EdgeConnect Module
Installation and User Manual

493456201 Rev A
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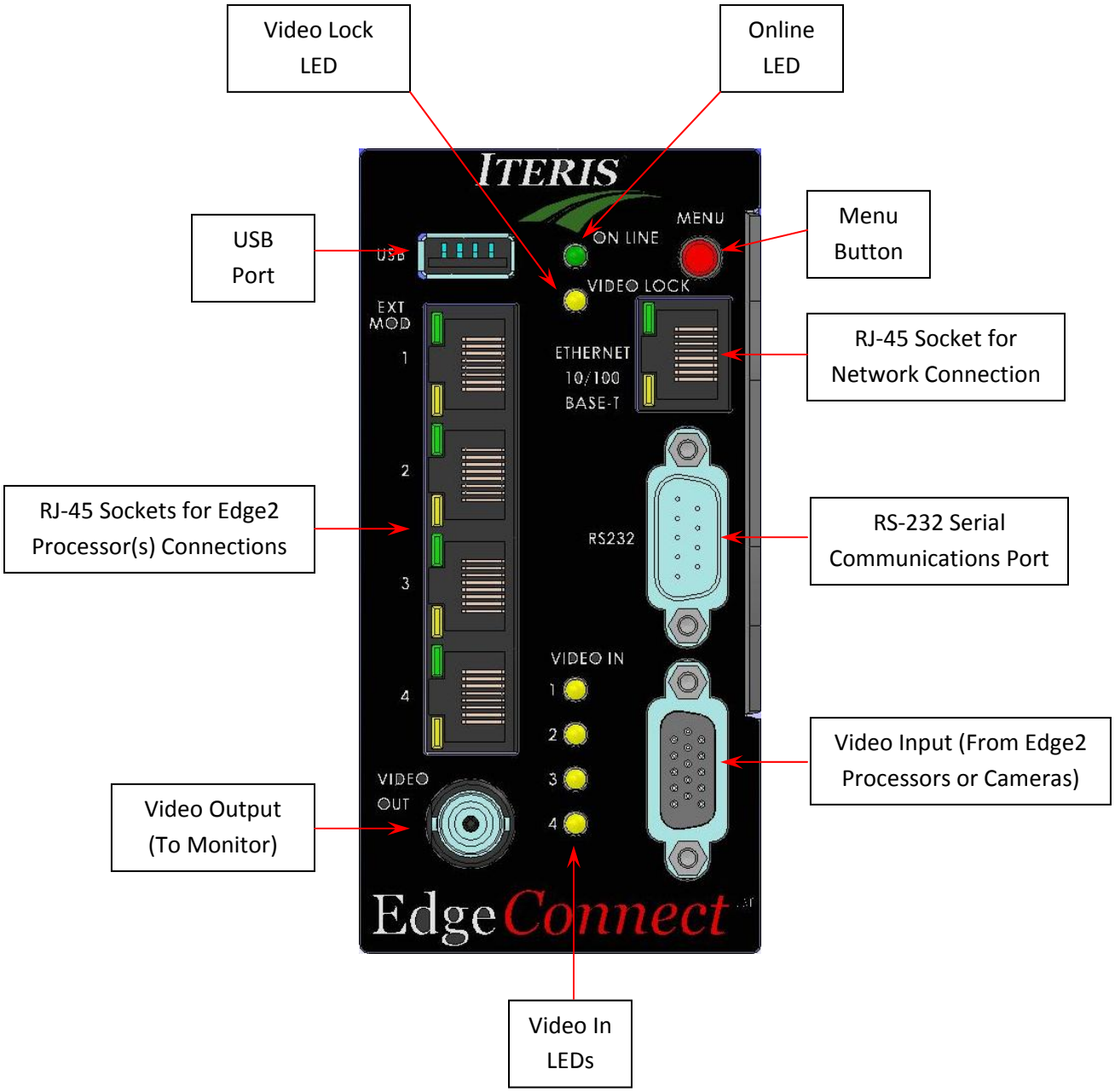
1 Introduction

The EdgeConnect Module is designed to stream four channels of video and allow Edge2 processor setup and control over an Ethernet network connection. The EdgeConnect's Ethernet port enables MPEG-4 or H.264 streaming video to be viewed on a personal computer using a widely available internet browser.

The module also provides central hub functionality for local Edge2 processors at the cabinet, allowing a mouse and monitor connected to the module to access and setup any of four Edge2 processors from a central point.



1.1 EdgeConnect Module Interconnections

LED Indicators

ONLINE – This green LED indicator lets the user know that the processor module has power, the microprocessor passed the self check and the unit has initialized correctly. If the ONLINE LED does not turn on after one minute refer to the Troubleshooting section.

VIDEO LOCK – This yellow LED indicators let the user know when a valid video signal is connected to the EdgeConnect module video input. A valid video signal will cause the LED indicator to stay on. If the LED indicator is dark no valid video signal is present.

VIDEO IN – These yellow LED indicator lets the user know which video output channel is selected. In Quad mode all LEDs are on.

EXT MODULE (Edge2 Processor) RJ-45 SOCKET – There is a green and a yellow LED on each RJ-45 processor module jack. The green LED is always "ON" if connected to a powered Edge2 processor. The yellow LED will blink if connected to a powered Edge2 processor. The blinking LED indicates communication between the EdgeConnect and the Edge2 processor.

ETHERNET 10/100 BASE-T SOCKET – There is a green and a yellow LED on the RJ-45 internet connection jack. The green LED is always "ON" if connected to a valid network connection or directly to a PC with a crossover cable. The yellow LED will blink if connected to a valid network connection or directly to a PC with a crossover cable. The blinking LED indicates communication between the EdgeConnect and the network/PC. The speed of the blinking is determined by how much data is being communicated.

Buttons

MENU BUTTON – The menu button serves two functions. First it serves as a means to bring up the Edge2 processor menu when pressed for over one second and then released. The second is for scrolling through the multiple video inputs. Pressing the menu button for less than one second and then releasing it will switch the video source.

Jacks and Plugs

DB-15 VIDEO IN – The input point for video from the Edge2 processor or camera. A "spider cable" is provided to convert the DB-15 to BNC type connectors.

BNC VIDEO OUT – The output point for video from the EdgeConnect to a monitor.

USB PORT – The USB port accommodates USB pointing devices. Plug any compatible USB mouse, trackball or other pointing device into the port. See page 22 for more detail.

ETHERNET 10/100 BASE-T SOCKET – This port is used to connect the EdgeConnect to a network or local PC for streaming video or system setup.

RS-232 PORT – Maintenance port for future use.

2 Features and Benefits

- Accommodates up to four video source inputs.
- Central video switching point (for both manual and remote switching).
- 10/100 Base-T Ethernet support.
- Web-browser setup.
- MPEG-4 and H.264 streaming video, 32Kb/sec to 7Mb/sec.
- Single or Quad view options.
- Video Resolutions include; D1, VGA, CIF, QCIF, QVGA.
- Plug into any standard rack that provides 12 or 24 volts DC.
- Accommodates up to four Edge2 processors.
- USB mouse or trackball support.
- High intensity LED status indicators.
- NTSC/PAL auto-sense.
- Time synchronization from the EdgeConnect to the Edge2 processors.
- Surveillance channel option for working with CCTV cameras.

3 System Requirements

PC Minimum Requirements

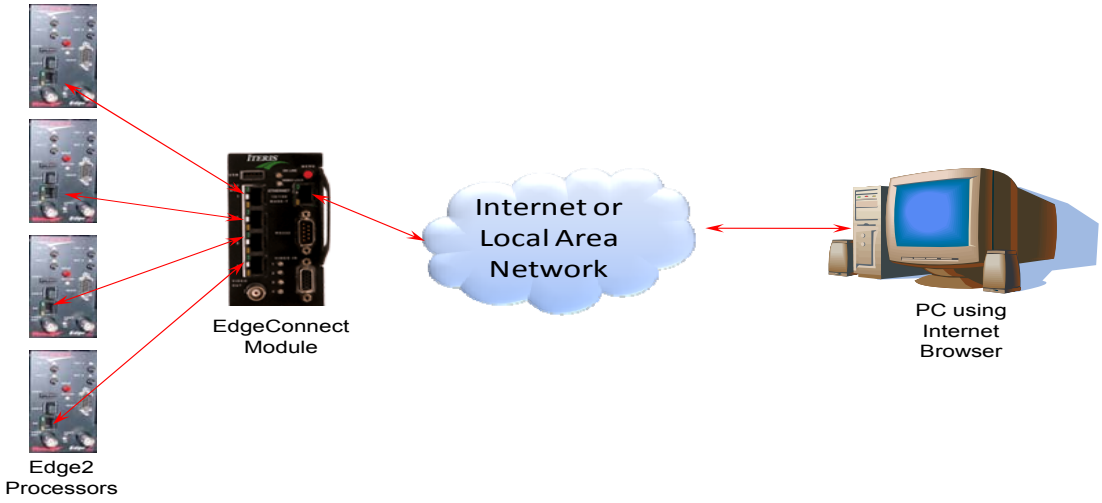
- Pentium III 1GHz Intel processor
- 512MB RAM
- AGP video card with 64MB of memory
- 100MB minimum, 250MB recommended free hard-drive space
- CD-ROM reader
- USB Mouse and Keyboard
- 15” monitor with at least (800 x 600) resolution and 16 bit color
- 10/100 base-T Ethernet adaptor

Operating System and Software

- Windows XP with service pack 3 (minimum)
- Windows Vista with service pack 1
- Windows 2000 with service pack 4
- Internet Explorer 6.0 or higher (from Microsoft.com)
- QuickTime Player 7.0 or higher (from Apple.com)
- VRAS software version 3.1.3c or higher (from Iteris)

NOTE: VRAS software is provided on the VRAS software distribution CD.

4 Setup and Installation



4.1 Installing EdgeConnect Client Software

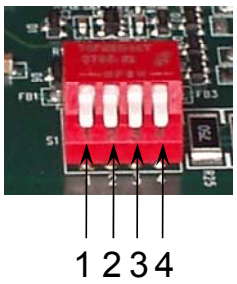
- EdgeConnect is designed with a built-in Web-Enabled server. This server provides all the necessary functions to support module setup and streaming video output from the attached Edge processors to a remote location.
- **Although it is not necessary to install any software to operate the EdgeConnect, the module utilizes QuickTime player from Apple to view streaming video. It is necessary to install this software on your PC before viewing of streaming video can occur.**
- Edge processor setup functionality is provided with the VRAS program. Details of the installation and operation of this program can be found on the accompanying VRAS Installation CD.

4.2 EdgeConnect Installation

1. **Video input impedance settings**

   Before installing the EdgeConnect module into the rack the video terminations should be set.

   The EdgeConect has the flexibility that allows it to be used with other video devices. Depending on your application and the termination of other devices, the EdgeConnect video input impedance switches will need to be set to either “75Ω” or “High Z”.



Switch S1	Video Termination	
1	Camera 1	Down = On (75Ω) (default) Up = OFF/Open (High Z)
2	Camera 2	Down = On (75Ω) (default) Up = OFF/Open (High Z)
3	Camera 3	Down = On (75Ω) (default) Up = OFF/Open (High Z)
4	Camera 4	Down = On (75Ω) (default) Up = OFF/Open (High Z)

75Ω (Default)

The 75Ω switch setting is the default setting and is the correct setting when video is coming directly from the Edge2 processor into the EdgeConnect module or surveillance camera.

High Impedance (High Z)

When other devices are "teeing" off the EdgeConnect video input, then the "High Z" impedance setting should be used. Other devices could include a fiber modem, VCR or DVR.

Impedance Mismatch

When the impedance settings are improperly set the video signal can be adversely affected. Wrong settings create an impedance mismatch which can result in extremely washed out or very dark video. This condition can also adversely affect Edge2 processor detection performance. Before suspecting a camera or processor problem always check EdgeConnect and Edge2 processor video input impedance settings.

