

# ***DashBoard***

## **Canon Camera Paint Control Setup Guide**

**For DashBoard software version 9.5**

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David Ross  
CEO, Ross Video  
[dross@rossvideo.com](mailto: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.)*

# Canon Camera Paint Control Setup Guide

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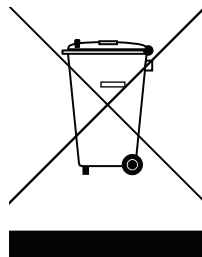
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## Company Address and Contact Information



### **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

Toll Free Technical Support: 1-844-652-0645 (North  
America)

+800 1005 0100 (International)

Technical Support: (+1) 613 • 652 • 4886

E-mail for Technical Support: [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)

ROSS VIDEO | HELP CENTER: <https://support.rossvideo.com/hc/en-us>

E-mail for General Information: [solutions@rossvideo.com](mailto:solutions@rossvideo.com)

Ross Video Website: <http://www.rossvideo.com>

# Table of Contents

<b>Welcome</b>	<b>6</b>
Documentation Conventions .....	6
Text Format Conventions .....	6
User Interface Conventions .....	7
Contacting Technical Support .....	7
<b>System Overview and Planning</b>	<b>8</b>
System Overview .....	8
Workstation Components .....	8
Planning the Workstation Components .....	8
Camera Control Workstation and Accessories .....	8
Video Monitor .....	9
Camera Paint Box (optional) .....	9
Planning the Studio and Network Components .....	9
Cameras .....	9
Proxy Server Computer .....	9
Network Configuration .....	10
Hardware and Software Checklist .....	10
<b>Installing and Configuring the System</b>	<b>12</b>
Upgrade Canon Camera Firmware .....	12
Install DashBoard Software .....	12
Set Up the Camera Control Computer(s) .....	13
Set Up the Canon Camera .....	13
Configure the Camera's Network Connection .....	13
Configure the Camera's On-Screen Display .....	14
Configure the Camera Picture Settings .....	14
Configure Workstation .....	15
Install Camera Paint Boxes .....	17
Configure the Camera Paint Box Connection .....	17

# Welcome

This is the Setup Guide for Ross Video's Canon Camera Paint Control.

Canon Camera Paint Control enables you to adjust lens iris, focus mode, camera paint settings, and all camera menu settings for the Canon EOS C500 Mark II camera.

Canon Camera Paint Control can be set up as a standalone camera control system, or be integrated with a Ross Robotics robotic camera system.

This Setup Guide describes how to install and configure Canon Camera Paint Control as a standalone camera control system.

**Tip:** If you set up a standalone system, and later purchase Ross Robotics, you can reconfigure the Canon Camera Paint Control to integrate it with your Robotics system.

For information about how to use Canon Camera Paint Control, see the ***Canon Camera Paint Control User Guide (8351DR-021-xx)***.

## Documentation Conventions

### Text Format Conventions

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

Text Format	Meaning
<b>Bold text</b>	Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example: In the <b>Display Name</b> box, enter a name for the node.
Courier text	Courier text is used to identify text that a user must enter. For example: In the address bar, enter <code>localhost</code> and press <b>Enter</b> .
<i>Italic text</i>	Italic text is used to identify the titles of referenced guides, manuals, or documents. For example: For more information, see the <b><i>Canon Camera Control System User Guide (8351DR-021-xx)</i></b> .
>	Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads " <b>File &gt; New</b> ," you would select the <b>File</b> menu and then select <b>New</b> .

## User Interface Conventions

You can interact with Canon Camera Paint Control using a touch screen and/or a keyboard and mouse. The instructions in this Setup Guide describe how to interact with the Camera Control Panel using a touch screen. The following table provides equivalent actions for using a keyboard and mouse.

Instruction	Touch Screen	Keyboard and Mouse
select	Select the object briefly.	Click the object. Click refers to pressing the left mouse button briefly. Right-click refers to pressing the right mouse button briefly.
touch and hold	Touch the object and hold your finger on it until a circle appears, and then release it.	Right-click and hold your finger on the mouse button until the expected action occurs.
drag	Touch the object, hold your finger on it, and drag your finger on the screen to move the object.	Click and drag the object.

