Guide

to the

VDOLive

Video Server

Software Version 2.1

Manual Version 2.1

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Welcome to VDOLive

About this Chapter

Begin with this chapter to gain a general understanding of VDOLive technology and products.

Information in this chapter is organized by topic, as follows:

- **Introduction to Desktop Video Broadcasting**: presents an overview of how VDOnet's VDOLive technology and products enable you to communicate in a new medium called Desktop Video Broadcasting.

- **What's Special About VDOnet's VDOLive Technology**: describes the technological advantages of VDOLive technology and the complete process you follow to use VDOLive products.

- **VDOLive Family of Products**: explains when to use each of the VDOLive products and what to use it for.

- **About This Manual**: defines the visual cues used to help you quickly locate information in this manual.

- **Support for VDOLive Customers**: lists the various types of support available.

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Introduction to Desktop Video Broadcasting

Now that you have the VDOLive Server you can broadcast your video content to the world of Internet users. Using this software you can bring life to your personal or corporate web pages by adding clips with video and sound.

But enhancement of web pages, whether for advertising, educational or other purposes, is only one of the numerous applications of VDOLive. By bringing together Internet and video communications, VDOLive is creating a new communications medium: desktop video broadcasting.

Desktop video broadcasting means richer, more interesting communications for individual as well as corporate users. Motion video can be made easily available to friends, colleagues and customers who view the video using their regular Internet connection. VDOLive offers you motion to replace static information and real-time streaming video from a VDOLive Server instead of lengthy download times.

Beyond the limitations of current technology lies a world in which community meetings, interaction between citizens and government, between educational institutions and students, and numerous other such forms of interaction will become possible using video communications over the Internet. VDOnet has taken a giant step towards making this happen by offering products that work at both high and low bandwidths and on multiple platforms. Continuing development by VDOnet in these areas will soon bring additional products to your desktop.

Watch the VDOnet web site (http://www.vdo.net) for announcements of future technology breakthroughs and new products from VDOnet!

What's Special About VDOLive Technology

VDOLive technology enables you to incorporate video and audio in Internet web sites and 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 using the *VDOLive Tools*.

- Store the compressed AVI clips on the *VDOLive Server* computer.

- Create a text file that points from your Web (HTTP) Server to the VDOLive Server. See separate document: Making your VDOLive Content available on the WWW for guidelines.

- Create an HTML link from your web page to the VDO file. See also: Making your VDOLive Content available on the WWW.

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

- Viewers use the *VDOLive Video Player* to request and play your video files.

Your VDOLive 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.

Scalability

We define "scalability" as the dynamic adjustments made by the VDOLive Server in order to deliver the highest quality video under changing conditions, i.e. variable bandwidth.

Each time a VDOLive Video Player, also called a "client", connects to a VDOLive Server to request video, the Server determines the bandwidth available in that particular connection. For as long as the client remains connected the VDOLive Server performs "dynamic scaling".

Scalability is built into the compressed file. The scalability of the compressed data combined with the VDOLive Server's dynamic scaling, provides the best possible video quality at any particular moment.

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 over narrower lines.

The VDOLive compression algorithms are highly efficient. They enable the transmission of higher quality video than other compression schemes at any

given bandwidth: even as low as 14.4 kilobits per second (kbps)! VDOLive compression works together with the VDOLive Server's scalability to adjust the rate of transmission to the bandwidth available on the receiving end, while preserving the best possible balance of motion and resolution for the connection.

VDOLive Family of Products

The VDOLive product line includes the following software:

- The VDOLive Video Server
- The VDOLive Tools
- The VDOLive Video Player

The VDOLive Player is available for free download from the VDOnet web site: http://www.vdo.net. To purchase additional copies of the VDOLive Server or VDOLive Tools, contact VDOLive Corp. Sales by telephone, at (415) 846-7730 or via the VDOnet web site.

About the VDOLive Video Server

Use the *VDOLive Video Server* to:

- Store files of compressed video and audio data.
- Serve video to users upon request by a VDOLive Video Player (also called a "client").

About the VDOLive Tools

Use the *VDOLive Tools* to prepare video files.

The VDOLive Tools include two separate programs: VDO Capture and VDO Clip.

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- Use *VDO Capture* to convert video from an analog source, such as video cassettes, to digital format.
- Use *VDO Clip* to compress digital (i.e. previously captured) video.

About the VDOLive Video Player

The *VDOLive Video Player* is the VDOLive client software. Your audience requires this Player to view VDOLive video. Download the Player, for free, from VDOnet's web site at http://www.vdo.net.

Although the Player is not covered in this manual, you can learn more about it by consulting the Frequently Asked Questions (FAQ) file on the VDOnet web site: http://www.vdo.net

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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.