2. **Plug the EdgeConnect Module into the Rack**

Plug the EdgeConnect module into a 12 or 24 VDC detector rack or input file. If the DC power is present, the green "ON LINE" LED should illuminate. The yellow "VIDEO LOCK" LED should also illuminate solid yellow along with one or all of the "Video In" channel (1-4) LEDs. The "VIDEO LOCK" light will remain off until input video is provided to the module.

NOTE: It may take up to one minute after installation of the module in the detector rack before the "ON LINE" and "VIDEO LOCK" lights illuminate.

3. **Connect the Edge2 processor CAT 5 Patch Cables**

Connect the Edge2 processor modules to the EdgeConnect module. Keep track of which processor goes to which EdgeConnect extension module (EXT MOD 1-4) port. The CAT 5 Patch Cable goes from the last processor or extension module in the chain to the EdgeConnect.

4. **Install the DB-15 to BNC Video Input Cable**

Connect the male DB-15 connector on the Video Input Cable to the female DB-15 connector on the lower right faceplate of the EdgeConnect module. Connect each of the color coded BNC connectors on the Video Input Cable to the "VIDEO OUT" BNC connector on each of the Edge2 processor modules.

Use the following table as a reference.

BMC Video Cable Input Color	EdgeConnect Video Input Channel	EdgeConnect Ext. Module RJ-45 Port	Edge2 Processor Module
Red	Channel 1	Port 1	Processor 1
Green	Channel 2	Port 2	Processor 2
Blue	Channel 3	Port 3	Processor 3
Black or Gray	Channel 4	Port 4	Processor 4

EdgeConnect Video Input Cable Connections

5. **Connect a Monitor to the EdgeConnect Module**

Use a video coaxial jumper cable to connect the monitor to the EdgeConnect module. Connect the coaxial jumper cable from the EdgeConnect module "VIDEO OUT" BNC connector to the monitor's "VIDEO IN" BNC connector.

6. **Verify Video Inputs**

Using the "Menu" button on the front of the EdgeConnect module each of the video inputs can be verified on the monitor. By pressing the menu button for less than one second and then releasing the button the EdgeConnect module will switch to the next available video input. If no video is present on the next input the EdgeConnect will continue to search inputs until one is found. After input 4 is sequenced, the EdgeConnect will display a "Quad" view of all four inputs before returning to input one.

4.3 Setting the Network Information

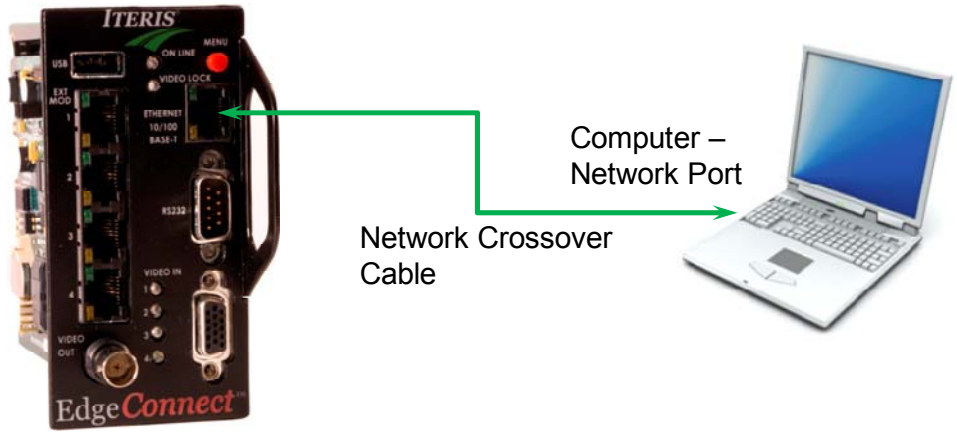
Before you can connect your EdgeConnect Module to the network, the correct IP Address needs to be set.

The EdgeConnect comes with default network settings. These settings will need to be changed to operate on the network to which it is installed. An organization's IT department or network administrator will have this information.

Use Internet Explorer and the network crossover cable to directly connect via the Ethernet to the EdgeConnect module.

1. **Connect the Network Crossover Cable**

Use the Green CAT 5 Crossover Cable to connect from the EdgeConnect Module "ETHERNET 10/100 BASE-T" port to your computer's network port.



2. **Set your PC to Communicate with the EdgeConnect Module**

NOTE: It may be necessary to modify the Network Connections on your computer to allow it to connect with the EdgeConnect Module.

Go to the Network Connections screen on your computer select the connection that uses the network port connected to the EdgeConnect.

Click on "Change settings for this connection"
Click on "Internet Protocol (TP/ICP)"
Click on "Properties"
NOTE: Save the information listed so that you can restore the PC settings after changing the EdgeConnect settings.
Click on "Use the following address"
"IP Address 192.168.0.10"
"Subnet Mask 255.255.255.0"
Click on "OK"
Click on "OK"

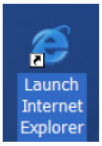
NOTE: The default factory EdgeConnect settings are:

IP Address	192.168.0.170
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1

Your computer is now ready to interface with the EdgeConnect Module.

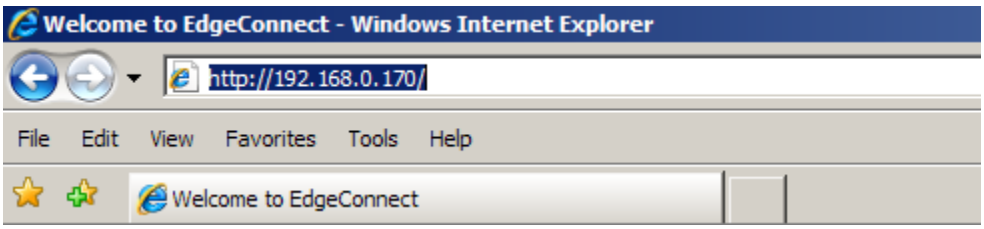
NOTE: Once you have completed the setup it will be necessary to reset your computer's network connections for proper operation with your original network, LAN, WAN or other internet connections.

3. Use Internet Explorer to Connect via Ethernet to the EdgeConnect module

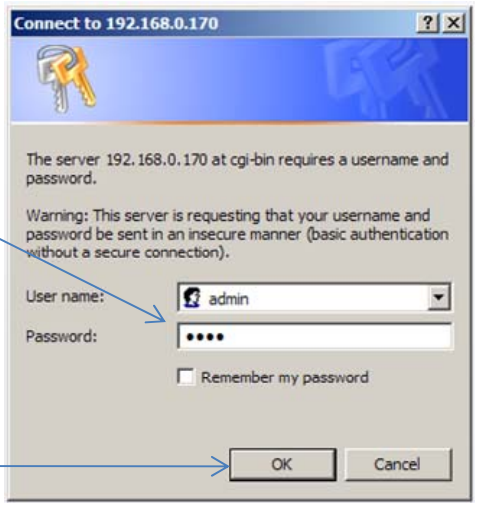


Click on your IE shortcut icon to start Microsoft's Internet Explorer web browser.

When Internet Explorer opens up, type the default IP Address of the EdgeConnect module "Address: ***//192.168.0.170/***" in the bar located at the top of the screen and then press "Go".



The following screen will appear. Type in the default User name and Password.



Enter User name and Password here.
Default:
User name: admin
Password: 0000

Click "OK" to continue.

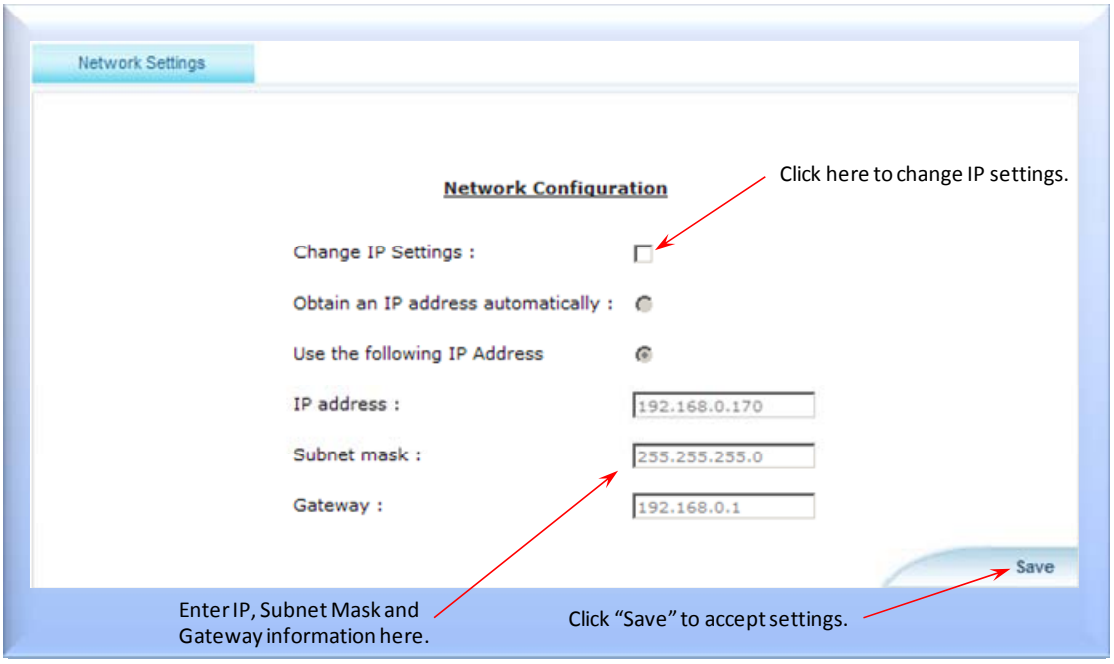
EdgeConnect Login Page

If you have the proper network connections and the proper network parameters have been assigned, the EdgeConnect home page should be displayed in your browser.

EdgeConnect Home Page

4. Entering the Network Information

Use the web server to set EdgeConnect module network information.
Click on the “Network Settings” tab at the top of the page
Enter the network information provided by the IT department or network administrator.



After clicking on the “Save” button the following screen will appear while the EdgeConnect module reboots to allow the changes to take effect. It takes approximately 150 seconds for the system to reboot.

The EdgeConnect Module has now been configured to operate on the network to which it is attached. Exit the browser and remove the CAT 5 crossover cable from the EdgeConnect.

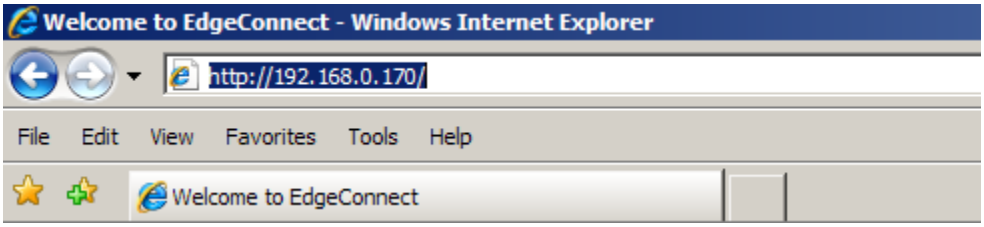
5. **Connect the CAT 5 Network Cable**

   Install a network cable from the network connection to the RJ-45 jack on the front of the EdgeConnect module. If an active network connection is present, the green and yellow LED’s on the RJ-45 jack will be on.

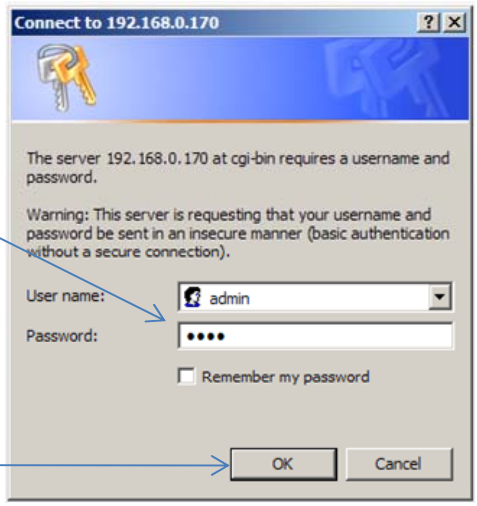
The system installation and setup is now complete.

