grass valley
A BELDEN BRAND

User's Guide

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Camera Connect

Camera configuration and monitoring software

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Chapter 1

Introduction

1.1 General

1.2 Overview

1.2.1 Platform

Camera Connect is a hardware and software platform that ensures maximum compatibility with other Grass Valley products and services.

The platform provides open interactions from external devices to the cameras, from automating setup changes to operating cameras. There is a web interface for system configuration and monitoring network parameters.

1.2.2 C2IP Network

Expanding the capabilities of our Grass Valley camera line is the C2IP (camera control over IP network) Ethernet-based camera control system. Supporting all LDX and LDK series HD cameras, it offers Ethernet based control of up to 99 cameras using standard IP infrastructure for live and multi camera productions.

1.2.3 Connect Gateway

The Connect Gateway acts as a bridge between Grass Valley's C2IP camera control network and the outside world. It uses the widely accepted XML protocol to communicate with the camera systems within the C2IP network.

The Connect Gateway is an XML-based platform, allowing system integrators to write user-specific camera control applications. Routine interaction is through a remotely accessible web interface that will make multiple camera set-ups faster and easier.

The result is that other Grass Valley products and third-party systems have secure access to camera control, helping broadcasters and production facilities develop more efficient studio automation, increasing productivity, and boosting their return on investment.

1.2.4 Camera Connect

1.2.5 Main features

Connect Gateway

- Acts as a gateway between external devices and camera control network.
- Uses reliable and cost effective Ethernet network infrastructure.
- Uses widely accepted XML as its message protocol.
- Up to 32 XML-clients can be connected to the Connect Gateway at the same time.
- Dual Ethernet port configuration for fully separated public Ethernet and C2IP network operation.

Connect Gateway

- Acts as a gateway between external devices and camera control network.
- Uses reliable and cost effective Ethernet network infrastructure.

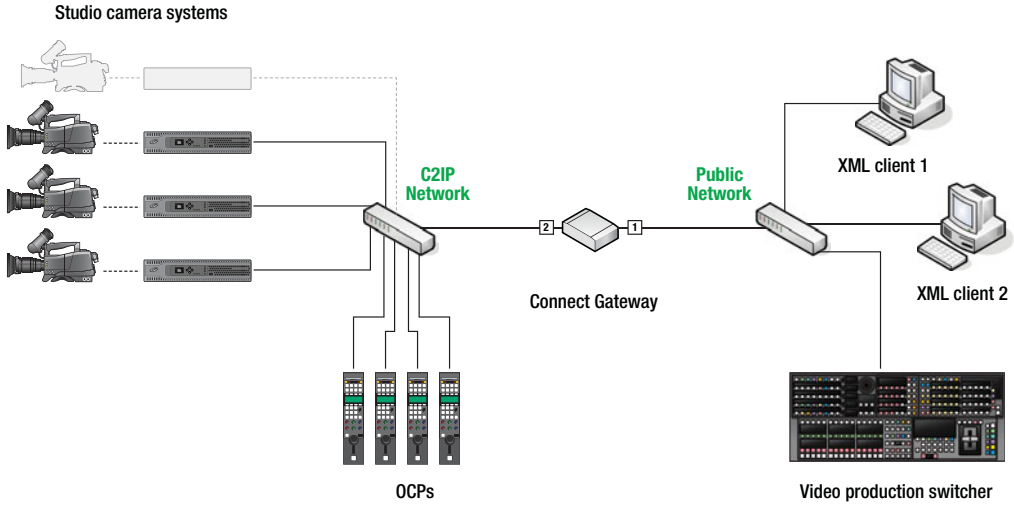
Chapter 2

Connect Gateway

2.1 Gateway server configuration

2.1.1 Network configuration

Below is an illustration of a typical camera configuration with the Camera configuration and monitoring software acting as a bridge between the C2IP and Public Network. This is also the recommended standard configuration to connect external XML clients such as PC programs or other Grass Valley broadcast products (e.g. Kayenne switchers):



2.2 Setup

☞ Note

Make sure that both Ethernet ports on the Camera configuration and monitoring software server are connected to an Ethernet network (router/switch).

It is recommended to restart the server regularly to keep it running at optimum performance and reliability.

2.2.1 Default network settings

The default (factory) IP settings are:

- IP address for Camera configuration and monitoring software server is **192.168.0.24**
- The default port is **8080**
- **Automatic IP** address assignment for the C2IP network

2.2.2 Changing network settings

☞ Note

In most cases, manual configuration of the system is not necessary. However, when you need to change the default configuration, follow the procedure below.

Local server setup

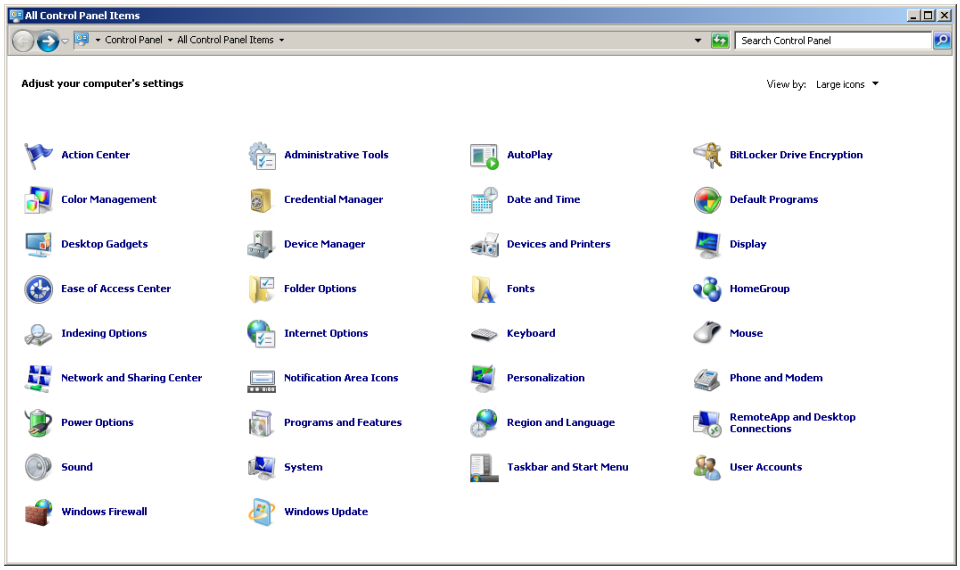
To change the default configuration of the system, proceed as follows:

1. Connect a VGA monitor, USB mouse and USB keyboard to the appropriate connectors at the back panel of the server.
2. Switch on the server and wait for the system to start up.
3. Log on to windows using the **admin** account, password is **admin**.

