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VGA Broadcaster Lite™ User Guide



Epiphan Technical
Documentation

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June 2011

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- Your VGA Broadcaster Lite serial number.
- The behavior of your VGA Broadcaster Lite LED indicators.
- Technical description of the signal source including resolution, refresh rate, synchronization, type of hardware.
- Complete description of the problem you are experiencing.

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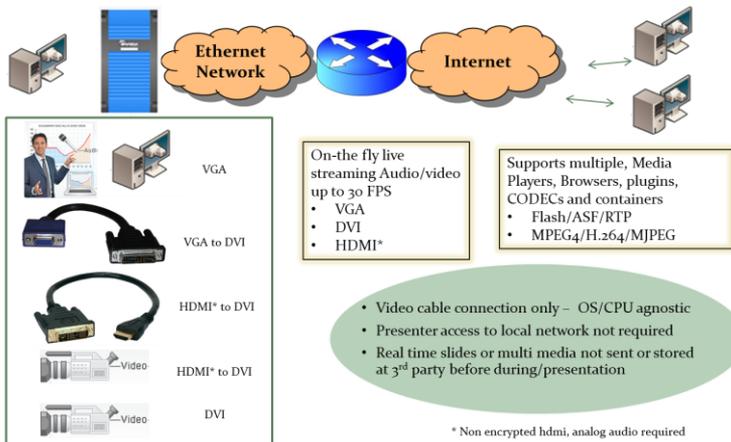
1. Introduction

The Epiphan VGA Broadcaster Lite™ device can broadcast the output from multiple types of video sources to viewers on an Ethernet network. Video sources supported are:

- VGA,
- DVI, mini DVI, micro DVI
- HDMI¹
- Other compatible sources with appropriate adapters and/or converters

VGA Broadcaster Lite is a portable, stand-alone device that requires no additional software or hardware to capture video signals. The VGA Broadcaster Lite device can also broadcast audio signal sources.

Figure 1. Typical VGA Broadcaster Lite Applications



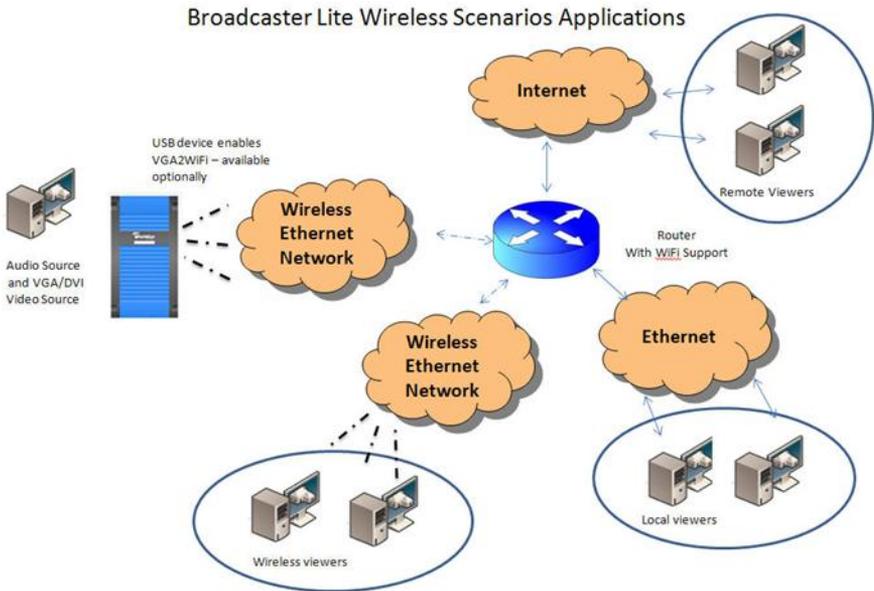
The VGA Broadcaster Lite is an Ethernet network device that can be automatically configured onto networks that support DHCP addressing or manually configured to use static IP addressing. It supports 100Mbps Ethernet connection. For more advanced users, the VGA Broadcaster Lite device can also be administered using a directly connected workstation using an Ethernet port, in advance of connecting to the Ethernet network.

¹ Supports Non encrypted HDMI with analog audio source

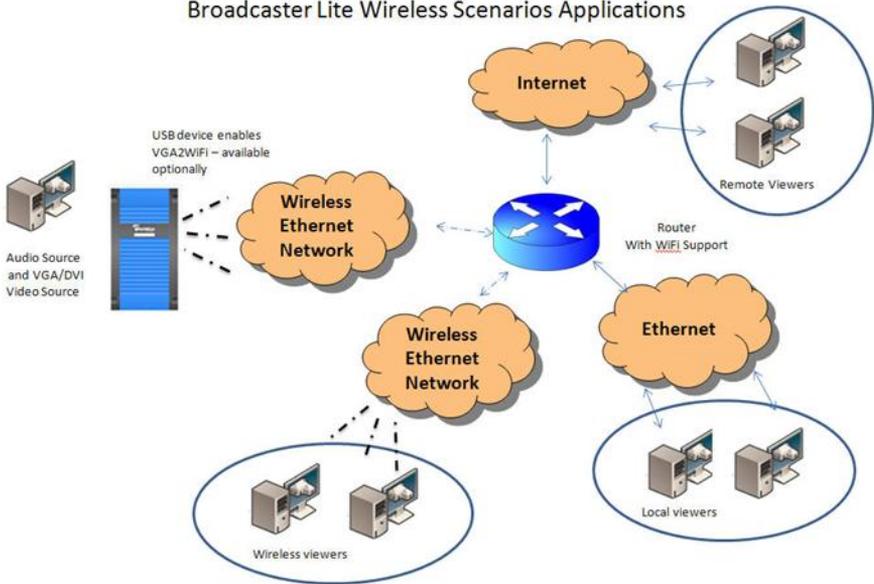
Once connected to an Ethernet network, VGA Broadcaster Lite can be configured and operated through an easy to use web-based administration interface.

The VGA Broadcaster Lite device can be configured to broadcast the video source (DVI/VGA/HDMI (unencrypted HDMI)) and audio output over of the following Ethernet connections:

- a wired Ethernet cable connected to the network, or
- a wireless Ethernet connection using a USB wireless network adapter available separately as VGA2WiFi™. Please refer to the **VGA2WiFi User Guide** to know more about this optional functionality.



Broadcaster Lite Wireless Scenarios Applications



Administrators and viewers access the broadcast video stream with a media player such as QuickTime, VLC or Windows Media Player, or with a web browser that supports the formats supported by VGA Broadcaster Lite (e.g. motion JPEG, MPEG4 or Flash Video/H.264 compression).

In order to view the broadcast, viewers need the IP address, or DNS name or URL of the VGA Broadcaster Lite and the optional viewer password. If the viewer password is configured, the password should be distributed or otherwise communicated to authorized viewers of the broadcast. URLs or DNS address names are supported once DNS is correctly configured for your network by your Ethernet network administrator.

The VGA Broadcaster Lite supports multiple streaming types and configurations. VGA Broadcaster Lite supports stream over HTTP, RSTP, unicast RTP, multicast RTP and content distribution network (CDN) broadcast network streaming architectures. Which architecture you choose to build will depend on your application, the number of clients, and the network capabilities at your disposal. Please refer to **Different Stream Distribution Architecture Methods** section **Different Stream Distribution Architecture Methods** for additional information.

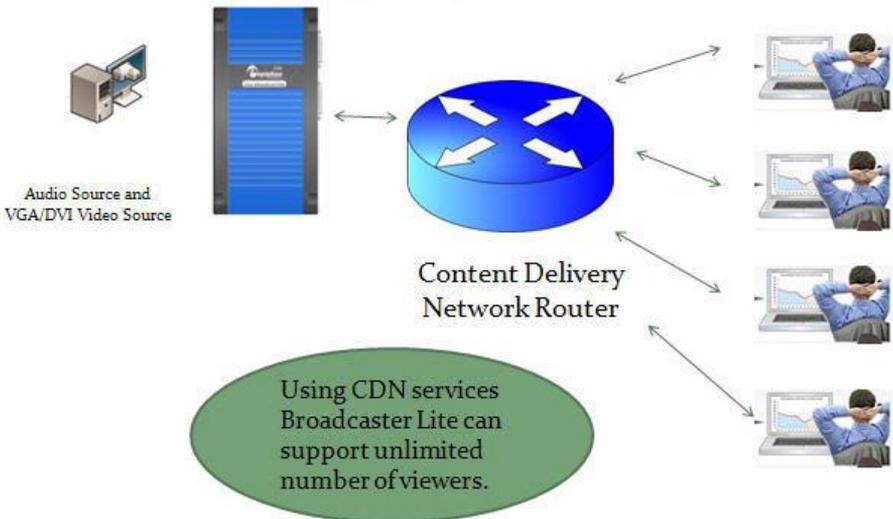
- **Streaming over HTTP.** The VGA Broadcaster Lite transfers data to the viewer via HTTP protocol. You can play such stream directly in the browser using appropriate plug-ins. Streaming over HTTP sends duplicates of all data to each connected client. Due to this duplication, the number of supported clients is typically limited to three viewers. If you would like to support more than three, Epiphan provides larger systems that can scale to more users, or you can consider using RTSP, Multicast or CDN network architectures for your applications.
- **RTSP streaming.** RTSP is similar to Streaming over HTTP (see above). However, the viewer can choose between TCP (which is very similar to HTTP) and UDP protocols using its software. UDP protocol can reduce the latency (the delay between the moment an image appears on the VGA/DVI input and the moment remote clients see it) in streaming. However, UDP requires better router/firewall cooperation at the location where VGA Broadcaster Lite is installed.
- **RTP streaming.** RTP streaming is performed using the UDP protocol. However, unlike previous streaming methods, it does not require a request from the viewer to start sending data. The multimedia stream is *always* sent to the specified destination IP address. If the destination IP address is a workstation's address, then only specified workstation receives the stream and this is **Unicast RTP**. If the specified address is a multicast/broadcast address, an unlimited number of workstations on a LAN can access and view the stream as a **Multicast RTP** stream. The advantage is that only one copy of the data is sent from VGA Broadcaster Lite. Generally, due to the nature of the Internet, a Multicast RTP stream is not usually propagated outside the LAN (though it may be propagated through VPNs connecting several LANs).
- **Content Delivery Networks.** VGA Broadcaster Lite can be set up to send a stream (using any method mentioned above except **Multicast RTP**) to a special destination type of client, called Content Delivery Network (CDN). CDN is a network service that redistributes the stream for multiple viewers. An architecture that serves viewers through the CDN significantly increases

the maximum number of concurrent clients, while reducing the load on the uplink internet connection. This architecture would typically be used between a Broadcaster Lite inside the LAN and multiple clients outside of the LAN.



•Broadcast to more clients using a Multi-cast router

- Configure IP and port numbers to stream broadcast through a multi-cast service



Administrators who log in using the administrator password can also access the Web

admin interface to change advanced configuration features, or operate and maintain the VGA Broadcaster Lite device for their specific environment or applications.

For more advanced administration or automation, the VGA Broadcaster Lite can also be integrated into a custom management system or web infrastructure. This topic is discussed further in this document, or you can contact [Epiphan](#) for custom integration details.

The VGA Broadcaster Lite is part of Epiphan's complete line of video signal capture, broadcasting and recording products. For more information about all of Epiphan's broadcasting products, please see the [Broadcasting Products Overview](#) or [Recording Products Overview](#) on the Epiphan website.

Connecting VGA Broadcaster Lite Device to a Video Source

Epiphan's VGA Broadcaster Lite is a compact, portable solution combining both Ethernet-based broadcasting and wireless broadcasting functionalities (optional). It transfers up to 30 frames per second of visual and audio information. Using Motion JPEG, MPEG4 and H.264 video compression, the VGA Broadcaster Lite lets you broadcast to remote client displays, one of the following supported video sources:

- VGA,
- DVI, mini DVI, micro DVI, HDMI²
- Other compatible sources with appropriate adapters and/or converters

Simply connect the input source of DVI or VGA signal (for VGA – connect with a VGA to DVI cable provided). Once VGA Broadcaster Lite is correctly configured and connected to a local Ethernet network, you're ready to start sharing the broadcast with participants on the local Ethernet network and/or the Internet.

