to abandon the change.
If a new password has been set,
a "Password changed successfully" message is displayed; click **OK**.
- 6 Save any changes by clicking **Save File** in the main tool bar.

Note: Click the **Save File** icon in the GV Orbit Client screen's main tool bar to save changes made in the **Users** tab.

A new, empty user has been created.

To assign the user to **Role(s)**, see [Assign Users to Roles \(Membership Pane\)](#), on page 153.

How to Delete a User

In the **Users** tab:

- 1 Click on a **User Icon** in the **Users List** to select the user to be deleted.
- 2 Click on the **Delete user** button.
A confirmation message dialog box appears.

- 3 Click **Yes** to confirm user deletion, or click **No** to abandon deleting the user.
If the user is deleted, the corresponding user icon disappears from the **Users List**.
- 4 Save any changes by clicking **Save File** in the main tool bar.

Note: Click the **Save File** icon in the GV Orbit Client screen's main tool bar to save changes made in the **Users** tab.

Permissions Tab

The **Permissions** tab lists the available **Permissions** with a brief description of each.

Permission types:

- **Built-in** - By default, a project has built-in Permissions, which are project-type-dependent.
- **User** - Additionally, a user can create custom **Permissions** for use.

To see the Permissions tab:

- 1 Click on the **Permissions** tab in the **Manage Users** tab to display the **Permissions** tab.

	Name	Description	Type
1	Edit screens	Ability to edit visual elements like tiles, walls, themes, etc.	built-in
2	Pull from repository		built-in
3	Push to repository		built-in
4	Add/rename/delete files or folders	Add/rename/delete or import project files or directories	built-in
5	Edit multiviewer properties		built-in
6	Edit multiviewer alarms		built-in
7	Add/edit users	Ability to modify user accounts. A user without this permission can...	built-in
8	Import themes	Ability to import theme files from another project	built-in
9	Import walls	Ability to import wall files from another project	built-in
10	Import layouts	Ability to import layout files from another project	built-in
11	Import settings	Ability to import configuration from another project	built-in
12	Import tiles	Ability to import tile files from another project	built-in
13	Import grids	Ability to import grid files from another project	built-in

Fig. 4-21: Permissions Tab

Custom User Permissions

Custom 'user' permissions can be created alongside the existing 'built-in' permissions and they can be assigned to roles. These allow user access/privileges to be tailored to operational needs.

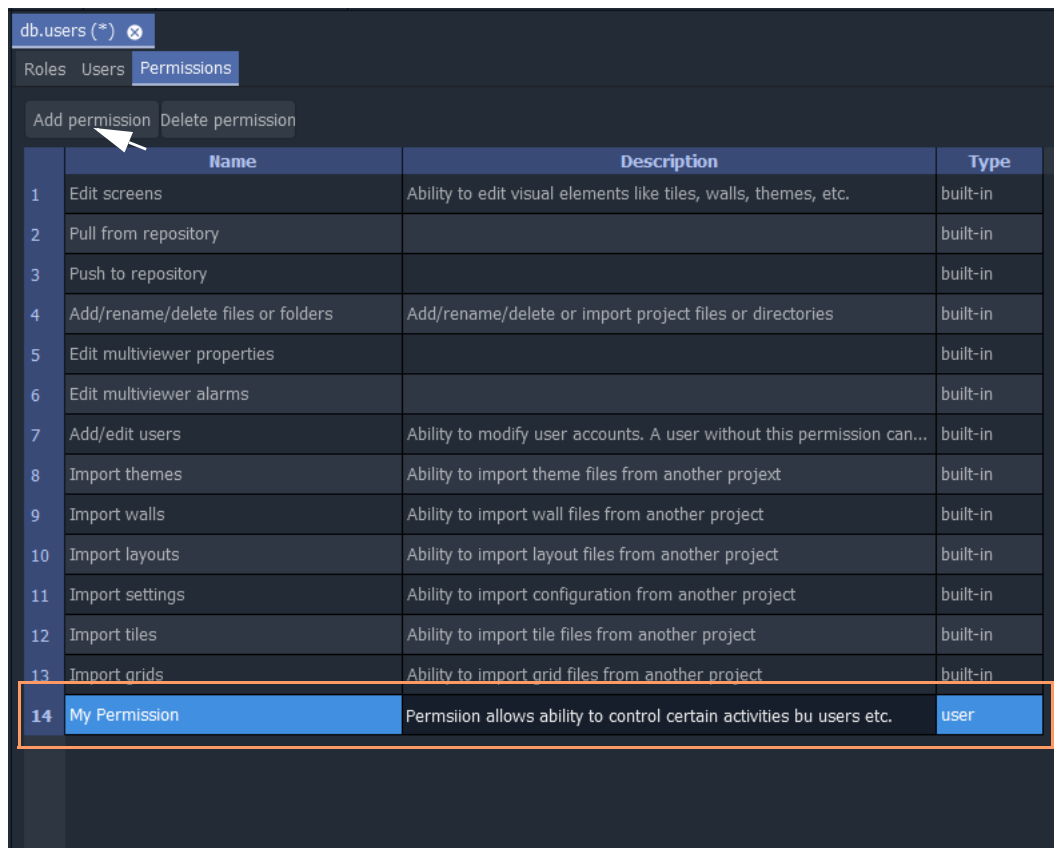
A custom user **Permission** is automatically given to the 'administrator' **Role**.

Access-control to GV Orbit Client project screens or to on-screen graphical widgets can be designed into an GV Orbit Client project using custom 'user' permissions.

Add Custom User Permission

In the **Permissions** tab:

- 1 Click **Add Permission**.
A new item is added to the list.
- 2 Enter a name and enter a brief description for the new custom **Permission**. See Figure 4-22.
- 3 Click **Save File** in the main tool bar to save the change.



The screenshot shows the 'Permissions' tab in the GV Orbit Client interface. At the top, there are tabs for 'Roles', 'Users', and 'Permissions'. Below the tabs are two buttons: 'Add permission' (highlighted with a white arrow) and 'Delete permission'. A table below lists permissions with columns for 'Name', 'Description', and 'Type'. The 14th row, 'My Permission', is highlighted in blue and outlined in orange. The 'Type' for this permission is 'user'.

	Name	Description	Type
1	Edit screens	Ability to edit visual elements like tiles, walls, themes, etc.	built-in
2	Pull from repository		built-in
3	Push to repository		built-in
4	Add/rename/delete files or folders	Add/rename/delete or import project files or directories	built-in
5	Edit multiviewer properties		built-in
6	Edit multiviewer alarms		built-in
7	Add/edit users	Ability to modify user accounts. A user without this permission can...	built-in
8	Import themes	Ability to import theme files from another project	built-in
9	Import walls	Ability to import wall files from another project	built-in
10	Import layouts	Ability to import layout files from another project	built-in
11	Import settings	Ability to import configuration from another project	built-in
12	Import tiles	Ability to import tile files from another project	built-in
13	Import grids	Ability to import grid files from another project	built-in
14	My Permission	Permsion allows ability to control certain activities bu users etc.	user

Fig. 4-22: New Custom User Permission

See [Using a Custom User Permission](#).

Using a Custom User Permission

Permission Properties

In a GV Orbit Client project, a GV Orbit control and monitoring screen can be designed to implement access control for:

- GV Orbit Client project screens; or for
- on-screen graphical widgets (e.g. buttons).

This is accomplished by utilizing a screen's or a widget's 'Permission' properties. See Figure 4-23.

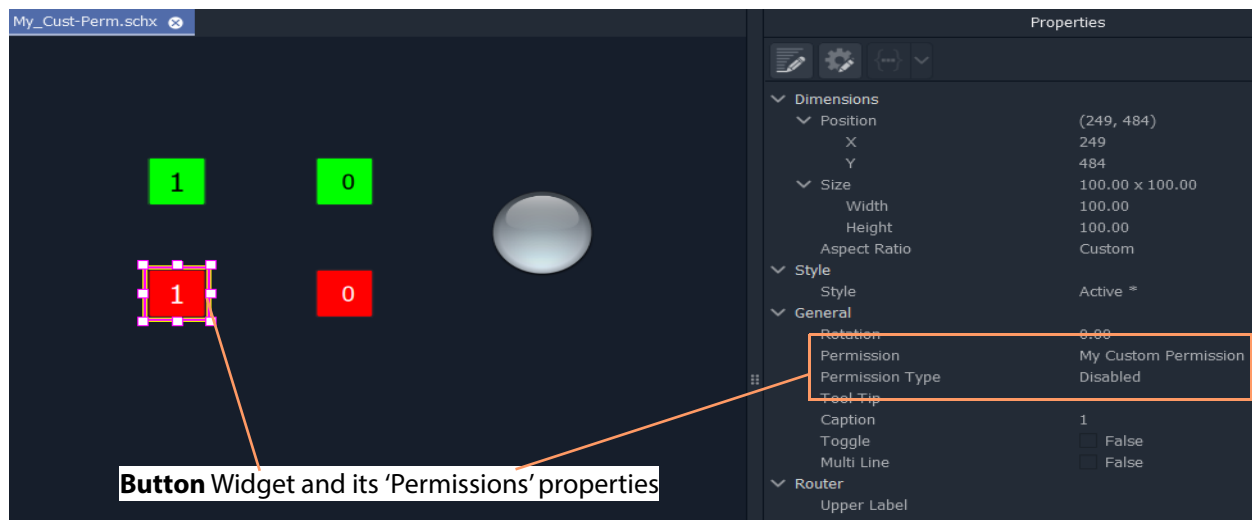


Fig. 4-23: Permission Properties (Widget shown)

Table 4-2: Widget Permissions Properties

Property	Description
General > Permission	Specify the Permission required by the widget user. Select from: <ul style="list-style-type: none"> • <none> - no Permission required. No access control. • <inherit> - use the Permission of the parent MapView screen/component/widget. • built-in permissions - list of all built-in Permissions. • user permissions - list of all custom user Permissions.
General > Permission Type	Set how the on-screen widget is affected if logged-in user does <i>not</i> have specified Permission : <ul style="list-style-type: none"> • Disable - Widget on-screen control is disabled. • Hidden - Widget is hidden from view.

A user's **Role**, which will include or exclude various permissions, can determine whether a logged-in user:

- may use a widget or access screens in a running GV Orbit Client project; and
- how a widget appears on-screen (i.e. disabled or hidden).

This facility could, for example, control access to a MapView screen with certain operationally-sensitive controls and limit them to logged-in users whose role includes a certain (custom) permission.

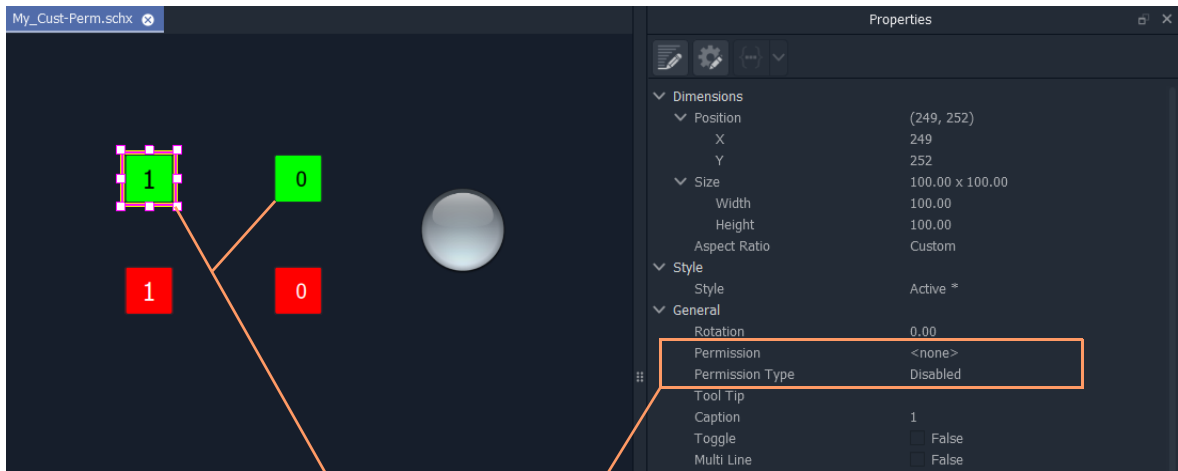
Access Control Example - MapView C&M Screen

This is a simple, contrived example on a C&M 'MapView' screen to demonstrate controlled access to a **Button** widget.

In our example:

- 1 A custom 'user' **Permission** has been defined ('My Custom Permission').
- 2 Four **Button** widgets have been configured to turn a **Lamp** widget on/off (see Figure 4-24):
 - Two (green-colored) **Buttons** control the **Lamp** widget on/off green.
The **Button** widgets do *not* have any specific **Permissions** properties set.
 - Two (red-colored) **Buttons** control the same **Lamp** widget on/off red.
These **Button** widgets require a logged-in user to have a specific, 'user' **Permission** set up.
- 3 There are two **Users** set up for this example (see Figure 4-25):
 - User 'admin' has an administrator **Role**, which includes all **Permissions**, 'built-in' and 'user'.
 - User 'supervisor 1' has a supervisor **Role** which does not include a custom user **Permission**.

When this C&M project is run, the resulting on-screen behavior is shown in Figure 4-26. A user without the custom 'user' Permission only sees some grayed-out buttons and is unable to access them.



Button widgets *without* any specific Permission set.

Button widgets *with* a specific, custom 'user' Permission set up.

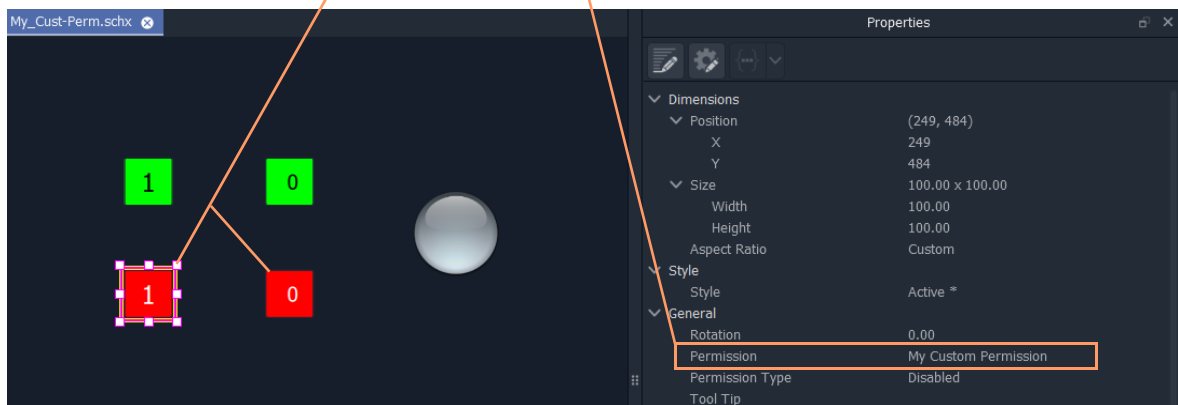
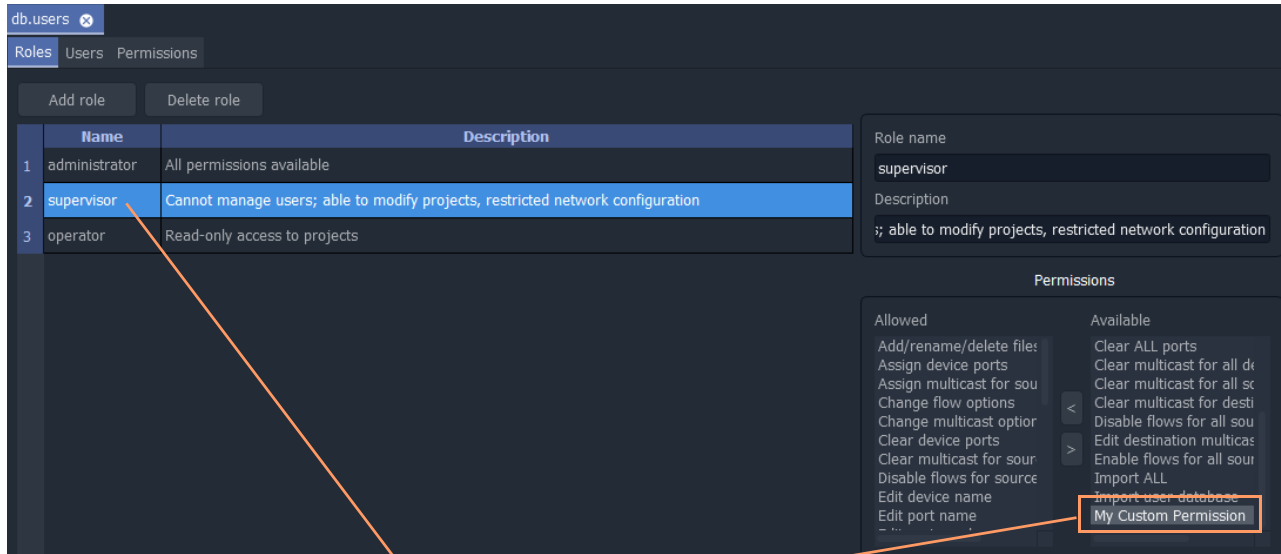


Fig. 4-24: C&M Screen Widget Access Control Example - Buttons



a) supervisor **Role**, *without* custom Permission

b) administrator **Role**, *with* custom 'user' Permission

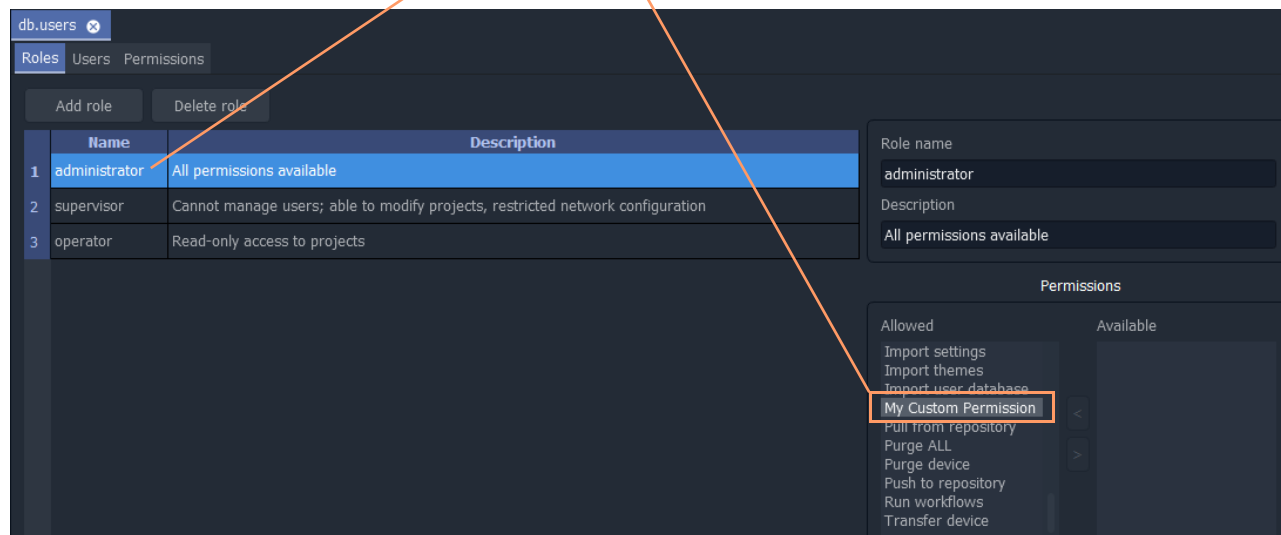


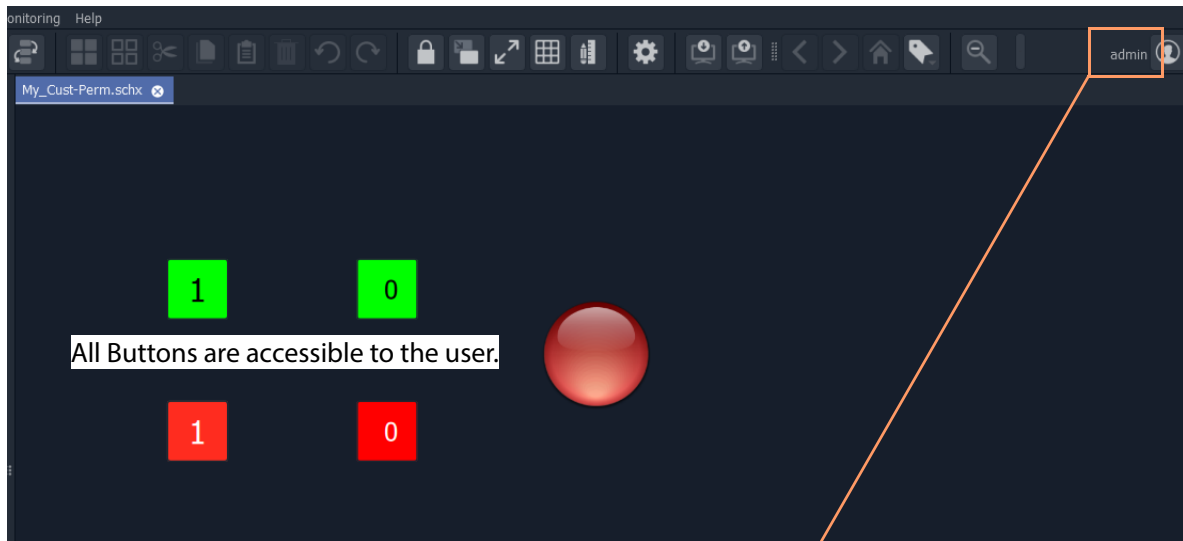
Fig. 4-25: C&M Screen Widget Access Control Example - Users:

a) Supervisor;

b) Administrator.

Manage Users

Access Control Example - MapView C&M Screen



- a) Project run when logged in with 'administrator' role
- b) Project run when logged in with 'supervisor' role



Fig. 4-26: C&M Screen Widget Access Control Example - Running:
a) Logged in as 'administrator' role;
b) logged in as 'supervisor' role.

5

Routing Control - Bulk Routing Panel

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Routing Control - Bulk Routing Panel

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Introduction

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

- [Routing Control - Bulk Routing Panel](#) (see this chapter) - a simple, non-editable soft panel for fast control of all router cross-points.
- [Routing Control - XY Routing Panel](#) - an editable and customizable soft panel, typically used for small custom panels for specific routing needs.

This chapter describes the **Bulk Routing Panel**.

GV Orbit System

Routing control panels (soft or hard) connect to a GV Orbit Routing service running on a GV Orbit server.

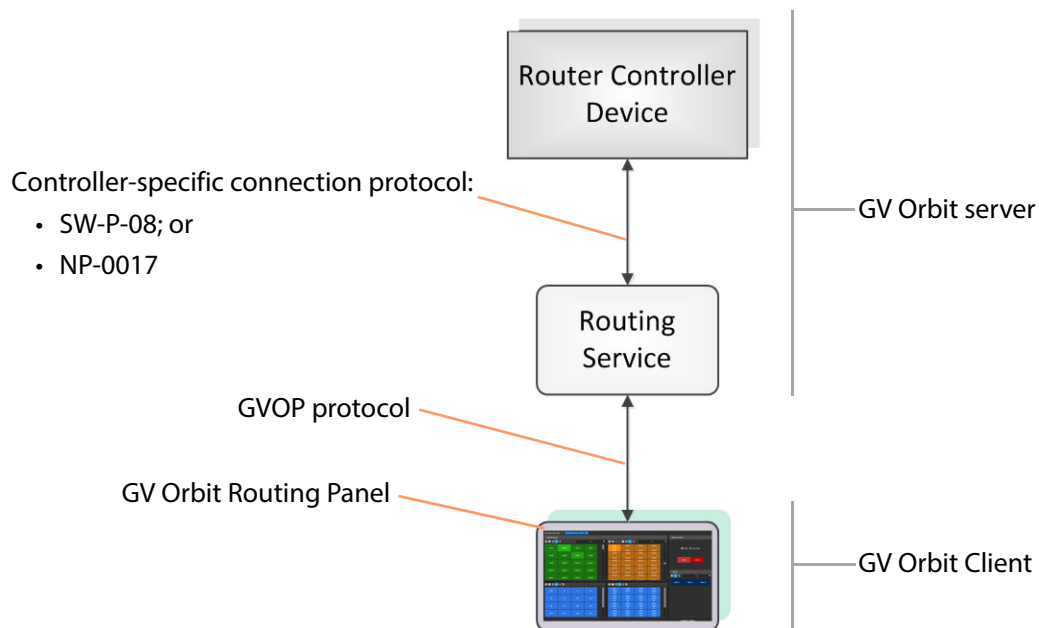


Fig. 5-1: GV Orbit Routing Panel, Routing Service and Router Controller

A GV Orbit system has one or more GV Orbit servers which run GV Orbit services. Routing panels in a GV Orbit Client connect to a router controller device via the GV Orbit Routing service. Router controllers include GV Orbit itself, a Grass Valley Router Controller device, or GV Convergent. The Routing service provides source/destination information to the client and acts on routing commands from the client. See Figure 5-2.

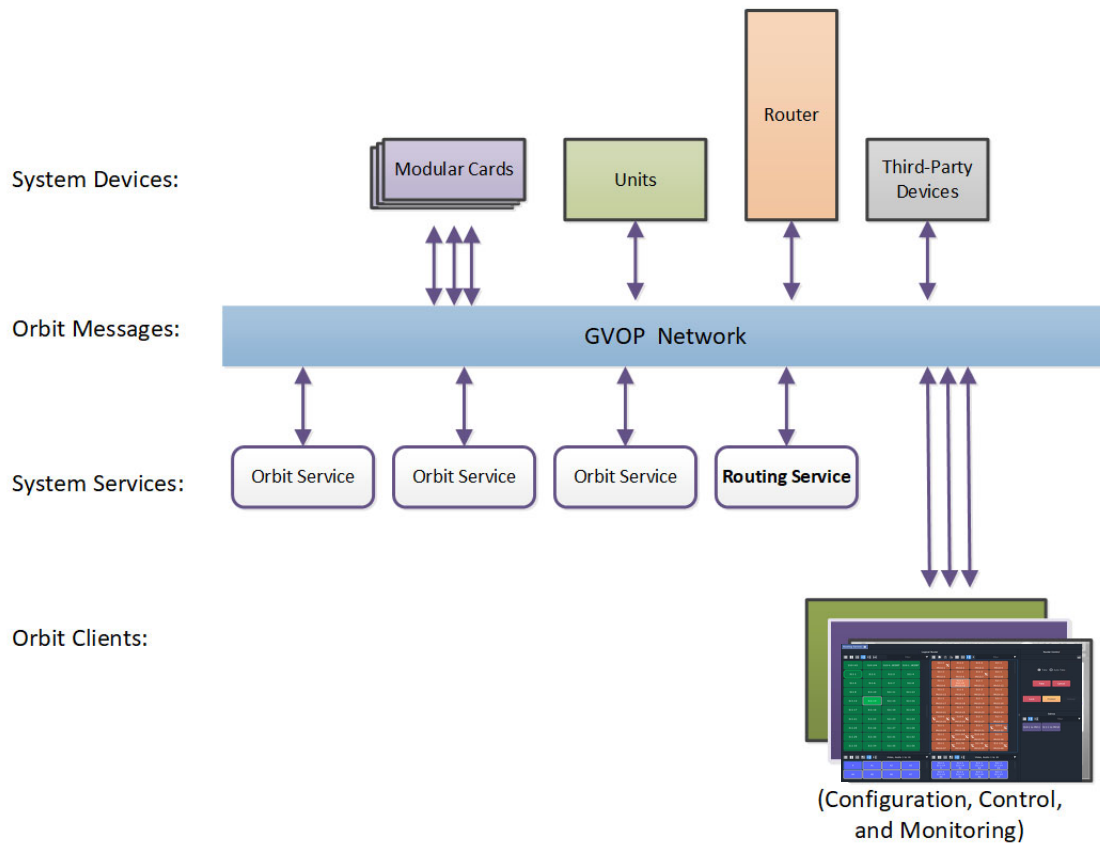


Fig. 5-2: GV Orbit System Diagram

Prerequisites

A GV Orbit server is required, running:

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

What is a Bulk Routing Panel?

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

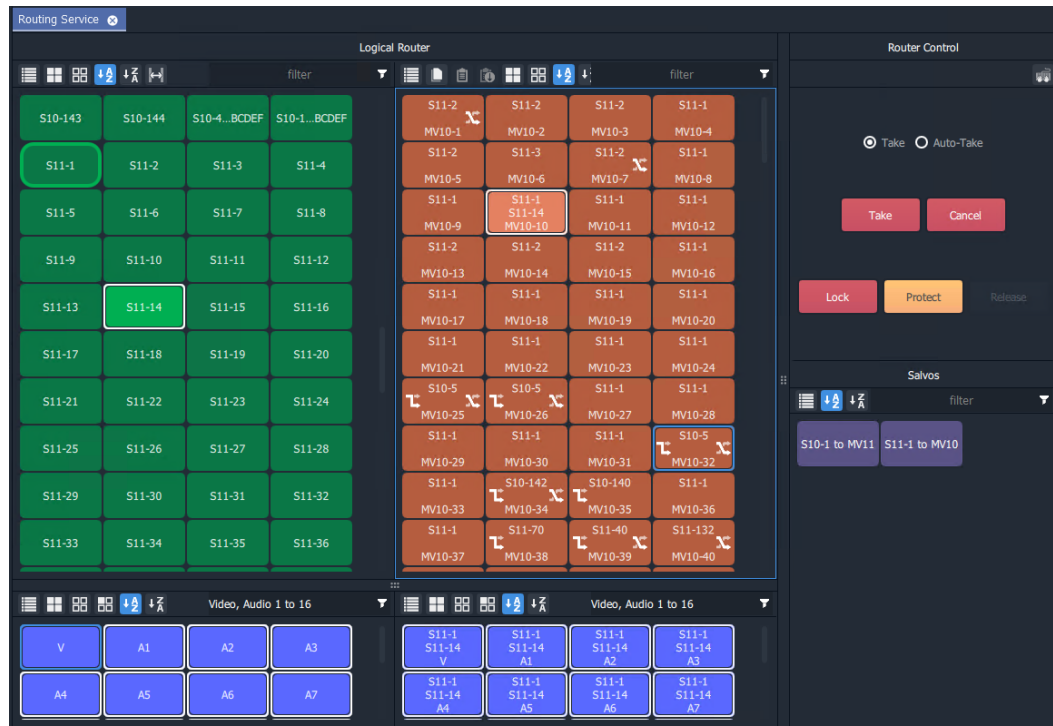


Fig. 5-3: Bulk Routing Panel Example

Key Features

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

Open a Bulk Routing Panel

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

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

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

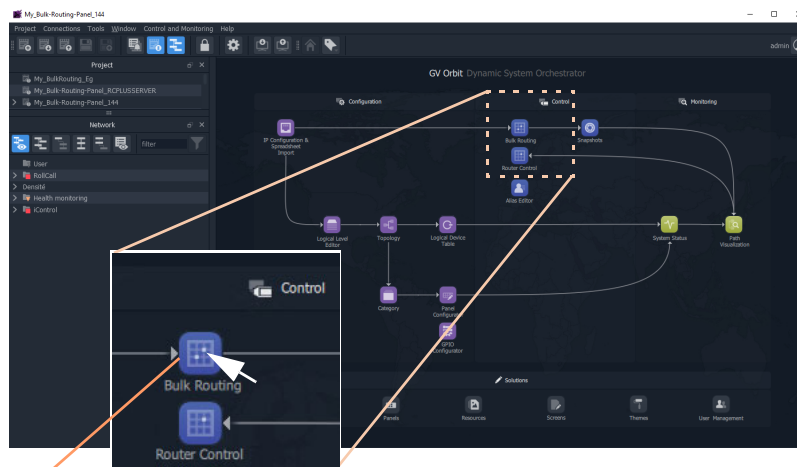
From the Workflow Window

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

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

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

- 2 Ensure the GVOP client domain is set to be the same as that being used by the GV Orbit Routing service on the GV Orbit server. (Main menu: 'Connections > GVOP')
- 3 In the **Workflow** window, click on the **Bulk Routing** icon. (See Figure 5-4.)



Click on **Bulk Routing** icon.

Fig. 5-4: Open a Bulk Routing Panel

The Bulk Routing Panel is opened. See Figure 5-6 for a sample Bulk Routing Panel.

From the Network Window

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

- 1 Open a GV Orbit C&M project in GV Orbit Client and set the window size to be full-screen.
- 2 Ensure the GVOP client domain is set to be the same as that being used by the GV Orbit Routing service on the GV Orbit server. (Main menu: 'Connections > GVOP')
- 3 Locate the **Routing** service item in the **Network** window of GV Orbit Client. And right-click on the item and select 'Open Panel'. See Figure 5-5.

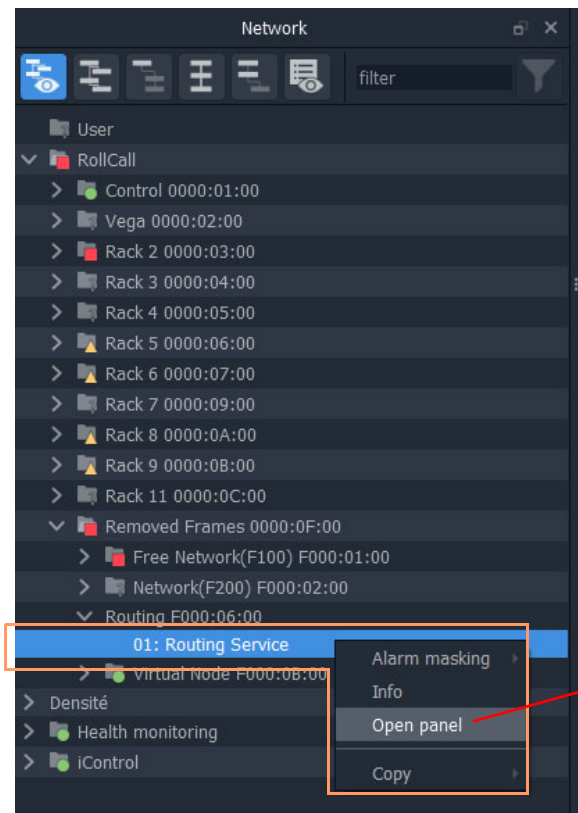


Fig. 5-5: Open a Bulk Routing Panel

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

An example Bulk Routing Panel is shown in Figure 5-6.

Routing Control - Bulk Routing Panel

From the Network Window

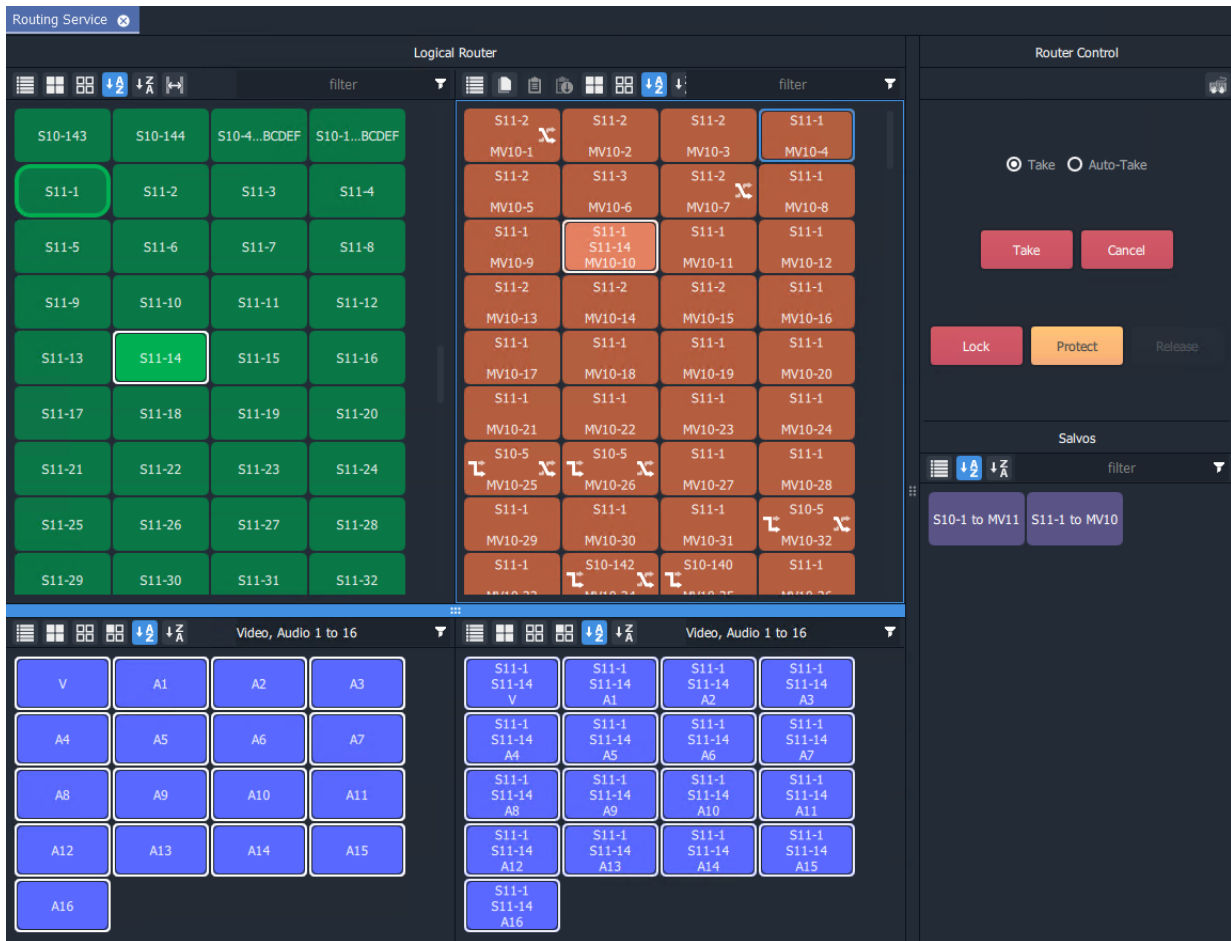


Fig. 5-6: Example Bulk Routing Panel

Bulk Routing Panel Layout and Controls

Keyboard Shortcuts icon

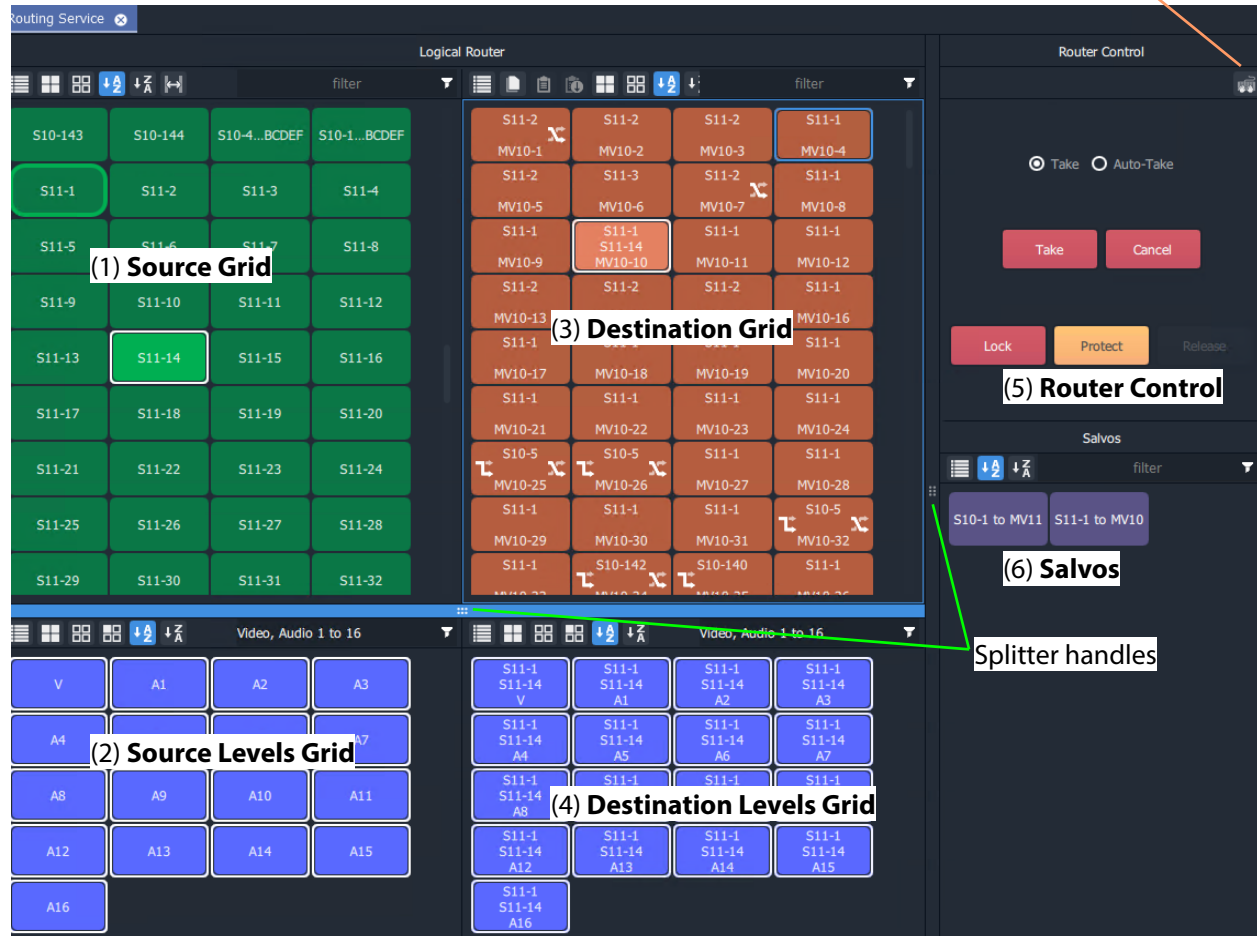


Fig. 5-7: Bulk Routing Panel Layout

The panel is laid out as six grids/panes (see Figure 5-7):

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

Vertical sizing of the Source and Destination grids can be altered by dragging a splitter handle up/down the screen. Horizontal sizing and sizing of the Router Control and Salvos panes can be altered by dragging a splitter handle left/right. Other sizing is handled automatically. See Figure 5-7.

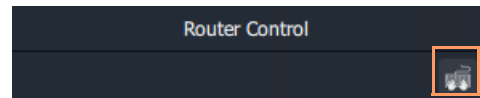
What are the Operational Keyboard Shortcuts?

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

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

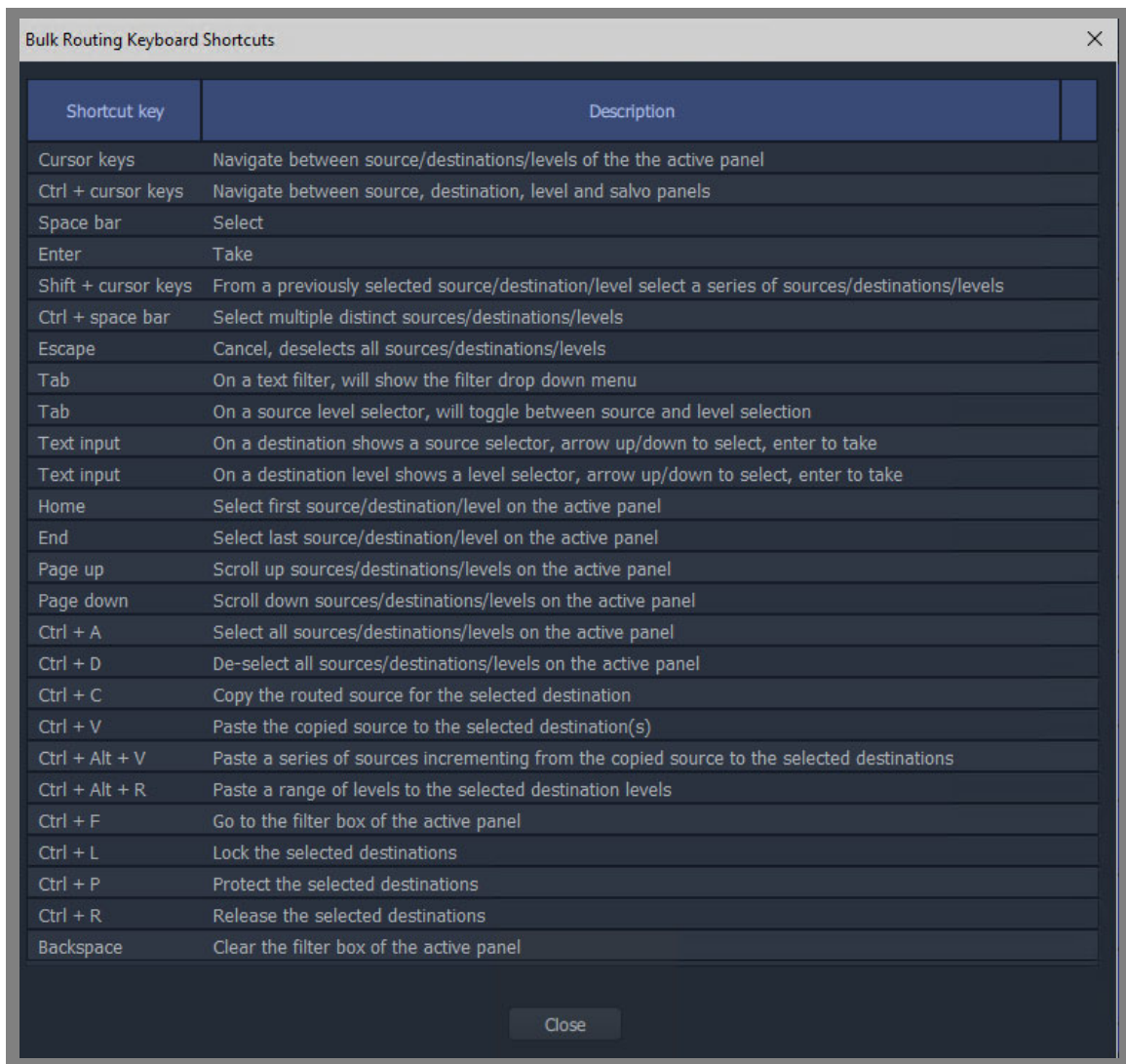
To see a list of keyboard shortcuts:

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



The **Bulk Routing Keyboard Shortcuts**

window is shown, see Figure 5-8. This window lists the keyboard shortcuts. It remains on display and may be moved.

A screenshot of a window titled "Bulk Routing Keyboard Shortcuts". The window contains a table with two columns: "Shortcut key" and "Description". The table lists various keyboard shortcuts and their functions. At the bottom of the window is a "Close" button.

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

Fig. 5-8: Bulk Routing Keyboard Shortcuts Movable Window

Equivalent mouse clicks for some keyboard shortcuts are listed in Table 5-1.

Table 5-1: Bulk Routing Panel Operational Keys / Mouse operations

Operation	Keyboard	Mouse
Toggle Selection	Space bar	Mouse click
Take	Enter	Click Take
Panel Button Focus	Cursor Arrow Keys	Mouse movement/click
Panel/Grid Focus	CTRL + Arrow Keys	Mouse movement/click
Add a series of items to/remove from a multiple selection	SHIFT + Cursor keys	SHIFT + Mouse click
Add distinct items to/remove from a multiple selection	CTRL + Space bar	CTRL + Mouse click
Select Range (Select a contiguous range)	Space bar on first item then SHIFT + space bar on last item.	Mouse click on first item then SHIFT click on last item.
Paste Series	Alt-CTRL + V when a range of destinations are selected. See What is Copy-and-Paste Series Routing? , on page 205.	Click 'Paste Series' icon in panel.
Take	Return / Enter	Double-click
Dial Source	Begin to type the name of a Source when a destination is selected. See Dial Source Dialog , on page 195.	N/A
Dial Source-Level	Press any single alpha-numeric key when a destination <i>and</i> (one or more) levels are selected. See Dial Source-Level Dialog , on page 196.	N/A
Cancel	Escape	Click 'Cancel' button in the Router Control pane.
Select All in the focused panel	CTRL + A	Click 'Select All' icon in panel.
Select None in focused panel	CTRL + D	Click 'Select None' icon in panel.
Copy a Destination	CTRL + C when a destination is selected	Click 'Copy' icon in panel
Paste a Destination	CTRL + V when target destination, or destinations, are selected	Click on 'Paste' icon in panel

Select/Focus in a Bulk Routing Panel

Current Button-Focus

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

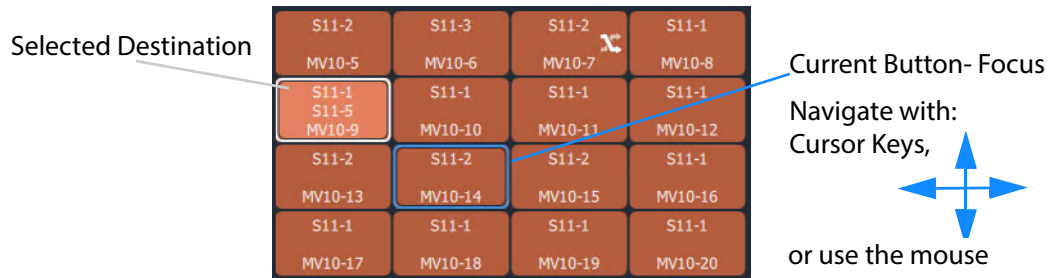


Fig. 5-9: Current Button-Focus Item

Select a Button

To select a button:

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

De-select Buttons

To deselect all buttons:

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

Move Focus Between Grids/Panels of the Bulk Routing Panel

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

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



Fig. 5-10: Current Panel/Grid Focus Item

Selecting Multiple Items

Select Multiple Items (CTRL select)

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

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

Select Multiple - Alternative Method

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

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

Select a Range of Items (SHIFT select)

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

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

Source ranges can be selected similarly.

Select a Range - Alternative Method

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

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

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

Source/Destination Grid Buttons

The source/destination selection grid buttons and level-selection buttons are annotated to reflect the source/destination name or the level name. Additionally, the destination buttons may show the currently-routed source and currently-selected source for the selected destination. Buttons also change shape and are highlighted to show if they are selected or if sources are currently-routed or currently-selected. See Figure 5-11.

Note:

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

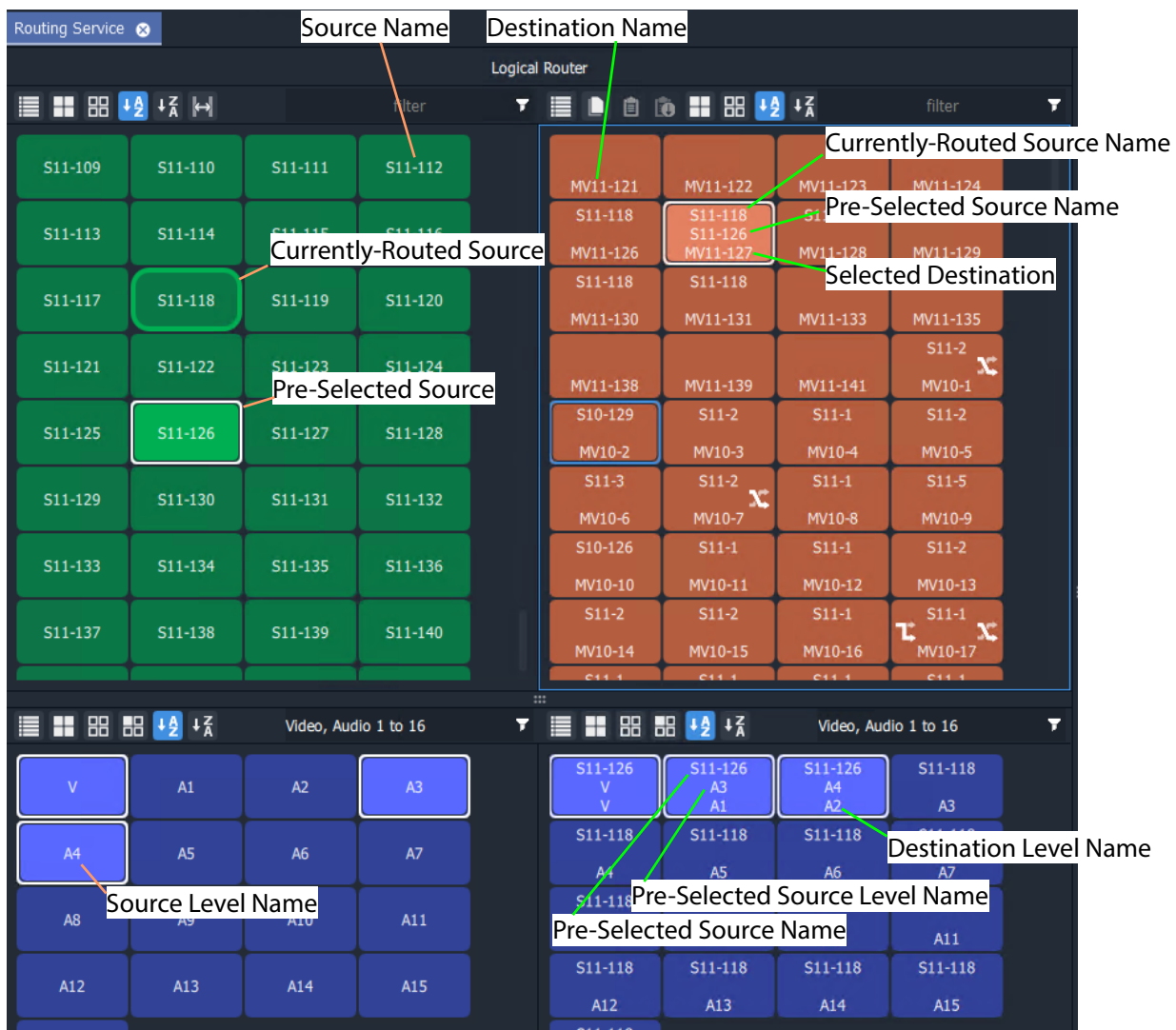


Fig. 5-11: Selection Buttons

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

Level Selection

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

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

Keep Last Level Selection After Take

When a different source or destination is selected after a 'Take', the level selection is normally cleared. To keep the selected levels, select the **Keep Last Selection** button in the 'Levels Grid' pane tool bar (see Figure 5-12).

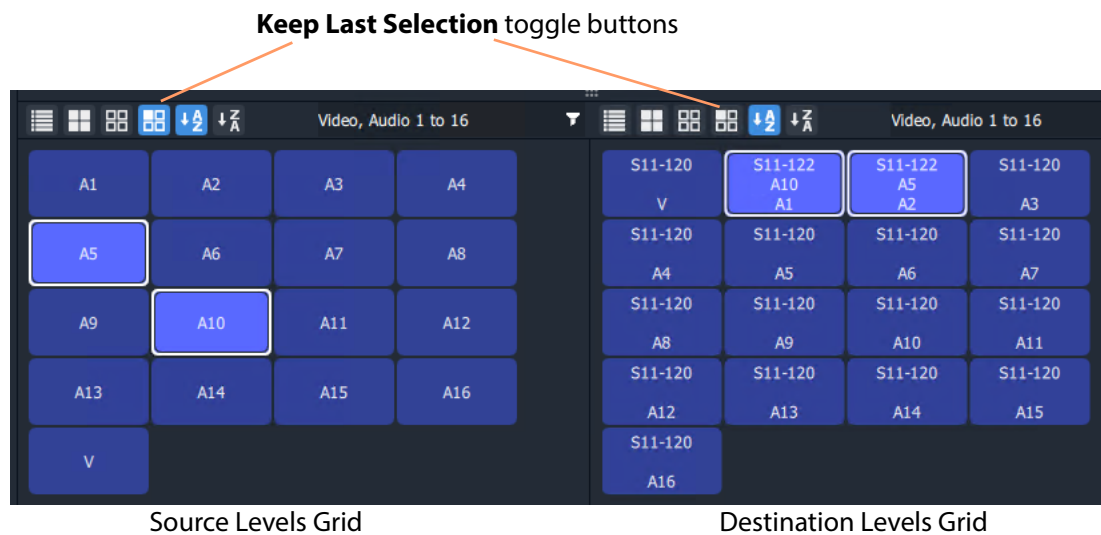
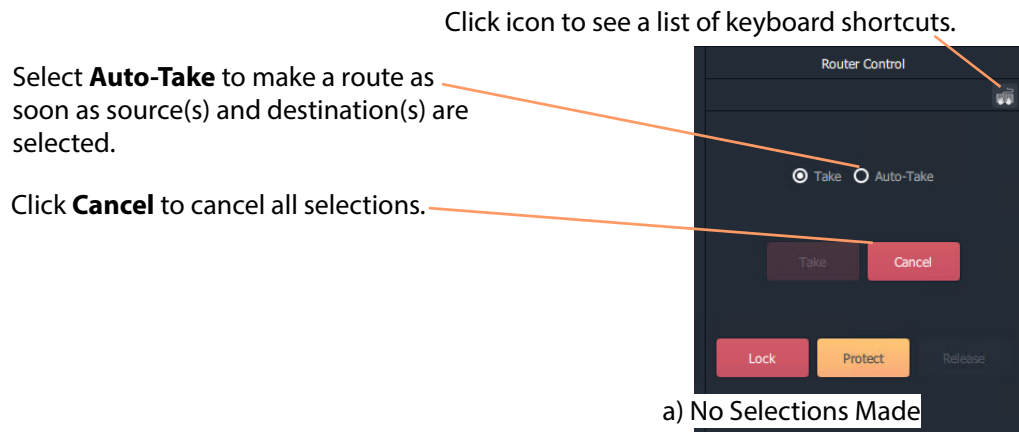


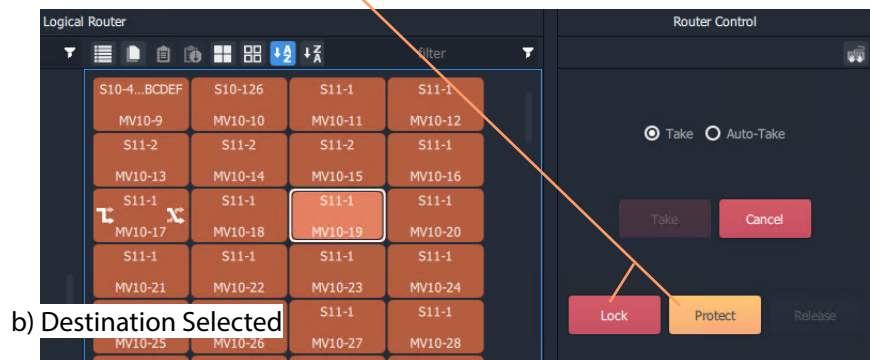
Fig. 5-12: Keep Last Selection Buttons

Router Control Pane

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



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



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

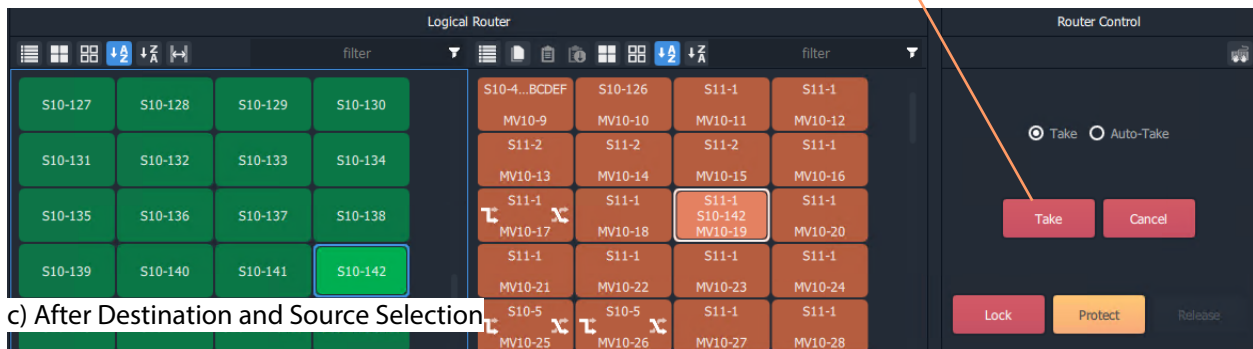


Fig. 5-13: Router Control Pane:
a) No Selections Made;
b) Destination Selected;
c) Destination and Source Selected.

Tool Bars in a Bulk Routing Panel

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

Source Selection Grid Tool Bar

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

Click to Select all sources.

Click to Deselect all sources.

Click to Sort sources A-Z.

Click to Sort sources Z-A.

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

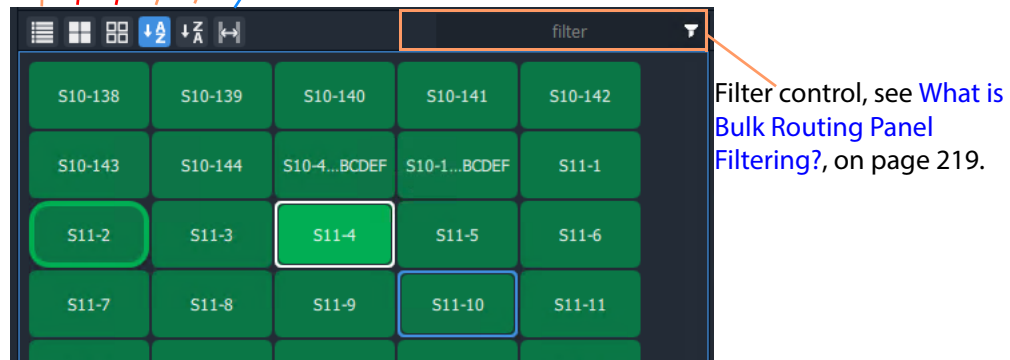


Fig. 5-14: Source Selection Grid - Tool Bar

Source Levels Grid Tool Bar

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

Click to Select all levels.

Click to Deselect all levels.

Click to keep the Levels selection after a Take.

Click to Sort levels A-Z.

Click to Sort levels Z-A.

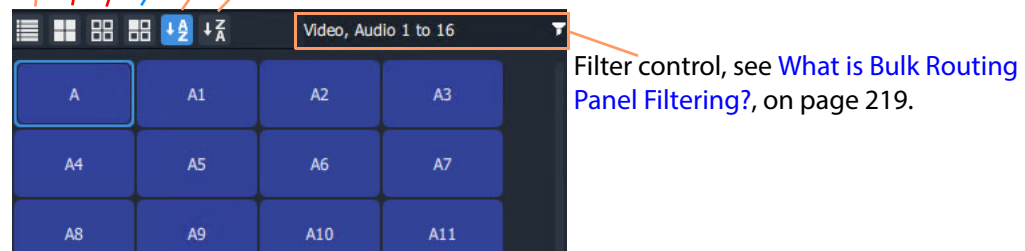


Fig. 5-15: Source Level Selection Grid - Tool Bar

Destination Grid Tool Bar

Click to:

- See a drop-down menu of all tool bar items.
- Copy routing information of a Destination selection.
- Paste routing information to a Destination.
- Paste a series of sources to a Destination range.
(See [What is Copy-and-Paste Routing?](#), on page 203.)
- Select all destinations.
- Deselect all destinations.
- Sort destinations A-Z.
- Sort destinations Z-A.
- Toggle display of wide selection buttons.
- Toggle **Hide Sources**. See [Hide Sources](#), on page 234.
- Toggle **List View** mode. See [List View](#), on page 236.

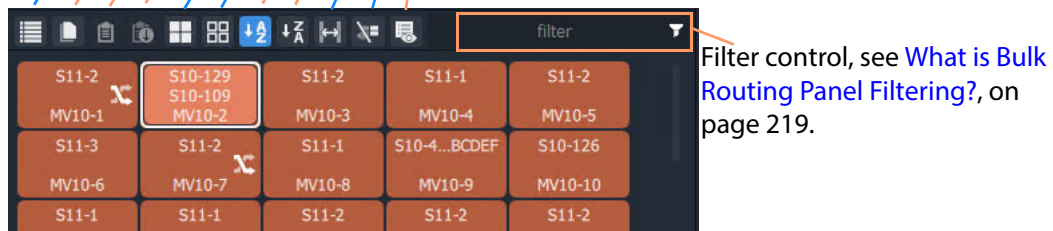


Fig. 5-16: Destination Selection Grid - Tool Bar

Destination Levels Grid Tool Bar

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

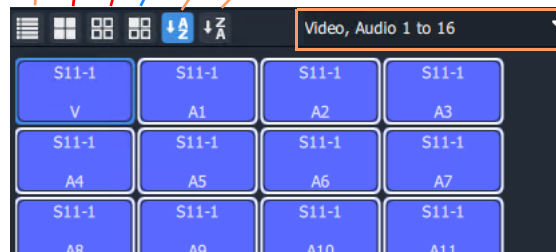
Click to Select all level.

Click to Deselect all levels.

Click to keep the Levels selection after a Take.

Click to Sort levels A-Z.

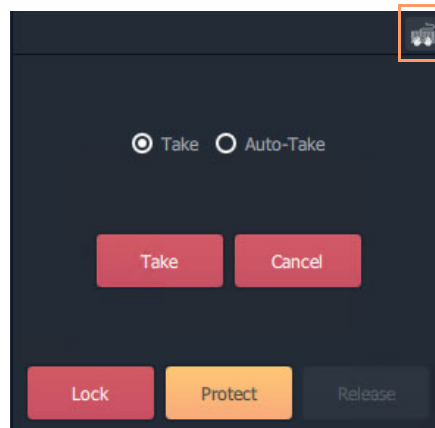
Click to Sort levels Z-A.



Filter control, see [What is Bulk Routing Panel Filtering?](#), on page 219.

Fig. 5-17: Destination Level Selection Grid - Tool Bar

Router Control Pane Tool Bar



Keyboard Shortcuts icon

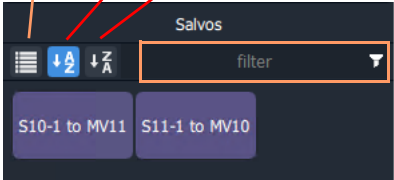
Fig. 5-18: Router Control Pane - Tool Bar

Salvos Pane Tool Bar

Click to see drop-down menu of tool bar items

Click to sort sources A-Z

Click to sort sources Z-A



Filter control,
see [What is Bulk Routing Panel Filtering?](#), on page 219

Fig. 5-19: Salvos Pane - Tool Bar

Wide Source and Destination Selection Buttons

To facilitate the display of longer source or destination names on selection buttons, there is a 'wide button' display option. This is selectable in the **Source Grid** and, independently, in the **Destination Grid**. The option is selected with a toggle button in the tool bar of each grid. See Figure 5-20.

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

Click to toggle display of normal and wide buttons.

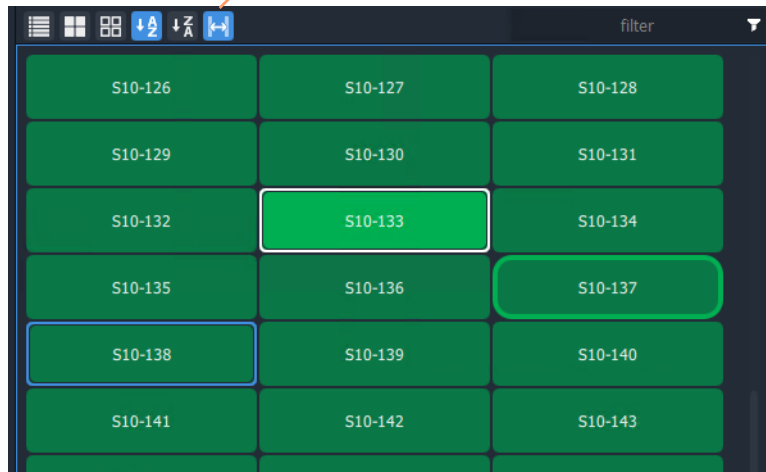


Fig. 5-20: Wide Buttons (Source Grid Shown)

Panel Pop-Up Items

Right-Click in a Bulk Routing Panel

Right-click on the Bulk Routing Panel to display a pop-up context menu. See Figure 5-21.

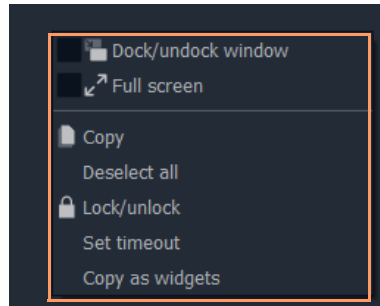


Fig. 5-21: Right-Click Context Menu

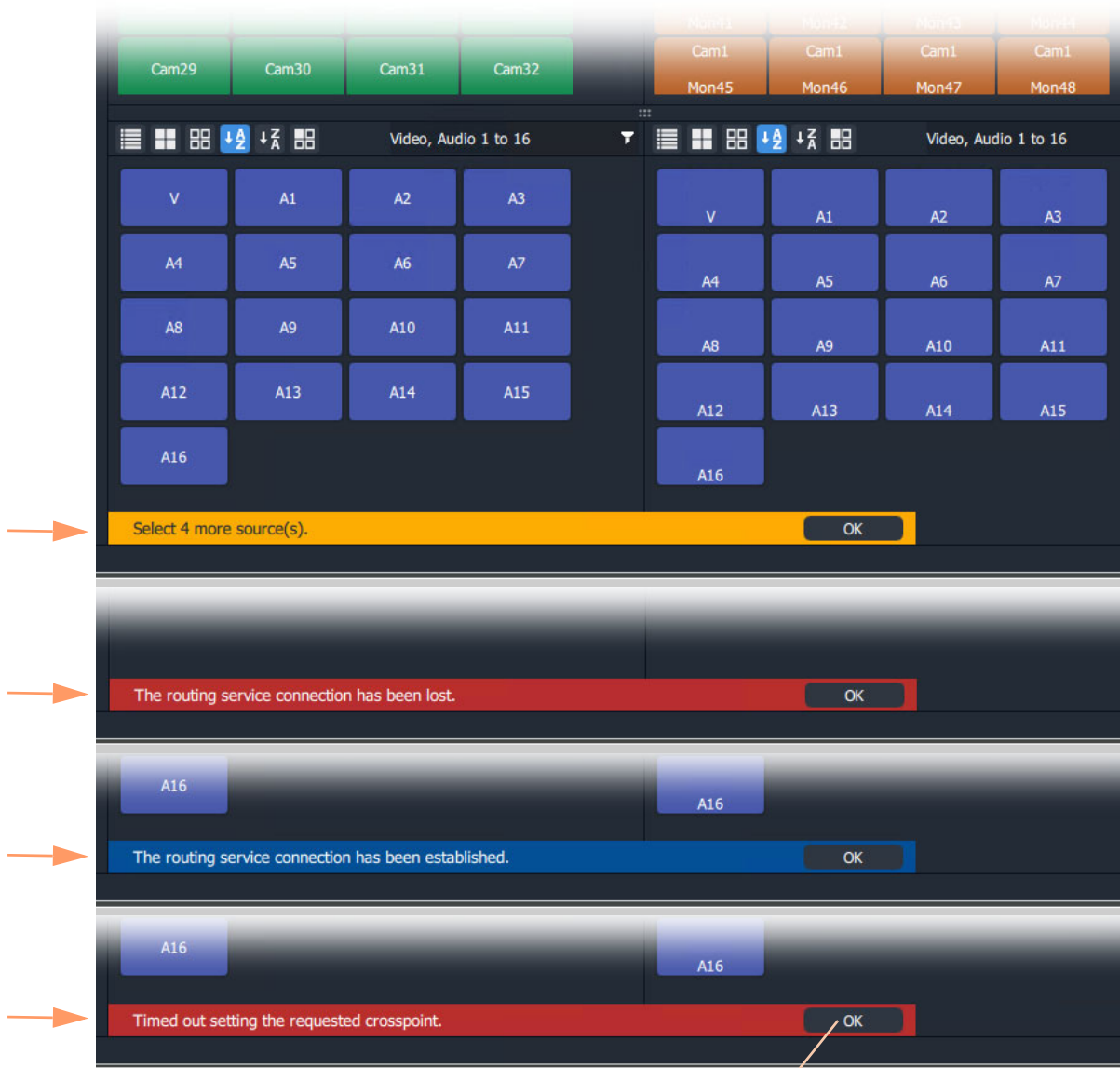
Table 5-2: Right-Click Context Menu Items

Item	Keyboard
Dock/Undock Window	Undock or dock the Bulk Routing Panel window from/to the GV Orbit Client window.
Full Screen	The Bulk Routing Panel window is shown full-screen. The control toggles full screen mode on/off.
Copy	Same as: <ul style="list-style-type: none"> • clicking on Copy icon in grid/pane tool bar; or • pressing Ctrl-C.
Deselect All	Deselects all items.
Lock/Unlock	Click to lock panel. When panel is locked, controls are grayed-out and user operation is disabled. The control toggles lock on/off
Set Timeout	Click to set a timeout (in seconds) for confirmation from the router controller of routing actions (i.e. the setting of router crosspoints). If the timeout is exceeded, a timeout notification is shown on screen. See Pop-up Notification Messages .
Copy As Widgets	Click to copy a selection of one or more buttons to the GV Orbit Client's copy-buffer. (This is used when designing an XY Routing Panel. See Chapter 6, Routing Control - XY Routing Panel, Quick Port-per-Button Assignment , on page 307.)

Pop-up Notification Messages

During Bulk Routing Panel operation, notification messages may pop up at the foot of the GV Orbit Client application window. These messages are informative to the user, advising, for example, on the setting up of a route, or of a broken/re-made Routing service connection. See Figure 5-22 for some example messages.

Click OK to clear a message.



Click OK to clear the message.

Fig. 5-22: Notification Message Examples

Dial Source and Dial Source-Level Dialogs

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

There are two 'dial-up' dialogs

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

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

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

Dial Source Dialog

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

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

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

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

Example

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

- 1 Select a **Destination**.
- 2 Begin to type in a Source name.
A **Dial Source** dialog pops up. (See Figure 5-23.)
- 3 Continue typing in a valid source name and press Enter; and/or select a source from the (scrollable) filtered list in the dialog.

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

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

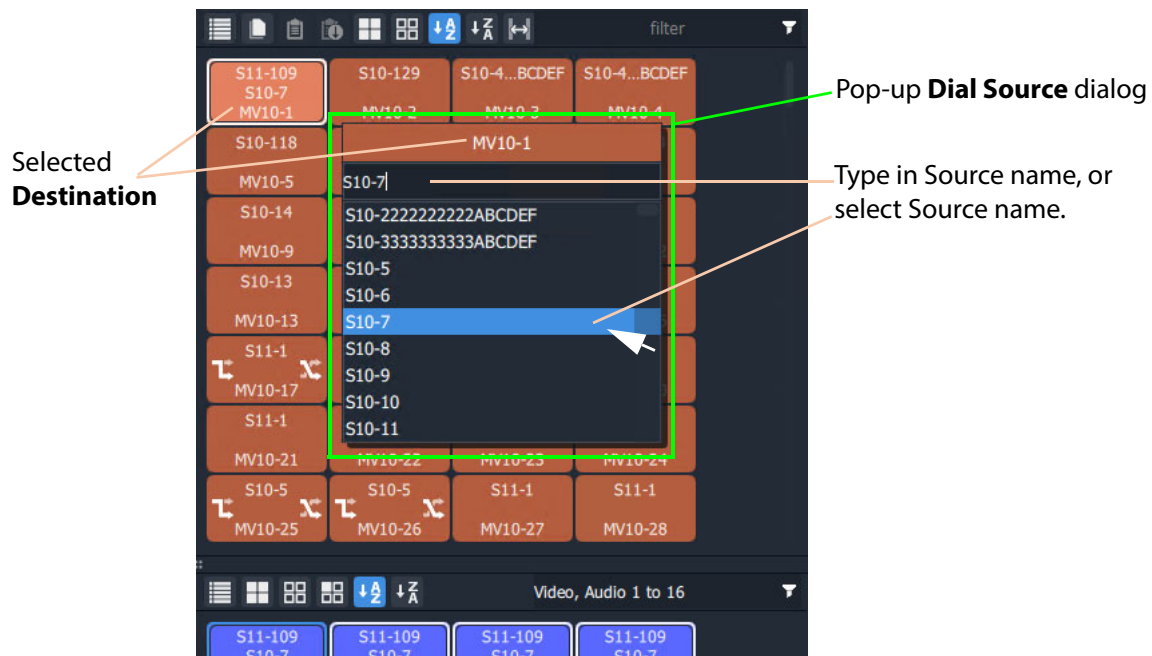


Fig. 5-23: Dial Source Dialog

Further routing examples can be found at:

- [Route with Dial Source](#), on page 200.

Dial Source-Level Dialog

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

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

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

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

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

Example

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

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

A default **Dial Source-Level** dialog pops up and shows the currently-routed Source name and Level. (See Figure 5-24.)

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

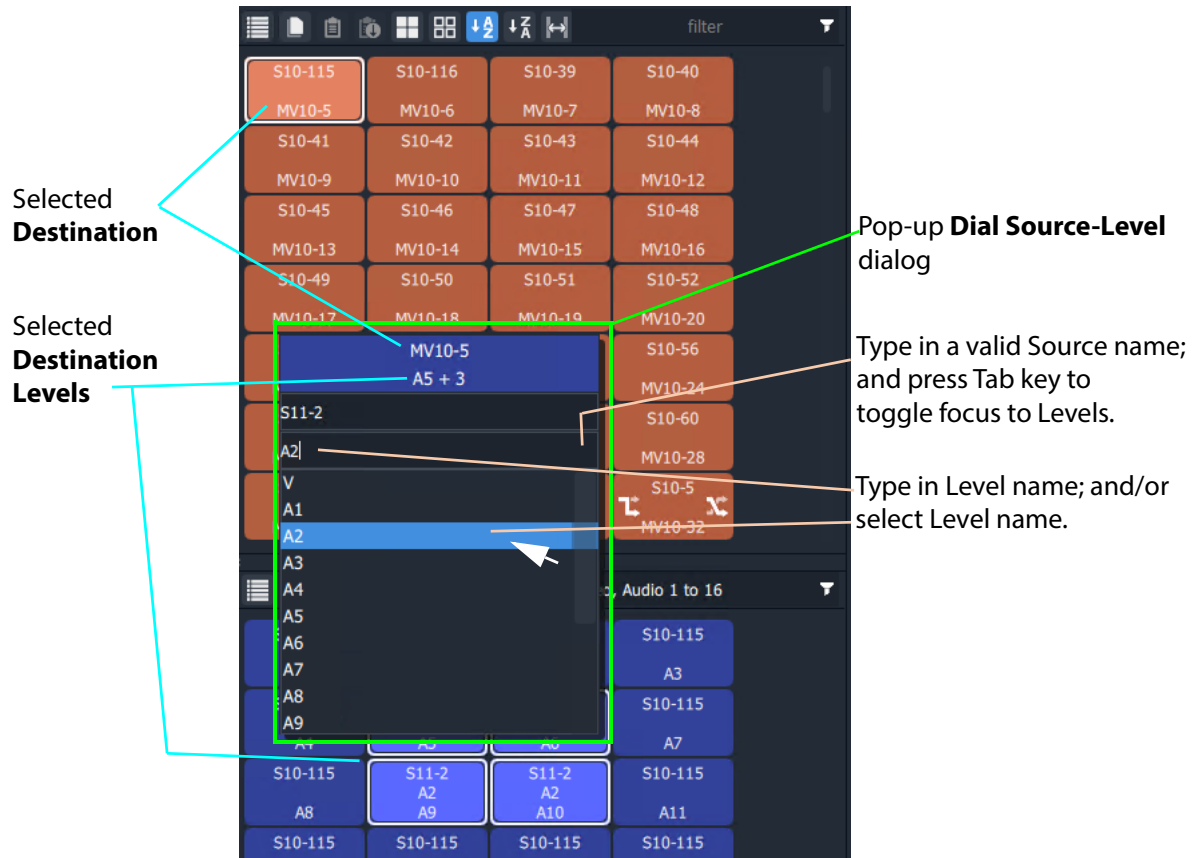


Fig. 5-24: Dial Source-Level Dialog

- 4 If a different Source Name is required, begin to enter the required Source name. The list of Source names is filtered on the typed text.
- 5 Either:
 - continue typing in a valid Source name (but *do not* press the Enter key); or
 - highlight a Source name in the list (do not select it).
- 6 When the required (and valid) Source name is in the upper text box of the dialog, press the Tab key. (See Figure 5-24.) This toggles focus from 'Sources' to 'Levels'; the filtered list changes to listing Levels.

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

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

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

Further routing examples can be found at:

- [Quick Breakaway with Dial Source-Level](#), on page 211.
- [Quick One-Level Shuffle with Dial Source-Level](#), on page 217.

Bulk Routing Panel Operation

Make a Simple Route

To make a simple route:

- 1 Select a **Destination**.

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

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

See Figure 5-25.



Before a **Take**, the **Levels Grids** show level information for the selected source and destination.

Fig. 5-25: Make a Route Example - Before TAKE.

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

The selected source (all of its levels) is routed to the selected destination. See Figure 5-26.