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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 any time. Emergency after hours calls are answered by an answering service (live person) who will patch your call to the on-call support specialist. In the event that the on-call person is assisting another customer, the answering service will contact the back-up support specialist.

Our team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

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- **Technical Support:** (+1) 613-652-4886
- **E-mail for Technical Support:** [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)
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- **Ross Video Website:** <http://www.rossvideo.com>

# System Overview and Planning

This section provides information about the Canon Camera Paint Control that can help you plan your installation. It contains the following topics:

- **“System Overview”** on [page 8](#)
- **“Planning the Workstation Components”** on [page 8](#)
- **“Planning the Studio and Network Components”** on [page 9](#)
- **“Hardware and Software Checklist”** on [page 10](#)

## System Overview

Canon Camera Paint Control enables you to remotely adjust lens iris, focus mode, shutter, filters, camera paint settings, and various menu settings for supported the Canon EOS C500 Mark II camera. It can be set up as a standalone camera control system, or integrated with a Ross Robotics robotic camera system.

This Setup Guide describes how to install and configure Canon Camera Paint Control as a standalone camera control system.

This section lists the components of the system.

## Workstation Components

Canon Camera Paint Control includes one or more camera control workstations. Each workstation can control all cameras. Each workstation consists of the following:

- A Camera Control Computer that serves as a workstation supporting DashBoard.
- A Camera Video Monitor.
- A Camera Paint Box (Optional). The Camera Paint Box features physical knobs for adjusting iris and paint controls (gains and pedestals). These settings can also be controlled through the Camera Control Panel.

For more detailed information about the workstation components, see **“Planning the Workstation Components”** on [page 8](#).

## Planning the Workstation Components

This section describes the components of a camera control workstation, to help you plan your installation.

The main topics in this section are as follows:

- **“Camera Control Workstation and Accessories”** on [page 8](#)
- **“Video Monitor”** on [page 9](#)
- **“Camera Paint Box (optional)”** on [page 9](#)

## Camera Control Workstation and Accessories

You need one Camera Control Computer running DashBoard at each camera control workstation. DashBoard is free, but Canon Camera Paint Control is a licensed application. You require one license for each camera control workstation.

You can purchase your Camera Control Computer(s) from Ross Video. Alternatively, you can use any computer that meets the Windows or Mac OS system requirements for installing DashBoard. To view the



DashBoard system requirements, download the ***DashBoard User Guide (8351DR-004-xx)*** at: <https://www.rossvideo.com/support/software-downloads/dashboard>

## Video Monitor

The camera video monitor can display video from the camera being controlled, so you can see on-screen menus and monitor the effect of adjustments as you make them. The camera video monitor is a carefully calibrated reference monitor. Sometimes two monitors are used, to compare video output of two cameras side-by-side. Video routing equipment is required to direct the desired video feed to the monitor(s).

**Note:** Camera video monitors and routing equipment operate independent of the Camera Control System. The Camera Control Panel application and Camera Paint Box do not select video to be displayed on camera video monitors.

Camera video monitors, video routing equipment, and waveforms/vectorscopes are not included as part of Canon Camera Paint Control.

## Camera Paint Box (optional)

The Camera Paint Box is an optional accessory that features physical knobs for adjusting iris and paint controls (gains and pedestals). These settings can also be controlled through the Camera Control Panel.

Each camera control workstation may or may not include a Camera Paint Box.

The Camera Paint Box is connected to the camera control computer by a USB cable. The Camera Paint Box is designed to occupy 1RU in a standard 19" component rack.

# Planning the Studio and Network Components

This section describes the studio and network components of a camera control workstation, to help you plan your installation.

The main topics in this section are as follows:

- “**Cameras**” on [page 9](#)
- “**Proxy Server Computer**” on [page 9](#)
- “**Network Configuration**” on [page 10](#)

## Cameras

The only Canon camera supported by Ross Video’s Canon Camera Paint Control is the EOS C500 Mark II.

## Proxy Server Computer

If your system includes multiple camera control workstations, the camera control computers are set up with a client-server topology that allows you to configure the connection to the camera once, then access it from multiple locations.