Visual Cues

Type Used	For…
Italics	*NAMES of: windows, files, buttons, options or paths.*
Bold	**Emphasis within text, such as terms used for the first time**.
Shaded Text	Tips
Monotype	Examples of initialization files, source code, etc.
Bold Monotype	**User Input**
SMALL CAPS	NAMES OF KEYBOARD BUTTONS/FUNCTIONS

Chapter Summaries

Each chapter of this manual is preceded by a table of contents for that chapter as well as an explanation of the main topics of the chapter, under the heading "About this Chapter".

The information in this manual is divided into the following chapters:

- **Welcome to VDOLive**: begin by reading this chapter to get a general understanding of what VDOLive technology is all about, what the various products are and how they work together. If you are already familiar with VDOLive, and are looking for how-to information about the Server, proceed to the following chapters.

- **Token Files**: read this chapter to find out how your Token File controls the functioning of your Server, how to install or replace your Token File and what happens if you don't have one.

- **Trial Version Server**: this chapter defines the functioning of a Server with no Token File, including an explanation of the Trial Server for Windows 95 and its interface.

- **VDOLive Video Servers**: here you will find operating instructions regarding the VDOLive Video Server on all platforms.

- **Appendices**: troubleshooting information is located under this heading.

Support for VDOLive Customers

Tips in this Manual

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

Support on the World Wide Web

The VDOnet web site (http://www.vdo.net) includes a Technical Support section with how-to information, tips on using VDOLive products and more. Access the Technical Support area of the VDOnet web site from the home page.

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

Token Files

About this Chapter

- **Introduction to the Token File**: defines what a Token File is and why you need one.

- **How the Token File Works**: explains the function of the Token File, installation procedure, what happens if you do not have a Token File and how to change or update your Token File.

Introduction to the Token File

The **Token File** holds the parameters that define the capabilities of your VDOLive Video Server; it reflects the details of the agreement between you, the purchaser of a VDOLive Video Server, and VDOnet as to these parameters, in addition to registration information. The Token File must not be changed except by VDOnet Corp.

You must have a Token File properly installed in order for your Server to work at its proper capacity; otherwise, it functions as a **Trial Version Server**, i.e. a limited version. The capacity of the Trial Version Server is defined in the next chapter.

How the Token File Works

The Token File contains the parameters that define how your Server works. Once the Token File is installed properly, the Server reads necessary information from it. If the Server cannot find the Token File, it operates based on default values defined for a Trial Version Server. (see next chapter for information on the Trial Version)

The following sections explain:

- How to install the Token File

- Which functions are controlled by the Token File

- How to read information from the Token File.

Installing the Token File

The Token File is named *vdotoken*.

➢ To install the Token File:

1. Copy *vdotoken* to the appropriate directory for your operating system.

- *UNIX* (all platforms): copy the file to the same directory as the VDOLive Video Server files (the default is /usr/local/vdosrv).

- *Windows NT*: copy the file to the Windows System directory (the default is `C:\WINNT35\SYSTEM32`). This is the default location to which the Server executable and related files are installed.

    - If you move the Server executable file, move the Token File to the same location.
    - If you copy the Token File from a command prompt, use **`copy/b`** to prevent the file from becoming corrupted.

Restart the VDOLive Video Server (any platform) after installing the Token File.

Properties Defined in the Token File

- **Expiration Date**: Most Servers are unlimited.

- **Maximum playback time per clip**: Most Servers are unlimited.

- **Host name or IP address** of the computer on which the VDOLive Video Server runs. Each VDOLive Video Server can run on a specific computer, identified by its host name or IP address. In the event that the host computer is renamed, or if the VDOLive Video 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 exists for registration purposes.

- **Maximum allowed number of concurrent users**. Administrators of the VDOLive Video Server can limit this parameter to suit network needs. Increase your Server's capacity by upgrading your Token File.

- **Maximum allowed throughput per channel**. Administrators of the VDOLive Video Server can limit this parameter to suit network needs. Increase the your Server's throughput by upgrading your Token File.

How to display Token File information

UNIX Server: Use the **–v** switch (details on page 39) to display Token File information or read it from the Log File.

Windows NT: Token File information is displayed in the Configuration Panel (page 48) and the Log File, or can be displayed using **–v** (page 55).

When you need a new Token File

To increase the capacity of your VDOLive Video Server, or to change any of the parameters included in your Token File, contact VDOnet Corp. for a new Token File.

Trial Version Server

About this Chapter

- **Introduction to the Trial Version**: defines the product and explains the relationship between the Video Server and the Trial Version.

- **Capability of the Trial Version**: lists the functions and limitations of the Trial Version.

- **The Trial Version for Windows 95**: documents and provides operating instructions for the only VDOLive Server with a Windows 95 interface.