5 Operation

Using an Ethernet connection, open your web browser and type in the IP address of the EdgeConnect module, for example: ***//192.168.0.170*** (this is the default address of the EdgeConnect module, the address of the EdgeConnect on your network will be different).

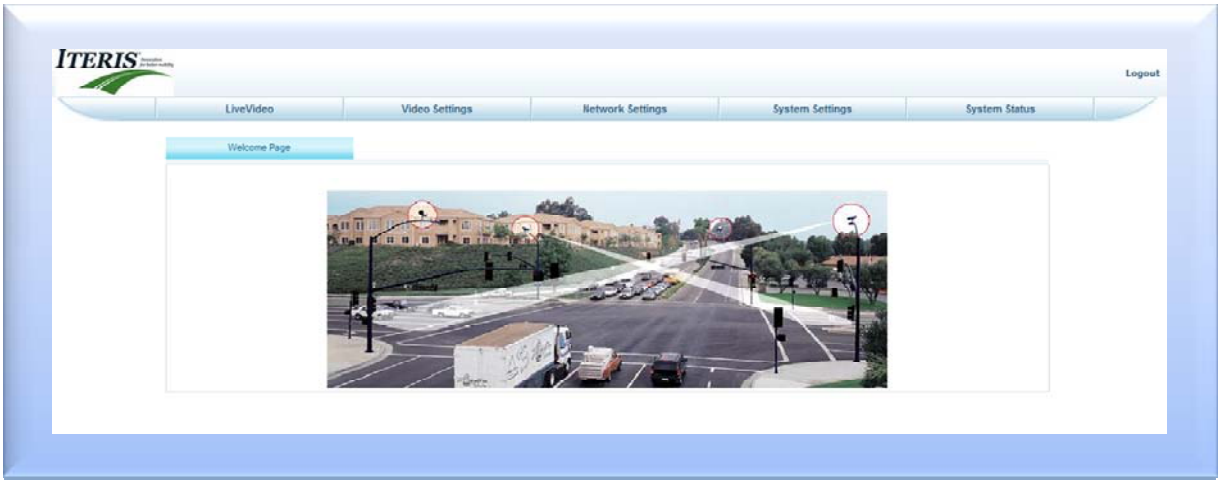


Enter User name and Password here.
Default:
User name: admin
Password: 0000



Click "OK" to continue.

The embedded web browser will now present the following screen.

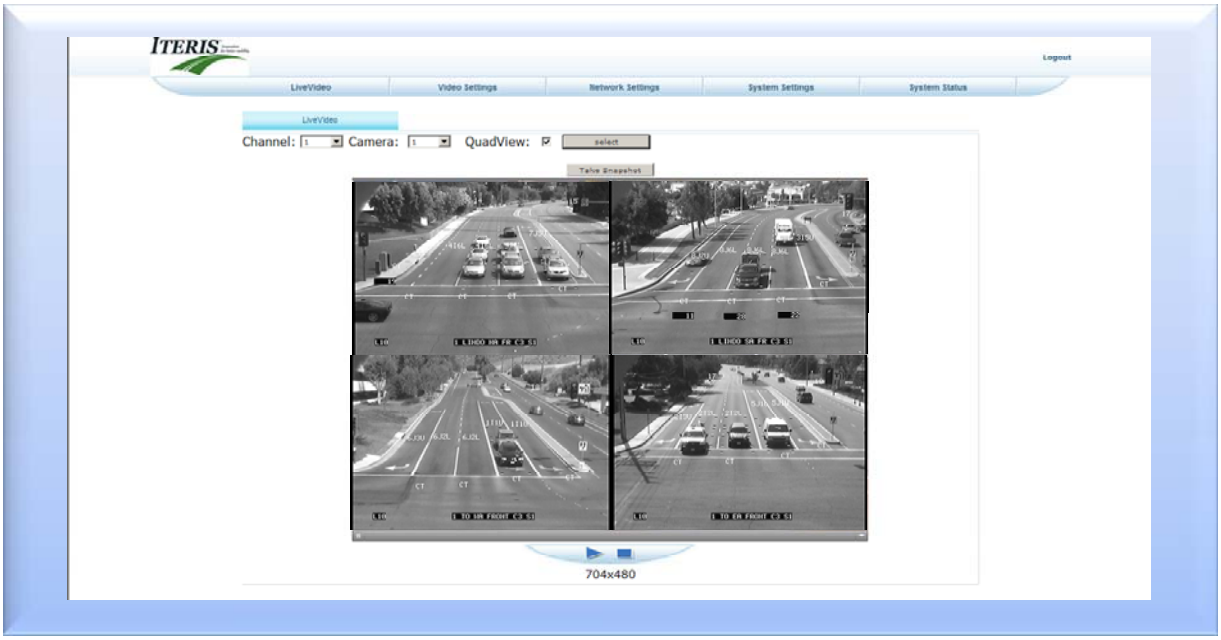


EdgeConnect Home Page

5. 1 Live Video

Select Video Page Tab

The EdgeConnect utilizes QuickTime to stream the selected video. The selected video will be displayed in the center of the screen.



Select Video Channel and Camera

Different channels (Edge2 processors or surveillance cameras) can be selected to view by clicking on the drop down box and selecting the desired channel.

If the channel has multiple cameras (Edge2-2 and Edge2-4 processors) then a particular camera can be chosen by clicking on the drop down box and selecting the desired camera.

Once the channel and camera have been selected, click the “Select” button and the new settings will take effect. The display will show the QuickTime window buffering the new video feed and in a short time (~5-10 seconds) video will be displayed.

If a channel or camera is selected which is not active (no video feed) or is a surveillance channel which has not been set to surveillance mode then the screen will display the message “No Video”.

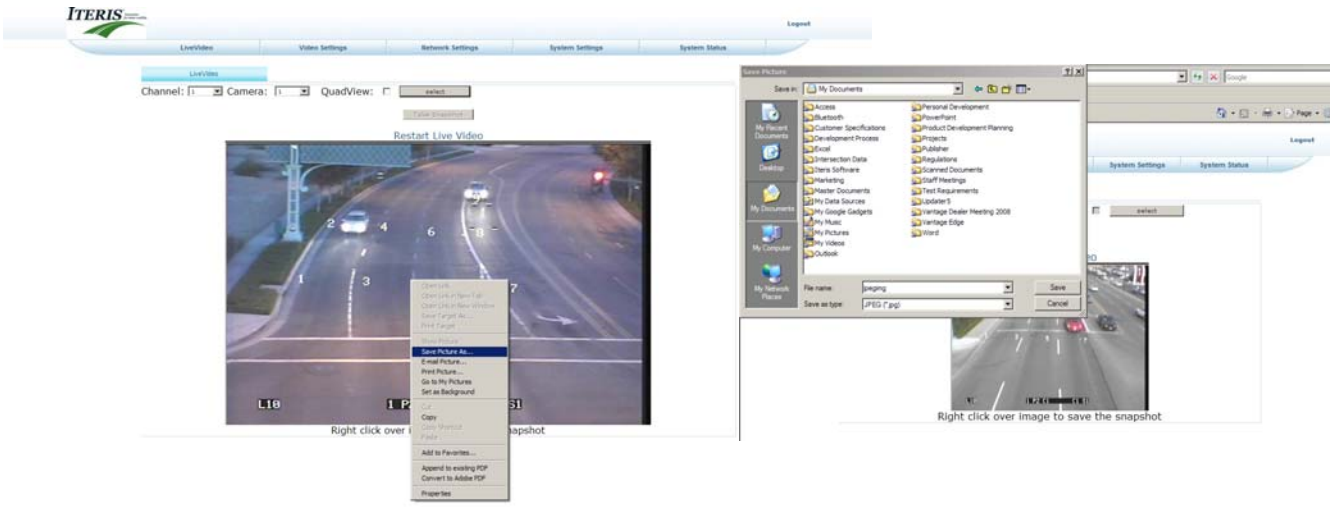
Note: Some older single channel Edge processors (03 platforms) will give the option to select camera 1 or 2. Camera 2 is not active and will display the “No Video” message.

Quad Mode

Checking the QuadView box and clicking on the “Select” button will display a split screen of 4 video streams, one from each channel. If a channel has multiple cameras then the last camera selected for that channel will be displayed. This option is not available if the video resolution is set to VGA mode.

Take Snapshot

A snapshot of the live video feed can be taken at any time and stored on the local PC/network. Click on the “Take Snapshot” button and the video feed will pause. Right click the mouse while the cursor is over the video image and select “Save Picture As”.



Enter a name for the snapshot and select a location on the local PC/network to save the file to. The Snapshot can be saved in either Bitmap (.bmp) or JPEG (.jpg) format. Click on the “Save” button to complete the process. Once the snapshot has been saved, click on the “Restart Live Video” message above the video image to start the video feed.

Play and Stop Buttons

At anytime video can be halted by clicking on the “Stop” button beneath the video feed. To start the live video feed again, click on the play button beneath the video feed.

Video Resolution

Beneath the video window, the currently selected video resolution is displayed. More details on video resolution can be found in section 5.2.

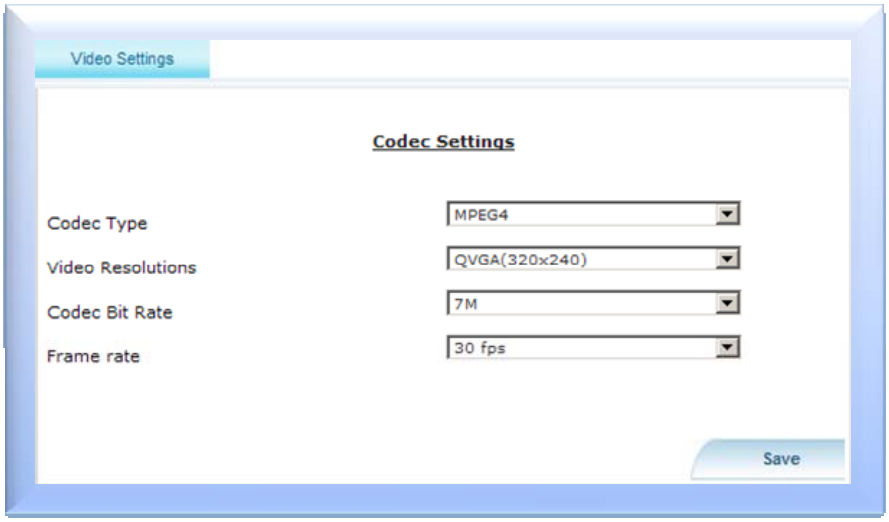
Surveillance Channels

Any directly connected video source (not via an Edge2 processor) will need to be set to Surveillance mode before the EdgeConnect module can display the video feed. This setup is done via the VRAS software program. See section 8 for further information on setting up surveillance channels.

5.2 Video Settings

Select the Video Settings Tab.

This page allows the setting of video quality and data rates. Selections will be restricted by the available bandwidth of the network connection and the type of device that will be used to view the streaming video.



Codec Types

The EdgeConnect module is equipped with two codec types.

