

Guide
to the
VDOLive
Broadcast Server

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What's Special About VDOLive Technology

VDOLive technology enables you to provide live, streaming video and audio to your audience. Using links from web sites, for example, VDOLive efficiently delivers video over a variable bandwidth computer network, such as the Internet, using:

- **Efficient** and **scalable compression** algorithms.
- A TCP/IP based **scalable transmission protocol**.

VDOLive also offers direct delivery of video from the web site to the user's screen, without downloading! This means:

- less waiting
- no risk of contamination by viruses

VDOLive is a software-only solution and requires no additional hardware.

How Does it Work?

You can reach a wide audience with your video content by using VDOLive products as follows:

- Capture and compress your video and audio data using the *VDOLive Capture Station*.
- Create an HTML link from your web page; this link connects the user to the correct channel of your VDOLive Broadcast Server.

When your viewers access your web site, they click on the video links you have provided to see full-color motion video, without lengthy waits for downloading.

- Viewers use the *VDOLive Video Player* (version **2.0** or higher) to join your live video broadcast.

Your VDOLive Broadcast Server sends compressed data over a TCP/IP connection and the VDOLive Video Player decodes and displays the video. The TCP/IP network is usually the Internet, but could also be a LAN, intranet or any other TCP/IP network.

Compression Efficiency

Compression of video and audio data is necessary in order to minimize the bandwidth required to efficiently transmit this data. The better the compression, the faster the data can travel. VDOLive compression uses highly efficient compression algorithms to achieve better results than other compression schemes.

About This Manual

This manual uses typographical conventions and other visual cues, in addition to chapter divisions, to help you find the information you want.

- Technical terms are defined in the Glossary (beginning page 67).
- A detailed table of contents appears at the beginning of each chapter.

Visual Cues

Type Used	For...
<i>Italics</i>	<i>NAMES of: windows, files, buttons, options or paths.</i>
Bold	Emphasis within text, or technical terms.
Shaded Text	Tips
Monotype	Examples of initialization files, source code, etc. Also used for UNIX file names.
Bold Monotype	User Input
SMALL CAPS	NAMES OF KEYBOARD BUTTONS/FUNCTIONS

Support for VDOLive Customers

Have the information from the About box of the Broadcast Server before you contact VDOnet for assistance.

Open the About box from the System Menu (right click from the application's title bar).

Tips in this Manual

Look for text printed on a shaded background. Useful tips on using VDOLive products, or related advice, are identified this way throughout the manual.

E-mail support

Reach VDOnet Support at: broadcast@vdo.net

Support on the World Wide Web

The VDOnet web site (<http://www.vdo.net>) includes how-to information and tips on using VDOLive products.

Check the VDOnet web site often for current information and news!

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Product Definition

Place of the Broadcast Server in the VDOLive Product Line

The VDOLive Capture Station and VDOLive Broadcast Server are the newest additions to the VDOLive Product Line, which also includes:

- **VDOLive Video Server:** used for serving video files compressed in VDOLive format
- **VDOLive Tools:** used for capturing and compressing video and audio data into VDOLive format.
- **VDOLive Video Player:** used by your audience for viewing VDOLive video. Can also be used to view VDOLive video from web sites or intranets. For viewing live broadcast, users must have version 2.0 or higher of the VDOLive Video Player.

The VDOLive Capture Station and Broadcast Server for Windows 95 are provided together; the Capture Station is not available separately.

Terminology

- **Broadcast Station** = the PC on which both a Capture Station and a Broadcast Server are installed, under Windows 95.
- **Local Capture Station** = the Capture Station on the Broadcast Station PC.
- **Primary Broadcast Server** = the Broadcast Server on the Broadcast Station PC.
- **Secondary Broadcast Server** = any Broadcast Server not on the Broadcast Station PC. A broadcast can include more than one secondary server.

Overview

The Broadcast Server (primary) receives a captured and compressed video **stream** from the local VDOLive Capture Station. The Broadcast Server then distributes the stream to **clients**; a client can be a secondary Broadcast Server, or end users with VDOLive Video Players. The secondary Broadcast Server is on a different, remote computer and can run under any operating system supported for the Broadcast Server.

The configuration of a Windows 95 Broadcast Station and the subsequent transmission of the video stream is illustrated below.

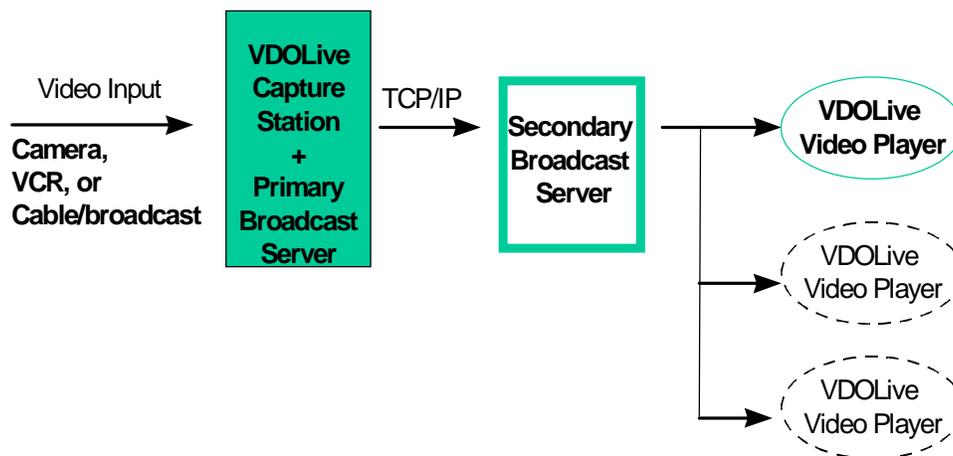


Figure 1 - Schematic Representation of the VDOLive Broadcast Station and data transmission process

How the VDOLive Broadcast Server works

- Separate **channels** of communication are defined for each broadcast event and for communication with the Capture Station.
- All Broadcast Servers can serve video streams to end users, or to other Broadcast Servers, however, only the Broadcast Server for Windows 95 can connect to a VDOLive Capture Station. The connection with the Capture Station must be made when the Capture Station and Broadcast Server are installed on the same PC, under Windows 95.
- Broadcast Servers for Windows NT and UNIX can only receive from other Broadcast Servers.
- Your Broadcast Server can then serve the video either directly to your audience--end users with a VDOLive Broadcast Player--or to another VDOLive Broadcast Server.

The Capture Station or Broadcast Server from which your Broadcast Server receives information is referred to as the **source**; the end user or the secondary Broadcast Server receiving the data from your Broadcast Server is referred to as a **client**.