²HDMI: Supports non encrypted HDMI with analog audio transmitted through 3.5mm audio input

Figure 2. Wired Ethernet Network diagrams

Broadcaster Lite Typical Applications

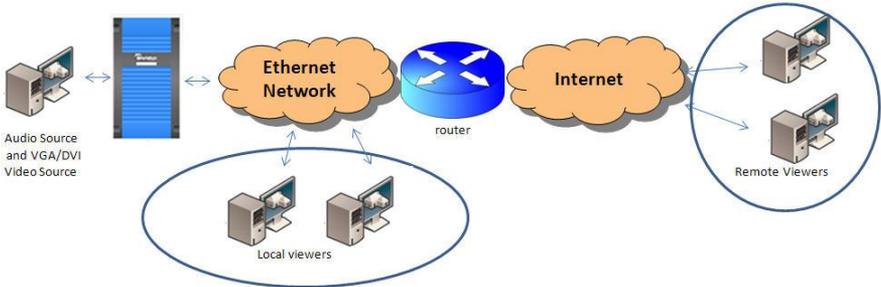


Figure 3. Wireless Ethernet Network diagram

Broadcaster Lite Wireless Scenarios Applications

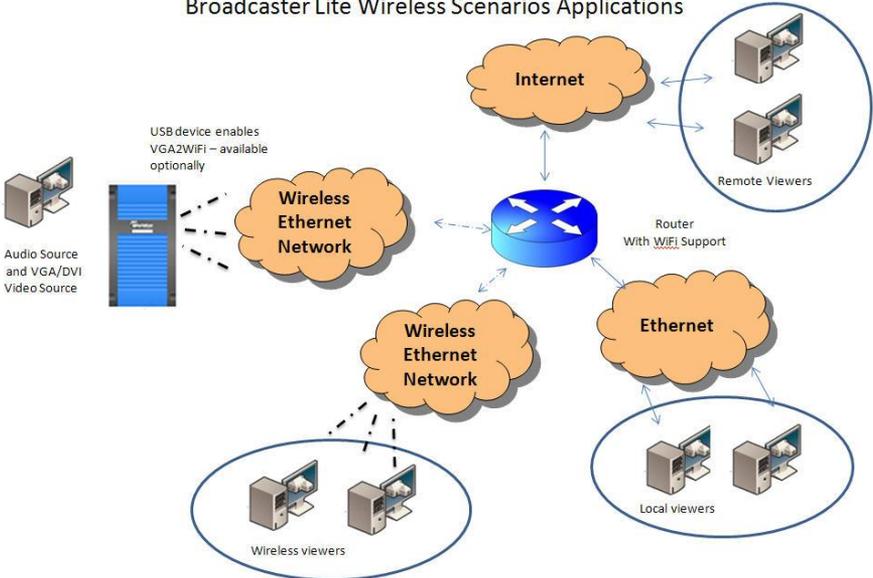


Figure 4. DVI and Audio ports on the VGA Broadcaster Lite's front panel



Browser/Media Player/Format Compatibility Tables

The VGA Broadcaster Lite may broadcast audio and video at resolutions of up to 1920 x 1080 without any loss in quality or sharpness. Viewers can access the broadcasted video stream with a web browser that supports Motion JPEG, MPEG4 or Flash Video/H.264 compression or with a media player that is compatible with the format being transmitted. The video stream format is selected by the VGA Broadcaster Lite administrator. Audio is available for all formats except from Motion JPEG.

For your convenience, below is a list of browsers, operating systems and video format support, which is believed to be accurate at time of writing. For additional media browser platform support, compatibilities and capabilities, please visit our website and/or the relevant browser or plug in documentation.

Table 1. Browsers and Video Formats

Browser	Motion JPEG	ASF	RTSP	Flash Video (H.264)
Internet Explorer 8		○	○	○
Mozilla	○	○	○	○
Safari	○	○	○	○
Chrome	○	○	○	○

In order to play ASF, RTSP, and Flash Video formats in browsers you should install the appropriate plug-ins.

Browser/viewer capabilities and compatibilities are subject to change.

For your convenience, below is a list of media players, operating systems and video format support, which is believed to be accurate at time of writing. For additional media player support, compatibilities and capabilities, please visit our website and/or the media player documentation.

Table 2. Media Players and Streams

Media Player	Motion JPEG	ASF	RTSP	Flash Video (H.264)
Windows Media Player (v.12)		○	○	○
MPlayer (Windows, Mac OS, Linux)	○	○	○	○
QuickTime (Mac OS)	○	○	○	○
VLC (Windows, Mac OS, Linux)	○	○	○	○

Media Player capabilities and compatibilities are subject to change.

2. Installation

This chapter describes the basics of how to connect a VGA Broadcaster Lite device to a VGA, DVI or HDMI (unencrypted) source and to an Ethernet network.

The VGA Broadcaster Lite device uses Ethernet network connection to present visual information to viewers. Participants can connect to the URL or IP address of the VGA Broadcaster Lite to view the broadcast.

VGA Broadcaster Lite Hardware Features

The VGA Broadcaster Lite device is a 202mm x105mm x35mm (7.95"x4.13"x.1.38") unit. The front panel includes power and capture activity LEDs, Reset button, DVI In and Out, audio In and Out ports. The back panel includes Ethernet port, 2 USB ports, and a power connector.

Figure 5. VGA Broadcaster Lite Video, Audio connectors and LEDs (rear view)



Figure 6. VGA Broadcaster Lite Video, Audio connectors and LEDs (front view)



Figure 7. VGA to DVI Cable (included)



Figure 8. HDMI to DVI cable

Table 3: Connector, Interface and LED Descriptions

Number	Interface	Description
1	RJ45 Ethernet	Primary RJ-45 auto-sensing Ethernet network port to connect the VGA Broadcaster Lite device to an Ethernet network. The VGA Broadcaster Lite device Ethernet port is auto-sensing.
2,3	USB	USB 2.0 port (also supports USB 1.1).
4	Power	Connect the AC adapter to the VGA Broadcaster Lite power connector and to a power outlet
5	LEDs	<p>Red LED: during operation the red LED blinks each time the VGA Broadcaster Lite captures an image. You can use the red LED as an indicator that the VGA Broadcaster Lite is capturing images.</p> <p>Green and blue LEDs: when the VGA Broadcaster Lite device first starts up, the blue LED lights up. A few seconds later the green LED lights up. After about another 20 seconds the blue LED turns off, leaving the green LED on indicating that the VGA Broadcaster Lite has started up and can start capturing images. During operation the blue LED blinks during video signal test operation and when the system tunes video parameters (e.g. VGA parameters)</p>

6	Reset Button	<p>Reset the device to factory default settings. To use this button, disconnect power to the device, press and hold the Reset button as you reconnect the power. The blue LED lights up. Keep pressing the Reset button until the blue LED turns off and the green LED lights up. Release the Reset button. The VGA Broadcaster Lite device starts normally but with all settings returned to factory defaults.</p>
7	DVI In	<p>Connect a DVI source to the VGA Broadcaster Lite device using a DVI cable. You can also connect a VGA source using a VGA to DVI adapter (included). To identify this cable please see Figure 7 (VGA to DVI Cable (included)). If you want to connect an HDMI (unencrypted) source, use an HDMI to DVI cable (not included). To identify this cable please see Figure 8 (HDMI to DVI cable).</p> <p>When VGA Broadcaster Lite acts as a converter, use this port for the signal input.</p>
8	DVI Out	<p>This port allows you to check the presence of the signal. As VGA Broadcaster Lite features an active splitter for the incoming video source, you can check the presence of the signal and view it in a high quality. Connect a DVI monitor or projector using a DVI cable or a VGA monitor using DVI to VGA cable (included).</p> <p>When VGA Broadcaster Lite acts as a converter, use this port for the signal output.</p>
9	Audio IN	<p>Connect a microphone if you need to broadcast audio stream.</p>
10	Audio OUT	<p>Connect audio equipment (e.g. headphones or speakers) to control whether audio stream is currently being captured by VGA Broadcaster Lite. In case the device accurately captures</p>

	audio, it will be transmitted via this port.
--	--

VGA Broadcaster Lite Software Features

Use the following software features to install and configure the VGA Broadcaster Lite device.

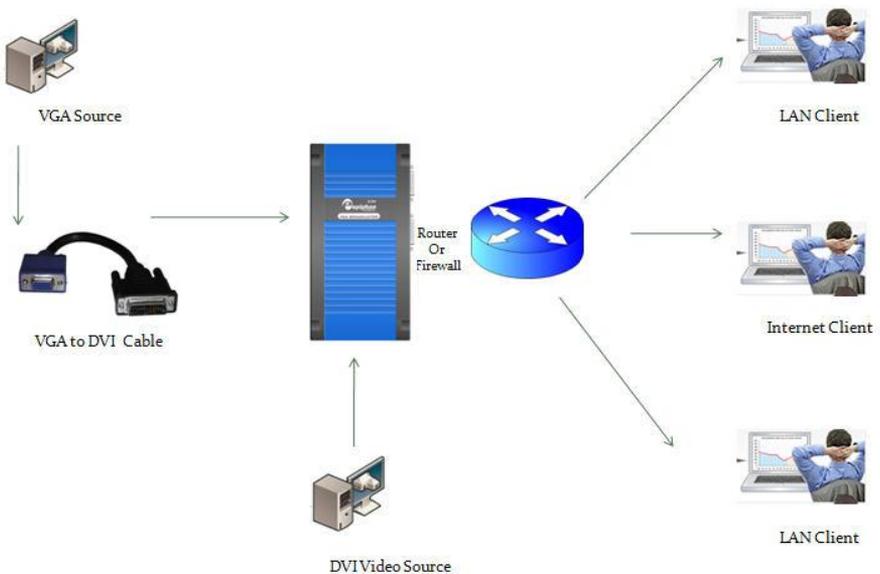
<p>Default IP address and network mask</p>	<p>IP: 192.168.255.250</p> <p>Netmask: 255.255.255.252</p> <p>User Name: admin (no password)</p>
<p>IP address from a DHCP server</p>	<p>The VGA Broadcaster Lite device can get an IP address on the network from a DHCP server if the network has one. If the network does not have a DHCP server, see the “<i>If the Network Does Not Have a DHCP Server</i>” section.</p>
<p>Web admin interface</p>	<p>Use the VGA Broadcaster Lite Web admin interface for changing the VGA Broadcaster Lite IP address, making Frame Grabber Adjustments, and installing new firmware. You can log into the Web admin interface by selecting Web config from the Network Discovery Utility or by opening a web browser and browsing to:</p> <pre>http://< VGA Broadcaster Lite_IP_Address>/admin/</pre> <p>User Name: admin (no password)</p> <p>The Web admin interface is described in Chapter 3 of this User Guide.</p>

Connect and Power on a VGA Broadcaster Lite Device

To connect a VGA Broadcaster Lite device you need:

- A DVI or VGA video source. If connecting a VGA source, you will need to connect a VGA to DVI cable (provided).
- A 100Mbps Ethernet connection between the VGA Broadcaster Lite device and a network.

Figure 9. Connecting the VGA Broadcaster Lite device to a network



To connect and turn on the VGA Broadcaster Lite device

1. Use a DVI cable to connect the DVI source to the VGA Broadcaster Lite DVI IN port on the front panel of the device. If connecting a VGA source, you will also need a VGA to DVI cable to connect the VGA source and the DVI IN port.

2. The VGA Broadcaster Lite features an active VGA/DVI splitter, i.e. it reclaims the lost signal strength resulting from the split. You may connect a monitor or projector to DVI OUT to check for the presence of a signal. The active splitter also acts as a converter. It can convert DVI (Analog) to VGA (Analog) signal and vice versa. DVI (Analog) or VGA (Analog) signals can be converted to DVI (Digital). Use DVI IN and DVI OUT ports to connect input and output sources.
3. Use an RJ-45 Ethernet cable to connect the VGA Broadcaster Lite Ethernet port to the Ethernet network. The currently shipping VGA Broadcaster Lite performs on-board compression such that a 100 Mbps network connection should provide enough capacity for effective transmission of video content. Previous versions of VGA Broadcaster Lite performance recommended a GigE network connection. The network must be running the TCP/IP protocol.
4. Connect the power cable to the VGA Broadcaster Lite device.
5. Press the **Power** button on the VGA Broadcaster Lite front panel to turn on the device. The VGA Broadcaster Lite device powers on and the power and image capture activity LEDs light up as the device starts up.
6. Start up the DVI/VGA source.

To confirm that the VGA Broadcaster Lite is receiving images from the DVI/VGA source:

- Check to see if the VGA Broadcaster Lite's red LED is blinking indicating that VGA Broadcaster Lite is capturing images.
- Connect a monitor to the DVI Out port of the Broadcaster – you should see the stream that is being captured on the monitor.
- Log into the Web admin interface and select **Info** to find the **Direct stream URL**.
- Insert the URL displayed in the **Direct stream URL** field in your media player or browser to confirm that a captured image appears.
- Type in the URL for VGA Broadcaster Lite broadcast as displayed into the **Direct stream URL** field in your media player or your internet browser to confirm that a captured image appears. You will need to ensure your media player or browser supports the video format being displayed.

If the red LED does not start flashing, check the source to make sure it is transmitting an image. Also check the cable(s) between the VGA Broadcaster Lite device and the source to make sure it is connected correctly.

Network Discovery Utility to Find IP Address of VGA Broadcaster

You can use the Epiphan Network Discovery Utility on a Windows PC to find the VGA Broadcaster Lite device and its IP address on the network. You can also use the Network Discovery Utility to connect to the VGA Broadcaster Lite Web admin interface.

The VGA Broadcaster Lite device must be assigned an IP address on the network to be able to transmit visual information, and so that participants can view that information. It can get an IP address from a DHCP server if there is one on the network. If the network does not have a DHCP server, see the see the “*If the Network Does Not Have a DHCP Server*” section. This section assumes that the network has a DHCP server and that the DHCP server gives the VGA Broadcaster Lite device an IP address on the network.

To install the Network Discovery Utility

1. Find the latest Network Discovery Utility on a VGA Broadcaster Lite download page:

http://www.epiphan.com/products/broadcasting/VGA_Broadcaster_Lite/documentation/

Alternatively, you can visit http://www.epiphan.com/products/broadcasting/VGA_Broadcaster_Lite/ and navigate to find the documentation section .

2. Select **Download Network Discovery Utility**.
Make sure you note the download destination folder.
3. Run NetworkDiscovery.exe from the destination folder above.
4. Select Search to find the Epiphan devices connected to the network.

Note: The Network Discovery Utility can only find the Epiphan devices on the same network as the Windows PC.

If the VGA Broadcaster Lite device is operating, has received an IP address from a DHCP server, and is connected to the network, the Network Discovery Utility should find it and it should appear on the Network Discovery Utility display.

3. Web admin interface

This chapter describes configuring the Web admin interface options.