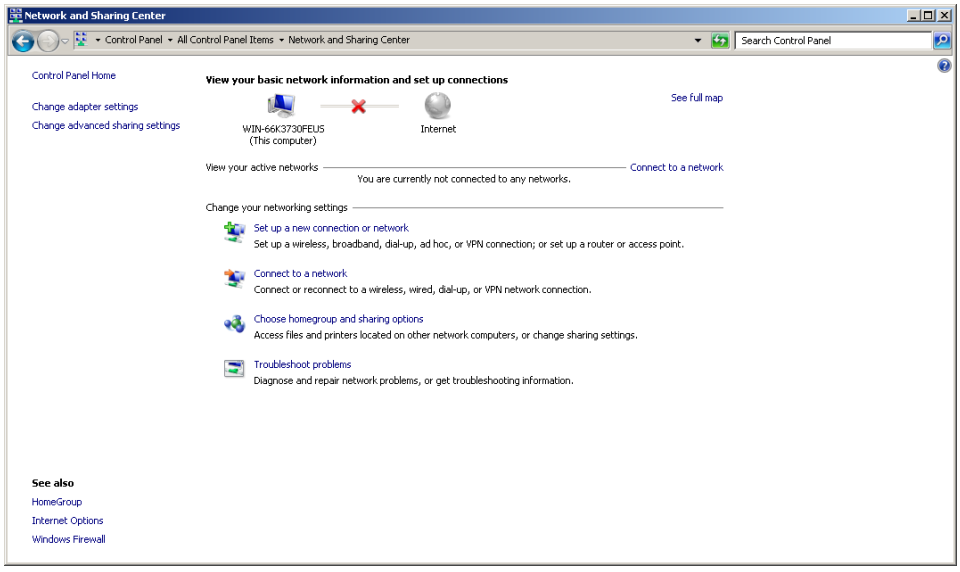
Network settings for Camera configuration and monitoring software server

To change the server network settings proceed as follows:

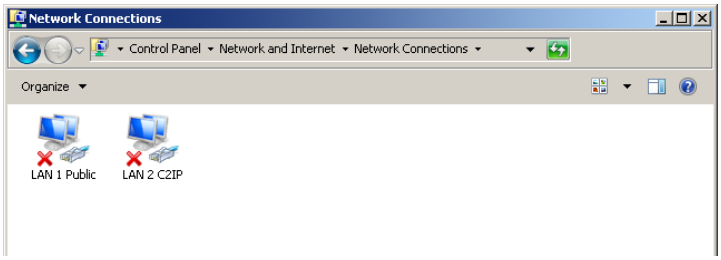
1. Click **Start** and then click **Control Panel**.



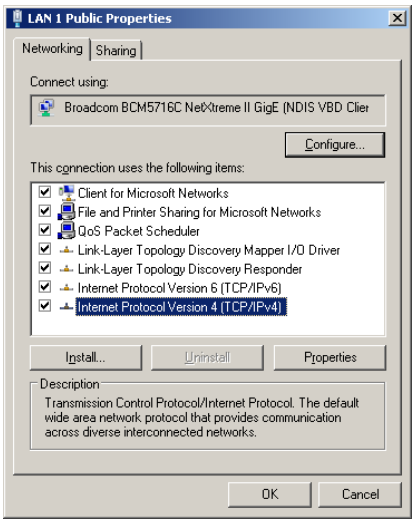
2. In Control Panel, click **Network and Sharing Center**.



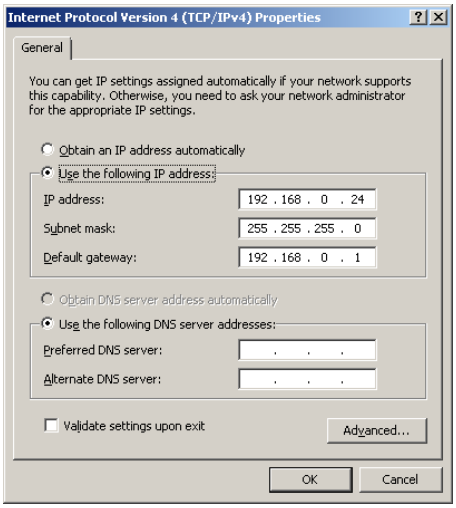
3. At the left side of the window click **Change adapter settings**.



4. Right-click **LAN 1 Public** and select **Properties** from the context menu. The following dialog box appears:



5. Select the **Internet Protocol (TCP/IP)** item from the list and click **Properties**. You may have to scroll down in the list to see all items. The Internet Protocol (TCP/IP) Settings dialog box appears:



6. Now you can choose between manual and automatic IP address assignment. Click the option button of your choice. For public Ethernet networks, manual IP addressing is recommended. You may need to ask your network administrator for the appropriate settings.
7. When you chose to use manual IP addressing, enter the IP address, the Subnet mask and the Default Gateway address.
8. Click **OK** and **OK**.

Network settings for C2IP network

1. Follow the same procedure as described before for **Local Area Connection 2**.
2. In the Internet Protocol (TCP/IP) Settings dialog box, it is recommended to select the option **Obtain an IP address automatically.**
3. Click **OK** and **OK**.
4. Restart Windows for the changes to take effect.

