VX30 Video Broadcast System

The Cross-Platform Video Broadcast Solution

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Introduction

WELCOME TO PLATFORM INDEPENDENT LIVE VIDEO STREAMING!

The VX30 Video Broadcast System (VBS) leverages the ubiquitous Java platform to enable the first truly cross-platform video broadcast solution. VX30 VBS's architecture gives the system administrator complete flexibility on the platform they choose to deliver their video, while not having to worry about which kinds of media players are installed on the client. This system greatly simplifies the entire video broadcast process which in turn saves valuable hours normally spent on learning, managing and maintaining multiple systems.

Most systems try to lock the client into proprietary installed media players. The management of these players, which often require frequent security updates and version upgrades, can be difficult for the average user and a complete nightmare for the system administrator who has tens, hundreds or even thousands of systems in his/her fleet. In addition not all media players are available or easily configured for all systems, which will give some users no option to see the video or frustrate them by not being able to easily view the video. VX30 VBS uses our patented Player-Less delivery method, which never requires the user to upgrade, install or pick their media player to view the video. The only software that is required by the client to see video is a Java enabled web browser[1].

However, VX30 VBS also has many other inherent advantages beyond just being platform agnostic. For example, VX30 VBS only utilizes the HTTP protocol to stream video. Other technologies often require other protocols, including the highly exploited UDP protocol. By only using HTTP, networks can be hardened. In addition you can stream to clients who are behind restrictive firewalls. Of course, what would cross-platform liberty matter if quality suffered? No prob-

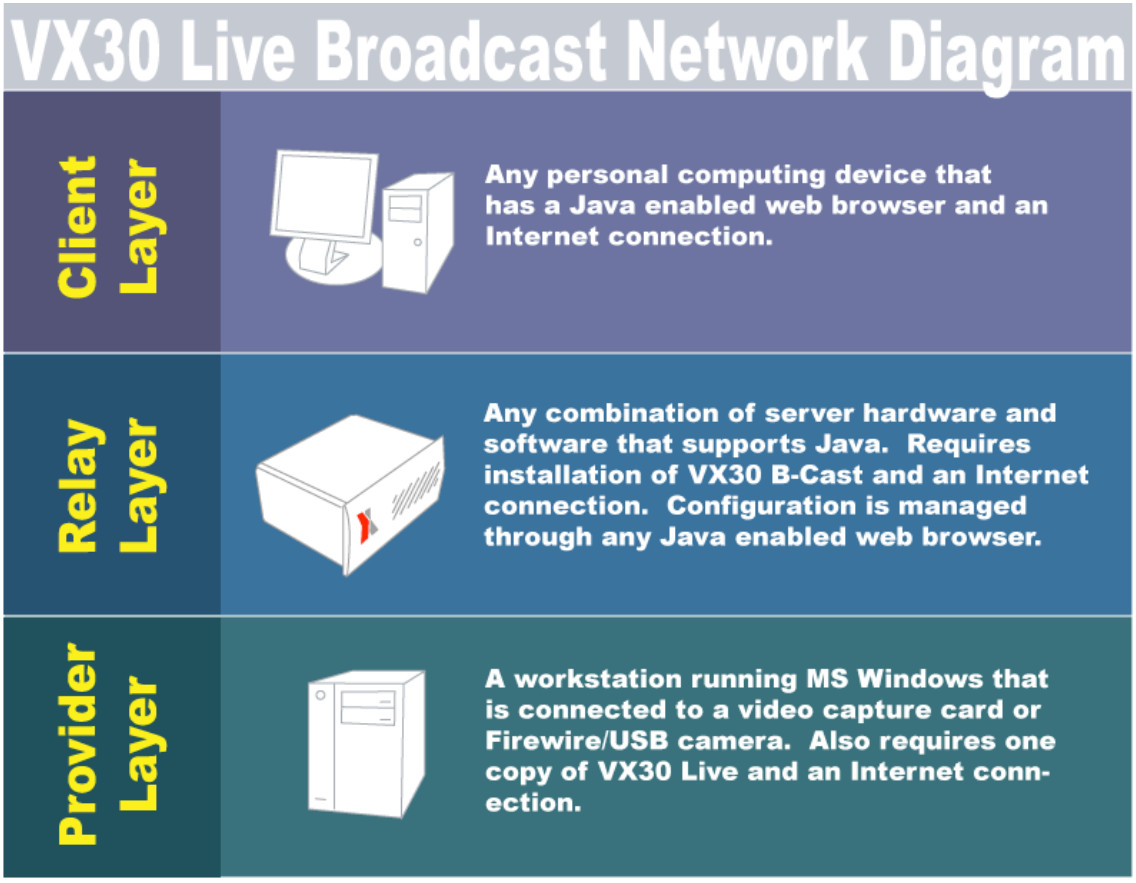
[1] As of this writing Java is installed on 95% of all web browsers. VX30 VBS is backwards compatible to Java 1.1

lem, VX30 utilizes the latest audio/video compression methods to deliver beautiful video and sound to clients at the lowest possible data rates.