MPEG4 – MPEG4 Part 2 SP (simple profile) is a standard codec for compression of AV digital data. MPEG-4 is aimed primarily at low bit-rate video communications; however, its scope was later expanded to be much more of a multimedia coding standard. MPEG-4 is efficient across a variety of bit-rates ranging from a few kilobits per second to tens of megabits per second. MPEG-4 provides the following functionalities:

- Improved coding efficiency
- Ability to encode mixed media data (video, audio, speech)
- Error resilience to enable robust transmission
- Ability to interact with the audio-visual scene generated at the receiver

H.264 – H.264 is a standard for video compression, and is equivalent to MPEG-4 Part 10, or MPEG-4 AVC (for Advanced Video Coding). The intent of H.264/AVC project is to create a standard capable of providing good video quality at substantially lower bit rates than previous standards (e.g. half or less the bit rate of MPEG-2, H.263, or MPEG-4 Part 2), without increasing the complexity of design so much that it would be impractical or excessively expensive to implement. An additional goal was to provide enough flexibility to allow the standard to be applied to a wide variety of applications on a wide variety of networks and systems, including low and high bit rates, low and high resolution video, broadcast, DVD storage, RTP/IP packet networks, and ITU-T multimedia telephony systems.

Video Resolution

D1 – Full DVD-Video resolution. Usually 720 x 480 pixels for NTSC and 720 x 576 pixels for PAL.

VGA – Video Graphics Array. A standard resolution for camera sensors, displays, photos, and videos. VGA size is 640 pixels wide by 480 pixels tall. VGA is equivalent to 0.3 megapixel.

QVGA – Quarter-VGA. A resolution of 320 x 240 pixels. QVGA is a common resolution for phone displays, and also for video captured by phones. QVGA is therefore one-quarter the area of VGA, hence the name Quarter-VGA (QVGA).

CIF – Common Intermediate Format. A standard resolution for mobile phone videos, and images produced by very low-resolution digital cameras. CIF images are 352 pixels wide and 288 pixels tall.

QCIF – Quarter Common Intermediate Format. A standard size for images produced by low-resolution digital cameras and video cameras. QCIF images are 176 pixels wide and 144 pixels tall.

Quad Views – There are three options for Quad views D1, CIF and QCIF. In D1 mode, a D1 resolution stream is split into four quadrants each streaming a CIF quality image. In CIF mode, a CIF resolution stream is split into four QCIF streams. In QCIF mode, a QCIF resolution stream is split into four SQCIF streams.

Codec Bit Rate

The Codec Bit Rate can be set from 32kB to 7MB. The Codec Bit Rate should be set based on available network bandwidth and the type of device to be used for viewing of video.

As the Codec Bit Rate is reduced the image will become more pixilated.

Low Codec Bit Rate High Codec Bit Rate

Frame Rate

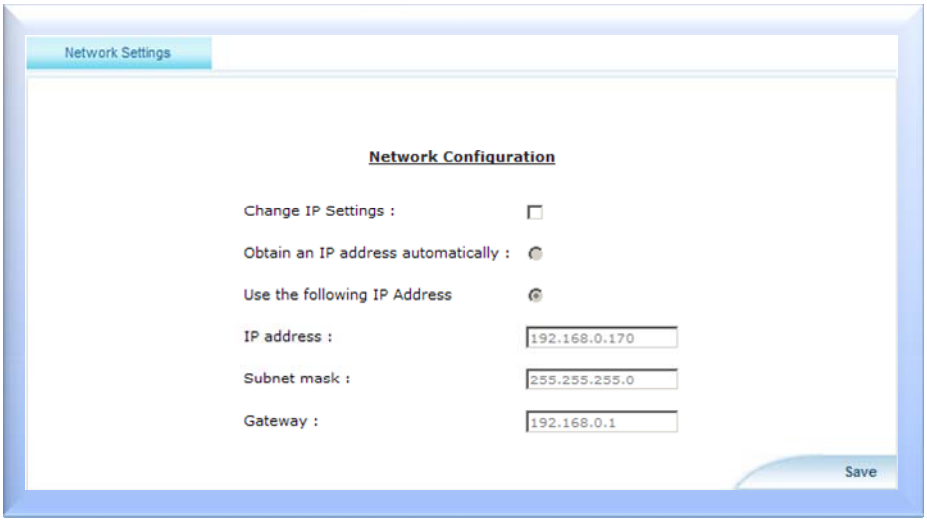
The Frame Rate can be set from 5 to 30 frames per second in 5 frame increments. The Frame Rate should be set based on available network bandwidth and the type of device to be used for viewing of video.

As the Frame Rate is reduced motion within the image will become courser as more movement may occur between displayed images.

Once all changes have been made click on the “Save” button to store the settings. After hitting the save button the EdgeConnect module will return to the “Live Video”.

5.3 Network Settings

Select the Network Settings Tab.



Change IP Settings

The EdgeConnect module is shipped with a default IP address. Before connecting to the internet or a Local Area Network, a new IP Address needs to be set. Failure to set a valid IP Address may cause the network to fail.

Obtain an IP address automatically:
Click on this to allow the network to assign a dynamic IP Address to the EdgeConnect module.

Dynamic IP addresses are most frequently assigned on LANs and broadband networks by Dynamic Host Configuration Protocol (DHCP) servers. They are used because it avoids the administrative burden of assigning specific static addresses to each device on a network. It also allows many devices to share limited address space on a network if only some of them will be online at a particular time. DHCP is not the only technology used to assigning dynamic IP addresses. Dialup and some broadband networks use dynamic address features of the Point-to-Point Protocol.

Use the following IP Address:
Click on this to enter a network IP Address supplied by the IT department or network administrator and enter the information in the boxes.

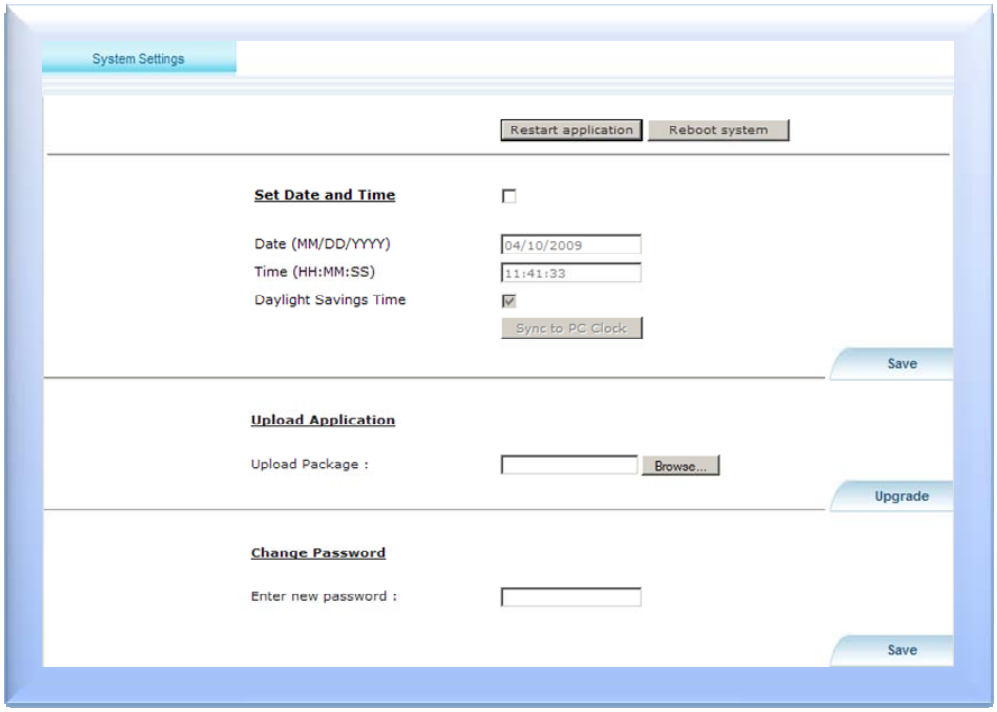
IP address:	xxx.xxx.xxx.xxx
Subnet mask:	xxx.xxx.xxx.xxx
Gateway:	xxx.xxx.xxx.xxx

Once the selections have been entered click on the “Save” button. After clicking on the button the following screen will appear while the EdgeConnect module reboots to allow the changes to take effect. It takes approximately 150 seconds for the system to reboot and be ready for operation. It may be necessary after a reboot to close the Internet Explorer screen and reopen it to allow correct connection to the EdgeConnect module.

5.4 System Settings

Select the System Settings Tab.

This page allows for configuring various system settings.



Restart application

Clicking on this button will restart the EdgeConnect application. The reset takes approximately 10 seconds.

Reboot system

Clicking on this button will reboot the EdgeConnect module. The reboot takes approximately 150 seconds.

The EdgeConnect module can be rebooted at any time. However, certain changes to the module will cause an automatic reboot to occur, after changing the IP Address for example.

Set Date and Time

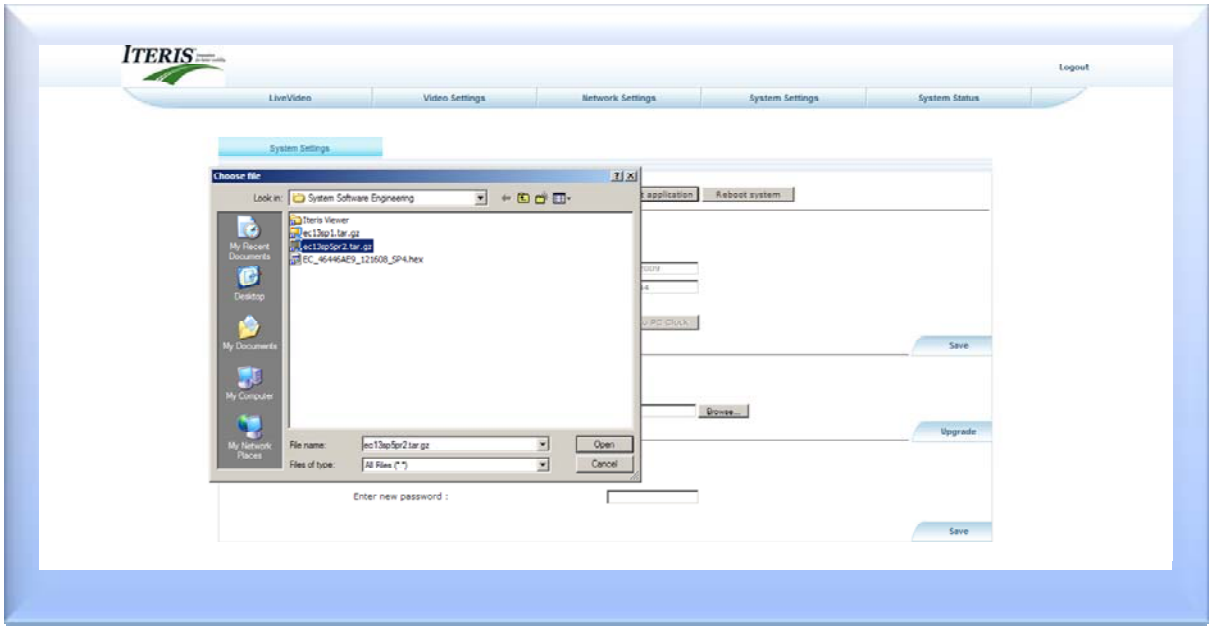
The date and time of the EdgeConnect module can be set manually or automatically synchronized to the clock of the attached PC. To change the time click on the “Modify Date and Time” checkbox and either enter the time and date or click on the “Sync to PC Clock” button. The new time will be displayed in the box. Click on the “Save” button to store the settings.

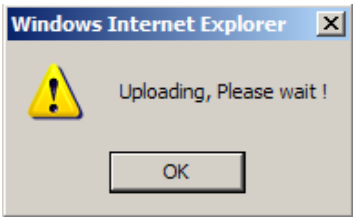
NOTE: When the TS2-IM is used the EdgeConnect’s date/time will automatically synchronize to that timestamp.

Upload Application

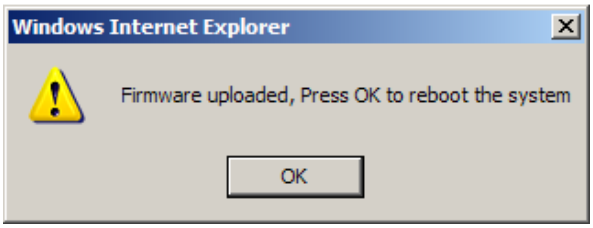
Iteris periodically offers improvements and additional functions for its systems. New application code can be uploaded to the EdgeConnect module remotely.