The VDOLive Broadcast Server uses the **UDP** and **TCP** protocols for communications with the source and with clients.

Using Multiple Broadcast Servers

Sending your video stream through more than one Broadcast Server allows you to reach a wider audience and to provide better geographic distribution of your video. The strategy is similar to setting up mirror web sites; you increase the number of users you can serve at the same time, and distribute the serving load over several servers thereby increasing each server's efficiency and minimizing the likelihood of overload on any server.

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Overview

The VDOLive Broadcast Server for Windows is available for both Windows 95 and Windows NT.

- The Broadcast Server for Windows 95 includes a graphical user interface.
- The Broadcast Server for Windows NT runs as a Service.

For best results using VDOLive technology, we advise not using the computer that runs the VDOLive Broadcast Server for heavy network duties or CPU-intensive applications.

Technical Specifications

Hardware

Minimum requirements for the VDOLive Broadcast Server when purchased from VDOnet Corporation as a software-only solution are:

- Minimum CPU: Pentium 166
- Minimum RAM: 32 MB

Supported Operating Systems

The VDOLive Broadcast Server for Windows is available for:

- Windows 95
- Windows NT Server *or* Workstation, version 3.51 or higher

Communications Software

In order for your VDOLive Broadcast Server to run, you must have the following communications software installed on your system:

- a 32 bit TCP/IP protocol
- a dial-up or network adapter

Windows 95 users can install the above components from the Windows 95 CD.

For Windows NT users these components are available in the Windows NT Resource Kit.

The Token File

The **Token File** holds the parameters that define the capabilities of your VDOLive Broadcast Server for Windows. You must have a Token File properly installed in order for your Broadcast Server to work (installation instructions appear on page 23).

Once the Token File is installed properly, the Broadcast Server reads necessary information from the Token File. Values entered in the Server Configuration dialog boxes are checked against the information in the Token File to verify that the entries are valid.

The Token File must not be changed except by VDOnet Corporation.

If you have no Token File, or of your Token File is not installed properly, your Broadcast Server will only accept up to 2 concurrent client connections.

When you need a new Token File

To change any of the parameters defined in your Token File, contact VDOnet Corporation for a new Token File.

Installing the Server

Windows 95

All the files you need to run your VDOLive Broadcast Server are included in one self-extracting executable file.

➤ To install your VDOLive Broadcast Server:

1. Double-click on the filename of the installation executable:
vdobcast95.exe
2. Follow the on-screen instructions.

Proceed to installing the Token File (instructions on page 23).

Windows NT

Before you Begin

Before you install your Broadcast Server, you should know the following:

- You can only install the VDOLive Broadcast Server if you have **Administrator** privileges.
- In order for the Server to work properly it **must** be installed as a Service.

Installing the Server

All the files you need to run your VDOLive Broadcast Server are included in one self-extracting executable file.

- To install your VDOLive Broadcast Server:
 1. Double-click on the filename of the installation executable:
vdobcast95nt.exe
 2. Follow the on-screen instructions. The program files are automatically copied to the Windows NT *System Directory* (usually `c:\winnt35\system32`)
 3. Wait while the installation program attempts to stop and remove any previous VDOLive Broadcast Server.
 4. Continue to follow the on-screen instructions.
You are asked whether or not you want the Server installed as a Service; the prompt looks like this:

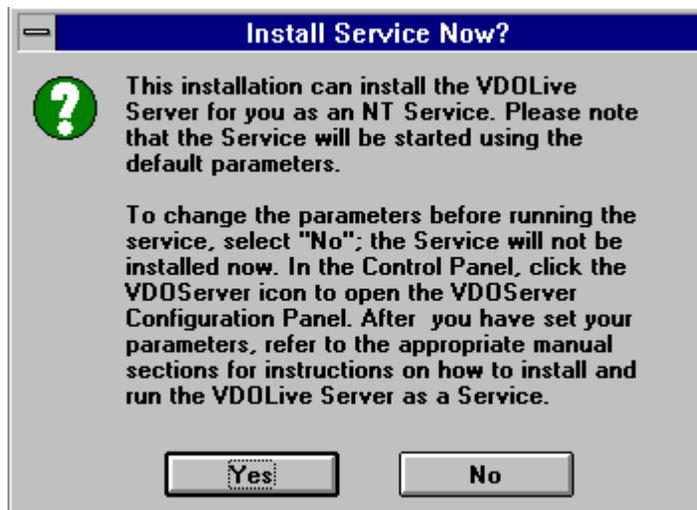


Figure 2- "Install Service?" Window

4. Choose **“Yes”** or **“No”**

- If you choose **“Yes”**: the VDOLive Broadcast Server is installed and the Service started, using the default parameters. These parameters are not displayed on screen during the installation process.
- If you choose **“No”** at this prompt, the Service is not installed.

If you have trouble with the Service starting, refer to the Troubleshooting section in Appendix A of this Manual.

Default Parameters

The default parameters mentioned to in the “Install Service Now” window are displayed in the configuration windows of your Broadcast Server. Refer to the sections below for explanations of the settings in the Administrator and Channels configuration windows; the default setting appears as part of the explanation of each parameter.

Installing the Token File

The token file is named *vdotoken*.

- To install the Token File:
 1. Use the Windows 95 Explorer to copy the file to the Windows System directory.
 - On Windows 95 this is usually C : \WINDOWS\SYSTEM
 - On Windows NT this is usually C : \WINNT35\SYSTEM32

If you copy the Token File from a command prompt, use **copy/b** to prevent the file from being corrupted.

If you subsequently move the Server executable file from the Windows System directory, be sure to move the Token File to the same location.

Restart the VDOLive Broadcast Server after installing the Token File. (see following section for instructions on starting the Server)

Starting and Stopping the Server

Windows 95

Use the Start/Stop button from the main application window of the Broadcast Server to start and stop the Server.



Figure 3 - VDOLive Broadcast Server for Windows 95, main application window

- To start the Broadcast Server:
 1. Click the Start button. The button label changes to “Stop”.
- To stop the Broadcast Server:
 1. Click the Stop button. The button label changes to “Start”.

Windows NT

Installing the Service during Server Installation

- To install the VDOLive Broadcast Server as a Service during installation:
 1. Choose “Yes” in the *Install Server Now?* window. The Service will be installed and started automatically.

Installing the Service after Server Installation

If you chose “No” in the *Install Server Now?* window of the Server installation, the Service was not installed. Use the following procedure to install the Service.