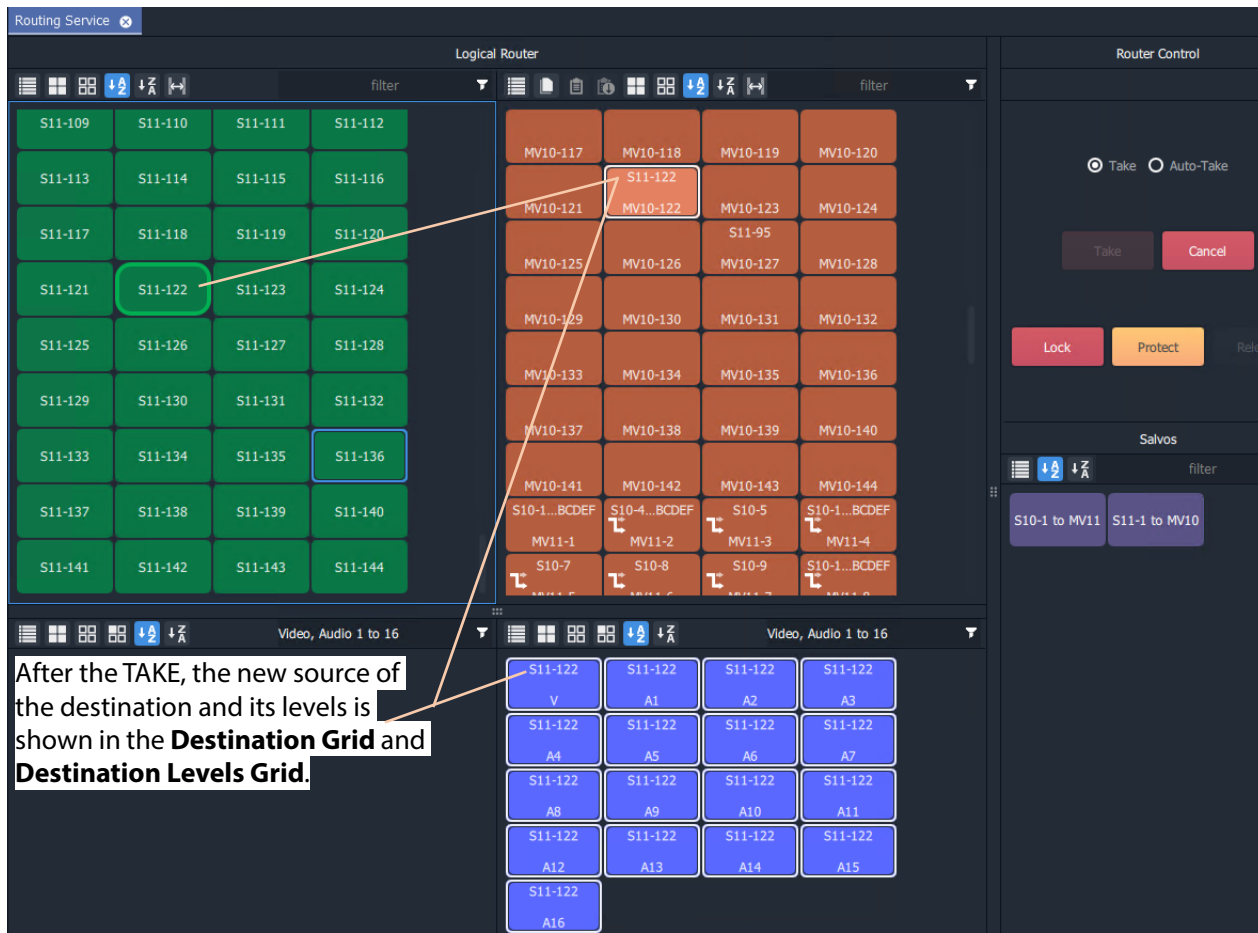


Fig. 5-26: Make a Route Example - After TAKE.

Simple Route - Alternative Method

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

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

Route with Dial Source

See [Dial Source Dialog](#), on page 195, for more information. To make a simple route:

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

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

Route One Source to Multiple Destinations

One to many.

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

To route a single source to multiple destinations:

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

A selection of destinations has been made.

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

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

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

When all destinations have been selected:

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

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

The selected source is routed to all selected destinations.

One Source to Multiple Destinations - Alternative Method

Alternatively, the source may be selected first:

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

Route Multiple Sources to Multiple Destinations

May to many.

To route multiple sources to multiple destinations:

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

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

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

This selects a range, from first to last.

When all destinations have been selected:

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

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

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

- 7 Click **Take**.

The source is routed to all selected destinations.

Multiple Sources to Multiple Destinations - Alternative Method

Alternatively, the source may be selected first:

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

Multiple Selection Type and Routing Order

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

- a selection of multiple items (see [Select Multiple Items \(CTRL select\)](#), on page 184); or as
- a range selection of multiple items (see [Select a Range of Items \(SHIFT select\)](#), on page 184).

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

CTRL-Selection Type Order

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

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

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

SHIFT-Selection (Range) Type Order

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

What is Copy-and-Paste Routing?

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

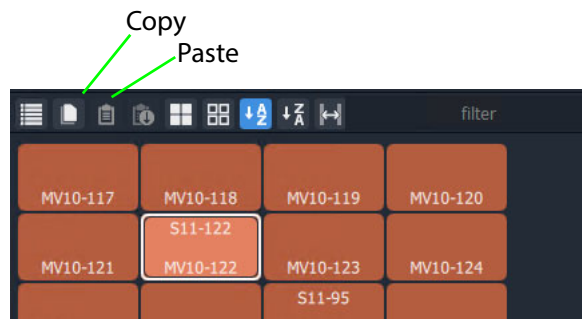


Fig. 5-27: Destination Grid Copy and Paste Controls

To Perform Copy-and-Paste Routing

- 1 Select a **Destination**.
- 2 Click the **Copy** icon in the tool bar of the **Destination Grid**, or press 'CTRL +C'.
The copy-selected Destination is shown highlighted with a 'crawling', dashed outline. See Figure 5-28.

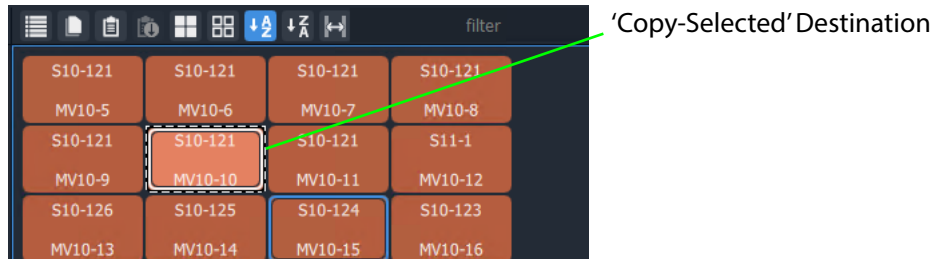


Fig. 5-28: Copy-Selected Destination

Then:

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

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

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

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

Finally:

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

What is Copy-and-Paste Series Routing?

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

To Perform Copy-and-Paste Series Routing

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

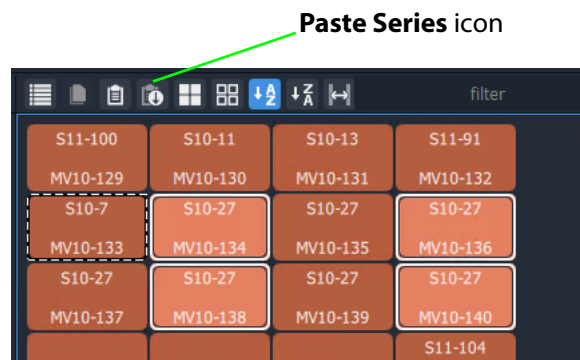


Fig. 5-29: Paste Series Icon

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

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

Routing is done automatically (no Take required).

Paste Series Example

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

The following routing is done:

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

Note: The rules of selection type and order apply. See [Multiple Selection Type and Routing Order](#), on page 202.

What is Quick 1-to-1 Routing?

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

To Perform Quick 1-to-1 Routing

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

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

This routes the first destination.

- 2 Click **Copy**.

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

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

- 4 Click **Paste Series**.

The following routing is done:

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

This has quickly copied Sources to all selected Destinations.

Destination Protect

What is Destination Protect?

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

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

To Protect a Destination

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

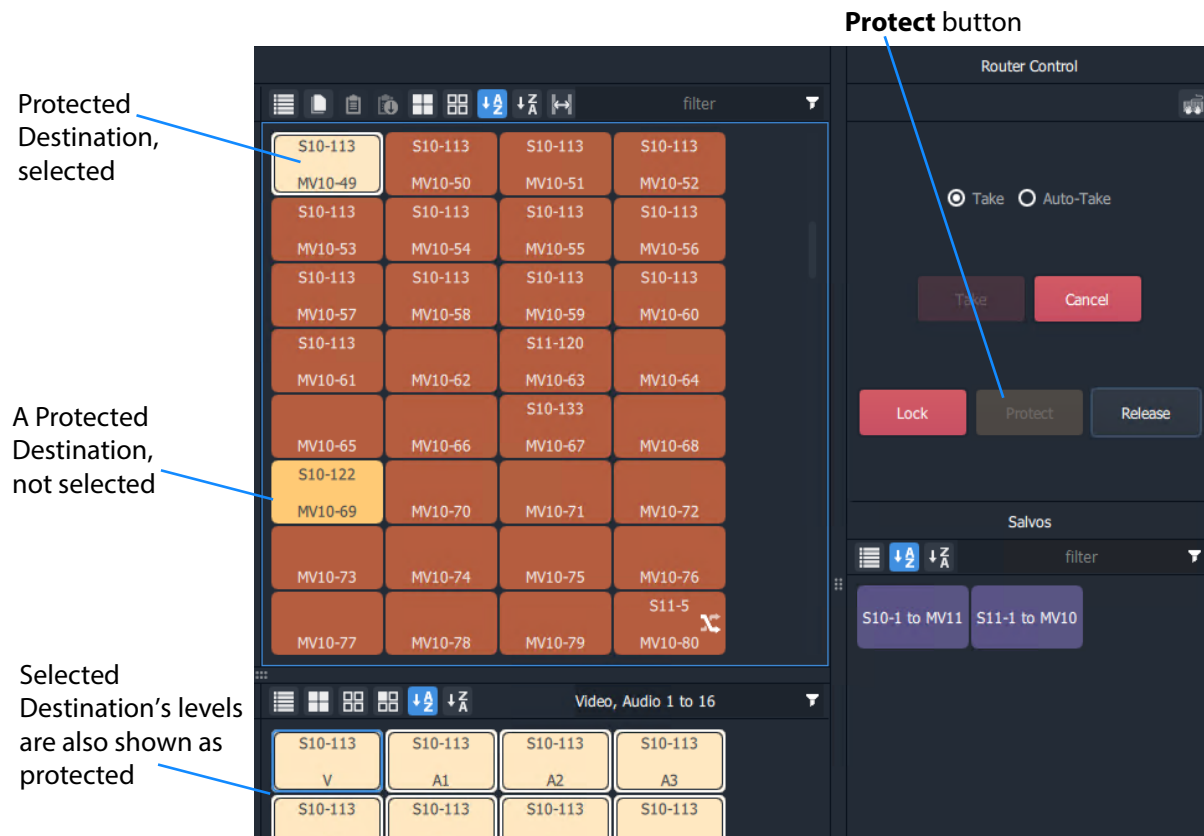


Fig. 5-30: Protected Destination

To Un-Protect a Destination

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

Destination Lock

What is Destination Lock?

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

To Lock a Destination

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

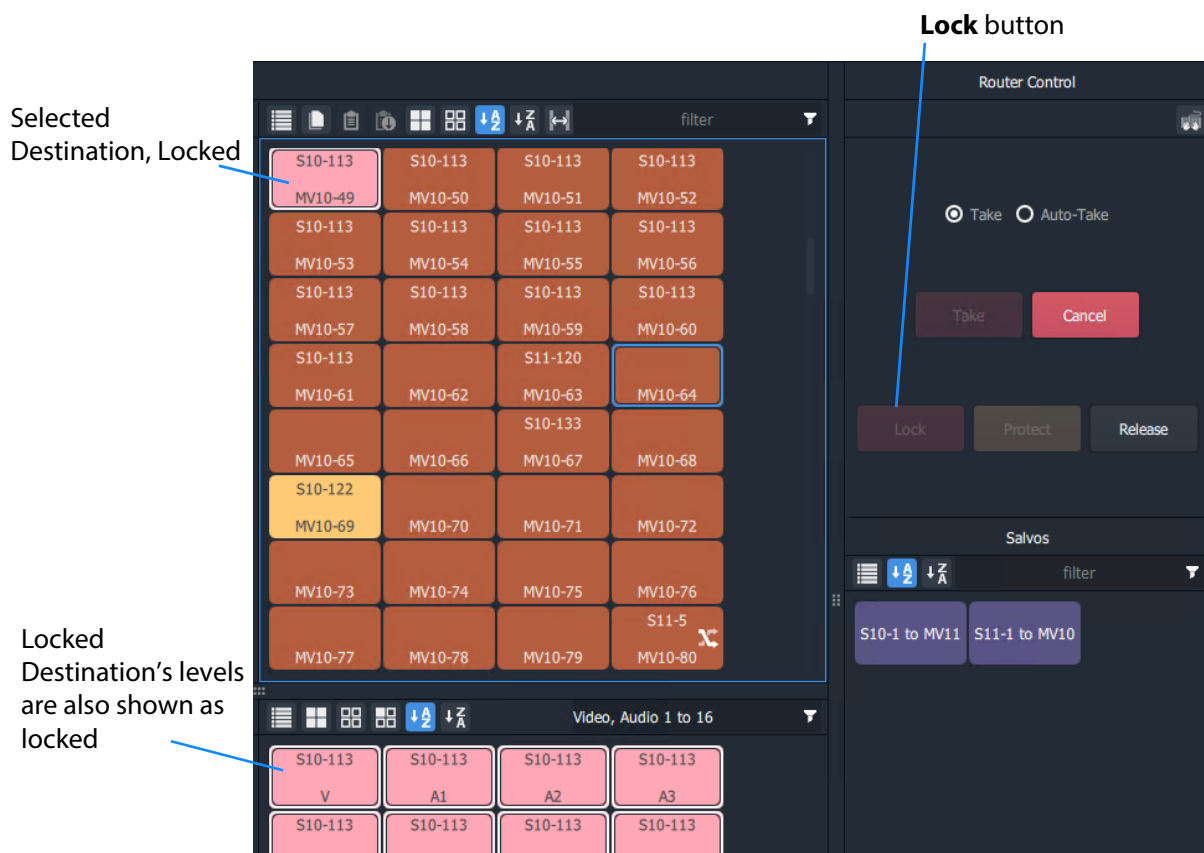


Fig. 5-31: Locked Destination

To Unlock a Destination

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

Breakaway and Levels

What is a Breakaway?

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

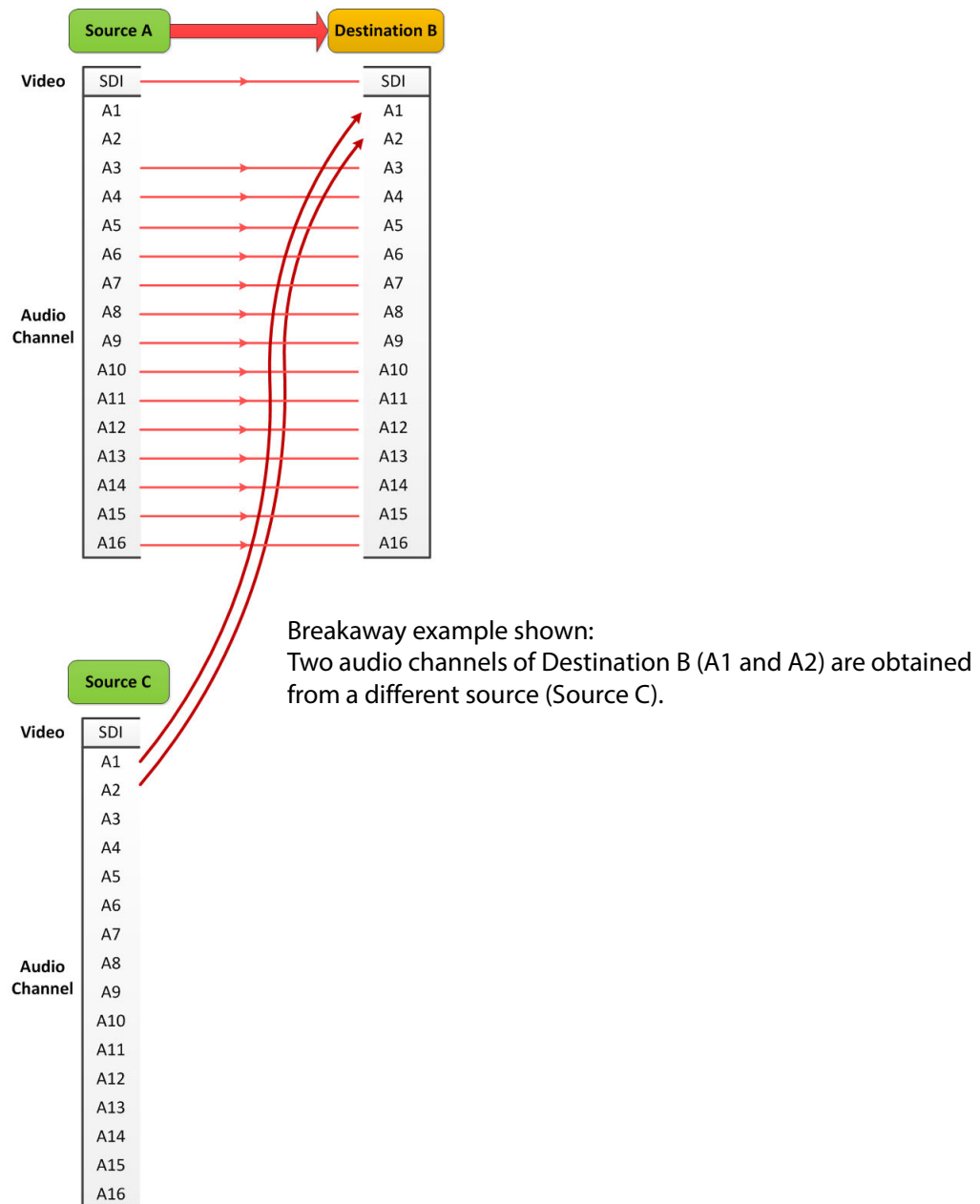


Fig. 5-32: Breakaway

Destinations which are 'unmarried' are indicated with a breakaway icon (Figure 5-33c) on the destination button.

Perform a Breakaway

To perform a breakaway:

- 1 Select a **Destination**.
- 2 Select the **Destination Levels** to make a route to (for example, audio channels A1 and A2). (See Figure 5-33a.)
- 3 Select a new **Source**.
- 4 Click **Take**.

The corresponding levels of the selected source are routed to the selected destination levels and a breakaway is formed. Figure 5-33b shows the breakaway result.

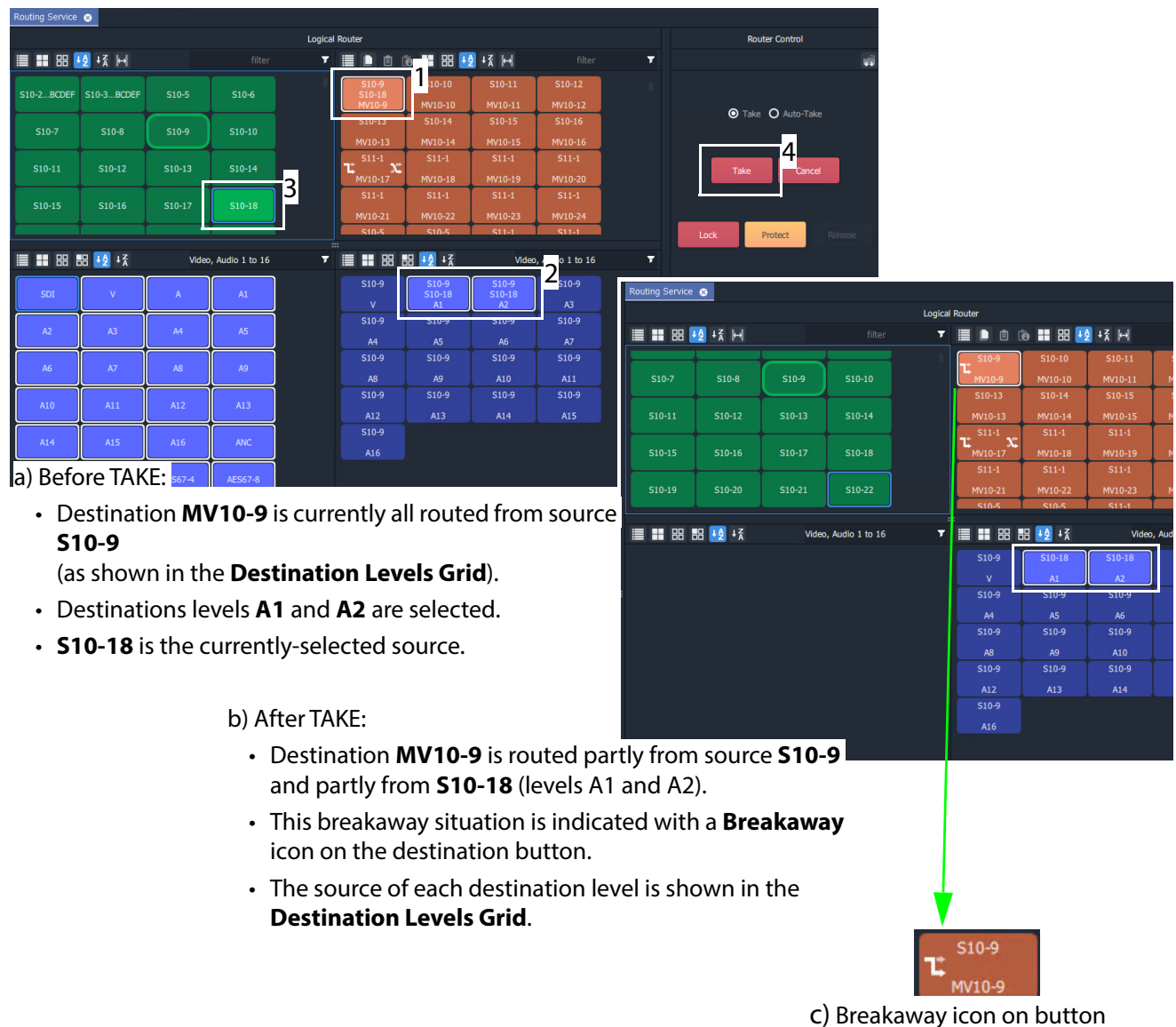


Fig. 5-33: Breakaway Example: a) Before TAKE; b) After TAKE; c) Breakaway Icon on Button.

Breakaway - Alternative Method

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

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

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

Quick Breakaway with Dial Source-Level

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

To perform a quick video-level breakaway:

- 1 Select a **Destination**.
- 2 Select a **Destination Level**. (See Figure 5-34.)

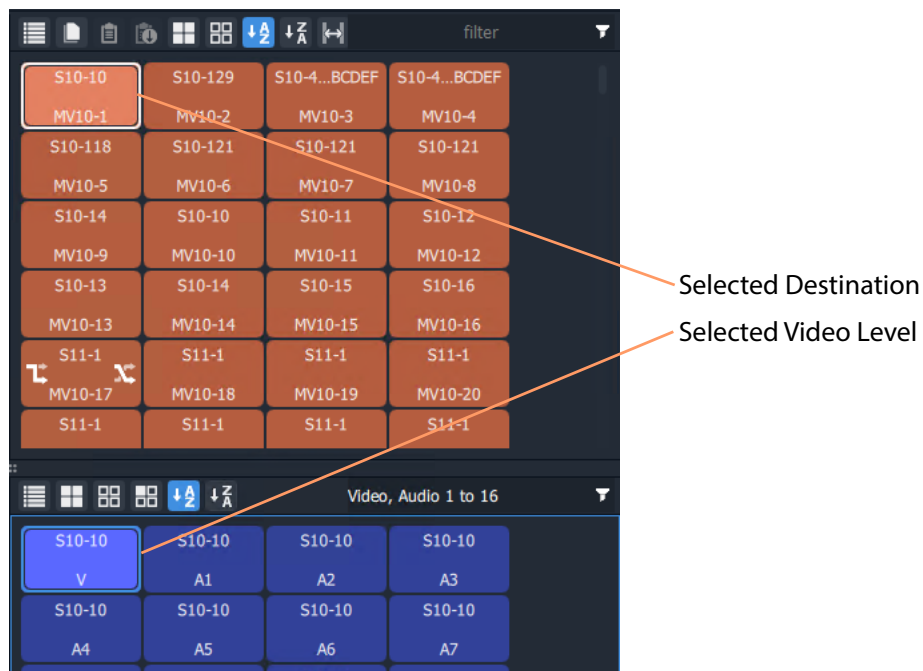


Fig. 5-34: Selected A Destination and a Level

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

A **Dial Source-Level** dialog box appears. See Figure 5-35.

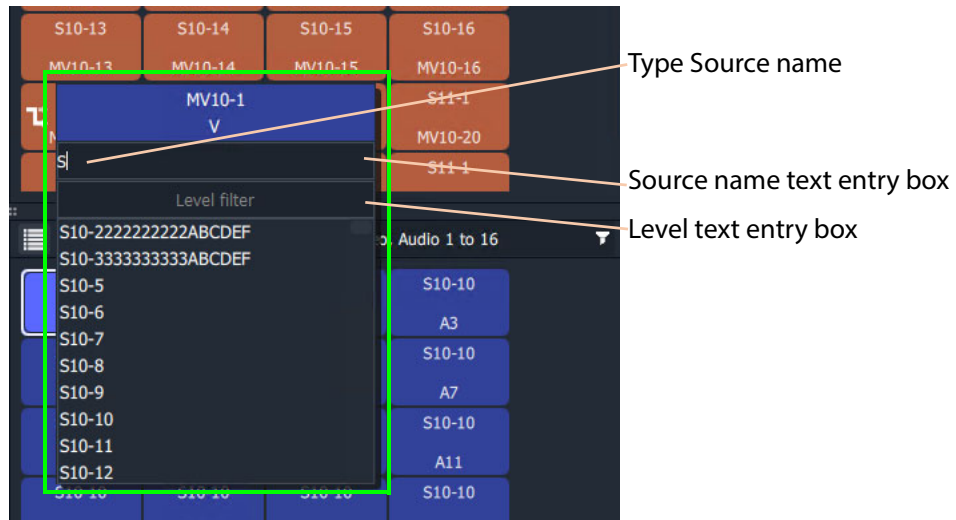


Fig. 5-35: Dial Source-Level Dialog

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

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

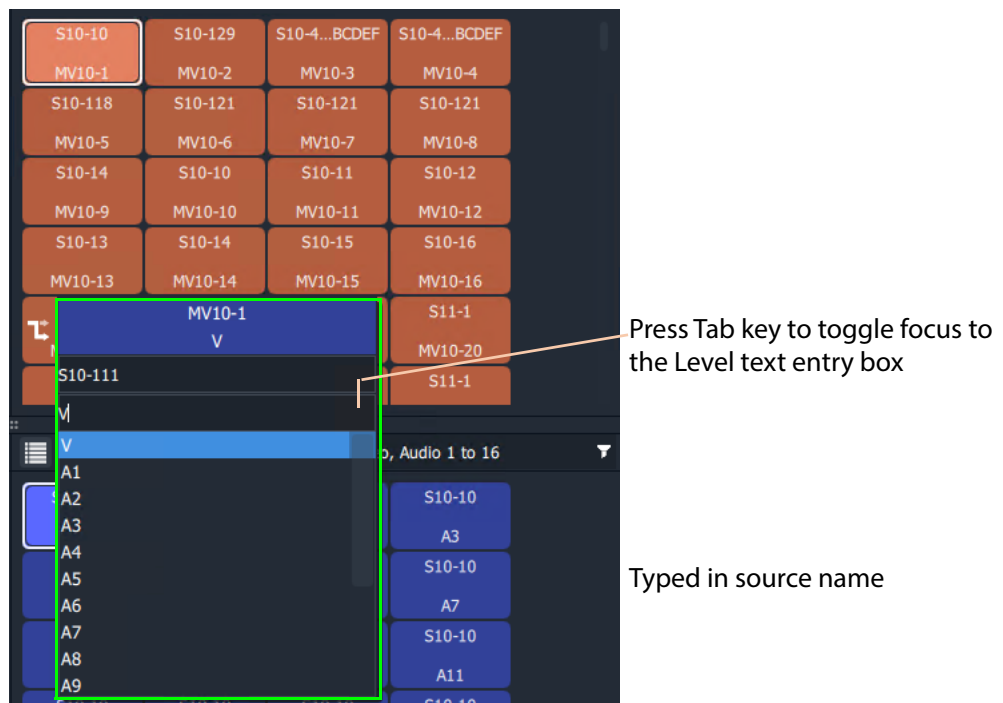


Fig. 5-36: Source and Level are Dialed-up

- 7 Type in the Level name, for example "V" and press the Enter key when done. Or select a level from the filtered list.
- The route is made, connecting the dialed-up Source Level to the selected Destination Level and forming a breakaway. See Figure 5-37.



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

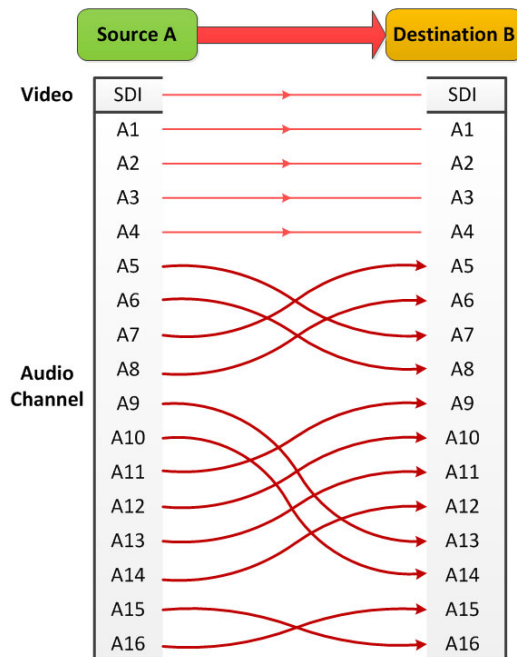
Fig. 5-37: Resulting Video Level Breakaway

Use this method to set up any breakaways (or shuffles, see [Quick One-Level Shuffle with Dial Source-Level](#), on page 217) required.

Shuffle and Levels

What is a Shuffle?

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



Shuffle example shown:

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

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

Fig. 5-38: Shuffles

To Perform a Shuffle

- 1 Select a **Destination**.
- 2 Select the **Destination Levels**.
For example, in Figure 5-40a, levels A1, A2, A3 and A4 are selected *in that order*.
- 3 Select a **Source**.
- 4 Now select the **Source Levels** in the *order* in which they shall apply to the destination Levels.
For example, in Figure 5-40a, levels A4, A3, A2 and A1 are selected *in that order*.

Note: Selecting just one source level will route this to *all* selected destination levels.
Otherwise select the same number of source levels as destination levels. A notification prompt appears at the bottom of the GV Orbit Client window, reminding the user to select source levels (see Figure 5-39).

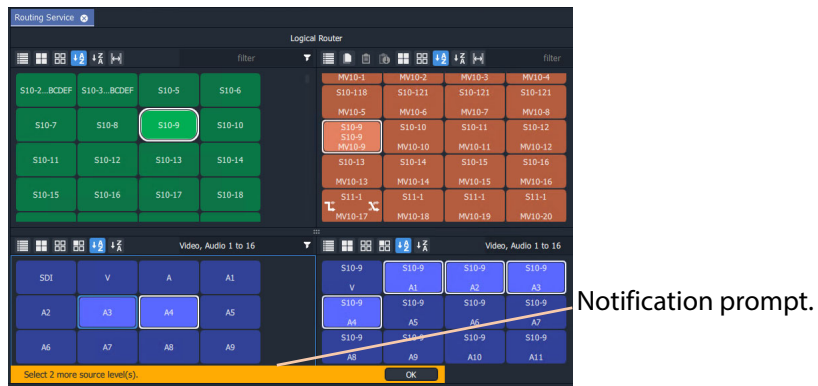
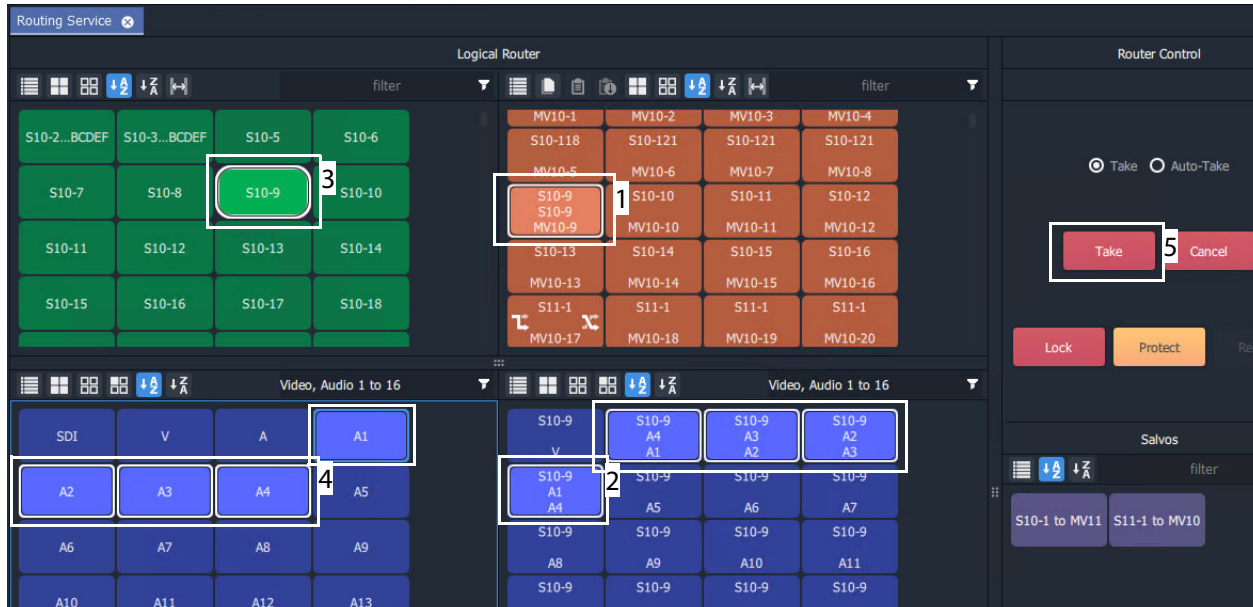


Fig. 5-39: Select Levels Notification

5 Click **Take**.

The selected source levels are routed to the selected destination levels and a shuffle is formed. Figure 5-40 shows a shuffle example reversing the order of the four audio channels (A1 to A4).

Routing Control - Bulk Routing Panel
To Perform a Shuffle

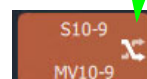
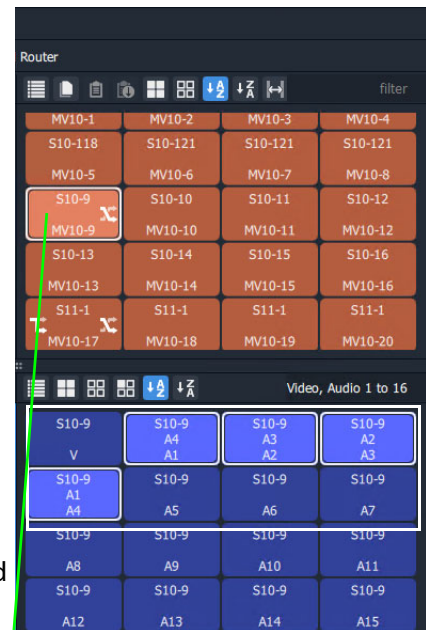


a) Before TAKE:

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

b) After TAKE:

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



c) Shuffle icon on button

Fig. 5-40: Shuffle Example: a) Before TAKE; b) After TAKE; c) Shuffle Icon on Dest. Button.

Quick One-Level Shuffle with Dial Source-Level

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

- 1 Select a **Destination**.

- 2 Select a **Destination Level**.

A Destination and one Level are now selected.

- 3 Type a single alpha-numeric character.

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

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

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

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

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

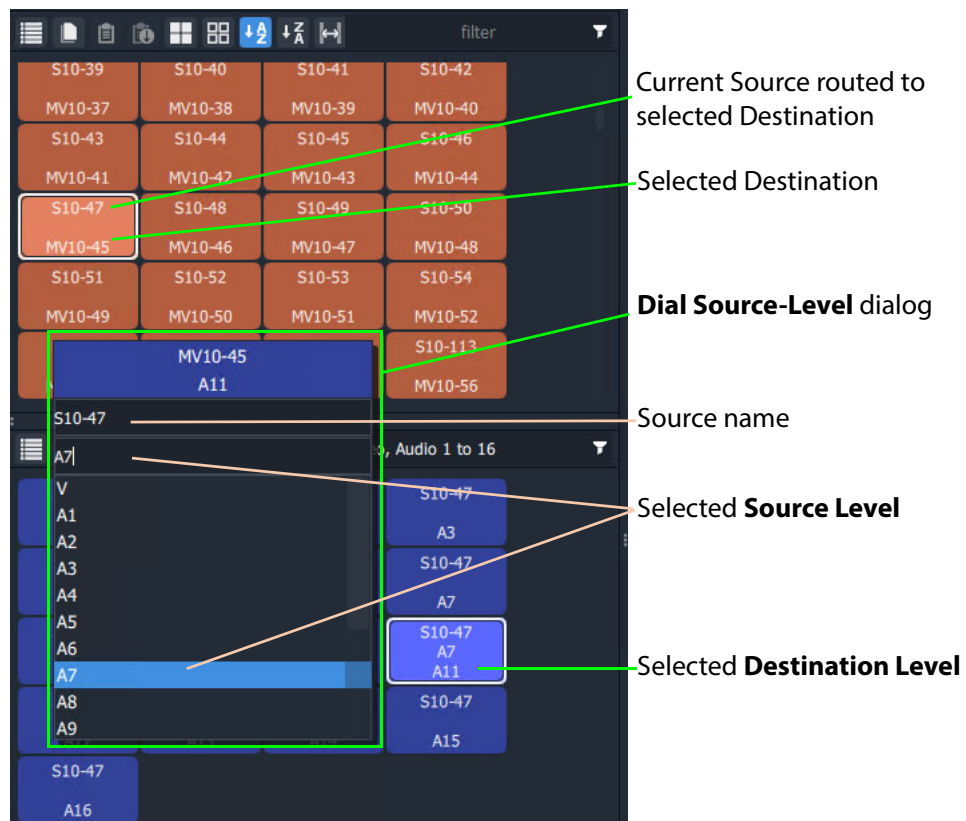


Fig. 5-41: Dial Source-Level Dialog

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

A route is performed, connecting the selected Source Level to the selected Destination Level. A shuffle is made, see Figure 5-42.

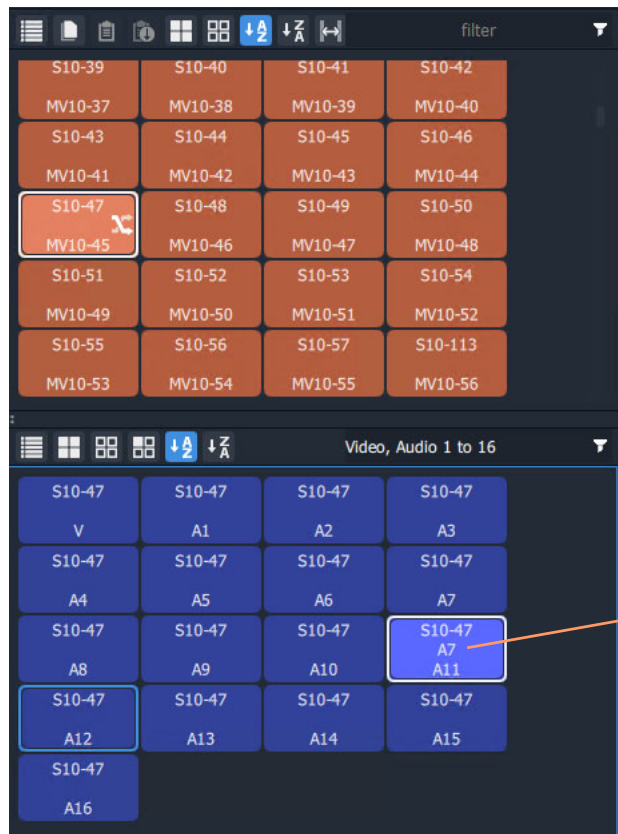


Fig. 5-42: Shuffle Routed

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

Use this method to set up any shuffles (or breakaways, see [Quick Breakaway with Dial Source-Level](#), on page 211) required.

Filtering

What is Bulk Routing Panel Filtering?

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

Note: Filtered Lists:

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

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

What are the Filter Controls in a Bulk Routing Panel?

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

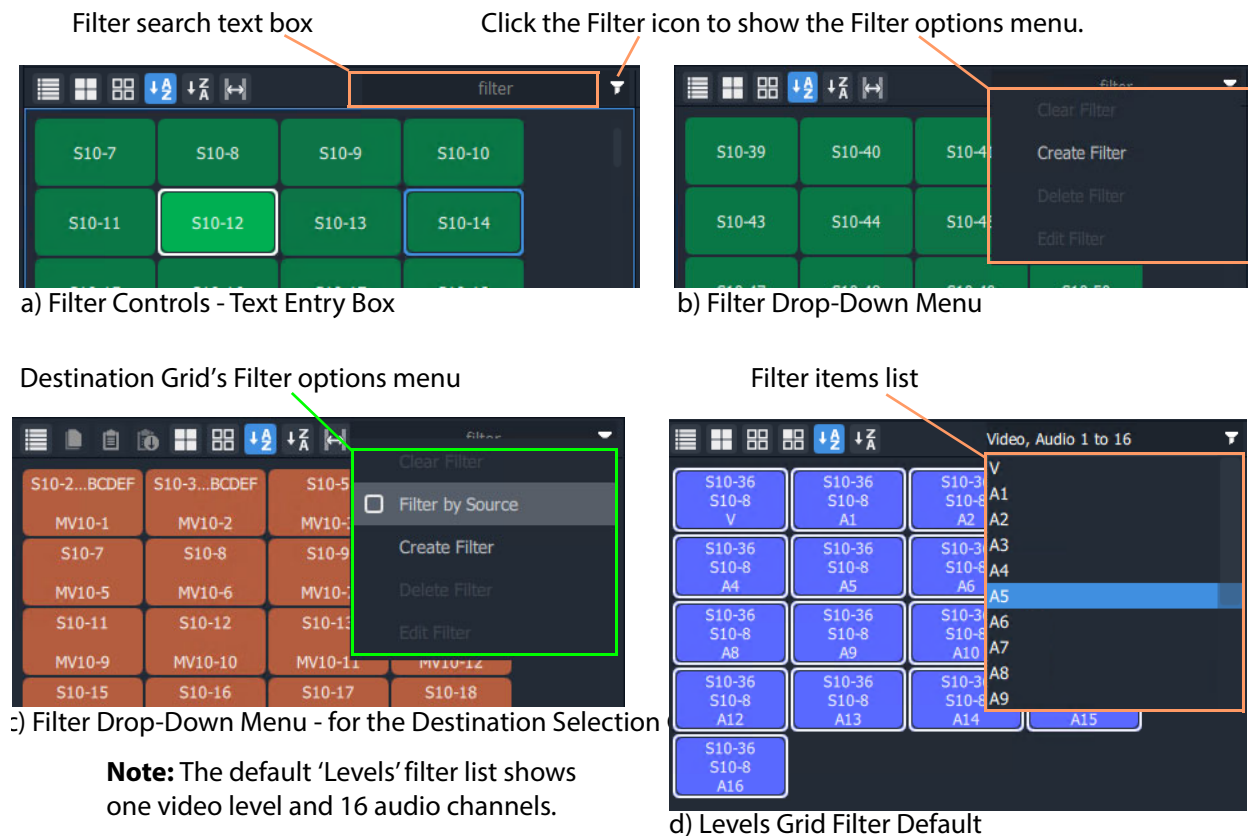


Fig. 5-43: Filter Controls:

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

Filtering Actions

Simple Filtering by Name

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


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



Fig. 5-44: Example of Simple Filtering Applied to a Grid/Pane (Search Term = "S11")

Clear Applied Filtering in a Grid/Pane

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

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

And then select 'Clear Filter'.

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

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


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

If no further filter set up is required:

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

Set Level Filtering in a Grid/Pane

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

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

And select 'Video, Audio 1 to 16'.

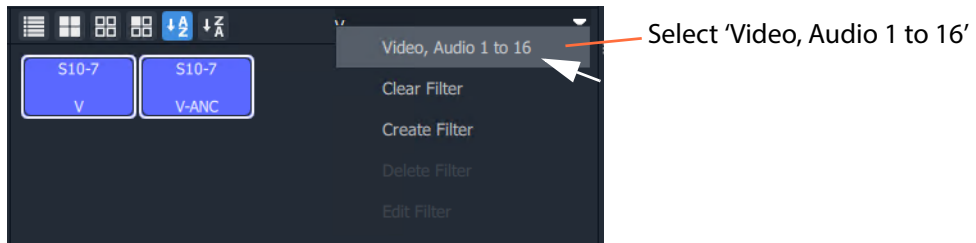


Fig. 5-45: Set Level Filtering to Default

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



Fig. 5-46: Level Filtering Default

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



Fig. 5-47: Level Filtering Default Applied

Dynamic Filtering By Name

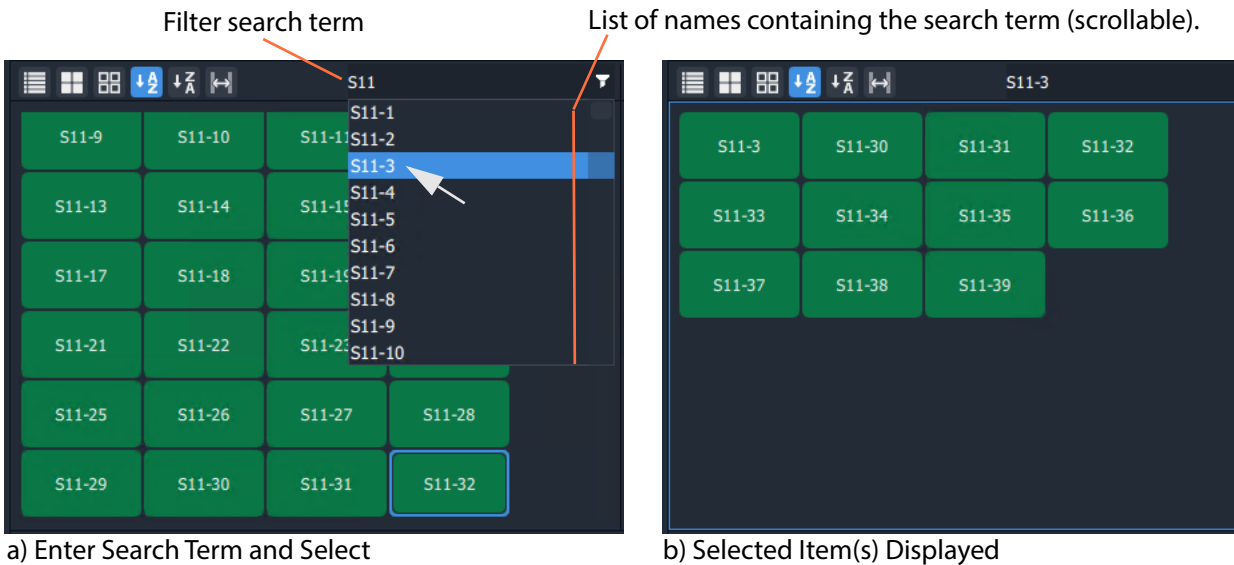


Fig. 5-48: Dynamic Filtering (Source Names Example):

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

To dynamically filter items by their name:

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

Filtering Destinations by Source

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

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

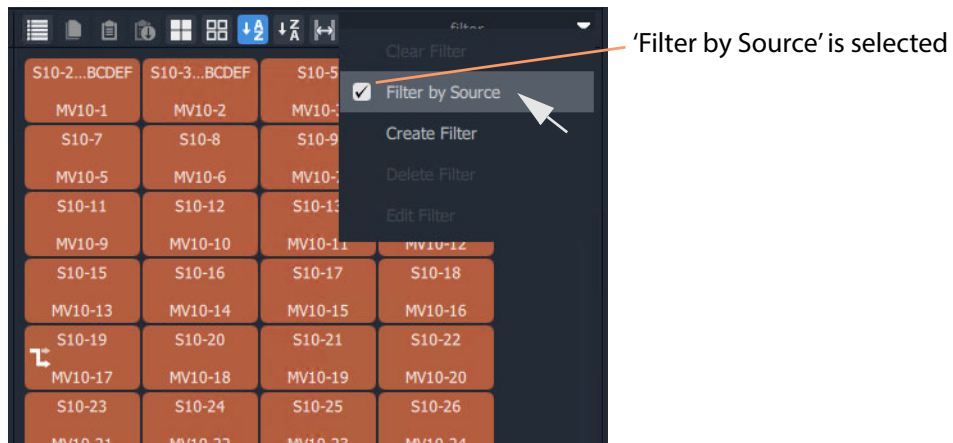


Fig. 5-49: Filtering of Destinations by Source is Enabled

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

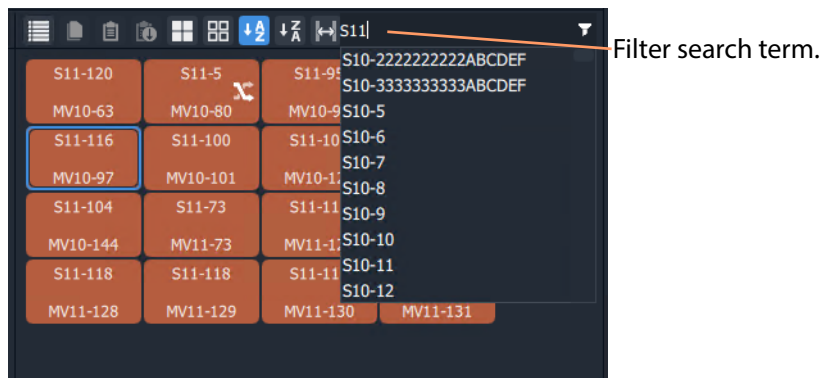


Fig. 5-50: Filter Destinations by Source

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

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

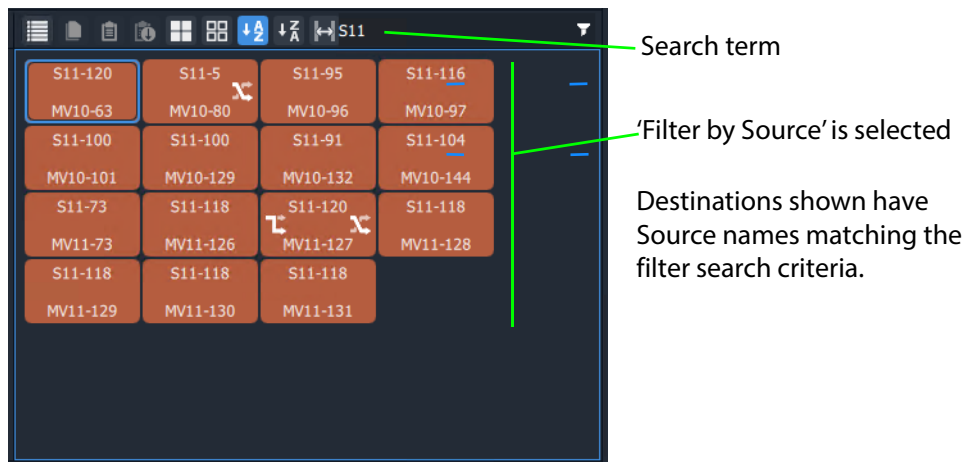


Fig. 5-51: Example Destination 'Filter by Source'

Preset Level Filters

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

Custom Filters

What is a Custom Filter in a Bulk Routing Panel?

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

A custom filter can be:

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

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

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

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

What is a Custom Filter Rule?

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

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

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

Custom Filtering

Creating a Custom Filter

In a grid/pane:

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

An empty **Filter** dialog is shown. See Figure 5-52.

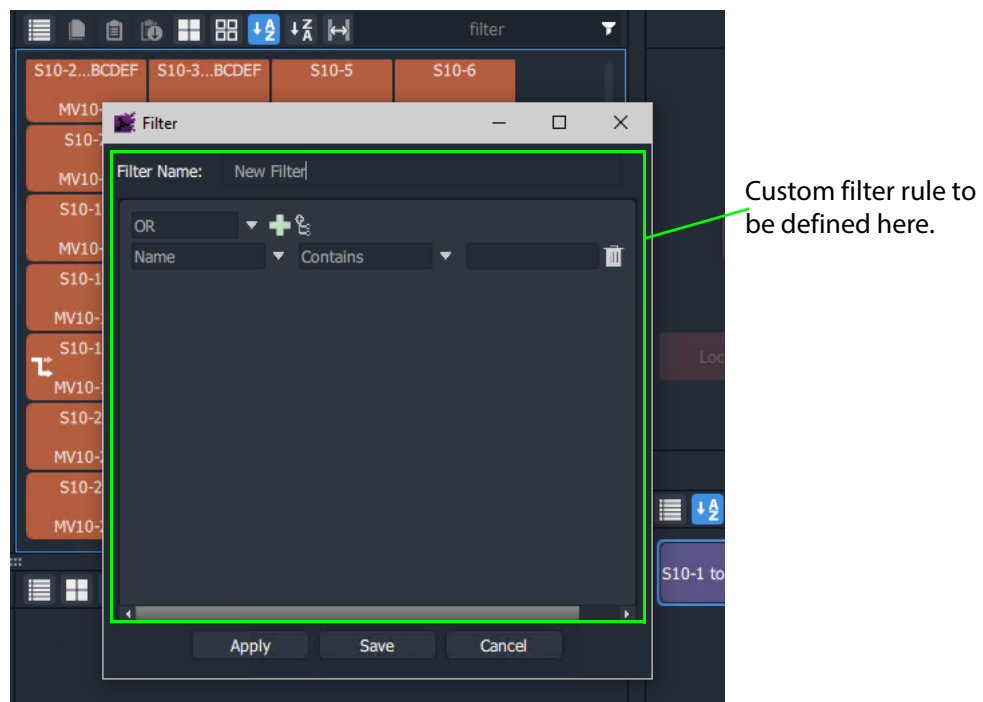


Fig. 5-52: Filter Dialog

- 2 Enter a Filter name for the filter.

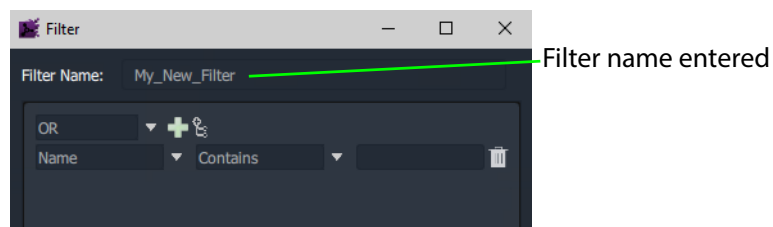


Fig. 5-53: Saving New Custom Filter

- 3 Click **Save**.

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

Selecting a Custom Filter

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

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

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

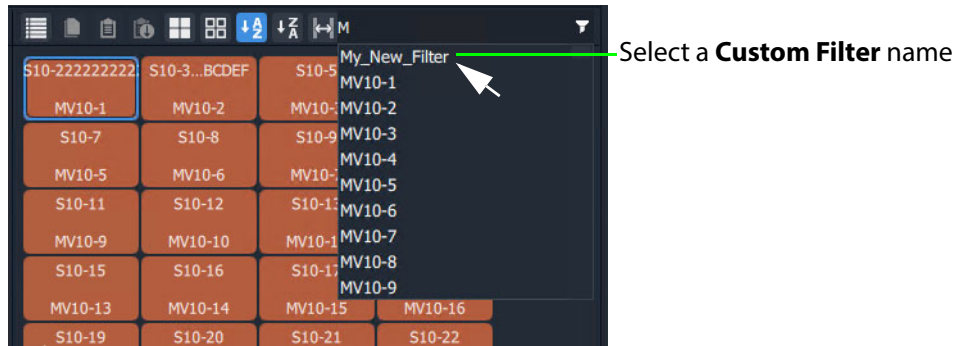


Fig. 5-54: Custom Filter in Filter Items List

Constructing the Rules for a Custom Filter

See [Filter Dialog and Custom Filter Rules](#), on page 228, for adding filter rules with the dialog to construct the filter.

To Edit an Existing Custom Filter

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

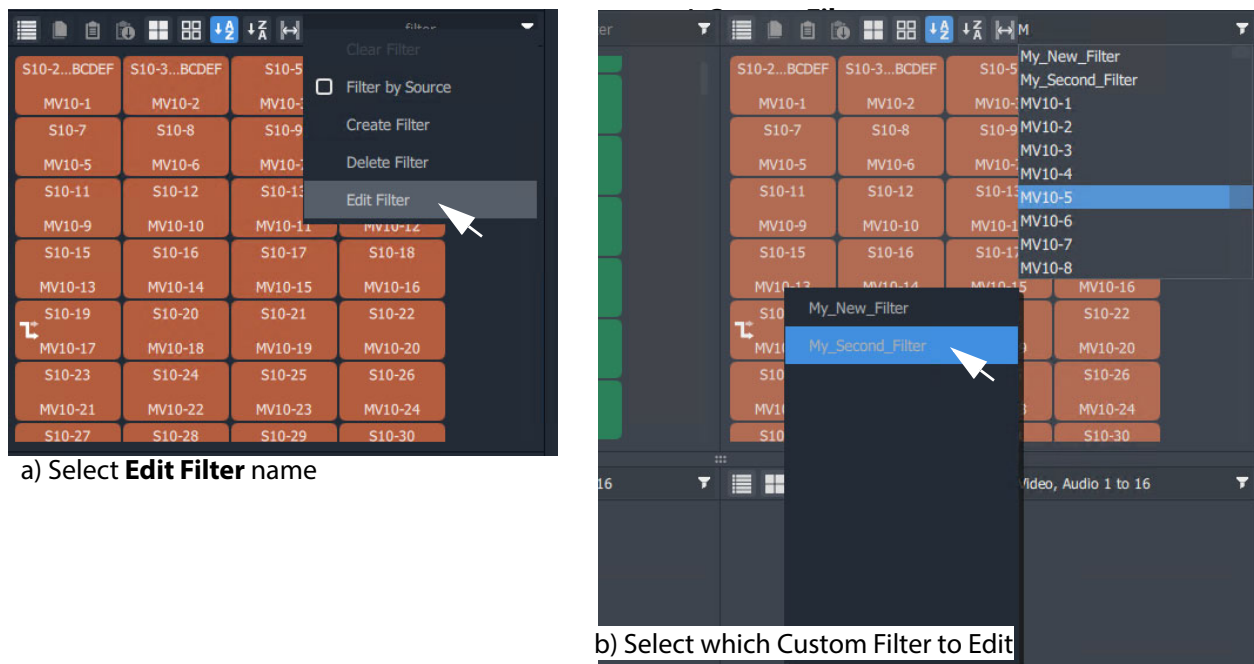


Fig. 5-55: Select Custom Filter to Edit

- 2 Select the filter to edit from the list shown. (See Figure 5-55b.)

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

To Delete a Custom Filter

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

The filter is deleted when the selection is made.

Filter Dialog and Custom Filter Rules

The filter rule of a custom filter is designed in the **Filter** dialog (see Figure 5-56). A rule is formed from the logical combination of filter expressions. Expressions can be ANDed or ORed together and complex AND/OR configurations can be defined for a custom filter:

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

A worked example is given ([Example Custom Filter](#), on page 229) which shows how to construct Filter rules with the Filter dialog.

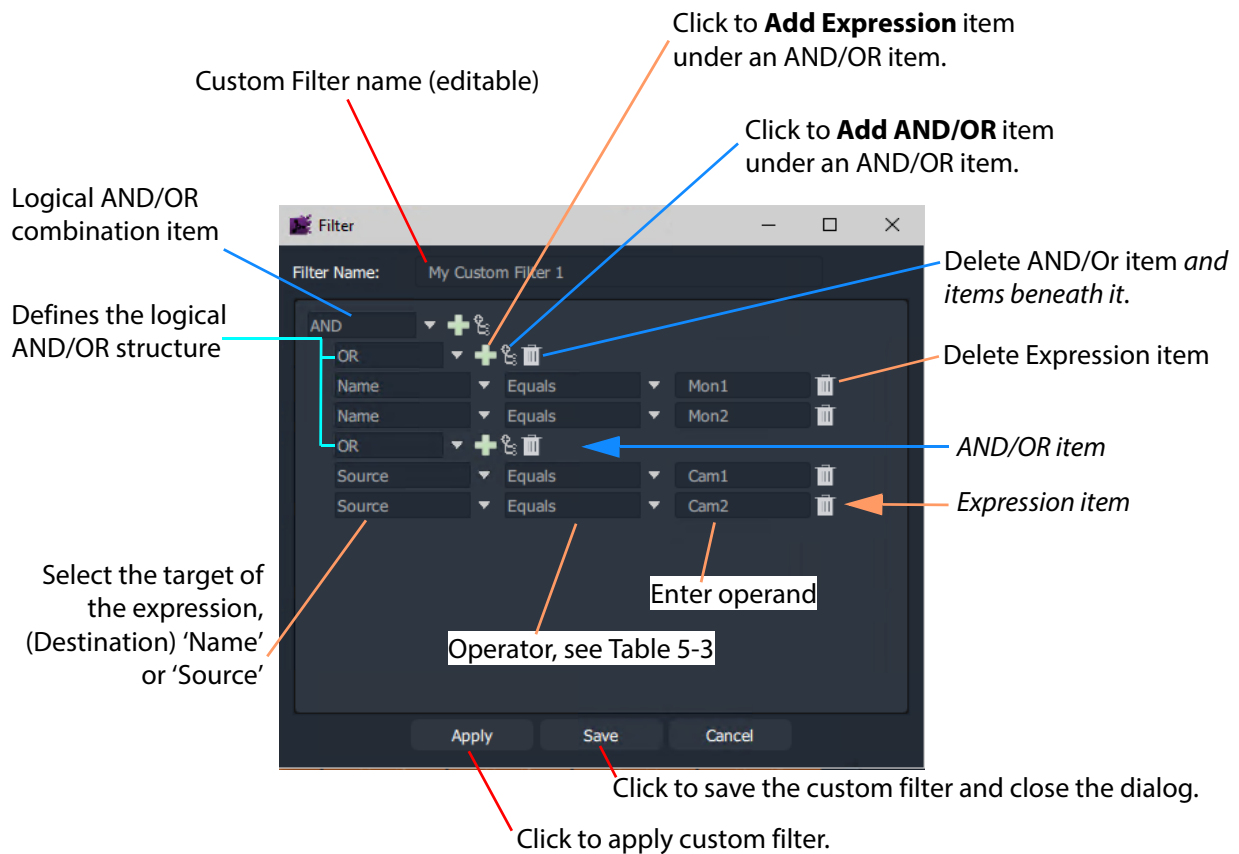


Fig. 5-56: Filter Dialog - Custom Filter Example

Logical AND / OR Combining

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

A rule might be designed to filter:

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

Filter Expressions

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

Filter Expression Operators

The operators include:

Table 5-3: Operators - Name/Source and Operand

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

Example Custom Filter

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

What the Filter Should Do

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

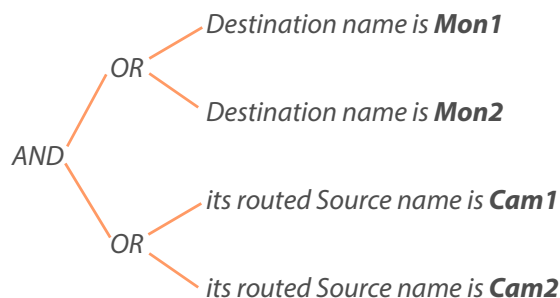
(Destinations **Mon1** and **Mon2** and sources **Cam1** and **Cam2** are used in this example.)

The filter for this example may be written:

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

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

Show a destination if the following is true:



Defining the Custom Filter Example

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

- 1 Click on the Destination Grid's Filter tool bar icon and select **Create Filter**.
An empty **Filter** dialog is shown. See [Figure 5-52](#) on page 225.
- 2 Enter a **Filter Name** for the filter.
- 3 Select AND as the first (top-level) logical combination item with the drop-down menu button. See [Figure 5-57](#).

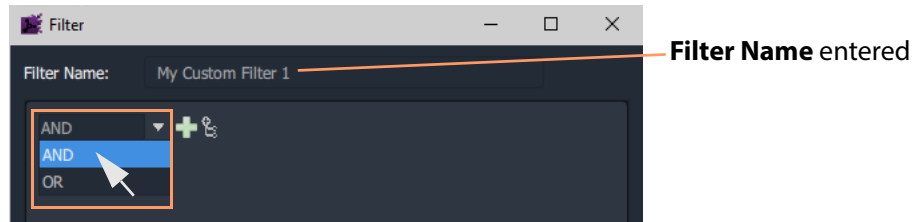
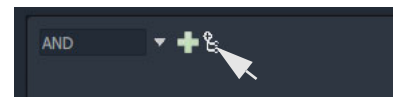


Fig. 5-57: Select AND

- 4 Click the **Add AND/OR** icon.
An indented AND/OR item appears.
An expression item also appears below the OR. See [Figure 5-58](#).



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

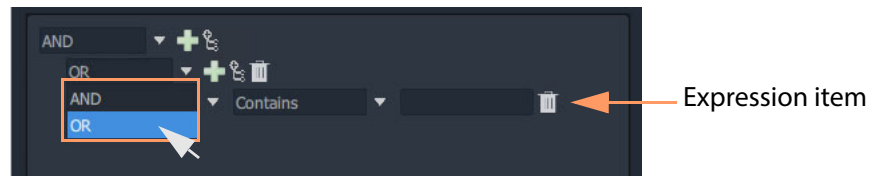


Fig. 5-58: Select OR

- 6 Click the new **Add Expression** icon.
A second expression item appears under the OR. See [Figure 5-59](#).

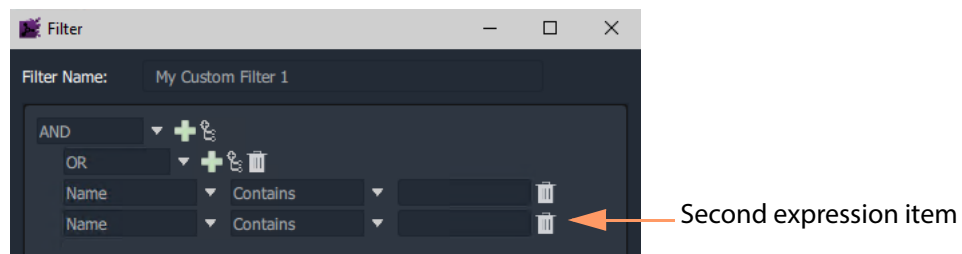
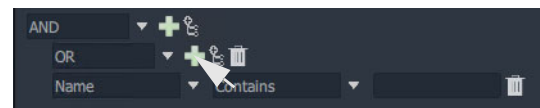
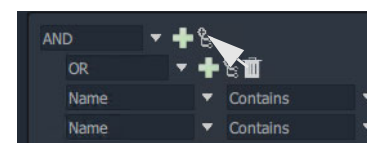


Fig. 5-59: Added a Second Expression Item

- 7 Click the first **Add AND/OR** icon again.
This adds a second OR logical combination item indented under the AND. See [Figure 5-60](#).



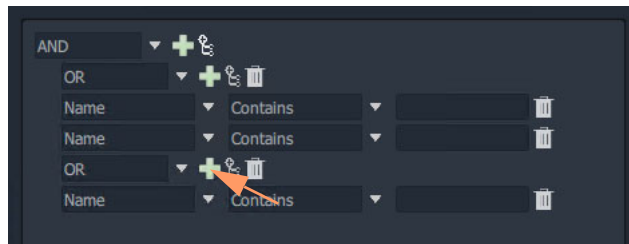


Fig. 5-60: Second OR Logical Combination Item Added

8 Add a second expression item under the new OR item. See Figure 5-61.

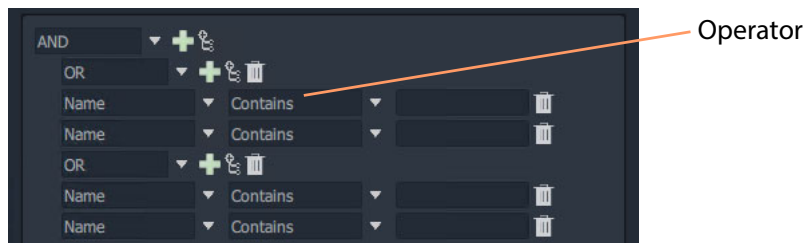


Fig. 5-61: Second Expression Item Added

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

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

9 Set up the expressions as shown in Figure 5-62.

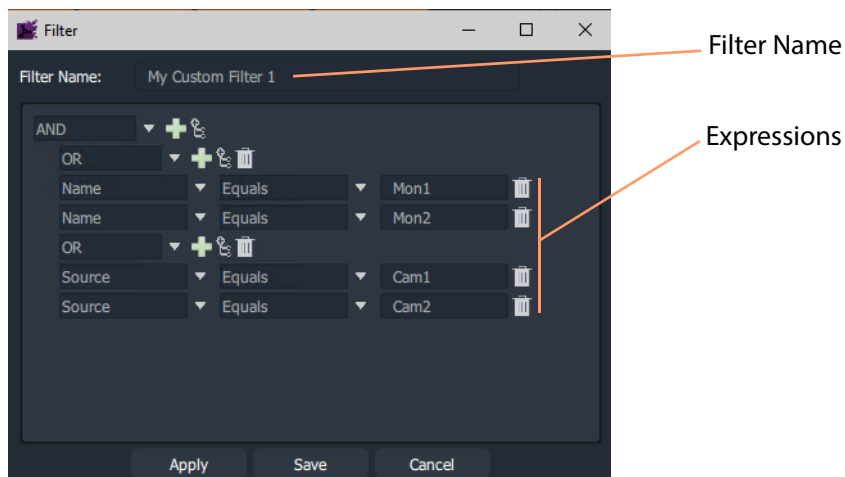


Fig. 5-62: Completed Custom Filter

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

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

Using a Custom Filter

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

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

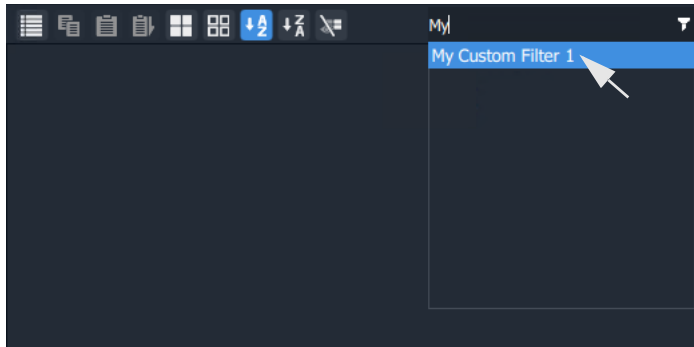


Fig. 5-63: Select Custom Filter

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

The filter is applied.

In this example, only destinations 'Mon1' or 'Mon2' are shown if they have sources 'Cam1' or 'Cam2' routed to them. See Figure 5-64.

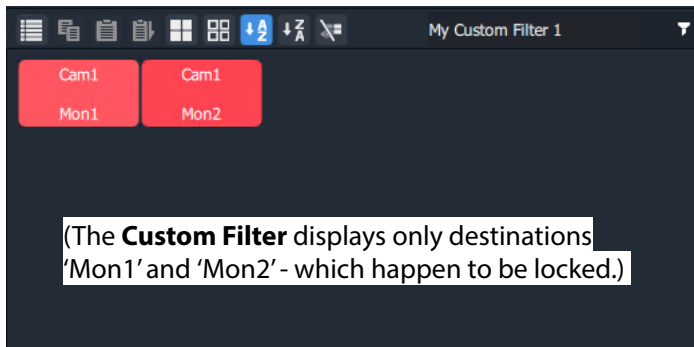


Fig. 5-64: Applied Custom Filter

To clear the filtering:

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

Salvos

What is a Salvo?

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

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

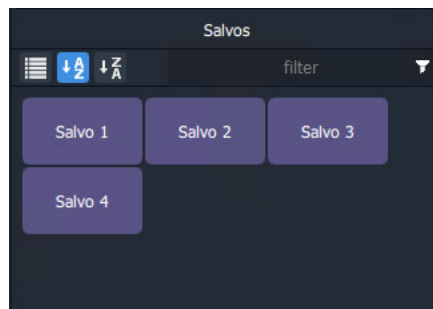


Fig. 5-65: Salvos Pane with Salvo Buttons

Executing Salvos

To Execute a Salvo

Either:

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

To Execute multiple Salvos

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

Hide Sources

What is the Hide Sources Mode?

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

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

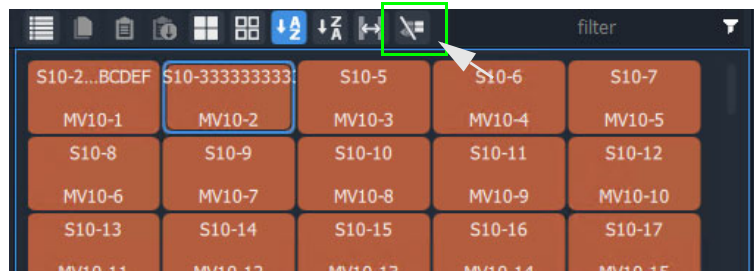


Fig. 5-66: Hide Sources Icon in Destination Grid Tool Bar

Enter Hide Sources Mode

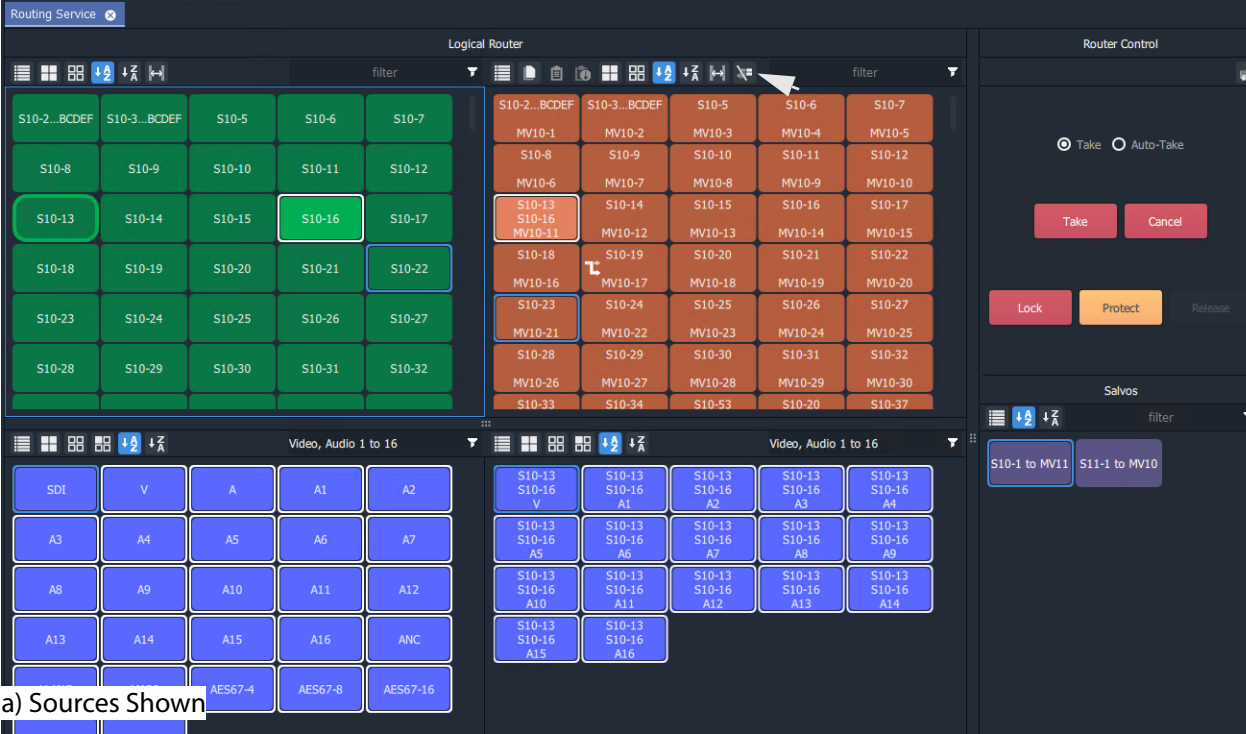
Toggle **Hide Sources** on/off by:

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

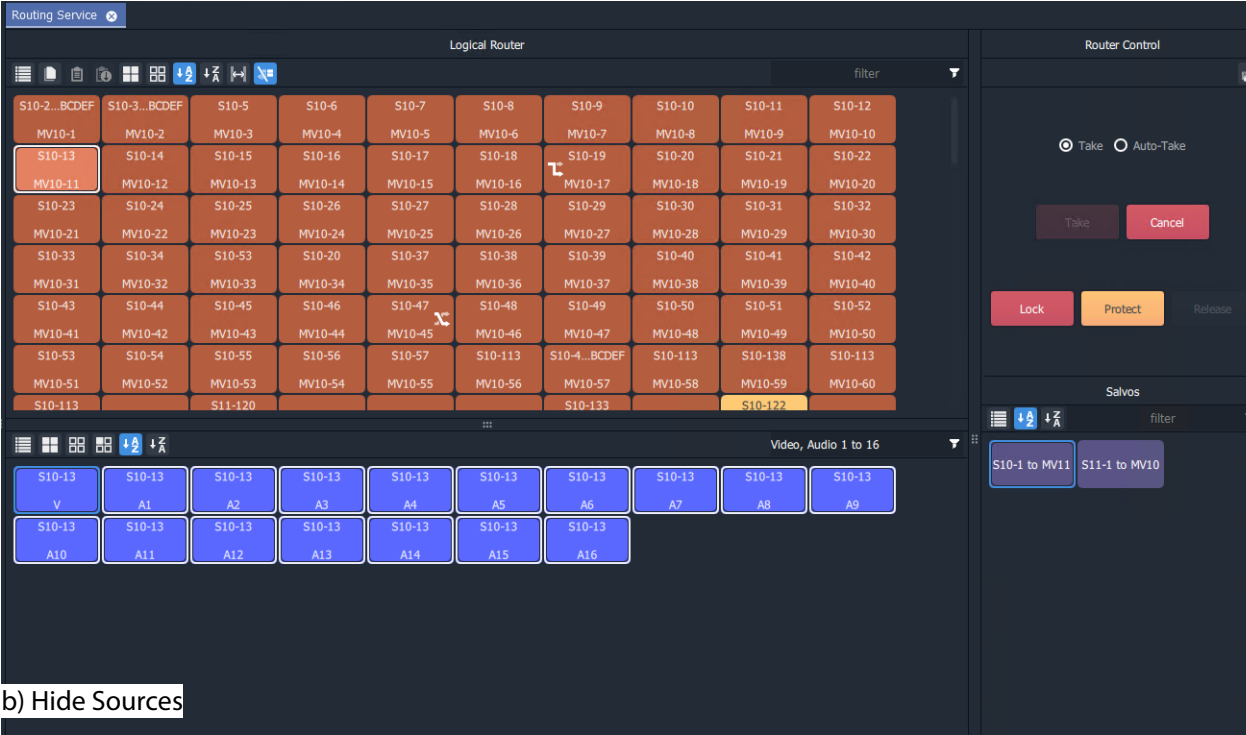
The Bulk Routing Panel hides the Sources and more Destinations are shown. See Figure 5-67b on [page 235](#).

Routing in Hide Sources Mode

Use the **Dial Source** or **Dial Source-Level** facility to route sources signals and/or levels to destinations. See [Dial Source Dialog](#), on page 195 and [Dial Source-Level Dialog](#), on page 196.



a) Sources Shown



b) Hide Sources

Fig. 5-67: Bulk Routing Panel:
a) Sources and Destinations Shown;
b) Hide Sources.

List View

What is List View Mode?

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

Figure 5-68a shows a normal Bulk Routing Panel view and Figure 5-68b shows a **List View**.

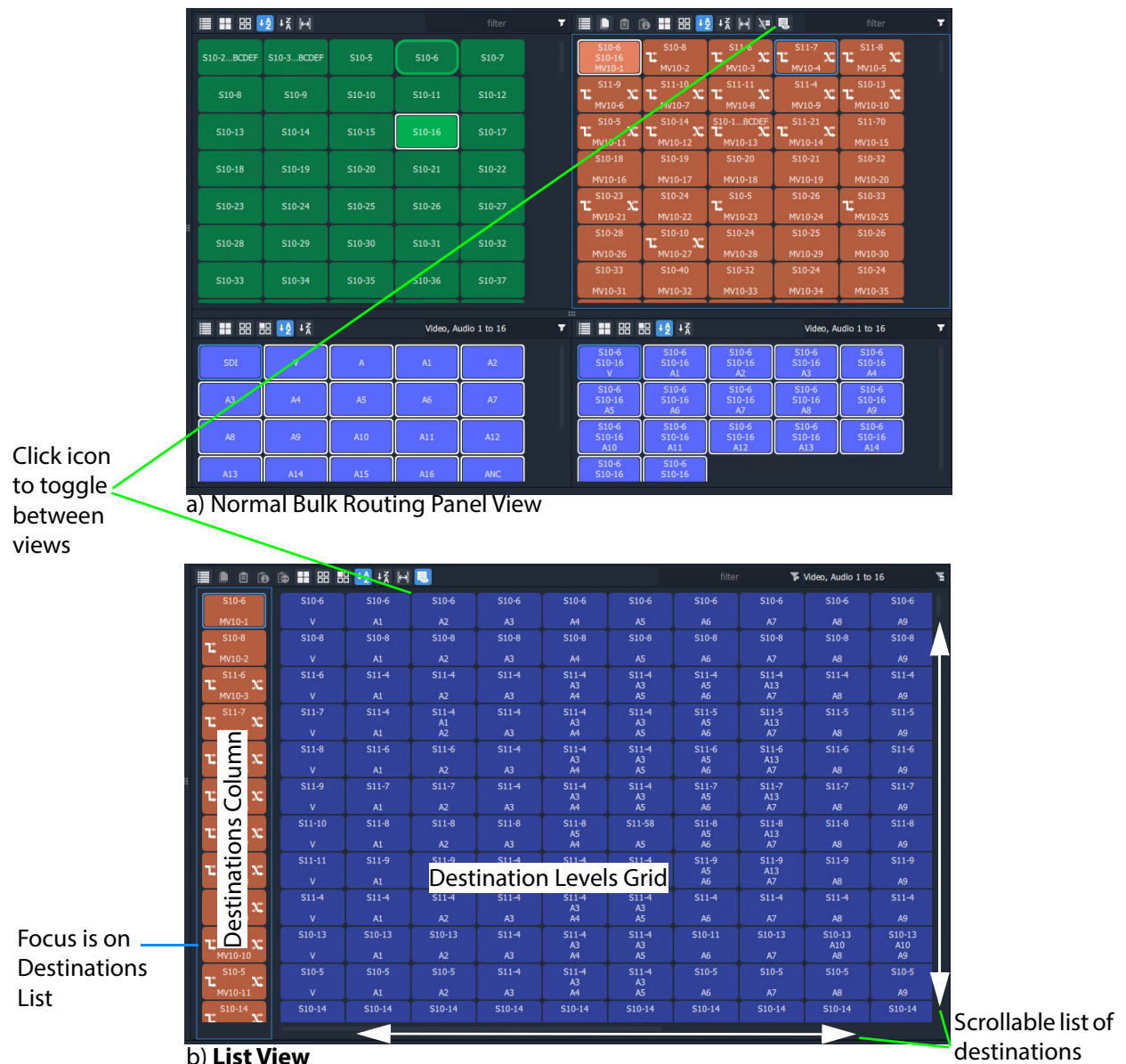


Fig. 5-68: Bulk Routing Panel: a) Normal View; b) List View

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

List View Tool Bar

The **List View** tool bar is an amalgamation of the tool bars of the normal Destination pane and Destination Level grid of a Bulk Routing Panel. Icons may be grayed-out according to panel focus. See Figure 5-69.