Logging into the Web admin interface

Use the Web admin interface to configure the VGA Broadcaster Lite device. You can log into the Web admin interface by:

- Selecting Web Config from the Epiphan Network Discovery Utility (Windows XP, and Vista only).
- Browsing to the VGA Broadcaster Lite admin interface using any web browser. The web browser can be running on Windows, Mac OS X, Linux, or any other operating system.

To log into the Web admin interface you need the VGA Broadcaster Lite IP address. You can obtain the IP address by using the Network Discovery Utility (see "[*Network Discovery Utility to Find IP Address of VGA Broadcaster Lite*](#)") or by contacting your network administrator in order to determine the address assigned to your VGA Broadcaster Lite by your network and/or DHCP server.

Note: You can also log into the Web admin interface by browsing to the default VGA Broadcaster Lite IP address, which is <http://192.168.255.250> (assuming DHCP is off or the network has not assigned a new IP). To log into the VGA Broadcaster Lite using this IP address, you should record the network settings for the workstation so that you can restore them later, then set the workstation you are using to use the static IP address 192.168.255.249 and netmask 255.255.255.252. Once your network settings are configured, open a Web browser and browse to:

```
http://192.168.255.250/admin
```

Disconnect any other Epiphan devices from the network before attempting to connect to the VGA Broadcaster Lite device. Restore the original network settings for your workstation.

To log into the Web admin interface from the Network Discovery

Utility

1. Start the Epiphan Network Discovery Utility and select Search to find the Epiphan devices on the network.
2. Select the VGA Broadcaster Lite device and select Web config. You can log into any device with a status of Device OK. A web browser starts and you are prompted for a user name and password.
3. Enter the following (assuming the admin password has not yet been configured):
User Name: admin
Password: (no password required)
4. To add a Web admin interface password, see [“Adding or Changing the Web admin interface Password”](#).
5. Press **Enter**. The Web admin interface opens.

To log into the Web admin interface using a web browser

Note: The web browser can be running on Windows, Mac OS X, Linux or any other operating system.

1. Start a web browser on any workstation connected to the same network as the VGA Broadcaster Lite device.

2. Browse to:

```
http://<VGA Broadcaster_Lite_IP_address>/admin
```

For example, if the VGA Broadcaster Lite IP address is 192.30.23.45 browse to:

```
http://192.30.23.45/admin
```

Remember to include `“/admin”` at the end of the address or you will access the broadcast rather than the Web admin interface.

3. Enter the following:

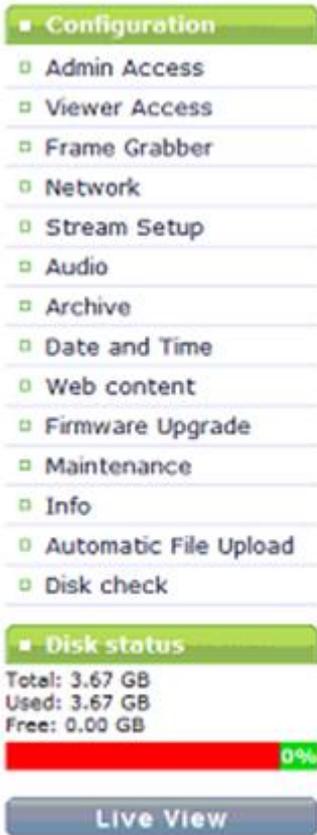
```
User Name: admin
```

```
Password: (no password required, if it is the initial  
factory default setting)
```

To add a Web admin interface password, see *“Adding or Changing the Web admin interface Password”*.

4. Press **Enter**. The Web admin interface opens.

Figure 10. VGA Broadcaster Lite Web admin interface



Use the Web admin interface configuration options to administer and operate the VGA Broadcaster Lite device. Once you have successfully configured your device, you can select **Live View** to view the broadcast.

Admin Access	Change the admin account password. See <i>Adding or Changing the Web admin interface Password</i> .
Viewer Access	Change the viewer account password. See <i>Adding or Changing the Viewer Password</i> .
Frame Grabber	Make Frame Grabber image adjustments. See <i>Configuring Frame Grabber Adjustments</i> .
Network	Change the VGA Broadcaster Lite network configuration. See <i>Changing the Network Configuration</i> .
Stream Setup	Change the stream type, frame size, frame rate, bitrate, stream port, refresh rate and ASF stream information. See <i>Changing Broadcasting Setup</i> .
Audio	Change and adjust the audio input and headphone output. See <i>Configuring Audio</i> .
Archive	Record the broadcast on the internal memory card. See <i>Recording the Broadcast</i> .
Date and Time	Change VGA Broadcaster Lite date and time settings. See <i>Setting the Date and Time</i> .
Web Content	Customize design of the browser where the broadcast is viewed. See <i>Customizing Web Content</i> .
Firmware Upgrade	Upgrade the VGA Broadcaster Lite firmware. See <i>Upgrading the VGA Broadcaster Lite Firmware</i> .
Maintenance	<p>Enable and configure remote support. See <i>Configuring Remote Support</i>.</p> <p>Reboot or shutdown the VGA Broadcaster Lite device.</p> <p>Restore factory configuration. See <i>Using Maintenance Controls</i>.</p> <p>Display information about the VGA Broadcaster Lite Firmware, CPU, Frame Grabber and VGA Mode. See <i>Displaying VGA Broadcaster Lite Information</i>.</p>

Info	Display information about the VGA Broadcaster Lite Firmware, CPU, Frame Grabber and VGA Mode. See <i>Displaying VGA Broadcaster Lite Information</i> .
Disk Check	Set a Maintenance Schedule for checking the VGA Broadcaster Lite solid-state memory for errors.
Disk Status	View the total hard disk space in GB, the used and available hard disk space in GB, and also the amount used as a percentage of the total space.
Live View	View the broadcast

If the Network Does Not Have a DHCP Server

If the network does not have a DHCP server, you need to log into the Web admin interface to change the VGA Broadcaster Lite IP address. To do this, you need to temporarily change the network configuration of the workstation.

You must also establish an Ethernet connection between the VGA Broadcaster Lite device and your workstation. You can do this using one of the following methods:

- Connect the VGA Broadcaster Lite Ethernet port to the same Ethernet network as the workstation.
- Connect the VGA Broadcaster Lite Ethernet port to an Ethernet network switch and connect the workstation's Ethernet port to the same switch.
- Connect the VGA Broadcaster Lite Ethernet port directly to the workstation's Ethernet port. (You can use a regular or crossover Ethernet cable for this connection.)

To log into the Web admin interface

1. Record the network settings for the workstation so that you can restore them later.
2. Change the IP address of the workstation to static IP assignment with the following Address: 192.168.255.249 Subnet Mask: 255.255.255.252

3. Follow the instructions for your operating system. If the operating system supports adding more than one IP address, then you can add this IP address as a second IP address instead of changing the current address.
4. Start a web browser on the workstation and browse to:
`http://192.168.255.250/admin/`
5. Enter the following:

```
User Name: admin  
Password: (no password required)
```
6. Press **Enter**. The Web admin interface opens. To change the VGA Broadcaster Lite IP address, see *"Changing the Network Configuration"*.
7. Don't forget to restore the previous network system on your workstation once you have completed your administration of VGA Broadcaster Lite.

Adding or Changing the Web admin Interface Password

Initial factory settings are such that no password is set in the Web admin interface. For security reasons, you should add a password to control access to the administration interface functions. You can add a password or change the password at any time.

Note: If you lose or forget the admin password you should contact your reseller or Epiphan Technical Support for help to reset the device to factory defaults.

To add a password to the Web admin interface

1. Log into the Web admin interface.
2. Select **Admin Access**.
3. Enter and repeat the new password. The password is case sensitive and can include up to 255 ASCII characters.
4. Select **Apply**. The password changes and after a pause you are prompted to log into the Web admin interface.

5. Log into the Web admin interface with the admin user name and the new password.

Figure 11. Change Administrator's Password

Administrator Access

New administrator password	<input type="password"/>
Retype new administrator password	<input type="password"/>
<input type="button" value="Apply"/>	

To delete the Web admin interface password

You can delete the Web admin interface password if you don't want to require administrators to enter a password to log into the Web admin interface.

Note: Removing the Web admin interface password makes it easier for unauthorized users to change the VGA Broadcaster Lite configuration.

1. Log into the Web admin interface.
2. Select Admin Access. The password fields should be blank.
3. Select Apply without adding characters to the password fields. The password is deleted and after a pause you can log into the Web admin interface with the user name **admin** and no password.

Adding or Changing the Viewer Password

Add a password to control viewer access to the broadcast. You can add a viewer password or change the viewer password at any time.

Note: If you lose or forget the viewer password you replace it with a new password at any time.

To add or change the viewer password

1. Log into the Web admin interface.
2. Select **Viewer Access**.

3. Enter and repeat the new password. The password is case sensitive and can include up to 255 ASCII characters.
4. Select **Apply**. The password changes and you must log into the Web admin interface.
5. Log into the Web admin interface with the admin user name and password.
6. Distribute or communicate the viewer access password to authorized viewers of the broadcast.

Notes:

- The viewer access password is the same for all viewers until it is changed. Any viewer that knows the password will continue to have access until the password is changed.
- It is good practice to change the password each time there is a change in the users that should be authorized to access the broadcast.
- Please contact your network security administrator with respect to password management required for your applications.

Figure 12. Change Viewer's Password



Viewer Access

New viewer password

Retype new viewer password

To delete a viewer password

You can delete the viewer password if you do not want to require viewers to enter a password to access the broadcast.

1. Log into the Web admin interface.
2. Select **Viewer Access**. The password fields should be blank.

3. Select **Apply** without adding characters to the password fields. The password is deleted.

Testing How Participants Log In With a Viewer Password

After you add a Viewer password, participants must obtain the current viewer user name and password in order to log in. User name is always the same: **viewer**. It cannot be changed.

To log in to view the broadcast

Start any web browser.

Using a browser or media player, open the **Open URL** dialog box and enter the IP, DNS or URL address of the VGA Broadcaster Lite device. For example, if the IP address of the device is 192.168.23.45 then browse to: `http://192.168.23.45`

Enter the following:

User Name: viewer

Password: (enter the viewer password)

Press **Enter**. If the VGA Broadcaster Lite device is capturing images and is broadcasting images over the network, the viewer can see the visual information as it is transmitted.

If the administrator changes user password during the broadcast, the broadcast will be interrupted. Users that are already logged in will need to click their Refresh button in the browser or click the Play button in media player. After successfully entering a new password the broadcast will resume.

Configuring Frame Grabber Adjustments

A frame grabber is an electronic device that captures individual still frames from an analog video signal or a digital video stream and transmits them in a digital form. An Epiphan frame grabber is used as a component in the VGA Broadcaster Lite device

and can to be configured separately.

On the Web admin interface, select Frame Grabber to configure Frame Grabber adjustments. The VGA Broadcaster Lite device automatically adjusts image capture settings every time it starts up. The automatic image adjustment is repeated every 60 seconds during operation. You can change the interval between automatic adjustments if you want them to occur more or less often. The capture settings attempt to produce the best quality captured image for the equipment used in your applications.

Normally you would not have to make manual image adjustments. However, you may have special requirements or for other reasons have image quality problems that may only be fixed by making image adjustments.

The Web admin interface contains most of the information that you need to make image adjustments including a brief description of the effect of each adjustment and the adjustment range.

- To make an adjustment, add a value to one or more fields and select Apply.
- To clear any adjustments, delete the value from one or more fields and select Apply. To have changes take effect, you must reboot the VGA Broadcaster Lite device (see *“Rebooting or Restarting VGA Broadcaster Lite”*). You can make more than one change before selecting Apply and rebooting.

Figure 13. VGA Broadcaster Lite Frame Grabber Adjustments

Frame Grabber Adjustments

You could leave any field empty to enable autoconfiguration algorithm for the appropriate parameter

Interval between VGA signal autoadjustments, sec

Frame Grabber analyzes incoming VGA signal with specified time interval. Valid values are from 0-9999 seconds

Vertical shift

From -20 to 20. Positive value shifts image up, negative value shifts image down.

Horizontal shift

From -999 to 999. Positive value shifts image left, negative value shifts image right.

Phase

From 0 to 31.

PLL adjustment

From -999 to 999. Changes number of the pixels in the line.

Offset

From 0 to 63. 0 - brighter, 63 - darker.

Gain

From 0 to 255. 0 - brighter, 255 - darker.

Aspect ratio

Noise filter

HSync threshold

From 0 to 255. Adjusts horizontal sync detection.

VSyn threshold

From 0 to 255. Adjusts vertical sync detection.

EDID upload

Select EDID file

Note: Because Frame Grabber adjustments are made automatically there are no default Frame Grabber adjustment settings.