After saving the upload file to your local PC. Click on the “Browse” button to locate the file. Find the file and highlight it on the local PC and click on the “Open” button.





After selecting the file, click on the “Upgrade” button. The upload box will appear. Click on the “OK” button.



Once the EdgeConnect receives the new firmware, the following box will appear. After clicking the “OK” button the EdgeConnect will reboot and the new application code will take effect.

Change Password

For security of the system, it is recommended that the password is changed from the default (0000) to some other code. The password has a maximum length of four characters and can use any alphanumeric combination. The password is case sensitive. No special characters are permitted in the password (! @ # $ % ^ &). Once a new password has been entered click on the “Save” button to store it.

5.5 Status Page

Select the System Status Tab.

Time: Current system time

Version: Current EdgeConnect Module application code version

VRAS connection:

none – No connection with VRAS software.

IP address>>port # – The IP address and port # which VRAS is using to communicate with the system. Port 7200 is the EdgeConnect module, ports 7201 – 7204 are the attached Edge2 processors.

Channel Status:

Status:
Online – The Edge2 processor connected to the EdgeConnect module and is operating correctly.

Not Available – The Edge2 processor connected to the EdgeConnect module is not operating correctly.

Surveillance – This channel is set to surveillance mode. Video is connected directly to the EdgeConnect module and no Edge2 processor is available.

Cam 1/2/3/4:
On – A valid video signal is being received by the EdgeConnect module.

Off – No valid video signal is being received by the EdgeConnect module.

Version:
Current Edge2 processor application code version.

5.6 Logout

Once you have completed changes to the system or viewing video click on the “Logout” message to close the connection to the EdgeConnect module and allow other users access.

6 Central Access Point

The EdgeConnect module can be used as a central access point within the traffic cabinet to access any of the attached Edge2 processors for displaying video or setup using mouse and monitor.

USB Port

A USB port is provided to connect a compatible pointing device. The following devices were tested for compatibility.

Mice:

Microsoft Basic Optical Mouse, PS2/USB, 5 volt 100mA, PN X09-13962 or PN X800898-129
Most Microsoft USB Mice that were tested worked with the system.
Most Logitech USB Mice that were tested worked with the system.

Trackballs:

Microsoft Trackball Explorer 1.0, PS2/USB, 5 volt 100mA, PN X08-70390
Most Microsoft USB Trackballs that were tested worked with the system.
Most Logitech USB Trackballs that were tested worked with the system.

These are just a few of the many USB pointing devices that can be used with the system.

NOTE:

Belkin pointing devices were found not be compatible with the system.

Video Output

The EdgeConnect module is provided with a video output for connection to a monitor. The monitor can be monochrome or color and should have a minimum 9” screen size. We recommend that the monitor have vertical and horizontal hold adjustments to ensure that the actual Edge2 processor FOV can be displayed on the screen. You can use the vertical adjustment to scroll the frame up and down to see the actual content of the entire video frame. Make sure that the horizon or other undesirable elements are not being masked by the limited visible viewing area of the monitor.

Menu Button

Pressing the menu button and releasing within one second will advance the EdgeConnect to the next available video input. This input will be displayed on a monitor attached to the video output BNC. After the last video is selected the EdgeConnect will display a Quad view of the four video streams before returning to the first available video input. When multiple input Edge2 processors are attached to the EdgeConnect module this action will step through each valid video input for that processor before moving to the next processor.

Pressing and holding the menu button for more than one second with access the setup menu for the currently selected channel and camera. You can now use the mouse to setup the Edge2 processor.

7 Multiple Video Monitoring

The EdgeConnect module allows for four video streams to be viewed remotely. In addition the EdgeConnect module allows a ‘quad’ view of four video streams simultaneously through it’s embedded web browser application.

Due to slot limitations in the traffic cabinet Iteris provides a variety of Edge processor options to overcome these restrictions. Each Edge processor only provides one video output. For two and four channel Edge processors different cabling schemes are required to enable all video sources to be viewed simultaneously on the EdgeConnect module.

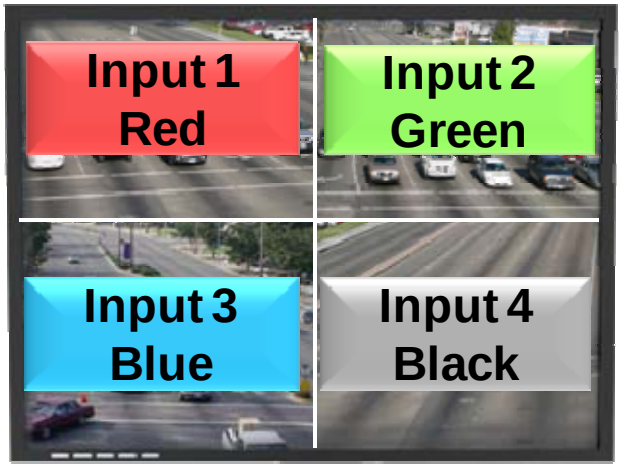
7.1 Quad Video Output Mode

It is possible to cycle through the video inputs on all Edge processors connected to the EdgeConnect using the menu button on the front of the EdgeConnect. Once all inputs have been cycled through the EdgeConnect will display the Quad output. It is also possible to display any video input remotely using the embedded web browser or VRAS.

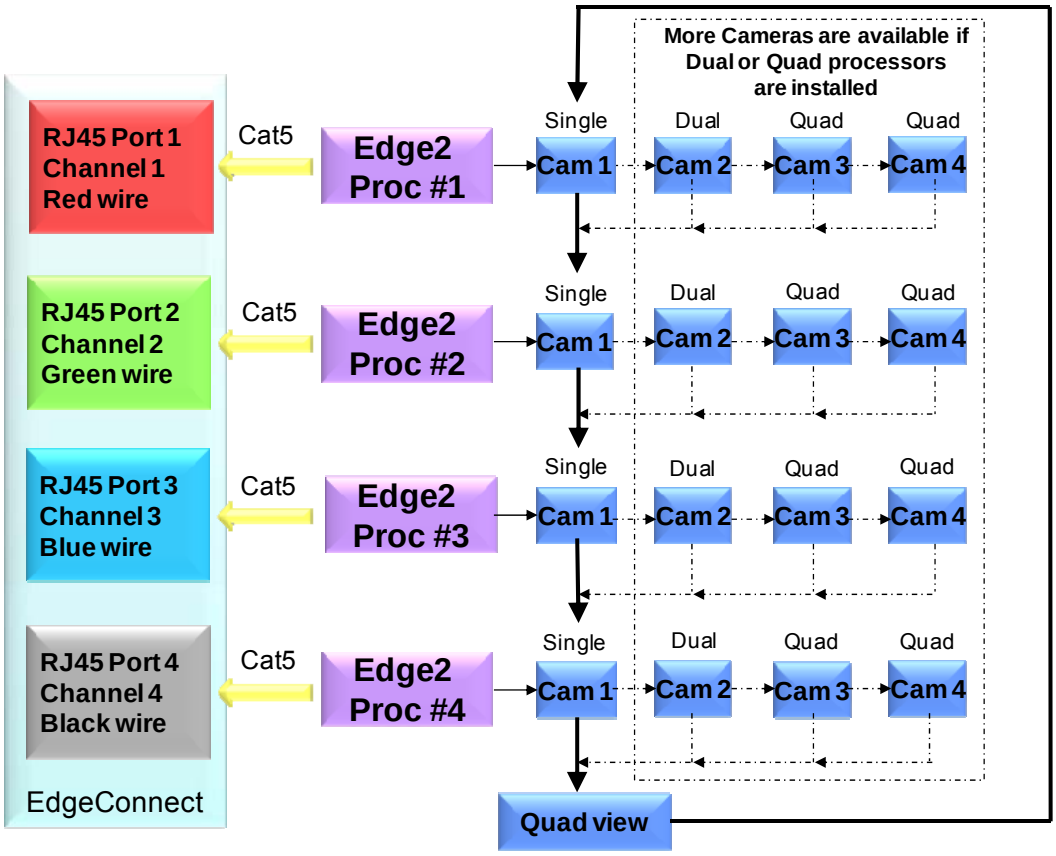
When viewing remotely through the embedded web browser, the quad mode will display the last camera selected for each Edge processor.

For manual (local push button) selection the last channel will be displayed. Camera 2 for an Edge 2-2 or camera 4 on an Edge 2-4.

The order of video inputs in Quad mode in show below.



Video sequencing of Edge Processors



Surveillance Mode

If a single view of a 'raw' video channel is required that channel needs to be programmed to surveillance mode. If the channel is not programmed to this mode it will be skipped when the button is pressed on the front of the EdgeConnect module. The raw video is still viewable in Quad mode even if the channel is not set to surveillance mode.

Preferred Cabling Schemes

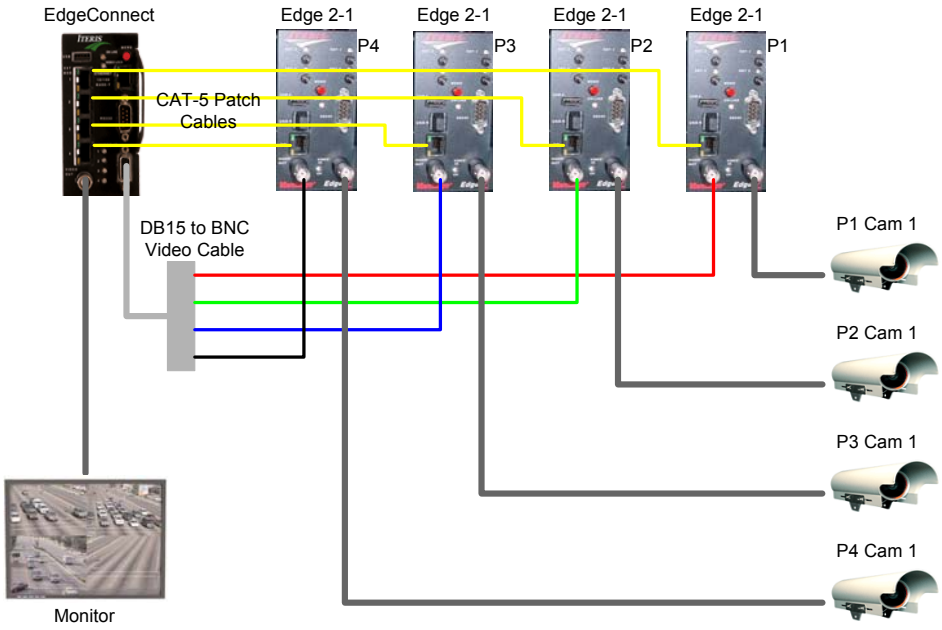
Below are details of each cabling scheme required for different Edge processor combinations . Any video sources connected directly to the EdgeConnect the module will need to be programmed to surveillance mode for that video channel. This can be achieved with the VRAS software package.

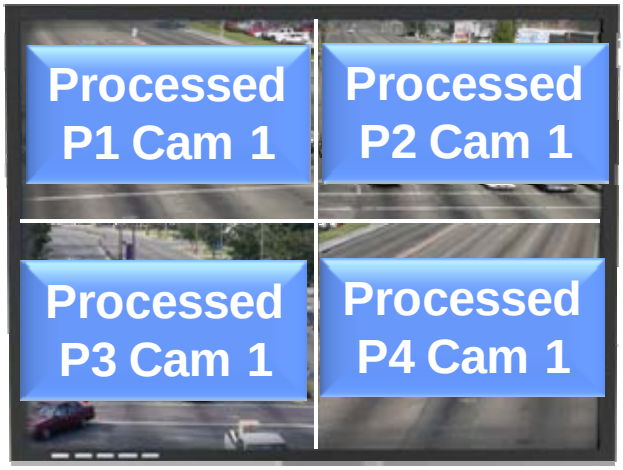
These cabling schemes are optimized for remote viewing of video.

