DashBoard

Facility Control System

User Guide

Version 10

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David Ross
CEO, Ross Video
dross@rossvideo.com

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9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

DashBoard User Guide

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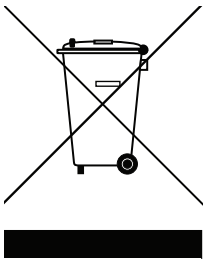
The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

Company Address

Ross Video Limited
8 John Street
Iroquois, Ontario
Canada, K0E 1K0

Ross Video Incorporated
P.O. Box 880
Ogdensburg, New York
USA 13669-0880

General Business Office: (+1) 613 • 652 • 4886
Fax: (+1) 613 • 652 • 4425

Technical Support: (+1) 613 • 652 • 4886
After Hours Emergency: (+1) 613 • 349 • 0006

E-mail (Technical Support): techsupport@rossvideo.com
E-mail (General Information): solutions@rossvideo.com
Website: http://www.rossvideo.com

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Introduction

This chapter contains the following sections:

- Overview
- Documentation Terms
- Documentation Conventions
- Getting Help

Overview

This guide provides an overview of installing, setting up, and using the DashBoard client. The DashBoard Control System is built on Ethernet and TCP/IP technology, which allows remote access across LAN architectures. DashBoard offers the ability to view multiple frames with full control and alarming of all populated slots inside an openGear frame. This simplifies the setup of numerous devices in a large installation and offers the ability to centralize monitoring. The devices define their controllable parameters and layout to DashBoard, so the control interface is always up-to-date.

Alarms raised by devices in the frame are reported at the uppermost level, making it quick and easy to identify potential failures or problems.

Monitoring

A network of DashBoard Connect compatible devices can be monitored, allowing users to quickly isolate and correct potential problems from a central monitoring station.

Control

DashBoard offers real-time control of DashBoard Connect compatible devices. Parameter items and menus vary depending on device functionality.

Workflow Automation

DashBoard's PanelBuilder™ enables you to create customized user interfaces to control a wide range of Ross Video products and third-party systems. PanelBuilder includes a rich set of drag-and-drop tools to make creation of CustomPanel interfaces easy. CustomPanels can be tailored to suit the exact requirements and preferences of each operator. You can further enhance your CustomPanels using Ross Video ogScript functions, to create user interfaces that perfectly match your desired workflow.

DataSafe™

DataSafe enables you to back up and restore device parameters to and from a single file, and to copy parameters from one device to a another device or even a group of devices via DashBoard. This feature allows you to hot-swap devices while retaining configurations, and DashBoard is not required to have the parameters on the new device updated. You can update a subset of devices instead of the entire connected view or to replace a device and have the previous device settings automatically loaded onto the new device. When using openGear cards, this feature is available for frames using the Network Controller Cards series only.

Software Upgrades

You can upgrade the software and firmware on devices, such as openGear cards, in the field using DashBoard. The upgrade utility verifies firmware and software upgrades against device hardware and prevents accidental loading of incorrect files to the wrong hardware. DashBoard is designed to allow for future feature plug-ins and upgrades to allow users the ability to customize control and monitoring needs.

Role-Based Access Control via the Ross Platform Manager

For information on using the DashBoard Role-Based Access Control features with the Ross Platform Manager, refer to the ***DashBoard Role-Based Access Control Guide***.

Features

The following features make DashBoard a unique system for your openGear requirements:

- Automatic discovery of openGear and DashBoard Connect devices
- Access multiple openGear frames on a single control network
- Access multiple DashBoard applications on a single control network
- Ability to have multiple control windows active and available on one screen
- Store and upload configurations to multiple devices (using DataSafe)
- Ability to perform batch software upgrades to allow multiple cards, of the same model, to be upgraded at one time from any DashBoard terminal on the network
- Customize views with the Advanced Tree View feature
- Ability to create customized monitoring and control interfaces using DashBoard PanelBuilder
- Extensible plug-in architecture
- DashBoard software and documentation are available for download from the Ross Video website
- Java™ based for installation in Microsoft® Windows®, Mac® OS, and Linux® Fedora®
- Software and firmware upgrades via Ethernet

Documentation Terms

- All references to the **DFR-8300 series frame** also includes all version of the 10-slot and 20-slot frames and any available options.
- "**Card**" refers to openGear terminal devices within openGear frames, including all components and switches.
- "**DashBoard window**" refers to the main DashBoard client interface.
- "**Device**" refers to a product that can be monitored and controlled using DashBoard. Devices include NK routers, BlackStorm servers, openGear cards, and DashBoard Connect devices.
- "**Frame**" refers to any openGear frame within your video system.
- "**Network Controller Card**" refers to the MFC-8310-N series and MFC-8320-N series cards unless otherwise noted.
- "**System**" refers to the mix of interconnected production and terminal equipment in your environment.
- "**Tree View**" refers to the Basic Tree View and Advanced Tree View unless otherwise noted.
- "**User**" refers to the person who uses the DashBoard client.

Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

Interface Elements

Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example:

In the **Media Manager Client**, click **Channel 1** the **Channels** section.

User Entered Text

Courier text is used to identify text that a user must enter. For example:

In the **File Name** box, enter `Channel01.property`.

Referenced Guides

Italic text is used to identify the titles of referenced guides, manuals, or documents. For example:

DashBoard Role-Based Access Control Guide User's Guide

Menu Sequences

Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads "**Server** > **Save As**," you would click the **Server** menu and then click **Save As**.

Interface Navigation

Navigation procedures assume that you are running Microsoft® Windows®. If you are running Mac® OS or Linux® Fedora®, menu names and options may differ.

Important Instructions

Star icons are used to identify important instructions or features. For example:

✶ Contact your I.T. Department if you experience communication issues with DashBoard and are running anti-virus software.

Getting Help

To access the built-in Help system, click **Help** in the main toolbar.

Alternatively a user can press **F1** to open **Dynamic Help**. The user can then click on areas of the window to display corresponding help information.

The DashBoard User Guide is also supplied as a print-ready PDF file on the Ross Video website.

Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

- **Technical Support:** (+1) 613-652-4886
- **After Hours Emergency:** (+1) 613-349-0006
- **E-mail:** techsupport@rossvideo.com
- **Website:** http://www.rossvideo.com

Installing DashBoard

This chapter provides instructions for installing the DashBoard Control System client software. For information on installing the DashBoard URM and Server, refer to the ***DashBoard Server and User Rights Management User Manual***.

The following topics are discussed:

- Before You Begin
- Installing and Removing the DashBoard Control System Client
- Getting Started
- Viewing Installation Details

Before You Begin

Before installing any software for your DashBoard client, ensure that you exit all other programs currently running.

IMPORTANT: If you experience communication issues with DashBoard and are running anti-virus software, consult your I.T. Department. You may need to verify that there are exceptions in your firewall to allow DashBoard access to the following ports:

- **Port 5253** — Allows DashBoard to receive TCP data.
- **Port 5254** — Allows communication with OGP-JSON-based devices.

System Requirements

Refer to the following sections for information on the system requirements for DashBoard.

Microsoft® Windows® 11 or Windows Server Systems (64-Bit)

The following are the minimum requirements when installing DashBoard on a Microsoft® Windows® system:

- 64-bit configurations
- Intel® Pentium 4, 1.6GHz (Intel® Core™ 2 Duo recommended)
- Minimum 2GB RAM (4GB or more recommended)
- 2GB available in HDD space
- Microsoft® Webview2 runtime

Note: The Windows 64-bit version of DashBoard includes an additional feature that allows you to increase memory allocation to DashBoard. To use this feature, the Windows device running DashBoard must feature a 64-bit processor and a minimum of 4GB of RAM.

For more details, see "**Memory Allocation Preferences**" on page 4–22.

Note: If you are running DashBoard on a Microsoft® Surface Pro®, you must use a physical keyboard or enable the standard keyboard layout. For more information, see "**Installing on a Computer Running Microsoft® Windows®**" on page 2–3.

Apple Mac® OS X 10.8.3 (or higher) Systems (64-Bit)

The following are the minimum requirements when installing DashBoard on a Mac® OS system:

- 64-bit configuration only
- Intel® processor
- Minimum 2GB RAM (4GB or more recommended)
- 300MB available HD space
- Mac® Safari®

Note: The Mac OS 64-bit version of DashBoard include an additional feature that allows you to increase memory allocation to DashBoard. To use this feature, the Mac device running DashBoard must feature a 64-bit processor and a minimum of 4GB of RAM.

For more details, see "**Memory Allocation Preferences**" on page 4–22.

Linux® Fedora® 25 (or higher) Systems (64-Bit)

The following are the minimum requirements when installing DashBoard on a Linux® system:

- 64-bit configurations
- Intel® Pentium 4, 1.6GHz (Intel® Core™ 2 Duo recommended)
- Minimum 2GB RAM (4GB or more recommended)
- 300MB available in HD space
- Mozilla 1.4 GTK2 - 1.7.x GTK2, XULRunner 1.8.x - 1.9.x, 3.6.x and 10.x (but not 2.x nor 4.x - 9.x), WebKitGTK+ 1.2.x and newer
- Version 2.2.1 GTK+ widget toolkit and associated libraries (GLib, Pango) are required

Note: The Linux 64-bit version of DashBoard include an additional feature that allows you to increase memory allocation to DashBoard. To use this feature, the Linux device running DashBoard must feature a 64-bit processor and a minimum of 4GB of RAM.

For more details, see "**Memory Allocation Preferences**" on page 4–22.

Note: If you require DashBoard on a 32-bit system, please contact tech support.

Installing and Removing the DashBoard Control System Client

This section includes instructions on installing the DashBoard client to your computer. The DashBoard software and user guide are available from the Ross Video website at www.rossvideo.com/support/product-documentation/dashboard.

Creating a Backup of the Settings and Licensed Features

Regular backups of your DashBoard settings is recommended, or if you want to create a backup of your DashBoard settings and license files, before installing a new version of DashBoard.

- **Microsoft® Windows®** — DashBoard automatically uninstalls a previously installed version, but not your settings.
  - › To create a back up of your settings for Microsoft® XP® and earlier, navigate to the metadata folder. Depending on your operating system version, this folder may be located at **c:\Program Files\DashBoard\workspace**. Copy the workspace folder contents to a new location.

› If you are running Microsoft® Vista® or higher, the metadata folder is at: **c:\DashBoard\workspace**. Copy the folder to a new location.

- **Apple® Mac® OS®** — DashBoard saves application information to the following location on your computer: **/Library/Application Support/openGear/DashBoard**. To create a backup of your settings, copy the **workspace** folder to a different location on your system.
- **Linux® Fedora®** — DashBoard creates a **workspace** directory inside of the current DashBoard directory when the application is launched. To create a backup copy of your settings, copy the workspace directory to a different location on your system.

Installing on a Computer Running Microsoft® Windows®

The Install Wizard automatically uninstalls any previous software versions before proceeding. The DashBoard main folder is located at **c:\DashBoard**.

To install DashBoard on a computer running Microsoft® Windows®:

1. Access the DashBoard software using one of the following methods:
   - Download the current version of DashBoard software for Windows from the Ross Video website at www.rossvideo.com/support/software-downloads/dashboard.
   - Load the DashBoard software DVD into the DVD/CD ROM tray of your computer.
2. If you are accessing the software from a DVD, the **Installation Wizard** automatically runs. If the Wizard does not automatically run, you can also install the DashBoard software, navigate to your DVD/CD ROM drive in the **Navigation Pane**, so that the DVD contents are displayed in the **Main Window** of Windows Explorer.
3. Launch **DBx.x.x-Win-setup.exe** to begin installing the DashBoard program onto your computer.
4. Follow the prompts to complete the installation of DashBoard onto your computer.
5. If you are running DashBoard on a Microsoft® Surface Pro®, you must use a physical keyboard or enable the standard keyboard layout.

   This is because the default virtual keyboards do not contain function keys necessary to use DashBoard's keyboard shortcuts.

   To enable the standard keyboard layout:

   a. In **PC settings**, tap **General**.

   b. Under **Touch keyboard** options, turn on the **Make the standard keyboard layout available** option.

Note: If you are using Windows with a secondary monitor, objects displayed on the secondary monitor may be scaled by default and may look strange alongside the primary monitor. You can set custom DPI scaling in **Control Panel > Display > Change size of items > set a custom scaling level**. If you require additional assistance configuring Windows settings, contact the IT department of your organization.

Installing on a Computer Running Apple® Mac® OS® X

If you have a previous version of DashBoard installed, it is recommended that you remove the DashBoard directory from the **Applications** folder before proceeding.

To install DashBoard on a computer running Apple® Mac® OS® X:

1. Access the DashBoard software using one of the following methods:
   - Download the current version of DashBoard software for OS X from the Ross Video website at www.rossvideo.com/support/software-downloads/dashboard.
   - Load the DashBoard software DVD into the DVD/CD ROM tray of your computer and navigate to the DashBoard *.pkg file for Apple OS X.
2. Navigate to the *.pkg file specified in step 1.
3. Right-click the *.pkg file and click **Open**.

4. Follow the prompts to complete the installation of DashBoard onto your computer.

Installing on a Computer Running Linux® Fedora®

If you have a previous version of DashBoard installed and want to keep your settings, remove all folders, except the workspace directory, from the DashBoard directory. Note that the uninstall function of DashBoard may delete the directory that also contains your user data.

To install DashBoard on a computer running Linux® Fedora®:

1. Access the DashBoard software using one of the following methods:
   - Download the current version of DashBoard software for LINUX (64 BIT) from the Ross Video website at www.rossvideo.com/support/software-downloads/dashboard.
   - Load the DashBoard software DVD into the DVD/CD ROM tray of your computer.
2. Extract the new **DashBoard.tar.gz file** to your system. Note that this file contains a top-level directory called DashBoard.
3. To run DashBoard, click the **DashBoard** icon in the top level of the DashBoard program folder.

   If you run DashBoard from the command line, ensure that you switch to the main DashBoard directory before launching DashBoard.

✶ DashBoard creates a workspace directory where the application is launched. This directory includes saved settings and licenses for optional features. To provide consistent retrieval of saved settings and program features, Ross Video recommends that you always launch DashBoard from within the same directory.

Removing DashBoard

Create a backup for your settings and licensed features before removing DashBoard if you wish to retain your user data. Refer to the section "**Creating a Backup of the Settings and Licensed Features**" on page 2-2.

To remove DashBoard from a computer running Microsoft® Windows®:

- Use the **Add/Remove Software** program located in the Windows® Control Panel.

✶ Deleting the DashBoard directory before running the **Add/Remove Software** program results in a number of dead registry and Start Menu items on your system. You can delete the directory to remove your user data after you run the **Add/Remove Software** program.

To remove DashBoard from a computer running Apple® OS X®:

1. Remove your user data from the application support library directory.
2. Delete the DashBoard folder from your computer.

To remove DashBoard from a computer running Linux® Fedora®:

- Delete the DashBoard folder from your computer.

Installing DashBoard Add-on Programs

This section briefly outlines how to install Add-on programs for DashBoard such as:

- **openGear Extra Feature Pack** — If you have an executable openGear Extra Feature pack, and are running Microsoft® Windows®, use the following procedure to install your feature pack. If you are not running Microsoft® Windows®, refer to the feature pack documentation for installation details.
- **Unicode Font Support Pack** — This program installs an international character set for DashBoard and provides access to fonts capable of displaying all Unicode characters. This program is not available for systems running Apple Mac® OS®. This option may be required if you are using an openGear device designed with fonts not supported by the base Java font system. Consult your device documentation for requirements and details.

To install a DashBoard Add-on program:

1. Navigate to the openGear website (www.opengear.tv) and download the required add-on program for your system.
2. If you are running Microsoft® Windows®:
   - Launch the **Setup Wizard** for your Add-on program by selecting the corresponding ***.exe file**.
   - Follow the prompts to complete the installation of the Add-on program.
3. If you are running Linux® Fedora®:
   - Ensure you are in the main **DashBoard** directory before extracting the Add-on program.
   - Copy the required ***.zip** to the main **DashBoard** directory.
   - Extract the ***.zip** file.

Getting Started

This section provides a brief introduction to launching the DashBoard client, and accessing some of its features.

Launching DashBoard

To Launch DashBoard:

1. Ensure that you have installed the DashBoard software as outlined in the section "**Installing and Removing the DashBoard Control System Client**" on page 2–2.
2. Launch the DashBoard client by double-clicking its icon on your desktop.
3. If you are using DashBoard Server and URM, you will be prompted for a user name and password.

Using the Full-Screen Mode

You can set the DashBoard interface to full-screen by performing one of the following:

- Press **Shift** + **F11**.
- Select **Window** > **Full Screen** from the main DashBoard toolbar.

To exit out of full-screen mode by performing one of the following:

- Press **Shift** + **F11**.
- Right-click the DashBoard icon in the Windows system tray and then click **Full Screen**.

Displaying Multiple DashBoard Windows

When operating in a multi-screen environment, you can open multiple DashBoard windows as follows:

- Select **Window** > **New Window** from the main DashBoard menu bar.

Switching Views Between Multiple Open Panels

When multiple DashBoard panels are open in a DashBoard window, the panel you want to use may not be visible. It may be hidden behind other panels.

You can use a keyboard shortcut to switch between panels. This is particularly useful when the DashBoard interface is in full screen mode.

To switch between panels:

- Press and hold the **Ctrl** key, then press the **F6** key repeatedly until the name of the panel you want to use is highlighted, and then release the **Ctrl** key.

Locking the DashBoard window

You can lock the DashBoard window, preventing users from accessing the DashBoard client running on your computer by performing one of the following:

- Press **Shift** + **F4**.
- Select **Window** > **Lock Screen**.

To unlock the interface:

- Use the provided **Unlock** wheel.

Viewing Installation Details

You can view your installation history, activities in DashBoard, and error logs using the **DashBoard Installation Details** dialog box available from the **About DashBoard** dialog box.

DashBoard Installation Details Overview

This section briefly explains the components of the **DashBoard Installation Details** dialog box should you need to view it for troubleshooting purposes or as directed by Ross Video Technical Support.

The **DashBoard Installation Details** dialog box includes the following tabs:

- **Installed Software** tab — This tab displays the currently installed DashBoard features, plug-ins, and application details. Details such as software version and ID are also provided.
- **Installation History** tab — This tab displays information on the current and any previous configurations of DashBoard installed on your computer. Details such as the date of installation and applications installed are also provided. From this dialog, you can also Revert to any previously installed software using the **Revert** button.
- **Plug-ins** tab — This tab displays the ID, name, provider, and version of the currently installed plug-ins, or add-on programs, for DashBoard.
- **Configuration** tab — This tab displays information such as platform details, system properties, and user preferences that can be used for troubleshooting.

To view the installation details for your DashBoard client:

1. Launch DashBoard by double-clicking its icon on your desktop.
2. From the main DashBoard toolbar, select **Help** > **About DashBoard** > **Installation Details**. The **DashBoard Installation Details** dialog box opens.
3. To view details on the currently installed software features and options for your DashBoard application:
   - Select the **Installed Software** tab.
   - From the provided list, select the required software feature.
   - Click **Properties**.
4. To view details on your DashBoard installation history:
   - Select the **Installation History** tab.
   - Select the required configuration from the **Previous configurations:** list.
   - The **Configuration contents** pane updates to include a list of the features and options.

5. To view details on the installed plug-ins for your DashBoard application:
   - Select the **Plug-ins** tab.
   - Select the required plug-in from the provided list.
   - Click **Legal Info** to display the plug-in licensing agreement.
   - Click **Show Signing Info** to display a new pane that includes the signing date and the signing certificate for the selected plug-in. Click **Hide Signing Info** to close the pane.
   - Click **Columns** to configure how information is displayed in the **Plug-ins** tab.

Viewing Error Logs

If you are troubleshooting problems in DashBoard, Ross Technical Support may request that you view the error logs for your local DashBoard application.

To view the error log for your DashBoard application:

1. From the main DashBoard toolbar, select **Help** > **About DashBoard** > **Installation Details**. The **DashBoard Installation Details** dialog box opens.
2. Select the **Configuration** tab.
3. Click **View Error Log** to display the error log in the selected application.

Managing openGear Frames in DashBoard

The DFR-8300 series frames offer remote control and monitoring with the combination of the openGear Network Interface card and the DashBoard Control System. This allows users to remotely monitor and control parameters on DashBoard Connect compatible devices, such as openGear frames and cards. DashBoard connects to an openGear frame using a TCP/IP LAN connection.

When DashBoard is launched, openGear frames are automatically discovered and are available in the Tree View where they can be custom identified, collapsed to view just the frame or opened to view available devices in the frame.

This section includes information about enabling DashBoard to auto-connect to openGear frames, manually adding frames to the Tree View and renaming them, and removing frames from the Tree View. It also explains how to set up a DashBoard proxy server.

It is assumed that if you have the DashBoard Server and URM feature installed, that your user account is configured for write access to the frames communicating with your DashBoard client.

DashBoard uses the open SLP protocol to locate openGear frames on the network. In larger installations, it is recommended to use an SLP Directory Agent (DA). Contact your IT Department for more information on whether your facility uses an SLP DA.

This section includes the following topics:

- "**DashBoard Ports**" on page 3–2
- "**Adding openGear Frames to DashBoard**" on page 3–2
- "**Re-naming an openGear Frame in the Tree View**" on page 3–3
- "**Removing openGear Frames from a Tree View**" on page 3–4
- "**Configuring and Accessing a DashBoard Proxy Server**" on page 3–4

For More Information on...

- configuring your openGear frame and Network Controller Card, refer to the ***DFR-8300 Series User Manual*** and the ***MFC-8300 Series User Manual***.
- using the Basic Tree View, see "**DashBoard Basic Tree View**" on page 4–3.
- using the Advanced Tree View, see "**Using the Advanced Tree View**" on page 4–6.
- configuring your openGear frame and Network Controller Card, refer to the ***DFR-8300 Series User Manual*** and the ***MFC-8300 Series User Manual***.

DashBoard Ports

The following table lists DashBoard ports.

Table 3.1 DashBoard Ports

Application	Port	Type	Connection Direction	Purpose
Client	5253	TCP –OGP–Binary	Outbound	Send/Receive OGP–Binary data
	5254	TCP –OGP–JSON	Outbound	Send/Receive OGP–JSON data
	10001	TCP	Outbound	Hitachi Protocol for ACID cameras
	10001	TCP	Inbound	Acting as the Hitachi Remote Control Panel
	8020	TCP	Outbound	XPression XML API (user-defined)
	10240	TCP	Outbound	Ross PTZ Commands
	10242	TCP	Outbound	Ross PTZ Status
Proxy Server	80	HTTP		Sharing frames and devices
	8080	HTTP		Sharing frames and devices
	5254-*	TCP OGP-JSON	Inbound	Sharing frames and devices via proxy server (user-defined ports starting on 5254 by default)
	427	UDP-SLP	Bidirectional	Device detection (not required)
	5000	TCP	Outbound	NK Router control
Custom Panels	7788	TCP	Inbound	Trigger Custom Panels via Rosstalk GPI commands (user-definable)
	7788	TCP	Outbound	Trigger device actions via RossTalk (user-definable)

Adding openGear Frames to DashBoard

Each openGear frame lists all devices within the frame, and provides status information in the Tree View. You can also remove and disconnect an openGear frame from DashBoard. There are two methods for adding an openGear frame to the tree view: using the auto-connect feature or manually adding a frame by specifying the IP address of the frame. Both methods are described in this section.

Using the Automatic Detection Feature

By default, the DashBoard Control System auto-detects any openGear frame on the same IP subnet. How often DashBoard queries the network for new frames (the default is every 10 seconds) depends on how the **Automatic Detection** feature is configured in the **Preferences** menu. Refer to the section "**Automatic Discovery**" on page 9–2 for setup details. Refer to the section "**DashBoard Basic Tree View**" on page 4–3 for information on the toggling the **Auto-Connect Devices** button.

Manually adding openGear Frames to DashBoard

You must add openGear frames to the Tree View manually when the frame is on a different subnet from your computer running the DashBoard client.

To manually add an openGear frame to a DashBoard Tree View:

1. Click ✚ on the **Tree View** toolbar to open the **Select Equipment or Service Type to Add** dialog box.
2. Expand the **openGear / DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**., and then click **Next**.

   The **New TCP openGear Frame Connection** dialog box appears.
4. In the **IP Address** box, type the IP address of the frame.

   The **Detect Frame Information** button becomes available.
5. To specify connection settings for the frame, do one of the following:
   - To make DashBoard detect the frame properties automatically, click the **Detect Frame Information** button.

     DashBoard retrieves the port, name, unique identifier, and other connection information from the specified IP address. Once DashBoard detects the information, the **Automatically Track Updates to Frame Information** check box is selected so that any changes are automatically updated in DashBoard.
   - To specify frame properties manually, complete the following:
     - **Display Name** — Type the name of the frame, as you want it to appear in DashBoard.
     - **Protocol** — Selected whether the frame communicates over OGP (openGear Protocol), or JSON (JavaScript Object Notation).
     - **Port** — Specify the port used for communication.
     - **Remember connection settings for this frame** — Select to retain the settings.
6. Click **Finish** to display the frame in the **Tree View**. Frames added to the Tree View are also displayed in the **Advanced Tree View**.
7. Repeat the procedure for each frame that you wish to add to the **Tree View**.

Re-naming an openGear Frame in the Tree View

There are two methods for re-naming an openGear Frame in DashBoard. The first method is for frames manually added to the Tree View as described in the section "**Adding openGear Frames to DashBoard**" on page 3–2. The second method describes how to re-name an auto-detected frame using the DashBoard menu options available on the MFC-8300 series cards. Both methods are described below.

To re-name a manually added openGear frame:

1. Right-click the frame you wish to rename.
2. Select **Rename Frame**.
3. Enter the new name for the frame in the text field provided.

To re-name an Auto-Detected openGear frame:

1. Right-click the frame you wish to rename.
2. Select **Open** to display a Device Editor tab. Note that the tab title displays the name of the frame, and information about the MFC-8300 series Network Controller Card currently installed in the frame.
3. Select the **Network** tab.
4. Enter a new name for the frame in the **Frame Name** field.
5. Press **Enter**.
6. Click **Apply**.

Removing openGear Frames from a Tree View

This section outlines how to remove an openGear frame from a Tree View in DashBoard. Once a frame is removed, DashBoard no longer reports the status in the Tree View and you are no longer able to monitor or control the affected devices. If communication with a frame is disconnected via the Disconnect option, the status indicator is light gray until the frame is re-connected. If the status indicator is dark gray, with the rest of the node displaying as normal, a connection cannot currently be established to the device? as possible

To remove or disconnect an openGear frame from the Tree View:

1. If the frame you are removing is in a Custom Folder, you must first delete the frame from the Custom Folder before it can be removed from the Tree View.
2. To remove a manually added openGear frame from the Tree View:
   - Right-click the openGear frame you wish to remove.
   - Select to remove the openGear frame from the Tree View.
3. To disconnect communications to an openGear frame from DashBoard:
   - Toggle to turn off auto-discovery from the Tree View top menu.
   - Right-click the openGear frame you wish to disconnect.
   - Select to disconnect.
   - The frame status indicator is grayed out in the Tree View.
4. To re-connect to an openGear frame:
   - Right-click the frame status indicator.
   - Select to connect, or from the Tree View top menu, toggle to turn on auto-discovery.

Auto-Discovery

Selecting for an auto-detected frame will temporarily remove the frame but the frame will re-appear in the Tree View again due to the auto-discovery feature of DashBoard. You must first disable the auto-discovery feature before you can remove a frame in this instance. Refer to the section "**Automatic Discovery**" on page 9–2 for details on configuring the auto-discovery feature.

However, you can still disconnect from an auto-discovered frame by toggling the **Automatic Discovery** option off.

Configuring and Accessing a DashBoard Proxy Server

A DashBoard proxy server enables users on remote DashBoard clients to connect to openGear frames through the proxy server instead of connecting to them directly.

A DashBoard proxy server is useful in the following situations:

- DashBoard users must control OGP binary devices from distant locations.

  Without using a proxy server, DashBoard sometimes experiences a considerable delay when populating the DashBoard tree and accessing devices. This is because the high number of messages exchanged introduces significant cumulative latency. Connecting to devices indirectly via a proxy server at the facility where the devices are located typically provides faster access.

- Some devices can accept only a single connection.

  The proxy server connects to the device directly. Remote DashBoard clients connect to the device indirectly via the proxy server.

- You want to expose only a single IP address between sites.

  The proxy server enables remote DashBoard clients to use a single IP address to access and control all devices shared by the proxy server. This eliminates any need for remote users to establish separate connections to individual frames.

Configure a DashBoard Proxy Server

You can set up and configure a DashBoard proxy server to share selected frames and devices.

If required later, you can unshare individual frames and/or devices.

To set up and configure a DashBoard proxy server:

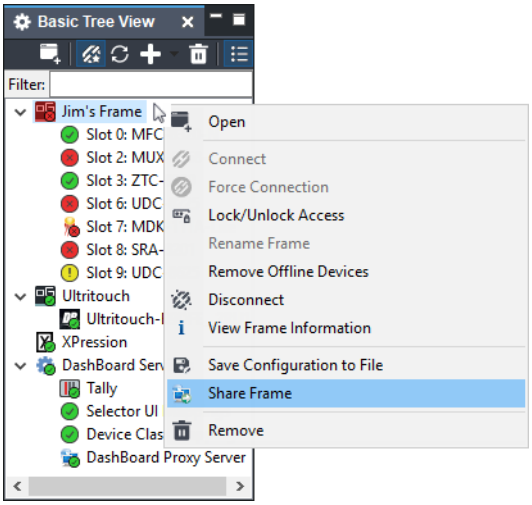
1. On the DashBoard proxy server computer, Install DashBoard.

   For more information, see "**Installing DashBoard**" on page 2–1.

2. Add all the local devices to the DashBoard basic tree view.

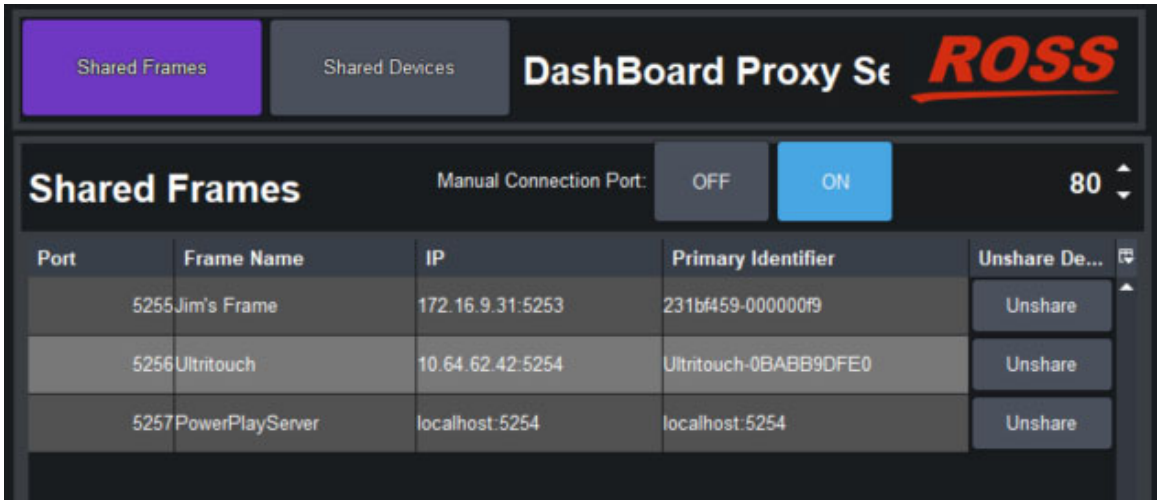
   For more information, see "**Adding openGear Frames to DashBoard**" on page 3–2.

3. For each frame or device you want to share, right-click its name in the basic tree, and then click **Share Frame** or **Share Device**.



4. In the basic tree, expand the **DashBoard Services** node and then double-click **DashBoard Proxy Server**.

   The **DashBoard Proxy Server** interface appears, listing the **Shared Frames**.



5. In the **Manual Connection Port** box, type the number of an open port on your computer to allow remote DashBoard clients to fetch the shared frame information over HTTP. Ports **80** and **8080** are recommended.

   Tip: Make a note of the proxy server's IP address and the manual connection port number so you can provide this information to remote users.

   Specifying a manual connection port makes it easy for remote users to add all of the frames shared by the proxy server at once, and under a single node in the DashBoard basic tree view.

6. Click the **Manual Connection Port ON** button.

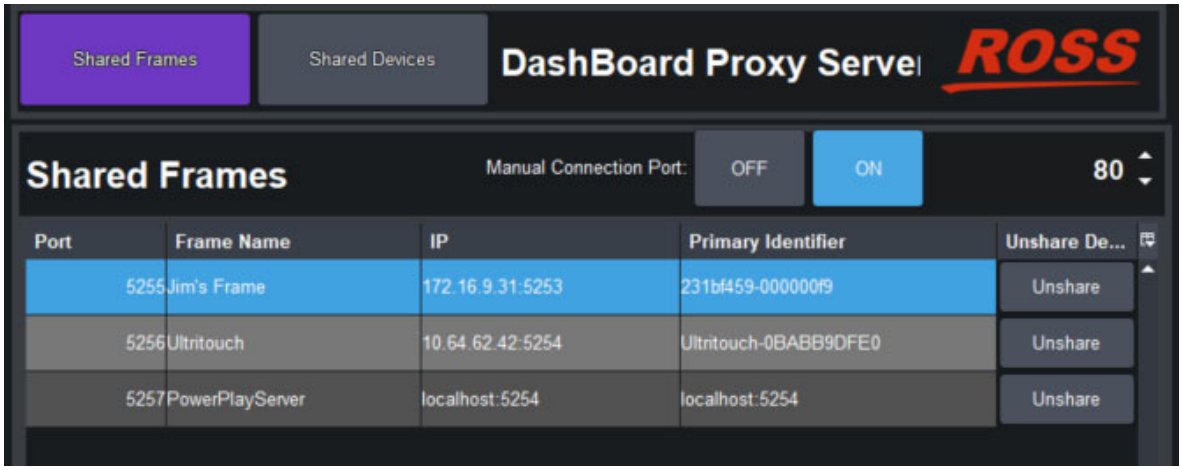
   IMPORTANT: To enable the sharing of frames, firewalls must allow access to both the **Manual Connection Port** and the port required by each shared frame, as listed in the **Port** column of the **Shared Frames** list.

7. If remote DashBoard users may want to access individual shared frames instead of all shared frames, make a list of the shared frames and their **Port** numbers. Provide this information to the remote users.

To unshare individual frames and/or devices:

1. On the DashBoard proxy server computer, in the basic tree view, expand the **DashBoard Services** node and then double-click **DashBoard Proxy Server**.

   The **DashBoard Proxy Server** interface appears, listing the **Shared Frames**.



2. For each frame you want to unshare, find it in the **Shared Frames** list and then click the corresponding **Unshare** button.

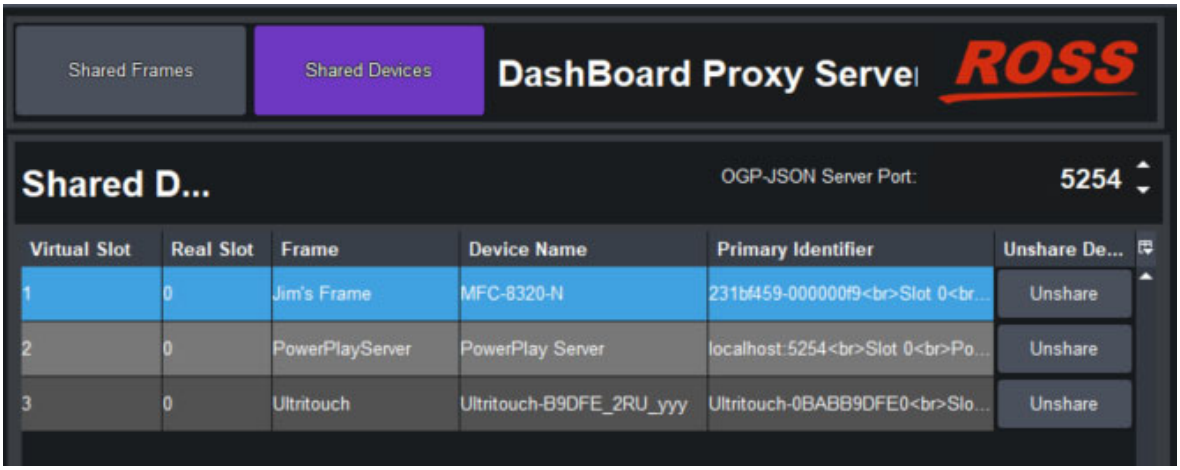
   The **Confirm** dialog box appears.

3. Click **Yes**.

   The frame disappears from the list.

4. Click the **Shared Devices** button.

   The **Shared Devices** list appears.



5. For each device you want to unshare, find it in the **Shared Devices** list and then click the corresponding **Unshare** button.

   The **Confirm** dialog box appears.

6. Click **Yes**.

   The device disappears from the list.

Access Frames Shared by a DashBoard Proxy Server

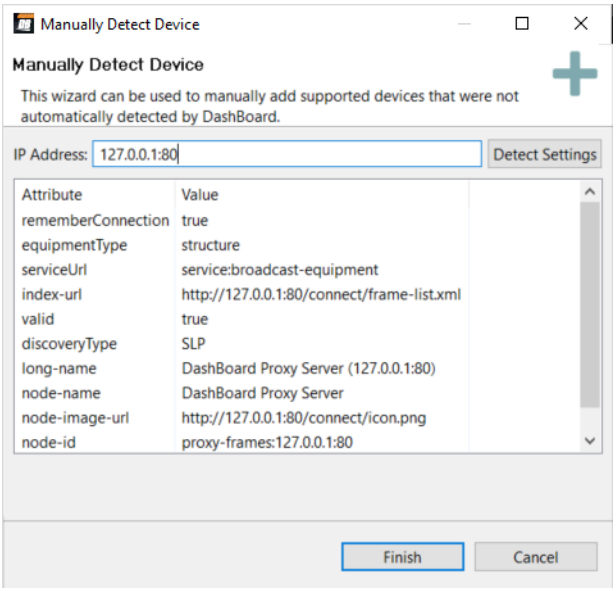
On a DashBoard client computer, you can add a connection to access all the frames shared by a DashBoard proxy server, or you can add connections to access individual frames.

When you add a connection to access all the frames, they are listed under a single node in the DashBoard basic tree. If you add a connection to an individual frame, it appears as a separate node.

To access all the frames that are shared by a DashBoard proxy server:

1. On the DashBoard client computer, navigate to **File** > **New** > **Manual Connection**.

   The **Manually Detect Device** dialog box appears.



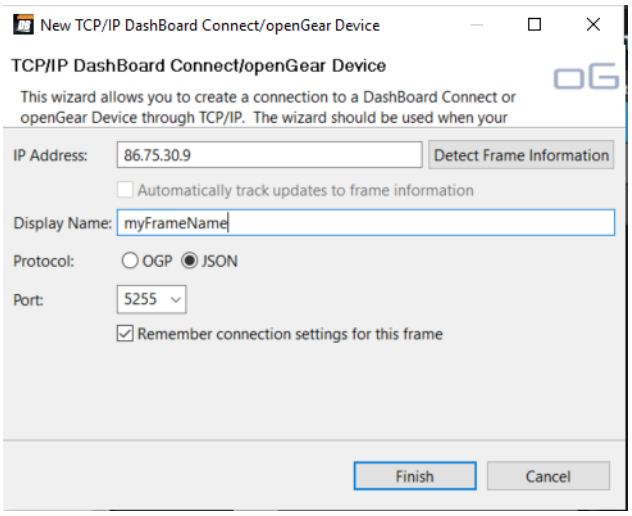
2. In the **IP Address** box, type IP address of the DashBoard Proxy Server followed by a colon and the port number specified on the DashBoard proxy server as the **Manual Connection Port**. For example, `127.0.0.1:80`.
3. Click **Detect Settings**, wait until the proxy server's information is detected, and then click **Finish**.

   A new node named **DashBoard Proxy Server** appears in the basic tree view. This node contains one node for each shared frame.

To access an individual frame that is shared by a DashBoard proxy server:

1. On the DashBoard client computer, navigate to **File** > **New** > **TCP/IP DashBoard Connect or openGear Device**., and then click **Next**.

   The **TCP/IP DashBoard Connect/openGear Device** dialog box appears.



2. In the **IP Address** box, type IP address of the DashBoard proxy server. For example, `86.75.30.9`.
3. In the **Display Name** box, type a name for the frame, as you want it to appear in the basic tree.
4. For **Protocol**, select **JSON**.
5. In the **Port** list, type the port number of the frame, or select it from the list. For example, `5255`.

6. Click **Finish**.

   The frame node appears in the basic tree view.

Using the DashBoard Interface

DashBoard allows for multiple Device Editor tabs to be active and available on one screen which is useful when a functional path involves more than a single device. These tabs can be saved and recalled as a layout, allowing for quick access to frequently used devices. Layouts can consist of a single device window, multiple device windows displayed full screen in tabs, or multiple devices on a shared screen.

This chapter introduces you to the DashBoard client interface, how to access menus and tabs, and how to manage your layouts. The look of the DashBoard Interface depends on your chosen theme. The Aura theme is the default theme which was introduced in DashBoard 9.0. You can find more information about the DashBoard UI theme under "**Theme Preferences**" on page 4–21.

✶ Contact your I.T. Department if you experience communication issues with DashBoard and are running anti-virus software. You may need to verify that there is an exception in your firewall to allow DashBoard to receive TCP data via Port 5253.

This chapter includes the following topics:

- "**DashBoard Interface Overview**" on page 4–1
- "**DashBoard Basic Tree View**" on page 4–3
- "**Using the Advanced Tree View**" on page 4–6
- "**The Device Editor Area**" on page 4–10
- "**Using Layouts**" on page 4–12
- "**Keyboard Shortcuts**" on page 4–13
- "**Using DashBoard Help**" on page 4–18
- "**Preferences**" on page 4–20
- "**Logging in Using OAuth 2.0**" on page 4–26
- "**Ultritouch Interface Overview**" on page 4–29

DashBoard Interface Overview

This section includes a brief summary of the DashBoard Control System client interface and its components. **Figure 4.1** displays a DashBoard window that includes the Custom Folders and Layouts View tabs. These tabs are not displayed by default when the DashBoard client is launched for the first time.

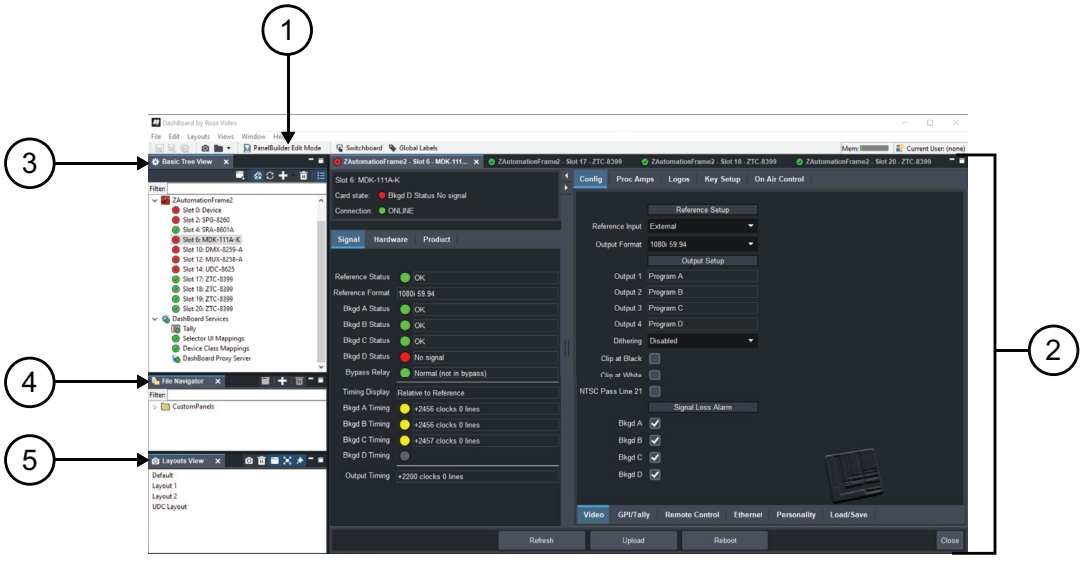


Figure 4.1 *DashBoard Interface Overview*

1. Main DashBoard Toolbar

The Main DashBoard toolbar provides access to menus that enable you to manually add devices, manage your layouts, and enable different tabs in the DashBoard window.

- **File** — From this menu you can manually add a device or create a new CustomPanel (New), save changes made to device configuration files on your computer (Save, Save As..., Save All), log-off from DashBoard when using DashBoard URM (Sign Out), or close the DashBoard client (Exit).
- **Layouts** — From this menu you can display a Layouts View tab in the DashBoard window (Show Layouts View), save your current arrangement of tabs in the DashBoard window (Save Layout), lock the DashBoard window to its current state (Maintain Window State/Size/Location), or select from a list of saved layouts to apply.
- **Views** — From this menu you specify which tabs to display in the current DashBoard window.
- **Window** — From this menu you can open multiple DashBoard windows on a single screen (New Window), restore the default DashBoard client layout of tabs (Refresh Perspectives), show or hide the main toolbar (Show Toolbar), set the window to the maximum screen size (Full-screen), lock the current DashBoard window (Lock Screen), and set preferences for Automatic discovery of devices on your subnet, automatic login, and software updates (Preferences).
- **Help** — From this menu you can access the DashBoard online help system (Help Contents), and view details about your current DashBoard client software (About DashBoard).

2. Device Editor

This area displays tabs for each device that you double-click from the Tree View. From this view you can verify the device and connection status, update device parameters, and view read-only device information.When shutting down and then re-starting the DashBoard client, the Device Editor tab state is also saved/restored. Refer to the section "**The Device Editor Area**" on page 4–10 and your device manual for more information.

3. Basic Tree View Tab

This area lists the devices, such as openGear frames and the cards installed in each frame, that can communicate with DashBoard. From this tab you can open Device Editors, enable or disable auto connections to devices, re-query the network for new devices, manually add new connections, and delete devices from the Tree View. Refer to the section "**DashBoard Basic Tree View**" on page 4–3 for more information.

4. Advanced Tree View Tabs

The Advanced Tree View feature enables you to create a customized hierarchy of folders and sub-folders in a single tab, where each folder can be expanded to display a list of devices and/or sub-folders. You can re-organize your devices in a Custom Folder tab to suit your workflow by dragging and dropping devices from the Basic Tree View to any open Custom Folder tab. Note that this tab is not displayed by default. For more information on using Custom Folders, refer to the section "**Using the Advanced Tree View**" on page 4–6.

5. Layouts View Tab

This feature enables you to save and restore a series of Device Editor tabs and the DashBoard window size and position as a layout. Layouts can be recalled using the options in the Main DashBoard toolbar or from a Layouts View tab. Note that saving/restoring a layout restores the current Device Editor tab selection, the divider position and scroll position in opened Device Editor tabs. Note that this tab is not displayed by default. For more information on layouts, refer to the section "**Using Layouts**" on page 4–12.

Status Indicators

Some devices include a status indicator beside the node in the Tree Views, custom folders and subfolders. The Frame Status Indicator, the Custom Folders, and the subfolders reflect the most severe status of any contained devices.

Status severity is indicated by color as follows:

- **Green** — This color indicates that the device is running correctly and communicating with the frame.
- **Orange** — This color indicates that the MFC-8300 Network Controller Card for that frame can only support a limited number of connections and that maximum has been reached. You can select the **Force Connect** option, after right-clicking on the frame status indicator, to establish a connection between the frame and your DashBoard workstation. However, doing so will disconnect another connection to the same MFC-8300 Network Controller card.
- **Yellow** — This color indicates a minor problem with the device.
- **Red** — This color indicates that the device has a significant error condition. For example, there is no input or reference signal from the card.
- **Gray** — This color indicates the device is currently offline and cannot communicate with DashBoard. The offline status is also reflected in its **Device Editor** tab.
- icon — If the status indicator is replaced by this symbol, the user does not have permission to view/modify the device. In the case of an openGear frame, this icon means the frame parameters are locked and the Master Password is required to use it. Refer to the ***DashBoard Server and URM User Manual*** and the ***MFC-8300 Series User Manual*** for details. When a device has this icon, there are no editable parameters underneath it.

DashBoard Basic Tree View

This section outlines the Basic Tree View of the DashBoard client. For details on using the Advanced Tree View feature, refer to the section "**Using the Advanced Tree View**" on page 4–6.

Overview

The Basic Tree View displays devices, such as openGear frames and cards, in a tree structure. When you launch DashBoard, all devices within the same subnet are auto-detected unless this feature is disabled in the tab toolbar. Refer to the section "**Managing openGear Frames in DashBoard**" on page 3–1 for information on adding openGear frames to the Basic Tree View. For information on connecting your openGear frame using a TCP/IP connection, refer to your frame user manual or your facility IT personnel.

The Basic Tree View also displays the devices and status information of each device, allowing you to monitor and control devices from a single computer. The Basic Tree View includes a Filter feature that enables you to search this hierarchy by entering text into the field. **Figure 4.2** provides an example of a Basic Tree View.

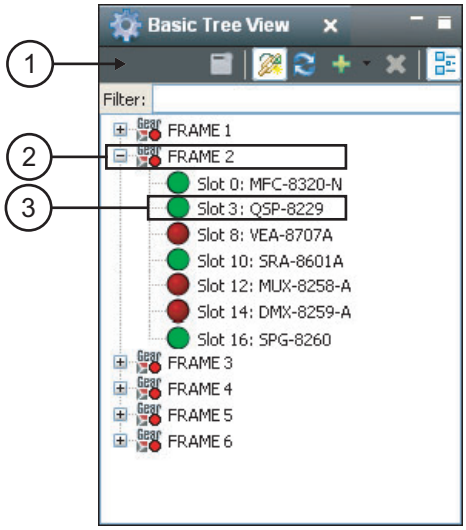


Figure 4.2 *Example of a Basic Tree View*

1. Basic Tree View Toolbar

This area provides access to the following basic tasks:

- **Device Editor Button** — Selecting this button enables you to view a Device Editor tab of a selected device. To view a Device Editor tab, click the device you wish to edit from the tree view, and select this button. You can also double-click the device from the Basic Tree View list. You can also open additional copies of a Device Editor tab by right-clicking the node and select Open; the active tab is the one displayed in the foreground.
- **Auto-Connect Devices Button** — Toggling this button enables DashBoard to automatically connect to devices and display information in the Basic Tree View. The default setting is enabled (auto-connect).
- **Re-query the Network Button** — Selecting this button enables DashBoard to query the network and automatically add any new devices to the Basic Tree View. Note that DashBoard automatically queries the network approximately every 10 seconds. If Automatic Discovery is disabled, you can force a network query by selecting this button.
- **Add New Connection Button** — Selecting this button opens the **New** dialog box and enables you to manually add a device, such as an openGear frame, to the Basic Tree View. Use this button to add a device that cannot auto-connect but can be found via the network.
- **Delete Button** — Selecting this button enables you to delete a selected offline or manually added device from the Basic Tree View.
- **Group Similar Devices Button** — This button determines how devices are displayed in the Tree View. When toggled on, devices are grouped by class. When toggled off, the Tree View is sorted alphabetically.

2. Filter Search Field

Each Custom Folder includes a Filter feature that enables you to search the Tree View by entering text into the field. DashBoard automatically displays the search results in the selected tab under the All Connections node. For example, to search for a UDC-8225, enter 8225 in the **Filter** field and the tab only lists the frames that have a UDC-8225 installed. Expand the frame nodes inside the All Connections node to display the specific slots with UDC-8225 cards. To clear the **Filter** field, delete the text.

3. openGear Frame Status Indicator

A status indicator is displayed for each openGear frame detected by DashBoard and is located to the left of the frame name. This status indicator summarizes the current status of the detected devices in that specific openGear frame. For example, FRAME 2 in **Figure 4.2** indicates a red status because at least one card is reporting a red status (in this case there are three). A , or an arrowhead, next to a status indicator signifies that the list can be expanded to display a list of devices installed in that frame.

4. Device Status Indicator

A status indicator is listed for each DashBoard Connect compatible device. This icon includes the card status, the slot in which it is installed in that frame, and the device product name. This information is detected automatically. To view a device in the **Device Editor**, double-click its status indicator. Note that if the device is offline, you cannot open a tab for it in the Device Editor area.

Using the Basic Tree View

This section briefly summarizes how to use the Basic Tree View features.

To open or close the Basic Tree View tab

- To open a tab, select **Views** > **Basic Tree View**.
- To close a tab, right-click the **Basic Tree View** tab, then select **Close**.

To enable automatic discovery

Note that this method is applicable to all tree views.

1. Confirm the Automatic Discovery feature settings by selecting **Window** > **Preferences**. Note that by default, this feature is enabled and DashBoard polls for devices every 10 seconds.
2. Toggle on the **Basic Tree View** toolbar to enable DashBoard to automatically connect to the listed devices in the Basic Tree View.

To manually add a device to the Basic Tree View

1. Click on the **Basic Tree View** toolbar to display the **Select Equipment or Service Type to Add** dialog box.
2. Select the type of equipment or service you want to add:
   - **Camera Control** — Expand this node, select one of the following, and then click **Next**:
     - **ACID Camera**
     - **Canon Cinema Camera**
     - **PTZ Camera**
     - **Panasonic Box Camera**
     - **Sony ENG/Box Camera**
   - **Catena** — For more details on adding a Catena Device, see the section "**Adding a Catena Device to the Basic Tree View**" on page 4–6.
   - **General** — Expand this node, select one of the following, and then click **Next**:
     - **Bookmark**
     - **Manual Connection**
     - **New CustomPanel file**
   - **Input Devices** — Expand this node, select one of the following, and then click **Next**:
     - **New Game Controller**
     - **New MIDI Controller**
   - **NK Router Series** — Expand this node, select one of the following, and then click **Next**:
     - **NK IPS Connection**
   - **Robots** — Expand this node, select one of the following, and then click **Next**:
     - **Ross PT Head**
   - **XPression** — Expand this node, select one of the following, and then click **Next**:
     - **New XPression**
   - **openGear / DashBoard Connect** — Expand this node, select one of the following, and then click **Next**:
     - **Frame Demo (from file)**
     - **Import openGear Help Files**
     - **TCP/IP DashBoard Connect or openGear Device**
3. Provide the information requested, and then click **Finish**.

To display a Device Editor tab

Display a Device Editor tab using one of the following methods:

- From the **Basic Tree View**, double-click the device node.
- From the **Basic Tree View**, select the device to edit. Click on the **Basic Tree View** toolbar.

To remove a device from the Basic Tree View

1. Select the device to remove from the Basic Tree View.
2. Click on the **Basic Tree View** toolbar to display the **Confirm tree item removal** dialog box.
3. Click **OK**.

Adding a Catena Device to the Basic Tree View

When adding a Catena Device, you have the option to use SSL. If you choose to use SSL, OAuth 2.0 must be configured properly for the Catena Device to work.

✶ If you will be using SSL when adding a Catena Device, ensure that you have followed the procedure "**To configure OAuth 2.0 Login**" on page 4–25 first.

To add a Catena Device to the Basic Tree View

1. Click on the **Basic Tree View** toolbar.

   The **Select Equipment or Service Type to Add** dialog box opens.
2. Select **Catena** > **Catena Device**.
3. Click **Next**.

   The **New Catena Connection** dialog box displays.
4. Enter the **Hostname** of the Catena Device.
5. Enter the desired **Display Name** for the Catena Device.
6. Select the correct **Port** for the Catena Device.
7. If you want to use SSL, select the **Use SSL** checkbox.

   If you do not want to use SSL, continue on to step 10.
8. Select **Import Certificate** from the **Trust Type** field drop down to add the security certificate to be used for the Catena Device.
9. Click **Browse** and **select** the security certificate from your files.
10. Click Finish.

    The **New Catena Connection** dialog box closes and your Catena Device is added to the **Basic Tree View.**

✶ If you selected to use SSL and the Catena Device shows as offline in the **Basic Tree View**, ensure you have followed the procedure "**To configure OAuth 2.0 Login**" on page 4–25 and that you are logged in using OAuth 2.0 by following one of the procedures under "**Logging in Using OAuth 2.0**" on page 4–26.

Using the Advanced Tree View

The Advanced Tree View feature enables you to display a tab that you can customize with a layout of folders. A folder can display any number of devices or sub-folders of devices in a single tab. This feature allows you to drag and drop devices into sub-folders, enabling you to quickly customize folders as required. For example, you may wish to create a folder that lists only the UDC-8625 cards installed in your facility.

All device information is automatically updated whenever parameters or status changes occur. You can have multiple custom folder tabs open or have multiple Advanced Tree View tabs open in a single DashBoard window.

Overview

This section summarizes the Advanced Tree View tabs, Custom Folders and sub-folders, and the available menu options.

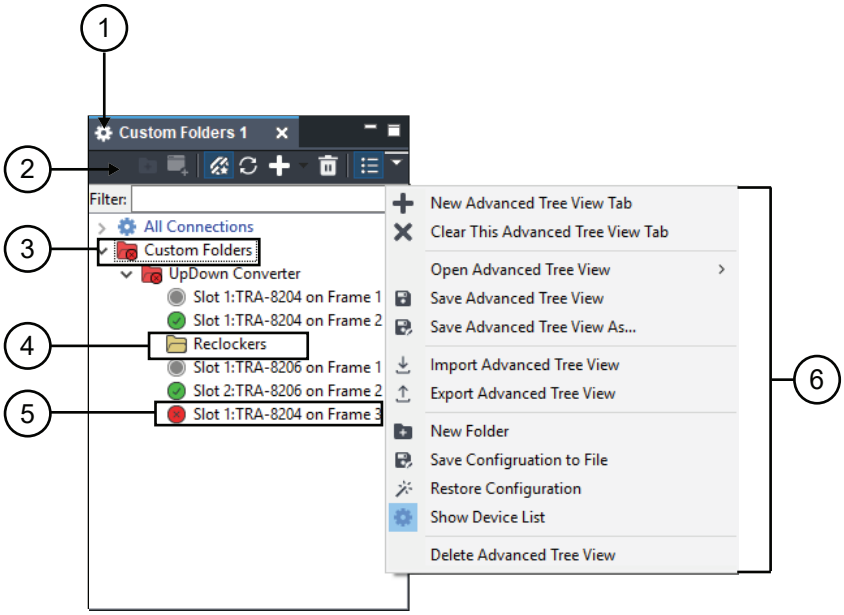


Figure 4.3 *Advanced Tree View*

1. Custom Folder Toolbar

Like the Basic Tree View, the Custom Folder toolbar includes the Device Editor, Delete and Add New Connection buttons, saving the current tree view, saving and restoring device configuration, and accessing the extra menu options of the Custom Folders tab. In addition, there is a button for creating new sub-folders. You can save the current tree view using the options button in the Custom Folder toolbar and then selecting **Save Advanced Tree View**.

2. Filter Search Field

Each Custom Folder includes a Filter feature that enables you to search the Tree Views by entering text into the field. DashBoard automatically displays the search results in the selected tab under the All Connections node. For example, to search for a UDC-8625, enter 8625 in the **Filter** field and the tab only lists the frames that have a UDC-8625 installed. Expand the frame nodes inside the All Connections node to display the specific slots with UDC-8625 cards. To clear the **Filter** field, delete the text.

3. Custom Folders

Each Advanced Tree View tab includes a main Custom Folder. In this folder, you can create and re-name sub-folders to organize devices for customized views. The status indicator represents the current status of the devices in the custom sub-folder. If a device in the sub-folder needs attention, the status indicator shows the most critical warning level. For example, the Custom Folders icon in **Figure 4.3** indicates a red status because the UDC-8225 in FRAME 1 and the DRA-8204 in FRAME 6 are reporting an error conditions.

Right-clicking a custom folder displays a dialog that includes options for creating a new subfolder, connecting or disconnecting devices, and re-naming the folder. To add devices to a Custom Folder, simply drag a device or frame from the All Connections directory to the desired Custom Folder.

4. Custom Subfolders

A Custom Subfolder displays the devices connected to DashBoard that you have specified. Creating Custom

Subfolders allows you to group similar devices together that may be installed in different frames, such as the folders in **Figure 4.3**. If a device in the sub-folder needs attention, the status indicator shows the most critical warning level. For example, the Reclockers sub-folder in **Figure 4.3** indicates a red status because the DRA-8204 in FRAME 6 is reporting an error condition (a red status).

Right-clicking a subfolder displays a dialog that includes options for creating a new sub-subfolder, connecting or disconnecting devices, re-naming the folder, removing the selected subfolder, saving and recalling configuration folders.

5. Device Status Indicator

A status indicator is listed for each device in a sub-folder. This icon includes the device status, the slot and frame in which it is installed (if it is an openGear card), and the device product name. This information is detected automatically, but you can also re-name an openGear frame or card as required. To view a Device Editor tab, double-click the device node. Right-clicking a device displays a menu that includes options for opening the device, restoring or saving the configuration, re-naming the device or removing the device.

6. Custom Folders Extra Options

You may need to select the button on the **Custom Folder** toolbar to display the available Extra Options.

- **New Advanced Tree View tab** — This option opens a new **Advanced Tree View** tab in DashBoard.
- **Clear This Advanced Tree View tab** — This option closes the current Advanced Tree View and opens a new Advanced Tree View in its place. If you have made any changes to the current Advanced Tree View, you will be prompted to save your work.
- **Open Advanced Tree View** — This option enables you to select a previously saved Advanced Tree View to open in the current session of DashBoard.
- **Save Advanced Tree View** — This option saves the selected Advanced Tree View. If you have re-named the main Custom Folder, the new name is now displayed. An asterisk displays next to the Custom Folder tab name when there are unsaved changes for that tab.
- **Save Advanced Tree View As…** — This option saves the selected Advanced Tree View under a new filename.
- **Import Advanced Tree View** — This option enables you to import an Advanced Tree View from another location or DashBoard computer.
- **Export Advanced Tree View** — This option enables you to export an Advanced Tree View to another location or DashBoard computer.
- **New Folder** — This option enables you to create a new sub-folder in the Advanced Tree View.
- **Save Configuration to File** — This option is only available when using the MFC-8310-N and MFC-8320-N Network Controller Cards. For more information on this feature, refer to the section "**DataSafe Overview**" on page 8–1.
- **Restore Configuration** — This option is only available when using the MFC-8310-N and MFC-8320-N Network Controller Cards. For more information on this feature, refer to the section "**DataSafe Overview**" on page 8–1.
- **Show Device List** — Selecting this option displays or hides the list of connected frames and devices in the **Advanced Tree View** tab.

- **Delete Advanced Tree View** — This option deletes the current Custom Folder from DashBoard.

Using the Advanced Tree View

This section briefly summarizes how to use the Advanced Tree View features.

To open a new Advanced Tree View tab in DashBoard:

- From the DashBoard main toolbar, select **Views** > **Advanced Tree View** > **New Advanced Tree View Tab**.

To add a new subfolder to the Custom Folders:

1. On the Custom Folders toolbar, click to add a new subfolder.
2. You are prompted to enter a name for the new subfolder. An asterisk (*) displays at the top of the Custom Folders tab to remind you to save the this tab.

To add devices to a subfolder:

1. Select the device from the **All Connections** or any available Tree View.
2. Drag and drop the device status indicator to the desired sub-folder.

   The **Add to Custom Folder?** dialog box displays.
3. Re-name the device, if desired, by entering a new name in the **Name Prefix** field. Note that the new name only applies to the device in the Custom Folder view.
4. Click **OK**.

To re-name a subfolder:

1. Right-click the subfolder icon.
2. Select **Rename** to display the **Rename** dialog box.
3. Enter the new name in the **Name:** field.
4. Click **OK**.

To save an Advanced Tree View tab:

- On the Custom Folders toolbar, click to display a list of available functions and select **Save Advanced Tree View**.

To clear an Advanced Tree View tab:

- On the Custom Folder toolbar, click to display a list of available functions and select **Clear Advanced Tree View**.

To open or close an Advanced Tree View tab:

- To open a tab, select **Views** > **Advanced Tree View**.
- To close a tab, right-click the **Custom Folders** tab, then select **Close**.

The Device Editor Area

This section briefly summarizes the Device Editor area. For details on using Device Editor tabs in DashBoard, refer to the chapter "**Configuring Devices**" on page 9–1.

✶ Some devices may not have Device Editors as presented here. Refer to your device manual for specific details on managing your device using DashBoard.

Overview

The **Device Editor** area displays tabs for devices selected from the tree views. Each device is represented as a tab in the Device Editor area from which you can access the available parameters and menus for that device.You can organize the arrangement of tabs in the Device Editor by dragging and dropping the tabs.

Figure 4.4 provides an example of a Device Editor tab for an openGear card. In this example, the status indicator, the name of the openGear frame, the slot number that the device is installed in, and the device type are displayed on the top left corner, status information in the bottom left corner, and the available parameters used to control the device in the right-side of the tab. The information and parameters displayed in a Device Editor tab depends on your device and may not reflect what is shown in **Figure 4.4** and described below.

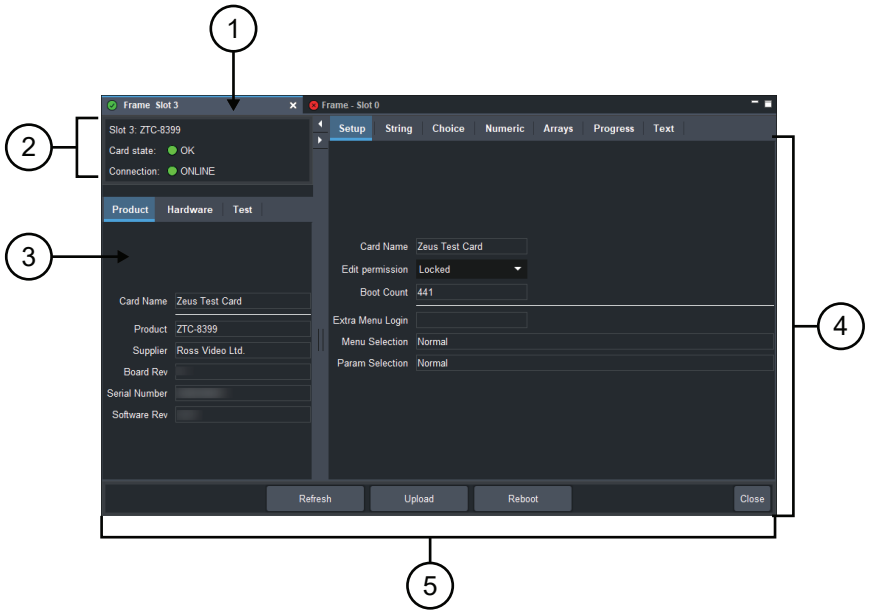


Figure 4.4 *Device Tab in Device Editor Area — Example of an openGear Card*

1. Device Tab Title

This area displays information to help identify the device such as its status, and the product name. If the device is an openGear card, this tab also displays the openGear frame and the slot that the card is installed in. This information is reported automatically by the device.

2. Status Overview

Your device may include an area that reports the operating status and communication activity.

3. Read-Only Information

Your device may include an area that displays read-only information such as the status parameters as reported by the device. The parameters and options in this area are dependent on the device selected, but can include the product details such as software versions, hardware information, and signal status. In **Figure 4.4**, the tabs are named **Product**, **Hardware**, and **Signal**, and display as read-only fields.

4. Settings and Parameters Area

The contents of this area are dependent on the device selected but can include source selection, video format and timing settings, alarm reporting options, and audio parameters. All changes to openGear card parameters are immediate. Refer to your device manual for details.

5. Button Area

The following buttons may be available:

- **Refresh** — Use this button to request the latest information from the device.
- **Upload** — Use this button to upload new software to the device.
- **Reboot** — Use this button to instruct the device to reboot.
- **Close** — Use this button to close the current Device Editor tab.

Using the Device Editor Feature

This section briefly summaries how to use some of the Device Editor features.

To display a Device Editor tab:

Display a Device Editor tab using one of the following methods:

- Double-click a device in a **Tree View**.
- Right-click the device in a **Tree View** and select **Open**.
- Drag and drop the device from the Tree View to the Device Editor area.

To refresh the parameters of a device:

- Click **Refresh** on the **Device Editor** tab.

To maximize or minimize a Device Editor tab:

1. Right-click the applicable **Device Editor** tab.
2. Select **Maximize** or **Minimize** from the menu.

To organize the Device Editor tabs:

Organize tabs using one of the following methods:

- Dock or undock the **Advanced Tree View** and **Layout List** from the DashBoard window by dragging it outside the DashBoard window.
- Drag and drop the Device Editor tabs to organize a layout as required. For information on saving and recalling layouts, refer to the section "**Using Layouts**" on page 4–12.

To close a Device Editor tab:

1. Right-click the **Device** tab you wish to close.
2. Select one of the following options:
   - **Close** — Closes the selected Device Editor tab.
   - **Close Others** — Closes all other Device Editor tabs in the group but the highlighted tab.
   - **Close All** — Closes all Device Editor tabs in that Tab Group.

Using Layouts

This section summarizes the Layout feature of the DashBoard client interface. Information on creating, saving, and managing layouts in the Device Editor is also included.

Overview

Layouts are used to save window configurations in your DashBoard interface. For example, you can save a layout which shows a certain set of devices open in the **Device Editor** area, two Custom Folder tabs, each with a specific size and location on the screen. You can also determine how these **Device** tabs are displayed (tabbed, tiled, or in groups), and whether any Custom Folder tabs are included.

When a layout is saved, it captures details such as how each component of DashBoard is displayed, including the state of any Device Editor tabs, the current tab selection, divider positions between tabs, and scroll position in Device Editor tabs.

Each layout also saves the DashBoard window state, size, and position. Note that the size and position of any undocked tabs are also saved. When restoring layouts from the Layout List, you can toggle whether to use the stored layout, or the current layout, of the open window with the three right-hand buttons on the toolbar.

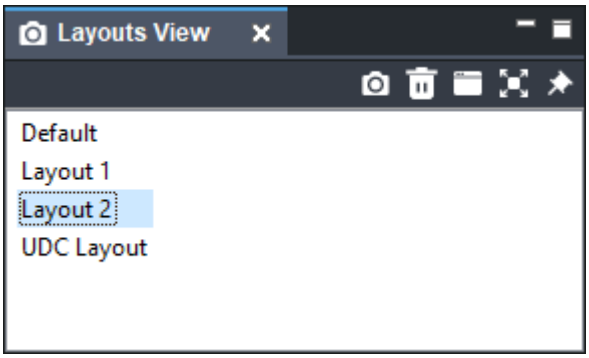


Figure 4.5 *Layouts View Tab*

The following buttons are available in the toolbar of the Layout List, from left to right:

- **Save Layout** — Use this button to open the Save Current Layout dialog box.
- **Delete the Selected Layout** — Use this button to delete the currently selected layout in the Layout List.
- **Maintain Window State** — Click this button to keep the DashBoard window at its current state when restoring a layout (maximized or sized). Click the button again to turn off this feature.
- **Maintain Window Size** — Click this button to keep the DashBoard window at its current size when restoring a layout (if not maximized). Click the button again to turn off this feature.
- **Maintain Window Position** — Click this button to keep the DashBoard window at its position on the desktop when restoring a layout. Click the button again to turn off this feature.

Managing Your Layouts

Once your DashBoard window and **Device** tabs are organized the way you wish, you can save this configuration as a new Layout.

To display a Layouts View tab:

Display a Layouts View tab using one of the following methods:

- Select **Layouts** > **Show Layouts View**.
- Select **Views** > **Show Layouts**.

To organize the tabs:

1. Click the tab you wish to move.
2. Drag and drop the tab to the new location within the DashBoard window.

To re-position a tab in DashBoard:

1. Click the tab you wish to move.
2. Position a tab using one of the following methods:
   - Drag and drop the tab to the new location within the DashBoard window.
   - Undock the tab from the DashBoard window by dragging it outside the DashBoard window.

To save the current layout:

1. Click in **Layouts View** tab to display the **Save Current Layout** dialog box.
2. Enter a name for the new layout in the provided text field.
3. Click **OK**.

To recall a layout:

Recall a layout using one of the following methods:

- Select **Layouts** from the main DashBoard toolbar. Select a layout from the provided list.
- From the **Layouts View** tab, double-click the name of the layout. DashBoard restores the tab selection, divider position, and scroll position of any Device Editor tabs that were opened when the layout was last saved.

To rename a layout:

1. Right-click the layout in the **Layouts View** tab.
2. Select **Rename** to open the **Rename Layout** dialog box.
3. Enter a new name for the layout in the provided text field.
4. Click **OK**. The new name for the layout displays in the **Layouts View** tab.

To delete a layout:

1. From the **Layouts View** tab, select the layout you wish to delete.
2. Click to display the **Confirm Layout Delete** dialog box.
3. Click **OK**. The layout is deleted from the **Layout List**.

Keyboard Shortcuts

The Keyboard Shortcuts feature provides the ability to define a library of commands than can be executed through a series of keystrokes in the DashBoard client, DashBoard Connect compatible products, and other DashBoard product plug-ins. The DashBoard client comes with a standard library, but additional commands may be available depending on the plugs-ins you have installed.

This section provides a brief overview of how to manage your library in the DashBoard client. For information on commands available for your specific DashBoard Connect compatible product, refer to its user documentation.

Tip: To view a list of current shortcut commands, from the **Window** menu, click **Preferences**, and then in the **Preferences** dialog box click **Keyboard Shortcuts**. The list appears.

The following terms are used throughout this section:

- **Keystroke** — A combination of simultaneous button presses on your keyboard. References to keystrokes state the button on your keyboard to press, followed by the "+" symbol, followed by the next button to press. There are single key strokes (e.g. **P**), and keystroke combinations (e.g. **P** + **1**). Buttons such as **Shift**, **Ctrl**, and **Alt** are modifier keys and therefore are not considered as button presses.
- **Command** — An action that is executed whenever the keystroke is performed as defined in the **Keyboard Shortcuts** dialog box.
- **Library** — A collection of commands currently available in your DashBoard client. You can save your library as an *.xml file on your computer and then import this file to other computers running compatible DashBoard clients.

Overview

From the **Keyboard Shortcuts** dialog box in the DashBoard client, you can change the keystrokes used to trigger commands, delete commands, manage your library, and reset your library to the factory default values.

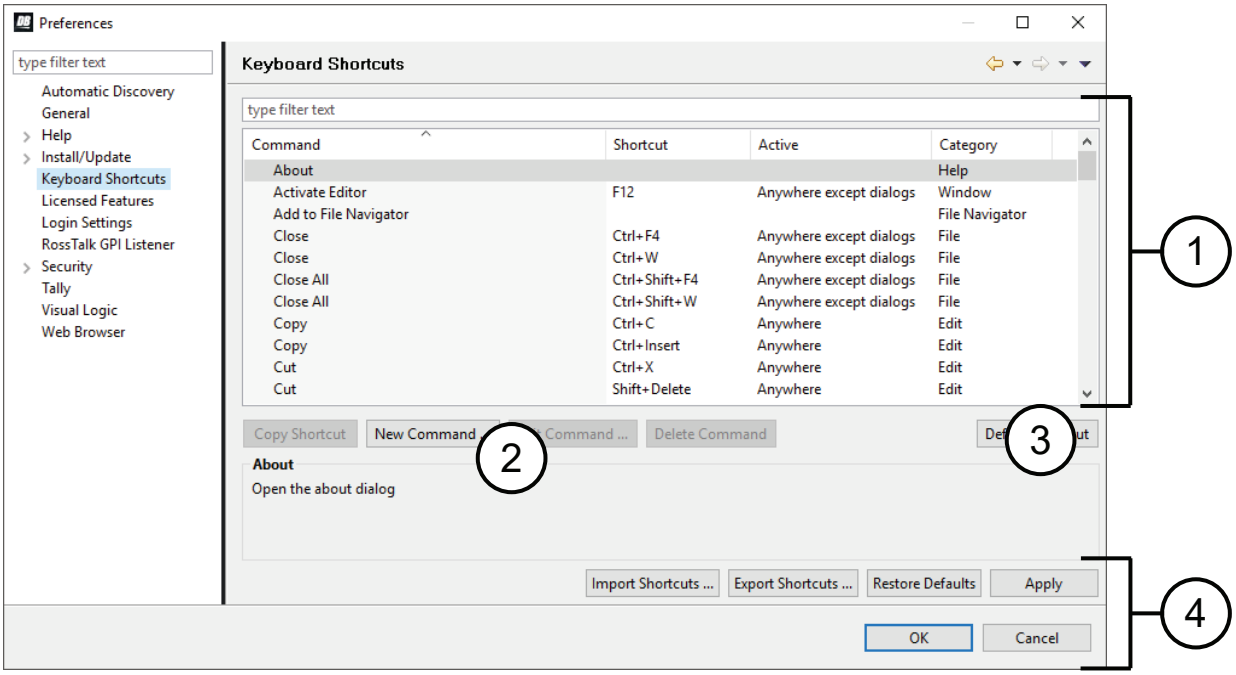


Figure 4.6 *KeyBoard Shortcuts Dialog Box*

1. Commands Set Area

This area displays a list of the commands currently enabled in the library for your DashBoard client. The commands are listed in a spreadsheet format with the following columns (left to right):

- **Command** — Displays the name of the command.
- **Shortcut** — Displays the keystrokes for the command.
- **Active** — Defines when the command is executed. There are three standard options but additional options may be available depending on the plug-ins in the DashBoard client.
- **Category** — Specifies the application element that the command affects.

2. Command Management Area

The following buttons are available in this area:

- **Copy Shortcut** — Creates another instance of the selected command, however the Shortcut (keystrokes) and Active values are not copied.
- **New Command** — Enables you to add a command that is not currently listed in the Commands Set area.
- **Edit Command** — Enables you to change elements of the selected command such as the required keystroke(s), and when to execute the command.
- **Delete Command** — Removes the command from the Commands Set area.

3. Default Shortcut Button

Resets only the selected command to its default values.

4. Library Management Area

The following buttons are available in this area:

- **Import Shortcuts** — Imports a library to your DashBoard client.
- **Export Shortcuts** — Saves your current library to an *.xml file on your computer.
- **Restore Defaults** — Applies the factory default values to all the commands in your current library.
- **Apply** — Applies your changes made in the Keyboard Shortcuts dialog box. If this button is disabled (grayed out), a conflict is occurring. Refer to the section "**Resolving Conflicts**" on page 4–16 for details.
- **OK** — Applies any changes made to your Keyboard Shortcuts library and exits the Preferences dialog box. If this button is disabled (grayed out), more than one command uses the same keystrokes. Refer to the section "**Resolving Conflicts**" on page 4–16 for details.
- **Cancel** — Exits the dialog box without applying any changes.

Managing the Keyboard Shortcuts

This section briefly outlines how to perform such tasks as launching the Keyboard Shortcuts dialog box, editing commands, and updating the library.

To navigate to the Keyboard Shortcuts dialog box:

1. Select **Window** > **Preferences** to display the **Preferences** dialog box.
2. Click **Keyboard Shortcuts** to display the **Keyboard Shortcuts** dialog box.

To copy a command:

1. Select the command from the list in the **Commands Set** area.
2. Click **Copy Shortcut**. The new command is now listed in the Commands Set area.
3. Edit the command as outlined in the section "**To edit a command:**" on page 4–16.

To edit keystrokes for a command:

1. Select the command from the list in the **Commands Set** area.
2. Click the appropriate cell in the **Shortcut** column.
3. Type the keystrokes you wish to assign to the command. For example, you could press **D** then press **H** for the Display Help command. The new keystrokes now display in the cell. In the example given, the cell would now display "D, H". If you press and hold the **Ctrl** button and then press **D**, the new keystrokes would display as "Ctrl+D".

To add a new command:

1. Click **New Command** to display the **Command Configuration** dialog box.
   - The Command Selection dialog box displays a list of available commands. This list is dependent on the plug-ins you have installed in the DashBoard client.
2. Select a command from the list.
3. In the **Shortcut** field, type the keystrokes you wish to assign to the command.
4. From the **Active** drop-down menu, specify when to execute the command.
5. Click **Next** and follow the on-screen instructions.
6. Click **Finish** to apply your changes, add the new command to the list in the **Commands Set** area, and return to the **Keyboard Shortcuts** dialog box.
7. Click **OK** to apply your changes and exit the dialog box, or click **Apply** to update the library without exiting the dialog box.

To edit a command:

1. Select the command from the list in the **Commands Set** area.
2. To edit the keystrokes for the command:
   - Click the appropriate cell in the **Shortcut** column.
   - Type the keystrokes you wish to assign to the command.
3. To specify when to execute the command:
   - Click the appropriate cell in the **Active** column.
   - Select an option from the drop-down menu. The following options come standard:
     - **Anywhere** — Executes the command whenever the DashBoard client is running and active or when a dialog box is active.
     - **Anywhere except dialogs** — Executes the command only when the DashBoard client is active but not when a dialog box is active.
     - **Only in dialogs** — Executes the command only when a dialog box is open and active.
4. Click **OK** to apply your changes and exit the dialog box, or click **Apply** to update the library without exiting the dialog box.

Resolving Conflicts

A conflict occurs when the same keystroke(s) are assigned to one or more commands. The DashBoard client detects when there are conflicts and flags them in the Commands Set area by displaying a red icon next to the affected command names and setting each name in red. The **Apply** and **OK** buttons are disabled until the conflict is resolved, and a message is displayed near the top of the dialog box. Refer to step 2 in the section "**To edit a command:**" on page 4–16 for details on updating the keystrokes for a command.

Keep the following mind:

- You may elect to keep two or more conflicts active. However, if such commands are triggered, the DashBoard client will prompt you to confirm which command to execute.
- When importing a library, conflicts are also flagged, enabling you to select which command to implement before the library is imported.

Importing and Exporting Libraries

You can save your library to an *.xml file on your computer and then import that library to another DashBoard client. Note that when importing a library from one DashBoard client to another, ensure that the second client is compatible with the first in terms of DashBoard client software version (DashBoard version 5.1.0 or higher) and installed plug-ins.

To save your library to a file:

1. Click **Export Shortcuts** to display the **Export Shortcuts** dialog box. Exporting a library also includes any user-defined commands.
2. Follow the on-screen instructions to save the file to your computer.

To import a library to your DashBoard client:

1. Click **Import Shortcuts** to display the **Import Shortcuts** dialog box.
   - The Import Shortcuts dialog box displays the commands currently used in your DashBoard client (Old Shortcut column) and a preview of the commands that will be in your library after the import (New Shortcut column).
   - You can select whether to view only those commands with assigned keystrokes by selecting the **Hide commands with no shortcuts** check box.
   - Importing a library merges commands, including any user defined commands, with the current library.
2. From the **Select shortcuts source:** area, specify a library to import using one of the following methods:
   - Use the drop-down menu to select a file provided by the plugs-ins you have installed.
   - Click to display the **Import shortcuts from file** dialog box and navigate to the file on your computer. Follow the on-screen instructions and click **Open** to return to the **Import Shortcuts** dialog box.
3. Click **OK** to import the library and return to the **Keyboard Shortcuts** dialog box.

Resetting to Default Values

You can choose to reset a single command or your entire library to the factory default values. Note that resetting the library also deletes any commands that do not come standard with the DashBoard client or your DashBoard Connect compatible product. For example, any commands that are copies will be deleted, and any standard commands you edited will be reset.

To reset a single command:

1. Select the command from the list in the **Commands Set** area.
2. Click **Default Shortcut**.

To reset the library:

1. Click **Restore Defaults**.
2. Follow the on-screen instructions.

Restoring Keyboard Shortcut Commands for Copy, Cut, Paste, Undo, and Redo

If you upgraded from DashBoard version 5.1 to DashBoard version 6.0, keyboard shortcut commands for **Copy**, **Cut**, **Paste**, **Undo**, and **Redo** may be inactive.

To restore these keyboard shortcuts:

1. In DashBoard, on the **Window** menu, click **Preferences**.

   The **Preferences** dialog appears.
2. In the list on the left side of the **Preferences** dialog, click **Keyboard Shortcuts**.

3. In the **Keyboard Shortcuts** area, in the **Command** list, click **Copy**, and then click **Default Shortcut**.

   Repeat this step for **Cut**, **Paste**, **Undo**, and **Redo**.

4. Click **Apply**.

5. Click **OK**.

Using DashBoard Help

The DashBoard Help system is accessed by selecting **Help** > **Help Contents** from the main toolbar of DashBoard. The DashBoard Help displays the **Contents** pane and **Search** box in the toolbar by default.

The following Help Systems are currently available in DashBoard:

- **DashBoard Help** — This is the main Help system for the DashBoard Control System that is available by choosing **Help** > **Help Contents** from the main toolbar. DashBoard Help provides information on the various features and options available in DashBoard. Context-sensitive Help is also available by selecting an interface item, such as the Basic Tree View tab, and clicking **F1** (when running Microsoft® Windows®).
- **openGear Help** — This feature provides information on individual openGear devices, such as frames and cards. You can access the openGear Help for your device by selecting the device in the Tree Views and clicking **F1** (when running Microsoft® Windows®) or by choosing **openGear** from the Help dialog box. An option is provided for importing new help files for openGear devices.
- **URM Help** — This feature provides information on the DashBoard User Rights and Management option.

This section briefly summarizes how to configure the DashBoard Help display options and import new help files.

Configuring the DashBoard Help Display Options

This section summarizes how to configure the DashBoard Help display features:

- **Open Window Context Help** — This is the context-sensitive help that is displayed when you click **F1** (when using Microsoft® Windows®) in the main DashBoard window.
- **Dialog Context Help** — This is the context-sensitive help in a dialog box.

To configure the Help display options for DashBoard:

1. Select **Window** > **Preferences** to display the **Preferences** dialog box.

2. Select **Help** to display the **Help** dialog box.

3. Specify the browser used to display the DashBoard Help search results by selecting one of the following options from the **Open help search** menu.

   - **In the dynamic help view** — Select this option to display the DashBoard Help search results in a new pane of the DashBoard interface. This is the default setting.
   - **In a browser** — Select this option to display the DashBoard Help search results in your default web browser.

4. Specify how to display help documents, such as user manuals in *.pdf format, by selecting one of the following options from the **Open help view documents** menu.

   - **In place** — The help document is displayed in the same tab as the link to the document. This is the default setting.
   - **In the editor area** — The help document is displayed in a new tab in DashBoard.
   - **In a browser** — The help document is displayed in your default web browser.