Interval between VGA signal autoadjustments, sec	Change the interval between automatic adjustments if you want them to occur more or less often. To suspend automatic adjustments, enter 0.
Vertical shift	<p>Configure vertical shift to offset the captured image position. For example, a captured image shifted slightly downward (vertically) can be corrected with minor adjustments to the vertical shift settings.</p> <p>Increasing or decreasing the value entered in the Vertical Shift field shifts the image up or down.</p>
Horizontal shift	<p>Configure horizontal shift to offset the captured image position. For example, a captured image shifted slightly to the right (horizontally) can be corrected with minor adjustments to the horizontal shift settings.</p> <p>Increasing or decreasing the value entered in the Horizontal Shift field shifts the image to the right or left.</p>
Phase	Configure phase (also called sampling phase) to adjust the horizontal resolution of the image. Improperly adjusted phase will result in a fuzzy image. You can adjust the sampling phase in small steps until a sharper image is displayed.
PLL adjustment	Configure PLL to adjust the vertical synchronization properties of the image. The PLL adjustment may need to be changed when there is a repetitive distortion or blurriness on the horizontal axis of the image. You can adjust the PLL setting in small steps until a sharper image is displayed.
Offset	<p>Use the offset and gain controls together to optimize image quality. Increasing offset reduces background noise but also reduces the overall signal.</p> <p>Balance offset and gain to achieve the best quality image. You should adjust these settings by the smallest values possible to</p>

	achieve the best results. You can compensate for a large change to one by making a large change to the other, but setting both offset and gain to high values can result in poorer video quality.
Gain	Use the offset and gain controls together to optimize image quality. Increasing gain amplifies weak signals but also increases noise. Balance offset and gain to achieve the best quality image. You should adjust these settings by the smallest values possible to achieve the best results. You can compensate for a large change to one by making a large change to the other, but setting both offset and gain to high values can result in poorer video quality.
Aspect ratio	<p>Set the aspect ratio of the captured image. The default aspect ratio is 4:3. You can change the aspect ratio to wide mode so that the VGA Broadcaster Lite device can accurately capture wide aspect ratio modes.</p> <p>It's not always possible for the Epiphan device driver to distinguish between video modes when they have the same number of rows, for example, 1024x768 and 1280x768. You can change the aspect ratio to Wide Mode if you want the driver to choose wide video mode in these situations.</p>
Noise filter	This settings allows you to adjust noise filter performance
HSync threshold	Adjusts horizontal sync detection.
VSyn threshold	Adjusts vertical sync detection.
Select EDID file	Browse to the Extended display identification data (EDID) file to upload it. It describes the capabilities of the digital display to a video source.

Changing the Network Configuration

You may want to change the VGA Broadcaster Lite network configuration:

- If the network does not have a DHCP server.
- If the network does have a DHCP server but you want the VGA Broadcaster Lite device to have a static IP address.
- If the VGA Broadcaster Lite device is using the DHCP server-assigned IP address, but you want to change the IP address. If for some reason the DHCP server goes down you can log into the VGA Broadcaster Lite Web admin interface and change the IP address.
- If you have previously configured the VGA Broadcaster Lite device to use a static IP address and want to change some network settings or revert back to using DHCP.

For network changes to take effect you must reboot the VGA Broadcaster Lite device after making the changes. See *“Rebooting or Restarting VGA Broadcaster Lite”*.

Note: If you change the IP address you will need to remove the VGA Broadcaster Lite device from the Network Discovery Utility and then select Search to find it again.

Note: You can also see the VGA Broadcaster Lite MAC address on the Network Configuration page. Providing the MAC address to your network administrator may be helpful for managing your network.

To set the VGA Broadcaster Lite to use a static IP address

1. Log into the Web admin interface.
2. Select **Network**.
3. Select **Use static address**.
4. Enter an IP Address, Network Mask, Default Gateway, and DNS Server that are valid for your network. Note: Clarify that this gateway setting is the gateway of your local LAN (i.e. local router). Contact your network administrator if you are not sure what information to use. The IP address, Network Mask, Default Gateway, and DNS Server that you assign must be compatible with your network.

Figure 14. *Change the VGA Broadcaster Lite IP address*

IP Configuration for eth0

MAC address is 00:0a:9d:04:08:41

Current IP address is 192.168.1.96

Use DHCP

Use static address

IP Address	<input type="text" value="192.168.10.1"/>
Network Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text"/>
DNS Server	<input type="text"/>

Apply eth0 IP settings

For example:

IP: 192.168.1.20

Mask: 255.255.255.0

Gateway: 192.168.1.2

DNS server: 192.168.1.99

5. Select **Apply** to save these changes.
6. Select **Maintenance**.
7. Select **Reboot Now**.
8. It takes a few minutes for the VGA Broadcaster Lite device to reboot.
9. After a few minutes log into the Web admin interface by browsing to its new IP address. For the example above, browse to: <http://192.168.1.20/admin/>
10. Enter the Web admin interface user name and password to login.

To reset network settings to use DHCP

By default, if you connect the VGA Broadcaster Lite device to a network with a DHCP

server, the DHCP server will automatically configure the network settings. If required you can disable DHCP settings and use a static IP address. This procedure describes how to re-enable DHCP settings that have been disabled.

1. Log into the Web admin interface.
2. Select **Network**.
3. Select **Use DHCP**.
4. Select **Apply** to save these changes.
5. Select **Maintenance**.
6. Select **Reboot Now**. It takes a few minutes for the VGA Broadcaster Lite device to reboot.
7. After a few minutes log into the Web admin interface by browsing to its new IP address. For example, browse to: <http://192.168.23.107/admin/>
8. Enter the Web admin interface user name and password to login.

Configuring Remote Support

The VGA Broadcaster Lite device uses remote support settings to communicate with the Epiphan maintenance server. When enabled, communicating with the maintenance server allows Epiphan to review the device configuration, firmware version, and other basic operating parameters. If the VGA Broadcaster Lite device is having problems and you contact Epiphan Support, the support team can use this maintenance information to help remotely troubleshoot the problems.

Note: The VGA Broadcaster Lite device does not send private information to the Epiphan maintenance server, just basic operation and configuration information. The amount of traffic sent to the Epiphan maintenance server is small and should not affect the network or Internet throughput.

By default, communication with the Epiphan maintenance server uses TCP port 30. The default address of the Epiphan maintenance server is `epiphany.epiphan.com`. The VGA Broadcaster Lite device must be able to find a DNS server to resolve the default address and then must be able to connect to this address on the Internet using TCP port 30. If the VGA Broadcaster Lite network settings are set to use DHCP, it gets the address of the DNS server from the DHCP server. If network settings are set to use a static IP address, you must enter the IP address of the DNS server. You can get this IP address from your network administrator.

If you have a firewall or some other device protecting the network from the Internet and you would like to enable remote support, the configuration of this device may have to be changed for the VGA Broadcaster Lite device to connect to the Epiphan maintenance server. Contact your network administrator for assistance.

Use the Maintenance section in the Web admin interface to access the Remote support settings:

Figure 15. Remote Support Configuration

Maintenance

Enable remote support

Enable connection to maintenance server

Maintenance server

Server Address

Server Port

Apply

You can change the following remote support settings. Remote support is enabled by default.

Enable Remote Support	Allow Epiphany Support to log into the VGA Broadcaster Lite device with special access privileges to troubleshoot problems.
Enable connection to maintenance server	The VGA Broadcaster Lite device establishes an outgoing TCP connection to the Epiphany maintenance server using TCP port 30. Using this connection, the device sends information to the Epiphany maintenance server and Epiphany Support can use this connection to remotely log into the device.
Server Address	The address of the Epiphany maintenance server. This address is usually epiphany.epiphany.com. However, you can change this address if required, (but usually only as recommended by Epiphany Support). For example, you may have to change this address to a numeric IP address if your VGA Broadcaster Lite device cannot connect to a DNS server.

You can enable and disable remote support and the connection to the maintenance server independently.

The following table describes the results of different configurations:

Enable Remote Support	Enable Connection to Maintenance Server	Result
Yes	Yes	The VGA Broadcaster Lite device connects to the Epiphan maintenance server. If required, Epiphan Support can remotely connect to the device with special access privileges.
No	Yes	The VGA Broadcaster Lite device connects to the Epiphan maintenance server. Epiphan Support can remotely connect to the Web admin interface with the same access privileges as an administrator.
Yes	No	The VGA Broadcaster Lite device does not connect to the Epiphan maintenance server. If required, Epiphan Support can remotely connect to the device with special access privileges. If you provide remote access to your network in some other way (for example, using port forwarding). Contact Epiphan Support for assistance.

Please contact your network security administrator to review your security settings for VGA Broadcaster Lite.

Changing Broadcasting Setup

VGA Broadcaster Lite supports broadcasting of various standards and formats. Your choice will depend on the application and performance requirements. Browser/viewer capabilities and compatibilities are subject to change. The video stream format is

selected by an administrator and users view the broadcast in this format. It is possible to use multiple VGA Broadcaster Lite devices with different settings for different browsers/media player capabilities.

You can set the VGA Broadcaster Lite device to stream video using Flash (H.264), ASF (MPEG4 or H.264 codecs), Motion JPEG or RTSP (MPEG4 or H.264 codecs).

- The **Adobe Flash Video file type** is proprietary but is supported on most web browsers and on many media players including the VLC Media Player. This file type supports H.264 standard.
- The **Advanced System Format (ASF) file type** (also called advanced streaming format) can be viewed with the Windows Media Player or the VLC Media Player. You may need to install a codec to view ASF files. This file type supports H.264 and MPEG4 standards.
- The **Motion JPEG file type** records each frame in the video in JPEG format and can be viewed using most web browsers.
- The **RTSP type** supports many media players including QuickTime and MPlayer. This file type supports H.264 and MPEG4 standards.

Media Player, Browser, Viewer capabilities and compatibilities are subject to change.

Show time label	Define how whether video should be time labeled and how (only date, only time, date and time, time and ms, date, time and ms).
Stream type	You can select Flash (H.264), ASF (MPEG4 or H.264 codecs), Motion JPEG or RTSP (MPEG4 or H.264 codecs).

	<p>Flash video (H.264) and Motion JPEG can be viewed on many operating systems and web browsers. ASF can be viewed with the Windows Media Player on Windows systems, and the VLC Media Player on Windows and other operating systems. RTSP supports many media players including QuickTime and MPlayer.</p> <p>For streaming over HTTP you can select any stream type except for RTSP.</p> <p>For RTP streaming use the Specific Stream Settings section described below.</p>
Video encoding preset	Define whether video stream should be encoded at a high quality, high speed or according to the default system settings
Video encoding profile	<p>You can select encoding profiles targeting specific classes of applications:</p> <ol style="list-style-type: none"> 1. Baseline: for applications requiring additional data loss robustness, e.g. videoconferencing 2. Main: for standard-definition broadcasts 3. High: for broadcast and disc storage applications
Frame size	You can select a Frame size from the drop down list to limit the width and height of the video image. If the video source is sending resolutions larger than the resolution limit they will be scaled to the resolution limit. Limiting the file resolution can help to reduce bandwidth usage.
Key frame interval	Controls the number of seconds between key frames. Key frame defines the starting and ending points of any smooth transition.
Limit frame rate	Enter a value (frames per second) in the Limit frame rate field to set a frame rate that is lower than the maximum frame rate at which the VGA Broadcaster Lite device can capture images. You can reduce the frame rate to reduce

	the number of images captured by the device. You may want to reduce the frame rate to reduce network usage.
Bitrate	You can enter a Video bitrate. A lower bitrate produces lower quality videos and smaller file sizes. A higher bitrate produces better quality videos and larger file sizes.
Rate control mode	Select a setting from the drop down list to set how important it is for the VGA Broadcaster Lite device to maintain the Bitrate setting. You can select Relaxed to allow the bitrate to increase temporarily to maintain image quality. Select Balanced to balance the bitrate restriction and the image quality. Select Strong to maintain the bitrate restriction and temporarily reduce the image quality.
Stream port	<p>You can enter a port number for the internal streaming server. The default streaming port is 1881.</p> <p>You might want to change the stream port if port 1881 is used by other services on your network or if you do not want to add a port forwarding configuration for a port other than port 1881 to your router or firewall. You can change the stream port to any port between 1000 and 65535 except 5557 or any port used by another Internet service. For example, you can't change the stream port to 80 because 80 is the port used by HTTP.</p> <p>If you change the stream port, you must configure port forwarding on your router or firewall for the changed port. See <i>Enabling Access to the Broadcast from the Internet</i>.</p>
Enable audio	Select this checkbox to enable audio settings for the broadcast.
Audio format	You can select either MP3 or Raw PCM (Pulse Code Modulation) formats.
Audio sample rate (Hz)	Number of samples per second that are used to digitalize a particular sound
Audio channels	You can select either mono (1 channel) or stereo (2

	channels) sound
Audio bitrate	Select audio bitrate value for the broadcast

Specific Stream Settings

Parameters that are available in this section are displayed depending on the selected video stream and, in some cases, codec.

Particularly you need to configure these settings in order to send a unicast or multicast stream to the IP address of the server on specific ports. Sending a stream to Content Delivery Network (CDN) also requires configuring these parameters. Once the video and audio encoding parameters above are configured, the parameters specific to the selected video stream type should be setup if necessary.

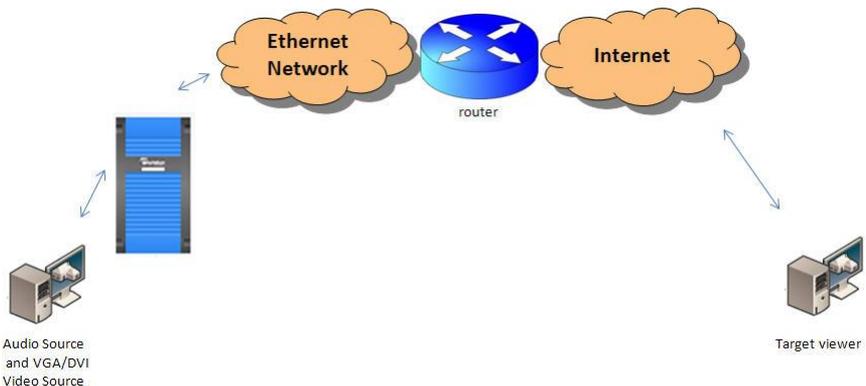
Page refresh time (available if Motion JPEG stream type is selected)	Specify how often the browser updates the visual information coming from the Broadcaster, i.e. how often the page is refreshed.
Quality parameter (available if Motion JPEG stream type is selected)	This parameter is similar to bitrate. Use bigger values to provide better quality of the broadcast.
Title (available if ASF or Flash video stream type is selected)	Specify the stream's title to be displayed on the media player interface.
Author (available if ASF or Flash video stream type is selected)	Specify the author's name to be displayed on the media player interface.
Copyright (available if ASF or Flash video stream type is selected)	Specify the copyright details to be displayed on the media player interface.
Comments (available if ASF or Flash video stream type is selected)	Specify comments if necessary to be displayed on the media player interface.
Enable RTP/UDP stream (available if RTSP video stream type is selected)	Select this checkbox to enable RTP/UDP settings.
Enhanced compatibility mode (available if RTSP (MPEG-4 codec) video stream)	This parameter provides operating stability, if transmitted video/audio stream

type is selected)	is not quite supported by the viewer's equipment (only for H.264).
Destination IP (available if RTSP video stream type is selected)	The IP address that receives the stream.
Audio port (available if RTSP video stream type is selected)	Configure video port for the stream
Video port (available if RTSP video stream type is selected)	Configure audio port for the stream

Different Stream Distribution Architecture Methods

Broadcaster Lite can support stream over HTTP, RSTP, unicast RTP, multicast RTP and content distribution network (CDN) broadcast network streaming architectures.