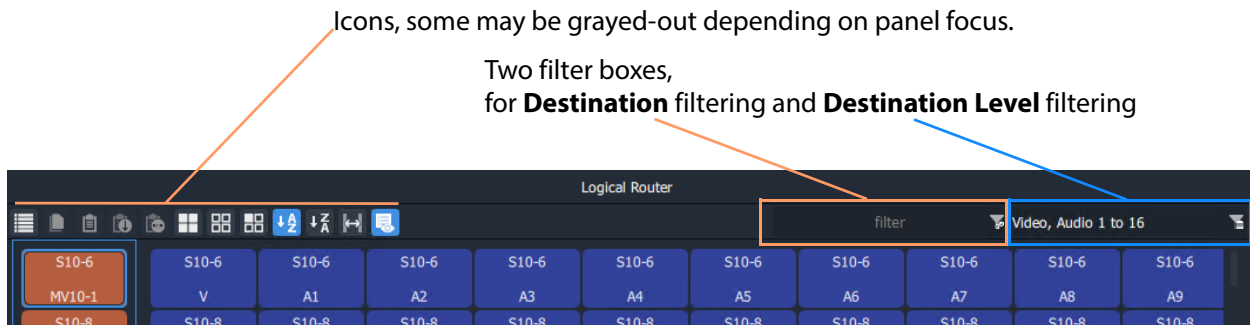


Fig. 5-69: List View Tool Bar

Destination Filtering

There are two filter boxes and these are for: **Destination** filter and **Destination Level** filter. See Figure 5-69. **List View** presents all of the destinations in a scrollable list. To aid selection of destinations and levels, and navigation of the list, the filter facility can be used to limit what is listed:

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

See [Filtering](#), on page 219, for more information about using the filter facility.

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

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

Selection in List View

Select a Destination

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

Select a Destination, then all Levels are selected

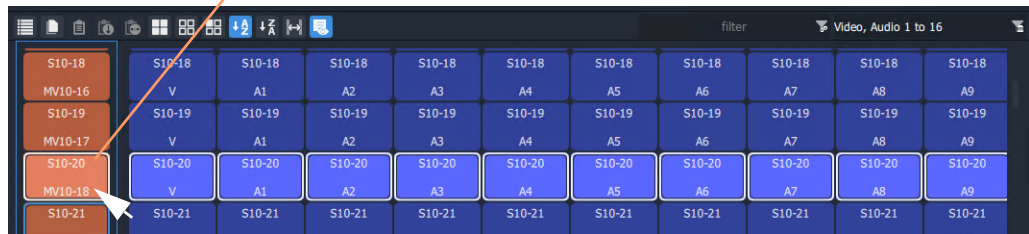


Fig. 5-70: Select a Destination

Select Multiple Destinations

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

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

Select a Destination Level

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

Select a Level, then the Destination is selected.



Fig. 5-71: Select a Destination Level

Select Multiple Destination Levels

CTRL-Selecting

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

Select a Level, then CTRL-Select others.

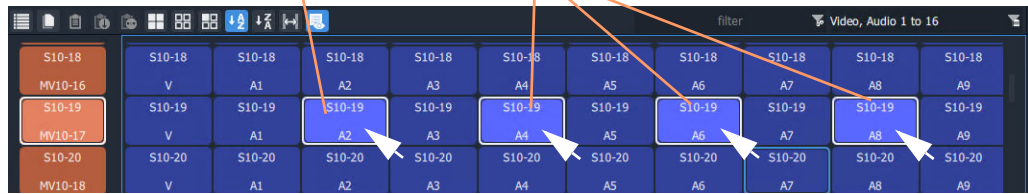


Fig. 5-72: Select Multiple Destination Levels

SHIFT-Selecting a Range of Destination Levels

To select a range of Levels:

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

Levels from the first to the last are selected.

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



Fig. 5-73: Select a Range of Destination Levels

SHIFT-Selecting a Block of Destination Levels

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

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

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

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

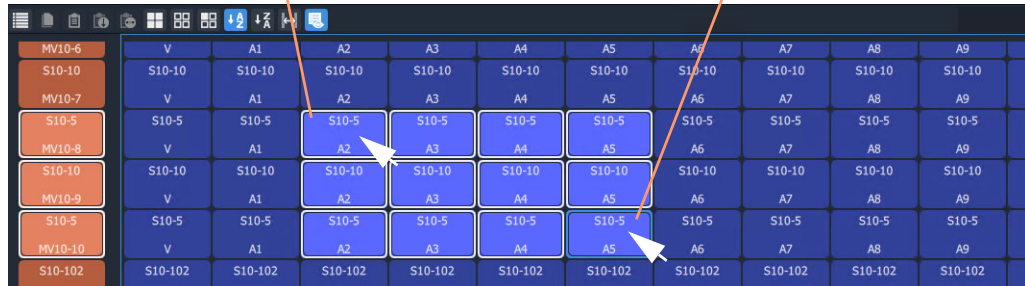


Fig. 5-74: Select a Block of Destination Levels

Selecting Source and/or Source Level

Source and Source Level selection is done via the **Dial Source** and **Dial Source-Level** dial-up dialog facility. After the required Destination(s) or Destination Level(s) are selected type in an alpha-numeric character to open one of the dial-up dialogs. (See [Dial Source and Dial Source-Level Dialogs](#), on page 195.)

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

Routing in List View

Routing in **List View** is done by selecting a Destination (and Levels) and then selecting a Source and Source Levels via the **Dial Source** and **Dial Source-Level** facility. (See [Dial Source and Dial Source-Level Dialogs](#), on page 195.)

Some Routing examples are provided, see:

- [Routing Examples - 'All Levels'](#), on page 241.
- [List View Routing Examples - One-Level](#), on page 243.
- [List View Routing Examples - Destination Copy-Paste](#), on page 248.
- [List View Routing Examples - Copy-Paste Levels](#), on page 251.

A brief summary of these examples is found at [List View Routing Summary](#), on page 254.

Routing Examples - 'All Levels'

Several routing examples are presented:

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

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

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

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

- 1 Select a Destination.



Fig. 5-75: Destination Selected

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

A **Dial Source** dialog appears. Source names are listed in the dialog and are filtered on the typed text. See Figure 5-76.

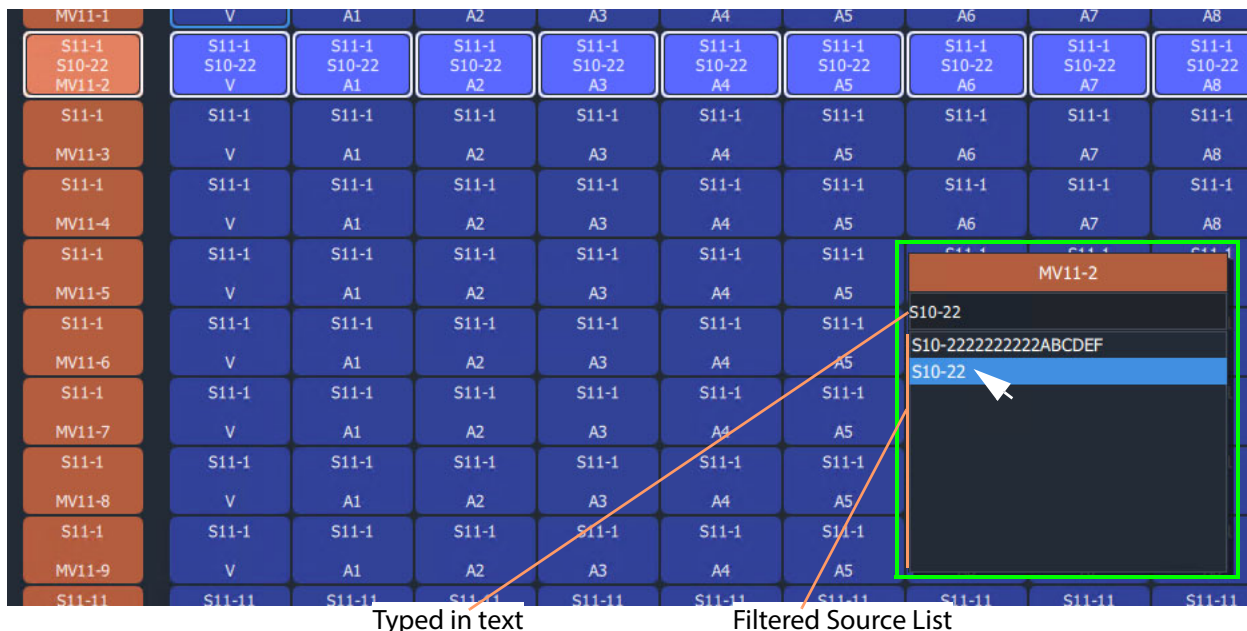


Fig. 5-76: Dial Source Dialog

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

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

New source is routed to the destination, all levels.

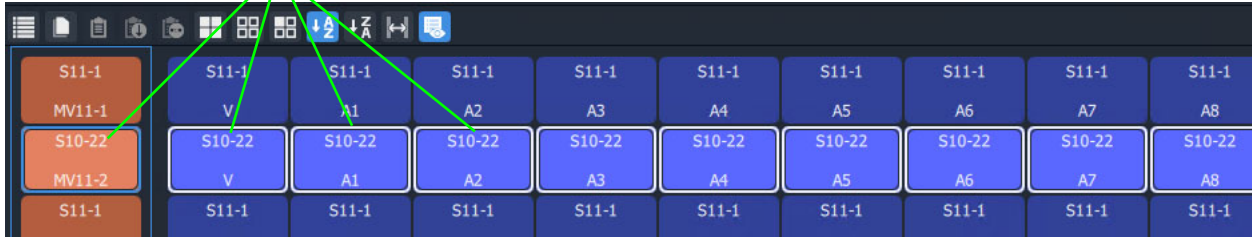


Fig. 5-77: Routed All-Levels

An 'all-levels' route has been made.

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

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

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

When all Destinations have been selected:

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

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

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

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

List View Routing Examples - One-Level

Several routing level-based examples are presented:

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

Simple One-Level Route (Breakaway)

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

- 1 Select a Destination Level.

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

Fig. 5-78: Destination Level Selected

The corresponding Destination is also selected.

- 2 Type a single alpha-numeric character.

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

- 3 Begin to enter a new Source name into the upper text entry box, for example, 'S11-'. Source names are listed, filtered on the typed text. See Figure 5-79.

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

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

Fig. 5-79: Select a Source Name

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

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

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

Fig. 5-80: One Level Routed from a Different Source, Breakaway

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

One-Level Shuffle

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

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

(Refer to [What is a Breakaway?](#), on page 209, and [What is a Shuffle?](#), on page 214, for general information.)

To do a one-level route:

- 1 Select a Destination Level.

The corresponding Destination is also selected.

- 2 Type a single alpha-numeric character.

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

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

- 3 Press the **Tab** key.

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

- 4 Either:

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

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

A one-level shuffle route has been made.

Channel-Swap Shuffle

To do a channel-swap in **List View**, carry out two **One-Level Shuffle** routes. See Figure 5-81.

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

a) Before one-Level routing

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

b) After first one-Level route

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

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

c) After second one-Level route

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

Fig. 5-81: Forming a Channel-Swap Shuffle:

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

One Level to Multiple Levels

To route one Source Level to multiple Destination Levels:

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

Figure 5-82a gives an example of multiple selected Destination Levels.

This has selected the Destination Levels required.

Then:

- 3 Type a single alpha-numeric character.

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

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

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

Figure 5-82b shows an example with Figure 5-82c showing the resulting route made.

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

a) Multiple Selected Destination Levels

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

MV11-5 + 2
A3 + 5

S11-117

A11

A11

b) Dialing Up the Source Level

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

c) Routed Levels

Fig. 5-82: One Level to Multiple Levels:

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

List View Routing Examples - Destination Copy-Paste

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

Several routing Copy-Paste examples are presented:

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

Destination Copy-Paste

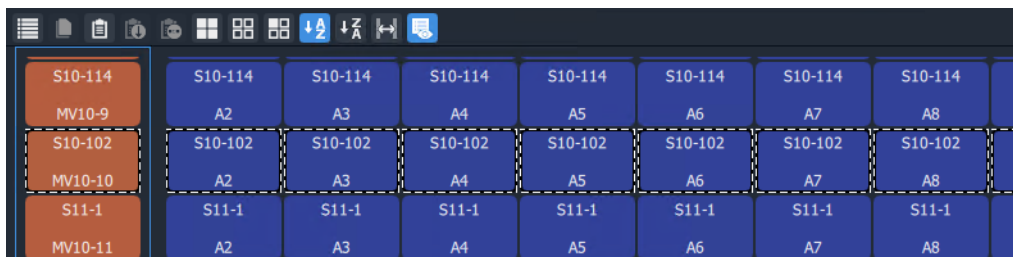
The routing to a Destination can be copied to one or more other Destinations. This operates on all levels and allows a routing to be quickly copied to other Destinations:

- 1 Select a Destination. (See Figure 5-83a.)
- 2 Copy the Destination by, either:
 - CTRL-C; or
 - right-click and select 'Copy'; or
 - click on the 'Copy' icon in the **List View** tool bar.

The selected Destination (with its Levels) is outlined with a 'crawling' dashed line. (See Figure 5-83b.)



a) Selected Destination



b) Destination Copied

Fig. 5-83: Destination Copy-Paste: a) Selected Destination; b) Destination Copied.

- 3 Select a Destination to 'copy to'. (See Figure 5-84.)

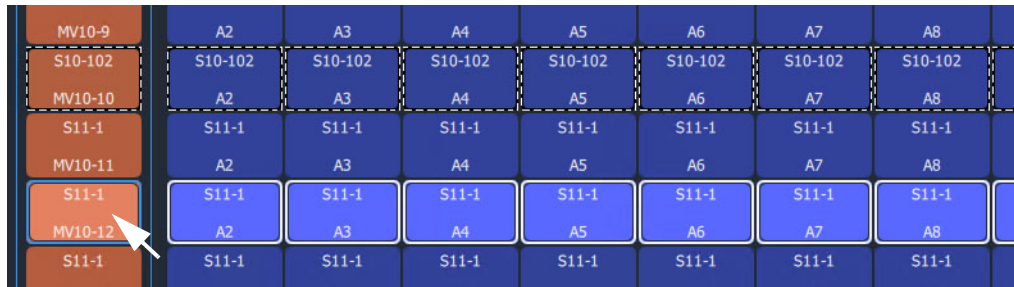


Fig. 5-84: 'Copy To' Destination Selected

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

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

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

The routes are made (all levels) and the original copied Destination's routing is applied (pasted) onto all the selected Destination(s). (See Figure 5-85.)

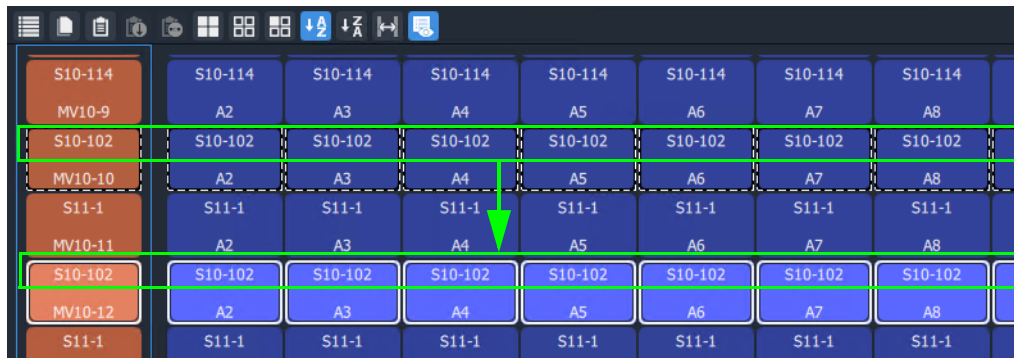


Fig. 5-85: Routing Pasted onto a Destination

Destination Paste-Series

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

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

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

This has selected the 'Copy to' range.

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

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

The currently-routed Source of the copied Destination is applied to the first 'Copy to' Destination in our 'Copy to' range. The next Source is applied to the next 'Copy to' Destination in the range, etc. See Figure 5-86 for an example.

Currently-routed Source of the copied Destination

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

Next Source applied to next Destination.

And so on.

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

Fig. 5-86: Result of Destination Paste-Series

List View Routing Examples - Copy-Paste Levels

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

The copy-paste is a two-step process:

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

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

- **Paste Levels with CTRL-V** - pastes with no gaps.
- **Paste Levels with Alt-CTRL-R** - pastes preserving gaps.

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

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

Paste Levels with CTRL-V

- 1 Select Destination Levels and copy them. For example, A3, A4, A6 and A8, see Figure 5-87.

This has copied the routing of these selected Destination Levels.

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

Routes are made to consecutive Destination Levels and the copied routing is applied to the 'Copy to' Destination Level and to subsequent, consecutive Destination Levels. See Figure 5-87 for the result of CTRL-V paste from the copied Destination Levels.

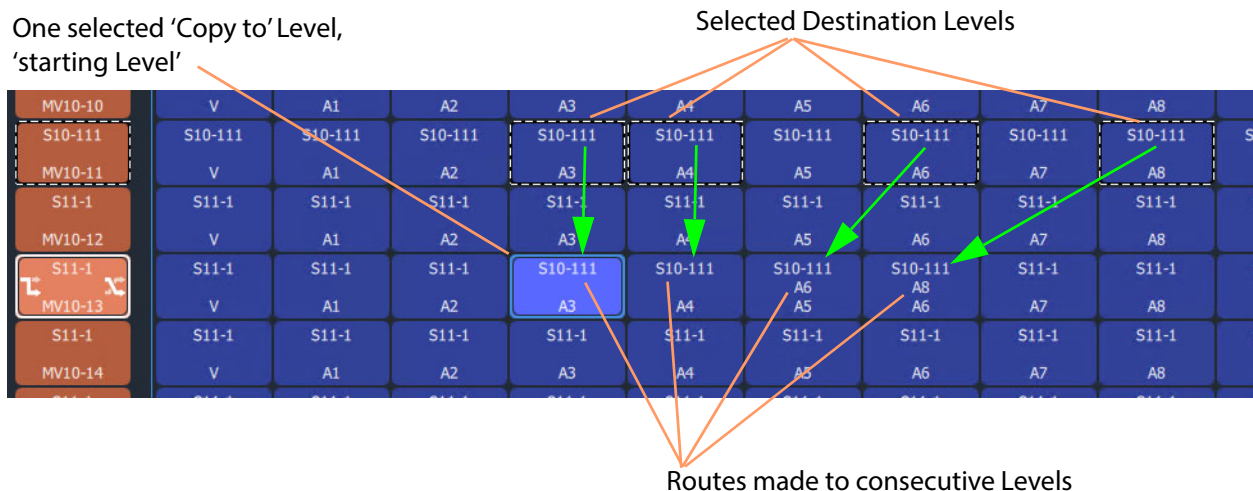


Fig. 5-87: Result of CTRL-V Paste

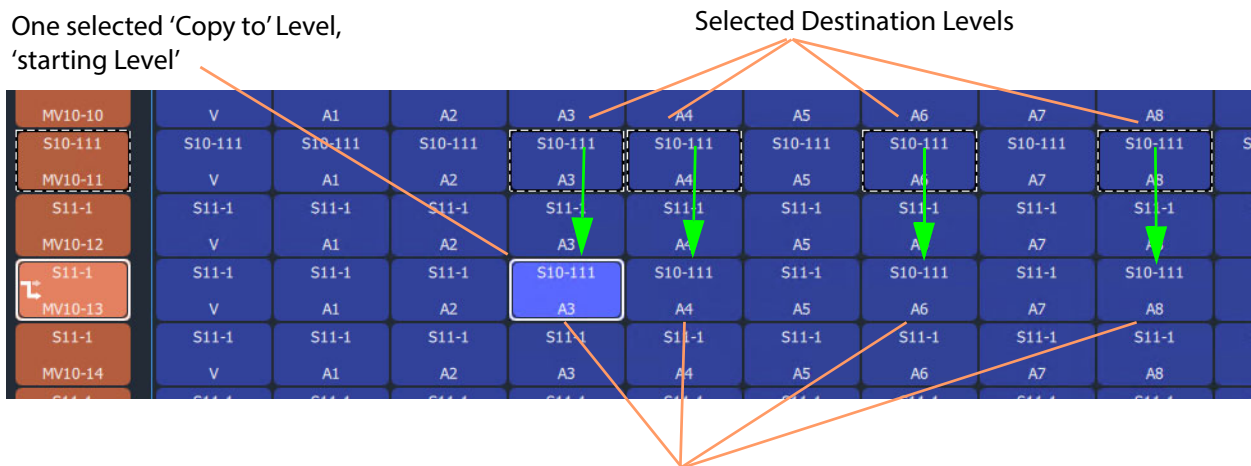
Paste Levels with Alt-CTRL-R

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

To paste and preserve gaps:

- 1 Select Destination Levels and copy them. For example, A3, A4, A6 and A8, see Figure 5-88.
- 2 Select *one* 'Copy to' Destination Level. This is the 'starting Level'. And press Alt-CTRL-R.

Routes are made and the routing of the copied Levels is applied to the 'Copy to' Destination Level ('starting Level') and to subsequent Levels with any gaps preserved. See Figure 5-88 for the result of an ALT-CTRL-R paste from the two copied Destination Levels.



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

Fig. 5-88: Result of Alt-CTRL-V Paste

Levels Copy-Paste Footprint

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

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

Figure 5-89 shows 2x1 copied Levels pasted with various 'Copy to' starting Levels. In Figure 5-89d, the pasting footprints overlap.

- Figure 5-89a - Single starting Level and a resulting 2x1 pasting.
- Figure 5-89b - One column of four starting Levels which result in four 2x1 pasting footprints.

- Figure 5-89c - Two columns of four starting Levels which result in two columns of four 2x1 pasting footprints, which do not overlap.
- Figure 5-89d - Two *adjacent* columns of four starting Levels which results in two columns of four 2x1 pasting footprints which do overlap. The overlap is warned with a pop-up Levels Paste message, see [Levels Paste Warning](#).

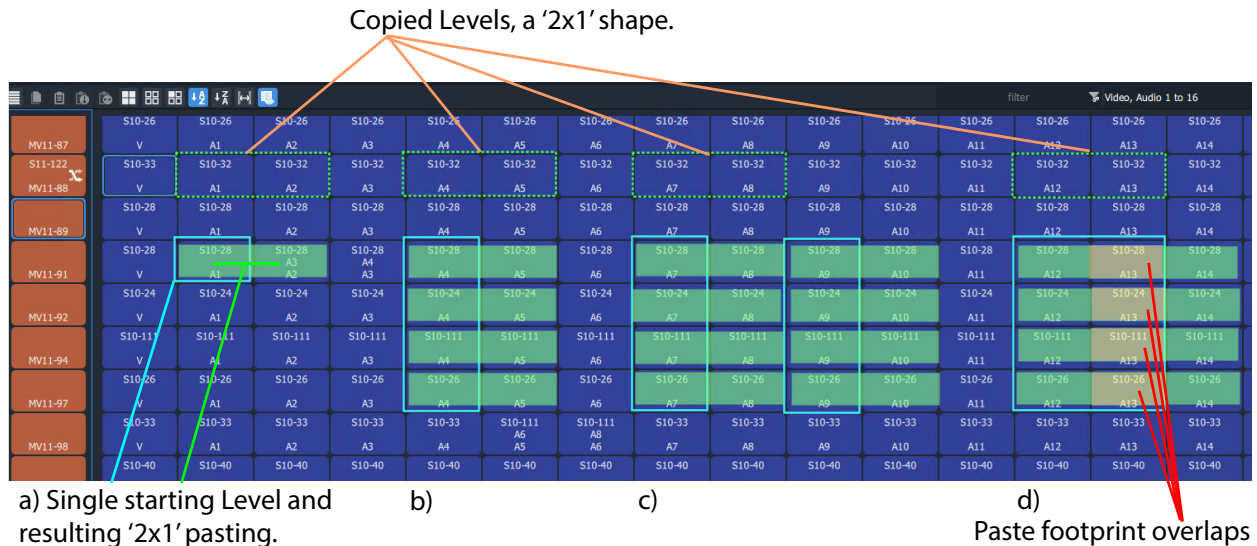


Fig. 5-89: Example Level Pasting

Levels Paste Warning

For a **Levels Copy-Paste** operation which has more than one 'starting Level', if the operation will result in overlapping paste footprints (see Figure 5-89d), a **Levels Paste** warning pops up. See Figure 5-90.



Fig. 5-90: Level Paste Warning

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

List View Routing Summary

List View Routing Summary - All-Levels

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

List View Routing Summary - One-Level

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

One Level to Multiple Levels

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

List View Routing Summary - Destination Copy

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

List View Routing Summary - Paste Levels

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

GV Orbit Custom User Panels

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

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

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

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

See:

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

Amend an Existing GV Orbit C&M Project

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

- 1 Open/create a GV Orbit C&M project.
- 2 In the main menu, click on **Control and Monitoring > Connections > GVOP** and set the **Client Domain** to a domain with an GV Orbit Routing Service running.
- 3 Create a **New Screen**.
(I.e. in the **Project** window: expand the project item, right-click on 'screens', and select 'New Screen', enter a name, and click OK.)
A new blank C&M project screen opens as a tabbed screen.
- 4 In the new C&M project screen, add a **Button** widget.
(I.e. drag on a **Button** widget from the widget icons along the bottom edge of the GV Orbit Client application window.)
- 5 Edit the **Button** widget's **Caption** property. See Figure 5-91.

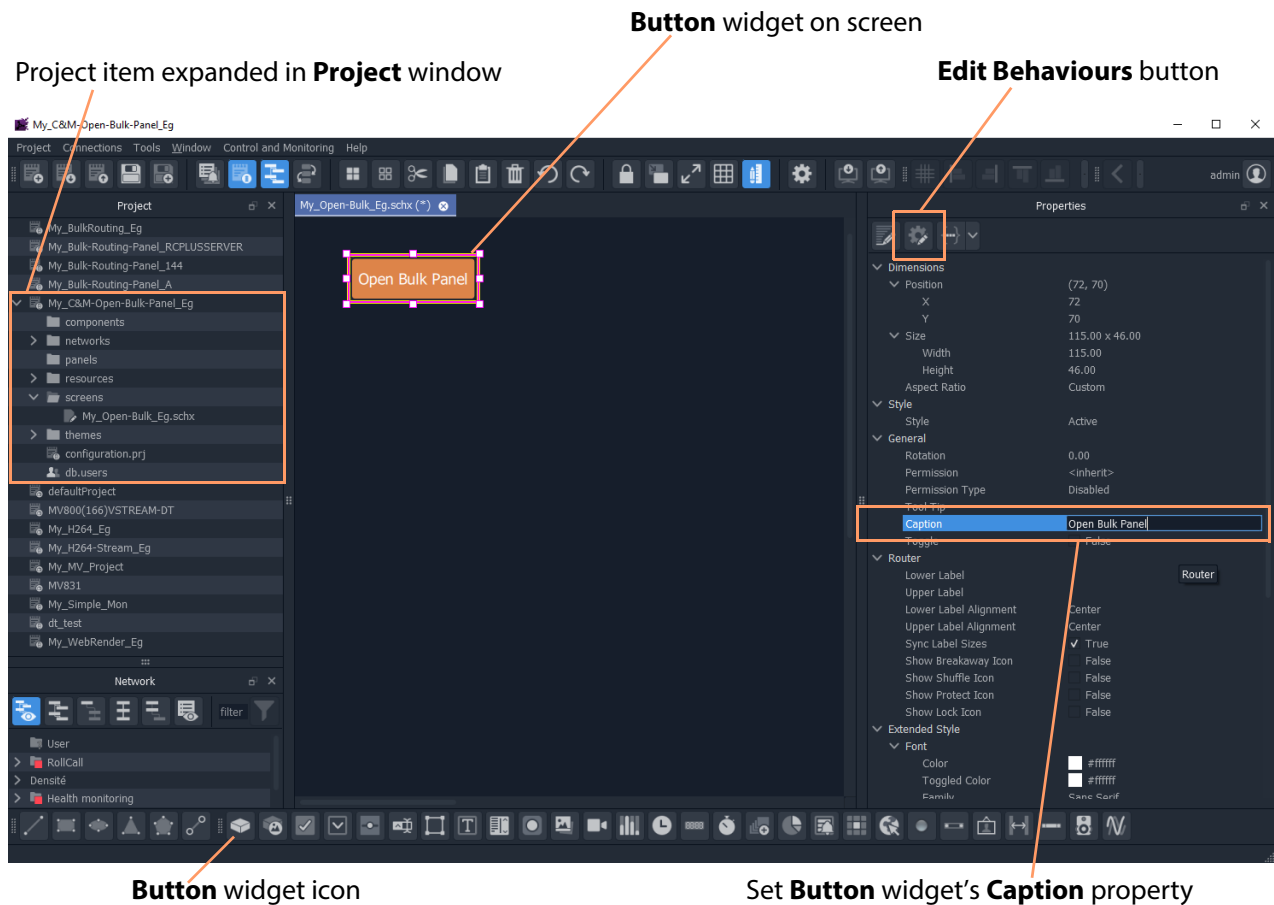


Fig. 5-91: C&M Project Screen with Button Widget

- 6 Select the **Button** widget on screen.
- 7 Click on the **Edit Behaviours** button.
The 'Behaviour and Bindings' graphical editor is shown. See Figure 5-92.
In the 'Behaviour and Binding' graphical editor:
 - 8 Select to show 'Routing' Behaviours and click on the 'Load Panel' item.
A **Load Panel** Behaviour and a configured **Click Handler** Binding is automatically placed into the graphical editor.
See Figure 5-92.

'Behaviour and Binding graphical editor'

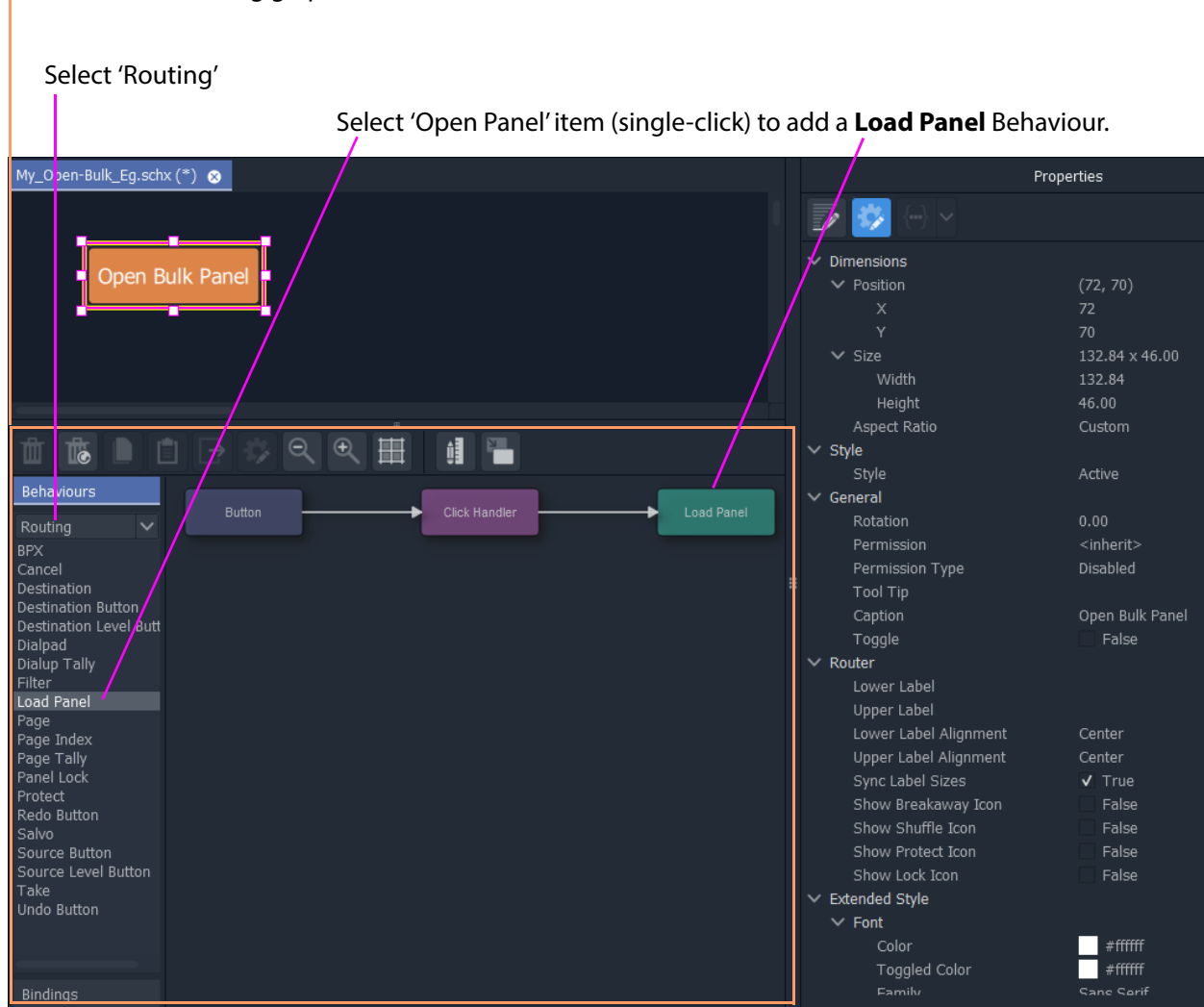


Fig. 5-92: Behaviour and Bindings Graphical Editor

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

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

In the **Network** window:

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

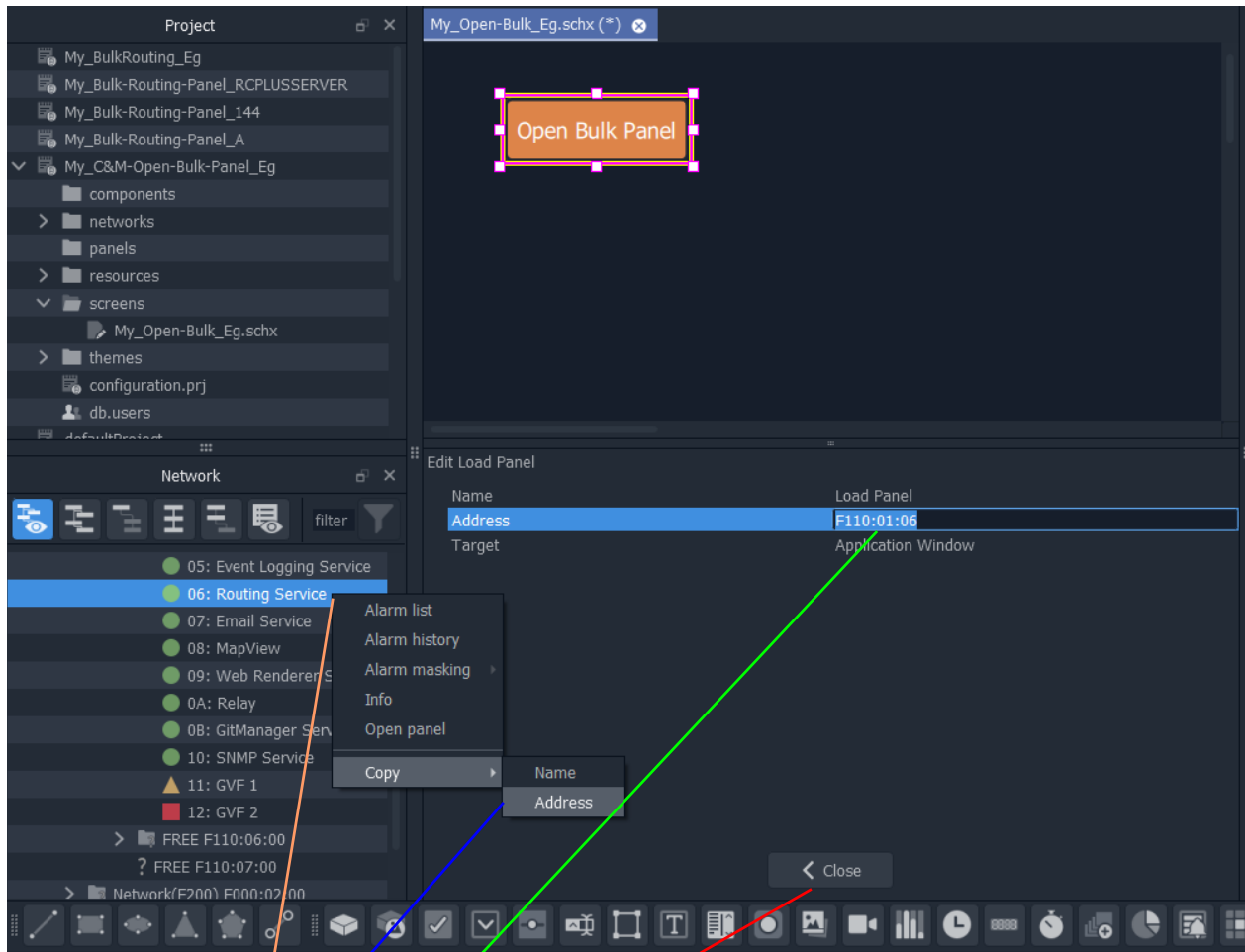
11 Right-click on the **Routing** service item and select 'Copy > Address':

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

In the graphical editor:

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

See Figure 5-93.



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

Select 'Copy > Address'.

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

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

Fig. 5-93: Setting Load Panel Behaviour's RollCall Address

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

To save this project change:

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

15 Click **Project > Save Project**.

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

Exercise the C&M Custom Screen

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

- 1 Click the **Design/Run Mode** button in the main tool bar of the GV Orbit Client application window. See Figure 5-96a.



Click to enter **Run** mode.

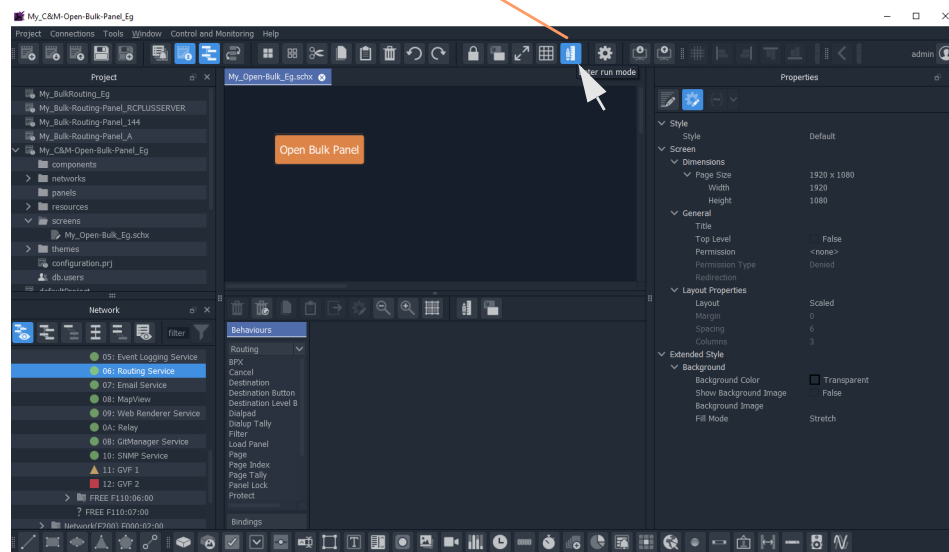


Click to enter **Design** mode.

Fig. 5-94: Design/Run Mode Icon (in Main Tool Bar)

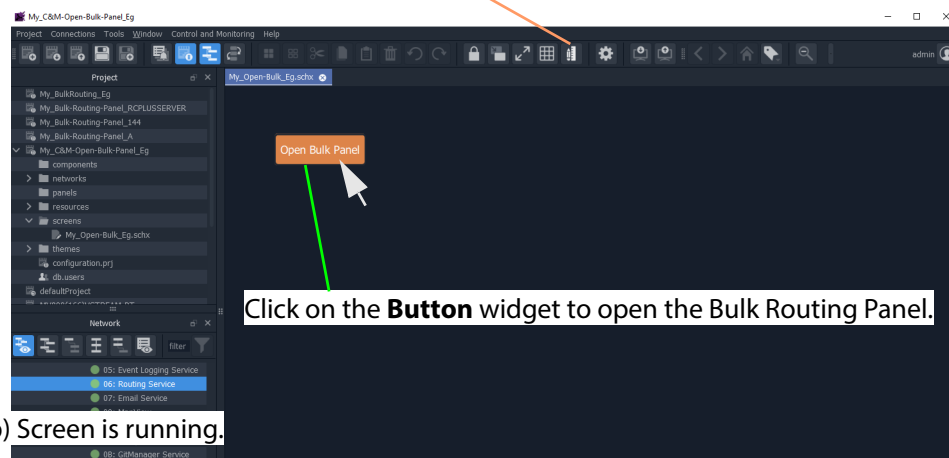
The GV Orbit Client enters **Run** mode and the custom screen is run. See Figure 5-96b.

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



- a) Click to Enter Run Mode

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



- b) Screen is running.

Fig. 5-95: Running the Custom Screen

- Click on the **Button** widget to open a new tab containing an Bulk Routing Panel. See Figure 5-96.

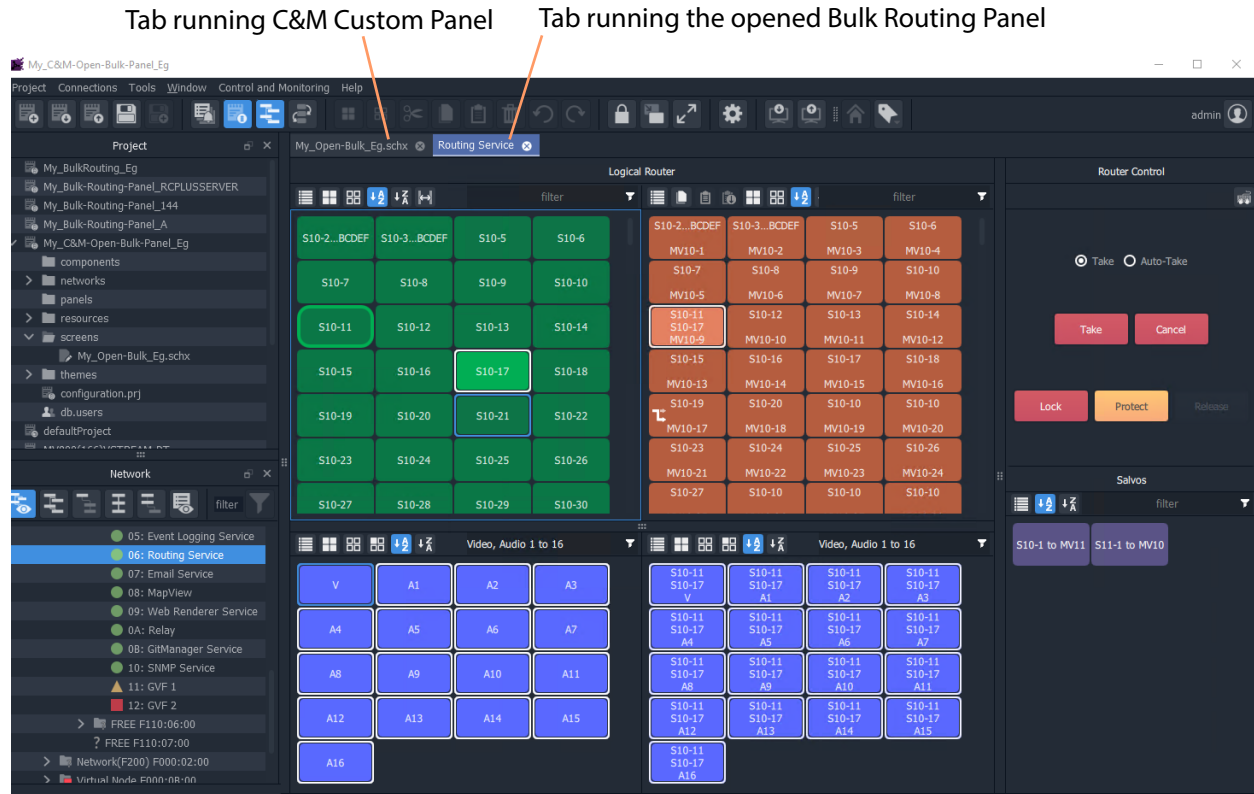


Fig. 5-96: Bulk Routing Panel Opened in a Tab

6

Routing Control - XY Routing Panel

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Routing Control - XY Routing Panel

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Introduction

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

- [Routing Control - Bulk Routing Panel](#) - a simple, non-editable soft panel for fast control of all router cross-points.
- [Routing Control - XY Routing Panel](#) (this chapter) - an editable and customizable soft panel, typically used for small custom panels for specific routing needs.

This chapter describes the **XY Routing Panel**.

GV Orbit System

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

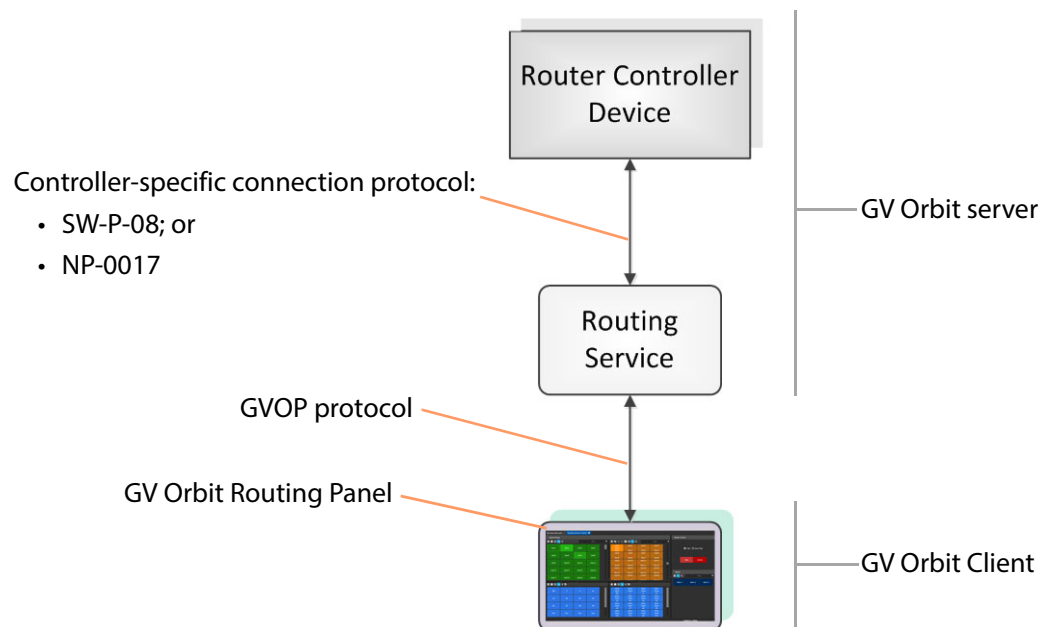


Fig. 6-1: GV Orbit Routing Panel, Routing Service and Router Controller

A GV Orbit system has one or more GV Orbit servers which run GV Orbit services. Routing panels in a GV Orbit Client connect to a router controller device via the GV Orbit Routing service. Router controllers include GV Orbit itself, a Grass Valley Router Controller device, or GV Convergent. The Routing service provides source/destination information to the client and acts on routing commands from the client. See Figure 6-2.

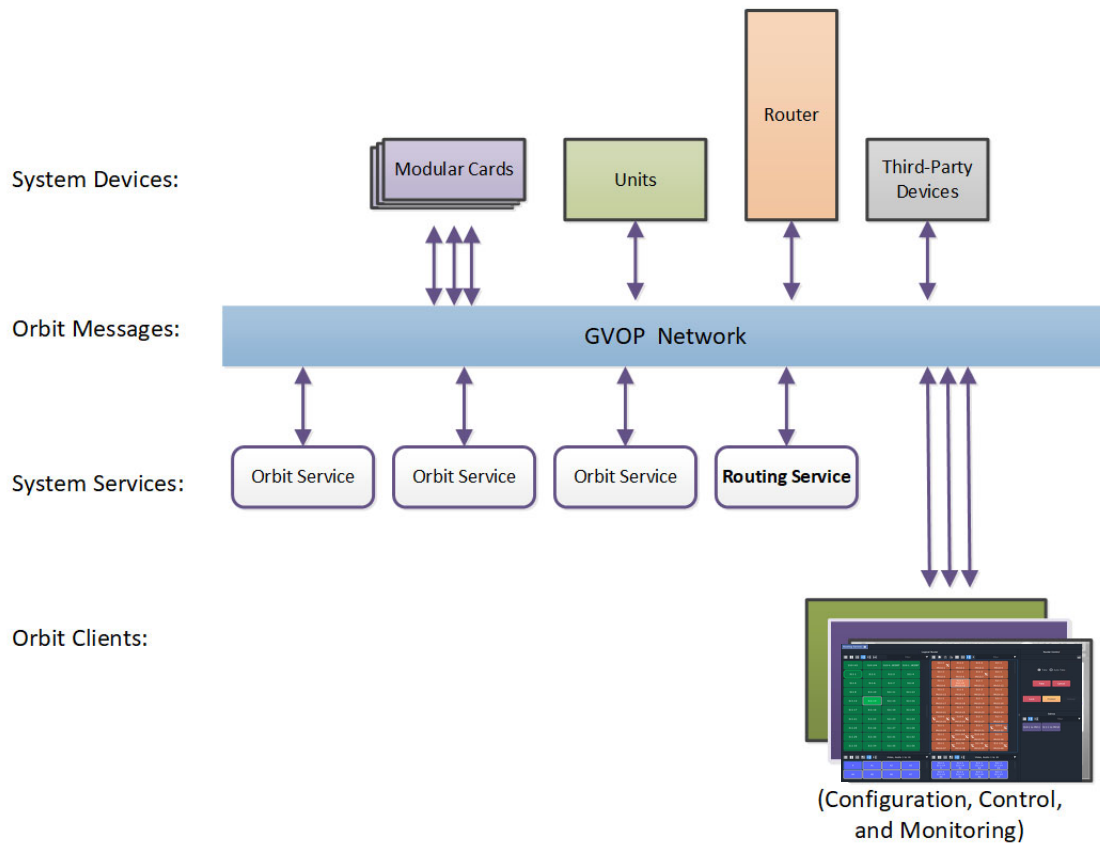


Fig. 6-2: GV Orbit System Diagram

Prerequisites

A GV Orbit server is required, running:

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

What is an XY Routing Panel?

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

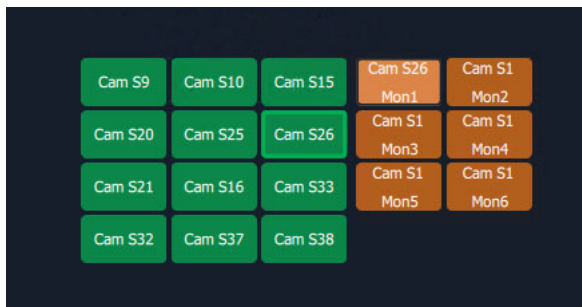
It can be created with a wizard and tailored to most needs. It is a flexible soft routing control panel which may be:

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

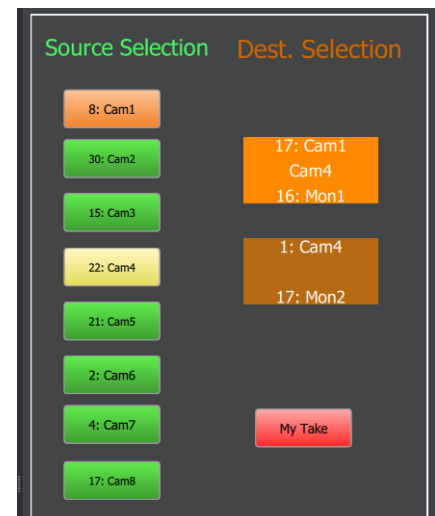
XY panels can also be embedded in GV Orbit soft custom operator/user panels.



a) Example XY Routing Panel from the Wizard



b) Example Customized XY Routing Panel



c) Example with Customized Layout

Fig. 6-3: XY Routing Panel Examples

Key Features

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

This Chapter

This chapter describes:

- [How to Create a New XY Panel](#), on page 271.
- [Customizing with the XY Wizard](#), on page 274.
- [XY Panel Layout](#), on page 280.
- [Getting XY Routing Panel Running](#), on page 288.
- [XY Panel Operation](#), on page 292.
- [Assigning Ports to a Port-per-Button XY Panel](#), on page 303, including:
 - [Assigning Port-per-Button](#), on page 303.
 - [Assign Ports to Individual Buttons](#), on page 303.
 - [Quick Port-per-Button Assignment](#), on page 307.
- [Customizing an XY Panel](#), on page 311, including:
 - [Further Editing an XY Panel](#), on page 311.
 - [Creating a Custom XY Panel from Scratch](#), on page 312.
 - [Creating a Custom BPX Panel](#), on page 320.
 - [Enhancing the Appearance of a Panel](#), on page 326.
- [How to Embed an XY Panel into a Custom User Panel](#), on page 332.

How to Create a New XY Panel

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

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

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

Creating a 'panels' Folder for Early GV Orbit Projects

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

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

To create a missing 'panels' folder:

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

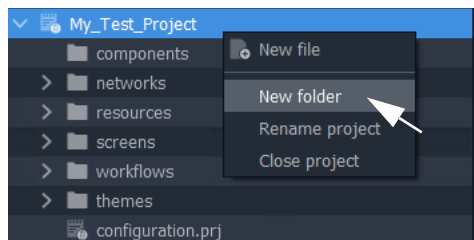


Fig. 6-4: Creating a New 'panels' Folder'

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

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

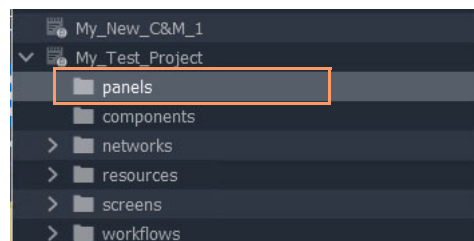


Fig. 6-5: New 'panels' Folder'

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

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

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

Note: A project folder named 'panels':

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

The folder name is case-sensitive.

Create a New XY Routing Panel

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

- 1 Expand the project name in the **Project** window and look for the 'panels' sub-folder.
- 2 Right-click on the 'panels' folder and select 'New Panel'. See Figure 6-6.

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

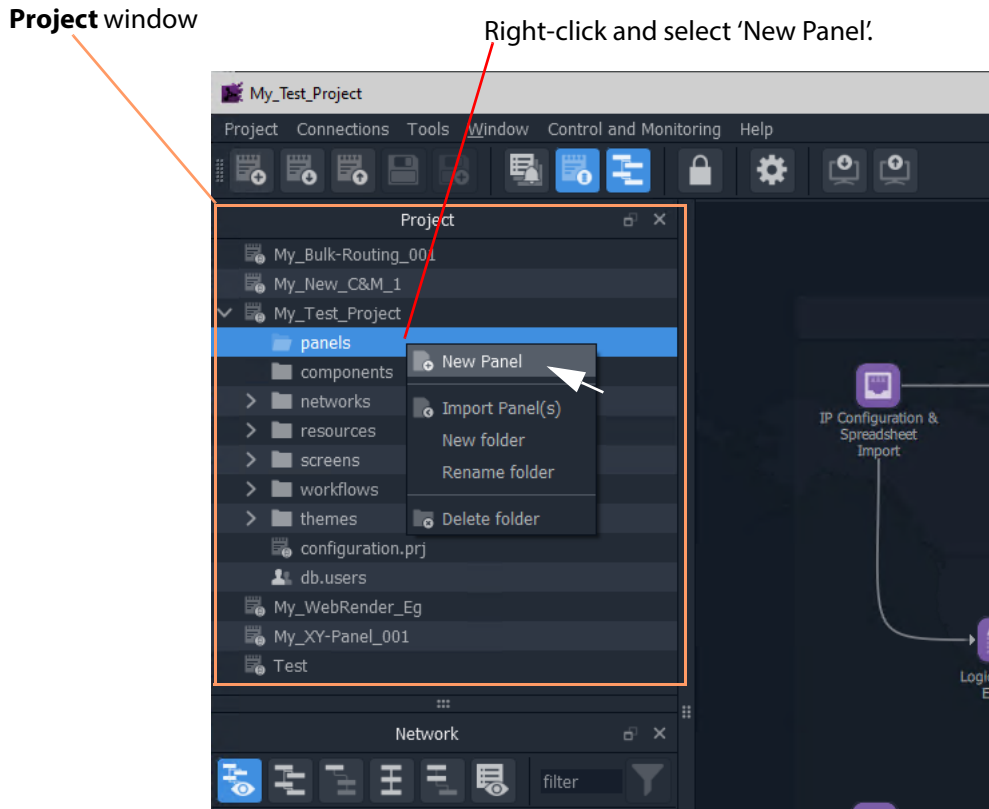


Fig. 6-6: Create a New XY Routing Panel

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

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

Figure 6-7 shows an example with GV Orbit shown in 'Design Mode' (not 'Run Mode').

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

This has created a default new, generic XY Panel (see example in Figure 6-7) which is editable and customizable, see [Customizing with the XY Wizard](#), on page 274. Various button types can be shown/hidden on the panel with the wizard.

GV Orbit Client shown in 'Design Mode'.

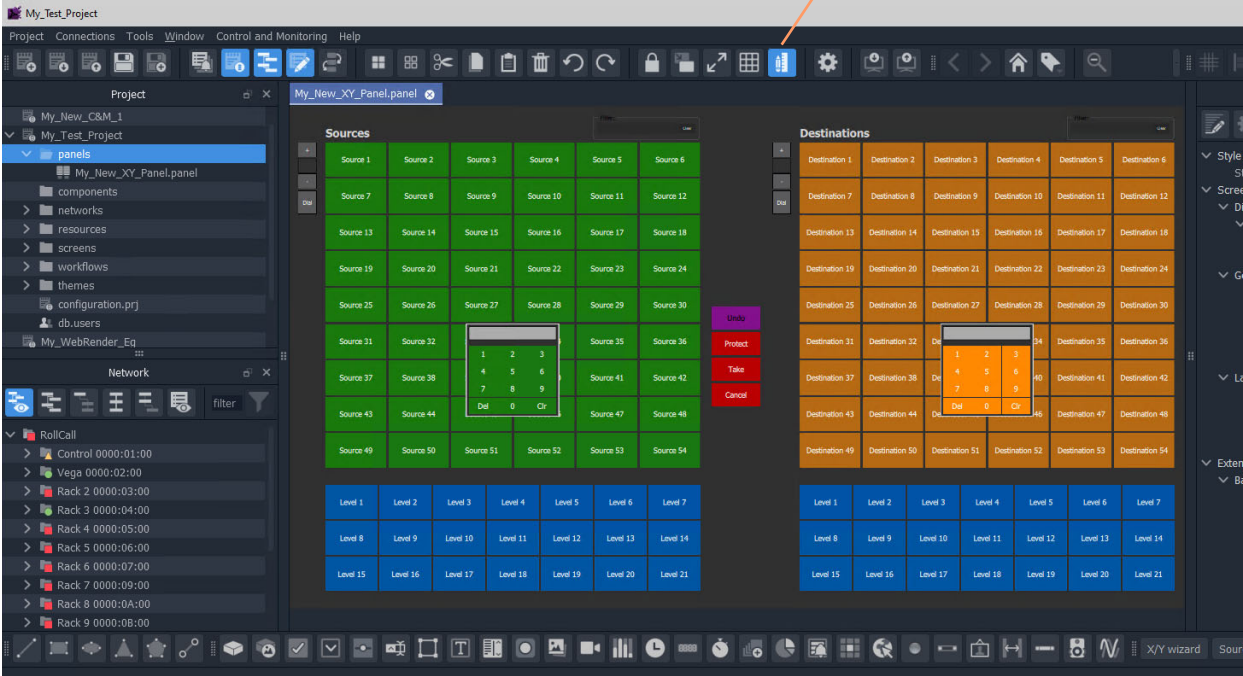


Fig. 6-7: Example New Generic XY Routing Panel

Customizing with the XY Wizard

A default new, generic XY Panel can be created (see [How to Create a New XY Panel](#), on page 271) which is editable and customizable. When an XY Panel is open in GV Orbit Client, the panel is editable with the client in 'Design Mode' (rather than in 'Run' mode).

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

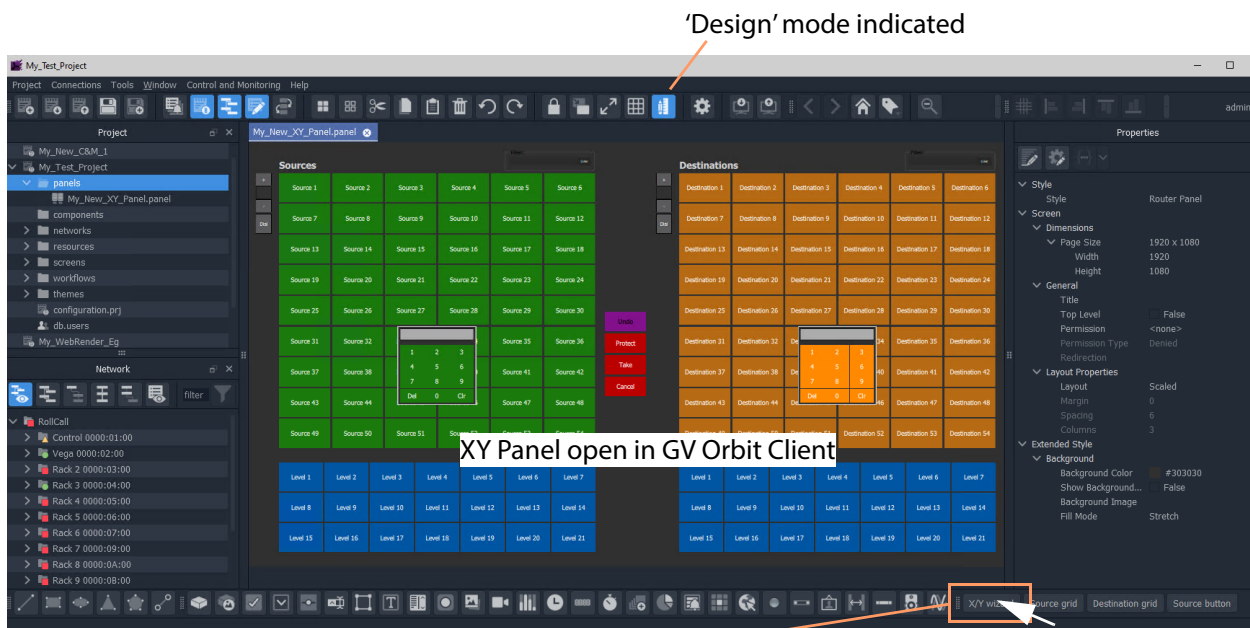
- panel size;
- number of and arrangement of Sources/Destinations; and
- enabling/disabling of other controls.

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

To Open the XY Wizard

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

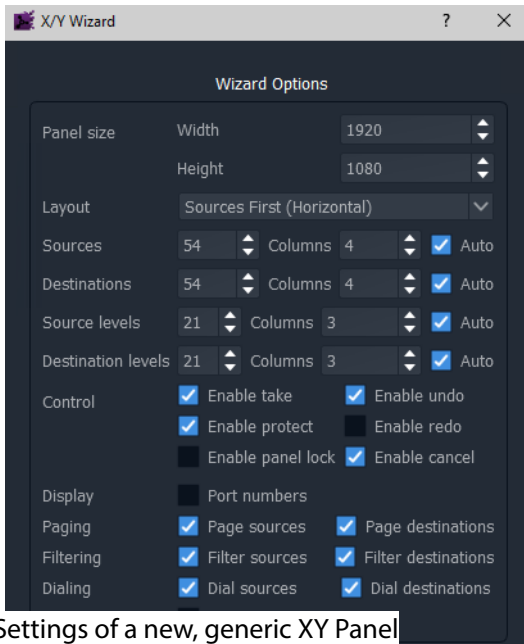
- 1 Open the XY Panel and go to 'Design' mode in GV Orbit Client.
- 2 Click **XY Wizard** button. See Figure 6-8.



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

Fig. 6-8: XY Wizard Button

The **XY Wizard** dialog is displayed for editing the XY panel. For a new XY Panel, it is generic XY panel settings that are shown selected. See Figure 6-9.



a) Settings of a new, generic XY Panel



b) Corresponding XY Panel

Fig. 6-9: XY Wizard Dialog (a) and Panel (b, New, Generic Panel Settings Shown)

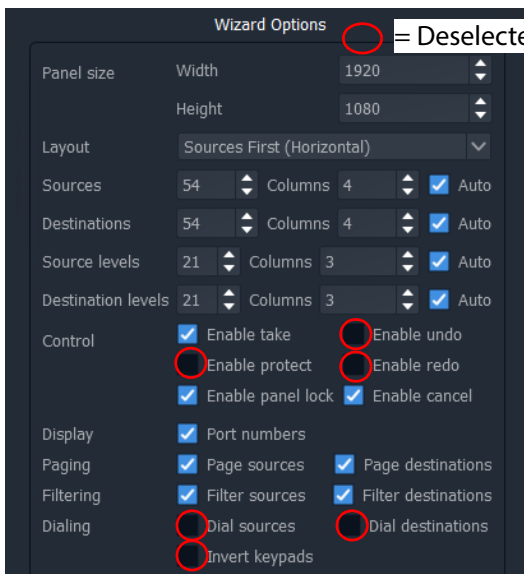
Note:

Some settings are *not* currently applicable to a GV Orbit system, these include:

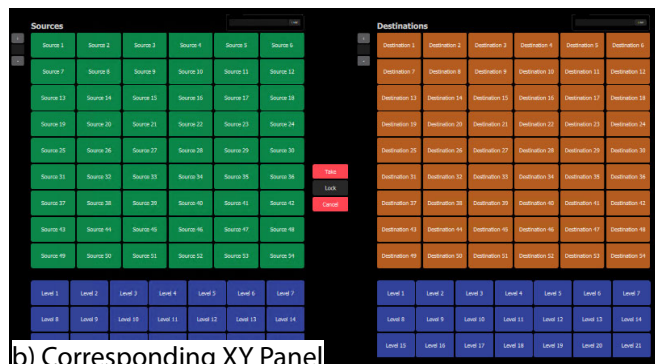
Undo, Re-do, Protect and Dial.

Recommendation:

Deselect these settings for GV Orbit systems. See Figure 6-10.



a) Deselected Settings for GV Orbit



b) Corresponding XY Panel

Fig. 6-10: XY Wizard Dialog and Panel (Deselected Settings Shown for a GV Orbit System)

- 3 Deselect the wizard options that are not applicable to GV Orbit. See Figure 6-10a.
 The panel appearance changes in response to the settings changes as they are made.
 See Figure 6-10b.

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

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

The modified XY Panel has been saved.

XY Wizard Settings

Table 6-1: XY Wizard Dialog Settings

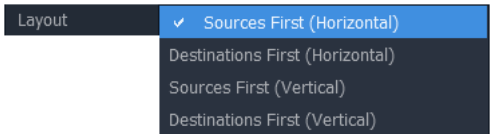
Item	For GV Orbit	Description
Panel Size:		Sets the overall size of the XY Panel (in pixels). Normally, set this to be the size of the monitor used to display the panel.
Width	✓	Text box. Enter the panel screen width (pixels). Default = 1920.
Height	✓	Text box. Enter the panel screen height (lines).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

Table 6-1: XY Wizard Dialog Settings (continued)

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

Table 6-1: XY Wizard Dialog Settings (continued)

Item	For GV Orbit	Description
<p>Paging:</p> <p>Page Sources</p> <p>Page Destinations</p>	<p>✓</p> <p>✓</p>	<p>The Source selection and Destination selection button-grids can be independently configured for either:</p> <ul style="list-style-type: none"> • paging through all of the respective router sources/destination ports; or for • accessing a specific router source/destination port per button. <p>Check box.</p> <p>Control Source button-grid configuration:</p> <ul style="list-style-type: none"> • Select for 'Paged': Paged Source port selection. Button-grid gives paged access to all router Sources, indexed. See Paged Ports, on page 282. • Deselect for 'Port-per-Button': A 'fixed' specific Source port is assignable per button. Each button accesses a specific Source port, non-indexed. See Port-per-Button, on page 282. <p>Check box.</p> <p>Control Destination button-grid configuration:</p> <ul style="list-style-type: none"> • Select for 'Paged': Paged Destination port selection. Button-grid gives paged access to all router Destinations, indexed. See Paged Ports, on page 282. • Deselect for 'Port-per-Button': A 'fixed, specific Destination port is assignable per button. Each button accesses a specific Destination port, non-indexed. See Port-per-Button, on page 282.
<p>Filtering:</p> <p>Filter Sources</p> <p>Filter Destinations</p>	<p>✓</p> <p>✓</p>	<p>Check box.</p> <ul style="list-style-type: none"> • Select to show Sources filter control. <p>Check box.</p> <ul style="list-style-type: none"> • Select to show Destinations filter control.
<p>Dialing:</p> <p>Dial Sources</p>	<p>✗</p>	<p>For dial-up selection of a Source or a Destination via its router port number.</p> <p>Note: Dialing does not apply to GV Orbit systems and these controls should be deselected.</p> <p>This does not apply to GV Orbit systems.</p> <p>Check box.</p> <ul style="list-style-type: none"> • Select to show Sources dial-up controls. • Deselect for GV Orbit systems.

Table 6-1: XY Wizard Dialog Settings (continued)

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

XY Panel Layout

The layout and controls of a newly-created XY Panel are shown in Figure 6-11.



Fig. 6-11: Example New XY Panel Layout

An XY Routing Panel is designed in and run from the Client application. Figure 6-11 shows a view of the XY Panel in 'Design Mode' and Figure 6-12 shows an annotated view in 'Run' mode.

The panel is laid out with the following main grids/areas (see Figure 6-12):

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



Click to toggle
Source Port Dial Grid
on/off.

Note: Dial Grids are *not* applicable to GV Orbit systems.

Click to toggle
Destination Port Dial Grid
on/off.

Button face legend:

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

Buttons show names and router port numbers, see Figure 6-15.

Fig. 6-12: New XY Panel Layout and Controls (Annotated, 'Run' Mode)

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

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

Source and Destination Selection Button-Grids

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

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

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

Paged Ports

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

Figure 6-13 shows a running example XY Panel with 12-button button-grids configured for 'paged ports' operation. Each paged button grid has paging controls to access all router ports (source or destinations accordingly). Page 1 starts at port 1 and shows consecutive ports on the button grid buttons.

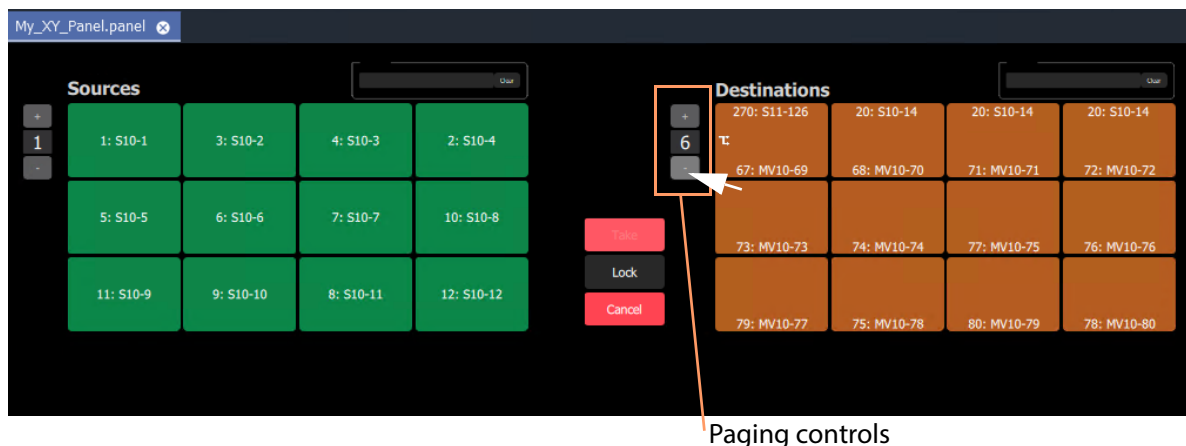


Fig. 6-13: Example Paged Ports Button Grid

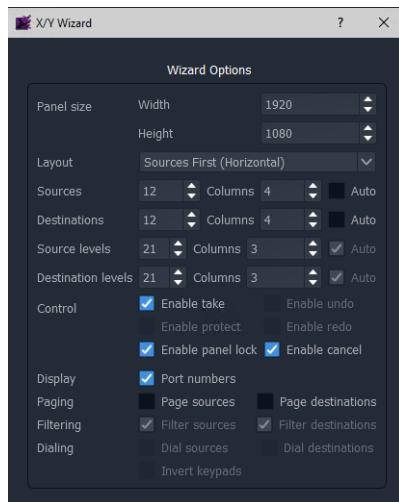
Port-per-Button

A Source or Destination button-grid can be configured for accessing a 'fixed', specific router source/destination port per button. (Configuration is done in the [XY Wizard Settings](#), on page 276.)

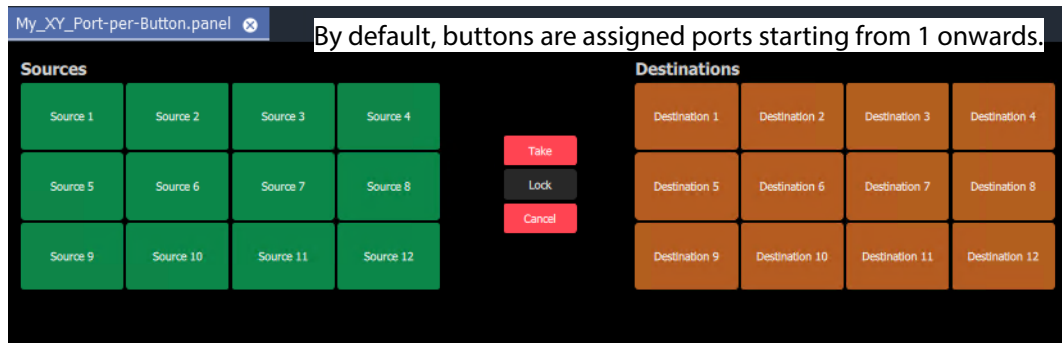
Figure 6-14 shows an example XY Panel with 12-button button-grids configured for 'port per button' operation. There is no paging here.

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

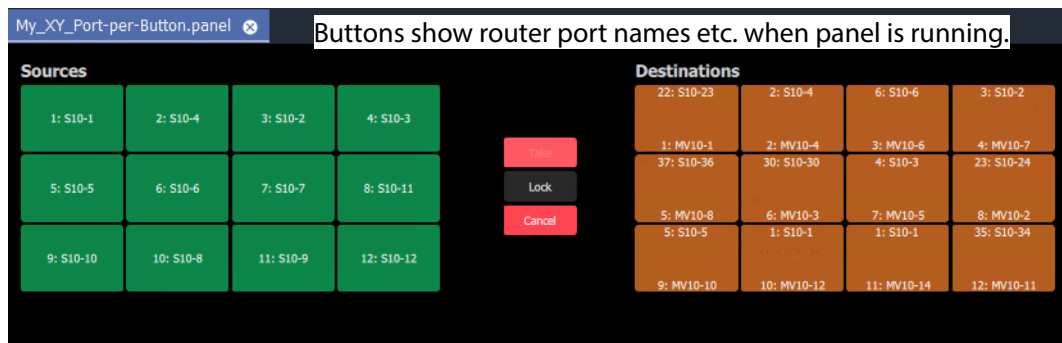
Each button can be further configured to access a specific port, as required. See [Assigning Port-per-Button](#), on page 303.



a) Wizard settings used in the example here



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



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

Fig. 6-14: Example Port-per-Button

Source/Destination Button Annotations

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

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

Buttons can be configured to show router port numbers and port names, see [XY Wizard Settings](#), on page 276.

Figure 6-15 shows button-face annotations.

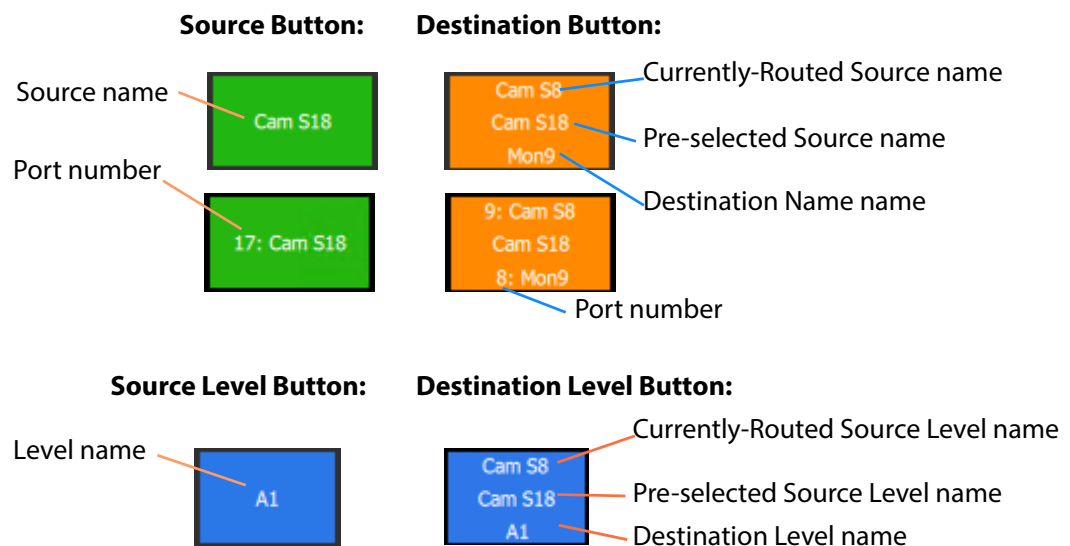


Fig. 6-15: XY Panel Buttons on a Running XY Panel

Routing Control Buttons

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

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

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

XY Routing Panel- Operational Keys

Table 6-2: XY Panel Operational Keys

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

XY Panel Level Selection

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

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

XY Panel Right-Click Menus

Right-click on background of a XY Routing Panel to show a drop-down context menu. See Figure 6-16.

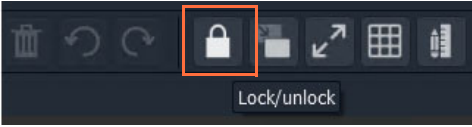
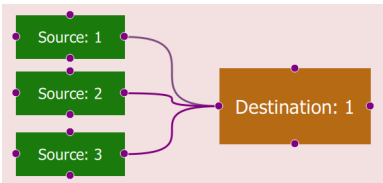


Fig. 6-16: XY Panel Background Right-Click Menu: a) in 'Run' Mode; b) in 'Design' Mode.

Table 6-3: XY Panel Right-Click Menu Items

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

Table 6-3: XY Panel Right-Click Menu Items (continued)

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

Getting XY Routing Panel Running

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

What is a Routing Service?

As part of setting up a GV Orbit system, a **Routing** service must be configured with a RollCall address and a GVOP domain, and started up to run on a GV Orbit server. The **Routing** service uses its RollCall address and is visible in the **Network** window of a GV Orbit Client and see Figure 6-17.

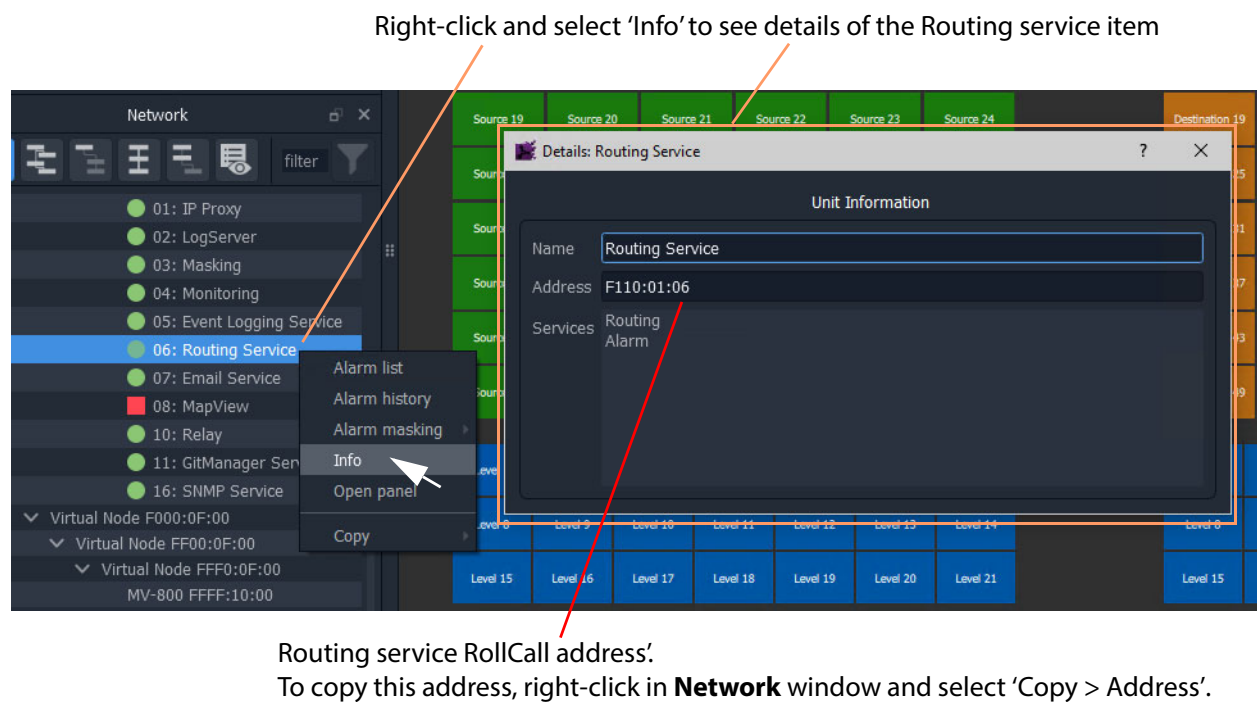


Fig. 6-17: Routing Service in Network Window

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

How to Connect an XY Panel to a Routing Service

Automatic Setup

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

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

Manual Setup

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

- 1 In the **Network** window, right-click on the **Routing** service item, and select 'Copy > Address'.
This copies the RollCall address of the service into your copy buffer.
- 2 Go to the XY Panel and right-click on the XY Panel background and select 'Variables...'.
The **Variables** dialog is shown. See Figure 6-18.