5. Specify how to display the DashBoard Help contents by selecting one of the following options from the **Open help contents** menu.
   - **In the help browser** — The DashBoard Help content is displayed in a new pane of the DashBoard interface. This is the default setting.
   - **In an external browser** — The DashBoard Help content is displayed in your default web browser.
6. Specify how the openGear Help is displayed by selecting one of the following options from the **Open window context help** menu:
   - **In the dynamic help view** — The selected Dialog Context Help is displayed in a new pane of the DashBoard interface. This is the default setting.
   - **In an infopop** — The Help content is displayed as a persistent popup message.
7. Specify how to display the openGear Help by selecting one of the following options from the **Open dialog context help** menu.
   - **In a dialog tray** — The DashBoard Help content is displayed in a new pane of the DashBoard interface. This is the default setting.
   - **In an infopop** — The Help content is displayed as a persistent popup message.
8. Click **Apply** to save your changes. You can also click **Restore Defaults** to disregard any changes you have made.

Importing openGear Help

DashBoard allows you to download and install additional help files provided by your openGear manufacturer, enabling you to display the most recent help files for your device. There are two methods for importing openGear Help:

- **Importing openGear Help Files** — This method enables you to import a file or directory from a location on your network to your DashBoard workstation. Use this method if you are running Apple® Mac® OS® or Linux® Fedora®.
- **Installing a Ross Video openGear Help Pack** — This method installs an additional DashBoard Help feature that provides a library of Ross Video openGear user manuals. If you are running Microsoft® Windows®, use the procedure provided in the section "**Installing DashBoard Add-on Programs**" on page 2–4. Otherwise, use the procedure for importing openGear Help Files.

✶ The **Include help content from a remote info-center** option is not implemented.

Importing openGear Help Files

This section briefly summarizes how to import openGear Help Files into DashBoard. If your openGear manufacturer has provided a Help Pack Add-on program and your computer is running Microsoft® Windows®, use the procedure "**Installing DashBoard Add-on Programs**" on page 2–4.

To import openGear Help Files:

1. Contact your openGear manufacturer to determine if additional help files are available for your device(s).
2. From the main toolbar, select **File > New** > **Other...** The **Select Equipment or Service Type to Add** dialog box opens.
3. Expand the openGear node.
4. Select **Import openGear Help Files** from the list.
5. Click **Next >**. The **Import openGear Help File(s)** dialog box opens.

6. From the **Add Help From** list, select the type of file to import:
   - **File** — Select this option if the help file is a PDF, or is in a zip file. Proceed to step 7
   - **Directory** — Select this option if the help file has been extracted to a directory. Proceed to step 7
   - **Download** — Select this option if the help file is to be downloaded from the manufacturer website. Proceed to step 8
7. If you selected **File** or **Directory**:
   - Click **Browse...** in the **Selected Help** area.
   - Navigate to the file you wish to import.
   - Click **Open** to return to the **Import openGear Help File(s)** dialog box. Note that the file location is now displayed in the **Selected Help** field.
   - Click **Finish** to import the file into DashBoard.
8. If you selected **Download**:
   - Enter the URL of the help file in the **Selected Help** field.
   - Click **Finish** to import the file into DashBoard.

To view your new help file, choose **Help** > **Help Contents** from the main toolbar and select the file from the **openGear** node.

Preferences

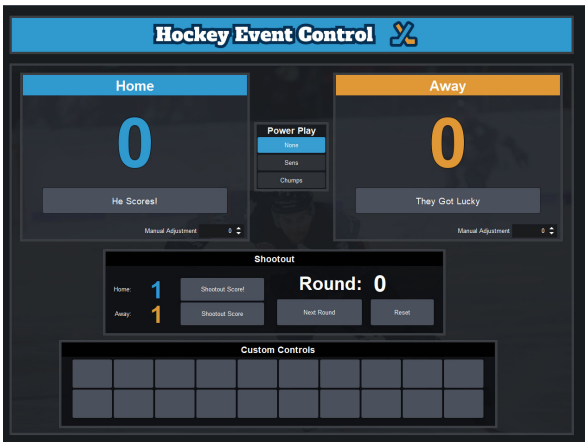
This section briefly outlines additional options available in the **Preferences** menu in DashBoard. The topics covered are:

- "**Theme Preferences**" on page 4–21
- "**Memory Allocation Preferences**" on page 4–22
- "**Automatically Save State**" on page 4–22
- "**Secure Storage**" on page 4–23
- "**Browser Preferences**" on page 4–23
- "**Configuring OAuth 2.0 Login**" on page 4–25

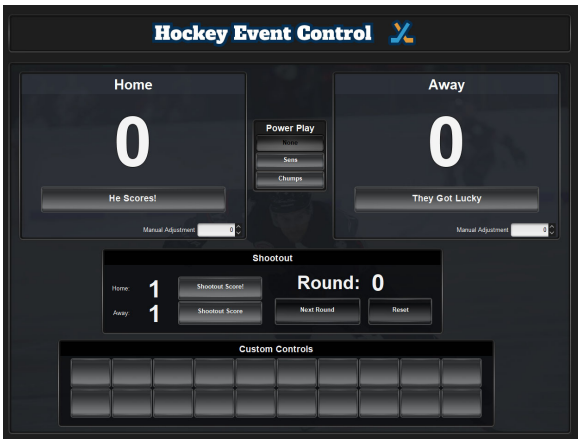
Theme Preferences

In DashBoard 9.0 and later, Aura is the default DashBoard theme. You can design and build beautiful custom panels that leverage the new Aura theme, and update existing panels by launching them in DashBoard 9.0. Aura makes it easier to design stunning panels using simple two-dimensional elements and bright colors.

You can also choose to switch back to the Classic theme, which was used in DashBoard 8.8 and earlier. You can see a panel that is displayed in each theme for comparison below.



Aura Theme



Classic Theme

When you launch a panel that was created in DashBoard 8.8 and earlier in DashBoard 9.0, it will automatically update to use the Aura theme. Panels may require small adjustments where manual style overrides were used in the initial design. You should review your panel before using it in a live environment, and make any adjustments that are needed. For example, you may wish to use the new Aura color palettes or adjust the position of content.

Note: Ultritouch only supports the Aura theme.

Note: New features developed for future versions of DashBoard will not support the Classic theme.

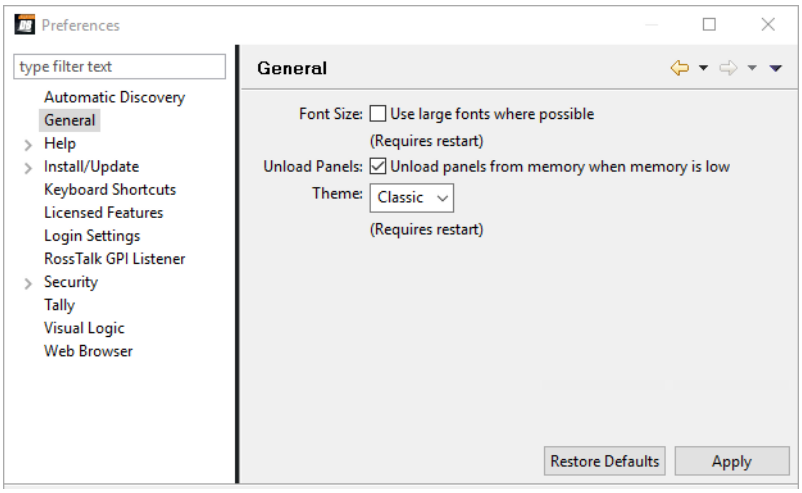
To change your DashBoard theme

Use the steps below to switch your theme.

1. From DashBoard, go to the **Window** menu, and select **Preferences**.

   The **Preferences** dialog opens.

2. Select **General > Theme** and select the desired theme from the drop-down menu.

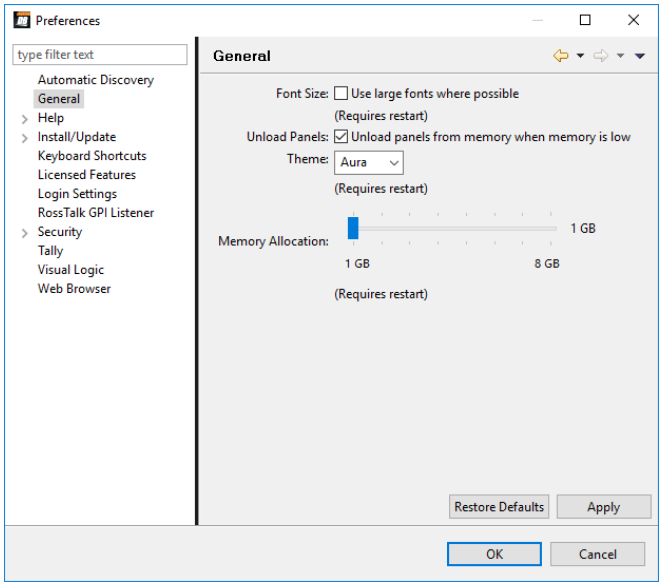


Memory Allocation Preferences

If you are running the 64-bit version of DashBoard, you can choose the amount of memory to allocate to DashBoard. The options range from the default value, which is a minimum of 1GB, to a maximum value of half of your system's available RAM.

To Increase Memory Allocation (only available for the 64-Bit Version of DashBoard)

1. Navigate to **Preferences > General** to set the amount of memory.
2. Drag the slider to set the amount of memory available to DashBoard. The amount can only be allocated in increments of 1GB.



3. Apply your changes.
4. Restart DashBoard for the changes to take effect.

Automatically Save State

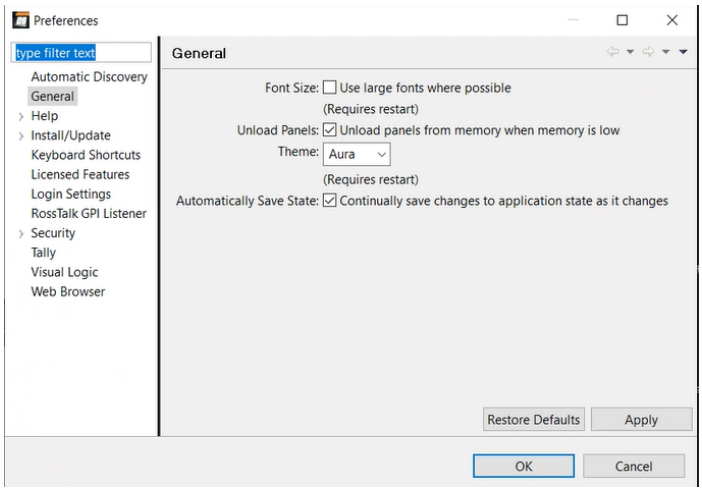
You can choose to have DashBoard automatically save any changes to the application state. This includes the layout of windows, panels, and open tabs within the DashBoard application. If the Automatically Save State preference is selected, the layout state is automatically saved upon each change, ensuring that it will remain consistent if the device is shut down unexpectedly.

To turn on the Automatically Save State setting:

1. From DashBoard, go to the **Window** menu, and select **Preferences**.

   The **Preferences** dialog opens.

2. Select **General** and click the Automatically Save State checkbox.



Secure Storage

Ross Video recommends that the **Secure Storage** feature be configured only by system administrators, or as directed by Ross Technical Support when troubleshooting.

Browser Preferences

As of DashBoard 9.7, DashBoard uses Chromium as its default browser, with JxBrowser as the implementation used. If you want to change the default browser, you have the option to disable Chromium and select another browser in **Preferences**. If Chromium is disabled and another default browser is not selected, DashBoard will revert back to the previous browser implementation that was used in DashBoard 9.5.3 and earlier. This fallback mechanism is also triggered if the current operating system does not support Chromium.

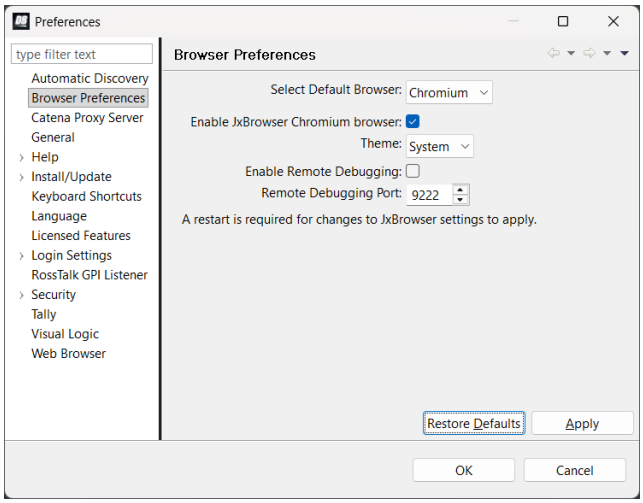
Users can also update their browser preferences so that browsers within CustomPanels will open in dark mode. This enhances usability in low-light environments, such as dark control rooms.

To change the default browser

1. From DashBoard, go to the **Window** menu, and select **Preferences**.

   The **Preferences** dialog opens.

2. Select **Browser Preferences**.



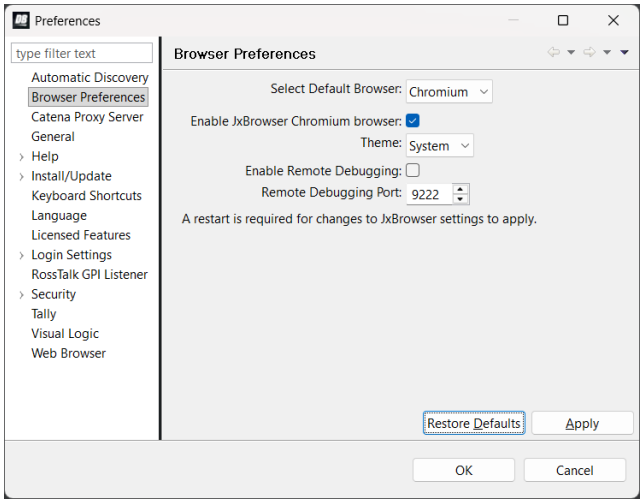
3. Select the desired default browser from the **Select Default Browser** dropdown list.
4. Click **OK**.

   The **Restart Required** dialog opens.
5. Click **Yes** to restart DashBoard for your changes to take effect.
6. If prompted, save any unsaved changes. Note that restarting DashBoard without saving will result in any unsaved changes being lost.

To disable Chromium

1. From DashBoard, go to the **Window** menu, and select **Preferences**.

   The **Preferences** dialog opens.
2. Select **Browser Preferences**.



3. Unselect the checkbox labeled **Enable JxBrowser Chromium Browser**.
4. Click **OK**.

   The **Restart Required** dialog opens.
5. Click **Yes** to restart DashBoard for your changes to take effect.
6. If prompted, save any unsaved changes. Note that restarting DashBoard without saving will result in any unsaved changes being lost.

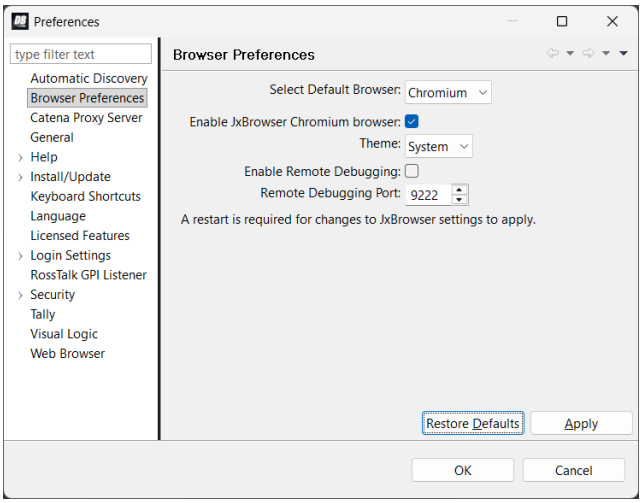
Note: When the **Enable JxBrowser Chromium Browser** checkbox is unselected, the other JxBrowser settings will automatically be unselectable.

To change browser theme

1. From DashBoard, go to the **Window** menu, and select **Preferences**.

   The **Preferences** dialog opens.

2. Select **Browser Preferences**.



3. Ensure the checkbox labeled **Enable JxBrowser Chromium Browser** is selected.
4. Select the desired theme from the **Theme** dropdown.
5. Click **OK**.

   The **Restart Required** dialog opens.

6. Click **Yes** to restart DashBoard for your changes to take effect.
7. If prompted, save any unsaved changes. Note that restarting DashBoard without saving will result in any unsaved changes being lost.

Configuring OAuth 2.0 Login

By configuring the OAuth 2.0 login settings within Preferences, you are able to log in using OAuth 2.0 as an authorization tool. This will allow you to log in as certain users determined by your administrator. These users have specific scopes assigned to them, which allow them to perform different functions. Before being able to use OAuth 2.0 though, the settings must be configured.

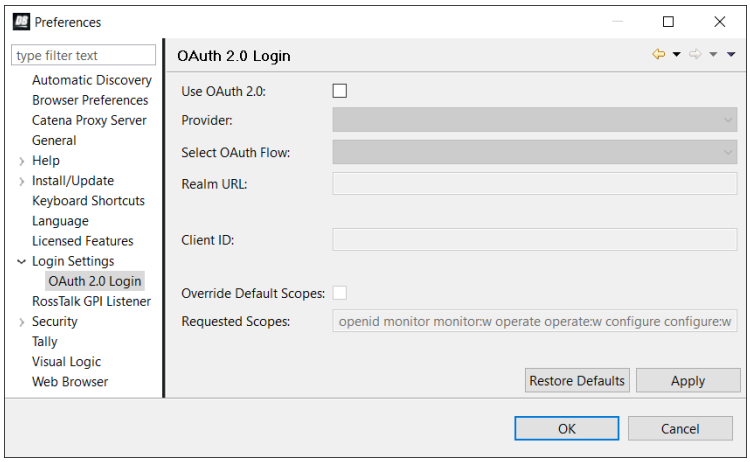
To configure OAuth 2.0 Login

1. From DashBoard, go to the **Window** menu, and select **Preferences**.

   The **Preferences** dialog opens.

2. Select **Login Settings > OAuth 2.0 Login**.

   The **OAuth 2.0 Login** page displays.



3. Select the **Use OAuth2.0** checkbox.

   The other fields on the page become accessible.

4. Select the **Provider** for the authorization server.

5. Select the **OAuth Flow** to be used. Select either:

   - **Device** to login by scanning a QR code with another device
   - **Browser** to login using a browser within DashBoard

   Note that to use the **Browser** flow, the **Enable JxBrowser Chromium browser** checkbox must be selected on the **Browser Preferences** page.

6. Enter the **Realm URL** to be used for the authorization server.

7. Enter the **Client ID** for the device.

8. If desired, select the **Override Default Scopes** checkbox and define the **Requested Scopes**. Otherwise, leave the **Override Default Scopes** checkbox unselected to maintain the default scopes.

9. Click **Apply**.

   The OAuth 2.0 login configurations are saved.

Logging in Using OAuth 2.0

After configuring OAuth 2.0 login as outlined in "**To configure OAuth 2.0 Login**" on page 4–25, OAuth 2.0 is ready to be used to login with. Depending on what you selected for the **Select OAuth Flow** field during configuration, there are different methods to be used for logging in using OAuth 2.0.

If you selected **Device**, follow the procedure "**To login using OAuth 2.0 (Device method)**" on page 4–26

If you selected **Browser**, follow the procedure "**To login using OAuth 2.0 (Browser method)**" on page 4–28

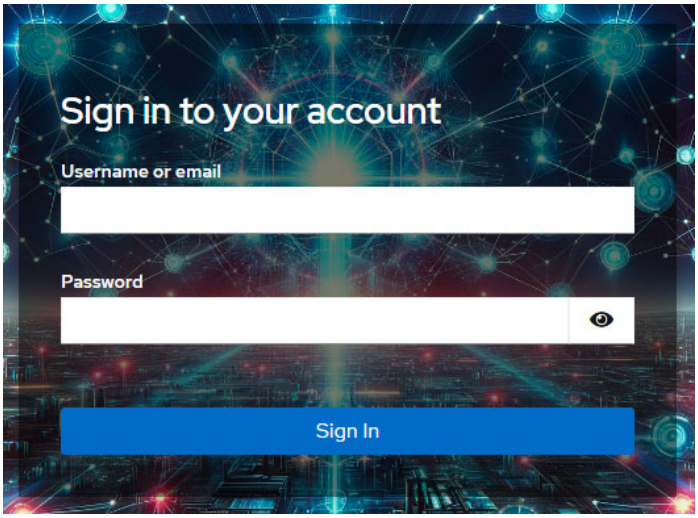
To login using OAuth 2.0 (Device method)

1. In DashBoard, select **File** > **Login OAuth2**. If the **Login OAuth2** option is not displayed, ensure configurations are correct by following the procedure "**To configure OAuth 2.0 Login**" on page 4–25.

   The **OAuth Login** dialog box opens.

2. Using a device with a camera, scan the QR code displayed on the **OAuth Login** dialog box.

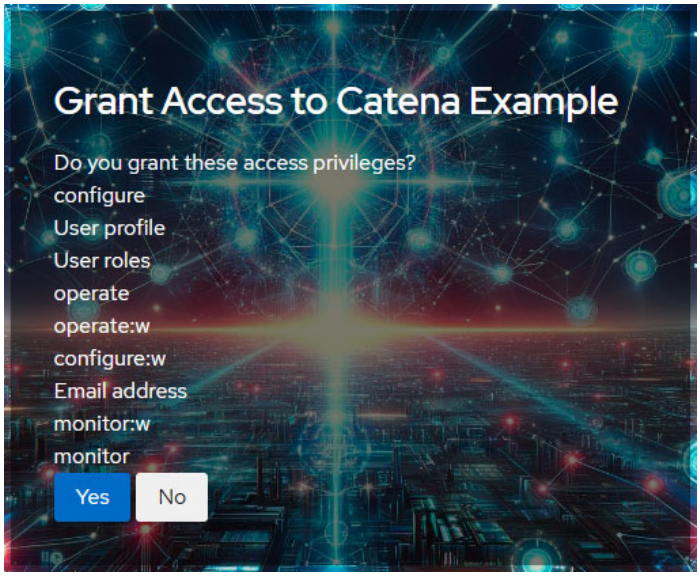
   The **catena sign in** page opens on the device used to scan the QR code.



3. Enter the **Username or email** address for the user account you want to log in with.
4. Enter the **Password** for the user account you want to log in with.

5. Click **Sign In**.

   A **Grant Access** confirmation message displays.



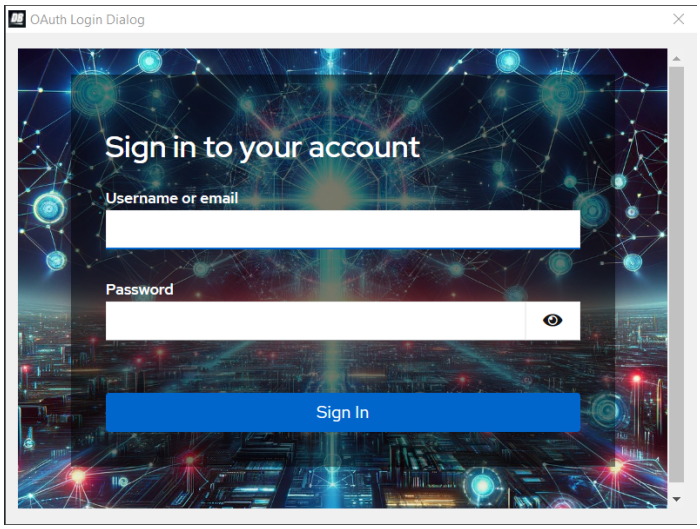
6. Click **Yes** to confirm that you want to grant access to the displayed access privileges.

   A Device Login Successful message displays. In DashBoard, the title bar refreshes to display the user that is signed in. You now have access to the set privileges of that user.

To login using OAuth 2.0 (Browser method)

1. In DashBoard, select **File** > **Login OAuth2**. If the **Login OAuth2** option is not displayed, ensure configurations are correct by following the procedure "**To configure OAuth 2.0 Login**" on page 4–25.

   The **OAuth Login** dialog box opens.



2. Enter the **Username or email** address for the user account you want to log in with.
3. Enter the **Password** for the user account you want to log in with.
4. Click **Sign In**.

   The **OAuth Login** dialog box closes. In DashBoard, the title bar refreshes to display the user that is signed in. You now have access to the set privileges of that user.

Ultritouch Interface Overview

Ross Video's Ultritouch is a powerful system control panel that runs DashBoard in the panel touchscreen. The device interface is also available via a DashBoard client computer. You can refer to the ***Ultritouch User Guide*** for instructions on adding the Ultritouch router to DashBoard. This section briefly outlines how to use DashBoard CustomPanels from the Ultritouch device interface or from a DashBoard client computer.

You can add or delete CustomPanels or folders in the Ultritouch interface, or perform these actions on a DashBoard client computer. It's also possible to download CustomPanel files or folders to edit them on your computer.

For More Information on...

- Ultritouch, see the ***Ultritouch User Guide***.
- creating pull-out drawer menus for an Ultritouch CustomPanel, see "**Drawers**" on page 5–31.

This section contains the following procedures:

- "**To add a CustomPanel or folder in the Ultritouch:**" on page 4–29
- "**To delete a CustomPanel or folder in the Ultritouch:**" on page 4–29
- "**To download a CustomPanel or folder in Ultritouch:**" on page 4–30
- "**To disable keyboard and number pads for touchscreens**" on page 4–31
- "**To activate DashBoard licensed features with Ross Platform Manager in Ultritouch**" on page 4–32
- "**To activate DashBoard licensed features with Ross Video Online Activation in Ultritouch**" on page 4–34
- "**To activate DashBoard licensed features with Ross Keys in Ultritouch**" on page 4–36
- "**To update DashBoard licensed features in Ultritouch (Software Based Licensing method)**" on page 4–38
- "**To update DashBoard licensed features in Ultritouch (Ross Keys Based Licensing method)**" on page 4–38
- "**To remove DashBoard licensed features in Ultritouch (Software Based Licensing method)**" on page 4–39
- "**To remove DashBoard licensed features in Ultritouch (Ross Key Based Licensing method)**" on page 4–40

To add a CustomPanel or folder in the Ultritouch:

- Do one of the following:
  - › If the CustomPanel (.grid) file is listed in the **File Navigator** tab, double-click it.

    Tip: If the **File Navigator** tab is not visible in DashBoard, select **Views** > **File Navigator** in the main DashBoard toolbar.
  - › From the **File** menu, click **Open File**, navigate to the CustomPanel (.grid) file, and click **Open**.
  - › If you are using Microsoft Windows, in **Windows Explorer**, navigate to the CustomPanel (.grid) file, and double-click it.

✶ If the status indicator in the Basic Tree View of DashBoard or the Server Status on the Online Licensing Settings tab in Ultritouch are yellow (indicating an issue connecting to the license server), verify that the connection details are correct.

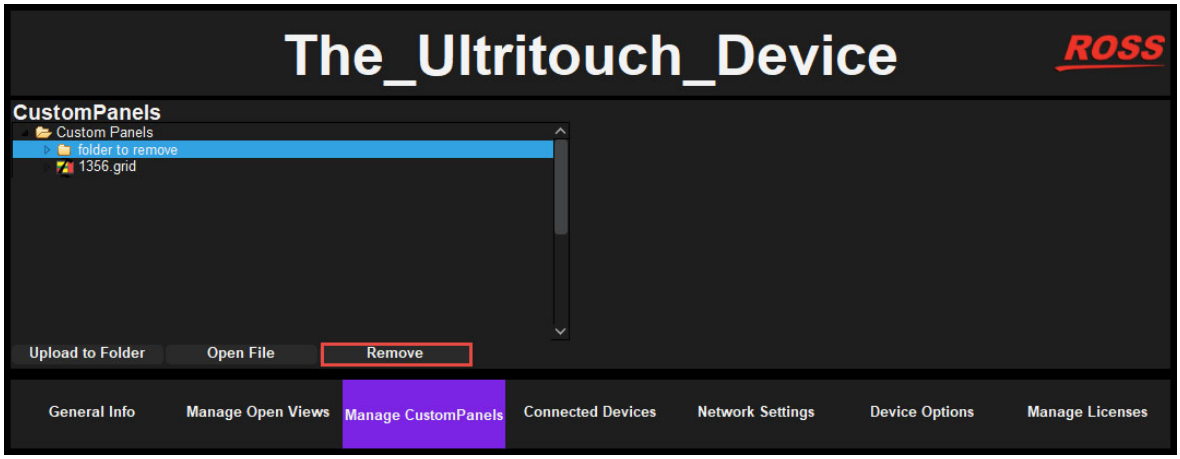
To delete a CustomPanel or folder in the Ultritouch:

- Using the Ultritouch interface in DashBoard:

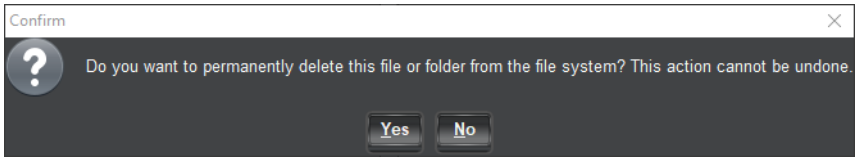
1. From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.
2. Select **Manage CustomPanels** and select the folder or **CustomPanel** file you want to delete.

   Note: You cannot remove the **Custom Panels** root folder.

3. Click **Remove** to permanently delete the folder or CustomPanel file.

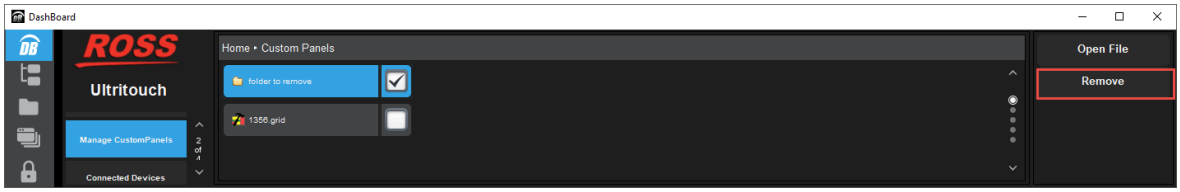


4. Deleting the file or folder removes it from the file system, and this change cannot be reversed after you confirm **Yes**. Click **Yes** to confirm.



- Using the Ultritouch panel:

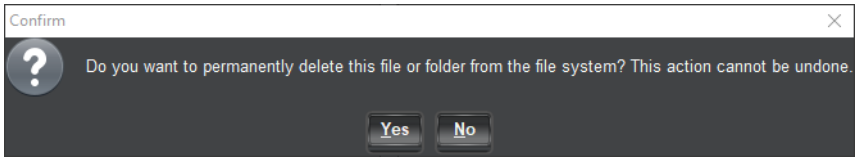
1. From the Ultritouch home page, click the DB icon, and click the down chevron until you can click **Manage CustomPanels.**



2. Select the folder or **CustomPanel** file you want to delete, and click **Remove** to permanently delete the folder or CustomPanel file.

   Note: You cannot remove the **Custom Panels** root folder.

3. Selecting the file or folder removes it from the file system, and this change cannot be reversed after you confirm **Yes**. Click **Yes** to confirm.

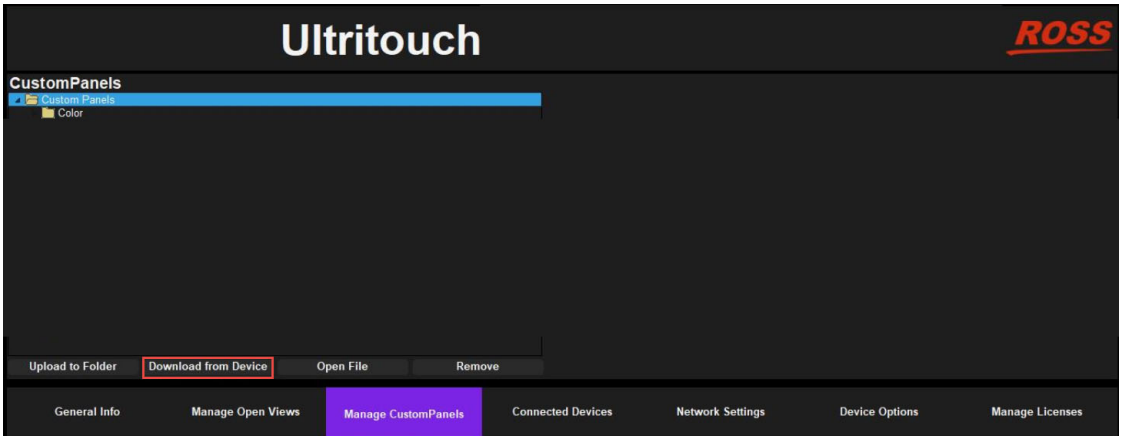


To download a CustomPanel or folder in Ultritouch:

- Using the Ultritouch interface in DashBoard:

1. From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.
2. Select **Manage CustomPanels** and select the folder or **CustomPanel** file you want to download.

3. Click **Download from DashBoard**.



A dialog prompt opens.

4. To choose where to save the file locally, select **Choose Location** and navigate to the appropriate directory. Once you've selected a location, click **Save**.

   Note: You will receive a confirmation message to indicate if the download succeeds.

   If you are downloading a folder, a .zip file containing all the assets in that folder will be saved to your local directory.

To disable keyboard and number pads for touchscreens

If you are using a smaller touchscreen to display a Dashboard CustomPanel, such as the Ultritouch 2, you may wish to disable the default keyboard or number pad that appears for text or number entry fields.

You can see an example below of the keyboard and a number pad on an Ultritouch 2.

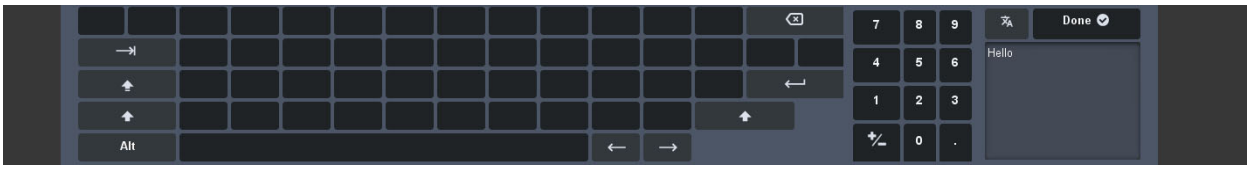


Figure 4.7 *Keyboard*

Figure 4.8 *Number Pad*

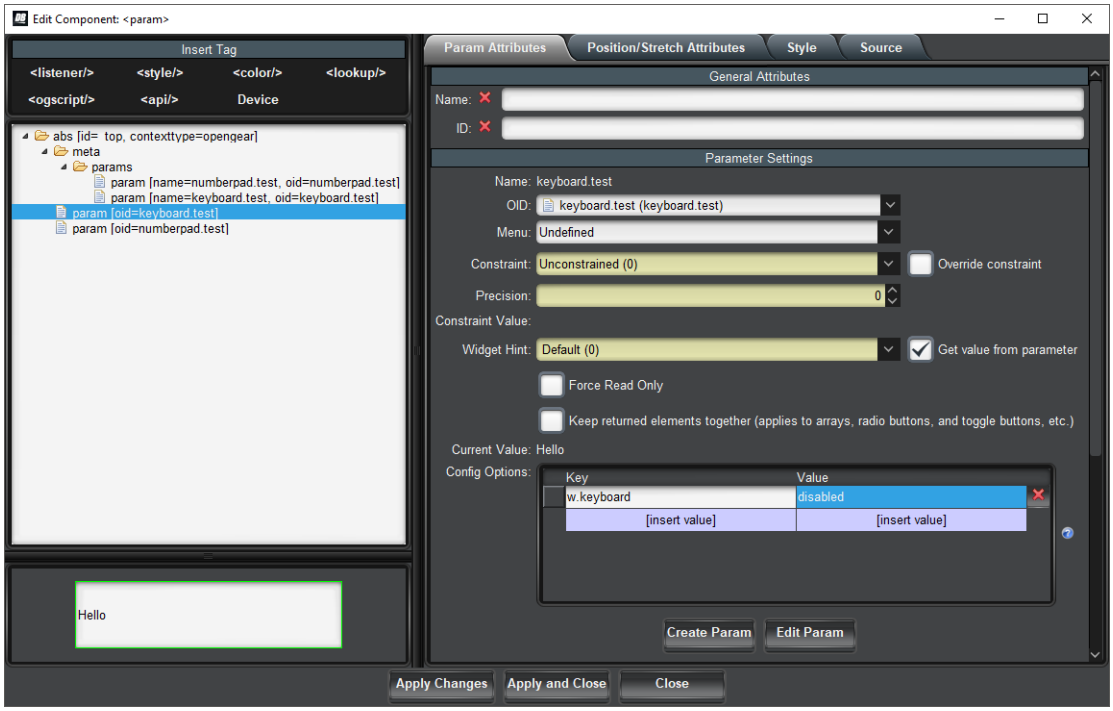
You can modify the properties of the parameter by adding the **w.keyboard** config option.

1. To disable the keyboard or number pad, double-click on the text or number entry that you would like to disable the keyboard or number pad display for.

   The **Component Editor** appears.

2. Now that the **Param Attributes** tab is open by default, scroll down to the Config Option section. To add the config option, enter the following key and value:

Key	Value
w.keyboard	disabled



3. Click **Apply Changes.**

To activate DashBoard licensed features with Ross Platform Manager in Ultritouch

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   - From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   - From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

2. If you are using the Ultritouch interface in DashBoard:

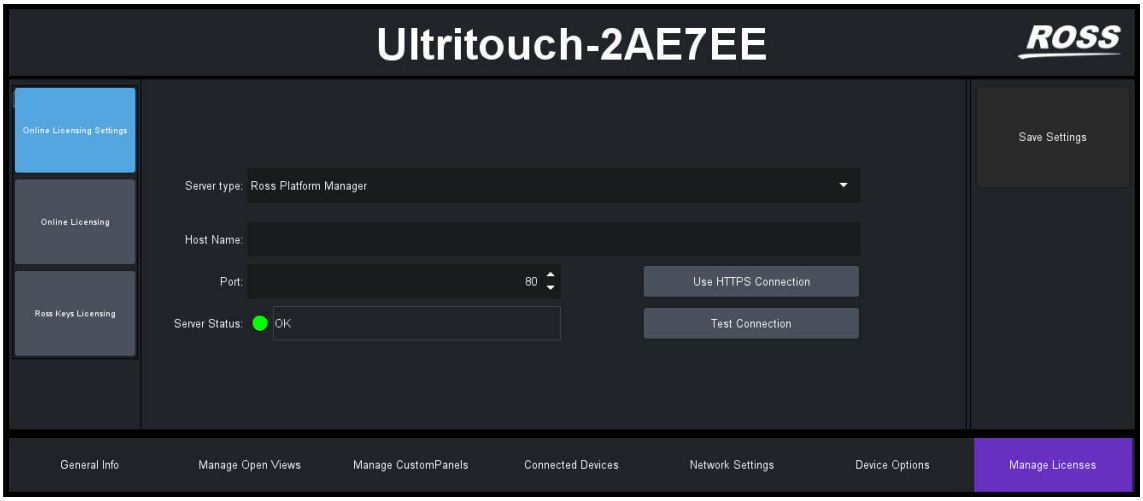
   - Select **Manage Licenses**.

   If you are using the Ultritouch panel:

   - Continue to step 3.

3. Select the **Online Licensing Settings** tab.

4. Select **Ross Platform Manager** as the **Server type**.



5. Set the connection details by doing the following:

   a. Enter the name of the host (or the IP Address of the server) in the **Host Name** field. If no **Host Name** is specified, it will be set to `localhost` by default.

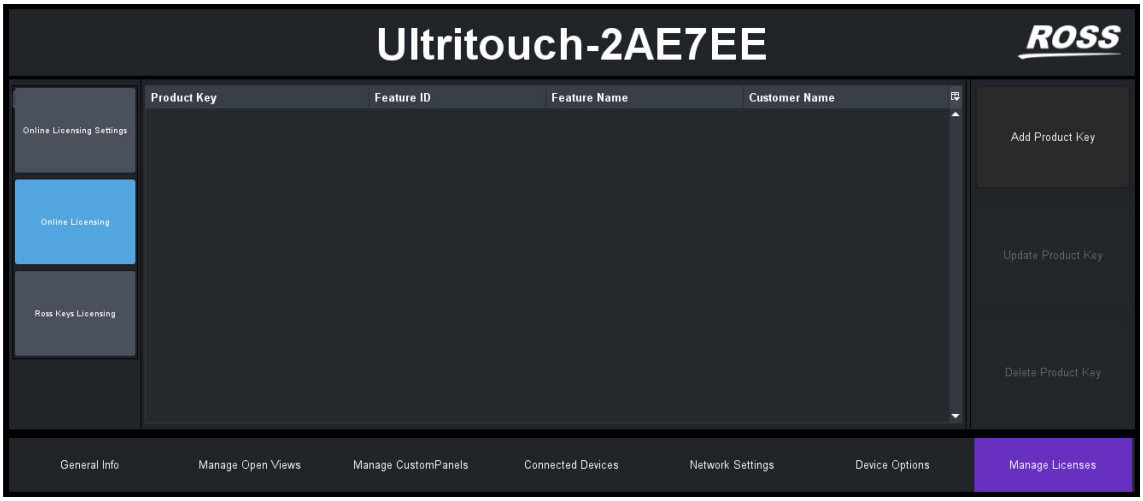
   b. Specify the **Port**. The default setting is 80.

   c. Select **Use HTTPS Connection** if desired.

6. Click **Save Settings**.

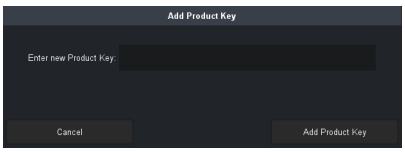
   The connection details are saved.

7. Select the **Online Licensing** tab.



8. Click **Add Product Key**.

   The **Add Product Key** dialog box opens.



9. Enter the 15 digit product key from your Ross Platform Manager server in the **Add Product Key** dialog box.

10. Click **Add Product Key**.

    The **Add Product Key** dialog box closes and all feature IDs associated with the product key are added to the **Online Licensing** tab.

✶ If the status indicator in the Basic Tree View of DashBoard or the Server Status on the Online Licensing Settings tab in Ultritouch are yellow (indicating an issue connecting to the license server), verify that the connection details are correct.

To activate DashBoard licensed features with Ross Video Online Activation in Ultritouch

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   - From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   - From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

2. If you are using the Ultritouch interface in DashBoard:

   - Select **Manage Licenses**.

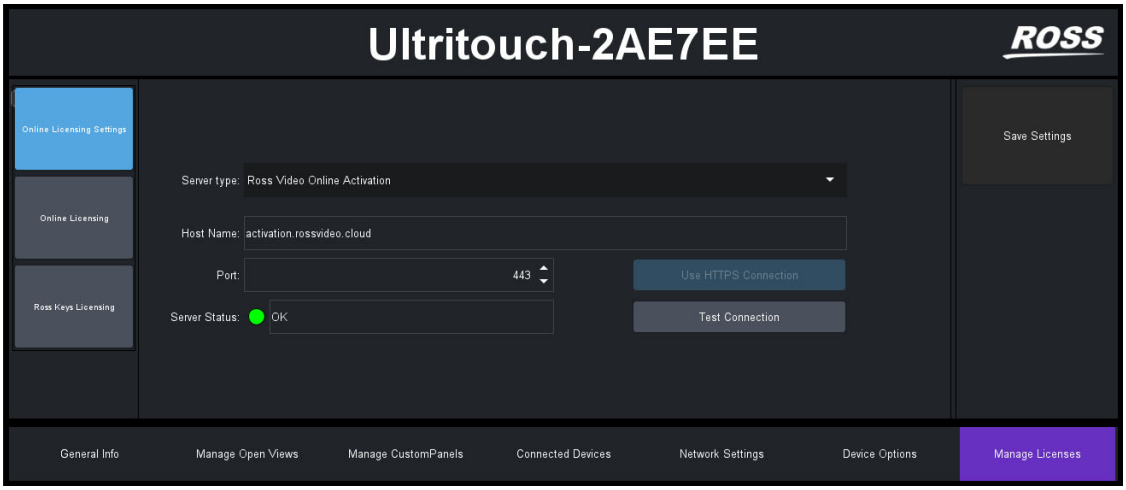
   If you are using the Ultritouch panel:

   - Continue to step 3.

3. Select the **Online Licensing Settings** tab.

4. Select **Ross Video Online Activation** as the **Server type**.

   The **Connection Details** section automatically fills with the information for Ross Video Online Activation, and the fields are unable to be edited.



5. Click **Save Settings**.

6. Select the **Online Licensing** tab.

7. Click **Add Product Key**.

   The **Add Product Key** dialog box opens.

8. Enter the 15 digit product key from the Ross Online Activation server in the **Add Product Key** dialog box.

9. Click **Add Product Key**.

   The **Add Product Key** dialog box closes and all feature IDs associated with the product key are added to the **Online Licensing** tab.

✶ If the status indicator in the Basic Tree View of DashBoard or the Server Status on the Online Licensing Settings tab in Ultritouch are yellow (indicating an issue connecting to the license server), verify that the connection details are correct.

To activate DashBoard licensed features with Ross Keys in Ultritouch

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   - From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   - From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

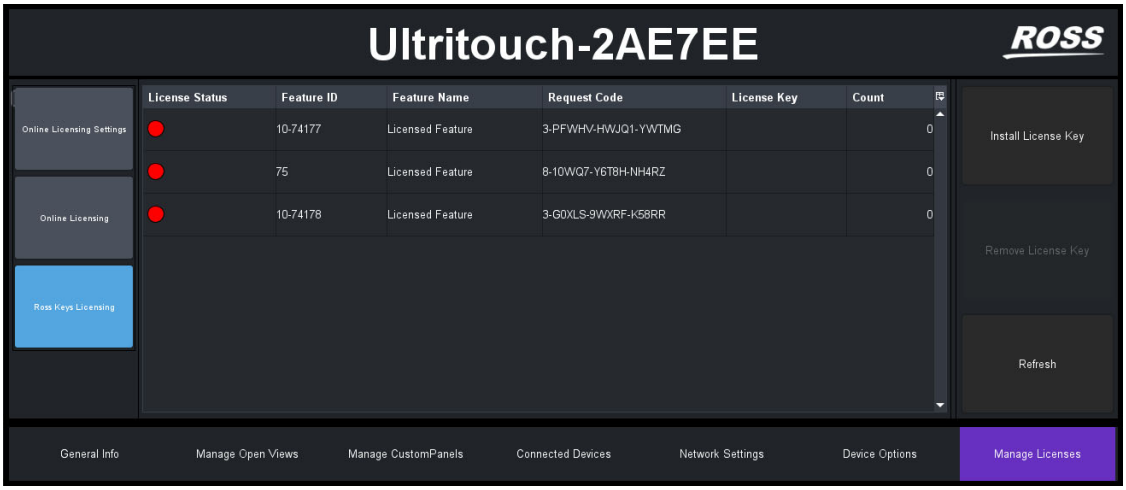
2. If you are using the Ultritouch interface in DashBoard:

   - Select **Manage Licenses**.

   If you are using the Ultritouch panel:

   - Continue to step 3.

3. Select the **Ross Key Licensing** tab.



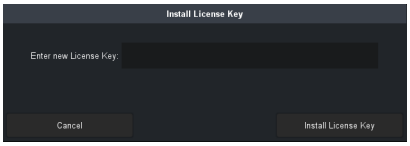
4. Select the feature you wish to license.

5. Contact Ross Video Technical Support using the contact information in the section "**Getting Help**" on page 1–3. Ensure that you have the following information from the **Ross Key Licensing** tab: Request Code, Hardware ID, and Feature ID.

6. When you speak to our Technical Support representative, tell them your name, your facility name, and the **Request Code** as listed on the **Ross Key Licensing** tab.

7. Click **Install License Key**.

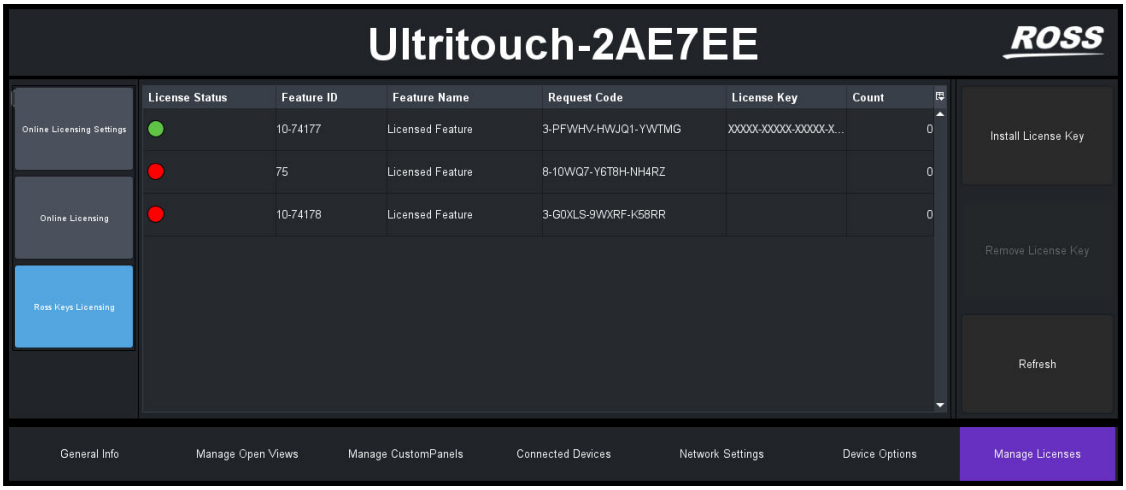
   The **Install License Key** dialog box opens.



8. Enter the 20 digit license key provided by Ross Video in the **Install License Key** dialog box.

9. Click **Install License Key**.

   The **Install License Key** dialog box closes and the license key has been installed.



To update DashBoard licensed features in Ultritouch (Software Based Licensing method)

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   - From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   - From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

2. If you are using the Ultritouch interface in DashBoard:

   - Select **Manage Licenses**.

   If you are using the Ultritouch panel:

   - Continue to step 3.

3. Select the **Online Licensing** tab.

4. Select the feature you wish to update.

5. Click **Update Product Key**.

   The selected feature updates and the most current data is displayed in the table.

To update DashBoard licensed features in Ultritouch (Ross Keys Based Licensing method)

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   - From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   - From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

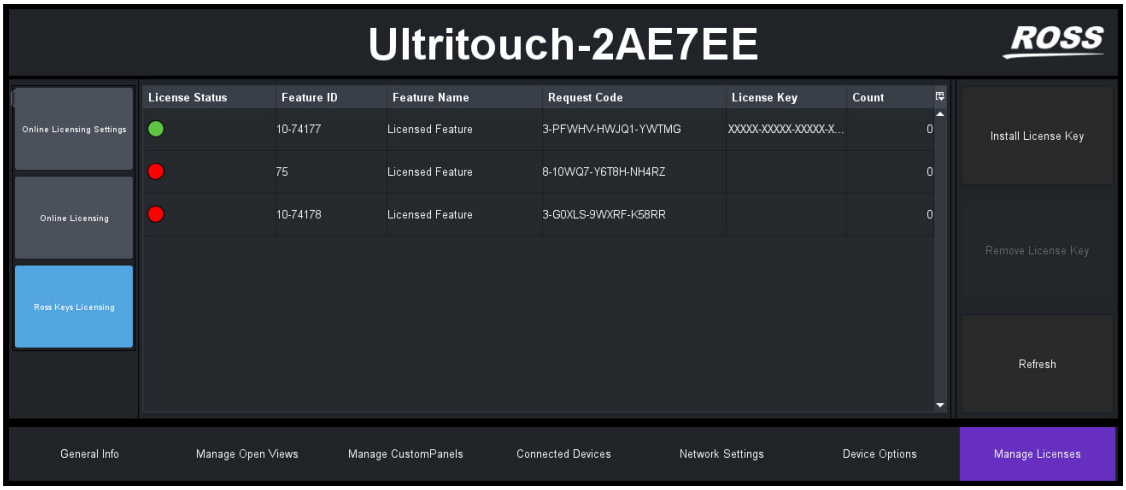
2. If you are using the Ultritouch interface in DashBoard:

   • Select **Manage Licenses**.

   If you are using the Ultritouch panel:

   • Continue to step 3.

3. Select the **Ross Key Licensing** tab.



4. Select the feature you wish to update.

5. Click **Refresh**.

   The selected feature updates and the most current data is displayed in the table.

To remove DashBoard licensed features in Ultritouch (Software Based Licensing method)

✶ Removing DashBoard licensed features can not be undone. Clicking **Delete License Key** removes features immediately. If this is done by mistake, you will need to reactivate the removed product key by following one of the following procedures:

- "**To activate DashBoard licensed features with Ross Platform Manager in Ultritouch**" on page 4–32
- "**To activate DashBoard licensed features with Ross Video Online Activation in Ultritouch**" on page 4–34
- "**To activate DashBoard licensed features with Ross Keys in Ultritouch**" on page 4–36

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   • From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   • From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

2. If you are using the Ultritouch interface in DashBoard:

   • Select **Manage Licenses**.

   If you are using the Ultritouch panel:

   • Continue to step 3.

3. Select the **Online Licensing** tab.

4. Select the feature you wish to remove.

   Note that all features belonging to the Product Key of the selected feature will be removed, not just the one selected.

5. Click **Delete License Key**.

   All features belonging to the Product Key of the selected feature are removed from DashBoard.

To remove DashBoard licensed features in Ultritouch (Ross Key Based Licensing method)

✶ Removing DashBoard licensed features can not be undone. Clicking **Remove License Key** removes features immediately. If this is done by mistake, you will need to reactivate the removed product key by following one of the following procedures:

- "**To activate DashBoard licensed features with Ross Platform Manager in Ultritouch**" on page 4–32
- "**To activate DashBoard licensed features with Ross Video Online Activation in Ultritouch**" on page 4–34
- "**To activate DashBoard licensed features with Ross Keys in Ultritouch**" on page 4–36

Note that the images in this procedure show the Ultritouch interface in DashBoard, but the steps performed will be the same for Ultritouch devices unless otherwise specified.

1. If you are using the Ultritouch interface in DashBoard:

   - From DashBoard, expand the Ultritouch and select the appropriate device from the tree view and double-click it to open the interface.

   If you are using the Ultritouch panel:

   - From the Ultritouch home page, click the **DB** icon, and click the down chevron until you can click **License Management.**

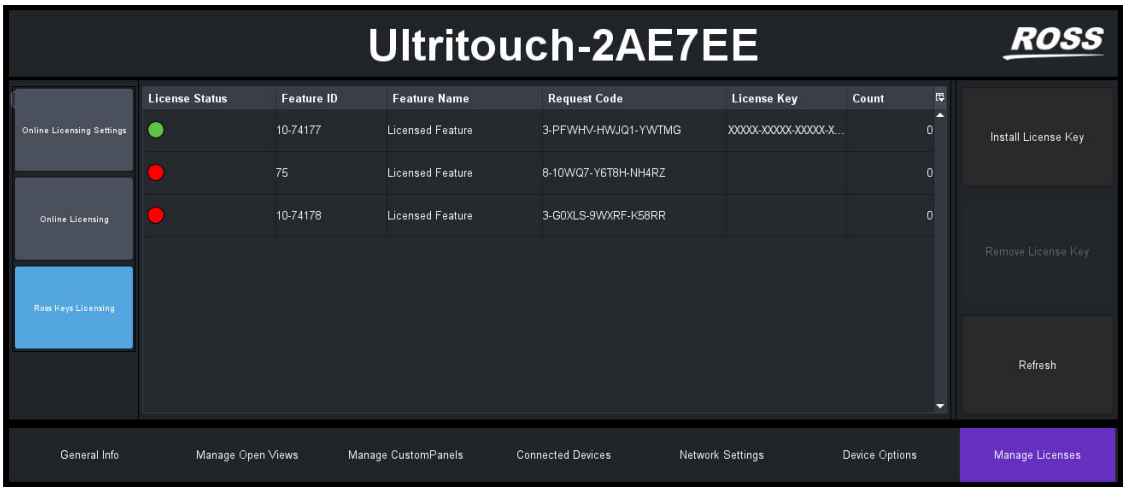
2. If you are using the Ultritouch interface in DashBoard:

   - Select **Manage Licenses**.

   If you are using the Ultritouch panel:

   - Continue to step 3.

3. Select the **Ross Key Licensing** tab.



4. Select the feature you wish to remove.

   Note that all features belonging to the Product Key of the selected feature will be removed, not just the one selected.

5. Click **Remove License Key**.

   All features belonging to the Product Key of the selected feature are removed from DashBoard.

PanelBuilder™

PanelBuilder is a DashBoard tool for creating custom interfaces for products from Ross Video, openGear partners, and DashBoard Connect Partners. Supported products include openGear cards, DashBoard Connect devices, CamBot robotic camera systems, XPression graphics systems, BlackStorm video servers, NK Routers, and Carbonite and Vision production switchers.

This section describes how to create CustomPanel interfaces using PanelBuilder features.

It contains the following topics:

- "**About PanelBuilder**" on page 5–1
- "**Creating a CustomPanel**" on page 5–8
- "**Edit Mode**" on page 5–13
- "**Adding Device Editors, Device Summaries, and Device Controls**" on page 5–21
- "**Adding Basic Components**" on page 5–25
- "**NDI Video Panels**" on page 5–88
- "**Webcam Video Feeds**" on page 5–90
- "**Adding Data-Backed Components**" on page 5–91
- "**Timers**" on page 5–104
- "**Assigning Tasks to Buttons, Labels, and Timers**" on page 5–107
- "**Triggering Tasks Externally**" on page 5–115
- "**Editing Components**" on page 5–118
- "**Locking Panel Proportions**" on page 5–156
- "**The DashBoard Memory Manager Indicator**" on page 5–157
- "**Parameters and Data Sources**" on page 5–160
- "**Working with ogScript**" on page 5–170
- "**NK Series Router Control Panels**" on page 5–179

About PanelBuilder

You can quickly and easily create CustomPanel interfaces tailored to the exact requirements and preferences of each operator. CustomPanels can contain custom controls and labels you create, as well as controls and status indicators imported from any number of DashBoard-enabled devices such as Carbonite switchers and openGear cards.

Within PanelBuilder you can:

- Automate custom workflows by using any or all of the following methods:
  - Drag and drop buttons, indicators, controls, and entire device editors from devices into CustomPanels.
  - Create new buttons, indicators, and controls.
  - Include navigational aids such as tabs, tables, labels, and scrollbars to enhance usability.
  - Customize the appearance of objects by repositioning, resizing, changing colors, specifying fonts, and adding background graphics.
  - Create monitoring and control systems by mixing and matching controls from multiple products on one CustomPanel.

    For example, you can create an interface that includes some or all of your openGear cards. An operator can view the operational status of all devices, and then click a button to modify a given device's configuration settings.
  - Embed web browser windows, enabling users to control devices that provide web-based control interfaces.

- Control CamBot robotic camera systems.

  For example, you can create a CustomPanel that shows the plan view of a studio, with buttons representing each shot you created using the CamBot Control Computer. When the operator taps a button, a CamBot camera system moves into position, ready to capture a perfect shot of the subject.
- Use RossTalk commands to control a variety of Ross Video products including Carbonite and Vision production switchers, and XPression graphics systems.
- Use Video Disk Control Protocol (VDCP) commands to control the Ross Video BlackStorm video server.
- Use custom parameters and imported data to create interfaces that generate and update data for XPression graphics in real-time.

  For example, you can create an interactive sports scoreboard that automatically sends updated scores and player information to XPression for immediate on-air display. The score is updated by the operator. The player information is extracted from an XML file when the operator clicks the player's name. Such a CustomPanel is so easy to use that the operator needs to know only about the sport — not about using DashBoard and PanelBuilder.
- Use Ross Video ogScript to add advanced logic to your interfaces. Most JavaScript objects and functions work in ogScript. For information about using ogScript in CustomPanels, see "**Working with ogScript**" on page 5–170.
- Use scripting to extend DashBoard's control and monitoring to networked devices that provide an interface for this purpose via UDP, TCP or HTTP.

CustomPanel Examples

This section describes some CustomPanels created using PanelBuilder.

Engineering Monitoring and Control Panel

The CustomPanel in **Figure 5.1** includes live controls and indicators within a flow diagram. This example can be used to monitor and control a system of openGear and DashBoard enabled products. Signal presence, audio level meters, source selection, control buttons, and drop down menu selectors from any product in the system can be combined to produce a custom solution that directly addresses your needs.

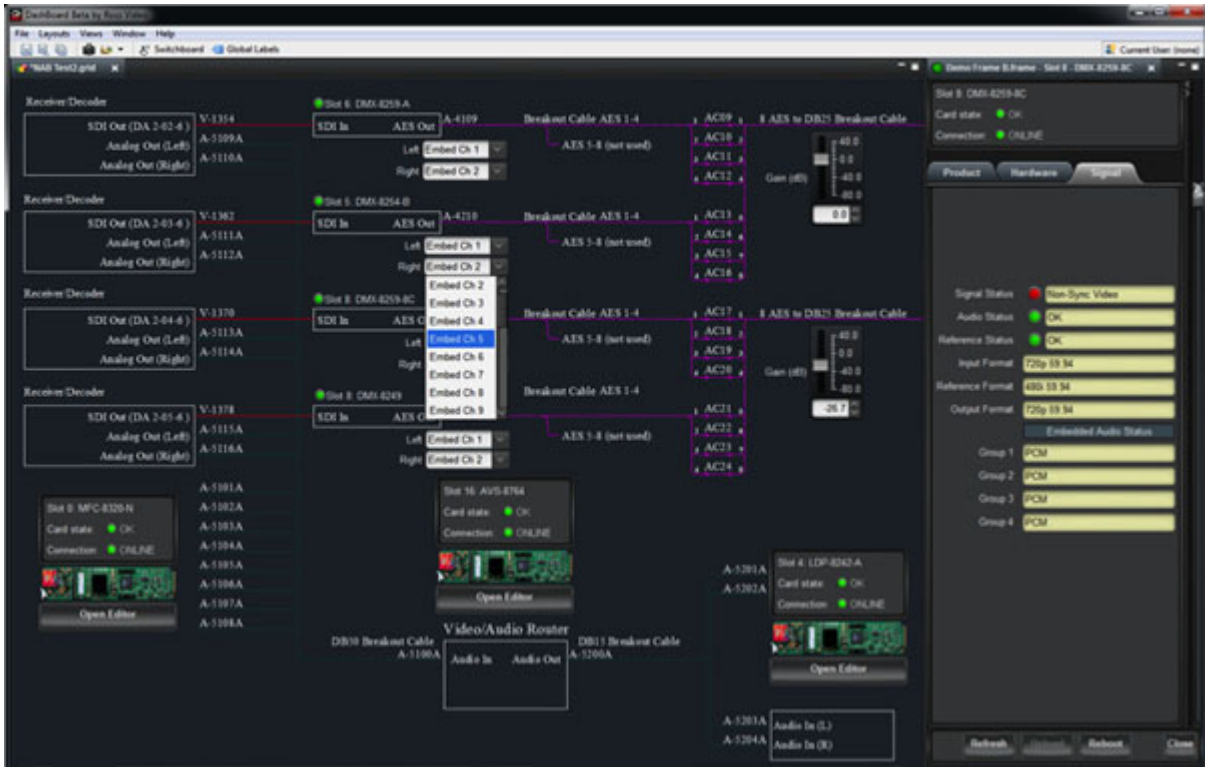


***Figure 5.1** - Engineering Monitoring and Control Panel*

Football Scoring Application for XPression

The CustomPanel in **Figure 5.2** is designed to control scoring graphics within a series of XPression Graphics templates designed for a football stadium. The operator does not need to know anything about DashBoard or XPression - only about scoring football.

Figure 5.2 *- Football Scoring Application for XPression*

Hockey Statistics Application for XPression

The CustomPanel in **Figure 5.3** is designed for use with the Ross XPression Graphics system. The panel pulls in XML statistics about each of the teams and their players. Simply by typing in the jersey number, a player's stats and thumbnail are recalled to the control screen. Buttons in the panel can be used to take templates associated with these stats on and off air.

Figure 5.3 *- Hockey Statistics Application for XPression*

PanelBuilder Concepts and Terminology

In PanelBuilder, you create CustomPanels. Each CustomPanel can contain any combination of other PanelBuilder objects. The following table explains common PanelBuilder concepts and terms.

Concept or Term	Description
buttons	Buttons are control components you can add to a CustomPanel, and which the user can manipulate. You can associate tasks with a button so the tasks are performed when the button changes state. You can also specify different visual appearances (styles) for each button state (On, Off, Default).
CamBot robotic camera systems	Ross Video CamBot is a line of robotic camera systems which includes robotic heads, lifts, pedestals, and control systems. In PanelBuilder, you can create tasks that send commands to control CamBot robotic camera systems.
canvas	A canvas component is an area of a CustomPanel upon which other components can be placed. Canvas types include: • basic canvas — empty area. • image canvas — includes a background image.
components	Components are objects on a CustomPanel. Components include tables, labels, tabs, canvases, and buttons. When you drag device controls into a CustomPanel, they become components of the panel.
CustomPanel	A CustomPanel is a user interface you create in PanelBuilder. CustomPanels can be used to monitor and/or control a wide variety of Ross Video products. CustomPanels are saved as**.grid** files. CustomPanels are sometimes referred to simply as “panels”.
data sources	In PanelBuilder, a data source contains parameter data which can be included and manipulated in a CustomPanel. Device parameter data can be edited to change device settings. You can also create local parameter data in PanelBuilder, and reference local parameters in scripts. Data sources can be XML data files, or parameter data from a device. When you create a CustomPanel, you can opt to automatically create an XML data file to store data for parameters you create in PanelBuilder. You can also create a panel file that includes the parameter data within the CustomPanel. Storing the data in the panel file eliminates the need to for a separate XML file and improves portability. Underlying every CustomPanel is a hierarchy of OGLML elements, each of which can be associated with only one data source. If no data source is specified, the element inherits a data source association from its parent element. To view the element hierarchy, enter Edit Mode, double-click an element, and then look at the component tree in the top left portion of the Edit Component window.
device editor	The default monitoring and control interface for a device. When you double-click a device in the Tree View, its device editor opens in the Device View area of the DashBoard window. You can also embed device editors into CustomPanels.
device view	The area of the DashBoard window in which CustomPanels and/or device editors are displayed.

Concept or Term	Description
devices and device controls	For the purposes of this chapter, devices are products that can be monitored and controlled using DashBoard. Devices include NK routers, BlackStorm servers, openGear cards, and DashBoard Connect devices. In PanelBuilder, you can drag openGear device controls from the TreeView or from a device's editor into CustomPanels. You can also drag the entire device editor into the panel. Device controls can display device status information, or be used to change device configuration settings. You can control BlackStorm servers using VDCP scripts integrated with CustomPanels. You can drag NK router status indicators into CustomPanels.
dropspot	The empty area of a new component, upon which you can place parameters or components. For example, when you create a table, each cell of the table is a dropspot.
edit mode	PanelBuilder Edit Mode enables you to modify a CustomPanel. When not in edit mode, the panel is ready for use.
labels	Labels are short text blocks you can add to a CustomPanel. The text can be static, or based on data. You can associate tasks with a label so the tasks are performed when the label is clicked.
OGLML	openGear Markup Language is a set of XML elements and attributes used to define CustomPanels. See also the definition for "**XML source**" on page 5–7.
ogScript	ogScript is a programming language developed by Ross Video to interact with DashBoard-enabled devices. It is a subset of JavaScript, with PanelBuilder-specific functions added. In PanelBuilder, you can add advanced functionality and logic to CustomPanels by creating tasks that execute ogScript code. You can also create standalone ogScript code segments and API script files. You can create and edit ogScript code manually, or use the Visual Logic editor to create and edit ogScript code visually. For more information about using ogScript in CustomPanels, see "**Working with ogScript**" on page 5–170. For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

Concept or Term	Description
parameters	There are two types of parameters: • Device parameters are imported from devices, and can be manipulated to control those devices. • Local parameters are data variables you can create in PanelBuilder. They can be displayed, can be modified by panel users, and can be referenced by scripts. Parameters can be assigned tasks, so that when a panel user changes the parameter value, the task is performed. For example, you can create a parameter to represent text for an XPression graphic. You also create an editable text box associated with the parameter. When a user types text in the box and clicks a button, a task is triggered which sends the text to XPression. Supported data types for parameters include strings, integers, and floats. You can also define a parameter as an array. Parameter data can exist only in certain types of panels: • Self-Contained Data Source Panels • XML Data Source Panels • XPression CustomPanels Panel type is defined when you first create the panel. You can also change it later. For more information about creating and editing parameters, see "**The Add/Edit Parameter Window**" on page 5–160.
RossTalk	RossTalk is a communication protocol used to control Ross Video products including XPression graphics systems and Carbonite and Vision production switchers. In PanelBuilder, you can create tasks that send RossTalk commands. Alternatively, you can create an ogScript task that uses the **`rosstalk()`** object to send RossTalk commands. For more information about using ogScript in CustomPanels, see "**Working with ogScript**" on page 5–170. For detailed reference information about ogScript functions, including the `rosstalk()` object, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.
split panels	A split panel is an area that is shared by two canvas-like panels. There is a split bar between the two panels, which users can move to adjust how much of the area is dedicated to each panel. Each panel is a dropspot which can contain parameters and components such as labels, buttons, and canvases. When you create a split panel, you have the option of automatically adding basic canvases to both panels.
tables	A table is a grid of canvas-like dropspots (or containers), to which you can add parameters and components such as labels, buttons, and canvases. When you create a table, you have the option of automatically filling it with buttons.
tabs	A set of tabs is like a set of stacked canvases. Tabs enable you to re-use an area of a CustomPanel for multiple layers of content. Only one tab of the set is visible at any given time. To switch between tabs, users click a small portion of the tab that protrudes from the stack. This portion of the tab is also called a tab. Each tab is a dropspot which can contain parameters and components such as labels, buttons, and canvases. When you create a set of tabs, you have the option of automatically adding basic canvases to all of them.
tasks	Tasks are commands that are associated with control components such as buttons, labels, or timers. When the state of the control component meets specified criteria, the tasks are performed. For example, you can create a button that, when clicked, performs the task of moving a CamBot robotic camera to a predetermined shot position.

Concept or Term	Description
timers	Timers are time counters that can be displayed on labels and/or associated with tasks. For example, you can create a timer that triggers a task to be performed every six hours.
VDCP	Video Disk Control Protocol is a communication protocol used to control hard disk video servers. In PanelBuilder, you can create tasks that send VDCP commands to BlackStorm video servers.
Visual Logic	DashBoard Visual Logic is a visually-oriented code authoring environment that enables you to quickly create and edit segments of ogScript code for your CustomPanels.
XML source	Each CustomPanel consists of a hierarchical arrangement of components. PanelBuilder uses Extensible Markup Language (XML) code to record all characteristics of the panel. This code is stored in a .grid file. As you create and modify a CustomPanel, the underlying XML source code is automatically updated to record the changes. You can also edit the XML source manually, in the Source tab of the Edit Component window. The set of XML elements and attributes used in DashBoard is called openGear Layout Markup Language (OGLML). For detailed information about using OGLML, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

Creating a CustomPanel

A CustomPanel is the canvas upon which all other panel components reside.

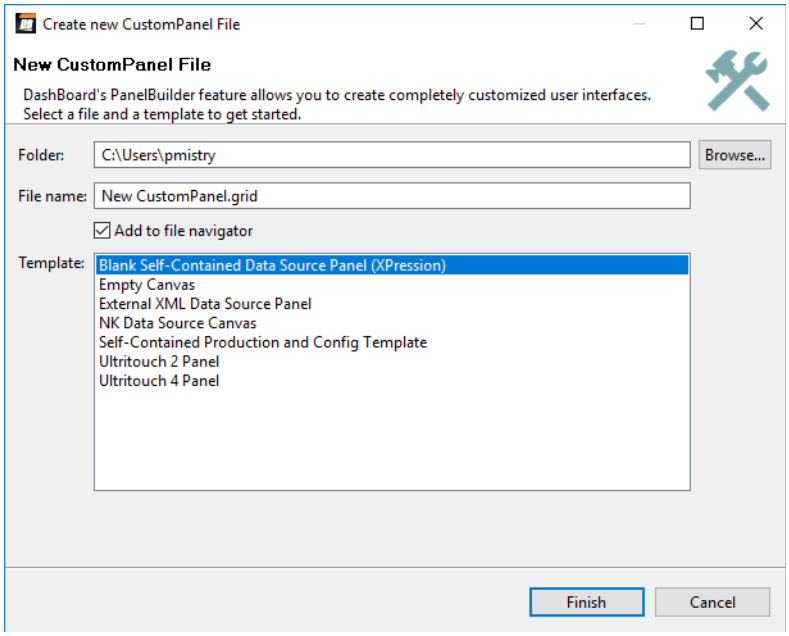
When you create a CustomPanel, you must select a panel template upon which the panel is based.

For CustomPanels that do not require timers, parameters, or access to device data, the most commonly-used template option is the **Empty Canvas** template.

To create a CustomPanel:

1. In DashBoard, select **File** > **New** > **New CustomPanel File**.

   The **Create new CustomPanel File** dialog box appears.



2. In the **Folder** box, specify where you would like to save the new CustomPanel file.

   Tip: If you save it in a directory folder that is listed in the File Navigator, your CustomPanel will also be listed there.

3. In the **File name** box, type a unique name for the new panel file.

4. Use the **Template** list to select a layout for your CustomPanel. Choose from the following:

   - **Blank Self-Contained Data Source Panel (XPression)** — creates an empty panel file which also stores parameter data.

     Use this option if you are creating a control panel for XPression.

     Use this option if you are creating a panel that requires device data, timers, and/or local parameters, and want the parameter data to be stored in the panel file.

   - **Empty Canvas** — creates an empty panel without any formatting.

     Use this option if you are creating a monitoring panel that does not require device data, timers, or local parameters.

- **External XML Data Source Panel** — creates an empty panel file and an associated XML data file for local parameters.

  Use this option if you are creating a control panel that requires device data, timers, and/or local parameters, and you want the parameter data to exist in a separate XML file.

- **NK Data Source Canvas** — creates an empty panel with the context set for Ross Video NK Series routers. When you use this option, special buttons for adding NK router control components are available on the EditMode toolbar.

  Use this option if you are creating a CustomPanel to control NK Series routers.

- **Self-Contained Production and Config Template** — creates a panel that has a title and two buttons labeled **Production** and **Configuration**. When clicked, the buttons switch between two tabs. This panel stores parameter data in the panel (.grid) file.

  Use this option if you want to create a control panel with multiple tabs. You can edit the panel to add tabs, rename the buttons, and add content to the tabs.

- **Ultrix FR 12 Panel** — creates an empty panel with the context set for Ultrix FR 12 routers.

  Use this option if you are creating a CustomPanel to control Ultrix FR 12 routers.

- **Ultritouch Panel 2** — creates an Ultritouch 2 CustomPanel.

  For more information, see "**Ultritouch CustomPanel Template**" on page 5–11.

- **Ultritouch Panel 4** — creates an Ultritouch 4 CustomPanel.

  For more information, see "**Ultritouch CustomPanel Template**" on page 5–11.

- **Ultritouch-2HR** — creates an Ultritouch-2HR CustomPanel.

  For more information, see "**Ultritouch CustomPanel Template**" on page 5–11.

- **Sideshot NG** — creates a panel that has push buttons in a 4 x 8 grid. The first three rows contain 24 buttons labeled from 1:1 to 1:24, and the fourth row contains eight buttons labeled from Tab 1 to Tab 8. These buttons can be used as a placeholder, and can be replaced with whatever suits your needs.

  Use this option if you are creating a shotbox and would like the buttons to appear by default.

- **ViewControl CustomHorizontal** — creates an empty panel with a layout of 230 x 1042 pixels.

  Use this option if you are creating a ViewControl panel.

- **ViewControl CustomVertical** — creates an empty panel with a layout of 462 x 444 pixels.

  Use this option if you are creating a ViewControl panel.

5. If the folder in which you are saving the panel file is not already listed in the **File Navigator** tab and you want it to be, select the **Add to File Navigator** check box. This enables you to easily and quickly access your CustomPanels in DashBoard.

6. Click **Finish**.

   The new panel appears as a tab in the **Device View**.

   After you create a CustomPanel, you can add device controls and other components using Edit Mode. For more information, see "**Edit Mode**" on page 5–13.

To open a saved CustomPanel:

- Do one of the following:
  - › If the CustomPanel (.grid) file is listed in the **File Navigator** tab, double-click it.

    Tip: If the **File Navigator** tab is not visible in DashBoard, select **Views** > **File Navigator** in the main DashBoard toolbar.

  - › From the **File** menu, click **Open File**, navigate to the CustomPanel (.grid) file, and click **Open**.
  - › If you are using Microsoft Windows, in **Windows Explorer**, navigate to the CustomPanel (.grid) file, and double-click it.

To switch between open CustomPanels:

- Do one of the following:
  - › Press and hold the **Ctrl** key, then press the **F6** key repeatedly until the name of the panel you want to use is highlighted, and then release the **Ctrl** key.

    This method is particularly useful when the DashBoard interface is in full screen mode.
  - › If the CustomPanels are listed on tabs just below the main DashBoard toolbar, click the desired tab.

    The highlighted CustomPanel appears.

To maximize or restore down a panel view:

- Press **Shift+F11**.

To list a CustomPanel in the File Navigator tab:

1. If the directory folder containing the desired CustomPanel file (*.grid) is not listed in the **File Navigator** tab, select in the **File Navigator** toolbar.

   Tip: If the **File Navigator** tab is not visible in DashBoard, select **Views** > **File Navigator** in the main DashBoard toolbar.
2. In the **Browse for Folder** dialog box, navigate to the folder that contains the CustomPanel file, and then click **OK**.

   The folder, including its .grid files, appears listed in the **File Navigator** tab.

CustomPanel Auto-Save and Recovery

Whenever changes are made to a CustomPanel and remain unsaved, DashBoard will automatically create a backup file (.bak) to preserve those changes. This will ensure that changes are preserved in the case of an unexpected application closure. DashBoard provides an easy recovery mechanism for the unsaved changes.

Auto-Save Behaviour

1. **Unsaved Changes Trigger Auto-Save:** Whenever you make changes to a CustomPanel file, such as adding or moving elements, the changes will be automatically saved to a .bak file alongside the original CustomPanel file.
2. **Creation of .bak File:** The .bak file is an exact copy of the CustomPanel file, including all the unsaved changes you have made.
3. **Automatic Deletion of .bak File:** Once you save the CustomPanel file, the associated .bak file is automatically deleted.

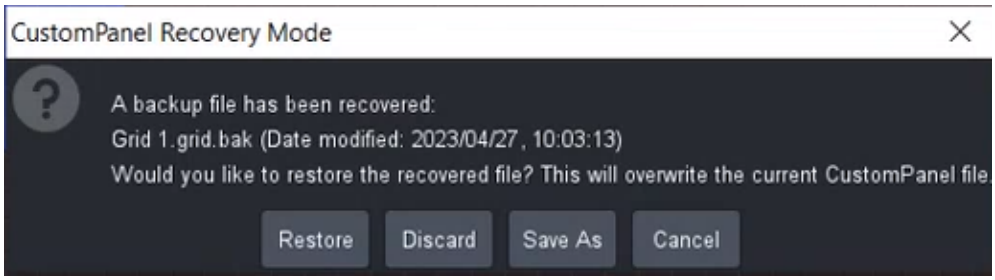
Recovery Mode

If DashBoard unexpectedly closes before you have saved your changes, you can easily recover the unsaved progress.

To recover an unsaved CustomPanel file

1. Open DashBoard.
2. Enter edit mode for a CustomPanel file with an associated backup file.

   DashBoard will enter CustomPanel Recovery Mode.

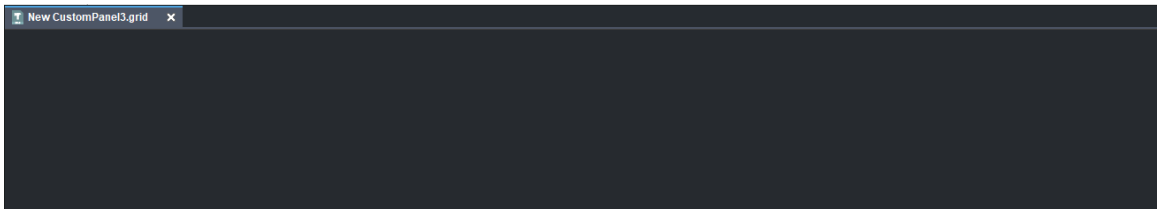


3. Choose one of the following recovery options:

   - **Cancel or Close:** If you haven't decided whether to restore the recovered backup to the file, you can press Cancel or click the X button. The prompt will reappear if you try to enter edit mode again.
   - **Restore:** To resolve the recovery mode and overwrite the current CustomPanel file with the unsaved changes from the .bak file, click Restore.
   - **Discard:** If you wish to discard the .bak file and its unsaved changes, click Discard.
   - **Save As:** Clicking Save As will open the file navigator, allowing you to save the .bak file as a new CustomPanel file, or overwrite an existing file (unless the existing file is also in recovery mode).

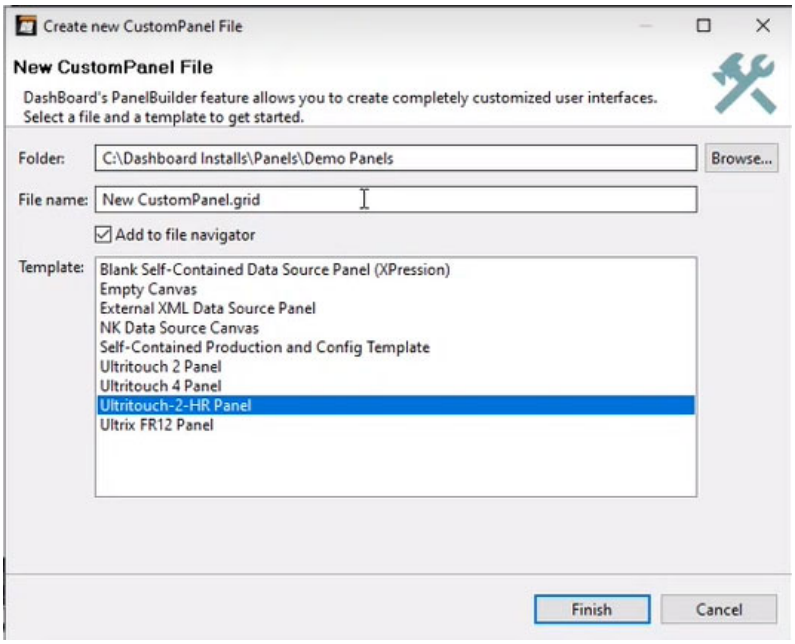
Ultritouch CustomPanel Template

You can create custom panels for Ultritouch, an adaptable system control panel with monitoring capabilities. Using the Ultritouch Panel template, you can create a 1304 x 203 pixel CustomPanel.



To create an Ultritouch custom panel:

1. Open DashBoard, and go to **File > New CustomPanel File**.
2. Set **Folder** to the folder of your choice.
3. Enter a file name.
4. Set **Template** to either **Ultritouch 2 Panel, Ultritouch 4 Panel,** or **Ultritouch-2-HR Panel** and click **Finish**.



For the **Ultritouch 2**, PanelBuilder displays the template's canvas layout of 1304 x 203 pixels, to match the dimensions of the display screen.

For the **Ultritouch 4**, PanelBuilder displays the template's canvas layout of 1304 x 485 pixels, to match the dimensions of the Ultritouch 4.

For the **Ultritouch-2HR**, PanelBuilder displays the template's canvas layout of 1920 x 285 pixels, to match the dimensions of the Ultritouch-2HR.

Note: The CustomPanel size is already designed to fit with the DashBoard navigation in the left side bar.

For more information on Ultritouch, see the *Ultritouch User Guide*.

For more information on using Ultritouch, see the "**Ultritouch Interface Overview**" on page 4–29.

For more information on creating pull-out drawer tabs for your Ultritouch CustomPanel, see "**Drawers**" on page 5–31.

Edit Mode

Once a CustomPanel is created, you can add device controls and components using Edit Mode. Edit Mode is not activated when you first create or open a CustomPanel.

To enter or exit Edit Mode:

- In the top toolbar, click **PanelBuilder Edit Mode**.

  Alternatively, you can press **CTRL+G**.

The Edit Mode Toolbar

The Edit Mode toolbar (**Figure 5.4**) consists of buttons that enable you to create, resize, reposition, and configure components, timers, and parameters. The selection of buttons varies depending on whether a data source is associated with the CustomPanel. There are also special buttons for panels that contain controls for NK routers.

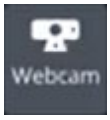
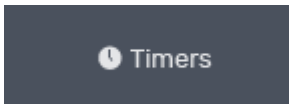
Figure 5.4 *- Three Versions of the Edit Mode Toolbar (without associated data source, with associated data source, and including router control buttons)*

Table 5.1 describes the buttons that are always available in the edit mode toolbar.

Table 5.1 - Buttons that are Always Available on the Edit Mode Toolbar

Button	Description
	CustomPanel File Location — Opens the exact location of the source file for an open CustomPanel.
	Click on components — This pointer mode enables you to manipulate components as though PanelBuilder was not in Edit Mode. For example, in **Click Component** mode you can push buttons or switch between tabs in a tab group.
	Select/Drag Components — This pointer mode enables you to select components while in Edit Mode. Double-click a component to open the Edit Component window. **Tip:** To select a tab, click the tab panel, and then **Ctrl+click** the tab you want to select.
	Move Components — This pointer mode enables you to reposition components. Drag components to reposition them. Repositioning does not move a component in or out of a containing element such as a tab or canvas. To move a component from one container to another, cut and paste the component.
	Resize Components — This pointer mode enables you to resize components. Drag the corners of components to resize them.
	Tab, Split and Drawer — Reveals toolbar buttons used to create tab components, split panels, drawers, and wizards.
	Tab — Inserts a tab component. Tabs enable you to include make efficient use of limited screen space. For more information, see "**Tab Groups**" on page 5–29.
	Split Pane — Inserts a split panel. A split panel consists of two canvas-like areas (panels) with a split bar between them. Each panel is a dropspot that can contain components. Users can move the split bar to adjust how much of each panel is shown. For more information, see "**Split Panels**" on page 5–72.
	Drawer — Inserts a drawer. A drawer allows you to maximize space on CustomPanels by organizing content in tabs that can be either expanded or minimized at need. The tabs can be anchored on any side, and can contain components. Users can drag and drop basic canvas components to set how far the drawer expands and customize the tab attributes as desired. For more information, see "**Drawers**" on page 5–31. For related information on how to add a pager control, see "**Pager Control**" on page 5–33.
	Wizard — Inserts a wizard. A wizard allows you to simplify configuration steps by using a customizable wizard template. Each wizard has the option for visible tabs, progress bars, and dialog mode. Custom wizard scripting commands are available here. For more information, see "**Wizards**" on page 5–39.