Video Servers (not Trial Version Servers) are available only for Windows NT and UNIX, not for Windows 95

Introduction to the Trial Version

Under the following circumstances, a VDOLive Server functions as a Trial Version Server:

- You received the VDOLive Server as part of a hardware or software package from a company other than VDOnet. These versions have no Token File.

- You downloaded the VDOLive Video Server for trial purposes, and so have no Token File.

- You purchased a VDOLive Video Server but did not install your Token File properly.

To increase the capability of your Server, install your Token File according to the instructions below, or contact VDOnet Corp. to purchase a Token File.

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Online customer support is not available for the Trial Version Server, however, e-mail to persserv@vdo.net will be answered as allowed by support staff resources.

Both the VDOLive Trial Version Server and the VDOLive Player run on Windows '95, however, we do **not** recommend running the VDOLive Player on the same computer as the VDOLive Trial Version Server as the Player is a CPU intensive application.

Capability of the Trial Version

The Trial Version Server is capable of:

Serving :

- up to 2 clients at the same time.
- up to 1 minute of your clips.
- at a maximum transmission speed of 128 kbps per client

Additional Limitations:

- the Trial Version Server expires on April 30, 1997.
- Standard Server Log File in place of Advanced Server Log File. (see also page 57)

The Trial Version Server for Windows 95™

Introduction

The only platform with a unique interface for the Trial Version of the VDOLive Server is Windows 95. On UNIX and Windows NT the interface to the Trial Version is the same as to the VDOLive Video Server.

The VDOLive Trial Version Server for Windows '95 features a simple Graphic User Interface in which messages are always displayed in the same part of the window.

The main application window of the Trial Version Server for Windows '95 looks like this:

Figure 1 - Trial Version Server for Windows 95

Minimum Requirements

- PC with a 486DX100 processor

- Windows '95 operating system

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- 16 MB RAM

- Direct Internet access with a fixed IP address

Installing the Trial Version Server

Double-click on the VDOLive Trial Version Server icon from the directory to which you downloaded it. Follow the on-screen instructions until installation is complete.

Configuring the Trial Version Server

All configuration of the Trial Version Server is done from the Server Configuration window and its sub-window, the Administrator window.

The Server Configuration Window

➢ To open the Configuration window:

1. Click on the Setup button of the VDOLive Trial Version Server. The Server Configuration window opens:
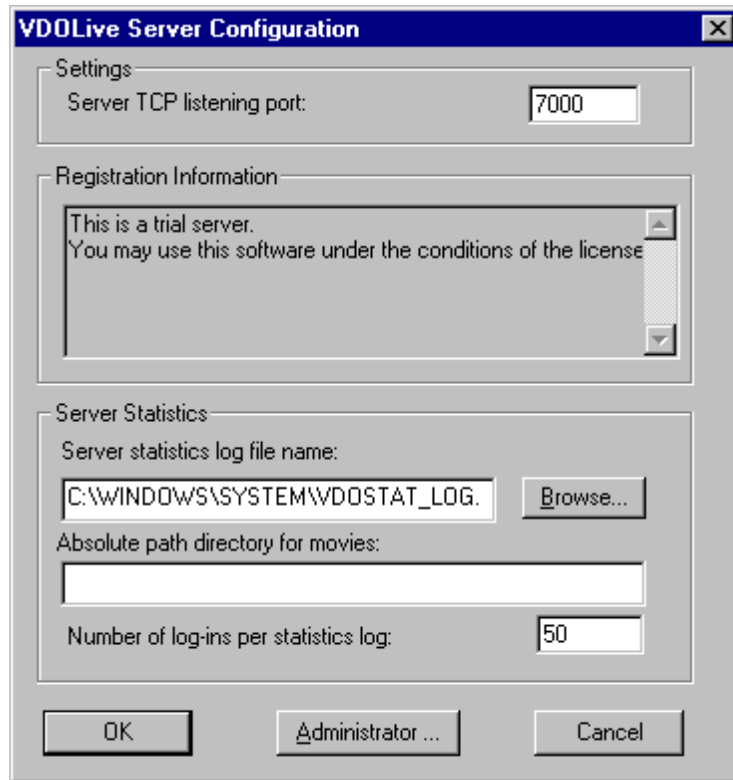
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Figure 2 - Trial Version Server Configuration Window

See the section ("Configuring") beginning on page 48 for information about the Server Configuration Window and settings that can be changed from this window.