Architecture

LAYER DIAGRAM

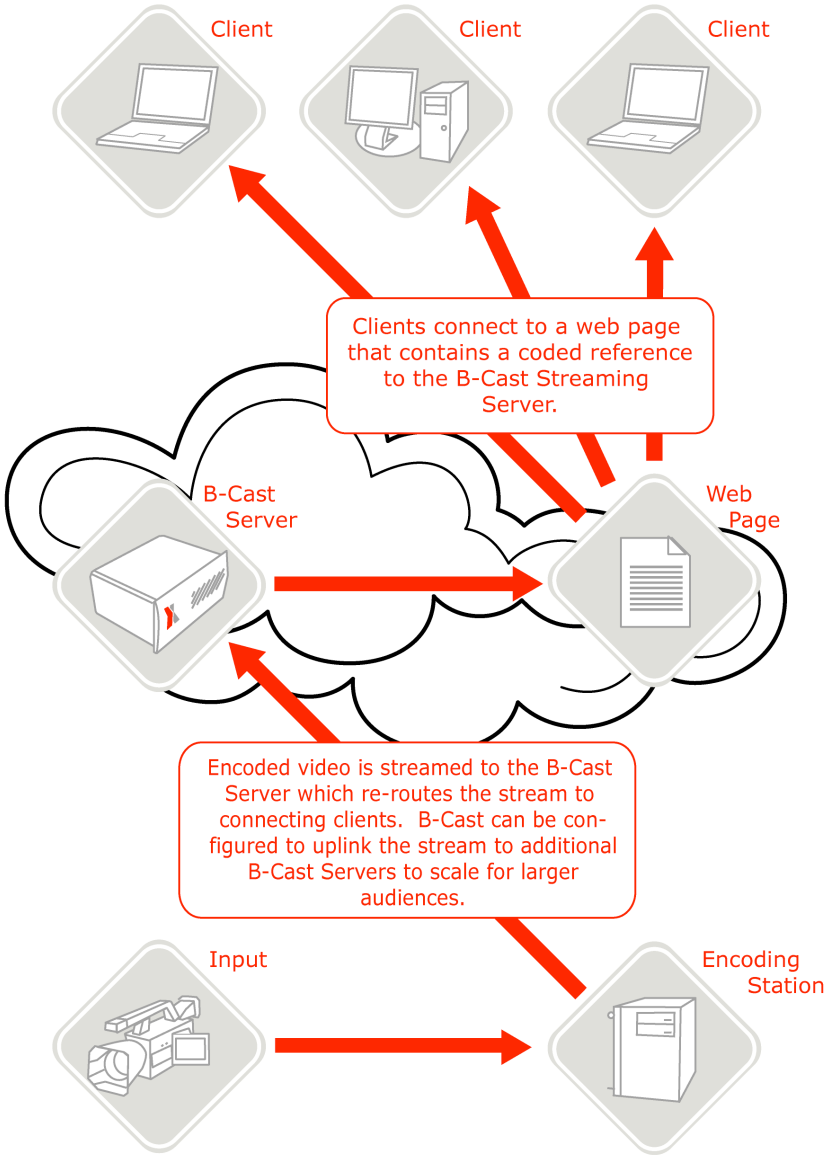
The architecture of the VX30 Video Broadcast solution can logically be divided into three layers: **Provider**, **Relay** and **Client**. The Provider layer consists of one or more computing systems that



convert the analog or digital video signal into the VX30 video file format. Once the signal has been reformatted, it is then pushed to a server that logically resides in the Relay layer. Once the signal reaches the Relay layer it is rerouted to the audience in the Client layer. Devices in the Client layer can view the reconstructed video stream with any Java enabled web browser.

FLOW DIAGRAM

A VX30 video broadcast starts with the Encoding station in the Provider layer. The Encoding station is a Windows PC running a copy of the **VX30 Live** software application. VX30 Live is responsible for converting the source video input, in real-time, to the VX30 video file format. The input can be from any device that supports the Video for Windows Driver e.g. a PCI video capture card, a Firewire camera, a USB web camera etc... As the signal is being converted into



VX30 it is streamed through the Internet to a VX30 B-Cast server.

The VX30 B-Cast Server can be any combination of hardware and OS that supports Java. If you logically envision the VX30 Video Broadcast solution as a hub and spoke architecture, then B-Cast is the hub. B-Cast is responsible for connecting encoding stations in the Provider layer to the audience in the Client layer. The B-Cast server would typically sit in a data center where it has access to redundant networks and has greater bandwidth capacity. The B-Cast server can be remotely managed through any Java enabled web browser.

Clients can connect to the B-Cast system either directly to the servers IP address, FQDN or through a web page that has a coded reference to the B-Cast server's location.[2] To view the video stream clients only require a Java enabled web browser. When the video stream is requested a tiny Java applet is transmitted to client ahead of the video signal. After the tiny applet instantly loads in the client's browser it simultaneously negotiates the connection between the browser and server as it decodes the data stream into video. As long as the user has a Java enabled web browser she/he will not be required to download install, upgrade or patch any software on their system to view video.

RELAY NETWORKS

In situations where one server does not have enough bandwidth capacity to service the entire audience, the B-Cast server can be configured to relay its signal through a network of additional B-Cast servers. In these setups the encoding station still sends its signal to one B-Cast system, which we define as the **Primary B-Cast Server**. The Primary B-Cast Server can easily be configured to uplink its signal to one or more fail over servers through the web based management portal. As the Primary Server determines it is running out of bandwidth capacity it will reroute the client to the fail over server.