Button	Description
	Basic Canvas — Inserts a basic canvas region. Canvases are used to group components. Items placed on a canvas move with the canvas. For more information, see "**Basic Canvases**" on page 5–26.
	Grids / Tables — Reveals toolbar buttons used to create tables, simple grids, and flow panels.
	Table — Inserts a table with a specified number of rows and columns. Use tables to align and position multiple rows and columns of components on a single CustomPanel. For more information, see "**Tables**" on page 5–74.
	Simple Grid — Inserts a simple grid, which is like a table in which each cell is the same size. For more information, see "**Simple Grids**" on page 5–76.
	Wrap Content — Inserts a flow container, which is like a table. As you add components to a flow container, each is added to the right of the previous one. When a row is filled, additional components appear in the next row. For more information, see "**Flow Containers (Wrap Content)**" on page 5–76.
	Border Layout — Inserts a border layout, which allows you to add components that will automatically resize to fill the area within the border layout. The growth quadrant allows you to anchor the border layout. For more information, see "**Border Layout**" on page 5–77.
	Label — Inserts a text field, known as a label. Labels are read-only for users and can be used to identify components or provide information. Labels can also be associated with a list of tasks which are performed when the user clicks the label. For more information, see "**Labels**" on page 5–82.
	Button — Inserts a button. Buttons can also be associated with a list of tasks which are performed when the user clicks the button. For more information, see "**Buttons**" on page 5–84.
	Lines — Inserts a line segment. Line segments can be single lines, compound lines with 90degree bends, diagonal lines, or closed shapes. For more information, see "**Line Segments**" on page 5–86.
	Video Feeds — Reveals toolbar buttons used to create NDI and webcam video feeds.
	NDI — Inserts a panel that displays NDI™ video. For more information, see "**NDI Video Panels**" on page 5–88.

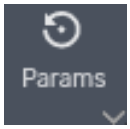
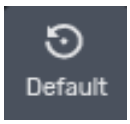
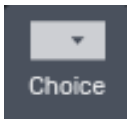
Button	Description
	**Webcam** — Inserts a panel that displays a webcam video feed. For more information, see "**Webcam Video Feeds**" on page 5–90.
	Function Button — Reveals toolbar buttons used to add a panel link or exit button.
	Panel Link — Inserts a link to another DashBoard panel, such as a device editor or another CustomPanel. Device editors enable you to view and modify configuration settings for the device. For more information, see "**Links to Device Editors or Other CustomPanels**" on page 5–83.
	Exit Panel — The exit panel inserts a button that closes the CustomPanel, window or application. For CustomPanels only, the exit button attributes can be set to jump to a connected device, or file on exit. For more information, see "**Web Browser Instances**" on page 5–87.
	Browser — Displays a web page, based on a URL you provide. Web pages are fully functional, but do not include typical browser features such as an address bar or forward and back buttons. For more information, see "**Web Browser Instances**" on page 5–87.
	**Timers** — Allows you to add or edit timers. Timer data can be displayed on labels. Timers can also trigger tasks. For more information, see "**Timers**" on page 5–104.

If the CustomPanel is associated with one or more data sources, the Edit Mode toolbar includes additional buttons for creating objects that display and/or manipulate data parameters. Data sources include devices from which controls have been imported, and XML data files that have been associated with the panel.

If your panel uses a device as a data source, but is not associated with an XML data file, the Edit Mode toolbar includes only one additional button: **Data Sources**.

Table 5.2 describes buttons for creating components associated with a data source.

Table 5.2 - Buttons for Creating Components Associated with a Data Source

Button	Description
	**Param** — Reveals toolbar buttons used to create components related to data sources and parameters.
	Widget — Inserts a pre-built widget into the CustomPanel. For more information, see "**Widgets**" on page 5–91.
	**Display or edit a parameter backed by your data source** — Displays a parameter on the CustomPanel. Drag to define the area, and then specify the parameter to display. You can also allow users to change the parameter value. For more information, see "**Parameter Displays**" on page 5–92.
	Label — Inserts a label showing data from a parameter. You can select an existing parameter, or create a new one. Data-backed labels are read-only to the user. For more information, see "**Data-Backed Labels**" on page 5–99.
	Insert an editable text area backed by your data source — Inserts an editable text field. You can format the text field using the options provided by the data source library. The entered data is stored in the associated parameter. For more information, see "**Editable Text Areas**" on page 5–100.
	**Insert a choice (list, toggle buttons, or radio buttons) backed by your data source** — Inserts a list, toggle, or radio button group on your CustomPanel. The selected data is associated with a parameter from the data source. For more information, see "**Option Choice Controls**" on page 5–100.
	Insert a number (slider, counter, etc.) backed by your data source — Inserts a numerical entry component. Various formats are available (text entry, sliders, faders, etc.) that allow you to customize how the user enters numeric data. The entered data is stored in the associated parameter. For more information, see "**Numeric Choice Controls**" on page 5–101.
	Insert a Toggle Choice (check box or single toggle button) backed by your data source — Inserts a toggle component. This component requires the user to make a choice between two states. Choose between check boxes and toggle switches to customize how the user selects a state. The selected state data is stored in the associated parameter. For more information, see "**Toggle Choice Controls**" on page 5–101.

Button	Description
	Widget — Inserts a pre-built widget into the CustomPanel. For more information, see "**Widgets**" on page 5–91.
	Add or modify data parameters in your data source — Opens the Add/Edit Parameters window, which lists parameters from your XML data source, and enables you to edit their properties. Parameters are local variables. You can modify them programmatically, or allow users to modify them. For more information, see "**Parameters and Data Sources**" on page 5–160.
	Modify data sources for your CustomPanel — Opens the Data Sources window, which lists data sources associated with the CustomPanel, and enables you to edit them. For example, you can create a CustomPanel based on a particular production switcher, then re-associate the panel with another switcher. For more information, see "**Parameters and Data Sources**" on page 5–160.

Table 5.3 describes buttons for creating NK Router control components.

Table 5.3 - Edit Mode Toolbar Buttons for Adding Router Controls

Button	Description
	NK — Reveals toolbar buttons used to create components related to router control. For more information, see "**NK Series Router Control Panels**" on page 5–179.
	Insert a list of IPS selectors — An IPS selector list enables you to choose a set of routers to control.
	Insert a list of destinations — Destinations are video router outputs.
	Insert a list of sources — Sources are video router inputs.
	Insert a list of levels — Levels ensure that a certain set of inputs can only be routed to a certain set of outputs.

Button	Description
	Insert a function button (chop, take, configure, etc) — Functions are router commands.
	Insert a level status table — The level status table lists levels and the sources and destinations associated with them.

The DashBoard Memory Manager Indicator

The Memory Manager (**Figure 5.5**) displays the current memory usage of the DashBoard instance that you are running and when memory is low it takes actions to free up memory by unloading inactive tabs, as shown in **Figure 5.6**. Unloaded tabs are indicated by a caret symbol in front of the name, for example "^ **CustomPanel01.grid**". The Memory Manager will not unload active CustomPanels or active tabs. If you have a panel that runs tasks in the background (listeners, GPI triggers, timers, and etc), you may not want DashBoard to unload your panel.You can use the **`keepalive`** flag in the top-level abs to indicate that this panel should not be unloaded.

Note: The memory usage shown is approximate and subject to Java's garbage collection schedule, and it may take a few moments for changes in memory consumption to be reflected in the status.

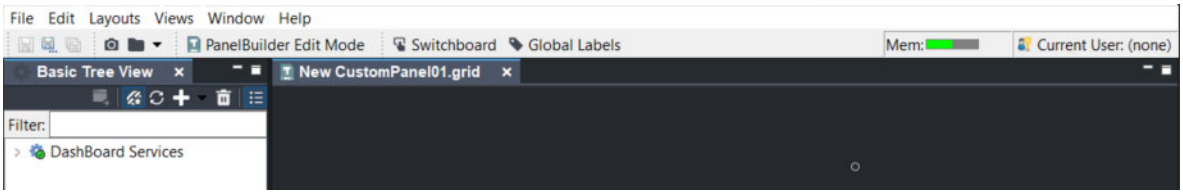


Figure 5.5 *Memory Manager with a healthy status (green).*

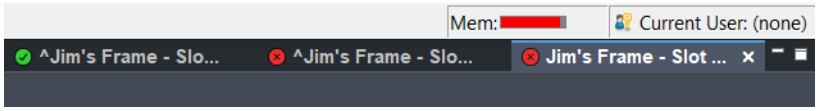


Figure 5.6 *Two frames that are shown in unloaded state.*

If your open tabs are using zero to 70 percent of the available memory, then the memory usage is within the acceptable range. If memory usage goes above 70 percent, the status indicator turns yellow to indicate caution, and finally escalates to red to indicate when memory usage exceeds the recommended levels.

You can disable or enable the unload feature in the DashBoard General Preferences or set your preferences at the CustomPanel level.

For more details see,

- "**Memory Manager Indicator Levels**" on page 5–20
- "**To prevent individual CustomPanels from being unloaded**" on page 5–20
- "**To disable the unloading feature of the Memory Manager**" on page 5–20

Table 5.4 describes the status indicator levels.

Table 5.4 Memory Manager Indicator Levels

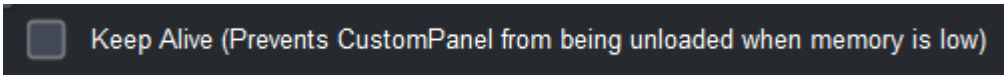
Levels	Description
	Green (healthy) — The status icon is green when DashBoard's memory usage percentage is functioning at an acceptable level (from 0 to 70%).
	Yellow (caution)— The status icon is yellow when DashBoard's memory usage percentage usage is above 70% of the available memory.
	Red (danger) — The status icon is red when the DashBoard's memory usage percentage exceeds the recommended threshold, which is above 90% of the available memory.

To prevent individual CustomPanels from being unloaded

If you have a CustomPanel that should never be unloaded, you can set a **Keep Alive** flag in the Abs Attributes that will tell DashBoard not to unload this panel (even if the memory is low).

Note: CustomPanels that were created in DashBoard 8.6 and earlier will not be unloaded when memory is low, because by default the Keep Alive option is enabled on CustomPanels that were built before the Memory Manager was available.

1. In **PanelBuilder Edit Mode**, double-click on an empty area on the CustomPanel to open the **Component Editor**. The uppermost abs should be selected in the tree.
2. In the **Abs Attributes** tab under Remote Task Triggering, select **Keep Alive**. This button prevents DashBoard from unloading this CustomPanel, even when memory is low.

3. Click **Apply Changes**.

You can also set the **`keepalive`** tag in the source code in the top-level abs. For example:

```
<abs contexttype="opengear" id="_top" keepalive="true" style="">
   …main panel content here…
</abs>
```

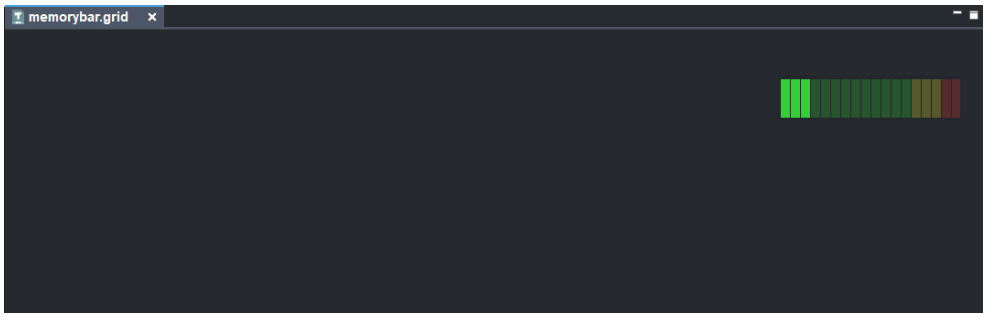
To disable the unloading feature of the Memory Manager

By default the Memory Manager unloads inactive CustomPanels from memory when memory is low, but you can disable this behavior in the General Preferences.

1. Go to **Window > Preferences** and click the **General** tab.
2. Under **Unload Panels**, uncheck **Unload panels from memory when memory is low**.
3. Click **Apply** > **OK**.

The Memory Manager Widget

The memory manager widget allows you to add a memory status indicator bar to monitor the current memory usage of the DashBoard application. This performs the same function as the memory manager indicator that is available in the top right DashBoard toolbar. The memory manager widget allows you to continue to monitor the memory usage of the status indicator while a panel is in full screen mode. You can add a memory manager widget directly to your panel and customize its size and position.



Adding the Memory Manager Widget to a Panel

1. Click **PanelBuilder Edit Mode**, and double-click an empty area on the canvas.
   The Component Editor appears and the top-level <abs> attribute should be selected in the tree.
2. Click the **Source tab**, and open the <abs> component as shown below:

```
<abs contexttype="opengear" id="_top" keepalive="false" style="">
</abs>
```

3. Now you can add the memory manager widget, and include attributes to modify the size and position of the memory manager status bar:

```
<abs contexttype="opengear" id="_top" keepalive="false" style="">
     <memory height="50" left="1500" top="50" width="200"/>
</abs>
```

4. Apply your changes.

Adding Device Editors, Device Summaries, and Device Controls

Devices are Ross Video products that can be monitored and controlled using DashBoard. Devices include NK routers, openGear cards, and DashBoard Connect devices.

When you add a device editor, device summary, or device control to a CustomPanel, the device acts as a data source for the panel. Other panel components can access parameter data from the device.

Device Editors and Device Summaries

A device editor is the default monitoring and control interface for a device. It is generated based on layout data and parameter data provided by the device. You can embed device editors into CustomPanels. The layout of an embedded device editor cannot be edited.

Device summaries are displays of device status information, and can be shown as status dots (with or without label) or full summaries (**Figure 5.7**). You can create a customized device monitoring interface by dragging device summaries from the DashBoard Tree View (or Advanced Tree View) into a CustomPanel.

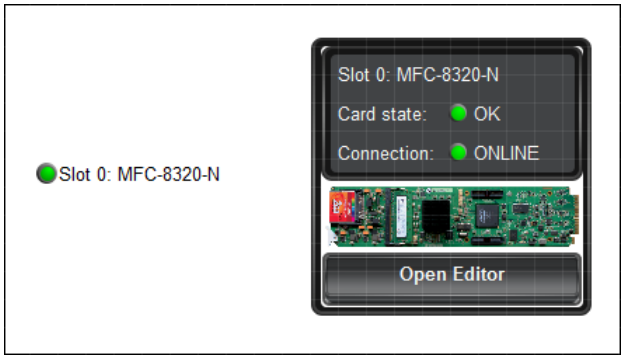


Figure 5.7 *- Two Ways to Display a Device Summary; as a Status Dot with Label (left), and as a Full Device Summary*

If a user hovers over a status dot, a tooltip shows the status as text. If they click the status dot for a frame, a list of status information for the frame and all its cards appears. If they click a card in the list, the device editor for that card opens.

To add a device editor or device summary:

1. With the CustomPanel open, enter **PanelBuilder Edit Mode**.

   Tip: To enter Edit Mode, press **CTRL+G**.

2. In the DashBoard Tree View, locate the device.

3. Drag and drop the device from the Tree View onto the CustomPanel.

   The **Insert into Component** dialog box appears.

4. Select one of the following:

   - **Device Summary** — shows detailed device summary information, and may include a link for opening the device's editor. The link appears only if the device has an editor.
   - **Embedded Editor —** shows the default device monitoring and control interface for the device.
   - **Status Dot** — shows a color-coded dot to indicate device status.

5. If you want to include the device's label, select **Show Label**.

   Tip: Alternatively, you can create a custom label later instead of importing the device's label.

6. Click **OK**.

   The device editor or device summary appears on the CustomPanel.

Device Controls

Device controls are interface elements that enable users to view configuration settings and to configure device properties. You can create a device control panel by opening a device's editor and dragging individual device controls or groups of device controls into CustomPanels, as shown in **Figure 5.8**.

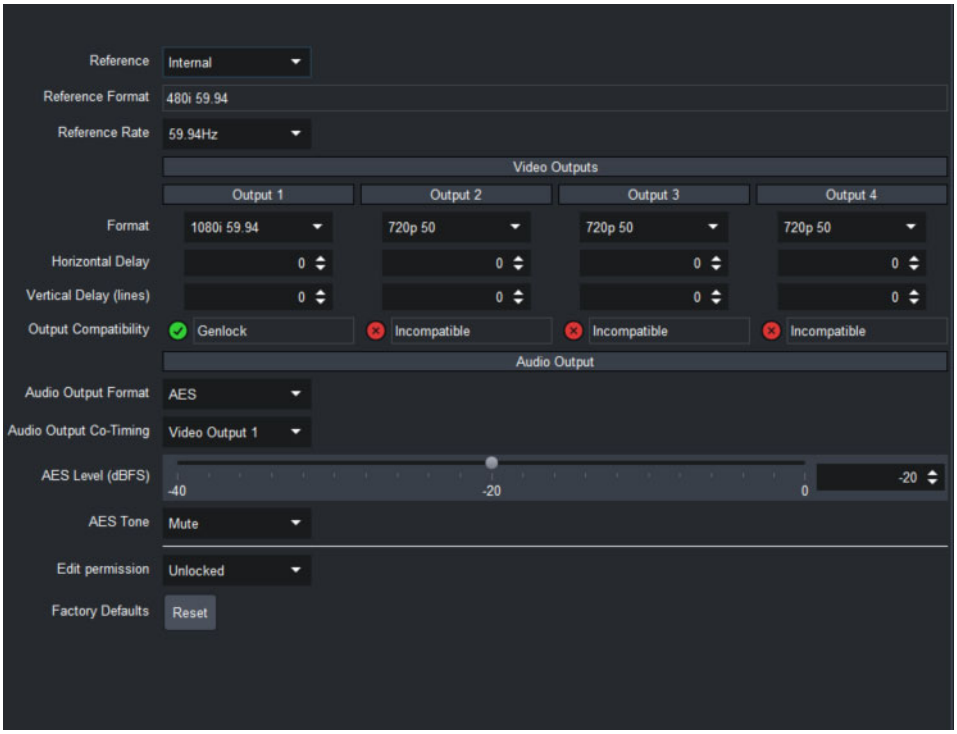


Figure 5.8 *- Example of a Group of Device Controls*

To add device controls:

1. In the **DashBoard Tree View**, double-click the device to open its **Device View**.
2. In the **Device View**, enter **Edit Mode**.

   Tip: To enter Edit Mode, press **CTRL+G**.
3. Rearrange the **CustomPanel** view and **Device View** to make both visible.

   Tip: Drag the tab of a view to undock it. As you drag it around the screen, a red rectangle appears, to indicate where the view will be shown after you drop it.
4. Click and drag the control(s) you want to add from the **Device View**, and drop them onto the CustomPanel.

   Tips:

   - You can select a single control or a group of controls. As you hover the Device View, the selected control(s) are indicated by a white outline (**Figure 5.9**). When you click to select them, the outline turns bright green.
   - If you click a single control and then press the cursor up button, the set of controls to which the single control belongs is selected.
   - When you drop controls onto the CustomPanel, be sure that the correct destination (container element) is outlined in white.

Figure 5.9 *- A Device View, with a Group of Device Controls Selected (bright green outline)*

After you drop the control(s), the **Insert into Component** dialog box appears. The options shown depend on whether you are adding a single control or multiple controls, and on whether or not you are dropping them into a container element such as a canvas or table cell.

5. If you added only a single control, in the **Parameter View Options** area, select one of the following:

   - **Include Parameter Name** — The name of the control, as defined on the device, is also displayed. Alternatively, you can create a custom label in PanelBuilder.
   - **Keep returned elements together** — Applies to parameters that return multiple controls, such as a set of buttons.

When selected, returned elements can only be modified as a group, and are displayed together neatly. For example, if placed on an absolute position canvas, they do not overlap.

When not selected, returned elements can be individually modified. For example, you can apply different style options to each element, or position them in separate table cells.

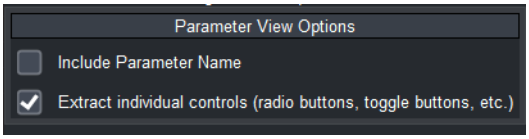


***Figure 5.10** - Parameter View Options*

6. If you added a group of controls, in the **Menu Import Options** area, select one of the following:
   - **Link to menu** — Formatting of controls is inherited from the device, and is not editable.
   - **Import menu** — Formatting of controls is editable, but if they change on the device, the changes are not reflected on the CustomPanel.

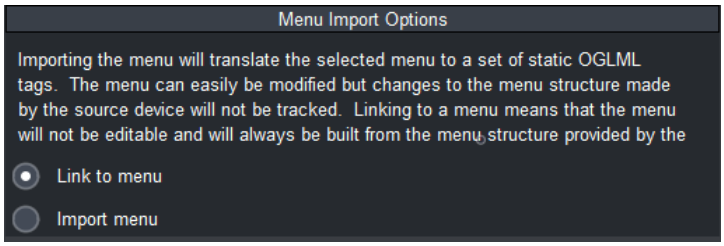


***Figure 5.11** - Menu Import Options*

7. If you dropped the control(s) onto a container element, in the **Add Data Source/Device Control to CustomPanel** area, specify the scope of elements with which the device's data source is to be associated:
   a. In the right-most drop-down list, select the container element with which to associate the data source.
   b. In the left-most drop-down list, select one of the following options:
      - **Add to** — associates the data source with the selected container element.

        This is the default if the selected container does not already have an associated data source. This option makes it easy to add additional controls from the same device to this container.
      - **Insert Before** — creates a container for the data source above the selected container element.

        This is the default if the selected container is already associated with a data source.
      - **Insert After** — creates a container for the data source beneath the selected container element.

   Note: Each element in the component hierarchy can be associated with only one data source. Components that do not have an associated data source inherit a data source association from their parent element.

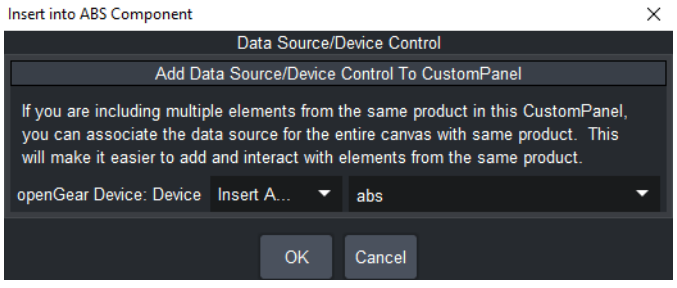


***Figure 5.12** - Add Data Source/Device Control To CustomPanel*

8. Click **OK**.

   The device controls are added to the CustomPanel as new components.

Adding Basic Components

This section includes generic steps for creating basic components such as basic canvases, tabs, split panels, image canvases, tables, tabs, help pop ups, drawers, wizards, labels, buttons, line segments, web pages, and links to devices and to other CustomPanels. These basic components do not use data sources.

For More Information on...

- For information about data-backed objects, see "**Adding Data-Backed Components**" on page 5–91
- For more information about deleting a component, see "**Deleting a Component**" on page 5–155

To add a component:

1. With the **CustomPanel** open, enter **PanelBuilder Edit Mode**.

   Tip: To enter Edit Mode, press **CTRL+G**.

2. On the **Edit Mode** toolbar, click the button corresponding to the type of component you want to add.

   For a list of Edit Menu buttons, see "**The Edit Mode Toolbar**" on page 5–13.

3. On the **CustomPanel**, click and drag to specify the area of the new component (**Figure 5.13**).

   Note: Do not drag Edit Menu buttons onto the panel. Click and hold where you want one corner of the component to appear, and drag to define the shape and size of the new component.

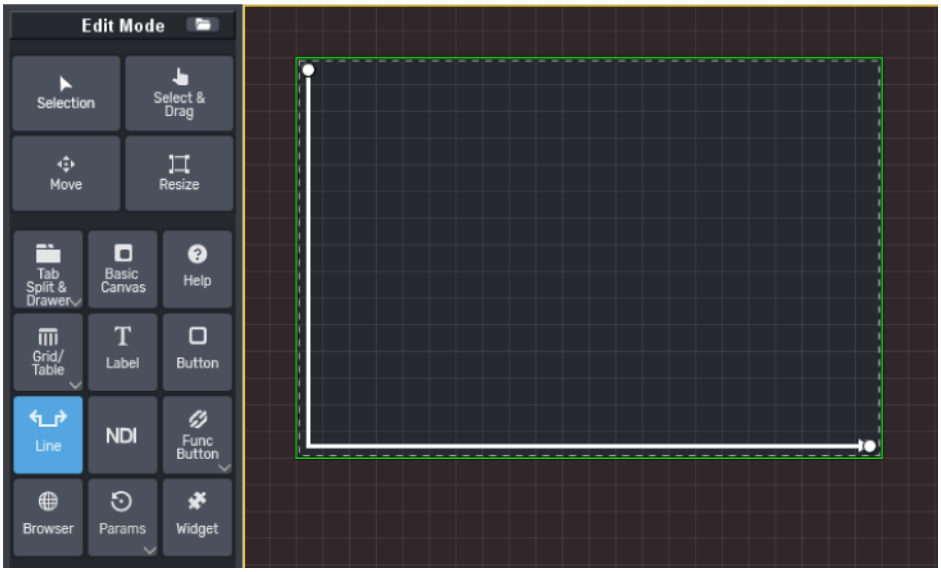


***Figure 5.13** - Adding a Component (with **Lines** button selected, dragging to define line boundaries)*

   The **Insert into Component** dialog appears.

4. Specify the properties as required.

   Which properties appear in the **Insert into Component** dialog box depends on the type of component you are adding.

5. Click **OK**.

   The component appears on the CustomPanel.

For More Information on...

- For detailed information about each type of component, see the corresponding section:
  - "**Basic Canvases**" on page 5–26
  - "**Help Popups**" on page 5–27
  - "**Tab Groups**" on page 5–29
  - "**Drawers**" on page 5–31

› “**Pager Control**” on page 5–33
› “**Wizards**” on page 5–39
› “**Image Canvases**” on page 5–71
› “**Split Panels**” on page 5–72
› “**Tables**” on page 5–74
› “**Simple Grids**” on page 5–76
› “**Flow Containers (Wrap Content)**” on page 5–76
› “**Border Layout**” on page 5–77
› “**Labels**” on page 5–82
› “**Links to Device Editors or Other CustomPanels**” on page 5–83
› “**Buttons**” on page 5–84
› “**Line Segments**” on page 5–86
› “**Web Browser Instances**” on page 5–87

- For information about customizing components by editing their attributes, see “**Editing Components**” on page 5–118.

Basic Canvases

A canvas is an area that can contain other components, including other canvases. Canvases are used to group components. When you reposition a canvas, its components move with it.

To create a basic canvas area:

1. On the **Edit Mode** toolbar, click the **Basic Canvas** button.
2. Drag a box on the panel to define the canvas area. The area outlined in green in **Figure 5.14** is a basic canvas area.

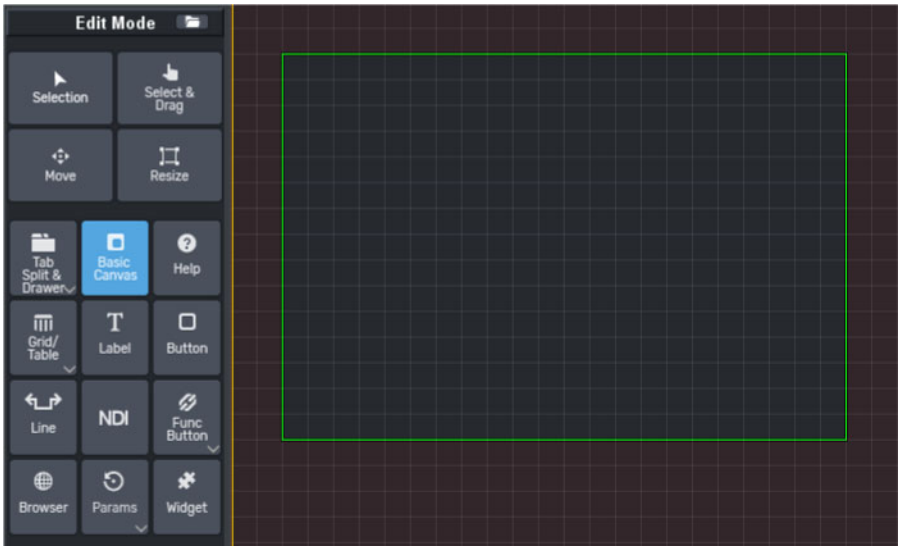


Figure 5.14 *- Adding a Basic Canvas (with **Basic Canvas** button selected, dragging to define canvas area)*

Tip: After you create a canvas, by default it does not include a border or fill, so it may be difficult to find in the CustomPanel. To locate the canvas, select the **Move** button, and hover the mouse pointer over the area until a white border appears around the canvas area.

Editing Basic Canvas Attributes

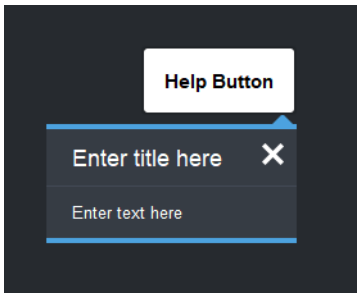
After you create a basic canvas, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For basic canvases, the **Edit Component** window contains the following tabs:

- **Abs Attributes Tab** — For more information, see "**Abs Attributes Tab**" on page 5–122.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Help Popups

A Help Popup allows you to create a button that displays a help text message. Options include adding a help title and help message text. You can see an example of the default help button style below:



Tips about Help Popups:

- **Help Popup placement** — When you create a Help Popup, you must draw the container size for the help button, not the popup message. The popup message can be edited in the source code or by overriding the default popup width and height listed in the Help Attributes.
- **Viewing your help popup message** — To display your help popup in **Edit Mode**, press **CTRL** and click the help popup.

To create a Help Popup:

1. On the **Edit Mode** toolbar, click the **Help** button.
2. Place your cursor on the CustomPanel canvas, and drag the container to the desired size for your Help button. The **Tag Attributes** dialog appears.

- You can fill in the following fields:
  - › Name — Enter the name you wish to display on the button. For example, "?" or "Help".
  - › ID — Enter a unique ID.
  - › Popup Width — You can select **Override Default** and enter a new value for the width here.
  - › Popup Height — You can select **Override Default** and enter a new value for the height here.
  - › Title — *optional* Enter the title you wish to display on the help popup.
  - › Message — Enter your message here.

    Tip: Messages can be plain text or HTML, with many common HTML tags supported including hyperlinks.

    For example, you can use the following:

Breaks — `<br> </br>`
Hyperlink text — `<a href="https://www.rossvideo.com/">Ross Video</a>`

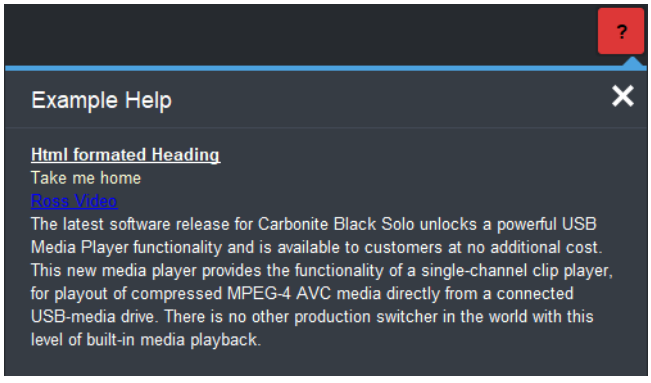
› Click OK.

3. You can also edit the style of your Help Popup button by double-clicking the help button to open the Component Editor and selecting the **Style** tab.

4. You can also edit the popup using scripting, by editing the source code in the Component Editor's **Source** tab. Here is an OGLML example below:

```
<help height="40" html="true" left="53" name="?" popupheight="200"
popupwidth="500" style="bg#ff0000;" title="Example Help" top="315"
width="40">
  <![CDATA[<html>
    <left>
      <b><u>HTML formatted Heading</u></b><br>
      <font color=#ffffdd>Hyperlinked Text Here</font><br><a
      href="https://www.rossvideo.com/">Ross Video</a><br>
      The latest software release for Carbonite Black Solo unlocks a
      powerful USB Media Player functionality and is available to
      customers at no additional cost. This new media player
      provides the functionality of a single-channel clip player,
      for playout of compressed MPEG-4 AVC media directly from a
      connected USB-media drive. There is no other production
      switcher in the world with this level of built-in media
      playback.
  </html>]]>
</help>
```

This results in the following Help Popup:



Tab Groups

A tab group contains one or more tabs, which can contain other components.

Tips about Tabs:

- **Tab placement** — When you create a tab group, you specify what side of the tab group the tabs appear on.

  If you select the center option, the tab group does not include any tabs. It is like a set of stacked canvases. You can use scripting to switch which tab is on top. This allows you to use a single area for many purposes.
- **Selecting a tab to edit** — To select a tab in **Edit Mode**, press **CTRL** and click the tab you want to edit.
- **Quick shortcut to add more tabs**—To add more tabs to an existing tab group, simply right-click beside your existing tab and select **Add tab.**

To create a tab group:

1. On the **Edit Mode** toolbar, click the **Tab** button.

   Tip: If the **Tab** button is not visible, click the **Tab and Split** button to reveal the **Tab** button.
2. Drag a box on the panel to define the tab group area.

   The **Insert into Component** dialog appears.
3. Specify the tab placement and number of tabs.
4. If you want each tab to contain a basic canvas, select the **Create blank canvases in tabs** option.

   If you do not select this option, when you later add a component to a tab, the component resizes to occupy the entire tab area.
5. Click **OK**.

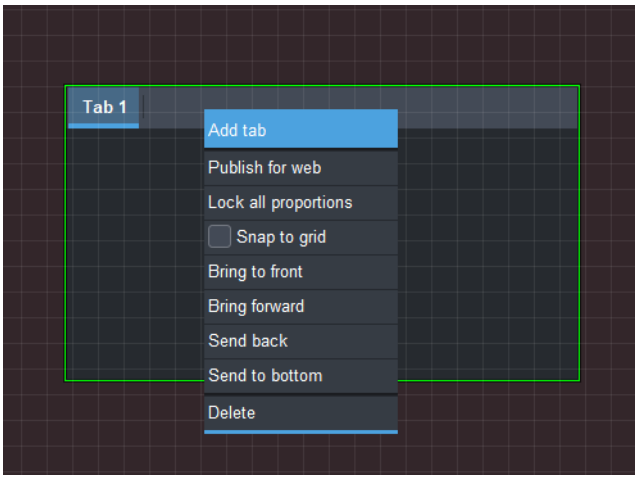
   Tip: By default, the tabs are located along the top edge of the canvas.

   The tab group appears. **Figure 5.15** shows a tab group with three tabs.

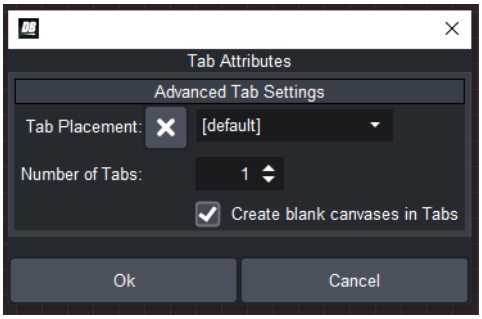
Figure 5.15 *- An empty tab group*

To add additional tabs:

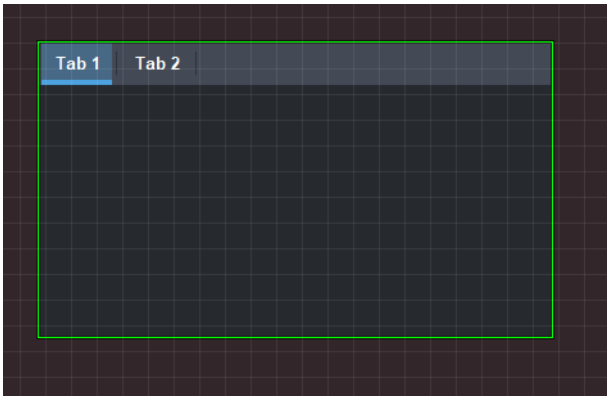
1. Right-click beside an existing tab, and select **Add tab** from the dropdown menu.



2. Choose from the settings options.
   Note: If you want each tab to contain a basic canvas, select the **Create blank canvases in tabs** option. If you do not select this option, when you later add a component to a tab, the component resizes to occupy the entire tab area.



3. Apply your changes.



Editing Tab Group Attributes

After you create a tab group, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For tab groups, the Edit Component window contains the following editing tabs:

- **Tab Attributes Tab** — For more information, see "**Tab Attributes Tab**" on page 5–144.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.

- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Drawers

If space is limited on your custom panel, you can now create drawers to make additional space for content. This is ideal for smaller panels with restricted space, such as the Ultritouch custom panel, or any panel that is crowded with too many components. It can help to organize your content, compartmentalize standalone functions, or to minimize certain parts of the custom panel when it is not in use.

You can see an example of an Ultritouch Panel with drawers below:

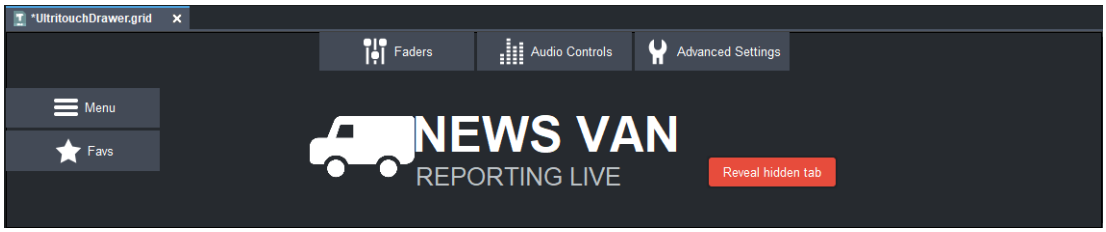


Figure 5.16 *- An example CustomPanel with two west drawers and three north drawers.*

Drawers can be added to the top (North), bottom (South), or either side (East or West) of your custom panel. You can modify the look of the drawers with icons, styles, color, or drawer tab properties. To open a drawer panel, a user must tap the drawer tab on the screen and swipe away from the side that the drawer resides on. Note: this can only be done when you are not in PanelBuilder Edit Mode. See the figures below:

Figure 5.17 *- This figure illustrates the west "Favs" drawer in the midst of being pulled out.*

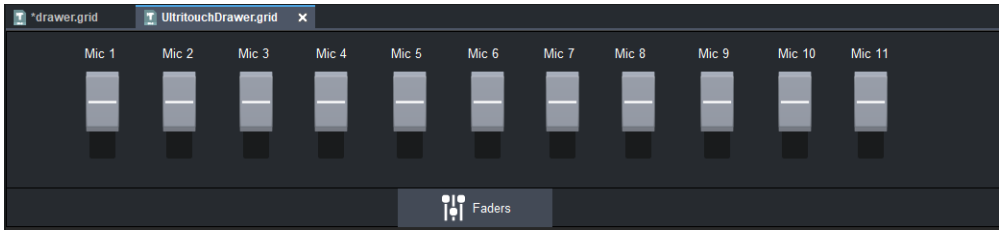


Figure 5.18 *- This figure illustrates the north "Fader" drawer fully expanded. You can see that custom buttons or other elements can be added to populate the drawer area.*

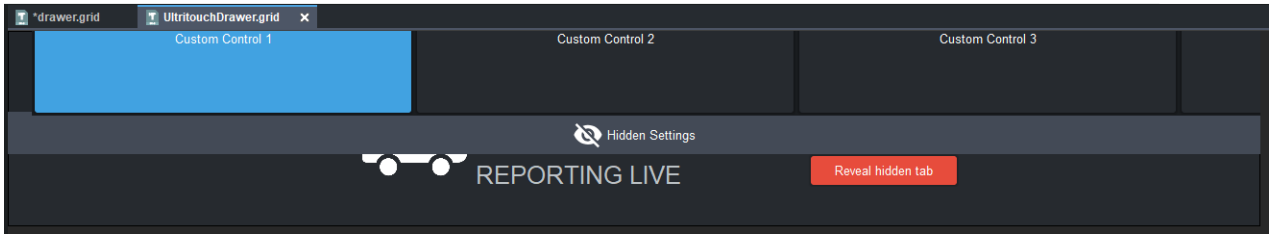


Figure 5.19 *- This figure illustrates a hidden tab that is revealed when the "Reveal hidden tab" button is pressed.*

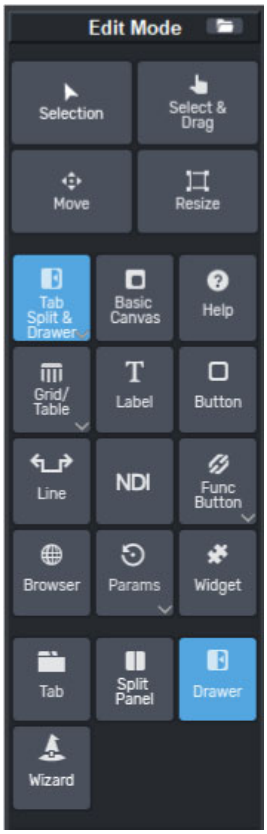
After you create a drawer, you can customize it using the Edit Component window. The slide-out drawers allow you to add more content, such as other components, to the defined slide-out area.

Tips about drawers:

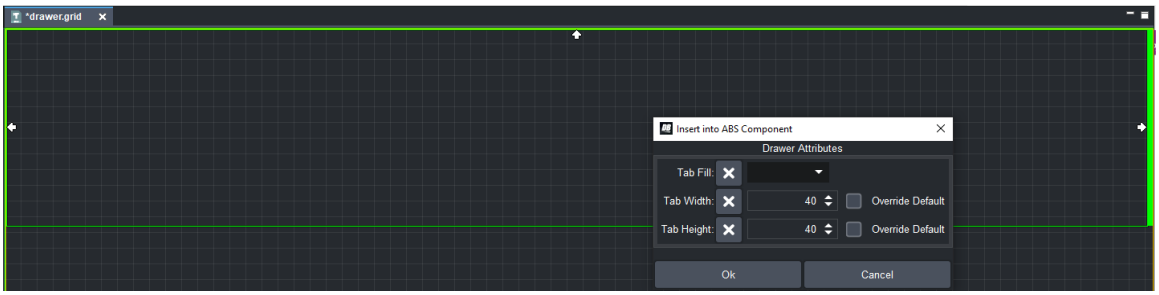
- **Drawer placement** — When you create a drawer, you specify the what side to anchor the tabs on.
- **Selecting a drawer to edit** — To expand a drawer in **Edit Mode**, press **CTRL** and click the drawer tab that you want to expand. The drawer tab fully expands, and you can add content to the canvas area of the selected tab.

To create a drawer:

1. On the **Edit Mode** toolbar, click **Tab, Split & Drawer**.



2. To create a drawer, select the drawer option in the toolbar, click in your CustomPanel and drag the rectangle to the desired size of drawer container.



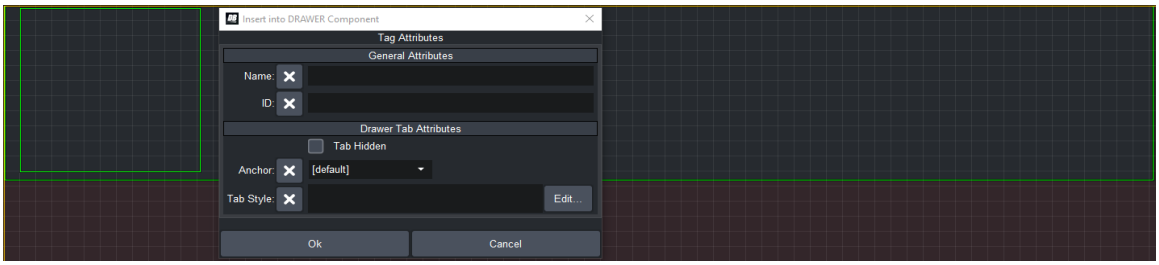
3. Set the following fields to set the appearance of the drawer tabs:

Field	Description
Tab Fill	Set this field to one of the following: • **Both** - The drawer tabs will automatically fill the tab space of the side they are anchored to and resize to fit the tab space equally. • **None** - There is no fill - the drawer tab length is based on the size of the originally drawn drawer. • **Horizontal** - Only horizontal tabs (on the East and West sides) automatically fill the tab space of the side they are anchored to and resize to fit the tab space equally. • **Vertical** - Only vertical tabs (on the North and South sides) automatically fill the tab space of the side they are anchored to and resize to fit the tab space equally.
Tab Width	If you check **Override Default**, you can set the tab width manually by entering a number value.
Tab Height	If you check **Override Default**, you can set the tab height manually by entering a number value.

4. Once the drawer is created, add as many drawer tabs as you would like by adding basic canvases or other containers inside of the drawer. When you add a basic canvas to the drawer component area it will automatically appear as a drawer. In this example, a basic canvas is used.

5. To affix a drawer to a side, set the **Anchor** to top, left, bottom, or right. You can see the new drawer in **PanelBuilder Edit Mode**, and then the resulting tab shown when you leave PanelBuilder Edit Mode.

   Note: if you are editing the source code, the **Anchor** attribute must be set to **North**, **East**, **South**, or **West.**



6. Once all desired drawers have been added to the control, a basic canvas representing the primary/central content of the drawer can be added by setting the **Anchor** to **Center** or **Default**. **Note:** after you add the primary content area, you can no longer add drawers.

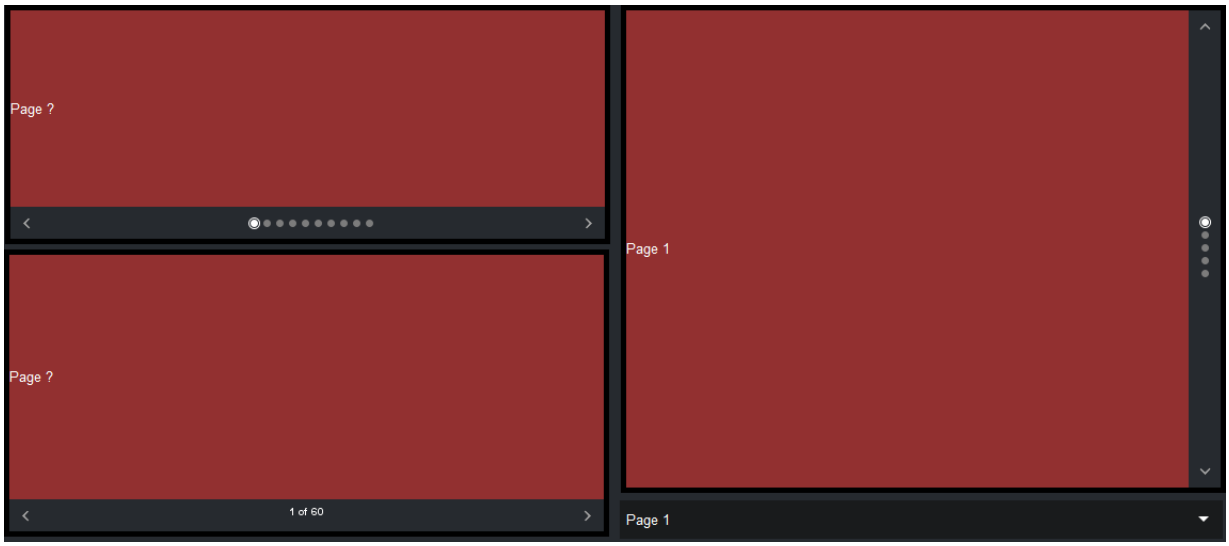
   Optional tab styling options are also available.

Pager Control

If space is limited on your custom panel, you can now create a series of pages for your content and a pager control to enable users to access other pages. This is ideal for smaller panels with restricted space, such as the Ultritouch

CustomPanel, or any panel that is crowded with too many components. You can use Pager controls in conjunction with drawers to get the most out of your space. You can see an example in **Figure 5.20** below.

Figure 5.20 *Horizontal and Vertical Pager Controls*



Depending on whether the orientation is set to horizontal or vertical, a set of pager controls appear on a menu bar under the page content or on the right side. These controls indicate the current page and allow users to navigate between the pages by tapping on either side of the controls. Users can tap the page indicators, which display as dots by default, or use the arrows to navigate between pages. If there are twelve pages or more, then a numeric representation replaces the default dot page indicator, such as “1 of 12”. A numeric representation also appears if there is not enough room available for the required number of dots. When you have exited PanelBuilder Edit Mode to view the pager control, you can test the pager control using the arrows, or clicking on the space between the dot indicators and the arrow. Note that the space is set out in increments, so you can jump to whichever page you would like without needing to page through each individual control.

You can modify the color of the pager control's background or use an image to customize the look and feel of your pager control. For more information on modifying the background, see ***The DashBoard CustomPanel Development Guide***.

To create a Pager Control:

1. To draw the basic container area, on the **Edit Mode** toolbar, click **Basic Canvas**. Click anywhere on the canvas and drag to draw a rectangle in the area where you would like the page content to appear. **Tip:** You can also modify any absolute `<abs>` container in the source code to make a pager control.
2. Double-click on the basic canvas rectangle to open the **Component Editor**. In the **Insert Tag** editor, use the folder navigator to select the uppermost *`<abs>`* folder. Select the **Source tab**, and your code should match the following example:

```
<abs height="300" left="60" top="60" width="380"/>
```

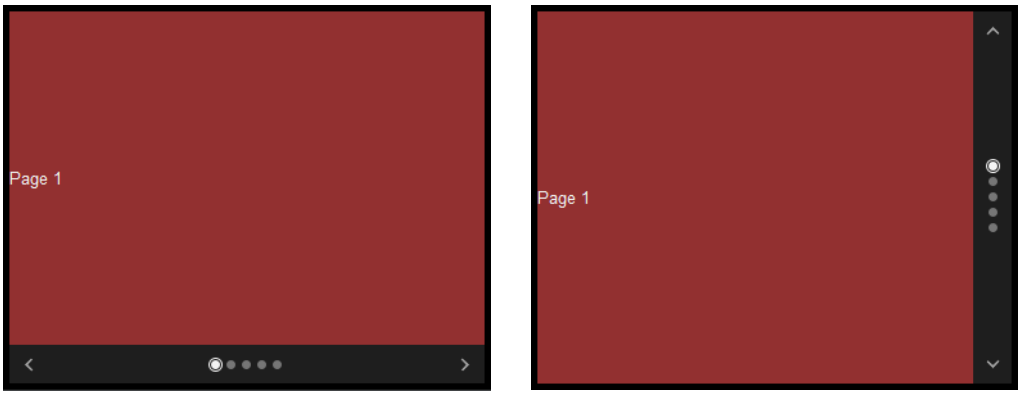
3. To change the basic canvas into a pager control, replace abs with pager in the Source tab, as shown in red below:

```
<pager height="300" left="60" top="60" width="380"/>
```

4. To set the orientation of the pager control dot indicators, open the pager control by removing the “/” close bracket and enter the *config key*. By default, the orientation is horizontal. To set the orientation of the pager to

"vertical", add the *<config key="w.orientation">vertical</config>* to the top of the pager tag, as shown in **Figure 5.21**.

Figure 5.21 *Horizontal and Vertical Pager Controls*



Enter the code shown in red below:

```
<pager height="300" left="60" top="60" width="380">
  <config key="w.orientation">horizontal</config> <!-- The pager
  orientation. It can be set to horizontal or vertical. -->
```

5. To control what happens when the pages change, we need to add a model that implements several functions. The following is an example model that creates a pager with 5 pages, and each of the pages has a label within it that changes when the page is changed. Add the variable model by entering the following code shown in red below:

```
<pager height="300" left="60" top="60" width="380">
  <config key="w.orientation">horizontal</config>
  <config key="w.model">var model =
  {
    currentPage: 1,
    getNumPages: function()
    {
      return 5; <!-- Determines the total number of pages. One pager
      control dot for each page. -->
    },
    getCurrentPage: function()
    {
      return this.currentPage; <!-- Displays the current page. -->
    },
    scrollToPage: function(pageNum)
    {
      this.currentPage = pageNum;
      ogscript.rename('page-label', 'Page ' + pageNum);
    }
  }
</pager>
```

6. *Optional* If you wish to add the label ID of the page label, you can add the following code above the last line of code with the **</pager>**:

```
;
model</config>
      <label id="page-label" name="Page ?"/> <!-- This creates a
label that displays 'Page ?', where ? is the current page number.
-->
 </pager>
```

7. *Optional* You can change the style of the pager control using **Style Attributes**. For example:

```
<pager height="300" left="60"
style="look:round;bg#923030;bdr:thick;bdr#000000;" top="60"
width="380"> <!-- Creates the red background and black outline style
shown in Figure 5.21. -->
```

The final output of the pager control is as shown below for reference:

```
<abs contexttype="opengear" id="_top">
      <pager height="300" left="60"
      style="look:round;bg#923030;bdr:thick;bdr#000000;" top="60"
      width="380">
        <config key="w.orientation">horizontal</config>
        <config key="w.model">var model =
        {
          currentPage: 1,
          getNumPages: function()
          {
            return 5; <!-- Determines the total number of pages. One pager
            control dot for each page. -->
          },
          getCurrentPage: function()
          {
            return this.currentPage; <!-- Displays the current page. -->
          },
          scrollToPage: function(pageNum)
          {
            this.currentPage = pageNum;
            ogscript.rename('page-label', 'Page ' + pageNum);
          }
        }
        ;
             model</config>
             <label id="page-label" name="Page ?"/> <!-- Creates a label
        that displays 'Page ?', where ? is the current page number. -->
      </pager>
</abs>
```

To add content to a Pager Control page:

Once you've created your pager control, you can add content to individual pages following the steps below.

Note: This example continues to use the Pager Control you just created in the previous procedure.

1. Update the `scrollToFunction` to include the following:

```
scrollToPage: function(pageNum)
{
    this.currentPage = pageNum;
    ogscript.reveal('page-' + pageNum);
}
```

2. Replace the label, *<label id="page-label" name="Page ?"/>,* with a tab control as shown below:

```
<tab tabposition="none">
   <abs id="page-0"/>
   <abs id="page-1">
      <label height="58" left="143" name="labelname"
      style="txt-align:west" top="58" width="161"/>
   </abs>
   <abs id="page-2">
      <button buttontype="push" height="65" left="185"
      name="labelname" top="50" width="182"/>
   </abs>
   <abs id="page-3"/>
   <abs id="page-4"/>
   <abs id="page-5"/>
</tab>
```

3. When you click through the pages the page control will display the corresponding <abs> with the ID generated from concatenating the 'page-' with page ID. You can add child items to each <abs> absolute container.

   You can copy the final output shown below to a panel to try it out for yourself:

```
<abs contexttype="opengear" id="_top" keepalive="true">
  <pager height="224" left="13" style="look:round;bg#923030;bdr:thick;bdr#000000;" top="13" width="567">
    <config key="w.orientation">horizontal</config>
    <config key="w.model">var model = {
  currentPage: 1,
  getNumPages: function()
  {
    return 5;
  },
  getCurrentPage: function()
  {
    return this.currentPage;
```

```
  },
  scrollToPage: function(pageNum)
  {
    this.currentPage = pageNum;
    ogscript.reveal('page-' + pageNum);
  }
}
;
model</config>
    <tab tabposition="none">
      <abs id="page-0"/>
      <abs id="page-1">
        <label height="58" left="143" name="asdasdfasdf" style="txt-align:west" top="58" width="161"/>
      </abs>
      <abs id="page-2">
        <button buttontype="push" height="65" left="185" name="asdfasdfas" top="50" width="182"/>
      </abs>
      <abs id="page-3"/>
      <abs id="page-4"/>
      <abs id="page-5"/>
    </tab>
  </pager>
     </abs>
```

Wizards

Wizards allow you to automate complex tasks and break them into a series of steps that walk users through the process from start to finish. You can create wizards that contain a title, a page navigation pane, and a progress bar. Wizards also contain a series of pages. When you create a wizard you can specify the number of pages and which components are included.

By default, pages are shown as Page 1, Page 2, and so on. It's easy to change the page name to be more descriptive, since the navigation pane already provides automatic numbering on each tab. For example, "Page 1" could be renamed "Device Options" and that tab will display "1. Device Options" in the navigation pane, as shown below.

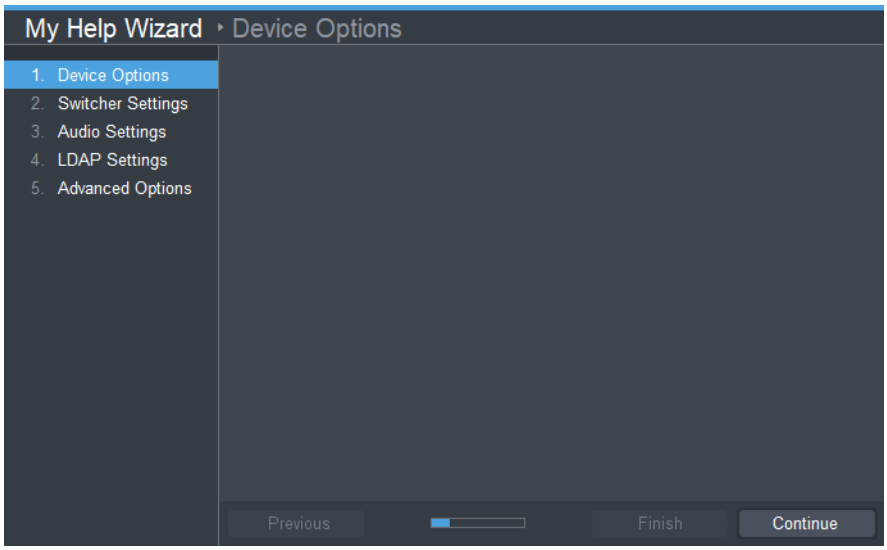
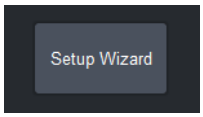


***Figure 5.22** - An example of a wizard with all of the default features.*

A dialog option is available that creates a button that opens the wizard in its own window when clicked, as shown below:



Additional functionality is available when you customize the wizard using script.

This section provides information on getting started, code examples, and how to customize the wizard using script:

- "**Getting Started**" on page 5–39
- "**Wizard Code Examples**" on page 5–43
- "**Customizing the Wizard Using Script**" on page 5–45

Getting Started

You can learn how to create a wizard or dialog wizard using the procedure below. Once your wizard is complete, you can add new pages to your wizard, or add a help popup.

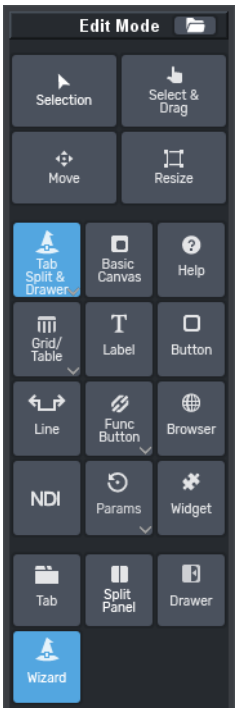
› "**To Create a Wizard:**" on page 5–40

› "**Add a New Page to a Wizard**" on page 5–41

› "**Add a Help Popup to a Wizard Page**" on page 5–42

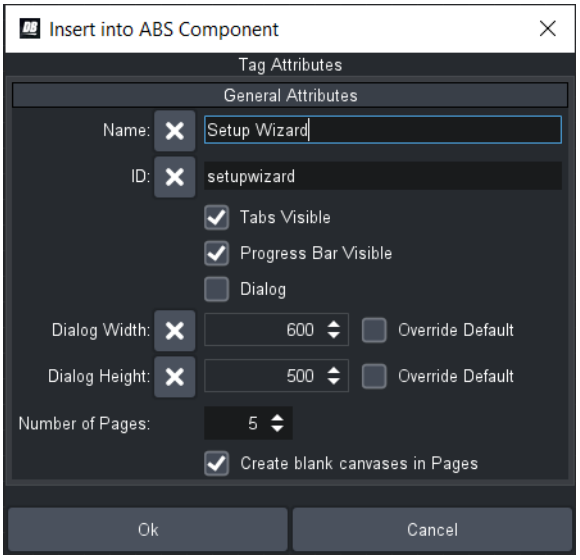
To Create a Wizard:

1. On the **Edit Mode** toolbar, click **Tab, Split & Drawer**.



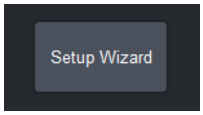
2. To create a wizard, select the wizard option in the toolbar, click in your CustomPanel and drag the rectangle to determine the size of your wizard.

   The **Tag Attributes** dialog appears.



3. Set the following in the **Tag Attributes** dialog that appears:

- **Name** - Enter a title for the wizard. E.g. "`Setup Wizard`".
- **ID** - Enter an ID for the wizard.
- **Tabs Visible** - Whether the tabs for each wizard page are displayed.
- **Progress Bar Visible** - Whether the progress bar is visible to show what step of the wizard the user is on in relation to the final step.
- **Dialog** - The wizard can display as a dialog window. It is recommended that you check this box after you have finished designing the wizard, otherwise the dimensions are set for a button size initially and not the wizard canvas. You can override the defaults to use your own height and width.



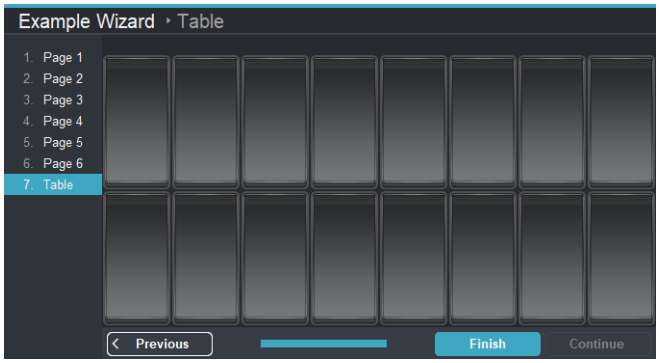
- **Dialog Width** - The dialog box width.
- **Dialog Height** - The dialog box height.
- **Number of Pages** - Choose how many pages you would like to be present in the wizard.
- **Create blank canvases as pages for the wizard** - Select this option to add a blank canvas for each page.

Click **OK**.

4. Once you have a blank wizard, you can use the **Edit Mode** toolbar to drag and drop any desired components on your page's blank canvas.

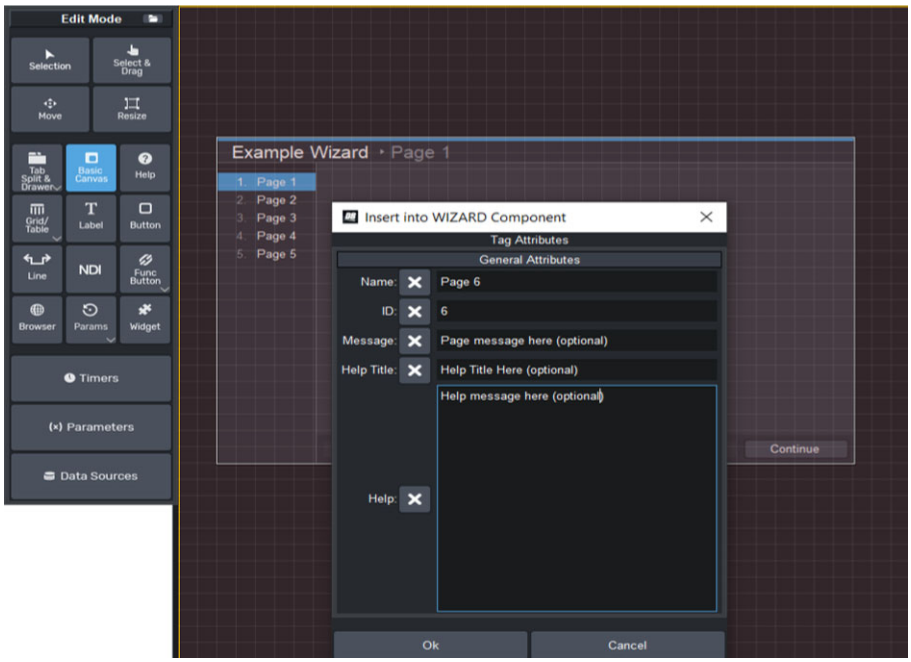
Add a New Page to a Wizard

You can quickly add a new page to a wizard from PanelBuilder's **Edit Mode** toolbar. You can also add other types of components directly to the wizard, like a grid or table, which will add a page that is populated with that component. An example of a table that is filled with buttons is shown below:



Although the wizard allows you to any add any type of component, this method is primarily recommended if you wish to add a blank page or one that is entirely filled with a component. If you want to add individual components, you would typically be better off adding the component to a blank canvas.

1. First, ensure that you are in PanelBuilder **Edit Mode**.
2. To add a new page, click the **Basic Canvas** button and click on the outer border area of the wizard to add a new page directly to the wizard. **Note**: you cannot add components by clicking on the page's main content area in the center.



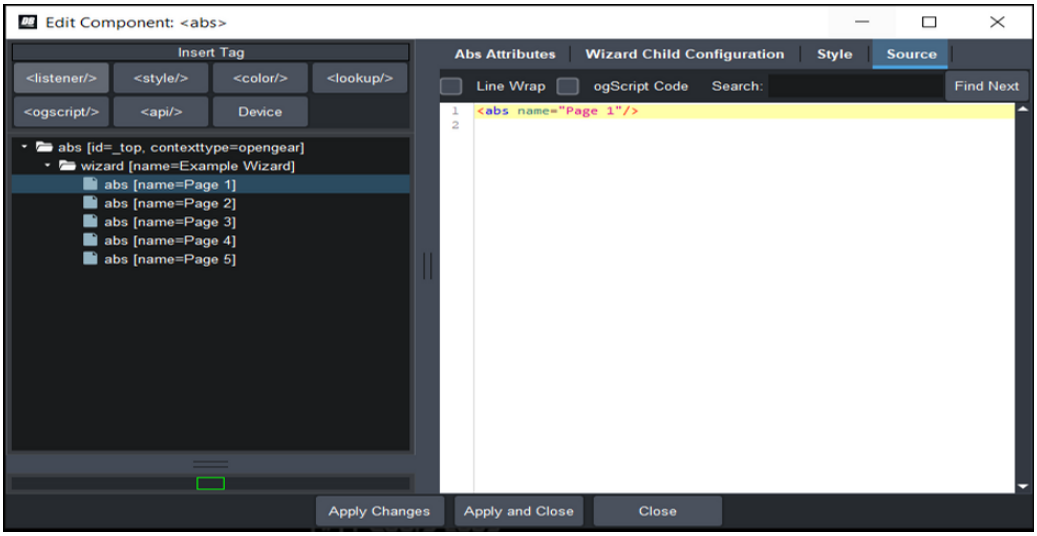
This adds a new blank page that is made up of an absolute container <abs/>, and a new tab will appear in the side navigation.

Add a Help Popup to a Wizard Page

This procedure requires that you have already created a wizard.

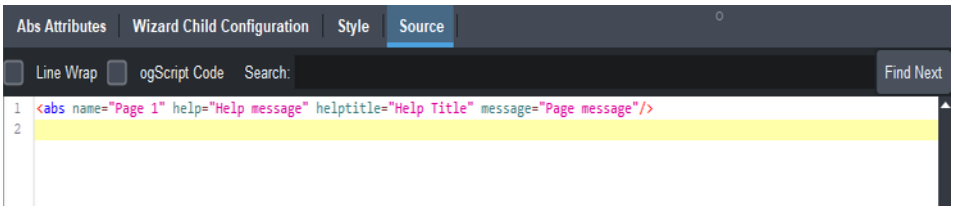
1. In PanelBuilder ensure you are not in **Edit Mode**, and navigate to the page that you would like to add a pop-up to. Once you are on the appropriate page, double-click in the central area of the wizard (which is an <abs> or absolute container component).

   The Component Editor opens, with that page selected in the Tree View.



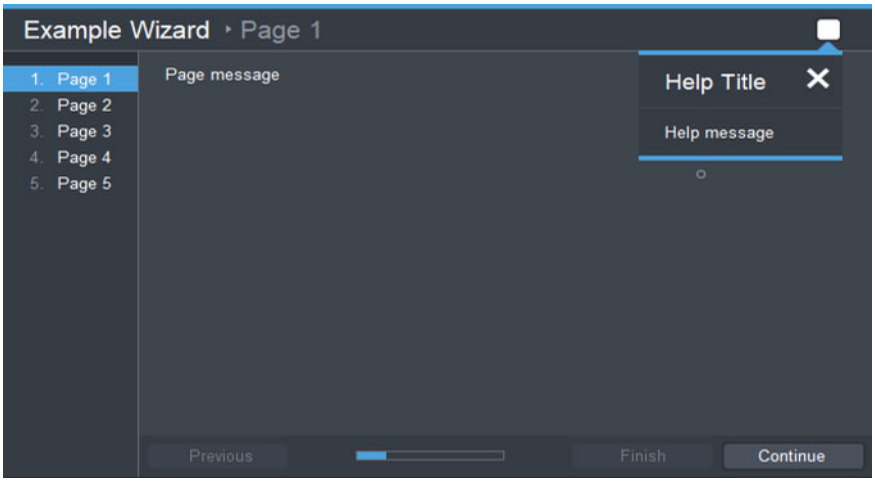
2. Verify that the correct page is selected in the Tree View on the left.
3. Click the **Source** tab, and add the highlighted code snippet to the page by inserting it within the top level component (in this case an <abs/> component):

```
<abs name="Page 1" help="Help message" helptitle="Help Title" message="Page
message"/>
```



4. Apply your changes.

   The help popup dialog appears in the top left corner.



Wizard Code Examples

If you prefer to work directly in the code instead of the user interface, you can copy and paste a code example to create a wizard. You can see several code examples for the wizard below. These examples do not include any customizations that were made using scripting, but you may also find it useful to familiarize yourself with these code examples if you are later planning to customize your wizard using script.

Before you Begin

This section assumes that you are in PanelBuilder **Edit Mode** and that you have already double-clicked on the empty canvas to open the **Component Editor**. To add a code example, you must also navigate to the **Source** tab and copy and paste the wizard code in beneath the uppermost **<abs/>** container. Remember that you must remove the / to open the uppermost <abs/> container and close it by adding the close tag, **</abs>**, beneath the wizard code example.

The following examples are available:

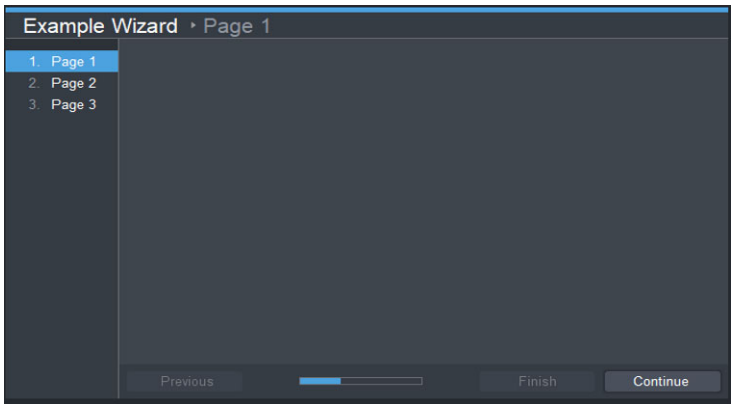
› "**Wizard with All Features Enabled**" on page 5–43
› "**Wizard with a Dialog Window**" on page 5–44
› "**Wizard with a Help Content Popup**" on page 5–44

Wizard with All Features Enabled

This example displays a wizard with a progress bar and tab side navigation. These features are highlighted in red.

```
<wizard dialog="false" height="414" left="18" name="Setup Wizard"
progressbarvisible="true" tabsvisible="true" top="16" width="756">
   <abs name="Page 1"/>
   <abs name="Page 2"/>
```

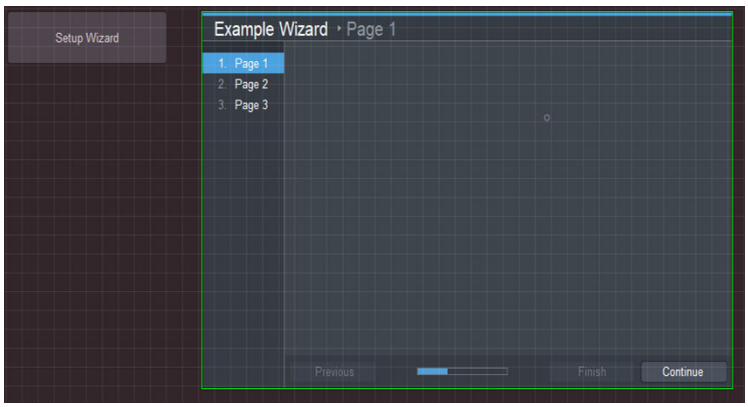
```
   <abs name="Page 3"/>
</wizard>
```



Wizard with a Dialog Window

This example displays a wizard in dialog mode. When dialog mode is enabled, a button is created that opens the wizard in a dialog window when clicked. The **name** parameter is used for both the name on the button and the wizard title.

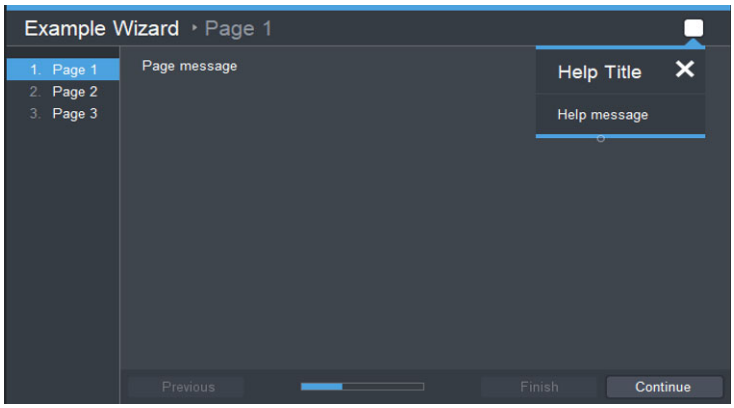
```
<wizard dialog="true" height="80" left="100" name="Setup Wizard" top="80"
width="200">
   <abs height="400" name="Page 1" width="350"/>
   <abs name="Page 2"/>
   <abs name="Page 3"/>
</wizard>
```



Wizard with a Help Content Popup

This example displays a wizard with a help content popup in the upper right corner. You can add the string you would like to display for the **helptitle** and **help** parameters.

```
<wizard dialog="false" height="414" left="18" name="Example Wizard"
progressbarvisible="true" tabsvisible="true" top="16" width="756">
   <abs name="Page 1" helptitle="Help Title here" help="Help message here"/>
   <abs name="Page 2"/>
   <abs name="Page 3"/>
</wizard>
```



Customizing the Wizard Using Script

If you want to create a more advanced wizard, you can use the script model provided below in instances where you wish to override the default behavior of the wizard. For example, you can use the script model to validate that user entry fields are populated before advancing to the next page, or to dynamically create or hide wizard pages based on the content of one page.

Each function in the script wizard model is optional. If a function is not defined, the wizard will automatically use what the standard wizard uses for that function call. This allows a developer who is customizing a wizard with script to customize only as much as he or she chooses. It is entirely up to the developer to determine how much to modify. This script wizard model is designed so that it is easy to make small changes and override only a small portion of the wizard's operation, or to take full control over every aspect of how the wizard operates.

You can see an example of a wizard that was customized using the config option **w.model** below:

```
<wizard dialog="false" height="465" left="104" name="My Wizard"
style="bdr:shadow;" tabsvisible="true" top="122" width="694">

   <config help="" helptitle="" key="w.model" message="">
   var model = {


      getPageTitle: function(page)
      {
         return "SCRIPTABLE PAGE: " + (page + 1);
      },


      getMessage: function(page)
      {
          return "My message for page " + page;
      },


      getHelp: function(page)
      {
         return "My help for page " + page;
      }


   };


   model
```

```
    </config>
       <abs id="my-page1">
          <label height="40" left="10" name="Page One" top="10" width="300"/>
       </abs>
       <abs id="my-page2" name="Page Two"/>
       <abs id="my-page3" name="Page Three"/>
       <abs id="my-page4" name="Page Four"/>
</wizard>
```

The example above shows how to use functions to automatically set the page title, message, and help.

You can modify the wizard using model functions, control functions, or callback functions. These functions and relevant examples are described in the sections that follow:

- "**Before You Begin**" on page 5–46
- "**Implementing Model Functions**" on page 5–48
- "**Implementing Control Functions**" on page 5–56
- "**Callback functions to notify the Script Wizard of changes**" on page 5–60
- "**Expanded Script Wizard Examples**" on page 5–64

Before You Begin

You can use the user interface to add the config option, or copy the code in directly. You can copy and paste the wizard model example in as a starting point.

To add the w.model config option (GUI):

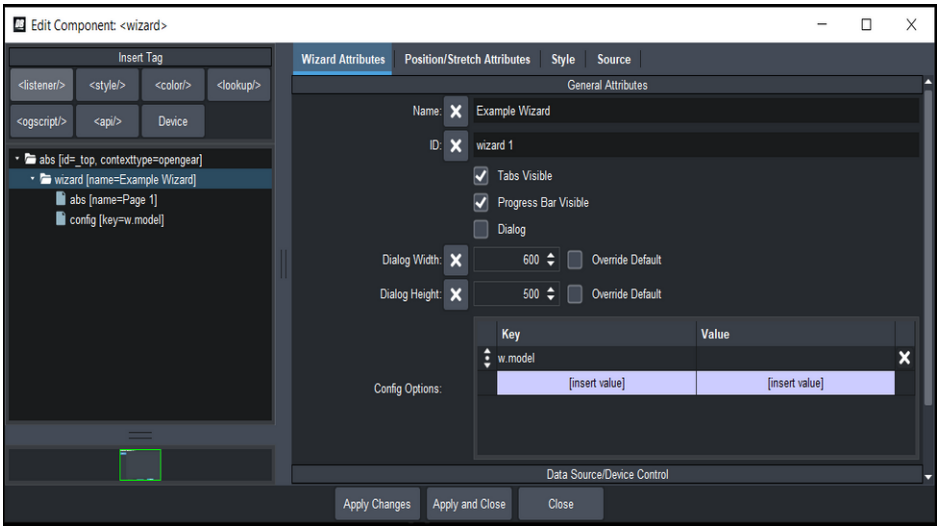
Adding config options allow you to override the built in properties of the component you are modifying, in this case for the wizard component. This procedure requires that you have already created a wizard.

1. In PanelBuilder **Edit Mode**, double-click on the border of the wizard (not the central content area).

   The Component Editor opens, with the wizard selected in the Tree View.

2. Verify that the wizard is selected in the tree view on the left. Click the **Wizard Attributes** tab, and under Config Options, add the **w.model** config option to the table as an entry under the **Key** column. Leave the **Value** entry blank, since we'll add that in the source code.

Tip: Config options are only available for certain components, and you can see a full list by clicking the help icon beside the Config Options.



3. Then go to the **Source** tab, and you can add your custom script beneath the **"w.model"**:

```
<wizard dialog="false" height="352" id="wizard1" left="218" name="Example
Wizard" progressbarvisible="true" tabsvisible="true" top="228" width="586">
   <abs name="Page 1"/>
   <config key="w.model"/>
</wizard>
```

The table below lists the functions that can be implemented in a wizard model. Longer code examples are included after this table.

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description
getComponentId	**pageNumber** (zero-indexed)	Displays the content for the referenced wizard component upon page request. **Returns** • Displays the string for the referenced component Id, of a component inside the wizard, upon the request for the page. This page is requested with the **pageNumber** parameter. **Tip:** If you want the content of multiple components to display, it is recommended that you reference an **<abs/>** component, then all the child components within the absolute container will be displayed. **Fallback** (if not implemented) • The first component inside of the wizard is used for "Page 0" and the second component for "Page 1".
getCurrentPageIndex	N/A	The integer for the current page selection in the wizard. **Returns** • The number of the current page. **Fallback** (if not implemented) • By default, an internal counter moves through the pages, as users click previous or continue. **Related** • See **validatePage**, **requestPageChange**, and **getPageCount**.
getCurrentProgress	N/A	Integer for the current value of the wizard progress bar. If used with **getMaxProgress**, you can make different steps advance the progress bar differently. **Returns** • An integer that specifies the current value of the progress bar. **Fallback** (if not implemented) • The default is set to the current page index + 1. **Example** See example for **getMaxProgress**.

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description
getHelpTitle	**pageNumber** (zero-indexed)	**Returns** • Displays a string as the Help title for the page indicated by the **pageNumber** parameter. **Fallback** (if not implemented) • Uses the value defined in the “helptitle” attribute of the **<wizard/>** tag that provides a page.
getHelp	**pageNumber** (zero-indexed)	**Returns** • String to display as the help content for the page indicated by the **pageNumber** parameter. **Fallback** (if not implemented) • Uses the value defined in the “help” attribute of the **<wizard/>** tag that provides a page.

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description

getMaxProgress	N/A	Integer for the maximum value for the wizard progress bar.
		Tip: If used with **getCurrentProgress,** you can make different steps advance the progress bar by a different amount.
		
		Returns
		• An integer that specifies the current value of the progress bar.
		
		Fallback (if not implemented)
		• The default is set to the value of **getPageCount**.
		
		Example
		This example shows you how to modify the percentage of progress that is shown for each individual wizard page.
		
		`getMaxProgress() {`
		`  return 100;`
		`},`
		
		`getCurrentProgress() {`
		`  // Step 1 is very easy, so make it 10%`
		`  if (this.model.getCurrentPageIndex() == 1) {`
		`  return 10;`
		`  }`
		`  // Step 2 is a little harder, so add 30%`
		`  if (this.model.getCurrentPageIndex() == 2) {`
		`  return 40;`
		`  }`
		`  // Step 3 is long, so add 60%`
		`  if (this.model.getCurrentPageIndex() == 3) {`
		`  return 100;`
		`  }`
		`  return 1;`
		`},`

getMessage	**pageNumber** (zero-indexed)	**Returns** • Displays a string in the wizard's message area on the page indicated by the **pageNumber** parameter. **Fallback** (if not implemented) • Uses the value defined in the "message" attribute of the parameter for the component **i**nside of the **<wizard/>** tag that provides a page.

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description
getPageCount	N/A	Determines the page count for the number of pages in the wizard. **Returns** • Integer for the number of pages in the wizard. **Fallback** (if not implemented) • By default, the page count is based on the number of OGLML components directly inside of the **<wizard/>** tag.
getPageTitle	**pageNumber** (zero-indexed)	**Returns** • Displays a string as the title of the page on the page indicated by the **pageNumber** parameter. **Fallback** (if not implemented) • Uses the title defined in the **name** attribute of the component inside of the **<wizard/>** tag that provides that page. If the value parameter does not exist, the title remains blank.
getWizardTitle	N/A	**Returns** • Displays a string as the title of the wizard. **Fallback** (if not implemented): • Uses the title defined in the **name** attribute of the **<wizard/>** tag by default.

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description

canFinish	N/A	Determines whether the **Finish** button is enabled or disabled.
		
		Returns
		• Provides "**default**" value.
		• When set to **true**, the finish button is enabled.
		• When set to **false**, the finish button is disabled.
		
		Fallback (if not implemented)
		• The default is set to **true** if **hasNextPage() == false**.
		
		Example
		`canFinish: function() {`
		`  // If we are passed page 2 (indexed at 1), then allow the user to finish.`
		`  if (this.model.getCurrentPageIndex() > 1) {`
		`  return true;`
		`  }`
		
		`  return false;`
		`},`

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description

hasPreviousPage	N/A	Determines whether the **Previous** button is enabled or disabled.
		
		Returns
		• When set to **true**, the **Previous** button is enabled.
		• When set to **false**, the **Previous** button is disabled.
		
		Fallback (if not implemented)
		• If **getCurrentPageIndex()** is greater than zero, then it is set to **true**.
		• If **getCurrentPageIndex()** is less than zero, then it is set to **false**.
		
		Example
		This example shows you how to set **hasPreviousPage** to **false** for page three, so that the **Previous** button is disabled for that page.
		
		`hasPreviousPage() {`
		`  // Don't let the user go back to page 3.`
		`  if (this.model.getCurrentPageIndex() == 2) {`
		`  return false;`
		`  }`
		`  return true;`
		`},`

hasNextPage	N/A	Determines whether the **Next** button is enabled or disabled on a given wizard page. **Returns** • When set to **true**, a **Next** button is enabled. • When set to **false**, a **Next** button is disabled. **Fallback** (if not implemented) • If **(getCurrentPageIndex() + 1)** is less than **getPageCount()**, then it is set to **true**. • If **(getCurrentPageIndex() + 1)** is equal to or more than **getPageCount()**, then it is set to **false**.

Table 5.5 Script Wizard - Model Functions

Function Name	Parameters	Description
isDone	N/A	Allows the script wizard to query the current internal state to see if the wizard state is complete. **Returns** • When **true** is returned, the wizard state is complete. • When **false** is returned, the wizard state is not complete. **Fallback** (if not implemented): • The default is set to **false**.
isProgressBarVisible	N/A	Determines whether the progress bar on the bottom of the wizard is enabled or disabled. **Returns** • When **true** is returned, the wizard progress bar is shown. • When **false** is returned, the wizard progress bar is not shown. **Fallback** (if not implemented) • The value of **"isProgressBarVisible"** attribute in the **<wizard/>** tag, as determined by whether the **Progress Bar Visible** checkbox was selected upon creation.
isTabsVisible	N/A	Determines whether the navigation tabs on the side of the wizard are enabled or disabled. **Returns** • When **true** is returned, the wizard page navigation tabs are shown. • When **false** is returned, the wizard page navigation tabs are not shown. **Fallback** (if not implemented) • The value of the **tabsvisible** attribute in the **<wizard/>** tag, as determined by whether the **Tabs Visible** checkbox was selected upon creation.

For more details...