The Administrator Window

> To open the Administrator Window:

From the Server Configuration window, click on the Administrator button (bottom center). The Administrator window opens:
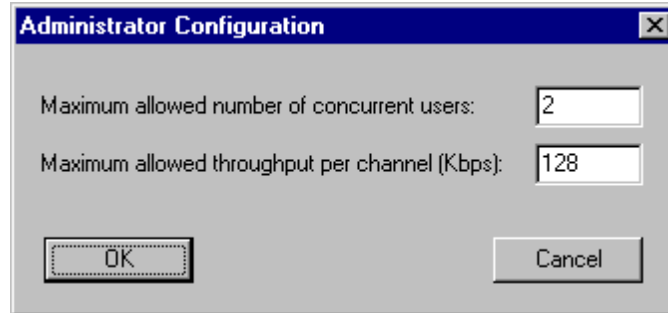
Figure 3 - Trial Server Configuration, Administrator Window

Limit these settings by entering a new number in the appropriate box; you cannot exceed the default settings of a Trial Version Server. See the "Configuring" section beginning on page 48 for more information.

The Server can receive one client connection at a time via dial-up, or two concurrent client connections over ISDN, Frame Relay or other options capable of carrying 2 separate communications simultaneously.

Running the VDOLive Trial Version Server

Launching the Server

> To launch the Trial Version Server:

1. Double-click on the VDOLive Server icon from the VDOLive program group or other program group you selected during the installation.

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–or –
if you chose not to add an icon to the Program Manager for the
VDOLive Server:

2. Double-click on the VDOLive Server from the Windows System
   directory.

Starting the Server

➢ To start the Server:

1. Click on the Server's *Start* button (bottom right). The *Server running*
   message is displayed.

Stopping the Server

➢ To stop the Server:

1. Click on the Server's *Stop* button (bottom right). The *Server stopped*
   message is displayed.

System Menu

Right-click in the title bar of the Trial Server to open the system menu.

This menu includes:

- **Standard window manager functions**: restore, move, minimize.

- **Close**: closes the application.

- **About**: displays application and system information.

Program Menu

      ➢   To open the program menu:

        1. Right-click in the main Server window. The menu includes two options:

- **Show All**: Displays the number of open channels. In future releases, the *Show All* function will display additional information as well.
- **Open Channels**: Graphic representation of the client connection/s.

VDOLive Video Servers

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About this Chapter

This chapter documents VDOLive Video Servers, their features and functionality. Information in this chapter is presented in the following order.

- **Introduction to VDOLive Video Servers**: provides a brief overview of the uses of a VDOLive Video Server.

- **VDOLive Video Server for UNIX**: covers Technical Specifications and instructions for installing and using the VDOLive Video Server on all supported UNIX platforms.

- **VDOLive Video Server for Windows NT**: covers Technical Specifications and instructions for installing, configuring and using the VDOLive Video Server for Windows NT as well as a description of the Graphical User Interface.

- **VDOLive Video Server Log File**: describes the format of the log file, how to make best use of the information in the log file and describes the fields in the log file.

- **Firewall Configuration**: includes an example of how to configure a firewall to allow use of VDOLive technology without compromising security.

Introduction to VDOLive Servers

Your VDOLive Video Server can serve video files to multiple users at the same time. From links on your web sites, users request movies to view from your Server. Your VDOLive Server adjusts the quality of video delivery according to the bandwidth available at the user's end; it continues to scale up or down as long as the user is connected. Data about each user connection to your VDOLive Video Server is recorded in a log file. Use this data for marketing, billing and other business purposes.

Improve your customer service by analyzing the data from the Server Log File to learn how your VDOLive Video Server is matching your users' needs.

VDOLive Video Server for UNIX

Technical Requirements

Supported Platforms

The VDOLive Video Server for UNIX is available for the following systems. The required processor is listed in parentheses.

- Free BSD   : version 2.05 and above (80x86)
- SGI Irix   : version 5.3 and above (MIPS)
- Linux   : 1.2.13, both a.out and elf versions (80x86)
- SunOS   : version 4.13 and above (SPARC)
- Solaris   : version 2.4 and above (SPARC)
- AIX   : version 4.1 and above (RS 6000)
- BSDI   : version 2.1 and above (80x86)
- DEC   : OSF1 (Alpha)

Minimum System Requirements

- Computer with one of the operating systems listed above.
- Minimum of 16 MB RAM.
- Direct Internet access. A fixed IP address is recommended.

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

User Interface

The current version of the VDOLive Video Server for UNIX does not include a Graphic User Interface and is operated entirely from the command line.

Installing the VDOLive Video Server

Pre-Installing on Windows

You must first run a self-extracting executable under Windows NT or Windows 95, then copy the Server installation file to UNIX. The executable file you have should match the UNIX system on which you will install your VDOLive Video Server :

- Free BSD   : *vdofbsd.exe*
- SGI Irix   : *vdoirix.exe*
- Linux(elf)   : *vdoelf.exe*
- Linux (a.out)   : *vdoaout.exe*
- SunOS   : *vdosunos.exe*
- Solaris   : *vdosol.exe*
- AIX   : *vdoaix.exe*
- BSDI   : *vdobsdi.exe*
- DEC   : *vdoosf.exe*

➤ To run the pre-installation:

1. Double-click on the pre-installation executable file name

2. Follow the on-screen instructions

When you run the pre-installation, five components are unpacked:

- Windows 95/Windows NT VDOLive Tools installation program

- Manual

- License

- Release Notes

- UNIX VDOLive Video Server-only installation program.