MULTIPLE PROVIDERS

A single VX30 B-Cast server is capable of service multiple providers. Providers are configured in the web portal by setting the IP address of the provider in the Providers table. All providers require password authentication to connect to the B-Cast server. If the B-Cast server cannot match the Provider's password with its IP address then it will not be allowed to connect.

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[2] FQDN or fully qualified domain name.

COMBINING THE PROVIDER AND RELAY LAYERS

In situations where the Provider has enough bandwidth capacity to service it's audience, it can be configured to stream directly to its local or wide area network. This is simply done by putting the VX30 Live application into "Stand-Alone" mode. When the stream is initiated a built-in version of the VX30 B-Cast server will launch and begin the relay broadcast from the local host.

System Requirements

VX30 LIVE - VIDEO PROVIDER

SYSTEM REQUIREMENTS

Windows 2000, XP

HARDWARE REQUIREMENTS

Pentium IV or equivalent processor

512MB Memory

10/100 NIC

VX30 B-CAST - RELAY SERVER

JAVA REQUIREMENTS

JRE 1.5 - available as a free download from www.java.com

Java Path - make sure your JAVA_HOME variable is set on your system.

SYSTEM REQUIREMENTS

Windows - Windows Server Edition 2000 or 2003 or Windows XP

Linux/Unix - Must support GCC compiler.

Mac - OS X 10.4 Server

HARDWARE REQUIREMENTS

Pentium IV or equivalent processor

1GB Memory

10/100 NIC

VX30 VIDEO CLIENT

JAVA REQUIREMENTS

JRE 1.1 - available as a free download from www.java.com

SYSTEM REQUIREMENTS

Windows - Windows 2000 or greater

Mac - OS X 10.2 client or greater

Linux - 2.4 Kernel or greater

HARDWARE REQUIREMENTS

Pentium III or equivalent processor

256MB RAM

VX30 Live Video Encoder

INTRODUCTION

VX30 Live is lightweight encoding application that is installed on a Windows PC. VX30 Live can interface with cameras, video capture cards, or any other device that provides a digital video signal. The VX30 Live application is licensed in two different formats, integrated and standalone. VX30 Live utilizes a built-in web server to stream the video either directly to connecting clients or to push its stream to a remote VX30 B-Cast relay server.

INSTALLATION

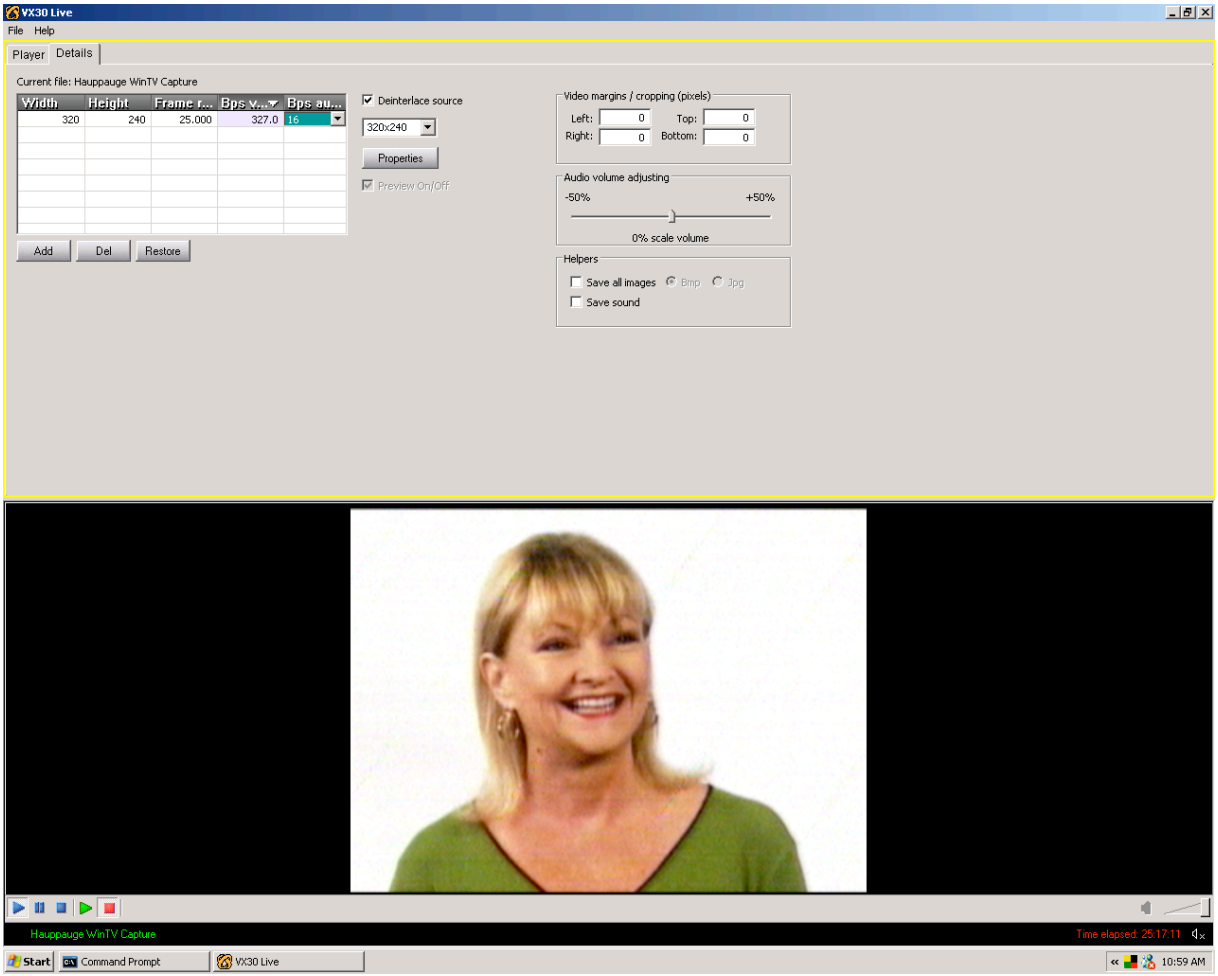
To begin installation unpack the compressed file you downloaded from VX30 dot com. Please navigate to the folder /Software/VX30 Live and launch the installation wizard by double clicking the file titled **setup.exe**. Please follow the wizard to complete the installation process.