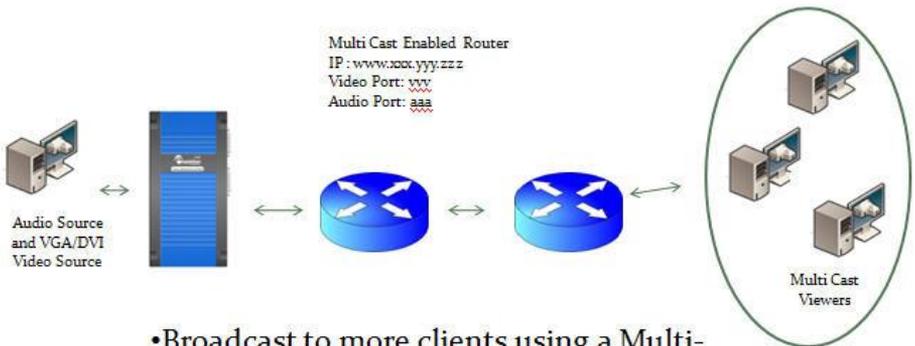
A **unicast** stream is used for a one-to-one node connection. In this scenario, a logical connection is established with a single client node. It does not require a request from the viewer to start sending data. Only one copy of the data is sent. The multimedia stream is always sent to the specified IP address. Unicast transmission is available during RTP streaming.



To configure unicast transmission:

1. Select the Enable RTP/UDP stream checkbox.
2. Use the Destination IP field to enter the IP address of the target host.
3. Fill in other fields as required.

A **multicast** stream provides one-to-many communication over an IP infrastructure in a network. In a Multicast configuration the Broadcaster Lite sends a packet only once to a router that supports multicasting, and this router distributes the packets to client nodes using a multi-cast protocol. Sending multicast stream requires equipment that supports multi-casting, configuring your network and special Broadcaster settings. Multicast architectures are used predominantly within a high bandwidth corporate LAN and not on Internet based architectures. Multicast RTP stream is not usually propagated outside the LAN (though it may be propagated through VPNs connecting several LANs). Multicast transmission is available during RTP streaming.



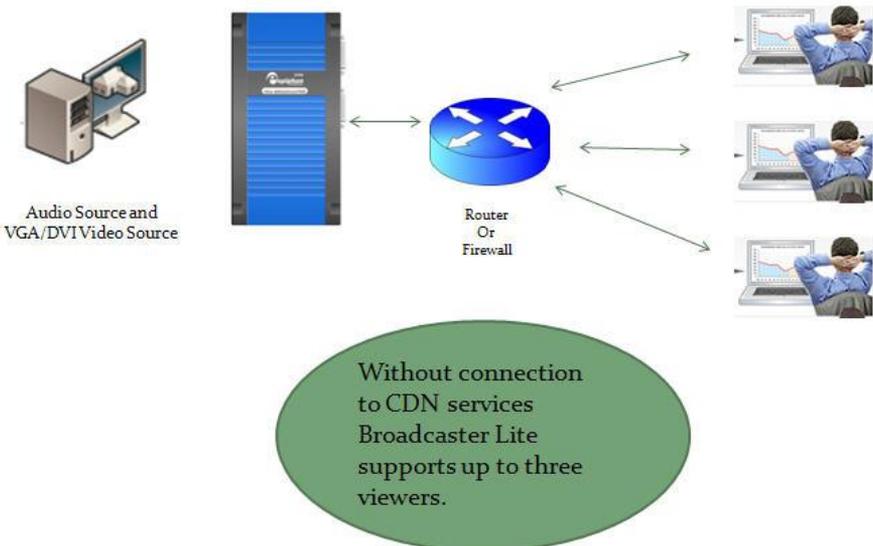
- Broadcast to more clients using a Multi-cast router
 - Configure IP and port numbers to stream broadcast through a multi-cast service

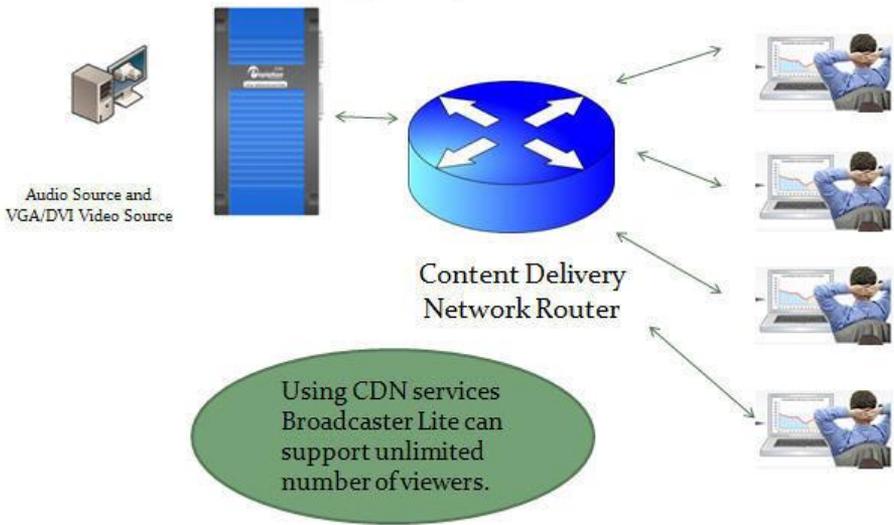
To configure multicast connection:

1. Select the Enable RTP/UDP stream checkbox.
2. Use the Destination IP field to enter the IP multicast group address.

3. Fill in other fields as required.

Content Delivery Networks. During streaming over HTTP or RTSP streaming all data is duplicated to each connected client. Therefore, only up to 3 clients can access the broadcast. All they need to know is a URL of the broadcast. For this purpose you can use VGA Broadcaster out of the box, without any additional settings. If you would like to send a stream to multiple users, it is necessary to configure VGA Broadcaster Lite to the special type of client, called Content Distribution Network (CDN). It is recommended to use CDN provider StreamZilla (www.streamzillacdn.com). CDN then redistributes the stream for multiple viewers. Serving viewer through the CDN significantly increases the maximum number of concurrent clients, while reducing the load on the uplink internet connection. Effectively, this type of data transmission is very similar to unicast - you should specify IP address of CDN provider as a stream receiver.





To configure connection to a CDN provider:

1. Select the Enable RTP/UDP stream checkbox.
2. Use the Destination IP field to enter the IP address provided by CDN provider.
3. Fill in other fields as required.

To set the Video Stream type

1. Log into the Web admin interface.
2. Select Flash (H.264), ASF (MPEG4 or H.264 codecs), Motion JPEG or RTSP (MPEG4 or H.264 codecs).
3. If you have set **Stream type** to Flash Video (H.264) or Motion JPEG, you can enter a value for Page refresh time.
4. If you have set **Stream type** to Flash Video (H.264), RTSP or ASF stream,

you can Enable audio.

- If you have set **Stream type** to ASF, you can enter information in the Title, Author, Copyright and Comments fields under ASF stream info.

Note: VGA Broadcaster Lite can broadcast only one format at a time. For broadcasting multiple formats you need to install one VGA Broadcaster Lite for each format you want to support.

Configuring Audio

Configure audio settings to control audio inputs. All available formats support audio except Motion JPEG.

Figure 16. VGA Broadcaster Lite audio configuration

Audio Configuration

Input Amplifier Volume	<input type="text" value="100%"/>
Microphone 20dB boost	<input type="checkbox"/>
Input Source	<input type="text" value="Mic"/>
Headphones Amplifier Volume	<input type="text" value="50%"/>
<input type="button" value="Apply"/>	

Input Amplifier Volume	Reduce the input volume if the line in signal volume is too high for the VGA Broadcaster Lite line in amplifier. The default input amplifier volume setting is 100%. If the input volume is too high, change the setting to between 5% and 90% to reduce the input volume.
Microphone	Increase the VGA Broadcaster Lite microphone's power. Select this

20dB boost	option to increase the recording volume if the volume is very low. Disable microphone boost if loud sounds cause problems such as distortion or clipping while recording.
Input Source	Select the audio input source. For microphone input select Mic and connect a microphone to the device's microphone port. For line in input select Line and connect a line in audio input to the Line in port on the back of the device.

Recording the Broadcast

You can record the broadcast using the internal solid state memory. The system will perform recording to one or more files according to the time and file size limit parameters. It will automatically create and start recording to a new file whenever the earlier of a limit is reached.

Channel → Recorder

Recorder enabled

Time limit:

Size limit:

Recorded files

File Name			Start	End	Duration	File Size
Channel-1_Dec06_06-20-53.avi			Dec 6, 06:20:53	Dec 6, 06:20:56	0m 3s	2.23 MB
Channel-1_Dec06_06-20-48.avi			Dec 6, 06:20:48	Dec 6, 06:20:53	0m 5s	5.04 MB
Channel-1_Dec06_06-20-43.avi			Dec 6, 06:20:43	Dec 6, 06:20:48	0m 5s	5.01 MB
Channel-1_Dec06_06-20-38.avi			Dec 6, 06:20:38	Dec 6, 06:20:43	0m 5s	5.01 MB

Broadcaster enabled	Select this checkbox to start recording.
Time limit	Specify the record duration.
Size limit	Specify the size of the recorded file. When either of the limits (time or size) is exceeded, the system starts recording data in another file.

The archive lists all video files recorded by VGA Broadcaster Lite and saved on the device. For each file, the list includes the name of the file, its status, start and end times, duration, and size in MB. Each video file entry on the list also includes icons that you can use to download, delete or rename the file.

Setting the Date and Time

You can set date and time manually or you can enable Time synchronization. Enable Time Synchronization to update the date and time by using a time server. You can select NTP, to get date and time updates from a public network time protocol (NTP) server by connecting to the server over the Internet. NTP uses UDP port 123. The default NTP server is time.nrc.ca. You should change this to an NTP server recommended for your location (available from your network administrator).

Figure 17. Date and Time Configuration

Date and Time

Time Zone

Enable time synchronization

Protocol

Server IP Address

Update interval

Set time manually

Date (yyyy-mm-dd)

Time (hh:mm:ss)

RTC calibration:

(-31..+31).

Negative numbers slow the clock up to 5 sec/day, positive numbers speed up the clock up to 10 sec/day.

Time Zone	Select the appropriate time zone
Enable time	This parameter enables time synchronization with the

synchronization	defined server
Protocol	Select the time protocol
Server IP Address	Enter the IP address of the time server
Update interval	Specify frequency of time synchronization
Set time manually	This parameter enables manual time setting
Date (yyyy-mm-dd)	Specify the date
Time (hh:mm:ss)	Specify the time
RTC calibration: (-31..+31).	This field allows RTC calibration – slowing or speeding the clock up to 10 sec/day.

For complete information about NTP including a list of recommended NTP servers, see [The NTP Public Services Project](#). To make sure you get the correct time from an NTP server you should select the correct Time Zone for the location of your VGA Broadcaster Lite device.

If the VGA Broadcaster Lite device cannot connect to the Internet and if there is an RDATE server on the network, you can set time synchronization to use RDATE (defined by [RFC 868](#)). Contact your network administrator for the address of the RDATE server and enter the RDATE server IP address into the Server IP Address field.

In both cases, you can control how often the date and time are updated. The Time Update interval can be every 1, 6, 12, or 24 hours.

Customizing Presentation and Web Content

This option allows you to customize design of the Web browser where the broadcast is viewed. For example, you can add the event's name, company logos etc.

To customize the design you need to create an .xsl file using XML document formatting.

Templates	Available template files are displayed. To select a template, click a radio button near its name. Then click Apply,
Other files	Files that were uploaded and used during template creation are displayed.
Upload files/templates	Browse to the template or file you need to upload and click Upload.

Figure 18. Web Presentation and Content options

Templates

- [default.xsl](#)
 [default_pro.xsl](#) [Remove](#)
 [default_pro_m.xsl](#) [Remove](#)
-

Other files

[img.jpg](#) 549365 December 01 2010 03:22:08 [Remove](#)
[test.sh](#) 24 December 01 2010 03:22:16 [Remove](#)

Upload files/templates

File/template to upload:

Upgrading the VGA Broadcaster Lite Firmware

You can obtain new firmware versions from Epiphan Support. New firmware is released to fix known problems or to add new features.

Figure 19. VGA Broadcaster Lite firmware upgrade

Firmware Upgrade

Current firmware version: 3.7.7

Select firmware upgrade file

DO NOT interrupt or power down the VGA Broadcaster Std until after the update is completed.