For 'raw' video inputs, viewing of the processed video is still possible by selecting that output to become active on the Edge processor. This can be achieved through a number of methods; the EdgeConnect embedded Web Browser, the VRAS software package or through the menu button on the front of the EdgeConnect module.

Four Single Edge 2-1 Processors

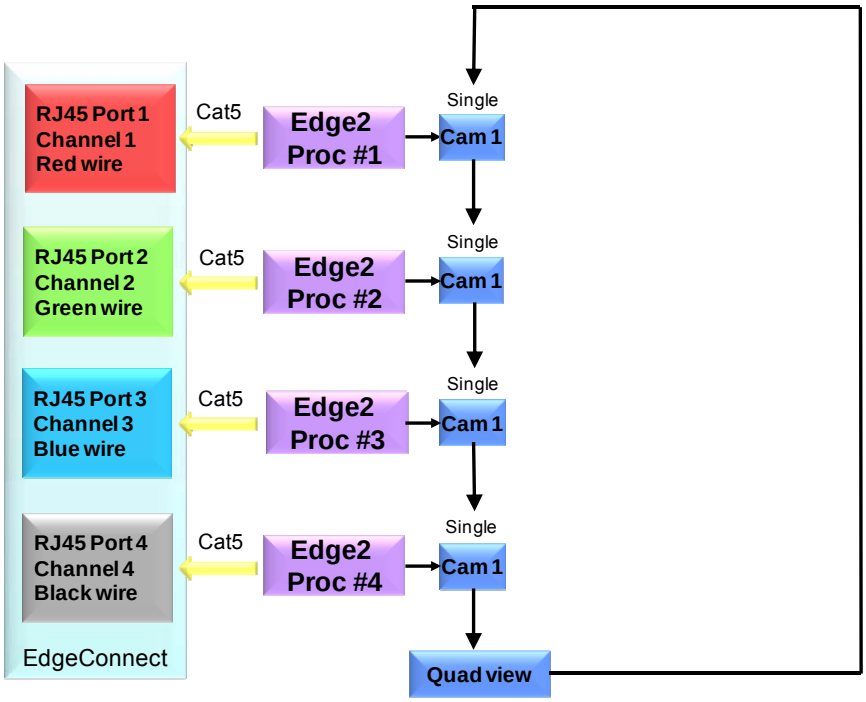
In this configuration four concurrent processed videos (videos with overlays) can be viewed simultaneously through the EdgeConnect module in quad mode.





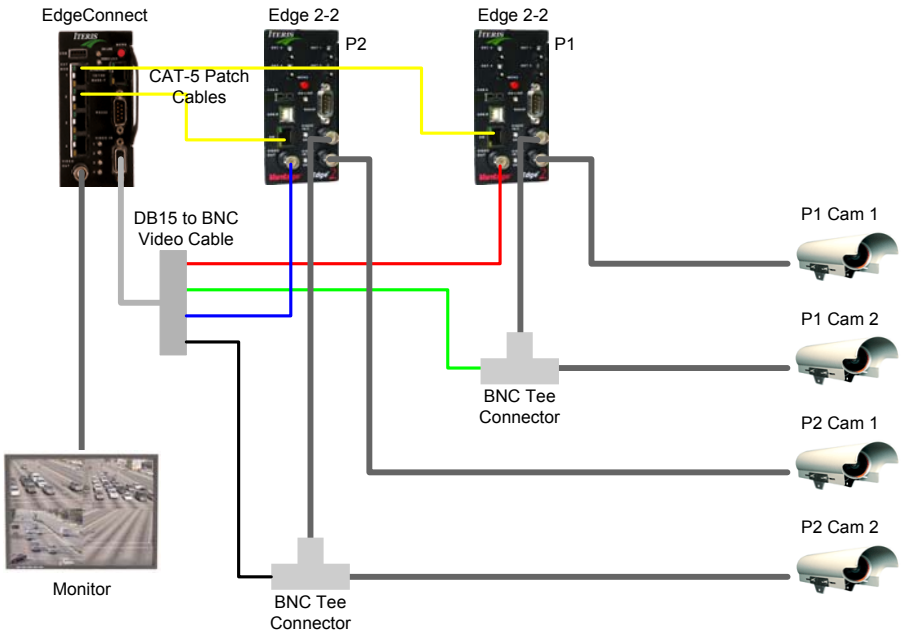
Blue quadrants are processed and fixed video.
No channels set to surveillance mode.
Set all video input terminations of EdgeConnect to 75Ω.

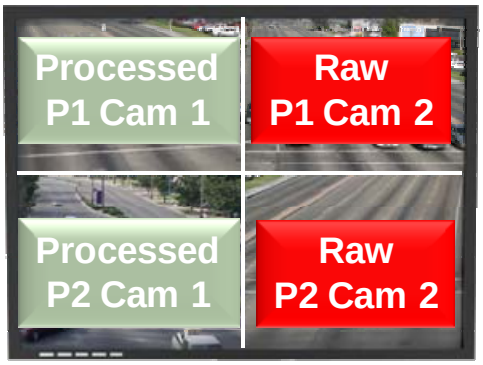
Manual Channel Switching Sequence – Four Single Edge Processors



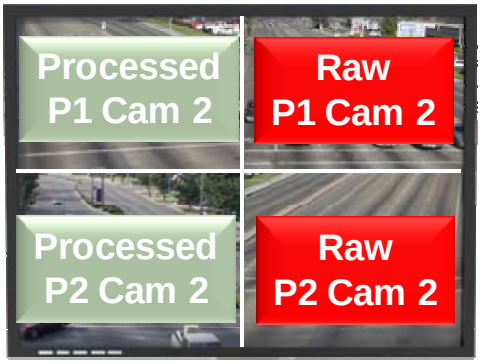
Two Edge 2-2 Processors

In this configuration two concurrent processed videos (videos with overlays) and two concurrent raw videos (direct from the camera without interfacing to an Edge processor) can be viewed simultaneously through the EdgeConnect module in quad mode.





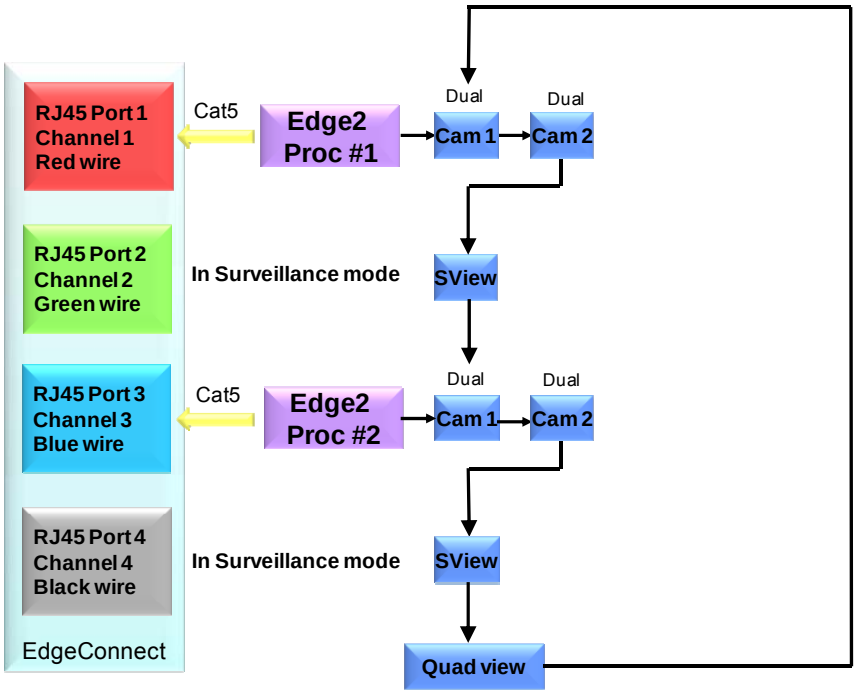
Web Browser Quad Mode



Push Button Quad Mode

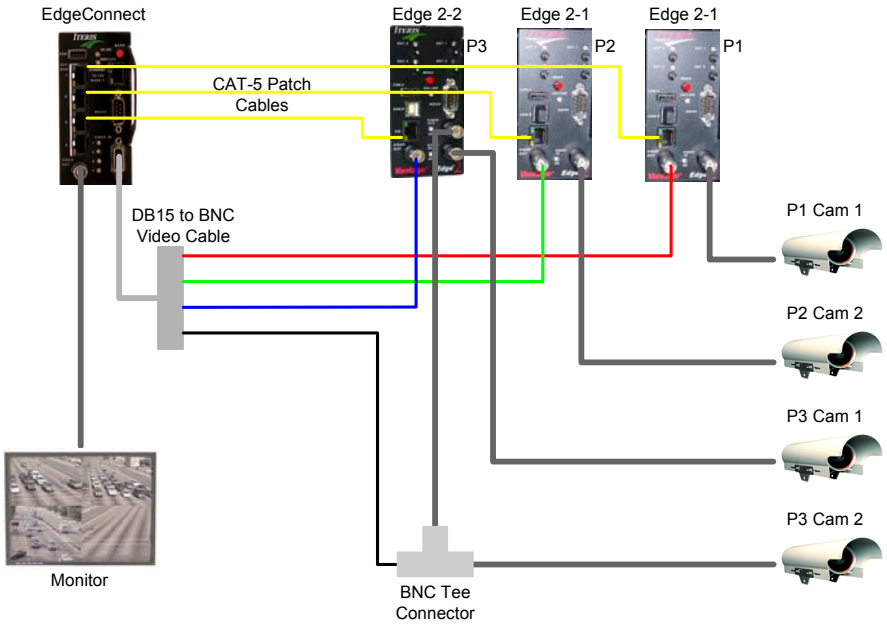
Green quadrants are processed and changeable video.
Red quadrants are raw and fixed video.
Set channels 2 and 4 of EdgeConnect to surveillance mode
Set video input terminations for channels 1 and 3 of EdgeConnect to 75Ω.
Set channels 2 and 4 of EdgeConnect to Hi-Z.

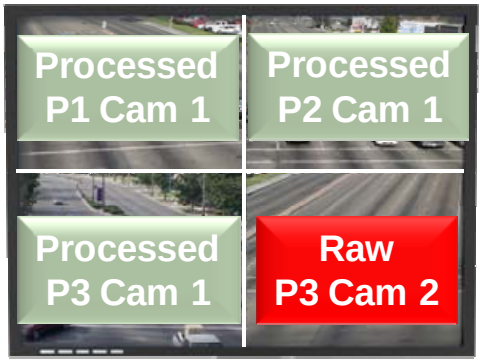
Manual Channel Switching Sequence – Two Dual Edge Processors



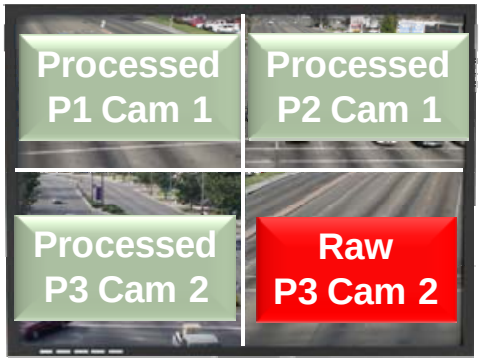
Combination Two Edge 2-1 and One Edge 2-2 Processors

In this configuration three concurrent processed videos (videos with overlays) and one concurrent raw video (direct from the camera without interfacing to an Edge processor) can be viewed simultaneously through the EdgeConnect module in quad mode.