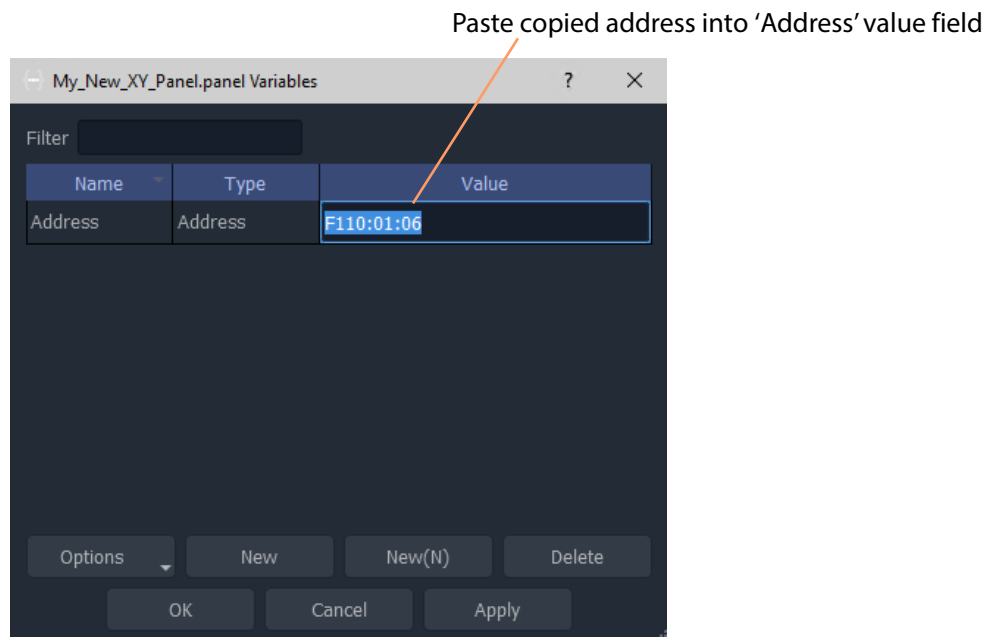


Fig. 6-18: Setting Routing Service RollCall Address for XY Panel

- 3 In the **Variables** dialog, paste in the copied RollCall address into the value of the 'Address' variable. See Figure 6-18. (Alternatively, simply enter the address manually.)
- 4 Click **OK**.
- 5 Click **Save File**. Click **Save Project**.

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

To Run an XY Panel

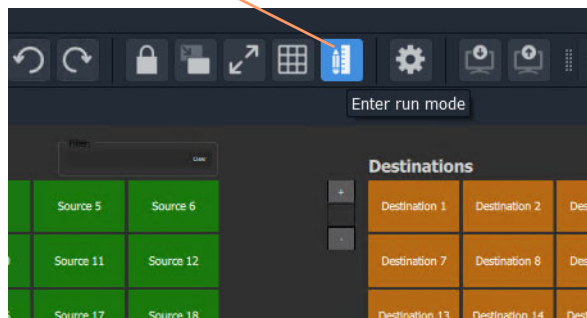
When an XY Panel runs, it connects to the **Routing** service and collects routing information and data (Source names/port numbers, Destination names/port numbers, routed source names etc.) and populates the panel buttons with names and router port numbers etc.

To run an XY panel:

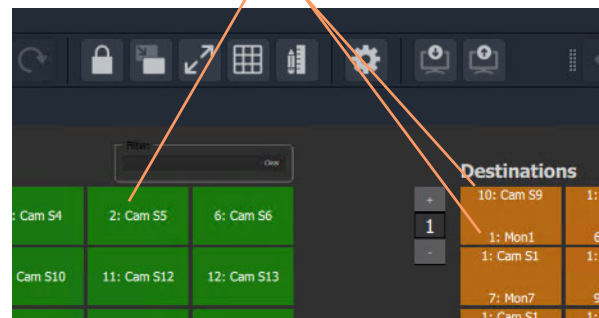
- 1 Open the panel in GV Orbit Client and click on the 'Run' mode/'Design' mode main tool bar icon to enter 'Run' mode. See Figure 6-20.

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

Buttons show actual source and destinations name s etc.



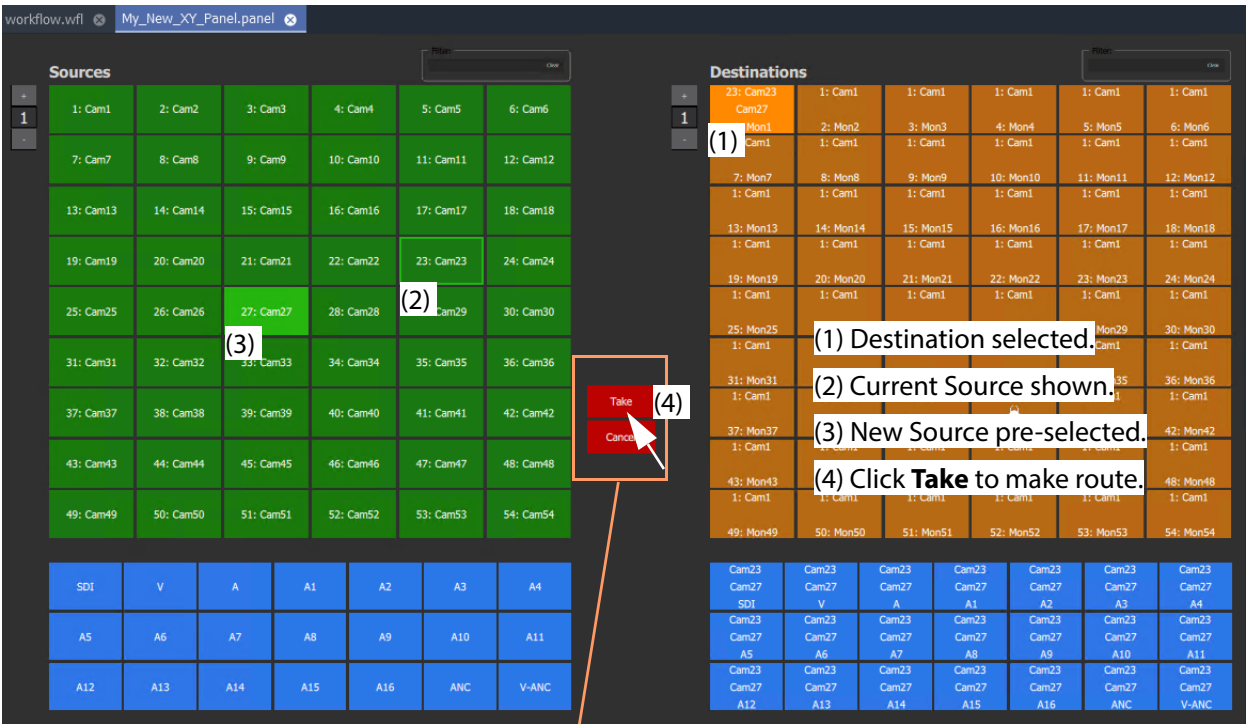
a) XY Panel in 'Design' mode



b) XY Panel in 'Run' mode

Fig. 6-19: Enter Run Mode

The XY Panel run and connects to the **Routing** service and gets source and Destination names etc. See Figure 6-20.



Note: Routing Control buttons can be shown/hidden with the XY Wizard.
(See [Customizing with the XY Wizard](#), on page 274.)

Fig. 6-20: Running XY Panel Example

XY Panel Operation

Make a Simple Route with an XY Routing Panel

Simple Route

To make a simple route:

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

Alternatively, select the **Source** first.

1) Select **Destination**

Currently-routed Source is shown.

2) Select **Source**

3) **Take**



Fig. 6-21: Making a Simple Route

Route One Source to Multiple Destinations

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

The source is routed to all selected destinations.

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

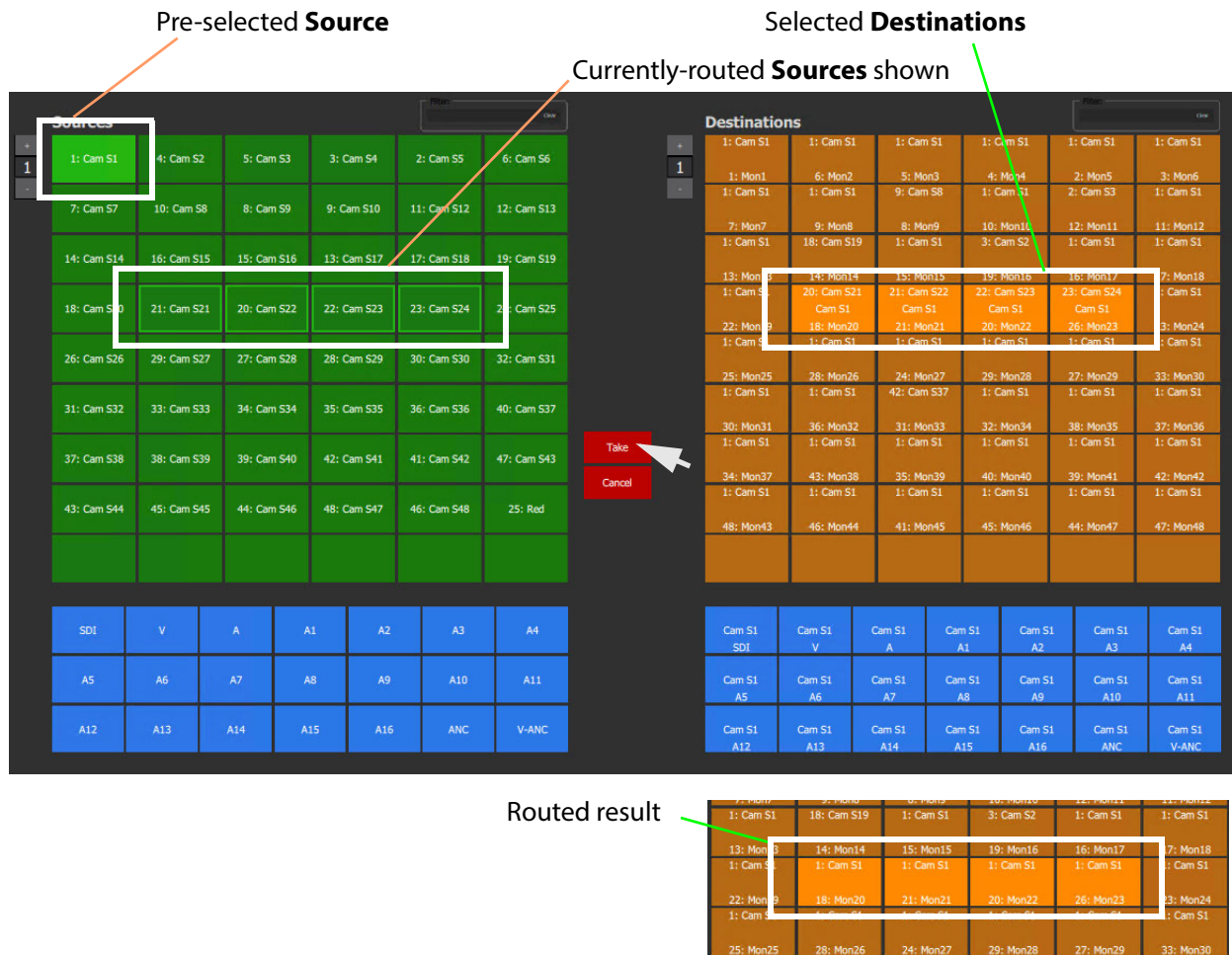


Fig. 6-22: One Source Routed to Multiple Destinations

Alternatively, the source may be selected first.

Route Multiple Sources to Multiple Destinations

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

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

- 5 Click **Take**.

The source is routed to all selected destinations.



Fig. 6-23: Making Multiple Routes

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

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

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

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

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

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

Breakaway

What is a Breakaway?

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

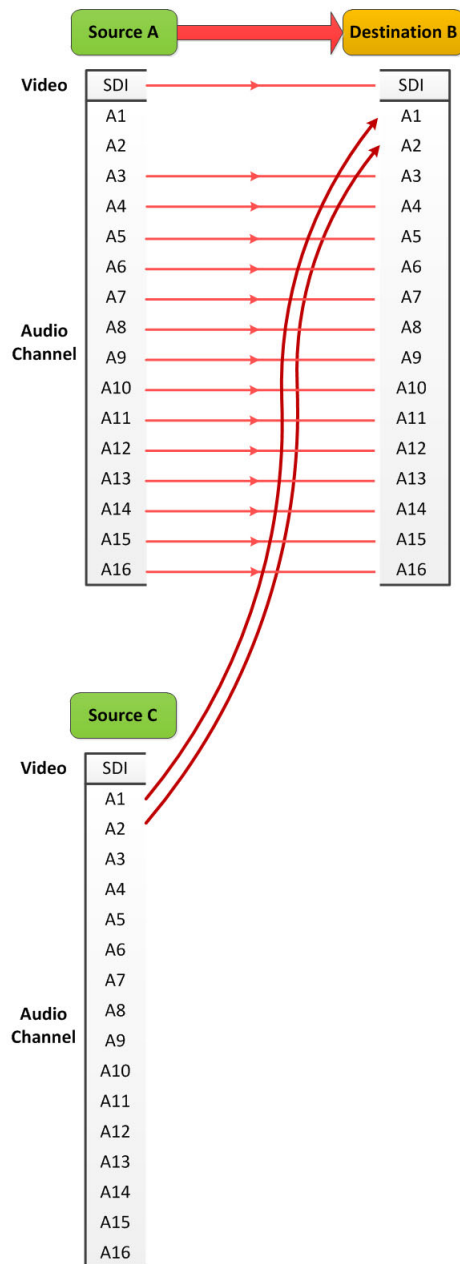


Fig. 6-24: Breakaway

Destinations which are 'unmarried' are indicated with a breakaway icon (Figure 6-25b) on the destination button.

Note: **Implied Breakaway:**

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

Note:

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

Perform a Breakaway

To perform a breakaway (see Figure 6-25):

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

A routing is made: The selected **Destination Levels** have corresponding levels from the preselected **Source** routed to them. See Figure 6-25b.
The **Destination** button shows a 'Breakaway' symbol.

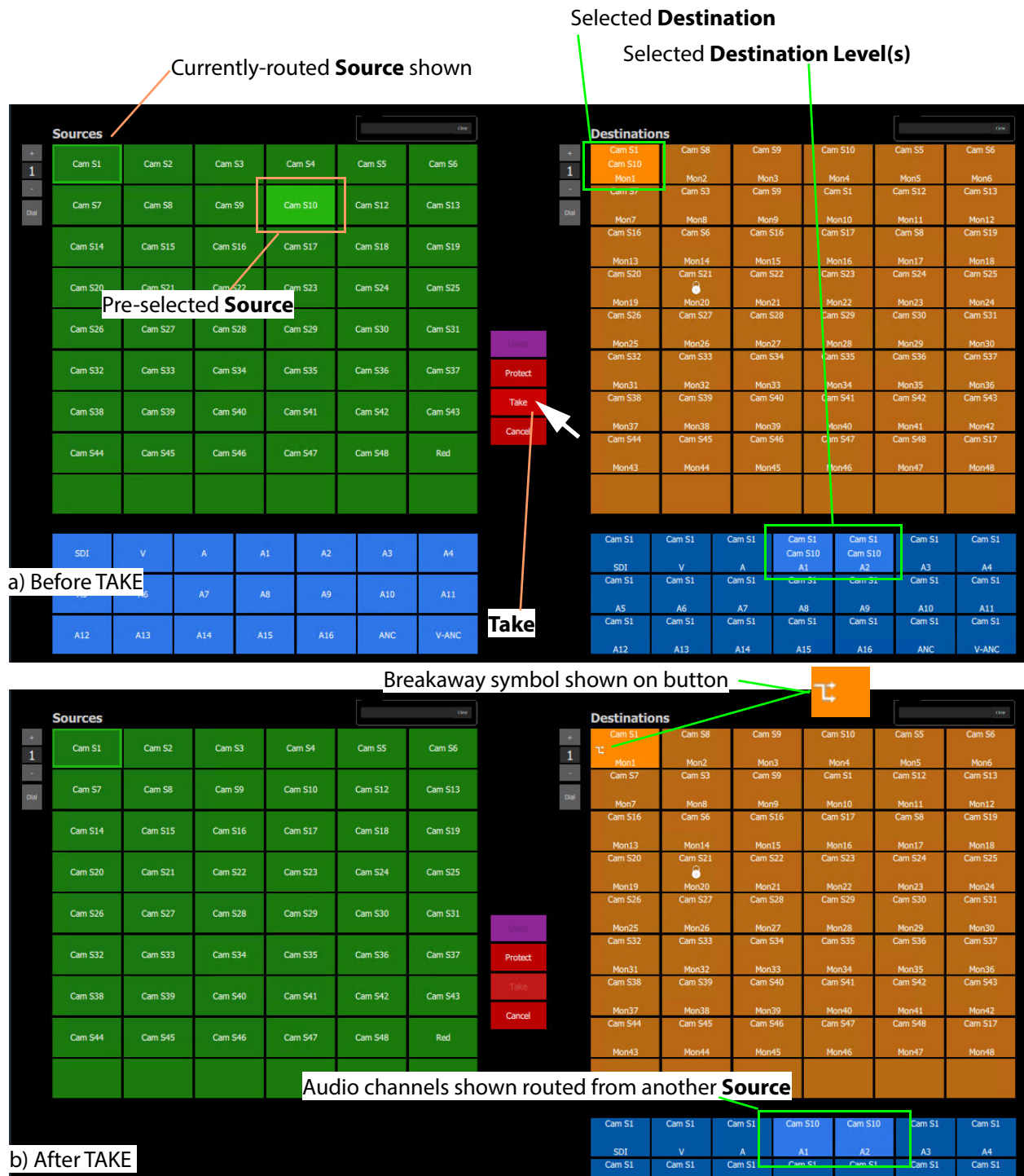


Fig. 6-25: Breakaway Example: a) Before TAKE; b) After TAKE.

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

Shuffle

What is a Shuffle?

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

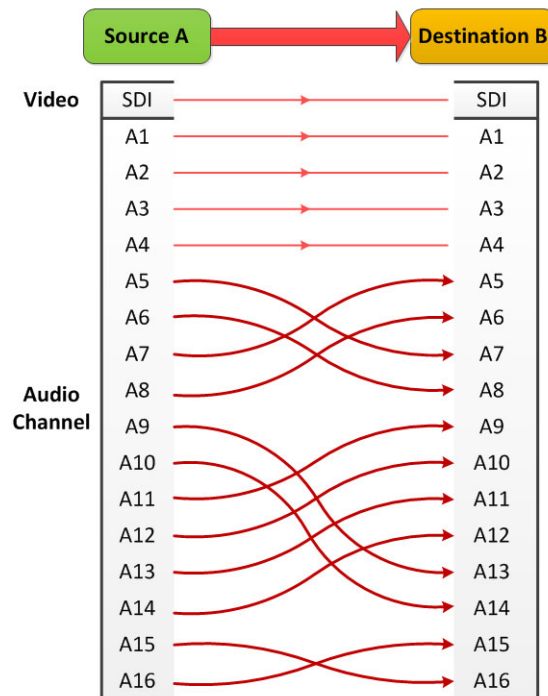


Fig. 6-26: Example Shuffles

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

Example Shuffle

This example swaps two audio channels pairs.

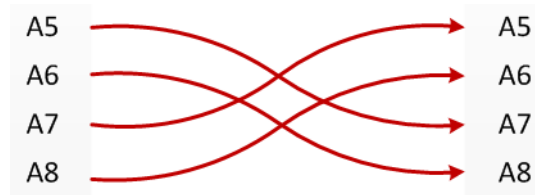


Fig. 6-27: Swap Two Audio Channel Pairs

- 1 Select a **Destination**.
- 2 Select one or more **Destination Levels**. (For example, click on audio channels A5, A6, A7 and A8. See Figure 6-28.)
- 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 6-28 shows a shuffle example, swapping the order of two audio channel pairs, as per Figure 6-27.

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

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

a) Before TAKE

Take

'Shuffle' symbol shown on button

b) After TAKE

Audio channels shown shuffled

Fig. 6-28: Shuffle Example: a) Before TAKE. b) After TAKE.

Routing to a Shuffled Destination

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

For example, when a routing Source 'Cam S10' to the already-shuffled destination 'Mon1', created in [Example Shuffle](#), the Source is routed and the audio stereo pair swapping of Figure 6-27 still exists (but with the new source).

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

Undo Shuffle

This example describes a new routing operation to undo the shuffle of the [Example Shuffle](#), on page 300.

- 1 Click **Cancel** to cancel any selections already made.
- 2 Select the 'already-shuffled' **Destination**.
- 3 Select the shuffled **Destination Levels**.
- 4 Select the currently-routed **Source**.
- 5 Select the **Source Levels** in the *order* in which they shall apply to the **Destination Levels**.
So, to undo our [Example Shuffle](#), on page 300,
select audio channels A5, A6, A7 and A8 *in that order*.
- 6 Click **Take**.

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

Assigning Ports to a Port-per-Button XY Panel

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

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

Assigning Port-per-Button

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

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

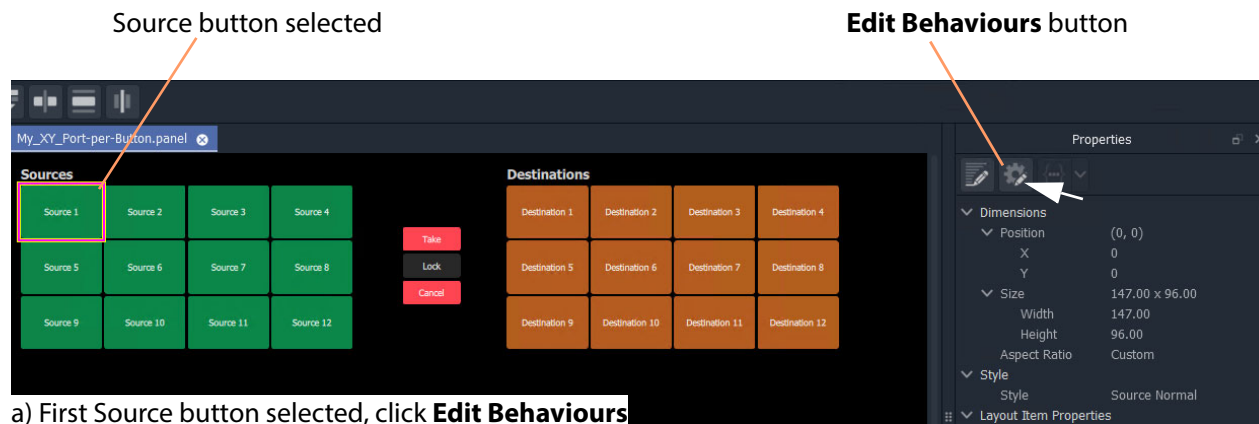
- 1 [Assign Ports to Individual Buttons](#), on page 303. This describes individual assignment of ports to buttons.
- 2 [Quick Port-per-Button Assignment](#), on page 307. This describes selecting all ports with the Bulk Routing panel and copy-pasting this into the XY Panel.

Assign Ports to Individual Buttons

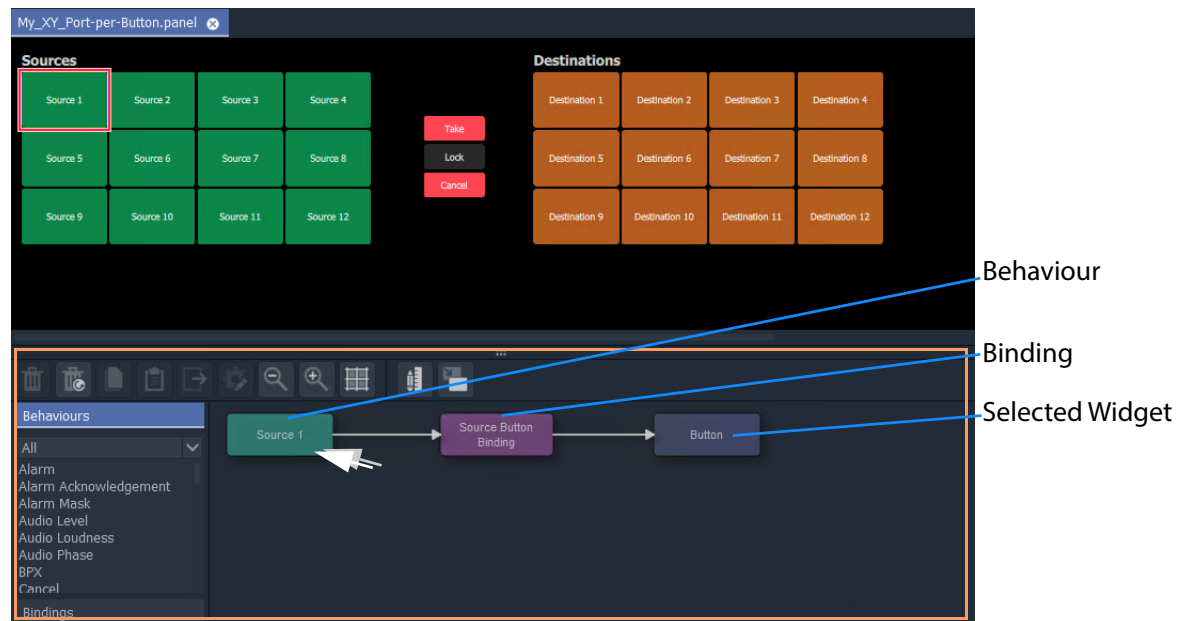
Assigning individual buttons done in the XY Panel in 'Design' mode.

The example of Figure 6-14 shall be used to show how to assign a port to a button:

- 1 In 'Design' mode, select the Source button-grid and 'Alt-select' its first button.
The first button is selected. See Figure 6-29a.
- 2 Click on the **Edit Behaviours** button in the **Properties** box. See Figure 6-29a.
The graphical Behaviours and Bindings editor is opened. See Figure 6-29b.
The editor shows the Behaviours and Bindings linked to the selected button widget.




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



b) Graphical Behaviours and Bindings Editor

Fig. 6-29: Open Behaviour and Bindings Editor

- 3 Double-click on the Behaviour linked to the selected widget.
The properties of the Behaviour are shown. See Figure 6-30a.
- 4 Select the value of the 'Source' property (see Figure 6-30a) and enter a router port to use:
 - enter a port name and/or port number; or
 - click on the  icon and select a Source name from the filterable list; or
 - enter a GV Orbit variable. (For example, {My_Source_Port})

A new 'Source' property value has been entered.

Note: The entered router port may be:


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

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

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


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

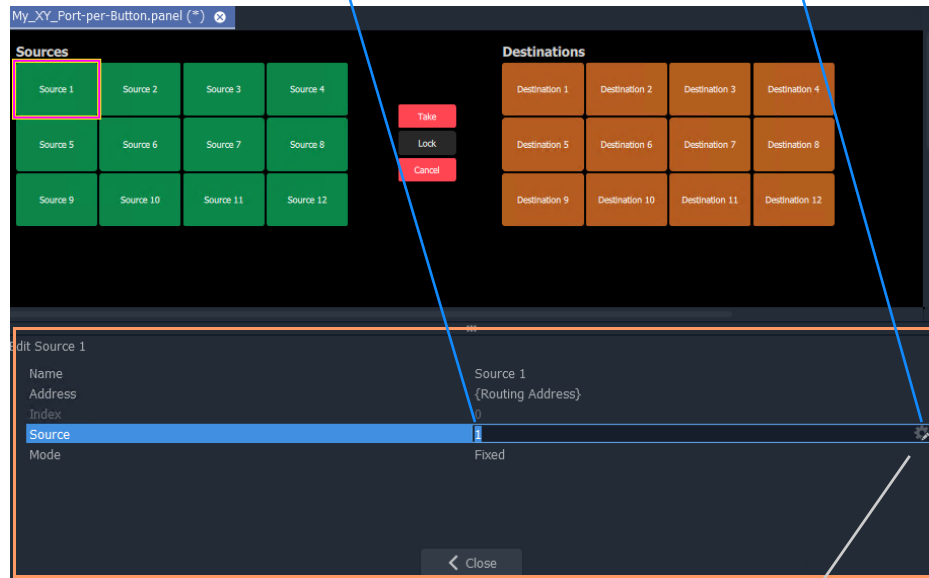
Note: To select a router port from a filterable list:

- Click on the  icon at the far end of the Source/Destination property value field (see Figure 6-30 a).

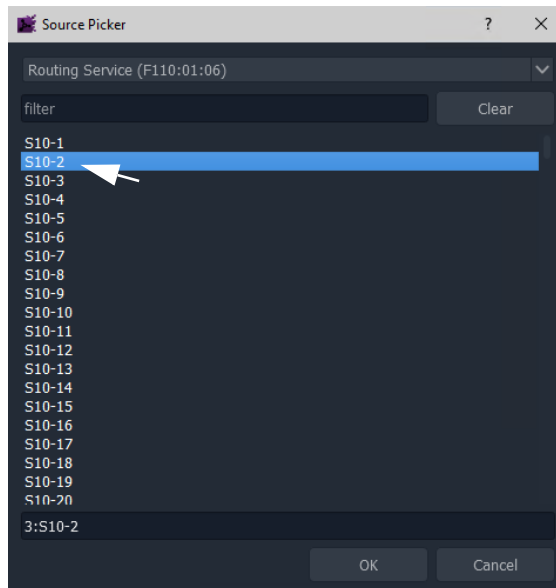
The **Source/Destination Picker** dialog is shown and displays a list of Sources/Destinations. See Figure 6-30b.

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

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



a) Setting 'Source' property of the Behaviour



b) **Source Picker** Dialog (**Destination Picker** is similar)
Fig. 6-30: Setting 'Source' or 'Destination' Property Value

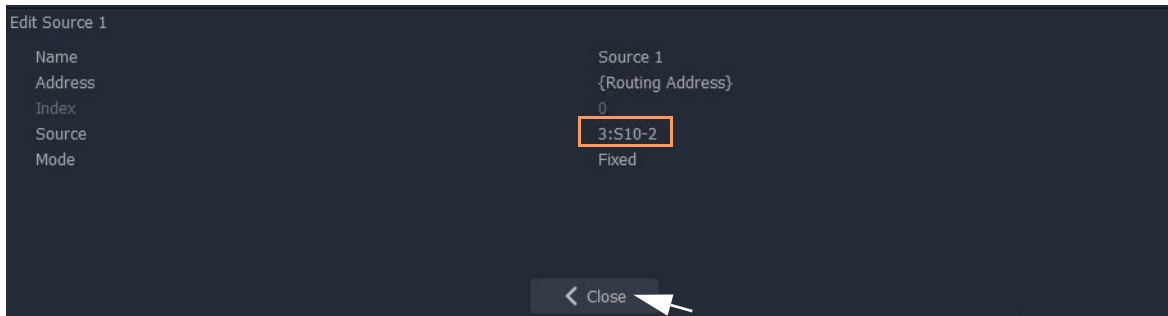


Fig. 6-31: New 'Source' Property Value

- 5 Click **Close**.
- 6 Click **Save File**. Click **Save Project**.
- 7 Enter 'Run' mode.
- 8 The XY Panel runs and the newly-assigned Source is assigned to the Source button, see Figure 6-32.

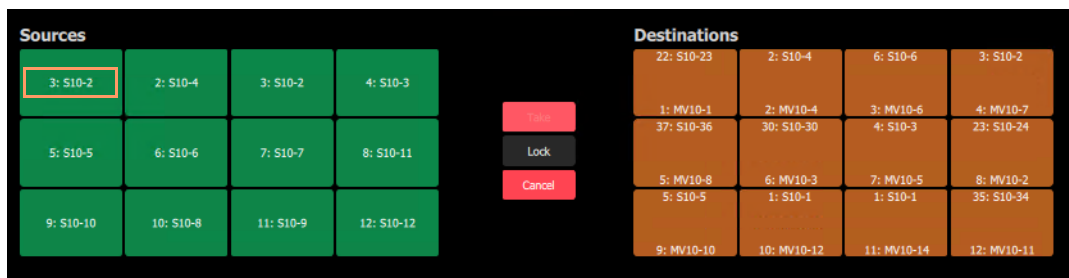


Fig. 6-32: Running XY Panel

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

Destinations buttons are assigned similarly.

Assign all buttons as required.

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

Quick Port-per-Button Assignment

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

Prerequisites:

- A new XY Panel with one or more button grids set to be 'Port-per-Button' (not 'Paged Ports', see 'Paging' setting in [XY Wizard Settings](#), on page 276).

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

To quickly make port-to-button assignments:

- 1 Open a Bulk Routing Panel.
(Click the 'Bulk Routing' icon on the Routing Workflow, see Figure 6-33.)

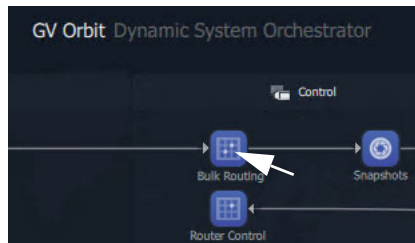
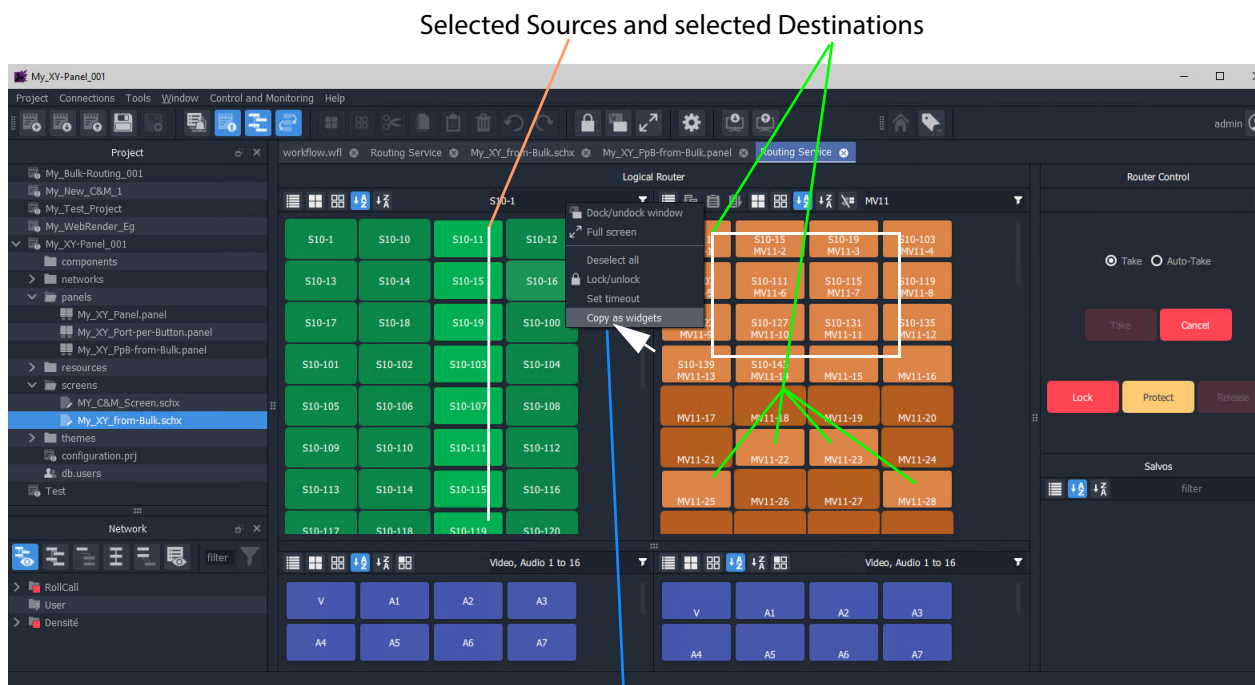


Fig. 6-33: Open Bulk Routing Panel

- 2 Select all the Destination and Source ports required.

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

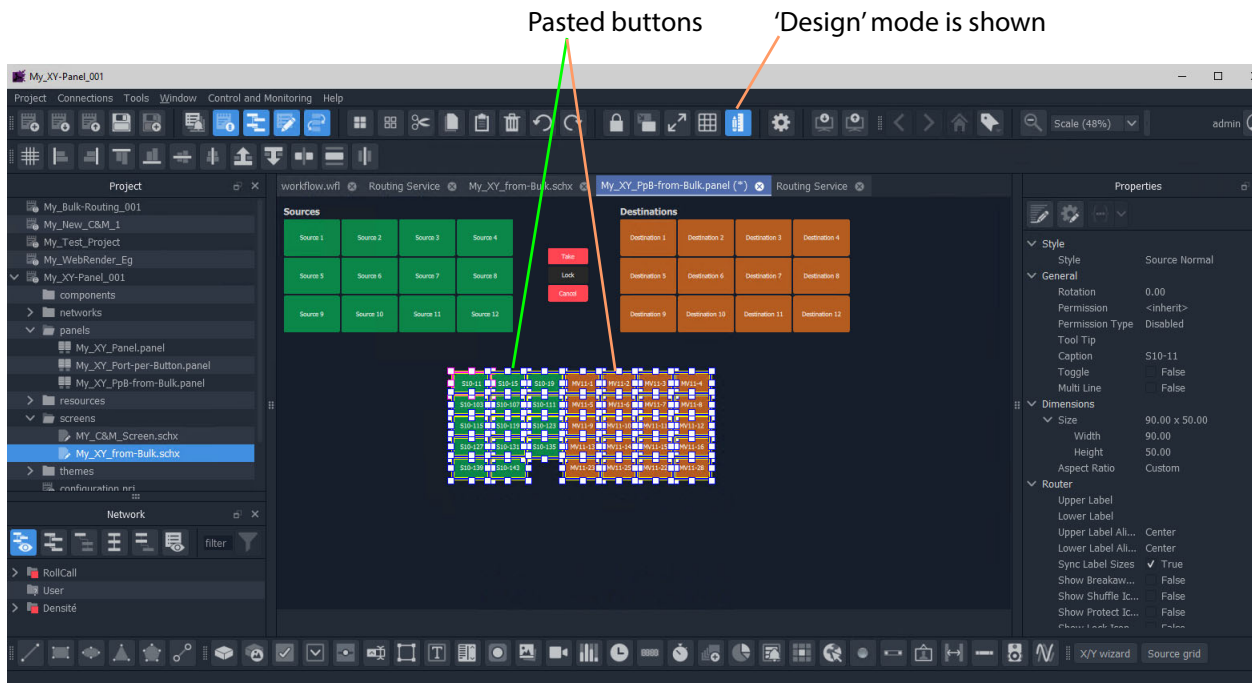


Right-click and select 'Copy as Widgets'

Fig. 6-34: Copy As Widgets in Bulk Routing Panel

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

The copied buttons are pasted into the XY Panel. See Figure 6-35.



Right-click and select 'Copy as Widgets'

Fig. 6-35: Paste Buttons in from Bulk Routing Panel 'Copy as Widgets'

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

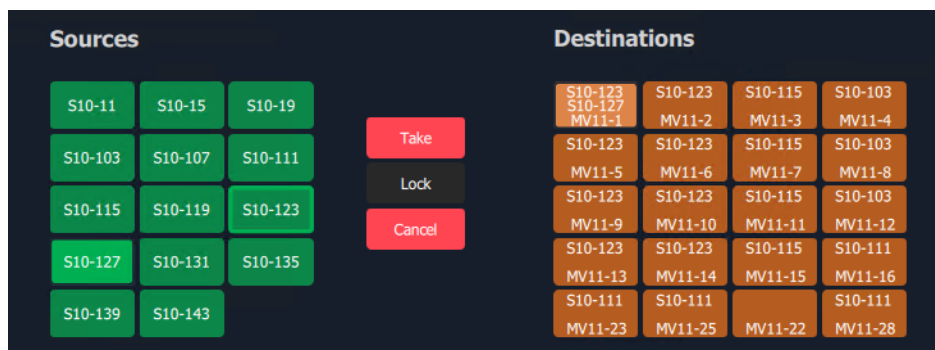


Fig. 6-36: XY Panel with Quick-Assigned Ports

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

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

:
Note:
In the GV Orbit Client **Project** window:

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

In this case, the pasted buttons are still functional and will select Destinations and Sources when the soft panel is run. There is no 'Take' button and 'auto-take' applies. See Figure 6-37

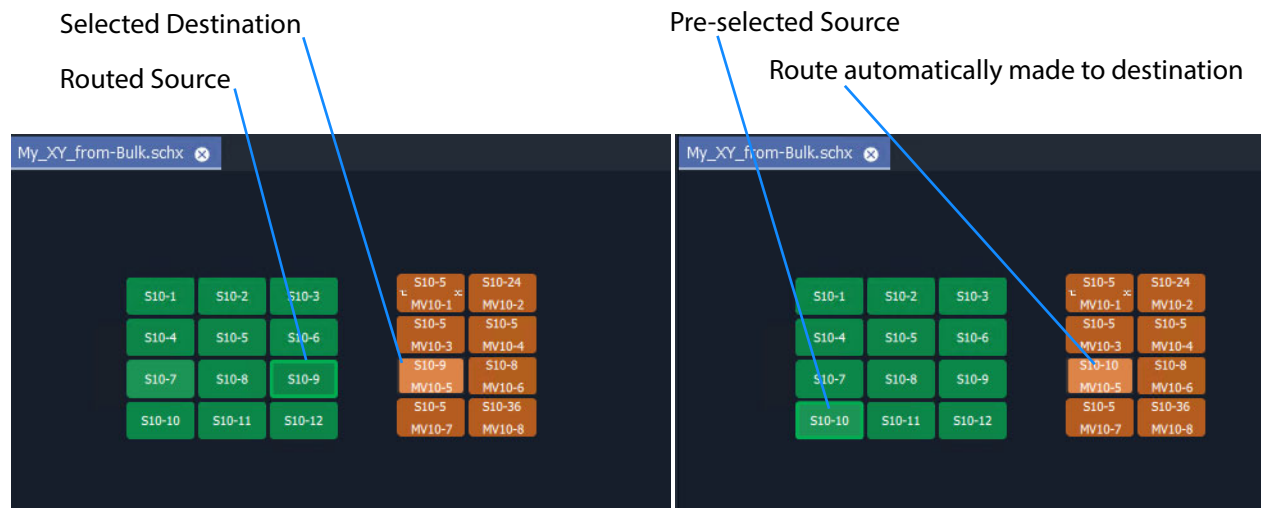


Fig. 6-37: Auto-Take with Pasted-in Routing Buttons (Running)

Customizing an XY Panel

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

- Using the XY Wizard and *then* further editing the XY panel, see [Further Editing an XY Panel](#), on page 311.

An XY Panel may also be created from scratch without using the XY Wizard. This is done with GV Orbit graphical widgets and GV Orbit Behaviours and Bindings in a similar way to designing a custom user/operator panel in a C&M project. See:

- [Creating a Custom XY Panel from Scratch](#), on page 312; and see
- [Creating a Custom BPX Panel](#), on page 320.

To enhance the appearance of a control panel, lines, labels etc may be added. See [Enhancing the Appearance of a Panel](#), on page 326.

Further Editing an XY Panel

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

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

Figure 6-38 shows an example XY Panel that has been edited after being started with the XY Wizard. See [Enhancing the Appearance of a Panel](#), on page 326, for further examples of enhancing the appearance of an XY Panel.



Fig. 6-38: Edited XY Panel Example

Creating a Custom XY Panel from Scratch

A custom **XY Panel** can be created from scratch in a GV Orbit Client C&M project. A custom panel can be made to be smaller and more suited to be embedded *into* a C&M project screen. An example small panel with two destinations and a handful of possible sources is given in Figure 6-39 and the steps to generate it are below.



Fig. 6-39: Custom XY Panel Example

Step1: New Empty Basic XY Panel

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

- 1 Open an GV Orbit C&M project in the GV Orbit Client application.
- 2 Right-click on the 'panels' folder item in the **Project** window and select 'New Panel'.
- 3 Enter a name into the **New XY Panel** dialog and click **OK**. See Figure 6-40.

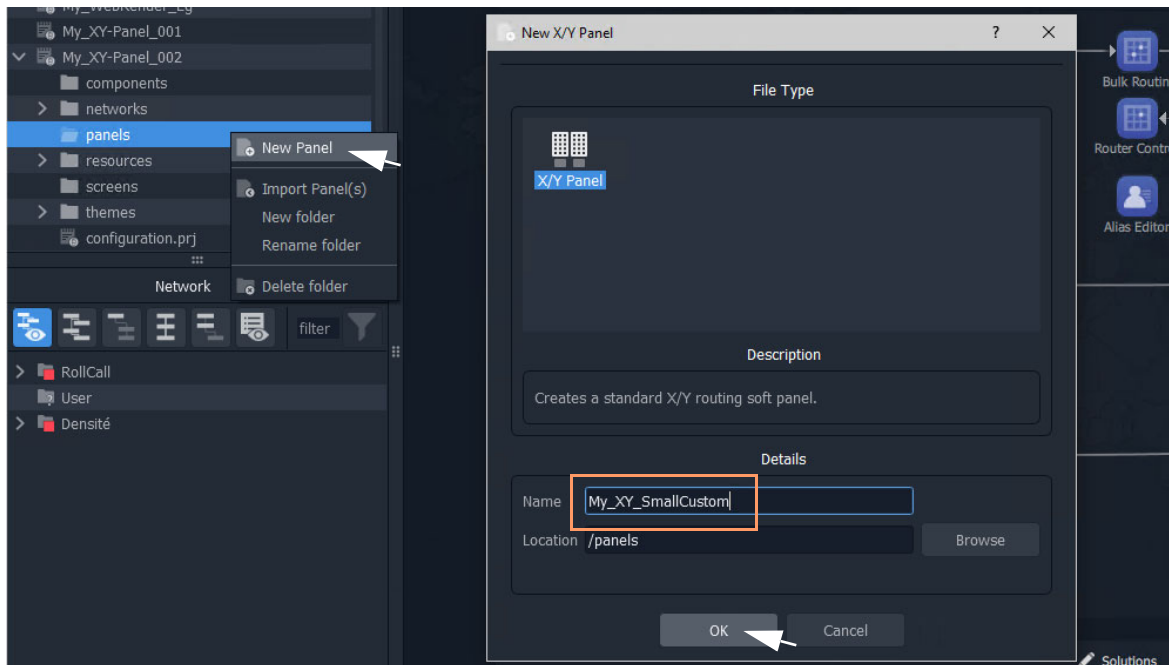


Fig. 6-40: Create New XY Panel

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

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

This has created an empty XY Panel in the C&M project. See Figure 6-41.

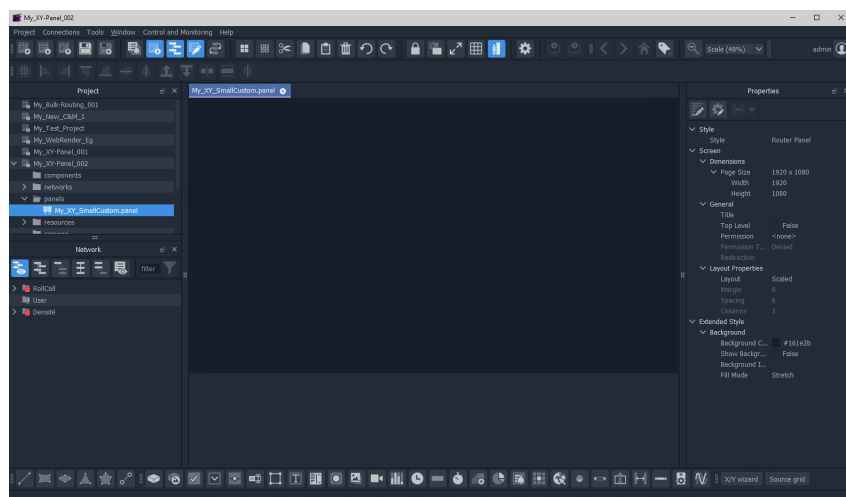


Fig. 6-41: Empty XY Panel

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

- 6 Drag the routing control widgets tool bar by its handle to a convenient position. See Figure 6-42.

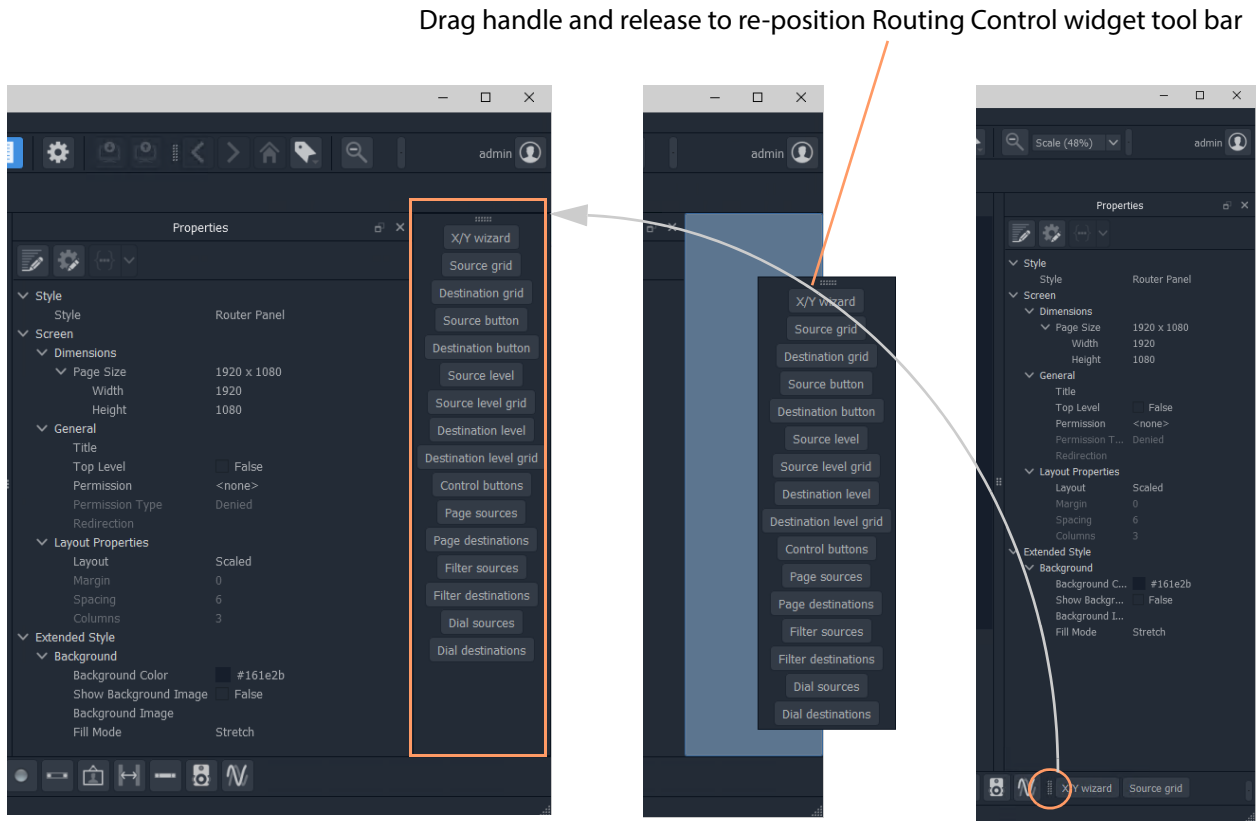


Fig. 6-42: Re-positioning the Routing Control Widgets Tool Bar

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

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

- 1 Add 8 **Source Button** widgets from the Routing widget tool bar (see Figure 6-43). (Click on 'Source Button' button on the tool bar and drag on button widgets.)
The button annotation names increment automatically for each added button.
- 2 Similarly add 2 **Destination Button** widgets.

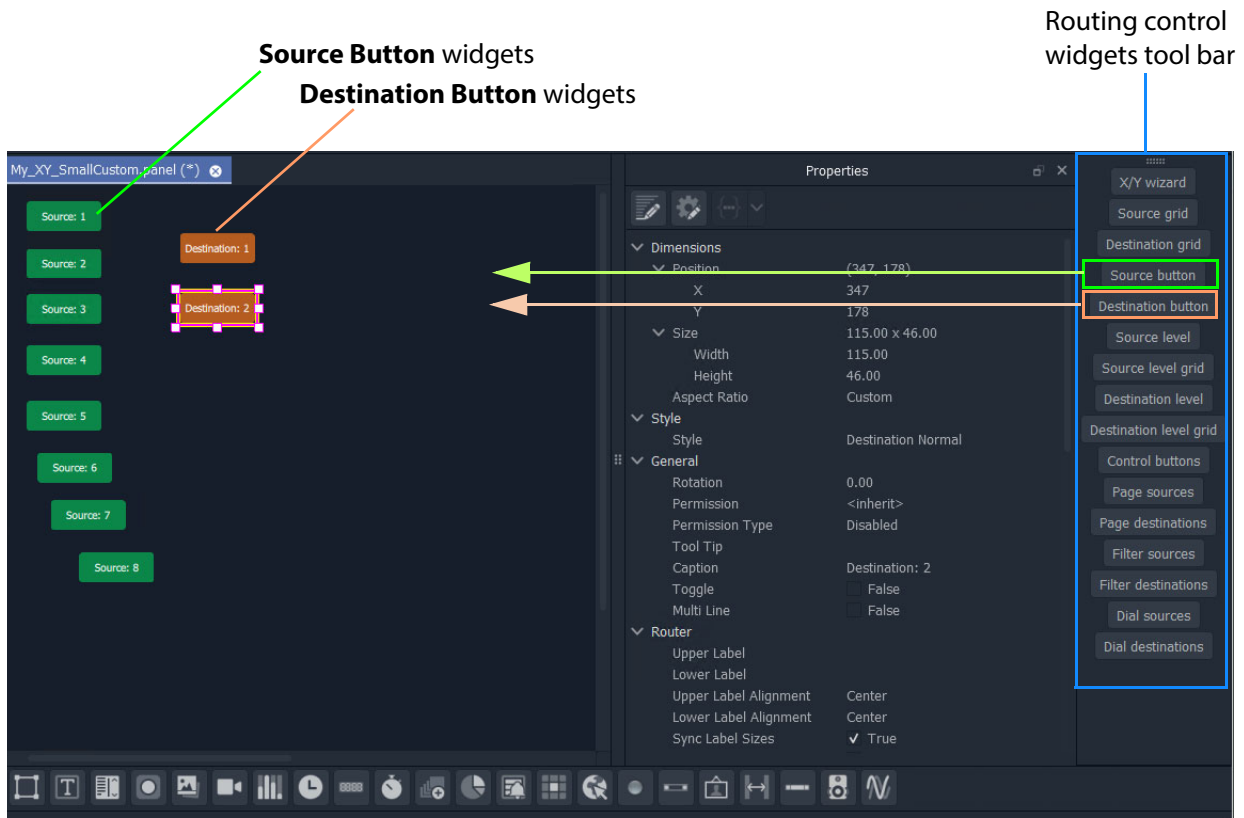


Fig. 6-43: Adding Source and Destination Buttons

Finally, add a **Take** button:

- 3 Select 'Control Buttons' in the tool bar.
A small dialog appears.

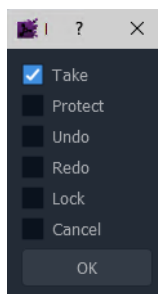


Fig. 6-44: Adding a Take Button

- 4 Select 'Take' and click **OK**.
A **Take** button widget appears at your cursor, drop this onto the XY Panel.
- 5 Arrange the buttons as required.
- 6 Click **Save File** and **Save Project**.

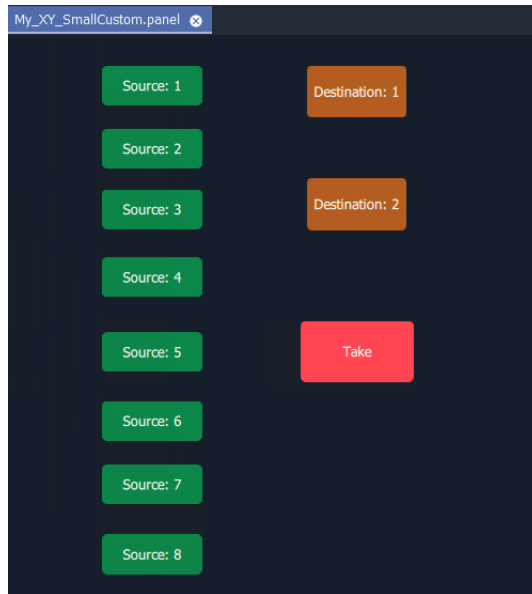


Fig. 6-45: Added Buttons

Step 3: Exercise Panel

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

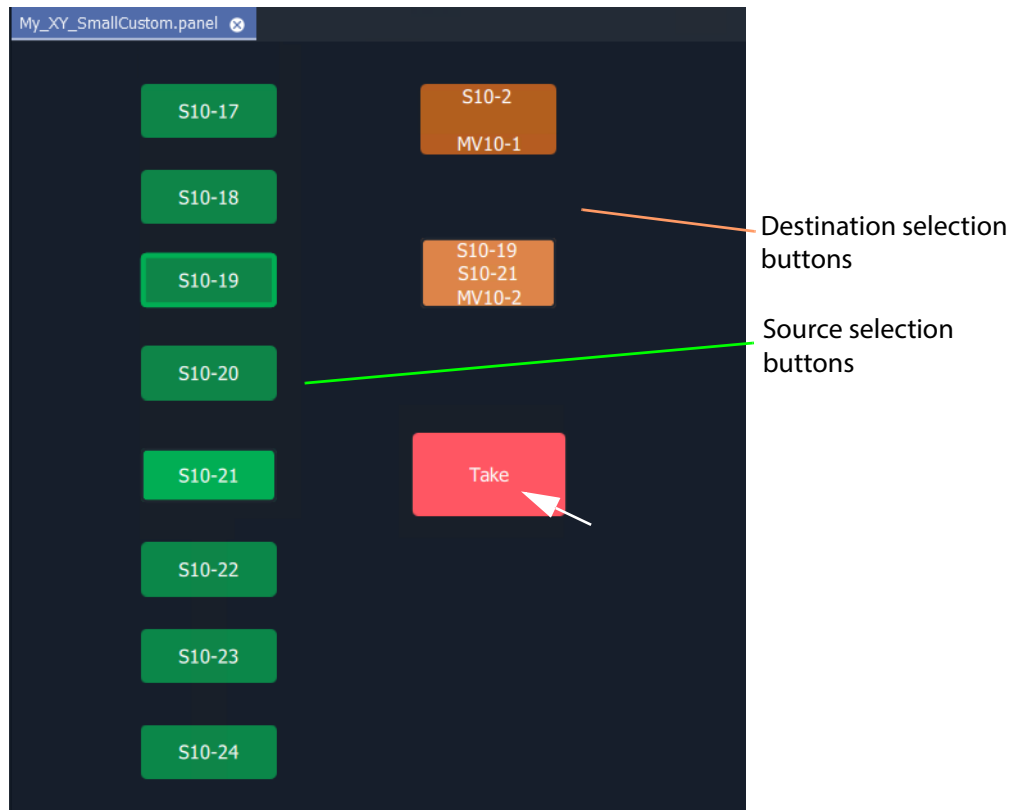


Fig. 6-46: Running the New XY Panel

Step 4: Assigning a Port-per-Button

With the XY Panel in 'Design' mode in GV Orbit Client, the Source buttons and Destination buttons can be configured for other source or destination ports in the same way as in a 'Port-per-Button' panel (See [Assigning Ports to a Port-per-Button XY Panel](#), on page 303, for more information.)

To assign ports:

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

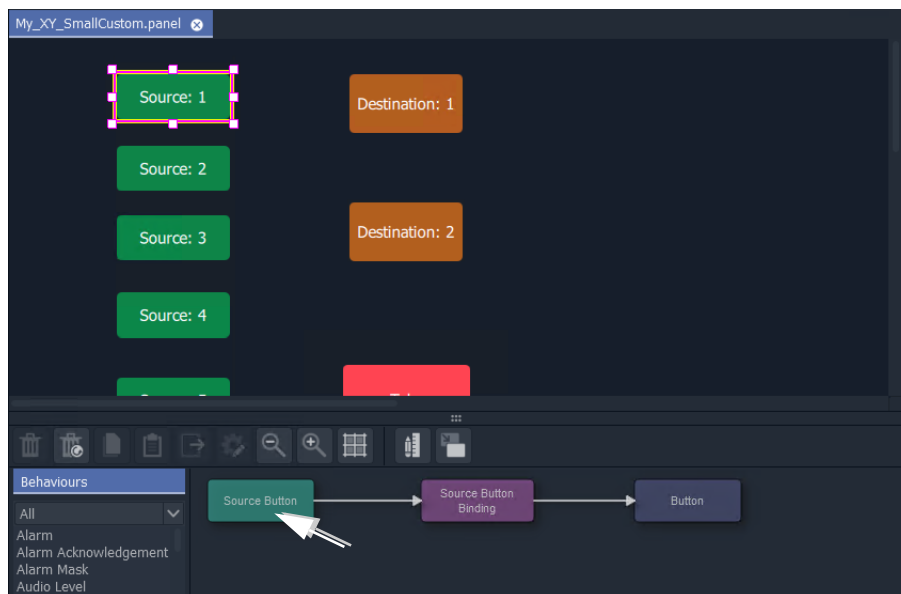


Fig. 6-47: Double-click on 'Source Button' Behaviour

- 2 Select a Source button in the XY Panel and double-click on the 'Source Button' Behaviour in the editor. See Figure 6-47.

The Behaviour's properties are shown.

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

A Source button now has a port assigned.

- 6 Repeat for the other Source buttons.

And then:

- 7 Perform similar steps for each Destination button.

The buttons now all have assigned ports.

Step 5: Styling

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

Finally:

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

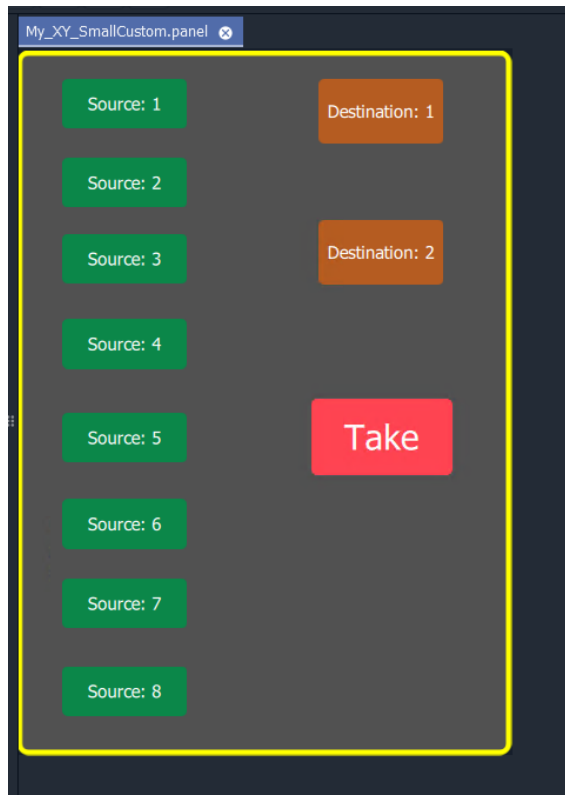


Fig. 6-48: Custom XY Panel

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

Step 6: Exercise Panel

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

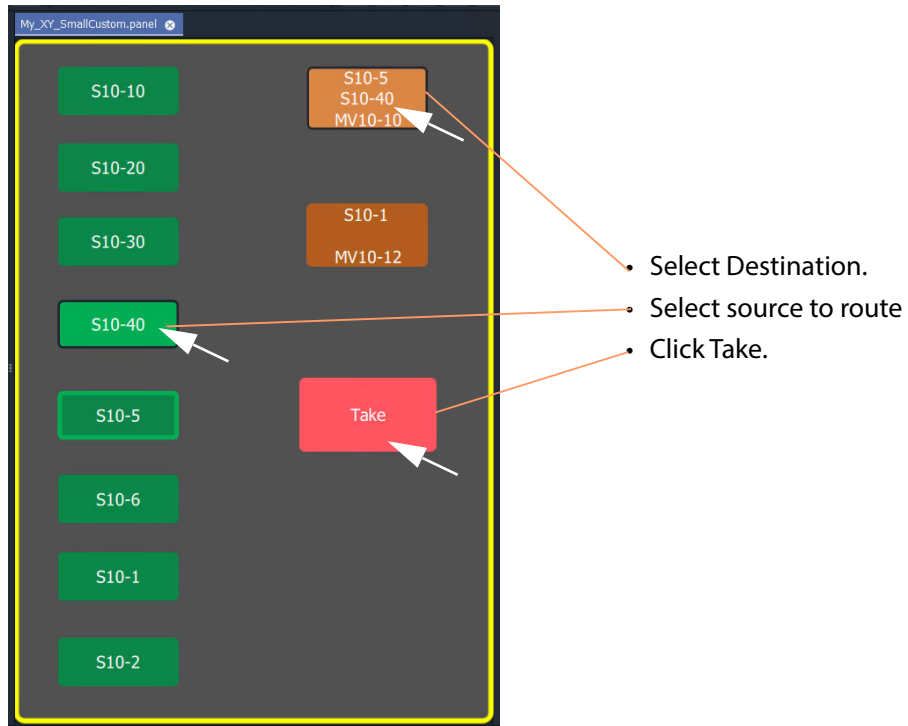


Fig. 6-49: Exercising the XY Panel

The small custom panel operates like a fixed, reduced-size XY Panel and may be dragged onto a C&M project custom user panel screen and embedded into it, if required. See [How to Embed an XY Panel into a Custom User Panel](#), on page 332.

Creating a Custom BPX Panel

What is a BPX Panel Type?

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

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

An example BPX panel is a simple panel where each button is configured to set a route to the same destination, but from a different source. This simple BPX panel is shown in Figure 6-50 and the steps to generate it in GV Orbit are given below.

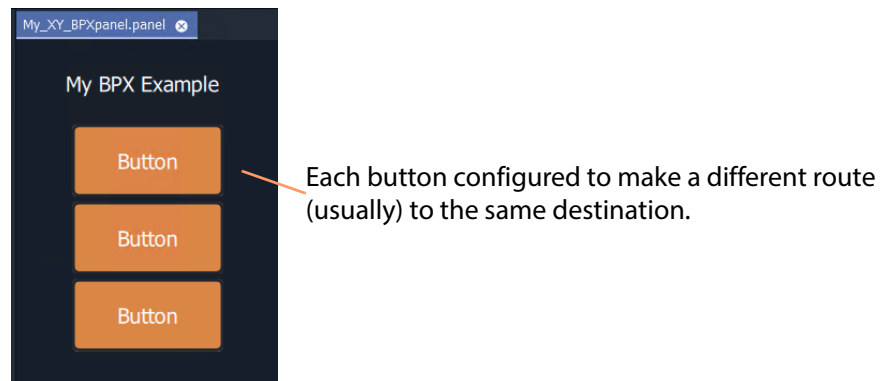


Fig. 6-50: Custom BPX Example

Basic BPX Panel

To create this panel:

- 1 Create a new empty **XY Panel**.
(This is described in [Step1: New Empty Basic XY Panel](#), on page 312 for the [Creating a Custom XY Panel from Scratch](#), on page 312.)
- 2 Add a graphical **Button** widget to the panel. (See Figure 6-51.)

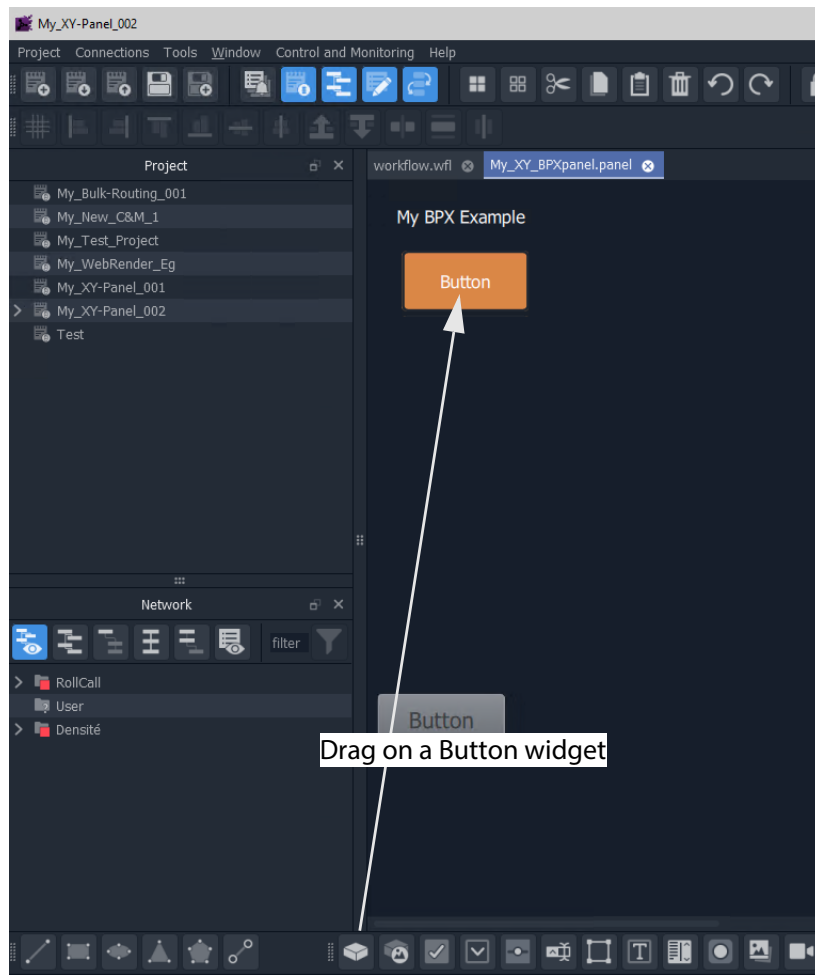


Fig. 6-51: Add a Button Widget

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

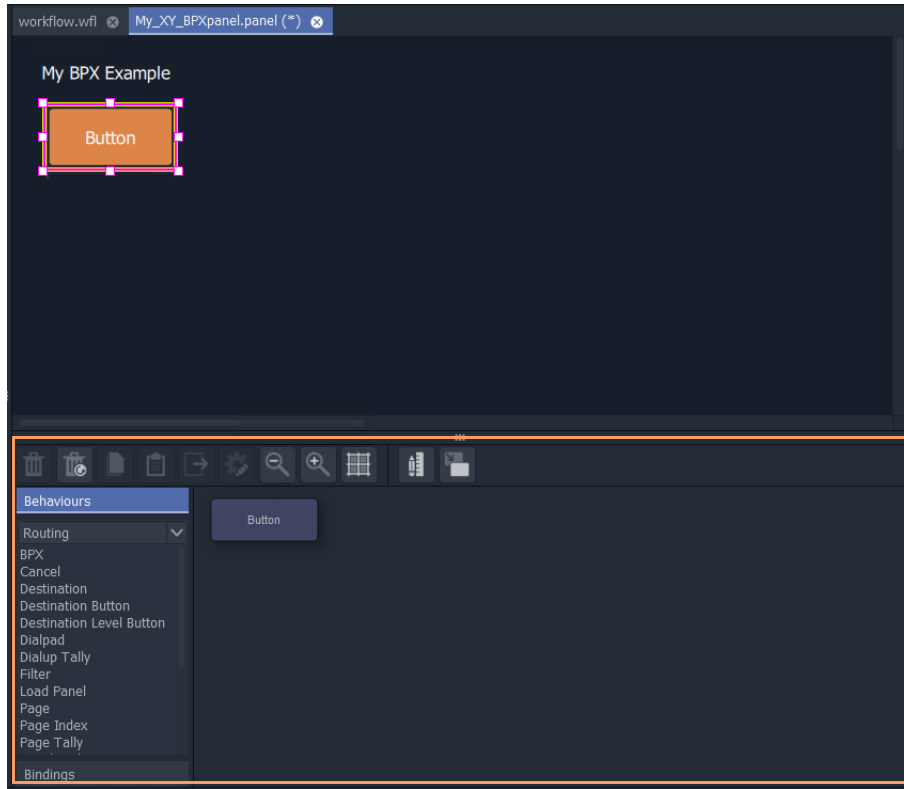
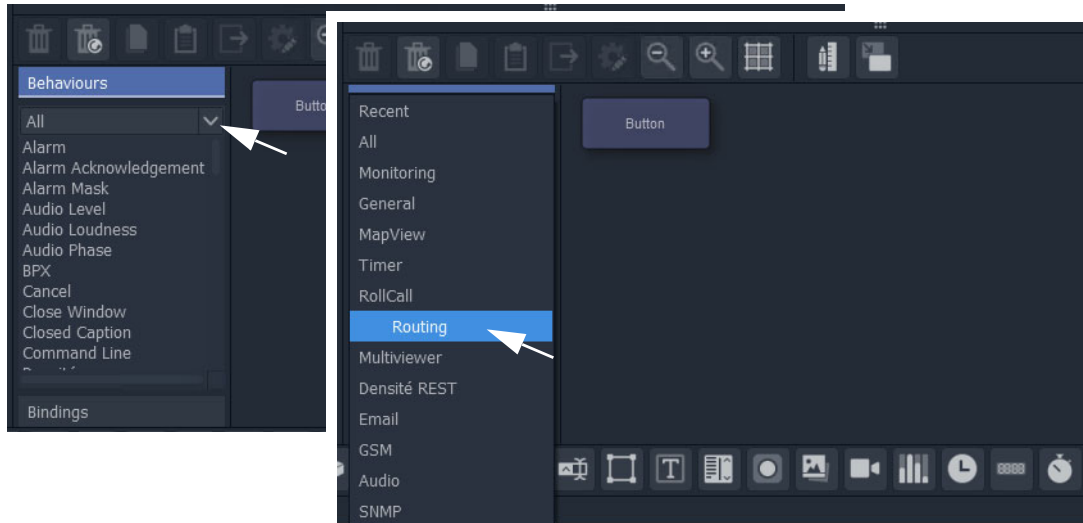


Fig. 6-52: Behaviours and Bindings of Selected Button Widget

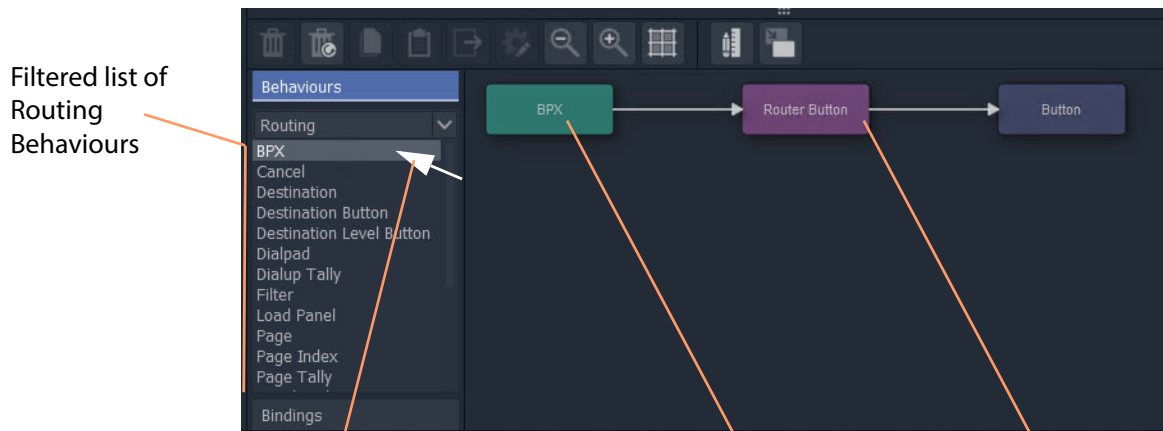
In the editor:

- 5 Filter the Behaviours on 'Routing'. See Figure 6-53a.
- 6 Select a BPX Behaviour. See Figure 6-53b.

A **BPX** Behaviour is added to the 'Behaviour and Bindings' editor and a Binding too. See Figure 6-53b.



a) Filter Behaviours on 'Routing'



b) Select a BPX Behaviour

BPX Behaviour is added and a Binding

Fig. 6-53: Adding a BPX Behaviour

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

- 7 Double-click on the **BPX** Behaviour.
The Behaviour's properties are shown. See Figure 6-54.
- 8 Set the 'Source' property to a required Source.
- 9 Set the 'Destination' property to the required Destination.

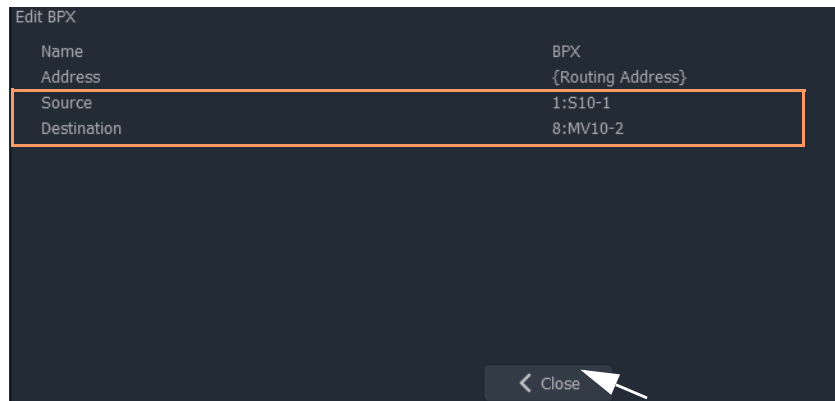


Fig. 6-54: Setting 'Source' and 'Destination' Property Values

- 10 Click **Close**.

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

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

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

This copies the button twice more on the panel.

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

For *each* button that was copied:

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

Then:

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

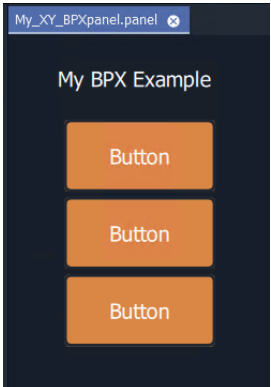


Fig. 6-55: BPX Panel, Designed

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

Exercise the BPX Panel

- 1 Enter 'Run' mode in GV Orbit Client.
- 2 Operate the panel. See Figure 6-56.

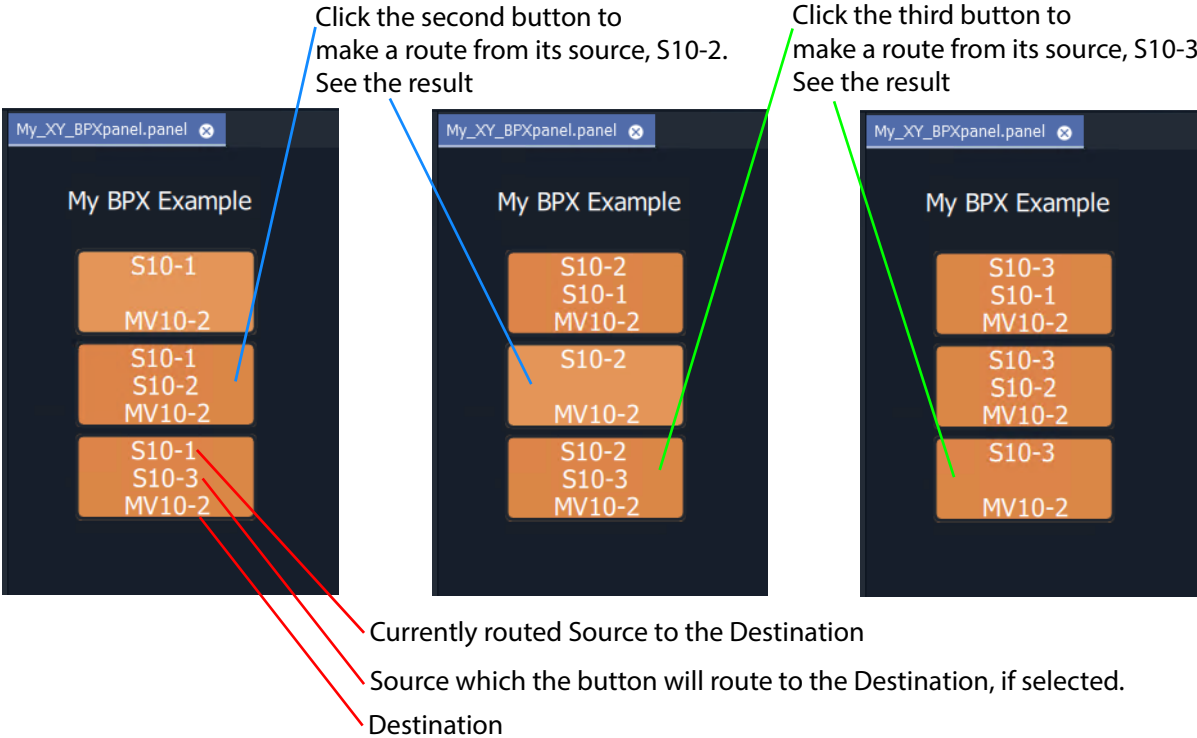


Fig. 6-56: BPX Panel Running

Enhancing the Appearance of a Panel

- [Panel Enhancement - Add Labels](#), on page 326.
- [Enhancement - Add Lines](#), on page 329.

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

Panel Enhancement - Add Labels

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

- 1 Add four **Label** widgets to the BPX panel. See Figure 6-57.
- 2 Set two labels to have fixed 'Caption' properties. See Figure 6-57.