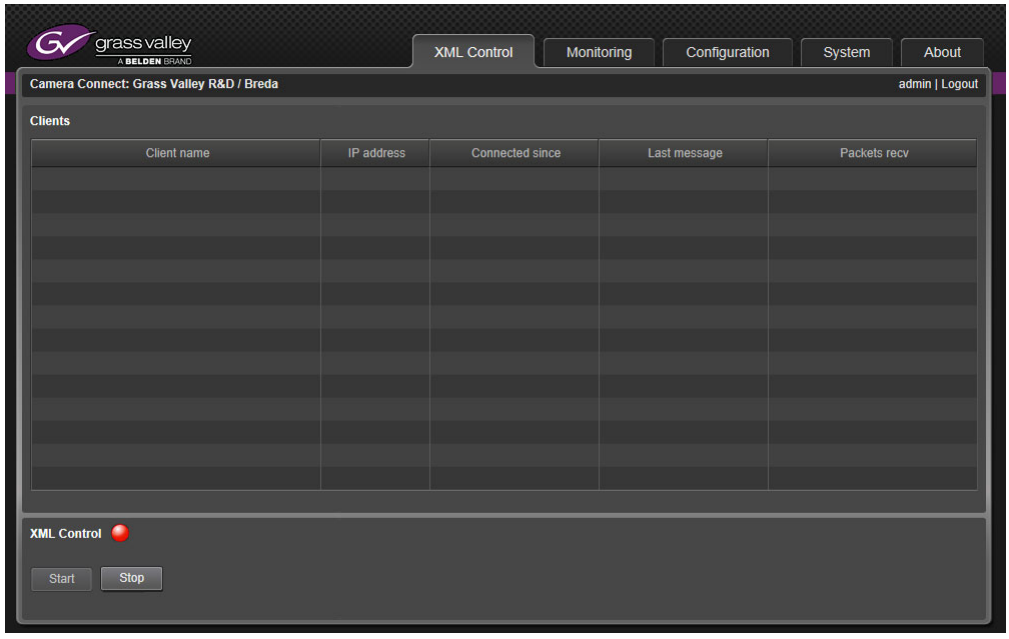
The Camera configuration and monitoring software is now running. For advanced settings and monitoring, log on to the server using the web interface.

Note

Some browsers show a warning message about running scripts when you access the web interface. Choose *Allow Blocked Content* if this occurs.

2.3 XML Control page

This page is used to monitor the public Ethernet network and connected XML clients.



2.3.1 Status bar

Shows the company or system name and location (e.g. studio location). Enter or change this information in the System page.

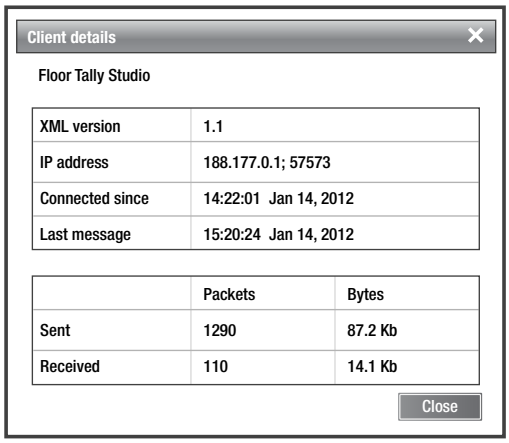
2.3.2 Clients list

List of XML clients connected to the Connect Gateway. These clients can be devices, such as a Grass Valley's Kayenne switcher, or software applications running on connected computers.

☞ Note

The maximum number of XML clients that can be connected at the same time is 32.

The panel shows the client's name, its IP address, connected time, time of last message received and total packets received. To see more details, click the selected client. The client details window is shown:



The client detail window shows the following information about the selected client:

- Name: client's name (used when the client connected)
- XML version: XML protocol version for the connection.
- IP address: client's IP address in the public Ethernet network.
- Time connected: duration in hours and minutes that the client is connected.
- Last message: time when last message was received from client.
- Packets received and sent: amount of packets received/sent from client.
- KBytes received and sent: data in KB received/sent from client.

2.3.3 XML Control

☞ Note

By default, the Connect Gateway is active after the system is switched on.

Click **Stop** to stop running the Connect Gateway. All XML clients are disconnected. The indicator becomes red.

– Click **Start** to enable the Connect Gateway. The indicator becomes green.

2.3.4 Network Status

Shows network status and traffic information on the public Ethernet network in KBytes and packets sent and received.

– The network status information is continuously updated without the need to refresh the web page.

2.3.5 Network IP Settings

Shows the current IP address, subnet mask and gateway settings for the C2IP network. These settings can only be changed in the server operating system.

Click the small arrow in the top right corner to expand and/or collapse the network status and network IP Settings panels.

Chapter 3

Camera Connect

3.1 Accessing the web interface

After installing the Camera Connect, the system is ready for use. If you would like to change advanced settings or monitor network traffic and status, use the browser-based Camera Connect web interface. This chapter describes the different pages of the web interface and the functions of these pages.

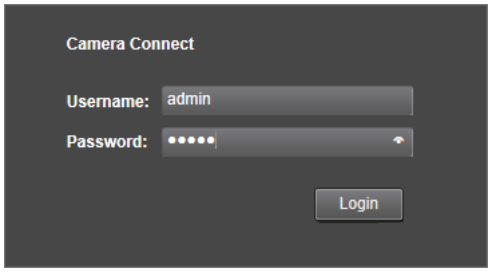
☞ Note

For faster response it is recommended to access the web interface via a standard internet browser on a computer that is connected to the system.

If the web interface is not used for a longer period it is recommended to close the browser.

The web interface has the following (sub)pages: **XML Control**, **Monitoring**, **Configuration**, **System** and **About**. Each page contains settings and functions to control and monitor the camera systems and gateway.

- Open the internet browser on your computer and enter the IP address of the PC Box (default: **192.168.0.24** or the changed server IP address) into the browser's address field and press enter. Or click the shortcut on the PC Box.
- The login screen will appear:



- Enter user name and password. The default login name is **admin** and the password **admin** (these can be changed after logging in).
- Click **Login** to continue. The web interface is shown. The login name and a logout link are shown at the top right of the main windows.

Note

All user entries in the Camera Connect application are case sensitive.