To install new firmware

Installing new firmware can take several minutes. Once you start a firmware upgrade, the VGA Broadcaster Lite device cannot display captured images until the firmware upgrade is complete.

Note: Do not interrupt or power down the VGA Broadcaster Lite device during the firmware update.

1. Get the new firmware file from Epiphan Support.
2. Place a copy of the firmware file on the workstation you use to connect to the Web admin interface.
3. Log into the Web admin interface.
4. Select **Firmware Upgrade**.
5. Select **Browse** and then select the firmware file.
6. Select **Apply**. The firmware uploads to the VGA Broadcaster Lite device. The device unpacks the firmware update file, verifies the contents and then upgrades the firmware.
7. To complete the firmware upgrade you must reboot the VGA Broadcaster Lite device. See *“Rebooting or Restarting VGA Broadcaster Lite”*.
8. Log into the Web admin interface and confirm that the VGA Broadcaster Lite device is running the new firmware version by selecting Info and viewing the firmware version.

Note: In case firmware update fails you can restore the factory configuration as it is

explained in the following section (“Using Maintenance Controls”).

Using Maintenance Controls

On the Web admin interface, select **Maintenance** to perform operations such as restoring the factory configuration, and rebooting or shutting down the device.



Restoring the VGA Broadcaster Lite Default Factory Configuration

Select **Restore** beside Restore Factory Configuration to reset the Broadcasting and Frame Grabber settings. The factory default configuration is the configuration that the VGA Broadcaster Lite device had when you received it from Epiphan. It can be useful to return the VGA Broadcaster Lite device to this configuration if you have made a number of configuration changes that you want to reverse.

Restoring the factory configuration can also help with troubleshooting. If after making a number of configuration changes you notice problems and you are not sure which change is causing the problems, you can restore the Factory Configuration and start over.

Note: You can also press the reset button on the VGA Broadcaster Lite device to return the device to its original Factory defaults including resetting the passwords and IP Address. See “[VGA Broadcaster Lite Hardware Features](#)” for information on the location of the reset button.

Rebooting or Restarting VGA Broadcaster Lite

Many VGA Broadcaster Lite configuration changes require you to reboot the VGA Broadcaster Lite device. For an example, see *“Changing the Network Configuration”*.

To reboot or restart the VGA Broadcaster Lite

1. Log into the Web admin interface.
2. Select **Maintenance**.
3. Beside Reboot select **Reboot now**.

The VGA Broadcaster Lite device takes a short time to reboot and resume operation.

Shutting Down the VGA Broadcaster Lite Device

Shut down VGA Broadcaster Lite to take the device off the network without disconnecting the power.

To shut down the VGA Broadcaster Lite device,

1. Log into the Web admin interface,
2. Select Maintenance, and
3. Beside Shut down select Shut down now.

The VGA Broadcaster Lite device shuts down. Now you cannot log into the Web admin interface or view captured images. At the same time the Network Discovery Utility will not find the VGA Broadcaster Lite device on the network. To restart the VGA Broadcaster Lite device you must disconnect and reconnect the power.

Automatic File Upload

You can use automatic file upload to automatically copy video files from the VGA Broadcaster Lite device to another device on your network. You could do this if you want to make the video files available to be viewed from a location other than the VGA Broadcaster Lite device or to automatically prepare video files to be archived after they are recorded.

Note: If you have configured automatic file upload you can temporarily disable it by clearing the **Enable Automatic File Upload** checkbox and selecting **Apply**.

Automatic File Upload

Enable Automatic File Upload

Protocol:

How often:

Remote path:

Remove after upload

Mark file as downloaded

Enable Automatic File Upload	Select this checkbox to enable automatic file upload functionality
Protocol	Select a client for upload
How often	Select how often video files are uploaded. If you select On file rotation , the VGA Broadcaster Lite device uploads each video file after it stops recording the current video file and starts recording the next one. You can also configure the VGA Broadcaster Lite device to upload all video files every 1, 6, 12, or 24 hours.
Remote path	Set remote path to the path on the upload

	server to upload the video files to. This path must match an actual path on the server. If you don't enter a path the files are uploaded to the root location.
Remove after upload	Select the checkbox to delete all video files on VGA Broadcaster Lite after uploading them.
Mark file as downloaded	Select the checkbox to keep the files on VGA Broadcaster Lite after uploading copies to the server.

You can configure automatic uploading of video files to a CIFS server (a Windows share), an rsync server, or an FTP server. Before configuring automatic file upload you need to select the server that you are going to use.

To configure automatic video file uploads:

1. Log into the Web admin interface as an administrator.
2. Select **Automatic File Upload**.
3. Configure the VGA Broadcaster Lite device to communicate with the upload server:
 - If the upload server is a CIFS server (for example, a Windows shared folder), select and configure CIFS Client. See Configuring the CIFS Client.
 - If the upload server is an rsync server, select and configure RSync. See Configuring the RSync Client.
 - If the upload server is an FTP server, select and configure FTP Client. See Configuring the FTP Client.
4. Select **Enable Automatic File Upload**.
5. Set Protocol to FTP Client, RSync Client, or CIFS client depending on what you configured.

6. Select how often video files are uploaded. If you select **On file rotation** value from the drop-down menu, the VGA Broadcaster Lite device uploads each video file after it stops recording the current video file and starts recording the next one. You can force a file rotation by clicking **Reboot Now** button in the **Maintenance** section. You can also configure the VGA Broadcaster Lite device to upload all video files every 1, 6, 12, or 24 hours.
7. Set **Remote Path** to the path on the upload server to upload the video files to. This path must match an actual path on the server. If you don't enter a path the files are uploaded to the root location.
8. Select the **Remove after upload** checkbox to delete all video files on the VGA Broadcaster Lite after uploading them.
9. Select the **Mark file as downloaded** checkbox to keep the files on the VGA Broadcaster Lite device after uploading copies to the server. On the Web admin interface the download icons for the uploaded files change to .
10. Select **Apply**.

The automatic file upload configuration changes. The VGA Broadcaster Lite device starts copying video files to a configured server. The first copy is made after the time period set in **how often**. For example, if VGA Broadcaster Lite is set to upload files every hour, the first set of files is uploaded after one hour. If 5 video files are saved in the first hour, those 5 video files are uploaded. One hour later, all of the video files saved since the start of that hour are uploaded.

Note: Video files saved before you selected **Apply** are not uploaded.

Note: You can manually upload the files saved before you configure automatic file upload.

Testing Automatic File Upload

You can test automatic file upload to make sure your automatic file upload and CIFS, rsync, or FTP client settings are correct.

To test automatic file upload

1. Confirm that the upload server is operating.
2. Start recording a video file.
3. In the **Automatic File Upload** section of the Web admin interface set the **How Often** setting to **On file rotation**.
4. Click the **Reboot Now** button in the **Maintenance** section. The currently recording video file should be saved and then uploaded using the configured client. For example, if the **Protocol** field value in the **Automatic File Upload** section is set to **FTP**, the video file should be uploaded to the FTP server added to the FTP Client configuration.
5. Check the server to confirm that the most recently saved video file has been uploaded to it.

If the file is not uploaded, verify that the client configuration and Automatic File Upload configuration settings are correct. For example, you may have added the wrong path, user name, password or other setting to the client configuration. It is also possible that the server is not functioning or has a configuration error.

If the **Remove after upload** checkbox is selected, the most recently saved video file should have been deleted from the archive. If the **Mark file as downloaded** checkbox is selected, the most recently saved video file download icon should be  .

Configuring the CIFS Client

Use the CIFS client configuration if you want the VGA Broadcaster Lite device to behave as a CIFS client connecting to a CIFS server (such as a Windows shared folder) to upload video files..

Note: Different networks may have different CIFS server configurations. If required, contact your network administrator for assistance with getting the VGA Broadcaster to connect to the server. Depending on your CIFS server configuration you may not have to enter information in every field.

CIFS Upload

Server port:

Server address:

Server share:

Domain:

Login:

Password:

To configure the CIFS client

1. Log into the Web admin interface as an administrator.
2. Select the **Automatic File Upload** section.
3. Select **CIFS Client**.
4. Select **Enable Automatic File Upload** to enable connecting to a CIFS server.
5. Enter a Server Port if the CIFS server uses a non-standard port. If your CIFS server uses standard ports you should not have to add any information to this field. If your server uses non-standard ports or looks for a non-standard port first, enter the port number in this field.
6. Enter the Server address. This can be the numeric IP address or fully qualified domain name of the CIFS server.
7. Enter Server share which is the CIFS share name or the name of the Windows shared folder on the CIFS server.
8. If required, enter the name of the CIFS Domain. The Domain can be a Windows Domain or Work Group name.
9. Enter the Login and Password required to authenticate with the CIFS server to connect to the server share.
10. Select **Apply**.

The VGA Broadcaster Lite device attempts to connect to the CIFS server. The Web admin interface displays messages about whether the VGA Broadcaster Lite device was able to connect to the CIFS server and the status of the connection.

Configuring the RSync Client

Use the RSync client configuration if you want the VGA Broadcaster Lite device to behave as an rsync client connecting to an rsync server to upload video files.

Note: Different networks may have different rsync server configurations. If required, contact your network administrator for assistance with getting the VGA Broadcaster to connect to the server.

RSync

Server address:	<input type="text"/>
Server module:	<input type="text"/>
Login:	<input type="text"/>
Password:	<input type="text"/>
<input type="checkbox"/>	Checksum
<input type="button" value="Apply"/>	

To configure the RSync client

1. Log into the Web admin interface as an administrator.
2. Select the **Automatic File Upload** section.
3. Select **RSync Client**.
4. Select **Enable Automatic File Upload** to enable connecting to a CIFS server.
5. Enter a Server Port if the CIFS server uses a non-standard port. The standard rsync port is TCP 873.
6. Enter the Server IP address.
7. Enter Server module which is a directory on the Rsync server.

8. Enter the Login and Password required to authenticate with the RSync server to connect to the server share.
9. Select the **Checksum** checkbox to enable computing checksums algorithm applied during file synchronization between sender and recipient servers.
10. Select **Apply**.

Configuring the FTP Client

Use the FTP client configuration if you want the VGA Broadcaster Lite device to behave as an FTP client connecting to an FTP server to upload video files.

Note: Different networks may have different FTP server configurations. If required, contact your network administrator for assistance with getting the VGA Broadcaster Lite to connect to the server.

To configure the FTP client

1. Log into the Web admin interface as an administrator.
2. Select the **Automatic File Upload** section.
3. Select **FTP Client**.
4. Select **Enable Automatic File Upload** to enable connecting to an FTP server.
5. Enter a Server Port if the FTP server uses a non-standard port. The standard rsync port is TCP 21.
6. Enter the Server IP address.
7. Enter the Login and Password required to authenticate with the FTP server to connect to the server share.
8. Select **Apply**.

Displaying VGA Broadcaster Lite Information

Select **Info** on the Web admin interface to display the following VGA Broadcaster Lite system information:

- The current firmware version including the version number and details of the firmware build.
- The VGA Broadcaster Lite system CPU details.
- The Frame Grabber installed in the VGA Broadcaster Lite device.
- The Frame Grabber VGA mode information.

This information is also displayed when you first log into the Web admin interface.

Figure 21. VGA Broadcaster Lite system information

VGA Broadcaster Davinci info

Firmware

```
FIRMWARE_VERSION=2.1.20
FIRMWARE_BUILD_HOST="tochilka 2.6.31-17-server"
FIRMWARE_BUILD_DATE="2010-11-11"
FIRMWARE_PLATFORM=VGA2CPU_DM365
FIRMWARE_ARCH=arm
```

Services status

```
Encoder: up 5066 seconds
Broadcaster: up 5068 seconds
```

Stream info

```
Actual encoder frame rate: 22.8
Live broadcast: http://172.30.209.114/preview.cgi
Direct stream URL: http://172.30.209.114:1881/vgabroadcaster.flv
```

Connections

Stream name	Client IP	Bitrate	Bytes transmitted
vgabroadcaster.flv	172.30.209.161	1744	1068671 KBytes

VGA mode

```
2C 03 18 0A 00 50
00 04 00 03 15 25 01 00
02 10 80 F9 DF 8E 1F 1B 00 00 00 00 00 00 00 00 00 00 00 00 00
```

Disk Check

You can setup disk maintenance schedule for checking the Broadcaster hard disk for errors. The hard disk maintenance schedule includes running a disk check after a configured number of device restarts and after a configured number of months of operation. At any time you can also select **Check disk now** to check the hard disk.

Enter the number of the Broadcaster restarts and the number of months. The system will perform disk check depending on these parameters, whichever is earlier.

The actual disk check will be run the next time the Broadcaster restarts. The disk check occurs during system startup and can cause a lengthy delay in starting up the device.

Selecting **Check disk now** causes the device to stop recording and to check the disk immediately. The disk check can take a few minutes. The device automatically resumes recording after the disk check is complete. Results of the disk check are not displayed unless an error is found that cannot be corrected.

Disk maintenance

Disk maintenance schedule

Number of VGA Broadcaster Davinci restarts before disk check is forced.
0 means do not force disk check.

Number of months before disk check is forced on the next VGA Broadcaster Davinci restart.
0 means do not force disk check.

Check disk now

You can start disk check immediately. Recording will be stopped and resumed after the check is completed.

Disk Status

In **Disk status** section (under **Disk check**), you can view the total amount of space available on the Broadcaster solid state memory in GB, the used and available space in GB, and also the amount used as a percentage of the total amount of space on the disk.

4. Viewing the Broadcast

Before viewing the broadcast make sure your network settings are properly configured.