You can view expanded examples of some of the model functions below. Copy and paste these code snippets in your CustomPanel to try them out. Make sure that you add the code snippet in the appropriate location, by opening up the topmost <abs> container in the CustomPanel code, and closing the </abs> after you've added the wizard tag.

getComponent ID Code Example

```
<wizard dialog="false" height="465" left="104" name="My Wizard"
progressbarvisible="true" style="bdr:shadow;" tabsvisible="true" top="122"
width="694">
```

```
  <config help="" helptitle="" key="w.model" message="">
  var model = {

    getPageTitle: function(page)
    {
      return "SCRIPTABLE PAGE: " + (page + 1);
    },

    getMessage: function(page)
    {
      return "My message for page " + page;
    },

    getHelp: function(page)
    {
      return "My help for page " + page;
    },

    getPageCount() {
   return 10;
},
    getComponentId(pageNumber) {
   // The first 3 pages of my wizard use the same component (my-page1).
   // Before it is shown, I want to change one of the values on the page to
   // a different player's name.

   if (pageNumber == 0) {
      params.setValue("name",0,"Tiger Woods");
      return "my-page1";
   }

   if (pageNumber == 1) {
      params.setValue("name",0,"Wayne Gretzky");
      return "my-page1";
   }

   if (pageNumber == 2) {
      params.setValue("name",0,"Micheal Jordan");
      return "my-page1";
   }

   // Page 4, 5 and 6 all use the "my-page2" component.
   if (pageNumber &lt; 6) {
      return "my-page2";
   }

   // Page 7 and  8 use the "my-page3" component.
   if (pageNumber &lt; 9) {
      return "my-page3";
   }

   // Page 9 uses "my-page4"
   return "my-page4";

  }
```

```
  };
  model</config>

   <abs help="" helptitle="" id="my-page1" message="" name="Page One">
      <label height="40" left="10" name="Page One" top="10" width="200"/>
      <label height="23" left="28" name="Name:" style="txt-align:west" top="58"
width="157"/>
      <param expand="true" height="23" left="85" oid="name" top="58" width="254"/>
      <label height="21" left="21" name="Age:" style="txt-align:west" top="90"
width="54"/>
      <param expand="true" height="27" left="82" oid="age" top="93" width="256"/>
   </abs>
   <abs id="my-page2" name="Page Two">
      <label height="40" left="10" name="Page Two" top="10" width="200"/>
   </abs>
   <abs help="" helptitle="" id="my-page3" message="" name="Page Three">
      <label height="40" left="10" name="Page Three" top="10" width="200"/>
   </abs>
   <abs help="" helptitle="" id="my-page4" message="" name="Page Four">
      <label height="40" left="10" name="Page Four" top="10" width="200"/>
   </abs>
</wizard>
```

Implementing Control Functions

Control functions that can be implemented in the Script Wizard.

Table 5.6 Script Wizard - Control Functions

Function Name	Parameters	Description
performPrevious	N/A	This method is called when the user clicks the **Previous** button. It allows you to override the behavior of that button. **Returns** • If **true** is returned, it indicate that the Script Wizard has handled and that the wizard should refresh its page information. • If **false** is returned, it indicates that the request has been rejected (the page does not change). • String to reject the change and show the returned string in the wizard's message area. **Fallback** (if not implemented) • The default action is set to go to previous page if **hasPreviousPage()** returns **true**. **Example** For more information, see: "**Creating Routing Paths in a Script Wizard**" on page 5–66
performNext	N/A	This method is called when the user clicks the **Next** button. It allows you to override the behavior of that button. **Returns** • If **true** is returned, it indicates that the Script Wizard has handled and that the wizard should refresh its page information. • If **false** is returned, it indicates that the request has been rejected (the page did not change). **Fallback** (if not implemented) • By default, goes to the next page if **hasNextPage()** returns **true**.

Table 5.6 Script Wizard - Control Functions

Function Name	Parameters	Description
performFinish	N/A	The user requests that the wizard steps are complete. You can use this method to perform tasks, and validate values before closing the wizard. **Returns** • If **true** is returned, the request is accepted and the wizard closes if it is a dialog. • If **false** is returned, the request is not accepted and the wizard will not close if it is a dialog. **Fallback** (if not implemented) • Sets **done** to **true** by default.

Table 5.6 Script Wizard - Control Functions

Function Name	Parameters	Description
requestPageChange	**pageNumber**	This function is called when the user requests to jump to a specific page. **Returns** • If **true** is returned, this indicates that the wizard has updated its page. • If **false** is returned, this indicates that the wizard has not updated its page. **Fallback** (if not implemented) • By default, this sets the internal 'current page' index to the requested number.

validatePage	**pageNumber**	Provides a chance to validate the current page before a page change is requested.
		
		Returns
		• If **true** is returned, the page is valid and the page change may be requested.
		• If **false** is returned, a message will not be displayed in the wizard's message area.
		• If a string is returned, that message is displayed in the wizard's message area if the page is not valid.
		
		Fallback (if not implemented)
		• Set to **true** by default.
		
		Example
		This example shows you how to use **validatePage** to ensure that the age entered by a user in the input field meets the minimum requirements.
		
		`validatePage(pageNumber) {`
		`  // Validate that on page 1, the age is between 10 and 120.`
		`  if (pageNumber == 0) {`
		`  if (params.getValue("age",0) > 120) {`
		`  return "The age is too big";`
		`  }`
		`  if (params.getValue("age",0) < 10) {`
		`  return "The age is too small";`
		`  }`
		`  }`
		
		`  return true;`
		`}`

Callback functions to notify the Script Wizard of changes

You can use callback functions to notify the script wizard of changes. These functions are accessible using the "**model**" property of the wizard. The "**model**" property is automatically set by DashBoard when the wizard loads.

You can access the wizard's "**model**" property at any time within the wizard via **ogscript.getAttribute("model");**

You can see an example below:

```
<param oid="Progress">
  <task tasktype="ogscript">
    var scriptModel = ogscript.getAttribute("model");
    if (scriptModel!= null)
    {
       scriptModel.model.notifyProgress(this.getValue());
    }
  </task>
</param>
```

The table below lists the callback functions to notify the wizard of changes:

Table 5.7 Callback Functions

Function Name	Parameters	Description

getCurrentPageIndex	N/A	Provides a mechanism for the script wizard to query for the current page index.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`ogscript.debug("Current page index: " + modelLocalVariable.model.getCurrentPageIndex());`
		`</task>`

refreshAll		Provides a mechanism for the script wizard to notify DashBoard that the wizard structure has fundamentally changed and needs to be reinitialized.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model. refreshAll ();`
		`</task>`

Table 5.7 Callback Functions

Function Name	Parameters	Description

notifyButtonState	N/A	Provides a mechanism to make a callback to DashBoard to notify the wizard to refresh the button states for the previous, next, and finish buttons.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model.notifyButtonState();`
		`</task>`

notifyFinished	N/A	Provides a mechanism to make a callback to DashBoard to notify it that the wizard is finished.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model.notifyFinished();`
		`</task>`
		
		For more details, see "**notifyFinished Code Example**" on page 5–63

notifyHelp	String	Provides a mechanism to notify the wizard that the help for the current page has changed to the provided String.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model.notifyHelp("New help content");`
		`</task>`
		For more details, see "**notifyHelp Code Example**" on page 5–63

notifyMessage	String	Provides a mechanism to notify the wizard that the message for the current page has changed to the provided String.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model.notifyMessage("Updated page message");`
		`</task>`
		
		For more details, see "**notifyMessage Code Example**" on page 5–63

Table 5.7 Callback Functions

Function Name	Parameters	Description

notifyPage	Integer	Provides a mechanism to notify the wizard that the current page has changed to the specified index.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model.notifyPage(0);`
		`</task>`
		
		For more details, see "**notifyPage Code Example**" on page 5–64

notifyPageTitle	String	Provides a mechanism for the script wizard to update the current page title.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model.notifyPageTitle ("New Page Title");`
		`</task>`

notifyProgress	Integer	Provides a mechanism to make adjustments to the wizard's progress indicator.
		
		Example:
		In this scenario, if the wizard has 5 pages and **notifyProgress** makes a call back with the value 4, the progress bar will be updated to show that it is 80% complete.
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model. notifyProgress (4);`
		`</task>`

notifyWizardTitle	String	Provides a mechanism for the script wizard to update the wizard title.
		
		Example:
		`<task tasktype="ogscript">`
		`var modelLocalVariable = ogscript.getAttribute('model');`
		`modelLocalVariable.model. notifyWizardTitle ("New Wizard Title");`
		`</task>`

For more details...

You can find a list of expanded callback function examples below. Copy and paste these code snippets in your CustomPanel to try them out. Make sure that you add the code snippet in the appropriate location, by opening up the topmost <abs> container in the CustomPanel code, and closing the </abs> after you've added the wizard tag.

notifyFinished Code Example

```
<wizard dialog="true" height="72" left="106" name="Notify Finished Wizard"
progressbarvisible="true" tabsvisible="true" top="78" width="242">      <abs
name="Page 1">
         <label height="48" left="40" name="Press this button to send a
notifyFinished callback to the wizard." style="txt-align:west" top="9" width="400"/>
         <label height="48" left="40" name="When the wizard receives this
notification the dialog window closes." style="txt-align:west" top="44"
width="400"/>
         <button buttontype="push" height="49" left="140" name="Notify Finished"
top="140" width="146">
            <task tasktype="ogscript">var model = ogscript.getAttribute('model');
model.model.notifyFinished();</task>
         </button>
      </abs>
      <abs name="Page 2"/>
      <config help="" helptitle="" key="w.model" message="">var model = {}; model
      </config>
</wizard>
```

notifyHelp Code Example

```
<wizard dialog="false" height="72" left="106" name="Notify Help Wizard"
progressbarvisible="true" tabsvisible="true" top="78" width="242">
   <abs help="" helptitle="" message="" name="Page 1">
      <label height="38" left="2" name="Press this button to send a notifyHelp
callback to the wizard to update the help message" style="txt-align:west" top="9"
width="550"/>
      <label height="38" left="2" name="When the wizard receives this notification
it updates the help message." style="txt-align:west;" top="34" width="400"/>
      <button buttontype="push" height="49" left="100" name="Notify Help" top="120"
width="146">
         <task tasktype="ogscript">var model = ogscript.getAttribute('model');
model.model.notifyHelp("New help content");</task>
      </button>
   </abs>
   <abs name="Page 2"/>
   <config help="" helptitle="" key="w.model" message="">var model = {};

model
   </config>
</wizard>
```

notifyMessage Code Example

```
<wizard dialog="false" name="Notify Message Wizard" progressbarvisible="true"
tabsvisible="true">
   <abs name="Page 1">
      <label height="38" left="3" name="Pressing this button sends a notifyMessage
to the script wizard providing a message." style="txt-align:west;" top="8"
width="550"/>
      <label height="38" left="2" name="Upon receival of this notification the
message on current wizard page" style="txt-align:west;" top="34" width="400"/>
```

```
      <label height="38" left="2" name="gets updated with the passed on message."
style="txt-align:west" top="64" width="400"/>
      <button buttontype="push" height="49" left="100" name="Notify Message"
top="120" width="146">
         <task tasktype="ogscript">var model = ogscript.getAttribute('model');
model.model.notifyMessage("New message");</task>
      </button>
   </abs>
   <abs name="Page 2"/>
   <config help="" helptitle="" key="w.model" message="">var model = {};

model
   </config>
</wizard>
```

notifyPage Code Example

```
<wizard dialog="false" name="Notify Page Wizard" progressbarvisible="true"
tabsvisible="true">
   <abs name="Page 1">
      <label height="38" left="2" name="Pressing this button sends a notifyPage to
the script wizard providing the new page number." style="txt-align:west;" top="9"
width="550"/>
      <label height="38" left="2" name="Script wizard then refreshes the content of
that page provided by the controller. " style="txt-align:west;" top="34"
width="550"/>
      <button buttontype="push" height="49" left="100" name="Notify Page" top="120"
width="146">
         <task tasktype="ogscript">var theModelVar =
ogscript.getAttribute('model');
         theModelVar.model.notifyPage(0);</task>
      </button>
   </abs>
   <abs name="Page 2">
      <label height="48" left="2" name="On page 2" style="txt-align:west" top="9"
width="400"/>
   </abs>
   <abs name="Page 3"/>
   <abs name="Page 4"/>
   <config help="" helptitle="" key="w.model" message="">var model = {};

model
   </config>
</wizard>
```

Expanded Script Wizard Examples

This section provides instructions on how to implement common use cases for the Script Wizard. For example, you can add validation for user actions or create separate routing paths that users can follow based on their selection choices.

The following examples are available:

› "**Adding Validation to a Script Wizard**" on page 5–65

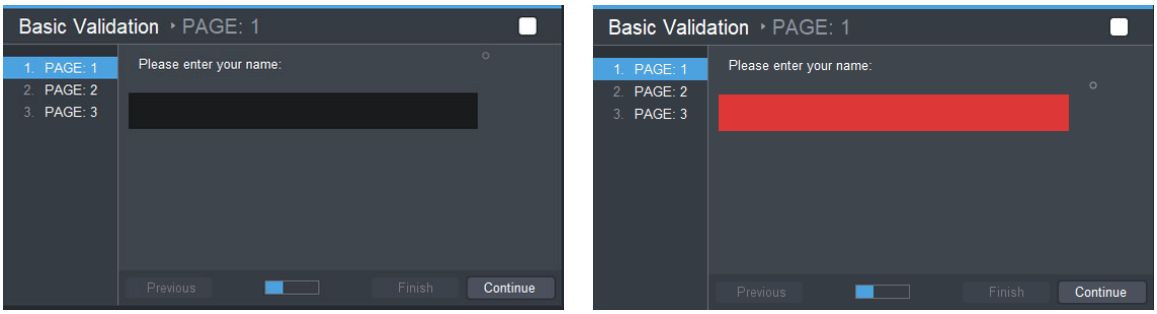
› "**Creating Routing Paths in a Script Wizard**" on page 5–66

Adding Validation to a Script Wizard

This example shows you how to add validation for text input fields, or buttons, to ensure that users cannot click **Continue** to proceed to the next step without having completed the required actions.

The figure below shows how the text input field turns red to indicate that the requirements haven't been met.

Figure 5.23 *Basic Validation for a Text String*



To Create a Validation Script Wizard

1. In PanelBuilder **Edit Mode**, create a new CustomPanel and double-click on the empty canvas to open the Component Editor. Click the **Source Code** tab, and ensure that the uppermost **<abs/>** is selected in the tree view. Open the **<abs>** and copy and paste the snippet below it:

```
<wizard dialog="false" height="301" left="23" name="Route Selection"
progressbarvisible="true" tabsvisible="true" top="23" width="554">
  <config help="" helptitle="" key="w.model" message="">
  var model = {
    getMessage: function(page)
    {
      if ( page == 0 )
      {
        return "Please enter your name:"
      } else if ( page == 1 ){
        return "Please enter your number:";
      }
      return "Form complete!";
    },

    validatePage: function(page)
    {
      if ( page == 2 ) {
        return true;
      }
      var pageFieldName = "page" + page + ".field";
      var valid = params.getValue(pageFieldName, 0) != "";
      if ( valid == false ){
        ogscript.setStyle("page" + page + "_field","bg#ff0000;");
      }
      return valid;
    }
  }
```

```
  model

  </config>
    <meta>
      <params>
        <param access="1" constrainttype="INT_NULL" name="page.index"
oid="page.index" precision="0" type="INT16" value="0" widget="default"/>
        <param access="1" maxlength="0" name="Name" oid="page0.field"
type="STRING" value="" widget="text"/>
        <param access="1" maxlength="0" name="Name" oid="page1.field"
type="STRING" value="" widget="text"/>
       </params>
    </meta>
    <abs id="page1" name="Page One">
       <param expand="true" height="36" id="page0" left="10"
oid="page0.field" top="10" width="346"/>
    </abs>
    <abs id="page2" name="Page Two">
       <param expand="true" height="36" id="page1" left="10"
oid="page1.field" top="10" width="346"/>
    </abs>
    <abs id="page3" name="Page Three"/>
 </wizard>
```

2. Close the **</abs>** tag and apply your changes.

Explanation of the Validation Script Wizard Example

You can use the **validatePage** function of the model to verify that specific pages have been completed. Simply return **true** or **false** and the wizard will prevent or enable the user to navigate to the next page.

This **Validation Script Wizard Example** follows the workflow illustrated below:

- Page 1 - Please enter your name.
  - › This page displays a text input field that is required to proceed to the next page of the wizard by clicking the **Continue** button.
- Page 2 - Please enter a phone number.
  - › This page displays a text input field that is required to proceed to the next page of the wizard by clicking the **Continue** button.
- Page 3 - Last page.
  - › This page displays a **Form Complete** message.

Note: The **validatePage** method can return an error string instead of false. That string is displayed as the page message.

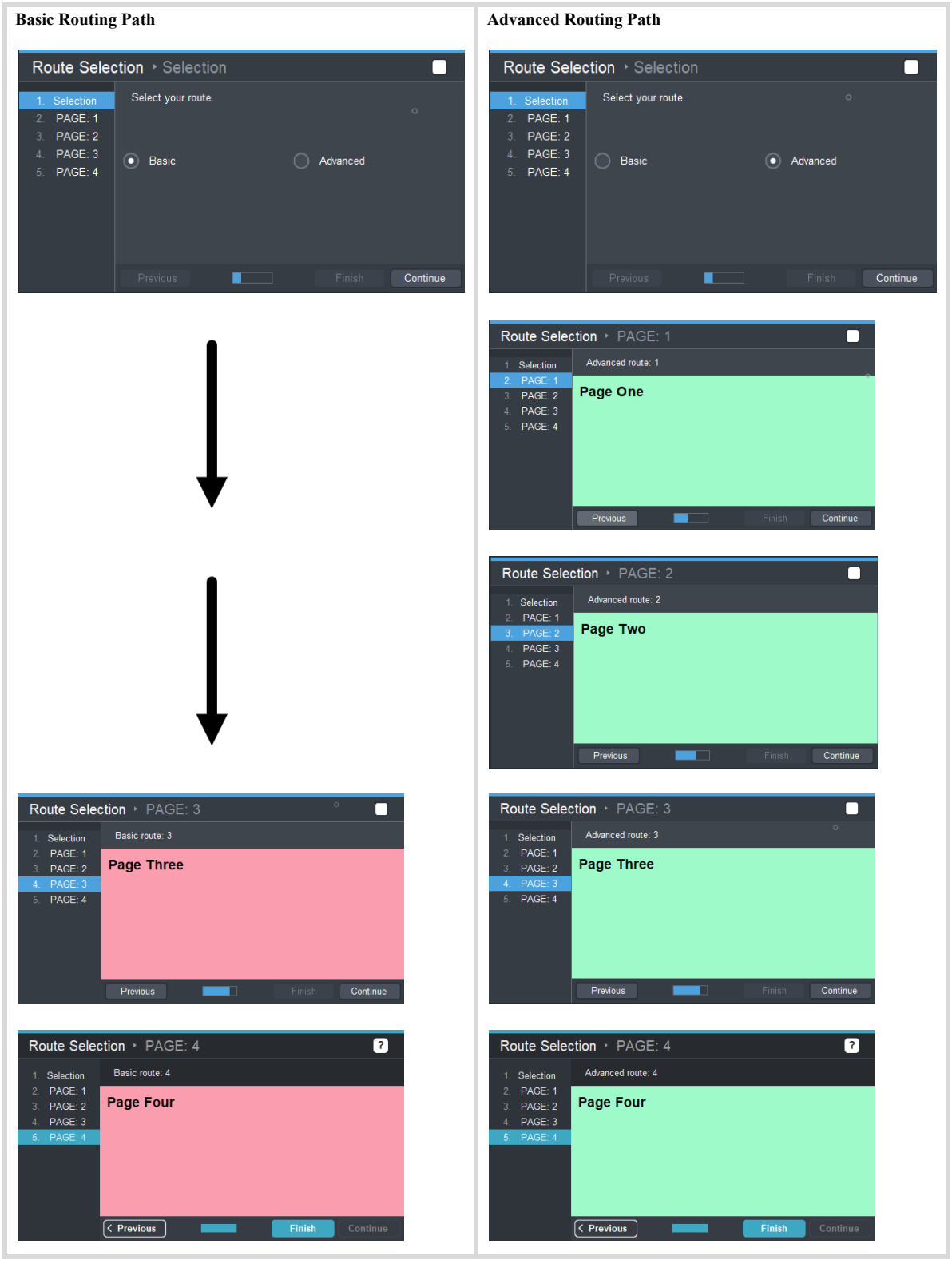
Creating Routing Paths in a Script Wizard

This example shows you how to create separate routing paths for users to follow in the Script Wizard depending on their selection choices. This scenario includes a **Basic** and **Advanced** option that are displayed using radio choice buttons. Selecting the **Basic** path takes a user directly to page 3 and then 4. The **Advanced** path provides the full sequence from page 1 through 4. The style of the absolute container, or **<abs>**, for your main page content has been modified to pink for basic, and to green for advanced to make it easier to identify which path you are on at any point

in the wizard process. Note that although the color has been modified, the **Basic** and **Advanced** workflows display the same page content for pages 3 and 4.

You can see the workflow illustrated in the "**Basic and Advanced Routing Path Workflow**" on page 5–67.

***Figure 5.24 Basic** and **Advanced** Routing Path Workflow*



First, you can go to the procedure below to copy and paste the code snippet into your CustomPanel. Once you have the example routing panel displayed in DashBoard, you can read the explanation that describes which functions have been modified as you get familiar with the Script Wizard.

To Create a Routing Script Wizard

1. In PanelBuilder **Edit Mode**, create a new CustomPanel and double-click on the empty canvas to open the Component Editor. Click the **Source Code** tab, and ensure that the uppermost **<abs/>** is selected in the tree view. Open the **<abs>** and copy and paste the snippet below it:

```
<wizard dialog="false" height="301" left="23" name="Route Selection"
progressbarvisible="true" tabsvisible="true" top="23" width="554">
  <config help="" helptitle="" key="w.model" message="">
  var model = {
    /*********************************
    * Custom model helper functions
    *********************************/
    getPageList: function( ){
      if ( params.getValue("wizard.options", 0) == "Basic" ) {
        return [0, 3, 4];
      } else {
        return [0, 1, 2, 3, 4];
      }
    },

    getRouteType: function(){
      return params.getValue("wizard.options", 0);
    },

    setPageStyle: function( index ){
      var basicColor = "#FA9EAF"; //Pink
      var advancedColor = "#9EFAC9"; //Green
      var style = "";
      if ( index != 0 ) {
        if ( params.getValue("wizard.options", 0) == "Basic" ) {
           style = "bg" + basicColor;
        } else {
           style = "bg" + advancedColor;
        }
      }
      ogscript.setStyle( "page" + index, style);
    },

    /*********************************
    * Model API functions
    *********************************/
    getPageTitle: function(page)
    {
      if ( page == 0 ) {
        return "Selection";
      }
      return " PAGE: " + page;
    },
```

```
    getMessage: function(page)
    {
      if ( page == 0 ) {
        return "Select your route.";
      }
      return this.getRouteType() + " route: " + page;
    },

    getHelp: function(page)
    {
      if ( page == 0 ) {
        return "Change your route using the radio buttons";
      }
    },

    performNext: function()
    {
      var index = params.getValue("page.index", 0);
      if ( index &lt;= this.getPageList().length ) {
        index += 1;
        params.setValue("page.index", 0, index);
      }
      return true;
    },

    performPrevious: function()
    {
      var index = params.getValue("page.index", 0);
      if ( index != 0 ){
        index -= 1;
        params.setValue("page.index", 0, index);
      }
      return true;
    },

    getCurrentPageIndex: function()
    {
      var index = params.getValue("page.index", 0);
      var actualPageIndex = this.getPageList()[index];
      this.setPageStyle( actualPageIndex );
      return actualPageIndex;
    },
  }
  model

  </config>
  <meta>
    <params>
      <param access="1" constrainttype="STRING_CHOICE" maxlength="0"
name="wizard.options" oid="wizard.options" precision="0"
type="STRING_ARRAY" widget="combo">
        <value>Basic</value>
        <constraint>Basic</constraint>
```

```
        <constraint>Advanced</constraint>
      </param>
      <param access="1" constrainttype="INT_NULL" name="page.index"
oid="page.index" precision="0" type="INT16" value="0" widget="default"/>
      <param access="1" name="page.style" oid="page.style" type="String"
value="bg#ff0000;"/>
    </params>
  </meta>
  <abs id="page0" name="Page One">
    <param expand="true" height="99" left="10" oid="wizard.options"
showlabel="false" top="10" widget="radio-vertical" width="420"/>
  </abs>
  <abs id="page1">
    <label left="10" name="Page One"
style="txt-align:center;font:bold;size:Big;fg#foreground;" top="10"/>
  </abs>
  <abs id="page2">
    <label left="10" name="Page Two"
style="txt-align:center;font:bold;size:Big;fg#foreground;" top="10"/>
  </abs>
  <abs id="page3">
    <label left="10" name="Page Three"
style="txt-align:center;font:bold;size:Big;fg#foreground;" top="10"/>
  </abs>
  <abs help="" helptitle="" id="page4" message="" style="bg#selectbg;">
    <label left="10" name="Page Four"
style="txt-align:center;font:bold;size:Big;fg#foreground;" top="10"/>
  </abs>
</wizard>
```

2. Close the **</abs>** tag and apply your changes.

Explanation of the Routing Script Wizard Example

In the **Routing Script Wizard Example** above, certain functions have been added to the model object to override the wizard model's default behavior. These functions are described below in the same sequential order as the functions are used in the example.

- **getPageList** returns a list of page IDs to display, which are dependent on the user selection from the first page (from selecting parameters used by the model).
- **getRouteType** returns the option that the user chose.
- **setPageStyle** returns a custom style depending on the chosen route.
- **wizard.options** is a widget parameter that will contain the user's choice.

You'll notice that **getPageTitle**, **getMessage**, and **getHelp** functions are currently overridden to enable custom messages. For page '0' (the route selection page) it returns a selection specific message for each of these functions.

When the user selects **Continue** or **Previous** buttons, the **performNext** or **performPrevious** model functions are triggered first. You can check to ensure that your page index doesn't move beyond the bounds of the pages and add or subtract from the page index.

Note: These functions must return **true** to enable the page to update.

- **getCurrentPageIndex** gets the newly updated index and translates it to the actual page index from the route chosen by calling **getPageList()**.
- **page.index** is a widget parameter that manages the current page index that is viewed.

- **page.style** is a parameter that will contain the style to use in each page.

Image Canvases

An image canvas displays an image behind all the other components on the canvas. The image can be a .jpg, .png, or .gif file.

To create an image canvas:

1. On the **Edit Mode** toolbar, click the **Basic Canvas** button.
2. Drag a box on the panel to define the canvas area.
3. On the **Edit Mode** toolbar, use the hand to select the canvas outline and double-click to open the **Component Editor**.
4. Click the **Style** tab, and in the **Background (URL)** box, click **Browse** and choose a .jpg, .png or .gif file that will display in the background of the canvas.
5. From the **Background Alignment** list, select and alignment option to specify how the image appears within the canvas area.
6. From the **Background Color** list, select a color to fill the area with the specified color. Select [no color] if you do not want to apply a fill.

   Tip: On Windows devices, click the **Eyedropper** icon to use the **Eyedropper** tool to select a color from any visible screen on your computer.

   Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.
7. From the **Background Fill** list, select one of the following options to specify how the image is formatted:
   - **Crop** — Fills the entire area with the image while maintaining the aspect ratio. Crops areas that do not fit.
   - **None** — Does not resize the image in any way.
   - **Horizontal** — Stretches the image to fit the horizontal space.
   - **Vertical** — Stretches the image to fit the vertical space.
   - **Shrink** — If the image is too large to fit, scales the image. If the image is too small, does not resize.
   - **Fit** — Scales the image to fit, while maintaining the aspect ratio.
   - **Tile** — Repeats the image as a series of tiles to fill the space.
   - **Both** — Stretches the image horizontally and vertically to fill the space.
   - **Paint9** — Divides the image into nine areas (defined with Background Insets) to define fixed corners, vertically or horizontally stretched sides, and a stretched center.
8. Click **OK** to apply the changes.

   The image canvas appears. **Figure 5.25** shows an image canvas with an image of a production switcher.

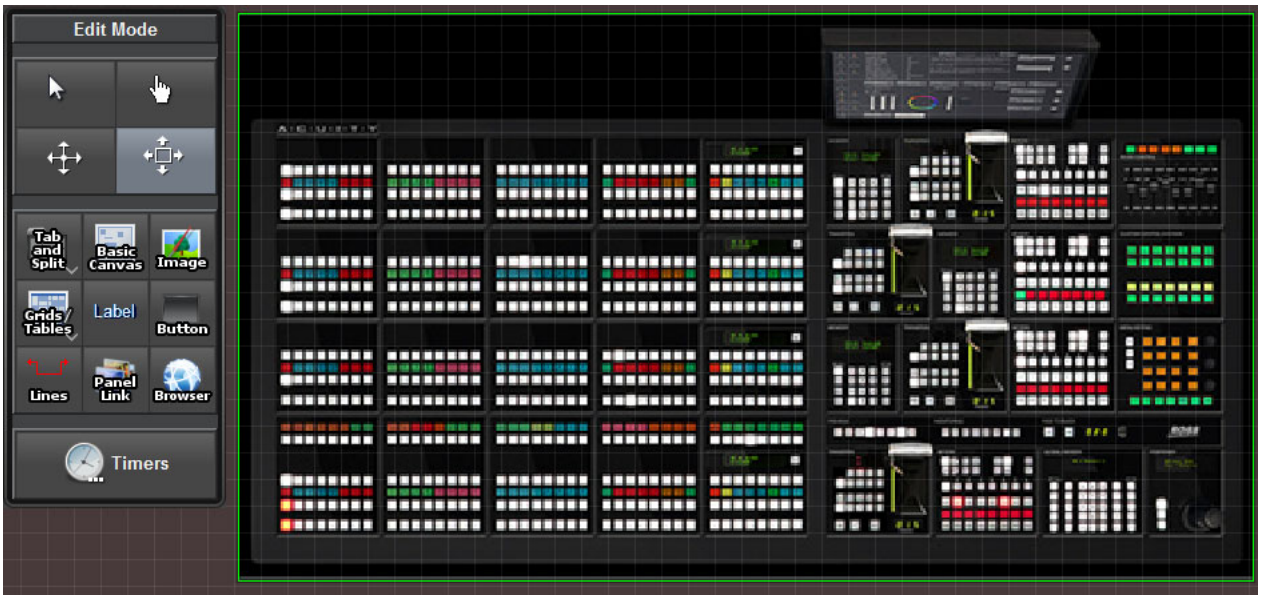


Figure 5.25 *- Adding an Image Canvas, showing a picture of a Ross Video Acuity production switcher*

Editing Image Canvas Attributes

After you create an image canvas, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For image canvases, the Edit Component window contains the following tabs:

- **Abs Attributes Tab** — For more information, see "**Abs Attributes Tab**" on page 5–122.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Split Panels

A split panel has vertical and/or horizontal split bars which partition it into smaller panels. Each panel can in turn be split, and can contain other components. The user can move the split bars to adjust how much of the split panel area is dedicated to each panel.

Tips about Split Panels:

- **Selecting all or part of a split panel** — As you hover over a split panel, a border appears, indicating which component is selected. The component can be the entire split panel area, an individual panel, or both parts of a split panel. To select both parts of a split panel, hover over the bar between the two panels.

To create a split panel:

1. On the **Edit Mode** toolbar, click the **Split Pane** button.

   Tip: If the **Split Pane** button is not visible, click the **Tab and Split** button to reveal the **Split Pane** button.

2. Drag a box on the panel to define the split panel area.

   The **Insert into Component** dialog appears.

3. In the **Orientation** list, specify whether you want split the panel horizontally or vertically.

4. Drag the **Division** slider to specify the default position of the split bar.

   Tip: For vertically-split panels, lower values position the bar toward the top. For horizontally-split panels, lower values position the bar toward the left.

5. If you want both parts of the split panel to contain a basic canvas, select the **Create blank canvases** option.

   If you do not select this option, when you later add a component to one of the two panels, the component resizes to occupy the entire panel.

6. Click **OK**.

   The split panel appears. **Figure 5.26** shows a split panel, with different background colors for each pane.

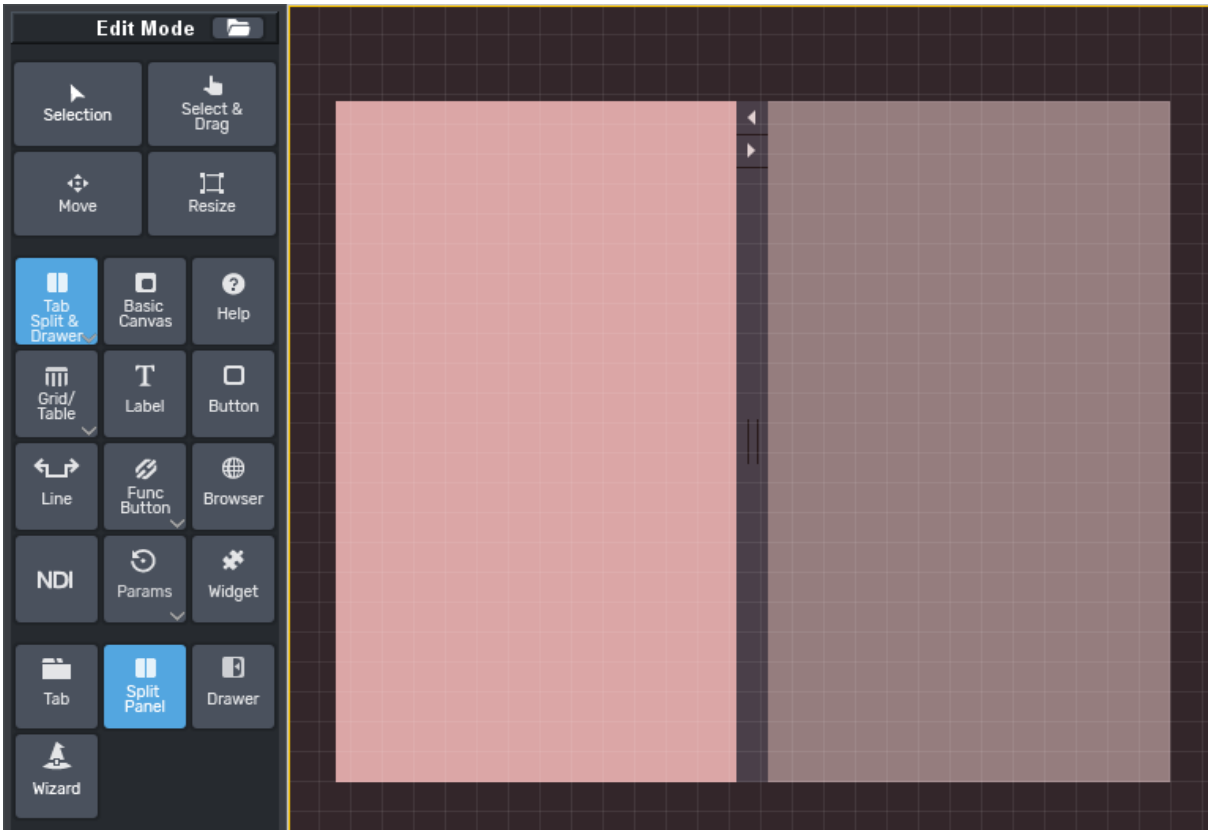


Figure 5.26 *- Adding a Split Panel*

7. If you want to split a panel, click it and then specify the orientation and position of the new split bar.

Editing Split Panel Attributes

After you create a split panel, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For split panels, the Edit Component window may contain the following tabs:

- **Split Attributes Tab** — For more information, see "**Split Attributes Tab**" on page 5–138.
- **Dropspot Attributes Tab** — For more information, see "**Dropspot Attributes Tab**" on page 5–128.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Tables

A table is a grid of cells to which you can add other components. Each cell is a dropspot. Tables enable you to neatly arrange small components such as buttons and status indicators.

Tips about Tables

- **Deleting table cells** — If you delete all the cells in a row or column, the remaining cells expand to fill the table area.
- **Table of Buttons** — When you create a table, you can specify that it be filled with buttons. This is useful for creating a control panel with perfectly identical buttons. After you create the table of buttons, you can edit them individually to define their names, button types, tasks, etc. For more information, see "**Editing Button Attributes:**" on page 5–86.
- **Selecting a table or table cell** — As you hover over a table, a border appears, indicating which component is selected. The component can be the entire table or an individual table cell.
- **Table formatting** — Right-click a table cell to access the following formatting options:
  - **Set all cell sizes to selection** — Makes all cells the same size. If you display parameters in table cells, the cells resize to fit the parameter text. This option makes them all the same size.
  - **Insets** — Provides options for adding padding to individual cells or all cells. You can also remove padding from individual cells or all cells.
  - **Add Row(s)** — Adds one or more empty rows to the bottom of the table. You can choose whether the table stays the same size (cells shrink), or grows to accommodate the new row(s).
  - **Duplicate Row** — Creates one or more duplicates of the current row, including all cell contents. You can choose whether the table stays the same size (cells shrink), or grows to accommodate the new row(s).
  - **Remove Row(s)** — Deletes the current row.
  - **Publish for web** — Allows you to share a web session. It provides the option to use a shared session for all connected web clients.
  - **Lock all proportions** — The table and its cells automatically scale as the DashBoard window is resized. This option is useful for accommodating different screen sizes and resolutions.
  - **Unlock all proportions** — The table and its cells maintain their current sizes and shapes. This option is useful for ensuring a consistent visual display.
  - **Snap to grid** — Creates a grid backdrop on the DashBoard CustomPanel background, and any elements drawn on the backdrop will snap to the grid. The default grid size is 20, and you can change the size of the grid by editing the **gridsize** value. This can be done by double-clicking on an empty area of your CustomPanel, which opens the Edit Component dialog with the uppermost abs node selected. With that **abs** node selected, you can click the **Source** tab to edit the "gridsize=20" attribute.
  - **Delete** — Deletes the selected cell. Cells to the right of the deleted cell shift left.

  Note: There are many other formatting options available through the Edit Component window. Double-click a cell to edit its properties.

To create a table:

1. On the **Edit Mode** toolbar, click the **Table** button.

   Tip: If the **Table** button is not visible, click the **Grids/Tables** button to reveal the **Table** button.

2. Drag a box on the CustomPanel to define the table area.

   The **Insert into Component** dialog appears.

3. Specify the number of rows and columns in the table.
4. If you want all the table cells to contain buttons, select the **Fill with buttons** box.
5. If the table is going to be populated by parameter values and you want to limit the number of columns in the table, set **Max Elements Per Row**.

   For example, this option is useful if you want to create a table of buttons, each of which includes a choice as defined in a parameter with nine values. Create a one-cell table and set **Max Elements Per Row** to **3**. Drag the

parameter onto the table, setting it as a choice list, with the **Keep returned elements together** option unselected. The table will have three rows of three buttons, each of which contains one of the nine choices defined in the parameter.

6. Click **OK**.

   The table appears. **Figure 5.27** shows a table with three rows and three columns.

   Each cell contains an **X** to indicate that it is empty.

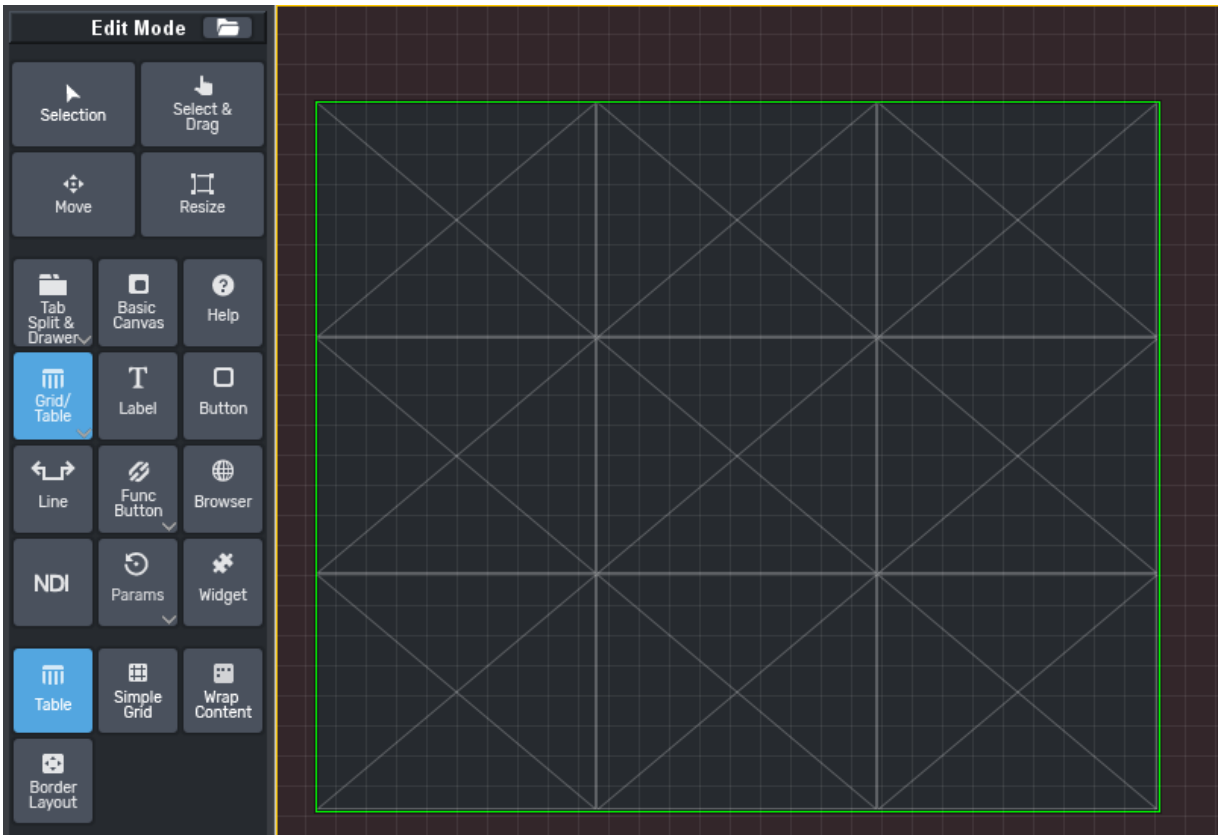


Figure 5.27 *- Adding a Table*

Editing Table Attributes

After you create a table, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For tables and table cells, the Edit Component window may contain the following tabs:

- **Table Attributes Tab** — For more information, see "**Table Attributes Tab**" on page 5–145.
- **Container Attributes Tab** — For more information, see "**Container Attributes Tab**" on page 5–127.
- **Dropspot Attributes Tab** — For more information, see "**Dropspot Attributes Tab**" on page 5–128.
- **Tr Attributes Tab** — For more information, see "**Tr Attributes Tab**" on page 5–150.
- **Abs Attributes Tab** — For more information, see "**Abs Attributes Tab**" on page 5–122.
- **Table Cell Attributes Tab** — For more information, see "**Table Cell Attributes Tab**" on page 5–147.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Simple Grids

A simple grid is like a table, but with all cells the same size. Each cell is a dropspot into which you can insert other components.

When you create a simple grid, you specify the number of rows and/or columns. If you insert more components than there are cells in the grid, additional columns are created.

We recommend you specify the number of rows and columns when you create the simple grid. Otherwise, the simple grid has only one row and it divides into equal-width columns as you add components.

To create a simple grid:

1. On the **Edit Mode** toolbar, click the **Simple Grid** button.

   Tip: If the **Simple Grid** button is not visible, click the **Grids/Tables** button to reveal the **Simple Grid** button.

2. Drag a box on the CustomPanel to define the grid area.

   The **Insert into Component** dialog appears.

3. Beside **Rows** and/or **Columns**, select **Override Default**, and then specify the number of rows and/or columns you want in the simple grid.

4. Click **OK**.

   The simple grid appears. The rows and columns are not apparent until you insert components.

Editing Simple Grid Attributes

After you create a simple grid, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For simple grids, the Edit Component window may contain the following tabs:

- **Simplegrid Attributes Tab** — For more information, see "**Simplegrid Attributes Tab**" on page 5–136.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Flow Containers (Wrap Content)

A flow container is like a table, but without a predefined number of rows and columns.

When you create a flow container, you can specify whether to keep all components widths and/or heights the same.

As you add components to a flow container, each is added to the right of the previous one. When a row is filled, additional components appear in the next row.

To create a flow container (wrap content):

1. On the **Edit Mode** toolbar, click the **Wrap Content** button.

   Tip: If the **Wrap Content** button is not visible, click the **Grids/Tables** button to reveal the **Wrap Content** button.

2. Drag a box on the CustomPanel to define the flow container area.

   The **Insert into Component** dialog appears.

3. If you want the components to be neatly aligned along the right or left edge of the container, or centered within the container, specify the **Horizontal Alignment** accordingly.

4. If you want the widths of all components in the container to be the same, select **Keep all widths the same**.

   All component widths will match the width of the widest one.

5. If you want the heights of all components in the container to be the same, select **Keep all heights the same.**

   All component heights will match the height of the tallest one.

6. If **Keep all widths the same** is selected, and you want all the components to fill a single row if possible, select **Fill single line if possible**.

   If the components widths are small enough that the components can all fit on one row with extra space, the widths are expanded to fill the row.

7. Click **OK**.

   The flow container appears. No rows or columns are apparent until you insert components.

Editing Flow Container Attributes

After you create a flow container, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For flow containers, the Edit Component window may contain the following tabs:

- **Flow Attributes Tab** — For more information, see "**Flow Attributes Tab**" on page 5–128.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Border Layout

You can use the border layout tool to create an area on a CustomPanel that you can anchor components to and later resize to maintain your intended layout. You can use a border layout to anchor components against any of the four borders of the container and in the center. It is useful for adding menus along the border edge of a CustomPanel, or to group components within a CustomPanel. A border layout must have more than one component, because it is designed to resize multiple objects in relation to the border layout. Typically, you can have a component anchored to each side, and then a fifth central component. Any component could also be a basic canvas containing other components.

If you want one of the anchored components to grow when the container is resized, you can set the border layout's Growth Quadrant to match the component area you'd like to grow (top, right, bottom, left, or center). You can only set a single growth quadrant. The areas that aren't in the growth quadrant will maintain their size when you resize the border layout container. The components anchored to the top or bottom will keep the same height, while the width expands or minimizes to match the container size. The components anchored to the right or left will keep the same width, while the height expands or minimizes to match the container size.

Tips about pager controls:

- **Default Layout** — Using the default center layout will allow the central component to grow, while keeping the components anchored on the sides remain the same size.

Here's an example of a border layout containing a label (with image) and table that has been resized automatically:

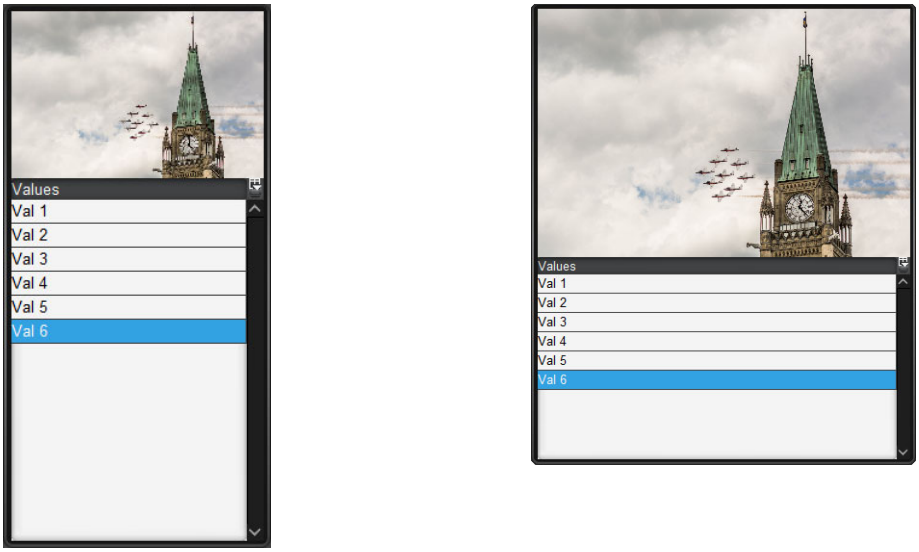


Figure 5.28 *This border layout here is set to grow='north', the label image is set to anchor='north', and the table is set to anchor='center'. You can see that when the border layout is resized, the label image grows north, and that the table remains centered, and became shorter to accommodate the label image's growth.*

This is the source code for Figure 1:

```
<abs contexttype="opengear" gridsize="20" style="">
    <meta>
        <params>
            <param access="1" constrainttype="STRING_CHOICE" name="Table"
            oid="params.table" precision="0" type="INT16" value="5" widget="table">
            <constraint>params.values</constraint>
            </param>
            <param access="1" maxlength="0" name="Values" oid="params.values" precision="0"
            type="STRING_ARRAY" value="Val 1;Val 2;Val 3;Val 4;Val 5;Val 6" widget="default">
                <value>Val 1</value>
                <value>Val 2</value>
                <value>Val 3</value>
                <value>Val 4</value>
                <value>Val 5</value>
                <value>Val 6</value>
            </param>
        </params>
    </meta>
    <borderlayout grow="north" height="480" left="100" style="bdr:etched;" top="200"
    width="220">
        <label anchor="north" height="40" style="bg#dark;bg-u:cd-3.jpg;bg-fill:fit;" width="6"/>
        <param anchor="center" expand="true" height="70" oid="params.table" showlabel="false"
        width="250"/>
    </borderlayout>
```

</abs>

Here's an example of a border layout with the growth quadrant set to the central content:

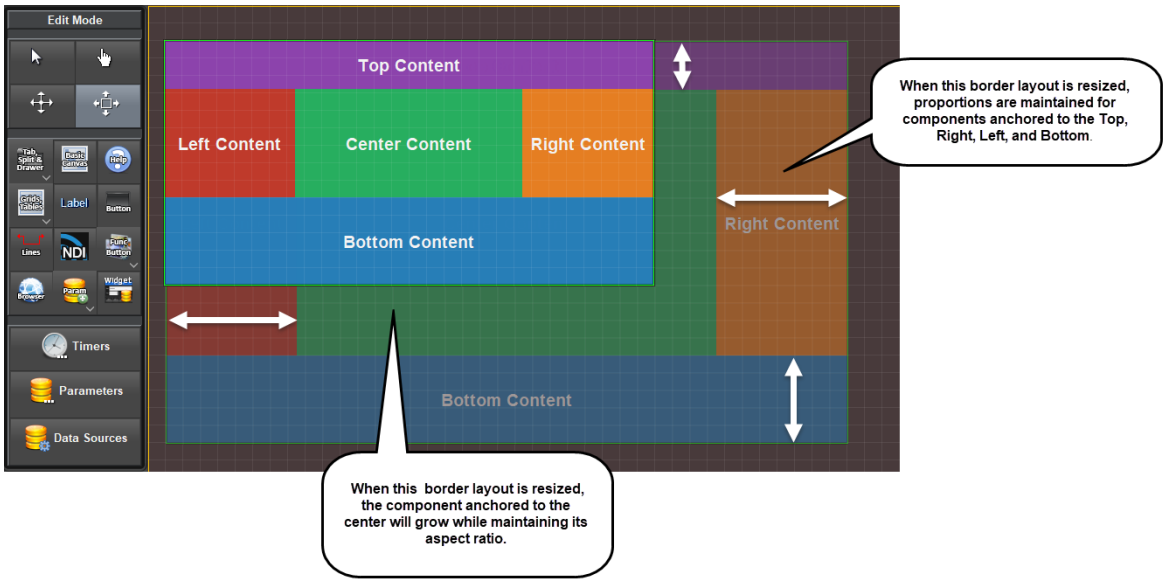
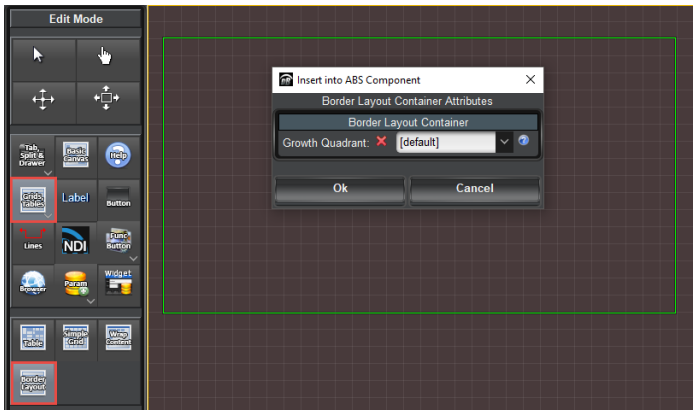


Figure 5.29 *This example shows a border layout with five labels added (each shown in a different color for identification). This border layout is set to default for the growth quadrant, which means that we want the central component to responsively change size or "grow" while maintaining its aspect ratio. The components anchored to the top, right, bottom or left side will maintain part of their specified dimensions.*

To create a border layout

This example will allow you to create a border layout with a central component that changes size, while all other sides maintain their proportions.

1. Open **DashBoard > PanelBuilder Edit Mode**, and click **Grid/Table**. The **Border Layout** button appears beneath the buttons area.
2. Click the **Border Layout** button and draw the outer container.



3. The Border Layout Container Attributes allow you to select a Growth Quadrant, which determines which direction the content within the container will grow when resized.

   Note: Components will only grow as much as they can in the direction determined by the growth quadrant, while maintaining:

   › The aspect ratio of the component inside the quadrant.

› Space for the remaining content in the other quadrants.

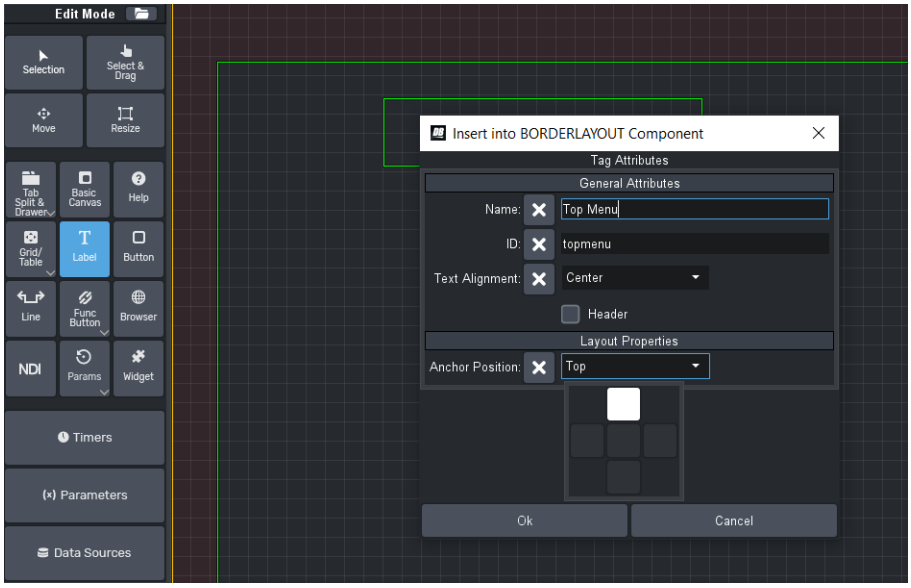
Options include the following:

- **[default]** - The central component is the only one that will grow. Note: the grow attribute is removed from the source code.
- **Top** - The component anchored to the top will grow. Note: In the source code the **Top** appears as grow='North'.
- **Bottom** - The component anchored to the bottom will grow. Note: In the source code the Top appears as grow='South'.
- **Right** - The component anchored to the right will grow. Note: In the source code the Top appears as grow='East'.
- **Left** - The component anchored to the left will grow. Note: In the source code the Top appears as grow='West'.

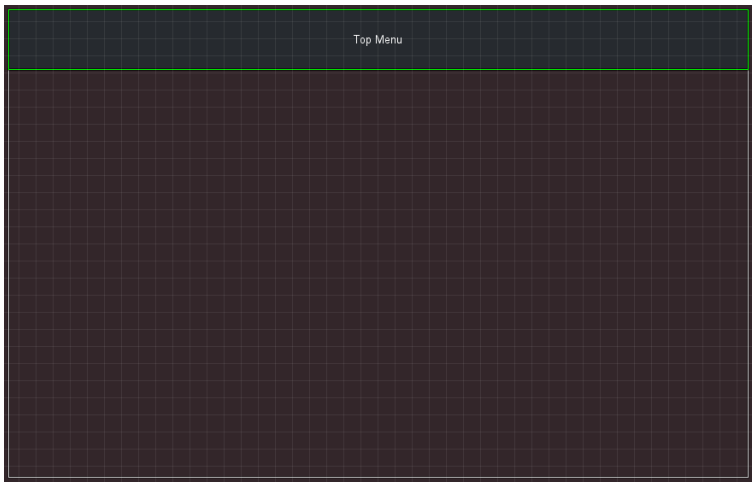
This example uses **[default]**, since the only area that I want to grow is the component anchored to the center.

4. Then add the components to the container area (typically five components, with the option of one of the components being a canvas with more objects nested). In this example we'll add five labels and give them different background colors for identification.

a. Click **Label** and draw the menu where you'd like it to go on the container.



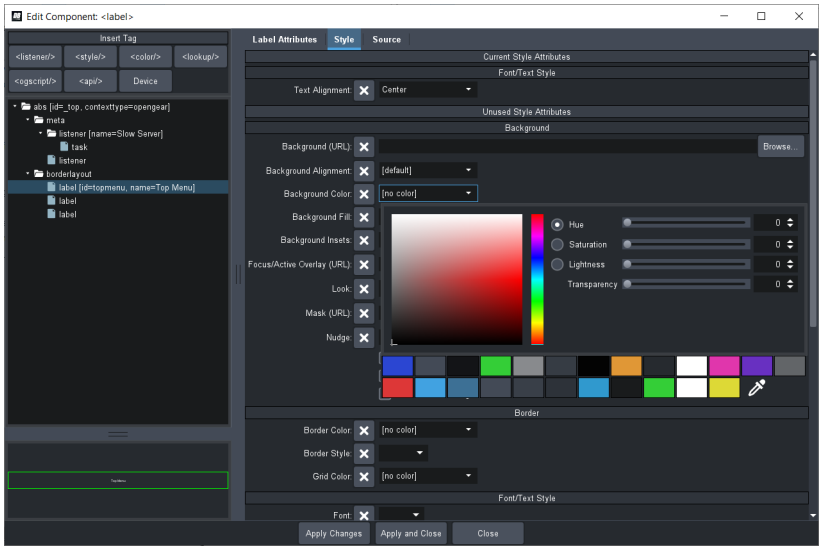
b. Fill in the components attribute and use a meaningful name. In this example, the name is **Top Content** and ID is **topcontent**, the text alignment to center, and the anchor position is set to top. Click **Ok**.



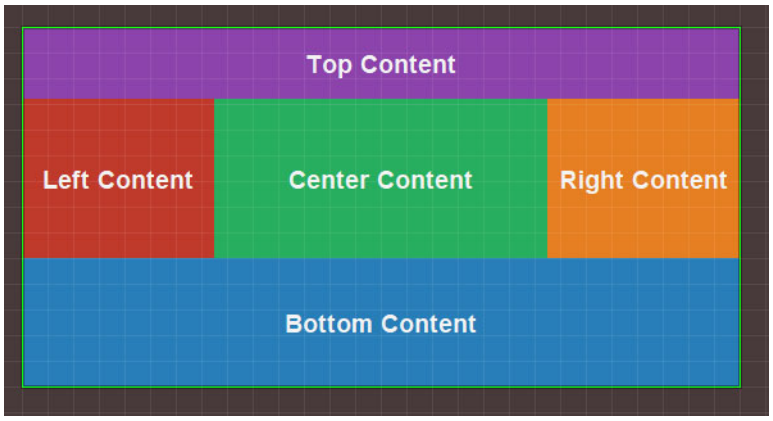
c. Double click on your top menu and select the **Style** attribute to set the background color to a color.

Tip: On Windows devices, click the **Eyedropper** icon to use the **Eyedropper** tool to select a color from any visible screen on your computer.

Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.



d. Add the other four areas using this method, setting each anchor to the appropriate side.
Your completed area will look like the example below:



Your final source code might look similar to this snippet:

```
<abs contexttype="opengear" gridsize="20" id="_top" style="">
    <borderlayout height="460" left="20" top="40" width="780">
        <label anchor="north" height="56" name="Top Content"
      style="txt-align:center;bg#8C43AC;size:Big;font:bold;" width="182"/>
        <label anchor="east" height="370" name="Right Content"
      style="txt-align:center;bg#E67E22;size:Big;font:bold;" width="150"/>
        <label anchor="south" height="100" name="Bottom Content"
      style="txt-align:center;bg#287EB8;size:Big;font:bold;" width="467"/>
        <label anchor="west" height="338" name="Left Content"
      style="txt-align:center;bg#BF3A2B;size:Big;font:bold;" width="150"/>
        <label anchor="center" height="127" name="Center Content"
      style="txt-align:center;bg#27AE5F;font:bold;size:Big;" width="152"/>
    </borderlayout>
</abs>
```

Labels

Labels are blocks of stand-alone text. Labels can be used as headers or banners anywhere on the CustomPanel, positioned beside components to provide descriptions of the component function, or added anywhere to provide additional information.

You can also assign tasks to a label, so that PanelBuilder performs the tasks when a user clicks the label. For more information, see “**Assigning Tasks to Buttons, Labels, and Timers**” on page 5–107.

To create a label:

1. On the **Edit Mode** toolbar, click the **Label** button.
2. Drag a box on the panel to define the label area.

   The **Insert into Component** dialog appears.
3. In the **Name** box, type the text you want to appear on the label.
4. In the **ID** box, specify an ID (optional).

   IDs are used in scripts to refer to objects. If no scripting is required, you do not need to specify an ID.
5. In the **Text Alignment** box, specify how to align the text within its box.
6. If you want to format the text as a banner, select the **Header** box.

   The background of the label area is automatically set to blue and the text is set to white.
7. Click **OK**.

The label appears. **Figure 5.30** shows a label with a red background.

Tip: By default labels have no borders. You can edit the border settings to create a border around the label.

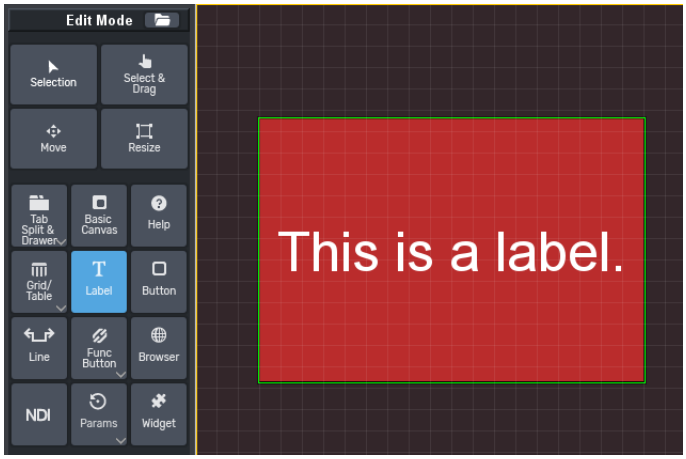


Figure 5.30 *- Adding a Label*

Editing Label Attributes

After you create a label, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For labels, the Edit Component window contains the following tabs:

- **Label Attributes Tab** — For more information, see "**Label Attributes Tab**" on page 5–129.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Links to Device Editors or Other CustomPanels

You create a link that, when clicked by the user, automatically opens a device editor or another CustomPanel in the Device View.

Tips About Links:

- You can create link areas over an image canvas, to add links to a picture. When editing the link, on the **Tag Attributes** tab set **Button Style** to **Label**. On the **Style** tab, set **Background Fill** to **None**.

To create a link:

1. On the **Edit Mode** toolbar, click the **Panel Link** button.
2. Drag a box on the panel to define the link area.

   The **Insert into Component** dialog appears.
3. If you want to link to a device editor, in the **All Connections** list, double-click the device node to which you want to link.

   Tip: The **All Connections** list shows the contents of your DashBoard client's Tree View.
4. If you want to link to a CustomPanel, do one of the following:
   - › In the **File Navigator** list, double-click the CustomPanel (.grid file) to which you want to link.
   - › In the **Local File** area, browse to the CustomPanel (.grid file) to which you want to link.
5. Specify whether the link should appear as a button or as a label.

6. Click **OK**.

   The link button or label appears.

   Tip: By default there is no text on link buttons or labels, and link labels have no borders. This is useful for creating invisible link areas. If you want the link to be visible, you can edit the link name to add text, and edit the border settings to create a border.

Editing Link Attributes

After you create a link, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For links, the Edit Component window contains the following tabs:

- **Tag Attributes Tab** — For more information, see "**Tag Attributes Tab**" on page 5–148.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Buttons

Buttons are controls you can add to CustomPanels to enable users to send commands or perform tasks.

This section describes how to create buttons on CustomPanels. For information about how to configure buttons to perform specific tasks, see "**Assigning Tasks to Buttons, Labels, and Timers**" on page 5–107.

You can create single buttons, or groups of buttons (table of buttons).

To create a single button:

1. On the **Edit Mode** toolbar, click the **Button** button.
2. Drag a box on the panel to define the button area.

   The **Insert into Component** dialog appears.
3. In the **Name** box, type the text you want to appear on or beside the button.
4. In the **ID** box, specify an ID (optional).

   IDs are used in scripts to refer to objects. If no scripting is required, you do not need to specify an ID.
5. In the **Type** list, click a button type:
   - **Push** — When clicked, PanelBuilder performs the assigned tasks.

     The visual appearance of the button changes momentarily while it is being clicked, and then reverts to its default appearance when it is released.
   - **Toggle** — When clicked, switches between two states (ON and OFF).

     When the button changes state, PanelBuilder performs the assigned tasks. Alternatively, you can create a script that detects the state change and performs tasks based on which state has been activated.

     Tip: The visual appearance (style) of the button can be different for each of three states (Default, Toggle On, and Toggle Off). Toggle button styles are defined on sub-tabs of the **Style** tab, in the **Edit Component** window.
   - **Checkbox** — When clicked, switches between two states (**ON** and **OFF**).

     When the button is **ON**, the check box contains a check mark. When the button is **OFF**, the check box is empty.

     When the button changes state, PanelBuilder performs the assigned tasks. Alternatively, you can create a script that detects the state change and performs tasks based on which state has been activated.

Tip: The visual appearance (style) of the button can be different for each of three states (**Default**, **Toggle On**, and **Toggle Off**). Check box button styles are defined on sub-tabs of the **Style** tab, in the **Edit Component** window.

- **Radio** — When clicked, switches between two states (**ON** and **OFF**).

  When the button is **ON**, the round button is filled. When the button is **OFF**, the round button is empty. When the button changes state, PanelBuilder performs the assigned tasks. Alternatively, you can create a script that detects the state change and performs tasks based on which state has been activated.

6. If you do not want the button to have a three-dimensional visual effect, select the **Flat Look** box.
7. Use the options in the **Task** area to configure the button to perform one or more tasks when the user selects it. For more information, see "**Assigning Tasks to Buttons, Labels, and Timers**" on page 5–107.
8. Click **OK**.

The button appears. **Figure 5.31** shows the toolbar and various types of buttons.

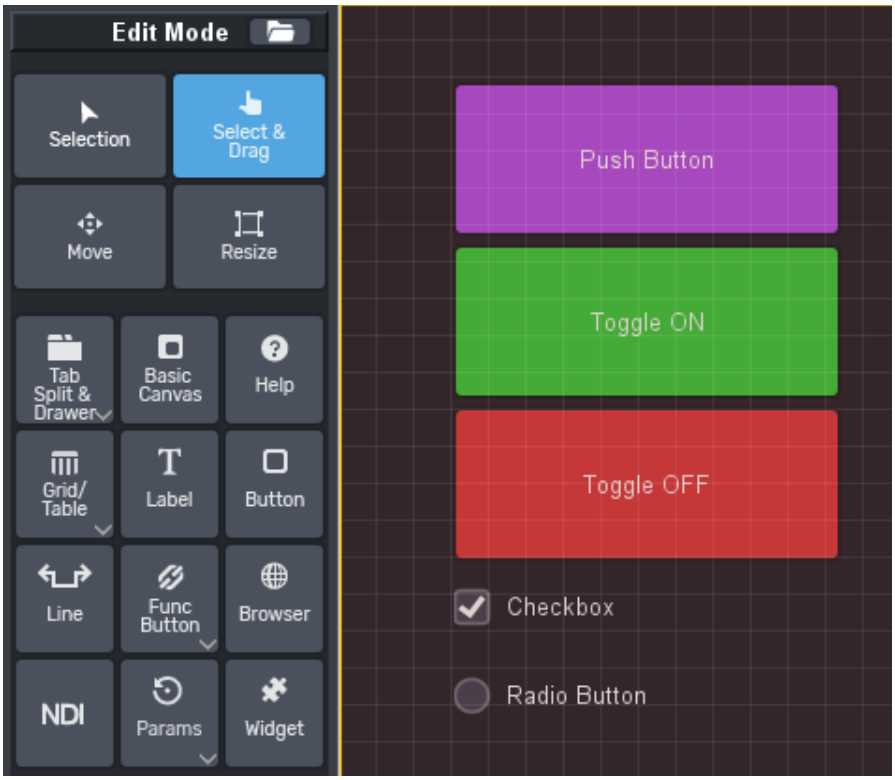


Figure 5.31 *- Adding Buttons*

To create a group of buttons:

1. Create a table and select the **Fill with buttons** option.

   For more information, see "**Tables**" on page 5–74.

2. Edit the buttons individually to define their names, button types, tasks, etc.

Editing Button Attributes:

After you create a button, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it.

For single buttons and grouped buttons, the Edit Component window may contain the following tabs:

- **Button Attributes Tab** — For more information, see "**Button Attributes Tab**" on page 5–126.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.
- **Table Cell Attributes Tab** — For more information, see "**Table Cell Attributes Tab**" on page 5–147.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Line Segments

You can create line segments on CustomPanels.

When you create a line segment, you define the area it occupies. By default, the line extends from the top left corner of the area to the bottom right corner, and has an arrow at the bottom right end. The line has three nodes: one at the start, one where it bends, and one at the end. You can move the nodes, and also insert additional nodes to extend the line path.

To create a line segment:

1. On the **Edit Mode** toolbar, click the **Insert line segments** button.
2. Drag a box on the panel to define the line segment area.

   A line appears, with three nodes, as shown in **Figure 5.32**.

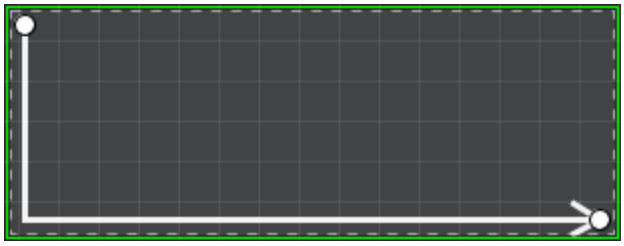


Figure 5.32 *- Creating a Line Segment*

3. Modify the line segment as desired, in any of the following ways:
   - Change the size and proportions of the line by resizing its container:

     On the **Edit Mode** toolbar, click the **Resize components** button, and then drag the sides and corners of the line segment box.
   - Select a node:

     Point at a node and then press **Ctrl+click**.
   - Reposition a node:

     Point at the node, press and hold **Ctrl+click**, and drag the node.

- Add a node at the end of the line:

  Point to where you want the new node, and the press **Ctrl+double-click**. The line extends to the new node.

- Add a node along the line:

  Point to a node adjacent to where you want the new node, and then press **Ctrl+double-click**. The new node is created in the same position. Reposition the new node.

- Delete a node:

  Point at the node, press **Ctrl+click** to select the node, and then press **Delete**.

- Delete the entire line segment:

  On the **Edit Mode** toolbar, click the **Select/Drag Components** button, click the line segment, and then press **Delete**.

To further modify a line segment using the Edit Component dialog:

1. In the **Edit Mode** toolbar, click the **Select/Drag components** button, double-click the line segment to open the **Edit Component** dialog, and then click the **Source** tab.

   The source code that defines the line segment appears. A line segment consists of a lines element which contains two or more point elements. The line extends from the first point through each of the subsequent points.

2. Edit general line characteristics as follows:

   - To allow the line to travel diagonally from point to point, change the **`diagonals`** attribute to true.
   - To show arrows at the start and/or end of the line, set the **`startarrow`** and/or **`endarrow`** attributes to **`true`**, respectively.
   - Specify whether the horizontal (**`x`**) and vertical (**`y`**) position of points is defined in pixels or as a percentage of the line segment area:
     - For pixels, set the **`percent`** attribute to **`true`**.
     - For percentage, set the **`percent`** attribute to **`false`**.

3. Edit point characteristics as follows:

   - To move a point, edit the **`point`** element's horizontal (**`x`**) and vertical (**`y`**) position values.
   - To add a point, add a **`point`** element and define its horizontal (**`x`**) and vertical (**`y`**) position values.
   - To create a closed shape, make the first and last **`point`** elements identical.

4. To change the style of the line segment, click the **Style** tab and then change settings as desired.

5. To change the position or anchoring of the line segment area (container), click the **Position/Stretch attribute**s tab, and then change settings as desired.

6. When you are finished editing the line segment, click **Apply and Close**.

Web Browser Instances

You can add active web browser instances to your CustomPanel to display fully-interactive web pages. Web browser instances are like canvases, which you can overlay with other components.

Tips about Web Browser Instances:

- **Web pages are not displayed in Edit Mode** — After you add a web browser instance, you must exit Edit Mode to see the actual web page.
- **Not a complete browser** — Web pages are fully functional, but do not include some typical browser features such as an address bar. Right-clicking on a web browser instance will display a context menu providing the options to move forward and backward, refresh the page, and the option to access developer tools (either under Inspect or dev-tools, depending on the browser type).

To add a web browser instance:

1. On the **Edit Mode** toolbar, click the **Insert web browser** button.
2. Drag a box on the panel to define the web browser area.

   The **Insert into ABS Component** dialog appears.
3. In the **URL** box, type the address of the web page you want to display in the browser.

   For example, to display the Ross Video website, type `http://www.rossvideo.com`.
4. In the **Type** box, select the desired browser engine to be used.
5. Select the **Enable Browser Fallback** checkbox to allow the fallback browser type to be used in case the selected browser type is unsupported.
6. Click **OK**.

   The browser instance appears.

Editing Web Browser Attributes

After you add a web browser instance, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For web browser canvases, the Edit Component window contains the following tabs:

- **Browser Attributes Tab** — For more information, see "**Browser Attributes Tab**" on page 5–125.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

NDI Video Panels

You can embed Network Device Interface (NDI™) video into DashBoard CustomPanels.

DashBoard can display any NDI™ video source that is made available on the same subnet through NDI™ Tools such as the NDI™ VLC Plugin, or other applications such as Ross Video XPression.

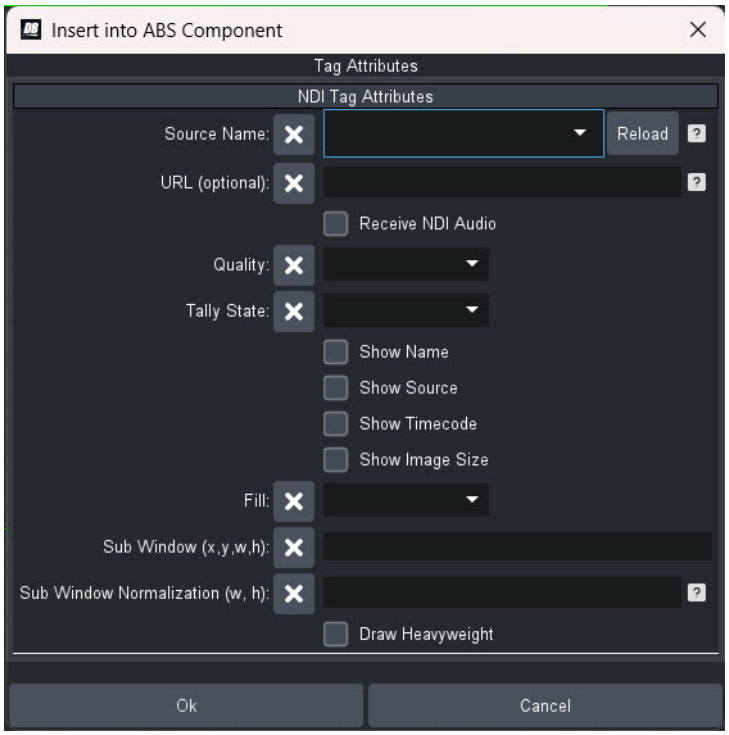
NDI™ is a trade mark of NewTek Inc. For more information about NDI™ Tools, see the NDI™ section of the NewTek website at http://NDI.NewTek.com/.

To add an NDI™ video panel to a CustomPanel:

1. Create a CustomPanel, and then from the panel, enter **Edit Mode**.
2. On the **Edit Mode Toolbar**, select the **Video Feeds** button.

   The Video Feed options display.
3. Select the **NDI** button.
4. Click and drag on the panel to define the area of a new video display panel.

   The **Insert into ABS Component** dialog box appears.



5. Configure **NDI Tag Attributes** for the new video panel:

   - **Source Name** — Either select an available NDI™ video source from the **Source Name** list, or specify the source host name and port number (**Host:Port**).

     Tip: We recommend selecting the video source from the **Source Name** list.
   - **Receive NDI Audio** — Select to receive NDI audio.
   - **Quality** — Select either low or high.
   - **Tally State** — Specify whether you want the panel to report a tally status back to the source, and if so, what status to report. The available options are **Off**, **Preview**, **Program**, and **Both**.
   - **Show Name** — Show or hide the **Name** of the video display panel, as defined in the video display panel's **General Attributes**.
   - **Show Source** — Show or hide the **Source Name** or host name and port number (**Host:Port**).
   - **Show Timecode** — Show or hide the video's timecode data.
   - **Show Image Size** — Show or hide the pixel size of the video display panel.
   - **Fill** — Specify how the video is positioned within the video display panel. Options are **fit**, **crop**, or **both**.
   - **Sub Window (x, y, w, h)** — Specify the origin position and dimensions of a dedicated video display panel.
   - **Sub Window Normalization (w, h)** — Specify the size to normalize all frames to when calculation region for sub window.
   - **Draw Heavyweight** — Select to enhance the NDI video and audio.

6. Click **Ok**.

7. Double-click the NDI™ video panel you created.

   The **Edit Component: <ndi>** dialog appears.

8. On the **NDI Attributes** tab, in the **General Attributes** area, specify the **Name** of the video panel and an optional **ID** for it.

9. Select the **Apply and Close** button.

Webcam Video Feeds

You can embed webcam video feeds into DashBoard CustomPanels. DashBoard can display any webcam video feed that is available on your system, and allows you to specify details such as the resolution, fill mode, and mirroring to be used for the video displayed in your CustomPanel.

Note that webcam video feeds are not currently supported on Mac devices.

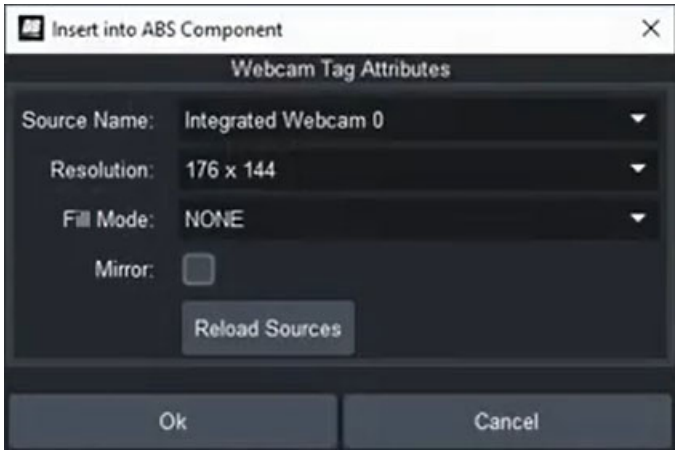
✶ A webcam source can only be used with one webcam widget at a time. Opening multiple widgets with the same source will result in only the first widget functioning properly.

To add a webcam video feed to a CustomPanel:

1. Create a CustomPanel, and then from the panel, enter **Edit Mode**.
2. On the **Edit Mode Toolbar**, select the **Video Feeds** button.

   The Video Feed options display.
3. Select the **Webcam** button.
4. Click and drag on the panel to define the area of a new webcam video feed panel.

   The **Insert into ABS Component** dialog box appears.



5. Configure **Webcam Tag Attributes** for the new video panel:
   - **Source Name** — Select an available video source from the **Source Name** list.
   - **Resolution**: Select the resolution for the webcam feed. Options are dependent on the source selected.

     Note: On Linux devices, not all supported resolutions are displayed. Users can define a custom resolution in the source code of the CustomPanel, and DashBoard will attempt to apply that resolution. If it is supported, it will show as “Best match.” If the resolution is not supported, DashBoard will default to the highest available resolution. Custom resolutions are not supported on Windows devices.
   - **Fill Mode** — Specify how the video is positioned within the video display panel. The available options are **None**, **Fill**, and **Fit**.
   - **Mirror** — Select to have the webcam feed mirrored within the video display panel.
6. Click **Ok**.
7. Double-click the webcam feed panel you created.

   The **Edit Component: <webcam>** dialog appears.
8. On the **Webcam Attributes** tab, in the **General Attributes** area, specify the **Name** of the webcam feed panel and an optional **ID** for it.
9. Select the **Apply and Close** button.

Adding Data-Backed Components

If the CustomPanel is associated with an XML data source file, the Edit Mode toolbar includes additional buttons for creating objects that display and/or manipulate data parameters.

This section includes generic steps for creating data-backed objects such as static or editable displays of widgets, parameter data, static labels, editable text areas, option choice controls, numeric choice controls, or toggle choice controls.

For More Information on...

- For detailed information about each type of data-backed object, see the corresponding section:
  - "**Widgets**" on page 5–91
  - "**Parameter Displays**" on page 5–92
  - "**Advanced Parameter Widgets**" on page 5–93
  - "**Data-Backed Labels**" on page 5–99
  - "**Editable Text Areas**" on page 5–100
  - "**Option Choice Controls**" on page 5–100
  - "**Numeric Choice Controls**" on page 5–101
  - "**Toggle Choice Controls**" on page 5–101
- For information about customizing components by editing their attributes, see "**Editing Components**" on page 5–118.

Widgets

You can add pre-built widgets to a CustomPanel. Widgets are DashBoard panel elements stored in files. They can be thought of as self-contained mini-applications. For example, a widget may enable you to select and play videos. You add widgets by referencing them from your CustomPanel.

This section describes how to add existing widgets to a custom panel. It does not describe how to create widgets.

Widgets are defined by a widget descriptor file. The filename of the widget descriptor file ends in **.widgetdescriptor**. They may also depend on other files, such as pictures.

Before you can add a widget to your panel, you must ensure the widget files (**.widgetdescriptor** files plus any supporting files) are available in one of the two following locations:

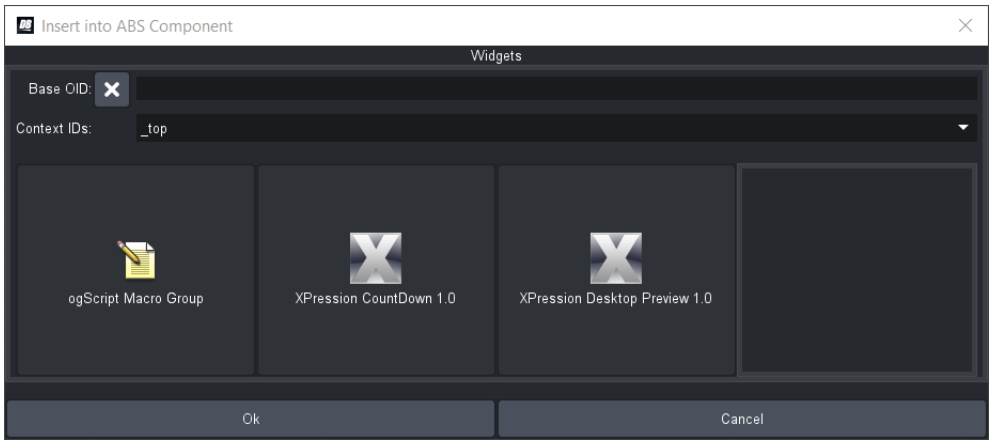
- In a folder named **widgets**, which must be in the same folder where DashBoard (**DashBoard.exe**) is installed.

  Typically, **C:\DashBoard\widgets**, or **C:\DashBoard Beta\widgets**.
- In a folder named **widgets**, which must be in the same folder where the panel file (**.grid** file) is located.

To add a pre-built widget:

1. On the **Edit Mode** toolbar, click the **Widget** button.
2. Drag a box on the panel to define the widget area.

   The **Insert into Component** dialog appears.



3. Click the widget you want to insert, and then click **Ok**

   The widget appears.

Parameter Displays

You can display a parameter value, which users can change.

You can also associate one or more tasks with the displayed parameter, so that when the parameter value changes, the tasks are performed.

To display a parameter value:

1. On the **Edit Mode** toolbar, click the **Display or edit a parameter backed by your data source** button.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

2. Drag a box on the panel to define the area.

   The **Insert into Component** dialog box appears.

3. In the **Select Parameter** area, select the parameter you want to display.

4. Specify whether you want to include the parameter name.

   When selected, the name of the parameter, as defined by the data source, is also displayed.

5. If the parameter may return multiple items, specify whether you want them kept together.

   - When selected, returned elements can only be modified as a group, and are displayed together neatly. For example, if placed on an absolute position canvas, they do not overlap.
   - When not selected, returned elements can be individually modified. For example, you can apply different style options to each element, or position them in separate table cells.

6. Click **OK**.

   The parameter appears on the CustomPanel.

Editing Displayed Parameters

After you display a parameter, you can customize the display using the Edit Component window.

To access the Edit Component window, select the component and double-click it. For displayed parameters, the Edit Component window contains the following tabs:

- **Param Attributes Tab** — For more information, see “**Param Attributes Tab**” on page 5–133.

  Tip: In the **Tasks** area of the **Param Attributes** tab, you can associate one or more tasks with the displayed parameter, so that when the parameter value changes, the tasks are performed.

- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Advanced Parameter Widgets

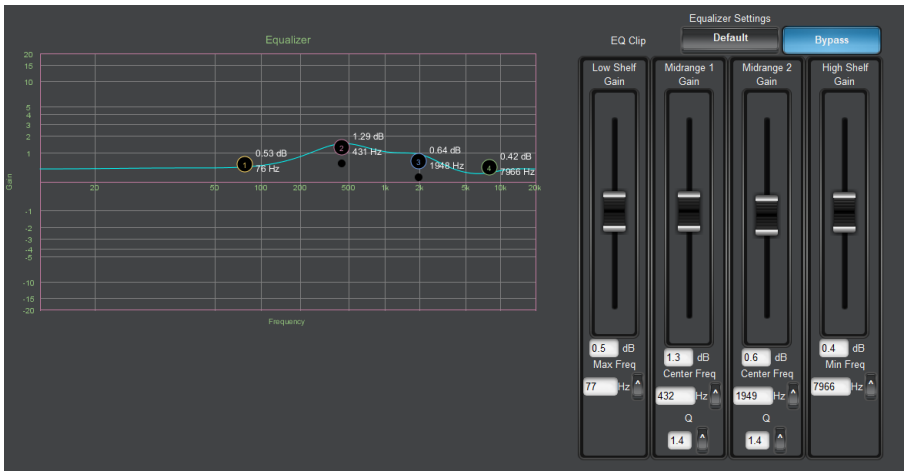
DashBoard provides advanced parameter widgets which allow you to create customized graphical displays that are backed by parameters. These widgets are not related to either Dashboard's widget display hints for parameters, which are used to display sliders or other controls, or DashBoard's ability to develop mini applications as custom widgets. Advanced parameter widgets can help you leverage customized real-time visual displays that are easily embedded in your CustomPanels.

EQ Graph

An EQ graph provides a visual representation of how bands effect frequencies across a given range. This advanced widget allows you to make an EQ graph, using parameters from any device that talks to DashBoard. The EQ graph creates a graphical representation of parametric equalization. For example, you can add a Ross Video Carbonite switcher to DashBoard as a device, and then measure bands from the Carbonite's parameters. The graphic below shows an EQ graph that is pulling parameters from a Carbonite switcher, and the equalizer settings have been mapped to slider controls to make adjustments from the DashBoard CustomPanel.

Each band has an associated frequency, range, and Q value, if required.

The filter that each band is applying can be specified in the configuration overrides. If the filter is not defined, then it will default to a peak filter.



The following sections are available:

- "**Before you begin**" on page 5–93
- "**To create an EQ Graph**" on page 5–94
- "**Modifying the EQ Graph using Config Options**" on page 5–95
- "**Configuration Options for the EQ Graph**" on page 5–98

Before you begin

Ensure that you have the following requirements:

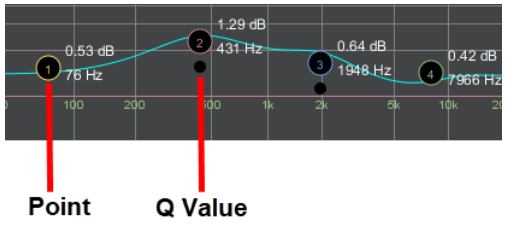
- Each band needs 2-3 float type parameters.

› **Note**: bands that are not applying a peak filter do not need a q value parameter

- All of your parameters have been created at the source (either locally in the DashBoard CustomPanel, or being served up by a device through OGP). Note: If parameters are being served up by a device through OGP, then the values are limited by the original source's values and must be changed there if you wish to exceed them.

To create an EQ Graph

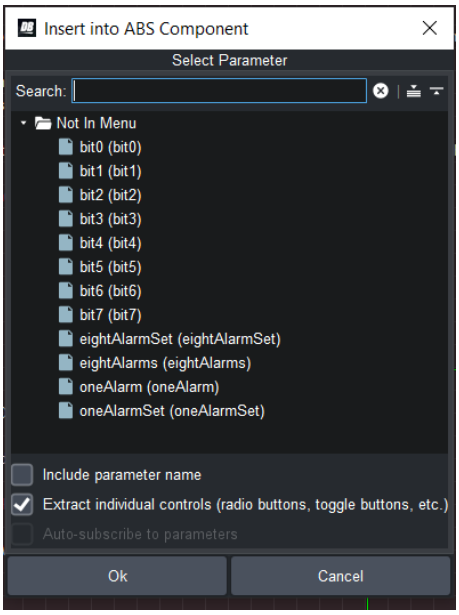
1. Click **PanelBuilder Edit Mode** to edit your CustomPanel.
2. In PanelBuilder **Edit Mode**, to create a new string type parameter, select **Parameters** from the toolbar. Fill in the fields with the following information:
   - **Name** - Enter a meaningful name. In this example, **Table**.
   - **OID** - An OID is automatically generated here. In this example **0x4**.
   - **Type** - Select **String (7)**.
   - **Constraint** - Select **String Key/Value Constraint (6).**
   - **Constraint Value** - Enter a value and name for each of the constraints you wish to use. The following values and OID names (shown in brackets) are used in this example: **1.f** (**0x7993**), **1.g** (**0x798F**), **2.f** (**0x7990**), **2.g** (**0x7990**), and **2.q** (**0x7990**). **Note:** that **2.q** represents a Q value. Q values are not required, but if added will appear as a black dot (and are not to be confused with the labeled points).



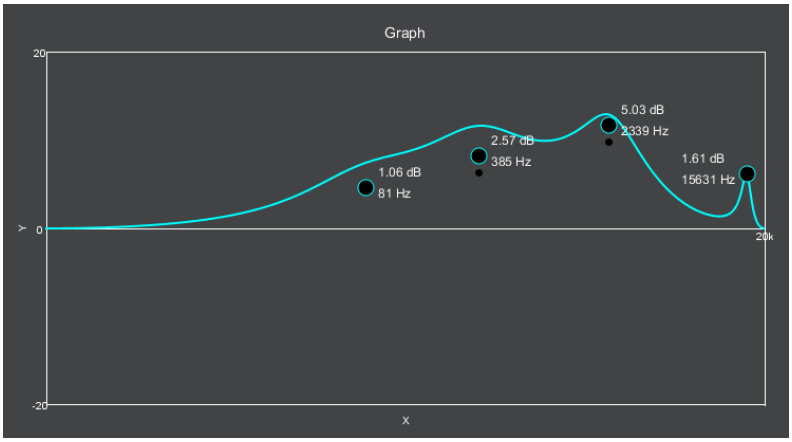
   - **Widget Hint** - Select **EQ Graph (46)**.

   Click **Commit Changes** and then click **Done**.
3. To display the parameter you created in the previous step, you must insert a parameter view on the CustomPanel canvas.
   - Navigate to the **Edit Mode** toolbar and select the **Param** button. Position your cursor on the blank canvas and click and drag to determine the area that the EQ graph appears on.

   *The **Insert into ABS Component** dialog appears.*



- Select the parameter from the tree view, and select **Ok**.
  The EQ graph appears.



Now that you have successfully created an EQ graph, you can modify the style if desired.

For More Information, see...

- "**Modifying the EQ Graph using Config Options**" on page 5–95.

Modifying the EQ Graph using Config Options

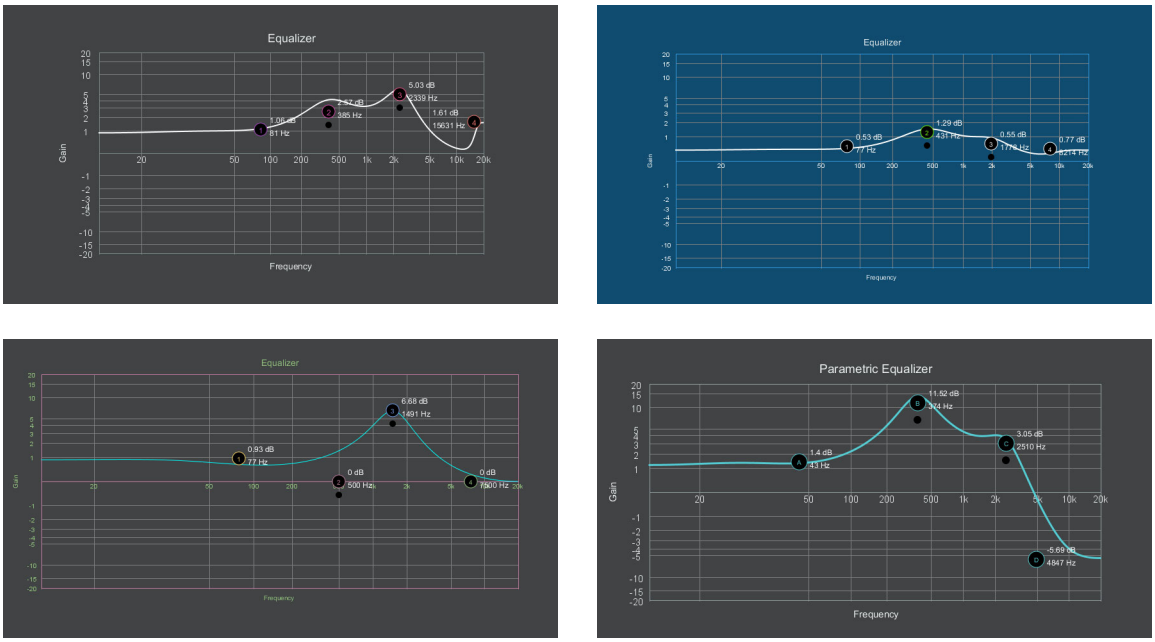
Configuration options allow you to make substantial modifications to the appearance of the EQ graph, from adding custom X and Y axis values to choosing a new color palette. You can only override graph properties that have a config option to enable customization.

You can override the colors of the point-to-point line, axis lines, text labels, and points. You can add labels to the points, and values along both X and Y axis. You can also override the font size for most labels and rename the default title.

EQ Graph Example

The graph examples below show that a wide array of customizations are possible.

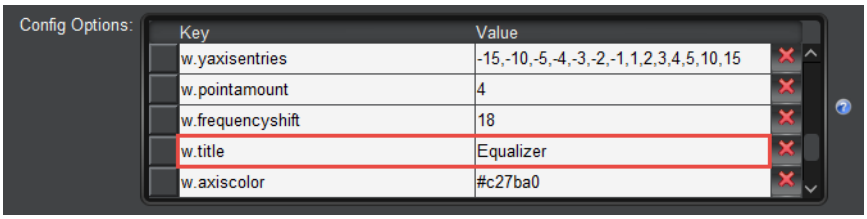
Table 5.8



To Modify the Style of an EQ Graph

1. In PanelBuilder **Edit Mode**, double-click on the EQ graph.

   The Component Editor opens.



   Under **Config Options**, you can enter a config option to override one of the default styles. For example, you can change the title by adding **w.title** to the **Key** column and entering the new title in the **Value** column.

   For a full list, click the blue help button on the right side, or go to "**Configuration Options for the EQ Graph**" on page 5–98. You can follow the next steps to learn how to customize your graph using config options.

2. To add or modify the text labels, enter the following config options in the table:

Key	Value
w.title	My New Title
w.xaxis	My New X Axis Subtitle
w.yaxis	My New Y Axis Subtitle
w.xaxisentries	20, 50, 100, 200, 500, 1000, 2000, 5000, 1000
w.yaxisentries	-15, -10, -5, -3, -2, -1, 2, 3, 4, 5, 10, 15
w.fontcolor	#ecf0f1
w.graphfontsize	15

3. To modify the graph line's width and color, enter the following config options in the table:

Key	Value
w.linethickness	2
w.linecolor	#54ced4

4. To modify the x and y axis line color, enter the following config option in the table:

Key	Value
w.axiscolor	#95a5a6

5. To modify the points (not the black Q value dots), enter the following config options in the table:

Key	Value
w.pointnames	1, 2, 3, 4
w.pointfontsize	14
w.pointwidth	20
w.pointheight	20
w.colorunselected	#9b59b6, #9b59b6, #9b59b6, #9b59b6 **Note:** You can enter one color and it will automatically apply to all. DashBoard color constants, like **dark**, are also accepted.
w.colorselected	#54ced4, #54ced4, #54ced4, #54ced4 **Note:** You can enter one color and it will automatically apply to all. DashBoard color constants, like **dark**, are also accepted.

6. To set a filter, enter the following config options in the table:

Key	Value
w.filter	lowshelf, peak, peak, highshelf

7. To set a frequency shift rate, enter the following config options in the table:

Key	Value
w.frequencyshift	18

8. To change the background color, navigate to the **Style** tab on the right, and set the **Background Color** to your preferred color.

   Note: It is recommended that you take into consideration the following limitations:

   - If you are using Q values do not use a dark background, since the black dots that represent the Q will not be visible (and cannot be modified).
   - Do not use a white background, since the point values (which are measured in dB) are white by default (and cannot be modified).

9. Apply your changes.

Configuration Options for the EQ Graph

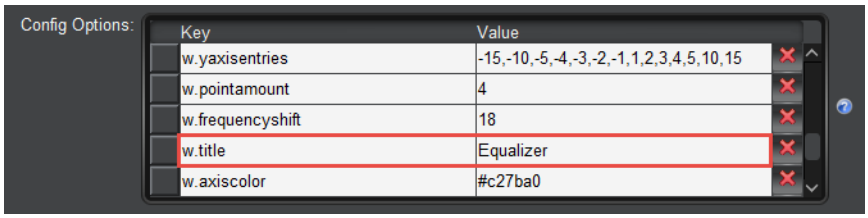
The table below lists the same configuration options for the EQ graph for easy copy any pasting. A list of the all the latest Config Options is also available in the Dashboard UI, by clicking the blue help popup in the Config Options section of the Component Editor.

Table 5.9 Configuration Options

Key	Possible Values	Description
w.linecolor	#[RGB Value]	Sets the color of the graph point to point line.
w.filters	[String Array]	Sets the filter for each band, where the possible values are lowshelf, peak or highshelf. One filter per point.
w.pointnames	[String Array]	Sets the name on each graph point, for example: 1, 2, 3, 4.
w.colorselected	#[RGB Value Array]	Sets the color for each point when it's selected. If you enter only one color, it will apply to all. If you enter more than one color it will apply to the points sequentially, and if any point colors are left undefined the default will be used. For example: #ffd966, #c27ba0, #panelfg, #dark.
w.colorunselected	#[RGB Value Array]	Sets the color for each point when it's not selected. If you enter only one color, it will apply to all. If you enter more than one color it will apply to the points sequentially, and if any point colors are left undefined teh default will be used. For example: #ffd966, #c27ba0, #panelfg, #dark.
w.linethickness	[Integer]	Sets the thickness of the graph point to point line.
w.graphfontsize	[Integer]	Sets the font size of the text used on the graph title, axis labels, and axis entries.
w.pointfontsize	[Integer]	Sets the font size for the point names.
w.pointwidth	[Integer]	Sets the width of the points.
w.pointheight	[Integer]	Sets the height of the points.
w.xaxis	[String]	Sets the x axis label.
w.yaxis	[String]	Sets the y axis label
w.xaxisentries	[String Array]	Sets the line marks on the x axis. For example: 20, 50, 100, 200, 500, 1000, 2000, 5000, 1000.
w.yaxisentries	[String Array]	Sets the line marks on the y axis. For example: -15, -10, -5, -3, -2, -1, 2, 3, 4, 5, 10, 15.
w.pointamount	[Integer]	Sets the number of points to display on the graph. **Note:** The maximum value is limited by how many points are defined in your constraints.
w.frequencyshift	[Integer]	Sets the x axis shift.
w.title	[String]	Sets the graph title.
w.axiscolor	#[RGB Value]	Sets the color of the x and y axis line.
w.fontcolor	#[RGB Value]	Sets the font color for the title, axis labels, and axis entries.
w.gridcolor	#[RGB Value]	Sets the color of the graph grid lines.

In PanelBuilder **Edit Mode**, select **Parameters** from the toolbar. Set the following:

- **Name** - Enter a meaningful name.
- **OID** - Set the OID to the parameter that you've already created. In this example a **STRING_STRING_CHOICE** constraint is shown.
- **Menu** - Not required.
- **Constraint** - **String Key/Value Constraint (6)**
- **Constraint Value** - Enter a value and name for the constraints you wish to use. The following values and OID names (shown in brackets) are used in this example: **1.f** (**0x7993**), **1.g**(**0x798F**), and **2.f** (**0x7990**).
- **Widget Hint** - Select **EQ Graph (46)**.
- **Config Options** - You can enter a config option if you wish to override the default styles. For example, you can change the title by adding **w.title** to the **Key** column and entering the new title in the **Value** column.



For a full list of available Config Options, click the blue help button on the right.

Apply your changes.

Data-Backed Labels

You can insert a text label showing data from a parameter. You can select an existing parameter, or create a new one. Data-backed labels are read-only to the user.

To create a data-backed label:

1. On the **Edit Mode** toolbar, click the **Label** button that is partially yellow.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

2. Drag a box on the panel to define the label area.

   The **Insert into Component** dialog box appears.

3. In the **Insert Label** area, select an existing parameter, or create a new one.
4. In the **Display Type** area, select a display option.
5. Click **OK**.

   The label appears on the CustomPanel.

Editing Data-Backed Labels

After you add a data-backed label, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For data-backed labels, the Edit Component window contains the following tabs:

- **Param Attributes Tab** — For more information, see "**Param Attributes Tab**" on page 5–133.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.

- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Editable Text Areas

You can add a text area backed by a data source. Depending on how you choose to display the text area, it can be editable or not, can be shown as a selectable list, or appear as a status dot.

You can format the text area using the options provided by the data source library. The entered data is stored in the associated parameter.

To create an editable text area:

1. On the **Edit Mode** toolbar, click the **Insert an editable text area backed by your data source** button.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

2. Drag a box on the panel to define the text area.

   The **Insert into Component** dialog box appears.

3. In the **Insert String** area, select an existing parameter, or create a new one.
4. In the **Display Type** area, select a display option.
5. Click **OK**.

   The text area appears on the CustomPanel.

Editing Text Area Attributes

After you add a text area, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For editable text areas, the Edit Component window contains the following tabs:

- **Param Attributes Tab** — For more information, see "**Param Attributes Tab**" on page 5–133.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Option Choice Controls

You can add controls that enable users to select from a pre-determined list of options. Choices can be shown in a text list, drop-down menu, list of rectangular buttons, or as a list of radio buttons.

To create an option choice control:

1. On the **Edit Mode** toolbar, click the **Insert a choice (list, toggle buttons, or, radio buttons) backed by your data source** button.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

2. Drag a box on the panel to define the area for the control.

   The **Insert into Component** dialog box appears.

3. In the **Insert Choice** area, select an existing parameter, or create a new one.
4. In the **Display Type** area, select a display option.
5. Click **OK**.

The option choice control appears on the CustomPanel.

Editing Option Choice Controls

After you add an option choice control, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For option choice controls, the Edit Component window contains the following tabs:

- **Param Attributes Tab** — For more information, see "**Param Attributes Tab**" on page 5–133.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Numeric Choice Controls

You can add a control that enables users to specify numeric values for a parameter.

To create a numeric choice control:

1. On the **Edit Mode** toolbar, click the **Insert a number (slider, counter, etc) backed by your data source** button.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

2. Drag a box on the panel to define the area for the control.

   The **Insert into Component** dialog box appears.

3. In the **Insert Number** area, select an existing parameter, or create a new one.

   If you create a new parameter, specify the range constraints (minimum value, maximum value, and step value).

4. In the **Display Type** area, select a display option.

5. Click **OK**.

   The numeric choice control appears on the CustomPanel.

Editing Numeric Choice Controls

After you add a numeric choice control, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For numeric choice controls, the Edit Component window contains the following tabs:

- **Param Attributes Tab** — For more information, see "**Param Attributes Tab**" on page 5–133.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Toggle Choice Controls

Toggle choice controls enable the user to make a choice between two states. Choose between check boxes and toggle switches to customize how the user selects a state. The selected state data is stored in the associated parameter.

To create a toggle choice control:

1. On the **Edit Mode** toolbar, click the **Insert a Toggle Choice (checkbox or single toggle button) backed by your data source** button.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

2. Drag a box on the panel to define the area for the control.

   The **Insert into Component** dialog box appears.

3. In the **Insert Toggle** area, select an existing parameter, or create a new one.

   If you create a new parameter, you can change the values and names for the true and false values. The name can be displayed on the button or beside the check box.

4. In the **Display Type** area, select a display option.

5. Click **OK**.

   The toggle choice control appears on the CustomPanel.

Editing Toggle Choice Controls

After you add a toggle choice control, you can customize it using the Edit Component window. To access the Edit Component window, select the component and double-click it. For toggle choice controls, the Edit Component window contains the following tabs:

- **Param Attributes Tab** — For more information, see "**Param Attributes Tab**" on page 5–133.
- **Position/Stretch Attributes Tab** — For more information, see "**Position/Stretch Attributes Tab**" on page 5–136.
- **Style Tab** — For more information, see "**Style Tab**" on page 5–139.
- **Source Tab** — For more information, see "**Source Tab**" on page 5–137.

For more information about using the Edit Component window, see "**Editing Components**" on page 5–118.

Creating a Row, Column, or Grid of Data-Backed Buttons

You can create a row, column, or grid of buttons based on a parameter. Users can click the buttons to change the parameter value.

Figure 5.33 shows a row of buttons (top), a column of buttons (left), and a grid of buttons (right). In this example, the **three** button is selected. The **Toggle On** style for the parameter has been changed to make the button background red.

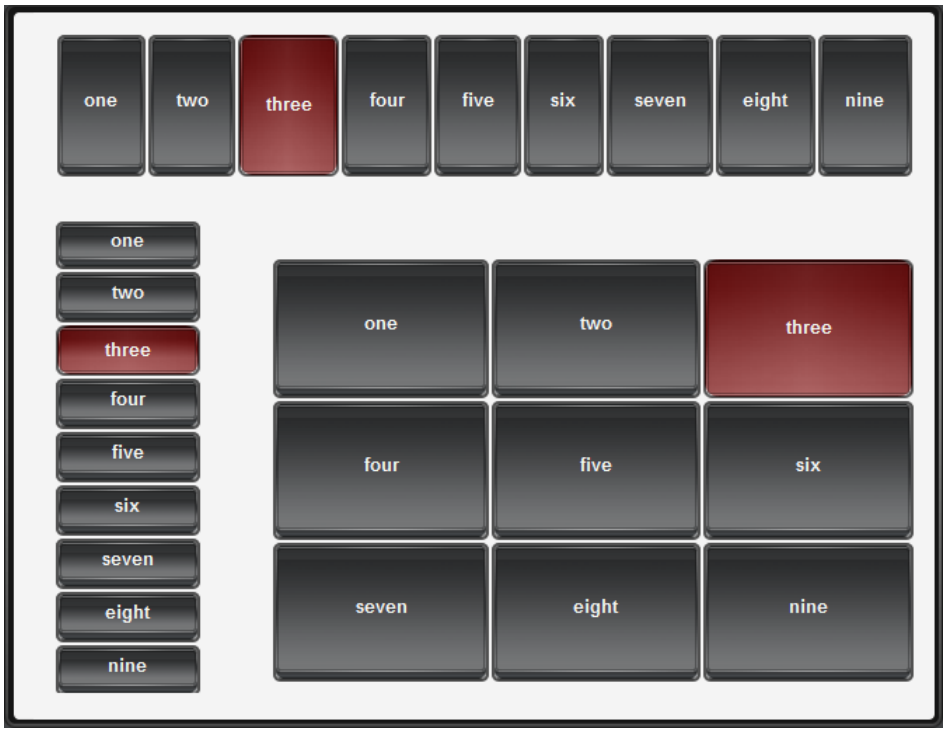


Figure 5.33 *- Tables of buttons, including a row (top), a column (left), and a grid (right)*

To create a row, column, or grid of buttons based on a parameter:

1. Ensure the parameter you want to use has the following characteristics:
   - Parameter **Type** is set to **Integer**
   - **Constraint** is set to **Choice Constraint**
   - **Constraint Value** box lists the text strings you want to show on the buttons
   - **Widget Hint** is set to **Toggle Buttons**
   - The **Initial Value** is set

2. Create a table with one row and one column.

   For more information, see “**Tables**” on page 5–74.

3. In the **Edit Mode** toolbar, click the **Display or edit a parameter backed by your data source icon**, and then click the table cell.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.

   The **Insert into Component** dialog appears.

4. Select the parameter, clear the check boxes at the bottom of the dialog, and then click **Ok**.

5. If you want to change the table to be a single column or a grid of buttons, edit the table, and on the **Container Attributes** tab, set the **Max Elements Per Row** to the number of columns you want.

6. If you want to set different styles for different button states, select the parameter in the **Component List**, and then edit the style settings on the **Toggle On** and **Toggle Off** tabs.

7. Resize and reposition the table as required.

Timers

Timers control and display time information. They can be displayed on a CustomPanel, or can operate without being displayed. Timers can include scheduled tasks which run when the timer reaches specified values.

You can create the following types of timers:

- **Self** — starts and stops manually, and is independent of any other timer.
- **Simple clock** — matches the time clock of the local computer.
- **Time Until** — counts down the amount of time remaining until a future date and time.
- **Other Timer** — links this timer to another timer. Starting or stopping the linked timer also starts or stops this timer.

Tips about Timers:

- **Timers are not panel components** — To view or manipulate a timer in a CustomPanel, you must create the timer, and then create a panel component such as a data-backed label or button, associated with the timer.
- **Timers run tasks** — Each timer includes a repeat rate, which defines how often DashBoard performs the list of tasks associated with the timer. For example, if the repeat rate is 500 milliseconds, the tasks are performed twice per second.
- **Avoid frequent repeat rates** — Each time the timer repeats, it performs all the tasks on the task list. If you set the timer to repeat too frequently, such as once per video field or video frame, DashBoard may not be able to process the task requests quickly enough, and performance may lag or unpredictable results may occur.

  The repeat rate should generally be twice as frequent as the minimum display unit. For example, if the display is accurate to one second, the repeat rate should be 500 milliseconds.
- **Starting a timer** — You will need to create a button to start a timer if it is not using the computer clock. A self timer does not display a time until the timer is reset or started. It appears as a blank item.
- **Child timers** — The repeat rate for a child timer is controlled by its parent.

Creating a Timer

When you create a timer, you specify how time values are reported, the timer type, start and stop times, and whether you want tasks to be performed at certain intervals during timer operation. Creating a timer does not automatically add it to your CustomPanel.

To create a timer:

1. On the **Edit Mode** toolbar, click the **Timers** button.

   The **Add/Edit Timers** dialog appears.

   Tip: The **Add/Edit Timers** dialog box lists all the timers associated with the current CustomPanel.

2. Click **Add New**.
3. In the **Timer ID** box, type a name for the timer.
4. In the **Display** box, do one of the following to specify the time format you want the timer to use:
   - Expand the **Display** list and double-click the format.
   - Type the format and then press **Enter**.

   Tip: To view descriptions of the time formatting symbols, click beside the **Display** list.
5. Click one of the following buttons to specify the type of timer you want:
   - **Manual** — Creates a timer with start and stop times, for counting up or down. You can specify positive or negative values.

     Tip: To create a countdown timer, set the start time later than to the stop time.
   - **Simple Clock** — Creates a timer that counts forward, matching the DashBoard computer's clock time.
   - **Count Time Until** — Allows you to specify a future date and time as a reference. The timer value is the amount of time before the reference time arrives.
   - **Other Timer** — Enables you to copy the properties of an existing timer.
6. If you want the timer to start one or more tasks, in the **Tasks** area, specify the tasks to perform.

   For more information about specifying tasks, see "**Assigning Tasks to Buttons, Labels, and Timers**" on page 5–107.
7. Click **Commit Changes** to create the timer and to add it to list of timers.
8. Click **Done**.

Adding Timer Labels and Timer Control Buttons to a CustomPanel

After you create a timer, you can add a label to display the timer data. You can also add buttons to control the timer.

To add a label that shows timer data:

1. On the **Edit Mode** toolbar, click the **Insert a data-backed label** button.

   Tip: If the button is not visible, click the **Param** button to reveal the buttons used for adding data-backed components.
2. Drag a box on the panel to define the label area.

   The **Insert into Component** dialog appears.
3. Select **Create New Parameter**.
4. In the **Name** box, type a name for the timer label.
5. Select **Timer Value**.
6. In the **Timer Value** list, double-click the timer you want to add.
7. In the **Display Type** area, select a style for the timer label.
8. Click **OK**.

To add start and stop buttons for your timer:

1. Create a table containing two buttons.

   For detailed instructions, see "**To create a group of buttons:**" on page 5–86.

   Tip: The buttons don't have to be in a table. The table aligns them neatly.

2. Configure the first button as a **Start** button:

   a. Select

from the **Edit Mode** toolbar.

   b. Double-click the first button.

      The **Edit Component: <button>** dialog appears.

   c. On the **Button Attributes** tab, type `Start` in the **Name** box.

   d. In the **Tasks** area, click **Add**.

   e. In the **Task Type** area, click **Timer Control**.

      The **Timer Control Editor** appears.

   f. In the **Timer** list, double-click the timer you want to control.

   g. In the **Action** list, click **Start Timer**.

   h. Click **OK**.

   i. Click **Apply and Close**.

3. Configure the second button as a **Stop** button by repeating **Steps 2a to 2i** for the second button, but with the following changes:

   - In **Step 2c**, type `Stop` in the **Name** field.
   - In **Step 2g**, click **Stop Timer** in the **Action** drop-down menu.
   - If you want the timer to reset when the **Stop** button is clicked, select the **Reset Timer** check box.

Timer Control Functions

There are several timer control functions:

- **Start Timer** — starts the associated timer.

  If you also select the **Reset Timer** check box, the timer resets before starting.
- **Stop Timer** — stops the associated timer.

  If you also select the **Reset Timer** check box, the timer resets before stopping.
- **Reset Timer** — resets the associated timer.
- **Set Time** — sets the timer to a specific time.
- **Add/Remove Time** — adds or removes the specified amount of time to a timer. Positive values add time, negative values remove time.
- **Set Start Time** — sets the start time. The timer begins counting from this time.
- **Set Stop Time** — sets the stop time. The timer stops counting at this time.
- **Set Pattern** — sets the display pattern of the timer. You can specify a custom pattern or choose a predefined time format.

For information about how to link timers to buttons on a CustomPanel, see "**To add start and stop buttons for your timer:**" on page 5–106.

Assigning Tasks to Buttons, Labels, and Timers

You can assign a list of one or more tasks to each button, label, or timer. When the user clicks a label or button, the associated tasks are performed. When a timer reaches its threshold value (repeat rate), its associated tasks are performed.

Note: For buttons or labels, you can also trigger task lists externally, through keyboard shortcuts or RossTalk messages. For more information, see "**Triggering Tasks Externally**" on page 5–115.

Note: You can quickly assign tasks to buttons, labels, and parameters in Edit Mode by right-clicking on a button and selecting **Add task** from the drop-down menu. For more information, see: "**Shortcut to Quickly Add Tasks to Buttons, Labels and Parameters**" on page 5–115.

The types of tasks you can assign include the following:

- **ogScript** — runs a segment of ogScript code. You can also use the provided **ogScript Editor** to parse XML data.
- **RossTalk Script** — sends a RossTalk command to a specific device to perform a task. Devices include Carbonite and Acuity production switchers, and XPression graphics systems.

  For more information about the RossTalk protocol, see the document, ***RossTalk-Commands (4802DR-403)***.
- **CamBot** — sends a command to a specific Ross Robotics CamBot™ device to perform a task.
- **VDCP Command** — sends a VDCP command to a Ross BlackStorm Video Server, to perform a task.
- **PBus Command** — sends a PBus command to XPression, or to another device that uses the PBus protocol.
- **Timer Control** — performs a timer function, such as count up/down and stop.
- **Data Modification** — modifies parameter values as specified.

This section describes how to assign tasks, and includes the following topics:

- "**Assigning ogScript Tasks**" on page 5–107
- "**Assigning Pauses**" on page 5–108
- "**Assigning RossTalk Commands**" on page 5–108
- "**Assigning CamBot Commands**" on page 5–109
- "**Assigning VDCP Commands**" on page 5–110
- "**Assigning PBUS Commands**" on page 5–111
- "**Using the Global List**" on page 5–112
- "**Assigning Data Modification Tasks**" on page 5–112
- "**Assigning Timer Control Tasks**" on page 5–113
- "**Editing a Task**" on page 5–114
- "**Shortcut to Quickly Add Tasks to Buttons, Labels and Parameters**" on page 5–115

Assigning ogScript Tasks

ogScript is a programming language developed by Ross Video to interact with DashBoard-enabled devices. It is a subset of JavaScript, with additional PanelBuilder-specific functions added.

You can add advanced functionality and logic to CustomPanels by creating tasks that execute ogScript code. Tasks can be associated with buttons, labels, parameters, timers, and listeners.

You can create and edit ogScript code manually, or use the Visual Logic editor to create and edit ogScript code visually.

For more information about using ogScript in CustomPanels, see "**Working with ogScript**" on page 5–170.

To assign an ogScript task:

1. Create the item with which you want to associate the task.

   Tasks can be associated with buttons, labels, parameters, timers, and listeners.

2. In **Edit Mode**, double-click the item, to open the **Edit Component** window.
3. In the **Component Tree**, navigate to the item.
4. In the attribute editor area, open the **Attributes** tab for the item.

   The **Attributes** tab will be one of the following: **Button Attributes**, **Label Attributes**, **Param Attributes**, **Timer Attributes**, or **Listener Attributes**.
5. In the **Tasks** area, click **Add**.

   The **Add Task** dialog appears.
6. In the **Task Type** area, click the **ogScript** button.
7. Do one of the following:
   - If you want to create the ogScript code manually, click the **ogScript** button, and then type or paste the ogScript code into the **ogScript Editor**.

     For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.
   - If you want to create the ogScript code visually, click the **Visual** button, and then add and connect logic blocks to create the code.

     For more information about the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9
8. Click **OK**.

   The ogScript task is added to the **Tasks** list.
9. When you are finished creating the task, click **Apply Changes** or **Apply and Close**.

Assigning Pauses

You can add timed pauses between tasks in a task list.

To add a pause to a task list:

1. Open a timer or control that includes a task list.
2. In the **Tasks** area, click the task that you want the pause to follow.
3. Click **Add**.

   The **Add Task** dialog appears.
4. In the **Task Type** area, click the **Pause** button.

   The **Pause Editor** dialog appears.
5. Specify the duration of the pause.

   Tip: You can specify the unit of measure in time units (milliseconds, seconds, minutes), or frames (at 24 fps, 25 fps, 30 fps, 50 fps, or 60 fps).

   Important Note: Pauses are run on the DashBoard computer and will not be frame accurate. They will **roughly** be of the duration specified.
6. Click **OK**.

   The pause is added to the Tasks list.

Assigning RossTalk Commands

RossTalk is an Ethernet-based protocol that allows the control of Ross Video devices using simple commands. Refer to the documentation that came with your device to verify which commands it supports.

In PanelBuilder, you can create tasks that send RossTalk commands. For more information about the RossTalk protocol, see the document ***RossTalk-Commands (4802DR-403)***.

You can associate commands with buttons, labels, parameters, timers, or listeners.

To assign a RossTalk command:

1. Create the item with which you want to associate the command.
2. In edit mode, double-click the panel, to open the **Edit Component** window.
3. In the component tree, navigate to the item.
4. In the attribute editor area, open the **Attributes** tab for the item.

   Tip: The **Attributes** tab will be one of the following: **Button Attributes**, **Label Attributes**, **Param Attributes**, **Timer Attributes**, or **Listener Attributes**.
5. In the **Tasks** area, click **Add**.

   The **Add Task** dialog appears.
6. In the **Task Type** area, click the **RossTalk** button.

   The **RossTalk Editor** dialog appears.
7. Configure the connection to the device. This is the device to which the command will be sent when the task runs. Do one of the following:
   - Specify the **Host** IP address and **Port** number of the device.

     The default port for RossTalk commands is port 7788.
   - Select a connection from the **Connection** list. For information on adding connections to the Connection list, refer to the section “Using the Global List” on page 5-112.
8. In the **Command** list, double-click the command you want to send.

   Tip: The **Command** list shows all commands. Some may not be applicable to the device you are controlling.

   Tip: The **Command** box is yellow until you provide the IP address of the device (see step **7** on page 5-109).
9. If additional command parameter boxes appear below the **Command** box, specify parameter values as required.
10. In the **Callback Function** area, type any commands to be executed after the RossTalk command is completed.

    Note: Commands that accept a callback do so because they run asynchronously. Callback commands are not guaranteed to execute before the next task. They are cued and run as soon as possible.
11. Click **OK** to apply your changes and to close the **Add Task** dialog.
12. Click **Apply Changes** or **Apply and Close**.

Assigning CamBot Commands

This section describes how to assign CamBot commands. You can associate commands with buttons, labels, parameters, timers, or listeners.

To assign a CamBot command:

1. Create the item with which you want to associate the command.
2. In edit mode, double-click the panel, to open the **Edit Component** window.
3. In the component tree, navigate to the item.
4. In the attribute editor area, open the **Attributes** tab for the item.

   Tip: The **Attributes** tab will be one of the following: **Button Attributes**, **Label Attributes**, **Param Attributes**, **Timer Attributes**, or **Listener Attributes**.
5. In the **Tasks** area, click **Add**.

   The **Add Task** dialog appears.

6. In the **Task Type** area, click the **CamBot** button.

   The **CamBot Editor** dialog appears.

7. Configure the connection to the CamBot control computer. This is the CamBot control computer to which the command will be sent when the task runs. Do one of the following:

   - Specify the **Host IP** address and **Port** number of the CamBot control computer.

     The default port number is 2050.

   - Select a connection from the **Connection** list. For information on adding connections to the Connection list, refer to the section "Using the Global List" on page 5-112.

8. In the **Command** list, double-click the command you want to send.

   Tip: The **Command** box is yellow until you provide the IP address of the device (see step **7** on page 5-110).

9. If additional command parameter boxes appear below the **Command** box, specify parameter values as required.

10. In the **Callback Function** area, type any commands to be executed after the CamBot command is completed.

    Note: Commands that accept a callback do so because they run asynchronously. Callback commands are not guaranteed to execute before the next task. They are cued and run as soon as possible.

11. Click **OK** to apply your changes and to close the **Add Task** dialog.

12. Click **Apply Changes** or **Apply and Close**.

Assigning VDCP Commands

This section describes how to send Video Disk Control Protocol (VDCP) commands from DashBoard to your Ross BlackStorm Video Server.

You can associate commands with buttons, labels, parameters, timers, or listeners.

To assign a VDCP command:

1. Create the item with which you want to associate the command.

2. In edit mode, double-click the panel, to open the **Edit Component** window.

3. In the component tree, navigate to the item.

4. In the attribute editor area, open the **Attributes** tab for the item.

   Tip: The **Attributes** tab will be one of the following: **Button Attributes**, **Label Attributes**, **Param Attributes**, **Timer Attributes**, or **Listener Attributes**.

5. In the **Tasks** area, click **Add**.

   The **Add Task** dialog appears.

6. In the **Task Type** area, click the **VDCP** button.

   The **VDCP Editor** dialog appears.

7. Configure the connection to the device. This is the device to which the command will be sent when the task runs. Do one of the following:

   - Specify the **Host** IP address and **Port** number of the device.
   - Select a connection from the **Connection** list. For information on adding connections to the Connection list, refer to the section "Using the Global List" on page 5-112.

8. In the **Command** list, double-click the command you want to send.

   Tip: The **Command** list shows all commands. Some may not be applicable to the device you are controlling.

9. **Tip:** The **Command** box is yellow until you provide the IP address of the device (see step **7** on page 5-110).

10. If additional command parameter boxes appear below the **Command** box, specify parameter values as required.
11. In the **Callback Function** area, type any commands to be executed after the VDCP command is completed.

    Note: Commands that accept a callback do so because they run asynchronously. Callback commands are not guaranteed to execute before the next task. They are cued and run as soon as possible.
12. Click **OK** to apply your changes and to close the **Add Task** dialog.
13. Click **Apply Changes** or **Apply and Close**.

Assigning PBUS Commands

This section describes how to assign Peripheral BUS (PBUS) commands. You can send PBUS commands to control Ross Video XPression and other PBUS-enabled devices.

For detailed information about using PBUS with XPression, see the document, ***PBus on XPression.pdf***, which is available on your XPression system in the **C:\archives** directory.

You can associate commands with buttons, labels, parameters, timers, or listeners.

To assign a PBUS command:

1. Create the item with which you want to associate the command.
2. In edit mode, double-click the panel, to open the **Edit Component** window.
3. In the component tree, navigate to the item.
4. In the attribute editor area, open the **Attributes** tab for the item.

   Tip: The **Attributes** tab will be one of the following: **Button Attributes**, **Label Attributes**, **Param Attributes**, **Timer Attributes**, or **Listener Attributes**.
5. In the **Tasks** area, click **Add**.

   The **Add Task** dialog appears.
6. In the **Task Type** area, click the **PBus** button.

   The **PBus Editor** dialog appears.
7. Configure the connection to the device. This is the device to which the command will be sent when the task runs. Do one of the following:
   - Specify the **Host** IP address and **Port** number of the device.
   - Select a connection from the **Connection** list. For information on adding connections to the Connection list, refer to the section “Using the Global List” on page 5-112.
8. In the **Device** list, select the device to which you want to send the command.
9. In the **Command** list, double-click the command you want to send:
   - **Learn** — Commands the device to capture and store its current status. The device normally stores whatever data it requires to return to its current state.
   - **Recall** — Commands the device to return to a previously-stored state.
   - **Trigger** — Commands the device to execute an event which has been previously prepared. For example, data for a credit crawl can be read in advance, and then the trigger command executes the credit crawl.

   Tip: The **Command** box is yellow until you provide the IP address of the device.
10. In the **Register** list, type the register number, which is used as an identifier for the learned status. The register is specified when learning the status and for recalling the status.
11. In the **Callback Function** area, type any commands to be executed after the PBUS command is completed.

    Note: Commands that accept a callback do so because they run asynchronously. Callback commands are not guaranteed to execute before the next task. They are cued and run as soon as possible.

12. Click **OK** to apply your changes and to close the **Add Task** dialog.
13. Click **Apply Changes** or **Apply and Close**.

Using the Global List

The Global List allows you to add a device connection to a list that enables easy association of commands with a similar device that uses a different IP address. This is helpful if you have multiple networks of devices or if you are moving around from different locations with a custom panel.

To add a device connection to the Global List:

1. Open the **Edit Component** dialog for a component (button, label, parameter, or listener).
2. Select the associated **Attributes** tab.
3. Click **Add**.

   The **Add Task** dialog opens.
4. Specify the **Host** IP address and **Port** number of the device.
5. Click the **Add Host/Port To Global List** button.

   The **Input** dialog opens.
6. Type a name for the host/port and click **OK**.

   The host/port appears in the **Connection** list.

To assign a device connection using the global list:

1. Open the **Edit Component** dialog for a a component (button, label, parameter, or listener).
2. Select the associated **Attributes** tab.
3. Click **Edit**.

   The **Edit Task** dialog opens.
4. Select a host/name from the **Connection** list.
5. Click **OK**.

Assigning Data Modification Tasks

You can create a task that modifies parameter values.

For More Information on...

- parameters, refer to the section, "**Parameters and Data Sources**" on page 5–160.

You can associate tasks with buttons, labels, parameters, timers, or listeners.

To assign a data modification task:

1. Create the item with which you want to associate the task.
2. In edit mode, double-click the panel, to open the **Edit Component** window.
3. In the component tree, navigate to the item.
4. In the attribute editor area, open the **Attributes** tab for the item.

   Tip: The **Attributes** tab will be one of the following: **Button Attributes**, **Label Attributes**, **Param Attributes**, **Timer Attributes**, or **Listener Attributes**.
5. In the **Tasks** area, click **Add**.

   The **Add Task** dialog appears.

6. In the **Task Type** area, click the **Data Modification** button.

   The **Data Modification Editor** dialog appears.

7. In the list of parameters, select the parameter that the task will modify.

8. Choose to either set the parameter to a specific value or to increment / decrement it by a specific amount whenever the user selects it on the CustomPanel. Choose from the following:

   - **Set to value** — Specifies the value of the parameter value.
   - **Increment/Decrement Value** — Increases the parameter value by the specified value. To decrement the parameter value, specify a negative value.
   - **Set to event property** — Changes the parameter to the specified state.
   - **Set to script** — Allows you to modify the parameter value through a small piece of ogScript.

     For example, to set the parameter's value to the value of parameter 0x02 subtracted from parameter 0x01, you would type `params.getValue(0x01, 0) - params.getValue(0x02).`

9. Click **OK** to apply your changes and close the **Add Task** dialog.

10. Click **Apply Changes** or **Apply and Close**.

Assigning Timer Control Tasks

This section describes how to assign tasks to a timer.

To assign a task to a timer:

1. Create the timer, as described in the section, "**To create a timer:**" on page 5–105.

2. On the **Edit Mode** toolbar, click the **Timers** button.

   The **Add/Edit Timers** dialog appears.

   Tip: The Add/Edit Timers dialog lists all the timers associated with the current CustomPanel.

3. In the list of timers, click the timer to which you want to assign a task.

   The Timer Properties area shows settings for the timer. The Tasks area shows all task currently assigned to the timer. Some tasks are automatically created

4. In the **Repeat Rate** boxes, specify how often the list of tasks is to be performed.

5. In the **Tasks** area, click the **Add** button.

   The Add Task dialog appears.

6. In the **Task Type** area, click the type of task you want to associate with the timer.

   The Editor area updates according to the task type you selected.

7. Define the task using the **Editor** area of the **Add Task** dialog.

   For more information about defining the task, see one of the following:

   › For ogScript tasks, see Steps 5 to 8 in "**Assigning ogScript Tasks**" on page 5–107
   › For RossTalk tasks, see Steps 5 to 12 in "**Assigning RossTalk Commands**" on page 5–108
   › For CamBot tasks, see Steps 5 to 12 in "**Assigning CamBot Commands**" on page 5–109
   › For VDCP tasks, see Steps 5 to 13 in "**Assigning VDCP Commands**" on page 5–110
   › For PBus commands, see Steps 5 to 13 in "**Assigning PBUS Commands**" on page 5–111
   › For data modification tasks, see Steps 5 to 10 in "**Assigning Data Modification Tasks**" on page 5–112

8. In the **Add/Edit Timers** dialog, click **Commit Changes**, and then click **Done**.

Editing a Task

You can edit any task, change the order that tasks are performed. Each time the task control is activated, all tasks on the list are performed, in the order in which they are listed.

To edit a task

1. Display the **Edit Component** dialog for your component.
2. Select the **Attributes** tab.
3. In the **Tasks** area, select the task you want to edit.
4. Click **Edit** to display the **Edit Task** dialog.
5. Use the provided menus to update the task.
6. Click **OK** to save your changes.
7. Click **Apply Changes** or **Apply and Close**.

To arrange the task order:

1. Display the **Edit Component** dialog for your component.
2. Select the **Attributes** tab.
3. Select tasks and arrange them in the order you want them to be performed. One task is performed each time the task control is activated. You can arrange tasks as follows:
   - **First** — move the selected task to the top of the task list.
   - **Move Up** — move the selected task up one on the task list.
   - **Move Down** — move the selected task down one on the task list
   - **Last** — move the selected task to the bottom of the task list.
4. Click **Apply Changes** or **Apply and Close**.

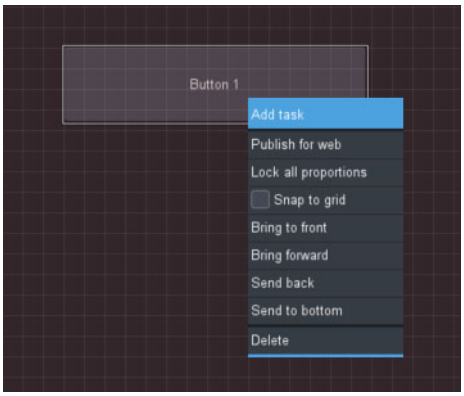
To delete a task

1. Display the **Edit Component** dialog for your component.
2. Select the **Attributes** tab.
3. In the **Tasks** area, select the task you want to delete.
4. Click **Delete** to remove the task from the list.
5. Click **Apply Changes** or **Apply and Close**.

Shortcut to Quickly Add Tasks to Buttons, Labels and Parameters

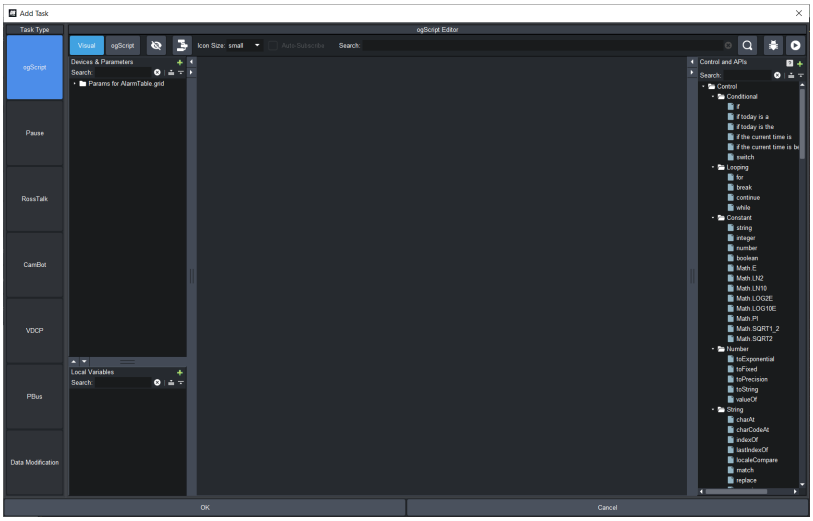
You can add tasks directly to buttons, labels or parameters more quickly by using the Add Task editor instead of the regular Component Editor. Simply right-click on the component you want to add a task to, select **Add Task**, and the Add Task Editor opens. The Add Task Editor is a lightweight version of the ogScript editor. It allows you to quickly add tasks to components on your panel, and only rebuilds the panel when required.

1. While in PanelBuilder **Edit Mode**, right-click on an existing button, label or parameter on your canvas, and select **Add task**.



   The **Add Task** Editor opens a lightweight version of the ogScript Editor.

2. Add a task. For more details see, "**Assigning ogScript Tasks**" on page 5–107



3. Click **OK** to apply your changes.

Triggering Tasks Externally

You can set up tasks to be triggered by external means such as keyboard shortcuts or RossTalk messages received from external systems. You can also use the ogScript function, **`ogscript.fireGPI.`**

Tasks are associated with certain types of components. You can create GPI triggers for these components so that when the correct message is received, the component's tasks are executed.

Note: External triggering is in addition to normal task execution methods. For example, if you create a GPI trigger for a push button, that button's tasks are executed when the GPI trigger message is received OR when the button is pushed.

Creating a GPI Trigger

To create a GPI trigger, you specify a text string that, when received by the component, prompts the component to run its tasks. GPI triggers can be set only on components with task lists, such as buttons, labels, and displayed parameters.

To create a GPI trigger:

1. Create the component and task list.
2. In edit mode, double-click the component to open its **Edit Component** window.
3. Select the **Attributes** tab for the component type (**Param Attributes**, **Button Attributes**, or **Label Attributes**).
4. In the **GPI Trigger** box, type the trigger text.

   Figure 5.34 shows the **GPI Trigger** box on the **Button Attributes** tab.

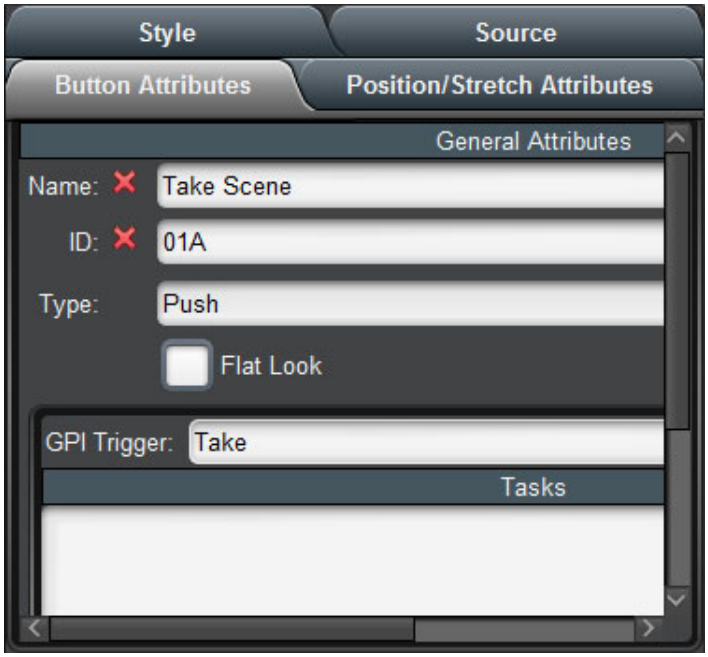


Figure 5.34 *- Button Attributes tab, including the GPI Trigger box.*

5. Click **Apply and Close**.

   The component is configured for external triggering of its task list.

Triggering Tasks Using Keyboard Shortcuts

You can create a keyboard shortcut to trigger a component's task list. When panel users type the shortcut, the tasks are executed.

To create a keyboard shortcut to trigger tasks:

1. Create the component (button, label, or displayed parameter), complete with task list and GPI trigger.

   Note the **GPI Trigger** text.
2. On the **Window** menu, click **Preferences**.

   The **Preferences** dialog appears.
3. In the menu list on the left side of the **Preferences** dialog, click **Keyboard Shortcuts**.

   The **Keyboard Shortcuts** list appears.

4. Click the **New Command** button.

   The **Command Configuration Wizard** dialog appears.

5. In the **Available Commands** list, click **Fire GPI Trigger**.

6. Click in the **Shortcut** box, and then type the shortcut sequence.

7. In the **Active** list, select **DashBoard Context**, and then click **Next**.

8. In the **GPI Trigger** box, type the **GPI Trigger** text.

9. Optionally, if you want to send an additional piece of text data when the keyboard shortcut is used, type the data in the **State** box.

   The additional data can be used by ogScripts. For example, you may have two different keyboard shortcuts; one that triggers the task list and uses the **State** text to send an "**ON**" message to the ogScript to turn something on, and another shortcut with an "**OFF**" message.

10. In the **Execution Level** list, select one of the following:

    - **All Editors** — Sends the command to all open panels.
    - **Active Editor** — Sends the command only to the currently active panel.

11. Click **Finish**.

12. In the **Preferences** dialog, click **OK**.

Triggering Tasks Using RossTalk Messages

A component's tasks are externally triggered when the GPI Trigger text is received by the panel. One method of sending the GPI Trigger text is to embed it in a RossTalk command. DashBoard must first be configured to listen for RossTalk commands.

The RossTalk **`sendMessage`** function is part of the ogScript language. In the following example, the GPI Trigger message "**`StartClock`**" is sent to the local computer (**`localhost`**), via port **`7788`**:

```
rosstalk.sendMessage('localhost', 7788, 'GPI StartClock');
```

You can also include state data in the message. In the following example, the same GPI trigger is sent, but with state data, **`reset`**, appended to the GPI command. You can access the state data using the **`event.getState()`** function, as shown in the second line of the example. The second line checks whether the **`event.getState()`** function exists before calling it. This is important because the function is available only when the tasks are triggered through GPI, and not when triggered by other means such as a button click or parameter change.

```
rosstalk.sendMessage('localhost', 7788, 'GPI StartClock:reset');
var resetTimer = event.getState && event.getState() == 'reset';
```

For more information about using ogScript in CustomPanels, see "**Working with ogScript**" on page 5–170.

For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

To Configure DashBoard to Listen for RossTalk Commands

1. On the **Window** menu, click **Preferences**.

   The **Preferences** dialog appears.

2. In the menu list on the left side of the **Preferences** dialog, click **RossTalk GPI Listener**.

   The **RossTalk GPI Listener** settings appear.

3. Beside **Global GPI Listener**, select **Enable**.

4. In the **Listen Port** box, specify the port for receiving RossTalk commands.

   Tip: The default port is **7788**.

5. Click **OK**.

Triggering Tasks Using the ogscript.fireGPI Function

A component's tasks are externally triggered when the GPI Trigger text is received by the panel. One method of sending the GPI Trigger text is to use the **`ogscript.fireGPI`** function.

The **`ogscript.fireGPI`** function is part of the ogScript language. For more information about using ogScript, see "**Working with ogScript**" on page 5–170, and the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

Editing Components

The **Edit Component** window enables you to configure component attributes.

To access the Edit Component window:

1. Select

from the **Edit Mode** toolbar.

2. Double-click the component you want to edit.

   Tip: The components are hierarchical. As you hover over the panel, an outline appears to show which component would be selected if you were to click.

   The **Edit Component** window appears.

   The contents of the Edit Component window vary depending on the type of component you are editing.

The **Edit Component** window consists of six areas:

Figure 5.35 *- Edit Component Window*

1. Title Area

The title area indicates the type of component you are editing.

2. Insert Tag Area

This area consists of buttons that enable you to add items to the component tree. The buttons represent items which cannot be added through the graphic interface of PanelBuilder. For more information, see "**Component Tree**" on page 5–119.

3. Component Tree

This area shows component information for the entire CustomPanel, presented in a hierarchy. Use the component tree to select which item you want to edit. The current item is highlighted blue.

Tip: You can scroll through components by using the up and down keys

4. Attribute Editor

The attribute editor area consists of tabs listing editable attributes of the selected component. Which tabs are shown depends on the type of component you are editing.

5. Preview Area

This area shows the component you are editing. If you apply changes, the preview area updates.

6. Apply Buttons

Use the various Apply buttons to commit any changes you have made:

- **Apply Changes** — Applies the changes and keeps the Edit Component window open afterwards.
- **Apply and Close** — Applies the changes and closes the Edit Component window.
- **Close** — Closes the Edit Component window without applying any changes.

Component Tree

This area shows component information for the entire CustomPanel, presented in a hierarchy. Use the component tree to select which item you want to edit. The current item is highlighted blue.

While most items in the tree are created by using the graphical interface of PanelBuilder, some cannot be created this way. They are created by inserting metadata tags into the tree, by clicking buttons in the **Insert Tags** area above the tree.

When you click a button, the tag is added to the tree, within a **<meta>** tag. After you add a tag, select it in the tree and then use the tabs in the **Attribute Editor** area to customize it.

You can insert the following types of tags:

- **<listener/>** — Creates a listener object, which enables DashBoard to receive messages and data from external devices over the network.

  For information about specifying listener attributes, see "**Listener Attributes Tab**" on page 5–130.

- **<style/>** — Creates a style definition. You can create named style definitions which can be applied to objects within the same container object. This is useful for creating common visual themes across components. By changing a setting in the style definition, you can change that setting for all components that reference the style definition.

  Tip: A style preset is available only to objects within its parent container object. To create a set of style presets for the entire panel, create them immediately below the top level container object (typically **abs**).

  To apply a style definition to an object, select the style name from the **Defined Style** list on the **Style** tab for the object.

  Tip: Predefined style settings can be overridden individually for a given object.

  For information about specifying style attributes, see "**Style Tab**" on page 5–139.

- **<color/>** — Creates a color definition. You can create named color definitions which can be referenced from anywhere. This is useful for creating common visual themes across components. By changing settings in the color definition, you can change that setting for all components that reference that color definition.

  For information about specifying color attributes, see "**Color Attributes Tab**" on page 5–126.

- **<lookup/>** — Creates a data lookup table, which can be read using ogScript functions.

  For information about specifying lookup attributes, see "**Lookup Attributes Tab**" on page 5–131.

- **<ogscript/>** — Creates a named section of ogScript code, which can be referenced. You can also associate the ogScript with an action and a UI element, so that the ogScript is executed when the action is performed on the UI element. For example, you can make the ogScript run when the user drags the mouse (ondrag).

  For information about specifying ogScript attributes, see "**Ogscript Attributes Tab**" on page 5–132.

- **<api/>** — Creates an Application Program Interface (API) section of ogScript code. You can set the API to execute immediately when the panel is loaded, or not. Functions within the **<api/>** tag have global scope, which enables them to be called from anywhere else in the panel.

  For information about specifying API attributes, see "**Api Attributes Tab**" on page 5–124.

Attribute Editor Tabs

The attribute editor area of the Edit Component window consists of tabs listing editable attributes of the selected component. Which tabs are shown depends on the type of component you are editing. To edit component attributes, specify values and then apply the changes. If you want to use the default value, click the next to the attribute name.

The Source tab is present for every component. It shows the underlying XML source code that defines the selected component. You can edit the XML code directly in the Source tab, or paste XML code into it. To view or edit the XML source for the entire CustomPanel, select the top element in the component tree and then view its Source tab.

Tip: To quickly view the source for a component, press and hold the **Shift** key, and double-click. The **View Source** window appears. The XML source cannot be edited in this window.

Some tabs are divided into two areas: Current Attributes and Unused Attributes. The Current Attributes area shows the attribute values currently applied to the selected component. Only attributes that have been edited appear here. The Unused Attributes area shows attributes for which default values apply. For example, in the following Style tab, only the border and background attributes have been defined:

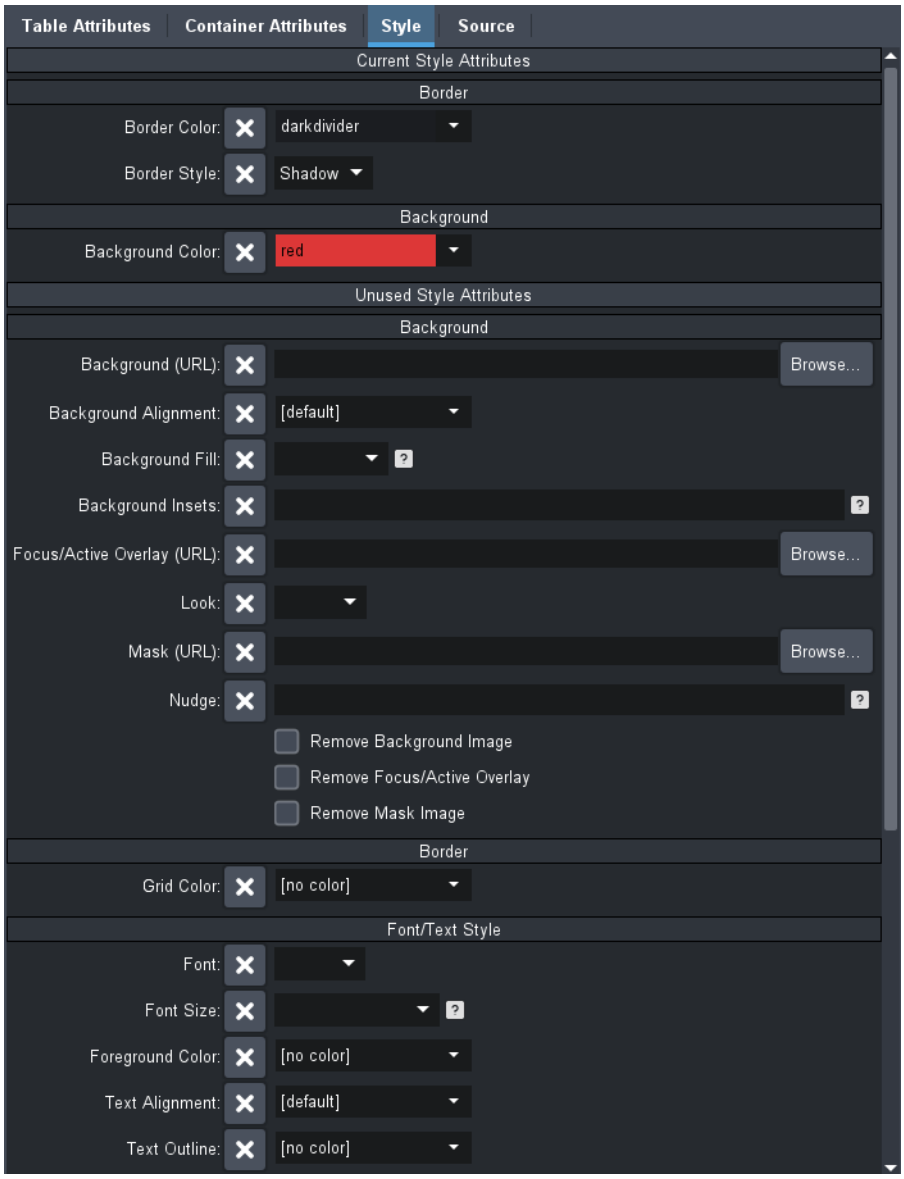


Figure 5.36 *- Current and Unused Attributes*

When you edit values in the Unused Attributes area and then apply the changes, those attributes move up to the Current Attributes area.

The attribute editor area includes a subset of the following tabs, depending on the type of component you are editing:

- **Abs Attributes Tab**
- **Api Attributes Tab**
- **Basic Attributes Tab**
- **Browser Attributes Tab**
- **Button Attributes Tab**
- **Color Attributes Tab**
- **Container Attributes Tab**
- **Dropspot Attributes Tab**
- **Editor Attributes Tab**
- **Flow Attributes Tab**

- **Label Attributes Tab**
- **Listener Attributes Tab**
- **Lookup Attributes Tab**
- **Meta Attributes Tab**
- **Ndi Attributes Tab**
- **Ogscript Attributes Tab**
- **Param Attributes Tab**
- **Position/Stretch Attributes Tab**
- **Simplegrid Attributes Tab**
- **Source Tab**
- **Split Attributes Tab**
- **Statuscombo Attributes Tab**
- **Style Tab**
- **Tab Attributes Tab**
- **Table Attributes Tab**
- **Table Cell Attributes Tab**
- **Tag Attributes Tab**
- **Task Attributes Tab**
- **Timer Attributes Tab**
- **Timertask Attributes Tab**
- **Tr Attributes Tab**
- **TreeElement Attributes Tab**
- **Webcam Attributes Tab**
- **Widget Attributes Tab**

Abs Attributes Tab

Abs Attributes apply to the following types of components:

- "**Basic Canvases**" on page 5–26
- "**Image Canvases**" on page 5–71

Attribute	Description
General Attributes	
Name	Type a name or description for the Abs canvas. This name is used as a reference in the Component Tree. It does not appear in the CustomPanel interface.
ID	Type a scripting ID for the Abs canvas.
Virtual Width	Enter or select a width in pixels for the virtual width of the canvas. This determines how wide the workspace canvas is. For example, if using a large monitor, you might want to use a high number of pixels to accommodate a greater number of components. Conversely, if using a smaller monitor, you might want to use a lower number of pixels. Select the default check box to use the default virtual width of 1,079 pixels.

Attribute	Description
Virtual Height	Enter or select a height in pixels for the virtual height of the canvas. This determines how tall the workspace canvas is. For example, if using a large monitor, you might want to use a high number of pixels to accommodate a greater number of components. Conversely, if using a smaller monitor, you might want to use a lower number of pixels. Select the default check box to use the default virtual height of 931 pixels.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease.
Scrolling	Click the menu and select an option for adding scroll bars to the Abs canvas: • **True** — use vertical and/or horizontal scroll bar, if needed. • **False** — do not use scroll bars for the Abs canvas. • **Vertical** — add a vertical scroll bar to the Abs canvas. • **Horizontal** — add a horizontal scroll bar to the Abs canvas. • **Always** — always use vertical and horizontal scroll bars for the Abs canvas.
Data Source/Device Control	
openGear or XPression DataLinq or NK Series Routers	Select a device for context: • **openGear or XPression DataLinq** — this option opens the **Select Device for Context** dialog box, where you can select an openGear card or XPression DataLinq XML file to associate with the panel. **Note**: If your device supports subscriptions protocol, you must select the "Enable subscriptions for this device" checkbox to add the **`subscriptions="true"`** tag and list of subscription oids to your device's context. For More Information on... • Subscriptions, see "**Leveraging Data Sources with Subscriptions**" on page 5–165 **NK Series Routers** — this option opens the **Select IPS** dialog box, where you can select a router node. **Note:** If both boxes are clear, the panel is not associated with a device or data source.
XPression DashBoard Linq Port	If you want to stream XML data to an XPression system directly without sharing an XML file, specify the port to use on the DashBoard computer and select **Enable Streaming**. **Note:** You must also set up a DashBoard DataLinq source on the XPression DataLinq server. The DashBoard Linq must point to the IP address and port of the DashBoard computer that hosts the CustomPanel from which you want to stream data.
NK Series Routers	Select the check box to associate the panel with NK Series routers for device control.
Remote Task Triggering	
Internal RossTalk GPI Listener	Specifies the TCP/IP port to monitor for RossTalk commands for this container object and its children. RossTalk GPI commands are formatted as **`GPI [trigger]:[state]`**. This setting is available only if this container object has its context attribute set to **opengear** (**`contexttype=opengear`**).

Attribute	Description
VDCP Task Server Port	Specifies the TCP/IP port to use for publishing all of the current object's tasks with trigger IDs as VDCP clips. Tasks can be listed, cued, and played through devices capable of VDCP communication over TCP/IP. This setting is available only if this container object has its context attribute set to **opengear** (**`contexttype=opengear`**). **Note:** You can only enter a port for one type of Remote Task Trigger in a component's General Attributes. If you are using the **VDCP Task Server Port**, you cannot use the **Internal RossTalk GPI Listener,** or **HTTP Trigger Server Port** at the same time.
HTTP Trigger Server Port	Tasks assigned to this object with trigger IDs are published to a web page hosted at the specified port (**http://localhost:[port]/**). Tasks can be triggered by going to **http://localhost:[port]/[trigger ID]/[State]**. This setting is available only if this container object has its context attribute set to **opengear** (**`contexttype=opengear`**). **Note:** You can only enter a port for one type of Remote Task Trigger in a component's General Attributes. If you are using the **HTTP Trigger Server Port**, you cannot use the I**nternal RossTalk GPI Listener**, or **VDCP Task Server Port** at the same time.

Api Attributes Tab

API Attributes apply to **<api/>** tags in the component tree.

Attribute / Control	Description
	General Attributes
Name	Type a name for the API. This name appears in the Component Tree. It does not appear in the CustomPanel interface.
contentfunction	The optional **`contentfunction`** attribute calls the function of the specified name, for example, **`contentfunction="myFunction"`**. If that called function returns XML, the **`<api/>`** tag renders the provided XML as its UI. This allows you to dynamically generate UIs. The **`contentfunction`** attribute is not shown on the **Api Attributes** tab, but can be added to the **`<api/>`** tag on the **Source** tab. **Note:** If the **`<api/>`** tag has the **`contentfunction`** attribute set, the **`<api/>`** script is executed immediately.
ID	Type a scripting ID for the API.
Script File Location	Optionally, you can specify a file that contains the API code. This enables re-use of APIs across multiple panels. The file must be a text file containing only properly-formatted ogScript. The file extension can be anything, but we recommend using **.ogscript**. If you specify a script file, do not create any code in the **ogScript Content** section of the **Api Attributes** tab. **Tip:** If your API code is in a separate script file, 'escaping' XML characters is not necessary.

Attribute / Control	Description
Execute Immediately	When selected (**`immediate="true"`**), the script in the **`<api/>`** tag is evaluated as soon as it is reached, during the panel build process. This allows the script to create global functions that can be called from anywhere in the panel, create new parameters on the fly, and modify constraints of parameters even before they are displayed. If the <api/> tag has the **`contentfunction`** attribute set, the script is executed immediately. When cleared (**`immediate="false"`**),the script in the **`<api/>`** tag is evaluated onload.
ogScript Content	
Visual button	The **Visual** button changes the **ogScript Content** area to show the Visual Logic editor, which enables you to created and edit ogScript code segments visually. For more information about the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9.
ogScript button	The **ogScript** button changes the **ogScript Content** area to show the manual **ogScript Editor**. For more information about the manual **ogScript Editor**, see "**Editing ogScript Code**" on page 5–171.

Basic Attributes Tab

Basic Attributes apply to the following types of components:

- "**Tables**" on page 5–74

Attribute	Description
General Attributes	
Name	Type a name or description for the basic component. This name is used as a reference in the Component Tree. It does not appear in the CustomPanel interface.
ID	Type a scripting ID for the basic component.

Browser Attributes Tab

Browser Attributes apply to the following types of components:

- "**Web Browser Instances**" on page 5–87

Attribute	Description
General Attributes	
Name	Type a name or description for the browser component. This name is used as a reference in the Component Tree. It does not appear in the CustomPanel interface.
ID	Type a scripting ID for the browser component.
URL	Type a URL of the website to use for the browser component.
Type	Select the browser engine to be used. The options are **Default**, **Chromium**, **System**, and **JavaFX.** The default selection is **Default**.
Fallback	Enable browser fallback to allow the fallback browser type to be used in case the selected browser type is unsupported. The default selection is **true**.

Button Attributes Tab

Button Attributes apply to the following types of components:

- "**Buttons**" on page 5–84

Attribute	Description
General Attributes	
Name	Type a name or description to display on the button. This name is also used as a reference in the Component Tree.
ID	Type a scripting ID for the button.
Type	Click the menu and select a button type: • **Push** — select to use a simple one-press button to run tasks. The button has no state. • **Toggle** — select to use a toggle button. For a toggle button, when the button is clicked, a function is turned on. Clicking it again turns the function off. • **Checkbox** — select to use a check box for enabling and disabling a function. • **Radio** — select to use a radio button for enabling and disabling functions.
Flat Look	Select the check box to use a plain, non-stylized button display.
Tasks	
Trigger ID	If you want the tasks to run when a GPI listener receives a certain trigger message, type the trigger ID. For more information, see "**Creating a GPI Trigger**" on page 5–116.
Tasks List	This list displays the tasks that have been added to a button. Tasks are commands or controls assigned to the component. The tasks run in top to bottom order. Use the buttons to arrange the tasks: • **First** — click to move a selected task to the top of the **Tasks List**. • **Move Up** — click to move a selected task up one position in the **Tasks List**. • **Move Down** — click to move a selected task down one position in the **Tasks List**. • **Last** — click to move a selected task to the bottom of the **Tasks List**.
Add	Click the button to open the **Add Task** dialog box and add tasks to the button. The tasks are added to the **Tasks List**.
Edit	Click the button to open the **Edit Task** dialog box and edit a selected task from the **Tasks List**.
Delete	Click the button to delete a selected task from the **Tasks List**.

Color Attributes Tab

Color attributes define the characteristics of a named color definition, which can be referenced in ogScript.

Attribute	Description
General Attributes	
Name	Type a name of the color definition.
ID	Type a scripting ID for the color definition
Color	Sets the color for the color definition. Click the text box and then use the color picker tool to specify a color. On Windows devices, you can also click the **Eyedropper** icon to select a color from any visible screen on your computer. Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.

Container Attributes Tab

Container Attributes apply to the following types of components:

Attribute	Description
Advanced Table Settings	
Max Elements Per Row	Limits the number of table columns, for tables that are populated by a parameter that returns multiple elements, such as a set of buttons. For example, this option is useful if you want to create a table of buttons, each of which includes a choice as defined in a parameter with nine values. Create a one-cell table and set Max Elements Per Row to 3. Drag the parameter onto the table, setting it as a choice list, with the Keep returned elements together option unselected. The table will have three rows of three buttons, each of which contains one of the nine choices defined in the parameter. For more information on creating tables with rows of buttons, refer to the section “Buttons” on page 5-84.
Position/Stretch Attributes	
Anchor Points	Use the menu to specify the location and sizing of the component on the canvas should the panel be resized: The component remains fixed to the selected location if the panel is resized. For detailed information on Anchor Points, refer to refer to the section “Anchor Points and Background Alignment” on page 5-151.
Top (pixels)	Type or select a number of pixels to offset the component from the top margins of the panel.
Left (pixels)	Type or select a number of pixels to offset the component from the left side margins of the panel.
Bottom (pixels)	Type or select a number of pixels to offset the component from the bottom margins of the panel.
Right (pixels)	Type or select a number of pixels to offset the component from the right side margins of the panel.
Width (pixels)	Enter or select a fixed width in pixels for the component. The component retains these dimensions if the panel is resized. Select the **Use default** check box to use the default width for the component.
Height (pixels)	Enter or select a fixed height in pixels for the component. The component retains these dimensions if the panel is resized. Select the **Use default** check box to use the default height for the component.

Dropspot Attributes Tab

Dropspot Attributes apply to the following types of components:

- "**Split Panels**" on page 5–72
- "**Tables**" on page 5–74

Attribute	Description
General Attributes	
Name	Type a name or description for the dropspot. This name is used as a reference in the Component Tree. It does not appear in the CustomPanel interface.
ID	Type a scripting ID for the dropspot.

Editor Attributes Tab

Editor Attributes apply to editor nodes in the component tree. Editor nodes appear in the component tree if your panel includes controls for devices that include a device editor.

Attribute	Description
General Attributes	
Name	Type a name or description for the editor. This name is used as a reference in the Component Tree. It does not appear in the CustomPanel interface.
ID	Type a scripting ID for the editor.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease. **Note:** This option is ineffectual for embedded device editors.
Scrolling	Click the menu and select an option for adding scroll bars to the device canvas: • **True** — use vertical and/or horizontal scroll bars according to the size of the device canvas. • **False** — do not use scroll bars for the device canvas. • **Vertical** — add a vertical scroll bar to the device canvas. • **Horizontal** — add a horizontal scroll bar to the device canvas. • **Always** — always use vertical and horizontal scroll bars for the device canvas.

Flow Attributes Tab

Flow Attributes apply to the following types of components:

- "**Flow Containers (Wrap Content)**" on page 5–76

Attribute	Description
General Attributes	
Name	Type a name or description for the flow container component.
ID	Type a scripting ID for the flow container component.
Data Source/Device Control	

Attribute	Description
openGear or XPression DataLinq or NK Series Routers	Select a device for context: • **openGear or XPression DataLinq** — this option opens the **Select Device for Context** dialog box, where you can select an openGear card or XPression DataLinq XML file to associate with the flow container. **NK Series Routers** — this option opens the **Select IPS** dialog box, where you can select a router node. **Note:** If both boxes are clear, the flow container uses the surrounding context.
Horizontal Alignment	If you want the components to be neatly aligned along the right or left edge of the container, or centered within the container, specify the Horizontal Alignment accordingly.
Keep all widths the same	Select this option is you want the widths of all components in the container to be the same. All component widths will match the width of the widest one.
Keep all heights the same	Select this option is you want the heights of all components in the container to be the same. All component heights will match the height of the tallest one.
Fill single line if possible	If **Keep all widths the same** is selected, and you want all the components to fill a single row if possible, select **Fill single line if possible**. If the components widths are small enough that the components can all fit on one row with extra space, the widths are expanded to fill the row.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease.
Scrolling	Click the menu and select an option for adding scroll bars to the flow container component: • **True** — use vertical and/or horizontal scroll bars according to the size of the flow container component. • **False** — do not use scroll bars for the flow container component. • **Vertical** — add a vertical scroll bar to the flow container component. • **Horizontal** — add a horizontal scroll bar to the flow container component. • **Always** — always use vertical and horizontal scroll bars for the flow container component.

Label Attributes Tab

Label Attributes apply to the following types of components:

- "**Labels**" on page 5–82
- "**Links to Device Editors or Other CustomPanels**" on page 5–83

Attribute	Description
General Attributes	
Name	Type the text that you want to display on the label.
ID	Type a scripting ID for the label.
Header	Select the check box to stylize the label as a header. The appearance can be edited in the **Style** tab.
Tasks	

Attribute	Description
Trigger ID	If you want the tasks to run when a GPI listener receives a certain trigger message, type the trigger ID. For more information, see "**Creating a GPI Trigger**" on page 5–116.
Tasks List	This list displays the tasks that have been added to a label. Tasks are commands or controls assigned to the component. The tasks run in top to bottom order. Use the buttons to arrange the tasks: • **First** — click to move a selected task to the top of the **Tasks List**. • **Move Up** — click to move a selected task up one position in the **Tasks List**. • **Move Down** — click to move a selected task down one position in the **Tasks List**. • **Last** — click to move a selected task to the bottom of the **Tasks List**.
Add	Click the button to open the **Add Task** dialog box and create tasks for the label. The tasks are added to the **Tasks List**.
Edit	Click the button to open the **Edit Task** dialog box and edit a selected task from the **Tasks List**.
Delete	Click the button to delete a selected task from the **Tasks List**.

Listener Attributes Tab

Listener attributes define the connection information and other properties of listener objects, which enable DashBoard to receive messages and data from external devices over the network.

Attribute	Description
General Attributes	
Name	Type a name or description for the listener.
ID	Type a scripting ID for the listener.
Show start/stop toggle button	Select the check box if you want to display a button for starting and stopping the listener. The button is displayed only if the <listener/> tag appears outside of the <meta/> tag in the source. Normally, <listener/> tags are used within the <meta/> tag.
Start automatically	Select the check box if you want the listener to start automatically. **Tip:** Listeners always start automatically if the <listener> tag in the source is within a <meta> tag.
Connection Type/Settings	
UDP Listener	Select this option if you want the listener to detect and receive UDP messages. Specify the following: • **Port** — The port number to listen to. • **Max Length (UDP)** — Specify the maximum number of bytes allowed in a UDP message. The listener truncates any messages that exceed this length.
Listen as server	Select this option if you want the listener to be the server in the server/client relationship. Specify the number of the port on which the listener will communicate.
Connect as client	Select this option if you want the listener to be the client in the server/client relationship. Select an existing server to which the listener connects. You can also create a custom connection, and add it to the Global List. The connection appears as an entry in the 'hosts' lookup.
Delimiter type (TCP)	If communicating over TCP, specify the delimiter type. The delimiter defines the beginning of a message.

Attribute	Description
Delimiter value	If communicating over TCP, specify the delimiter data. This available options depend on the delimiter type: • **Bytes** — Specify the delimiter byte value in hexadecimal notation. • **String** — Specify the delimiter string text. • **Fixed Length** — Specify the message length, in bytes. • **Variable Length** — Each message starts with data defining the message length. Specify how many bytes are in the length-defining data at the start of the message.
Sync Word (TCP)	If communicating over TCP, type the synchronization word data to be transmitted as a message header at the start of each message.
Command Parsing	
Stop all receive/task execution on pause	Select the check box if you want to stop receiving additional messages until all tasks associated with the previous message (including pauses) have finished execution. If this option is not selected, the listener continues to fetch messages and adds them to the queue while tasks are running. This causes the task to be executed in the network RX thread. If this option is selected, the task can interact directly with the socket, and possibly read additional bytes from the stream before processing continues.
Tasks	
Tasks List	This list displays the tasks that have been added to a listener. Tasks are commands or controls assigned to the component. The tasks run in top to bottom order. Use the buttons to arrange the tasks: • **First** — click to move a selected task to the top of the **Tasks List**. • **Move Up** — click to move a selected task up one position in the **Tasks List**. • **Move Down** — click to move a selected task down one position in the **Tasks List**. • **Last** — click to move a selected task to the bottom of the **Tasks List**.
Add	Click the button to open the **Add Task** dialog box and add tasks to the listener. The tasks are added to the **Tasks List**.
Edit	Click the button to open the **Edit Task** dialog box and edit a selected task from the **Tasks List**.
Delete	Click the button to delete a selected task from the **Tasks List**.

Lookup Attributes Tab

The Lookup Attributes tab is used to edit keys and values in lookup tables, including connection entries from the Global List.

Attribute	Description
General Attributes	
Name	Type a name or description for the lookup component.
ID	Type a scripting ID for the lookup component.
Support multiline values	Select the check box to allow multiline entries in the Lookup Entries list.
Lookup Entries	This list displays the **Key** and **Value** that comprise entries in the lookup table. Click inside a Key or Value box to edit the lookup entry.

Meta Attributes Tab

The Meta Attributes tab contains a name and OID for a metadata <meta> tag in the component tree.

Attribute	Description
General Attributes	
Name	Type a name or description for the metadata.
ID	Type a scripting ID for the metadata.

Ndi Attributes Tab

The **Ndi Attributes** tab enables you to set properties related to displaying NDI™ video within a CustomPanel. For more information about adding NDI video, see "**NDI Video Panels**" on page 5–88.

Attribute	Description
General Attributes	
Name	Type a name or description for the NDI™ panel.
ID	Type an ID for NDI™ panel.
Ndi Tag Attributes	
Host:Port (optional)	Specify the host name and port number for the source of the video, in the format Host:Port. For example, `myComputerName:5961`. **Tip**: Instead of specifying **Host:Port**, we recommend you select the source from the **Source Name** list.
Source Name	Select the video source (NDI channel) from the list.
Quality	Select either **low** or **high**.
Tally State	Specify whether you want the panel to report a tally status back to the source, and if so, what status to report. The available options are **Off**, **Preview**, **Program**, and **Both**.
Show Name	Show or hide the Name of the video display panel, as defined in the video display panel's **General Attributes**.
Show Source	Show or hide the **Source Name** or the host name and port number (**Host:Port**).
Show Timecode	Show or hide the video's timecode data.
Show Image Size	Show or hide the pixel size of the video display panel.
Fill	Specify how the video is positioned within the video display panel. Options are **fit**, **crop**, or **both**.
Sub Window (x,y,w,h)	Specify the origin position and dimensions of a dedicated video display panel.

Ogscript Attributes Tab

The **Ogscript Attributes** tab enables you to set the properties of named segments of ogScript code, and to create and edit the code. For more information about using ogScript, see "**Working with ogScript**" on page 5–170.

Attribute	Description
General Attributes	
Name	Type a name or description for the segment of ogScript.
ID	Type a scripting ID for the segment of ogScript.
Event Type(s)	If you want the ogScript to execute when a specific event occurs in relation to a certain UI element, select the event type from the list. You can select multiple event types.

Attribute	Description
Target	If you specified one or more event types for triggering execution, select the ID of the corresponding UI element. The ogScript is executed when one of the selected events occurs in relation to the selected target.
ogScript Content	
Visual button	The **Visual** button changes the **ogScript Content** area to show the Visual Logic editor, which enables you to created and edit ogScript code segments visually. For more information about the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9.
ogScript button	The **ogScript** button changes the **ogScript Content** area to show the manual **ogScript Editor** For more information about the manual **ogScript Editor**, see "**Editing ogScript Code**" on page 5–171.

Param Attributes Tab

The Param Attributes tab is used to configure the attributes of any item on the panel that contains a value, whether it is from a device or is a user-created parameter.

This is for both user-created items and for items that have been dragged and dropped into the canvas.

Attribute	Description
General Attributes	
Name	Type a name or description for the parameter.
ID	Type a scripting ID for the parameter. Scripting IDs are helpful because they provide a name for the parameter in the tree.
Parameter Settings	
Name (read-only)	The parameter selected for the CustomPanel.
OID (Object Identifier)	Select a parameter from the menu to display its information in the tab and to edit its properties. The currently available parameters are listed according to your current data source. Their assigned OID tags and are available for the selected CustomPanel either from: • an associated data source • as defined via one of the tools in the **Edit Mode** toolbar. • a component dragged and dropped from a device in the Tree View. Users will almost never use this field to modify the OID or change the parameter they are controlling. The more useful method is to drag new ones, delete old ones, etc.
Menu	This is a menu identifier.