3.2 Monitoring page

This page is used to monitor the camera (C2IP) network and connected camera systems. It also provides a wide range of camera parameters.

Shows a list of connected camera systems in the C2IP network. In the main tab, the table shows the logical camera number, system alias and system type and the following information: On Air status, video mode, last recalled scene file, transmission diagnostics and temperature.

Click the tab names at the top of the camera systems panel to show more parameters. The following sections provide an overview of the available camera parameters. Actual information depend on the type of camera or camera system. Refer to the user's guide of your camera and XCU or Base Station to find more detailed information about these parameters.

Note

When an error occurred in a camera system, this is indicated by small warning icon in front of the system number. Errors within a tab (parameter group) are indicated by a warning icon on that particular tab.

Main tab

Item	Description
Number	Logical camera number
Alias	Camera system alias
System	Camera system name

Item	Description
Signalling	Studio signalling indicators: On Air (red), ISO/On Air (Yellow) and Call (green)
Vmode	Selected camera video mode
Sc.File	Name of the latest recalled scene file
Transmission	Transmission indicator
Temp	Temperature

Video 1 tab

Item	Description
Number	Logical camera number
System	Camera system name
Filter	Selected optical filter
Gain (M)	Master gain in dB
Ctemp	Color temperature
Gamma	Gamma preset and curve
Knee	Knee mode
Exp.Time	Camera exposure time

Video 2 tab

Item	Description
Number	Logical camera number
System	Camera system name
Iris	Iris opening of the lens
Black (M)	Master black level
Black (RGB)	Black levels for R, G and B
Flare (RGB)	Flare levels for R, G and B
Gain (M)	Master gain in dB
Gain (RGB)	Gain levels for R, G and B
Ctemp	Variable color temperature
Dtl (On|Main|Vert)	Detail level (On/Off, Main detail level, vertical detail level)

Diagnostics tab

Item	Description
Number	Logical camera number
System	Camera system name
Temp (Head)	Current temperature of the camera head
Temp (Conv.)	Current temperature of the 3G converter (only available for 3G transmission systems)

Item	Description
Ref.	Reference signal present (at the base station)
Lock	Camera is locked

Transmission tab

Item	Description
Number	Logical camera number
System	Camera system name
Cable used	Percentage of Triax cable length used
Triax Cable	Triax cable quality *)
Triax Signal	Triax signal quality *)
Fiber Cable	Fiber cable quality *)
Fiber Signal	Fiber signal quality *)
Cable	Status of the transmission cable connection.

*) Two indicators are shown: the top bar shows camera to XCU/Base Station indication, the bottom bar shows XCU/Base Station to camera indication.

Packages tab

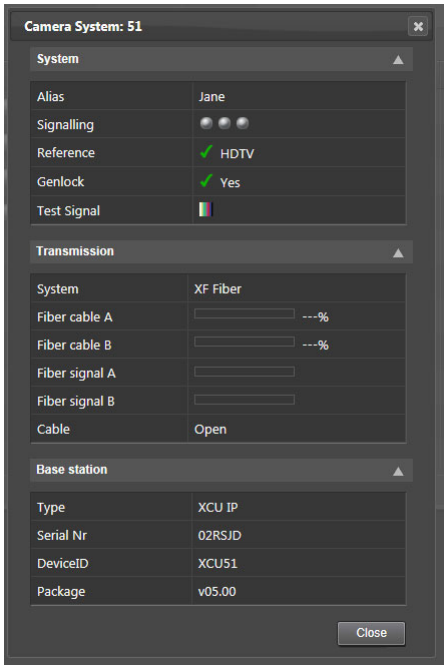
Item	Description
Number	Logical camera number
Camera head | Pck	Camera head type and package version
Adapter | Pck	Adapter type and package version
Base station | Pck	XCU/Base station type and package version
OCP | Pck	OCP type and package version
Converter | Pck	3G Converter type and package version
Viewfinder	Viewfinder type

Licenses tab

Item	Description
Number	Logical camera number
System	Camera system name
License	First LDX License type + remaining license time left (for temporary licenses)
License	Second LDX License type + remaining license time left (for temporary licenses)
License	Third LDX License type + remaining license time left (for temporary licenses)
License	Fourth LDX License type + remaining license time left (for temporary licenses)

3.2.1 Camera details

Click a camera in the camera systems panel to open the camera details window. By default, basic parameters are shown. Click the arrow at the right side of a system component to expand and view specific parameters for that component. Click again to collapse the section.



The following parameters are available in the camera details window. Note that the information provided depends on the camera type and system configuration:

Section	Item	Description
System	Signalling	Studio signalling indicators: On Air (red), ISO/On Air (Yellow) and Call (green)
	Reference	Reference signal present and the type of reference (PTP, HDTV)
	Genlock	Camera is locked
	Test Signal	Shows when a test signal is active (color bar or sawtooth icon)
Video	Filter	Selected optical filter
	Gain (M|R|G|B)	Gain level (master and RGB) in dB
	Color temp	Preset and actual value
	Gamma	Gamma preset and curve
	Knee	Knee mode
	Exposure Time	Exposure time
	Iris	Current iris value (lens opening): Fn.n
	Black (M|R|G|B)	Master black and black levels for R, G and B
	Flare (RGB)	Flare levels for R, G and B
	Detail (On|Main|Vert)	Combined detail settings