> The Manual is provided as an Adobe PDF document. Download the free
> Adobe Acrobat Reader from http://www.adobe.com.

Installing to UNIX

The Windows pre-installation provided you with the self-extracting
installation file appropriate for your system. Following are the names of the
files:

- Free BSD   : *vdosrv.fbsd*

- SGI Irix   : *vdosrv.irix*

- Linux   (elf)   : *vdosrv.elflinux*

- Linux (a.out)   : *vdosrv.aoutlinux*

- SunOS   : *vdosrv.sunos*

- Solaris   : *vdosrv.sol*

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- AIX : *vdosrv.aix*
- BSDI : *vdosrv.bsdi*
- DEC : *vdosrv.osfalpha*

You can only install the VDOLive Video Server if you have super-user privileges on the UNIX computer.

➢ To complete the installation of the VDOLive Video Server for UNIX:

1. Copy, using FTP or any other method, the UNIX installation program from the Windows computer to the designated UNIX computer.

2. Give the file execute permission on the UNIX computer by typing
   chmod +x filename
   where "filename" is one of the UNIX installation file names listed above.

3. Login as root and type the appropriate file name at a command prompt. Follow the on-screen instructions.

4. You **must** accept the terms of license agreement in order to complete the installation.

5. The installation program prompts you for the name of the directory for installing VDOLive Server program files.

6. Either accept the default installation directory, */usr/local/vdosrv*,
   –or–
   enter an alternative directory name of your choice.

7. Copy the Token File you received from VDOnet Corp. to the installation directory you selected in step 6 above.

8. Perform an initial test of the VDOLive Video Server by typing:
   ```
   % cd <installation directory>
   % vdosrv
   ```

Starting the VDOLive Video Server

Start the VDOLive Video Server with the **vdosrv** command.

Recommendation: Add the command line to your system initialization file so that the VDOLive Video Server starts up automatically each time you boot the computer.

Default settings have been defined for all functions; we recommend working with these defaults. You may, however, wish to define alternate settings. Do this by adding switches to the command line as described in the following section, "The VDOSRV Command".

The VDOSRV Command

If you enter a valid parameter following the switch, it replaces the default (see examples below).

Synopsis of the Command

```
vdosrv [-l log_directory] [-p port] [-c max_clients]
[-b max_bandwidth] [-n] [-v] [-f] [-k]
```

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Switch Usage

This switch defines…	*Default*	*Example*
-d movie_directory Alternate directory for movie files	root directory (/)	**vdosrv -d /local/movies**
-l log_directory Alternate directory for Server Log File	Same directory as Video Server executable file.	**vdosrv -l /local/logs**
-p tcp_port Alternate port	TCP Port: 7000	**vdosrv -p 6501**
-c max_clients Maximum number of clients that can be connected at once.	Determined by Token File; can be limited.	**vdosrv -c 4**
-b max_bandwidth Maximum bandwidth per client connection	Determined by Token File; can be limited.	**vdosrv -b 28**
-n no_log	Log each connection	**vdosrv -n**

Switches with no default setting:

This switch defines…	Example
-v Use to display version information, list of these switches and information from Token File.	**vdosrv -v**
-k Use to kill current Server process, if running	**vdosrv -k**
-f Kill current Server process & force a new one to start	**vdosrv -f**

Running the VDOLive Video Server

Running the Server Automatically

Use the following commands to start the VDOLive Video Server automatically each time you reboot your computer.

In the command line, replace **<installation_directory>** with the name of the directory in which you installed the Server, for example: **/usr/local/vdosrv**.

Free BSD, BSDI & SunOS

In the file: */etc/rc.local*

Add the following line:

<installation_directory>/vdosrv [switches]

LINUX (Slackware) – both Linux elf and Linux a.out

At the end of the file: */etc/rc.d/rc.local*

Add the following line:

<installation_directory>/vdosrv [switches]

Solaris & IRIX

1. Create a file named *vdosrv.rc* in the directory */etc/init.d*

2. Include the following lines in the file you created in step 1 above:

```
#!/bin/sh
# Start or stop vdosrv
case "$1" in
    'start')
            if test -x <installation_directory>/vdosrv;
then
                    <installation_directory>
/vdosrv/vdosrv
            fi
            ;;
    'stop')
            if test -x <installation_directory>/vdosrv;
then
```