Attribute	Description
Constraint	Use the menu to set limitations on the parameter values. These options depend on what has been selected as the **Type** in the Add/Edit Parameters dialog box. By default, these values are determined directly from the parameter that is referenced. However, these defaults can be overridden by selecting the **Override constraint** check box. Overriding the defaults does not modify the constraints for the parameter, only for this particular control in the custom panel. The possible options are as follows: • **Unconstrained** — select this when using a string, integer, or float type. No limitations are applied to the parameter value. For example, a text field parameter where a user can type any word or mix of letters and numbers. • **Range Constraint** — select this when using an integer or float type. Use this option to stipulate a range of numbers that the user can select from, such as a minimum and maximum value. • **Choice Constraint** — select this to provide a specific list of options that the user chooses from where each option is associated with a tag. • **Alarm Table** — select this to set constraint values for alarm states. • **String Choice** — select this when using a string type to provide a specific list of strings from which the user chooses. • **String Key/Value Constraint** — Select this option when using a string type to provide a specific list of options to the user. Each option (**Name**) is associated with a key (**Value**). The constraint choices are stored as key/value pairs. **Tip:** Constraint values are located in the **Constraint Value** field.
Precision	Type or select a value: • When used with numbers — This field defines the number of digits following the decimal point displayed for printed numbers. It applies mainly to floating point numbers. • When used with string arrays — This field defines the maximum number of bytes reserved for a single element in the array. If it is 0, the maximum number of bytes in a parameter value are shared arbitrarily amongst all elements in the array.
Constraint Value	Use the **Constraint Value** area to define the valid set of values for the parameter. For choice constraints, including string choice, do the following once for each valid value: • In the **Value** column, click **[insert value]**, type a valid value, and then press **Enter**. • In the **Name** column, type a name for the value. The name is associated with the parameter value, and appears on labels, etc. The **Name** column is available only if the parameter is a numeric type, or if the constraint type is **String Key/Value Constraint**. For range constraints: • In the **Minimum** box, type the lowest valid value. • In the **Maximum** box, type the highest valid value. • In the **Step Size** column, type the step size. For example, if valid values must be evenly divisible by 10, type 10. • If you plan to use a touch wheel in your panel, select the **Loop** check box. For alarm table constraints, do the following once for each valid value: • In the **Bit** box, type the bit value for the constraint value. For example, you may have two options; 1 and 0. You would have one row for each bit state. The bit must be unique for each constraint value. • In the **Severity** box, select a severity level. • In the **String** box, type the alarm message you want associated with this constraint value.

Attribute	Description
Widget Hint	Select the graphical display hint for the parameter using the menu. The options are as follows: • **Default** — displays the parameter as defined according to the data source. • **Read-only text** — displays the parameter as a status text field that can not be altered by the user. A border and background are automatically applied to the field. • **Label** — displays the parameter as a text field without a border or background. • **Text Entry** — displays the parameter as a single line text field that is editable by the user. The user must enter one of the values defined using the **Constraint Value** field. • **Multi-Line Text Entry** — displays the parameter as a text field with more than one line. The user must enter one of the values defined using the **Constraint Value** field. • **HTML Content** — displays the parameter as a field that requires the user to input HTML data. • **Editable Dropdown List** — displays the parameter as a menu that the user clicks to display an expanded list of values to choose from. These values are determined in the **Constraint Value** field. • **Alarm-Style Colored Dot** — displays the parameter as a status indicator, similar to an LED, that updates based on conditions defined in the **Constraint Value** field. Select the **Get value from parameter box** to disable the **Widget Hint** menu and use a graphical display hint from the parameter.
Force Read Only	Select this check box to use the parameter as read-only.
Keep returned elements together	Select the check box to keep parameters from devices together in the layout of radio buttons, toggle buttons, etc.
Current Value (read-only)	Displays the device that the parameter is used for.
Tasks	
Trigger ID	If you want the tasks to run when a GPI listener receives a certain trigger message, type the trigger ID. For more information, see "**Creating a GPI Trigger**" on page 5–116.
Tasks List	This list displays the tasks that have been associated with the parameter. When the parameter value changes, the tasks are performed in the order listed. Use the buttons to arrange the order: • **First** — click to move a selected task to the top of the **Tasks List**. • **Move Up** — click to move a selected task up one position in the **Tasks List**. • **Move Down** — click to move a selected task down one position in the **Tasks List**. • **Last** — click to move a selected task to the bottom of the **Tasks List**.
Add	Click the button to open the **Add Task** dialog box and create tasks for the parameter. The tasks are added to the **Tasks List**.
Edit	Click the button to open the **Edit Task** dialog box and edit a selected task from the **Tasks List**.
Delete	Click the button to delete a selected task from the **Tasks List**.
Run Tasks Onload	When selected, the tasks in the task list run when the parameter is loaded.

Position/Stretch Attributes Tab

Position/Stretch Attributes apply to the following types of components:

- "**Basic Canvases**" on page 5–26
- "**Tab Groups**" on page 5–29
- "**Image Canvases**" on page 5–71
- "**Labels**" on page 5–82
- "**Links to Device Editors or Other CustomPanels**" on page 5–83
- "**Buttons**" on page 5–84
- "**NDI Video Panels**" on page 5–88
- "**Web Browser Instances**" on page 5–87

Attribute	Description
Position/Stretch Attributes	
Anchor Points	Use the menu to specify the location and sizing of the component on the canvas should the panel be resized: The component remains fixed to the selected location if the panel is resized. For detailed information on Anchor Points, refer to refer to the section "Anchor Points and Background Alignment" on page 5-151.
Top (pixels)	Type or select a number of pixels to offset the component from the top margins of the panel.
Left (pixels)	Type or select a number of pixels to offset the component from the left side margins of the panel.
Bottom (pixels)	Type or select a number of pixels to offset the component from the bottom margins of the panel.
Right (pixels)	Type or select a number of pixels to offset the component from the right side margins of the panel.
Width (pixels)	Enter or select a fixed width in pixels for the component. The component retains these dimensions if the panel is resized. Select the **Use default** check box to use the default width for the component.
Height (pixels)	Enter or select a fixed height in pixels for the component. The component retains these dimensions if the panel is resized. Select the **Use default** check box to use the default height for the component.

Simplegrid Attributes Tab

Simplegrid Attributes apply to the following types of components:

- "**Simple Grids**" on page 5–76

Attribute	Description
General Attributes	
Name	Type a name or description for the simplegrid component.
ID	Type a scripting ID for the simplegrid component.
Data Source/Device Control	

Attribute	Description
openGear or XPression DataLinq or NK Series Routers	Select a device for context: • **openGear or XPression DataLinq** — this option opens the **Select Device for Context** dialog box, where you can select an openGear card or XPression DataLinq XML file to associate with the simplegrid. **NK Series Routers** — this option opens the **Select IPS** dialog box, where you can select a router node. **Note:** If both boxes are clear, the table uses the surrounding context.
Rows	If you want to specify the maximum number of rows in the simple grid, select **Override Default** and then specify the number of rows. By default there is only one row. The grid is divided into as many columns as the number of components you insert.
Columns	If you want to specify the number of columns in the simple grid, select **Override Default** and then specify the number of columns. **Note:** If the simple grid contains more components than there are cells to hold them, additional columns are created.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease.
Scrolling	Click the menu and select an option for adding scroll bars to the simplegrid component: • **True** — use vertical and/or horizontal scroll bars according to the size of the simplegrid component. • **False** — do not use scroll bars for the simplegrid component. • **Vertical** — add a vertical scroll bar to the simplegrid component. • **Horizontal** — add a horizontal scroll bar to the simplegrid component. • **Always** — always use vertical and horizontal scroll bars for the simplegrid component.

Source Tab

In the Edit Component window, the Source tab is present for every component. It shows the underlying XML source code that defines the selected component. You can edit the XML code directly in the Source tab, or paste XML code into it. To view or edit the XML source for the entire CustomPanel, select the top element in the component tree and then view its Source tab.

Tip: To quickly view the source for a component, press and hold the **Shift** key, and double-click. The **View Source** window appears. The XML source cannot be edited in this window.

Editor Feature	Description
Line Wrap	Select the check box to enable line wrapping, so all the code is visible without scrolling horizontally.

Editor Feature	Description
ogScript Code	When selected, the code display is optimized for editing ogScript. When cleared, the code display is optimized for editing OGLML (XML). **Tip:** Alternatively, you can edit ogScript in the manual **ogScript Editor** or in the Visual Logic editor. For more information, see "**Working with ogScript**" on page 5–170.
Search	If you want to find a particular string within your code, type the string in the **Search** box, and click **Find Next**. **Tips:** • To immediately find the same string again, press **Enter**. • To move the cursor into the **Search** box, press **Ctrl+f**.

Split Attributes Tab

Split Attributes apply to the following types of components:

- "**Split Panels**" on page 5–72

Attribute	Description
	General Attributes
Name	Type a name or description for the split panel component.
ID	Type a scripting ID for the split panel component.
	Data Source/Device Control
openGear or XPression DataLinq or NK Series Routers	Select a device for context: • **openGear or XPression DataLinq** — this option opens the **Select Device for Context** dialog box, where you can select an openGear card or XPression DataLinq XML file to associate with the split panel. **NK Series Routers** — this option opens the **Select IPS** dialog box, where you can select a router node. **Note:** If both boxes are clear, the split panel uses the surrounding context.
XPression DashBoard Linq Port	If you want to stream XML data to an XPression system directly without sharing an XML file, specify the port to use on the DashBoard computer, and select **Enable Streaming**. **Note:** You must also set up a DashBoard DataLinq source on the XPression DataLinq server. The DashBoard Linq must point to the IP address and port of the DashBoard computer that hosts the CustomPanel from which you want to stream data.
NK Series Routers	Select the check box to associate the component with NK Series routers for device control.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease.
Scrolling	Click the menu and select an option for adding scroll bars to the split panel: • **True** — use vertical and/or horizontal scroll bars according to the size of the split panel. • **False** — do not use scroll bars for the split panel. • **Vertical** — add a vertical scroll bar to the split panel. • **Horizontal** — add a horizontal scroll bar to the split panel. • **Always** — always use vertical and horizontal scroll bars for the split panel.

Statuscombo Attributes Tab

Statuscombo Attributes apply to devices in the component tree with status dot indicators. Statuscombo nodes appear in the component tree if your panel includes devices that include a status indicator.

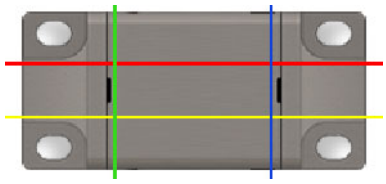
Attribute	Description
General Attributes	
Name	Type a name or description for the device.
ID	Type a scripting ID for the device.

Style Tab

In the Edit Component window, the Style tab is present for every component.

If you are setting the style for a checkbox button or toggle button, you can specify separate styles for each button state. The Style tab has a sub-tab for each state (Default, Toggle On, Toggle Off).

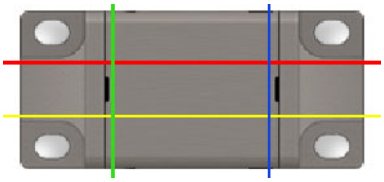
Attribute	Description
Background	
Background (URL)	Type a URL or file path to an image to use as the background for the component, or click **Browse** and use the **Open** dialog box to locate a file.
Background (Use OGP)	Select **Override Default** and then specify an external object ID that provides an image to use as the background for the component. If you are using an OGP-based device as the data source for your panel, you can access external objects to serve-up images for use here (if the device has made them available). External objects are a special data type available on OGP-based devices.
Background Alignment	Use the menu to specify where to position the background of the component in relation to the component face: The component remains fixed to the selected location if the panel is resized. For detailed information on Anchor Points and Background Alignment, refer to the section “Anchor Points and Background Alignment” on page 5-151.
Background Color	Sets the color of the background of the object. Click the text box and then use the color picker tool to specify a color. On Windows devices, you can also click the **Eyedropper** icon to select a color from any visible screen on your computer. Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.

Attribute	Description
Background Fill	Click the list and select a fill mode for the background: • **Crop** — crop the image to fit the canvas. • **None** — remove the image from the canvas. • **Horizontal** — stretch the image horizontally on the canvas according to the **Background Alignment** menu. For example, if the **Background Alignment** is set to **Center**, the image will be stretched horizontally in the canvas and centered on the canvas. • **Vertical** — stretch the image vertically on the canvas according to the **Background Alignment** menu. For example, if the **Background Alignment** is set to **Center**, the image will be stretched vertically in the canvas and centered on the canvas. • **Shrink** — scale the image to fit the canvas area. • **Fit** — fit the image to the canvas. • **Tile** — repeat the image in a grid pattern on the canvas. • **Both** — resize the image to fit the canvas. • **Paint9** — position the image according to nine-box layout within the canvas.
Background Insets	Type a number in pixels for the background inset. Insets are groups of four numbers (in pixels): top, left, bottom, right. The Background Insets are used to define the corners of a 9-box background. A 9-box is when the corners of the box are a fixed size, the sides have a fixed width, the top and bottom have a fixed height, and the center grows. For example, for the following image:  • top = red • left = green • bottom = yellow • right = blue The image is 342 x 155 pixels. The left is 95 pixels and the top is 50 pixels.
Focus/Active Overlay (URL)	Specify an image to layer on top of the component (usually a button) whenever it has focus. Type or browse to specify the URL of the image.
Look	Click the list and select an appearance style for the background. Options include **Flat**, **Normal**, **Label**, and **Round**.
Mask (URL)	Specify an image to use as the alpha component for the shape of a button. Type or browse to specify the URL of the image.
Nudge	Adjusts the position of the text, icon, and background. Accepts an **X, Y** offset value, in pixels. The **X** axis is horizontal, and the **Y** axis is vertical. Positive values are right/down, and negative values are left/up. For example, an offest value of **10, -20** moves the item ten pixels to the right and twenty pixels upwards.
Remove Background Image	Select the check box to remove the background image from the component.

Attribute	Description
Remove Focus/Active Overlay	Normally, DashBoard properties remain as set unless new values are applied. The **Focus/Active Overlay** is an image that is layered on top of the component (usually a button) when that component has focus. The **Remove Focus/Active Overlay** check box enables you to remove the overlay image without replacing it with another image. To remove the **Focus/Active Overlay** image without replacing it, select the **Remove Focus/Active Overlay** check box.
Remove Mask Image	Normally, DashBoard properties remain as set unless new values are applied. The **Remove Mask Image** check box enables you to remove the mask image without replacing it with another image. To remove the mask image without replacing it, select the **Remove Mask Image** check box.
Border	
Border Color	Sets the color of the border of the object. Click the text box and then use the color picker tool to specify a color. On Windows devices, you can also click the **Eyedropper** icon to select a color from any visible screen on your computer. Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.
Border Style	Click the menu and select a style for the canvas border: • **Shadow** — use a dropdown shadow of the edges of the canvas as the border. • **None** — do not use a border. • **Etched** — use an engraved appearance as the border for the edges of the canvas. The border style is mutually exclusive with color.
Grid Color	Sets the color of the lines between cells in a table. Click the text box and then use the color picker tool to specify a color. On Windows devices, you can also click the **Eyedropper** icon to select a color from any visible screen on your computer. Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.
Font/Text Style	
Font	Click the menu and select a font: • **Mono** — use a typewriter style font. • **Default** — use the default font. The default font is Arial Bold. • **Bold** — use a bold font.
Font Size	Click the menu and select a font size for the text ranging from **Smallest** to **Biggest**, or enter a font point size in the box. The text will be truncated if it does not fit on the canvas area.

Attribute	Description
Foreground Color	Sets the color of the text. Click the text box and then use the color picker tool to specify a color. On Windows devices, you can also click the **Eyedropper** icon to select a color from any visible screen on your computer. Note that the **Eyedropper** tool is disabled if the scale does not match for all displays being used. If the **Eyedropper** icon does not appear on your Windows device, go to **Windows Settings** > **System** > **Display** and ensure all displays have the same scale.
Text Alignment	Click the menu and select a position for the alignment of the text on the component canvas: • select the top option to position the text at the top of the component canvas. • select the left option to position the text to the left side of the component canvas. • select the center option to position the text in the center of the component canvas. • select the right option to position the text to the right side of the component canvas. • select the bottom option to position the text at the bottom of the component canvas.
Text Outline	Sets the color of the text outline Click the text box and then use the color picker tool to specify a color.
Icons	
Alternative Image (URL)	Specifies an icon image to use instead of the usual one if the NDI video feed fails to load or the connection to the NDI video feed is lost. This enables the icon to display an “error” image to inform the user of the problem. This property is used only in conjunction with NDI tags. Type or browse to specify the URL of the image.
Drag Icon (URL)	Type or select the URL of a web page or a file to open when the user drags this icon to the editor area or selects the node and clicks **Open**. Dragging only applies if your control provides drag contents. Select the check box to remove the drag icon.
Drag Icon (Use OGP)	Select **Override Default** and then specify an external object ID that provides a web page or a file to open when the user drags this icon to the editor area or selects the node and clicks **Open**. If you are using an OGP-based device as the data source for your panel, you can access external objects to serve-up content for use here (if the device has made it available). External objects are a special data type available on OGP-based devices.
Drag Icon Remove	Normally, DashBoard properties remain as set unless new values are applied. The **Drag Icon Remove** check box enables you to remove the Drag Icon web page or file without replacing it with another. To remove the drag icon file or web page without replacing it, select the **Drag Icon Remove** check box.
Hover Icon (URL)	Type or select the URL of a web page or a file to open when the user hovers over this icon or selects the node and clicks **Open**. The Hover Icon is only applicable to buttons. Select the check box to remove the hover icon.

Attribute	Description
Hover Icon (Use OGP)	Select **Override Default** and then specify an external object ID that provides a web page or a file to open when the user hovers over this icon or selects the node and clicks **Open**. If you are using an OGP-based device as the data source for your panel, you can access external objects to serve-up content for use here (if the device has made it available). External objects are a special data type available on OGP-based devices.
Hover Icon Remove	Normally, DashBoard properties remain as set unless new values are applied. The **Hover Icon Remove** check box enables you to remove the Hover Icon web page or file without replacing it. To remove the Hover Icon web page or image without replacing it, select the **Hover Icon Remove** check box.
Icon (URL)	Type or select the URL of an image to use as the icon for the node in the DashBoard tree view.
Icon (Use OGP)	Select **Override Default** and then specify an external object ID that provides an image to use as the icon for the node in the DashBoard tree view. If you are using an OGP-based device as the data source for your panel, you can access external objects to serve-up images for use here (if the device has made them available). External objects are a special data type available on OGP-based devices.
Icon Remove	Normally, DashBoard properties remain as set unless new values are applied. The **Icon Remove** check box enables you to remove the icon image without replacing it with another image. To remove the icon image without replacing it, select the **Remove Mask Image** check box.
Other	
Defined Style	Click the menu and select a predefined style for the component. To create a style definition, select a container object in the Component Tree, and then click the **<style/>** button. Change settings on the **Style Attributes** tab to define the style, and then click **Apply Changes**. **Tip:** A style preset is available only to objects within its parent container object. To create a set of style presets for the entire panel, create them immediately below the top level abs object. **Tip:** Predefined style settings can be overridden individually for a given object.

Attribute	Description
Insets	Type an inset number in pixels for the defined style. Insets are groups of four numbers (in pixels): top, left, bottom, right. The Insets are used to define the corners of a 9-box background. A 9-box is when the corners of the box are a fixed size, the sides have a fixed width, the top and bottom have a fixed height, and the center grows. They are used to define the margins around the text/icon of a button widget. For example, for the following image:  • top = red • left = green • bottom = yellow • right = blue The image is 342 x 155 pixels. The left is 95 pixels and the top is 50 pixels.
Tooltip	Type a tip or any relevant information to display when the cursor is hovered over the component.

Tab Attributes Tab

Tab Attributes apply to the following types of components:

- "**Tab Groups**" on page 5–29

Attribute	Description
General Attributes	
Name	Type a name or description for the tab component.
ID	Type a scripting ID for the tab component.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease.
Scrolling	Click the menu and select an option for adding scroll bars to the tab component: • **True** — use vertical and/or horizontal scroll bars according to the size of the tab component. • **False** — do not use scroll bars for the tab component. • **Vertical** — add a vertical scroll bar to the tab component. • **Horizontal** — add a horizontal scroll bar to the tab component. • **Always** — always use vertical and horizontal scroll bars for the tab component.
Data Source/Device Control	

Attribute	Description
openGear or XPression DataLinq or NK Series Routers	Select a device for context: • **openGear or XPression DataLinq** — this option opens the **Select Device for Context** dialog box, where you can select an openGear card or XPression DataLinq XML file to associate with the tab. **NK Series Routers** — this option opens the **Select IPS** dialog box, where you can select a router node. **Note:** If both boxes are clear, the table uses the surrounding context.
XPression DashBoard Linq Port	If you want to stream XML data to an XPression system directly without sharing an XML file, specify the port to use on the DashBoard computer, and select **Enable Streaming**. **Note:** You must also set up a DashBoard DataLinq source on the XPression DataLinq server. The DashBoard Linq must point to the IP address and port of the DashBoard computer that hosts the CustomPanel from which you want to stream data.
Advanced Tab Settings	
Tab Placement	Click the menu and select a position for the placement of the tabs on the canvas. The tabs are placed on top of each other without any visual tabs, allowing you to create links to each tab and flip between them.
Remote Task Triggering	
Internal RossTalk GPI Listener	Specifies the TCP/IP port to monitor for RossTalk commands for this container object and its children. RossTalk GPI commands are formatted as **`GPI [trigger]:[state]`**. This setting is available only if this container object has its context attribute set to **opengear** (**`contexttype=opengear`**).
VDCP Task Server Port	Specifies the TCP/IP port to use for publishing all of the current object's tasks with trigger IDs as VDCP clips. Tasks can be listed, cued, and played through devices capable of VDCP communication over TCP/IP. This setting is available only if this container object has its context attribute set to **opengear** (**`contexttype=opengear`**).
HTTP Trigger Server Port	Tasks assigned to this object with trigger IDs are published to a web page hosted at the specified port (**http://localhost:[port]/**). Tasks can be triggered by going to **http://localhost:[port]/[trigger ID]/[State]**. This setting is available only if this container object has its context attribute set to **opengear** (**`contexttype=opengear`**).

Table Attributes Tab

Table Attributes apply to the following types of components:

- "**Tables**" on page 5–74

Attribute	Description
General Attributes	
Name	Type a name or description for the table component.
ID	Type a scripting ID for the table component.
Data Source/Device Control	

Attribute	Description
openGear or XPression DataLinq or NK Series Routers	Select a device for context: • **openGear or XPression DataLinq** — this option opens the **Select Device for Context** dialog box, where you can select an openGear card or XPression DataLinq XML file to associate with the table. **NK Series Routers** — this option opens the **Select IPS** dialog box, where you can select a router node. **Note:** If both boxes are clear, the table uses the surrounding context.
XPression DashBoard Linq Port	If you want to stream XML data to an XPression system directly without sharing an XML file, specify the port to use on the DashBoard computer, and select **Enable Streaming**. **Note:** You must also set up a DashBoard DataLinq source on the XPression DataLinq server. The DashBoard Linq must point to the IP address and port of the DashBoard computer that hosts the CustomPanel from which you want to stream data.
Lock Contents (widget root)	Select this check box to disable the selection of sub-elements in the canvas. This allows for easy selection, copy, and paste of a component. Elements under the widget root can only be selected by selecting the item node in the tree. Users can not add to, or directly modify, the contents of a widget, move a widget, or resize a widget. This allows the block of code for the widget to be self-contained and able to be dragged and dropped elsewhere with ease.
Scrolling	Click the menu and select an option for adding scroll bars to the table component: • **True** — use vertical and/or horizontal scroll bars according to the size of the table component. • **False** — do not use scroll bars for the table component. • **Vertical** — add a vertical scroll bar to the table component. • **Horizontal** — add a horizontal scroll bar to the table component. • **Always** — always use vertical and horizontal scroll bars for the table component.

Table Cell Attributes Tab

Table Cell Attributes apply to the following types of components:

- "**Tables**" on page 5–74

Table cell attributes can also apply to buttons if a table of buttons is created:

- "**Buttons**" on page 5–84

Attribute	Description
	Table Cell Alignment
Alignment	If a table cell is not set to fill both and the control is smaller than the cell, this controls where the cell's control is anchored in the cell. Use the menu to specify where to position the table cell: The table cell remains fixed to the selected location if the table is resized.
Fill	Click the menu and select a fill mode for the table cell: • **None** — remove the image from the table cell. • **Horizontal** — stretch the image horizontally in the table cell according to the **Alignment** menu. For example, if the **Alignment** is set to **Center**, the image will be stretched horizontally in the table cell and centered in the table cell. • **Vertical** — stretch the image vertically in the table cell according to the **Alignment** menu. For example, if the **Alignment** is set to **Center**, the image will be stretched vertically in the table cell and centered in the table cell. • **Both** — resize the image to fit the table cell.
Horizontal Weight (%)	Use the slide bar to determine the amount of horizontal space in the column for the table cell. The size of a cell is calculated by comparing the relative values of the cells across a column. DashBoard will use the largest value in the column. If you want to reduce the column size, the weight of all cells in the column need to be shrunk. Users might find it convenient to have the values across a column add to 100%.
Vertical Weight (%)	Use the slide bar to determine the amount of vertical space in the row for the table cell.The size of a cell is calculated by comparing the relative values of the cells across a row. DashBoard will use the largest value in the row. If you want to reduce the row size, the weight of all cells in the row need to be shrunk. Users might find it convenient to have the values across a row add to 100%.
Colspan	Type or select an amount of column cells for the cell to span. Select the **Default** check box to use the default column span.
Rowspan	Type or select an amount of row cells for the cell to span. Select the **Default** check box to use the default row span.
Width	Type or select an amount of pixels for the width of the cell. Select the **Default** check box to use the default cell width. The default is 1.
Height	Type or select an amount of pixels for the height of the cell. Select the **Default** check box to use the default cell height. The default is 1.

Attribute	Description
Insets	Type an inset number for the table cell Insets are groups of four numbers: top, left, bottom, right. They are used to define the margins around the text/icon of a button widget.
Advanced Attributes	
Orientation	If multiple elements are returned, the selected orientation determines if the elements are placed in rows (vertical) or columns (horizontal). Click the menu and select an orientation: • **Horizontal** — select to orientate the table cell horizontally. Use the **Expected # Elements** to configure the number of elements to span. • **Vertical** — select to orientate the table cell vertically. Use the **Expected # Elements** to configure the number of elements to span.
Expected # Elements	Enter an amount of elements to fill the table if multiple elements are returned. If a small number of elements, or none, are returned, this number of elements will create empty cells in order to maintain the table structure.

Tag Attributes Tab

Tag Attributes apply to the following types of components:

- "**Basic Canvases**" on page 5–26
- "**Tab Groups**" on page 5–29
- "**Image Canvases**" on page 5–71
- "**Split Panels**" on page 5–72
- "**Tables**" on page 5–74
- "**Labels**" on page 5–82
- "**Links to Device Editors or Other CustomPanels**" on page 5–83
- "**Buttons**" on page 5–84
- "**Web Browser Instances**" on page 5–87

Attribute	Description
External Link	
All Connections	Select the radio button to specify a device on the network for the link. Use the menu to select a device from the **Basic Tree View**.
File Navigator	Select the radio button to specify a *.grid file for the link. Use the menu to select a file from the **File Navigator**.
Local File	Select the radio button to specify a file from a local computer or a server for the link. Click **Browse** to use the **Open** dialog box to select a file from a location on a local computer or sever.
Button Style	Select a method for displaying the link for the component: • **Button** — select to use a button component as the style for the link. • **Label** — select to use a label component as the style for the link.
General Attributes	
Name	Type a name or description for the link.
ID	Type a scripting ID for the link.

Task Attributes Tab

Task Attributes apply to **task** components.

Attribute	Description
General Attributes	
Name	Type a name or description for the task.
ID	Type a scripting ID for the task.
ogScript Content	
Visual button	The **Visual** button changes the **ogScript Content** area to show the Visual Logic editor, which enables you to created and edit ogScript code segments visually. For more information about the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9.
ogScript button	The **ogScript** button changes the **ogScript Content** area to show the manual **ogScript Editor**. For more information about the manual **ogScript Editor**, see "**Editing ogScript Code**" on page 5–171.

Timer Attributes Tab

The Timer Attributes apply to Timer widgets:

- "**Timers**" on page 5–104

Attribute	Description
General Attributes	
Name	Type a name or description for the timer.
ID	Type a scripting ID for the timer. The default is Timer ID.
Timer Properties	
Timer ID	Type a name for the timer.
Display	Specify the time format for the timer: • Use the list to select the format. • Type the format and then press **Enter**. To view descriptions of the time formatting symbols, click beside the **Display** list.
Time Source	Select a radio button to specify the type of timer to use: • **Self** — starts and stops manually, and is independent of any other timer. • **Simple clock** — matches the time clock of the local computer. • **Time Until** — counts down the amount of time remaining until a future date and time. • **Other Timer** — links this timer to another timer. Starting or stopping the linked timer also starts or stops this timer.
Start	Specify the timer value to begin counting from. Only **Self** timers use this value.
Stop	Specify the timer value to stop counting at. Only **Self** and **Time Until** timers use this value.
Repeat Rate	In the **Every** box, enter or select an amount of time to control how often the timer tasks are run. Use the list next to the **Every** box to select a unit of time for the repeat rate. For more information about the repeat rate, click beside the list used to select a unit of time.

Attribute	Description
Tasks	
Tasks List	This list displays the tasks that have been added to a label. Tasks are commands or controls assigned to the component. Use the buttons to arrange the tasks: • **First** — click to move a selected task to the top of the **Tasks List**. • **Move Up** — click to move a selected task up one position in the **Tasks List**. • **Move Down** — click to move a selected task down one position in the **Tasks List**. • **Last** — click to move a selected task to the bottom of the **Tasks List**.
Add	Click the button to open the **Add Task** dialog box and create tasks for the timer. The tasks are added to the **Tasks List**.
Edit	Click the button to open the **Edit Task** dialog box and edit a selected task from the **Tasks List**.
Delete	Click the button to delete a selected task from the **Tasks List**.

Timertask Attributes Tab

Timertask Attributes apply to the following types of components:

- "**Timers**" on page 5–104

Attribute	Description
General Attributes	
Name	Type a name or description for the timer task.
ID	Type a scripting ID for the timer task.
ogScript Content	
Visual button	The **Visual** button changes the **ogScript Content** area to show the Visual Logic editor, which enables you to created and edit ogScript code segments visually. For more information about the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9.
ogScript button	The **ogScript** button changes the **ogScript Content** area to show the manual **ogScript Editor**. For more information about the **ogScript Editor**, see "**Editing ogScript Code**" on page 5–171.

Tr Attributes Tab

TableRow (Tr) Attributes apply to the following types of components:

- "**Tables**" on page 5–74

Attribute	Description
General Attributes	
Name	Type a name or description for the table row.
ID	Type a scripting ID for the table row.

TreeElement Attributes Tab

TreeElement Attributes apply to Statuscombo attributes.

Attribute	Description
General Attributes	
Name	Type a name or description for the link.
ID	Type a scripting ID for the link.

Webcam Attributes Tab

The **Webcam Attributes** tab enables you to set properties related to displaying webcam video feeds within a CustomPanel. For more information about adding webcam video feeds, see "**Webcam Video Feeds**" on page 5–90.

Attribute	Description
General Attributes	
Name	Type a name or description for the webcam video feed panel.
ID	Type an ID for webcam video feed panel.
Webcam Tag Attributes	
Source Name	Select the video source (webcam feed) from the list.
Resolution	Select the resolution for the webcam feed. Options are dependent on the source selected. Note: On Linux devices, not all supported resolutions are displayed. Users can define a custom resolution in the source code of the CustomPanel, and DashBoard will attempt to apply that resolution. If it is supported, it will show as "Best match." If the resolution is not supported, DashBoard will default to the highest available resolution. Custom resolutions are not supported on Windows devices.
Fill Mode	Specify how the video is positioned within the video display panel. Options are **None**, **Fill**, and **Fit**.
Mirror	Select to have the webcam feed mirrored within the video display panel.

Widget Attributes Tab

Widget Attributes apply to pre-built widgets added to a CustomPanel.

Attribute	Description
General Attributes	
Name	Type the name of the widget.
ID	Type a scripting ID for the widget.
Other attributes	The widget may feature any number of additional attributes you can set to affect the widget's behavior.

Anchor Points and Background Alignment

Anchor Points and Background Alignment determine how an object moves if the user interface is resized for different monitor and window sizes. They are relative to the container in which they are located (for example, a tab, a split pane, etc.). In the Component Tree, they are at very least in the top level of the canvas.

Anchor Points or Background Alignment can be applied in three different ways:

- Anchoring to a corner of the canvas

Select the top left, top right, bottom left, or bottom right quadrant from the Anchor Points/Background Alignment menu to anchor the component to a corner of the canvas represented by the selected corner quadrant in the menu. When the canvas is expanded or shrunk, the component will remain a fixed distance from the corner edges of the canvas according to the set pixel amounts for the selected quadrant in the menu:

› **top** and **left** for the top-left quadrant

The component will be anchored to the top-left of the canvas and use a fixed width and height.

› **top** and **right** for the top-right quadrant

The component will be anchored to the top-right of the canvas and use a fixed width and height.

› **left** and **bottom** for the bottom-left quadrant

The component will be anchored to the bottom-left of the canvas and use a fixed width and height.

› **bottom** and **right** for the bottom-right quadrant

The component will be anchored to the bottom-right of the canvas and use a fixed width and height.

For example, the basic canvas component in **Figure 5.37** is anchored to the top left corner of the canvas.

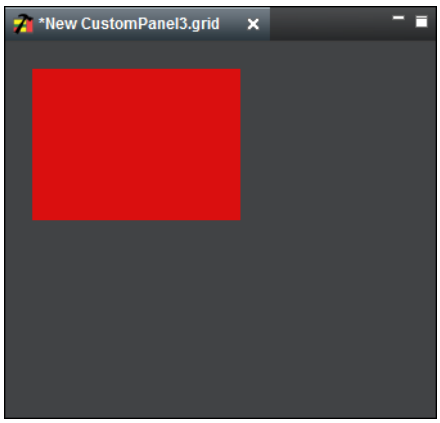


Figure 5.37 *- Component anchored to corner of panel*

If the panel is resized, the basic canvas component remains in the same position from the top left edges of the panel and remains the same dimensions as the panel is expanded, as demonstrated in **Figure 5.38**.

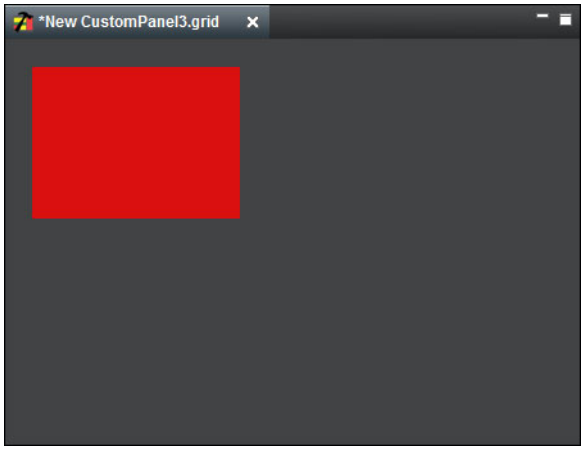
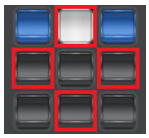


Figure 5.38 *- Component anchored to corner while panel is expanded*

- Anchoring to an edge of the canvas



Select the top, right, bottom, or left quadrant from the Anchor Points/Background Alignment menu to anchor the component to an edge of the canvas represented by the selected edge quadrant in the menu. Depending on the selected quadrant, when the canvas is expanded or shrunk, the component will remain a fixed distance from the top, right, bottom, or left edges of the canvas according to the set pixel amounts, and will expand or shrink:

› **top**, **left**, and **right** for the top quadrant

  The component will be anchored to the top side of the canvas. Adjust the component horizontally with a fixed offset from the left and right edges of the canvas while using a fixed a height.

› **top**, **bottom**, and **right** for the right quadrant

  The component will be anchored to the right side of the canvas. Adjust the component vertically with a fixed offset from the top and bottom edges of the canvas while using a fixed a width.

› **left**, **bottom**, and **right** for the bottom edge quadrant

  The component will be anchored to the bottom side of the canvas. Adjust the component horizontally with a fixed offset from the left and right edges of the canvas while using a fixed a height.

› **top**, **left**, and **bottom** for the bottom right quadrant

The component will be anchored to the left side of the canvas. Adjust the component vertically with a fixed offset from the top and bottom edges of the canvas while using a fixed a width.

For example, the basic canvas component in **Figure 5.39** is anchored to the edge of the canvas.

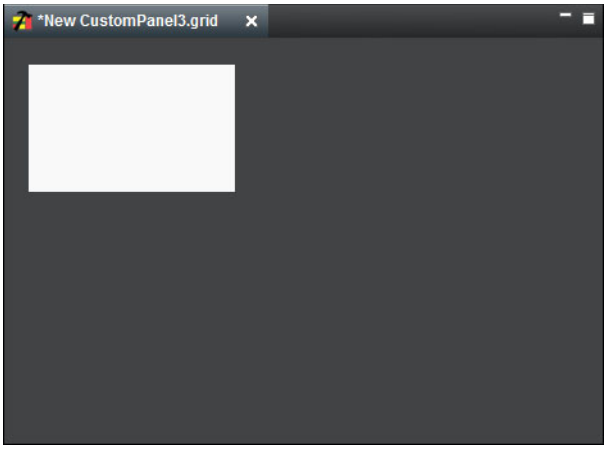


Figure 5.39 *- Component anchored to edge of panel*

If the panel is shrunk in size, the basic canvas component remains the same distance from the left and right edges of the panel while its size is shrunk horizontally but not vertically, as demonstrated in **Figure 5.40**.

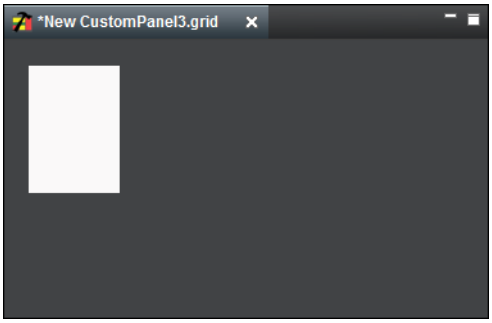
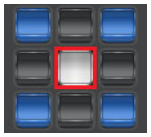


Figure 5.40 *- Component anchored to edge while panel is expanded*

- Anchoring to the center of the canvas



Select the center quadrant from the Anchor Points/Background Alignment menu to anchor the component to all four corners of the canvas. When the canvas is expanded or shrunk, the component will remain a fixed distance from the edges and corners of the canvas according to the set pixel amounts for the top, left, bottom, and right. If the canvas size is adjusted vertically or horizontally, the component height and width size will adjust accordingly while maintaining fixed offsets from the top, left, bottom, and right.

For example, the basic canvas component in **Figure 5.41** is anchored to the center of the canvas.

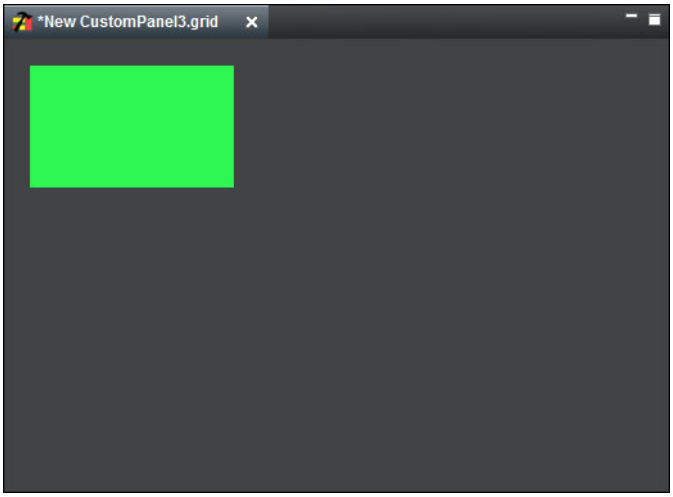


Figure 5.41 *- Component anchored to center of panel*

If the panel is resized, the basic canvas component remains in the same position from all edges of the panel but shrinks horizontally and vertically as the panel is shrunk, as demonstrated in **Figure 5.42**.

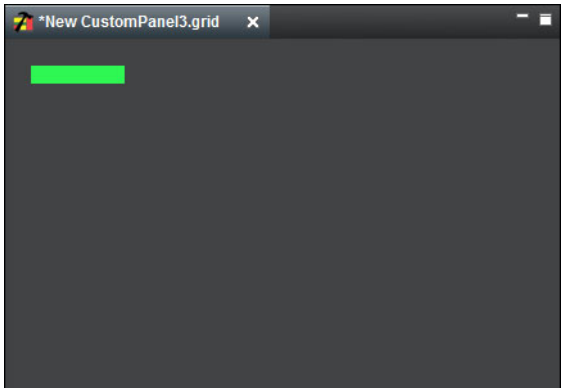


Figure 5.42 *- Component anchored to center while panel is expanded*

Deleting a Component

When editing a container such as a Table, Simple Grid, or Wrap Content, selecting a component and pressing the Delete button will cause all components after it to shift over to fill its place. By completing the steps in the following procedure, you can delete a component and replace it with a Dropspot, preventing the other components from shifting their positions. This Dropspot will display as a blank area when not in PanelBuilder Edit Mode until a new component is put in its place. This process is shown in **Figure 5.43**. To replace a Dropspot with a new component, select the desired component from the Edit Mode toolbar, and then select the Dropspot.

Note that this function does not work with all container types (such as <abs/>).

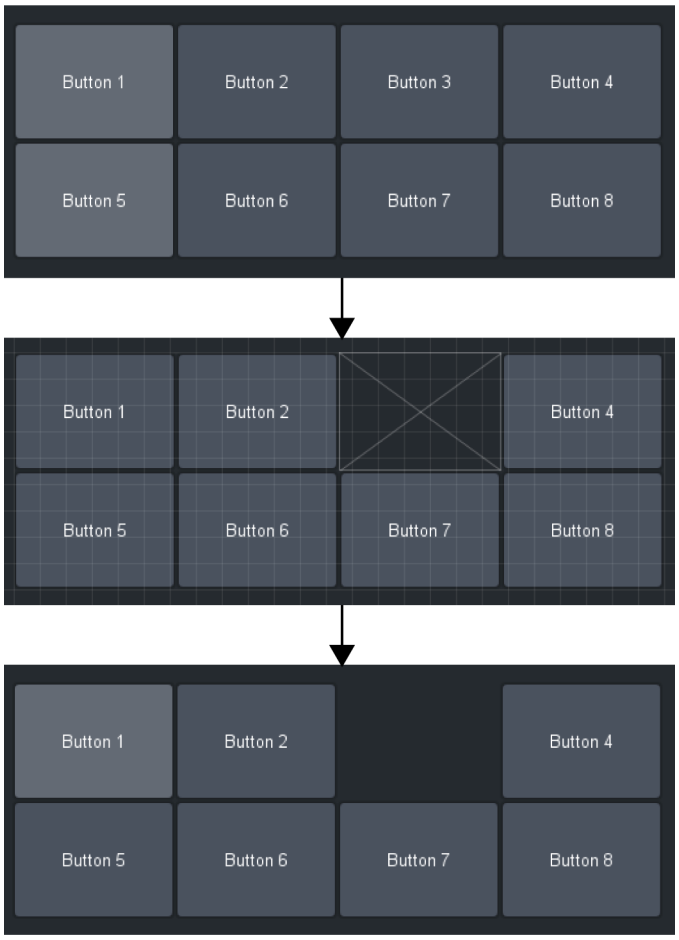


Figure 5.43 *- Example of using Shift+Delete to replace a component with a Dropspot*

To delete a component and replace it with a Dropspot

1. Select the

Select & Drag button from the **Edit Mode** toolbar.
2. Select the component that you would like to delete and replace with a Dropspot.

   The selected component is highlighted with a green border.
3. Press **Shift**+**Delete.**

   The selected component is deleted and replaced with a Dropspot.

Locking Panel Proportions

By locking or unlocking proportions, you can control how a CustomPanel is displayed when the DashBoard window is resized.

To lock or unlock proportions

- While in edit mode, right-click an empty space on the panel and then select the available option:
  - **Lock all proportions** — Components in the panel automatically resize to fit the new size and shape of the window.

    This option is useful for accommodating different screen sizes and resolutions.
  - **Unlock all proportions** — Components maintain their current sizes and shapes.

This option is useful for ensuring a consistent visual display.

The DashBoard Memory Manager Indicator

The Memory Manager (**Figure 5.44**) displays the current memory usage of the DashBoard instance that you are running and when memory is low it takes actions to free up memory by unloading inactive tabs, as shown in **Figure 5.45**. Unloaded tabs are indicated by a caret symbol in front of the name, for example "^ **CustomPanel01.grid**". The Memory Manager will not unload active CustomPanels or active tabs. If you have a panel that runs tasks in the background (listeners, GPI triggers, timers, and etc), you may not want DashBoard to unload your panel.You can use the **`keepalive`** flag in the top-level abs to indicate that this panel should not be unloaded. The memory manager is also available as a widget that can be added directly to a panel.

Note: The memory usage shown is approximate and subject to Java's garbage collection schedule, and it may take a few moments for changes in memory consumption to be reflected in the status.

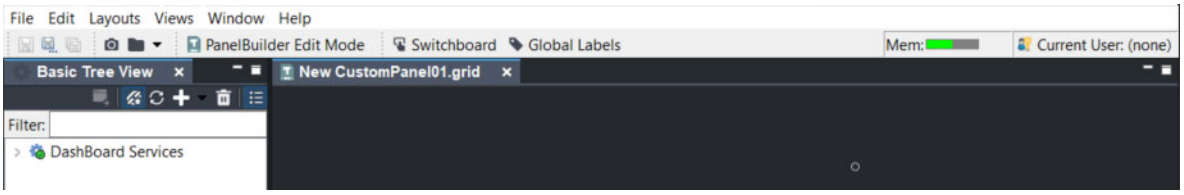


Figure 5.44 *Memory Manager with a healthy status (green).*

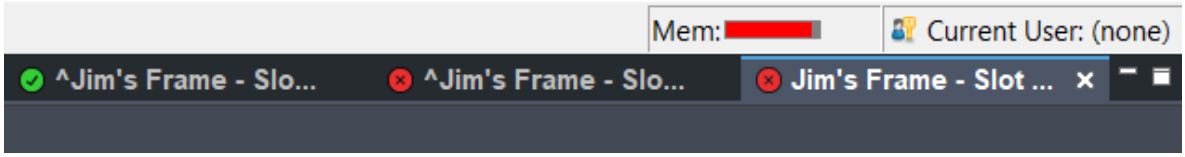


Figure 5.45 *Two frames that are shown in unloaded state.*

If your open tabs are using zero to 70 percent of the available memory, then the memory usage is within the acceptable range. If memory usage goes above 70 percent, the status indicator turns yellow to indicate caution, and finally escalates to red to indicate when memory usage exceeds the recommended levels.

You can disable or enable the unload feature in the DashBoard General Preferences or set your preferences at the CustomPanel level.

For more details see,

- "**Memory Manager Indicator Levels**" on page 5–158
- "**To prevent individual CustomPanels from being unloaded**" on page 5–20
- "**To disable the unloading feature of the Memory Manager**" on page 5–20
- "**The Memory Manager Widget**" on page 5–158

Table 5.10 describes the status indicator levels.

Table 5.10 Memory Manager Indicator Levels

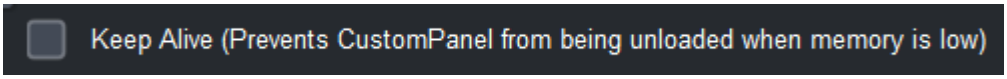
Levels	Description
	Green (healthy) — The status icon is green when DashBoard's memory usage percentage is functioning at an acceptable level (from 0 to 70%).
	Yellow (caution)— The status icon is yellow when DashBoard's memory usage percentage usage is above 70% of the available memory.
	Red (danger) — The status icon is red when the DashBoard's memory usage percentage exceeds the recommended threshold, which is above 90% of the available memory.

To prevent individual CustomPanels from being unloaded

If you have a CustomPanel that should never be unloaded, you can set a **Keep Alive** flag in the Abs Attributes that will tell DashBoard not to unload this panel (even if the memory is low).

Note: CustomPanels that were created in DashBoard 8.6 and earlier will not be unloaded when memory is low, because by default the Keep Alive option is enabled on CustomPanels that were built before the Memory Manager was available.

1. In **PanelBuilder Edit Mode**, double-click on an empty area on the CustomPanel to open the **Component Editor**. The uppermost abs should be selected in the tree.
2. In the **Abs Attributes** tab under Remote Task Triggering, select **Keep Alive**. This button prevents DashBoard from unloading this CustomPanel, even when memory is low.



3. Click **Apply Changes**.

You can also set the **`keepalive`** tag in the source code in the top-level abs. For example:

```
<abs contexttype="opengear" id="_top" keepalive="true" style="">
   …main panel content here…
</abs>
```

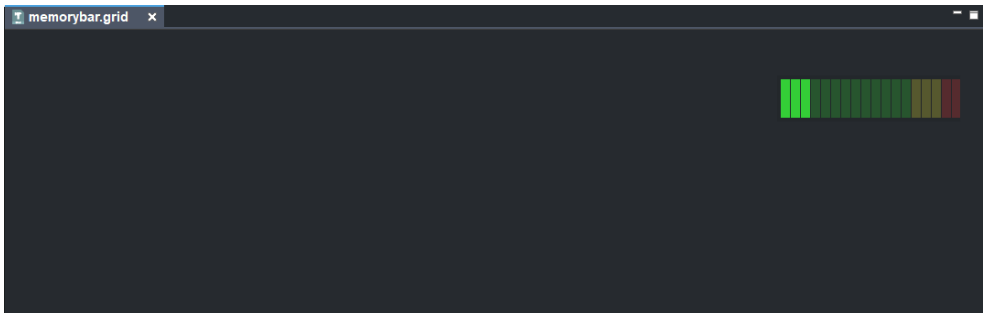
To disable the unloading feature of the Memory Manager

By default the Memory Manager unloads inactive CustomPanels from memory when memory is low, but you can disable this behavior in the General Preferences.

1. Go to **Window > Preferences** and click the **General** tab.
2. Under **Unload Panels**, uncheck **Unload panels from memory when memory is low**.
3. Click **Apply** > **OK**.

The Memory Manager Widget

The memory manager widget allows you to add a memory status indicator bar to monitor the current memory usage of the DashBoard application. This performs the same function as the memory manager indicator that is available in the top right DashBoard toolbar. The memory manager widget allows you to continue to monitor the memory usage of the status indicator while a panel is in full screen mode. You can add a memory manager widget directly to your panel and customize its size and position.



Adding the Memory Manager Widget to a Panel

1. Click **PanelBuilder Edit Mode**, and double-click an empty area on the canvas.
   The Component Editor appears and the top-level <abs> attribute should be selected in the tree.
2. Click the **Source tab**, and open the <abs> component as shown below:

```
<abs contexttype="opengear" id="_top" keepalive="false" style="">
</abs>
```

3. Now you can add the memory manager widget, and include attributes to modify the size and position of the memory manager status bar:

```
<abs contexttype="opengear" id="_top" keepalive="false" style="">
     <memory height="50" left="1500" top="50" width="200"/>
</abs>
```

4. Apply your changes.

Parameters and Data Sources

The configuration and state of any DashBoard Connect device is represented by a set of parameters. Device parameter data can be edited to change device settings. These parameters appear in the DashBoard Device View as various components and can be dragged into your CustomPanel.

You can also define new local parameters for your CustomPanel, and reference them in scripts. If you want to share these parameters with other CustomPanels or pass information to other Ross products such as XPression, you must create an XML data file and associate it with your CustomPanel.

When you create a CustomPanel, you can opt to automatically create an XML data file to store data for parameters you create in PanelBuilder. Alternatively, you can create a blank self-contained data source panel. For more information about creating a new CustomPanel, see "**Creating a CustomPanel**" on page 5–8.

Data sources contain parameter data which can be displayed and/or manipulated in a CustomPanel. A data source can be an XML data file, an openGear configuration file (.ogd), or a device.

Underlying every CustomPanel is a hierarchy of component elements, each of which can be associated with only one data source. Data source scope cascades. If no data source is specified for a given element in the hierarchy it inherits its data source association from its parent element. To view the element hierarchy, enter Edit Mode, double-click an element, and look at the component hierarchy tree in the top left portion of the Edit Component window.

When you associate a CustomPanel with a data source, the parameter library of the data source is inherited by the CustomPanel. If you had components on a CustomPanel before associating the panel with a data source, those original components will now have access to the same data source library as any new ones you add. You can this library to further customize your CustomPanel using OGP tags.

Note: If you do not need to pass information to other CustomPanels or applications such as XPression, and only need status summary information from other openGear devices, you do not need to associate a data source with your CustomPanel.

The Add/Edit Parameter Window

You can create and modify parameters in the Add/Edit Parameter window. The Add/Edit Parameter window appears when you click the **Parameters** button on the **Edit Mode** toolbar.

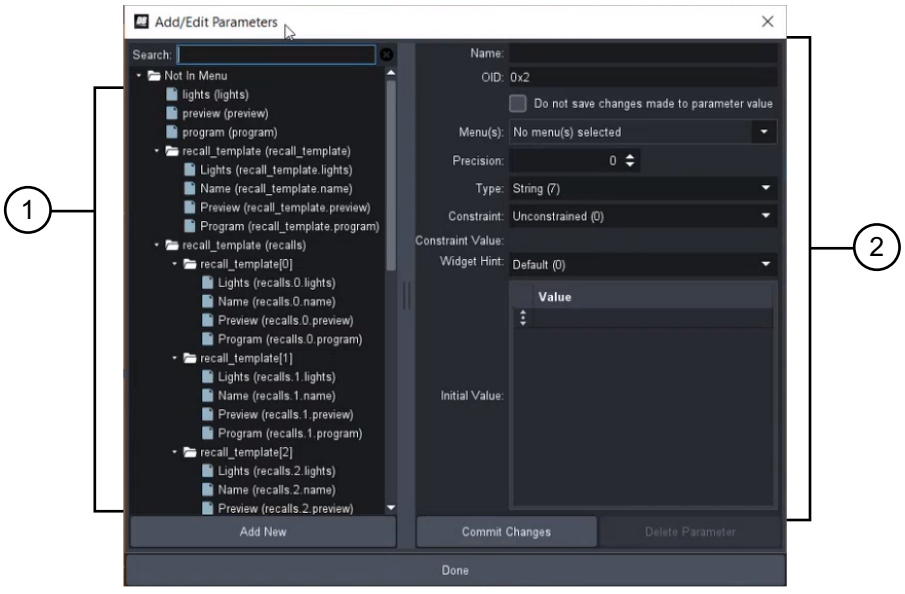


Figure 5.46 *- The Add/Edit Parameter Dialog*

The Add/Edit Parameter dialog provides the following information:

1. List of Parameters

Provides a list of parameters, arranged according to the menu structure and assigned OID tags, currently available for the selected CustomPanel component. Parameters can be created by any of the following:

- an associated data source
- tools in the **Edit Mode** toolbar
- a component dragged from a device in the Tree View of DashBoard

You can search for a parameter using the search bar at the top of the list.

You can select a parameter from the list to display its information in the window and to edit its properties. You can also edit the menu structure.

2. Parameter Information

This area enables you to quickly view and/or modify the properties of a selected parameter.

Creating a New Parameter

You can create new parameters using the **Add/Edit Parameter** dialog. Once saved, the parameters are available to be referenced in scripts and when creating data-backed objects in the CustomPanel.

You can also edit the parameter menu structure. The parameter menu structure only applies to panels that have an external XML data source, and not to panels that have a self-contained data source.

To define a new parameter

1. On the **Edit Mode** toolbar, click the **Parameters** button.

   The **Add/Edit Parameter** dialog appears.

2. Click **Add New**.

3. In the **Name** box, type a unique name for the parameter. The parameter will be identified in other dialogs using this name, so ensure to create a descriptive name.

4. In the **OID** box, type an object ID. Each parameter must be identified by a unique object identifier.

   Tip: A unique two-byte hexadecimal OID is automatically provided when the **Add New** button is selected. You can accept this OID or change it. OIDs do not have to be hexadecimal values. They are string data.

5. In the **Menu(s)** list, select the menu you want the parameter to appear under.

6. Use the **Precision** field to define the number of digits following the decimal point displayed for printed numbers. It applies mainly to floating point (float) numbers.

7. Specify the storage type for the parameter value using the **Type** menu. Choose from the following:

   - **String** — Specifies that the parameter value is an alpha-numeric series of characters (can be text or a mix of text and numbers).
   - **String Array** — Specifies that the parameter can contain multiple string values.
   - **Integer** — Specifies that the parameter value is a number without decimal places. Select 16 or 32 bit.
   - **Integer Array** — Specifies that the parameter can contain multiple integer values. Select 16 or 32 bit.
   - **Float** — Specifies that the parameter value is a floating-point number (uses decimals) or a number with an exponent.
   - **Float Array** — Specifies that the parameter can contain multiple float values.

8. Specify additional limitations on the parameter values using the **Constraint** menu. Note that the available options depends on what you selected in step 7. Choose from the following:

   - **Unconstrained** — Select this option when using a string type. No limitations are applied to the parameter value. For example, a text field parameter where a user can type any word or mix of letters and numbers.
   - **Range Constraint** — Select this option when using an integer or float type. Use this option to stipulate a range of numbers that the user can select from (e.g. minimum and maximum values). For example, use to stipulate a range from 1-10.
   - **Choice Constraint** — Select this option when using a string type to provide a specific list of options to the user.
   - **Alarm Table** — select this to set constraint values for alarm states.
   - **String Choice (for table widget only)** — Select this option when using a string type to provide a specific list of strings from which the user chooses.
   - **String Key/Value Constraint** — Select this option when using a string type to provide a specific list of options to the user. Each option (**Name**) is associated with a key (**Value**). The constraint choices are stored as key/value pairs.

9. If you did not select **Unconstrained**, use the **Constraint Value** area to define the valid set of values for the parameter:

   - For choice constraints, including string choice, do the following once for each valid value:
     › In the **Value** column, click **[insert value]**, type a valid value, and then press **Enter**.
     › In the **Name** column, type a name for the value.

     The name is associated with the parameter value, and appears on labels, etc.

     Note: The **Name** column is available only if the parameter is a numeric type, or the constraint type is **String Key/Value Constraint**.
   - For range constraints:
     › In the **Minimum** box, type the lowest valid value.
     › In the **Maximum** box, type the highest valid value.
     › In the **Step Size** column, type the step size.

     For example, if valid values must be evenly divisible by 10, type 10.
     › If you plan to use a touch wheel in your panel, select the **Loop** check box.
   - For alarm table constraints, do the following once for each valid value:
     › In the **Bit** box, type the bit value for the constraint value. For example, you may have two options; 1 and 0. You would have one row for each bit state.

     The bit must be unique for each constraint value.
     › In the **Severity** box, select a severity level.
     › In the **String** box, type the alarm message you want associated with this constraint value.

10. Specify the graphical display hint for the parameter using the **Widget Hint** menu. Choose from the following:
    - **Default** — Displays the parameter as defined according the data source.
    - **Read-only text** — Displays the parameter as a status text field that cannot be altered by the user. A border and background is automatically applied to the field.
    - **Label** — Displays the parameter as a text field without a border or background.
    - **Text Entry** — Displays the parameter as a single line text field that is editable by the user. The user must enter one of the values defined using the **Constraint Value** field.
    - **Multi-Line Text Entry** — Displays the parameter as a text field with more than one line. The user must enter one of the values defined using the **Constraint Value** field.
    - **HTML Content** — Displays the parameter as a field that requires the user to input HTML data.
    - **Editable Dropdown List** — Displays the parameter as a menu that the user clicks to display an expanded list of values to choose from. These values are determined by the **Constraint Value** field.
    - **Alarm-Style Colored Dot** — Displays the parameter as a status indicator, similar to an LED, that updates based on conditions defined in the **Constraint Value** field.
11. In the **Initial Value** area, specify the initial value for the parameter. If the parameter is an array, you can specify multiple values.
12. Click **Commit Changes** to save your new parameter.
13. Click **Done** to exit the dialog.

To edit the parameter menu structure

1. On the **Edit Mode** toolbar, click the **Parameters** button.

   The **Add/Edit Parameter** dialog appears.
2. Click **Edit Menu Structure**.

   The **Add/Edit Menus** dialog appears.
3. In the list on the left, click the folder under which you want the new menu to appear (Status or Config).
4. In the **Menu Name** box, type a name for the menu.
5. Click **Insert Menu**.
6. If you want to delete a menu, click it in the list on the left, and then click **Delete Menu**.
7. When you are satisfied with the menu structure, click **Save Menu**.
8. Click **Done**.

Associating a Data Source with a CustomPanel

You can associate a specific data source, such as an openGear card or other DashBoard Connect devices, or a saved configuration file (*.ogd) with a CustomPanel. Doing so enables you to use that data source as a library of parameters which you can then manipulate. Additional tools in the CustomPanel's Edit Mode toolbar enable you to quickly select components based on a specific device. Which components are available depends on the specific device you have selected. For example, the components of an UDC-8625A-B differ from those of an XPression™ Real-time Motion Graphics System.

✶ We highly recommended you become familiar with the device(s) before using this PanelBuilder feature.

To associate a data source with a CustomPanel

1. Select

from the **Edit Mode** toolbar.
2. Double-click the CustomPanel area. The border displays the **Component Editor: <abs>** dialog when the mouse button is released.
   Note: The topmost <abs> (canvas for the entire panel) should be selected in the tree view on the left.

3. Select the **Abs Attributes** tab on the top left, and proceed to add a data source for the entire panel:
   a. In the **Data Source/ Device Control** area, select the **openGear or XPression DataLinq** check box.
   b. Click **Configure** to display the **Select Device for Context** dialog.
   c. Click **Select device** and then select the device from the dropdown list.
   Note: The device will only appear if it has already been added to the DashBoard tree view.
   For Subscriptions Devices: If an "Enable subscriptions for this device" checkbox is visible below the list of devices, you can select this checkbox to take advantage of subscriptions. Subscriptions improves the DashBoard platform's performance by eliminating any unnecessary communication with connected devices that are not in use.

      For More Information on...

      - Subscriptions, see "**Leveraging Data Sources with Subscriptions**" on page 5–165

   d. Click **Browse...** to display the **Select Device Data Source** dialog.
   e. Navigate to the device you wish to use as a Device source, and select the radio button.
   f. Click **Select Device Data Source** to close the dialog and update the **File** field.
4. Alternatively, if you need to add more than one data source for the panel you can insert a **Device** <context> tag under the **Insert Tag** area of the Component Editor dialog. Click the **Device** button, and this will add the **<context/>** tag to the tree view.
   Note: Each device source requires its own context.
5. Click **OK**.
6. Click **Apply Changes** or **Apply and Close**.

Associating a Data File with a CustomPanel

Associating a saved configuration file (*.ogd) enables you to use the parameters saved in that file as a type of library for the CustomPanel. Once you have successfully associated a data file to the CustomPanel, the Edit Mode toolbar automatically updates to display the new tool options. You can also use a data file as a base for creating an interface in DashBoard that auto-populates fields in a Ross XPression system, or to familiarize yourself with PanelBuilder features without directly impacting a device.

To associate a data file with a CustomPanel

1. Select

from the **Edit Mode** toolbar.
2. Double-click the CustomPanel area. The border displays the **Edit Component: <abs>** dialog when the mouse button is released.
3. Select the **Abs Attributes** tab.
4. In the **Data Source/ Device Control** area, select the **openGear or XPression Datalinq** check box.
5. Click **Configure** to display the **Select Device for Context** dialog.
6. Click **Select a file**, and click **Browse...** to display the **Select Device Data Source** dialog.
7. Navigate to the required *.ogd file.
8. Click **Select Device Data Source** to close the dialog and update the **File** field.
9. Click **OK**.
10. Click **Apply Changes** or **Apply and Close**.

Leveraging Data Sources with Subscriptions

When you associate a panel with a data source that supports the subscriptions protocol, you can leverage this feature to take advantage of improved communication between the DashBoard Client and the device source. Subscriptions greatly improves the user experience for any users who need DashBoard to run smoothly with numerous connected devices, but especially if those devices send the DashBoard Client a high volume of parameter updates. Subscriptions improves the DashBoard platform's performance by eliminating any unnecessary communication with connected devices that are not in use.

You can see an example of a typical workflow below:

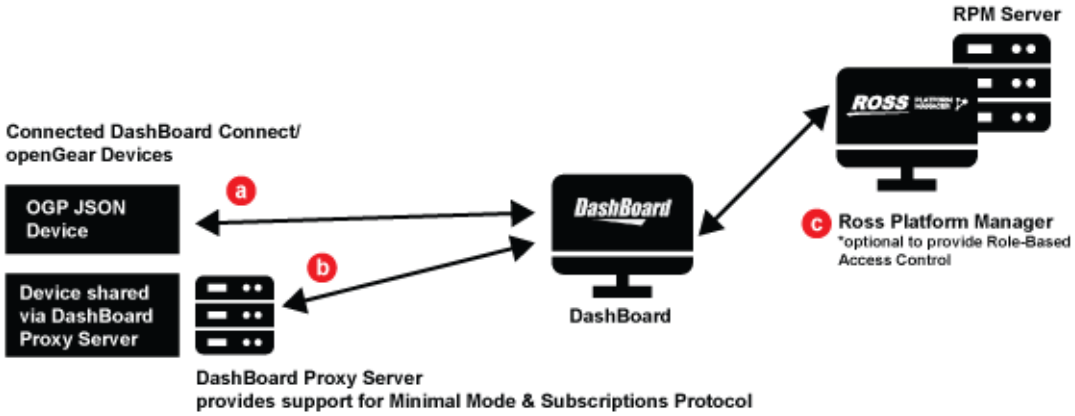


***Figure 5.47** - DashBoard Panel Workflow with Devices that Support Subscriptions*

a. **OGP JSON Device** — Any OGP JSON device that supports subscription. This includes Ross devices in the DashBoard Connect ecosystem that support subscriptions, such as Ultritouch.

b. **Device Shared via DashBoard Proxy Server** — The DashBoard Proxy Server will provide support for Minimal Mode and Subscriptions Protocol.

c. **The Ross Platform Manager (RPM)** — This is an optional component that can be used to provide Role-Based Access Control for connected devices.

This includes openGear Protocol (OGP) JSON devices /DashBoard Connect devices that openGear partners that have added support for subscriptions, and any devices that are shared through the DashBoard Proxy Server.

Overview

DashBoard panel builders can use the following PanelBuilder automations to create device panels for OGP devices/ or devices shared through the DashBoard Proxy Server:

- "**Adding Subscriptions Support for a Device Context**" - When adding a device to DashBoard context, panel builders can choose to enable subscriptions for that device using the new "**Enable subscriptions for this device**" checkbox in the Device Context Dialog.
- "**Drag-and-Drop Panel Components with Subscriptions Support**" - Reuse panel components from an existing device panel that supports subscription, and use the provided checkboxes to choose whether newly dragged in components will have subscriptions turned on or off, and whether to add the parameters to the subscription list for the device.
- "**Using the DashBoard Script Palette's Command Templates**" - Use the ogScript Editor's Script Palette to add provided code snippets for `param.subscribe` and `param.unsubscribe`.

Adding Subscriptions Support for a Device Context

When adding a device to DashBoard panel's context, you can choose to enable subscriptions for that device using the new "**Enable subscriptions for this device**" checkbox in the Device Context dialog, as shown below:

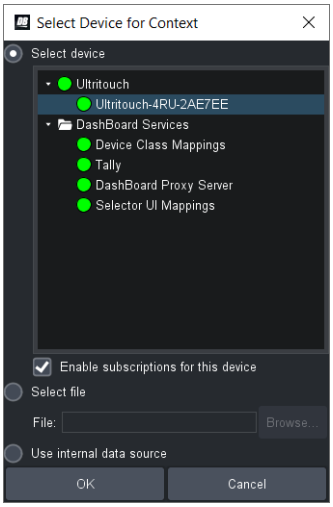


Figure 5.48 *- Enabling Subscriptions Support in the Device Context Dialog*

✶ **Note:** The **Enable subscriptions for this device** checkbox only appears if the selected device supports subscriptions, if not it will be disabled.

Selecting the **Enable subscriptions for this device** checkbox, and clicking **OK**, will automatically add a **`subscriptions="true"`** tag to the device context, as shown in the example below:

```
<abs contexttype="opengear" id="_top" keepalive="false" objectid="MyUltritouch"
objecttype="Ultritouch Device" subscriptions="true">
```

If the checkbox is not selected, then DashBoard automatically adds a **`subscriptions="false"`** tag to the device context. For more details on how to add a device context, see the procedure below.

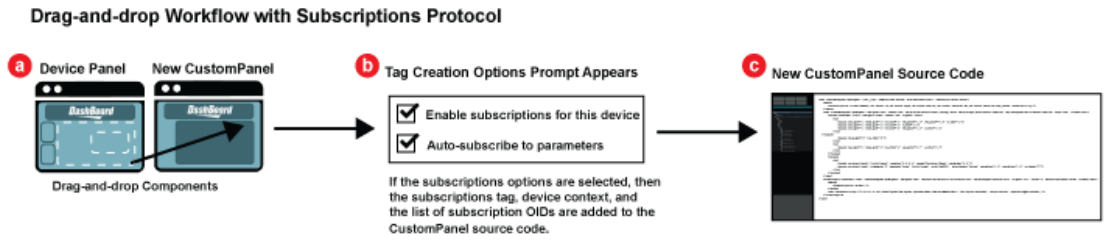
Adding a device context

1. In PanelBuilder **Edit Mode**, double-click anywhere on the blank canvas to open the Component Editor, and scroll down to the **Data Source/ Device Control** area.
2. For the **openGear or XPression Datalinq** field, select the checkbox and click **Configure**. The **Select Device for Context** dialog appears, with the option to select a device, and enable subscriptions (only if that device supports subscriptions).

Drag-and-Drop Panel Components with Subscriptions Support

DashBoard provides the ability to drag-and-drop components from one device panel for reuse in a secondary CustomPanel, and the any data-backed components will receive any updates from the original source panel.

DashBoard provides automatic support for subscriptions using the following workflow below:



a. When you want to bring components from an existing openGear device frame that supports subscriptions into a new CustomPanel, you can drag and drop parameters from the existing device panel into your new panel.

b. When you drag a parameter in, a Insert into ABS Component dialog appears. This dialog has two options: "**Enable Subscriptions for this device**" and "**Auto-subscribe to parameters**", as shown in the screen-shot below. Checking both of these boxes will automatically add the parameter to the panel's subscription list.

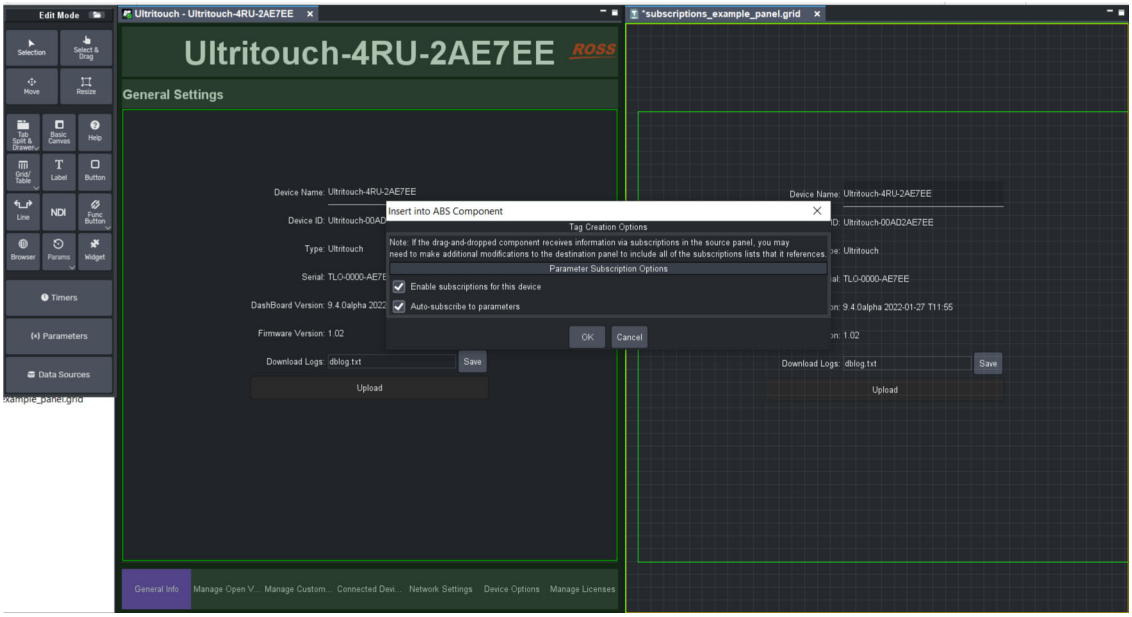


Figure 5.49 *- An Ultritouch Device that supports Subscriptions (left) and a New Panel (right)*

✶ **Tip**: You can also drag-and-drop a component into an existing area, such as a basic canvas, and the dialog prompt will have additional options that allow you to choose where you want the data source to be inserted.

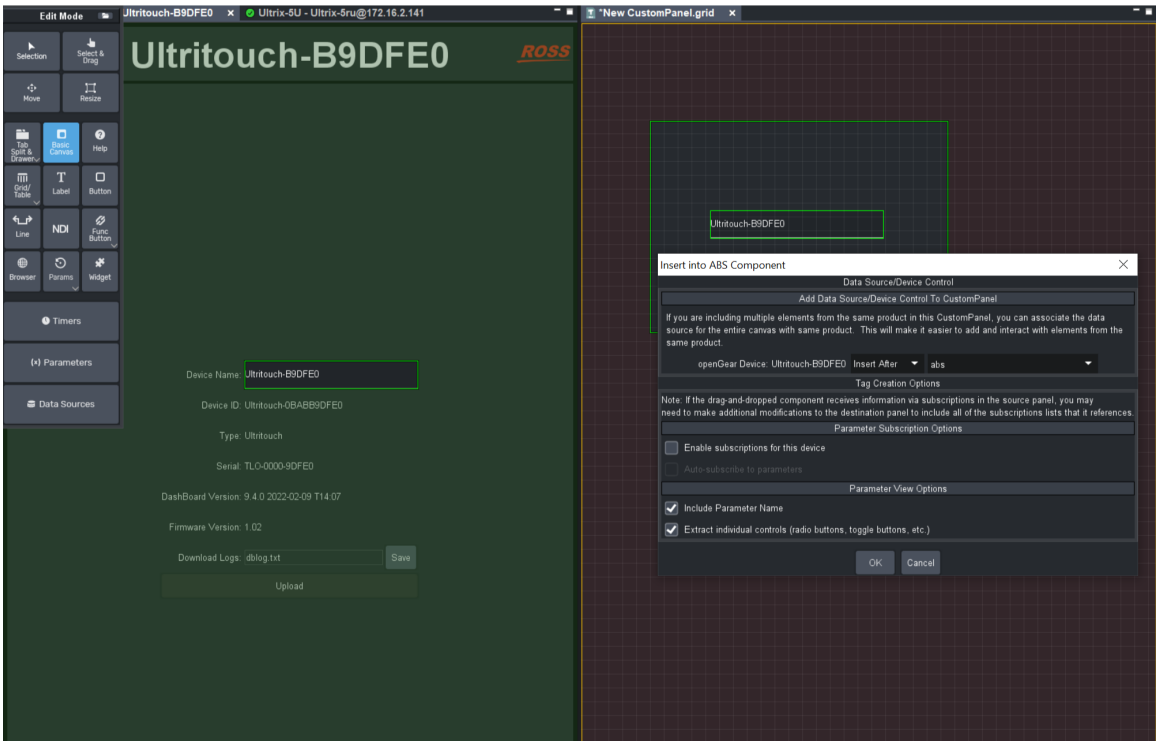


Figure 5.50 *- An Ultritouch Device component that has been dropped into an existing basic canvas*

c. You can verify that it's been added, by double-clicking on the displayed parameter to open the **Component Editor** dialog and navigating to the **Source** code tab to view the updated subscription list. It will include the parameter's oid in the subscription list:

```
<meta>
   <subscription oids="0x907"/>
<meta>
```

You can also view the OIDs, in the **Component Editor** dialog's tree view by selecting **Subscriptions** in the tree view. The Subscriptions Attributes tab on the right includes the full list of OIDs, as shown below:

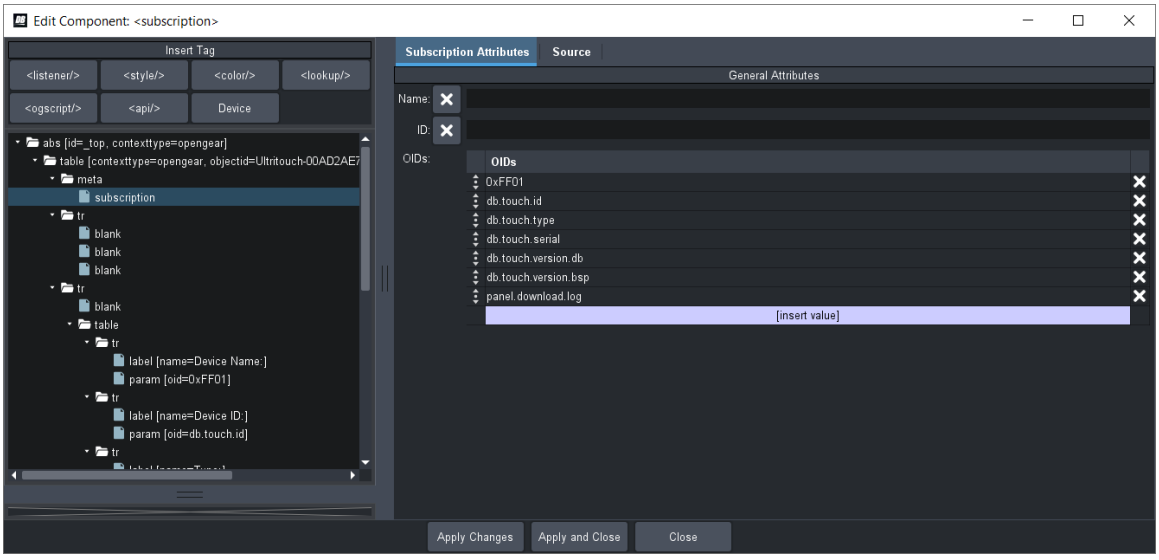
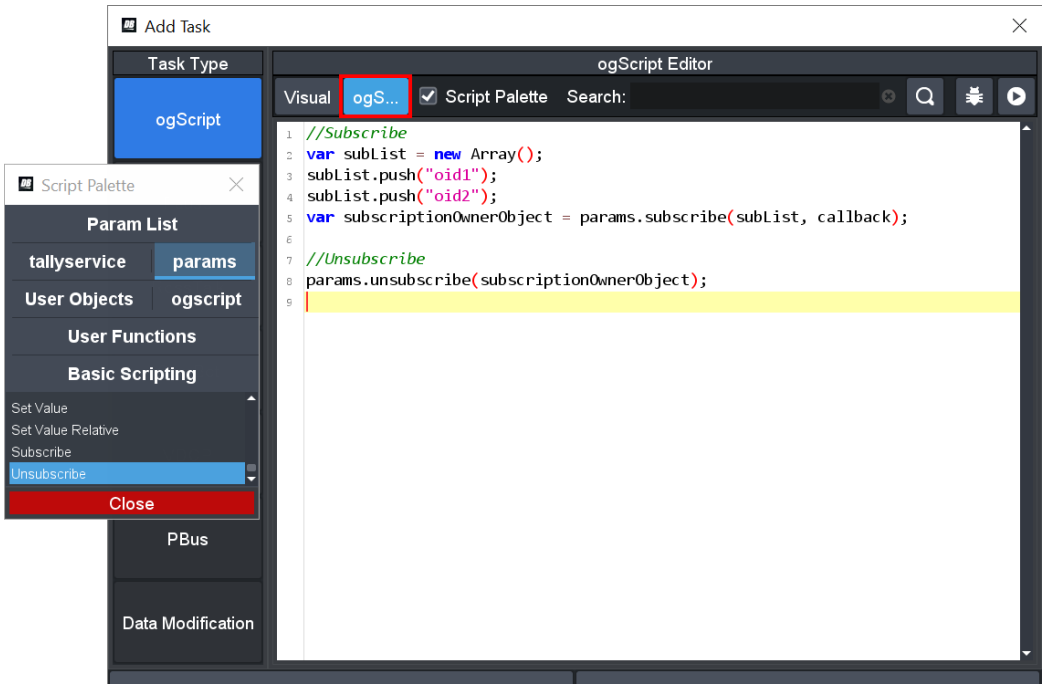


Figure 5.51 *- Subscriptions OIDs displayed in the Subscriptions Attributes tab*

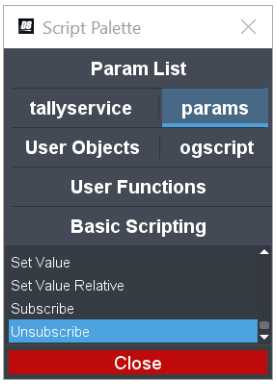
Using the DashBoard Script Palette's Command Templates

You can use the **Subscribe** and **Unsubscribe** command templates that are built into the **Script Palette**. Follow the steps in the procedure below to use the templates, as shown below:



To add the template for the Subscribe or Unsubscribe command as code snippets

1. Ensure that you have a button with a task added.
2. In the manual **ogScript Editor,** select the **Script Palette** checkbox, and click the **params** tab.
   Note: The Script Palette is currently only available in the manual **ogScript** text editor, not the **Visual** editor.
3. Move the cursor to the area that you would like to add the code snippet, and then double-click on the "**Subscribe**" or "**Unsubscribe**" templates to add the code snippet there.



4. Close the Script Palette when you are finished, and save your changes.

Working with ogScript

ogScript is a programming language developed by Ross Video to interact with DashBoard-enabled devices. It is a subset of JavaScript, with PanelBuilder-specific functions added.

In PanelBuilder, you can add advanced functionality and logic to CustomPanels by creating Component Tree items that execute ogScript code.

This section contains the following topics:

- "**Adding an ogScript-Based Item to the Component Tree**" on page 5–170
- "**Editing ogScript Code**" on page 5–171
- "**Debugging ogScript Code**" on page 5–174

Adding an ogScript-Based Item to the Component Tree

The following types of Component Tree items can include ogScript code segments:

- **api** items (<api/> tags)

  An **api** item is a collection of ogScript functions that can be accessed from anywhere in the CustomPanel. You can also create a separate API script file to make the functions available to multiple CustomPanels.

- **ogscript** items (<ogscript/> tags)

  An **ogscript** item is a standalone segment of ogScript code that can be referenced from within the CustomPanel.

- **task** items assigned to panel components

  ogScript tasks can be assigned to buttons, labels, parameters, listeners, and timers (**timertask** item).

Creating an API Item in the Component Tree

To create an API with callable functions:

1. In the **Insert Tag** area above the Component Tree, click the **<api/>** button.

   A new **api** item appears within the highest level container item (usually **abs**) in the Component Tree.

2. On the **Api Attributes** tab, in the **General Attributes** area, specify a **Name** and an **ID** for the new API.

3. If you want the script in the API to be executed immediately, before the rest of the panel is loaded, select the **Execute Immediately** check box.

   When this option is selected, the script in the **<api/>** tag is evaluated as soon as it is reached, during the panel build process. This allows the script to create global functions that can be called from anywhere in the panel, create new parameters on the fly, and modify constraints of parameters even before they are displayed.

   For more information about creating an API, see "**Creating Internal and External APIs**" on page 7–13.

4. Specify other attributes as needed. For more information, see "**Api Attributes Tab**" on page 5–124.

5. Do one of the following:

   - If you want to create the ogScript functions manually, click the **ogScript** button, and then type or paste the ogScript code into the **ogScript Editor**.

     For more information about editing ogScript manually, see "**Editing ogScript Code**" on page 5–171.

     For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

   - If you want to create the ogScript functions visually, click the **Visual** button and then add the new functions.

     For more information about adding functions, see "**Creating New Functions**" on page 7–13.

     For more information about using the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9.

6. Click **Apply Changes** or **Apply and Close**.

Creating an ogscript item in the Component Tree

To create an ogscript item in the Component Tree:

1. In the Edit Component window, in the **Insert Tag** area above the Component Tree, click the **<ogScript/>** button.

   A new **ogscript** item appears within the highest level container element (usually **abs**) in the Component Tree.

2. On the **Ogscript Attributes** tab, in the **General Attributes** area, specify a **Name** and **ID** for the ogScript code segment.

3. Specify other attributes as needed. For more information, see "**Ogscript Attributes Tab**" on page 5–132.

4. Do one of the following:

   - If you want to create the ogScript code manually, click the **ogScript** button, and then type or paste the ogScript code into the **ogScript Editor**.

     For more information about editing ogScript manually, see "**Editing ogScript Code**" on page 5–171.

     For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

   - If you want to create the ogScript code visually, click the **Visual** button and then add and connect logic blocks to create the code.

     For more information about using the Visual Logic editor, see "**Using DashBoard Visual Logic**" on page 7–9.

5. Click **Apply Changes** or **Apply and Close**.

Creating an ogScript Task Assigned to a Panel Component

To create an ogScript task assigned to a panel component:

1. Create the panel component to which you want to assign the new ogScript task (button, label, parameter, listener, or timer).

   In the **Edit Component** window, in the **Component Tree**, click the component to which you want to assign the task.

   The **Attributes** tab for the component type appears.

2. In the **Tasks** area, click **Add**.

   The **Add Task** window appears, with the **Task Type** set to **ogScript**.

3. Do one of the following:

   - If you want to create the ogScript code manually, click the **ogScript** button, and then type or paste the ogScript code into the **ogScript Editor**.

     For more information about editing ogScript manually, see "**Editing ogScript Code**" on page 5–171.

     For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

   - If you want to create the ogScript code visually, click the **Visual** button and then add and connect logic blocks to create the code.

     For more information about using the Visual Logic editor, see "**The Visual Logic Editor**" on page 7–2.

4. When you are finished creating the code, click **OK**.

5. Click **Apply Changes** or **Apply and Close**.

Editing ogScript Code

You can edit ogScript code manually, or use the Visual Logic editor to edit it visually.