- To install the VDOLive Broadcast Server as a Service:
 1. Open a command prompt
 2. At the prompt, type:
`vdobcast -install`

Removing the Service

- To remove the VDOLive Broadcast Server as a Service:
 1. Open a command prompt
 2. At the prompt, type:
`vdobcast -remove`

Stopping and Starting the Service

- To stop and start from a command line prompt:
 1. To stop the Service, open a command prompt and type:
`net stop vdobcast`

2. To start the Service, open a command prompt and type:
`net start vroadcast`

If the Service does not start, refer to the Troubleshooting section in Appendix B of this Manual.

- To stop and start the Service from the Windows NT *Control Panel*:
1. Open the *Control Panel*
 2. Double click on the *Services* icon
 3. Select *vroadcast*
 4. Click on *Stop* to stop the Service
–or–
Click on *Start* to start the Service

If the Service does not start, refer to the Troubleshooting section in Appendix B of this Manual.

Configuring the Server

Information in the following section is relevant to Broadcast Servers for both Windows 95 and Windows NT.

Using the Server Configuration Windows

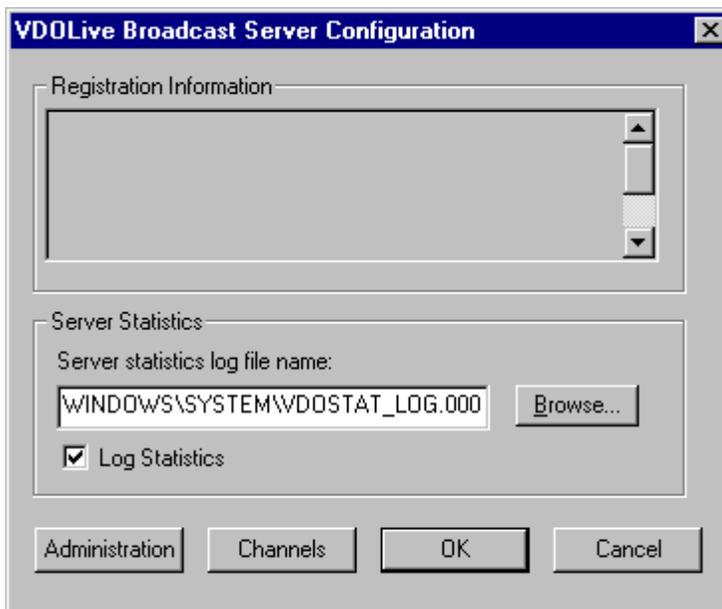
Configure your Broadcast Server by entering data in the 3 dialog boxes of the VDOLive Broadcast Server Configuration Window.

Maximum settings and registration information that appear in any of the configuration windows are read by the Broadcast Server from the Token File.

Properties Defined in the Token File

Parameter	Explanation
IP address or Host Name	of the computer on which the VDOLive Broadcast Server runs. Each VDOLive Broadcast Server can run only on the specified computer, identified by its host name or IP address. In the event that the host computer is renamed, or if the VDOLive Broadcast Server must be transferred to a computer other than the one registered in the Token File, contact VDOnet Corp. for a new Token File.
Organization or company name	This parameter is for registration purposes.
Maximum allowed number of concurrent users	Defines the maximum number of client connections your Broadcast Server can accept at one time. Administrators of the VDOLive Broadcast Server can limit this parameter to suit network needs. The default setting is the maximum allowed by the Token File. Maximum for Windows 95 = 50 Maximum for Windows NT = 100
Maximum allowed throughput per channel	Defines the maximum bandwidth at which your Broadcast Server can serve any client connection. Administrators of the VDOLive Broadcast Server can limit this parameter to suit network needs. The default setting is the maximum allowed by the Token File. Maximum for this version is 30 kbps.

- To open the Server Configuration window:
 1. Click on the Setup button of the Broadcast Server. The main configuration window opens:



Registration Information in the Main Configuration Window

The information displayed here is read from your Token File and includes your company or organization's name.

Defining Server Statistics Logging - the Main Configuration Window

Use the Server Statistics section of the main configuration window to define:

- whether or not you will save server statistics to a log file.
- the name of the log file.
- the location where you will store the log file.

These parameters are defined in the configuration window as follows:

Parameter	Definition
Server statistics log file name	Defines the name and location of the log file. The default settings are: log file location: Windows system directory log file name: VDOSTAT_LOG . xxx Where “xxx” represents a three digit sequence beginning with 000
Log Statistics	Check to record data to log file; uncheck to indicate “do not log”. Default position = checked.

Change the name or path of the Server log file by entering a new name or path in the box.

Defining Client Connections - the Administrator Window

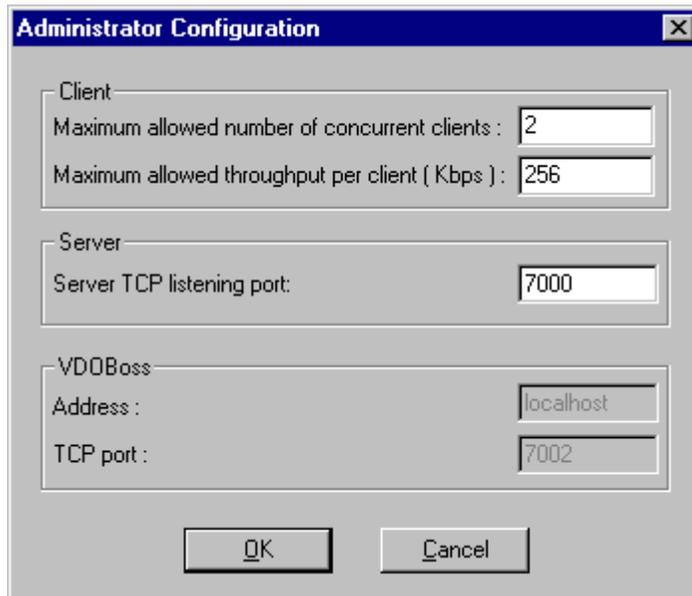


Figure 4 - Broadcast Server, Administrator Configuration window

Use the Administrator Configuration window to define:

- the number of clients you will allow to connect to your broadcast Server at any given time.
- the maximum bandwidth you will allow each client's connection.
- the port on which your Broadcast Server will listen for client connections.

These parameters are defined in the configuration window as follows:

Parameter	Definition
Maximum allowed number of concurrent users	The Administrator can set this to any number from 1 to the maximum defined in the Token File. Default setting is the maximum number allowed by the Token.
Maximum allowed throughput per client, in kilobits per second (kbps)	The Administrator can change this to any number from 8 to the maximum defined in the Token File. Default setting is the maximum number allowed by the Token.
Server TCP listening port	Port number used by Broadcast Server to detect client connections. Default=7000.