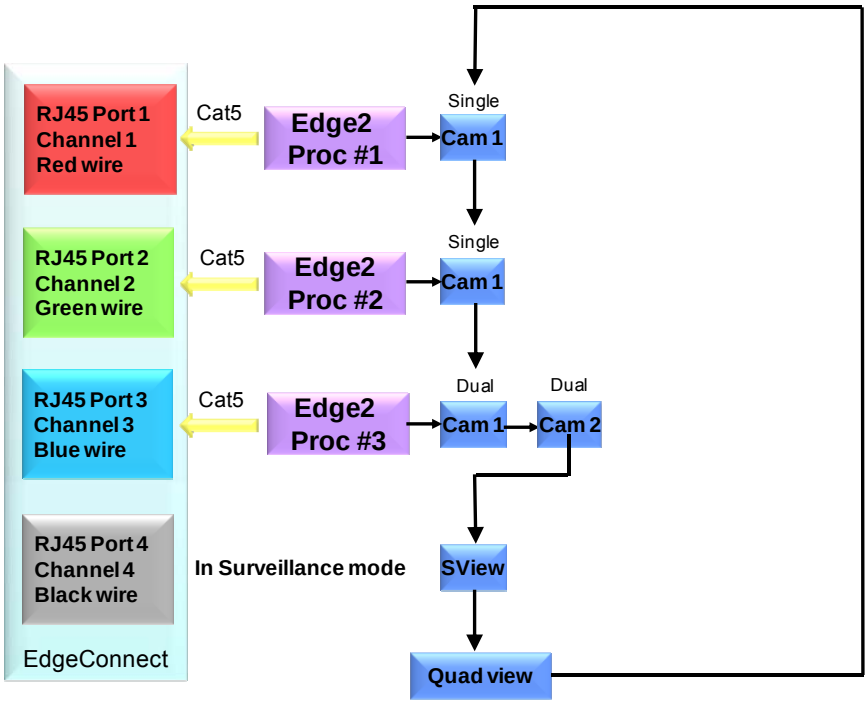
Web Browser Quad Mode



Push Button Quad Mode

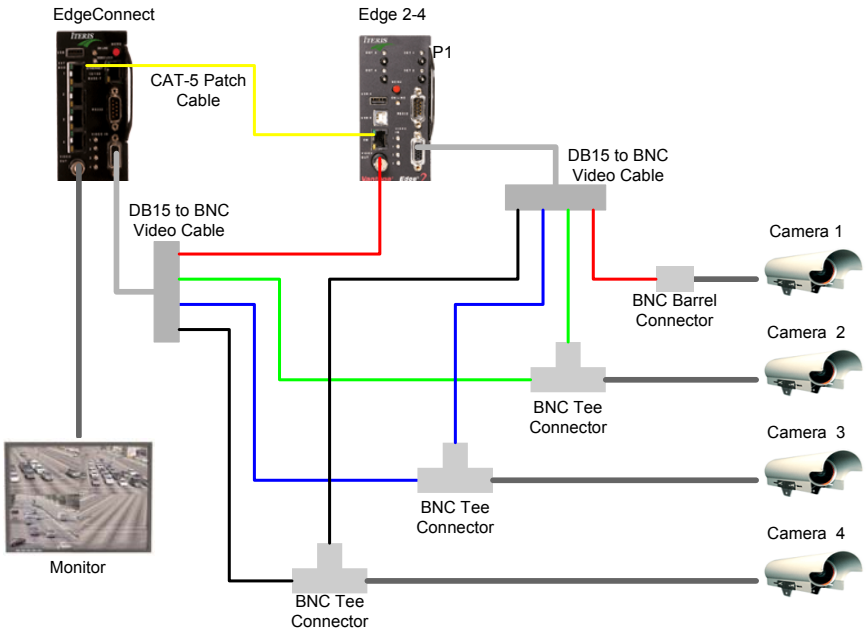
Green quadrants are processed and changeable video.
Red quadrants are raw and fixed video.
Set channel 4 of EdgeConnect to surveillance mode
Set video input terminations for channels 1, 2 and 3 of EdgeConnect to 75Ω.
Set channel 4 of EdgeConnect to Hi-Z.

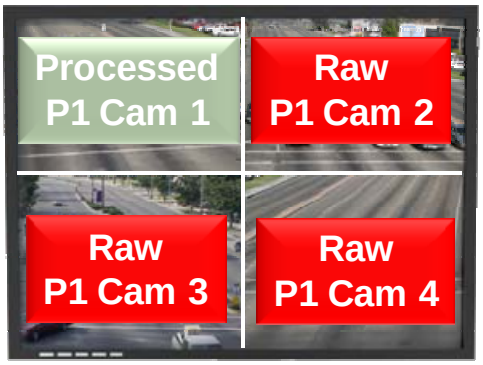
Manual Channel Switching Sequence – Two Single and One Dual Edge Processor



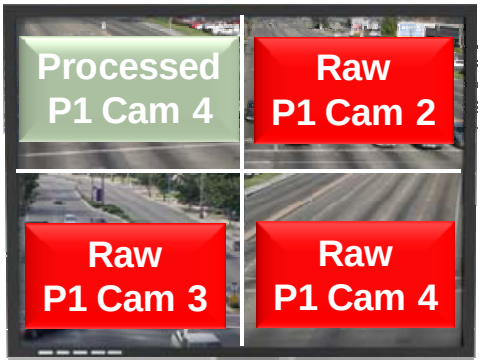
One Edge 2-4 Processor

In this configuration one concurrent processed video (video with overlays) and three concurrent raw videos (direct from the camera without interfacing to an Edge processor) can be viewed simultaneously through the EdgeConnect module in quad mode.





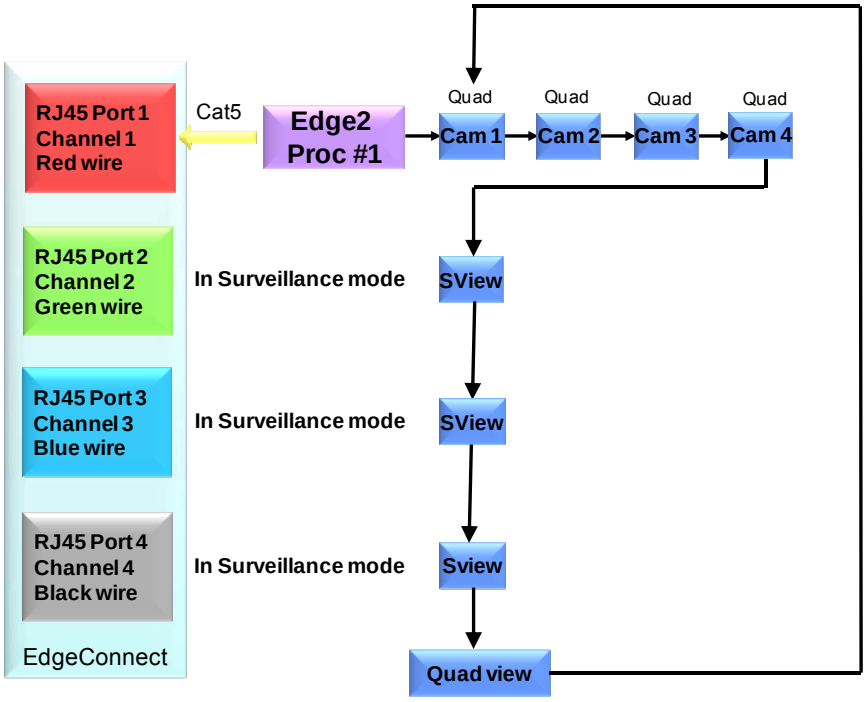
Web Browser Quad Mode



Push Button Quad Mode

Green quadrants are processed and changeable video.
Red quadrants are raw and fixed video.
Set channels 2, 3 and 4 of EdgeConnect to surveillance mode
Set video input terminations for channel 1 of EdgeConnect to 75Ω.
Set channels 2, 3 and 4 of EdgeConnect to Hi-Z.

Manual Channel Switching Sequence – One Quad Edge Processor

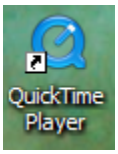


7.2 Using QuickTime to View Multiple Video Streams

Multiple video streams (single view per stream) can be viewed using QuickTime player from Apple.

Real Time Streaming Protocol (rtsp) is used to access the video streams from the EdgeConnect module.

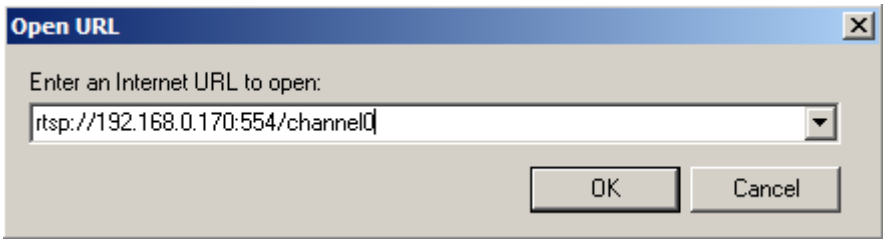
Launch QuickTime



Click on your QuickTime shortcut icon to start Apple's QuickTime Player.

When QuickTime opens up select the "File" menu and "Open URL".

Type in “rtsp://” followed by the IP address of the module followed by “:554/channelx” (where channel is the video channel to view). For example “**rtsp://192.160.0.170:554/channel0**”.



NOTE: “//192.168.0.170” is the default address of the module set by the factory. The address on your network will be different.

Click on “OK”.

QuickTime will now connect with the video stream selected.

See the table below to indentify the correct video feed.

Video Input on EdgeConnect Module	Channel Number
1	0
2	1
3	2
4	3

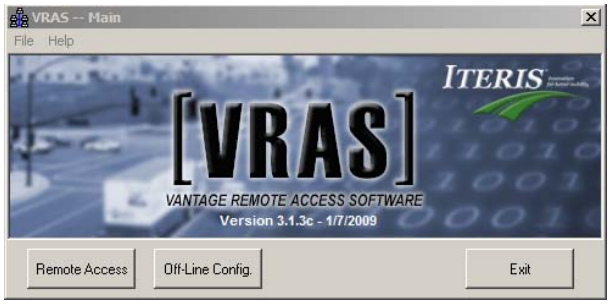
Multiple instances of QuickTime can be opened to allow multiple video streams to be viewed on the desktop.

NOTE: The video resolution for each video stream on the EdgeConnect module should be set to either QVGA, CIF or QCIF. Higher video resolutions such as D1 and VGA require large bandwidth and are not supported.

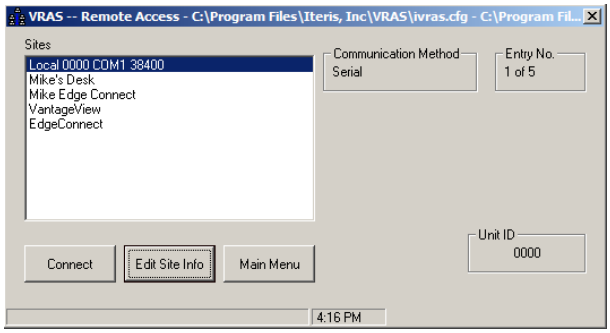
8 Surveillance Channels

If a camera is connected directly to the video input of the EdgeConnect module then it is necessary to set that input to surveillance mode. This is achieved using the VRAS software package.

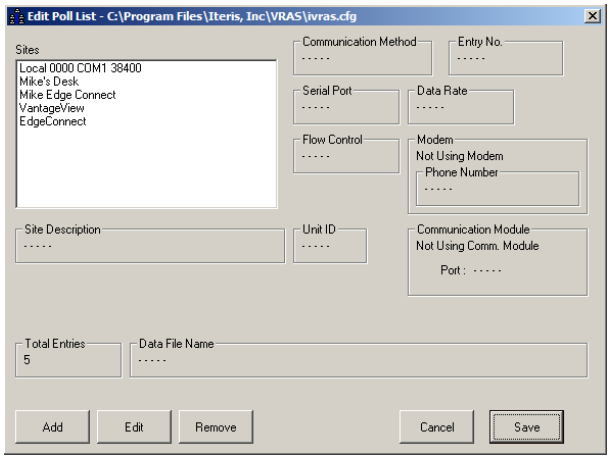
In VRAS create a new site.