How to View Broadcast on Media Players

1. Launch a media player.
2. Use the Menu bar to open the **Open URL** dialog box and enter the IP, DNS or URL address of the VGA Broadcaster Lite device. For example, if the IP address of the device is 192.168.23.45 then browse to: http://192.168.23.45
3. Enter the following:

User Name: viewer

Password: (enter the viewer password)

4. Press **Enter**.

How Participants Log In With a Viewer Password

If the administrator has configured a Viewer password, participants must obtain the current viewer user name and password in order to log in. User name is always the same: **viewer**. It cannot be changed.

To log in to view the broadcast

Start any web browser.

Browse to the IP, DNS or URL address of the VGA Broadcaster Lite device. For example, if the IP address of the device is 192.168.23.45 then browse to:

http://192.168.23.45

Enter the following:

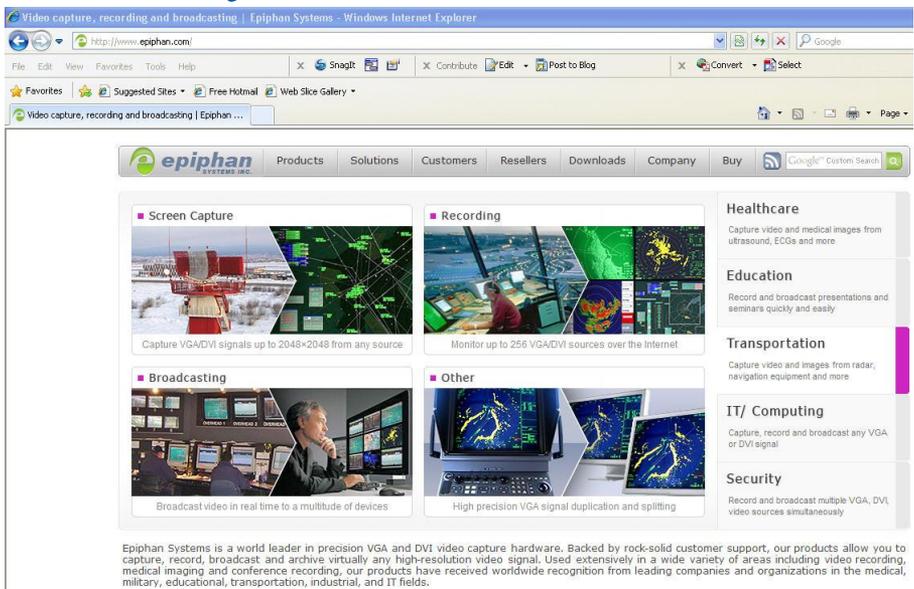
User Name: viewer

Password: (enter the viewer password)

Press **Enter**. If the VGA Broadcaster Lite device is capturing images and is broadcasting images over the network, the viewer can see the visual information as it is transmitted.

If the administrator changes user password during the broadcast, the broadcast will be interrupted. Users that are already logged in will need to click their Refresh button in the browser or click the Play button in media player. After successfully entering a new password the broadcast will resume.

Figure 22. A Browser with URL in an Address Bar



Remote Viewing: Enabling Access from the Internet

This section is mostly intended for network administrators on the viewer's side.

In case FLV/ASF/Motion JPEG or RTSP streams are broadcasted, different procedures are recommended.

- In case FLV/ASF/Motion JPEG streams are broadcasted:

To allow viewers access from the Internet, your network administrator must configure your Internet router or firewall to allow connections from the Internet to the VGA Broadcaster Lite IP address and the ports associated with its services.

A common way to do this is to configure port forwarding on the router or firewall. When users attempt to connect to the designated public IP address, the connection is forwarded through the router or firewall to the destination VGA Broadcaster Lite device.

First, ensure that port 80 and port 1881 are setup on your firewall as outgoing ports and no other applications are conflict with use of these ports.

You should configure port forwarding on the router or firewall for the two ports before users will be able to access the broadcast from outside your firewall.

- Port 80 is used for HTTP by both admin and viewers.
- Port 1881 is used for accessing the broadcast streams.

If you need to view the broadcast from outside the network, note that the URL /IP displayed in the Info section of the Web interface can be used for local broadcast only. The correct address would contain the IP address and the port of the machine you have configured to face remote viewers on the Internet.

For example, you could configure port forwarding on the router or firewall so that when a user on the Internet connects to the Internet IP address of the router or firewall on port 80 the connection is forwarded to the VGA Broadcaster Lite device. If the Internet IP address of the router or firewall is 192.168.20.37, users on the Internet would connect to the following URL:

<http://192.168.20.37:80>

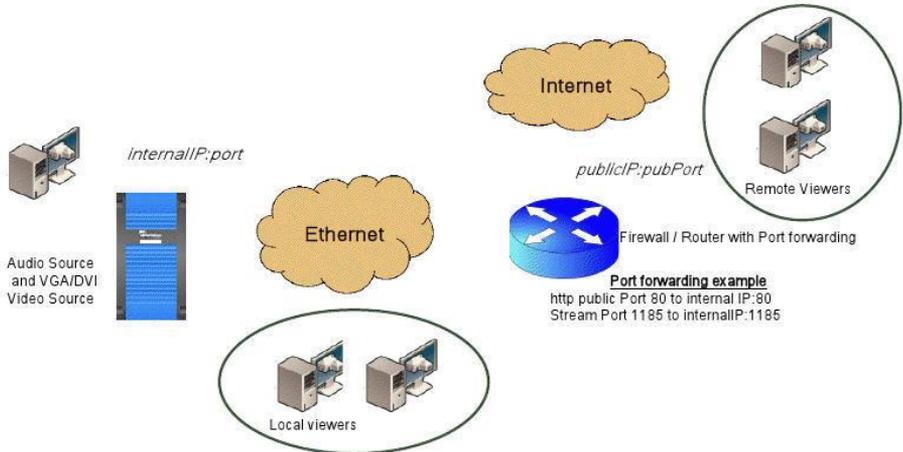
The router or firewall would forward this connection to the VGA Broadcaster Lite web interface. This port forwarding configuration allows HTTP connections using port 80 from the Internet to be forwarded to the VGA Broadcaster Lite device using port 80.

- In case FLV/ASF/Motion JPEG or RTSP streams are broadcasted:

Make sure that port 80 and RTSP port (usually 554) are setup as outgoing ports. When a RTSP connection is established, VGA Broadcaster Lite sends packets to the router's UDP ports. Enable forwarding for these ports to the viewers.

Important: It is recommended that your network administrator properly configures port forwarding, and other security settings before viewer accesses the broadcast from the Internet. You may also ask that the network administrator configure DNS and URL mapping or aliases so that viewers can access a more user friendly URL.

Figure 23. Broadcaster Lite Remote Viewing



- Internal Broadcast URL : `http://<internalIP>/`
- External Broadcast URL : `http://<publicIP:pubPort>/`

5. Changing the Configuration from a Third-Party Application

You can integrate a VGA Broadcaster Lite device with a third-party application, a tool such as Wget, or a script that sends commands to the VGA Broadcaster Lite device as URLs. You can send commands to get (and view) configuration settings and to change configuration settings.

Note: Contact [Epiphan](#) for the most recent updates to the API.

This chapter describes:

- [RS-232 commands](#)
- [Syntax for HTTP API Commands](#)
- [Keys for HTTP API Commands](#)
- [Examples](#)

RS-232 Commands

In addition to the On-Screen and Web interfaces, VGA Broadcaster Lite implements an RS-232 interface, allowing easy integration with existing control room and board room equipment.

Table 4: Serial interface commands and status reports command description

START.VGA.HIGH	Starts high-bandwidth VGA and audio recording
START.VGA.MID	Starts mid-bandwidth VGA and audio recording
START.VGA.LOW	Starts low-bandwidth VGA and audio recording
STOPS	Stops recording
STATUS	Starts reporting status changes
AUDIOSRC	Select audio source

Changing the Configuration from a Third-Party Application

MICUP	Increases line-in volume amplification
MICDOWN	Decreases line-in volume amplification
PCMUP	Increases line-out volume amplification
PCMDOWN	Decreases line-out volume amplification
SNAPSHOT	Takes a snapshot
AVIPREFIX	Sets prefix for recording files
SHUTDOWN	Shuts down VGA Broadcaster Lite

If any of the START commands is given while a recording is already in progress, the current recording will be stopped and a recording with the new settings will be started. VGA Broadcaster Lite periodically reports its status back using the following messages:

Status Line Value

```
RECTL STATUS {UP <time>|DOWN  
<time>|UNKNOWN}
```

Status of the recording

```
RECTL MICVOLUME <0-100> Level of line-in amplification  
(percents)  
RECTL PCMVOLUME <0-100> Level of line-out amplification  
(percents)
```

Each status line is terminated with an LF (ASCII code 10) character.

Syntax for HTTP API Commands

Use the following syntax to get configuration settings:

```
http://<address>/admin/get_params.cgi?key
```

Use the following syntax to set or change the configuration:

```
http://<address>/admin/set_params.cgi?key=value
```

- address is the IP address or name you use to connect to the VGA Broadcaster Lite admin interface.

For example, if you log into the VGA Broadcaster Lite device using `http://192.30.23.45/admin` then `<address>` would be `192.30.23.45`.

- key is the name of the part of the VGA Broadcaster Lite configuration to view or change. See “[Keys for HTTP API Commands](#)” for more information.
- Value is the value to change the configuration setting to. Some values include spaces (for example, the frame size can be 1024 x 768). Use `%20` for spaces, for example:

```
framesize=1024%20x%201068
```

You can include multiple `<key>` or `<key>=<value>` statements in one URL. Separate the statements with `&`.

For example:

- To get the product name and firmware version:

```
http://<address>/admin/get_params.cgi?product_name&firmware_version
```

- To set the stream type to ASF and bit rate to 256000:

```
http://<address>/admin/set_params.cgi?streamtype=2&vbitrate=256K
```

Including the Admin Username and Password

You must always include the admin username and password to change the VGA Broadcaster Lite configuration from a third-party application. The syntax for using `wget` to enter URLs is:

```
wget --http-user=admin --http-passwd="<passwd>" http://<address>/admin/get_params.cgi?<key>[&<key>]...
```

```
wget --http-user=admin --http-passwd="<passwd>" http://<address>/admin/set_params.cgi?<key>=<value>[&<key>=<value>]...
```

Keys for HTTP API Commands

This section lists and describes all of the keys that you can use in HTTP API commands to view or change the VGA Broadcaster Lite configuration. You can use the following types of keys:

- [Device Info Keys](#)
- [Broadcasting Setup Keys](#)
- [ASF Encoder Keys](#)
- [RTP Unicast Keys](#)

Device Info Keys

Table 5 lists the keys available for getting information about the device.

Table 5: Information keys

Key	Description
vendor	Name of a vendor. The value is always "Epiphan Systems Inc."
product name	Name of a product.
firmware_version	Firmware version.
mac_address	MAC address.

Broadcasting Setup Keys

Table 6 lists the keys available for getting or changing the broadcasting setup. See "Changing Broadcasting Setup" for more information about each key.

Table 6: Broadcasting setup keys

Key	Description
framesize	Get or change the frame size in pixels, for example 1024 x 768. Use %20 for spaces. The supported resolutions are 640 x 480, 720 x 400, 720 x 480, 720 x 576, 768 x

Changing the Configuration from a Third-Party Application

	576, 1024 x 768, 1152 x 864, 1280 x 720, 1280 x 768, 1280 x 960, 1280 x 1024, 1360 x 768, 1360 x 1024, 1600 x 1200, and 1920x 1200
htmlrefresh	Get or change the Flash/Mjpeg webpage page refresh time in seconds. The range is 0 to inf (infinite). 0 means that page will not refresh.
streamport	Get or change the stream port number. The range is 1000 to 65535. You cannot use port 5557 because this port is used for network discovery.
streamtype	Get or change the stream type: <ul style="list-style-type: none"> • 0 - Flash • 1 - Flash+H.264 • 2 - ASF • 3 - ASF+H.264 • 4 - MJPEG • 5 - RTSP
vbitrate	Get or change the video bit rate in kbit/s, for example vbitrate=65536. You can use short forms such as vbitrate=64K and vbitrate=1M.
bcast_disabled	Possible values are 'on' or empty. Broadcasting will be disabled if the value is 'on'.
audio	Possible values are 'on' or empty. Enables broadcasting of audio signal.
usenosignal	Possible values are 'on' or empty. Displays "No signal" image if the signal is off.
vbufmode	Use this key to define compression level of the broadcast. E.g. in the Strong mode the broadcast parameter strictly correspond to the specified bitrate. Select the level:

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	<ul style="list-style-type: none"> • Relaxed • Balanced • Strong
fastvideo	<p>Enables fast video.</p> <p>Possible values are 'on' or empty</p>
timelabel	<p>Enables time labeling functionality.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • 'none' • 'date' • 'hms' • 'date_hms' • 'hms_ms' • 'date_hms_ms'
vgopsiz	Minimum interval between key frames.
fpslimit	Video frame rate limit.

ASF Encoder Keys

Table 7 lists the keys available for getting or changing ASF encoder settings. You can change ASF encoder settings when stream type is set to ASF stream. See *“Changing Broadcasting Setup”* for more information about setting the stream type to ASF.

Table 7: ASF encoder setting keys

Key	Description
title	Add a title for the video being broadcast. Use %20 for spaces.
author	Add the name of the author of the video being broadcast. Use %20 for spaces.
copyright	Add copyright information for the video being broadcast. Use %20 for spaces.
comment	Add a title for the video being broadcast. Use %20 for spaces.