- To open the Administrator Configuration window:
1. Click on the Setup button of the Broadcast Server. The main configuration window opens.
 2. Click the *Administration* button to open the Administration window.

Defining Communications Channels- the Channels Window

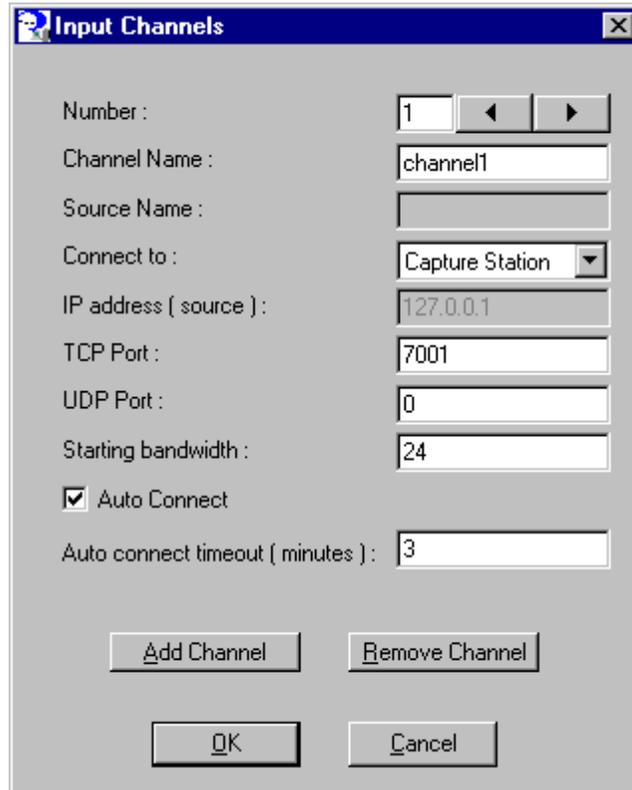


Figure 5 - Broadcast Server, Channels Window

Use the Channels Configuration window to define:

- the name of the channel you will use to send broadcast data to clients.
- whether this channel will be connecting to a Capture Station or to another Broadcast Server.
- the TCP and UDP ports your Broadcast Server will use for communications with the Capture Server or with other Broadcast Servers.
- bandwidth at which your Broadcast Server will begin transmission to clients.
- how often your Broadcast Server will try to connect to a Capture Station.

These parameters are defined in the Input Channels window as follows:

Parameter	Definition
Number	Multiple channels are defined for each broadcast event and for communications with the Capture Station; this identifies a particular channel by number.
Name	Name the channel the Broadcast Server will use to send data to clients. Channel name must be included in the URL of video links your audience uses to connect to your broadcast. Default name for channel is channel#.

Parameter	Definition
Source Name	Only required when receiving data from another Broadcast Server, in which case this information must match the name defined in the remote Broadcast Server.
Connect to	Select Capture Station or Broadcast Server.
IP address (source)	127.0.0.1 represents “local computer” and is automatically selected if you are connecting to a VDOLive Capture Station. To connect to a Broadcast Server enter that Broadcast Server’s IP address.
TCP Port	When connecting to Capture Station, must match TCP listening port defined in Capture Station: default = 7001. When connecting to Broadcast Server, must match appropriate TCP listening port.
UDP Port	Default = 0 where 0 indicates auto-select. If your Broadcast Server is behind a firewall, you must open a port for incoming data and indicate the number of the open port in this field of the Channels configuration window.
Starting bandwidth	for transmission to clients.
Auto Connect	Tells Broadcast Server to search for Capture Station even after startup of Broadcast Server.
Auto Connect timeout	Tells Broadcast Server how often to search for Capture Station (every x minutes).

- To open the Channels Configuration window:
 1. Click on the Setup button of the Broadcast Server. The main configuration window opens.
 2. Click the *Channels* button to open the Input Channels window.

Changing Configuration Settings

Changes made to any parameter in any of the Configuration windows will only take effect once the Server has been restarted.

Therefore:

Make changes to the Server configuration while the Server is stopped
–or–
Stop and restart the Server in order for any changes to take effect.

Changing Port Settings

Whenever possible, work with default port settings to minimize risk of failed communications. If you must change port settings, make sure you make all necessary corresponding changes in the other applications in the chain of communication (e.g. other Broadcast Servers) or, in the case of end users, in the .vdo files (see page 59 for more information).

The following diagram illustrates the relationship between port settings between the Capture Station, Broadcast Server and clients, using the default settings. All of the port numbers can be changed.

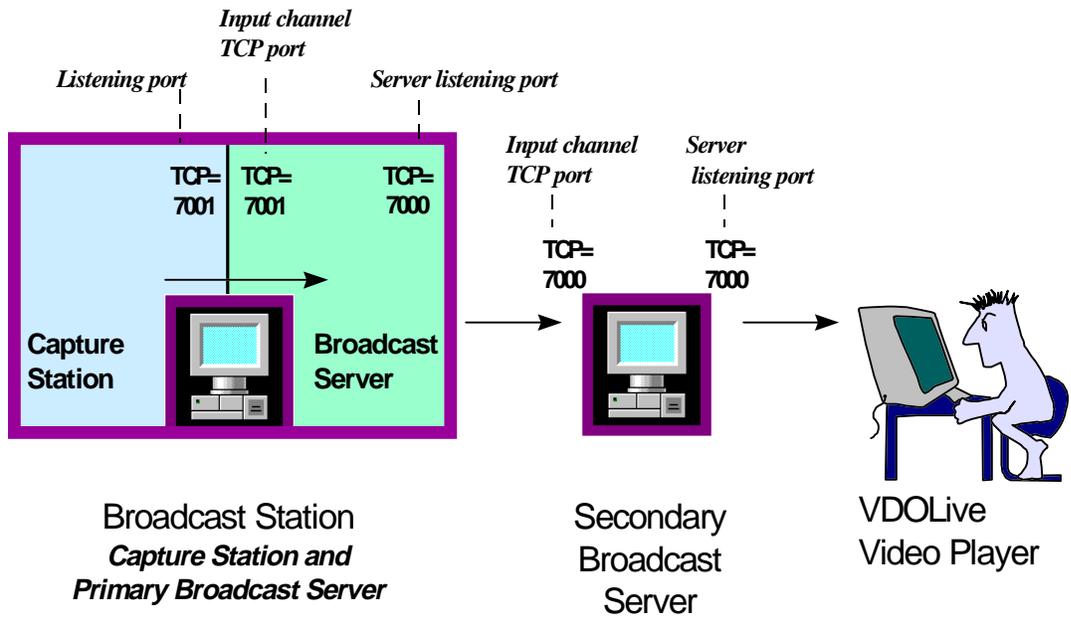


Figure 6 - Default port settings for source, server and client

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Overview

The current version of the Broadcast Server for UNIX does not include a graphic user interface and is operated from the command line. Configuration settings are defined in a separate configuration file, called the *.vdocast* file.