ACTIVATION

The first time you launch VX30 Live you will be prompted to enter your licensing information. PLEASE enter all three fields exactly as they appear in the license you received from the VX30 Support Staff. If you are using this application on a trial basis you will have thirty days to activate the trial software. You can always change or enter your licensing information by going to the application menu and choosing **Help - Enter registration data** ...

STARTING THE APPLICATION

To launch the VX30 Live Encoder go to **Start -> All Programs ->VX30 Live 1.0 -> VX30 Live**. When the application launches you will see the main user interface. In the main interface we set up the source video feed, determine the outgoing streams' characteristics and control the live encoding. The main interface also includes some basic video editing controls.



ADDING THE INPUT DEVICE

The first step in setting up your live video feed is to choose your capture device. To begin this process go to the application menu and choose **File - Capture Device**. A dialog box will open that will allow you to choose from the available video and audio capture devices. If your capture device does not appear in the drop down menu, please confirm that your device is working properly and that the device's driver is installed. You may have to restart the application after you have fixed your capture device.

CONFIGURING THE BROADCAST MODE

Once you have properly added your capture device that next step is to configure wether you wish to stream in local mode or to connect your encoding device to a relay server. To configure your broadcast mode go to the application menu once again and this time choose **File - Settings**. In the dialog box that appears you will have a couple of choices to make. If you are not going to connect to a relay server, first enter the HTTP port you wish to stream your video on and click

the **Local Streaming** mode checkbox. The HTTP port is the port in which clients will connect to your video stream.

If you are going to connect to a relay server, you will need the following information:

- **IP Address** - this is the IP address of your primary B-Cast server.
- **Port** - this is the port you have defined in your B-Cast management portal as the Providers Port (see below for more information).
- **Password** - this is the password you have defined for this provider in your B-Cast management portal (see below for more information).

Once you have entered all the information, click the "Test" button to confirm your configuration. If you do not connect to your remote server please check your settings.

SETTING THE BANDWIDTH POTENTIALS

Your video broadcast can support multiple data rates so that you can offer your broadcast to users who have different levels of network capacity. In the main user interface you will find a data table on the top left hand side. Each row in the table defines exactly one video stream. To change the streams characteristics double click on the cell of the row that you wish to change. The types of characteristics you can define are the following:

- **Height & Width** - These cells represent the physical pixel dimension of the video.
- **Frame Rate** - This cell determines the number of frames per second that the video will play. You can not set a higher frame rate than the source video.
- **Bps Video** = This cell controls the data rate that your video will be encoded. The higher the data rate you set the better your picture quality will be. Depending on the nature of your source video (e.g. talking head, high action etc...), results will vary.
- **Bps Audio** - This cell controls the data rate that you audio will be encoded. The choices you have are 8, 16, 32 and 40.

WARNING - Supporting multiple bandwidth possibilities is CPU intensive. It is recommended that you use a multi-core or dual processor system if you are going to encode for multiple data rates.

CAPTURE DEVICE PROPERTIES

In the main interface you will find a button to the right of the data table titled "Properties". When this button is clicked it will launch the properties window for your specific capture device. Depending on the type of device you are using you will have different options available to you. Please see your capture device's manufacturers manual for more information.

In addition you can also set the aperture size of your capture device from the drop down menu found above the Properties button. Because the higher the aperture rate the more CPU cycles it will require from the encoding station, it may be a good idea to reduce the aperture rate.

ADDITIONAL SETTINGS

VX30 Live comes with a set of helper utilities that can be accessed from the main user interface. Please find their titles and descriptions below:

- **Deinterlace Source** - If your source video is interlaced please check this option. If you are not sure if your source is interlaced or not you can tell by watching the video stream. If your video seems to break down into horizontal lines your source is interlaced.
- **Preview On/Off** - If you would like to see your video source as it is being encoded please check this option. By turning the Preview off you can save on CPU cycles.
- **Video margins / cropping (pixels)** - This utility allows you to crop your source video. The number you set in the text box will determine the number of pixels that will be removed from the respective orientation.
- **Audio volume adjusting** - This slider bar allows you to adjust the sound volume.
- **Save all images** - This option allows you to save each frame as either a JPEG or BMP file. Use this option carefully as it will consume a lot of hard drive space.