RTP Unicast Keys

Table 8 lists the keys available for getting or changing RTP unicast settings. You can change these settings when stream type is set to RTP. See *“Changing Broadcasting Setup”* for more information about setting the stream type to RTP video.

Table 8: RTP setting keys

Key	Description
unicast_enabled	Enable RTP unicast. Possible values are 'on' or empty.
unicast_address	Get or change the unicast address.
unicast_aport	Get or change the unicast a port.
unicast_vport	Get or change the unicast v port.

Recorder Keys

Table 9 lists the keys available for enabling or disabling recording. See *“Recording the Broadcast”* for more information.

Table 9: Recording keys

Key	Description
rec_enabled	Enables recording functionality. Possible values are 'on' or empty.

Examples

For a VGA Broadcaster Lite device with IP address 192.30.23.45, and admin password of pass123, you can use wget to do the following:

- Enter the following command to view the broadcasting stream type and frame size:

```
wget --http-user=admin --http-passwd=pass123
```

"http://192.30.23.45/admin/get_params.cgi?streamtype&framesize"

- Enter the following command to set the broadcasting stream type to ASF, add the title "VGA Broadcaster Lite Stream", and enable recording audio.

```
wget --http-user=admin --http-passwd=pass123  
"http://192.30.23.45/admin/set_params.cgi?streamtype=2  
&title=VGA Broadcaster Lite%20Stream&audio=on"
```

6. Connecting Broadcaster Lite to a Wireless LAN

An optional USB 802.11 b/g Wireless adaptor allows for establishing wireless Ethernet connection between Broadcaster Lite and the Ethernet LAN. The adaptor should be within a range of approximately 100 meters (110 yards).

Once configured correctly, VGA Broadcaster Lite can transfer VGA/DVI output using the 802.11 b/g wireless standard instead of the Ethernet port and cable.

To enable wireless connectivity, plug the USB wireless Ethernet adapter into the USB port of the VGA Broadcaster Lite, turn on the VGA Broadcaster Lite and configure the wireless network settings. See the *VGA2WiFi User Guide* for details.

7. Cables, Connectors and Adapters

VGA Broadcaster Lite can connect to a number of different interfaces cables, and adapters. This chapter describes a subset of connectors, cables and adapters that can be used with the VGA Broadcaster Lite device.

3.5 mm Mini-jack

A 3.5mm mini jack connector is used to carry audio signals. It can be connected to VGA Broadcaster Lite via Audio IN and OUT ports.



DVI

A DVI cable can be connected to VGA Broadcaster Lite via DVI IN and OUT ports.



VGA

A VGA Cable can be connected to VGA Broadcaster Lite via DVI IN and OUT ports with the help of the DVI to VGA adapter (shown below).



DVI to VGA cable.

Connects VGA sources to a VGA Broadcaster Lite's DVI port.



RJ-45 Male

Ethernet RJ-45 connector: Used to connect VGA Broadcaster Lite to the Ethernet network.



USB Connector

Used by a wireless network adapter to connect to WiFi. The VGA Broadcaster Lite device can connect over wireless Ethernet to broadcast the video/audio sources (unencrypted) through the wireless network adapter (not included). Please refer to the *VGA2WiFi User Guide* to know more about this optional functionality.



HDMI to DVI Cable

Used to connect VGA Broadcaster Lite to unencrypted HDMI sources.



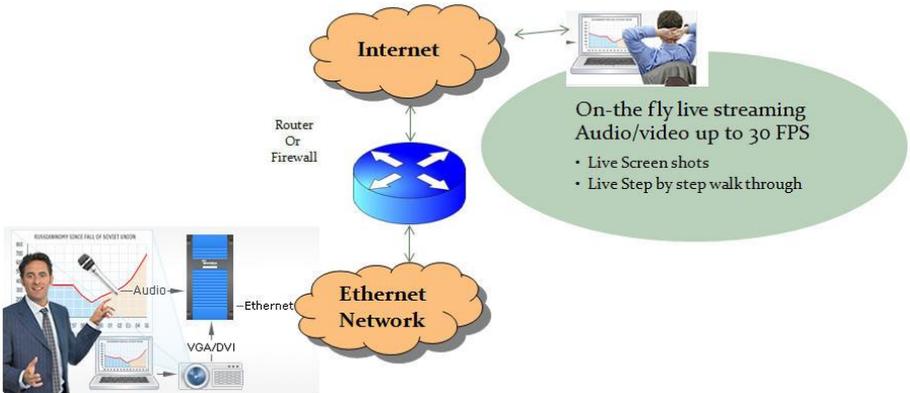
8. Sample Applications

The following section describes a number of applications and scenarios for using VGA Broadcaster Lite. For example, VGA Broadcaster Lite can be used as part of video surveillance equipment. It is connected to a camera with a VGA or DVI output and transfers the captured signal over LAN/Internet. The captured output can be viewed remotely on a monitor.

Another possible application: corporate communication. High-quality live video and audio is being used to broadcast live announcement, events, engage, educate and communicate with employees, customers and investors in a timely way.

Customer Support Application

During a customer support call, the customer service representative can direct a single customer or multiple distributed customer individuals to a URL in order to observe a demonstration of a product in action. The customer support representative's computer display output is broadcast to the customer in real-time. The output of the demonstration can also be recorded with an Epiphan recording product (see www.epiphan.com) or shared with other customers or service representatives for training and quality purposes.

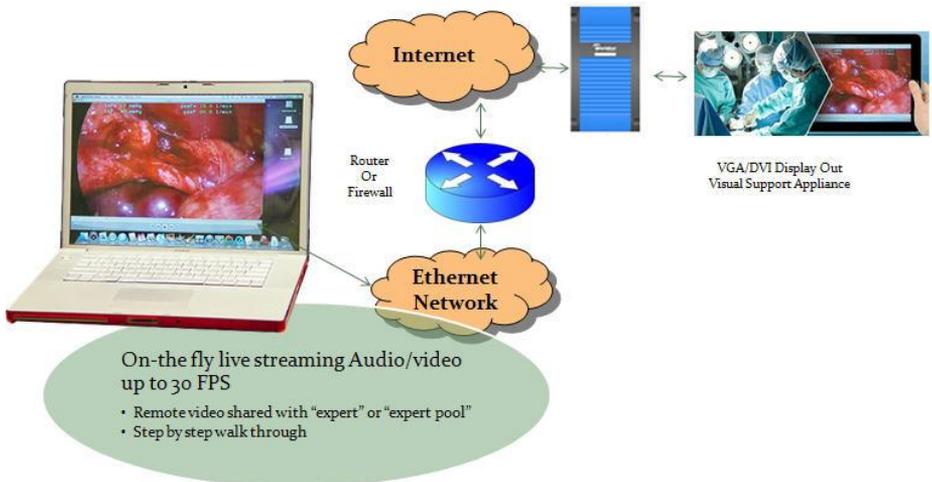


Virtual Expert Inbound Video Support Application:

For OEM equipment vendors such as medical image devices, enabling customers to share images with their colleagues can be a key differentiating feature of their products and services.

In this sample application VGA Broadcaster Lite is used to provide live video to a telemedicine expert in order to deliver better healthcare services at a distance. It is connected to medical equipment and transmits medical data/information to a remote expert through the Ethernet connection.

This application enables immediate consultations with the medical device's product specialist, or another specially skilled remote medical professional without the need to be present with the equipment or patients

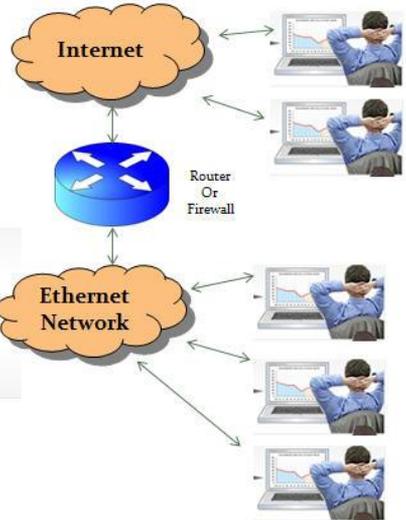


Assisting Mobility, Visual or Hearing Impaired Attendees

VGA Broadcaster Lite allows conference organizers to provide facilities for hearing/visual/mobility impaired. This device allows either broadcast event via Internet for those who are not able to attend or helps visual and hearing impaired attendees display and/or amplify the conference content on their local computers.

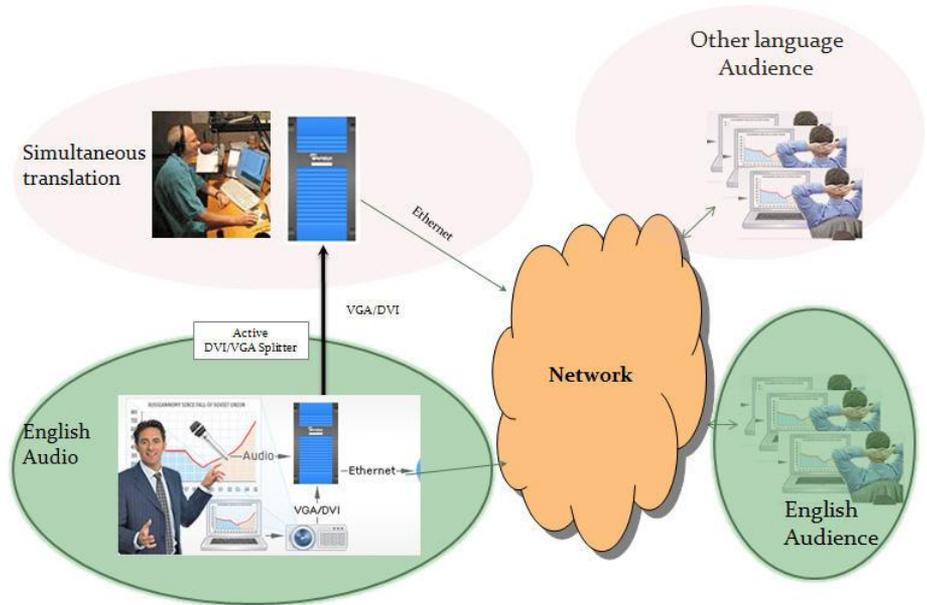
Equal Access / Easy Access

- Amplify audio to local headsets on PC
- Amplify video to local PC
- Remote access attendance



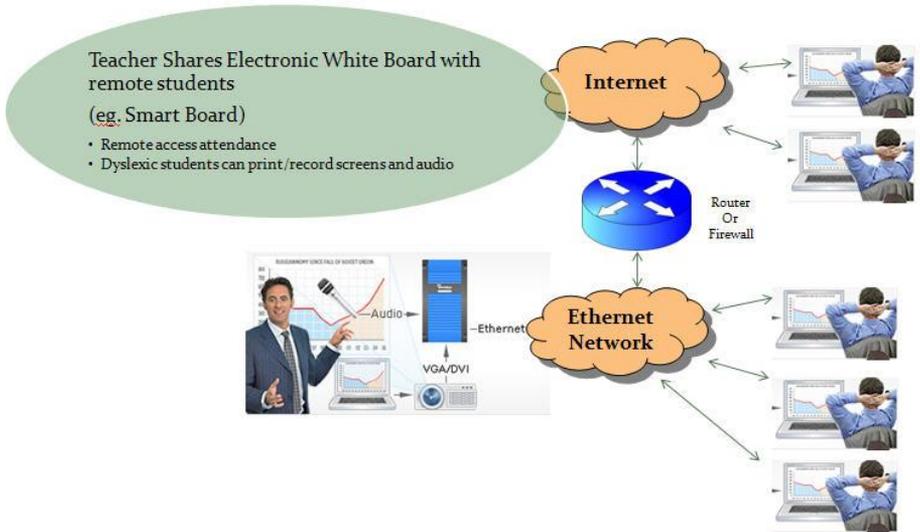
Providing Simultaneous Translation Channels

VGA Broadcaster Lite enables multi-language webcasts for the local and remote viewers. In this application two VGA Broadcaster devices are daisy chained as shown in the diagram below. The audio on the first device is connected to the presenter audio source, while the audio of the second VGA Broadcaster Lite stream is provided by a simultaneous translator. Viewers are then provided with the URL for the presentation in the language of their choice.



Education Electronic White Board

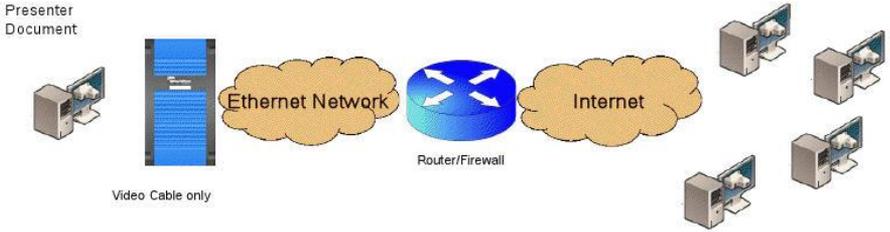
In this application the teacher in a classroom using an electronic white board can also broadcast the white board content to local and remote students. The school can also use other Epiphan products to record the session for later play back.



Audio/Video Conference - Document Sharing "Camera"

Broadcaster Lite can be used to share documents, and other video source in real-time during a video conference. This application ideal for online collaboration or for situations when

- you want real-time multi-media
- you do not want to send material in advance or via third party hosted services or email.
- The real time broadcast also enables you to make changes locally to your presentation or document and share them in real-time with the remote participants.



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Environmental Information

The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems. If you need more information about collection, reuse and recycling systems, please contact your local or regional waste administration. You can also contact us for more information on the environmental performance of our products.

FCC & CE Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Marking by the symbol  indicates compliance of this device with EMC directive of the European Community and meets or exceeds the following technical standard.

EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.



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