**Note:** Setting up a proxy server is optional and depends on the needs of your deployment.

On the proxy server, DashBoard is configured to be the 'proxy server' instance. On each camera control computer, DashBoard is configured to be a client of the proxy server instance. All camera control requests from camera control computers are handled by the proxy server.

For more information on proxy servers, refer to the DashBoard User Guide <https://www.rossvideo.com/support/software-downloads/dashboard>

## Network Configuration

Components of Canon Camera Paint Control communicate over an Ethernet or wireless network. You can use a dedicated network switch, or an existing network.

The following components require Ethernet network connections:

- Each Camera Control Computer
- The proxy server (only required for systems that have multiple camera control workstations)

**Note:** Ethernet cables between components are not included.

## Hardware and Software Checklist

The tables in this section list everything you need to purchase for your system, and can serve as a checklist for setting up your workstation.

**Table 1 - Camera Control Workstation Equipment and Software**

Quantity	Item	Source	Notes / Requirements
	Computer Workstation Must include monitor, keyboard, and mouse.	Ross Video Other	One computer per workstation. Ross Video sells an all-in-one computer for this purpose. Computers must meet Windows system requirements for DashBoard installation. Computers require power supply outlets.
	Canon camera control license	Ross Video	One license per camera control workstation.
	Camera Paint Box	Ross Video	Maximum one per workstation. Optional accessory. The Camera Paint Box requires a power supply outlet.
	Video monitor and waveform/vectorscope	Other	Minimum one per workstation. Can have multiple monitors for side-by-side comparison of camera outputs. May also require waveform/vectorscope for fine-tuning camera output. Monitors and waveform/vectorscopes require power supply outlets.
	Routing and switching equipment for camera video monitor(s) Must include video cabling between cameras and router, and between router and monitor(s).	Ross Video Other	Independent of DashBoard. Typically, an existing video router is used. Ross Video can provide video routing solutions. Routing equipment requires power supply outlets.

**Table 2 - Studio and Network Equipment**

Source			
Quantity	Item	(Ross or Other)	Notes
	Canon EOS C500 Mark II	Other	Each camera requires a power supply outlet.
	Proxy server for camera control [optional]	Ross Video Other	Optional if you wish to set up multiple camera control workstations in a client-server configuration with only one connection to the camera.  Ross Video sells servers for this purpose Server must meet Windows and Mac system requirements for DashBoard installation. Server requires a power supply outlet.
	Canon camera control license for proxy server computer [optional]	Ross Video	License fees are based on the number of camera control workstations in your system. <b>Note:</b> This is only required if you want to view the UI for camera control from your proxy server computer.
	Ethernet network cables	Other	The following require network connections: <ul style="list-style-type: none"> <li>• Each Camera Control Computer</li> <li>• Proxy server (if equipped)</li> </ul>

# Installing and Configuring the System

This section describes how to install and configure a standalone Canon Camera Paint Control system for the EOS C500 Mark II camera.

Before you install the system, you need to plan the installation. For more information, see “**System Overview and Planning**” on [page 8](#).

The contents of this chapter include:

- “**Upgrade Canon Camera Firmware**” on [page 12](#)
- “**Install DashBoard Software**” on [page 12](#)
- “**Set Up the Camera Control Computer(s)**” on [page 13](#)
- “**Set Up the Canon Camera**” on [page 13](#)
- “**Configure the Camera’s Network Connection**” on [page 13](#)
- “**Configure the Camera’s On-Screen Display**” on [page 14](#)
- “**Configure the Camera Picture Settings**” on [page 14](#)
- “**Configure Workstation**” on [page 15](#)
- “**Install Camera Paint Boxes**” on [page 17](#)
- “**Configure the Camera Paint Box Connection**” on [page 17](#)

## Upgrade Canon Camera Firmware

If the camera has an older version of firmware installed, you must upgrade it. Canon Camera Paint Control must connect with an EOS C500 Mark II camera running firmware version 1.0.6.1 or newer.

**To install the latest Canon EOS C500 Mark II firmware:**

1. Go to the downloadable drivers available through Canon support.
2. Download the latest driver for your camera and follow Canon’s installation instructions.