Label widgets with fixed 'Caption' property

Label widgets using a Destination Behaviour

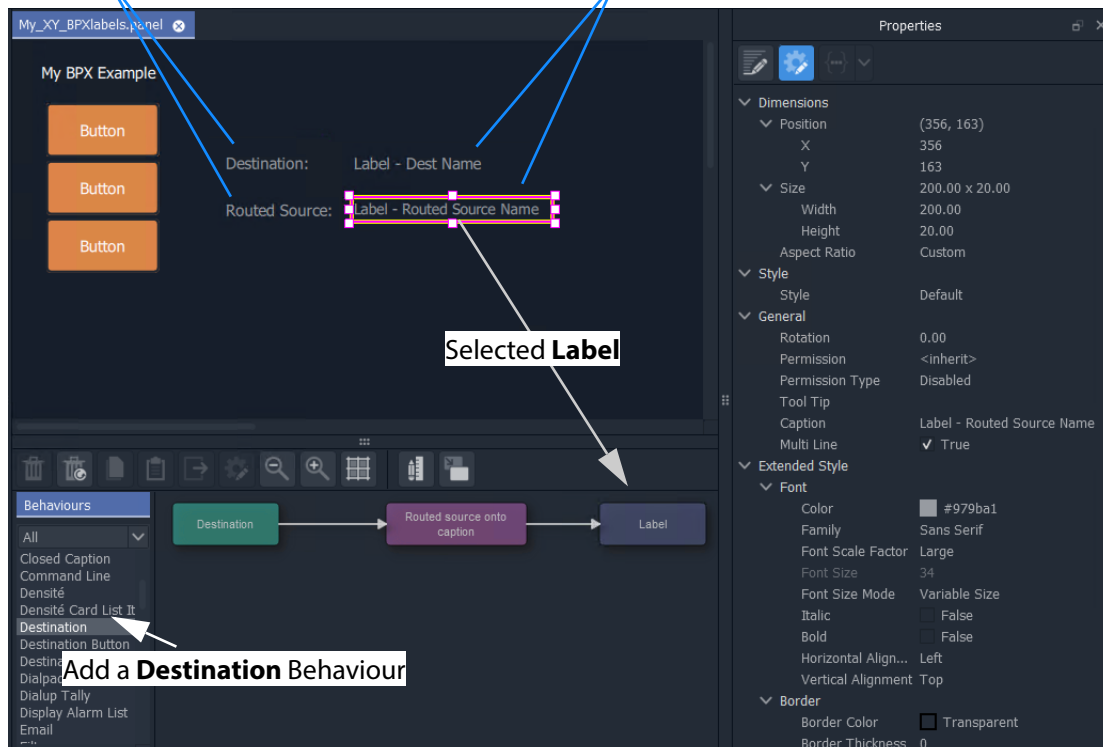


Fig. 6-57: Adding Labels

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

- 3 Open the 'Behaviour and Bindings' graphical editor.
(Right-click and select 'Edit Behaviours' in the panel background.)
- 4 Select one of the **Labels**. See Figure 6-57.
- 5 Add a **Destination** Behaviour. See Figure 6-57.

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

- 6 Double-click on the **Destination** Behaviour and set its 'Destination' property to the same destination that each of the **Buttons** control. See Figure 6-58.
- 7 Click **Close**.

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

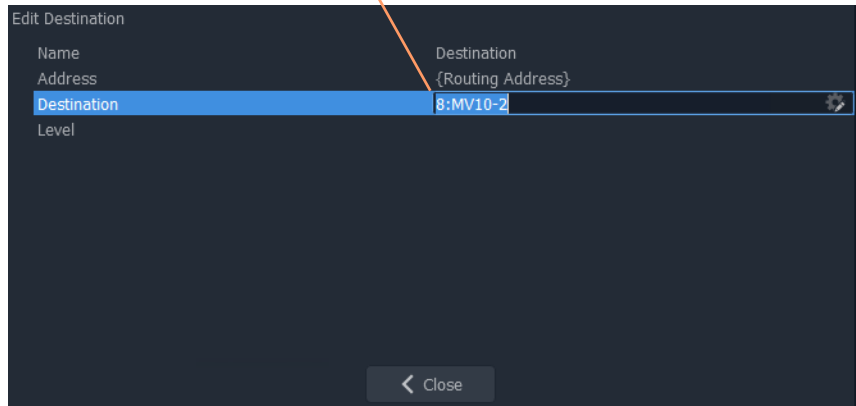


Fig. 6-58: Setting Destination for a Label's Destination Behaviour

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

- 8 Select the Label to see its Behaviours and Bindings. See Figure 6-59.

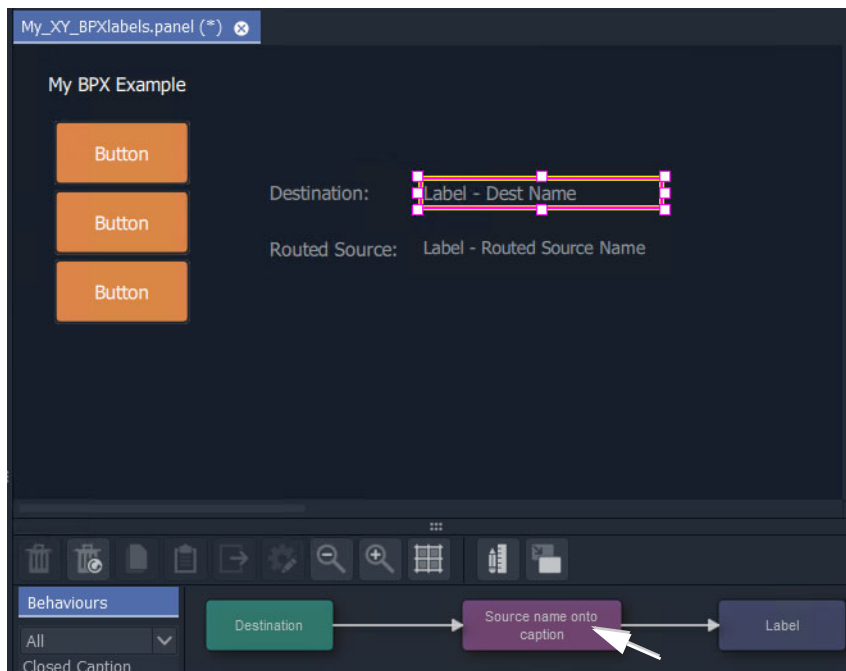


Fig. 6-59: Select a Label

- 9 Double-click on the Binding to see the Binding's properties.
See Figure 6-60.

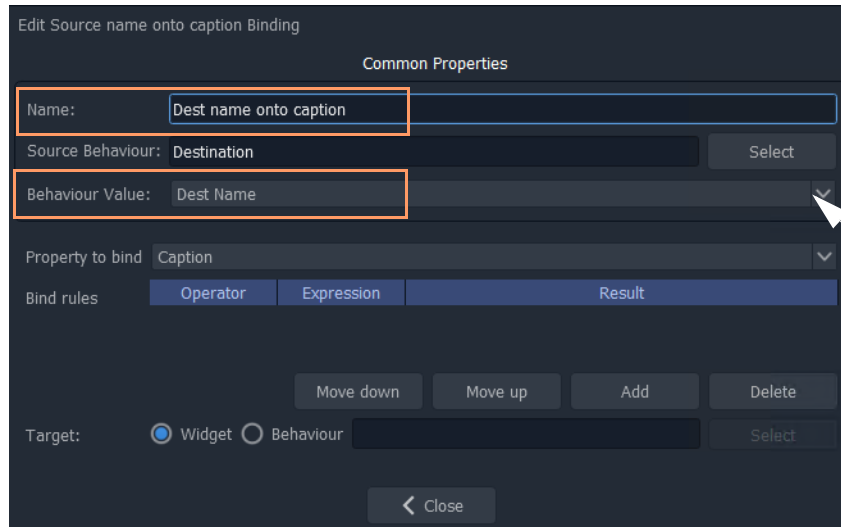


Fig. 6-60: Edit Binding Properties

- 10 Change the following properties of the Binding:
 - 'Behaviour Value' property from 'Source Name' to 'Dest Name'.
 - 'Name' property from 'Routed source onto caption' to 'Dest name onto caption'.
 - 11 Click **Close**.
 - 12 Click **Save File**. Click **Save Project**.
- This has modified our BPX Panel design. See Figure 6-61a.
- 13 Exercise the BPX panel with the **Labels**.

When a button is clicked, the resulting route is shown by the labels. See Figure 6-61b.



a) Designed BPX Panel with Labels

b) Running BPX Panel with Labels

Fig. 6-61: BPX Panel with Labels: a) Designed; b) Running

Enhancement - Add Lines

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



Fig. 6-62: Added Lines

Additionally, **Line** widgets can have their visibility controlled from the state of the routing. This is shown by using the example panel from [Panel Enhancement - Add Labels](#), on page 326. To do this:

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

For each button:

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

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

For each line:

- 4 Select the line and add a **Property** Binding. See Figure 6-63.

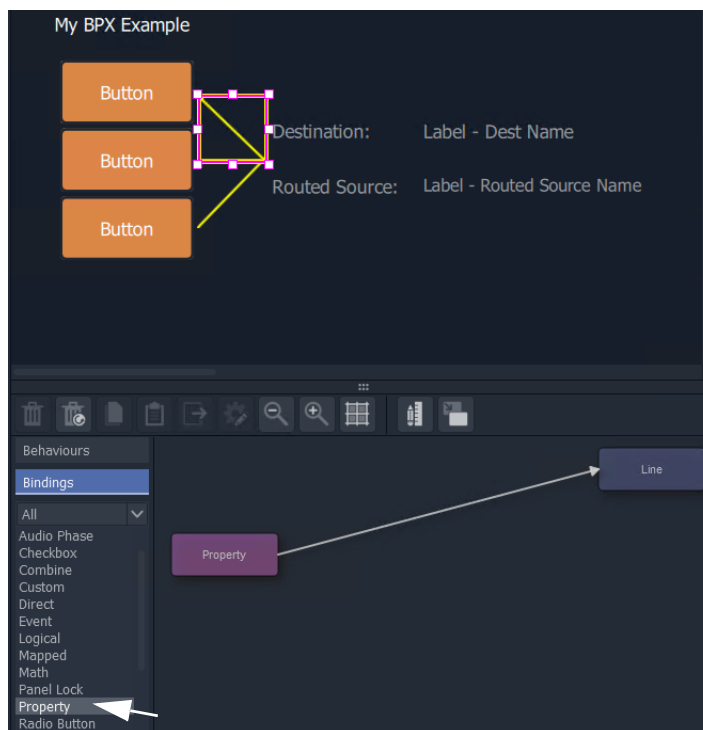


Fig. 6-63: Add Property Binding

- 5 Double-click on the added **Property** Binding to edit its properties.
- 6 Change the following **Property** Binding property values: (See Figure 6-64.)
 - 'Source Behaviour', select a unique BPX Behaviour (i.e. 'BPX-1', or 'BPX-2', or 'BPX-3').
 - 'Behaviour value' to 'Is Routed'.
 - 'Property to Bind' to 'Visibility'.

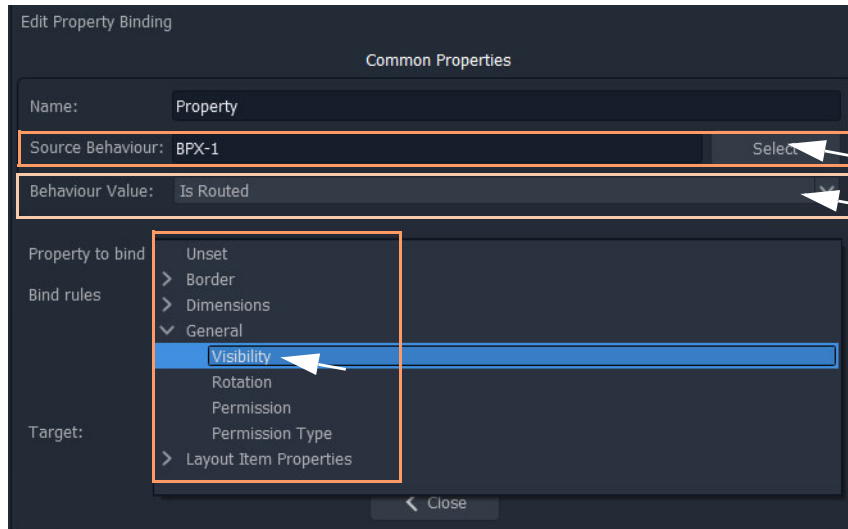


Fig. 6-64: Added Property Binding

- 7 Click **Close**.

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

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

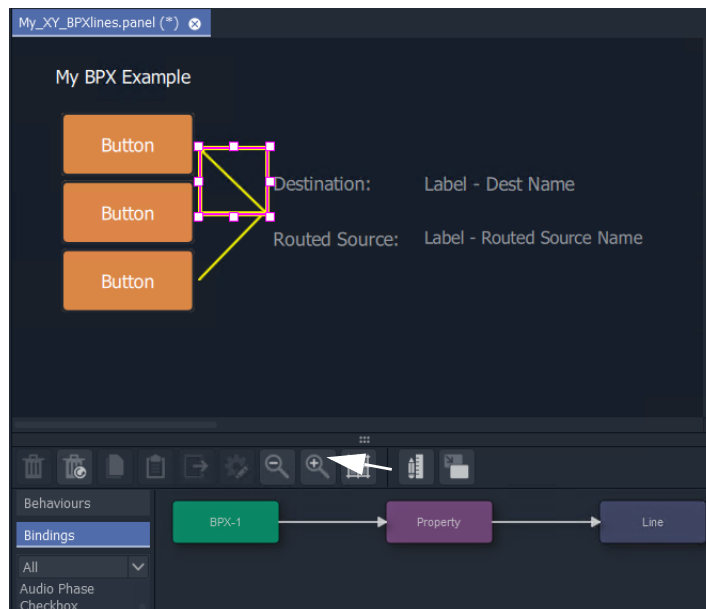


Fig. 6-65: BPX Panel Example

When the visibilities of all three lines are changed:

- 8 Click **Save File**. Click **Save Project**.
- 9 Exercise the panel. See Figure 6-66.

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

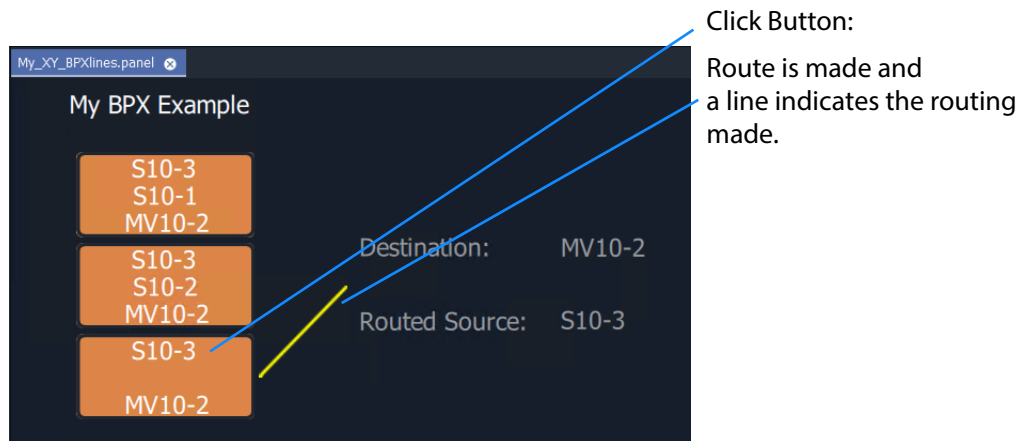
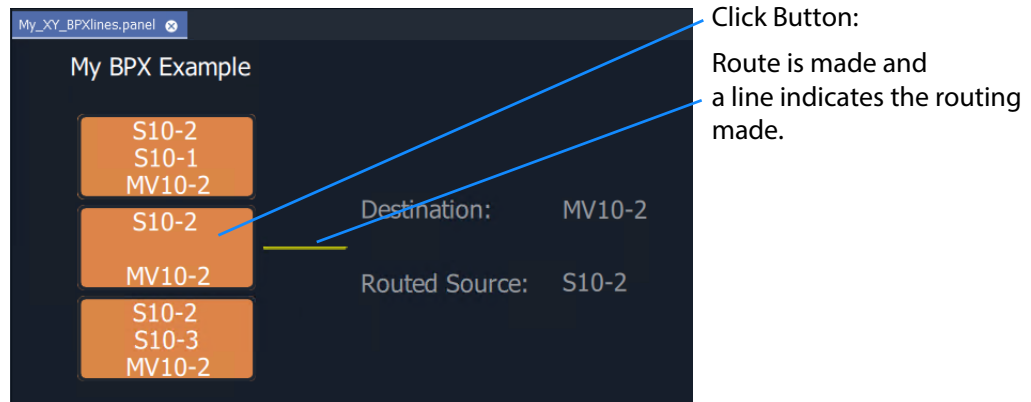


Fig. 6-66: Exercising BPX Panel with Lines

How to Embed an XY Panel into a Custom User Panel

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

To embed:

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

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

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

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

- 5 Open a C&M screen.
- 6 Drag an XY panel from the **Project** window onto the C&M project screen, and release. See Figure 6-67.

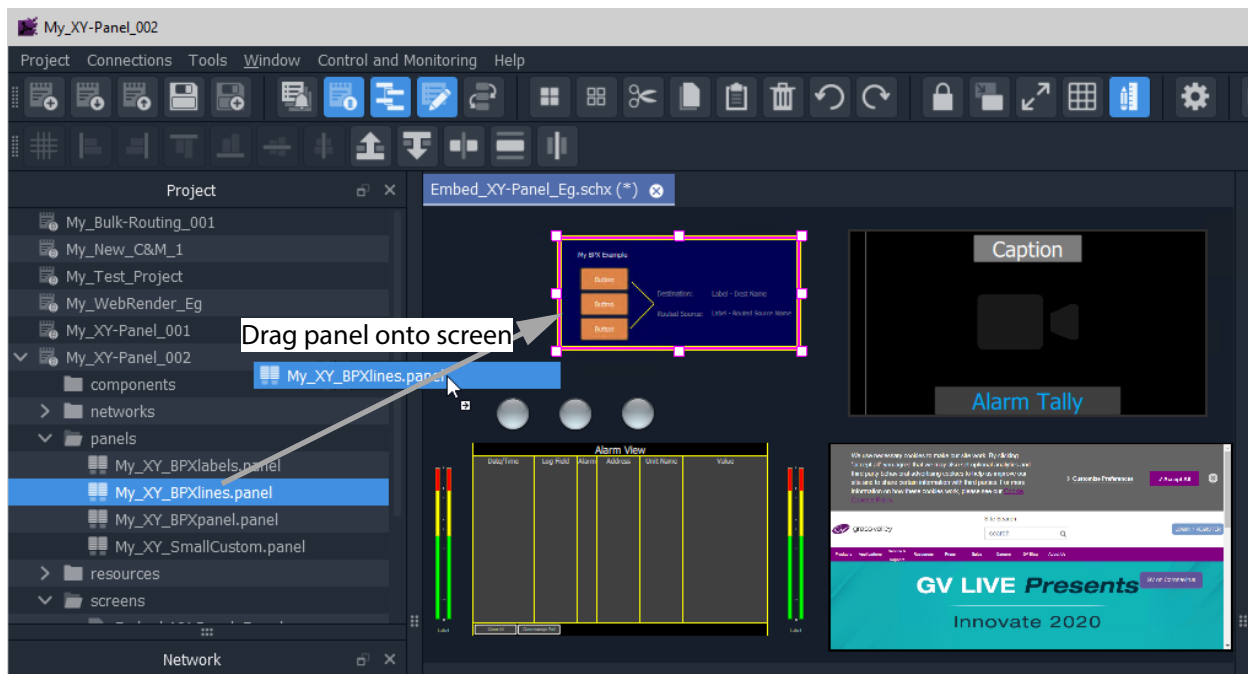


Fig. 6-67: Drag on an XY Panel

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

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

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

Multiviewer Cluster



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Introduction

Lite	Professional	Enterprise
-	●	●

A multiviewer cluster (**MV Cluster**) is a group of multiple MV-8 Series multiviewer devices in a GV Orbit system which are all acting together to serve one or more video walls. The cluster is treated as one multiviewer resource, rather than as a set of single, individual multiviewer devices.

All of the video walls served by the multiviewer cluster are designed in a single 'Clustered Multiviewer' project in GV Orbit Client. This is done using the '**Room Editor**' tool and an **MV Cluster Manager** service is required to be running on a GV Orbit server. The resulting video wall(s) are managed at a higher level (at a 'cluster-level') and router destinations are referred to in operation rather than video wall tiles or multiviewer inputs.

MV Cluster Information

What is an MV Cluster?

An **MV Cluster** is a cluster of multiviewer devices configured together and all acting together to serve one or more video walls. An MV cluster contains one or more multiviewer devices.

Table 7-1: MV Cluster Numbers for MV-8 Series Multiviewers

Number of Multiviewer Devices	Number of head display outputs:		Number of video wall tiles:	
	per device	maximum available	per device	per video wall
1	up to 12	12	48	up to 48
2	up to 12	24	48	up to 48 * 2 (=96)
3	up to 12	36	48	up to 48 * 3 (=144)
...
N_{Cluster} ^a	up to 12	12 * N _{Cluster}	48	up to 48 * N _{Cluster}

a.The number of devices in an MV Cluster has no fixed limit. Please see [MV Cluster Size](#) for more information.

MV Cluster Size

The number of devices in an MV Cluster (**N_{Cluster}**) has no fixed limit: The number of multiviewers that GV Orbit Client and the MV Cluster Manager service can handle has no real limit.

However, in practice, limiting factors are anticipated. The maximum number of MV-8 Series multiviewers in an MV Cluster (**N_{ClusterMax}**) is determined by performance and various system factors, including:

- GV Orbit system size; and
- network speed.

Please contact [Grass Valley Technical Support](#) for further information on **N_{ClusterMax}** for specific use cases.

Defining Video Walls for an MV Cluster

A user can define a set of video walls for a broadcast production studio or OB truck using the Grass Valley GV Orbit Client tool with a 'Clustered MV' project. The video walls are all served by a cluster of MV-8 Series multiviewers.

GV Orbit Client is used along with GV Orbit system services. Video walls are defined and managed independently from the individual multiviewer devices used. Video wall tiles are referred to by their router destination name.

Additionally, for a 'Clustered MV' GV Orbit project, TSL tally settings and audio bars configuration can be done for each whole video wall.

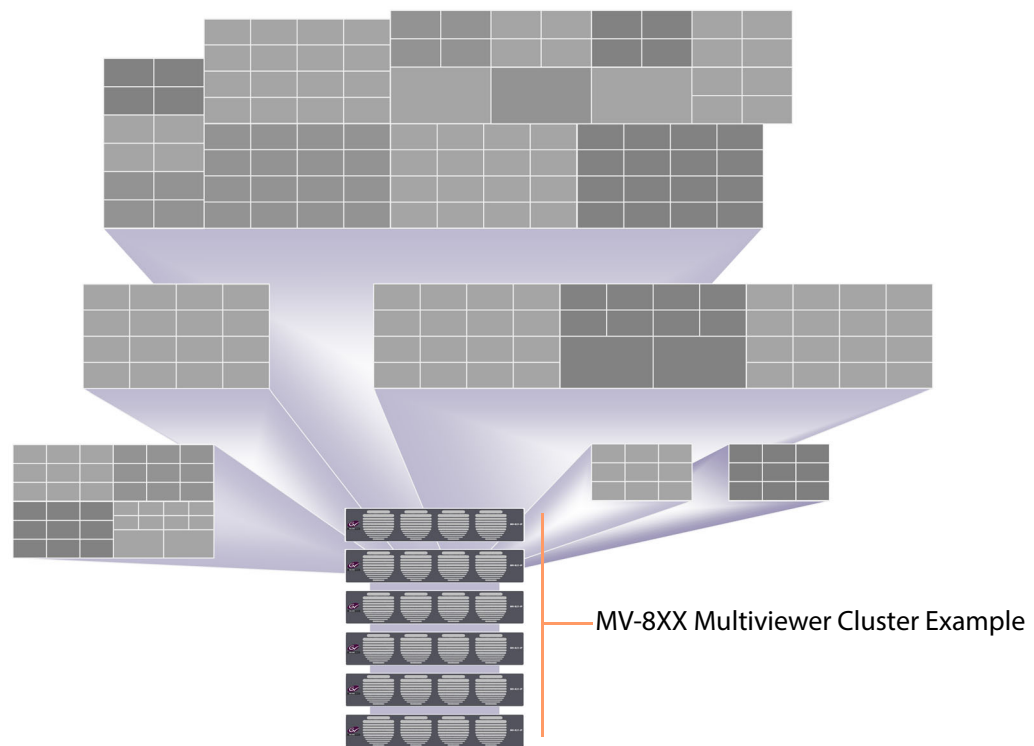


Fig. 7-1: Video Walls Served by Multiviewer Cluster (Example shown has an MV Cluster of 6 Devices)

What is a Clustered Multiviewer Project?

A GV Orbit Clustered MV project (Clustered MV project) enables a user to define a set of video walls for a broadcast production studio or OB truck served by an MV Cluster.

The video walls can each comprise one or more display monitors. One or more video walls may be defined, all served by a cluster of multiviewer devices.

All of the video walls are designed in one 'Clustered MV' project, which then holds the designs of one or more video walls for a studio or an OB truck.

Overall TSL tally set up and Audio Bars audio channel configuration of audio bars is also integrated and handled within such a project.

The project is stored centrally on the GV Orbit server and the entire video wall design is then automatically parsed and administered across the individual multiviewers in the cluster.

Video Wall Design

Video walls are formed from a physical arrangement of one or more display monitors and each display monitor is driven from any one of the multiviewer head display outputs available from the multiviewer cluster. Video wall tile layouts can be applied and layouts for the whole video wall and also for individual monitors can be saved and switched between. Assignment of router destinations to video tile layouts completes the video wall design. Finally, the assignment of video sources to video tiles (PiPs) is integrated into the GV Orbit

routing control system and the routing of video to wall tile positions can be interactively achieved.

Deployment

Deployment is a one-step process, requiring the finished project to be simply pushed to the GV Orbit server. Behind the scenes, the video wall designs are then automatically translated into constituent, individual 'multiviewer projects' which are targeted at each individual multiviewer of the cluster. The constituent projects are automatically pushed out to the individual multiviewer devices.

Clustered MV project vs. Multiviewer Project

A Clustered MV project is opened, saved, pushed etc. in a similar way to other GV Orbit multiviewer projects; the main exceptions/differences are listed in Table 7-2.

Table 7-2: Clustered MV Project Differences

Item	GV Orbit Project Type	
	Clustered Multiviewer	Multiviewer, or Connected Multiviewer
Video wall design tool	Room Editor in GV Orbit Client	Wall Editor ^a in GV Orbit Client
Multiviewer resource(s)	One or more multiviewer devices. (N _{Cluster} devices in an MV Cluster)	A single multiviewer device.
GV Orbit System	Required, running a MV Cluster Manager Service	Can operate with or without a GV Orbit system
Deployment	Push project to a GV Orbit server repository.	Push project to a single multiviewer device.
Max number Video Walls	up to 12x N _{Cluster}	12
Max number Video Tiles	up to 48x N _{Cluster}	48
Video Wall Arrangement	Flexible	Constrained
Video Wall Layouts	Yes, Room Layout	No.
Monitor-level Layouts	Yes, Monitor Layout	Yes, Wall Layout

a.For information on the Wall Editor, please refer to Orbit documentation.

Use a Clustered MV project when defining and managing video walls from a cluster of MV-8xx multiviewers.

Room Editor vs Wall Editor

Wall Editor - Both the original Orbit Client tool and the current GV Orbit Client tool allow configuration of video walls from single multiviewers using the original GV Orbit 'Multiviewer' type projects and the **Wall Editor** tool (refer to Orbit documentation).

Room Editor - GV Orbit *additionally* allows configuration of video walls from a multiviewer cluster with a 'Clustered MV' project. This is done via the new **Room Editor** tool in GV Orbit Client with the **MV Cluster Manager** service running on a GV Orbit server.

Note: **Room Editor** vs **Wall Editor**:

	MV-8 Series multiviewer(s)	
	Cluster of <i>one or more</i>	Single, individual
Client tool?	Room Editor	Wall Editor ^a
GV Orbit project type?	Clustered Multiviewer	Multiviewer
Minimum system configuration	GV Orbit system with server	None
Uses MV Cluster Manager service?	Yes, an MV Cluster Manager service is required.	No

a. For information about the Wall Editor, refer to Orbit documentation.

Single Multiviewer as an MV Cluster

A single multiviewer may be considered as an '**MV Cluster** of one' and a video wall design can be generated for a single multiviewer with the **Room Editor** in a 'Clustered MV' project.

Note: For an **MV Cluster** of *any* size, an **MV Cluster Manager** service is required to be running on a GV Orbit server.

What is an MV Cluster Manager?

The **MV Cluster Manager** is a service running on the GV Orbit server which automatically translates a GV Orbit 'Clustered MV' project into its constituent, single-multiviewer projects. The service automatically manages each individual multiviewer device of an **MV Cluster**. A GV Orbit system may have zero or one such service.

Once it is configured, the service will:

- check for the availability of multiviewers in the room; and
- put a watch on the relevant GV Orbit server repositories for any project changes.

The service processes any detected repository project changes and rebuilds any constituent single-multiviewer projects where necessary, automatically pushing the projects to the appropriate multiviewer device(s).

The service will alert the GV Orbit system to any off-line multiviewers and missing repositories.

The service is automatically discovered by a GV Orbit Client in a GV Orbit system and a user can then create a 'Clustered MV' project.

Configuring an MV Cluster Manager Service

The **MV Cluster Manager** service configuration is carried out on the GV Orbit server.

Refer to: Please refer to the *GV Orbit Admin Guide* for information about GV Orbit services, including configuring the **MV Cluster Manager** service.

The following settings can be configured from the **MV Cluster Manager** service's configuration page on the GV Orbit server:

- Service Settings:
 - GVOP Client Domain ID number for the service to use.
 - Network interface(s) on the GV Orbit server for the service to use.
 - RollCall address of the service in the GV Orbit system.
 - A friendly name for the service, to be used in a GV Orbit Client's **Network** window.
- Project Settings:
 - GV Orbit server repository name of the Clustered MV project for the service to use.

Note: The 'Project Settings' may be set up separately later, when a 'Clustered MV' project has been created along with its repository.

Video Wall Configuration Workflow (Clustered Multiviewers)

This user guide describes the configuration and operation of clustered MV-8XX multiviewers in a GV Orbit control and monitoring system for multiple video walls, for example in an OB truck environment.

This chapter has provided some MV Cluster definitions. It proceeds to provide some MV Cluster information:

- 1 [Configuring an MV Cluster Manager Service](#), on page 339.
- 2 [Creating a Clustered Multiviewer Project for an MV Cluster](#), on page 341.
- 3 [Clustered MV Project Screens](#), on page 347.
- 4 [Managing Multiviewer Cluster Information in a Project](#), on page 350.

Additionally, the workflow description is continued in further user guide chapters:

- 5 Chapter 8, [MV Cluster - Room Editor](#):
 - a [Room Editor Introduction](#), on page 355.
 - b [Room Editor Workflow Overview](#), on page 366.
 - c [Step 1: Create a Room](#), on page 368.
 - d [Step 2: Arrange Monitors and Assign Multiviewer Outputs](#), on page 370.
 - e [Step 3a: Design Layout - Assign Tile Grid Layouts to a Video Wall](#), on page 378.
 - f [Step 3b: Create Optional Alternative Layouts for a Video Wall](#), on page 386.
 - g [Step 4a: Assign Destinations to Tile Positions](#), on page 395
 - h [Step 5: X/Y Routing Video Sources to Tile Positions](#), on page 411.

Multiviewer Cluster

Video Wall Configuration Workflow (Clustered Multiviewers)

Also see Chapter 9 [MV Cluster - TSL Tally Configuration](#), on page 421, and Chapter 10 [Audio Bars Configuration](#), on page 447.

Creating a Clustered Multiviewer Project for an MV Cluster

The video walls served by an MV Cluster are defined with a 'Clustered Multiviewer' Project in GV Orbit Client.

Procedure

To create a 'Clustered Multiviewer' project (Clustered MV project) in GV Orbit Client:

Step 1: Create and Connect a Project to GV Orbit Server

- 1 Open GV Orbit Client.

The initial screen is shown.

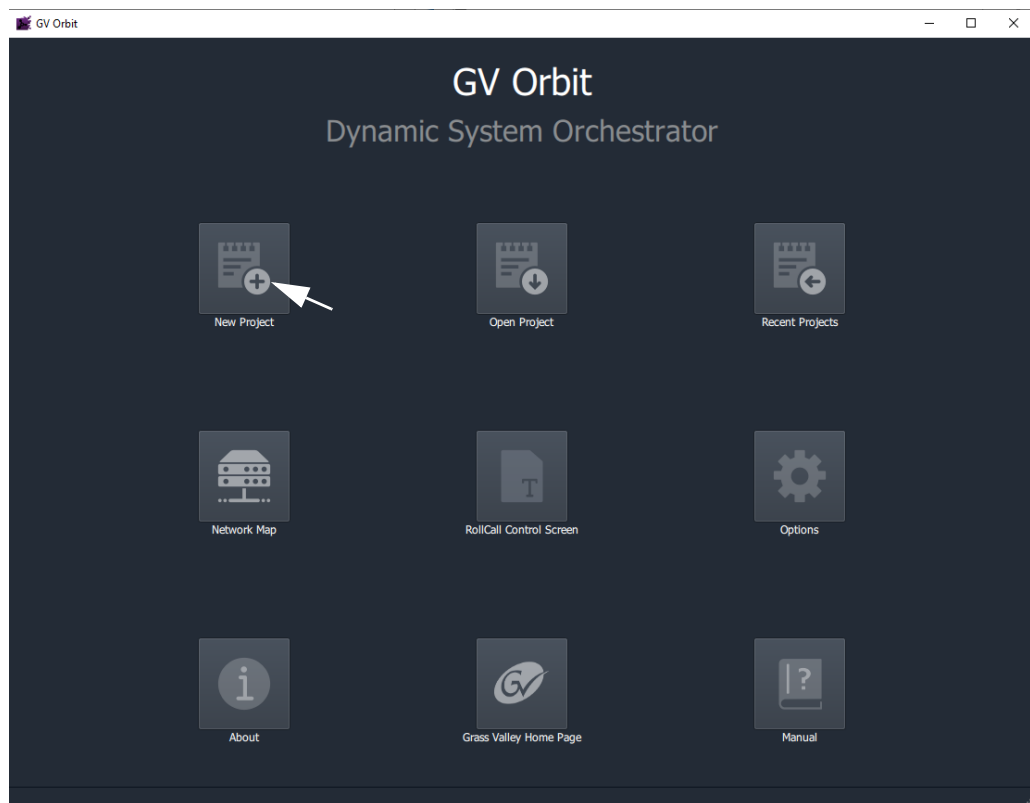


Fig. 7-2: Initial Screen of GV Orbit Client

- 2 Select **New Project** on the initial screen.
The **New Project** dialog is shown.

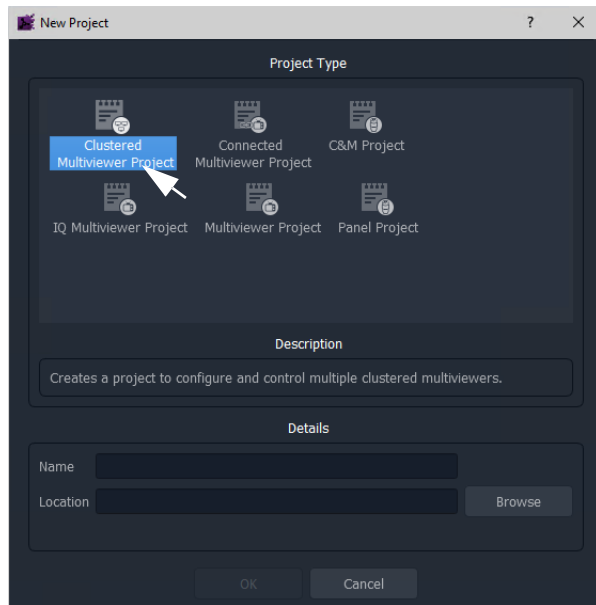


Fig. 7-3: New Project Dialog

- 3 Select the **Clusted Multiviewer** project type.
- 4 Enter a **Name** for the new project in the 'Details' section.
- 5 **Browse** to a folder location (local or network) for the project to be stored in while the multiviewer video walls are being designed.

Note: **Folder Location:**

The folder location must be accessible from the client computer running the GV Orbit Client tool. This location is used while the project is being edited.

When the editing is complete and the project is ready to be deployed, it is pushed from the GV Orbit Client to a central repository location on the GV Orbit server of the GV Orbit system.

- 6 Click **Choose** to select the folder.

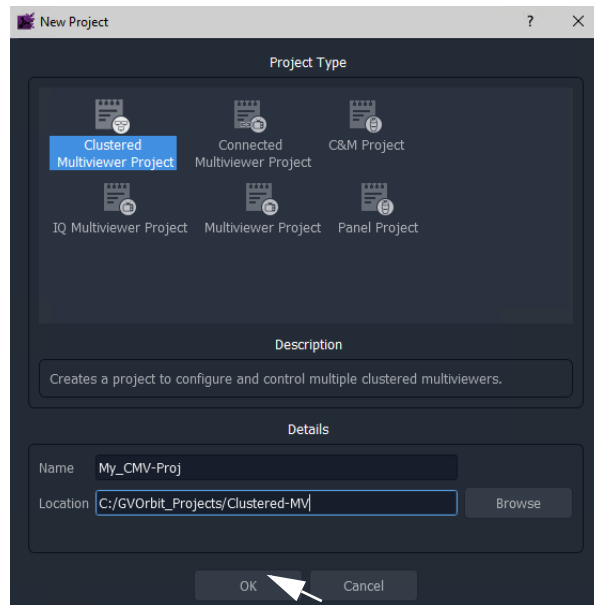


Fig. 7-4: Filled Out New Project Dialog

- 7 Click **OK** in the dialog.
A **Setup** dialog is then shown.

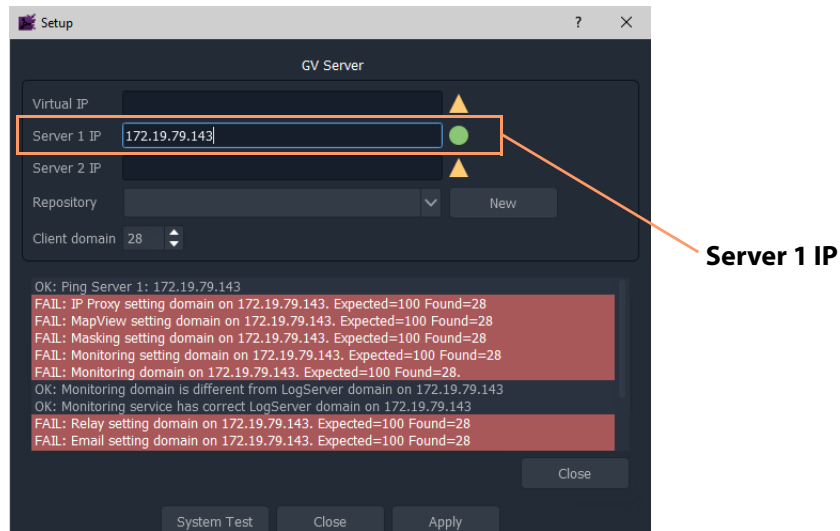


Fig. 7-5: Setup Dialog

In the **Setup** dialog:

- 8 Set **Server 1 IP** to the IP address of the GV Orbit server and press Enter.
(For a dual-server GV Orbit system, still just enter the IP address of one server. The second server will be discovered automatically in the steps below.)
After the IP address is entered, some basic system tests are carried out using the current, original settings of the **Setup** dialog settings. (This includes testing system

connectivity and gathering some basic system information from the GV Orbit server.) The results of these system tests are shown in the **Setup** dialog's console window.

Note: The current, original dialog settings will most likely differ from those of the GV Orbit system being connected to. Discrepancies are shown in **red-highlighted text** in the dialog's console window. This is normal.

- 9 After these system tests are done, any differences in the settings are adopted by the **Setup** dialog.

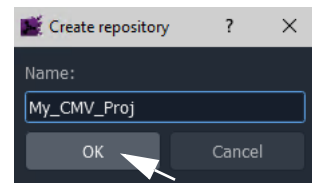
Step 2: Repository for Clustered MV Project

Note: For deployment, a Clustered MV project is pushed to a central store on the GV Orbit server, in a **Repository**, with one project per **Repository**. When creating a Clustered MV project, the repository may be created also.

To create the **Repository** to be used:

- 1 In the **Setup** dialog, for the **Repository** setting, click **New**.

The **Create Repository** dialog is shown.



- 2 Enter a **Name** for the new repository for the 'Clustered MV' project to use and press Enter, or click **OK**.

Note: **Characters to use in a Repository Name:**

Use only:

- alpha-numeric characters (0 1 2 A B C x y z etc.); and/or
 - underscore characters (_); and/or
 - tilde characters (~).
-

Note: **Repository Name:**

Use a unique and identifiable repository name for the 'Clustered MV' project to use. In this way, it is easily identified and found in a list of all repositories on a server.

The new repository name is shown in the **Setup** dialog.

Step 3: System Re-Test (optional) During Project Setup

Note: At this point, a system re-test is optional and will now remove any **red** items in the console pane. Optionally, in the **Setup** dialog:

- 1 Click **System Test**.

This re-does the basic system tests. The results are shown in the console. Any 'red' items

from before should now be cleared. See Figure 7-6.

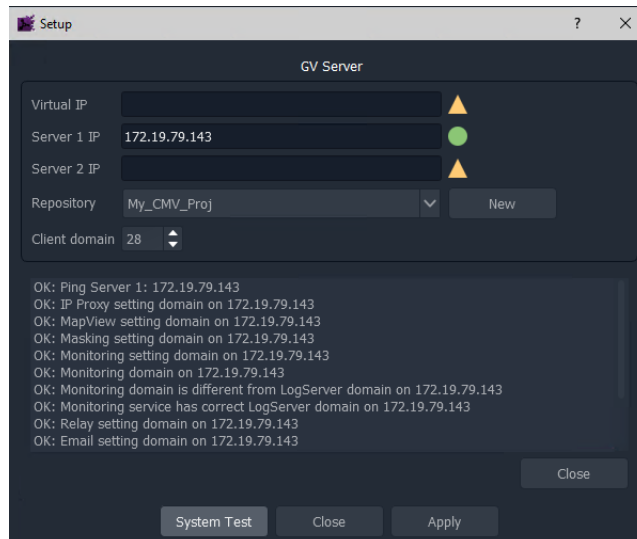
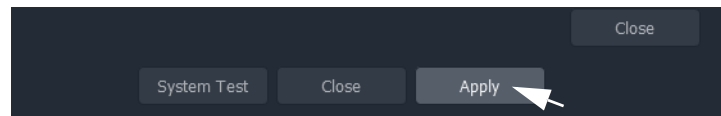


Fig. 7-6: System Re-Test

Step 4: Finally, Create Project

- 1 Click **Apply** in the **Setup** dialog.

The settings are applied to the project and a progress bar appears in the dialog.



- 2 While settings are applied, a pop-up dialog may appear, asking if the local project should be updated from the chosen repository:

For a new project where no changes have been made locally, answer **Yes**.

- Click **Yes** to update the local project from the repository on the server (this will lose any local changes made); or
- Click **No** to keep any local project changes made (and *not* pull the project from the repository on the server).

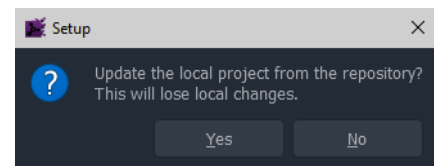


Fig. 7-7: Update Local Project?

- 3 While the applying of the settings continues, progress is shown in the progress bar.
- 4 When the settings changes are all applied, an **All Done** message pops up.

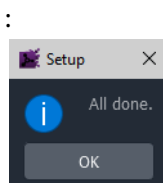


Fig. 7-8: Applying of Project Settings is All Done

- 5 Click **OK**.

- 6 Close the **Setup** dialog.

The new **Clustered Multiviewer** project is created and its **Home** screen is then shown. See [Clustered MV Project Home Screen](#).

Note: The **Setup** dialog can also be viewed when a GV Orbit project is open by clicking **Connections > GV Server** in the main menu.

- 7 Click **OK**.

The **Clustered Multiviewer** project information is contained in the local folder, ready for editing. For a newly-created project it is an empty project.

Project Repository for a 'Clustered Multiviewer' Project

If a repository has been created during 'Clustered MV' project creation, then update the MV Cluster Manager service, see the 'Project Settings' part of [Configuring an MV Cluster Manager Service](#), on page 339.

Clustered MV Project Screens

Clustered MV Project Home Screen

The **Home** screen of a **Clustered Multiviewer** project is shown in Figure 7-9.

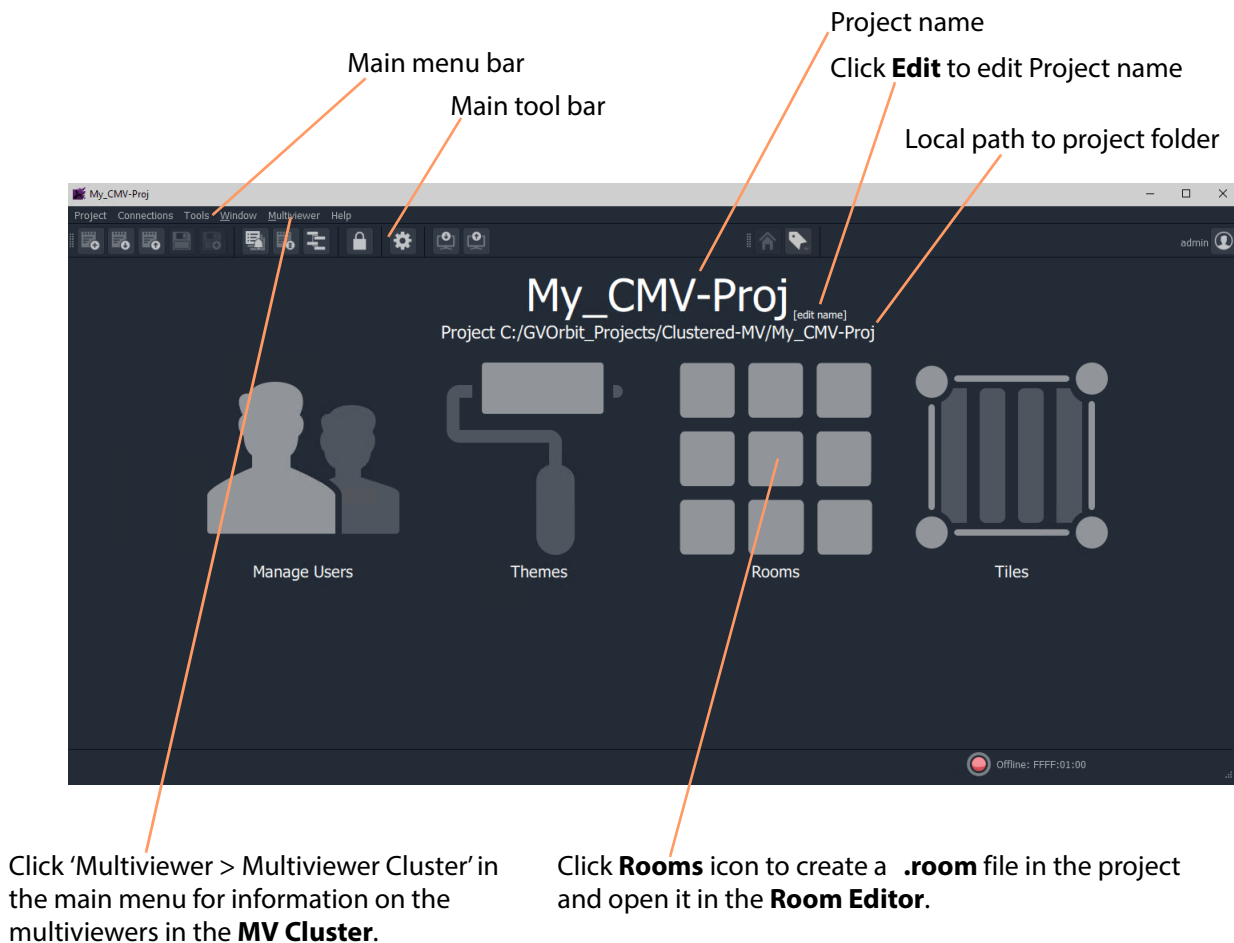


Fig. 7-9: Clustered Multiviewer Project Home Screen

The **Home** screen of the Clustered MV project is similar to that for a GV Orbit Multiviewer project; differences include:

- **Multiviewer Cluster** dialog which lists the multiviewers of the cluster. (Main menu item 'Multiviewer -> Multiviewer Cluster'.)
- **Rooms** icon on the **Home** screen which allows the user to create **.room** files and edit them in the **Room Editor**. (See Chapter 8, [MV Cluster - Room Editor](#), on page 353.)
- **Project** window has a 'rooms' sub-folder for **.room** files.

The large icons are similar to (non-clustered) multiviewer projects:

- **Manage Users** - Set up project users and their roles. (See Chapter 4, [Manage Users](#), on page 141.)

- **Themes** - Edit or create new on-screen appearance styles for graphical widgets for use on the video wall.
- **Rooms** - Edit or create **.room** file(s) with the **Room Editor** tool for the 'Clustered Multiviewer' project. (See Chapter 8, [MV Cluster - Room Editor](#), on page 353.)
- **Tiles** - Edit or create new **Custom Tiles** for use on the video wall.

Main Menu Items

Please see [Main Menu Items](#), on page 127.

Main Tool Bar Items

Please see [Main Tool Bar Items](#), on page 133.

Further Tool Bar items are shown when a multiviewer video wall is open. See [Main Tool Bar with Room Editor Open](#).

Clustered MV Room Editor Screen

The **Home** screen of the **Room Editor** is shown in Figure 7-10.

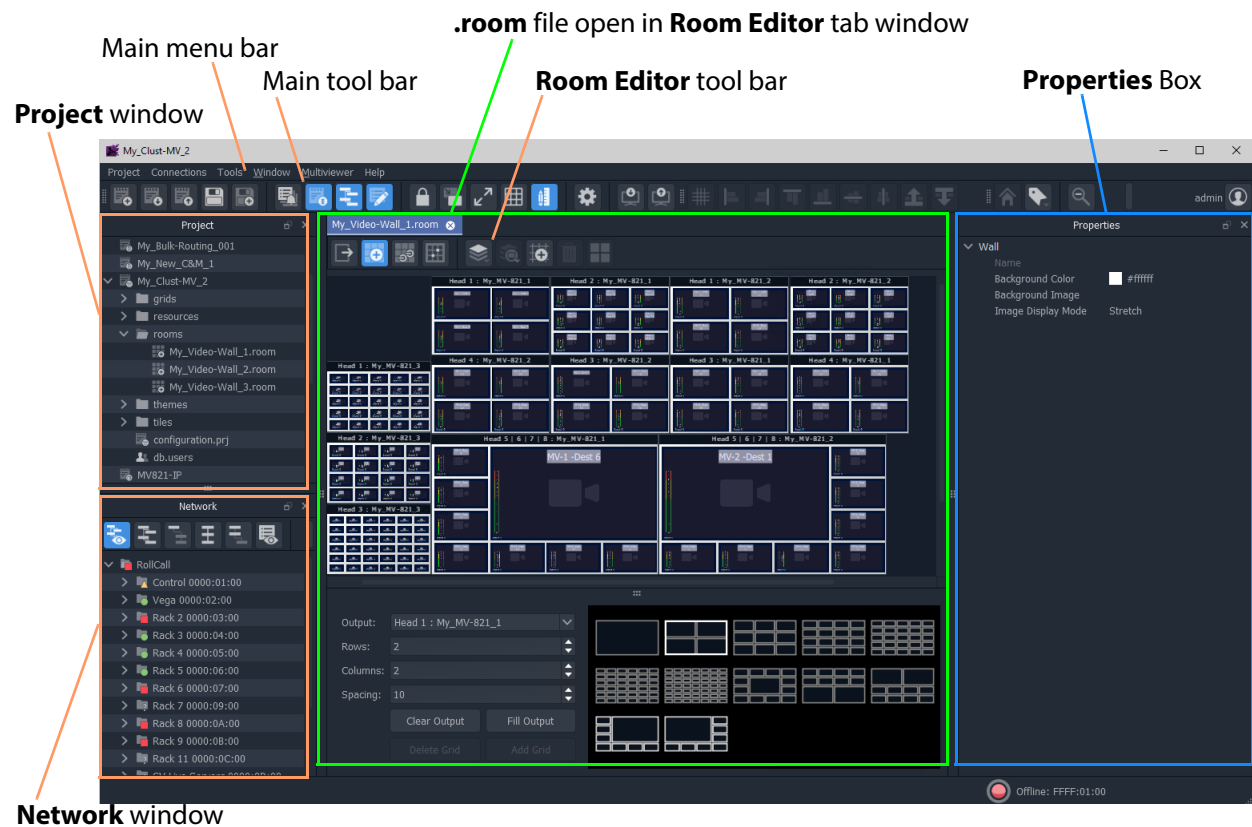


Fig. 7-10: Clustered Multiviewer Room Editor Screen

For further description of the **Room Editor**, please see Chapter 8, [MV Cluster - Room Editor](#), on page 353.

Main Tool Bar with Room Editor Open

Additional tool bar icons are shown here. See [Main Tool Bar Items](#) for the other icons.

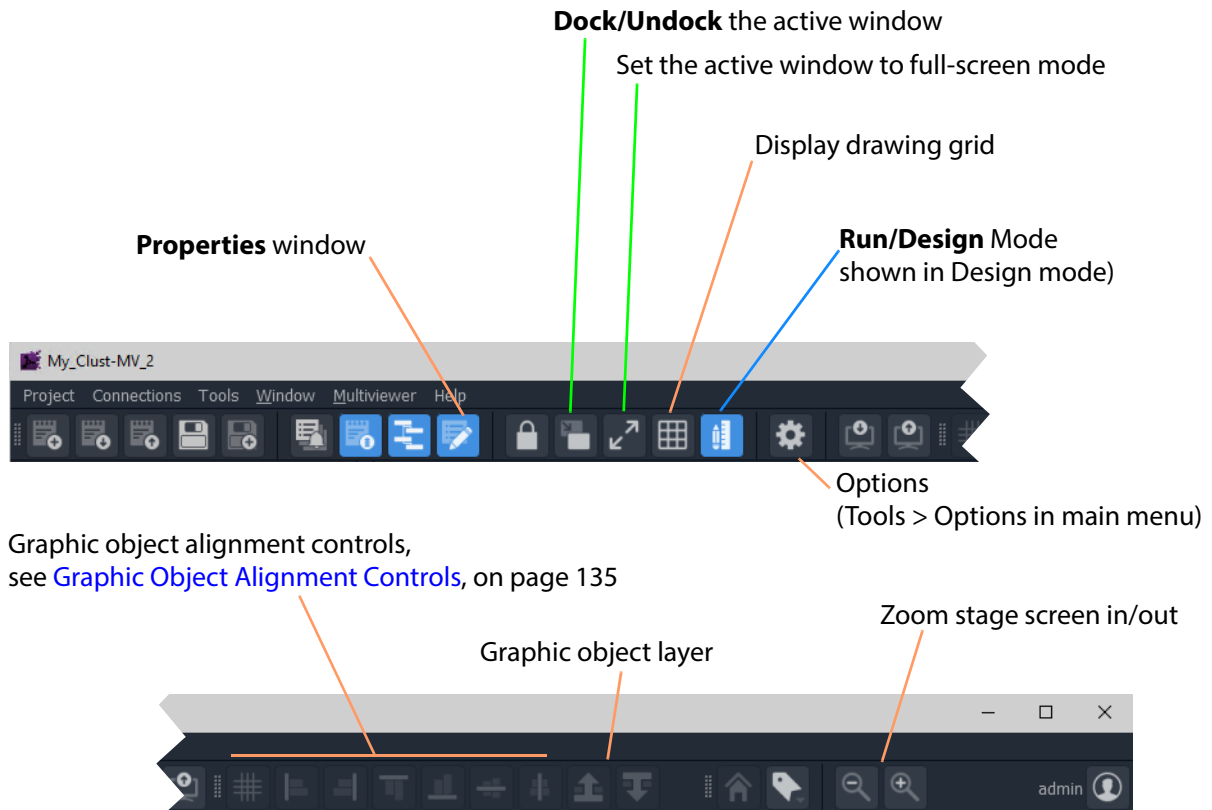


Fig. 7-11: Clustered Multiviewer Main Tools Bar with Room Editor Screen Open

Managing Multiviewer Cluster Information in a Project

The multiviewers in a multiviewer cluster are automatically discovered by GV Orbit where a network allows multicast discovery data packets.

View/Edit Multiviewer Information

Procedure

To view information about each multiviewer in the multiviewer cluster:

- 1 Click 'Multiviewer > Multiviewer Cluster' in the GV Orbit Client main menu.

The **Multiviewer Cluster** dialog is shown. See Figure 7-12.

The dialog shows the auto-discovered multiviewers of the cluster.

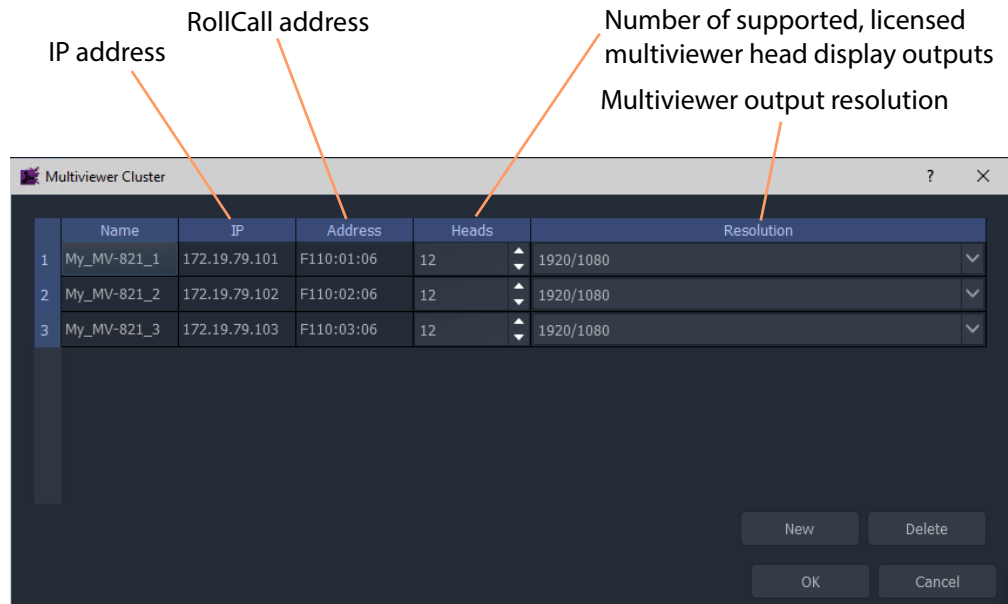


Fig. 7-12: Multiviewer Cluster Dialog

In the **Multiviewer Cluster** dialog, the following should be manually set up:

- 2 Select the number of 'Heads' that are licensed for each multiviewer in the list.
- 3 Select the output 'Resolution' for the multiviewers.
- 4 Click **OK**.

If required, multiviewers can be explicitly added, see [Adding Multiviewers Explicitly](#).

Note: The head display outputs of an MV-8 Series multiviewer all share the same resolution. Select either 1920x1080 or 720x1280. UHD (4K) is achieved with four outputs and 1080p quad-link.

Adding Multiviewers Explicitly

It is possible to add multiviewers to the list in the **Multiviewer Cluster** dialog. This may be required if, for example, multicast discovery data packets are not allowed on a network.

Procedure

To add multiviewers manually:

- 1 Click **New** to add the information about each multiviewer of the cluster. See Figure 7-13.
- 2 Click **OK** to close the dialog.
- 3 Click **Project -> Save Project** in the main menu to save the project locally.

MV-8 Series multiviewer head display outputs all share the same resolution. Select either 1920x1080 or 720x1280.

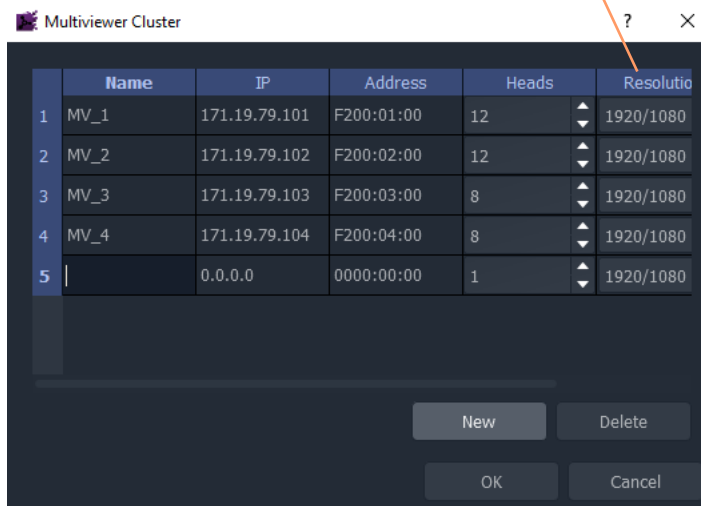


Fig. 7-13: Multiviewer Cluster Dialog- Adding New Multiviewer Device

Video Walls Etc. Design Workflow for an MV Cluster

For instructions on designing video walls in a 'Clustered MV' project see the workflow described in:

- Chapter 8, [MV Cluster - Room Editor](#), on page 353.

Also see these additional design steps:

- Chapter 9 [MV Cluster - TSL Tally Configuration](#), on page 421.
- Chapter 10 [Audio Bars Configuration](#), on page 447.

8

MV Cluster - Room Editor

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Room Editor Introduction

Lite	Professional	Enterprise
-	●	●

Room Editor is a facility offered in a 'Clustered MV' project in GV Orbit Client. It enables a user to design one or more video walls that are served by a cluster of multiviewers. This allows a user to design and manage all the video walls in a production-facility (e.g. studio, or OB truck). The multiviewer devices are automatically discovered by GV Orbit Client.

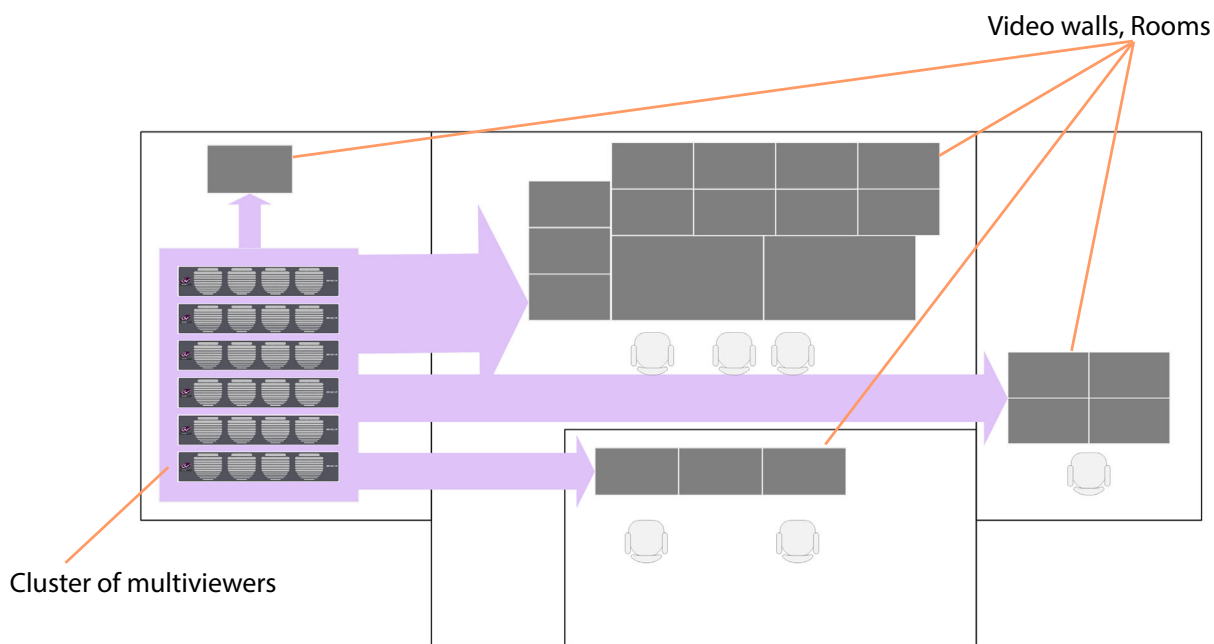


Fig. 8-1: Example Facility Schematic - Cluster of Multiviewer Devices Serving a Production Facility

In the [Room Editor Home Screen](#), a user can define and position all of the physical monitor displays for all their video walls. Assignment of multiviewer devices and outputs to video wall monitors is performed once. Video walls can be fed by any multiviewer output available in the multiviewer cluster and are assigned to router destinations. Assignment of video signals to the video wall for monitoring is integrated into the GV Orbit routing system and carried out with a graphical interface in GV Orbit Client.

Subsequent design and management of all the various video walls is then independent of the individual multiviewers in the cluster and video tile positions on the video wall are referred to with router destination names.

The **Room Editor** also enables a user to set up TSL tally settings and audio bars configuration for a video wall.

Room Editor Home Screen

Video wall design open in **Room Editor** tab window

Room Editor Tool Bar

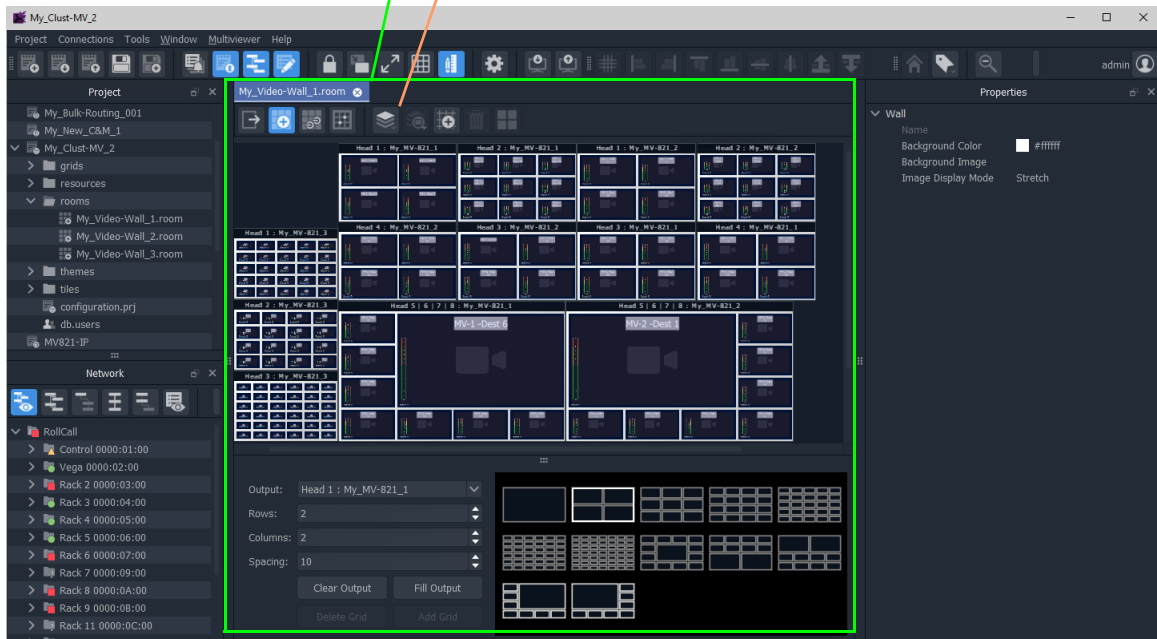


Fig. 8-2: Room Editor Screen Example

The **Room Editor** stores video wall design information for one or more video walls in a single 'Clustered MV' GV Orbit project (see [What is a Clustered Multiviewer Project?](#)). Each video wall design is stored in a **Room** file (see [What is a Room File?](#)) in the project.

Room Editor Workflow

The **Room Editor** facility allows a user to easily create the video walls with the following workflow:

- 1 Create monitor wall arrangements from one or more monitors and assign multiviewer outputs.
(See [What is a Room Design?](#), on page 360.)
- 2 Create the layout - Assign tile-grids to each monitor in the video wall and populate with tile types, and create all room layouts and monitor layouts.
(See [What is Room Design Layout?](#), on page 361.)
- 3 Assign router video destinations to video wall tile positions in the grid.
(See [What is Destination Assignment for a Room?](#), on page 364.)
- 4 Assign video sources to video wall tile positions in the tile-grid.
(See [What is Routing Source Assignment for a Room?](#), on page 365.)

[Room Editor Workflow Overview](#), on page 366, outlines the **Room Editor** workflow steps, which fully described in the subsequent sections of this chapter.

Room Editor Tool Bar

The first few icons in the **Room Editor** tool bar (see Figure 8-3) follow the MV Cluster video wall design's **Room Editor** workflow.

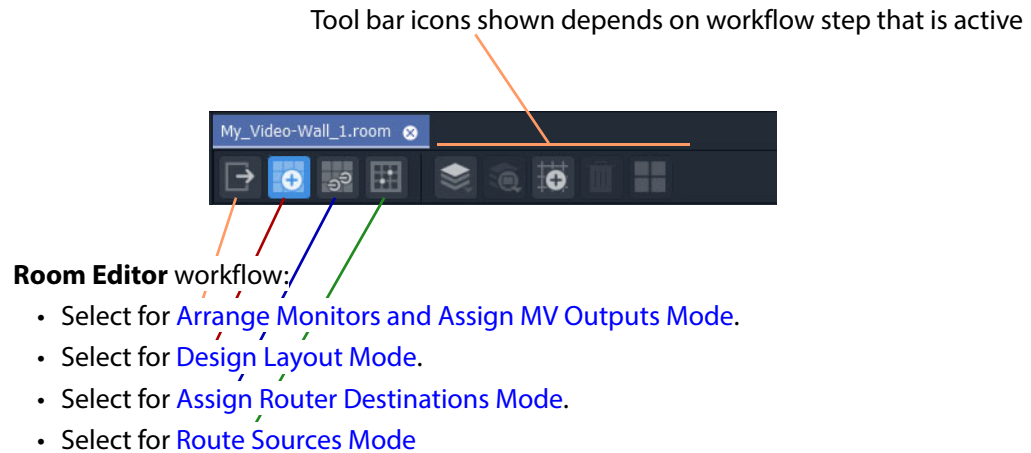


Fig. 8-3: Room Editor Tool Bar - Main Icons

Arrange Monitors and Assign MV Outputs Mode

Icons in the **Room Editor** tool bar:

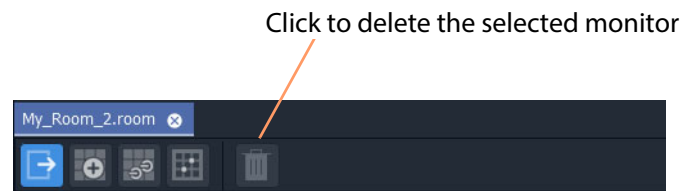


Fig. 8-4: Room Editor Tool Bar - Arrange Monitors and Assign MV Outputs Mode

Design Layout Mode

Icons in the **Room Editor** tool bar:

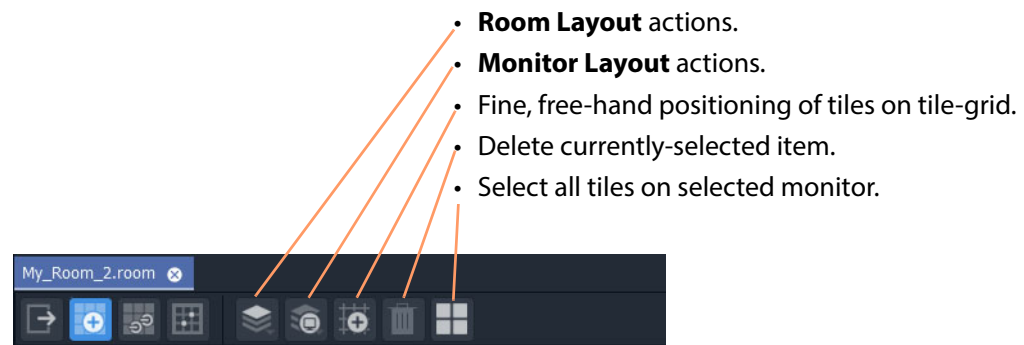


Fig. 8-5: Room Editor Tool Bar - Design Layout Mode

Assign Router Destinations Mode

Icons in the **Room Editor** tool bar:

- **Room Layout** actions.
- **Monitor Layout** actions.
- Map multiviewer inputs to router destinations.
- Select all tiles on selected monitor.



Fig. 8-6: Room Editor Tool Bar - Assign Router Destinations Mode

Route Sources Mode

Icons in the **Room Editor** tool bar:

- **Room Layout** actions.
- **Monitor Layout** actions.

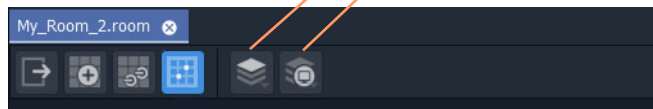


Fig. 8-7: Room Editor Tool Bar - Route Sources Mode

Room Editor Items

This section defines and describes some terms used when describing the **Room Editor** in GV Orbit Client.

What is a Room File?

A **Room** file (also known as a **Room** file, or, simply, a **Room**) is part of a Clustered MV project. A file holds information for a video wall (**Room Design**). There can be more than one **Room** in a Clustered MV project.

The files are stored in the 'Clustered MV' project's folder structure, in the 'rooms' sub-folder, and are accessible from the **Project** window in GV Orbit Client or from the opening project **Home Page**.

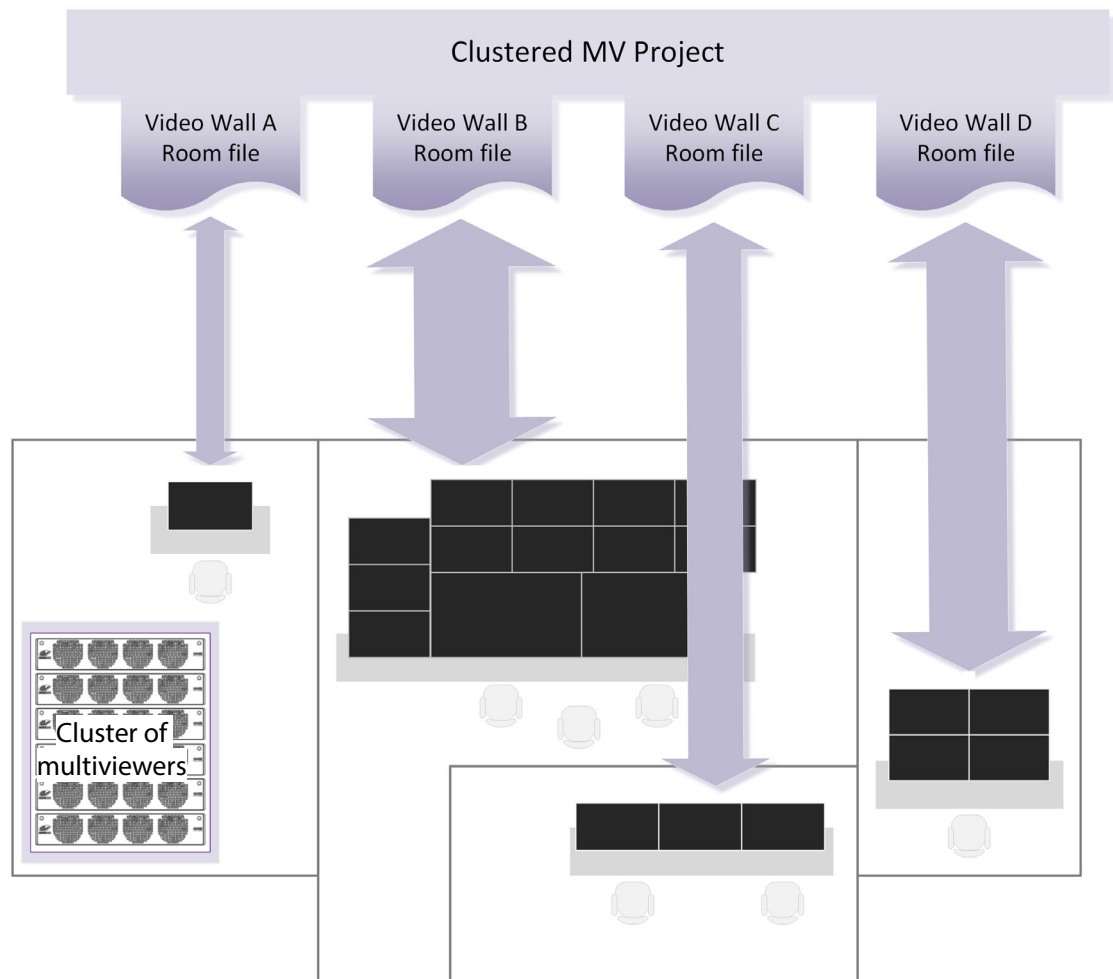


Fig. 8-8: Room Files in a Clustered Multiviewer Project Describe Video Walls

What is a Room Design?

A video wall is formed in a 'Clustered MV' project from 'physical' video monitor displays. Each video wall design is a **Room Design**. A user can form a large video wall from multiple 'physical' displays arranged and configured. They can be driven from one or more multiviewer devices from an MV cluster. Video wall tile layouts can be applied and video tiles can be assigned router destinations.

A **Room Design** is stored in a **Room** file.

See [Step 1: Create a Room](#), on page 368, for the workflow steps.

What is a Room Monitor Arrangement and Multiviewer Output Assignment?

As part of a **Room Design**, a user can configure a large video wall from multiple 'physical' displays and driven from one or more multiviewer devices from an MV cluster.

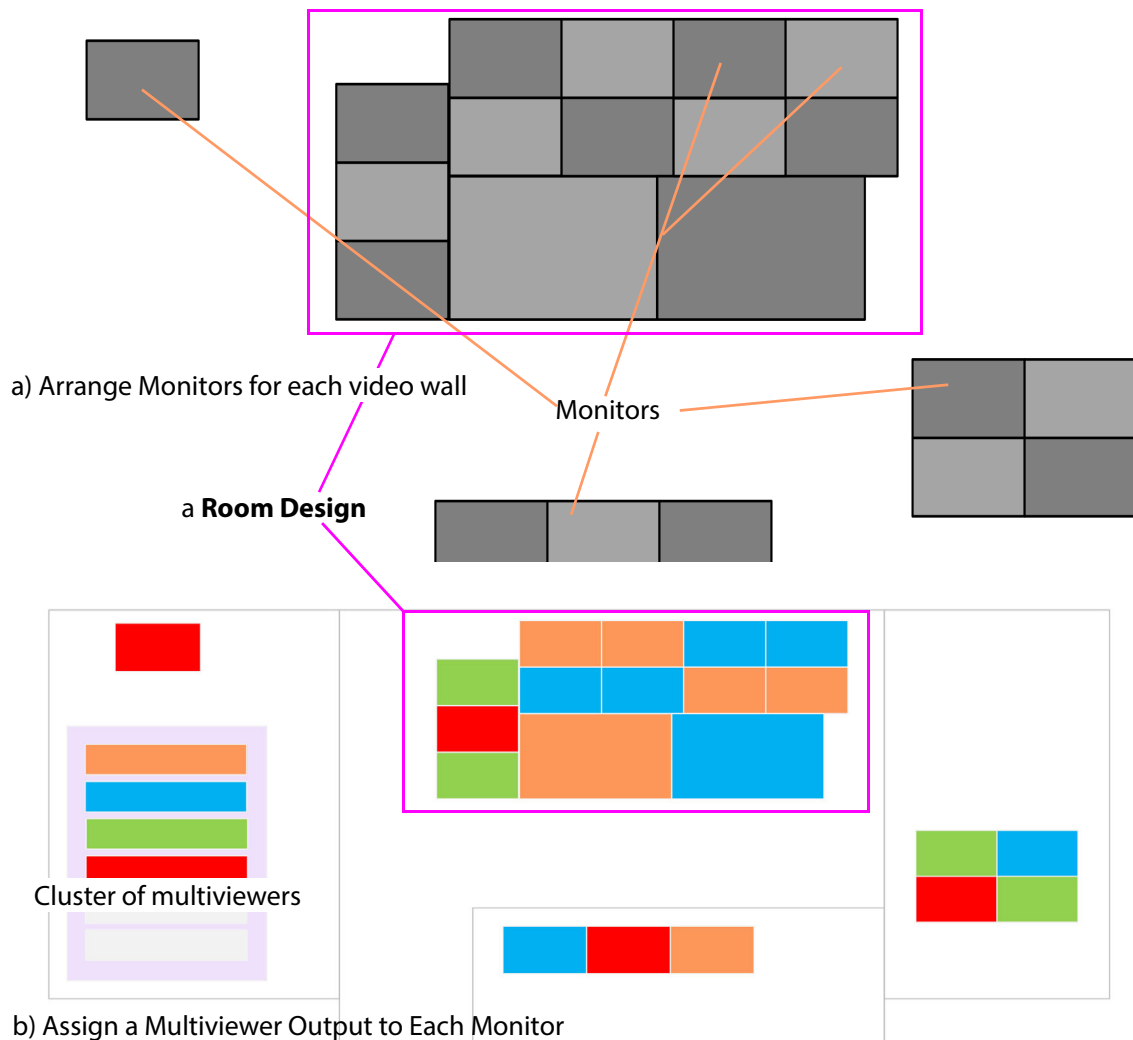


Fig. 8-9: Room Designs: a) Arranging Monitors; b) Assigning and Configuring Multiviewer Outputs.

Monitor Arrangement includes:

- 1 Creating a representation of a large video monitor wall by positioning 'physical' displays on a 'stage'.
- 2 Defining each display, including:
 - Display size, geometry.
 - Type: single HD, or quad-split for UHD.
 - Orientation: Vertical or Horizontal.

Note: A UHD monitor is fed from four MV-8 Series multiviewer "HD" multiviewer outputs. These must be multiviewer outputs from the same multiviewer device.

Note: Monitor aspect ratio is assumed to be 16:9.

Assign Outputs includes:

- 3 Assigning a multiviewer output to each physical monitor display.

A monitor arrangement and assigned outputs in a **Room** file can be saved locally and, when complete, the **Room Design** can be saved centrally on a GV Orbit server in a 'Clustered Multiviewer' project.

See [Step 2: Arrange Monitors and Assign Multiviewer Outputs](#), on page 370, for the workflow steps.

What is Room Design Layout?

This defines the arrangement of *tiles* used in a project for each video wall monitor.

The arrangement of tiles *plus* their connection to multiviewer inputs on a monitor is termed its Layout.