For best results using VDOLive technology, we advise not using the computer that runs the VDOLive Broadcast Server for heavy network duties or CPU-intensive applications.

Technical Specifications

Supported Platforms

The VDOLive Broadcast Server for UNIX is available for the following UNIX operating system. The required processor is listed in parentheses:

- Solaris 2.5 (SPARC)

Future versions of the Broadcast Server will available for additional UNIX platforms as well.

Minimum System Requirements

- Computer with one of the operating systems and processors listed above
- Minimum of 32 MB RAM
- Direct Internet access. A fixed IP address is recommended.

Installing the Server

Pre-Installing on Windows

Your VDOLive Broadcast Server is packaged in an installation that will run only under Windows. Therefore, you must first run a self-extracting executable under Windows NT or Windows 95, then copy the Server installation file to UNIX. The self-extracting file is named *vdobcastsol.exe*

- To run the pre-installation:
 1. Double-click on *bcastsol.exe*
 2. Follow the on-screen instructions

Installing to UNIX

The Windows pre-installation provides you with the following UNIX installation file: *vdobcast-sol.tar.Z*

- To open the tar file:
 1. To uncompress the file, run

```
uncompress vdobcast-sol.tar.Z
```
 2. To open the tar archive, run

```
tar xvf vdobcast-sol.tar
```

This creates the following files:

LICENSE	The VDOnet Corporation License Agreement. Read this file. Your use of VDOnet software is subject to your acceptance of the terms of this license. If you do not accept them, delete the VDOnet software files from your computer.
dot_vdobcast	Configuration file template Copy this file to your home directory as <i>.vdobcast</i> <code>cp dot_vdobcast \$HOME/.vdobcast</code>
vdobcast	Server executable file

Starting and Stopping the Server

Starting the VDOLive Broadcast Server

In order to run the Server executable, it must be in your path, then you can start the VDOLive Broadcast Server by entering `vdobcast` at any command prompt.

In addition to starting the Server, this will also display the Server's version number and build date.

Stopping the VDOLive Broadcast Server

Stop the VDOLive Broadcast Server by entering `q` at the Broadcast Server's command prompt.

Configuring the Server

Introduction to the .vdobcast file

All configuration settings for each channel of your Broadcast Server must be defined in the configuration file, called *.vdobcast*.

The *.vdobcast* file can be edited using any text editor.

Location of the .vdobcast file

The *.vdobcast* configuration file must be present in the home directory of whoever invokes the Broadcast Server.

Defining Server Settings using the .vdobcast file

Once you have installed your Broadcast Server to the designated UNIX computer, and installed the Token File, define each channel of your Broadcast Server by entering the necessary information in the *.vdobcast* file.

The Settings section appears at the top of the file and applies to all channels. Below that, each channel has a section which must contain all the parameters which define that channel. For any parameter where you do not specify a setting, the default will be used.

The number sign # at the beginning of a line indicates a comment line which is ignored by the Server.

Settings section of the .vdoBroadcast file

This section begins with the heading [Settings]. It includes the following information:

Parameter	Explanation
ListenTCPPort	Default = 7000. If you change this number, enter it in the URL used by clients to point to your Broadcast Server (.vdo file).
ReuseListenTCPPort	Tells the Broadcast Server to make more than one attempt to open the ListenTCPPort defined above.
StatPath	Defines location and name of Server Log File. Default = VDOSTAT_LOG.000 in the current working directory (the directory from which you invoked the Broadcast Server). See page 48 for more about the name of the Server Log File.
CreateLogFile	Valid values = 0 or 1 Default = 1 where 1 = log server statistics to file and 0 = do not log server statistics.

Channel definition section of the .vdoBroadcast file

This section must be included for each channel defined for your Broadcast Server. The heading of the section will be [channel#]; for example, the

section under which channel 1 is defined begins with the heading [channel1].

The following settings must be defined for each channel:

Parameter	Explanation
Name	Name of the channel clients must specify to receive data from this channel. Channel name must be included in the URL used by clients to connect to your Broadcast Server. Default = same as the section heading, e.g. channel1
Type	Defines the protocol used for data being received from source by this channel, where: VPH = used to receive data from a VDOLive Capture Station VTP = used to receive data from another Broadcast Server Channels receiving VTP must also indicate <i>Source Name</i>
SourceName	Only for VTP channels. Enter name of channel as defined on source from which this channel will receive data.
IP	IP address of source
TCPPort	Default = 7000
UDPPort	Default = 0 where 0 indicates auto-select. If your Broadcast Server is behind a firewall, you must open a port for UDP connections and, instead of 0, enter the number of the opened port.

AutoConnect	<p>Valid values = 0 or 1 Default = 0</p> <p>When AutoConnect = 0 the Broadcast Server waits for the first client to request a specific channel, and only then connects to the source. It then remains connected to the source as long as there are any open client requests. When the last client hangs up, the Broadcast Server disconnects from the source.</p> <p>When AutoConnect = 1 the Broadcast Server connects to source as soon as it is invoked; this provides faster data delivery to the first client. When AutoConnect=1, the Broadcast Server also attempts to reconnect to the source if the connection is lost, or if the connection was not made at startup.</p>
-------------	--

Add an empty line at the end of the configuration file.

Changing Configuration Settings

Redefine your Broadcast Server configuration by opening the *.vdbroadcast* file in any text editor and making the appropriate changes.

Changing Port Settings

For more information about port settings, please refer to page 36.

Running the Server

Once you start your Broadcast Server, the following options are available from the command prompt:

H displays the available options.

S displays the names of all defined channels and their current status.

Q stops the Server.

These commands can be entered with lowercase or uppercase letters.

Monitoring Server Statistics

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VDOLive Broadcast Server Log File

Introduction to the Server Log File

Each connection to your VDOLive Broadcast Server is registered and logged to this file, unless you set the Server to “do not log” (page 48). The data recorded here can be analyzed and used for billing, marketing and other business purposes. One way to perform analyses such as these is to load the file into a spreadsheet or database program.