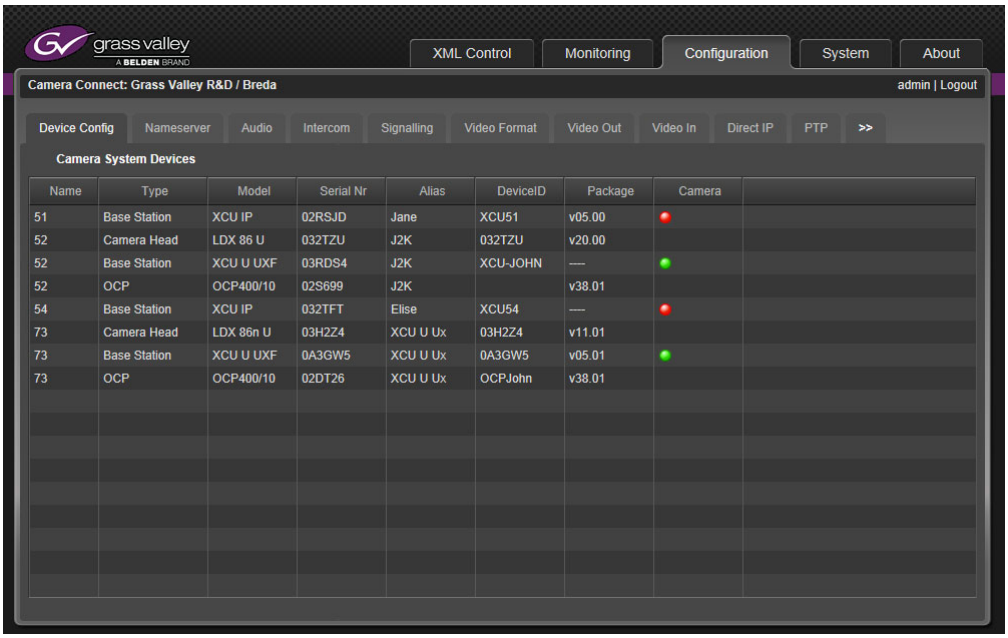
Section	Item	Description
Camera head	Type	Camera head type
	Package	Camera head package version
	Video Mode	Selected video mode
	Temperature	Current head temperature in degrees celsius
Adapter	Type	Adapter type
	Package	Adapter package version
Base station	Type	Base Station/XCU type
	Serial Nr	Base Station /XCU Serial Number
	DeviceID	Base Station/XCU Device ID
	Package	Base Station /XCU package version
Operational Control Panel	Type	OCP type
	Package	OCP package version
Viewfinder	Type	Viewfinder name

3.3 Configuration page

This page is used to remotely configure camera systems in the C2IP network.

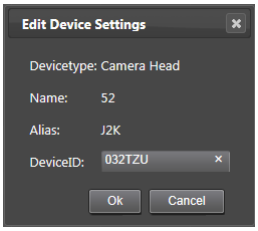
3.3.1 Device Config

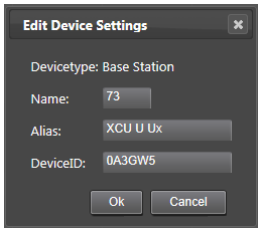
In this tab device configuration can be carried out.

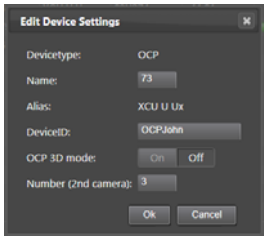


Item	Description
Name	Logical camera number (1..99)
Type	Device type {XCU/Base Station, Camera Head, OCP}
Model	Device model
Serial Nr	Device's serial number
Alias	Camera system alias
DeviceID	Device ID
Package	Currently installed software package number
Camera Indicator	For a XCU/Base Station this indicator shows whether a camera (head) is present (Green = present, Red = not present)

Click a device in the list to open the 'Edit Device Settings' window. The settings that can be changed depend on the device type (Camera Head, XCU/Base Station or OCP):

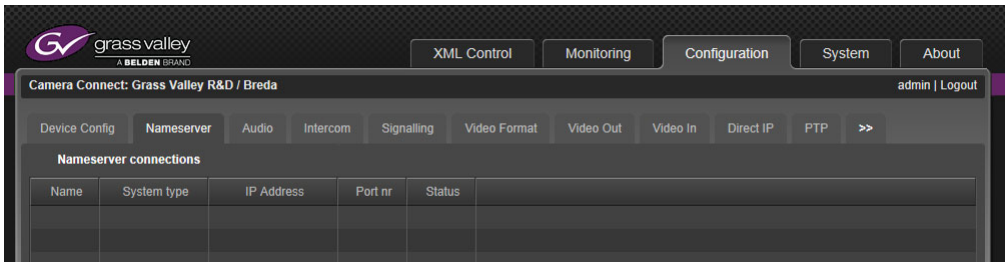






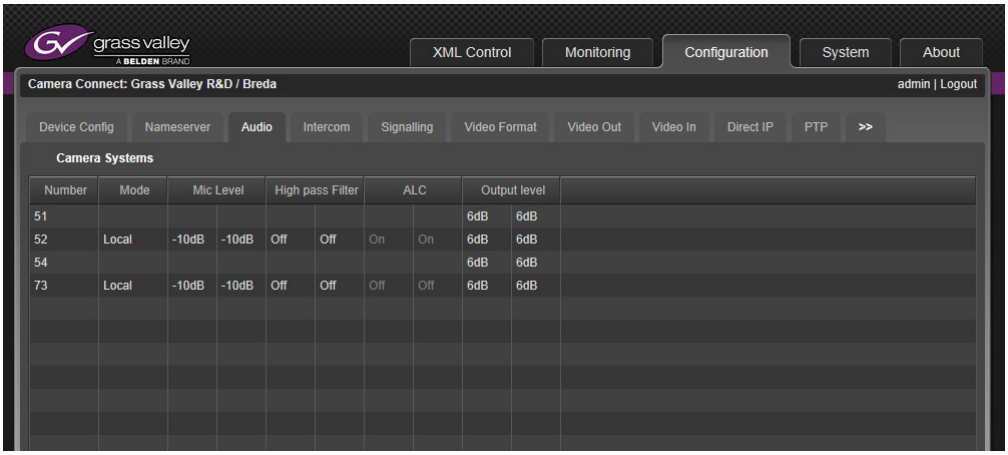
3.3.2 Nameserver (multiple LAN support)

Refer to the "Multiple LAN support for C2IP" on the Grass Valley website for more information about the nameserver configuration.