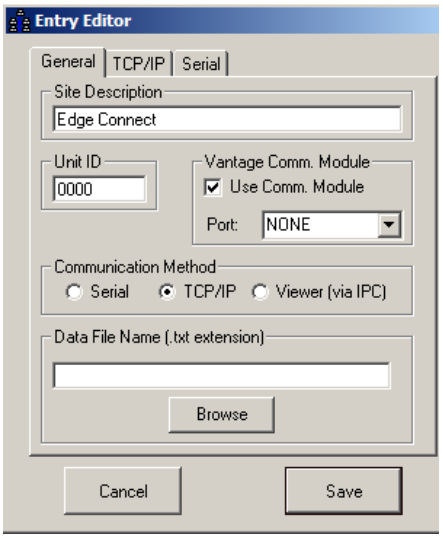
On the main page click on the “Remote Access” button.



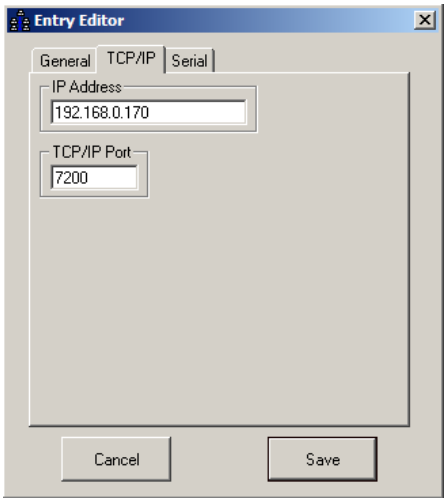
On the VRAS page click on the “Edit Site Info” button.



On the Edit Poll List page click on the “Add” button.

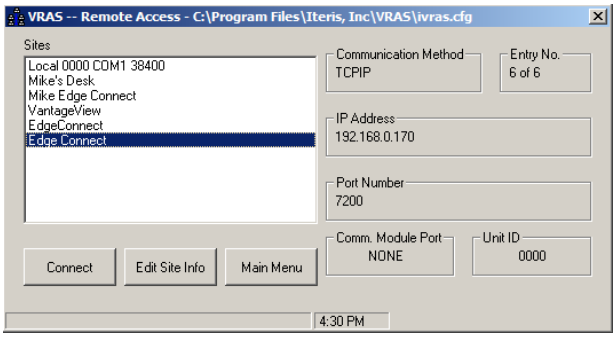


On the General tab of the Entry Editor page type the name of the site, the Unit ID. Check the "Use Comm. Module" box. Set the Port to "NONE". Check the TCP/IP option in the Communication Method section.

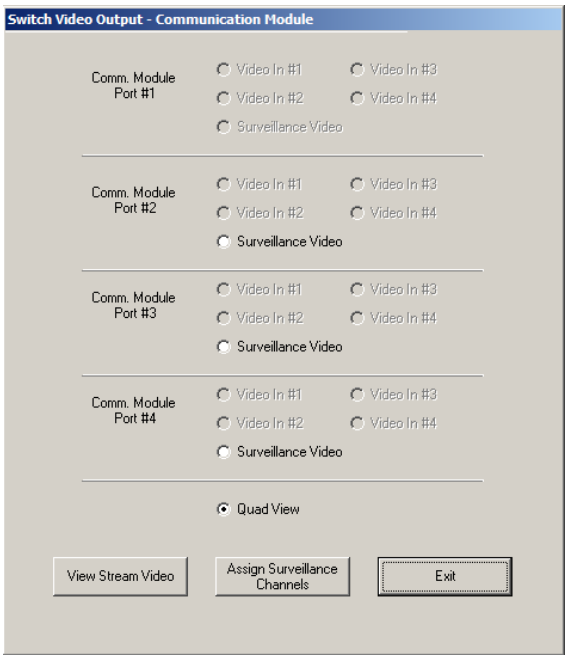


On the TCP/IP tab of the Entry Editor page enter the IP Address of the EdgeConnect in the IP Address box. Enter "7200" in the TCP/IP Port box.

After entering the information click on the save button on the Entry Editor and Edit Poll List pages.



On the VRAS page highlight the entry and click on the "Connect" button.



On the Switch Video Output page click on the “Assign Surveillance Channels” button.

For each video input channel that is directly connected to a video source and not an Edge2 processor check the box next to the channel. Once all the surveillance channels are selected click on the “Exit” button.

Note: It is also possible to stream video from the Switch Video Output page. You can stream a Quad view of all channels or any of the surveillance channels individually. The display can be set to single or double size by clicking on the “1x” or “2x” name on the Stream Window page.

9 Troubleshooting Guide

The following section has some tips and suggestions for EdgeConnect system troubleshooting. The following section is not intended as an all inclusive troubleshooting reference.

No Power

Description of problem: The EdgeConnect module does not operate.

Symptoms: No LED's illuminate on the EdgeConnect module.

NOTE: It may take up to 150 seconds for the EdgeConnect module to boot up. During this time the module will start with all LEDs off. As the boot up sequence continues LED's will begin to illuminate (some may blink as inter-module or Ethernet communications occur).

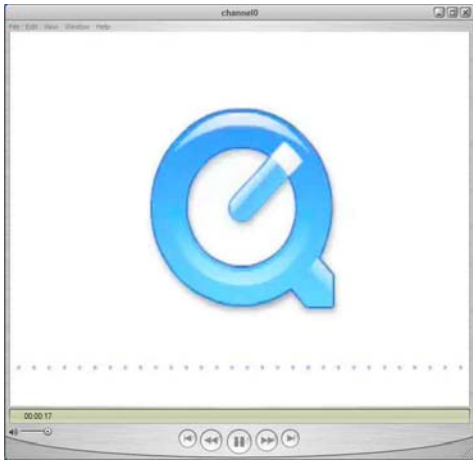
Possible Solutions:

- Check that the EdgeConnect is properly inserted into the input file.
- Check that 12 or 24vdc is present on the input file.

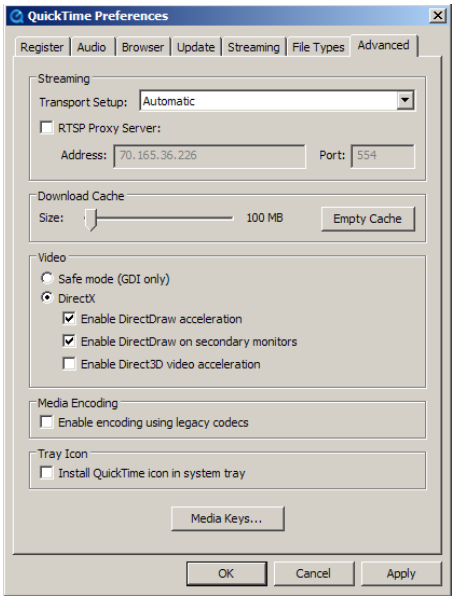
Streaming Errors – QuickTime

Description of problem: Standalone use of QuickTime Player with EdgeConnect does not display streaming video for systems using Windows 2000, XP or Vista.

Symptoms: The player goes through the network connection and buffering process but only displays the QuickTime logo as shown.



Solution: Apple, Inc. has posted fixes for this issue and suggests to disable Direct3D video acceleration in QuickTime or to disable DirectX in QuickTime. See http://support.apple.com/kb/TS1386 and http://support.apple.com/kb/TS1718



To Disable Direct3D video acceleration in QuickTime

1. On the Windows Start menu, click on the Control Panel.
2. Open the QuickTime control panel.
3. Click on the “Advanced” tab.

4a. Deselect Enable Direct3D video acceleration in the Video section.

OR

4b. Select Safe mode (GDI only) in the Video section

6. Click on the “OK” button.

An alternate method is to start the QuickTime player itself and select “Preferences” under the “Edit” menu item and then click on “QuickTime Preferences”. Click on the “Advanced” tab and deselect “Enable Direct3D video acceleration” or select “Safe mode (GDI only)”.

10 EdgeConnect Specifications

10.1 EdgeConnect video output modes

The EdgeConnect has various video modes and output options. The table below provide details of each selection.

Video Resolution	Channel/camera selection available on Live Video web page	Selection channel /camera	Browser output (Internet Explorer)	Streamer output (QuickTime RSTP)	Video Out output (Front of Module)
D1	Channel for each Edge, camera for each camera on the Edge	1/N	Selected channel/camera, D1 size	Selected channel/camera, D1 size on IP_address:554/channel0	Selected channel/camera, full screen image
		2/N	Selected channel/camera, D1 size	Selected channel/camera, D1 size on IP_address:554/channel1	Selected channel/camera, full screen image
		3/N	Selected channel/camera, D1 size	Selected channel/camera, D1 size on IP_address:554/channel2	Selected channel/camera, full screen image
		4/N	Selected channel/camera, D1 size	Selected channel/camera, D1 size on IP_address:554/channel3	Selected channel/camera, full screen image
VGA	Same as D1	Same as D1	Selected channel/camera, VGA size	Same as D1, but VGA size	Same as D1, but VGA size
CIF	Same as D1	Same as D1	Selected channel/camera, CIF size	Channel 1 on IP_address:554/channel0, Channel 2 on IP_address:554/channel1 Channel 3 on IP_address:554/channel2 Channel 4 on IP_address:554/channel3 Each feed is CIF size	Single stream combined quad view of four CIF-size images on a full screen image.
QVGA	Same as D1	Same as D1	Selected channel/camera, QVGA size	Same as CIF but QVGA size	Single stream combined quad view of four QVGA -size images on a full screen image.
QCIF	Same as D1	Same as D1	Selected channel/camera, QCIF size	Same as CIF, but QCIF size	Single stream combined quad view of fourQCIF-size images on a full screen image.
Quad – D1	None	None	Single stream combined quad view of four CIF images in a D1 feed	Single stream combined quad view of four images in an D1 feed (704x480) on IP_address:554/channel0	Single stream combined quad view of four images in a D1 feed, full screen image
Quad - CIF	None	None	Single stream combined quad view of four QCIF images in a CIF feed	Single stream combined quad view of four QCIF images in a CIF feed on IP_address:554/channel0	Single stream combined quad view of four QCIF images in a CIF feed in upper left quarter of the screen
Quad -QCIF	None	None	Single stream combined quad view of four images in a SQCIF feed	Single stream combined quad view of four images in a QCIF feed on IP_address:554/channel0	Single stream combined quad view of four SQCIF images in a QCIF feed in upper left sixteenth of the screen

10.2 Technical Specifications

FUNCTIONS/FEATURES	Designed specifically for Vantage Edge2 video detection processors 10/100 Base-T autosense, full/half duplex Complies with 802.3 specifications Protocols supported: TCP/IP (TCP and UDP), ping, HTTP, ICMP, RTSP
VANTAGE CONNECTIONS	4 BNC connectors for video input (via DB15 spider cable) 4 RJ45 Edge2 Extension Module interface 1 RJ45 Ethernet connector 1 EIA-232 local access port USB mouse port 1 BNC composite video out connector
MECHANICAL	
Size	7.0" long, 4.5" high, 2.3" wide (17.8 cm long, 11.4 cm high,5.8 cm wide)
Weight	0.64 lbs. (0.29 kg)
ENVIRONMENT	
Temperature	-35° F to +165° F (-37° C to +74° C)
Humidity	0% to 95% non-condensing
Vibration	0.5G, 3 axes, 5-30 Hz
Shock	10G in all 3 axes
ELECTRICAL	12/24VDC (500/260mA) 6.25W Max

11 If You Need Assistance

The Iteris Vantage Product Support Team consists of a group of highly skilled individuals that are knowledgeable and readily available to answer your questions or assist you with any of our Vantage products. Please do not hesitate to contact us at:

(888) 254-5487

For more information on Iteris and the products and services that we provide, visit our website at www.iteris.com