The Log File looks like this when displayed using a spreadsheet:

Field Name	Name	IP Address	Organization	email
User Info	John White	201.177.101.64	A.S.E.	jwhite@ase.com
User Info	Tina C.	212.555.121.20	R.V.A.	tinac@rva.com

Sec	BytesSent	Time	Date	kbps
6	77332	17:02:36	01/25/1996	13
11	48225	17:03:11	01/25/1996	20

#users	File Name	End Status
1	c:/pub/movies/channel1	Normal
2	h:/pub/vdolive/channel1	User Stop

The information in the example above is from the User Info field of the Log File (see section beginning page 52). Other fields are explained in the section on the format of the Log File, beginning on page 50. In addition to the type of information displayed in the example above, each channel defined also has its own line; see the ChannelInfo section (beginning on page 52) for details.

Location of the Log File

Windows: Define the location of the Server Log File from the main Server Configuration window (see page 28).

UNIX: Define the location of the Server Log File from the `StatPath` entry of the `.vdbcast` file.

Frequency of Entries to the Server Log File

Windows: Each client connection is logged at the conclusion of the connection. To choose not to log any entries, uncheck the *Log Statistics* box in the main Server Configuration window.

UNIX: Each client connection is logged at the conclusion of the connection. To choose not to log any entries, enter 0 instead of 1 in the `CreateLogFile` entry of the `.vdbcast` file.

Using the Server Log File

Names of the Server Log File

On all operating systems, the default name of the first VDOLive Broadcast Server Log File is `VDOSTAT_LOG.XXX` where “xxx” represents a 3 digit sequence beginning with 000.

Windows: The Server administrator can change the name, and path (location) of the Server Log File by entering the new information in the Server Configuration window. Entries will be written to the new Log File once the Server has been restarted.

UNIX: The Server administrator can change the name, and path of the Server Log File by entering the new information in the `StatPath` entry of the `.vdbcast` file.

Starting a New Log File

How a New Log File is Started Automatically

When the Server Log File reaches 1MB in size, it is automatically closed, saved and a new log file is opened. The number suffix of the new file begins with the next consecutive number.

For example, if VDOSTAT_LOG.000 was just closed, the new log file is named VDOSTAT_LOG.001.

The Server Log File can only be closed, and a new one opened, when there are no clients connected. As long as one or more clients are connected, the Log File continues to record information even beyond 1MB.
--

How to Start a New Log File Manually

- To force a new Log File to start:
 1. Stop the Server.
 2. In the Configuration window of your VDOLive Broadcast Server, enter a new name for the Log File (in the *Server Statistics Log File Name* box)
–or–
In the File Manager, rename the Log File you just closed.
 3. Restart the Server.

When the Server restarts, it will open a new log file. The name it uses will depend on the method you used. If you renamed the previously existing Log File by using the File Manager, a new Log File with the name set in the Server Configuration window will be started. If you changed the name in the Configuration window, a new file with that name will be started.

Standard vs. Advanced Server Log File

There are two types of Log File: Standard and Advanced. The Advanced Log File contains more information in the UserInfo line than the Standard. The type of Log File recorded by your Server is determined by the Token File. The following fields of the UserInfo line are not recorded in a Standard Log File:

- Name
- IP
- Organization
- Email
- Sec
- BytesSent
- ChannelName

Format of the Server Log File

Five types of Server events are recorded in the Server Log File. Each event is displayed in its own line, and each line is identified by one of the following line descriptions:

- ServerStart
- ServerStop
- ChannelInfo
- UserInfo
- ErrorInfo

The fields of each line are separated by a TAB.

In addition to the above lines a Field Name line is entered to the Log File each time the Server is started, or a new Log File is opened. This line lists all the fields of the UserInfo line.

While a user of the VDOLive Video Player is connected to your live event, a temporary entry to the Log File is written. This entry is incomplete and includes only the information available before the playing is completed, such as the User Information. Once the user disconnects or the event ends, additional information is written, such as the total bytes served, etc., and the entry is completed.

Server Start Line

The Server Start Line is a string containing the following information:

- Server name and IP address.
- Time Server was started, in hh:mm:ss format
- Date Server was started, in mm/dd/yy format
- Version information of the VDOLive Broadcast Server, including the build number and date of build.
- Maximum bandwidth allowed per channel, in kbps, displayed under the column heading `kbps`.
- Maximum number of users allowed, displayed under the column heading `#Users`.
- Description of connection status, in End Status column. No Channel Defined Define channel in Broadcast Server.

Other fields record zero (0) in this line.

Server Stop Line

The Server Stop Line is a string containing the following information:

- Time of shut down in hh:mm:ss format
- Date of shutdown in mm/dd/yy format
- End Status: “Normal” or “No Channel Defined” or
- “Unable to Bind Listening Socket: Port in Use”. If this message appears, the port may already be in use by another application; release the port. If the port is not in use, reboot the computer and try again.
- “No TCP/IP”: If this message appears, check for proper installation and functioning of TCP/IP on Broadcast Server computer.

Channel Info Line

This line records details of connections with source data, such as a VDOLive Capture Station. This line will not appear for connections with clients and does not include any information regarding client connections.

Valid entries in this line are:

- Source name and IP address.
- Channel name.
- Time, in hh:mm:ss format.
- Date, in mm/dd/yy format.
- Total number of users connected to the Broadcast Server
- End Status: Connected, Disconnected or Channel Not Responding.

User Information Line

The UserInfo line records details of connections from clients; clients can be end users with a VDOLive Player, or other Broadcast Servers.

The following values are recorded in this line:

- **User:** User's Name
- **IP:** IP address of Client Computer
- **Org:** User's Organization or Company Name
- **Email:** User's E-mail Address
- **Sec:** Total Connection Time in Seconds
- **Bytes Sent:** Total Bytes Sent to Client
- **Time:** Login Time in hh:mm:ss format
- **Date:** Login Date in mm/dd/yy format
- **kbps:** Average Connection Bandwidth
- **#Users:** Total # of users connected to the server
- **Channel Name:** Name of broadcast channel
- **End Status:** Operation which ended the connection between the client and the VDOLive Broadcast Server. Following is a list of valid status values and their explanation.

Stop Reason	Explanation
Channel connection Failed	Connection was interrupted and lost. Could indicate that Capture Station hung up.
Channel not Responding	Broadcast Server could not connect to source channel.
Hostname / IP does not match Token	Broadcast Server can only run on computer defined in Token File.
Incompatible Protocols	Client error.
No Such Channel	Client is trying to access channel based on URL defined in .vdo file. Check URL.
Normal Stop	Movie finished playing.
Old Client (new movie)	User must update version of Player.
Server Expired	Contact VDOnet Corporation.
Server Stop	Administrator shut down VDOLive Broadcast Server
Too Many Clients	Server refuse to accept client because limit (of concurrent client connections) already reached.
User Not Responding	Server times out client connections if no response after 60 seconds.
User Stop	User disconnected before broadcast ended.