- **Save sound** - This option will allow you to save the source's audio as a .wav file.

CONTROLLING THE VIDEO BROADCAST

Along the bottom of the main user interface you will find the control bar. The control bar is used to stop, start and pause the preview of the source video as well as stop and start the video broadcast. The three blue buttons aligned to the left are use to control the preview. Once you are ready to initiate your broadcast press the green play button. Once your video stream connects to the relay server a blue progress bar will fill the control bar. To end or stop your broadcast click the red stop button.

Beneath the control bar you will find a couple of indicators. The green indicator aligned to the left shows the name of the capture device, while the red indicator aligned to the right show the elapsed time of your video broadcast.

PLAYER/APPLET SETTINGS

If you are streaming from the local broadcast mode you can control many characteristics of your player applet. Please find the list of options and their description below:

- **Base URL** - This comes in two forms *Documentbase* or *Codebase*. You use the *Documentbase* if the web page and the video files reside in the same folder on the server. If the web page is going to link to a video that exists in a different folder or server entirely you need to use the *Codebase* parameter.

- **OnClick URL** - This value when left blank has no effect on the applet. However if you place a web address as the value, when a user clicks on the video it will redirect them to the value specified.

- **OnClick URL target window** - This value when used in conjuction with *OnClick URL* determines which web window will be used to load the URL. This uses the HTML standard code for determining which window will be opened.

    - _blank = new window

    - _parent = parent window

- _self = this window

- **Enable auto playback** - this determines when the video will start playing. If set to *true* the video will start playing as soon as it has buffered. If you set it to *false* the video will start playing when the play button has been pressed. The final option is to set it to *Rollover*, which sets the video to start when the mouse rolls over the video.

- **Mute Audio** - determines whether to turn the sound on or off.

- **Applet's background color** - By default the applet's background color is white. However you can adjust this to another color by clicking on the *value* box. This will load a color chart in a new window. Choose your desired setting and press *OK*.

- **Video alpha value, 0..255** - This will set the transparency level of the video with 0 being fully transparent and 255 being opaque.[3]

- **Disable zoom button** - When the mouse rolls over the video an image of a square in a square appears in the bottom right hand corner of the video. This image is a link that will open the video in its own resizable window. If you want to disable this *zoom button* set this value to **true.**

- **Use ascetic popup** - When a user right (pc)/ctrl (mac) clicks the player applet a dialog box will appear. If you want the dialog box to contain a full properties window you set this value to *false*. However if you want the window to only have a link to VX30 appear set this value to *true*.

- **Display status messages** - When set to *true* all buffering and loading messages will be printed to screen at the bottom of the applet. This can be very useful information for the client and we recommend that you set this value to *true*. However if you prefer you can turn off the status messages by setting this value to *false*.

- **Status messages color** - This value controls what color the status messages will be. We recommend that you use a color that will be visible against the background color you chose for the *applet's background color*.

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[3] Not supported by all Java Virtual Machines - not recommended to use for public web streaming.

- **Enable control panel** - You can turn on/off the control panel of the applet with this setting. The control panel is the bar that contains the play/pause, stop and mute buttons.

- **Controls layout string** - This setting can be broken down to two parts separated by a colon. The first two letters determine where the control panel will appear on the applet. Use the chart below to position your buttons.

Horizontal Alignment

	LEFT	CENTER	RIGHT
TOP	tl	tc	tr
BOTTOM	bl	bc	br

Vertical Alignment

	TOP	CENTER	BOTTOM
LEFT	lt	lc	lb
RIGHT	rt	rc	rb

The letters that appear after the colon determine which buttons will appear and in which order. You have four options with button on the horizontal control bar and three options with the vertical control bar. Your options are as follows

- **p** - play/pause
- **s** - stop
- **m** - mute
- **b** - timeline indicator[4]

The default setting for the *Controls layout string* is bc:psbm which would put the controls at the bottom center with the layout being: *play/pause - stop - timeline indicator - mute*.

[4] When using the vertical alignment you cannot have a time line indicator.

- **Static Control Panel** - If set to *true* the control panel will always appear in the location specified by *Controls layout string*. If set to *false* the control panel will hide until the mouse rolls over the video.

- **Panel show delay, ms** - If *static control panel* is set to *true* this value (in milliseconds) will control how long the panel will be visible once the mouse has moved away from the video. After the delay has expired the control panel will disappear.

A QUICK NOTE ON BEST PRACTICES

The most important consideration you will need to make is how many streams do you wish to support and at what data rates. If you are streaming over your intranet this may not be such an important consideration but as you start to send your video broadcast through a relay server connected on the Internet you will need to keep a careful watch on your local networks capacity. Before you begin a video broadcast you may wish to do a line speed test through one of the many free services available e.g. DSL Reports dot com. Remember to allow room for some overhead and intermittent network capacity reductions! Typically, the symptoms of a network capacity issue are frequent re-buffering on the client.