## Install DashBoard Software

Install the latest version of DashBoard (v9.5 or higher) available at:  
<https://www.rossvideo.com/support/software-downloads/dashboard>

DashBoard and the DashBoard User Guide are available as free downloads from Ross Video. The DashBoard User Guide contains instructions for installing DashBoard, and is available at:  
<https://www.rossvideo.com/support/product-documentation/dashboard>

# Set Up the Camera Control Computer(s)

Each workstation includes one camera control computer. This section describes how to install a camera control computer provided by Ross Video. If your computer is not provided by Ross Video, these steps may vary.

## To install a Camera Control Computer and Peripherals:

1. Connect the camera control computer to the monitor, keyboard, and mouse for your workstation.  
**Tip:** Ensure that the monitor is visible to the operator, and that the optical drive, accessory ports, and buttons on the right and left edges of the computer are accessible.
2. Ensure the computer is connected to your local wireless or Ethernet network.
3. Configure the networking parameters (IP address, subnet mask, and gateway).

# Set Up the Canon Camera

This section describes how to perform an initial set up of the Canon camera in order to control **Iris** and **Focus** features from the DashBoard panel.

## To enable automatic iris and automatic focus:

1. Position and mount the camera.
2. On the camera lens, find the **IRIS** switch and set it to the **Automatic (A)** position.
3. On the camera lens, find the **FOCUS** switch and set it to the **Automatic Focus (AF)** position.

# Configure the Camera's Network Connection

The Canon Camera Paint Control requires wired camera connection following firmware upgrades and XC protocol to communicate with DashBoard.

## To set the camera to XC protocol:

1. Open the **On-Screen Menu** in the Canon camera.
2. Select the **Network Settings** tab > **Submenu Item 1** > **New Conn. Setting** > **XC Protocol**.

## To establish the camera's network connection:

1. Open the **On-Screen Menu** in the Canon camera.
2. Select the **Network Settings** tab > **Submenu Item 1** > **New Conn. Setting** > **Ethernet** > **Setup with Network Conn.** > **Automatic** > **Disable**.
3. Enter the network credentials into the device.  
**Note:** Add the IPv6 network information if necessary.
4. Select **Create New Conn. Setting** > **Digest Authentication** > **Set Username/Password**.
5. Enter the username and password.  
**Note:** Keep a record of these login credentials for future use.
6. Select **Choose a Conn.Setting Save Destination** > **Done**.

# Configure the Camera's On-Screen Display

The following section enables you to use the camera's **On-Screen Display (OSD)** to modify the video output so that it's compatible with your monitor.

**Note:** In order to see on-screen display, the camera video output needs to be connected to the monitor.

## To set the on-screen display monitor output:

1. Open the **On-Screen Menu** in the Canon camera.
2. Select **Monitoring Setup > Submenu Item 7 > OSD Output: MON./HDMI > On.**
3. Connect the output of the camera to a monitor using **Mon Out**.

## To change the video format:

**Tip:** If the video output is not visible, the following instructions

1. Open the **On-Screen Menu** in the Canon camera.
2. Select the **Recording/Media Setup** tab > **Submenu Item 2 > Resolution/Color Sampling.**
3. Select the desired video format.

The Canon Camera Paint Control system can now access the **On-Screen Display**.

# Configure the Camera Picture Settings

This section describes how to configure Canon EOS C500 Mark II picture settings optimally for your workstation. These configurations ensure the best quality performance for your video and are required for **Canon Paint Control** to work correctly.

## To set up the lens:

**Note:** For various lenses, you may see the outline of the lens on the edge of the video output. Use the following instructions to resolve this issue.

1. Open the **On-Screen Menu** in the Canon camera.
2. Select **Recording/Media Setup** tab > **Submenu Item 1 > Sensor Mode > Super 35mm (Cropped).**

## To set up the pedestal or gain values:

If you cannot change the pedestal or gain values on the camera using the panel, you must **Unprotect** the **Custom Picture (CP)** file that is in use on the camera. When **CP** is protected, changes to the color or black gains are restricted.