Error Info Line

Valid entries in this line are:

- “Unknown Command”: This message indicates that an command unrecognized by the Broadcast Server was received.

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Overview

This chapter provides you with the information you need to connect your users with the broadcasts you now know how to set up using your VDOLive Broadcast Server.

Since your audience uses links from WWW pages to access your video content, and these web sites exist on an HTTP (Web) server, not a VDOLive Broadcast Server, you must create a link between the Web server and the Broadcast Server. This link is the .vdo file.

Your audience views your broadcast from the World Wide Web. They use their browser to reach your site, and click on text or graphic links [from there] to activate the video. Use standard links, which will play the video in the window of the VDOLive client software, the VDOLive Video Player, or Plug-in links, which play “embedded” or “inline” video.

Plug-in video plays directly on your web page, and does not require your users to have the VDOLive Video Player. Currently the VDOLive Plug-in is available to users with one of two supported browsers: Netscape Navigator, any version from 2.0 or Microsoft Internet Explorer, any version from 3.0. Users of other browsers who click on a Plug-in link will see a “broken image” icon.

The complete procedure for linking your audience with your broadcast includes these steps:

1. Set up one channel in your Broadcast Server for each broadcast.
2. Create a .vdo file for each broadcast.
3. Create an HTML link to the .vdo file.
4. Configure the MIME type of your HTTP (Web) Server.

The following diagram illustrates the process by which users access your content:

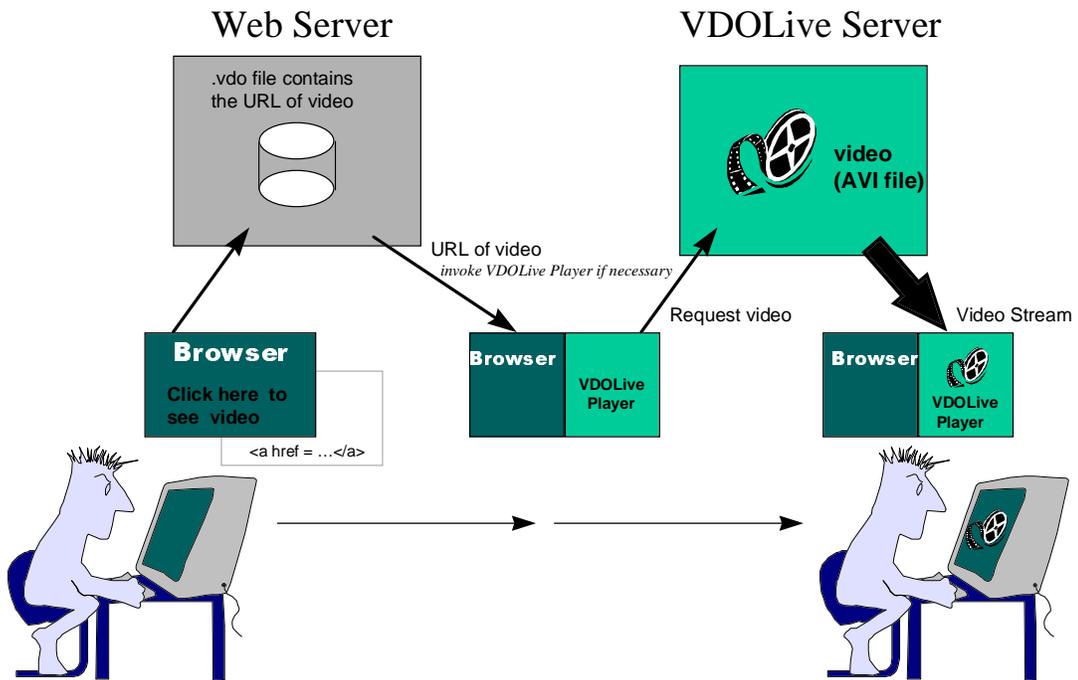


Figure 7 - How users access and view your broadcast

About VDO Files

Characteristics of the VDO File

A VDO file provides transparent direction to the user to reach your broadcast, on your Broadcast Server, from the web server where your link is displayed on a web page.

The VDO file:

- is a text file
- uses the suffix ***.vdo***
- contains the URL of your video content, in this case a VDOLive broadcast.
- is stored on your HTTP (Web) server.

Creating VDO Files

Create VDO files using any text editor, such as Notepad.

- To create a VDO file:
 1. Open a text editor.
 2. Enter the URL of the broadcast.
 3. Save the file and store it on your HTTP server.

Syntax of the URL (VDO File) for a VDOLive Broadcast

The URL syntax is:

```
vdo://VDOLiveVideoServerHostName|Server IP  
address[:Server TCP port]/ChannelName
```

Where:

“vdo://” = the protocol being used (resource type).

The colon and the forward slashes must be included. Backslashes (\) do not work. For VDOLive Broadcast, the protocol is always “vdo”.

“VDOLiveVideoServerHostName|Server IP address/” = the host name **or** the IP address of the VDOLive Broadcast Server.

This location, must be followed by a forward slash (/) not a backslash (\). If the location includes the server port number (see below), the slash should follow the port number.

“Server TCP port” = This information is only required if you are **not** using the default TCP listening port number on the Broadcast Server.

“ChannelName” = name of the channel from which your broadcast is available.

This is the name you defined in the Broadcast Server Input Channels window.

Example:

For the broadcast on channel1 from the Broadcast Server called *server17.vdolive.com*, the .vdo file would look like this:

```
vdo://server17.vdolive.com/channel1
```

UNIX file names

The VDOLive Broadcast Server for UNIX can serve files that were created on a UNIX or non-UNIX system, however, bear in mind when creating VDO files that UNIX is case-sensitive. A file named Movie.avi, for example, must be referred to as Movie.avi and not MOVIE.AVI or movie.avi.

HTML Links to VDO Files

A video link is the HTML code behind the words or graphic users click on (from a web site) to join your broadcast. Each link points to one broadcast channel. This HTML pointer is stored on the HTTP (web) server.

A link from a web page to VDOLive video typically has this format:

```
<a href="http://www.yourdomain/path and file name of .vdo file"> Your Text Here</a>
```

➤ To create a link:

1. Create a VDO file for each broadcast. (page 59)
2. Create an HTML link to the VDO file. For example:

```
<a href="http://www.your.site/vdofiles/channel1.vdo">Click here to view the video</a>
```

Creating Embedded (Plug-in) Video

Plug-in video is different from the type of video displayed using the linking method above because it allows the user to display video directly in the browser window, without using the VDOLive Player application. The video is displayed inline from a web page, or in the “theater” mode, which displays embedded video in a whole screen frame.