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```
                        <installation_directory>
/vdosrv/vdosrv -k
        fi
        ;;
*)
        echo "usage: $0 {start|stop}"
        ;;
esac
```

3. At the command prompt, execute the following commands:

```
ln -s vdosrv.rc /etc/rc2.d/S99vdosrv
ln -s vdosrv.rc /etc/rc0.d/K99vdosrv
```

AIX

In the file: */etc/rc*

Add the following line:

```
 <installation_directory>/vdosrv [switches]
```

DEC

1. Create a file named *vdosrv.rc* in the directory */sbin/init.d*

2. Include the following lines in the file you created in step 1 above:

```
#!/bin/sh
# Start or stop vdosrv
case "$1" in
    'start')
            if test -x <installation_directory> /vdosrv;
then
```

```
                        <installation_directory>
/vdosrv/vdosrv
        fi
        ;;
    'stop')
        if test -x <installation_directory>
/vdosrv;
then
                <installation_directory>
/vdosrv/vdosrv -k
        fi
        ;;
*)
        echo "usage: $0 {start|stop}"
        ;;
esac
```

3. At the command prompt, execute the following commands:

```
ln -s vdosrv.rc /sbin/rc2.d/S99vdosrv
ln -s vdosrv.rc /sbin/rc0.d/K99vdosrv
```

Running the Server Manually

We recommend running the VDOLive Video Server automatically, as described in the section above.

Running the VDOLive Video Server manually means restarting it after each reboot of your computer either because it is not configured to start automatically or because it was shut down by **vdosrv -k**.

> ➢ To do this, use the following command from any command line:

   `<installation_directory>/vdosrv [switches]`

   where you replace **`<installation directory>`** with the name of the directory to which you installed the VDOLive Video Server.

Stopping and Restarting the VDOLive Video Server

> ➢ To stop the VDOLive Video Server from running:

   use the **`-k`** switch.

Diagnostic Information About your Server

Three sources of information about your VDOLive Video Server are:

- the Server Log File.
- version information.
- the Token File.

Your Server Log File is a source of useful information about the **performance** of your Server.

You can display the **version** information and the parameters in the **Token File** by using the **`-v`** switch (see page 39).

VDOLive Video Server for Windows NT

Technical Requirements

Supported Platforms

VDOLive Video Server is available for *Microsoft Windows NT* and runs as a **Service** of Windows NT.

The VDOLive Video Server is compatible with both *Server* and *Workstation* versions of Windows NT.

Minimum System Requirements

- PC with a Pentium processor.
- Windows NT operating system version 3.51 only (Server or Workstation).
- Minimum of 16 MB RAM.
- Direct Internet access with a fixed IP address.

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

Installing

You can only install the VDOLive Video Server if you have **Administrator** privileges.

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In order for the Server to work properly it **must** be installed as a Service.

Installing the Server

➢ To install the VDOLive Video Server for Windows NT:

1. Launch the installation program executable file by double-clicking on the filename.
   The program files are automatically copied to the *Windows NT System Directory*; this is the directory to which you should copy the Token File. If you subsequently move the Server executable file, be sure to move the Token File to the same location.

2. Wait while the installation program attempts to stop and remove any previous VDOLive Video Server.

3. Follow the on screen instructions.
   You are asked whether or not you want the Server installed as a Service; the prompt looks like this:
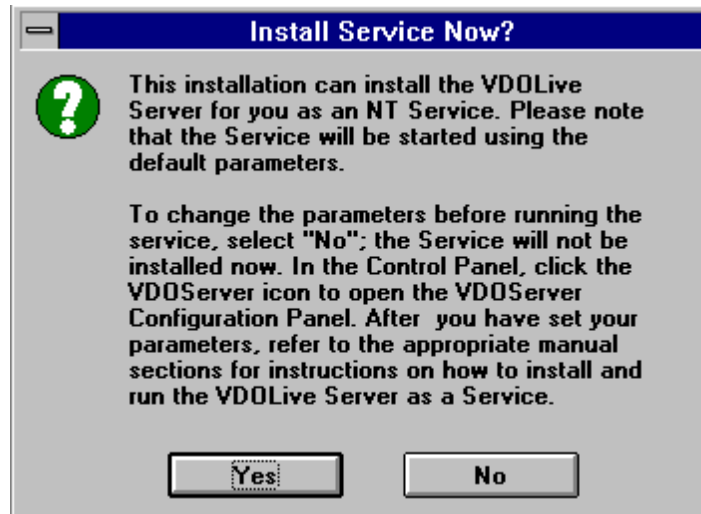
Figure 4- "Install Service?" Window

4. Choose "**Yes**" or "**No**"

   ■ If you choose "**Yes**": the VDOLive Video 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 in the installation process are:

- *Port number of the TCP Listening port* = 7000
  You can change this (after installation) in the *Server Configuration Window*.

- *Maximum Number of Users; Maximum Kbps per Channel*