This section describes how to edit ogScript code manually. For information about editing ogScript code visually, see "**Using DashBoard Visual Logic**" on page 7–9.

ogScript is a programming language developed by Ross Video to interact with DashBoard-enabled devices. It is a subset of JavaScript, with PanelBuilder-specific functions added. Editing ogScript code requires JavaScript coding skills.

When you edit ogScript code manually, you do it in one of the following interfaces:

- **Source tab** — text editing only.
- **Manual ogScript Editor** — text editing plus use of the script palette, which is a tool that enables you to drag pre-made code templates into the current code segment.

Note: If you create or edit a segment of ogScript code manually, you cannot later edit that code in the Visual Logic editor.

To create or edit ogScript manually:

1. Create a CustomPanel, and add an ogScript-based item to the Component Tree.

   For more information, see "**Adding an ogScript-Based Item to the Component Tree**" on page 5–170.

2. In the Component Tree, click an ogScript-based item (**api**, **ogscript**, **task**, or **timertask**).

3. If you want to edit the code on the **Source** tab (text only), click the **Source** tab.

   The **Source** tab shows the source code for the item that is selected in the Component Tree. If the selected item is ogScript-based, the **Source** tab shows the OGLML element for the item (**api**, **task**, **ogscript**, **timertask**). Place your ogScript code between opening and closing tags of the element.

4. If you want to edit the code in the manual **ogScript Editor**, click the **Attributes** tab for the item (for example, **Task Attributes**), and then click the **ogScript** button.

   The manual **ogScript Editor** shows the ogScript code for the item selected in the Component Tree.

   Tip: To use the script palette, select the script palette check box. For more information, see "**Using the Script Palette**" on page 5–173.

Using the Script Palette

The script palette is a tool that enables you to quickly add pre-made ogScript command templates, which you can customize to produce code more quickly and with fewer coding errors.

Templates enable you to more easily create ogScript functions, manipulate parameters, etc.

The script palette is available within the manual **ogScript Editor**.

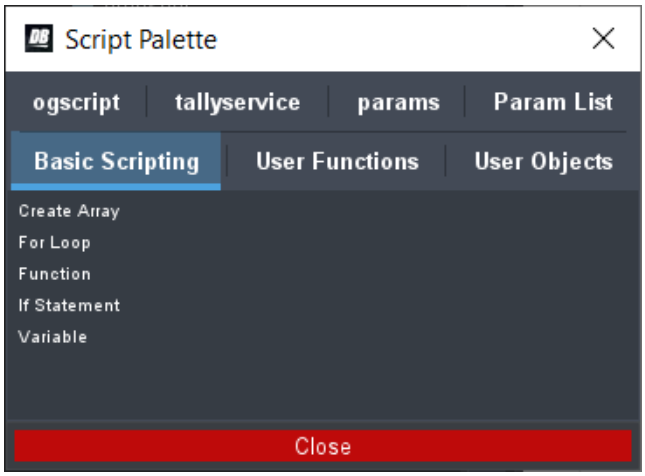


Figure 5.52 *- The Script Palette*

To access the script palette:

- In the manual **ogScript Editor**, select the **Script Palette** check box.

  The script palette dialog box appears.

To use the script palette:

1. In the workspace of the manual **ogScript Editor**, click the position where you want to insert a command template.
2. In the script palette, click the tab that contains the command template you want to use (**params, Basic Scripting**, **ogscript**, **Param List**).
3. If you are using the **Param List**, select whether you want to **Get** a value or **Set** a value.
4. Click and drag the command or parameter into the editor workspace.

   The template code appears.
5. Edit the code, replacing the colored placeholders as required.

Using the Search Tool in the Manual ogScript Editor

The manual **ogScript Editor** includes a search tool, which enables you to find instances of the specified text within the current ogScript code segment.

Note: The search tool in the **ogScript Editor** is slightly different than the search tool on the **Source** tab. Either can be used to find ogScript text. For more information about the **Source** tab, see “**Source Tab**” on page 5–137.

To use the Search tool in the manual ogScript Editor:

1. Click the **Search** box, or press **Ctrl+f**.

   Tip: To clear the **Search** box, click the **x** icon beside it.

2. Type the search string in the **Search** box, and then click the **Find Next** button (magnifying glass icon).

   In the **ogScript Editor**, the cursor moves to the next instance of the search string, which is highlighted.

3. To find the next instance of the same search string, either click the **Find Next** button or press **Enter**.

Running Code Segments in the Manual ogScript Editor

Running isolated sections of code may help you detect problems.

Before you run the code, ensure that the main DashBoard window is visible so you can observe the results.

To run the current segment of code shown in the ogScript Editor:

- Click the **Run** button.

Debugging ogScript Code

DashBoard includes an implementation of the Mozilla Rhino JavaScript Debugger as an integrated ogScript Debugger panel. You can access the ogScript Debugger from within DashBoard, and use it to detect problems in your ogScript code.

The ogScript Debugger console enables you to execute ogScript code line-by-line to detect problems. You can also monitor variables as the code runs.

Accessing the ogScript Debugger

The ogScript Debugger is available only when you are editing a segment of ogScript code.

To access the ogScript Debugger:

1. Create a CustomPanel that includes an ogScript code segment, such as a task.

   For more information, see "**Assigning Tasks to Buttons, Labels, and Timers**" on page 5–107.

2. In the **Edit Component** window, in the **Component Tree**, select the item that represents the ogScript code segment you want to debug.

   Tip: Items that represent ogScript code segments include **api**, **ogscript**, **task**, and **timertask**.

3. Click the **Attributes** tab for the item (one of the following):

   - **Api Attributes Tab**
   - **Ogscript Attributes Tab**
   - **Task Attributes Tab**
   - **Timertask Attributes Tab**

4. In the **ogScript Content** area, click the **Debug** button.

5. The following message appears:

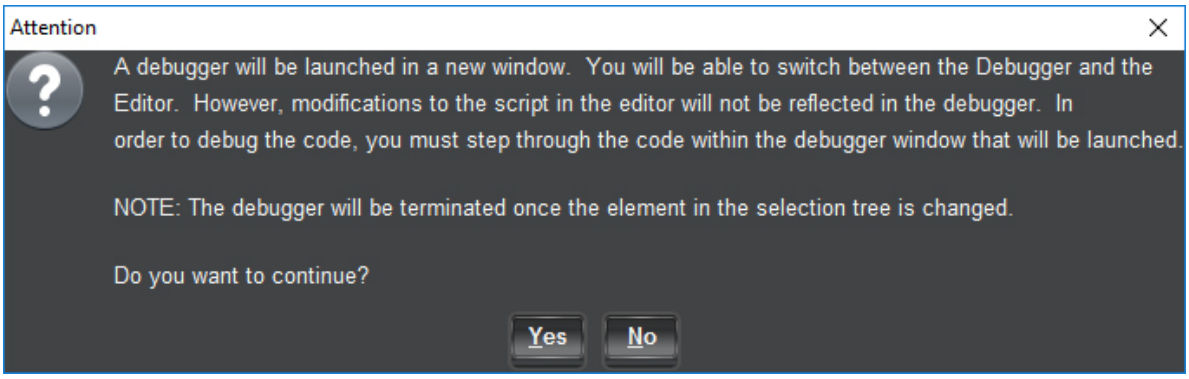


Figure 5.53 *- ogScript Debugger Startup Message*

6. Click **Yes**.
7. The **ogScript Debugger** panel appears, showing the ogScript code.

   Figure 5.54 shows the ogScript Debugger.

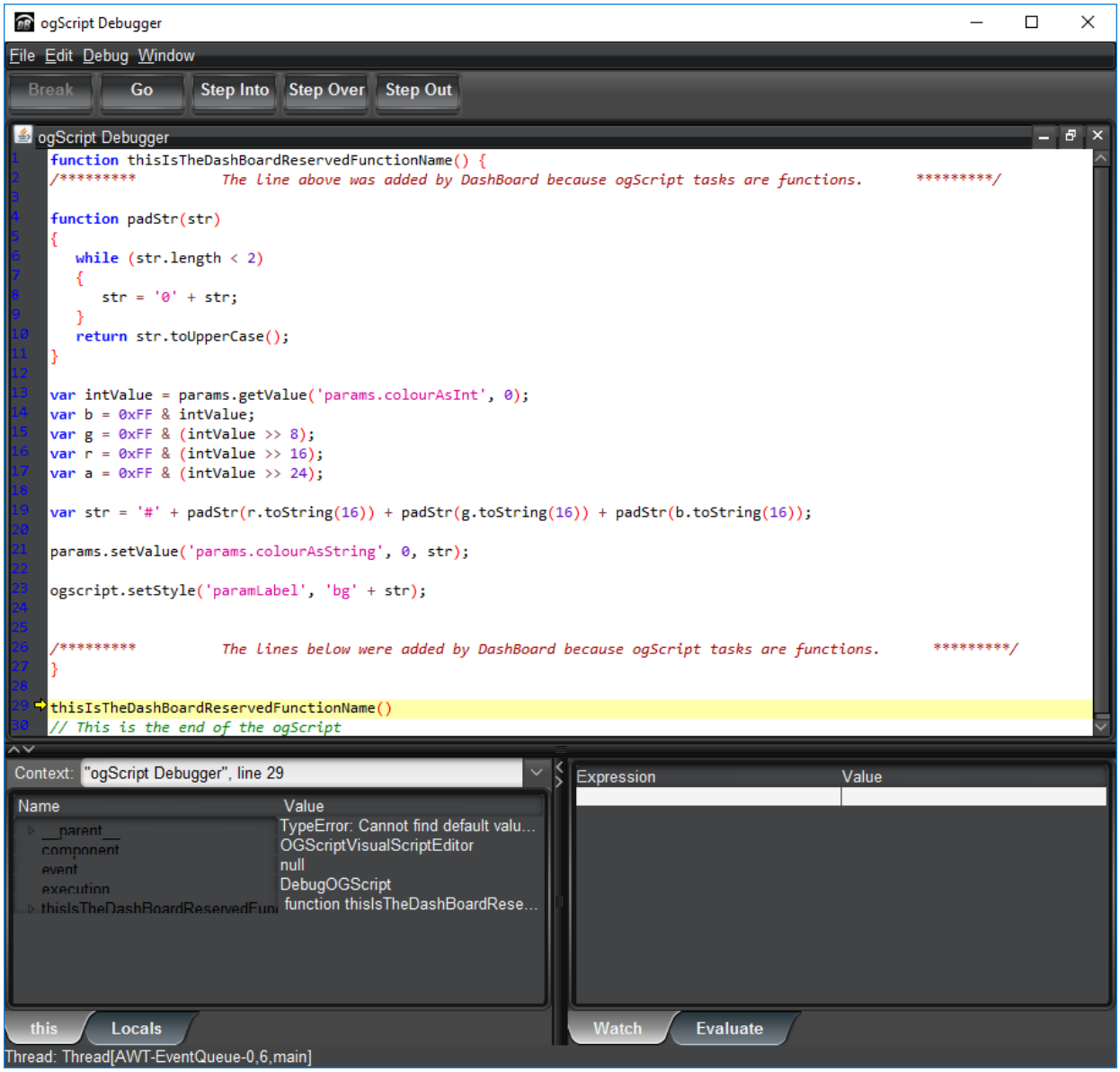


Figure 5.54 *- ogScript Debugger Console*

To exit the ogScript Debugger:

- Do one of the following:
  - Click **File** > **Exit**.
  - Press **Ctrl+q**
  - At the top right corner of the ogScript Debugger, click **X**.

Using the ogScript Debugger

The ogScript Debugger is an implementation of the Mozilla Rhino JavaScript Debugger embedded within DashBoard.

The **Mozilla Developer Network Web Docs** website (https://developer.mozilla.org/en-US/) contains information about how to use the Mozilla Rhino JavaScript Debugger. A portion of that information is reproduced in this section, as permitted by the Creative Commons Attribution-ShareAlike license (CC BY-SA 2.5).

The terms of the license are available at the following URL: https://creativecommons.org/licenses/by-sa/2.5/.

As of the date this was published (August 19, 2026), the copied information was available on the **MDN Web Docs** website, at the following URL:

https://developer.mozilla.org/en-US/docs/Mozilla/Projects/Rhino/Debugger#Controlling_Execution.

The remainder of this section consists entirely of information created by Mozilla Contributors. For more information, see https://developer.mozilla.org/en-US/docs/Mozilla/Projects/Rhino/Debugger$history.

Controlling Execution

The debugger provides the following facilities for you to control the execution of scripts you are debugging:

Step Into

To single step entering any function calls, you may do any of the following:

- Select the **Debug->Step Into** menu item on the menu bar
- Press the **Step Into** button on the toolbar
- Press the **F11** key on the keyboard

Execution will resume. If the current line in the script contains a function call control will return to the debugger upon entry into the function. Otherwise control will return to the debugger at the next line in the current function.

Step Over

To single step to the next line in the current function, you may do any of the following:

- Select the **Debug->Step Over** menu item on the menu bar
- Press the **Step Over** button on the toolbar
- Press the **F7** key on the keyboard

Execution will resume but control will return to the debugger at the next line in the current function or top-level script.

Step Out

To continue execution until the current function returns you may do any of the following:

- Select the **Debug**->**Step Out** menu item on the menu bar
- Press the **Step Out** button on the toolbar
- Press the **F8** key on the keyboard

Execution will resume until the current function returns or a breakpoint is hit.

Go

To resume execution of a script you may do any of the following:

- Select the **Debug**->**Go** menu item on the menu bar
- Press the **Go** button on the toolbar
- Press the **F5** key on the keyboard

Execution will resume until a breakpoint is hit or the script completes.

Break

To stop all running scripts and give control to the debugger you may do any of the following:

- Select the **Debug**->**Break** menu item on the menu bar
- Press the **Break** button on the toolbar
- Press the **Pause**/**Break** key on the keyboard

Break on Exceptions

To give control to the debugger whenever a JavaScript is exception is thrown select the **Debug**->**Break on Exceptions** checkbox from the menu bar. Whenever a JavaScript exception is thrown by a script a message dialog will be displayed and control will be given to the debugger at the location the exception is raised.

Break on Function Enter

Selecting **Debug**->**Break on Function Enter** will give control to the debugger whenever the execution is entered into a function or script.

Break on Function Exit

Selecting **Debug**->**Break on Function Return** will give control to the debugger whenever the execution is about to return from a function or script.

Moving Up and Down the Stack

The lower-left (dockable) pane in the debugger main window contains a combo-box labeled "**Context**:" which displays the current stack of the executing script. You may move up and down the stack by selecting an entry in the combo-box. When you select a stack frame the variables and watch windows are updated to reflect the names and values of the variables visible at that scope.

Setting and Clearing Breakpoints

The main desktop of the debugger contains file windows which display the contents of each script you are debugging. You may set a breakpoint in a script by doing one of the following:

- Place the cursor on the line at which you want to set a breakpoint and right-click with the mouse. This action will display a pop-up menu. Select the **Set Breakpoint** menu item.
- Simply single-click on the line number of the line at which you want to set a breakpoint.

If the selected line contains executable code a red dot will appear next to the line number and a breakpoint will be set at that location.

You may clear breakpoint in a script by doing one of the following:

- Place the cursor on the line at which you want to clear a breakpoint and right-click with the mouse. This action will display a pop-up menu. Select the **Clear Breakpoint** menu item.
- Simply single-click on the red dot or the line number of the line at which you want to clear a breakpoint.

The red dot will disappear and the breakpoint at that location will be cleared.

Viewing Variables

The lower-left (dockable) pane in the debugger main window contains a tab-pane with two tabs, labeled "**this**" and "**Locals**". Each pane contains a tree-table which displays the properties of the current object and currently visible local variables, respectively.

This

The properties of the current object are displayed in the this table. If a property is itself a JavaScript object the property may be expanded to show its sub-properties. The this table is updated each time control returns to the debugger or when you change the stack location in the **Context:** window.

Locals

The local variables of the current function are displayed in the **Locals** table. If a variable is itself a JavaScript object the variable may be expanded to show its sub-properties. The **Locals** table is updated each time control returns to the debugger or when you change the stack location in the **Context:** window

Watch Window

You may enter arbitrary JavaScript expressions in the **Watch:** table located in the lower-right (dockable) pane in the debugger main window. The expressions you enter are re-evaluated in the current scope and their current values displayed each time control returns to the debugger or when you change the stack location in the **Context:** window.

Evaluation Window

The **Evaluate** pane located in the lower-right (dockable) pane in the debugger main window contains an editable command line where you may enter arbitrary JavaScript code. The code is evaluated in the context of the current stack frame. The window maintains a history of the commands you have entered. You may move backward or forward through the history by pressing the **Up**/**Down** arrow keys on the keyboard.

NK Series Router Control Panels

You can create a CustomPanel to control Ross Video NK Series video routers. PanelBuilder includes special tools for making the creation of a router control panel easy.

For comprehensive information about NK Series routers and Internet Protocol Servers, consult the user manuals that came with your NK Series router system.

Router control panels created in PanelBuilder typically include the following components:

- A list of Internet Protocol Server (IPS) selectors. An IPS is a device that controls one or more routers. An IPS selector list enables you to choose a set of routers to control.
- A list of levels. Levels are logical groups of inputs and outputs. Levels ensure that a certain set of inputs can only be routed to a certain set of outputs. This is useful in facilities that deal with multiple video formats, to prevent routing of one signal format to a device that expects to receive a different format.
- One or more lists of sources. Sources are video router inputs.
- One or more lists of destinations. Destinations are video router outputs.
- A group of functions. Functions are router commands, such as chop, take, configure, etc.
- A level status table. The level status table lists levels and the sources and destinations associated with them.

To create a router control panel, you create a CustomPanel, then add the components listed above.

Interface Design Tips:

- Do not place lists of sources, destinations, or levels in the same container component as an IPS, or in a higher-level container. These lists must reference an IPS that is at a higher level in the component hierarchy.
- Place lists of sources, destinations, or levels in container components that include scrollbars. This is important because these lists usually have a lot of buttons.
- By default, the buttons in a list are all in one row. If there are a lot of buttons, this may not be a usable interface. You can create a table with the maximum elements per row specified, and then edit the panel source to move the list into a row of the table. The buttons are then displayed as a matrix.

  You can achieve the same effect by creating `a simplegrid` tag in the source, instead of a table.

To create a CustomPanel for use as a router control panel:

1. Create a new CustomPanel.

   When prompted to specify the panel type, choose **NK Data Source Canvas**.

   For information about how to create a new panel, see "**Creating a CustomPanel**" on page 5–8.

2. Press **Ctrl+G** to enter edit mode.

   Grid lines appear on the panel.

   The Edit Mode toolbar now includes buttons for adding router control components, as shown in **Figure 5.55**.

Figure 5.55 *- Edit Mode Toolbar Including NK Buttons for Adding NK Router Controls*

3. Double-click the panel to open the **Edit Component** window.
4. On the **ABS Attributes** tab, in the **Data Source/Device Control** area, ensure that the **NK Series Routers** check box is selected.
5. Beside the NK Series Routers check box, click **configure**.

   The **Select IPS** dialog appears.
6. Click the IPS you want to associate with your router control panel, and then click **OK**.
7. Click **Apply and Close**.

To Add a list of IPS selectors:

1. On the **Edit Mode** toolbar, click the **NK IPS** button.

   Tip: If the **NK IPS** button is not visible, click the **NK NK** button to reveal the **NK IPS** button.
2. Drag a box on the panel to define the list area.

   A row of buttons appears. Each button represents one IPS, which can be selected by the user.

To insert a list of destinations:

1. Create a container component, such as a basic canvas, to contain the list.

   Note: Do not place lists of destinations in the same container component as an IPS selector, or in a higher-level container. These lists must reference an IPS selector that is at a higher level in the component hierarchy.

2. On the **Edit Mode** toolbar, click the **NK DST** button.

   Tip: If the **NK DST** button is not visible, click the **NK NK** button to reveal the **NK DST** button.

3. Drag a box on the panel to define the list area.

   The **Insert into Component** dialog appears.

4. Do one of the following, and then click **Ok**:

   - If you want to include all destinations in the list, select the **Show all (dynamic)** check box.
   - If you want to include only some destinations, deselect the **Show all (dynamic)** check box, and then select the individual destinations you want to include in the list.

   The destination buttons appear.

To insert a list of sources:

1. Create a container component, such as a blankblank canvas, to contain the list.

   Note: Do not place lists of sources in the same container component as an IPS selector, or in a higher-level container. These lists must reference an IPS selector that is at a higher level in the component hierarchy.

2. On the **Edit Mode** toolbar, click the **NK SRC** button.

   Tip: If the **NK SRC** button is not visible, click the **NK NK** button to reveal the **NK SRC** button.

3. Drag a box on the panel to define the list area.

   The **Insert into Component** dialog appears.

4. Do one of the following, and then click **Ok**:

   - If you want to include all sources in the list, select the **Show all (dynamic)** check box.
   - If you want to include only some sources, deselect the **Show all (dynamic)** check box, and then select the individual sources you want to include in the list.

   The source buttons appear.

To insert a list of levels:

1. Create a container component, such as a basic canvas, to contain the list.

   Note: Do not place lists of levels in the same container component as an IPS selector, or in a higher-level container. These lists must reference an IPS selector that is at a higher level in the component hierarchy.

2. On the **Edit Mode** toolbar, click the **NK Level** button.

   Tip: If the **NK Level** button is not visible, click the **NK NK** button to reveal the **NK Level** button.

3. Drag a box on the panel to define the list area.

   The **Insert into Component** dialog appears.

4. Do one of the following, and then click **Ok**:

   - If you want to include all levels in the list, select the **Show all (dynamic)** check box.
   - If you want to include only some levels, deselect the **Show all (dynamic)** check box, and then select the individual levels you want to include in the list.

   The levels buttons appear.

To insert a function button:

1. On the **Edit Mode** toolbar, click the **NK Func** button.

   Tip: If the **NK Func** button is not visible, click the **NK NK** button to reveal the **NK Func** button.

   Tip: The **configure** function inserts a configure button in the panel. This enables users to open the Switchboard configuration dialog, where they can configure the sources, destinations, and levels assigned to a particular IPS.

2. Drag a box on the panel to define the button area.

   The function button appears.

To insert a level status table:

1. On the **Edit Mode** toolbar, click the **Insert a level status table** button.
2. Drag a box on the panel to define the table area.

   The **Insert into Component** dialog appears.
3. In the Status Table Type area, select one of the following:
   - **Show status for all destinations**
   - **Show status for currently selected destination**
4. From the scrolling list, select a scrolling option:
   - **True** — use vertical and/or horizontal scroll bar, if needed.
   - **False** — do not use scroll bars.
   - **Vertical** — add a vertical scroll bar.
   - **Horizontal** — add a horizontal scroll bar.
   - **Always** — always use vertical and horizontal scroll bars.
5. Click **Ok**.

   The level status table appears.

Licensing

The required DashBoard software licenses must be purchased from your Ross Video sales representative in order to use DashBoard licensed features. This chapter outlines how to activate, refresh/update, and delete/remove DashBoard licensed features, as well as how the grace period works.

This section includes the following topics:

- "**Activating DashBoard Licensed Features**" on page 6–2
- "**Updating DashBoard Licensed Features**" on page 6–7
- "**Removing DashBoard Licensed Features**" on page 6–10
- "**Opening a Licensed CustomPanel**" on page 6–13
- "**Understanding the Grace Period**" on page 6–14

Activating DashBoard Licensed Features

This section outlines the different methods you may use to install license and product keys to access DashBoard features. The required DashBoard software licenses must be purchased from your Ross Video sales representative before activating DashBoard licensed features.

The following methods of activating DashBoard licensed features are described below:

- "**Activating DashBoard Licensed Features with Ross Platform Manager**" on page 6–2
- "**Activating DashBoard Licensed Features with Online Activation**" on page 6–4
- "**Activating DashBoard Licensed Features with Ross Keys (Legacy)**" on page 6–5
- "**Activating DashBoard Licensed Features in Ultritouch**" on page 6–7

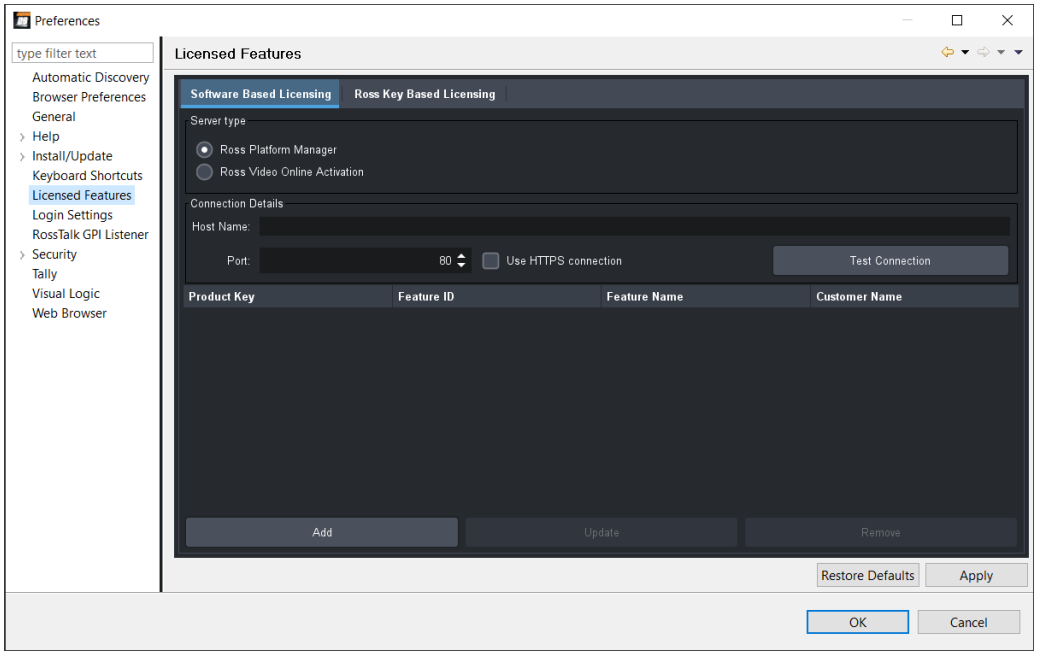
Activating DashBoard Licensed Features with Ross Platform Manager

If you own a Ross Platform Manager server, you can to use it to activate DashBoard licensed features. The following procedure outlines the steps required for this.

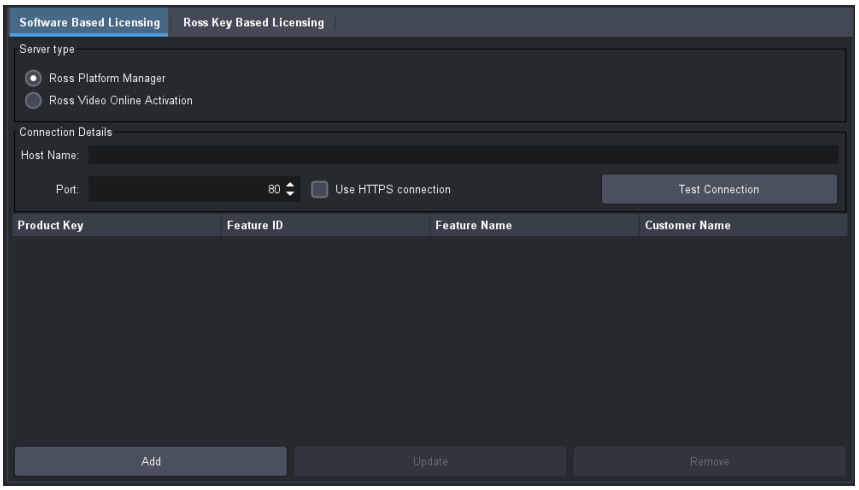
To activate DashBoard licensed features with Ross Platform Manager

1. Launch the DashBoard software by selecting the DashBoard icon on your desktop.
2. From the main toolbar, select **Window** > **Preferences**.

   The **Preferences** dialog box opens.
3. From the **Preferences** dialog box, select **Licensed Features**.

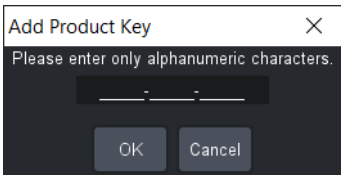


4. In the **Licensed Features** dialog box, ensure the **Software Based License** tab is selected.



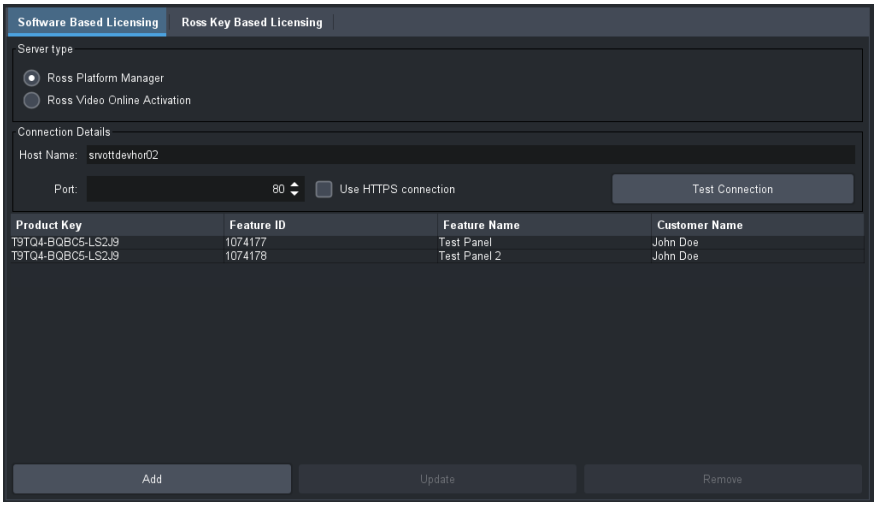
5. Select **Ross Platform Manager** as the **Server type**.
6. In **Connection Details**, do the following:
   a. Enter the name of the host (or the IP Address of the server) in the **Host Name** field.
   b. Specify the **Port**. The default setting is 80.
   c. Select the **Use HTTPS connection** box if desired.
7. Click **Add**.

   The **Add Product Key** dialog box opens.



8. Enter the 15 digit product key from your Ross Platform Manager server in the Add Product Key dialog box.
9. Click **OK**.

   The **Add Product Key** dialog box closes and all feature IDs associated with the product key are added to the Licensed Features table.



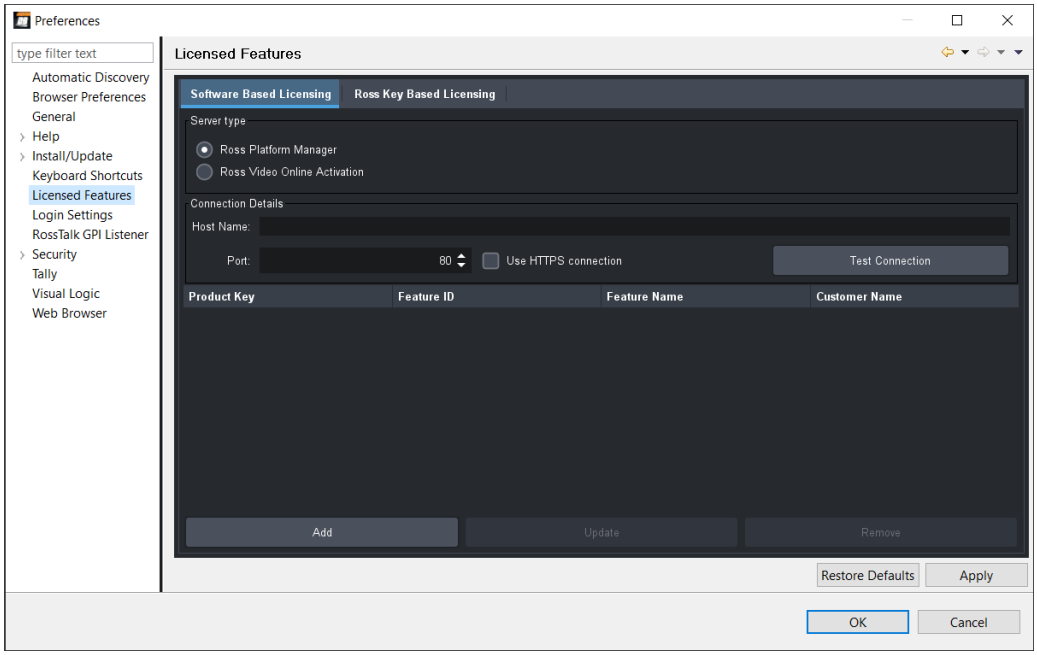
Activating DashBoard Licensed Features with Online Activation

Use the following procedure to install a software license for a DashBoard feature using Ross Video Online Activation.

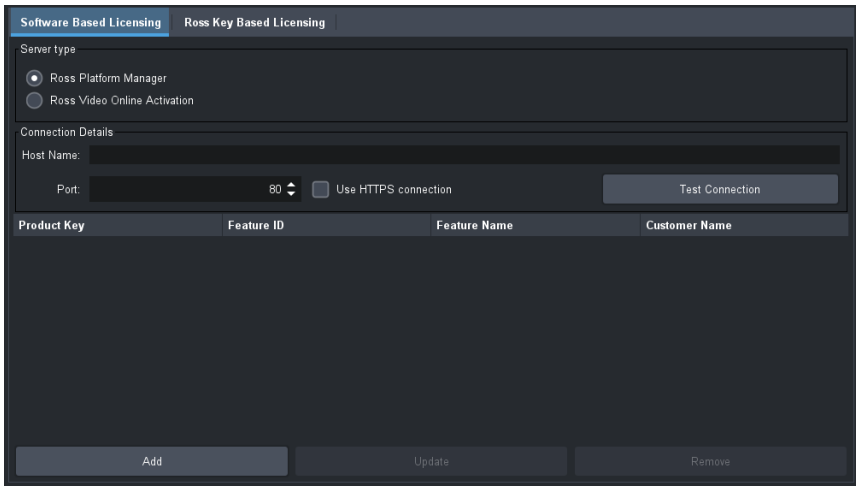
To activate DashBoard licensed features with Ross Video Online Activation

1. Launch the DashBoard software by selecting the DashBoard icon on your desktop.
2. From the main toolbar, select **Window** > **Preferences**.

   The **Preferences** dialog box opens.
3. From the **Preferences** dialog box, select **Licensed Features**.

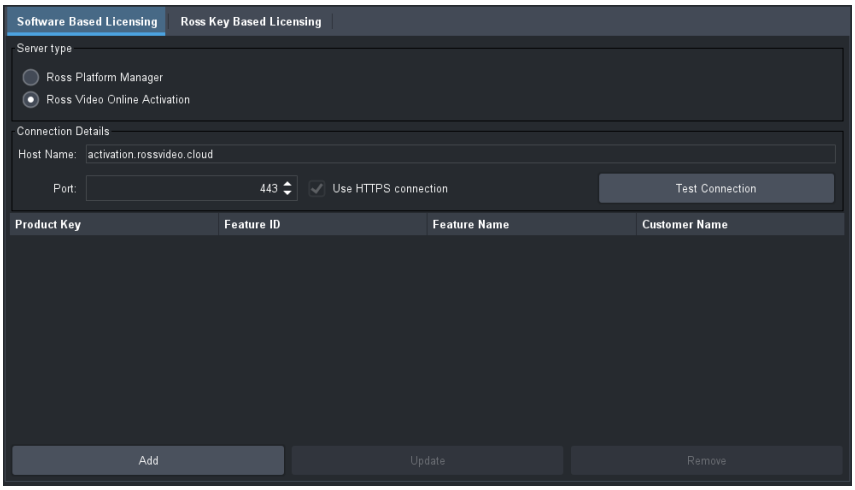


4. In the **Licensed Features** dialog box, ensure the **Software Based License** tab is selected.



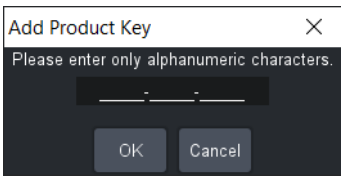
5. Select **Ross Video Online Activation** as the **Server type**.

   The **Connection Details** section automatically fills with the information for Ross Video Online Activation, and the fields are unable to be edited.



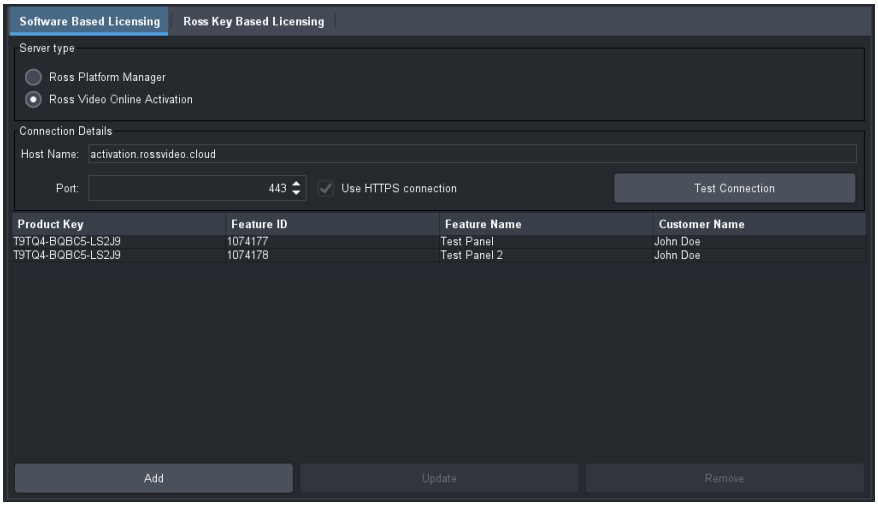
6. Click **Add**.

   The **Add Product Key** dialog box opens.



7. Enter the 15 digit product key from the Ross Online Activation server in the Add Product Key dialog box.
8. Click **OK**.

   The **Add Product Key** dialog box closes and all feature IDs associated with the product key are added to the Licensed Features table.



Activating DashBoard Licensed Features with Ross Keys (Legacy)

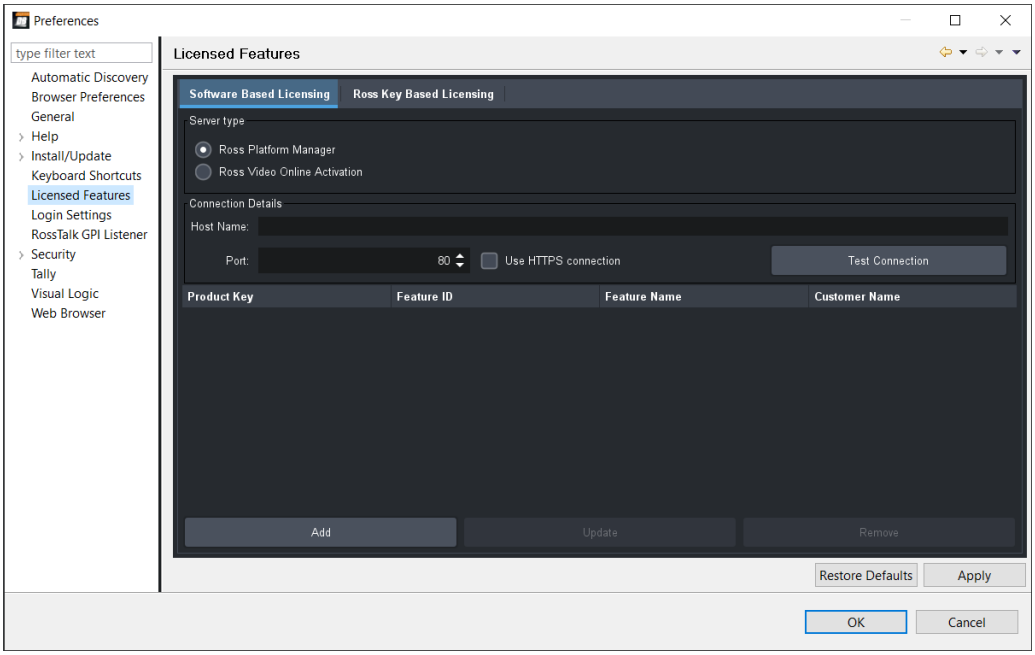
Use the following procedure to install a software license for a DashBoard feature using Ross Keys (the legacy method).

To activate DashBoard licensed features with Ross Keys

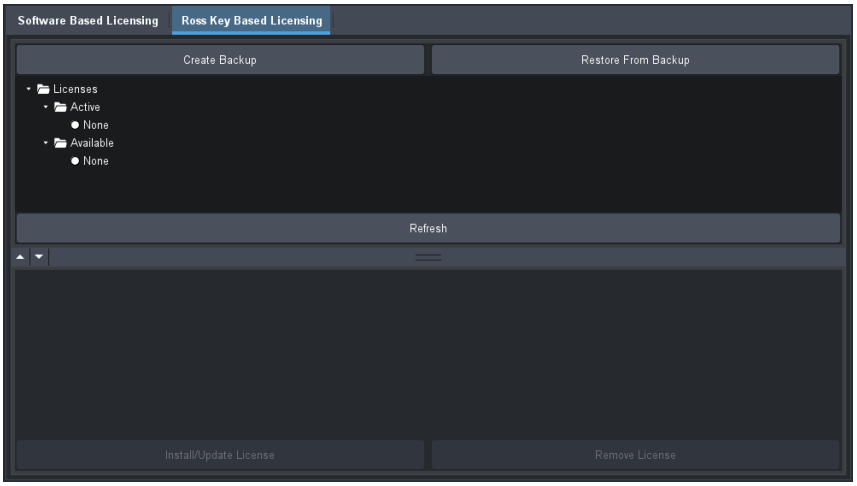
1. Launch the DashBoard software by selecting the DashBoard icon on your desktop.
2. Select the feature you wish to license as follows:

a. From the main toolbar, select **Window** > **Preferences**.

b. From the **Preferences** dialog box, select **Licensed Features**.

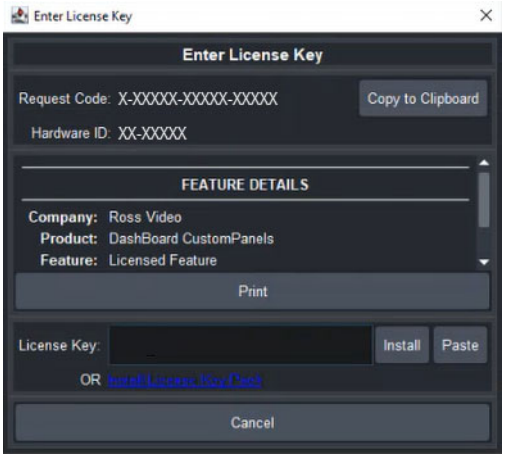


c. In the **Licensed Features** dialog box, select the **Ross Key Based License** tab. A list of available licenses is displayed in the **Licensed Features** dialog box and is organized into subfolders. The **Active** subfolder includes those features currently installed on your computer. The **Available** subfolder lists the new features you can install on your computer.



3. From the **Available** subfolder, click the feature to license.

4. From the **Licensed Features** dialog box, click **Install/Update License** to open the **Enter License Key** dialog box. The **Enter License Key** dialog box can include your Request Code, and Hardware ID. You need this information when contacting Ross Video Technical Support. To print the information in the dialog box, click **Print**.



5. Contact Ross Video Technical Support using the contact information in the section "**Getting Help**" on page 1–3. Ensure that you have the following information from the **Enter License Key** dialog box: Request Code, Hardware ID, and Feature ID.
6. When you speak to our Technical Support representative, tell them your name, your facility name, and the **Request Code** as listed on the **Enter License Key** dialog box.
7. If you received a license key, enter the **License Key** in the **License Key** field.
8. If you received a License file (*.keypack), click **Install License Key Pack** and follow the on-screen instructions in the **Install License Key Pack** dialog box.
9. Click **Install** to begin installing the key for the DashBoard software license. When the installation is complete, the **License Installed** dialog box opens.
10. Click **OK**.

Activating DashBoard Licensed Features in Ultritouch

For activating DashBoard licensed features in Ultritouch, please refer to the following procedures in the ***Using the DashBoard Interface*** chapter:

- "**To activate DashBoard licensed features with Ross Platform Manager in Ultritouch**" on page 4–32
- "**To activate DashBoard licensed features with Ross Video Online Activation in Ultritouch**" on page 4–34
- "**To activate DashBoard licensed features with Ross Keys in Ultritouch**" on page 4–36

Updating DashBoard Licensed Features

If any data associated with a DashBoard licensed feature has changed in Ross Platform Manager or Ross Video Online Activation, you will need to update the product key in DashBoard so that it reflects the changes.

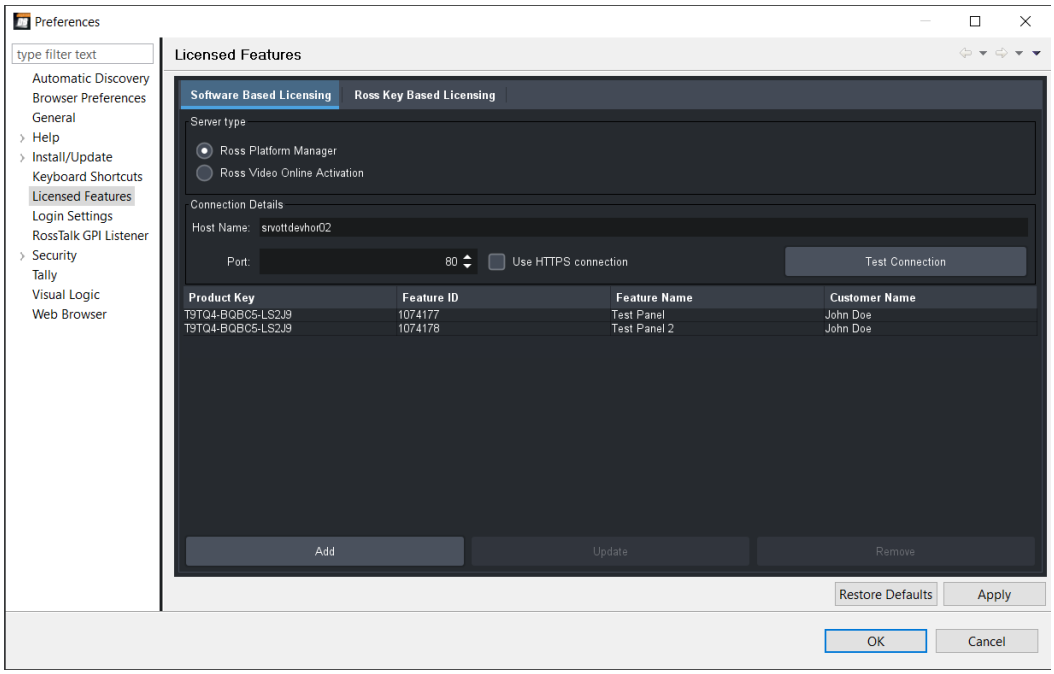
For updating DashBoard licensed features in Ultritouch, please refer to the following procedures in the ***Using the DashBoard Interface*** chapter:

- "**To update DashBoard licensed features in Ultritouch (Software Based Licensing method)**" on page 4–38
- "**To update DashBoard licensed features in Ultritouch (Ross Keys Based Licensing method)**" on page 4–38

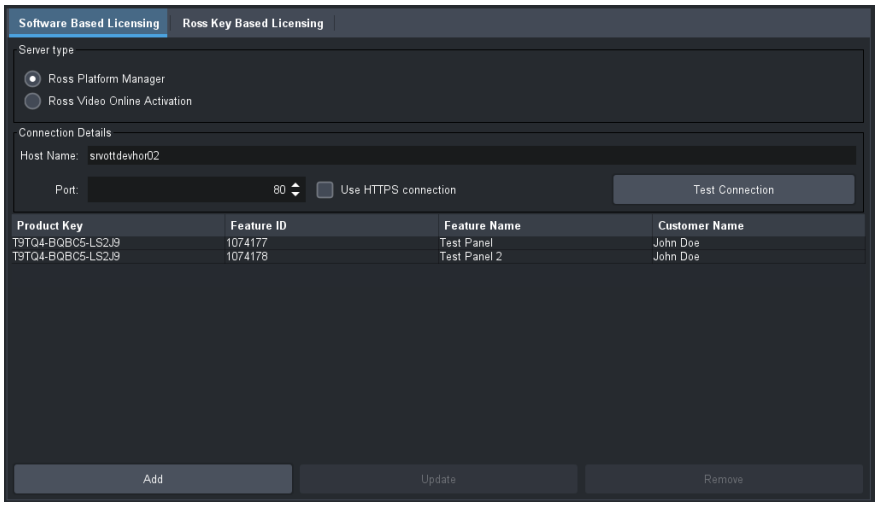
To update DashBoard licensed features (Software Based Licensing method)

1. From the main toolbar, select **Window** > **Preferences**.

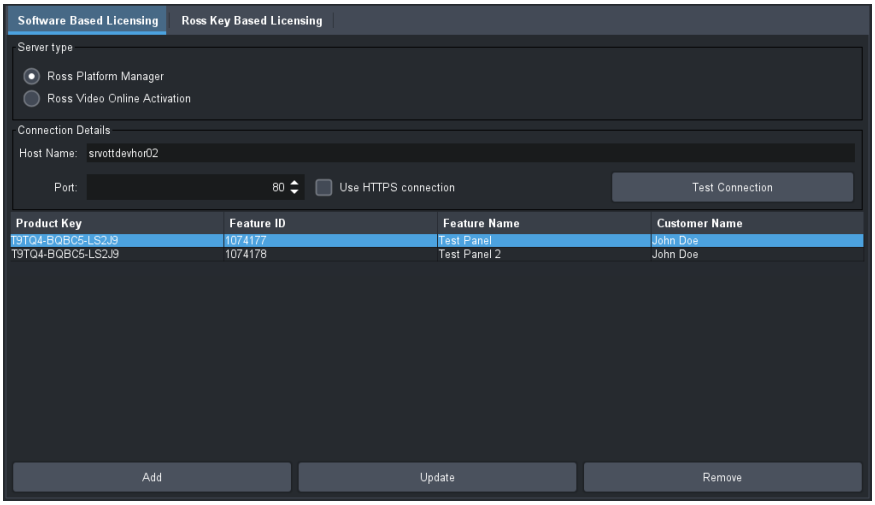
   The **Preferences** dialog box opens.
2. From the **Preferences** dialog box, select **Licensed Features**.



3. In the **Licensed Features** dialog box, ensure the **Software Based License** tab is selected.



4. Select the feature that you want to update from the Licensed Features table.



5. Click **Update**.

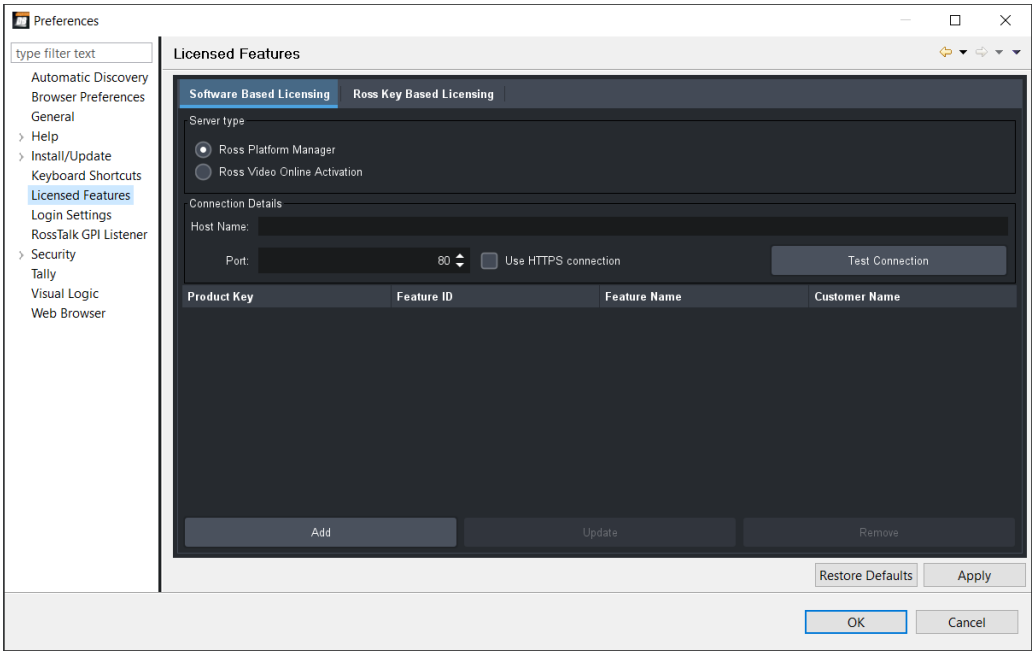
   The selected feature updates and the most current data is displayed in the Licensed Features table.

To update DashBoard licensed features (Ross Keys Based Licensing method)

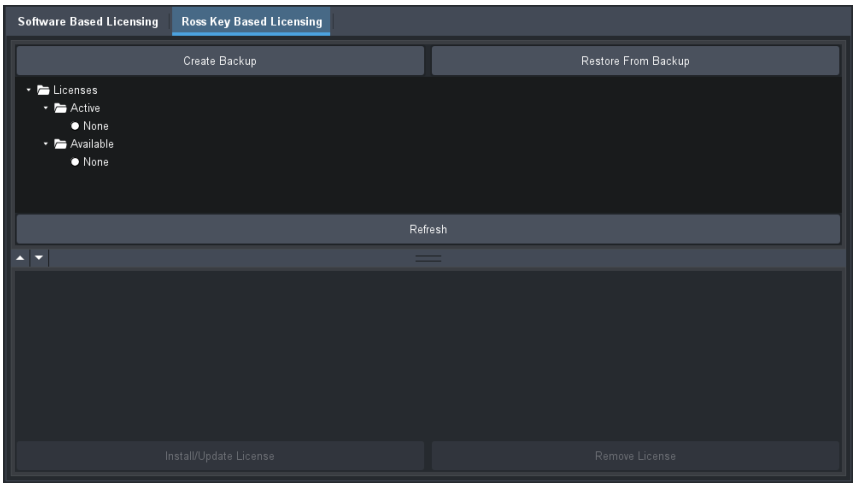
1. From the main toolbar, select **Window** > **Preferences**.

   The **Preferences** dialog box opens.

2. From the **Preferences** dialog box, select **Licensed Features**.



3. In the **Licensed Features** dialog box, ensure the **Software Based License** tab is selected.



4. From either the **Active** or **Available** subfolder, select the feature you want to update.

   The **Feature Details** for the selected feature load.

5. Click **Install/Update License**.

   The **Enter License Key** dialog box opens.

6. Enter the **License Key** for the feature you want to update.

7. Click **Install**.

   The selected feature updates and the most current data is displayed in the **Feature Details**.

Removing DashBoard Licensed Features

If you would like to remove a DashBoard licensed feature from being used in your DashBoard, complete the steps in the appropriate procedure for how your licensing is set up.

For removing DashBoard licensed features in Ultritouch, please refer to the following procedures in the ***Using the DashBoard Interface*** chapter:

- "**To remove DashBoard licensed features in Ultritouch (Software Based Licensing method)**" on page 4–39
- "**To remove DashBoard licensed features in Ultritouch (Ross Key Based Licensing method)**" on page 4–40

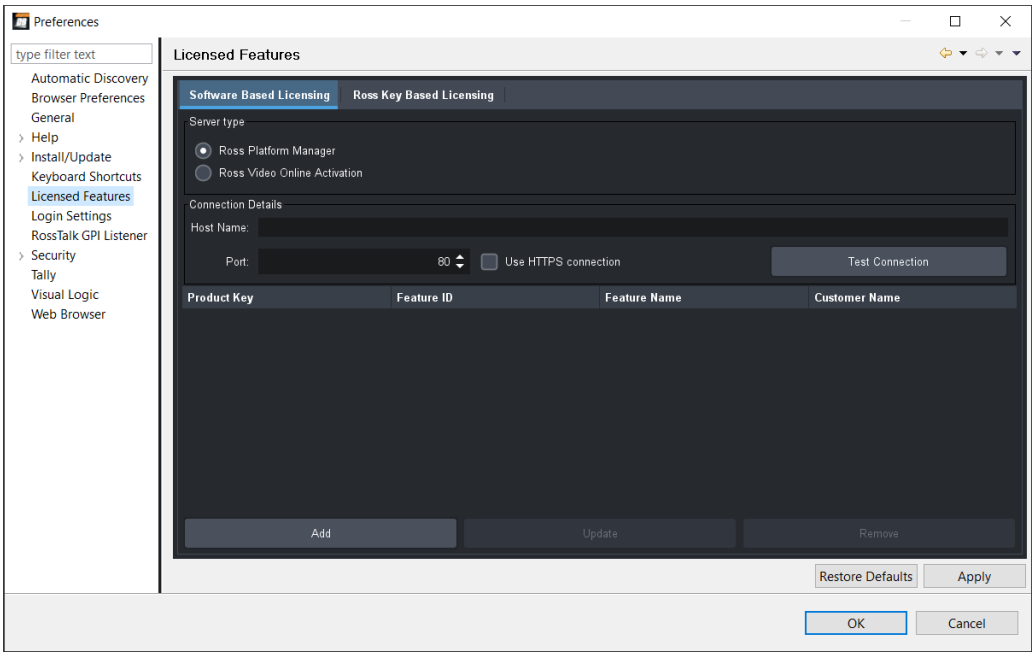
✶ Removing DashBoard licensed features can not be undone. Clicking **Remove** or **Remove License** removes features immediately. If this is done by mistake, you will need to reactivate the removed product key by following one of the procedures in "**Activating DashBoard Licensed Features**" on page 6–2.

To remove DashBoard licensed features (Software Based Licensing method)

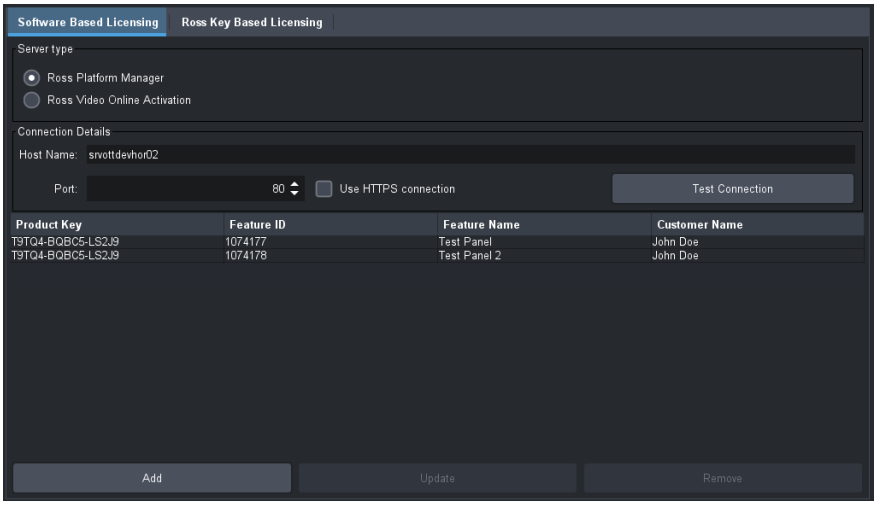
1. From the main toolbar, select **Window** > **Preferences**.

   The **Preferences** dialog box opens.

2. From the **Preferences** dialog box, select **Licensed Features**.

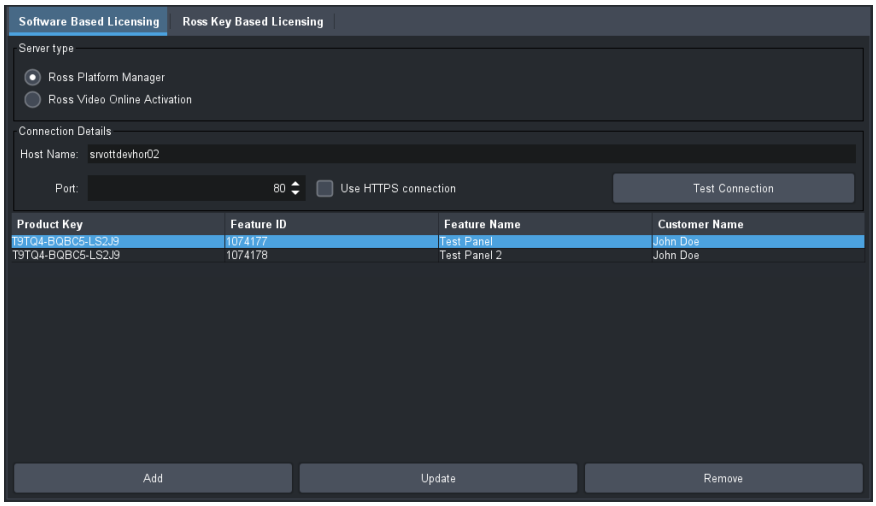


3. In the **Licensed Features** dialog box, ensure the **Software Based License** tab is selected.



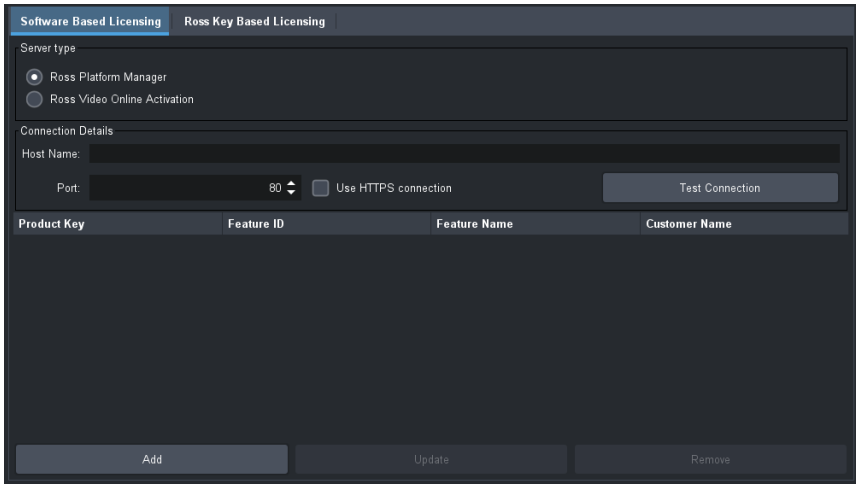
4. Select the feature that you want to remove in the Licensed Features table.

   Note that all features belonging to the Product Key of the selected feature will be removed, not just the one selected.



5. Click **Remove**.

   All features belonging to the Product Key of the selected feature are removed from DashBoard.

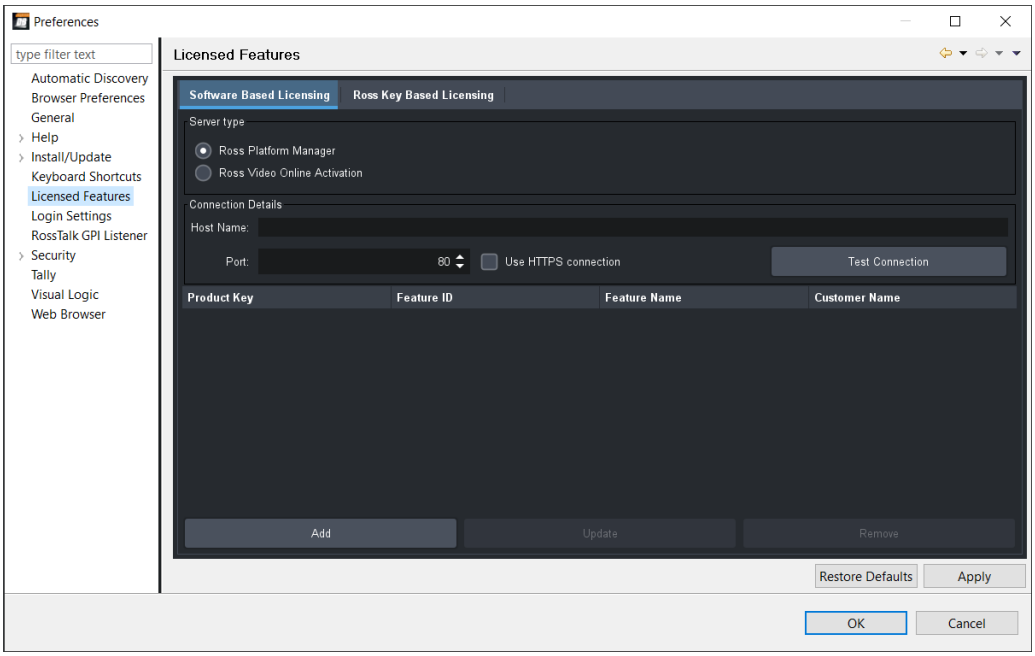


To remove DashBoard licensed features (Ross Key Based Licensing method)

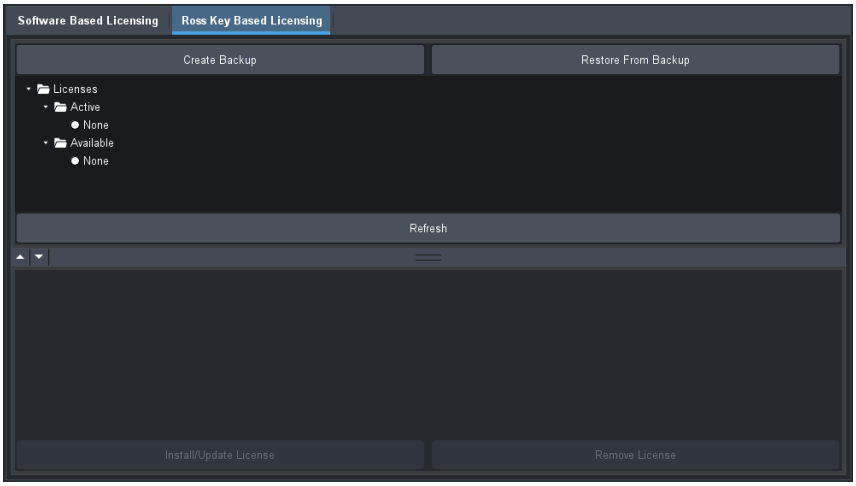
1. From the main toolbar, select **Window** > **Preferences**.

   The **Preferences** dialog box opens.

2. From the **Preferences** dialog box, select **Licensed Features**.



3. In the **Licensed Features** dialog box, ensure the **Ross Key Based License** tab is selected.



4. From the **Active** subfolder, select the feature you want to remove.

   The **Feature Details** for the selected feature load.

5. Click **Remove License**.

   The selected feature is removed from DashBoard.

Opening a Licensed CustomPanel

Opening a CustomPanel with licensed features works the same way that opening a non-licensed CustomPanel does, but with licensed CustomPanels it is important to remember the following points:

- CustomPanels with licensed components can take longer to load when opening. It may take 10 seconds or more to load your licensed CustomPanel, depending on how many licensed components it has.
- If a licensed component is not loading properly on your CustomPanel, ensure that the Activation Limit for the feature is not being exceeded on Ross Platform Manager.

Understanding the Grace Period

When a DashBoard licensed feature is activated and in use, it will continuously be checked by the licensing server to verify that the license is still valid. If for any reason DashBoard can no longer connect to the licensing server (a "Connection to License Server Lost" message will appear in the title bar), each licensed feature has a grace period of 7 days that will allow the licensed feature to continue working, even though it's license cannot be verified. This grace period begins based on the last time the license was successfully verified by the licensing server. If DashBoard does not regain a connection to the licensing server within the 7 day grace period, the licensed feature will be disabled until DashBoard can verify with the licensing server that the license is valid.

- It is important to note that tampering with the system clock of your computer will automatically end the grace period, and the licensed feature will be disabled until DashBoard can verify with the licensing server that the license is valid. Any changes made to the system clock during the grace period are considered tampering and will end the grace period immediately.

DashBoard Visual Logic

DashBoard Visual Logic is a visually-oriented code authoring environment that enables you to quickly create and edit segments of ogScript code for your CustomPanels. Visual Logic is part of Panel Builder.

ogScript is a JavaScript-based programming language designed to interact with DashBoard-enabled devices. In DashBoard CustomPanels, you can use ogScript to define interactions between panel objects, and to communicate with external devices. You can create and edit ogScript manually, or use Visual Logic to create and edit it visually.

Visual Logic enables CustomPanel creators who have limited JavaScript experience to more easily add ogScript functionality and logic to CustomPanels. In the Visual Logic editor, you drag pre-made logic blocks into the workspace, and then connect them to define their logical relationships. PanelBuilder creates the underlying ogScript code for you.

Tip: The DashBoard Visual Logic editor is similar to the Visual Logic editor in Ross Video XPression, so if you learn to use one, you can easily learn to use the other.

Figure 7.1 shows the DashBoard Visual Logic editor.

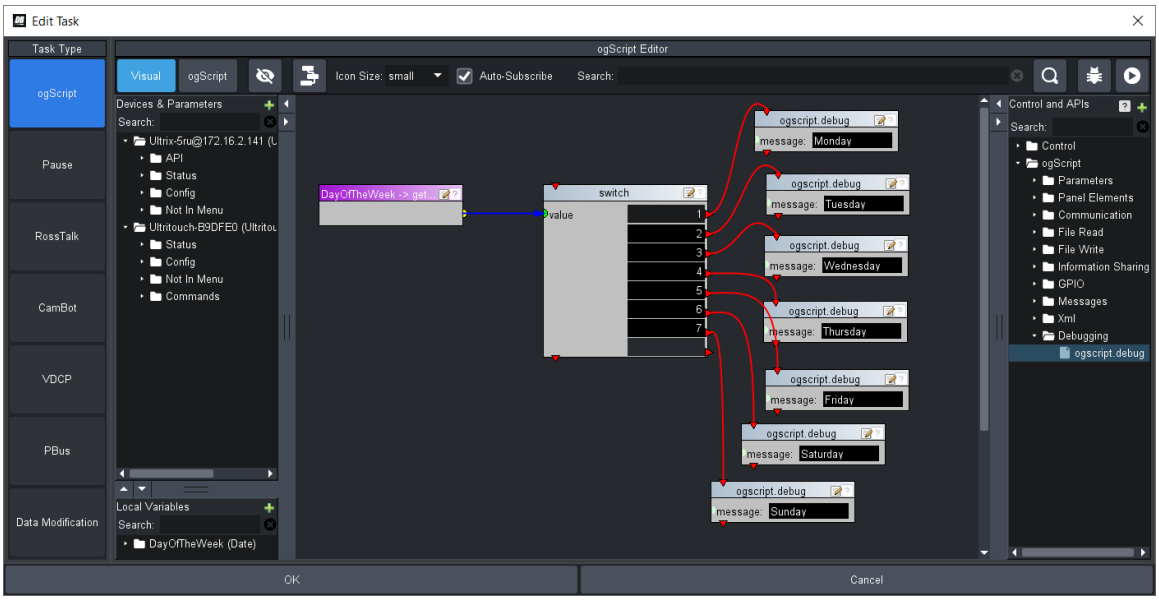


***Figure 7.1** - Visual Logic Editor*

This section includes the following topics:

- "**The Visual Logic Editor**" on page 7–2
- "**Using DashBoard Visual Logic**" on page 7–9
- "**Creating Internal and External APIs**" on page 7–13
- "**Creating a New Device Type in Visual Logic**" on page 7–14

Tip: The Ross Video website features video tutorials about how to use DashBoard PanelBuilder, including the Visual Logic editor. To view the video tutorials, go to http://www.rossvideo.com/control-systems/dashboard/dashboard-u/index.html.

For More Information on...

- Creating CustomPanels, see "**PanelBuilder™**" on page 5–1.
- Detailed reference information about ogScript functions and their parameters, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.
- JavaScript commands and syntax, search for "JavaScript Reference" on the Internet.

The Visual Logic Editor

This section describes the Visual Logic editor.

The Visual Logic editor is available only when you are editing a segment of ogScript code. To access the Visual Logic editor, you must first create a CustomPanel that includes an ogScript code segment, and then select the Component Tree item that represents that ogScript code segment. The following Component Tree items are ogScript code segments: **api**, **ogscript**, **task**, and **timertask**.

For demonstration purposes, the following procedure describes how to create an ogScript code segment (in this case, a **task** item in the Component Tree) so you can view the Visual Logic editor:

To view the Visual Logic editor (an example):

1. Create a new CustomPanel.
2. In **Edit Mode**, add a button to the CustomPanel.
3. Double-click the button to edit it.
4. The **Edit Component** window appears.

   Note that the **button** item is highlighted in the **Component Tree**.
5. In the **Tasks** section, click **Add**.

   The **Add Task** window appears.

   The Visual Logic editor is open by default. You can use it to create the ogScript code.

   Tip: Whenever the Visual Logic editor is open, the **Visual** button is highlighted blue.
6. When you are finished creating the ogScript code, click **OK**, and then click **Apply Changes**.

   Note that the new **task** item appears within the **button** item in the **Component Tree**.

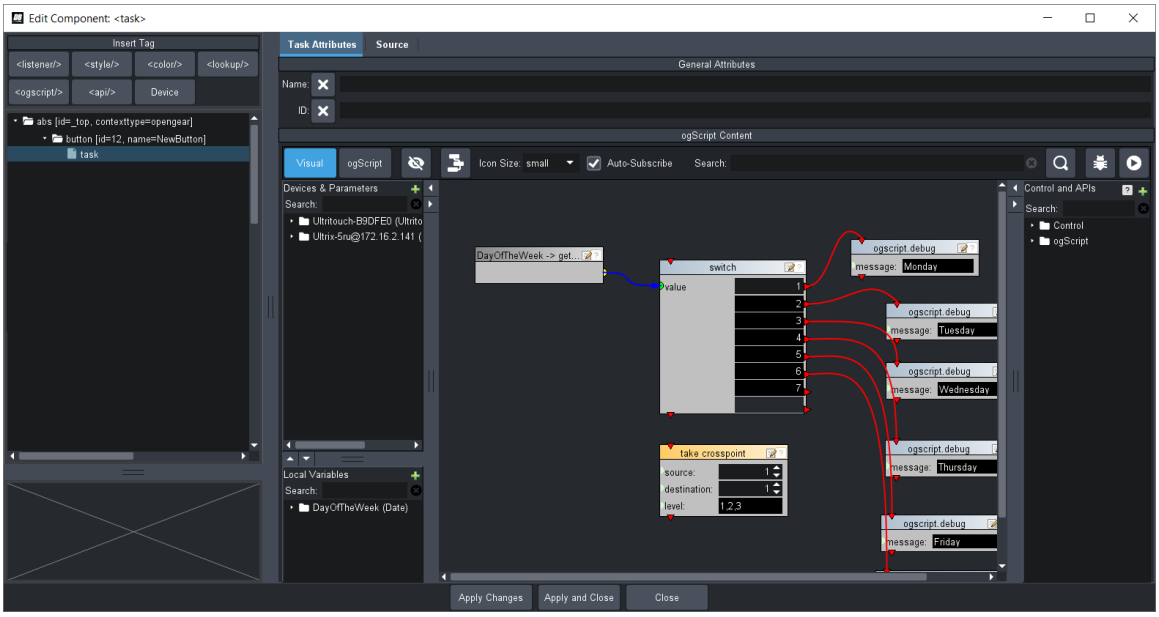


Figure 7.2 *- Edit Component Window showing the Visual Logic Editor*

Visual Logic Editor - Areas and Controls

The Visual Logic editor includes the following areas and controls:

- "**Visual Button**" on page 7–3
- "**ogScript Button**" on page 7–3
- "**Show Panels Button and Hide Panels Button**" on page 7–3
- "**Auto Arrange Button**" on page 7–4
- "**icon size List**" on page 7–4
- "**Search Box and Find Next Button**" on page 7–4
- "**Debug Button**" on page 7–5
- "**Run Button**" on page 7–5
- "**Device & Parameters Panel**" on page 7–5
- "**Local Variables Panel**" on page 7–6
- "**Visual Logic Workspace**" on page 7–6
- "**Control and APIs Panel**" on page 7–6

Visual Button

Figure 7.3 *- The Visual Button*

The **Visual** button changes the **ogScript Content** area to show the Visual Logic editor.

Whenever the Visual Logic editor is open, the **Visual** button is highlighted blue.

Note: If the ogScript code has been edited outside of the Visual Logic editor, you cannot use Visual Logic to view or edit it.

ogScript Button

Figure 7.4 *- The ogScript Button*

The **ogScript** button changes the **ogScript Content** area to show the manual **ogScript Editor**.

Note: If you edit an ogScript code segment outside of the Visual Logic editor, you cannot later use Visual Logic to view or edit it.

Show Panels Button and Hide Panels Button

The **Devices and Parameters** panel, the **Local Variables** panel, and **Control and APIs** panel list logic blocks that you can add to the Visual Logic workspace.

Temporarily hiding these panels enables you to see more of the Visual Logic workspace.

The **Show Panels** button reveals these panels.The **Hide Panels** button hides them.

Figure 7.5 *- The Show Panels Button (left), and the Hide Panels Button*

Both buttons appear in the same location. Only one is visible at a time.

Auto Arrange Button

Figure 7.6 *- The ogScript Button*

The **Auto Arrange** button organizes all logic blocks in the workspace neatly.

icon size List

Figure 7.7 *- The Icon Size Dropdown menu*

Some logic blocks associated with devices include icons to help you visually identify the block types. Use the **icon size** list to set the display size of these icons.

Auto-Subscribe Checkbox

Figure 7.8 *- The Auto-Subscribe Button*

This checkbox is only enabled for panels that use openGear (OGP) device sources that support the subscription protocol. When the checkbox is selected, it will automatically add subscriptions support to the applicable device context and includes a list of subscription OIDs.

For More Information on...

- Subscriptions, see "**Leveraging Data Sources with Subscriptions**"

Search Box and Find Next Button

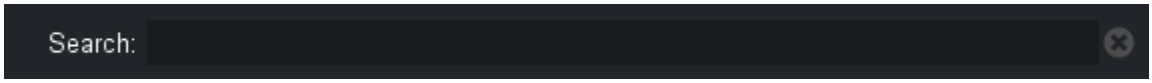


Figure 7.9 *- The Search Button*

The **Search** box enables you to find a particular logic block, or cycle through a set of similar logic blocks.

To find a particular logic block in the workspace, type a search string in the **Search** box, and then press **Enter**. The search string can be any text that appears on the block, such as part of the name of the block, or data in the block.

If the search yields results, one logic block that satisfies the search criterion is highlighted. To view another match, click the **Find Next** button (magnifying glass icon).

Figure 7.10 *- The Find Next Button*

To exit **Search** mode, click the small **x** icon beside the **Search** box.

Tip: You can also search by block ID. Block IDs are unique identifiers assigned to code blocks. You can view block IDs on the **Source** tab. To search for a given block, for example block **1777**, type **block: 1447** in the **Search** box and then press **Enter**. If the block is part of the current ogScript code segment, it is highlighted in the workspace.

Debug Button

Figure 7.11 *- The Debug Button*

DashBoard includes an implementation of the Mozilla Rhino JavaScript Debugger as an integrated ogScript Debugger panel. You can access the ogScript Debugger from within DashBoard, and use it to detect problems in your ogScript code.

The **Debug** buttonopens the current ogScript code block(s) in the ogScript Debugger. The code appears as ogScript (text).

For more information about the ogScript Debugger, see "**Debugging ogScript Code**" on page 5–174.

Run Button

Figure 7.12 *- The Run Button*

The **Run** button runs the current code block(s).

Running isolated sections of code may help you detect problems.

When you run the code, ensure that the main DashBoard window is visible so you can observe the results.

Device & Parameters Panel

The **Devices and Parameters** panel lists API functions and parameters associated with devices and panel parameters.

Devices:

- Expand the name of a device to reveal its API functions and/or parameters. You can drag the functions and parameters into the workspace to use them in your ogScript code. The functions and parameters are designed to provide control of the device.
- To add a device to the list, click the green + icon, select a device type, and then specify properties of the device.
- You can add devices from the DashBoard tree, or add a new device of one of the following types: **Acuity**, **CamBot**, **Carbonite**, **Graphite**, **PBus**, **VDCP**, and **XPression**.

  Tip: You can also create an entirely new device type. For more information, see "**Creating a New Device Type in Visual Logic**" on page 7–14.

Panel Parameters:

- Expand **Panel Parameters** to reveal a list of the parameters available in the CustomPanel. You can drag parameters into the workspace to use them in your ogScript code. Parameter values can be routed to other logic blocks for logical operations.

  Note: The **Panel Parameters** folder is visible only if your CustomPanel includes panel parameters.
- For information about creating new panel parameters, see "**Parameters and Data Sources**" on page 5–160.

Search:

- The **Search** box enables you to find API functions or parameters that have names containing the search string.
- To search, type a search string in the **Search** box, and then press **Enter**. The list is filtered to show only logic blocks that satisfy the search criterion.
- To exit **Search** mode and view the entire list, click the small **x** icon beside the **Search** box.

Local Variables Panel

The **Local Variables** panel lists variables that can be used within the current ogScript code block only. You can create local variables. Some logic blocks (such as the for **loop** block) also create local variables.

To create a new local variable, click the green + icon, specify the variable type, **Variable Name**, and **Initial Value**. You can also set the **Block Color**.

Tip: You can use block colors to group logic blocks visually in the workspace.

Search:

- The **Search** box enables you to find local variables that have names containing the search string.
- To search, type a search string in the **Search** box, and then press **Enter**. The list is filtered to show only those that satisfy the search criterion.
- To exit **Search** mode and view the entire list, click the small **x** icon beside the **Search** box.

Visual Logic Workspace

The central area of the Visual Logic editor is the workspace. This is where you drag in objects (such as parameters, variables, and functions) to create logic blocks, and then link the blocks to establish logical connections between them.

If the segment of ogScript code you are editing has multiple functions, each function appears on a separate tab in the Visual Logic workspace.

Tip: The workspace is usually larger than the available display space. Use the scroll bars on the right and bottom of the workspace to adjust the view.

Control and APIs Panel

The **Control and APIs** panel lists logic blocks associated with logical operations (controls) and API functions (including ogScript functions).

Control:

The **Control** folder contains logic blocks that perform logical and mathematical operations. You can use these logic blocks to test conditions (**if**, **switch**), set up loops (**for**, **while**), parse and manipulate string data, and perform mathematical calculations.

ogScript:

The **ogScript** folder contains ogScript functions that can get/set parameter values, manipulate panel elements, read and write to files, read/write/parse messages, communicate by HTTP, FTP, UDP, and TCP/IP, and more.

For detailed reference information about ogScript functions, see the ***DashBoard CustomPanel Development Guide (8351DR-007).***

API Functions:

The **API Functions** folder contains functions made available by importing an external API, or by creating an internal API. You can drag these functions into your CustomPanel.

Note: The **API Functions** folder is visible only if one or more API functions are available.

For more information, see "**Creating Internal and External APIs**" on page 7–13.

API Objects:

The **API Objects** folder contains objects made available by importing an external API, or that are defined in an internal API. You can drag these objects into your CustomPanel.

Note: The **API Objects** folder is visible only if one or more API objects are available.

local functions:

Local functions are functions created within an ogScript-based item (**api**, **ogscript**, **task**, **timertask**), and made available only within that item.

The **local functions** folder is visible only if the ogScript code block contains one or more local function definitions.

To create a new local function, click the click the green + icon, click **Add Function**, specify the properties of the function (**Function Name**, **Has Return value**, **# of Arguments**), and then click **Ok**.

By default, there are no tabs in the workspace. If you add a new local function, your existing work appears on the **Main** tab, and the new function appears on a tab named after the function. Each additional function appears on a separate tab.

Functions you create from the **Control and API** panel are available only within the current segment of ogScript code. For information about creating functions that are available throughout the current CustomPanel (internal APIs) or available to other panels (external APIs), see "**Creating Internal and External APIs**" on page 7–13.

Search:

- The **Search** box enables you to find logic blocks that have names containing the search string.
- To search, type a search string in the **Search** box, and then press **Enter**. The list is filtered to show only logic blocks that satisfy the search criterion.
- To exit **Search** mode and view the entire list, click the small **x** icon beside the **Search** box.

Logic Blocks

Logic blocks are visual representations of ogScript code segments. Each logic block represents a functional unit, such as a parameter, a local variable, a logical control, or an ogScript function.

To create a working ogScript code segment, you drag multiple logic blocks into the workspace and then link them together to define how they interact.

Figure 7.13 shows the parts of the **if** logic block, which compares two input values and executes other logic blocks based on the test results.

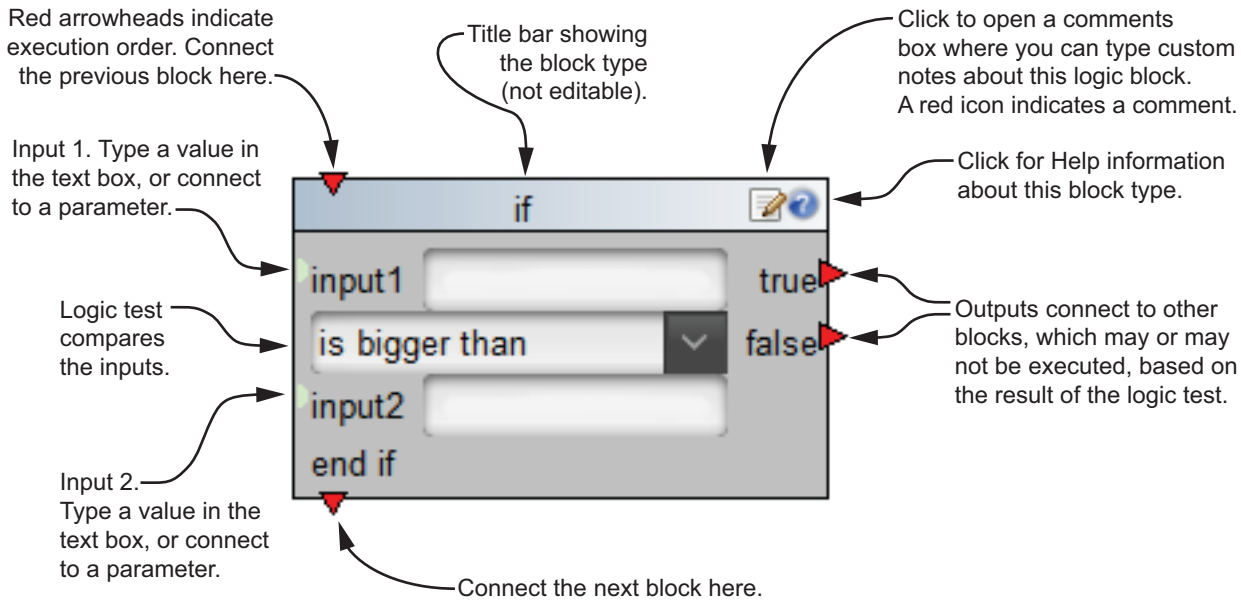


Figure 7.13 *- The* ***if*** *Logic Block*

Figure 7.14 shows two **if** logic blocks connected to each other and to other blocks.