Syntax of the Embed Tag

Reproduced below is the syntax of the Embed tags **as defined by Netscape:**

<EMBED>

This tag allows different kinds of documents of varying data types to be embedded into an HTML document. It has three default attributes: SRC, WIDTH, and HEIGHT. It may also contain optional parameters that can be sent to the plug-in handling the embedded data type.

SRC=<URL>

The URL of the source document.

WIDTH=<size in pixels>

The WIDTH attribute specifies the width of the embedded document, in pixels.

HEIGHT=<size in pixels>

The HEIGHT attribute specifies the height of the embedded document, in pixels.

PARAMETER_NAME=<PARAMETER_VALUE>

Optional parameters to send to plug-ins. There can be an infinite number of parameters passed to a plug-in. Examples of parameters are PLAY_LOOP=TRUE, or CONTROLS=FALSE. Parameters are specific to each plug-in.

Examples:

```
<EMBED SRC="MyMovie.mov", WIDTH=150, HEIGHT=250 CONTROLS=TRUE>
<EMBED SRC="DoomGame.ids", WIDTH=400, HEIGHT=300 SPEED=SLOW LEVEL=12>
```

VDOLive Embed Options

Tag	Description
src	source document =.vdo file containing URL of broadcast
width, height	Define width and height of Plug-in, in pixels. Zoom by 100% is activated automatically if designated area is large enough.
autostart = true	Plug-in video begins to play automatically when user reaches web page.
autostart = false	Plug-in video only starts with user's mouse-click on video link.

VDOLive Broadcast video cannot use the "stretch" tag, which can be used when serving VDOLive video **files**.

Use Properties (from Windows 95) to check the dimensions of your files. Width must be a number evenly divisible by 16; other measurements are rounded down to the nearest multiple of 16. A file measuring 160*120, for example, is truncated at 160*112.

Procedure for Creating a Plug-in

➤ To create a Plug-in:

1. Create a VDO file for each clip; store the VDO file on your HTTP (web) Server. (page 59)

2. Create an HTML link to the VDO file. For example:

```
src = "http://webserver/directory name/ file name.vdo"  
autostart = { true or false }  
loop = { true or false }
```

Zoom by 100% is activated automatically if the designated area is large enough.

width = <size in pixels>

height = <size in pixels>

For example:

```
<embed src="http://www.vdolive.com/vdofiles/bird.vdo"  
autostart=false loop=false width=160 height=128>
```

When you specify width=1 and height=1, Netscape makes the video fill the page, whatever the page size is.

The actual compressed size of the clip is 160x112 because its dimensions must be multiples of 16. Dimensions which are not evenly divisible by 16 are rounded down to the closest multiple of 16.

An additional 16 vertical rows (160x128) are required below the actual video area for the messages such as "Loading..." or "Playing...". If you add 8 more pixels to the width and height, a simple frame around the video is added.

Configuring the MIME type on your HTTP (Web) Server

Use the following settings to set up the MIME type for the VDOLive Broadcast Server application on your HTTP server:

- MIME type: **video**
- Sub type: **vdo**
- File extension: **vdo**

Please refer to the documentation for your HTTP server for further details.

Testing Video Content Using the VDOLive Video Player

Before uploading your links to the web, you can use the VDOLive Video Player, in stand-alone mode, to test the connection between your Broadcast Server and clients.

Use the Play button on the VDOLive Video Player to display a dialog box. Enter the name of the file you are testing, using the same syntax as for VDO files.

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Appendix A: Troubleshooting Your Server

VDOLive Broadcast Server for Windows 95

Server could not be started

If your Server did not install or start properly:

- Did you install the Broadcast Server on the correct computer, i.e. the computer defined by your Token File?
- Check to see that your Token File is installed in the Windows NT system directory (usually C:\windows\system).
- Check to see that your Token File has not been renamed. It should be called *vdotoken*.
- Check to see that there is no other instance of the Broadcast Server already running.

VDOLive Broadcast Server for Windows NT

Server Service could not be installed

If your Server Service did not install properly:

- Did you install the Broadcast Server on the correct computer, i.e. the computer defined by your Token File?
- Check to see that your Token File is installed in the Windows NT system directory (usually winnt35\system32).

- Check to see that your Token File has not been renamed. It should be called *vdotoken*.
- Check to see that the Service has not already been installed.
- Make sure you are logged in with Administrator privileges and try again to install the Server Service, using the **vdobcast -install** command (page 25). Only a user with administrative privileges can install or remove a Service.

Server Service could not be removed

If your Server Service did not remove properly:

- Check to see that the Service has not already been removed.
- Make sure you are logged in with Administrator privileges and try again to remove the Server Service, using the **vdobcast-remove** command (page 25). Only a user with administrative privileges can remove or install a Service.

Server Service could not be started

If :

- You used the command **net start vdobcast** to launch the VDOLive Broadcast Server as a Service from a command prompt, and the following error message was displayed:

```
The VDOBcast service could not be started.  
The Service did not report an error.  
More help is available by typing  
NET HELPMMSG 3534.
```

–or–

- You launched the VDOLive Broadcast Server as a Service from the Control Panel, and the following error message was displayed:

```
Could not start the vroadcast service on  
\\SERVER-NAME.
```

```
Error 2140: An internal Windows NT error  
occurred.
```

Then:

- Ignore the HELPPMSG displayed since it will tell you that:
the service did not report an error.
 - Open the Windows NT Event Viewer for more information.
- To open the Event Viewer:
1. Open the Administrative Tools Program Group.
 2. Select Event Viewer.
 3. From the Log menu, select Application log.
 4. Double-click on the last *vroadcast* entry (should be the topmost entry in the log) to view the reason the Server did not start. Following is an explanation of the possible messages.

Message	Solution
Can't open Server log file <reason>	Check the path of the log file in the Server Configuration panel.
Bad host name	Contact VDOnet Corp.
Unable to open listening service (port may be in use)	Check to see if another application is using that port.
Server has expired	Contact VDOnet Corp.

Server Service could not be stopped

If your Server Service did not stop properly:

1. Check to see that the Service has not already been stopped.
2. Make sure you are logged in with Administrative privileges and try again to remove the Server Service, using the **net stop vroadcast** command. Then try again to stop the Server.

Only a user with Administrative privilege can stop or start a Service.