3.3.3 Audio

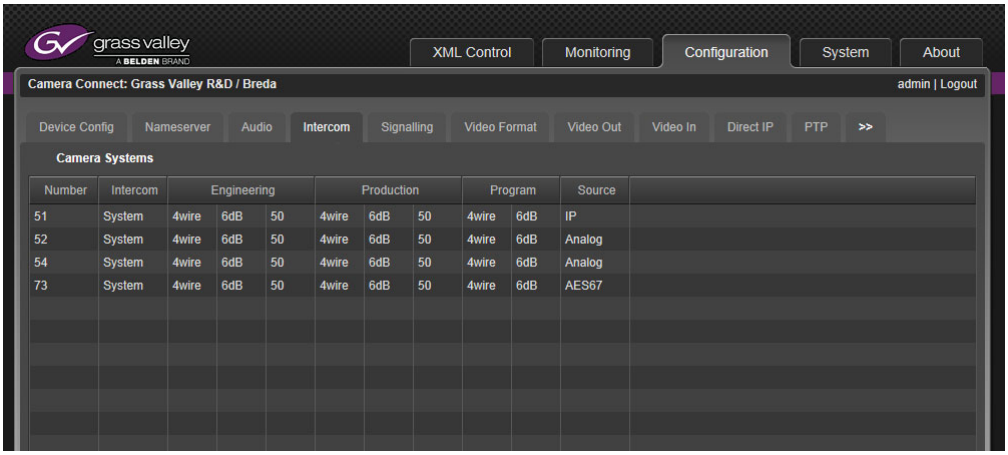
For complete camera systems this tab shows audio-related settings for camera heads and XCU/Base Stations:



Item	Description
Number	Logical camera number (1..99)
Mode	Audio Gain Mode (Local or External)
Mic Level	Microphone Input level or Audio channel 1 and 2.
High pass filter	High pass filter (on or off) or Audio channel 1 and 2.
ALC	Auto Level Control for Audio channel 1 and 2.
Output level	Audio (studio) attenuation lever for Audio channel 1 and 2 (this is a XCU/Base Station setting!)

3.3.4 Intercom

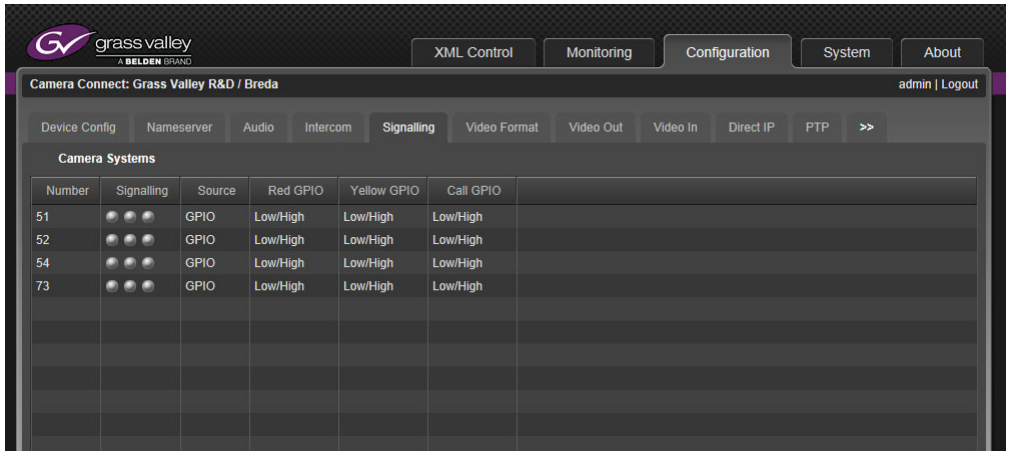
This tabs shows all intercom related (system) settings.



Item	Description
Number	Logical camera number (1..99)
Intercom	Intercom Isolate
Engineering	
Production	
Program	
Source	

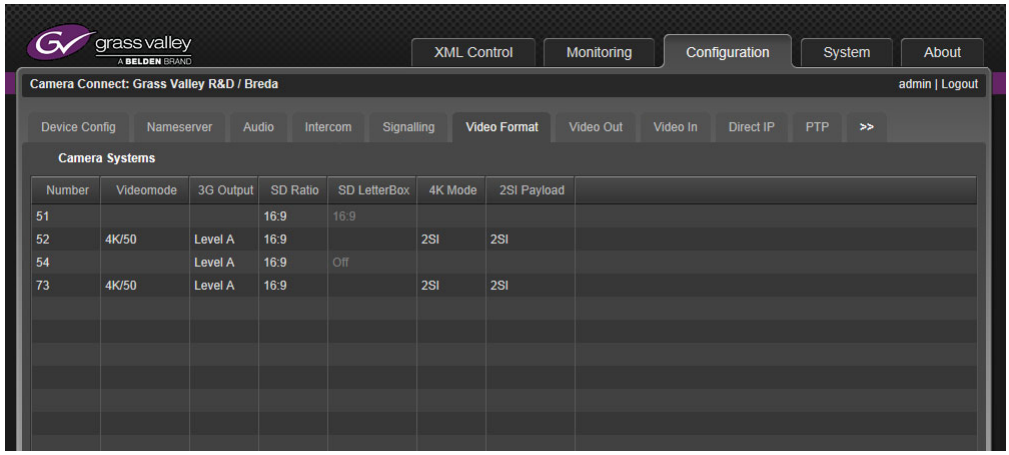
3.3.5 Signalling

In this tab the studio signalling configuration is done. Signalling information is shown and Source and GPIO setting can be changed.