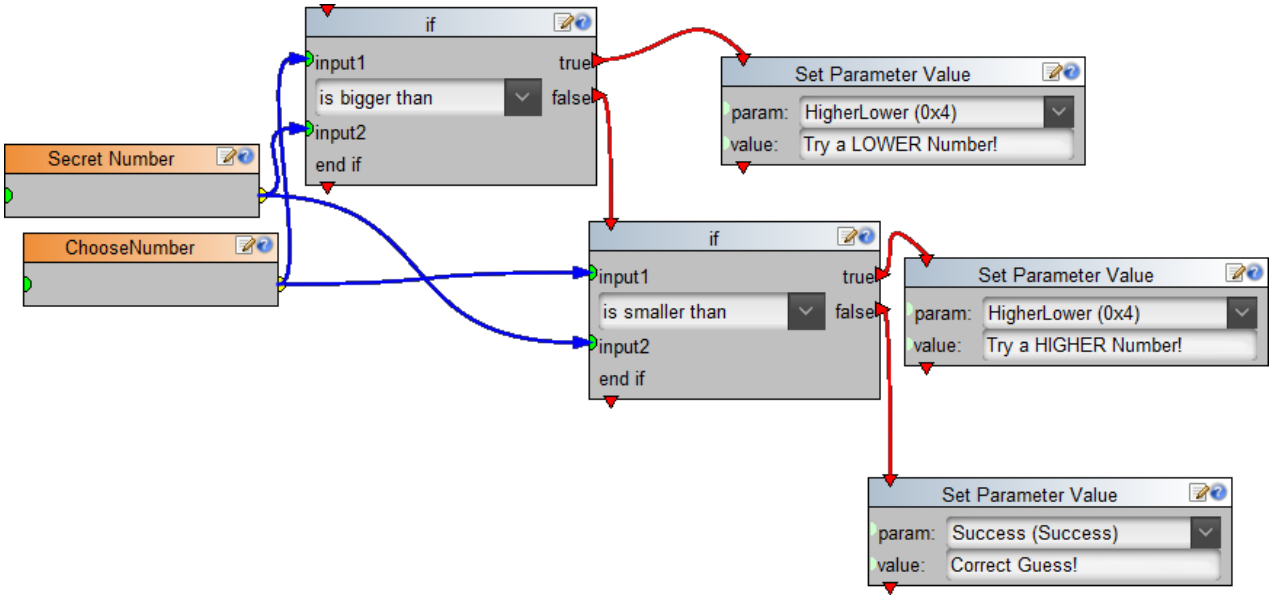


Figure 7.14 *- The* ***if*** *Logic Block Connected to Other Logic Blocks*

In **Figure 7.14**, two parameter blocks (orange titles) provide the data to be compared by the **if** blocks. Text boxes for **input 1** and **input 2** on the **if** blocks are not shown, because the input values are provided by parameters.

This example is from a simple number guessing game. Cascading **if** blocks evaluate whether the user's guess (**ChooseNumber**) matches the **Secret Number**, and either changes the **Success** parameter value to display a win message (**Correct Guess!**), or changes the value of the **HigherLower** parameter to display one of two hints.

Line Colors

The colors of the lines connecting the logic blocks have meanings:

- Red lines with arrowheads indicate the order in which logic block actions are executed.
- Blue lines with arrowheads indicate the sharing of data from one logic block to another.
- If a line is green, it is currently being drawn or moved.

Data Inputs and Outputs

A green dot on the left side of a logic block indicates a data input.

A yellow dot on the right side of a logic block indicates a data output.

Data inputs and outputs appear on almost every type of logic block, including parameter blocks, local variable blocks, math blocks, most control blocks, most device blocks, and all ogScript blocks.

Data can come from parameters, local variables, and math blocks. Some blocks also accept typed input, or provide a drop-down list of valid values.

To share data from one logic block to another, click and drag from a data output point (yellow dot) on one block to a data input point (green dot) on another block. You can share data from one block to multiple other blocks.

Linking Blocks in Sequence

It is often important to make one operation occur before another. You can link logic blocks to define their order.

Red arrowheads on the top and bottom of a logic block are connection points. To arrange two blocks in order, click and drag from the bottom connection point of the first block to the top connection point of the second block.

Some blocks have red arrowheads on their right sides. These blocks can execute other blocks. For example, a block that contains a logic test can execute other blocks based on the result of the test. Each possible test result has a connection point. Blocks connected to one of these points may or may not be executed, depending on the result of the logic test.

Block Colors

The title bars of logic blocks are colored, to visually group the blocks. By default, parameter blocks are orange and all other blocks are light blue. When you add a device or create a local variable, you can specify its block color.

Using DashBoard Visual Logic

This section describes how to use the DashBoard visual Logic editor to add ogScript functionality to your panels.

Tip: The DashBoard Visual Logic editor is also a handy tool for learning ogScript syntax. You can add and connect blocks in the Visual Logic editor, then view the resulting ogScript code on the **Source** tab.

Topics in this section include:

- "**Creating and Populating a New CustomPanel**" on page 7–10
- "**Editing ogScript Code in Existing CustomPanels**" on page 7–10
- "**Importing External APIs from Saved Files**" on page 7–10
- "**Adding ogScript-Based Items to the Component Tree**" on page 7–11
- "**Adding and Linking Logic Blocks**" on page 7–12
- "**Adding Devices**" on page 7–12
- "**Adding Panel Parameters**" on page 7–12
- "**Adding Local Variables**" on page 7–12
- "**Adding Logical Controls and Math Operations**" on page 7–13
- "**Creating New Functions**" on page 7–13

Creating and Populating a New CustomPanel

The DashBoard Visual Logic editor helps you create ogScript code segments to add functionality to components in CustomPanels. Before you can use Visual Logic, you have to create the CustomPanel components that the ogScript code will manipulate.

To create and populate a CustomPanel:

1. Create a new CustomPanel.

   The panel can be any type, but if you want to use parameters, it must include a data source.

   For more information, see "**Creating a CustomPanel**" on page 5–8.

2. Populate the panel with components you want to include, such as buttons, labels, parameters, and timers.

   For more information, see "**Adding Basic Components**" on page 5–25, "**Adding Data-Backed Components**" on page 5–91, and "**Timers**" on page 5–104.

3. If you want to control or monitor a device that appears in the basic tree, add any device control from the device to your CustomPanel. All the device's functions and parameters are made available.

   For more information about how to add a device control to your CustomPanel, see "**Adding Device Editors, Device Summaries, and Device Controls**" on page 5–21.

Editing ogScript Code in Existing CustomPanels

You can edit ogScript code segments in existing panels. If the code was created using Visual Logic and was never edited manually, you can edit it in the Visual Logic editor. Otherwise, it can be edited manually only.

This section describes how to access ogScript code segments associated with existing CustomPanel components and Component Tree items.

To access existing ogScript code segments:

1. Open the CustomPanel.
2. Press **Ctrl+g** or click the **PanelBuilder Edit Mode** button to enter **Edit Mode**.
3. Double-click the panel to open the **Edit Component** window.
4. In the **Component Tree**, click the item you want to edit.

   The following types of Component Tree items are ogScript code segments: **api**, **ogscript**, **task**, **timertask**.

   On the **Attributes** tab for the item, the ogScript is available for editing. If the **Visual** button is blue, the ogScript was created and edited only in Visual Logic, and can be edited in the Visual Logic editor. If the **ogScript** button is blue, the code can be edited manually only.

   Tip: When you are finished editing the ogScript code, be sure to **Apply Changes**.

Importing External APIs from Saved Files

You can import external API script files into your CustomPanel. Importing an API enables you to call the API functions from your CustomPanel. They become available in the Visual Logic editor.

Note: External API script files are imported by reference, so if the original API script file changes, your CustomPanel may be affected.

To import an external API

1. In your CustomPanel, in **Edit Mode**, double-click the CustomPanel.

   The **Edit Component** window appears.

2. In the **Component Tree**, click the top-level container item (usually **abs**).

3. In the **Insert Tags** area, click the **<api/>** button.

   An **api** item appears within a meta folder below the selected container.

4. On the **Api Attributes** tab, in the **General Attributes** section, specify a **Name** and an **ID** for the **api** item.

5. Beside the **Script File Location** box, click **Browse**, browse to the API script file, and then click **Open**.

   Tip: API script file names typically have a **.ogscript** file extension.

6. Click **Apply Changes**.

   The functions from the imported API script file are available in the **Control and APIs** panel of the Visual Logic editor.

Adding ogScript-Based Items to the Component Tree

The following types of Component Tree items can include ogScript code segments created using the Visual Logic editor:

- **api** items (<api/> tags)
- **ogscript** items (<ogscript> tags)
- **task** items (ogScript tasks can be assigned to buttons, labels, parameters, and listeners)
- **timertask** items (ogScript tasks can be assigned to timers)

To add an ogScript-based item to the Component Tree:

- To create a standalone segment of ogScript code that can be referenced from within the panel:
  a. In the Component Tree, click the container item where you want the ogScript-based item to appear.
  b. In the **Insert Tag** area above the Component Tree, click the **<ogScript/>** button.

     A new **ogscript** item appears in the Component Tree.

     The Visual Logic editor appears.
  c. In the **General Attributes** area, specify a **Name** and **ID** for the ogScript code segment.
- To create ogScript code for a new ogScript task assigned to an existing button, label, parameter, timer, or listener:
  a. In the Component Tree, click the item to which you want to assign the new ogScript task (button, label, parameter, timer, or listener).

     The **Edit Component** window appears.
  b. In the **Tasks** area, click **Add**.

     The **Add Task** window appears, with the **Task Type** set to **ogScript** and the Visual Logic editor open by default.
- To create an API with callable functions:
  a. In the Component Tree, click the container item where you want the new API to appear.
  b. In the **Insert Tag** area above the Component Tree, click the **<api/>** button.

     A new **api** item appears in the Component Tree.

     The Visual Logic editor appears.
  c. On the **Api Attributes** tab, in the **General Attributes** area, specify a **Name** and an **ID** for the new API.
  d. If you want the script in the API to be executed immediately, before the rest of the panel is loaded, select the **Execute Immediately** check box.

     When this option is selected, the script in the **<api/>** tag is evaluated as soon as it is reached, during the panel build process. This allows the script to create global functions that can be called from anywhere in the

panel, create new parameters on the fly, and modify constraints of parameters even before they are displayed.

For more information about creating an API, see "**Creating Internal and External APIs**" on page 7–13.

Adding and Linking Logic Blocks

To create ogScript code segments in Visual Logic, you drag logic blocks into the workspace and then link them to define their logical relationships.

You can drag logic blocks into the workspace from the **Devices and Parameters** panel, the **Local Variables** panel, and the **Control and APIs** panel.

Tip: As an alternative to dragging, you can double-click the logic block to add it to the workspace.

To link logic blocks, you click and drag from a connection point on one block, to a connection point on another block.

For more information about working with logic blocks, see "**Logic Blocks**" on page 7–7.

Adding Devices

Several Ross Video devices and other DashBoard-enabled devices expose functions and parameters you can use in your CustomPanels. The functions and parameters are designed to enable you to monitor and control the devices.

The **Devices and Parameters** tree lists API functions and parameters associated with devices and panel parameters.You can add devices from the **Basic Tree**, or add Ross Video device type templates and connect them to real devices later.

To add a device to the Devices and Parameters tree:

- In the **Devices and Parameters** panel, click the green + icon, select a device type, and then specify properties of the device.
- You can add devices from the DashBoard **Basic Tree**, or add a device template of one of the following types: **Acuity**, **CamBot**, **Carbonite**, **Graphite**, **PBus**, **VDCP**, and **XPression**.

  Tip: You can also create an entirely new device type. For more information, see "**Creating a New Device Type in Visual Logic**" on page 7–14.

Adding Panel Parameters

Panel parameters are listed in the **Devices and Parameters** tree. Expand the **Panel Parameters** folder to reveal a list of the parameters available in the CustomPanel.

You can drag parameters into the workspace to use them in your ogScript code. Parameter values can be routed to other logic blocks for logical operations.

For more information about parameters, see "**Parameters and Data Sources**" on page 5–160.

Adding Local Variables

You can create local variables. Some logic blocks (such as the for **loop** block) also create local variables.

Local variables can be dragged from the **Local Variables** panel into the Visual Logic workspace.

The scope of local variables is restricted to the current function.

To create a local variable:

- In the **Local Variables** panel, click the green + icon, select a variable type, and then specify properties of the variable.

  Local variable types include **Boolean**, **Date**, **Generic Variable**, **Number**, and **String**.

Adding Logical Controls and Math Operations

The **Control** folder contains logic blocks that perform logical and mathematical operations.

You can use these logic blocks to test conditions (**if**, **switch**), set up loops (**for**, **while**), parse and manipulate string data, and perform mathematical calculations.

Creating New Functions

From the **Control and APIs** panel, you can create a new function that is available within the current segment of ogScript code.

Functions created in the **Control and APIs** panel appear in a folder named **local functions**. They are available only within the current segment of ogScript code. For information about creating functions that are available throughout the current CustomPanel (**internal APIs**) or available to other panels (**external APIs**), see "**Creating Internal and External APIs**" on page 7–13.

By default, there are no tabs in the workspace. If you add a new function, your existing work appears on the **Main** tab, and the new function appears on a tab named after the function. Each additional function appears on a separate tab.

To create a new function, click the click the green + icon, click **Add Function**, specify the properties of the function (**Function Name**, **Has Return value**, **# of Arguments**), and then click **Ok**.

Using Functions

In the Control and APIs folder, the following function folders contain functions you can drag into the workspace:

- **ogScript** — Contains functions developed by Ross Video to interact with DashBoard-enabled devices. ogScript is a subset of JavaScript, with PanelBuilder-specific functions added.

  For detailed reference information about ogScript functions and their parameters, see the ***DashBoard CustomPanel Development Guide (8351DR-007)***.

- **API Functions** — Contains functions imported from an external API.

  The **API Functions** folder is visible only if one or more external APIs have been added to the CustomPanel.

  For more information, see "**Importing External APIs from Saved Files**" on page 7–10.

- **API Objects** — Contains objects imported from an external API.

  The **API Objects** folder is visible only if one or more external APIs have been added to the CustomPanel.

  For more information, see "**Importing External APIs from Saved Files**" on page 7–10.

- **local functions** — Contains functions that are available only within the current segment of ogScript code.

  The **local functions** folder is visible only if the current segment of ogScript code contains one or more function definitions.

  For more information, see "**Creating New Functions**" on page 7–13.

Creating Internal and External APIs

A DashBoard API is a collection of ogScript functions:

- An **internal API** exists within a CustomPanel. Its functions are available only within its CustomPanel.
- An **external API** is stored in a separate API script file, which can be referenced by any CustomPanel that can access the API script file.

You can create APIs to facilitate reuse of your custom functions.

Internal APIs

An internal API contains functions that are made available within the current CustomPanel.

To create an internal API:

1. In the **Component Tree**, in the **Insert Tag** area, click **<api/>**.

   The Visual Logic editor appears. A new **api** item appears in the Component Tree.

2. Create one or more new functions, giving each a meaningful name so they are easily referenced from other parts of the CustomPanel.

   For more information, see "**Creating New Functions**" on page 7–13.

   The functions are automatically made available to be used in any segment of ogScript within the CustomPanel.

External APIs

An external API contains functions that are stored in an API script file, which can be referenced by any CustomPanel that can access the API script file.

The API script file must be a text file containing only valid ogScript (JavaScript).

To create an external API:

1. Create valid ogScript code that you want to save as your external API:
   - **Using a text editor** — You can use any text editing or code editing tool.
   - **Using DashBoard** — You can write the code in the **ogScript Editor**, or use Visual Logic editor and then view the code on the **Source** tab. Copy the code and paste it into a text editor.
2. Save the API script file.

   You can use any file extension, but we recommend using **.ogscript**. For example, **myAPI.ogscript**.
3. Place the file on the same network as the DashBoard computers that will use the API.

Creating a New Device Type in Visual Logic

The DashBoard Visual Logic editor enables you to add several existing device types to the **Devices and Parameters** tree so you can control them. For more information, see "**Adding Devices**" on page 7–12.

You can also create completely new device types, to control other devices not available by default.

This section describes how to create new device types, including logic blocks.

Note: This is an advanced topic. Most users will never need to add new device types. Knowledge about authoring XML files is useful for understanding this section.

About Adding Devices

In the Visual Logic editor, you can add devices with which you want to work to the **Devices and Parameters** tree. To do so, you click + and select the type of device you want to add.

Figure 7.15 shows a list of the device types available by default.

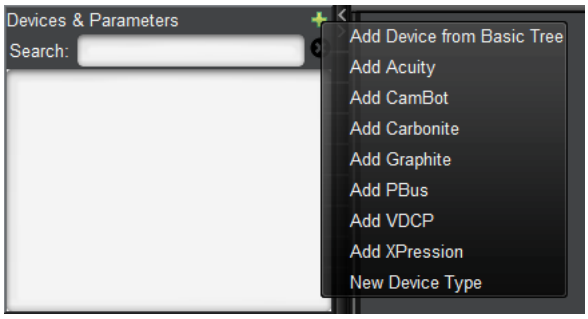


Figure 7.15 *- The Add Device List*

When you add a device, it creates a new branch in the tree and you have an API sub-branch which contains logic blocks you can use in your ogScript code segments. For example, if you add an XPression device named **myXpression**, the tree would look similar to the one shown in **Figure 7.16**:

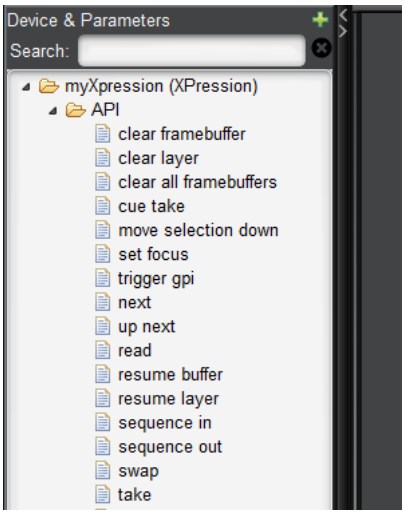


Figure 7.16 *- Adding an XPression Device (myXpression)*

Users can click and drag the API logic blocks into the Visual Logic workspace.

This section describes how to create new device types that appear in the **Add Device** list, and how to define API blocks for the new device types.

Creating a New Device Type

In order to create a new device type, you add a special XML file to the **VisualLanguage\blocks\Devices** sub-folder of your DashBoard installation (typically **c:\DashBoard**). The XML file defines the new device type.

Figure 7.17 shows the XML file with only an empty device definition element (**`<deviceapi>`**).

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <deviceapi name="myDeviceType">
3
4 </deviceapi>
```

Figure 7.17 *- Starting to Create an XML File that Defines a New Device Type*

In **Figure 7.17**, **Line 1** is an XML header.

Lines 2 - 4 define a new device type named **myDeviceType**. The **`<deviceapi>`** element will contain the device definition. In theory, you could define more than one device type in a single XML file, but in practice we tend to only define one device type per file.

If all you have is the above in your file, when you click on the + button, you would see:

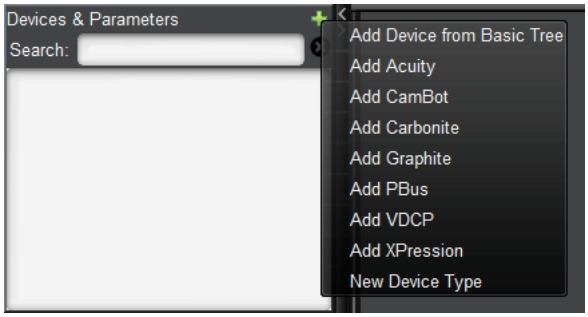


Figure 7.18 *- Device List Showing the New Device*

Note that **Add myDeviceType** is now one of the options. When you click it, the following window appears, asking for a **Name** and a **Block Color** for the device.

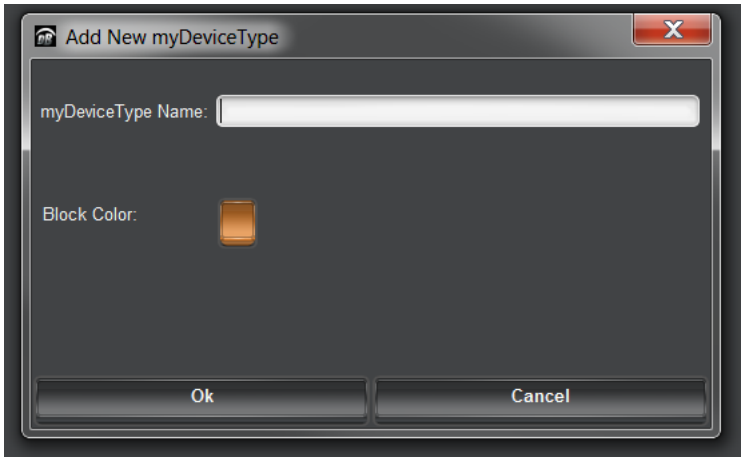


Figure 7.19 *- Adding a Device to the Devices and Parameters Tree*

Because we have not added any logic blocks to the new device, it has an empty **API** node, as shown in **Figure 7.20**.

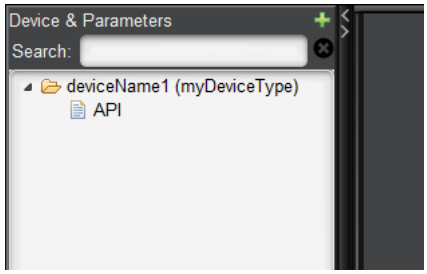


Figure 7.20 *- The Devices and Parameters Tree, Showing the New Device*

We need to add API blocks to this device, but before we do that, we may need to collect more information from the user when they add the device.

Adding Connection Parameters to the Add Device Dialog Box

To communicate with a device, you often need to know several things about it. For example, you might need the **IP Address** and **Port**. Depending on the device, you may even need something else (such as a channel, or some other parameter).

You want to be able to ask the user for that information when they add the device. To specify what you're asking the user for, add an **<arguments>** element within the **<deviceapi>** element. Inside the **<arguments>** element, you can add as many **<argument>** elements as you want. Each one has a **name** attribute and a **variable** attribute.

The **name** is what the user sees in the popup when she or he adds a device.

The **variable** attribute value will be used later when we define the API logic blocks.

For example, if we create and populate the **<arguments>** element as shown in **Figure 7.21**.

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <deviceapi name="myDeviceType">
3    <arguments>
4      <argument name="IP Address" variable="HOST"/>
5      <argument name="Port Number" variable="PORT"/>
6      <argument name="Channel" variable="CHANNEL"/>
7    </arguments>
8  </deviceapi>
```

Figure 7.21 *- Starting to Create an XML File that Defines a New Device Type*

When a user clicks **Add myDeviceType**, they will see the following dialog box:

Figure 7.22 *- Adding a Device to the Devices and Parameters Tree (with Connection Parameters)*

Note that users are now prompted for an IP address, port number and a channel. Users can specify either a fixed value or the value from a parameter in the panel. The values they specify in this dialog box can be used in the API blocks you will create.

Adding API Blocks to the New Device Type

Now that we have all the information needed to communicate with the device, we can create API blocks for it.

In order to do this, we need to add a **<blocks>** element within the **<deviceapi>** element. The code example in **Figure 7.23** includes a **<blocks>** element populated with a **<block>** element (lines 7 to 17).

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <deviceapi name="myDeviceType">
3    <arguments>
4        …
5    </arguments>
6
7    <blocks>
8      <block name="myDeviceType_command1">
9        <title>run command 1</title>
10       <help>Executes command 1.</help>
11       <arguments></arguments>
12       <output>false</output>
13       <top_flow>true</top_flow>
14       <bottom_flow>true</bottom_flow>
15       <translation>
           rosstalk.sendMessage(~HOST~, ~PORT~, "cmd1 on ~CHANNEL~");
         </translation>
16     </block>
17   </blocks>
18
19 </deviceapi>
```

Figure 7.23 *- Adding API Blocks to the New Device Type*

Within the **<blocks>** element, you can have multiple **<block>** child elements. The preceding example contains only one. Each **<block>** element defines one API logic block. Lines 8 to 16 define one logic block.

Each **<block>** element requires the following information:

- **Name of the block** — Specify the name in the **name** attribute of the **<block>** element. In **Figure 7.23**, line 8 defines the name as **<block name="myDeviceType_command1">.**

  The name must be unique within all of Visual Logic. We suggest that you give it a name based on the device type and the function this block will have, for example, **myDeviceType_command1**.

- **Title** — The text that will be displayed at the top of the block. Specify the title in a **<title>** element within the **<block>** element. Line 9 in **Figure 7.23** defines the title as **<title>run command1</title>**.

- **Help** — The help message that appears when a user clicks the Help (?) button on the logic block. Specify the help message in a **<help>** element within the **<block>** element. Line 10 in **Figure 7.23** defines the help message as **<help>executes command 1</help>**.
- **Arguments** — These define what inputs are required from the user to run this logic block. In **Figure 7.23**, Line 11 specifies that this block has no arguments.

  More information about arguments appears in the section, "**Adding Data Input to Your API Blocks**" on page 7–20.
- **Output** — This element specifies whether this logic block has an output. Outputs can be used as data inputs for other blocks.

  If you set the **<output>** element to **true** (**<output>true</output>**), the logic block will have an output connection point on its right side.

  If you set the **<output>** element to **false** (**<output>false</output>**), it will have no output.

  In **Figure 7.23**, line 12 specifies that this block does not have an output.
- **Top and Bottom flow** — The **<top_flow>** and **<bottom_flow>** elements specify whether the logic block will have connection points to allow users to specify the execution order of the blocks.

  Typically, if a block has an output connector, it should not also have top and bottom connectors (and vice versa).

  If your block has a top connector, it should also have a bottom connector.

  In **Figure 7.23**, lines 13 and 14 specify that this block will have both a top and bottom connector.
- **Translation** — The translation element specifies the text to use when translating this block to ogScript.

  Any variable that is present on the line between tide (~) characters will be replaced by the value the user specifies when adding the block.

  In **Figure 7.23**, line 15 specifies that the translation is
  "rosstalk.sendMessage(~HOST~, ~PORT~, "cmd1 on ~CHANNEL~");"s

  When translating this line, Visual Logic would replace **~HOST~**, **~PORT~** and **~CHANNEL~** with the values the user specified when they added the device. More information on this is appears in later sections.

For example, the block definition in **Figure 7.24**

```
1  <block name="myDeviceType_command1">
2    <title>run command 1</title>
3    <help>Executes command 1.</help>
4    <arguments></arguments>
5    <output>false</output>
6    <top_flow>true</top_flow>
7    <bottom_flow>true</bottom_flow>
8    <translation>
       rosstalk.sendMessage(~HOST~, ~PORT~, "cmd1 on ~CHANNEL~");
     </translation>
9  </block>
```

***Figure 7.24** - A Block Definition*

produces a logic block that looks like the one in **Figure 7.25**.

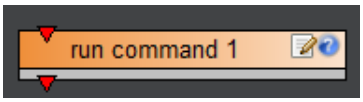


Figure 7.25 *- A Logic Block with Top and Bottom Connectors, but no Output Connector*

A block definition that has the output turned on and the top and bottom flows turned off as shown in **Figure 7.26**

```
<block name="myDeviceType_command2">
  <title>run command 2</title>
  <help>Executes command 2.</help>
  <arguments></arguments>
  <output>true</output>
  <top_flow>false</top_flow>
  <bottom_flow>false</bottom_flow>
  <translation>
    rosstalk.sendMessage(~HOST~, ~PORT~, "cmd2 on ~CHANNEL~")
  </translation>
</block>
```

Figure 7.26 *- A Block Definition*

would look like **Figure 7.27**.

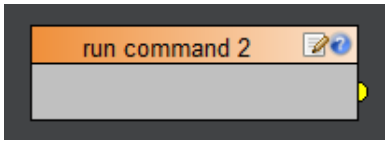


Figure 7.27 *- A Logic Block with an Output but no Top or Bottom Connectors*

Adding Data Input to Your API Blocks

Some blocks require additional data to run the command. Adding arguments to a block enables it to collect the required data.

For example, if you are creating a block that sends a message, the block needs the message data. The data is collected as an argument value. The argument value can be provided to the block through a data input, or through a widget on the block that collects the data from the user.

Arguments can either be internal or external. Internal arguments have widgets that allow the user to specify the value. Internal arguments may also have a data input that accepts a value from another block. External arguments receive data only from other blocks.

To add an argument to a block, add one of the following elements as a child of the **<arguments>** element:

- **<internal>** — Use this element to create an argument that has a widget that allows users to specify a value.

  An argument created via the **<internal>** element also has a data input that allows the panel designer to connect a value from another block. If the data input is connected, the value selection widget is not shown.
- **<internal_only>** — Use this element to create an argument that accepts user input only, via a widget that allows users to specify a value. This argument does not have a data input and cannot accept data from other blocks.

- **<external>** — Use this element to create an argument that has a data input only. This argument does not include a value selection widget.

The XML code in **Figure 7.28** defines an internal argument that has a text box widget for specifying the argument value:

```
1  <arguments>
2   <internal name="ARG1">
3    <type>WIDGET_TEXTBOX</type>
4   <tag>Arg 1</tag>
5    <default>hello</default>
6   </internal>
3  </arguments>
```

Figure 7.28 *- An Internal Argument Definition*

Arguments require the following:

- **name** — The argument elements (**<internal>**, **<internal_only>**, and **<external>**) require a **name** attribute. In **Figure 7.28**, Line 2 specifies the argument name as **"ARG1"** The name must be unique within this block definition.
- **type** — For **<internal>** arguments only. The type specifies what kind of widget to use in the block. It can be one of **"WIDGET_TEXTBOX"**, **"WIDGET_SPINNER"**, **"WIDGET_COMBO"** or **"WIDGET_CHECKBOX"**. In **Figure 7.28**, Line 3 specifies the type as **"WIDGET_TEXTBOX"**.

  When replacing the arguments in the translation with their value, by default Visual Logic adds quotes around any string (but not numbers). If you do not want the quotes, append **_unquoted** to the argument type. For example, if you use **"WIDGET_TEXTBOX_unquoted"** as the type for **"ARG1"**, quotes will never be added to **ARG1** when doing the translation.
- **tag** — The **<tag>** element specifies what words appear beside the widget for this argument. In **Figure 7.28**, Line 4 specifies the tag text as **"Arg1"**. The **<tag>** element is optional. If no tag is specified, there will be no text beside the widget.
- **default value** — The **<default>** element specifies the default value of the widget when the block is created. In **Figure 7.28**, Line 5 specifies the type as **"hello"**. The **<default>** element is optional.
- **value choices** — Applies only to arguments of the **"WIDGET_COMBO"** type. The **<choices>** element specifies a comma-separated list of possible values from which the user can choose.

The block defined by the code in **Figure 7.29** includes one argument of each type.

```
<block name="myDeviceType_command3" editable="true">
  <title>run command 3</title>
  <help>Executes command 3.</help>
  <arguments>
    <internal name="ARG1">
      <type>WIDGET_TEXTBOX</type>
      <tag>Arg 1</tag>
      <default>hello</default>
    </internal>
    <internal name="ARG2">
      <type>WIDGET_SPINNER</type>
      <tag>Arg 2</tag>
      <default>0</default>
     </internal>
     <internal name="ARG3">
       <type>WIDGET_COMBO</type>
       <tag>Arg 3</tag>
       <default>one</default>
       <choices>one,two,three</choices>
     </internal>
     <internal name="ARG4">
       <type>WIDGET_CHECKBOX</type>
       <tag>Arg 4</tag>
       <default>1</default>
     </internal>
     <external name="ARG5"><tag>Ext Arg</tag></external>
```

Figure 7.29 *- A Block Definition that Includes Each Type of Argument*

The code shown in **Figure 7.29** produces a block that looks like **Figure 7.30**.

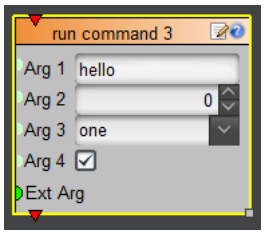


Figure 7.30 *- A Block with Each Type of Argument*

Once you have defined the arguments you want, you can use them in your translation the same way you used the variables. Any strings in the translation that is formatted with **~ARGNAME~** will be replaced with the argument value when the block is translated.

If the user specified the values shown **Figure 7.31** in when adding the device to the Devices and Parameters tree,

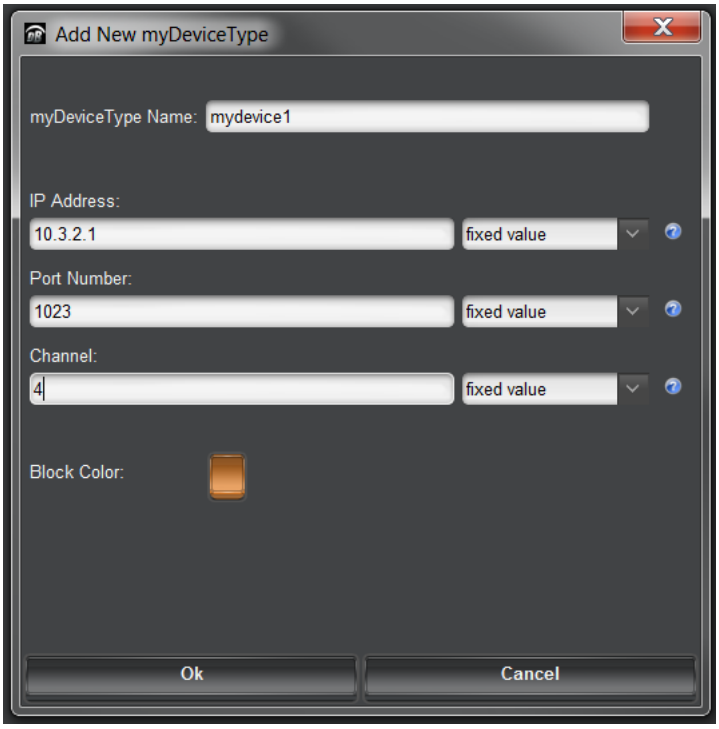


Figure 7.31 *- Specifying Connection Parameters*

then a translation of the following:

```
rosstalk.sendMessage(~HOST~, ~PORT~,  "cmd3 " + ~ARG1~ + ~ARG2~ + " " + ~ARG3~ + " " +
~ARG4~ + "on ~CHANNEL~");
```

would translate to:

```
rosstalk.sendMessage("10.3.2.1", 1023, "cmd3 " + "hello" + 0 + " " + "one" + " true on
4");
```

Example XML File

Below is the full example XML file that was used to create the **myDeviceType** device type.

```
<?xml version="1.0" encoding="UTF-8"?>
 <deviceapi name="myDeviceType">
  <arguments>
   <argument name="IP Address" variable="HOST"/>
   <argument name="Port Number" variable="PORT"/>
   <argument name="Channel" variable="CHANNEL"/>
  </arguments>

  <blocks>
   <block name="myDeviceType_command1" editable="true">
    <title>run command 1</title>
    <help>Executes command 1.</help>
    <arguments></arguments>
    <output>false</output>
    <top_flow>true</top_flow>
    <bottom_flow>true</bottom_flow>
    <translation>rosstalk.sendMessage(~HOST~, ~PORT~, "cmd1 on ~CHANNEL~");
    </translation>
   </block>

   <block name="myDeviceType_command2" editable="true">
    <title>run command 2</title>
    <help>Executes command 1.</help>
    <arguments></arguments>
    <output>true</output>
    <top_flow>false</top_flow>
    <bottom_flow>false</bottom_flow>
    <translation>rosstalk.sendMessage(~HOST~, ~PORT~, "cmd2 on ~CHANNEL~")
    </translation>
   </block>

   <block name="myDeviceType_command3" editable="true">
    <title>run command 3</title>
    <help>Executes command 3.</help>
    <arguments>
     <internal name="ARG1">
      <type>WIDGET_TEXTBOX</type>
      <tag>Arg 1</tag>
      <default>hello</default>
     </internal>
     <internal name="ARG2">
      <type>WIDGET_SPINNER</type>
      <tag>Arg 2</tag>
      <default>0</default>
     </internal>
     <internal name="ARG3">
      <type>WIDGET_COMBO</type>
      <tag>Arg 3</tag>
      <default>one</default>
```

```
      <choices>one,two,three</choices>
      </internal>
     <internal name="ARG4">
      <type>WIDGET_CHECKBOX</type>
      <tag>Arg 4</tag>
      <default>true</default>
     </internal>
     <external name="ARG5">
      <tag>Ext Arg</tag>
     </external>
    </arguments>
    <output>false</output>
    <top_flow>true</top_flow>
    <bottom_flow>true</bottom_flow>
    <translation>rosstalk.sendMessage(~HOST~, ~PORT~, "cmd3 " + ~ARG1~ +
~ARG2~ + " " + ~ARG3~ + " ~ARG4~ on ~CHANNEL~");</translation>
   </block>
  </blocks>
 </deviceapi>
```

DataSafe™

This chapter provides instructions for configuring and using the DataSafe™ feature in DashBoard. Refer to the ***MFC-8300 Series User Manual*** for details on setting up your MFC-8300 series Network Controller Card.

The following topics are discussed:

- DataSafe Overview
- DataSafe Basics

DataSafe Overview

DataSafe enables you to save openGear card parameters to a file, and later restore those parameters to one or more cards of the same type. Multiple configuration sets can be stored if required. This gives you the flexibility of configuring a large number of cards identically from a single stored configuration. This feature is enabled or disabled on a slot-by-slot basis and currently defaults to OFF.

This feature is available for frames using the MFC-8310-N and MFC-8320-N series cards only. Refer to your openGear card manual for more information on using DataSafe with your card.

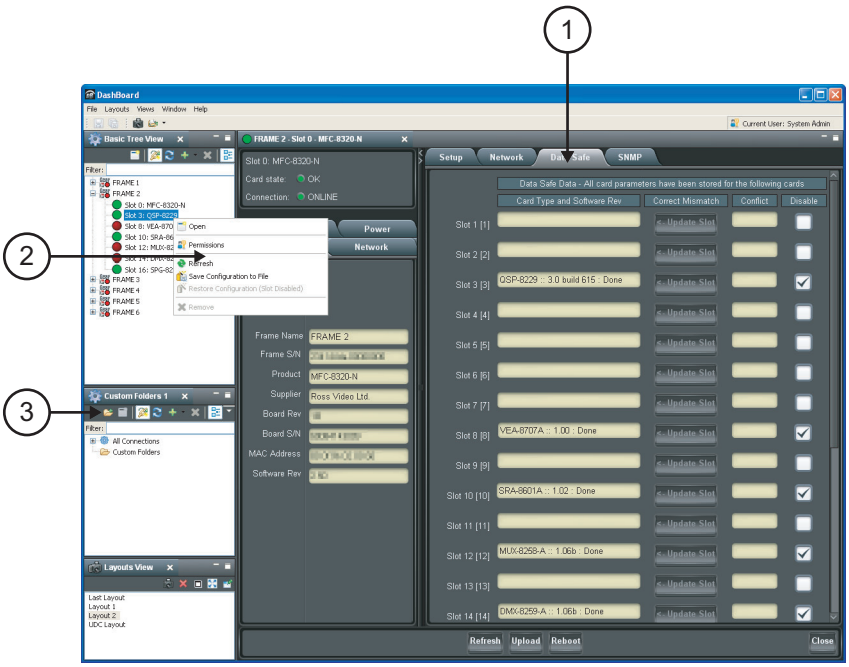


Figure 8.1 *DataSafe Tab Overview*

1. DataSafe Tab

The **DataSafe** tab is available in the **Device Editor** of a MFC-8310-N series or MFC-8320-N series Network Controller Card. The tab lists the cards installed in the frame in slot ascending order. The following items are displayed in the tab:

- **Slot Name** — The slot name is set in the **Card Slots Names** field of the **Setup** tab. The physical slot that the card is installed in is indicated by the number in brackets after the Slot Name. For more information on re-naming slots, refer to the section "**Re-naming an openGear Slot in the Tree View**" on page 9–2.
- **Card Type and Software Rev** fields — This area indicates the card installed in the slot and the software version. The information is displayed in the form of **xxxx :: #### :: y** where **xxxx** represents the card type, #### represents the software revision, and **y** represents the card status. If the field is blank, there is no saved data for

this slot. For example, in Slot 3 of **Figure 8.1**, the QSP-8229 is running with software version 3.0 build 615 while Slot 2 does not have a card installed (therefore the field is blank).

- **Correct Mismatch** fields — This area includes the **Update Slot** button. Clicking this button automatically updates the slot with the new card information indicated in the **Conflict** field.
- **Conflict** fields — This field is blank if the card currently in the slot has the same card type and software version as the saved DataSafe data. When the software version or the card type do not match the saved data for the slot, the **Conflict** field for that slot is populated with the new information, alerting the user that a new configuration is available for that slot. The information is displayed in the form of **xxxx :: #### :: y** where **xxxx** represents the card type, #### represents the software revision, and **y** represents the card status. If the field is blank, there is no saved data for this slot.
- **Disable** check box — This option disables the **DataSafe** feature for that slot.
- **Force** button — If any slots have a software version mismatch, the **Force** button allows the user to load the current DataSafe data to the cards and overwrites the frame-stored data with the card's current settings. This button is enabled only if a software version incompatibility exists. For more information on forcing DashBoard to update cards with software incompatibilities, refer to the section "**Forcing DataSafe Updates**" on page 8–5.
- **Mask Warning** check box — The MFC-8300 series Network Controller card displays a warning in the **Data Safe State** field of the **Hardware** tab if any of the card slots have an error. For example, if a card is installed that does not match the last saved data for that slot. If the check box is selected, no warnings are displayed in DashBoard. The default setting is to display warnings and errors.

2. Save/Restore Device Parameters in the Basic Tree View

The following DataSafe options may be available when you right-click a device in the Tree View:

- **Open** — Selecting this option enables you to display a Device Editor tab for the selected device.
- **Save Configuration to File** — Selecting this option displays the **Export Slot to file** dialog from which you can save a DataSafe file for the specific card on your DashBoard host machine. For more information on saving DataSafe files, refer to the section "**Saving a DataSafe File**" on page 8–3.
- **Restore Configuration** — Selecting this option displays the **Restore Configuration Wizard** from which you can restore from a DataSafe file for the specific card(s) on your DashBoard host machine. For more information on recalling configurations from a file, refer to the section "**Restoring Configurations to Devices**" on page 8–3.

3. Save/Restore Configurations for Devices in the Advanced Tree View

With the Advanced Tree View feature, the following options are available in the Custom Folder toolbar:

- **Save Configuration to File** — Selecting this option displays the **Export to file** dialog from which you can save the configuration of all the devices in the Custom Folder View to a single DataSafe file.
- **Restore Configuration** — Selecting this option displays the **Configuration Wizard** from which you can recall all configurations for all devices in the Custom Folder View from a ***.tvc** file.

DataSafe Basics

This section provides instructions for saving and recalling DataSafe files. DashBoard saves all card parameter values to the file which is stored locally on the DashBoard client host machine.

✶ Some openGear cards have card-edge jumper settings that disable remote control. Ensure that your card is configured to enable control from DashBoard before saving and recalling DataSafe files.

Saving a DataSafe File

DashBoard enables you to save card parameters to a unique DataSafe file which you can name and store on your computer. If you are using the **Advanced Tree View**, an option also exists that enables you to save the configuration of all devices in the specified custom folder. Both methods are described in this section.

Saving a DataSafe File for a Specific Device

This section outlines how to save a DataSafe file containing all of the data of a specific card including the card parameters and settings, frame name, slot name and number, card type, and software revision. This option is always available regardless of which MFC-8300 series Network Controller card is used and which software options have been purchased.

To save a DataSafe file for a specific device:

1. From the **Tree View**, right-click the card you wish to save the configuration for.
2. Select to display the **Export to file** dialog box.
3. Navigate to the location you wish to save the file to.
4. Enter a filename in the **File name:** field.
5. Ensure the **Save as type:** field is set to **openGear Device File** (***.ogd**).
6. Click **Save**.

Saving a DataSafe File for a Group of Devices

This section outlines how to save the configuration of devices in the Custom Folder View to a single DataSafe file. This file is in the format ***.tvc** (Tree View Configuration) and is stored on the DashBoard host machine.

To save a DataSafe file for a group of devices:

1. From the **Advanced Tree View**, select the Custom Folder to save the configuration for.
2. Select to display the **Export to file** dialog box.
3. Navigate to the location you wish to save the file to.
4. Enter a filename in the **File name:** field.
5. Ensure the **Save as type:** field is set to **Tree View Configuration** (***.tvc**).
6. Click **Save**.

Restoring Configurations to Devices

DashBoard can send a DataSafe file to a specific MFC-8300 Network Controller Card and slot for use. Once received, the Network Controller Card updates the card if the installed card matches the data sent. You can also choose to copy parameters from a card to a single device or group of devices. Both methods are described in this section.

As part of the recall process, DashBoard opens a DataSafe file, examines the card type and software revision, and determines what devices on the network in the current Tree View that match. The user can then select which card(s) to update with the new values.

✶ You must have an MFC-8310-N series or MFC-8320-N series installed in the frame to recall DataSafe data or files.

Restoring a DataSafe File

This section outlines how to recall a saved DataSafe file on your DashBoard host machine to a single type of device your network.

To recall a DataSafe file:

1. From the **Tree View**, right-click the device to update.
2. Select to display the **Restore Configuration Wizard** dialog box.
3. From the **Configuration Source** list, select **Load Parameters from a File**.
4. Click **Next >** to display the **Select Device File** menu.
5. In the **Configuration File** field, enter the DataSafe file to download to your card or click **Browse...** to navigate to the file location on your DashBoard host machine.
   - Ensure that the select file is a valid ***.ogd** file.
   - Information, such as the card type, slot and frame names, is displayed in the **Device Info:** field. An error message will also display in this field if a card type or software version mismatch will occur.
6. Click **Next >** to display the **Select Destination** menu. The **Select Destination** menu provides a list of the compatible cards based on the card selected in step 1
7. Select the device(s) to recall the file to:
   - From the **Select Destination** list, select the check box(es) for the devices you wish to recall the file to.
   - Verify that the device(s) you wish to recall the file to. The **Error/Warning** fields indicate any errors, such as incompatible software or card type mismatch.
8. Click **Finish**.

Restoring Parameters for a Group of Devices

You can recall all configurations for all devices in the Advanced Tree View from a ***.tvc** file. Card parameters will only load from the DataSafe file if the card type matches and the software versions are compatible.

To recall parameters for a group of devices in the Advanced Tree View:

1. From the **Advanced Tree View**, select the Custom Folder to recall the configuration file for.
2. Select from the Custom Folders toolbar to display the **Restore Configuration Wizard**.
3. From the **Configuration Source** field, select **Load Parameters from a File** to display the **Select Device File** menu.
4. To enter a filename in the **Configuration File:** field:
   - Click **Browse...** to navigate to the file location on your DashBoard host machine.
   - Ensure that the select file is a valid ***.tvc** file.
   - Information, such as the card type, slot and frame names, is displayed in the **Device Info:** field. An error message will also display in this field if a card type or software version mismatch will occur.
5. Click **Next >** to display the **Select Destination** menu. The **Select Destination** menu provides a list of the compatible cards based on the card selected in step 1
6. Select the devices to restore as follows:
   - From the **Select Destination** list, select the check box(es) for the devices you wish to recall the file to.
   - The **Error/Warning** fields indicate any errors such as incompatible software or a card type mismatch.
7. Click **Finish**.

Copying Parameters

To copy parameters from one device to another:

1. From the **Tree View**, right-click the device to update.
2. Select to display the **Restore Configuration Wizard** dialog box.
3. From the **Configuration Source**, select **Copy Parameters from another Card**.
4. Click **Next >** to display the **Select Source Device** menu.
5. From the provided list, select the card whose settings will be copied.
6. Click **Next >** to display the **Select Destination** menu.
7. From the provided list, select the device(s) to copy the parameters to. The **Error/Warning** fields indicate errors such as software or card type mismatch.
8. Click **Finish**.

Notes on Saving and Restoring Parameters

This section provides brief operational notes when saving and restoring parameters:

- The **Restore Configuration Wizard** dialog box includes the **Hide invalid destinations** check box. Selecting this check box hides cards in the **Select Destination** list that are not applicable based on the card type you selected to restore and the software of that card. Only those cards that are the same type and compatible software versions will be listed.
- The **Select Destination** list displays the frame and cards in the same format as seen in the Tree View. For example, if the frame node is expanded in the Tree View, the same node is expanded in the **Select Destination** list.
- You can select all devices in a single frame by selecting the checkbox beside the frame entry in the **Select Destination** list.
- The ▣ indicator beside the frame name in the **Select Destination** list indicates that at least one device in that frame is selected. A checkbox beside the frame name indicates that all the devices in that frame are selected.

Forcing DataSafe Updates

If any slots have a software version mismatch, the **Force** button allows the user to have the current DataSafe data loaded to any slots where a software mismatch is occurring. This button and text only displays if a software version mismatch occurs in the DataSafe tab.

A mismatch is reported in the **Conflict** field of a slot if a new card is installed into that slot is a different card type, or has a software incompatible version, than the current DataSafe file. If this new card remains installed into that slot for more than approximately 24 hours, then the parameters of the new card will automatically be saved as the new DataSafe file.

The following tasks are performed when the **Force** button is clicked:

- Loads all of the data from the card
- Stores the data as the new DataSafe data
- Clears the information in the **Conflict** field
- Updates the Slot field in the **DataSafe** tab

Configuring Devices

There are two basic methods to configuring devices: offline and online. An online device is one that is actively communicating with your DashBoard client. You make changes in the Device Editor tab that take affect immediately on that device. An offline device is one whose configuration has been saved to a file for offline configuration. In this case, you use the File Navigator tab to edit a device configuration file that can then be saved on your computer. Changes made to this file do not affect the actual device. This device configuration file can then be applied to other devices of the same type. This chapter provides information on both methods.

The following topics are discussed:

- "**Configuring Online Devices in DashBoard**" on page 9–1
- "**Using the File Navigator**" on page 9–3
- "**Upgrading Device Software**" on page 9–4

Configuring Online Devices in DashBoard

DashBoard enables you to configure devices in real-time. Each device has specific configuration parameters, depending on the device you have selected in the **Tree View**. For example, you may wish to change a specific parameter on a device while it is online in your openGear frame, or re-configure a device, or upload new device software when it becomes available.

✶ Using the **Reboot** button takes the device off-air during the reboot cycle.

Configuring Devices in DashBoard

To configure and verify device information in DashBoard

1. From the **Tree View**, double-click a device to display a corresponding **Device Editor** tab. In the following example, the Device Editor displays settings for the QSP-8229 located in Slot 3 of FRAME 2.

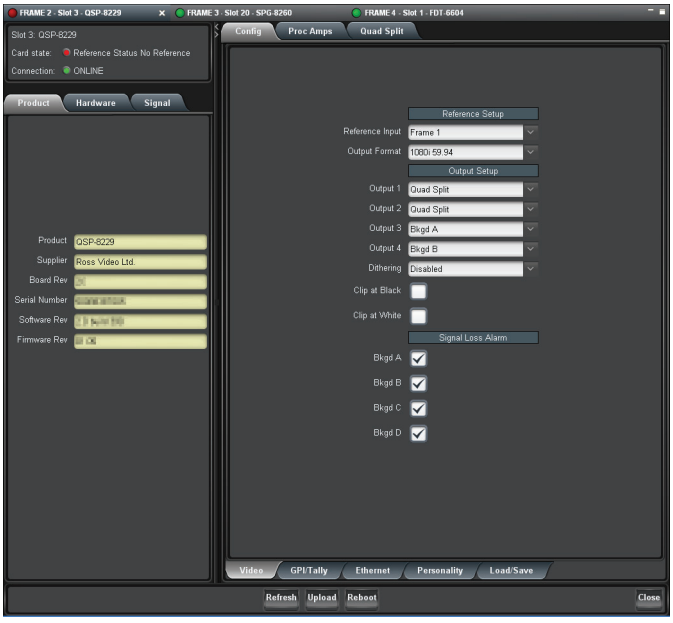


***Figure 9.1** Device Tab Example*

2. Configure the required parameters using the controls provided in the **Settings Area**, such as those in the **Setup** tab seen in the previous example. Refer to the manual for your device for information on available parameters and menus.

Re-naming an openGear Slot in the Tree View

DashBoard offers two methods to re-name a card slot. Both methods are described in this section.

- **Using the Setup tab of the Network Controller Card** — Use this method to rename the card and have the change effective for the network. The new name displays in all DashBoard Tree Views for all DashBoard workstations connected to that card.
- **Using the Rename option for a Custom Subfolder item** — Use this method to rename the card for your local DashBoard workstation only. Other DashBoard workstations will not display the new name.

Using the Setup tab

To re-name an openGear card using the Setup tab

1. From the **Tree View**, double-click the MFC-8300 Network Controller Card to display a corresponding **Device Editor** tab.
2. Select the **Setup** tab.
3. In the **Card Slot Names** section of the **Setup** tab, locate the slot you wish to re-name.
4. Enter the new name for the card slot in the text field provided. The new name displays in all instances of the card for all DashBoard workstations.

Using the Rename Option

To re-name a device using the Rename option

1. From the **Custom Folder** in the **Advanced Tree View**, right-click the device you wish to re-name.
2. Select to display the **Rename** dialog box.
3. Enter the new name for the device in the **Name:** field.
4. Click **OK**. The new name is only displayed on your local DashBoard workstthink youne docontetingrereation.

Automatic Discovery

The Automatic Discovery feature is enabled by default, and allows DashBoard to automatically search for new devices. You can specify that DashBoard search all interfaces on the same network, or search only those interfaces you have selected.

To configure the Automatic Discovery feature

1. From the main toolbar, select **Window > Preferences**. The **Preferences** dialog box opens.
2. Select **Automatic Discovery** to display the **Automatic Discovery** dialog box.

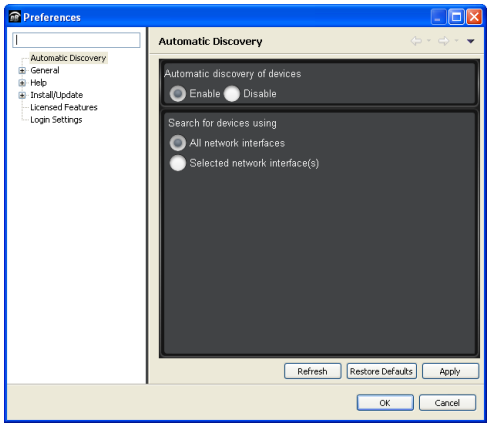


Figure 9.2 *Automatic Discovery Dialog Box*

3. Select the **Enable** check box in the **Automatic Discovery of devices** section to enable the feature. Deselecting the check box disables the Automatic Discovery feature.

4. Select a **Discovery** mode as follows:
   - **All network interfaces** — Select this option to enable DashBoard to find openGear cards only on the local network. DashBoard queries the network every 10 seconds and display new devices in the **Tree View**s. This is the default setting.
   - **Selected network interface(s)** — Select this option to enable DashBoard to query the specified network every 10 seconds and display new devices in the **Tree Views**.
5. Click **Apply**.

Troubleshooting

If you are unable to make changes to the parameters of a device, or the **Upload** or **Reboot** buttons are disabled:

- verify that any edit permissions for the device are enabled in the **Device** tab.
- verify any relevant controls on your device hardware are set to enable remote control.

Not all openGear devices support the edit permissions feature and it is recommended that you refer to the documentation for your device for details. This control typically appears on the **Setup** tab of the **Device Editor**

Removing Devices from the Tree View

If a device is still listed in the **Tree View**, but with a grayed out status indicator, then DashBoard is no longer communicating with the device. You can remove such devices from the **Tree View** using the following procedure.

To remove all offline devices in an openGear frame

1. In the **Tree View**, right-click the frame containing offline devices.
2. Select **Remove offline devices** to remove the offline devices from the **Tree View**.

Using the File Navigator

The **File Navigator** tab in DashBoard enables you to quickly navigate, manage, and update device configuration files. A device configuration file stores the configuration of a specific device. This functions much like the DataSafe feature for openGear cards where you can save the settings of one device to a file and recall that same file to a device of the same model. The File Navigator enables you to edit the settings of a device separate from the actual device, allowing you to store the new configuration as a separate file or update the current one.

Just like the other tree views, the File Navigator tab displays device configuration files in a hierarchy. But the hierarchy is determined by the folder organization on your computer. Note that when you collapse a folder in the File Navigator tab, every device file under the folder is disconnected.

CustomPanels are also considered device files and are displayed in the File Navigator tab. These can now be uploaded directly to RPM from DashBoard using the File Navigator.

To display a File Navigator tab

1. Select **Views** from the main toolbar.
2. Select **File Navigator** to display a new File Navigator tab in the DashBoard window.

To display your device files in a File Navigator tab

1. Click on the **File Navigator** toolbar to display the **Browse For Folder** dialog box.
2. Navigate to the folder on your computer where your device configuration files are stored.
3. Select **OK** to close the dialog box and update the tree view in the **File Navigator** tab. The selected folder is displayed.

To edit a device file

1. In the tree view of the **File Navigator** tab, expand the node of the folder to view a list of available device configuration files. You can also search the file hierarchy by entering text in the **Filter** field.
2. Double-click the file you wish to edit to establish a connection to it. The icon will no longer be grayed-out.
3. Display a Device Editor tab in the DashBoard window.
4. Configure the device parameters as required. An asterisk (*) displays on the File Navigator tab and on the applicable Device Editor tab whenever there are unsaved changes in a device configuration file. The file that has unsaved changes is also set in blue in the **File Navigator** tab.
5. Save your changes using one of the options in the **File** menu. You can also use the provided buttons on the DashBoard main toolbar.

To remove a device file from the File Navigator tab

1. In the tree view of the **File Navigator** tab, select the file you wish to remove. Note that this does not delete the file from your computer.
2. Click on the **File Navigator** toolbar.
3. Click **OK**.

To refresh a directory

1. Right-click the folder in the tree view of the **File Navigator** tab.
2. Click **Reload**.

To open a CustomPanel file directory

1. Right-click the CustomPanel file in the tree view of the **File Navigator** tab.
2. Click **Open Directory**.

   The folder containing the CustomPanel file opens.

To publish a CustomPanel to RPM from DashBoard

1. Ensure that the RPM instance you want to publish the CustomPanel to is added to the **Basic Tree View** and you are logged in to it.
2. Right-click the CustomPanel file in the tree view of the **File Navigator** tab.
3. Click **Publish CustomPanel**.

   The **Publish CustomPanel** confirmation message appears and the CustomPanel has been uploaded to RPM.

Upgrading Device Software

DashBoard enables you to upload software updates to multiple devices available in the **Tree View**. You can select any number of similar devices to upgrade (upload software files to) and monitor the upgrade progress. This section summarizes the upload software process. The process may differ for your specific device. Refer to your device user manual for information on upgrading the software before proceeding.

Upgrading Device Software

To upload software to a device

1. Contact your Ross Technical Support representative for the latest software version for your device.
2. Display the **Device** tab of the device you wish to upload software to.
3. In the **Device** tab, click **Upload** to display the **Select File Upload** menu of the **Upload Software Wizard**.

4. Select a file to upload as follows:
   - Click **Browse...** to navigate to the *.bin upload file you wish to upload. DashBoard automatically selects the last directory that you loaded a file from.
   - Select a file to upload.
   - Select **Open** to return to the **Select File Upload** menu.
   - The **Select File Upload** dialog box now displays the path to the selected file, and information on the selected file such as name, type, load size, and creation date. A warning is displayed in the **Warnings** field when software conflicts occur, such as the selected file will downgrade the selected device.
5. Click **Next >** to display the **Select Destination** menu.
6. Select the device(s) you wish to upload the selected software file to as follows:
   - Note that only the device you selected in is selected.
   - If you wish to include other devices, select the desired devices from the **Select** drop-down list using one of the following options:
     › **Select All** — This option selects all the similar devices. The selected software file will be uploaded to all devices on the network.
     › **Select Without Warnings** — This option selects only those devices that do not include a conflict with the selected software file.
     › **Select Without Warnings (include downgrades)** — This option uploads the software to similar devices that do not have any conflicts, but will include those devices that will be downgraded if the selected software file is uploaded to them.
     › **Select None** — This option clears all the check boxes in the **Device** field.
     › Click **Select**.
   - The **Device** field, located below the **Select** drop-down list, displays information such as the device name and slot information, frame it is installed in, the current software version, and any applicable error messages are displayed.
   - You can also select the devices to upgrade by selecting or clearing the corresponding check boxes in the **Device** field.
   - If the **Hide invalid destinations** check box is selected, the menu only displays similar devices for the selected software file. For example, if you are attempting to upload a software file for a UDC-8625, only UDC-8625 cards will be displayed. If the check box is cleared, all devices currently installed on the network are displayed but are grayed out.
7. Click **Finish**. The **Uploading to Selected Devices** menu displays and the upload process begins. A progress bar displays in the **Uploading to Selected Devices** menu for each device you selected in 6

✶ Clicking during an upload can leave the device in an invalid state.

8. Monitor the upgrade process bar(s) displayed in the **Uploading to Selected Devices** menu while the software is upgraded to your device. You can also display the **Uploading to Selected Devices** menus as a new tab in DashBoard, allowing you to work in other DashBoard areas during the upload, by selecting the **Run in Background**.
9. When the upload is complete, click **OK** to close the **Uploading to Selected Devices** menu.

Troubleshooting the Software Upload Process

Use the following information if the software upload process has failed:

- If the "**Selected file does not exist**" or "**Selected file is not a valid upload file**" error conditions are displayed in the **Upload Failed** dialog box, select **OK** from the dialog box and re-start the upload process and select the correct file.
- If a "**No response from device**" condition is encountered, the upload failed while in progress due to loss of power or communications. Verify that the device is powered on and that you have communication to the openGear frame. You must then restart the upload process.

Adding a USB Game Controller to Control Cameras

Ross Video's DashBoard™ platform allows you to turn any USB game controller, such as a joystick, into a camera controller. The camera control panel allows you to configure and control various camera functions. These include: camera selection, camera motion (pan, tilt, zoom, and focus), and paintbox controls (lens iris and lens shutter speed).

You can control all camera functions with a single controller or you can use multiple controllers to each control a subset of camera functions. You can also configure unassigned buttons on the controller to perform an action. In this example, you will learn how to configure a button to open a DashBoard device view or panel.

To add a USB game controller for cameras to DashBoard, you must complete the following tasks:

- Connecting the USB Game Controller to DashBoard
- Configuring Axis Controls and Button Actions
- Configuring Buttons to Open Device Views or Panels

For these procedures you will need the following:

- DashBoard™
- A USB game controller

Connecting the USB Game Controller to DashBoard

Before you get started, ensure that DashBoard is downloaded, and follow the steps below to add as many USB game controllers as you want to DashBoard.

To add a game controller to control your cameras:

1. Close DashBoard.
2. Connect the game controller to a USB port on the computer.
3. Start DashBoard.
4. Click the **File** menu, and select **New > Other**.

   The **New** dialog box appears.

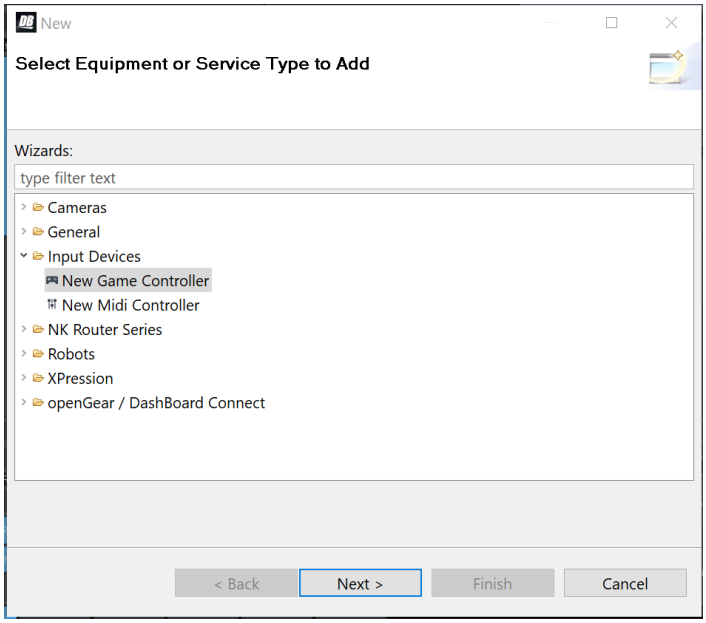


***Figure 1** - Adding a Game Controller*

5. In the **Wizards** list, expand **Input Devices**, and double-click **New Game Controller**.

   The **New Game Controller Connection** dialog box appears.

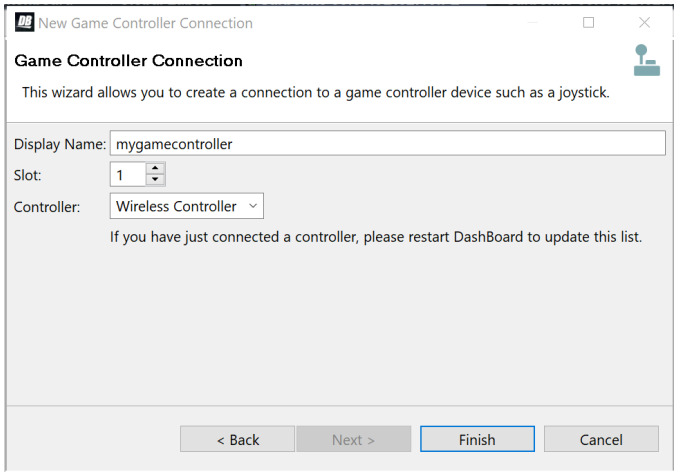


***Figure 2** - Connecting a Game Controller*

6. In the **Display Name** field, enter a name for the controller.

7. In the **Slot** field, set a slot number.
8. In the **Controller** drop-down menu, select the type of controller you connected earlier.

   Note: If the controller type is not listed, either it was not detected or it is already registered in DashBoard.
9. Click **Finish**.

   A node for the controller appears within the **Game Controllers** node in the **Basic Tree View**. The name of the node is the **Display name** you entered earlier.

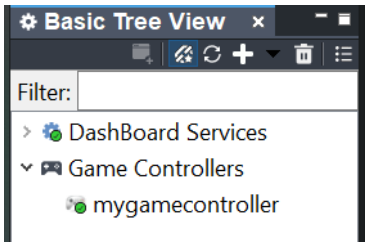


Figure 3 *- Basic Tree View*

10. In the **Basic Tree View**, expand the **Game Controllers** node, and then double-click the controller you added.

    The configuration interface for the controller appears.

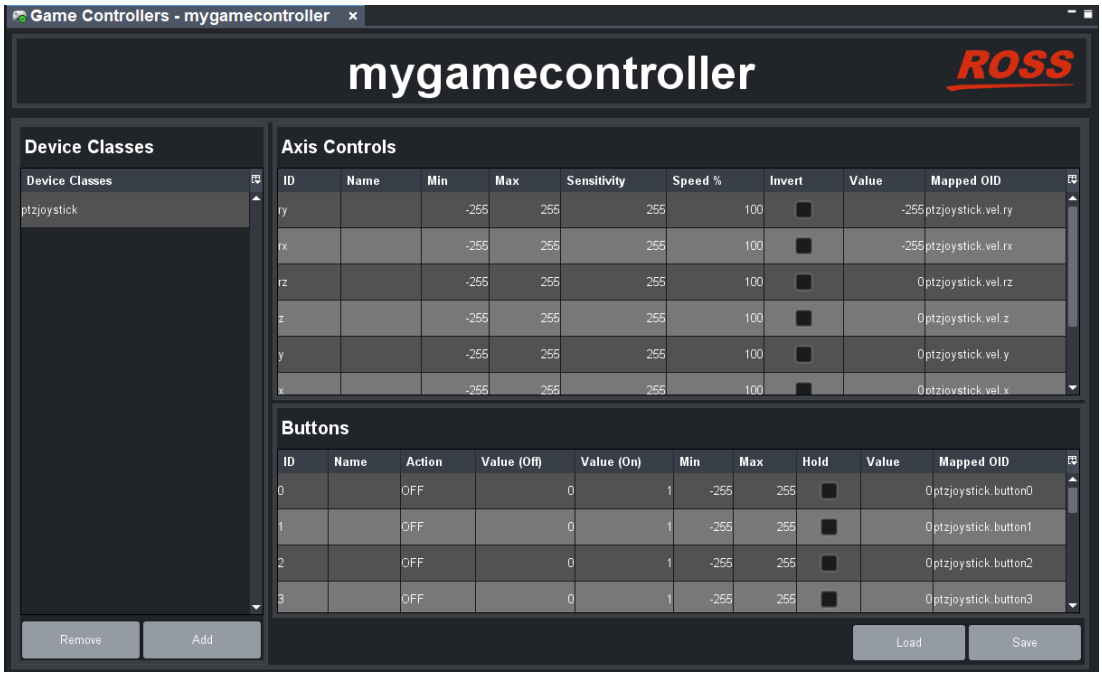


Figure 4 *- The Game Controller Interface*

Configuring Axis Controls and Button Actions

First, you'll add device classes, and then you'll configure axis controls and button actions.

To add device classes:

1. In the **Device Classes** list, make sure the default device class, **ptzjoystick,** is included.
2. In the **Device Classes** list, add a device class named **paintbox.**
3. In the **Device Classes** list, add a device class named **selector**.

Figure 5 *- Adding device classes*

Creating Data Mappings for the Axis Controls and Buttons

Create data mappings for the parameters you want to control with the controller. When you create data mappings, you link items reported by the controller to parameters (OIDs) in the DashBoard camera control panel.

Note: If you are using multiple controllers and dividing the control functions among them, the controls within each device class must be assigned to a single controller. For example, you can't share **paintbox** controls between two controllers.

To create data mappings for the Axis Controls and Buttons

1. Determine which **Axis Controls** and **Buttons** correspond to physical controls on the controller, by moving the controller's joystick and pushing its buttons while observing changes in the **Value** column.
2. In the **Axis Controls** table, edit the configurable fields for each control you wish to configure:

ID	The ID of the control, as reported by the controller. Note: This is not configurable.
Name	Enter a display name for the axis control. (optional)
Sensitivity	Adjust the number value to change the responsiveness of the input.
Speed %	Adjust the number value from 1 to 100 percent to adjust the speed, where 100% is the fastest speed and 1% is the slowest speed.
Invert	Select the **Invert** checkbox to reverse the direction of the joystick motion required to move the axis. Tip: If the camera is ceiling mounted, you would check **Invert** for pan and tilt so that when you move the joystick the camera moves as desired.
Value	Displays the current data value reported by the controller. Note: This is not configurable. Tip: This is useful for testing, because you can move the controller's joystick and press controller buttons to see which data items they correspond to in the mapping tables.
Mapped OID	Specifies the parameter OID from DashBoard camera control panel to be mapped to the control. For example, for the **y** axis control you must enter **ptzjoystick.vel.tilt** as the parameter OID. For a complete list see, ***Table 10.1, "Mapped OID Parameters," on page 5***.

3. In the **Buttons** table, edit the configurable fields for each button you wish to configure:

ID	The ID of the control, as reported by the controller. Note: This is not configurable.
Name	Enter a display name for the button. (optional)
Action	Adjust the number value to change the responsiveness of the input.
Value (Off)	This is the value of the parameter when the button is not pressed.
Value (On)	This is the value of the parameter when you press the button.
Min	The minimum value. By default, it is set to match the minimum value of the item being controlled.
Max	The maximum value. By default, it is set to match the maximum value of the item being controlled.
Hold	Select the **Hold** checkbox if you want the button to respond when you press and hold, rather than requiring you to press the button several times in rapid succession.
Value	Displays the current data value reported by the controller. Note: This is not configurable. Tip: This is useful for testing, because you can move the controller's joystick and press controller buttons to see which data items they correspond to in the mapping tables.
Mapped OID	Specifies the parameter OID from DashBoard camera control panel to be mapped to the control. For example, for buttons that control camera selection you must enter **selector.selection** as the parameter OID. For a complete list see, ***Table 10.1, "Mapped OID Parameters," on page 5***.

The name of each parameter OID starts with the name of its device class, such as **selector**, **ptzjoystick**, or **paintbox**.

You can map the following parameters:

Table 10.1 Mapped OID Parameters

Parameter (Mapped OID)	Description
selector.selection	Camera selection. Map this parameter to the set of buttons you'll use to select the camera that's controlled. Each row in the **Buttons** table corresponds to a button on the controller. For each button you want to assign as the selector for a camera, do the following: • In the **Name** column, assign a camera name for future reference (optional). • Set **Action** to **Set Value**. • Set **Value Off** to **-1** • Set **Value (On)** to a camera number (**0**, **1**, **2**, **3**, etc.)
ptzjoystick.vel.tilt	Tilt axis
ptzjoystick.vel.pan	Pan axis

Table 10.1 Mapped OID Parameters

Parameter (Mapped OID)	Description
ptzjoystick.vel.zoom	Zoom axis (lens zoom)
ptzjoystick.vel.focus	Focus axis (lens focus)
paintbox.vel.shutter.preset	Shutter preset
paintbox.vel.iris.control	Iris control
paintbox.dnoise.reduction	Digital noise reduction

You can see an example in **Figure 6**:

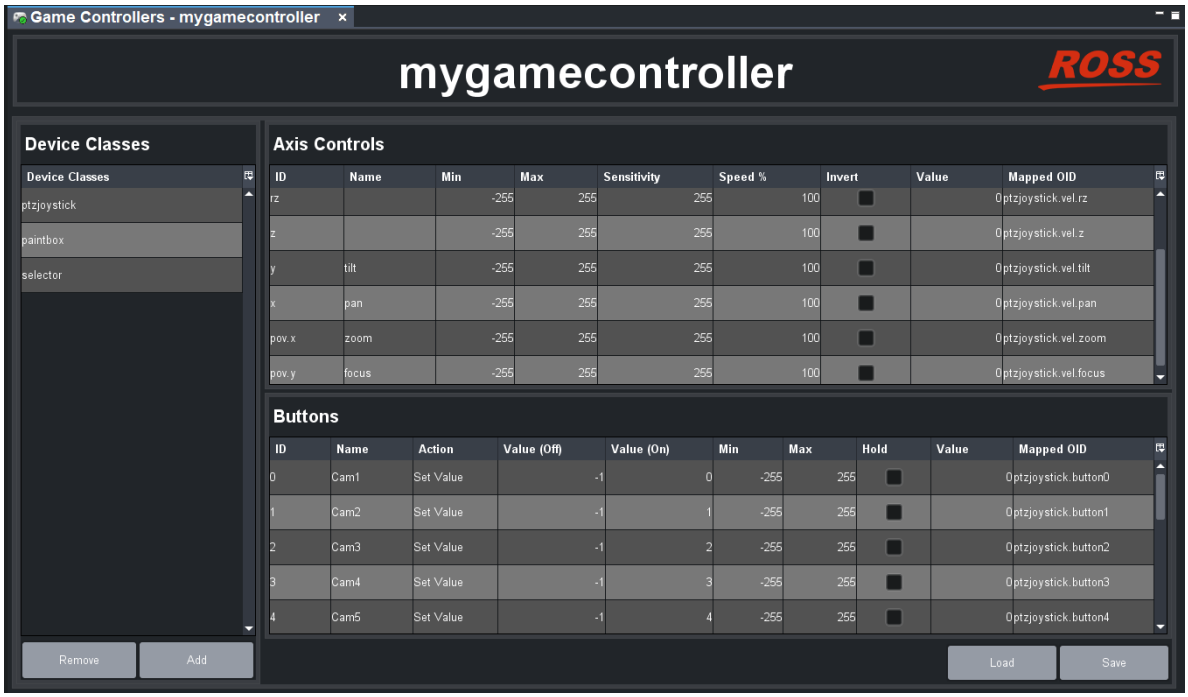


Figure 6 *- Mapping Game Controller Data to Camera Control Panel Parameter OIDs*

4. If you want to save the mappings in a file that can be loaded onto other DashBoard computers, click **Save > Save** and specify a file name and path. Click **Done**.

   Note: The mappings are specific to the controller(s) you configured. You can use the mappings on other computers running DashBoard only if the controllers are the same model, or report the exact same controls.

5. In the **Basic Tree View**, within the **DashBoard Services** node, double-click **Device Class Mappings**.

   The **Device Class Mappings** interface appears.

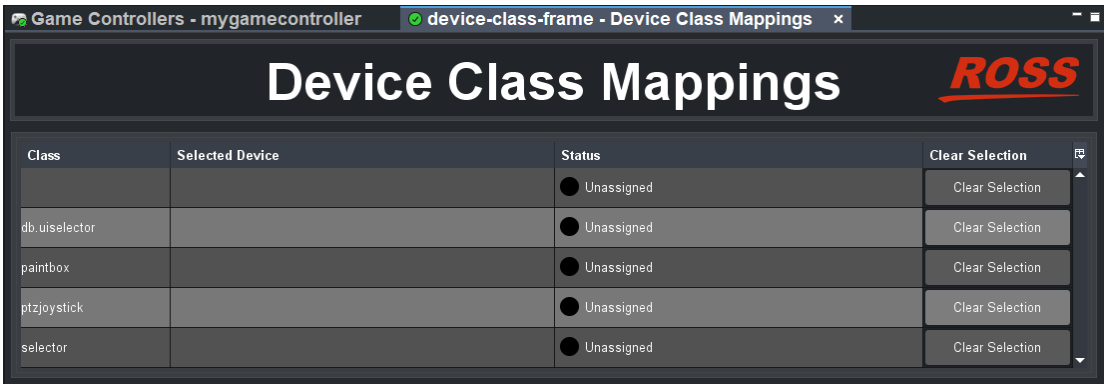


Figure 7 *- Device Class Mappings Interface*

6. If you plan to use the controller to adjust lens iris and lens shutter speed, in the **paintbox** row set **Selected Device** to the controller you are configuring.

   Tip: If a class you want to map is already mapped, click **Clear Selection** and then map it to the controller.

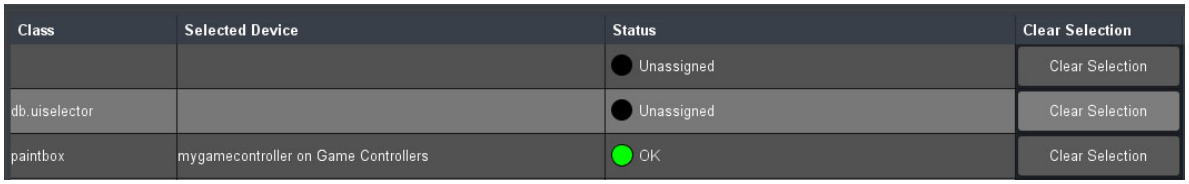


Figure 8 *- Adding Paintbox Mappings*

7. If you plan to use the controller to move cameras (pan, tilt, zoom, focus), in the **ptzjoystick** row set **Selected Device** to the controller you are configuring.
8. If you plan to use buttons on the controller to select cameras in the Dashboard Camera Control Panel, in the **selector** row set **Selected Device** to the controller you are configuring.
9. In the **Basic Tree View**, expand the **DashBoard Services** node, and then double-click **Selector UI Mappings**.

   The **Selection Mapping** interface appears.

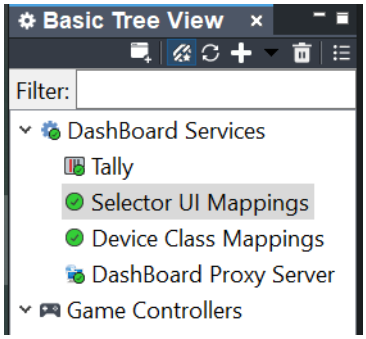


Figure 9 *- Basic Tree View*

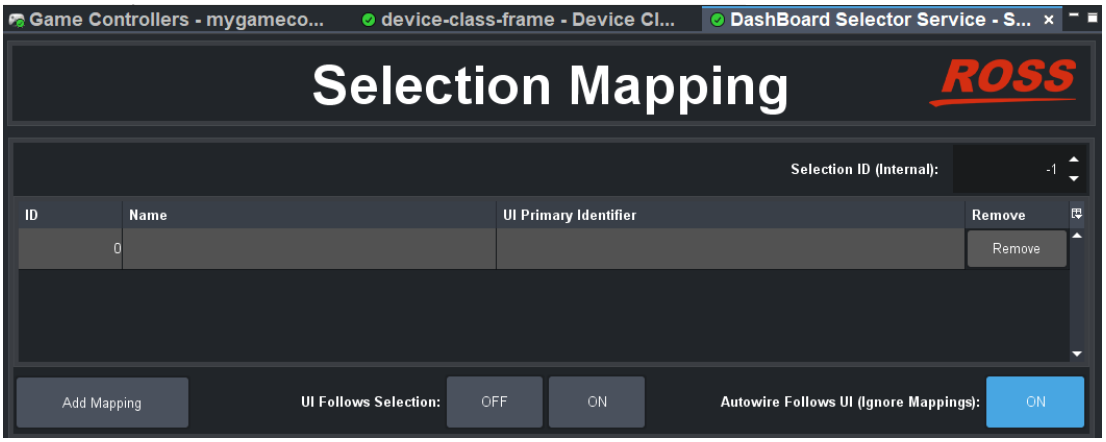


Figure 10 *- UI Follows and Autowire Settings*

10. In the **Selection Mapping** interface, select one of the following three options:

Option	Description
UI Follows Selection - OFF	If you set **UI Follows Selection** to **OFF**, when you push a configured button on the controller, the selection is activated, but it remains minimized in the DashBoard User Interface (UI). Choose this option to use the controller to select and control cameras, while performing other tasks using the DashBoard Camera Control Panel, custom panels, or device views. This option is suitable for controlling cameras as part of the Lightning Control System (LCS), provided that you want the LCS panel to remain full-screen while you perform other tasks with other custom panels or device views. **Note:** Opening other active panels will not impact your configured controller actions.

Option	Description
UI Follows Selection - ON	If you set **UI Follows Selection** to **ON**, when you push a configured button on the controller, DashBoard opens the UI selection (such as a camera control panel, custom panel, or device view). The new UI is shown on screen and the previous display is hidden. Choose this option to configure unassigned controller buttons to open DashBoard panels and device views on demand, such as a Carbonite control or a camera control panel. **Note:** When a configured controller button opens a DashBoard panel or device view, it becomes active (in focus). If the DashBoard Camera Control Panel is active and you press a controller button to open a different panel or a device view, the DashBoard Camera Control Panel loses focus. **Note:** You cannot use the controller to select and control cameras unless the DashBoard Camera Control Panel is the active DashBoard panel (in focus).
Autowire Follows UI - ON	If you set **Autowire Follows UI** to **ON**, the **Selection Mapping** table is ignored. Choose this option to prevent accidental movement of cameras while the operator is using other DashBoard panels or device views. **Note:** You cannot use the controller to select and control cameras unless the Dashboard Camera Control Panel is the active DashBoard panel (in focus).

Configuring Buttons to Open Device Views or Panels

If there are unassigned controller buttons and you want to configure them to open device views or panels, follow the procedure below. Note that this is optional, and does not need to be done unless desired.

To configure unassigned buttons to open device views or panels

1. Click **Add Mapping**.

   A new mapping row appears in the Selection Mapping table.

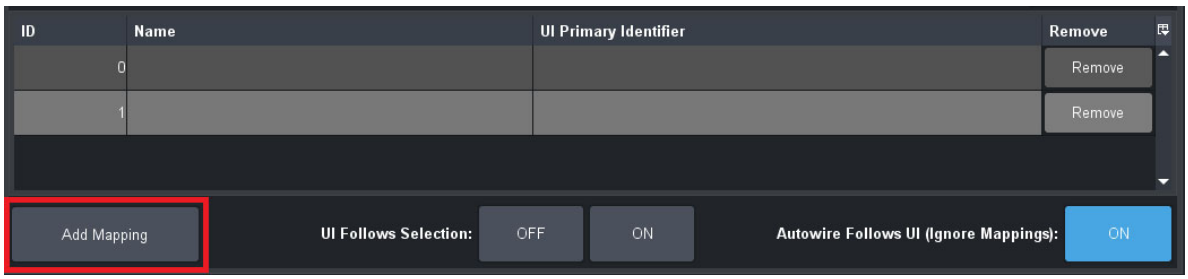
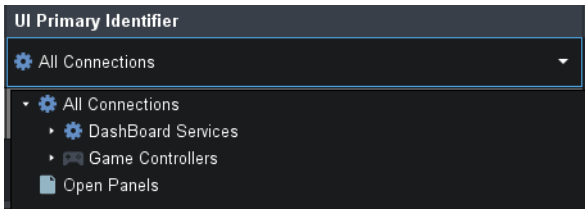


Figure 11 *- Adding New Mapping Rows*

2. In the Selection Mapping table, set the following values:

Value	Description
ID	Select any number that isn't already configured as **Value (On)** values in previous button mappings.
Name	Enter a name for the mapping. (optional)
UI Primary Identifier	Click the appropriate row, and use the drop-down menu to navigate to the panel or device view that you want DashBoard to open when you press this controller button.  **Note:** For panels to appear in the **Open Panels** drop-down menu, you must first open the panel in DashBoard. To open a panel, double-click on its **.grid** file. **Tip**: Make a note of the **ID** and which panel or device view is configured to open.

3. Repeat the steps above for each button you want to configure.
4. Go to **Basic Tree View > Game Controllers**, and double-click your controller to open its configuration interface.

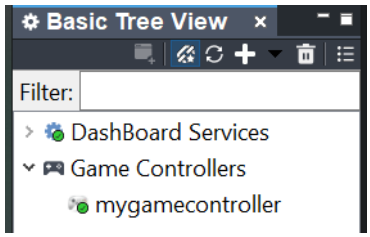


***Figure 12** - Basic Tree View*

5. In the **Buttons** table, for each button you want to assign to open a panel or device view, configure the following settings in the appropriate row:

Value	Description
Name	Specify a name for the mapping for future reference. (optional)
Action	Select **Set Value**.
Value (Off)	Set to **-1**.
Value (On)	Set to the ID number to the number you mapped in the Selection Mapping table. Refer to **Step1**.
Mapped OID	Enter **selector.selector** for the class.

6. Click **Save**, and provide a file name and path.

   Note: The mappings are specific to the controller(s) you configured. You can use the mappings on other DashBoard computers only if their controllers are the same model, or report the exact same controls.