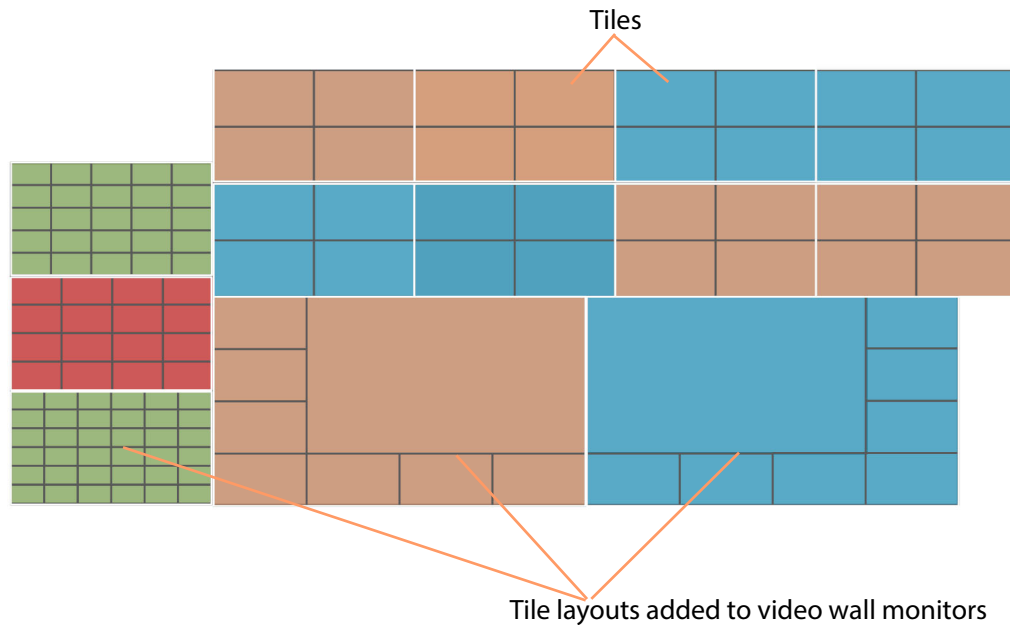


Fig. 8-10: Video Wall Design Layout

Layout Workflow

For a created **Room Design**, for each monitor:

- A tile-grid is applied from a selection of templates (for example, 2x2, 3x3 etc.) to position tiles and fine-positioning can be done.
- Each tile type is then defined (for example, video tile, audio tile, or custom tile).

This has prepared a basic **Design Layout** in a **Room Design**.

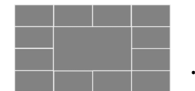
(See [What is a Monitor Layout?](#), and [What is a Room Layout?](#))

See [Step 3a: Design Layout - Assign Tile Grid Layouts to a Video Wall](#), on page 378, for the workflow steps.

What is a Tile-Grid?

A tile-grid determines the position and size of tiles on a monitor, irrespective of tile type. For example, a tile-grid may comprise:

- 3x3 tiles; or of
- one larger, central tile surrounded by twelve smaller tiles



A tile-grid includes the assignment of multiviewer inputs and router destinations to each tile position in the grid.

Tile-Grid Excludes Tile Types

A tile-grid *excludes* the tile types that populate the tile-grid.

Note: Tile-grid + Tile types = **Monitor Layout**.
(See [What is a Monitor Layout?](#).)

What is a Monitor Layout?

In a project, individual monitors may be set up to show one tile-grid from two or more possible tile-grid layouts (for example, there may be a 2x2 and a 3x3 tile grid layout to select from). These layouts are **Monitor Layouts** which apply to individual monitors on the video wall.

These 'monitor-level' layouts form part of the overall **Layout Configuration**.

Note: Live-Selecting of Monitor Layouts:
Monitor Layouts are live-selectable.

(Monitor Layout in the **Room Editor** tool is equivalent to **Wall Layout** in the **Wall Editor** tool in GV Orbit Client.)

What is a Room Layout?

A **Room Layout** is a snapshot of selected **Monitor Layouts** for each of the monitors on a video wall. A **Room Design** can have one or more **Room Layouts** to select from. This 'room-level' layout applies across a whole video wall in a **Room**.

(See [Step 3b: Create Optional Alternative Layouts for a Video Wall](#), on page 386, for the workflow steps.)

Room Layouts enable a video wall to have various alternative, similar layout. Table 8-1 shows some possible example combinations.

Table 8-1: Example Room Layouts and Selected Monitor Layouts

Room Layouts	Monitor Layouts												
	Monitor 1 Monitor Layouts			Monitor 2 Monitor Layouts				Mon 3	Mon 4	Mon 5 Monitor Layouts		Mon 6	Mon 7
	All Feeds	Main +2x2	Main+3x3	Pvw-Live	Large Live	Center Live	Side Live			4x4	5x5		
Soccer Layout 1	⊙			⊙				⊙	⊙	⊙		⊙	⊙
Soccer Layout 2		⊙		⊙				⊙	⊙	⊙		⊙	⊙
Soccer Layout 3			⊙	⊙				⊙	⊙	⊙		⊙	⊙
Hockey Layout 1		⊙			⊙			⊙	⊙	⊙		⊙	⊙
Hockey Layout 1b		⊙			⊙			⊙	⊙		⊙	⊙	⊙
Hockey Layout 2			⊙			⊙		⊙	⊙	⊙		⊙	⊙
Hockey Layout 3			⊙				⊙	⊙	⊙	⊙		⊙	⊙

What is Destination Assignment for a Room?

Assignment of router destinations to tile positions on the video wall tile-grid allows the user to manage video walls, and their specifically tile positions, in terms of router destinations.

Assignment of destinations is done for all video walls in a Clustered MV project (i.e. for all **Rooms** in the project).

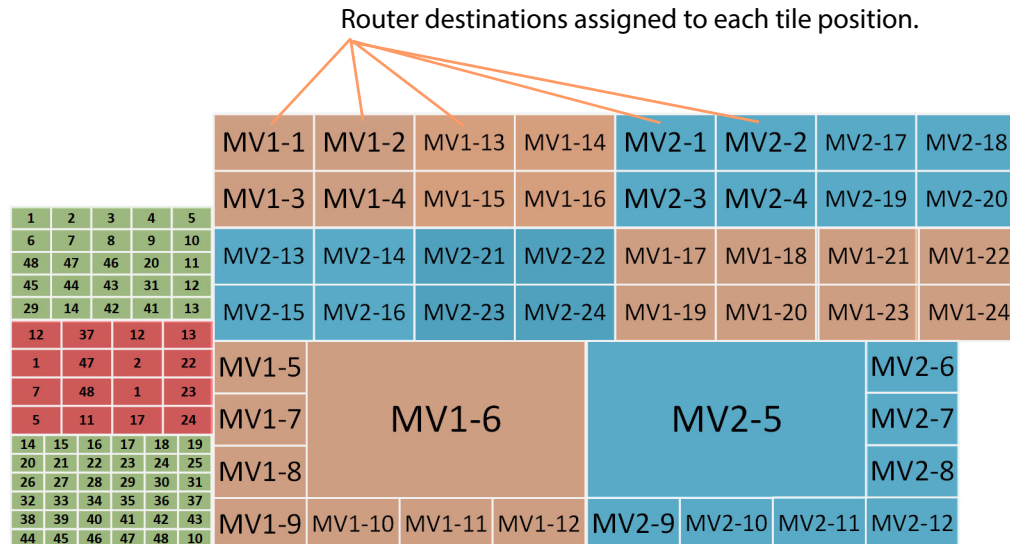


Fig. 8-11: Video Wall - Assigned Destinations

Destination Assignment Workflow

For a created **Room Design**, for each monitor in a video wall, the workflow is:

- 1 Router destinations are mapped to multiviewer inputs for all devices in the MV cluster.
- 2 Destinations are then assigned to tile positions on the video walls.

This has prepared the **Destination Assignments** for monitors in a **Room**. The multiviewers are ready have signals routed to them.

TSL Configuration and Audio Bars Configuration

Additionally, this **Room Editor** mode allows:

- TSL settings to be configured globally for the **Room**.
(See Chapter 9, [MV Cluster - TSL Tally Configuration](#), on page 421.)
- Audio bar configuration for Audio Bars in on-screen graphical widgets to be configured globally for the **Room**.
(See Chapter 10, [Audio Bars Configuration](#), on page 447.)

What is Routing Source Assignment for a Room?

The final step in designing the video wall (**Room**) involves routing sources to all of the tile positions in each monitor tile-grid. This is done with an integrated, easy-to-use, graphical routing panel enabling the user to route by selecting sources and destination tiles.

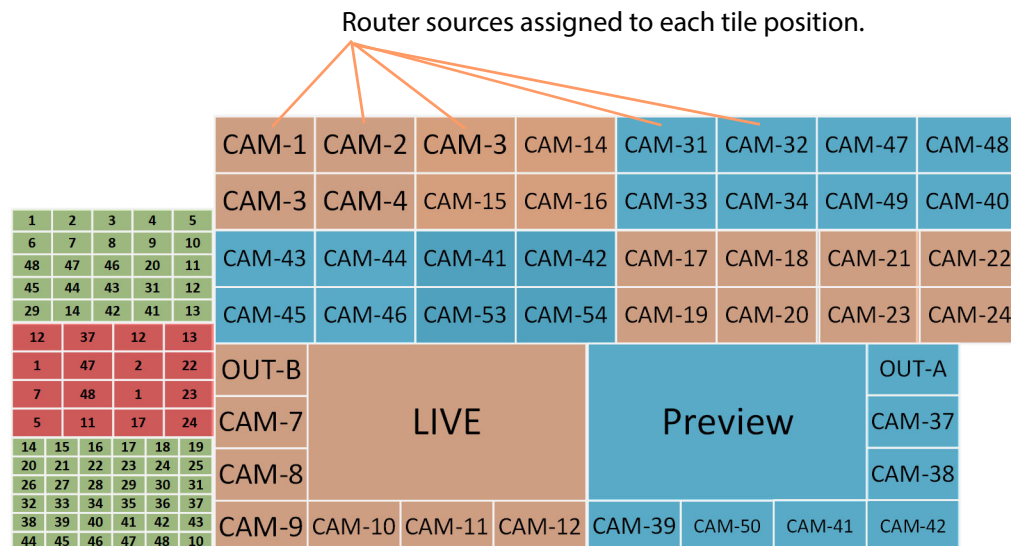


Fig. 8-12: Video Wall - Routed Sources

The 'Route Sources' tool mixes a graphical representation of the monitor wall with a (router) source selection panel. The monitor wall representation is the (router) destination selection panel.

A source can easily be assigned (routed) to a tile position on a monitor of a video wall.

See [Step 5: X/Y Routing Video Sources to Tile Positions](#), on page 411, for the workflow steps.

Routing Sources Workflow

The workflow for each video tile position on a monitor is:

- 1 select the tile position in the monitor's tile-grid (this is the destination to route to); and
- 2 select the source.

When a route is made, all levels are routed. and tile positions on the tile-grid show their logical names.

Room Editor Workflow Overview

The workflow for creating **Room Designs** in the **Room Editor** is listed here and described in the following sections of this chapter. A prerequisite is a GV Orbit 'Clustered MV' project open in GV Orbit Client. (See [Creating a Clustered Multiviewer Project for an MV Cluster](#), on page 341.)

Workflow overview:

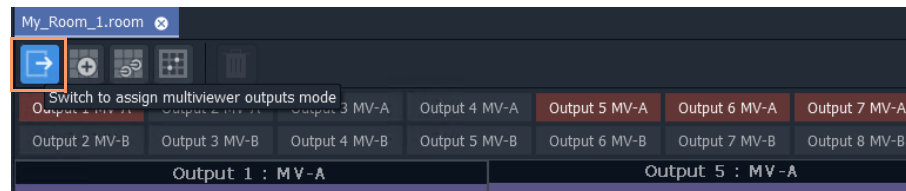
Create a Room (Room File):

Firstly, for each video wall, create a **Room** for each video wall.
See [Step 1: Create a Room](#), on page 368.

Then, for each **Room**, create a **Room Design** to form the video wall design, as described in subsequent sections:

Arrange Monitors and Assign Multiviewer Outputs:

See [Step 2: Arrange Monitors and Assign Multiviewer Outputs](#), on page 370.



Position monitors on a 'stage'; define monitor types (includes size, orientation, single HD or quad-split for UHD); and assign one or more MV outputs to each monitor.

Design Room Layout - Assign Tile Grid Layouts:

See [Step 3a: Design Layout - Assign Tile Grid Layouts to a Video Wall](#), on page 378.



Assign tile-grid templates to the monitors of the video wall; populate with tiles; and customize if required to form the video wall layout.

Create Optional Alternative Layouts for a Video Wall:

See [Step 3b: Create Optional Alternative Layouts for a Video Wall](#), on page 386.
This enables live selection between different layouts.

Assign Router Destinations to Tile Positions:

See [Step 4a: Assign Destinations to Tile Positions](#), on page 395.



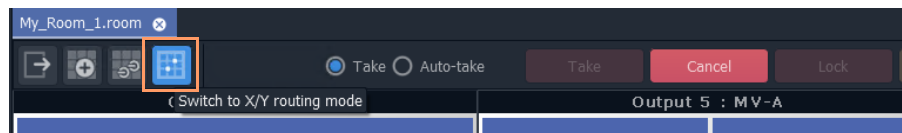
Map destinations to multiviewer inputs; assign destinations to video wall tile positions on each tile-grid; and assign TSL settings for the **Room** file.

Tally Configuration:

See [Step 4b: Configure TSL Tally Settings for a Room](#), on page 410.
Optional at this stage and may be done separately later.

Routing Video Sources to Tile Positions:

See [Step 5: X/Y Routing Video Sources to Tile Positions](#), on page 411.



Routes required sources to video tiles for the required video monitoring.

Step 1: Create a Room

Create a **Room** (**Room** file) with the **Rooms** icon from the **Home Page** or from the **Project** window. All video wall design information for one video wall will be stored in the **Room** file. A project may contain one or more **Room** files, which are shown in the **Project** window.

Create a **Room** for each video wall.

Procedure

To create a **Room** in the project from the **Home Page**:

- 1 Click the **Rooms** icon on the **Home Screen** and click **New Room**.

The **New Room File** dialog is shown. (See Figure 8-13)

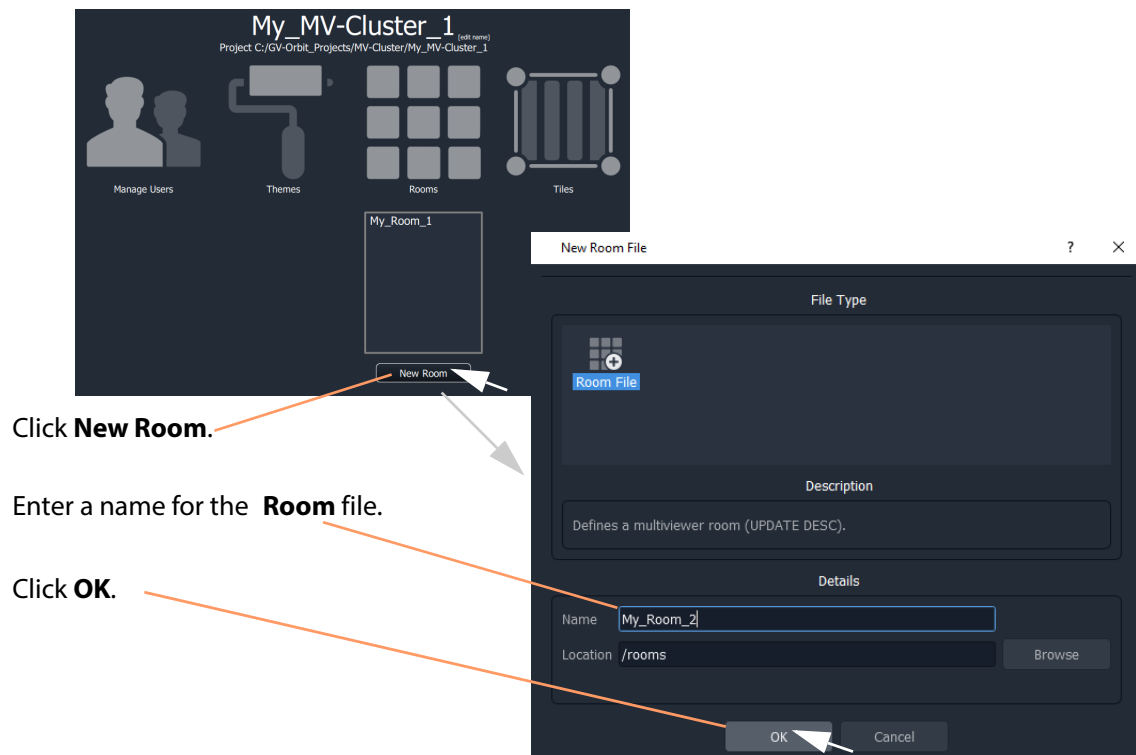
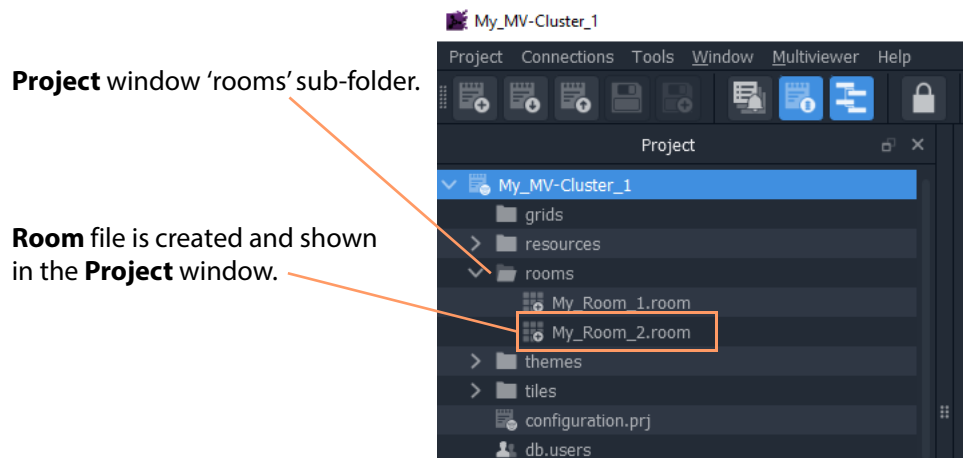


Fig. 8-13: New Room File Dialog

- 2 Enter a name for the **Room** and click **OK**.

A new, empty **Room** is created and is shown in the **Project** window in the 'rooms' sub-folder.



Project window 'rooms' sub-folder.

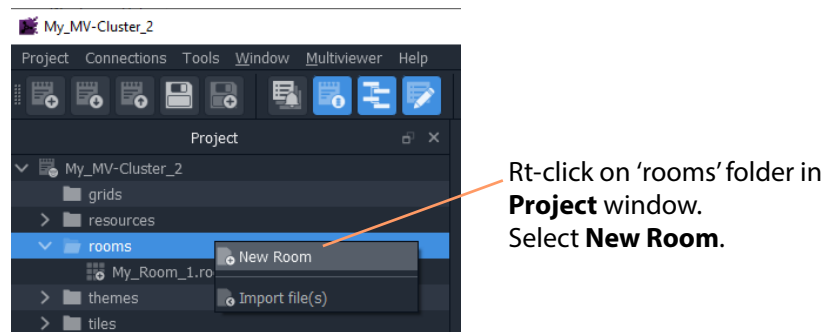
Room file is created and shown in the **Project** window.

Fig. 8-14: Create New Room File

Alternative Procedure, from Project Window

Alternatively, to create a **Room** from the **Project** window (see Figure 8-15):

- 1 Right-click on the 'rooms' folder in the **Project** window and select **New Room**.



Rt-click on 'rooms' folder in **Project** window. Select **New Room**.

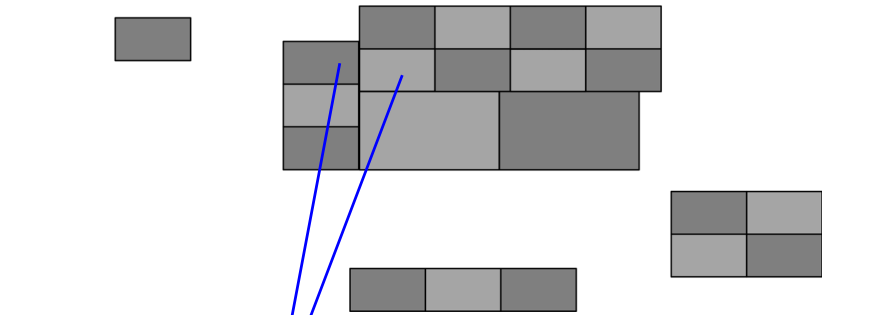
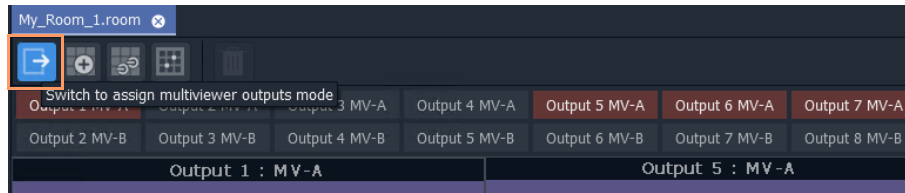
Fig. 8-15: Create New Room File

The **New Room File** dialog is shown.

- 2 Enter a name for the **Room** and click **OK**.

A new, empty **Room** file is created and is shown in the **Project** window in the 'rooms' sub-folder.

Step 2: Arrange Monitors and Assign Multiviewer Outputs



a) Arrange Monitors

Monitors



b) Assign Multiviewer and Multiviewer Outputs

Video Wall Room Design

Prerequisites:

- There is a new **Room** in GV Orbit Client as part of a Clustered MV project.
- Multiviewers in the multiviewer cluster are discoverable or have been manually entered into the GV Orbit Client via the 'Multiviewer > Multiviewer Cluster' dialog of the Clustered MV project.

Procedure

To position monitors for one video wall, in the **Project** window:

- 1 Open the **Room** by double-clicking on the **Room** file name, or by right-clicking on it and selecting **Open**.

The **Room** opens in the **Room Editor** and is shown in the GV Orbit Client. All multiviewer outputs are listed in a scrollable banner at the top of the central stage area.

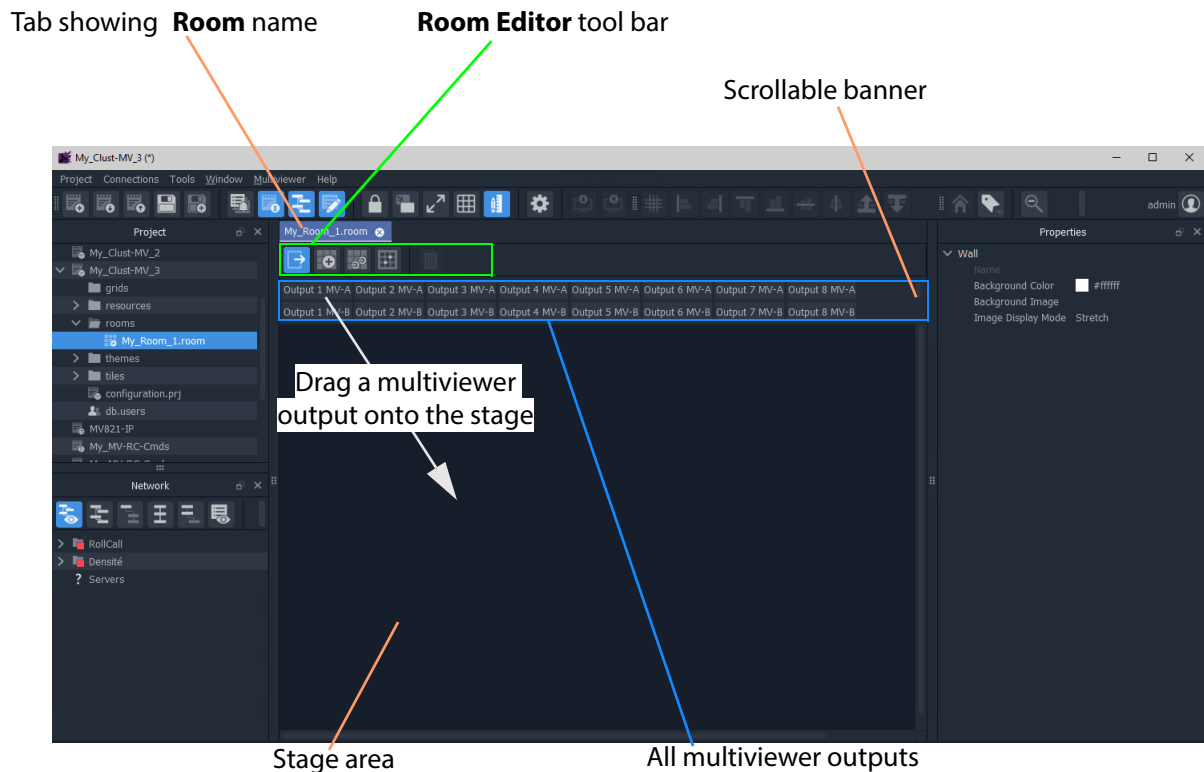


Fig. 8-16: New Room in Room Editor

- 2 Drag a multiviewer output from the scrollable banner onto the stage area and release. A representation of the monitor appears on the stage. See Figure 8-17.

Note: For display purposes in the **Room Editor**, each monitor on the stage area has a header label indicating which multiviewer output and device is being used for the monitor.

Note: Monitor Aspect Ratio:
Monitors aspect ratio should be 16:9.

Monitor header label:
Output and multiviewer device is indicated in header
area *for display purposes* in the **Room Editor**.

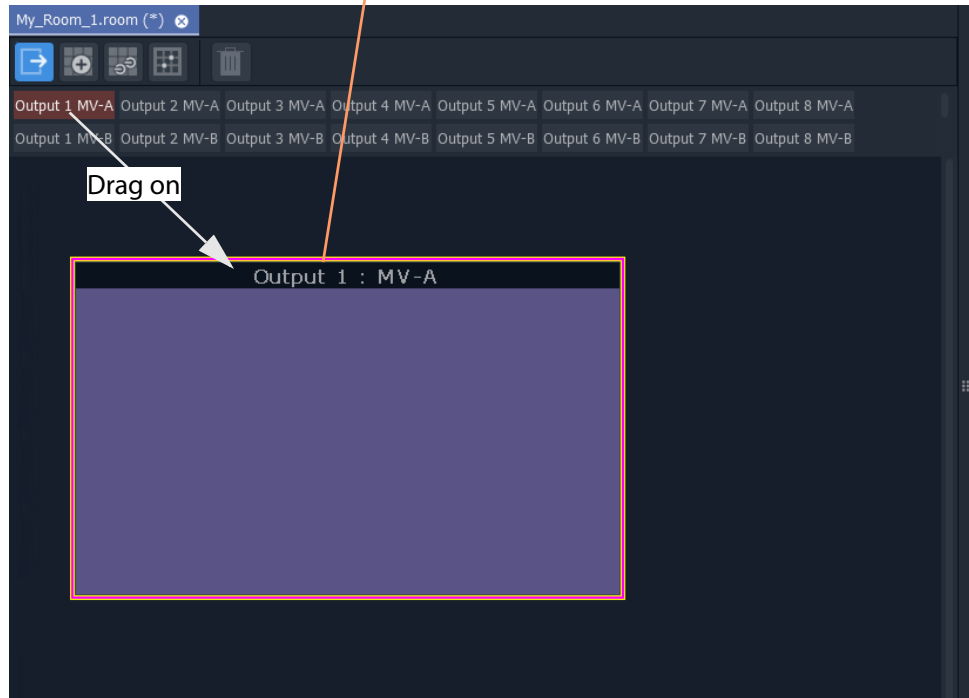


Fig. 8-17: Dragged-on Monitor

- 3 Configure the monitor by double-clicking on it.
The **Configure Output** dialog is shown.

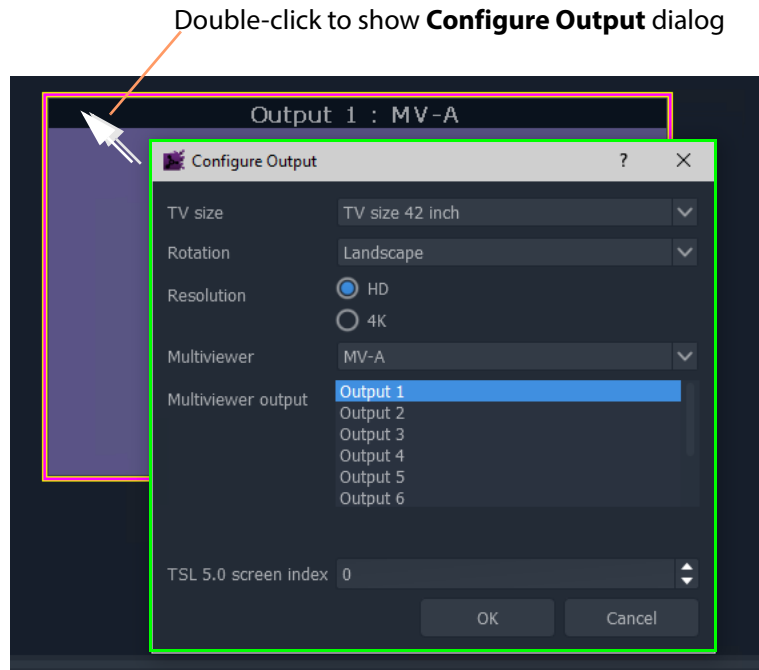


Fig. 8-18: Configure Output Dialog

- 4 Set up the monitor parameters in the **Configure Output** dialog, including:
 - **TV Size** - The nominal monitor screen diagonal size (inches).
 - **Rotation** - Orientation: Landscape, Portrait, or Inverted Portrait.
 - **Resolution** - Define whether monitor is a, HD monitor, or a UHD monitor (requiring quad-link multiviewer outputs).

And the following multiviewer assignment settings in the dialog are automatically set up for the dragged-on multiviewer outputs but can be changed on this dialog, if required:

- **Multiviewer** device assigned to the monitor.
- **Multiviewer Output** (head output) assigned to the monitor.

Additionally, the following TSL item may be set up:

- **TSL 5.0 screen index** to use by default for video tiles shown by the multiviewer output.

When settings changes are made in the dialog:

- 5 Click **OK** in the **Configure Output** dialog.
- 6 Position the monitor on the stage.

Note: **Undo / Redo:**

Edits in the **Room Editor** are all un-doable and re-doable with the usual GV Orbit Client key strokes:

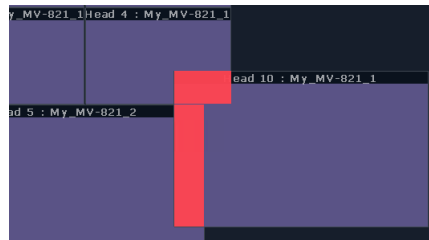
- CTRL-Z (undo action); and
 - CTRL-Y (redo action).
-

Note: **Fine Positioning:**
Monitors can be finely-positioned using the arrow keys.

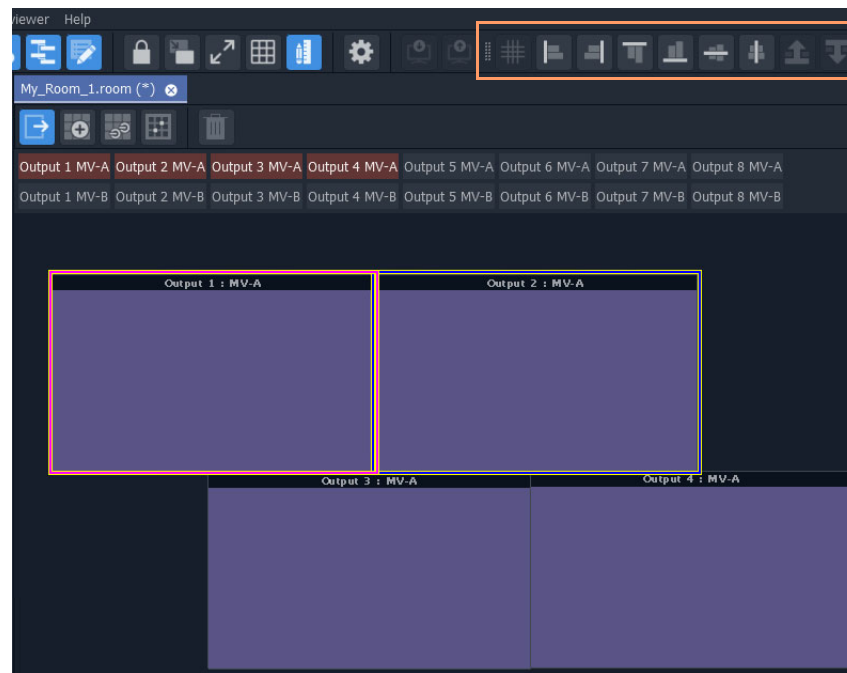
Then:

- 7 Drag on further monitors, configure and position these to form your video wall monitor arrangement by abutting monitors on the stage.

Note: When dragging monitors on the stage, overlap of monitors is not permitted in a video wall. Any overlapping areas are shown in red.



Note: **Monitor Alignment:**
Monitors can be aligned and arranged on the stage using the GV Orbit Client's alignment tools in the tool bar.



Note: **Snap-to-Monitor and Snap-to-Grid:**

Monitors will snap to other monitors on the stage when brought close.

If 'snap to grid' is turned on for the **Room Editor**, then snap-to-grid takes precedence over snap-to-monitor when positioning monitors. ('Tools > Option > App' in main menu for **Room Editor** grid controls.)

- 8 Click **Project > Save File** in the main menu to save changes to the **Room** file.

This has created a **Room Design** in a **Room** file in the Clustered MV project.

A video wall is defined with its constituent monitors and connected to multiviewer outputs from the MV cluster.

Finally:

- 9 Repeat this for each video wall required for each **Room**.

Note: **Copy-Paste Monitors with CTRL-C and CTRL-V:**

Monitors can be copy-pasted for quick editing on the stage. The configuration of a copied monitor must be set up accordingly in the **Configure Output** dialog.

To copy-paste a monitor:

- Select a monitor on the stage and press CTRL-C.
 - Click elsewhere on the stage and press CTRL-V to paste a copy of the monitor.
(Further CTRL-V will paste more monitors.)
-

Notes Etc. for Monitor Arrangement

CAUTION

Multiviewer Outputs for UHD monitors:

When assigning four multiviewer outputs for a UHD monitor use *any* four licensed outputs from the same multiviewer device.

Note: *All four* outputs must be from the *same* multiviewer device.

This enables the required quad-split to be formed from four (HD) multiviewer outputs.

- Note: **Multiviewer Output Ordering for UHD monitors:**
The order in which four multiviewer outputs are applied to a UHD (4K) monitor can be adjusted in the **Configure Output** dialog to accommodate the cabling and get the four display quadrants correct. To do this:
- click **Define 4K Output Order...** in the dialog;
 - drag items in the **Output Ordering** dialog to change the order of the four multiviewer outputs; and
 - click **OK** when done to close the dialog.

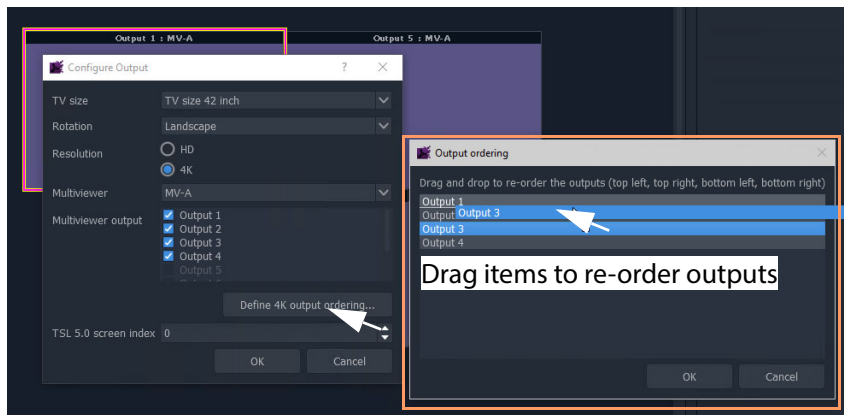


Fig. 8-19: Re-order Multiviewer Outputs for 4K Monitor

- Note: **Landscape and Portrait:**
Room Editor:
When using the **Room Editor**, a monitor arrangement can mix 'Landscape' and 'Portrait' monitors.
- Wall Editor:**
However, when using the older **Wall Editor**, there is a restriction that 'Landscape' and 'Portrait' must not be mixed on a video wall.
(This restriction *does not apply* when using the **Room Editor** and a cluster of multiviewers.)
-

Example Monitor Arrangement

Figure 8-20 shows an example video wall monitor arrangement with assigned multiviewer outputs.

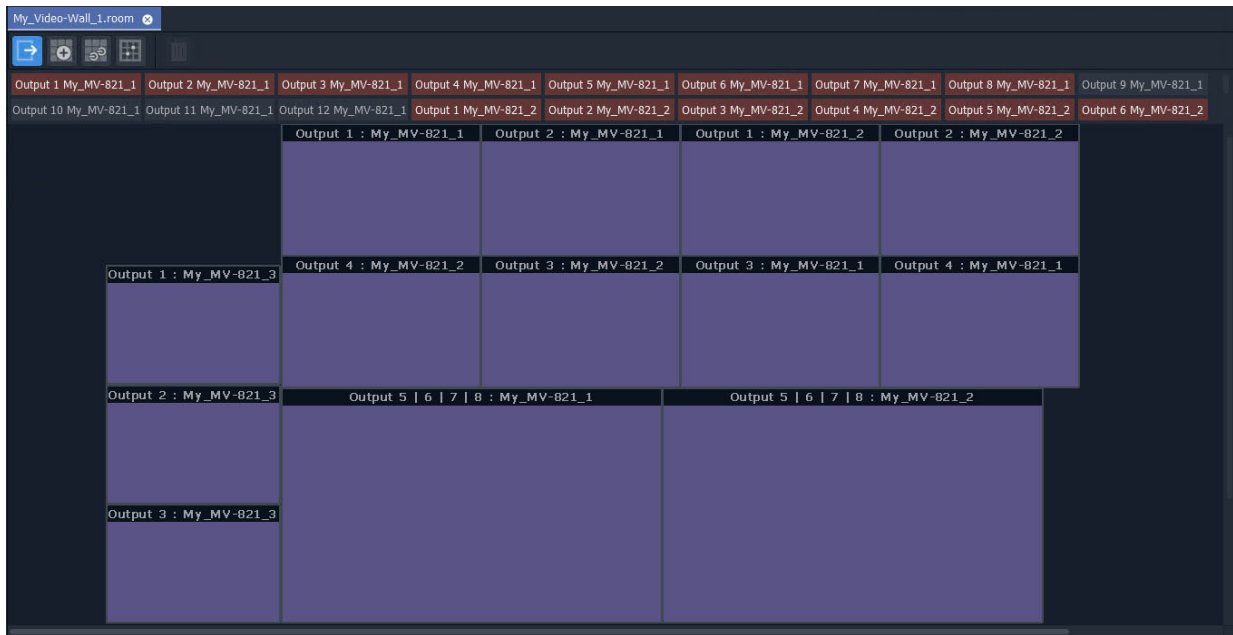
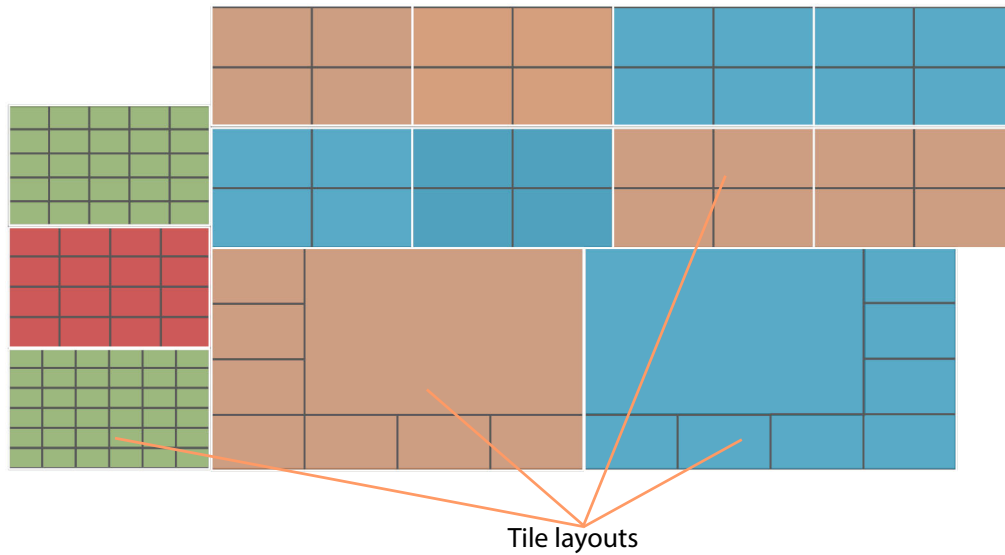


Fig. 8-20: Example Video Wall Monitor Arrangement

Next step: [Step 3a: Design Layout - Assign Tile Grid Layouts to a Video Wall](#)

Step 3a: Design Layout - Assign Tile Grid Layouts to a Video Wall



Video Wall Tile Layout Configuration

Prerequisites:

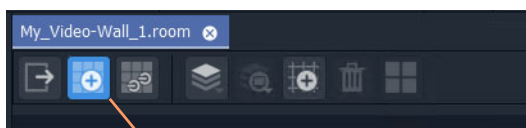
- There is a **Room** file open in the **Room Editor** which has a **Room Design**.

Note: **Tile Grid** relates to a grid arrangement of tiles on a video wall monitor. This 'grid' is different to the 'drawing grid' that can be enabled in graphical drawing tools, such as in the **Room Editor** in GV Orbit Client.
('Drawing grid' controls are accessed via 'Tools > Options > App' in the main menu.)

Procedure to Assign Tile Grids

To assign tile-grids to a video wall, in the **Project** window:

- 1 Open the **Room** file in the **Room Editor**.
- 2 To select the grid design mode, select the **Design Layout** icon.



Design Layout icon selected

Fig. 8-21: Room Editor Tool Bar - Design Layout Icon

The **Room Design** is now shown in **Design Layout** mode which shows the available **Tile Grid** templates. See Figure 8-50.

Monitor header, showing: Multiviewer Output and Device

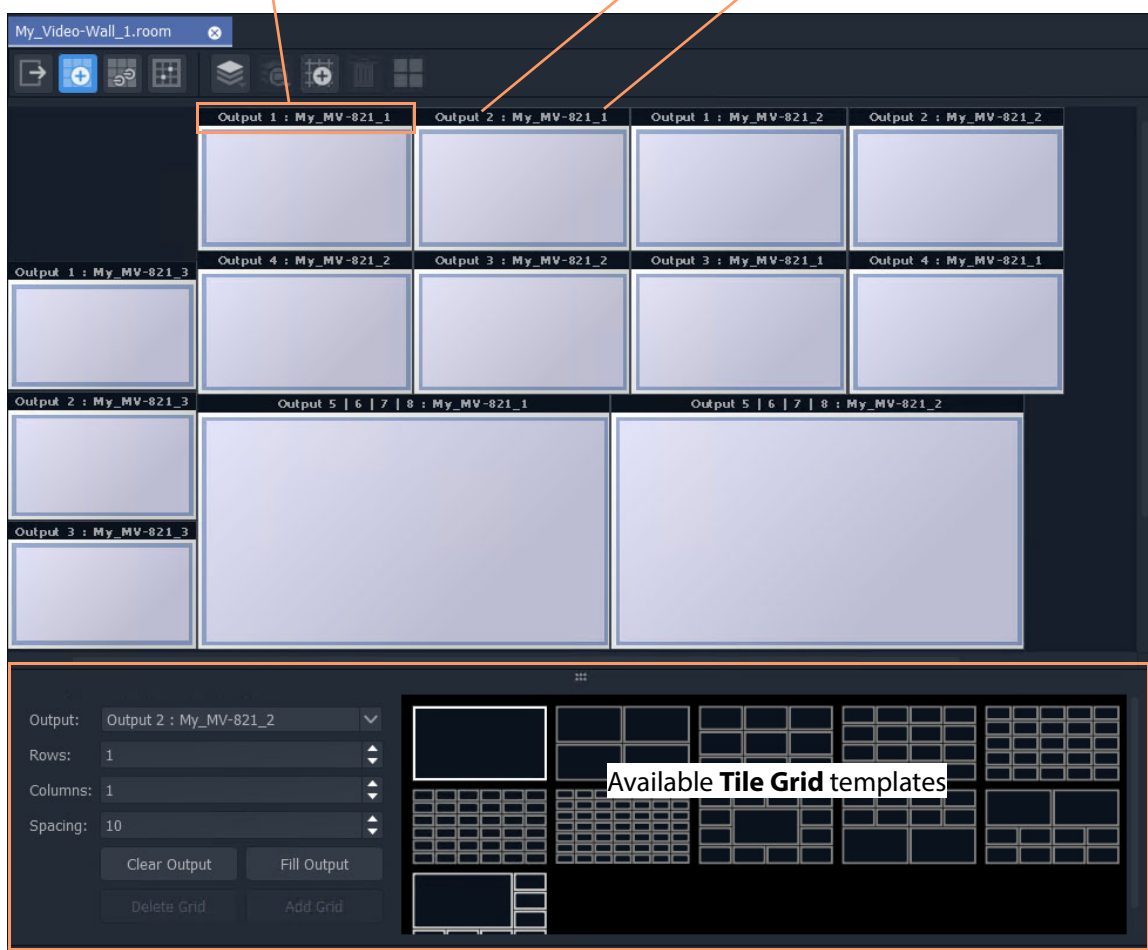


Fig. 8-22: Design Layout Mode in Room Editor

To apply a grid layout to a monitor:

- 3 Select a monitor by clicking on its monitor header.
- 4 Then select a tile-grid from the available **Tile Grid** templates.

The grid is applied to the monitor.

Two things have actually happened to the monitor:

- i) a grid layout has been applied; and
- ii) the grid has been automatically populated with video tiles.

Note: Tile-grids are automatically populated with video tiles by default when added to a monitor. The Tiles populated on a tile-grid can be configured as required or replaced with custom Tiles. See [Monitor Layouts and Tiles](#), on page 388.

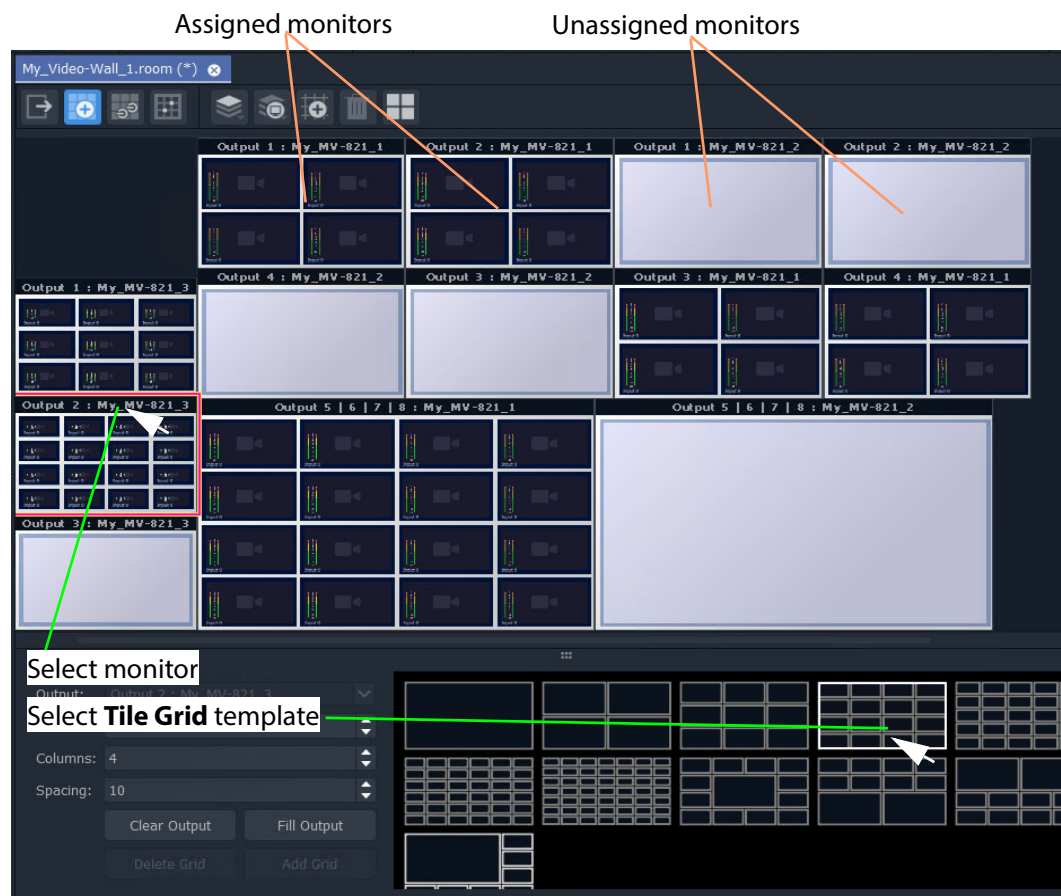


Fig. 8-23: Apply Tile Grid Template to Monitor

- 5 Apply grid layouts to all monitors.

When all monitors have been assigned grid layouts:

- 6 Click **Project > Save File** in the main menu to save the grid layout changes to the **Room**.

This has quickly defined the layout of the video wall using tile grids from the available templates. Figure 8-24 shows an example.

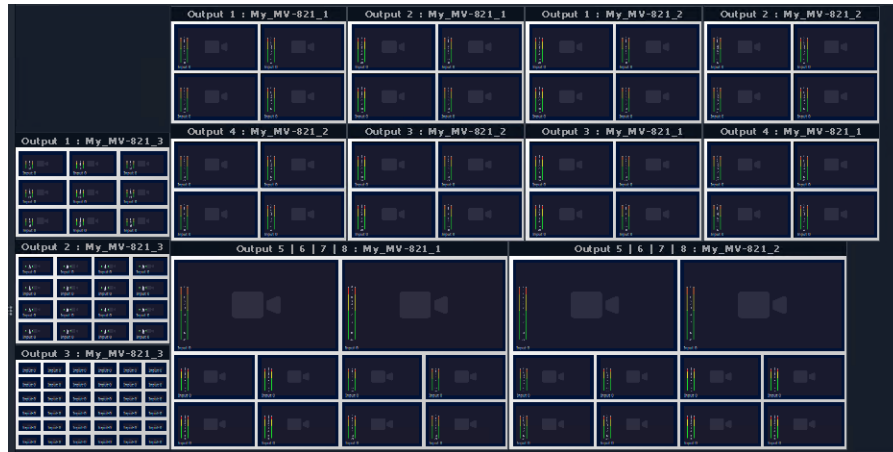


Fig. 8-24: Example Quick Grid Layout on Video Wall

A **Room Layout** has been generated.

Modifying a Tile-Grid on a Video Wall

Quick edits to a tile-grid of a video wall can be done in **Design Layout** mode. The following example modifies the video wall shown in Figure 8-24 on page 381:

- 1 Select a monitor to modify.



Fig. 8-25: Selected Monitor to Modify

- 2 Select a new **Tile Grid** template.
The new **Tile Grid** is assigned and shown on the monitor.

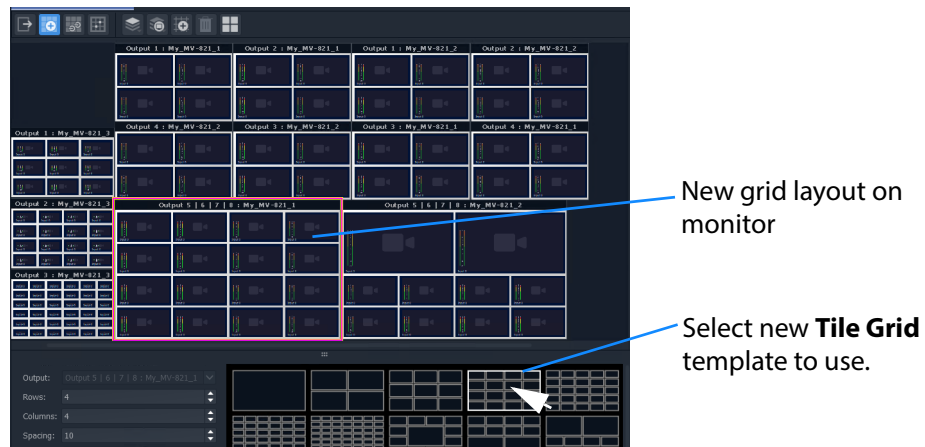


Fig. 8-26: Modified Grid Layout

- 3 Click **Project > Save File** to save the grid layout in the **Room** file.

Customizing a Tile-Grid on a Video Wall

Further, a custom change can be made to a grid layout in **Design Layout** mode.

In **Design Layout** mode:

- 1 Select a monitor to modify.

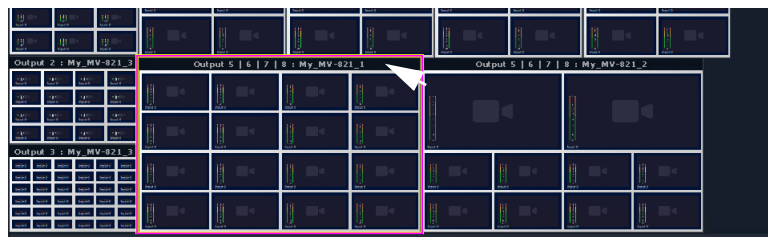


Fig. 8-27: Select a Monitor

- 2 Select a tile position in the monitor's tile-grid.

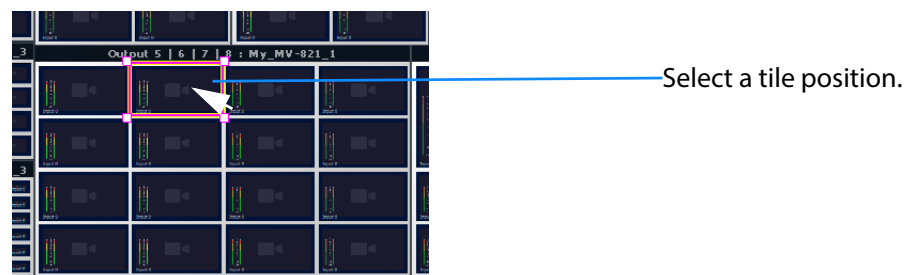
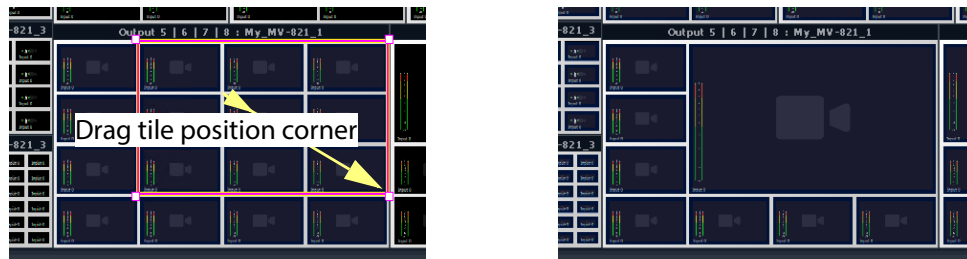


Fig. 8-28: Select a Tile Position in a Tile-Grid

- 3 Drag a corner of the tile position and release it to resize it.



a) Drag a Corner of a Tile Position

b) Release a Corner of Tile Position

Fig. 8-29: Resize a Tile Position in a Tile-Grid

A video wall's tile-grid layout on one monitor has been customized.

This customized tile-grid may be saved, see [Saving a Customized Tile-Grid](#).

Saving a Customized Tile-Grid

For a customized tile-grid that is on a video wall, to add it to the available templates in **Design Layout** mode:

- 1 Select the monitor containing the with the customized tile-grid.

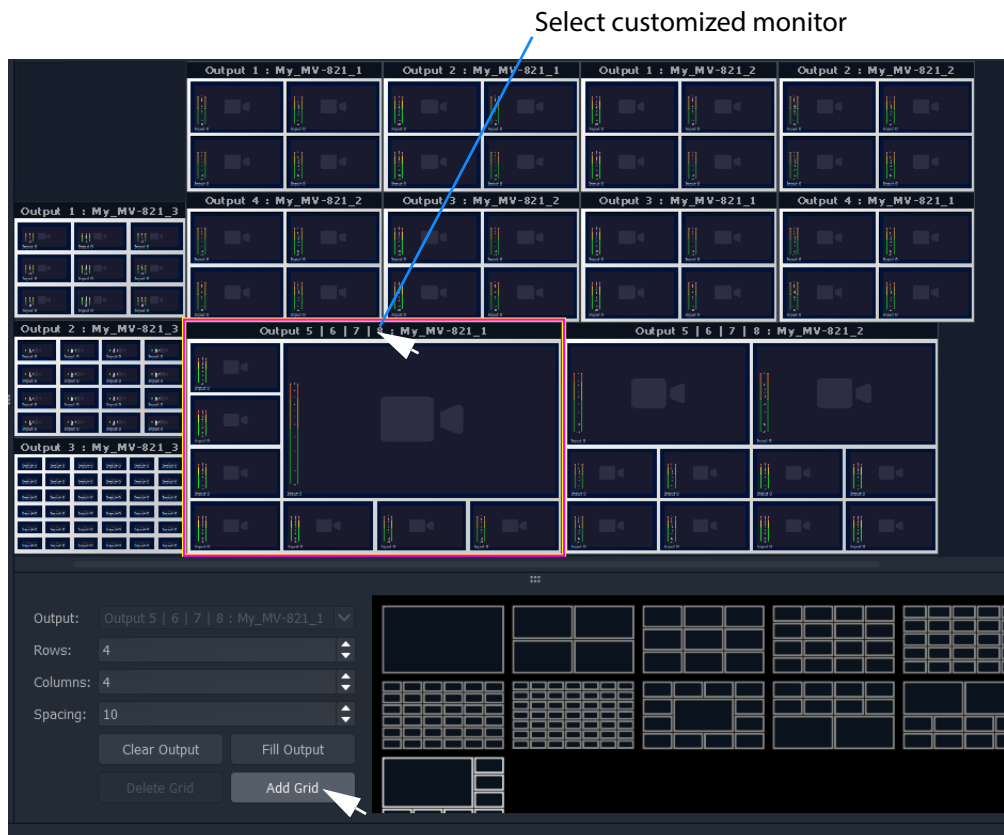


Fig. 8-30: Select a Monitor Grid Layout

2 Click **Add Grid**.

The **Tile Grid** of the selected monitor is added to the available templates and is then available for use in the project.



Fig. 8-31: Custom Grid Layout Added to Available Grid Templates

3 Click **Project > Save File** to save the video wall's grid layout in the **Room** file.

A customized grid layout has been saved in the **Room** and can be re-used. The information is stored in the **Room** file in the project.

Example Customized Tile-Grids

Customized Tile-Grids saved as Tile-Grid Templates

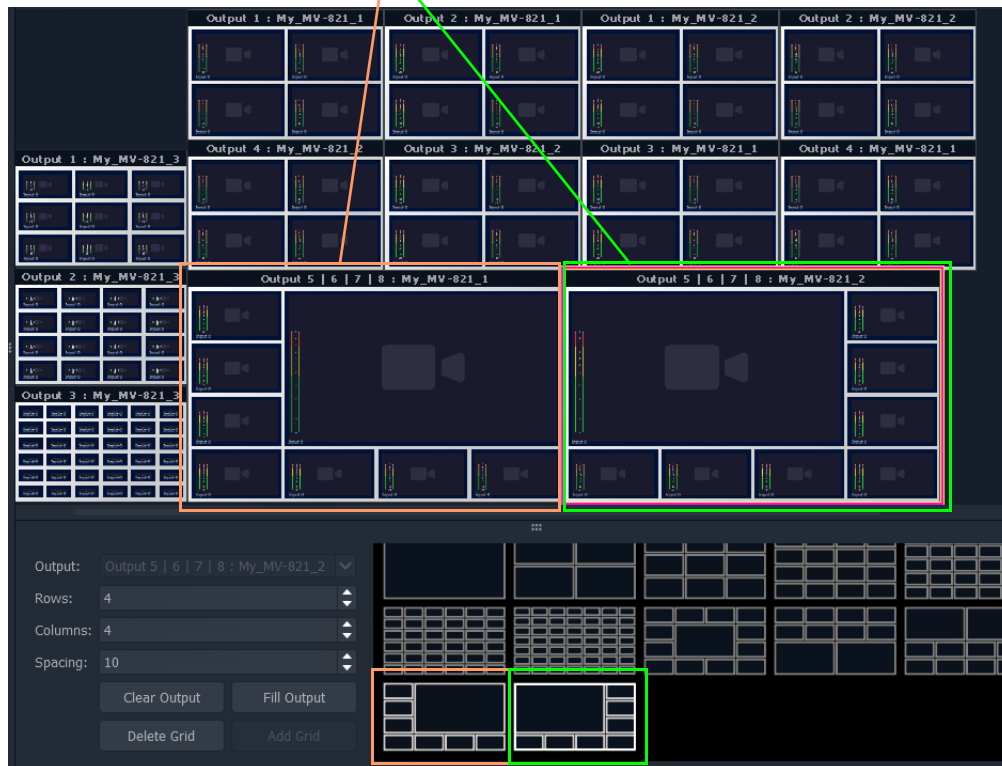


Fig. 8-32: Example Grid Layout with Two Customized Monitor Grid Layouts

Fine Positioning of Tile Positions on a Tile-Grid

So far in this chapter, the tile grids have been populated with tiles placed at tile-positions of the (template) tile-grid. A tile-position may be repositioned 'off-grid' when in **Design Layout** mode:

- 1 Click on the **Freehand Positioning** icon (see Figure 8-33).

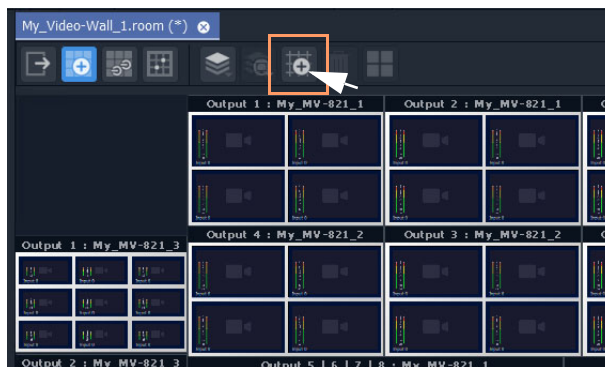


Fig. 8-33: Freehand Positioning Icon

The stage now enables the freehand positioning of tile-positions.

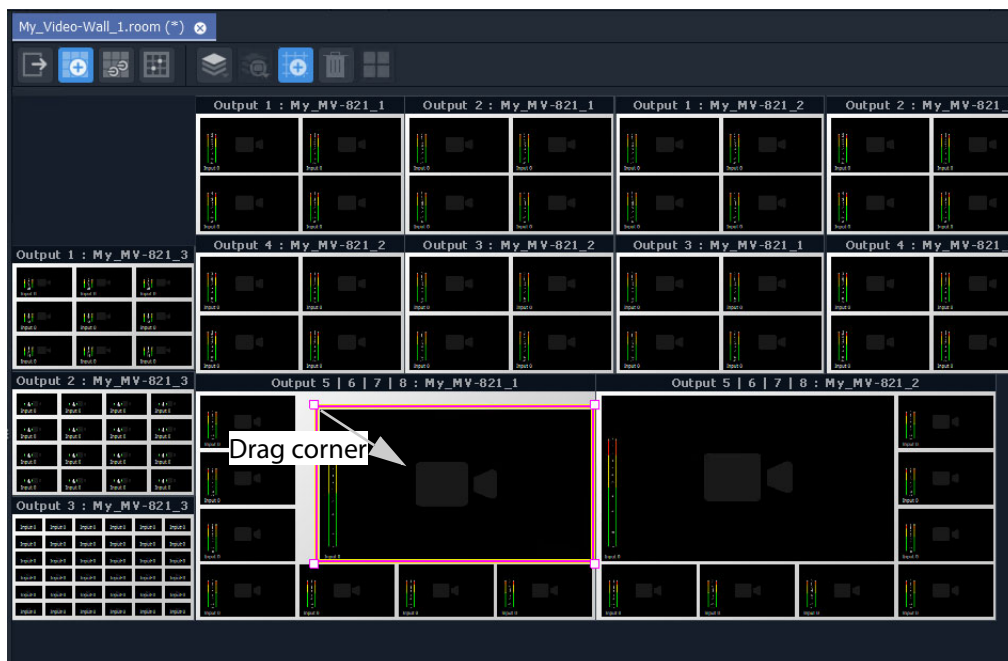


Fig. 8-34: Freehand Positioning Icon

- 2 Select a tile at a tile position on a tile-grid.
- 3 Move it, or drag one of its corners, to finely reposition it.
- 4 Click **Save File** in the main tool bar to save the change.

Lastly:

- 5 Click on the **Freehand Positioning** icon to toggle freehand mode off.

Step 3b: Create Optional Alternative Layouts for a Video Wall

Design Layout mode can be used to create different layouts for a video wall.

In a **Room**, each video wall monitor can have more than one possible tile-grid layout. (This is called a **Monitor Layout**. See [What is a Monitor Layout?](#), on page 363 for further information.)

A **Room Layout** is a snapshot of **Monitor Layouts** on a video wall and a **Room** can have more than one **Room Layout** for its video wall.

(See [What is a Room Layout?](#), on page 363 for more information.)

Use the **Room Editor's Design Layout** mode to optionally create alternative layouts for a video wall, either for its monitors:

- [Create a New Monitor Layout.](#)
- [Monitor Layouts and Tiles.](#)

Or for the whole video wall:

- [Create a Room Layout for a Video Wall.](#)

Create a New Monitor Layout

To create a new **Monitor Layout** for a monitor on a video wall, in **Design Layout** mode:

- 1 Select a monitor.

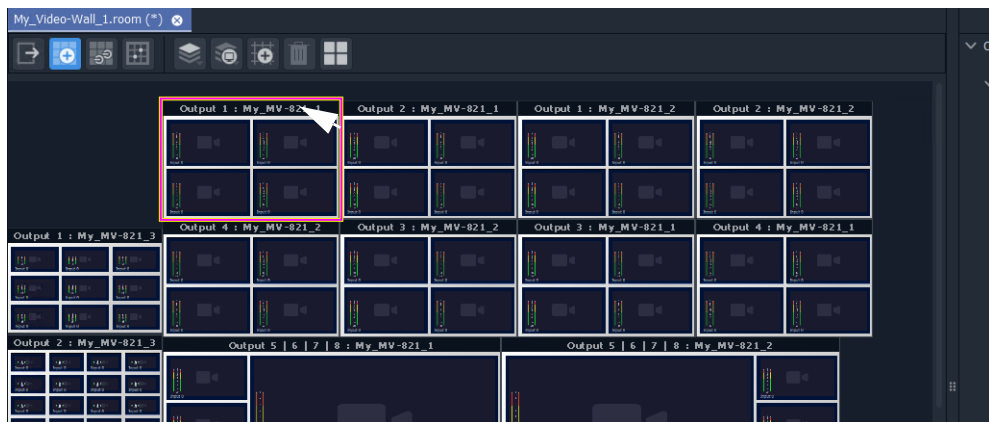



Fig. 8-35: Select a Monitor

- 2 Click on the **Monitor Layout** icon () in the **Room Editor** tool bar and select 'New Monitor Layout'.

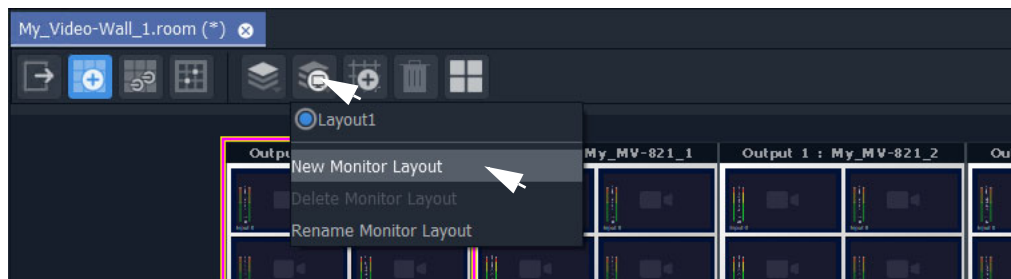


Fig. 8-36: Select 'New Monitor Layout'

- 3 Enter a name for the new **Monitor Layout** and click **OK**.

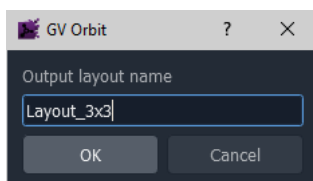


Fig. 8-37: Enter a Name for the New Monitor Layout'

- 4 Select a new **Tile Grid** template from those available.
The selected template appears on the selected monitor.

New selected **Tile Grid** appears on monitor.

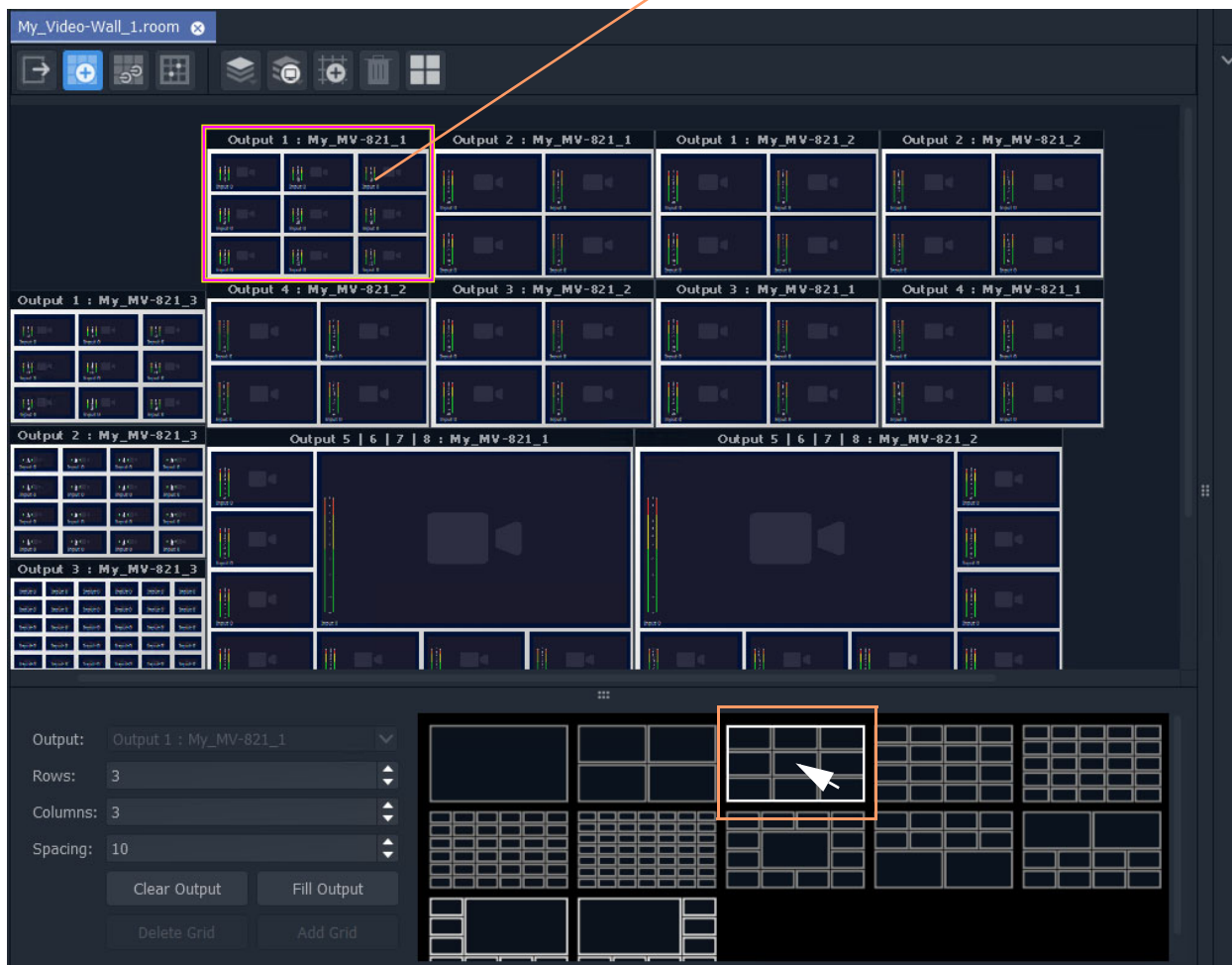


Fig. 8-38: Select New Tile Grid Template

- 5 Click **Save File** in the main tool bar.

This has created a new tile-grid layout for use by the selected monitor. Further **Monitor Layouts** for the monitor may be created.

List Monitor Layouts

To see what **Monitor Layouts** there are for a monitor:

- 1 Select the monitor.
- 2 Click the **Monitor Layout** icon.

The pop-up menu lists the available **Monitor Layouts** for the selected monitor. See Figure 8-39. A radio button allows a **Monitor Layout** to be selected.

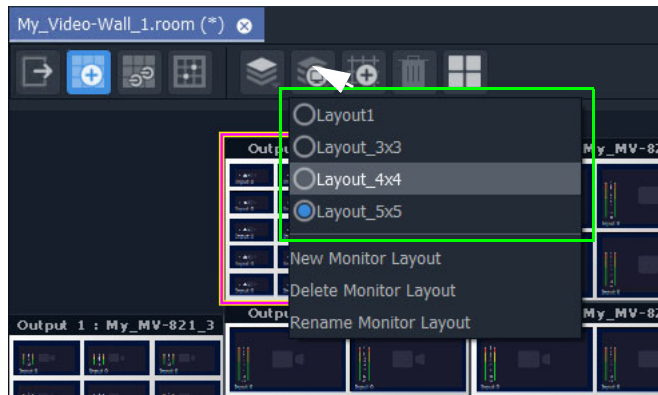


Fig. 8-39: List Monitor Layouts for a Selected Monitor

Monitor Layouts and Tiles

A tile grid is populated with tiles. **Monitor Layouts** also record the type of tile at each populated tile position. In this way, two **Monitor Layouts** may have the same tile-grid but contain different tiles. Tile change-overs on a video wall can then be recalled with a **Monitor Layout**.

Tile types to populate a tile-grid with include:

- an Auto-tile configured as a video tile. (See [Configured Video Tile](#), on page 389.)
- an Auto-tile configured as a clock tile. (See [Clock Tile](#), on page 389.)
- a [Custom Tile](#).

A new **Monitor Layout** can be created for each change of tile type and saved. Then a **Monitor Layout** can be recalled and saved as a **Room Layout** (see [Create a Room Layout for a Video Wall](#), on page 391).

Configured Video Tile

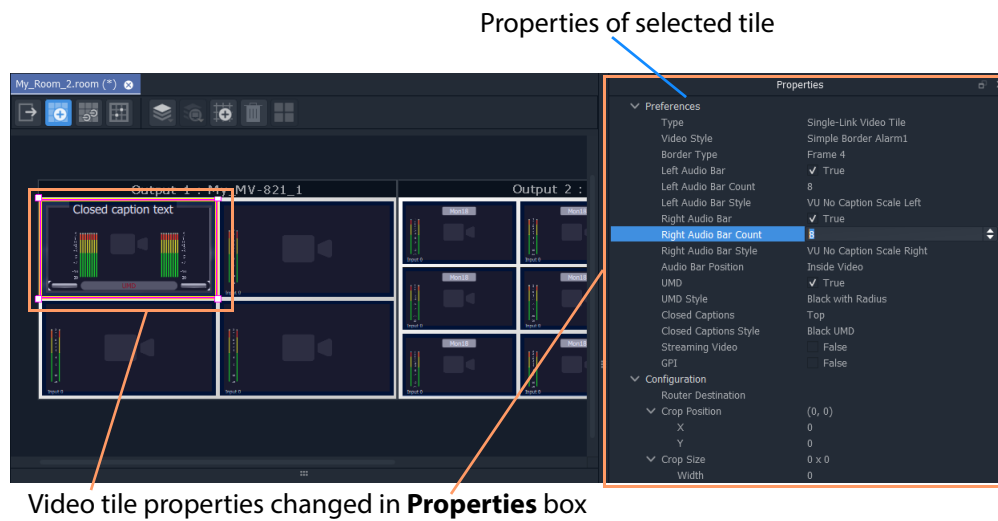


Fig. 8-40: Configured Video Tile Example

Clock Tile

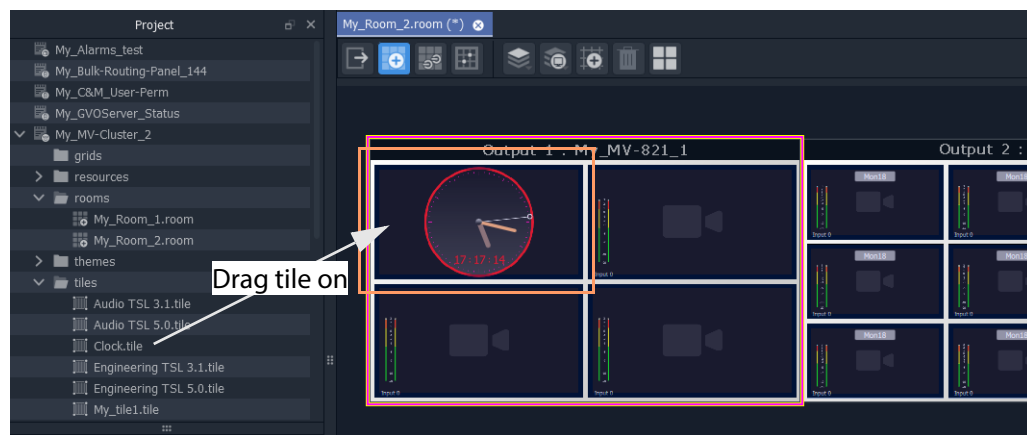
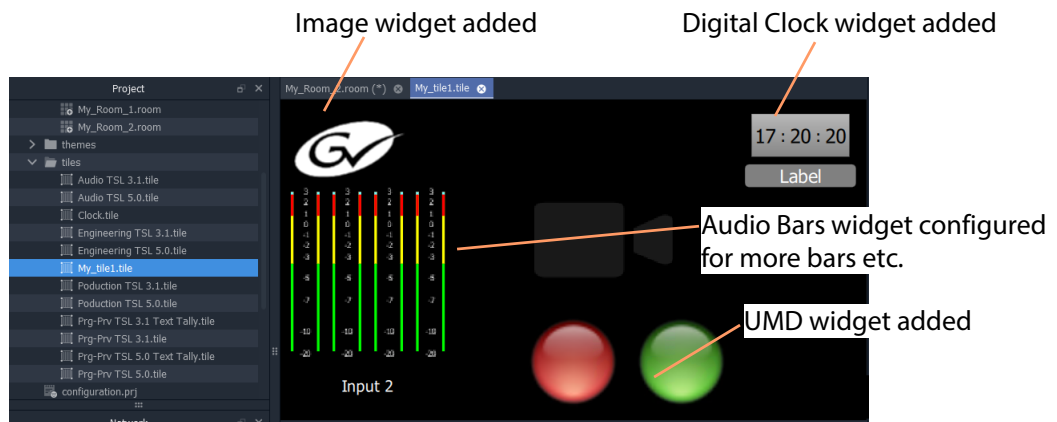
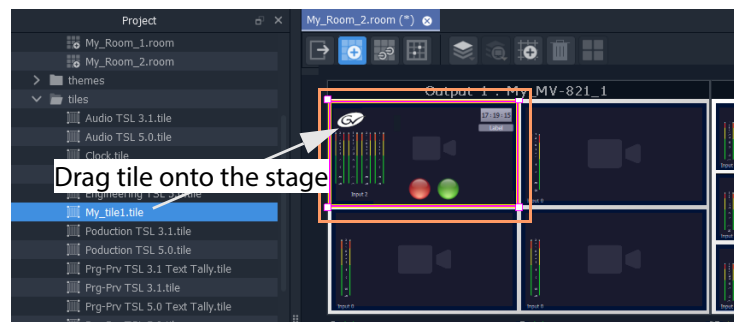


Fig. 8-41: Dragged-On Clock Tile Example

Custom Tile



a) Edit a video tile in the **Tile Editor** to create a **Custom Tile**



b) Drag Custom Tile onto Tile Grid in Room Editor

Fig. 8-42: Drag on Custom Tile

Create a Room Layout for a Video Wall

With various **Monitor Layouts** created for monitors, different **Monitor Layouts** can be selected and saved as new **Room Layouts** for a video wall.

To create a new **Room Layout** based on the current **Room Layout**:

- 1 View a video wall in **Design Layout** mode.

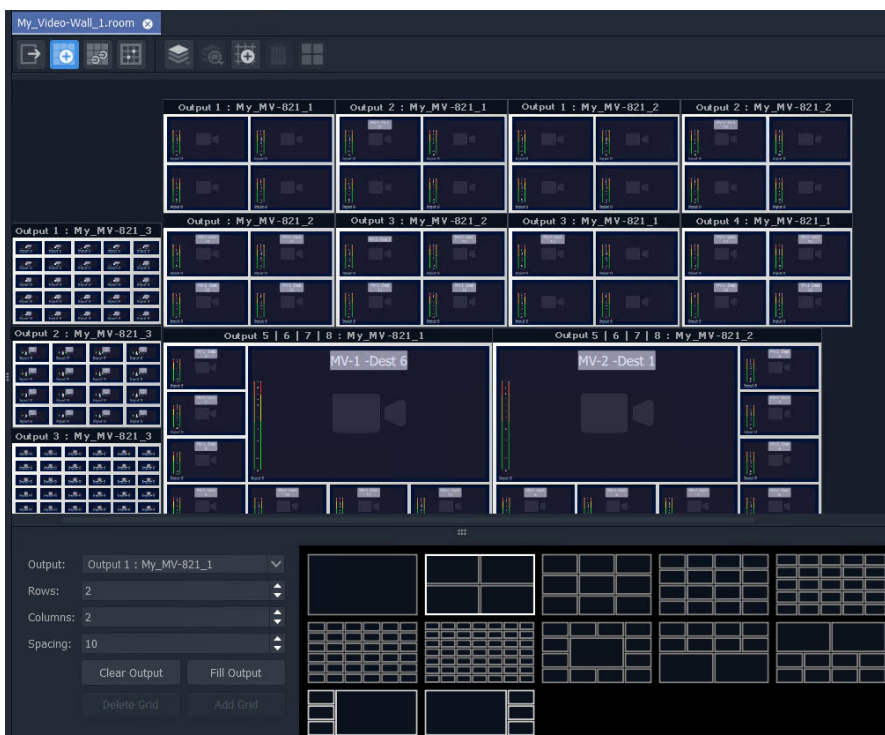



Fig. 8-43: Video Wall in Grid Layout Mode.