3.3.6 Video Format

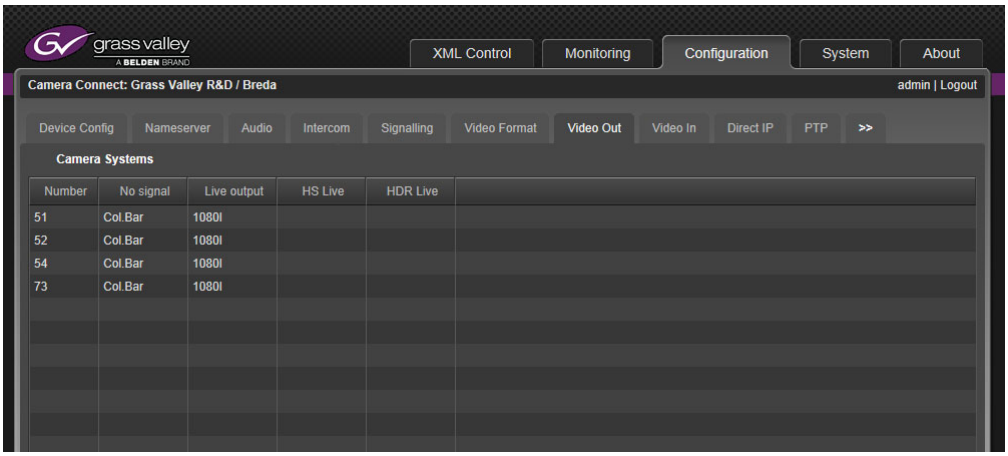
Video formats for camera heads can be configured.



Click on a camera head to change video format settings.

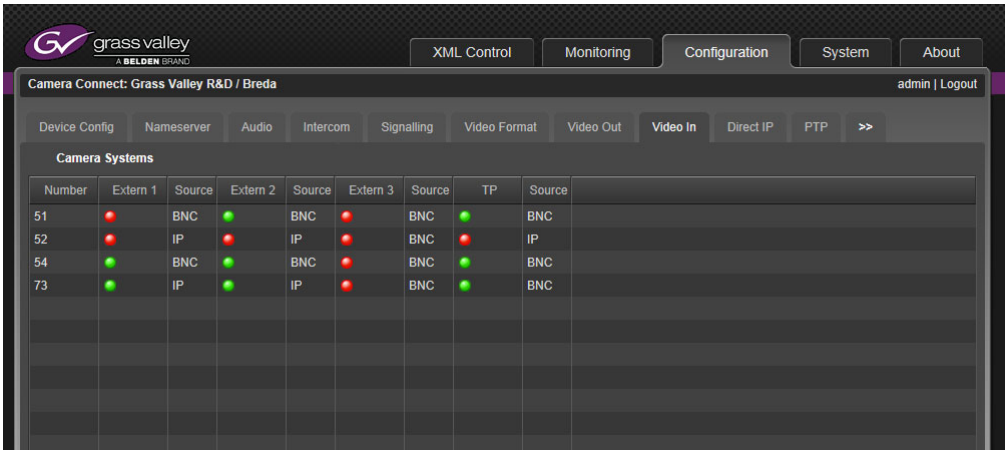
3.3.7 Video Out

This tab configures video output settings, except Main out.



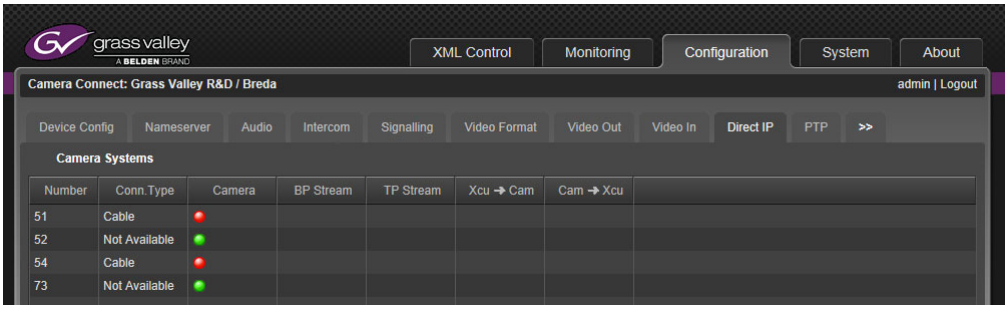
3.3.8 Video In

In this tab the sources for External (return) video signals can be set.



3.3.9 Direct IP

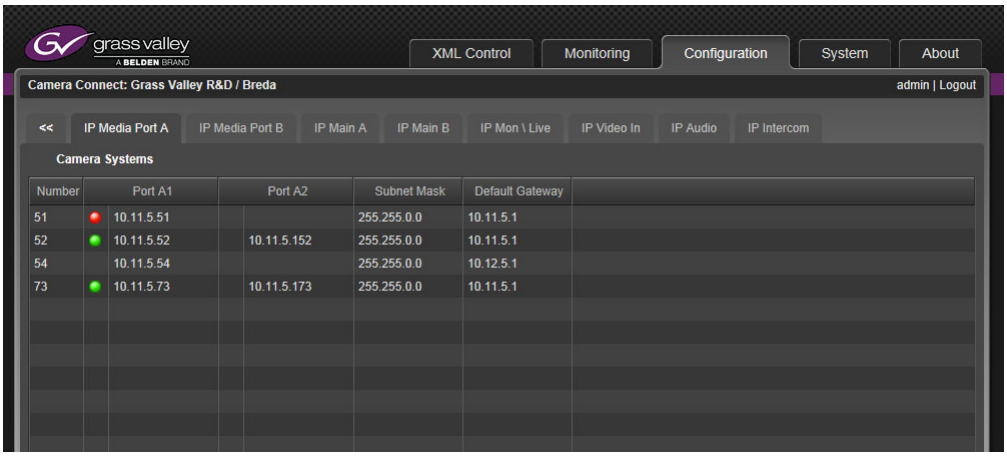
Refer to the "Direct IP application note" on the Grass Valley website for more information about the Direct IP configuration.