1. Open the **On-Screen Menu** in the Canon camera.
2. Select the **CP (Custom Picture)** tab > **Select CP File.**  
**Note:** If the file has a **Key** symbol next to it, it is protected, and changes cannot be made to color settings.
3. Choose the desired **CP File** from the drop-down menu provided.
4. Select **Edit CP File** then change **Protect** setting to **Unprotect**.

You can now make changes to **Pedestal** and **Gain** values on the camera.

**To enable smooth gain adjustment:**

1. Open the **On-Screen Menu**.
2. Select the **Camera Setup** tab > **Submenu Item 2**.
3. Set **Gain Increment** to **Fine**.

**To use Kelvin scale values for White Balance color temperature:**

1. Open the **On-Screen Menu**.
2. Select the **Camera Setup** tab > **Submenu Item 3**.
3. Set **C. Temp. Increment** to **Kelvin**.

**Note:** Canon Camera Paint Control only supports Kelvin scale values for **White Balance** color temperature.

## Configure Workstation

This section describes how to configure DashBoard for a single computer that connects directly to cameras.

If you want to have additional workstations, set up a DashBoard proxy server. Follow the steps in this section for the proxy server computer only, and then configure the other workstations to access the cameras through the DashBoard proxy server. For more information about how to configure a DashBoard proxy server, see the ***DashBoard User Guide (8351DR-004-xx)***.

**Note:** To perform the steps in this section, you need to have good working knowledge of basic computer networking procedures.

**To add a camera:**

1. Open DashBoard.
2. Select the + button from the **Basic Tree View**.



**Tip:** You can alternatively select **File > New > Other**.

3. Expand **Cameras**, select **Canon Cinema Camera**, and then select **Next**. The **Canon Cinema Camera** dialog box appears.

4. In the **IP Address** field, enter the IP address of the camera you want to add.
5. Enter the **Port** number for the camera you want to add.
6. Enter a desired **Display Name**, ensuring it's unique from other display names already in use.
7. In the **Slot** box, specify a slot number for the camera. Valid slot numbers start at **1**.  
**Note:** Assigning a slot number is optional. If left blank, DashBoard assigns the lowest available slot number by default.  
**Tip:** In the Camera Control Panel, the order of camera selection buttons is determined by slot number, starting with the lowest number at the top.
8. Select **Finish**.

**To view camera controls:**

1. In the **DashBoard Component Tree**, expand the **Canon Cameras** node.
2. Expand the **Slot** node for the camera you just added.
3. Double-tap **Remote Control**.

**To enter a license key:**

1. In the **Enter License Key** interface, select **Copy to Clipboard**.  
The request code is copied to the clipboard.
2. Paste the request code into an e-mail to Ross Video ([techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)), requesting a corresponding license key. Be sure to include the original Ross Video sales order number.  
**Note:** If you leave the **Enter License Key** page, the license key you receive from Ross Video will not work. It is valid only for the session during which it was generated.
3. When you receive the license key, copy it into the **License Key** field and select **Install**.  
The **License Installed** message appears. Select **OK**.
4. Restart DashBoard.

**Note:** If you are setting up a proxy server, right-click on each node and share. You can configure other camera control computers by setting up DashBoard to point to the IP address and port of the proxy



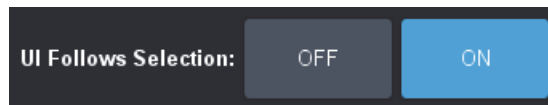
server on your proxy server computer. Refer to the **DashBoard User Guide (8351DR-004-xx)** for more information.

**To link/unlink camera selection between Canon Camera Paint Control and other control interfaces:**

1. Open the **DashBoard Component Tree**, navigate to **DashBoard Services**, and then double-tap **Selector UI Mappings**.

The **Selection Mapping** interface appears.

You can use the **UI Follows Selection** buttons (**OFF / ON**) to control whether selecting a camera in one interface selects it in all interfaces.



2. Do one of the following:

- To turn **Selection Follow ON**, select the **ON** button.

If you select a camera in one interface, it becomes selected in all others. For example, if you select a camera on a joystick panel, it is also selected in SmartShell and in the Camera Control Panel.