  The maximum settings for these parameters are defined in the Token File belonging to your Server. The Administrator can limit these settings; to increase your Server's capacity, upgrade the Token File.

- *Statistics log path* = Defines the location of the Server Log File.
  Default setting is `C:\WinNT35\System32\VDOSTAT_LOG.xxx`
  Where "xxx" represents a three digit sequence beginning with 000. You can change this (after installation) in the *Server Configuration Window*.

- *Number of Logins per log to Statistics log file* = 50
  You can change this (after installation) in the *Server Configuration Window*.

Configuring

The Server Configuration Window

➢ To open the Server Configuration window:

Figure 5 - VDOLive Video Server Configuration panel

1. Open the *Windows NT Control Panel*, and double click on the *VDOLive Server* icon; the Configuration window opens.

Changes made to the Server Configuration only take effect after you stop and restart the Server.
Stop the Server before making changes
–or–
Restart the Server after you have made changes.

The following information is displayed in the configuration window:

- **Settings**: displays the number of the TCP listening port your VDOLive Video Server is set to use. The default is port 7000.

- **Registration Information**: displays the operating and registration conditions of your VDOLive Video Server. The defaults are all defined in the Token File. Other settings can be changed from the configuration window.

    - *Company*: the company name listed in the Token File is displayed here. This setting must not be changed except by agreement with VDOnet.
    - *Maximum users*: The Administrator can set this to any number between 1 and the maximum defined in the Token File.
    - *Maximum kbps/channel*: this refers to the maximum bandwidth at which you serve video to a given client. The Administrator can change this to any number from 8 to the maximum defined in your Token File.
    - Additional parameters defined in your Token File may also be displayed here. Refer to the Token File chapter for more information.

■ **Server Statistics**: shows three settings.

■ *Server statistics log path name*: the name and location of the log file.

■ *Absolute path directory for movies*: this is a security feature which enables you to hide the complete path of your movie files from users. Movies stored in the directory listed here do not have their complete location path visible by the VDOLive Video Player.

■ *Number of log-ins per statistics log*: the frequency of entries to the log file.

Changing Configuration Settings
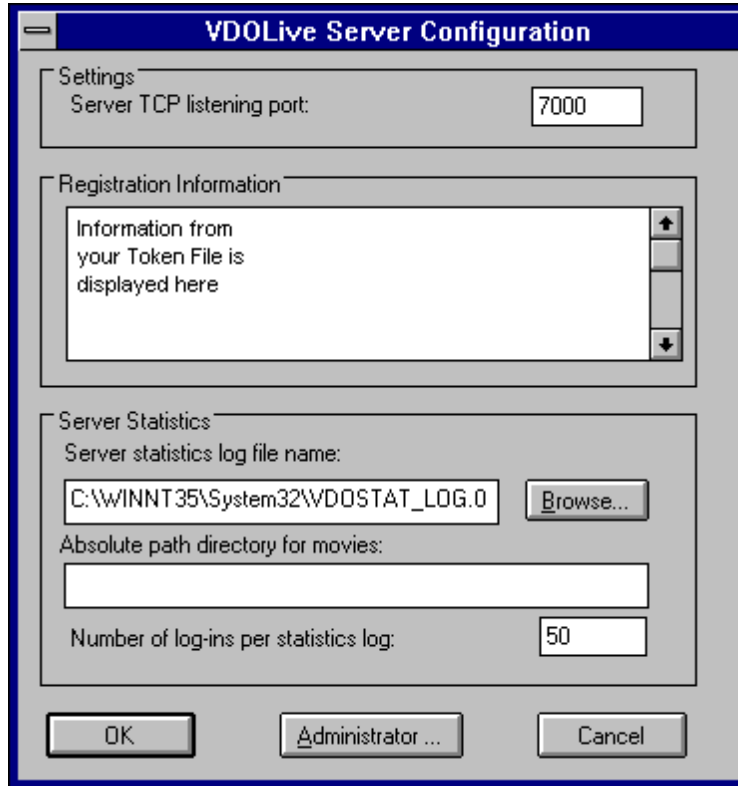
How to Make Changes

➢ To make changes in the configuration of the VDOLive Video Server:

1. Open the *Windows NT Control Panel*, and double click on the *VDOLive Server* icon; the Configuration window opens (refer to Figure 5 on page 48).

Changes made to the Server Configuration will only take effect after you restart the Server .

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

Settings the Server Administrator can Change

➢ To change the number of the TCP listening port:

1. Enter the port number in the box next to "Server TCP listening port".

Recommendation: do not change the default value.

If you do, add the port number to **all** *.vdo* files, both those created before the port number was changed and new *.vdo* files. If you work with the default port setting, you can use the default notation and omit the port number in *.vdo* files.

➢ To change the maximum number of concurrent users:

1. Click on the *Administrator* button at the bottom of the configuration window. The *Administrator Configuration* dialog box opens:
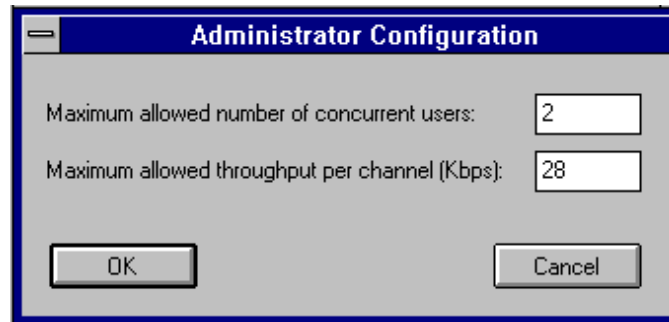
Figure 6 - Administrator Configuration dialog box

2. Enter a number between 1 and the maximum setting in the Token File.

3. Click OK to return to the main configuration window.

➢ To change the maximum bandwidth at which you serve each client:

   1. Click on the *Administrator* button at the bottom of the configuration window to open the *Administrator Configuration* dialog box.

   2. Enter a number between 8 and the maximum setting in the Token File

   3. Click OK to return to the main Configuration window.