VX30 B-Cast Relay Server

INSTALLATION

WINDOWS

The first step in installing VX30 B-Cast on your Windows Server is to determine if you have Java installed. The easiest way to make this determination is to open a DOS prompt (**Start - Run** they type **CMD** hit **Enter**) and type this command in

```
java -version
```

which should return the following information:

```
java version "1.5.0_09"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_09-b01)
Java HotSpot(TM) Client VM (build 1.5.0_09-b01, mixed mode, sharing)
```

If the command returns an error or if you are running Java < 1.5, please go to www.java.com and install the latest JRE.

Once you have properly installed the required JRE, proceed by double clicking the setup.exe file that came with your VX30 B-Cast software package. Please follow the instructions in the install shield to complete the installation.

UNIX/LINUX & OS X

The first step in installing on a Linux/Unix server is to check to make sure that you have Java installed. From a terminal window execute the following command:

```
$ java -version
```

which should return the following information:

```
java version "1.5.0_09"
```

Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0_09-b01)
Java HotSpot(TM) Client VM (build 1.5.0_09-b01, mixed mode, sharing)

If no information is returned or your system does not support Java 1.5 or greater you will need to update or install Java. Please consult your operating systems documentation on how to install Java.

Once your system is Java enabled unpack and copy the B-Cast file package into your preferred 3rd party application directory e.g. /usr/local/bcast2

Navigate to your installation directory and open the file wrapper.conf with your favorite text editor. Look for the configuration line that reads:

wrapper.java.command=/usr/bin/java

If this is not the location of your Java executable please update your configuration.

To complete your installation copy the lic.xml file you received from the VX30 license server into your B-Cast installation folder.

WARNING - If you do not copy the license file into your B-Cast installation your server will NOT start.

STARTING YOUR B-CAST SERVER

WINDOWS

To start your B-Cast server go to the Start menu and choose: **Start - Program Files - VX30 B-Cast 2.0 - Start B-Cast 2.0 Service**

To determine if your server started normally please go back to the start menu and this time choose: **Start - Program Files - VX30 B-Cast 2.0 - Control B-Cast 2.0 Service**

This should launch Internet Explorer (or your default web browser) and bring you to the B-Cast Management Portal login prompt (see below for more information).

LINUX/UNIX & OS X

From your terminal window navigate to your B-Cast installation folder and execute the following command:

```
$ ./bcastctl -start
```

If your B-Cast server starts normally you will see the following response from your command prompt:

```
Starting VX30 B-Cast 2.0...
```

To confirm that your server is up and running execute the following command:

```
$ ps -ax | grep bcast
```

If your server is functioning properly you should see output similar to the following:

```
 2265 ?? S      0:00.01 /usr/local/bcast2/./wrapper-macosx-universal-32
/usr/local/bcast2/./wrapper.conf wrapper.syslog.ident=bcast2
wrapper.pidfile=/usr/local/bcast2/./bcast2.pid wrapper.daemonize=TRUE
```

ADMINISTRATION

VX30 B-Cast can be managed from any web browser that is Java enabled. To log into the portal open your favorite web browser and go to your server's IP Address or FQDN followed by the port number (10011 by default) and the **adm** directory e.g.

http://127.0.0.1:10011/adm

After the web page has loaded you will be prompted to log in. The default login credentials are:

- **Username** - Admin
- **Password** - master

The main portal is broken down into five sections:

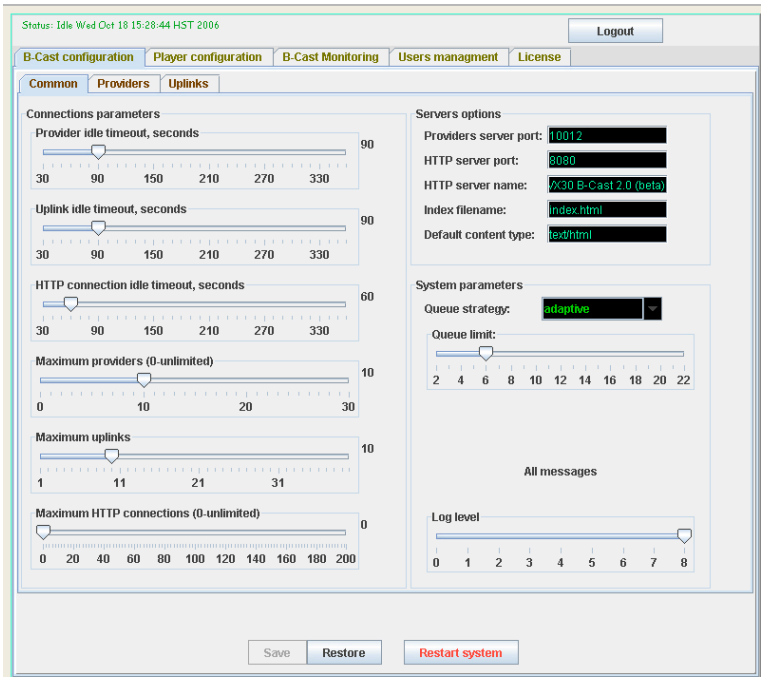
1. **B-Cast configuration** - In this section is where you manage the configuration of your VX30 Video Broadcast Network. This is where you define the network's providers, relay servers and other configuration details.