- 2 Click on the **Room Layout** icon () and select 'New Layout'.

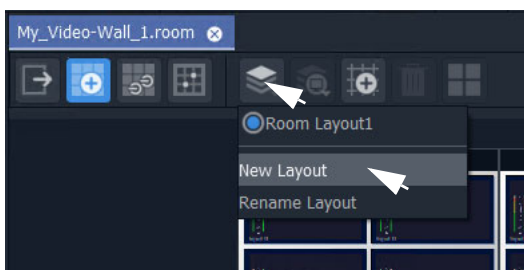


Fig. 8-44: Select New (Room) Layout

- 3 Enter a name for the new **Room Layout** and click **OK**.

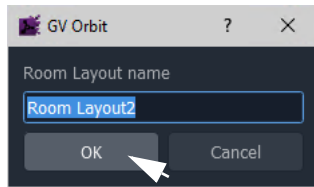


Fig. 8-45: Enter a Name for the New Room Layout

This creates a new **Room Layout** from the current one.

To make a change to this new **Room Layout**:

- 4 Select a monitor that has more than one **Monitor Layout** and then right-click on it.
A drop-down menu appears.
- 5 Select 'Switch Monitor Layout' and select a **Monitor Layout** from the list. (See Figure 8-46.)

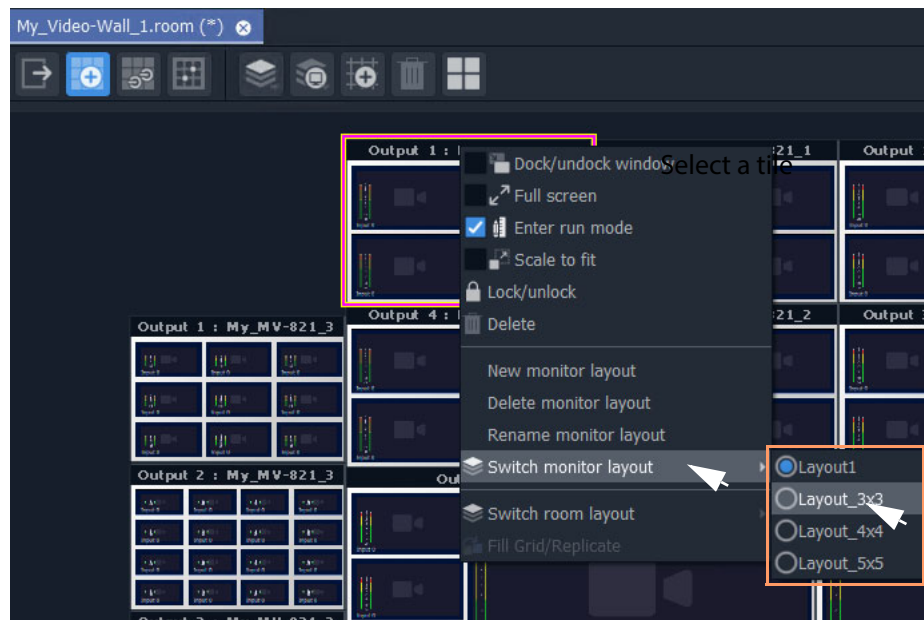


Fig. 8-46: Select a Monitor Layout

The selected monitor shows the new **Monitor Layout**.

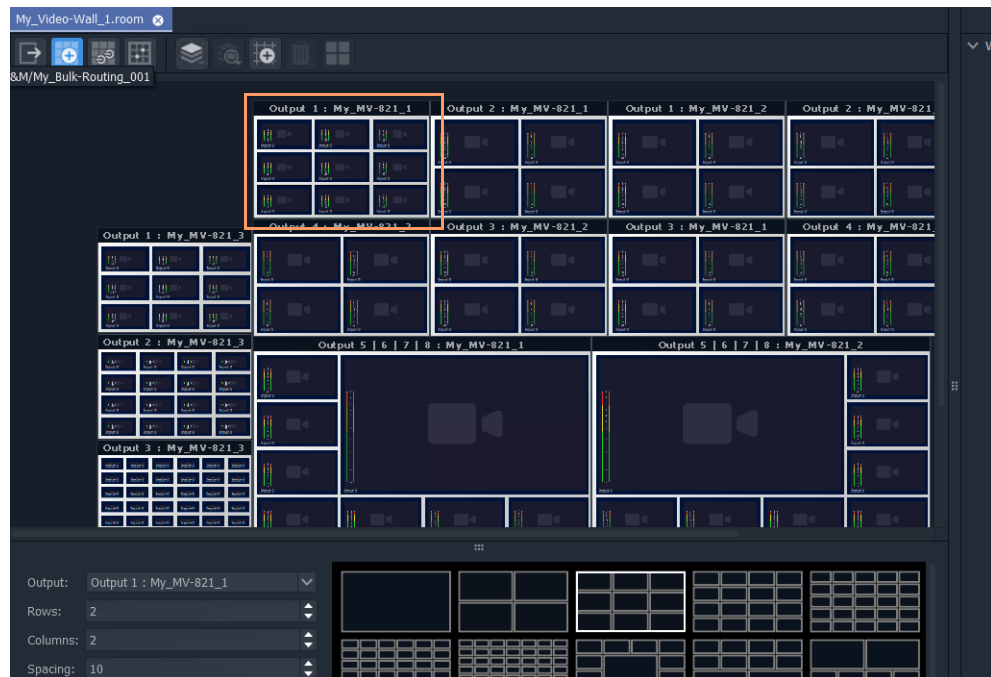


Fig. 8-47: New, Selected Monitor Layout

6 Click **Save File** in the main tool bar.

The new **Room Layout** now uses the selected **Monitor Layout** for the selected monitor.

Example Room Layouts



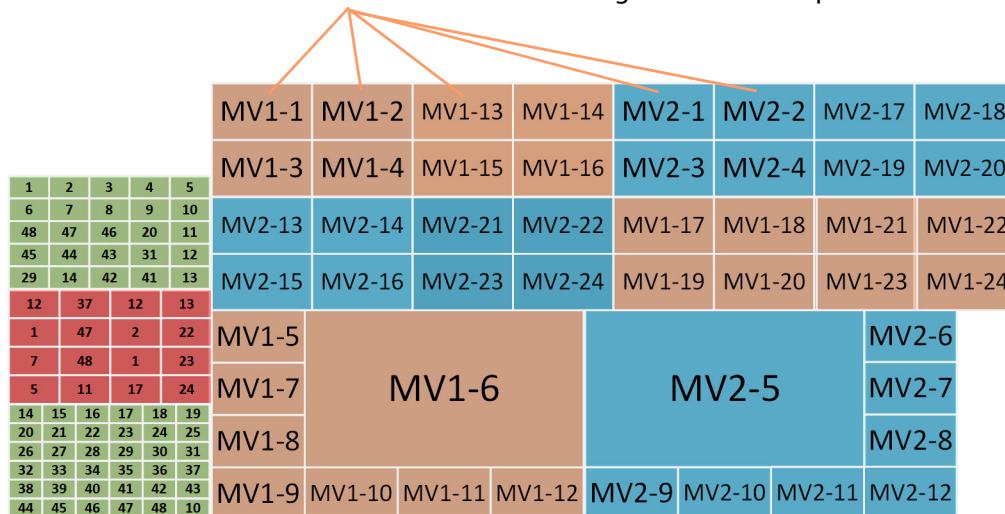
Fig. 8-48: Example Room Layouts 1 to 5

Next step: [Step 4a: Assign Destinations to Tile Positions](#)

Step 4a: Assign Destinations to Tile Positions



Router destinations assigned to each tile position.



Assign Router Destinations to Video Wall Tile Positions

Prerequisites:

- There is a **Room** open in the **Room Editor** which has a **Room Design** which defines a video wall which has a **Design Layout**.
- Router destinations have been set up in the router controller (GV Orbit Control).
- The **Routing** service is connected to GV Orbit Control.

Procedure Overview

The **Assign Router Destinations** workflow is presented below in the following steps:

- [Step 4a-1: Open Room Editor in Assign Destinations Mode](#)
- [Step 4a-2: Map Router Destinations to Multiviewer Inputs](#)
- [Step 4a-3: Assign Mapped Destinations to Tile Positions](#)

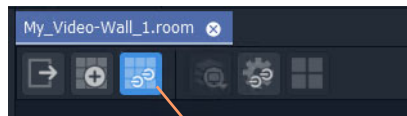
And then some TSL configuration settings may be optionally set up (or set up later, as required):

- [Step 4b: Configure TSL Tally Settings for a Room](#)

Step 4a-1: Open Room Editor in Assign Destinations Mode

To assign multiviewer router destinations to a video wall, in the **Project** window:

- 1 Open the **Room** in the **Room Editor**.
- 2 To select the destination assignment mode, select the **Assign Destinations** icon.



Assign Destinations icon selected

Fig. 8-49: Room Editor Tool Bar - Assign Destinations Icon

The **Room Design** is now shown in **Assign Destinations** mode. See Figure 8-50.

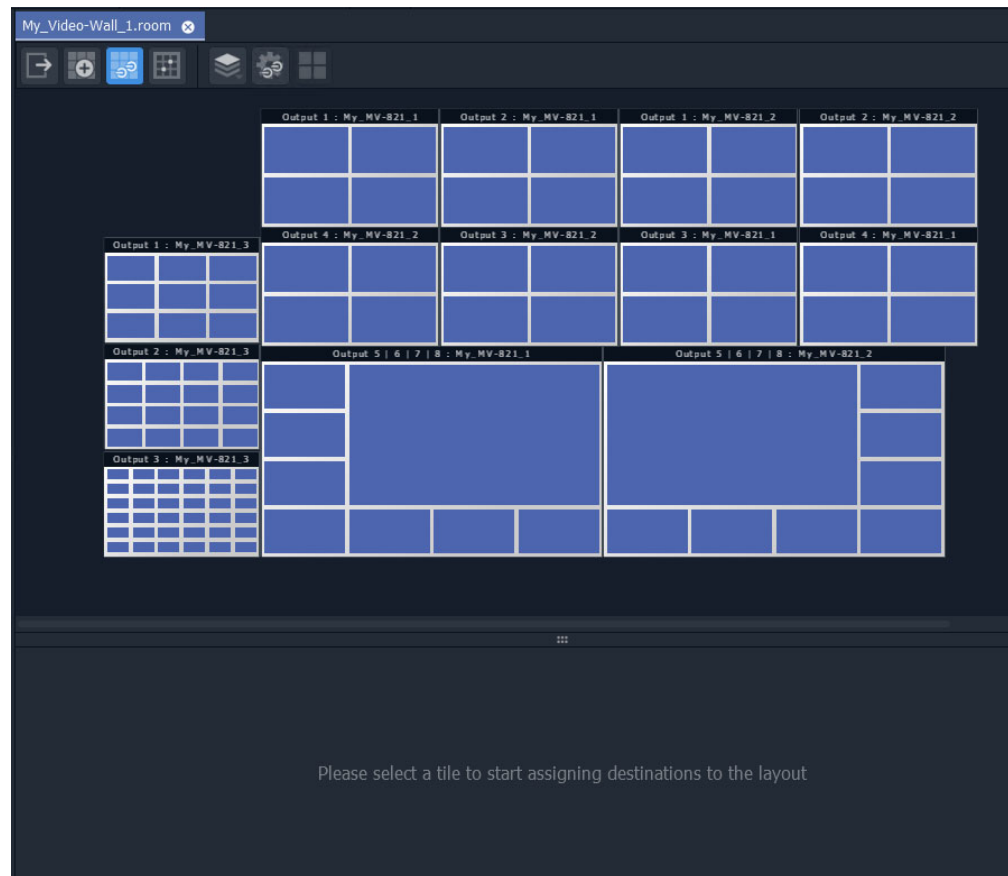


Fig. 8-50: Assign Destinations Mode in Room Editor

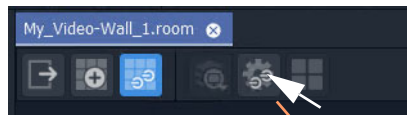
Step 4a-2: Map Router Destinations to Multiviewer Inputs

Router destinations will have been reserved for all multiviewer inputs of the MV cluster. These each need mapping to the multiviewer inputs for our Clustered MV project.

First, map the destinations before the assignments can be done.

In the **Room Editor** tool bar in **Assign Destinations** mode, to map destinations to multiviewer inputs:

- 1 Click on the **Configure Mapping** icon.



Click on **Configure Mapping** icon

Fig. 8-51: Room Editor Tool Bar - Assign Destinations Mode, Configure Mapping Icon

A **Destination Configuration** tab is opened which lists all multiviewer devices in the cluster. For each multiviewer, all multiviewer inputs are listed. Initially this list is empty. See Figure 8-52.

Multiviewers	Inputs	Destinations	L1
My_MV-821_1	Input 1		
My_MV-821_2	Input 2		
My_MV-821_3	Input 3		
	Input 4		
	Input 5		
	Input 6		
	Input 7		
	Input 8		
	Input 9		
	Input 10		
	Input 11		

Fig. 8-52: Destination Configuration Tab

- 2 Select the multiviewer.
- 3 Click on the 'Destinations' column heading to select all multiviewer inputs.

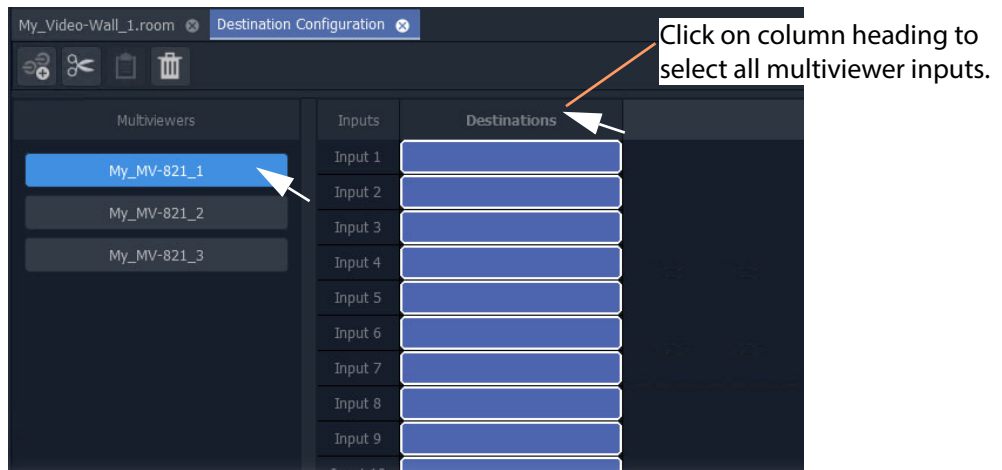


Fig. 8-53: Select Multiviewer, Select All Inputs

All inputs of the selected multiviewer are selected.

- 4 Alternatively, select a range of inputs by:
 - clicking on the first empty destination box in the range;
 - scrolling down the list; and
 - SHIFT-clicking on the last item.

See Figure 8-54.

All inputs in the range are selected.

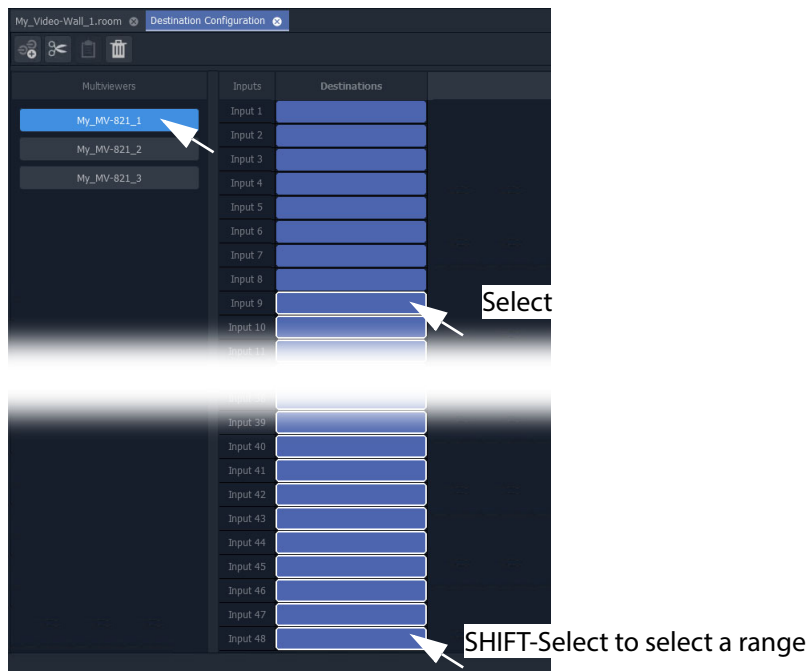


Fig. 8-54: Select Multiviewer and Select Multiviewer Input Range

With inputs selected:

- 5 Click on the **Destination Picker** icon in the **Destination Configuration** tab tool bar.

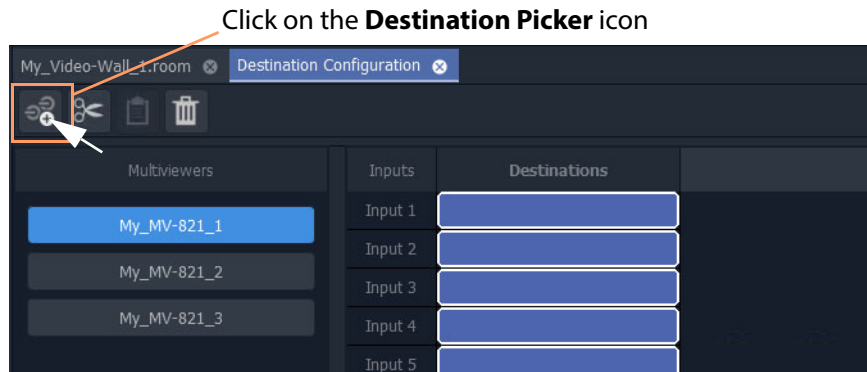


Fig. 8-55: Multiviewer Selected and Inputs Selected

The **Add Destinations** dialog is shown, which shows a filterable and scrollable list all of the destinations of the GV Orbit routing system. See Figure 8-56.

Tool bar icons:

- Select all - Select all destinations displayed in the dialog.
- De-select All - De-select all destinations.
- Wide Buttons - Click to toggle Destination button width.

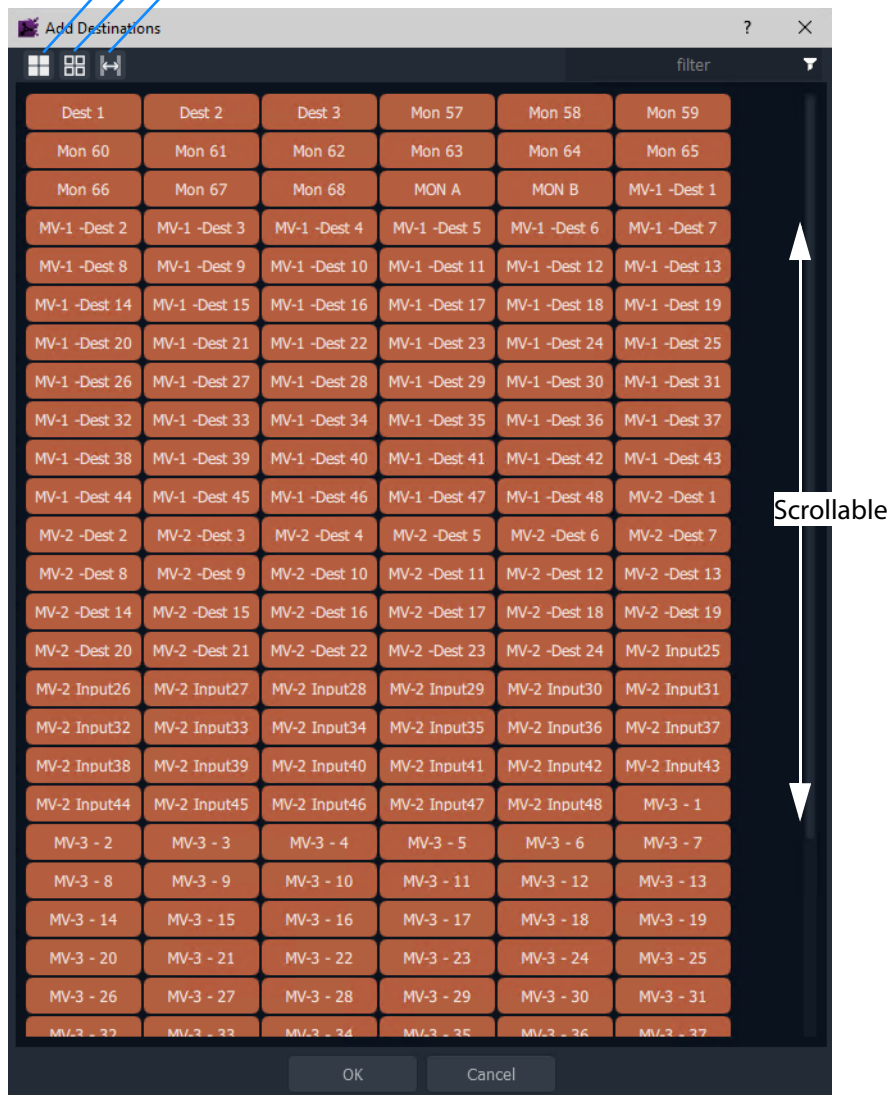


Fig. 8-56: Add Destinations Dialog

Note: List items can be selected in a similar way to using the Bulk Routing Panel: Select an item, then SHIFT-select to select a range of items and CTRL-select to add individual items to the selection.

6 Typically, destination names have consistent and logical naming. (For example, 'MV-1 Dest**', or 'MV-2 Input**'.)

If required, use the filtering to locate the destinations for your selected multiviewer inputs.

- 7 Select the range of destinations for the selected multiviewer inputs. (Select, then SHIFT-Select.)

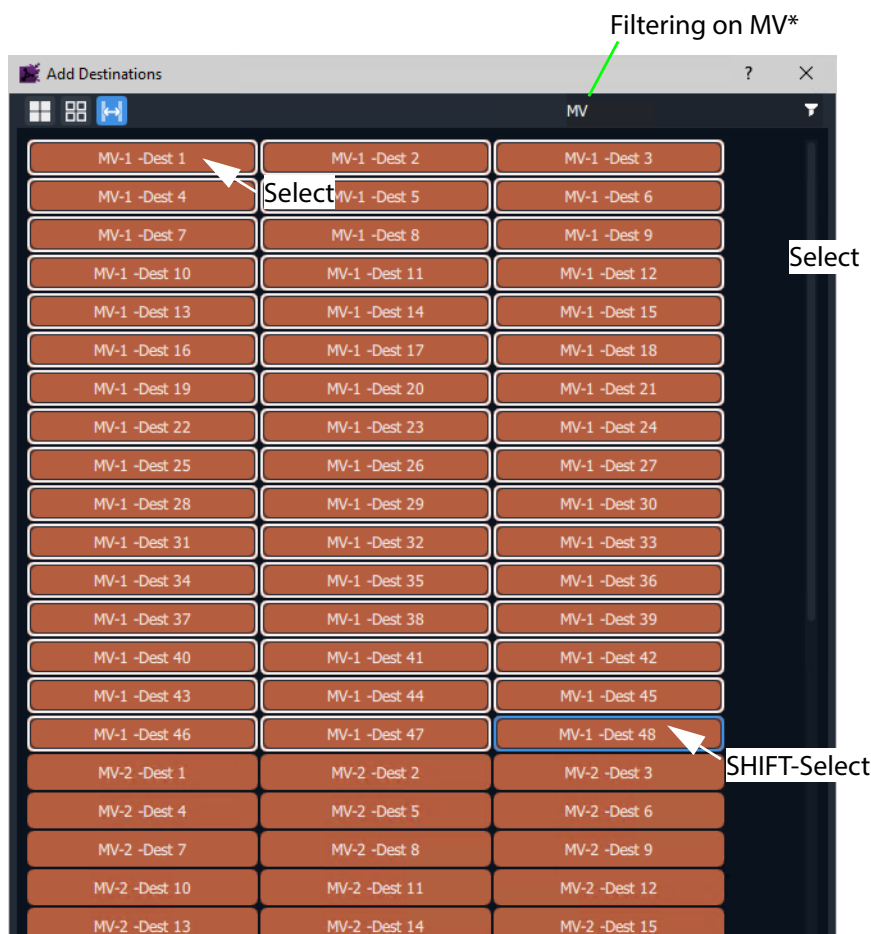


Fig. 8-57: Selected Range of Destinations

- 8 Click **OK** in the **Add Destinations** dialog.
The selected destinations are mapped and listed against the multiviewer inputs.

Note: Useful Filter feature:

When assigning router destinations to multiviewer inputs, typically, the destinations intended for multiviewer inputs are consistently and logically named. The filter feature of the **Add Destinations** dialog can then be used to easily list the destinations required.

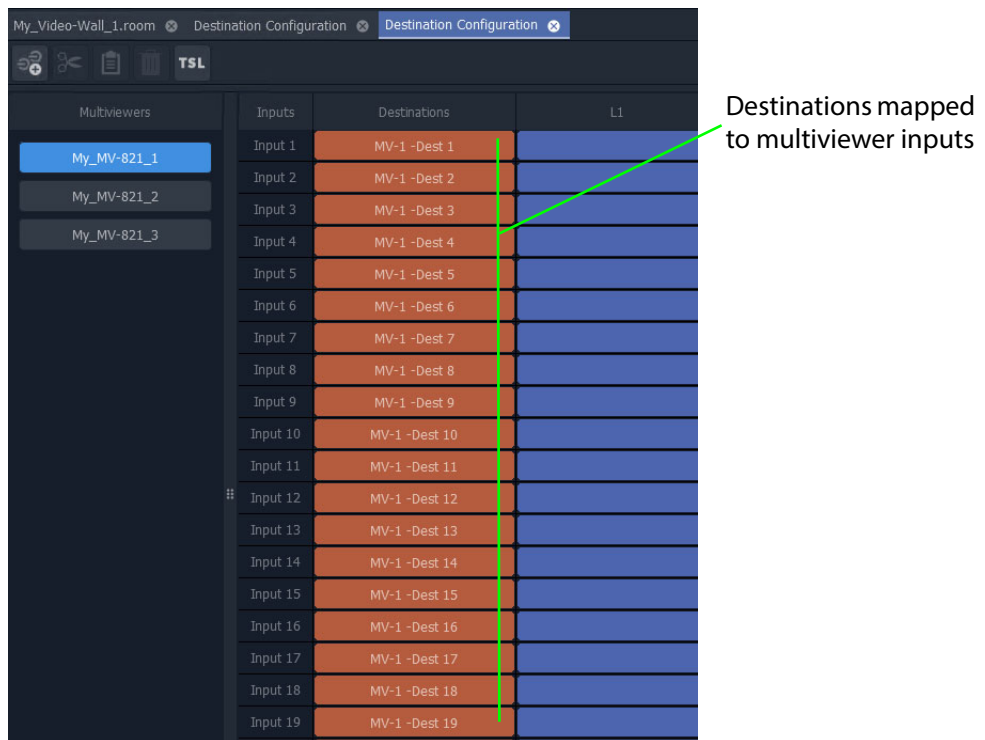


Fig. 8-58: Selected Destinations Mapped to Multiviewer Inputs

Some multiviewer inputs have been mapped to destinations.

Now:

- 9 Repeat these steps to map *all* of the multiviewers and their inputs to router destinations.
- 10 Click **Save File**.

When all multiviewer inputs have been mapped to destinations and saved:

- 11 Close the **Destination Configuration** tab.

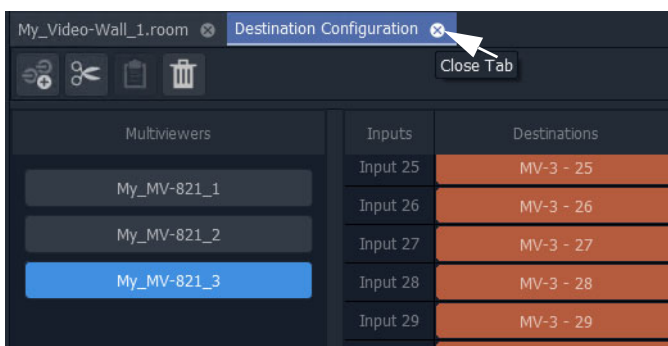


Fig. 8-59: Close Destination Configuration Tab

All multiviewer inputs have been mapped to router destinations.

Note: Changes made in the **Destination Configuration** tab need to be saved before the changes can be seen in the **Room Editor**.

Step 4a-3: Assign Mapped Destinations to Tile Positions

The video wall tab shows our video wall and we have mapped destinations to multiviewer inputs.

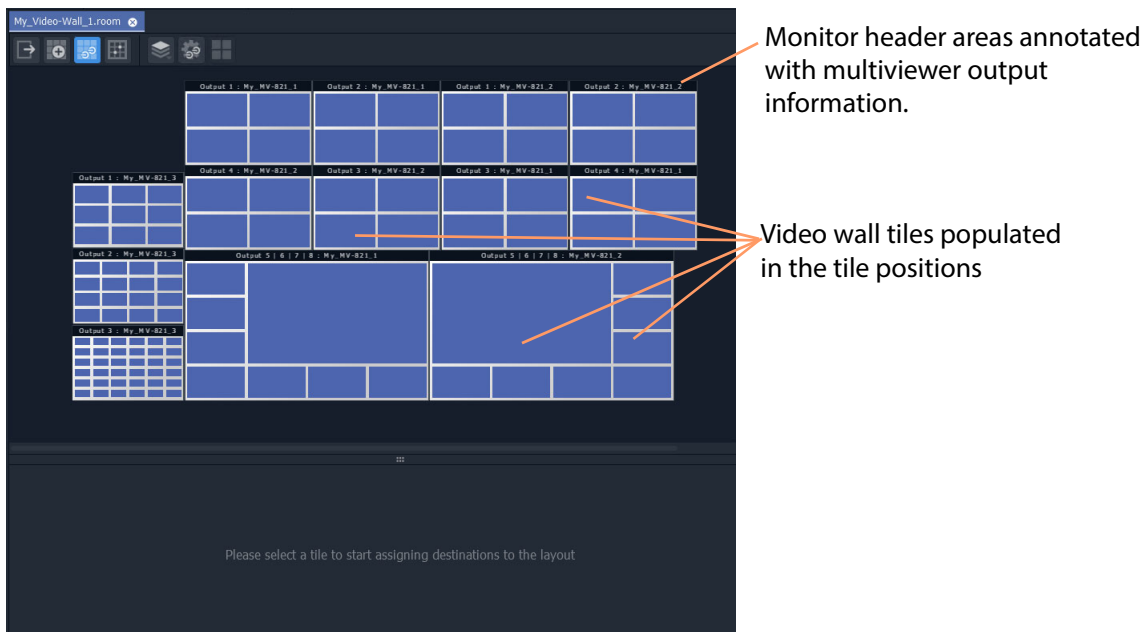


Fig. 8-60: Video Wall Tab Ready for Assigning Mapped Destinations to Tile Positions

The workflow is presented with these sub-sections:

- [Assign Single Destination to Single Tile Position.](#)
- [Assign Destination\(s\) to All Tile Positions on a Monitor's Tile-Grid.](#)
- [Assign Series of Destinations to Multiple Tile Positions.](#)

And:

- [Delete a Destination Assignment.](#)
- [Edit a Destination Assignment.](#)

Assign Single Destination to Single Tile Position

To assign destinations to tile position:

- 1 Select a tile position on a monitor.

For the selected position, the destinations mapped to the corresponding multiviewer are listed below. These are all possible destinations for the selected position. See Figure 8-61.

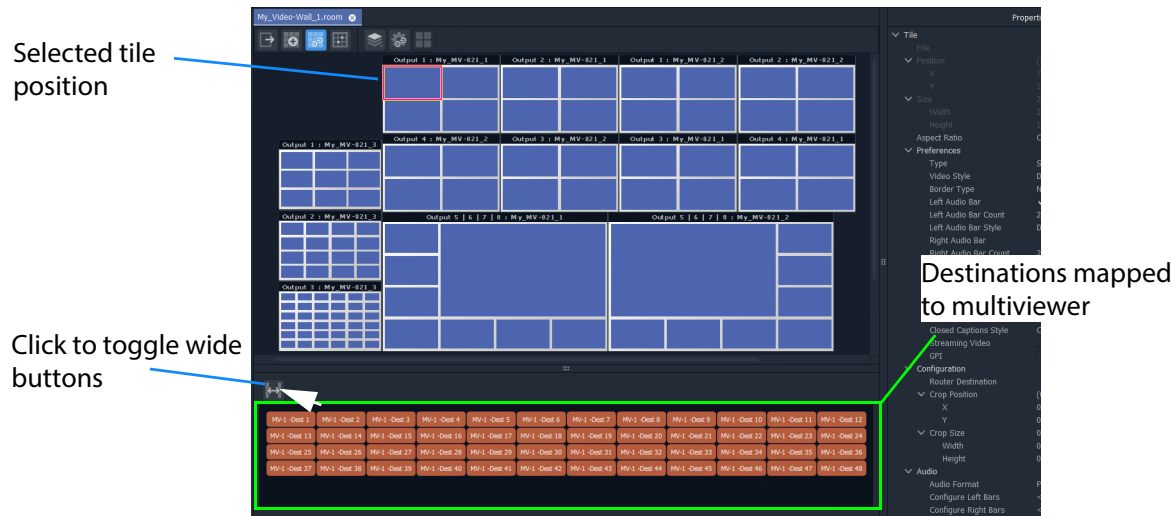


Fig. 8-61: Possible Mapped Destinations for Selected Tile Position

- 2 Select a destination.

The destination is assigned to the tile position, which is annotated with the destination name.

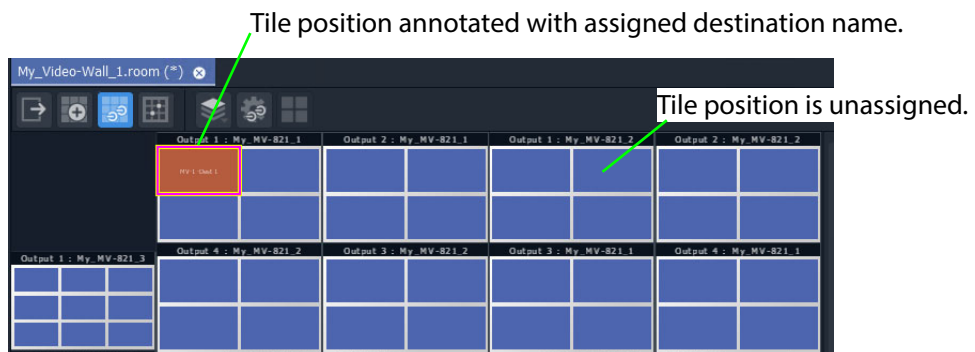


Fig. 8-62: Destination Assigned to Tile Position

This has assigned a destination to a tile position on the tile-grid. Other tile positions can be assigned destinations similarly.

Assign Destination(s) to All Tile Positions on a Monitor's Tile-Grid

To quickly assign destinations, all tile positions on a monitor can be selected and assigned:

- 1 Double-click on a monitor header area.
All tile positions on the monitor are selected.

Double-click on monitor header area to select all tile positions on the monitor.

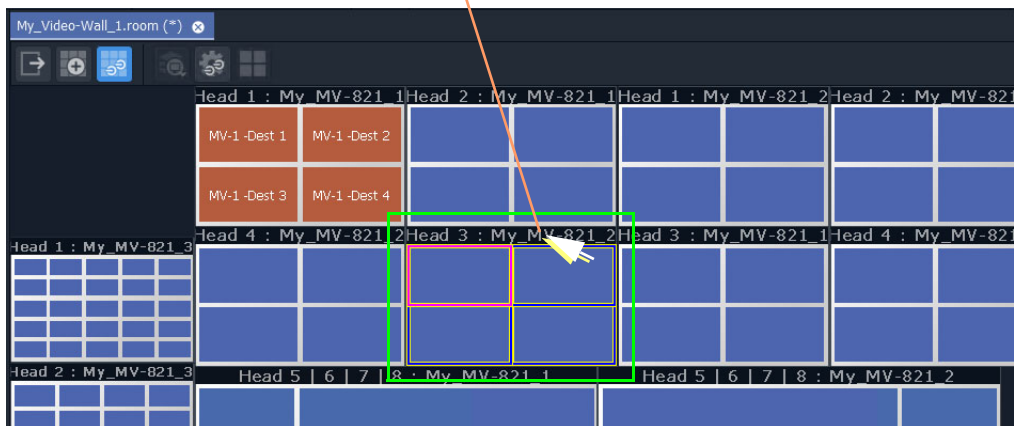


Fig. 8-63: Select All Tile Positions on Monitor

2 Select a destination.

An **Assign Destination to Multiple Tiles** dialog pops up. See Figure 8-64.

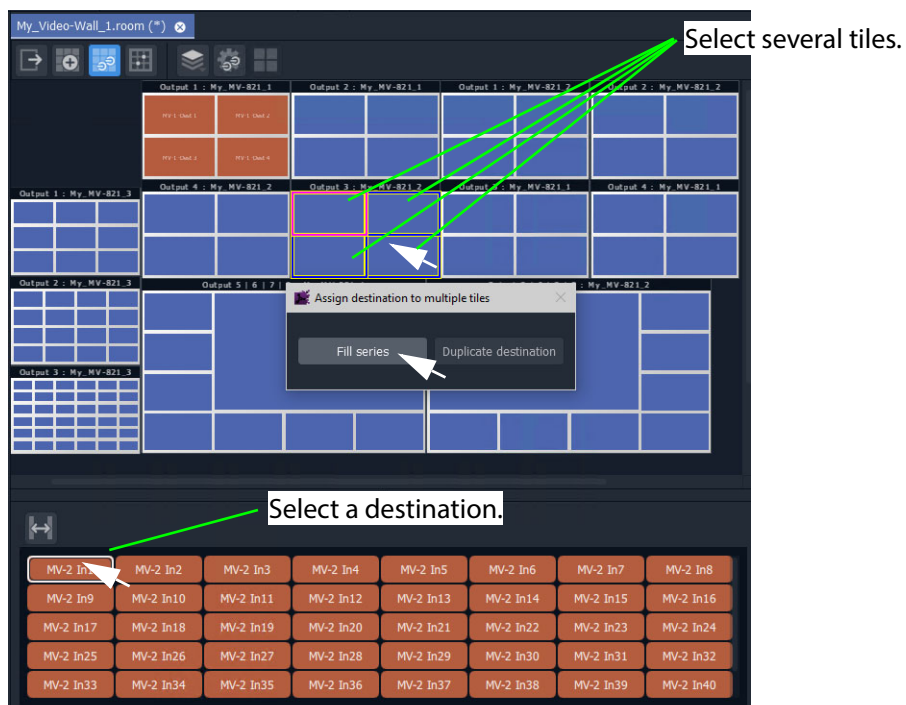


Fig. 8-64: Assign Destination to Multiple Tiles Dialog

3 In the **Assign Destination to Multiple Tiles** dialog:

- Click **Fill Series** to fill the selected tile positions with a series of destination, starting from the selected one.
- Click **Duplicate Destination** to fill all the selected tile positions with the selected destination.

Figure 8-65 shows the result of doing **Fill Series**.

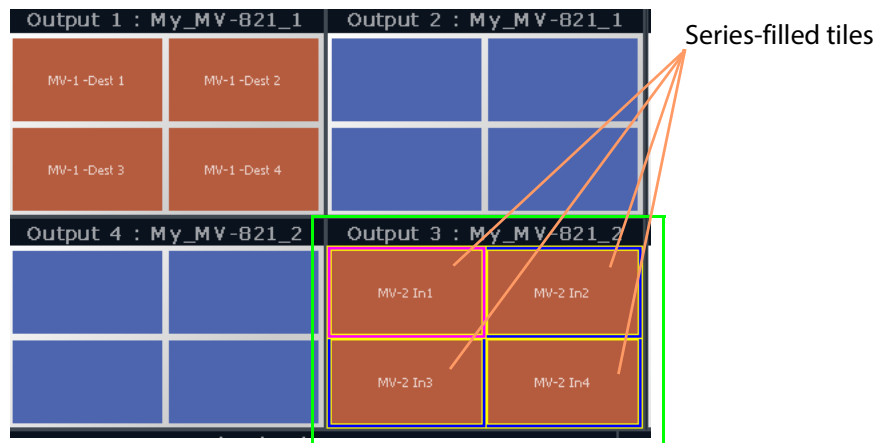


Fig. 8-65: Result of Fill Series

Assign Series of Destinations to Multiple Tile Positions

Assignment by **Fill Series** can be done to a selection of tile positions:

- 1 Select tile positions from the same multiviewer with 'select' and 'SHIFT-select'.
- 2 Use 'Fill Series' to assign destinations.

Delete a Destination Assignment

- 1 Select one or more tile positions.
- 2 Click the **Unassign** icon or press the Delete key to delete the destination assignment.

Destination assignment deleted.

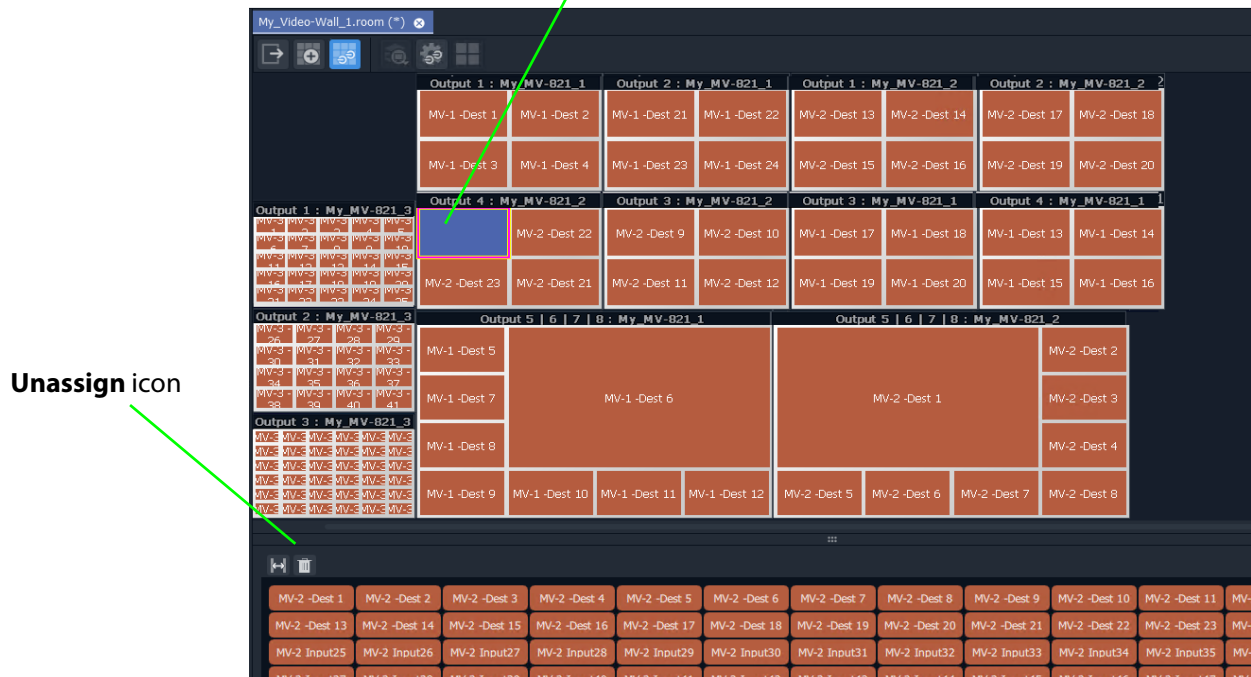


Fig. 8-66: Deleted Destination Assignment

Edit a Destination Assignment

- 1 Select a tile position.



Fig. 8-67: Selected Tile Position

- 2 Select a new destination.



Fig. 8-68: Select New Destination

The new destination assignment is made.

New destination assignment

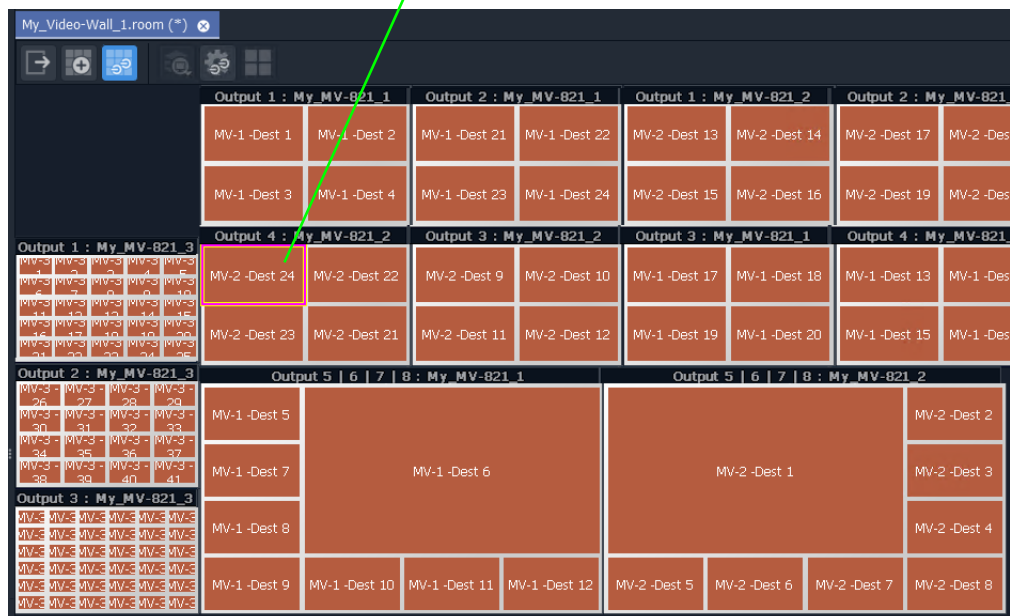


Fig. 8-69: New Destination Assignment

Destination Assignment Notes

Note: When assigning destinations:

- assigning the same destination to more than one tile position is permitted.
- not all destinations need to be assigned.

Note: Prerequisites of assigning router destinations is that:

- 1The router controller ('GV Orbit Control' in the GV Orbit system) is configured with destinations reserved for use by multiviewer inputs in its topology.
Please see the *GV Orbit Control User Guide*.
- 2The GV Orbit Routing service must have a valid connection to 'GV Orbit Control'.
Please see the *GV Orbit Admin Guide*.

Example Destination-Assigned Video Wall

The video wall is now managed in terms of destinations and not multiviewer video inputs.



Fig. 8-70: Example Video Wall Tab

The destination assignment needs only to be done once in a project.

Next

When all destination assignment is done to multiviewer inputs and tile positions, then TSL Tally configurations (including for TSL address mappings to multiviewer inputs and video wall tile) can optionally be done. See [Step 4b: Configure TSL Tally Settings for a Room](#).

Note: The TSL Tally configuration can also be done separately later. It is optional at this stage in video wall design.

After this, the next step in *video wall design* is: [Step 5: X/Y Routing Video Sources to Tile Positions](#)

Step 4b: Configure TSL Tally Settings for a Room

Following the assignment of destinations to multiviewer inputs and mapping to video wall tile positions in the **Room Editor** 'Assign Destinations' mode, TSL Tally configuration for the **Room** can also be done.

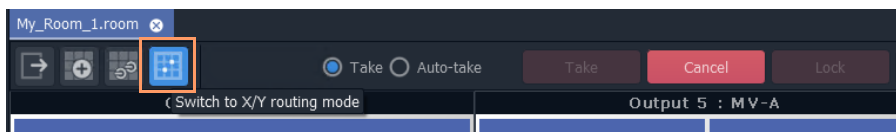
Note: The **Destination Assignments** should be all completed in the **Room Editor** before for the Tally settings can fully function and map to video wall tiles etc.

Configuring the TSL settings is described in Chapter 9, [MV Cluster - TSL Tally Configuration](#), on page 421.

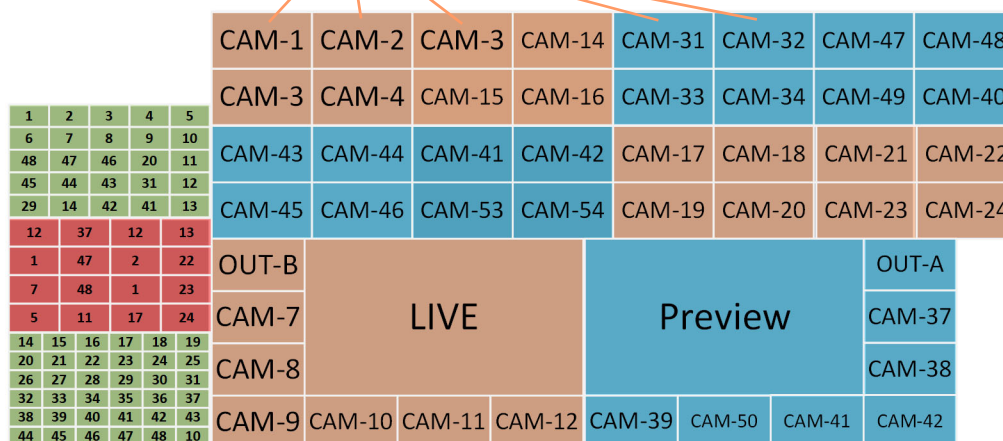
Note: TSL configuration is optional at this stage of the video wall design (**Room** design) and it can be set up later, if required.

After this optional TSL Tally configuration step during video wall design, the next step in *video wall design* is: [Step 5: X/Y Routing Video Sources to Tile Positions](#)

Step 5: X/Y Routing Video Sources to Tile Positions



Router sources assigned to each tile position.



X/Y Routing of Video Sources to Video Wall Tile Positions

Prerequisites:

- There is a **Room** file open in the **Room Editor** which has a **Room Design** defining a video wall which has a assigned router destinations.

The **Route Sources** workflow is presented in the following sub-sections:

- [Open 'Route Sources' in the Room Editor](#)
- [Procedure to Route Sources to a Video Wall Tile Position](#)
- [Route a Source to Multiple Tile Positions](#)
- [Route Multiple Sources to Multiple Tile Positions](#)

And the following **Layout** changes are possible from the **Route Sources** mode:

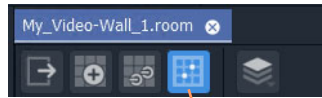
- [Change Room Layout in Routes Sources Mode](#)
- [Change Monitor Layout in Route Sources Mode](#)
- [New Room Layout from Current Video Wall Layout](#)

Open 'Route Sources' in the Room Editor

The routing of sources to video tiles (actually to the tile positions) is done in the **Room Editor**, in its 'Route Sources' tool. To open this **Room Editor** facility:

- 1 Open the **Room** file in the **Room Editor**.

- 2 Click on the **XY Routing** icon to select the route sources mode.



XY Routing icon selected

Fig. 8-71: Room Editor Tool Bar - XY Routing Icon

The **Room Design** is now shown in **Route Sources** mode. See Figure 8-72.

Route Sources Mode in Room Editor



Filter box

Router Sources

Fig. 8-72: Route Sources Mode in Room Editor

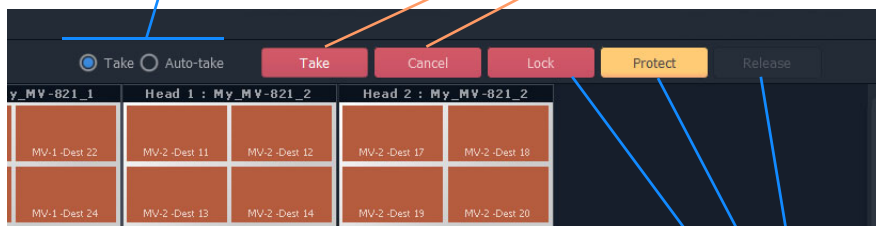
Router sources are listed below the representation of the video wall and routing 'Take' controls appear in the banner area. The **Route Sources** mode effectively offers the user an XY routing panel.

Note: For full information on routing with an XY routing panel, refer to Chapter 6, [XY Panel Operation](#), on page 292.

Routing that are made will be reflected on the video wall.

Route Sources Mode Controls

- Select 'Take' action. Make route:
 - When Take button is clicked, or when double-clicking on source.
 - Immediately when source is selected.
- Click to Take destination-source selection.
- Click to Cancel destination-source selection.



- Click to Release selected destination from Lock/Protect.
- Click to Protect selected destination.
- Click to Lock selected destination

Fig. 8-73: Routing Controls

- Select All
- Deselect all.
- Sort A to Z
- Sort Z to A
- Toggle wide button size

Filter box to limit which sources are shown

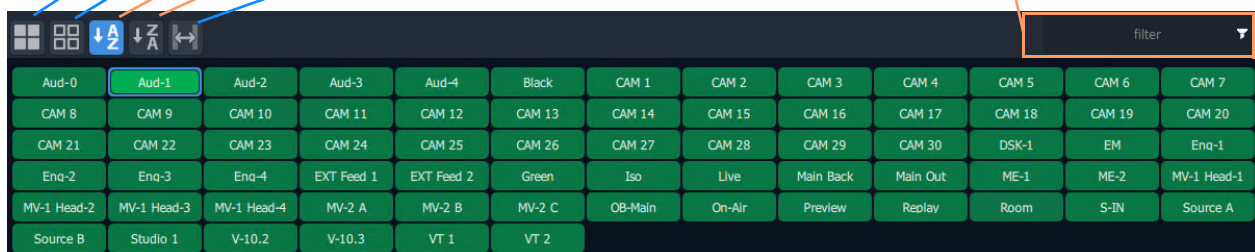


Fig. 8-74: Router Sources Banner Tool Bar Controls

Note: When routing sources to the video wall, typically, such sources are consistently and logically named. (For example, 'CAM 1'; 'CAM 2' etc.) The filter feature of the **Route Sources** mode can then be used to easily list the source(s) required.

Procedure to Route Sources to a Video Wall Tile Position

The procedure broadly operates like an XY routing panel:

- select the destination (where the route is to be made to); and
- then select the source of the route to be made; and
- then there is an optional 'Take' step.

To route a source:

- 1 Select a tile position. (This is the destination of the route to be made.)

Note: Any other tile position that is fed by the same source as the selected tile position is also selected.

- 2 Select a router (video) source. (This is the source of the route to be made.)

With a destination selected and a source selected, a route is ready to be made. See Figure 8-75.

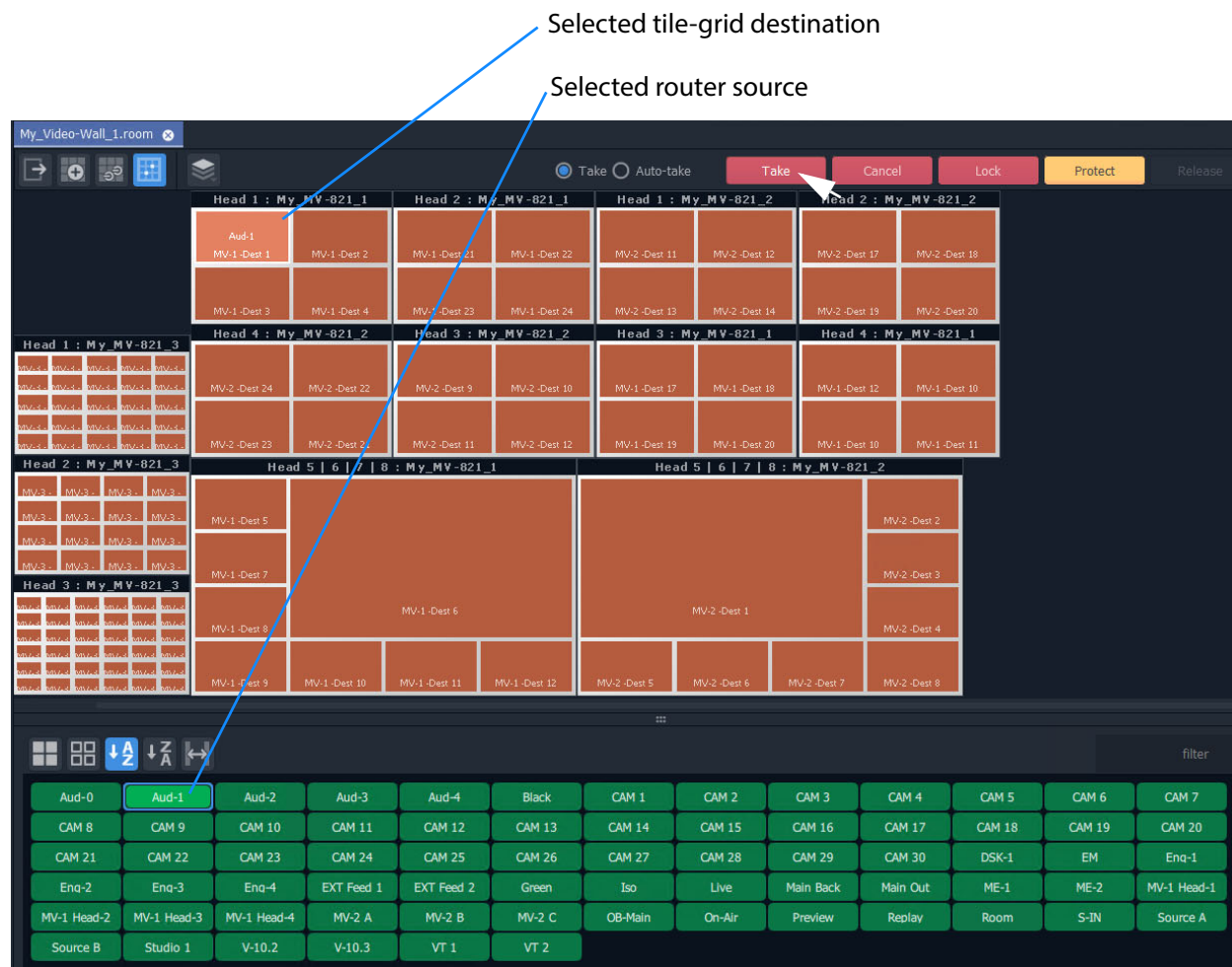


Fig. 8-75: Ready to Make a Router

- 3 Click the **Take** button.

The route is made from the selected source to:

- a) the selected tile position (see Figure 8-76); and also to
- b) any other tile Position on the video wall that is fed with the same source.

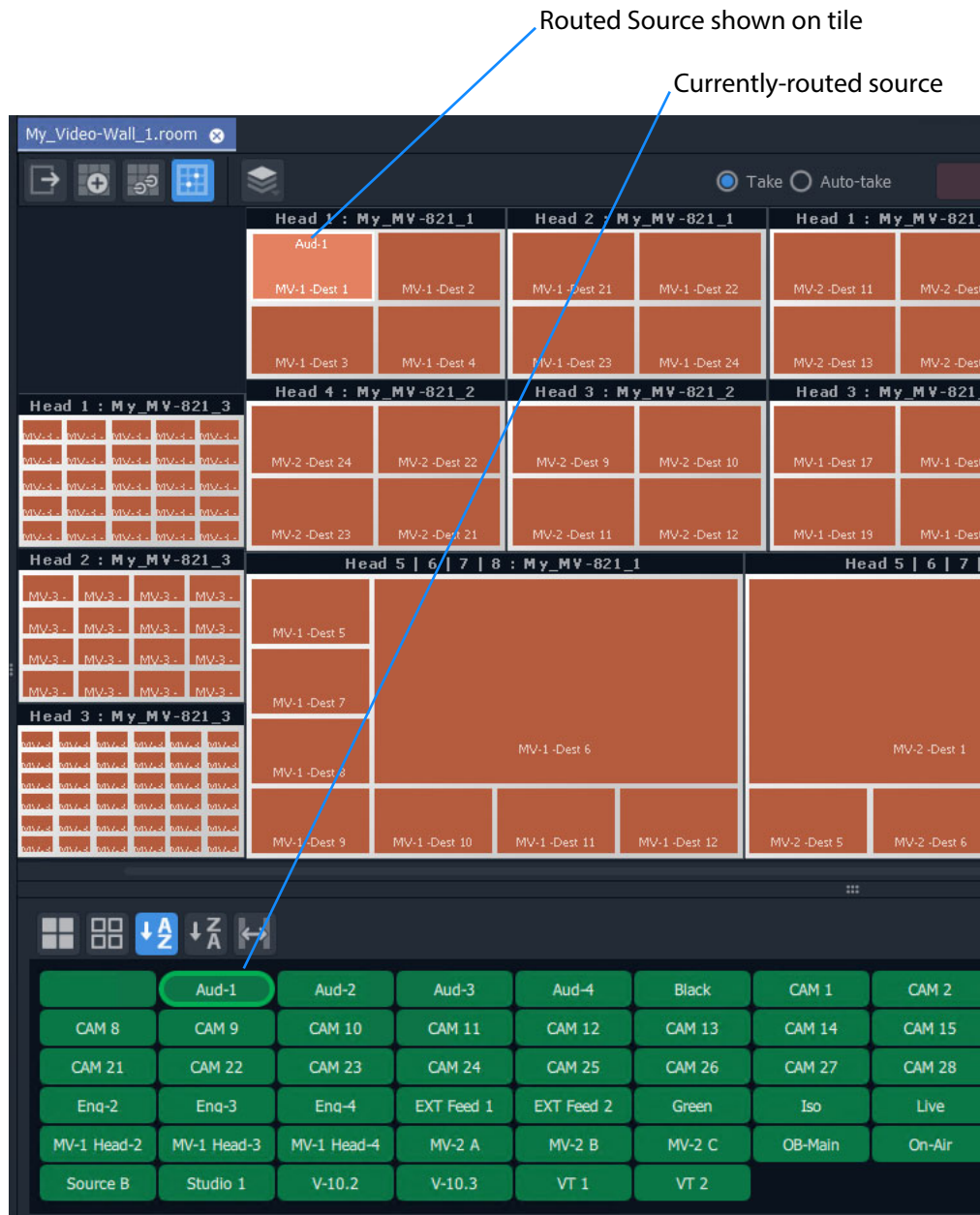


Fig. 8-76: Routed Result

Route a Source to Multiple Tile Positions

To route router sources to a video wall, in the **Project** window:

- 1 Select a tile position.
- 2 Select further positions with:
 - SHIFT-select a range of tile positions; and/or
 - CTRL-select to add positions to the selection.
- 3 Select a router (video) source.
- 4 Click **Take**.

The routes are made.

Route Multiple Sources to Multiple Tile Positions

To route router sources to a video wall, in the **Project** window:

- 1 Select a tile position.
- 2 Select further tile positions with:
 - SHIFT-select a range of positions; and/or
 - CTRL-select to add positions to the selection.
- 3 Select a router (video) source.
- 4 Select further sources with:
 - SHIFT-select a range of sources; and/or
 - CTRL-select to add sources to the selection.
- 5 Click **Take**.

The routes are made.

Change Room Layout in Routes Sources Mode

If there is more than one **Room Layout**, then a different **Room Layout** may be selected in the **Route Sources** mode of the **Room Editor**. This will change the layout on the physical video wall also. Sources may then be routed to this layout, where required.

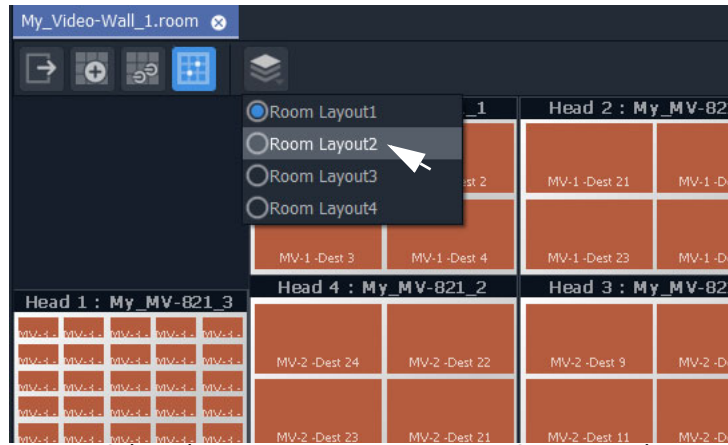


Fig. 8-77: Select Alternate Room Layout in Route Sources mode in Room Editor

Tile positions in this layout require more routed sources

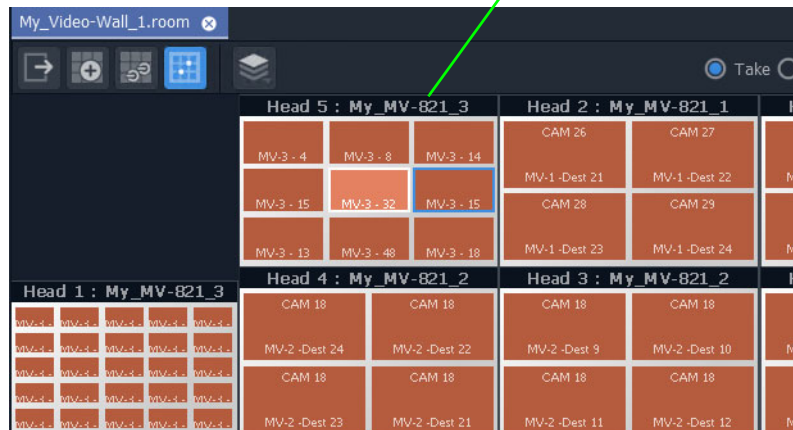


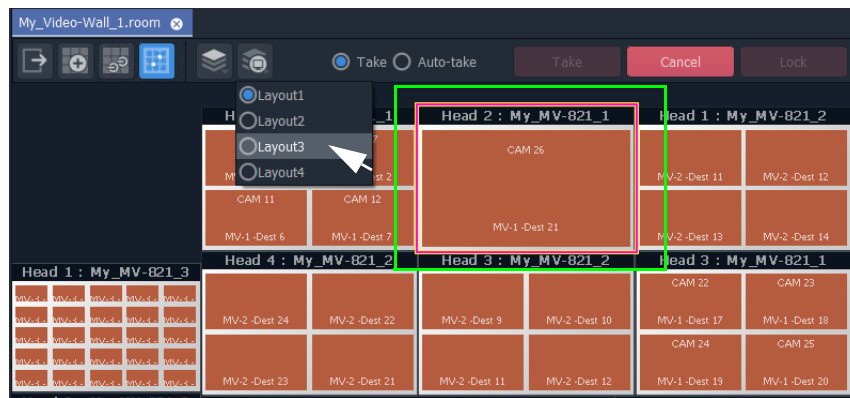
Fig. 8-78: Alternate Room Layout

Change Monitor Layout in Route Sources Mode

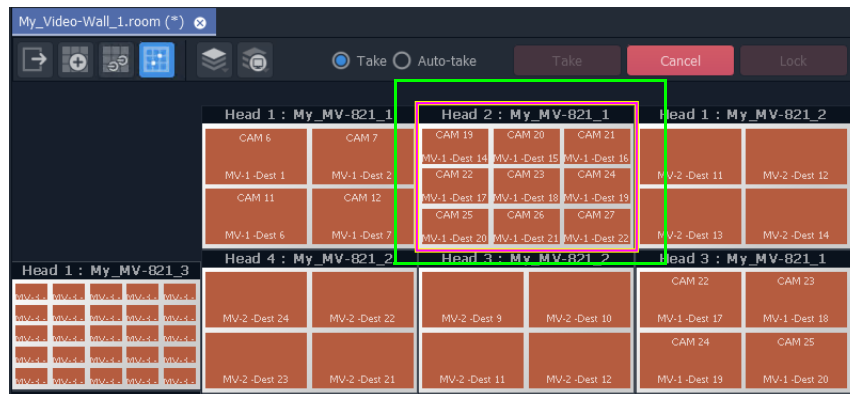
If there is more than one **Monitor Layout** for a monitor, then a different **Monitor Layout** may be selected in the **Route Sources** mode of the **Room Editor**. This will change the layout on the physical video wall also.

With a **Room Layout** selected:

- 1 Select a monitor.
- 2 Click on the **Monitor Layout** icon in the **Room Editor** tool bar.
- 3 Select the required **Monitor Layout**.



a) Select Monitor Layout



b) Selected Monitor Layout Shown

Fig. 8-79: Select Alternate Monitor Layout in Route Sources Mode in Room Editor

New Room Layout from Current Video Wall Layout

A video wall layout can be adjusted 'on the fly' in the **Route Sources** mode in the **Room Editor. Room Layouts** and **Monitor Layouts** can be selected when in **Route Sources** mode. (See [Change Room Layout in Routes Sources Mode](#), on page 418, and [Change Monitor Layout in Route Sources Mode](#), on page 419.)

When a **Room Layout** is selected in the **Route Sources** mode:

- 1 The on-screen video wall layout can be changed by selecting an alternate **Monitor Layout** for a monitor.
- 2 The resulting new overall layout may be saved as a new **Room Layout**.

To do this:

- return to the **Design Layout** mode of the **Room Editor**;
- click the **Room Layout** icon in the tool bar and select 'New Room Layout' (see [Create a New Monitor Layout](#), on page 386); and
- return to the **Route Sources** mode to resume routing sources.

9

MV Cluster - TSL Tally Configuration

MV Cluster - TSL Tally Configuration	
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Introduction

Lite	Professional	Enterprise
-	●	●

TSL tally configuration is integrated and centralized for a 'Clustered MV' project. Configuration is done on a *per Room* basis and the whole video wall inherits the Tally configuration. This provides the basic Tally settings for the video wall's graphical, on-screen widgets to use to display Tally status. (For example, a Tally Lamp, Label, or Shape.)

TSL tally protocols supported:

- **TSL 3.1** - Basic industry tally standard protocol over UDP.
- **TSL 5.0** - Advance industry tally protocol over UDP or TCP.

In GV Orbit Client, TSL tally configuration is carried out from the **Room Editor's Destination Assignment** mode. Tally configuration includes:

- Selecting TSL protocol to use.
- Optionally customizing Tally names, Tally address level names, and on-screen Tally colors.
- Mapping of TSL addresses and video wall video tiles (multiviewer device logical inputs and their assigned router destinations).

When TSL tally configuration is done, 'tally-indicating' graphical widgets in video wall tiles can be configured. This then determines which TSL data packets are indicated by which widgets.

Note: When designing a video wall and using widgets to display Tally status, the Tally configuration provides the basic settings. It is still possible to change local settings on a video wall tile to modify widget behavior and/or appearance on a *tile-by-tile* basis in GV Orbit Client.

Tally Protocols

Up to four Tally addresses supported per multiviewer input (i.e. up to four address levels).

The TSL protocols are compared in the table below:

Table 9-1: Comparing TSL Protocols

	TSL Protocol	
	TSL 3.1	TSL 5.0
Tallies	'Tally 1' to 'Tally 4'	'Left', 'Right', and 'Text'
Tally States	Two states: On, Off	Four states

Table 9-1: Comparing TSL Protocols (continued)

	TSL Protocol	
	TSL 3.1	TSL 5.0
Number of Tallies per MV-8 Multiviewer Video Wall Tile	16	12
Address Range	0 to 126	0 to 65534
IP data packet protocol used	UDP	UDP or TCP

Tally Configuration in Room Editor

TSL Tally settings for a **Room** are configured in a **Destination Configuration** tab which is found in the **Destination Assignment** mode of the **Room Editor**.

Note: The **Destination Assignments** should be all completed in the **Room Editor** before for the Tally settings can fully function and map to video wall tiles etc.
(For **Destination Assignment** steps, please see Chapter 8 [Step 4a: Assign Destinations to Tile Positions](#), on page 395.)

Open Destination Configuration Tab

- 1 Open the **Room** file in the **Room Editor** and select the **Assign Destinations** icon in the **Room Editor** tool bar.
(Refer to Chapter 8, [Step 4a: Assign Destinations to Tile Positions](#), on page 395 for full instructions.)

The **Room Design** is shown in its **Assign Destinations** mode. See Figure 9-1.

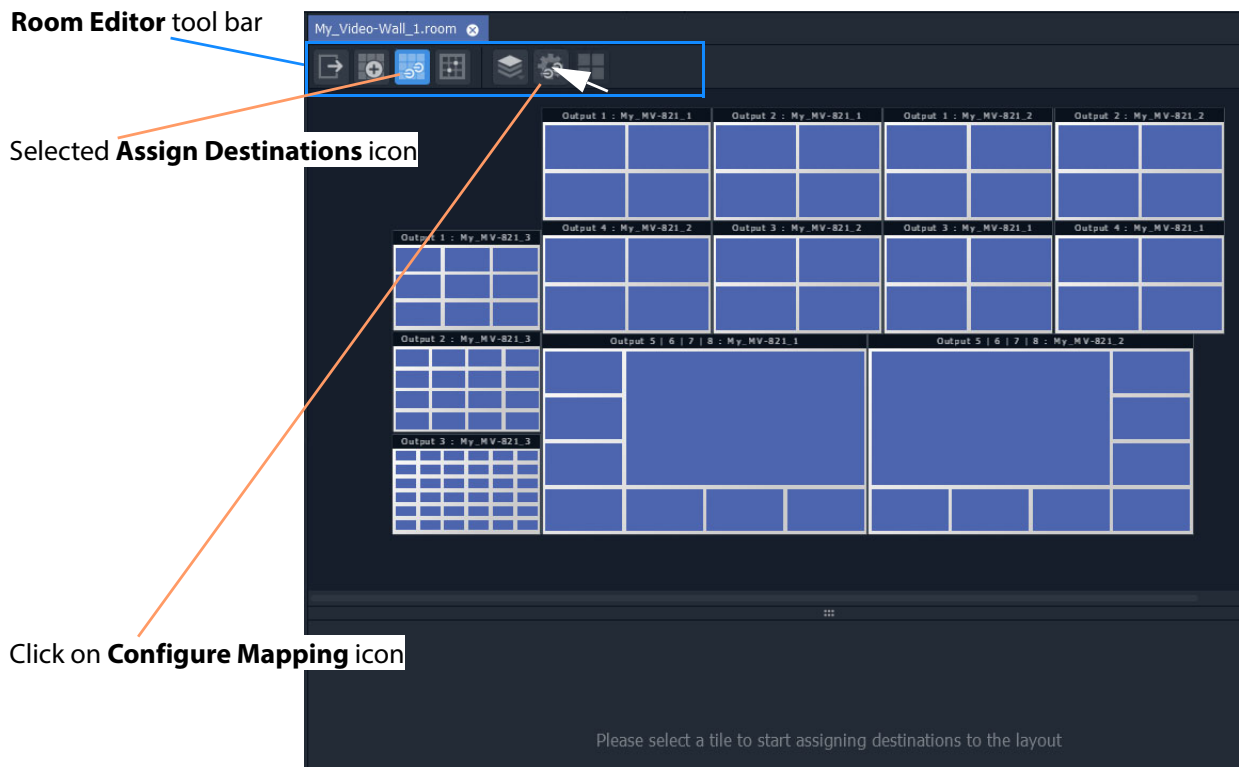


Fig. 9-1: Assign Destinations Mode in Room Editor

- 2 Click on the **Configure Mapping** icon in the Room Editor tool bar. A **Destination Configuration** tab is opened. See Figure 9-2.

Destination Configuration Tab

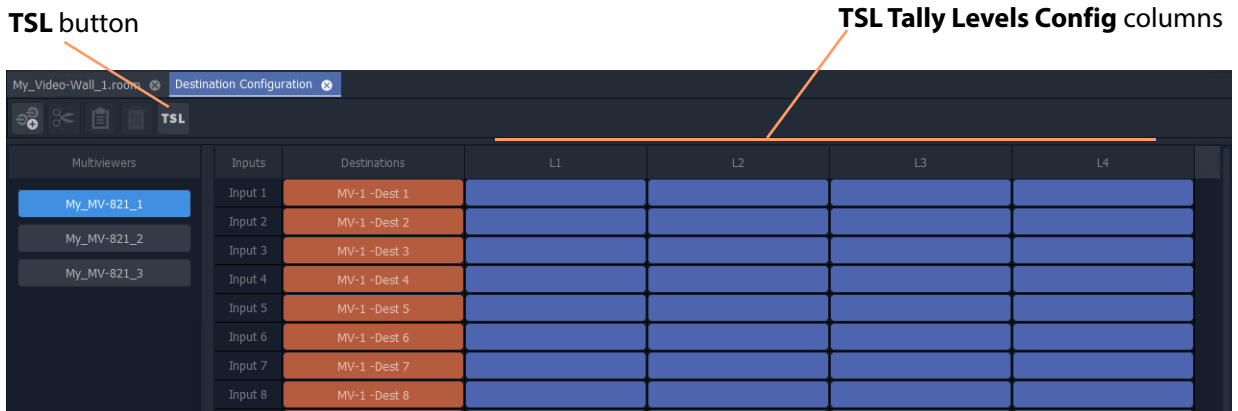


Fig. 9-2: Destination Configuration Tab - TSL Tally Levels Config Columns

Following a **Destination Assignment** step in video wall design, the 'Destinations' column is filled out and multiviewer inputs are mapped to video wall tiles. See Chapter 8, [Step 4a: Assign Destinations to Tile Positions](#), on page 395.

'Tally' features of the **Destination Configuration** tab:

- For the **TSL Tally Levels Config** columns:
 - Initially the columns are empty.
 - [Assign TSL Tally Addresses to Multiviewer Inputs](#).
 - [Customize TSL Tally Address Level Names](#) by renaming columns, if required.
- **TSL** button in the tool bar. Use the TSL button to:
 - [Select TSL 3.1 or 5.0 Tally Protocol](#); and
 - [Customize Tally Names and On-Screen Colors](#).

Assign TSL Tally Addresses to Multiviewer Inputs

Assign Addresses

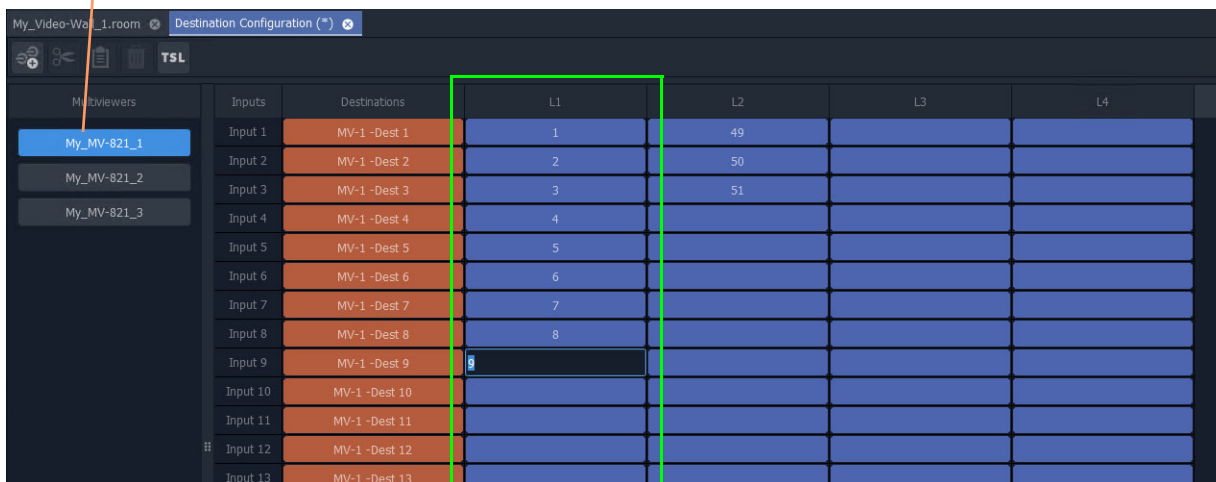
TSL Tally addresses can be assigned for each multiviewer input. Up to four addresses may be assigned (i.e. up to four address 'levels' for a video wall tile).

The **TSL Tally Level** address mapping defaults to being 'empty'. Assign TSL addresses to each multiviewer input. Up to four are allowed per input.

To assign addresses to **TSL Tally Levels**:

- 1 Select a multiviewer.
- 2 Click in a TSL Level column row item and enter a TSL address.
- 3 Press the Down-arrow key to go on to the next row in the column. Enter another address. Etc.
- 4 Repeat for all multiviewer inputs.

Select multiviewer



Inputs	Destinations	L1	L2	L3	L4
Input 1	MV-1 -Dest 1	1	49		
Input 2	MV-1 -Dest 2	2	50		
Input 3	MV-1 -Dest 3	3	51		
Input 4	MV-1 -Dest 4	4			
Input 5	MV-1 -Dest 5	5			
Input 6	MV-1 -Dest 6	6			
Input 7	MV-1 -Dest 7	7			
Input 8	MV-1 -Dest 8	8			
Input 9	MV-1 -Dest 9				
Input 10	MV-1 -Dest 10				
Input 11	MV-1 -Dest 11				
Input 12	MV-1 -Dest 12				
Input 13	MV-1 -Dest 13				

Fig. 9-3: Destination Configuration Tab - TSL Tally Level Config Columns

- 5 Press Return when done to exit the address level column.

Continue:

- 6 Repeat to assign up to four addresses per multiviewer input, using the four columns.

Then:

- 7 Repeat for each multiviewer.

Finally:

- 8 Click **Save File**.

This has assigned TSL addresses for each multiviewer input.

Customize TSL Tally Address Level Names

Inputs	Destinations	Live/Preview	Camera Operator	Lead Sportsman
Input 1	MV-1 -Dest 1	1	11	21
Input 2	MV-1 -Dest 2	2	12	22
Input 3	MV-1 -Dest 3	3	13	23

Fig. 9-4: Customized Tally Address Level Names

TSL Tally address level names can be customized, which is useful when assigning Tallies to on-screen Tally indicators such as Tally Lamps or UMDs.

Procedure

To rename a Tally address Level across the whole **Room**:

- 1 Click on the 'Tally Level' column heading in the **Destination Configuration** tab.
A Header dialog is shown.