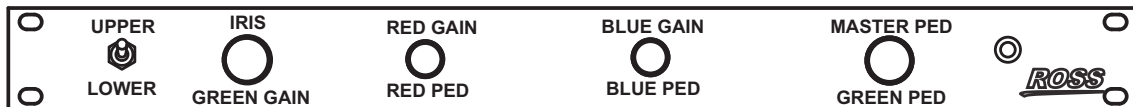
**Note:** SmartShell must be configured for **Selection Follow**. For more information, contact Ross Video Technical Support.

- To turn **Selection Follow OFF**, select the **OFF** button.

Camera selection in the **Camera Control Panel** is independent of camera selection in other interfaces.

## Install Camera Paint Boxes

The Camera Paint Box is an optional accessory that enables physical control of paint settings. Each workstation may or may not include a Camera Paint Box.



**To install a Camera Paint Box:**

1. Position the Camera Paint Box in the camera control workstation location. Ensure that the Camera Paint Box is within easy reach of the operator. The Camera Paint Box can sit on a flat surface, or occupy 1RU in a standard 19" component rack.
2. Plug one end of the provided USB cable into the Camera Paint Box. Plug the other end into a USB connector on the back of the camera control computer.
3. Plug the power cable into the Camera Paint Box, and into a suitable power outlet. On the front of the Camera Paint Box, a green LED indicates that the unit is powered.

## Configure the Camera Paint Box Connection

Each camera paint box is connected to a camera control computer via a USB cable.

DashBoard communicates with the Camera Paint Box through a service called the bridge server. To establish communication with the Camera Paint Box, you must:

1. Install the bridge server software.
2. Add and configure a DashBoard gateway for the Camera Paint Box.

**Note:** The **Green Pedestal** and **Green Gain** have no effect on the Canon camera.

#### To install the bridge server software:

1. Obtain the **Bridge Server** software zip file from Ross Video, and save it on the camera control computer.
2. Unzip the file to **C:\Ross**.
3. Open a command prompt window as **Administrator**, and change directory to the location where you unzipped the file, for example:  

```
cd "C:\Ross\Bridge Server 4.5.0.4093"
```
4. Enter the command to install the **ManagedServicesHost.exe** file and then press **Enter**. An example of the command is as follows:  

```
C:\> "Ross\Bridge Server 4.5.0.4093\ManagedServicesHost.exe" -install
```
5. Press **Enter**.  
The Bridge Server software is installed. A message in the command prompt window appears when the installation is complete.
6. Close the command prompt window.
7. In a web browser, navigate to the Bridge Server configuration page at **localhost:3000**.
8. If the **PaintBox Bridge** service is not running, select **Start**.  
**Tip:** From the configuration page, you can start or stop the server. Alternatively, you can start or stop the **Bridge Service Host** from the **Services** tab in **Windows Task Manager**.

#### To add a DashBoard gateway for the Camera Paint Box:

1. In DashBoard, from the **File** menu, select **New**, and then select **TCP/IP DashBoard Connect or openGear Device**.  
The **New TCP openGear Frame Connection** dialog box appears.
2. In the **IP Address** box, enter the IP address of the computer, or enter `localhost`.
3. In the **Display Name** box, enter a name for the node as you want it to appear in the DashBoard component tree, for example, **Robotics DashBoard Gateway**.
4. Select the **JSON** protocol.
5. In the **Port** box, enter the desired port number.
6. Select the **Remember connection settings for this frame** check box.
7. Select **Finish**.  
A new gateway node with the name you specified appears in the DashBoard component tree.  
**Tip:** After you complete this procedure, you can expand the gateway node and double-clickselect **Station 1** to open an interface that displays real-time data received from the Camera Paint Box.

#### To configure a DashBoard gateway for the Camera Paint Box:

1. In the DashBoard component tree, expand the **DashBoard Services** node.
2. Select **Device Class Mappings**.
3. For each **Class**, in the **Selected Device** list, select the only available option in the list.
4. In the DashBoard component tree, select **Selector UI Mappings**.
5. Set the **Autowire Follows UI** setting to **ON**.