3.3.10 IP Media Network tabs

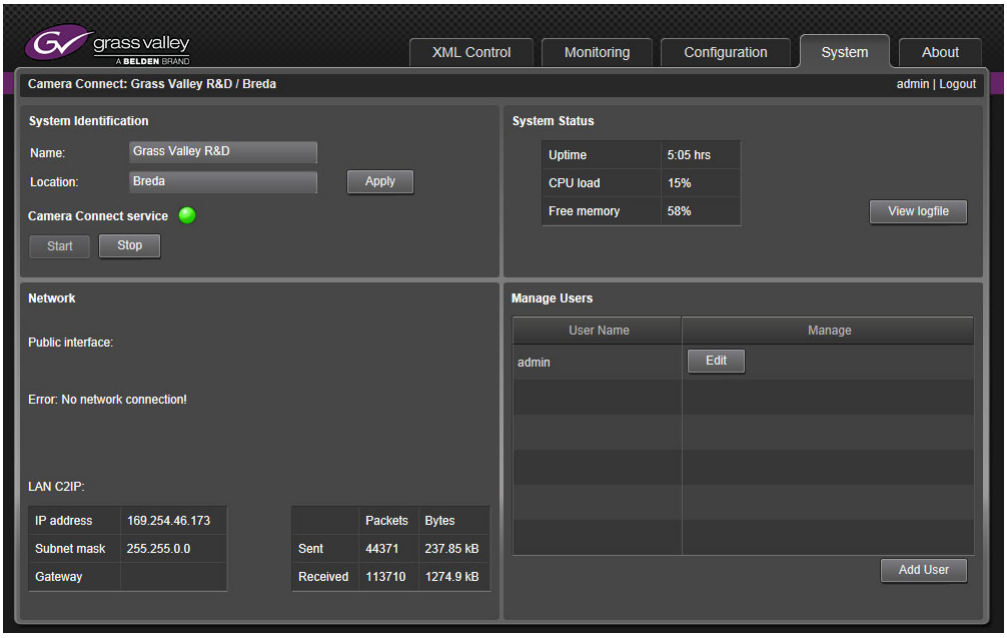
The following tabs are part of the IP Media Network configuration: PTP, IP Media Port A, IP Media Port B, IP Main A, IP Main B, IP Mon/Live, IP Video In, IP Audio and IP Intercom.

Refer to the "XCU UXF Series user's guide" on the Grass Valley website for more information about IP Media Network configuration.



3.4 System page

This page is used to configure the PC Box and Connect Gateway server.



3.4.1 System Identification

Fill in the name and location (e.g. studio name and studio location) to identify the group of cameras and click **Apply**.

3.4.2 System Status

Shows the basic server system status parameters: Server up time in hours and minutes, server CPU load in percent and free server memory in megabytes.

3.4.3 View Logfile

Click **View Logfile** to open the logfile in a separate window.

3.4.4 Network

Shows network status and traffic information on the C2IP network in KBytes and packets sent and received.

– The network status information on the web page is continuously updated without the need to refresh the page.

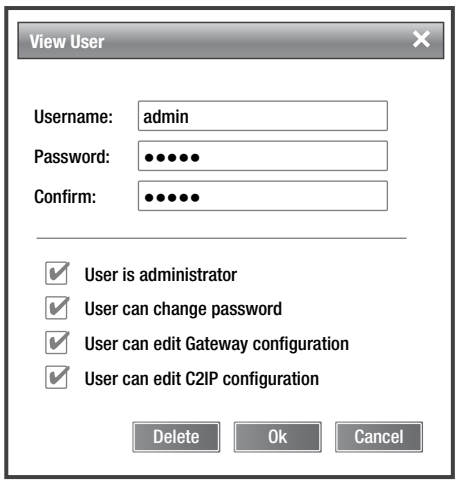
3.4.5 Network IP Settings

Shows the current IP address, Subnet Mask and Gateway settings for the C2IP network. These settings can only be changed in the server operating system.

3.4.6 Manage Users

The list shows all users that have access to the web interface. Users can be added, deleted and their account information can be edited. Click **Add User** to add a new user. In the detail screen, fill in name and password and click **OK**.

Click **View** behind a user's name to open the View User window:



The following rights can be enabled or disabled by clicking its respective check box:

- User is administrator.
- User can change password
- User can edit Gateway configuration.
- User can edit C2IP configuration

Then close the window with or without saving changes:

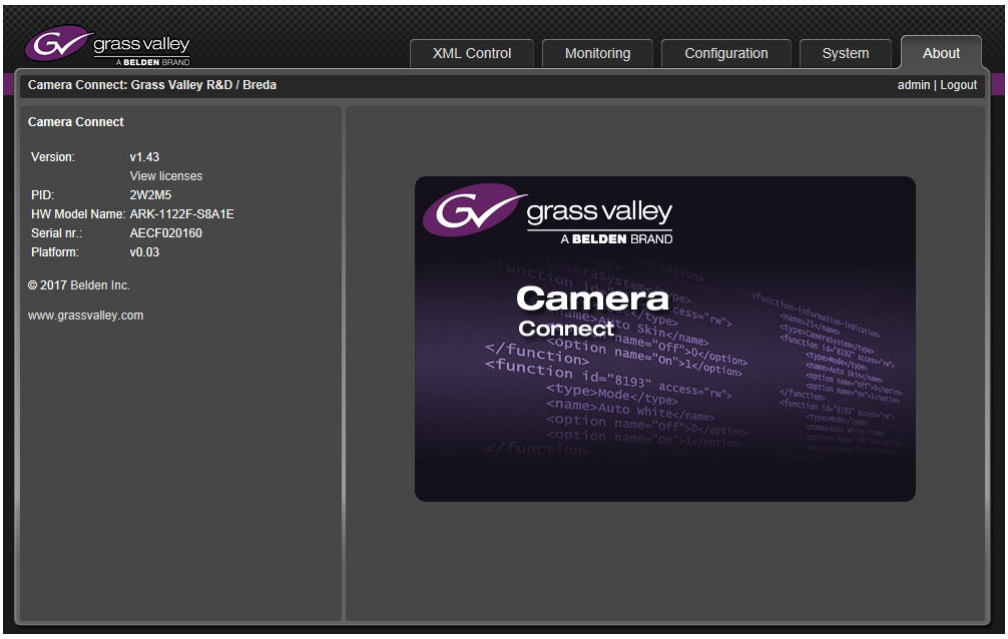
- Click **Delete** to delete the user account.
- Click **Ok** to close the window and carry out the changes.
- Click **Cancel** to close the window without changes.

☞ Note

There always must be at least one user, so you can not delete the last user.

3.5 About page

This page shows the copyright and version information for Camera Connect.



Tip

Click the View Licenses link to see the list of currently installed licenses for Camera Connect.