2. **Player configuration** - Similar to the applet section of VX30 Live this section is where you can set the characteristics of your player applet.

3. **B-Cast Monitoring** - This section provides real-time reporting on the number of clients, providers and uplinks that are connected to the B-Cast server.

4. **User Management** - This is the portion of the management portal where you define the users allowed to administer this B-Cast server.

5. **License** - This section displays information about your license.



To navigate to the different sections simply press the appropriate tab in the navigation bar in the top portion of the management portal.

B-CAST CONFIGURATION

This section is further divided into three parts, to navigate to the three sections please use the appropriately named tab button in the navigation bar below the main navigation.

1. **Common** - The basic run-time configuration of your server. Where you define the different in-going and out-going ports, connection limits and other general configurations.

2. **Providers** - This is where you define which encoding stations are allowed to connect to the server.

3. **Uplinks** - This is the portion where you define your relay network.

B-CAST CONFIGURATION - COMMON

This section is broken down in several sub-sections. Please find their titles and descriptions below:

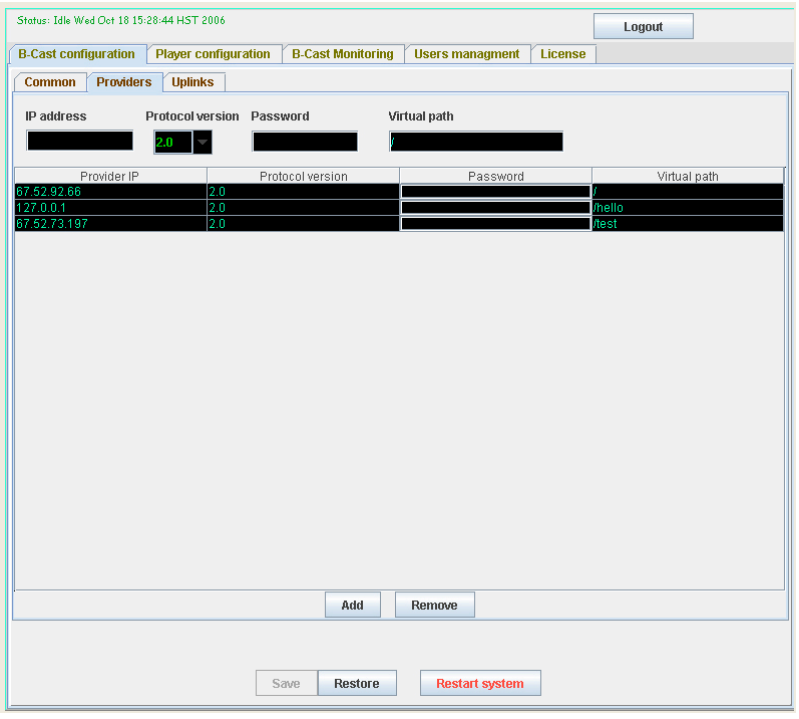
- **Connection Parameters** - Each of the connection parameters is set with a slider bar. The chosen value will appear to the right of the parameter's blue outline.
    - Provider idle timeout, seconds -
    - Uplink idle timeout, seconds -
    - HTTP connection idle timeout, seconds
    - Maximum providers - The number of provider connections this B-Cast server is allowed to have at any one given time. Set this value to zero if you do not wish to put a threshold.
    - Maximum uplinks - The number of relay connections this B-Cast server is allowed to make at any one given time. Set this value to zero if you do not wish to put a threshold.
    - Maximum HTTP connections - The number of client connections this B-Cast server is allowed to have at any one given time. Set this value to zero if you do not wish to put a threshold.
- **Server Options**
    - Provider's Server Port - the port on which your providers connect. This is the port you would set in the VX30 Live while defining the broadcast mode (see above). The default value is 10000.
    - HTTP Server port - the port on which your clients will connect to your B-Cast server, including the Management portal. The default value is 10012
    - HTTP Server Name - the name you wish to call your B-Cast server.
    - Index filename - the name of the default HTML file.
    - Default content type - this section should be set to text/html.

- **System Parameters**
  - Queue strategy - In situations where the client's network connection becomes diminished, the B-Cast server will store the excess data in a buffer. The queue strategy governs how the buffering will work. In the "Aggressive" mode, excess data will be thrown away. In "Adaptive" mode the buffer will hold some data but if over time the network does not resume the normal transfer rate the buffering strategy will fail over to "Aggressive" mode. In "Passive" mode the buffer will continue to fill until the time where either the connection is dropped or resumes the normal data transfer rate.
  - Queue limit -
  - Log Level

WARNING - Changes to the system require that you both **Save** the configuration and **Restart** the system. Changes will not take effect until you restart the system.

PROVIDERS

The Providers section is where you define the encoding stations allowed to connect to this B-Cast server. There is no limit to the number of providers you can define, however the number of providers allowed to connect at anyone time is defined in the Common section of the B-Cast configuration. To define a provider you will need the following information.



- **IP Address** - the physical IP location of the encoding station.
- **Protocol version** - as of the time of this writing the only usable option is 2.0.
- **Password** - before a pro-

vider is allowed to connect to a B-Cast server it's IP address is compared to the password defined in this section.