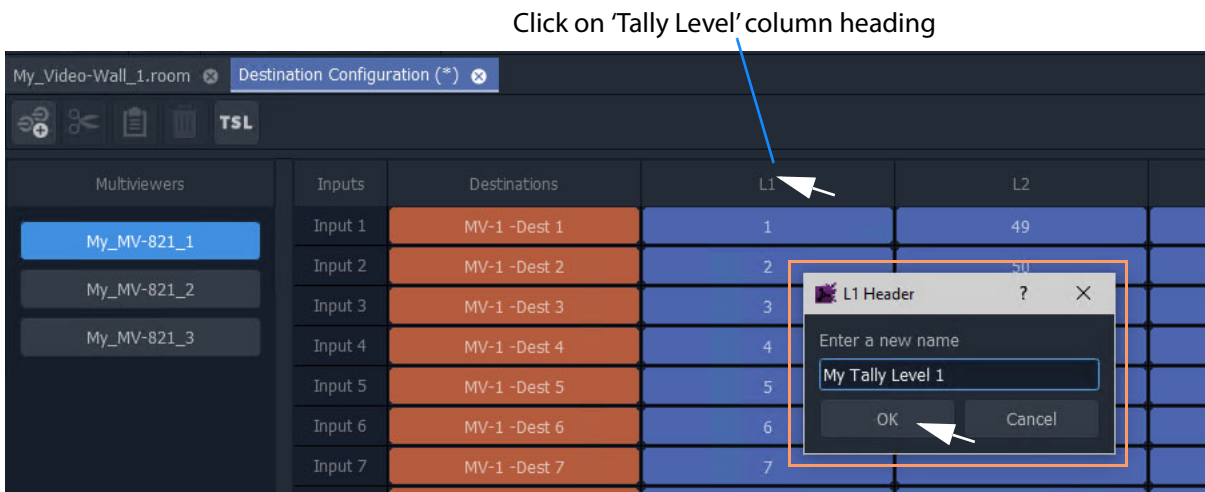


Fig. 9-5: Customize Tally Address Level Name

- 2 Enter a new name for the address level and click **OK**.

The new address level name is used for the **Room Design** and appears in the column header and persists for all multiviewers used by the **Room**. See Figure 9-6.

MV Cluster - TSL Tally Configuration

Customize TSL Tally Address Level Names



Fig. 9-6: New Address Level Name Persists for Other Multiviewers in the Room

3 Click **Save File**.

TSL Tally Configuration for a Room

The TSL tally settings assigned here will be assigned to the video wall tiles for the **Room** and will be available to on-screen, graphical, tally-indicating widgets (i.e. Lamps, Labels, Shapes, UMDs).

Configuration is done the **Destination Configuration** tab in the **Room Editor**.

Configuration items:

- [Select TSL 3.1 or 5.0 Tally Protocol](#)
- [Customize Tally Names and On-Screen Colors](#)
 - [TSL 3.1 Customizing](#)
 - [TSL 5.0 Customizing](#)

Select TSL 3.1 or 5.0 Tally Protocol

To select the TSL Tally protocol to be used in the **Room Design**:

- 1 Click on **TSL** icon in the **Room Editor** tool bar.

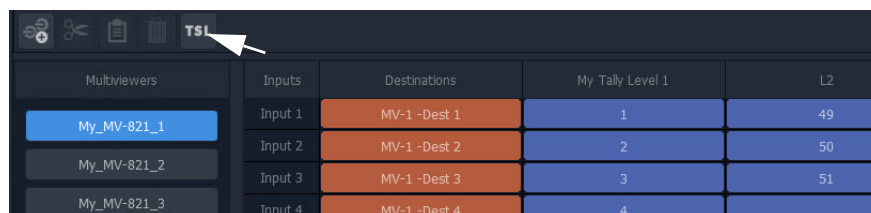
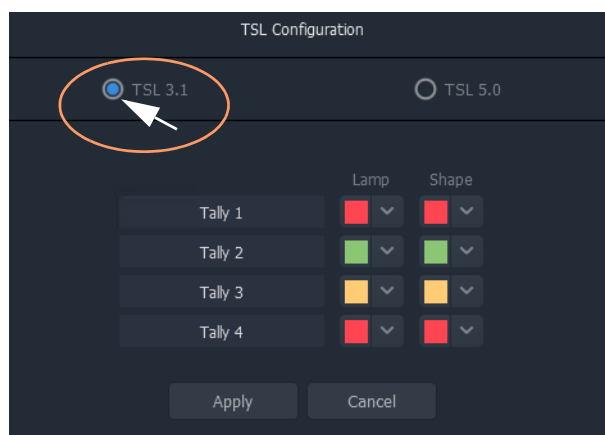
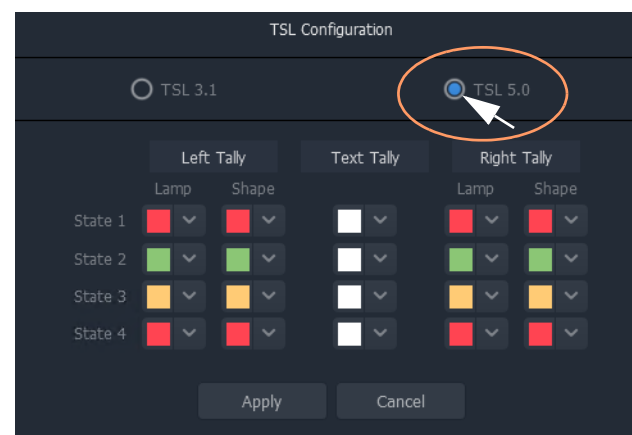


Fig. 9-7: TSL Icon

A **TSL Configuration** dialog is shown.



a) TSL 3.1 Dialog



b) TSL 5.0 Dialog

Fig. 9-8: TSL Configuration Dialogs: a) TSL 3.1 Selected; b) TSL 5.0 Selected.

- 2 Select **TSL 3.1** or **TSL 5.0**.
- 3 Click **Apply**.

This has selected the TSL Tally protocol to be used in the **Room**.

Note: **Dynamic selection of Tally protocol on MV-8 multiviewer devices:**

The Tally protocol is usually selected once in a project and then does not change.

The *dynamic* selection of the Tally protocol in a project will be supported in MV-8 multiviewer software version v4 onwards.

CAUTION Typically the TSL Tally protocol is set once. If, however, the setting is changed between protocols, it is recommended that all the Tally assignments that have been made are re-checked.

TSL Protocols

- **TSL 3.1**

There are four Tallies (**Tally 1** to **Tally 4**) and each has an associated Tally color. There are colors for graphical on-screen Tally Lamp widgets and for Shape widgets.

- **TSL 5.0**

There are four Tally states (**State 1** to **State 4**) and each has an associated 'Left-Tally', 'Right-Tally', and 'Tally Text'. And, in turn, each has associated on-screen colors.

The protocols are compared in [Table 9-1](#), on page 422.

Customize Tally Names and On-Screen Colors

The names of each tally and the on-screen colors used can be customized in the **TSL Configuration** dialog. A customized Tally name can help to identify it when assigning tallies to on-screen graphical widgets (Tally Lamps etc.) in the video wall design steps.

Customizations:

- [TSL 3.1 Tally Name](#)
- [TSL 3.1 Tally Lamp Color](#)
- [TSL 3.1 Shape Fill Color](#)
- [TSL 5.0 Tally Name](#)
- [TSL 5.0 Tally Lamp State Color](#)
- [TSL 5.0 Shape Fill State Color](#)
- [TSL 5.0 Text Tally Font Color](#)

Show TSL Configuration Dialog

To show the **TSL Configuration** dialog:

- Click on the **TSL** icon in the **Room Editor** tool bar.
The **TSL Configuration** dialog is shown. (See [Figure 9-8](#) on page 429.)

TSL 3.1 Customizing

TSL 3.1 Tally Name

In the TSL 3.1 **TSL Configuration** dialog:

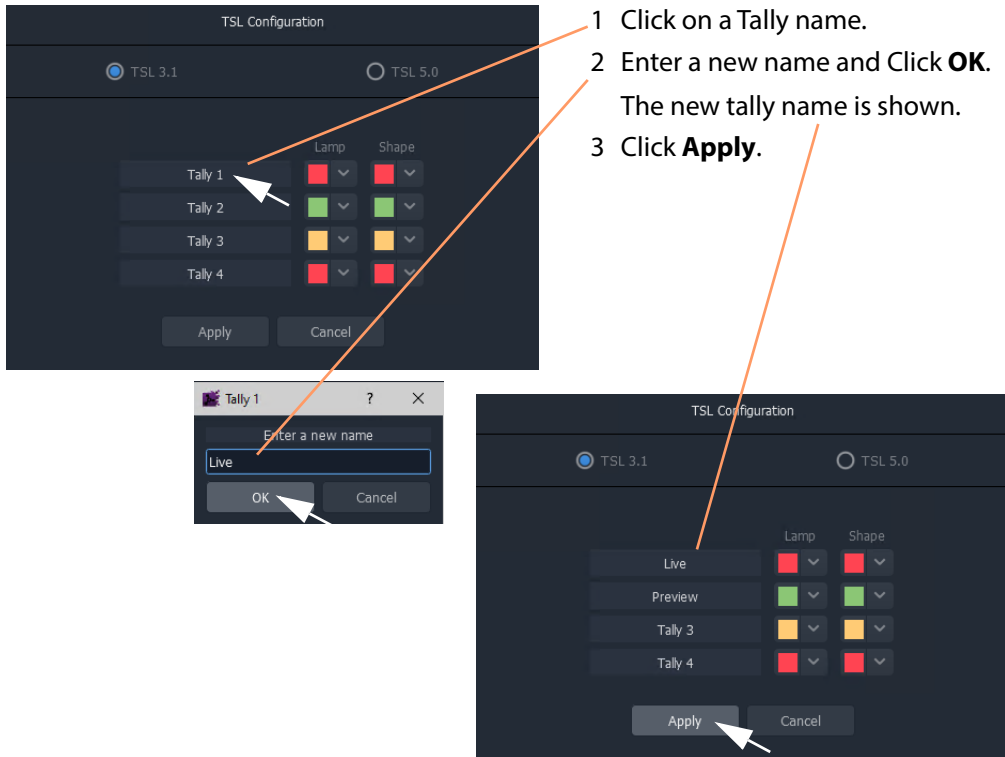



Fig. 9-9: Customize TSL 3.1 Tally Name

TSL 3.1 Tally Lamp Color

Three standard colors are available ().

In the TSL 3.1 **TSL Configuration** dialog:

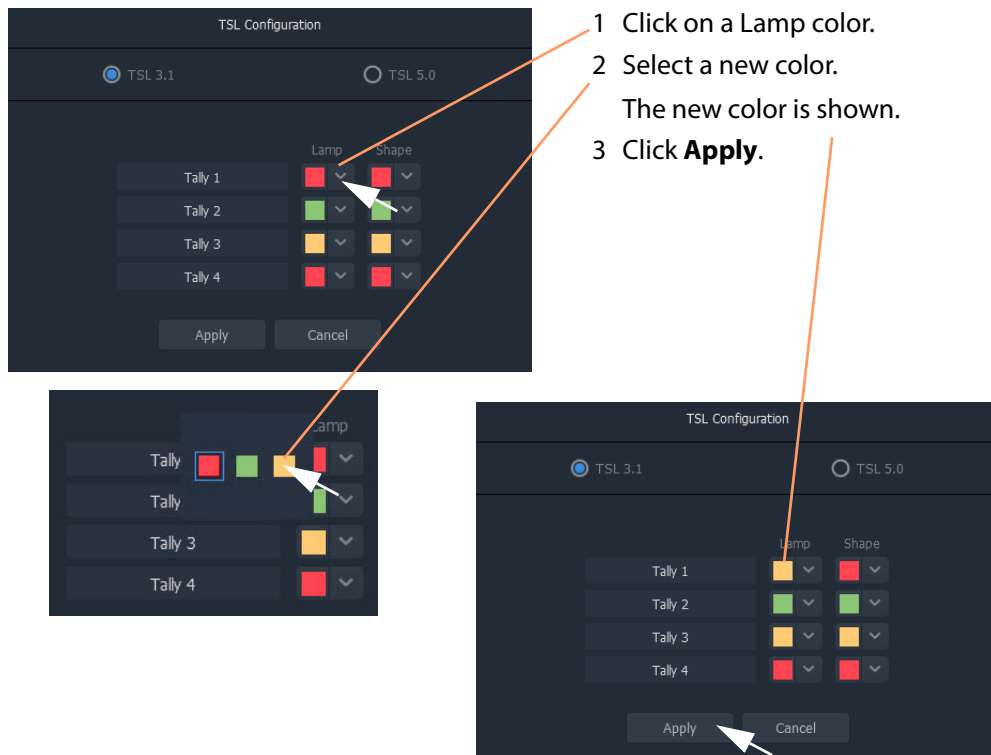

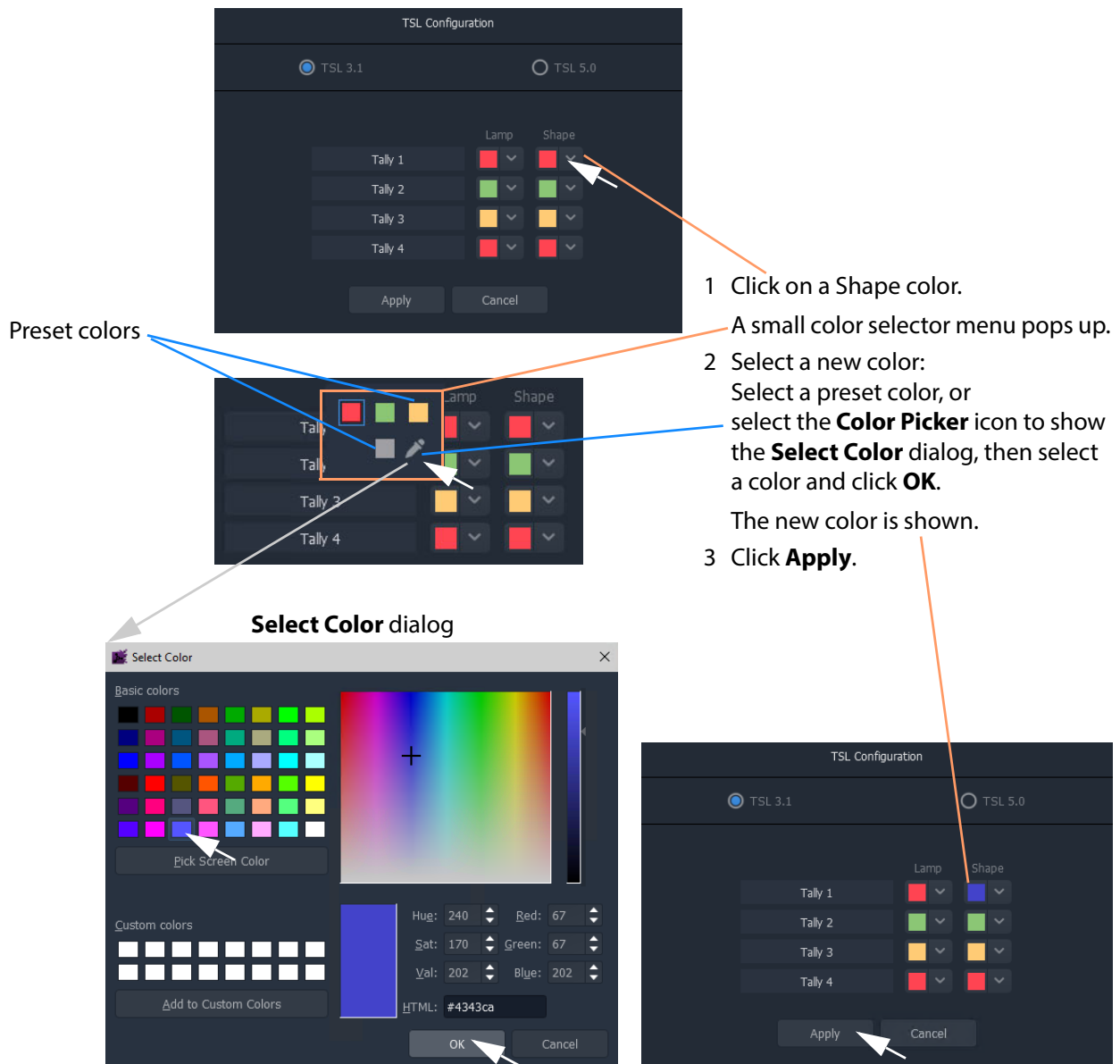


Fig. 9-10: Customize TSL 3.1 Tally Lamp Color

TSL 3.1 Shape Fill Color

For an on-screen shape, four standard colors are available () to be used as the shape fill color. Alternatively, a custom color may be picked to allow custom colors to be used.

In the TSL 3.1 **TSL Configuration** dialog:



The figure illustrates the process of customizing the TSL 3.1 Tally Shape Fill Color through three sequential screenshots of the TSL Configuration dialog.

- 1 Click on a Shape color.** The first screenshot shows the TSL Configuration dialog with four tally items (Tally 1-4). Each item has a 'Lamp' and a 'Shape' color selector. An arrow points to the red 'Shape' color selector for Tally 1.
- 2 Select a new color:** A small color selector menu pops up over the 'Shape' color selector. An arrow points to the 'Color Picker' icon (a pencil and square) in this menu. The second screenshot shows the 'Select Color' dialog, which includes a grid of basic colors, a color wheel, and a 'Pick Screen Color' button. An arrow points to the 'Pick Screen Color' button.
- 3 Click Apply.** The third screenshot shows the 'Select Color' dialog with a custom color selected (HTML: #4343ca). An arrow points to the 'OK' button. The final screenshot shows the TSL Configuration dialog with the custom color applied to the 'Shape' color selector for Tally 1. An arrow points to the 'Apply' button.

Fig. 9-11: Customize TSL 3.1 Tally Shape Fill Color

TSL 5.0 Customizing

TSL 5.0 Tally Name

(The procedure for TSL 5.0 is similar to [TSL 3.1 Tally Name](#), on page 432.)

In the TSL 5.0 **TSL Configuration** dialog:

1 Click on a Tally name ('Left Tally', or 'Text Tally', or 'Right Tally').

2 Enter a new name and Click **OK**.

The new name is shown.

3 Click **Apply**.

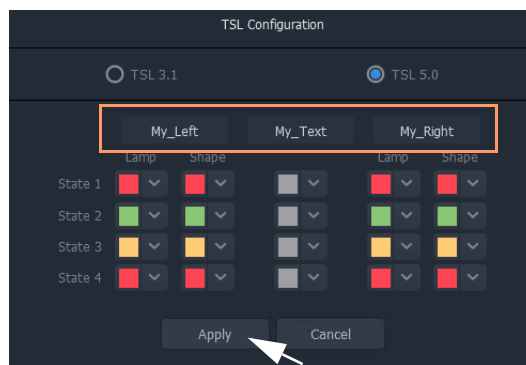


Fig. 9-12: Customized TSL 5.0 Tally Names

TSL 5.0 Tally Lamp State Color

(The procedure for TSL 5.0 is similar to [TSL 3.1 Tally Lamp Color](#), on page 433.)

In the TSL 5.0 **TSL Configuration** dialog:

1 Click on a Lamp state color.

2 Select a new color.

The new color is shown.

3 Click **Apply**.

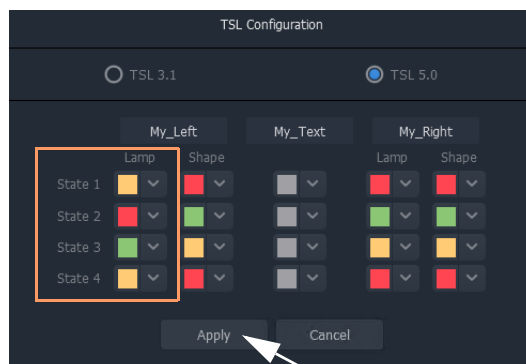


Fig. 9-13: Customizes TSL 5.0 Tally Lamp State Colors

TSL 5.0 Shape Fill State Color

(The procedure for TSL 5.0 is similar to [TSL 3.1 Shape Fill Color](#), on page 434.)

In the TSL 5.0 **TSL Configuration** dialog:

- 1 Click on a Shape state color.
- 2 Select a new color to be used for the shape's fill color.
Or, if the color picker icon is selected, the **Select Color** dialog is shown.
Select a color and click **OK**.
The new color is shown.
- 3 Click **Apply**.

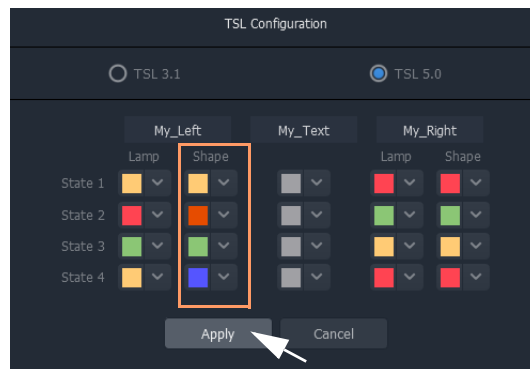


Fig. 9-14: Customized TSL 5.0 Tally Shape State Colors

TSL 5.0 Text Tally Font Color

(The procedure for TSL 5.0 is similar to [TSL 3.1 Shape Fill Color](#), on page 434.)

In the TSL 5.0 **TSL Configuration** dialog:

- 1 Click on a Text Tally state color.
- 2 Select a new color.
Or, if the color picker icon is selected, the **Select Color** dialog is shown.
Select a color and click **OK**.
The new color is shown.
- 3 Click **Apply**.

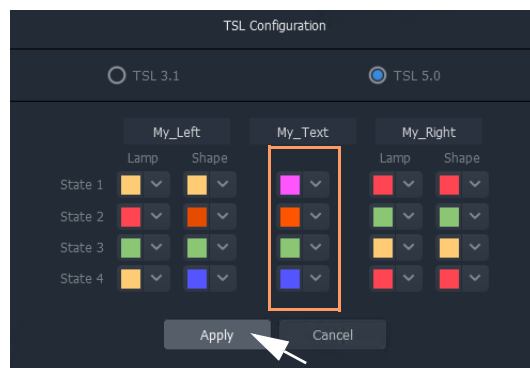


Fig. 9-15: Customized TSL 5.0 Text Tally Font Colors

Configuring On-Screen Widgets

With each multiviewer input configured for TSL Tallies, graphical widgets on video tiles can be configured. The widget editing is done when editing a **Custom Tile** in the **Tile Editor**.

Note: Typically for a video wall, a few particular 'template' video tile designs are used throughout. In GV Orbit Client the user can design custom video tiles for use on video walls (**Custom Tiles**).

Open a Custom Tile in the Tile Editor

Open an Existing Custom Tile:

To open a **Custom Tile** in the **Tile Editor**:

Either:

- Expand the project in the **Project** window and in the 'Tiles' folder, double-click on the Custom Tile name. The tile is opened in the editor.

Or:

- Open the video wall double-click on the **Custom Tile**. The tile is opened in the editor.

Create a New Custom Tile

New Empty Custom Tile

A **Custom Tile** may be created from scratch, if required:

- Expand the project in the **Project** window and right-click on the 'Tiles' folder and select 'New'. Then select the tile type. A new tile is opened in the editor.

Quick Custom Tile

Alternatively, a new Custom Tile can be created quickly from an existing video auto-tile by double-clicking on a video tile to copy it and open it in the **Tile Editor**.

To quickly create a new **Custom Tile**:

- 1 Double-click on a video tile in the video wall.

The **Create Custom Tile** dialog is shown.

MV Cluster - TSL Tally Configuration

Open a Custom Tile in the Tile Editor

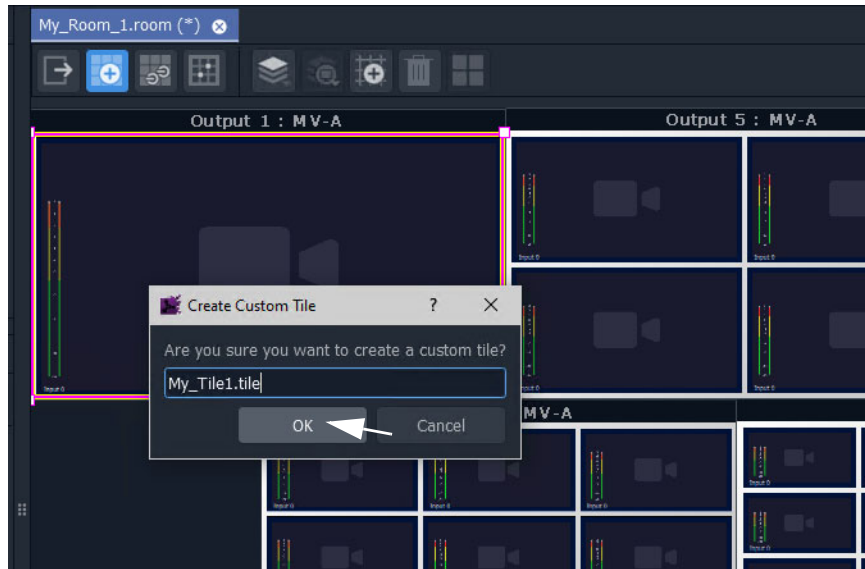


Fig. 9-16: Create Custom Tile

- 2 Enter a name for the **Custom Tile** and click **OK**.
The selected tile is copied and opened in the **Tile Editor**. See Figure 9-17.

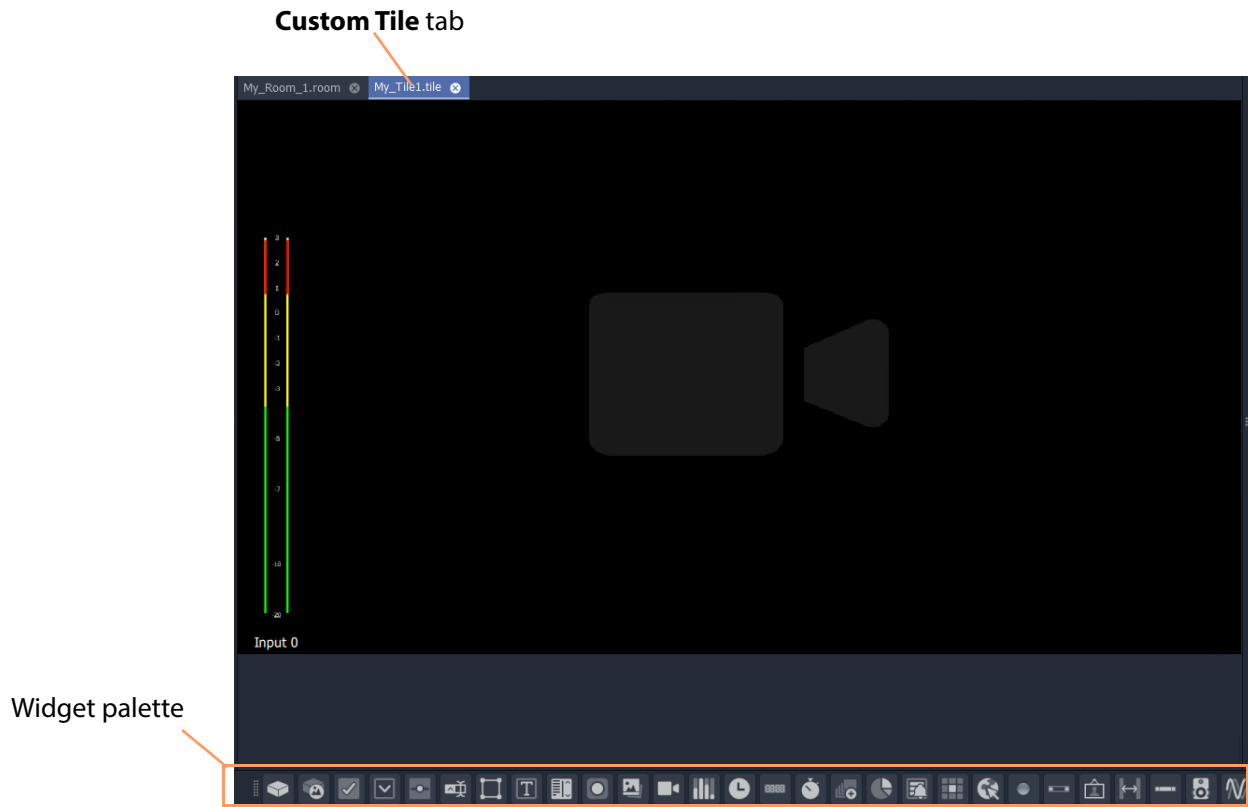


Fig. 9-17: Custom Tile in Tile Editor

TSL Tally Configuring Widgets

Certain graphical widgets can be used on video wall tiles to display Tally information. The TSL Tally configuration of a widget comprises specifying what Tally data is to drive the widget. Widgets include:

- [Tally Lamp Widget](#)
- [Label Widget \(Font Color\)](#)
- [Shape Widget \(Fill Color\)](#)

Tally Lamp Widget

Open a **Custom Tile** in the **Tile Editor**.

If a Tally Lamp widget needs to be added, then:

- 1 Click on the **Tally Lamp** icon in the **Widget Palette** and drop on a **Tally Lamp** widget. repeat for a second one if required. See Figure 9-18.

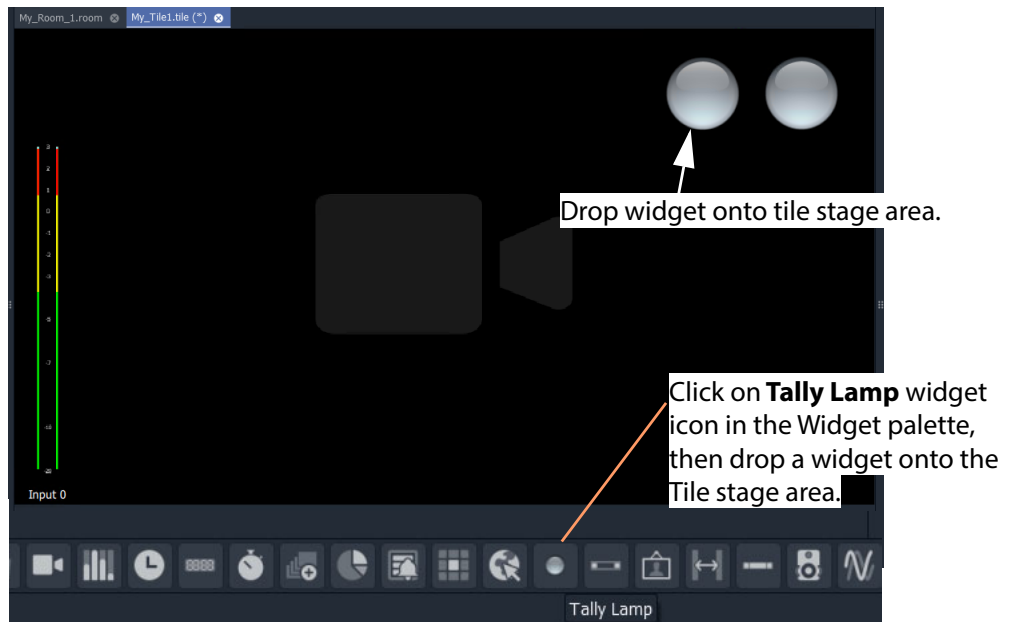
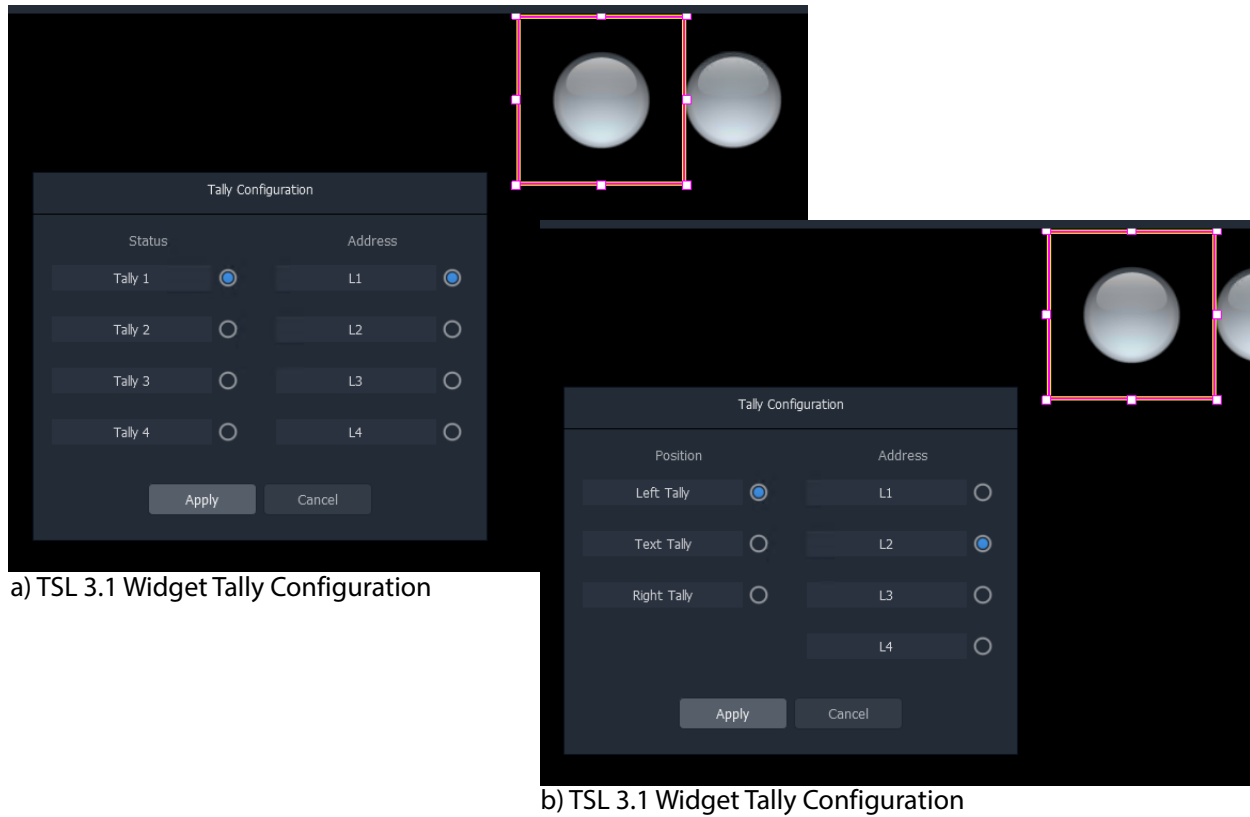


Fig. 9-18: Added Tally Lamp Widget(s)

Configure the widget tallies:

- 2 Right-click on a Tally Lamp widget and select 'Tally Configuration'.

A **Tally Configuration** dialog is shown, either for TSL 3.1 (see Figure 9-19a) or for TSL 5.0 (see Figure 9-19b).



a) TSL 3.1 Widget Tally Configuration

b) TSL 3.1 Widget Tally Configuration

Fig. 9-19: Tally Lamp Widget Tally Configuration Dialogs: a) TSL 3.1; b) TSL 5.0

- 3 In the dialog, select the Tally Status and Address level, or Tally Position and Address level for the widget for TSL 3.1 or 5.0 respectively.
- 4 Click **Apply**.

This configures the TSL settings for the widget.

- Configure each Tally Lamp widget on the tile.

With the tallies up for the widget in the **Room**, the following will determine which TSL data packet controls the Tally Lamp's color:

- the widget's Tally Configuration setting (above);
- the video tile position on the video wall; and
- the TSL address mapping set up in the **Destination Configuration** tab.

Label Widget (Font Color)

A Label widget can have its font color controlled by TSL messages. The widget tally configuration is done in a similar way to the [Tally Lamp Widget](#).

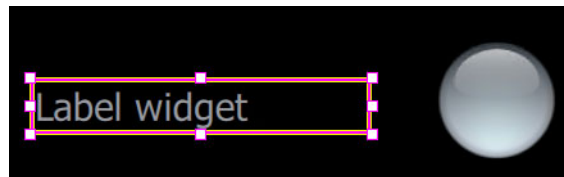


Fig. 9-20: Label Widget

Shape Widget (Fill Color)

A Shape widget (for example, a Rectangle) can have its fill color controlled by TSL messages. The widget tally configuration is also done in a similar way to the [Tally Lamp Widget](#).

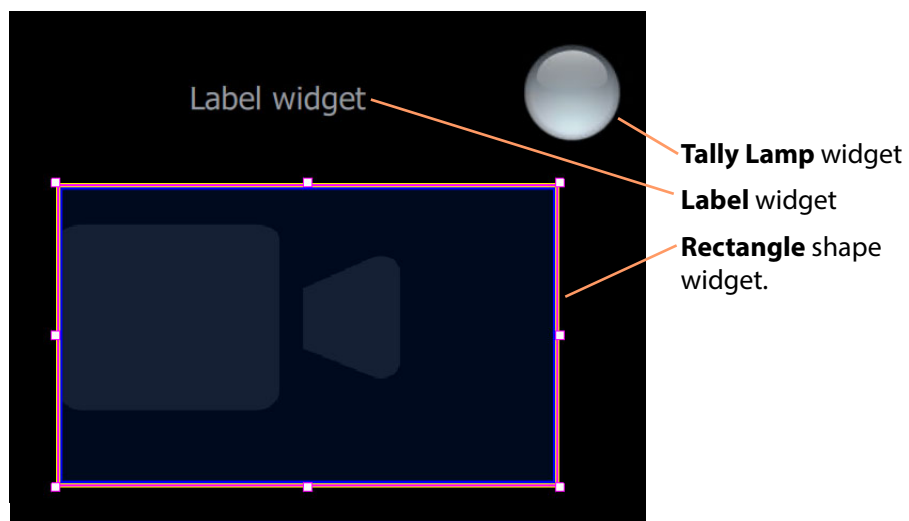


Fig. 9-21: Shape Widget

Tally Border Video Tile Example

This example forms a video tile with a customizable colored border which is bound to a TSL tally message.

Assumptions

- A **Room** has been created.
- Monitors have been arranged to form a video wall.
- Monitors have been assigned to multiviewer outputs.
- A layout has been designed for the video wall.
- Destinations have been assigned to multiviewer inputs and to video wall tiles

TSL address mapping has been done in the **Destination Configuration** tab in the **Destination Assignment** mode of the **Room Editor**.

Create a Starter Custom Tile

A custom video tile can be created quickly to start with in GV Orbit Client:

- 1 Double-click on a video tile in the video wall.

The **Create Custom Tile** dialog is shown.

- 2 Enter a name for the **Custom Tile** and click **OK**.

The selected video tile is copied and opened in the **Tile Editor**.

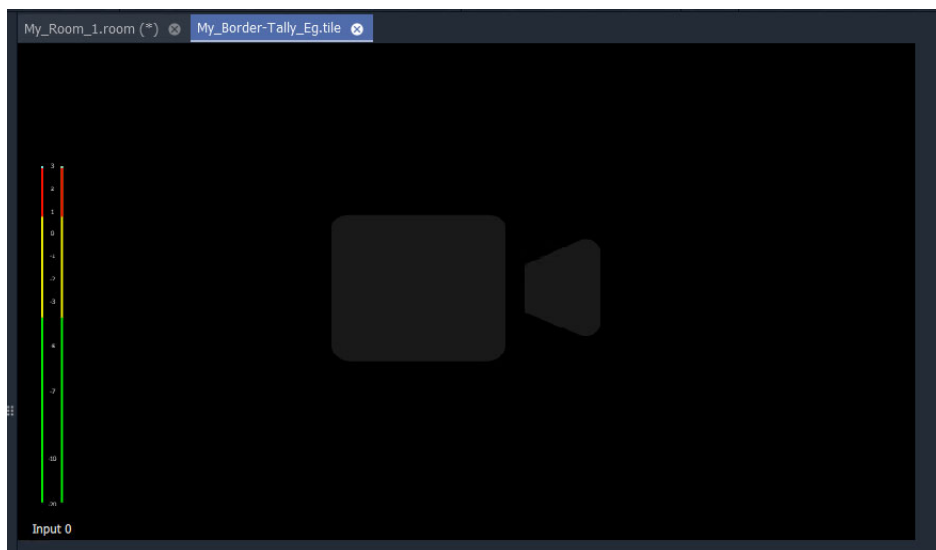


Fig. 9-22: Starter Custom Tile

Tile Size:

- 3 Click off the Tile but in the **Tile Editor** stage area. See Figure 9-23.

The Tile's **Width** and **Height** are shown in the Properties box.

Click off the Tile, but on the **Tile Editor** stage area.

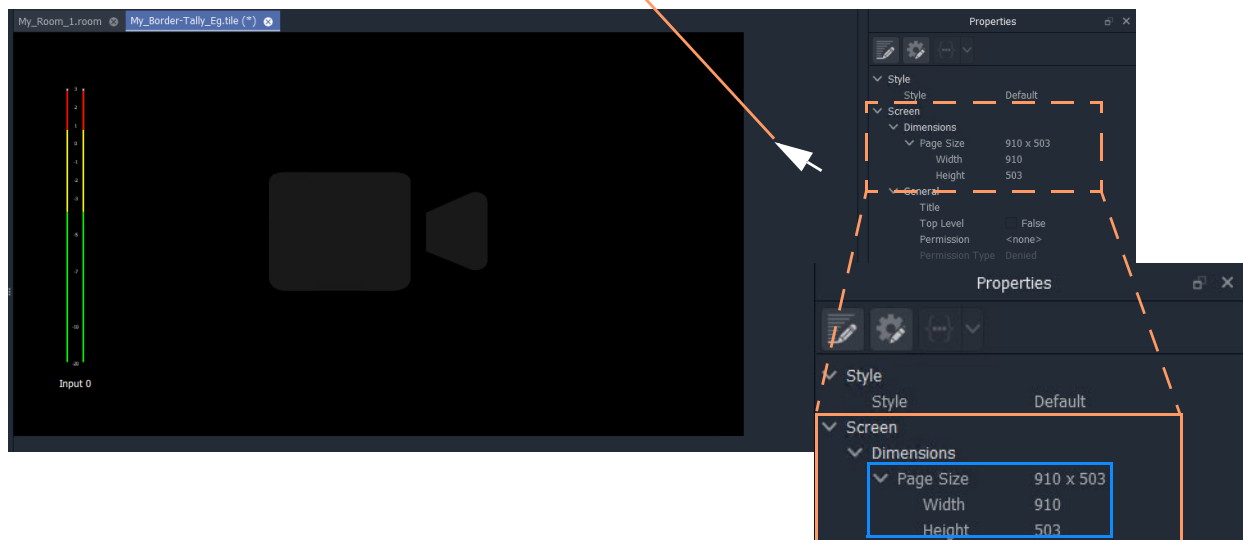


Fig. 9-23: Tile Size in Properties

In the example in Figure 9-23, the **Custom Tile**'s dimensions are:

- width = 910 pixels
- height = 503 pixels.

Add a Border Tally

A border Tally may be added to the **Custom Tile** by:

- slightly resizing the Video widget and centering it on the Tile;
- adding a Rectangle shape widget;
- setting the shape to be the same size as the Tile itself;
- placing the shape behind the Video widget; and
- configuring the TSL settings for the Rectangle shape (i.e. which TSL data packets will drive the shape fill color).

Procedure Example

For this example, to add a 15 pixel wide TSL Tally border:

Resize and re-position Video widget:

- 1 Select the Video widget.
- 2 Change the Properties:
 - 'Dimensions > Position > X' = 15.
 - 'Dimensions > Position > Y' = 15.
 - 'Dimensions > Size > Width' = 880. (880 = 910 - 2x15)
 - 'Dimensions > Size > Height' = 473. (473 = 503 - 2x15)

This reduces the widget size and centers the widget on the Tile, adding a 15 pixel

margin around the sides.

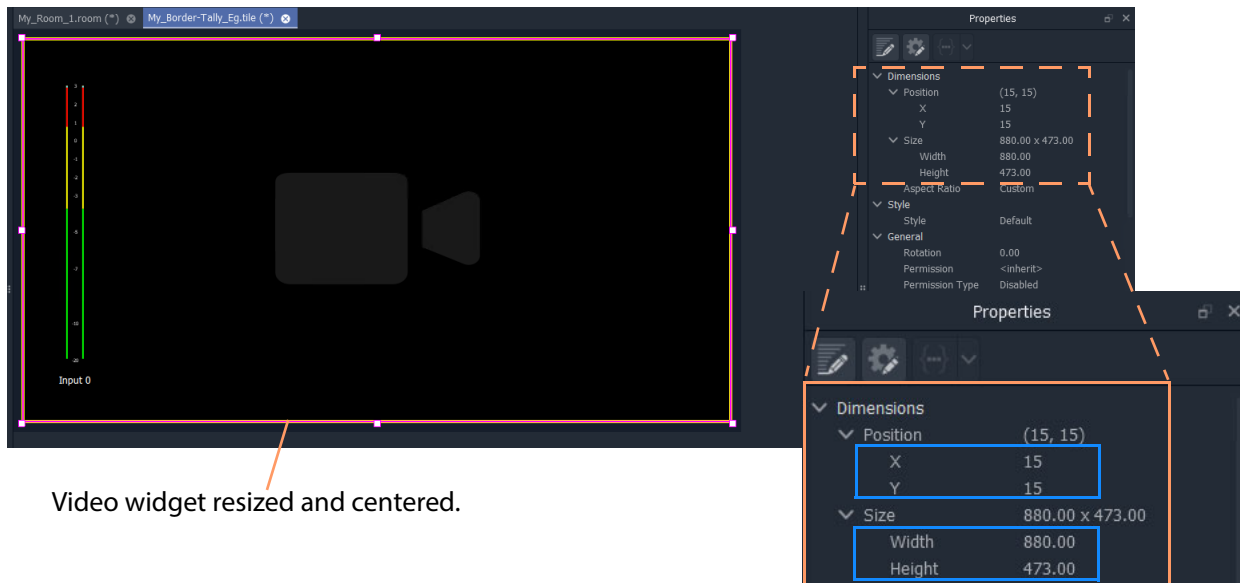


Fig. 9-24: Video Widget Size/Position Properties

Add border shape:

- 3 Click on the **Rectangle** shape icon in the Widget Palette.

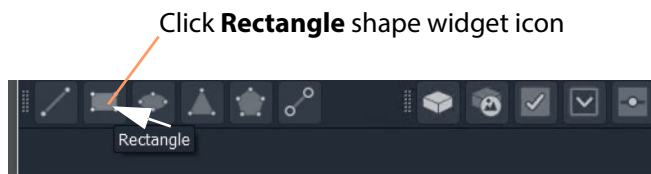


Fig. 9-25: Rectangle Shape Widget Icon in Widget Palette

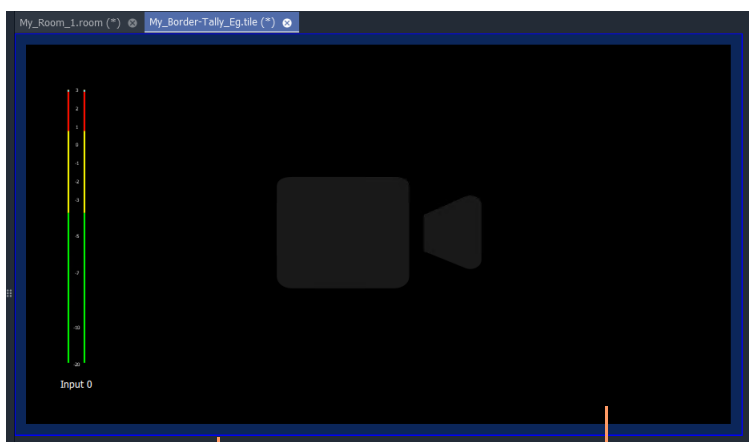
- 4 Add a **Rectangle** shape widget to the tile.
- 5 Select the shape and change its position/size properties:
 - 'Dimensions > Position > X' = 0.
 - 'Dimensions > Position > Y' = 0.
 - 'Dimensions > Size > Width' = 910. (910 is the Tile width.)
 - 'Dimensions > Size > Height' = 503. (503 is the Tile height.)
 - 'Extended Style > Border > Border Thickness' = 0.
- 6 Right-click on the **Rectangle** shape widget and select 'Tally Configuration'.
- 7 Set up the widget's Tally settings (i.e. to control the shape's Fill color).
- 8 With the shape still selected, click the **Move to Back** icon in the main tool bar.

Click **Move to Back** icon



Fig. 9-26: Move Selected Object to Back

The **Rectangle** shape moves to be behind the Video widget.



Rectangle shape widget is behind the Video widget

Fig. 9-27: Video Widget Size/Position Properties

9 Click **Save File**.

Add more Tally widgets:

If required, further tally-indicating widgets may be added:

- 10 Add two **Tally Lamps**.
- 11 Right-click on each widget and set up the widget Tally settings.
- 12 Add a **Label** widget.
- 13 Right-click on the widget and set up the widget settings (to control the Label text's font color).
- 14 Click **Save File**.

The **Custom Tile** has been prepared.

Deploy Tile

The tile may already be present on the video wall in the **Room Design**. In this case, the new **Custom Tile** will be seen in the **Room Editor**. Otherwise, the tile may be added to the **Room's** video wall in the **Room Editor** in its **Design Layout** mode. (See Chapter 8, [Step 3a: Design Layout - Assign Tile Grid Layouts to a Video Wall](#), on page 378.)



Fig. 9-28: Deployed Custom Tile Example

10

Audio Bars Configuration

Audio Bars Configuration

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Introduction

Audio meters are implemented on video wall tiles with graphical **Audio Bars** widgets, which require configuring for the audio channels they will monitor.

Widgets are configured from the **Tile Editor** by selecting them and editing their properties in the **Properties** box. For an **Audio Bars** widget on a **Custom Tile**, its audio channel configuration may be set up quickly via a pop-up menu.

Note: Typically for a video wall, a few particular 'template' video tile designs are used throughout. In GV Orbit Client the user can design custom video tiles for use on video walls (**Custom Tiles**).

Audio Bars Widget Configuration

The **Audio Bars** widget may be set up by selecting the widget in the **Tile Editor** and modifying properties in the **Properties** box. See Figure 10-2.

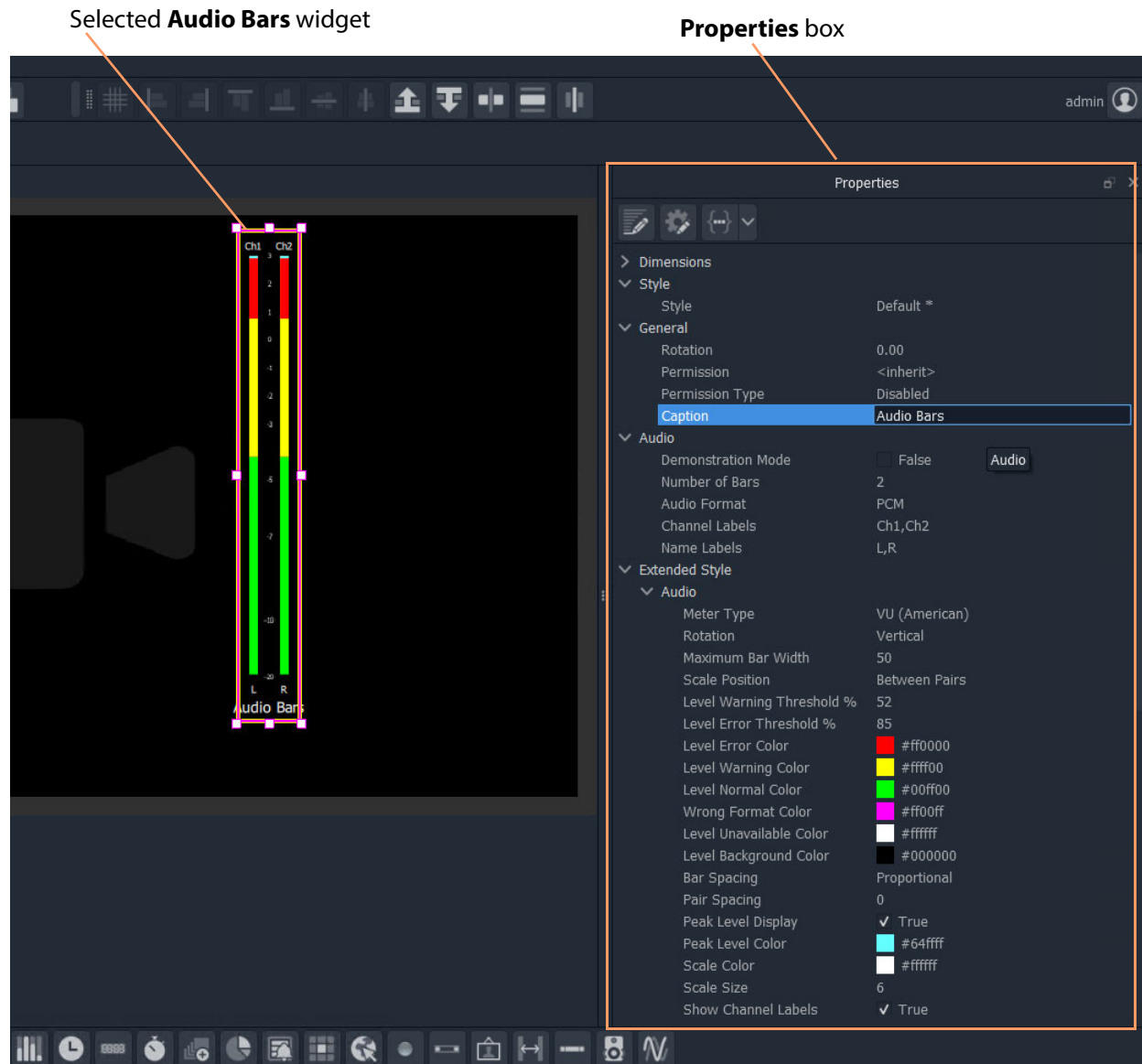


Fig. 10-1: Audio Bars Widget Properties

The setting up of which audio channels are being monitored by the widget is done in a pop-up menu, see [Audio Bars Widget Audio Channels](#).

Audio Bars Widget Audio Channels

An **Audio Bars** widget shows one or more bars of audio data from specified audio channels. This 'bars' configuration is set up in a dialog which is accessible from a right-click in the **Tile Editor**.

Open Audio Configuration Dialog

Note: **Audio Configuration** and **MV-8 Multiviewer Software Version:**
The **Audio Configuration** dialog feature will be supported in MV-8 multiviewer software version v4 onwards.

For an **Audio Bars** widget on a **Custom Tile** its audio bars configuration can be quickly set up:

- 1 Select the **Audio Bars** widget in the **Tile Editor**.
- 2 Right-click on the widget and select 'Audio Configuration' in the pop-up menu. (See Figure 10-2.)

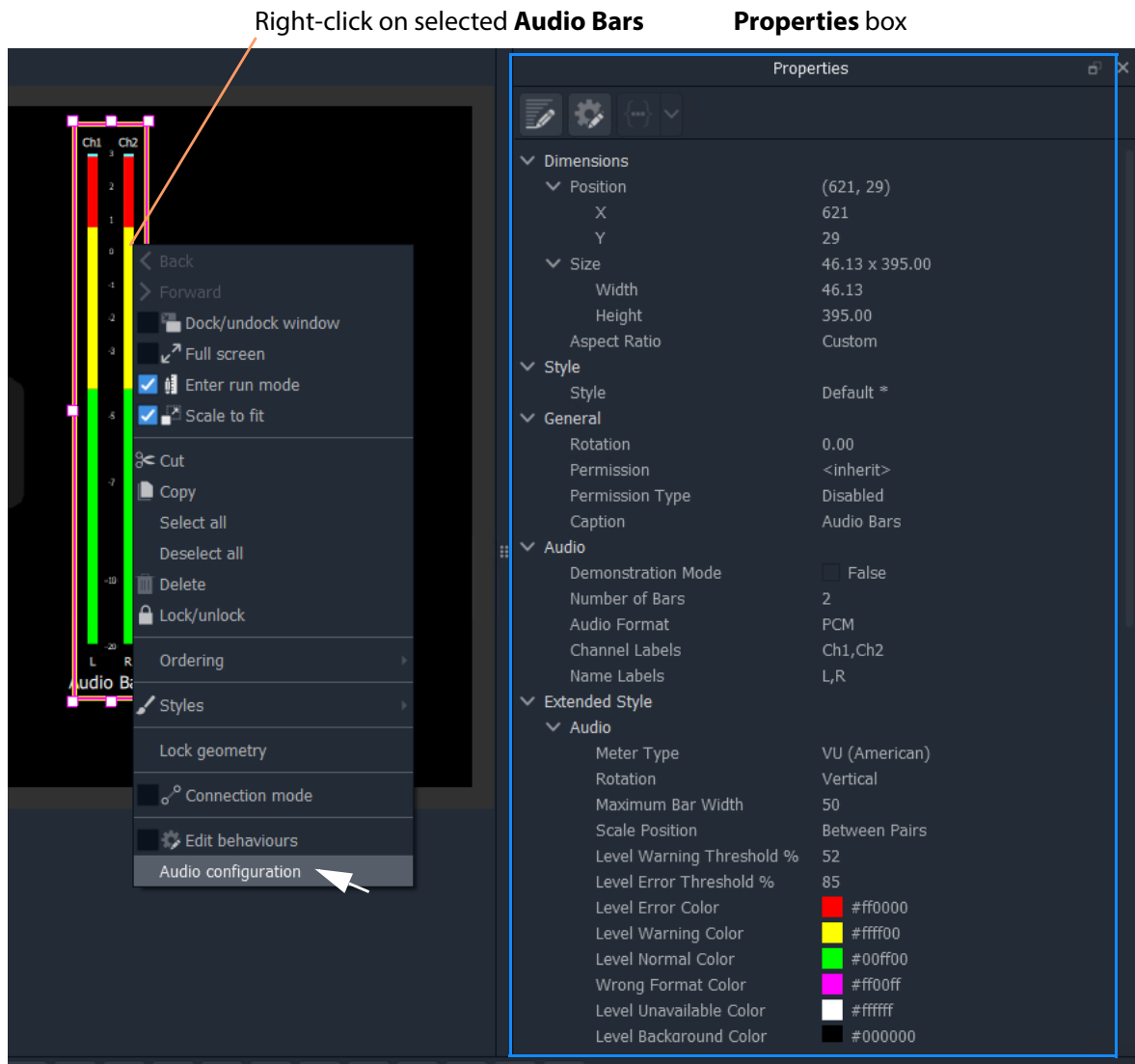


Fig. 10-2: Right-Click on Audio Bars Widget

The **Audio Configuration** dialog is shown.

The dialog is described in [Audio Configuration Dialog - PCM Audio Bars Configuration](#), on page 453.

- 3 To set up the audio bars configuration, see instructions in:
 - [Audio Configuration Dialog - PCM Audio Bars Configuration](#), on page 453; or in
 - [Audio Configuration Dialog - DolbyE Audio Bars Configuration](#), on page 455.
- 4 When the audio bar configuration is done, click **Apply**.

The **Audio Bars** widget on the **Custom Tile** now shows the number of audio bars set up.

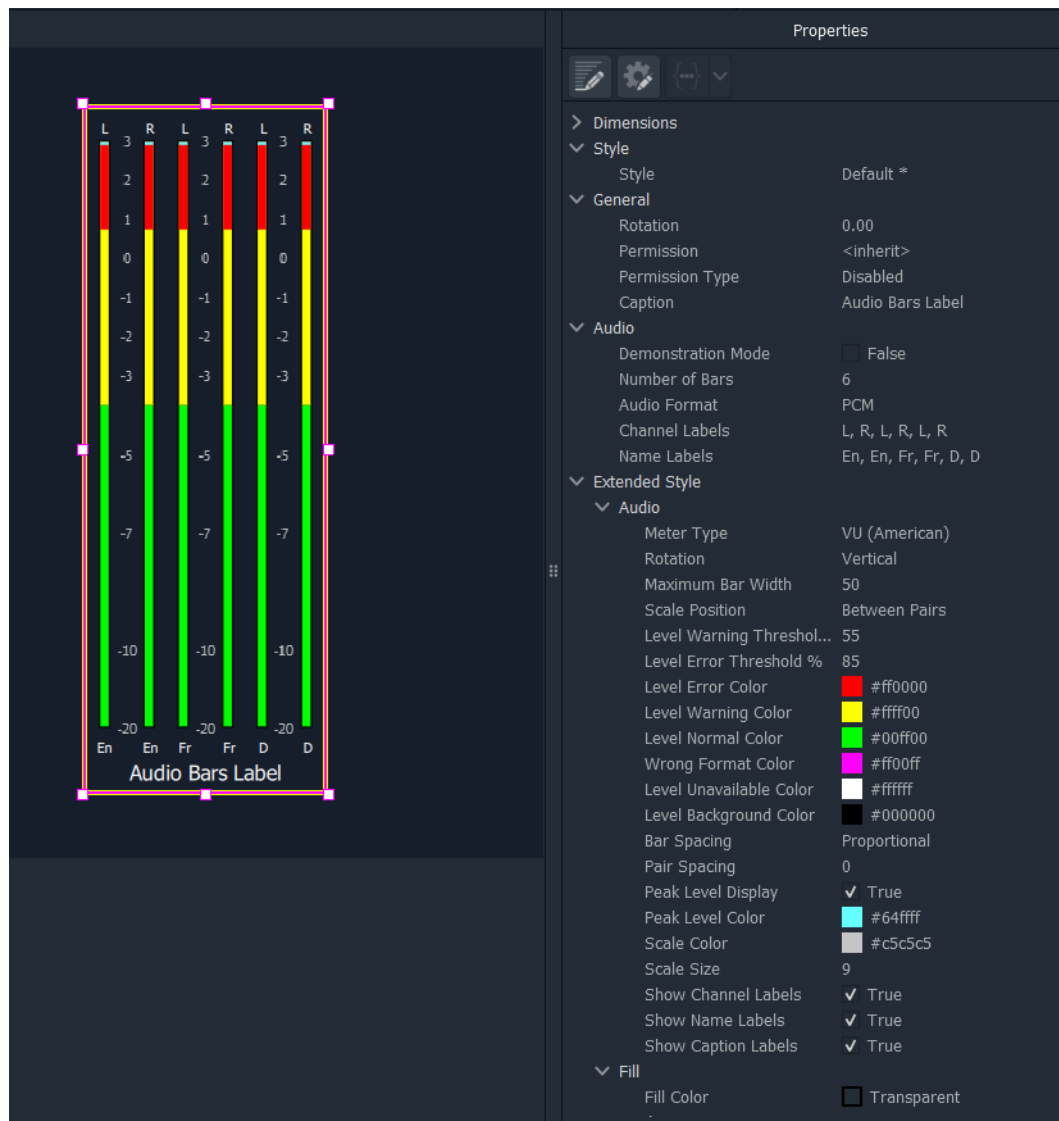


Fig. 10-3: Example 6-Bar Audio Bars Widget

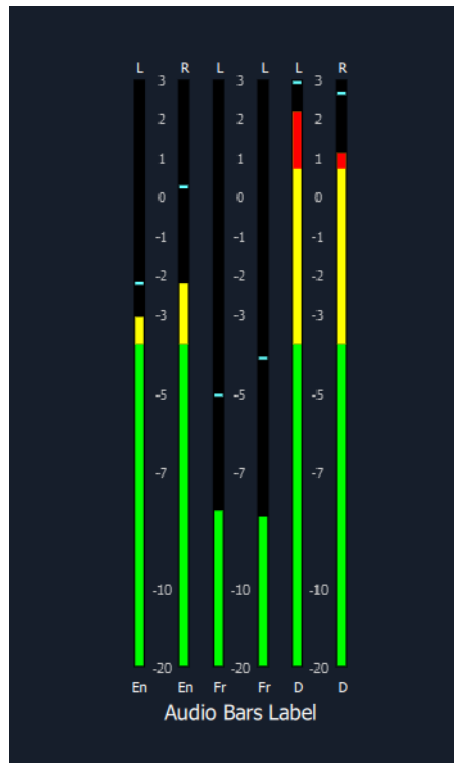


Fig. 10-4: Example Audio Monitoring with Audio Bars Widget

CAUTION Ballistics and MV-8 Series Multiviewer Devices:

For MV-8 Series multiviewers, each multiviewer device has a *global* audio data ballistics setting. *All* audio metering data generated by the device uses this one global ballistics setting. A device's global ballistics setting is found:

- For a *non-clustered* multiviewer -
See the GV Orbit Client main menu 'Multiviewer > Input Audio > Meter' item 'Meter Type' setting.
- For a *clustered* multiviewer -
See the device's control screen (RollCall template).

Audio Configuration Dialog - PCM Audio Bars Configuration

The dialog has a 'PCM' or a 'DolbyE' mode (see Figure 10-5 and Figure 10-6 respectively) and permits the configuration of up to 8 audio bars in the **Audio Bars** widget.

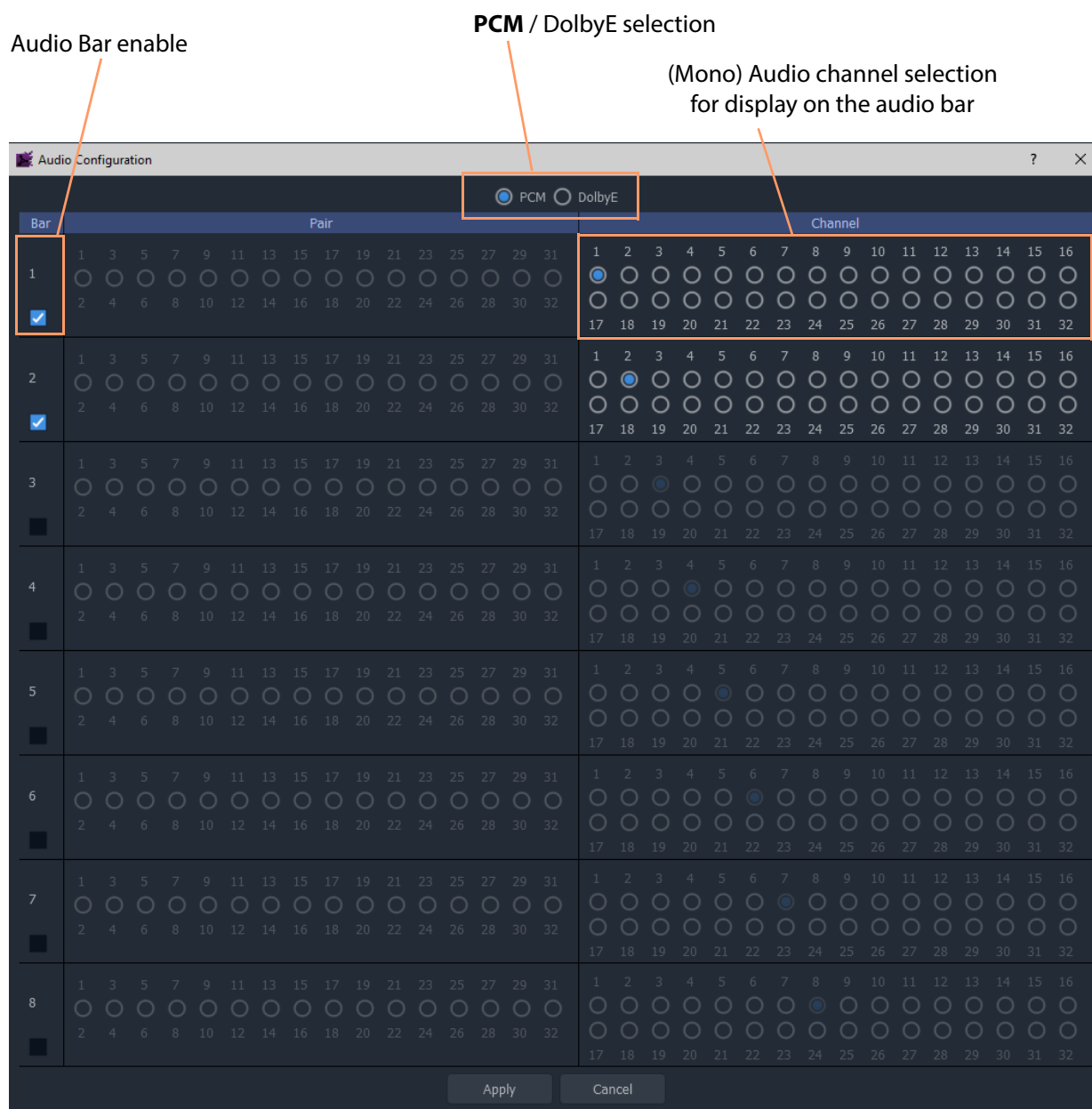


Fig. 10-5: Audio Bars Configuration Dialog PCM Selected)

Bar Configuration

To configure audio bars for monitoring PCM audio channels:

- 1 Select **PCM** in the **Audio Configuration** dialog.

- 2 Enable the number of audio bars required.

Note: These must be contiguous in the dialog, starting with 'Bar 1'.

Tip: For example, to enable six bars:

- Simply enable 'Bar 6'.

Bars 1 to 5 are enabled automatically.

Note: As bars are enabled, the (mono) audio channel selection increments automatically.

For each enabled bar:

- 3 Select a mono audio channel (if the automatically selected channel is not what is required). There are 32 mono audio channels to choose from.
- 4 Repeat the above for each enabled bar.
- 5 Click **Apply**.

The **Audio Bars** widget shows the new number of audio bars in the **Tile Editor**.

Audio Configuration Dialog - DolbyE Audio Bars Configuration

The dialog has a 'PCM' or a 'DolbyE' mode (see Figure 10-5 and Figure 10-6 respectively) and permits the configuration of up to 8 audio bars in the **Audio Bars** widget.

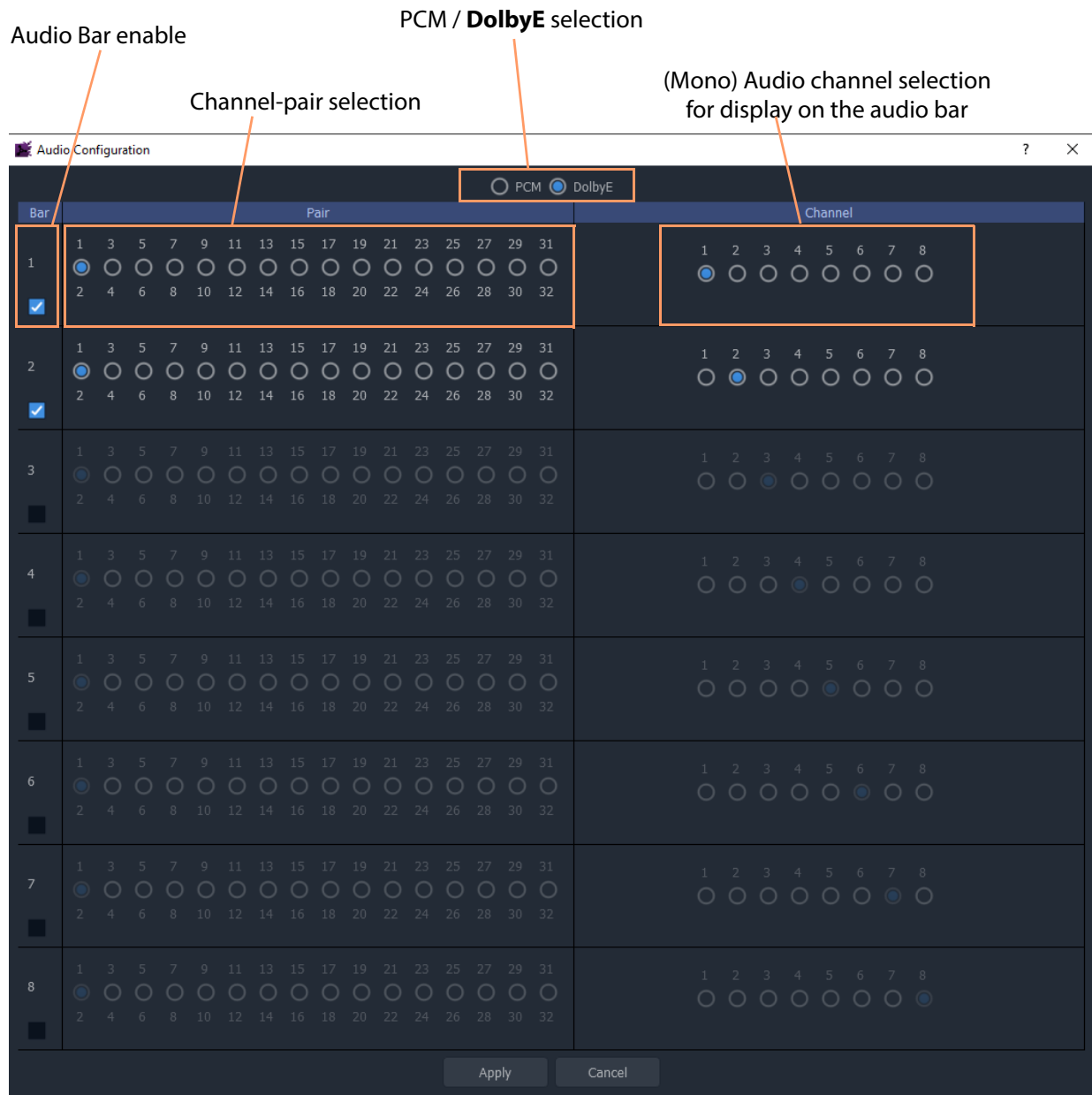


Fig. 10-6: Audio Bars Configuration Dialog (DolbyE Selected)

Bar Configuration

To configure audio bars for monitoring DolbyE audio channels:

- 1 Select **DolbyE** in the **Audio Configuration** dialog.

- 2 Enable the number of audio bars required.

Note: These must be contiguous in the dialog, starting with 'Bar 1'.

Tip: For example, to enable six bars:

- Simply enable 'Bar 6'.

Bars 1 to 5 are enabled automatically.

Note: As bars are enabled, the (mono) audio channel selection increments automatically.

For each enabled bar:

- 3 Select a channel-pair to use (if the automatically selected channel-pair is not what is required). There are 16 channel-pairs to choose from.
- 4 Select a mono audio channel (if the automatically selected channel is not what is required). There are 8 audio channels to choose from (decoded from the DolbyE data in the selected channel-pair).
- 5 Repeat the above for each enabled bar.
- 6 Click **Apply**.

The **Audio Bars** widget shows the new number of audio bars in the **Tile Editor**.

Routing Behaviours/Bindings Appendix



GV Orbit C&M projects contain C&M project screens and XY Panel screens (see Chapter 6, [Routing Control - XY Routing Panel](#), on page 265) which use on-screen widgets and 'behind-the-scenes' GV Orbit Behaviours and Bindings.

Routing type Behaviours and Bindings may be used with on-screen Button widgets etc. on XY Panel screens or soft control panels to synthesize a custom router control panel.

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

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

Routing Behaviours

Table A-1: Routing Behaviours

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

Table A-1: Routing Behaviours (continued)

Behaviour	Parameters	Description
	Name, (RollCall) Address, +...	When triggered on an GV Orbit C&M project XY panel screen...
Filter	Sources	Applies a filter to the router Sources or Destinations.
Load Panel	Target	Opens the GV Orbit Client Routing Panel in the client window or on a monitor display.
Page	Page Sources, Page Offset	Switches between router panel pages
Page Index	Page Sources, 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	Mode	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	Executes a salvo.
Source Button	Index, Source, Mode	Selects a Source.
Source Level Button	Index	Enables a button to act like a Source Level selection button.
Take	Mode	Router 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.)

Routing Bindings

Table A-2: Routing Bindings

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

abc

Glossary

3G Proxy	An ST-2110 video IP stream representing another video signal in a production system. The proxy has the same video and audio content as the signal it represents. The proxy's video standard is '3G'.
Alarm	An indication that a component or device or module or unit within a facility is not operating at normal established parameters.
Alarm Acknowledgment	An on-line, live action to notify other users that new alarms were raised in a facility. This is usually manually done by a user and is usually followed by actions to resolve cause of the alarms in question. Alarms in the system will flash when raised, or be in some alert state, until they are acknowledged.
Client	Computer software that accesses services made available by a server. The server itself resides on a different piece of computer hardware. The client can be downloaded from the server on a local computer.
Client Domain	A GVOP Domain used by the GV Orbit Client to interact with devices and services in a GV Orbit system.
Cluster	Multiple devices grouped or merged together to increase the capacity of inputs, outputs, or processing power.
Clustered Multiviewer Project, Clustered MV Project	A GV Orbit project type which defines one or more video walls served by a cluster of multiviewer devices.
Domain	A group of devices on a network that are administered as a unit with common rules and procedures.
Fabric	A combination of hardware and software that forms a network.
Fabric A & Fabric B	Two identical network systems that form an IP media network with a redundant network topology.
GV Orbit Client	Graphical client user application in a GV Orbit configuration, control and monitoring system. A user can run various projects in a client and can configure devices, control routing, and monitor systems. Graphical soft control and monitoring user panels can be designed and run. Graphical video walls can be designed for multiviewers.
GV Orchestration Protocol, GVOP	The main messaging protocol used in GV Orbit configuration, control and monitoring systems.
GVOP Domain	A GV Orbit system employs GVOP Domains to segregate internal communications. The various GV Orbit services, system devices, and GV Orbit Client applications all communicate with one another; communications may be segregated by using GVOP Domains.

GVOP Domain ID	A GV Orbit system employs GVOP Domains specified with a Domain ID number (1 to 252).
Head, Head Display Output, Multiviewer Output	A multiviewer output to be shown on a monitor display. The MV-821-IP multiviewer has up to 12 Head Display Outputs and offers these as signals on rear physical connectors and as full ST-2110 video IP streams.
Home Page	First page (also known as 'current home' or 'default home') that is displayed by default when a site is opened, or by clicking a dedicated home button, in a site or panel. This page is usually set by the user at configuration time.
Log Server Domain	A GV Orbit Domain used by the Log Server Service to collect RollCall-protocol device logging data.
Log Server Service	A GV Orbit service which collects and collates logging information from RollCall-protocol devices for the GV Orbit system. The service typically provides logging data to the GV Orbit Monitoring Service.
MapView	A control and monitoring GV Orbit project (C&M project) that contains custom screens to enable the user to control and monitor a system.
Media IP Network	A high-capacity network dedicated to carrying high bit rate media.
Monitor Layout	The grid of tiles on a monitor of a video wall and the tiles populated on the grid. This refers to video walls designed with the Room Editor tool in GV Orbit Client. 'Monitor Layout' is analogous to 'Wall Layout' for video walls designed with the Wall Editor tool.
Monitor Wall, Video Wall	One or more monitor display screens arranged and configured to form one larger screen area.
Multiviewer	A device that consolidates multiple video sources onto one or more head display outputs for ultimate display on monitor screens.
Multiviewer Input	A video source routed into a multiviewer.
Multiviewer Output	A multiviewer head display output. See 'Head'.
Multiviewer Cluster, MV Cluster	A cluster of multiviewer devices configured together and all acting together to serve one or more video walls. A cluster contains one or more MV-8 Series multiviewer devices.
MV Cluster Manager Service	A GV Orbit service which enables a user to configure a cluster of MV-8 series multiviewers as a single multiviewing system, rather than as separate, individual multiviewer devices.
MV-8 Series Multiviewer	A Grass Valley multiviewer series which includes router-integrated devices (for example, MV-831) and stand-alone devices (for example, MV-821-IP IP multiviewer). All MV-8 Series multiviewers share the same core multiviewer functionality.
Network Map	A tree view representation of system devices and services.
Network View	A window that displays a network map. Various device operations can be carried out from this view, such as opening device configuration screens and device alarm history views.

NP0017	An established Grass Valley dedicated router control protocol.
PiP	'Picture-in-Picture' and another word for a multiviewer video wall Tile.
Overall Alarm	A type of virtual alarm that indicates the overall condition of a device or service. It is based on the combined state of constituent alarms and is often generated automatically by a monitoring system.
Relay Service	A GV Orbit service which passes selected GVOP data between two GVOP Domains. For example, to an MV-821 multiviewer Domain.
Room	A video wall comprising one or more monitors - for example, in a production room of a broadcast facility or OB truck. A Room is served by a cluster of multiviewers. A 'Room' is designed in the 'Room Editor' tool.
Room file, .room file	A data file used by a GV Orbit Clustered MV project and which contains the definition of a Room video wall. This is not editable by the user outside of GV Orbit Client. The Room file is usually referred to as the Room.
Room Design	A design for a Room, a video wall, including monitor arrangement, tile layouts, source and destination assignments. A 'Room Design' is stored in a 'Room File' in a 'Clustered MV' project.
Room Editor	An editing facility in GV Orbit Client enabling a video wall to be designed and edited in a GV Orbit Clustered MV project.
Room Layout	The grid of tiles on an entire video wall and the tiles populated on the grid. This refers to video walls designed with the Room Editor tool in GV orbit Client.
Routing Domain	A GVOP Domain used by the 'Routing Service' for routing control messages in a GV Orbit system.
Routing Service	A GV Orbit service which provides a translation between dedicated routing protocols and the GV Orbit router controller for GV Orbit clients and other services. The service enables the state of all routes and routing levels to be saved as a snapshot. The service allows routes to be made from the GV Orbit Client and source and destination names to be known by GV Orbit Client.
Scaler	An image re-sizing 'engine'. Several are found within a multiviewer. For example, the MV-8 Series of multiviewers contains 48 'Scalers', one per multiviewer input.
Spigot	A logical connector on an IP media network. A spigot which sources (originates, transmits) an IP stream is a source spigot. One which receives an IP stream is a destination spigot.
Stream	A flow of data, video, audio or metadata which arrives at or leaves a device through one of its ports.
Tally	A 'Tally' refers to a state of a production system. For example: "On Air", "Iso", or "Preview".
Tally Routing	The identity or label of the actual source that is routed to a destination (routed source).
Tile, PiP	(Multiviewer video wall context: A rectangular area on a video wall screen, usually displaying video inputs

and other supporting information.

For example, a tile (or PiP) may display a video picture with audio bars and other related label and status information, including Tally information.

Other information may be displayed in tiles. For example: time; images; or text.

Tile Grid

The arrangement of tiles on a monitor of a video wall. A tile grid specifies the position of tiles. A tile grid is then populated with tiles of the required type/ configuration. The default is a video tile.

Topology

The logical or physical arrangement of the various devices within a broadcast facility.

**Video Wall,
Monitor Wall**

One or more monitor display screens arranged and configured to form one larger screen area.

Wall,

A 'Wall' is the name given to a monitor wall that has been designed in the Wall Editor tool of GV Orbit Client (or Orbit Client). '

Wall Editor

An editing facility in GV Orbit Client (and in Orbit Client) enabling a video wall to be designed and edited in a GV Orbit multiviewer project. The video wall is served by a single multiviewer.

Wall Layout

The grid of tiles on a monitor of a video wall and the tiles populated on the grid. Typically, this refers to video walls designed with the Wall Editor tool.

Widget

A graphical element that displays information or let a user interact with various tasks of a control system.



Grass Valley Technical Support

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

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

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