- **Virtual Path** - the virtual name for the file path that you wish to broadcast your video stream. The choice is subjective.

To add, remove or change a provider use the data table in this section. You can change any provider by clicking in the cell you wish to change in the appropriate data row.

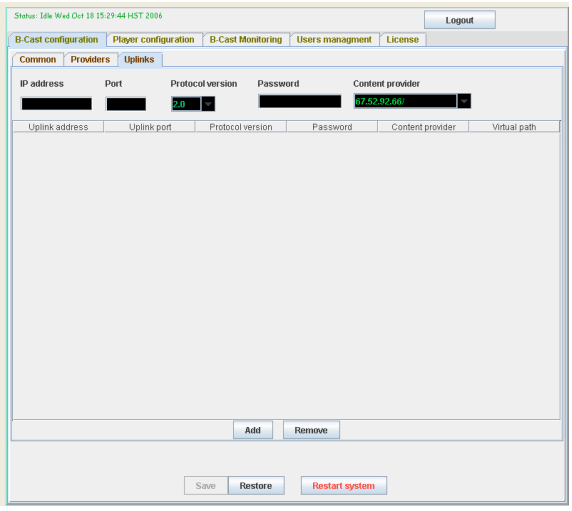
WARNING - Changes to the system require that you both **Save** the configuration and **Restart** the system. Changes will not take effect until you restart the system.

WARNING - If you are using multiple providers you will need to have one provider streaming on the default virtual path "/".

UPLINKS

In the event that you need more than one B-Cast server to support your audience, use this section to define your VX30 Relay Network. To define a relay server you will need to provide the following information:

- **IP Address** - The physical IP address of your relay server.
- **Port** - The port on which you wish to relay your video stream.
- **Protocol version** - This needs to be defined as 2.0.
- **Password** - The relay is password protected.
- **Content Provider** - In the drop down menu choose the video stream you wish to relay.
- **Virtual Path** - Coming Soon.



PLAYER CONFIGURATION -

There are a number of configurable characteristics of the player applet's playback that you can define. A brief description of each is given below:

- **Video Alpha Value** - this defines the opaqueness of your video. To make the video completely opaque set it to 255.
- **Colors** - the background color and the status message color can both be set in this section. A preview of the color combination is given to assist you with the selection.
- **Functional Parameters** - a series of true or false options.
    - Auto play enable - if check the video will play as soon as the applet is loaded. When set to false the video will not begin until prompted by the user.
    - Mute audio - when set the video's audio will be muted.
    - Disable zoom button - when set to true the user will not be able to enlarge the video using the zoom option.
    - Show status messages - when set to true the user will be notified of certain status messages on the condition of the video stream e.g. buffering, connecting to server etc...
- **Video Title** - the name of the video applet.

MONITORING

COUNTERS

The B-Cast Management Portal reports real-time statistics on the number of connecting providers, client and uplinks. To view this information please choose the B-Cast Monitoring tab in the main navigation bar. By default this information is refreshed after 60 seconds in the browser. However, you can use the slide bar at the top of the page to change the refresh rate to your preference.

SYSTEM

Coming soon.

SYS EVENTS

Coming soon.

USER MANAGEMENT

In this portion of the Management portal you can set the users who are allowed access to the portal itself. There are three different types of users you can define:

- **Full Administrative Control** - This user has access to the entire portal, including the capacity to create new and modify exists users.
- **Configuration And Monitoring** - This type of user has access to the entire portal except user management.
- **Monitoring Only** - This type of user is not allowed to make any system changes. But they are granted access so that they can see the real-time monitoring reporting.

To add, change or remove users please use the easy to follow interface.

LICENSE

Information that is attached to your license file is displayed here.

Placing Video in a Web Page

OVERVIEW

Placing the video in your web page requires adding a little bit of applet HTML code into your web page. To properly configure your applet you will need to know the IP address of the origin server, the port on which it is sending the stream and the virtual file path. These values will be passed to the applet which in turn will initiate a connection to the server for each user who requests the page.

SAMPLE APPLET CODE

```
<applet archive="vxmPlayerL.jar" height="192" width="256"
code="vxmPlayer.class" name="vxmPlayerL" mayscript viewastext
codebase="http://192.168.0.9:10010/lahaina">
<param name="autoplay" value="true">
<param name="metaurl" value="index.meta.vx30">
<param name="EnablePanel" value="false">
<param name="backgroundcolor" value="000000">
<param name="videotitle" value="Live From MXS HQ">
<param name="UrlBase" value="codebase">
<param name="RewindWhenDonePlaying" value="false">
<param name="ShowStatusMessages" value="true">
<param name="StatusMessagesColor" value="00FF00">
If you are not seeing graphics and video, your email reader or web browser is
not equipped to show Java rich media. Please visit www.java.com !
</applet>
```

HOT LINK PROTECTION

VX30 B-Cast comes with hot link protection, to protect your live stream from being stolen by a malefactor who would place a reference to your B-Cast server in their web page. To set up hot

link protection please tell your sales associate which domains, IP Addresses or web sites are allowed to reference your B-Cast server. When your license is created it will contain this information.