➢ To change the name of the log file:

   1. In the Configuration window, type a new path in the Server Statistics log file name dialog box.

➢ To change the path of the log file:

   1. Enter a new path by typing in the *Server statistics log path name* box,
      –or–
      select the new path by using the *Browse* button next to the box.

➢ To change the frequency of entries to the log file:

   1. In the Configuration window, enter any number from 1-100 in the *Number of logins per statistic log* dialog box.

      ▪ If you do not want any statistics written to the log file, enter zero; this tells the Server "Do Not Log".

      ▪ We recommend setting this at a minimum of 50.

Changes made to the Server Configuration will only take effect after you restart the Server .

Running the Server as a Service

Installing the Service during Server Installation

> ➢ To install the VDOLive Video Server as a Service during installation:

1. Choose "Yes" in the *Install Server Now?* window.

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 procedure described below to install the Service.

> ➢ To install the VDOLive Video Server as a Service:

1. Open a command prompt

2. At the prompt, type: **vdosrv -install**

Removing the Service

> ➢ To remove the VDOLive Video Server as a Service:

1. Open a command prompt

2. At the prompt, type: **vdosrv -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 vdosrv

2. To start the Service, open a command prompt and type
    net start vdosrv

If the Service does not start, refer to the Troubleshooting section in
Appendix A 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 *VDOSrv*

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 A of this Manual.

Diagnostic Information About your Server

Three sources of information about your VDOLive Video Server are:

- the Server Log File

- version information

- the Token File

Your Server Log File is a source of useful information about the
performance of your Server.

You can display the **version and Token File** information that is part of the "Server Start" line by invoking the Server from a command line with the **–v** switch.

➤ To display version and Token File information about your VDOLive Video Server:

1. Open a command prompt

2. type **cd <installation_directory>**

3. type **-v**

Version information is displayed on your screen.

You can check the parameters defined by the Token file in the Windows NT Server Configuration panel or in the "ServerStart" line of the Server Log File.

VDOLive Video Server Log File

Introduction to the Server Log File

Each connection to your VDOLive Video Server is registered and logged to this file, unless you set the Server to "do not log". 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. For example, the log file can tell you how many users have requested video from your server at different times of day, how many times a particular clip has been played and the bandwidth obtained by each user.

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

Field Name	User	IP Address	Company	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

Time	Bytes	Login time	Login date	kbps
6	77332	17:02:36	01/25/1996	13
11	48225	17:03:11	01/25/1996	20

#users	Video File Name	End Status
1	c:/pub/movies/clip1.avi	Normal
2	h:/pub/vdolive/clip7.avi	User Stop

The information in the example above is from the User Info field of the Log File; this field is explained on page 61. Other fields are explained in the section on the format of the Log File, beginning on page 60.

Standard vs. Advanced Server Log File

VDOLive Video Servers include the Advanced Server Log File which includes all the information described in this chapter. Trial Versions of the Server include only a Standard Log, which does not record data for the following values in the UserInfo line:

- Bytes sent

- Bandwidth (kbps)

- Number of users (#users)

Location of the Log File

- *UNIX* (all platforms): Define the location of the Log File by using **−l**. If you do not use **−l** to define the location of the Log File, and you invoke the Server you using a path, the Log File will be written to the path you specified. If you invoke the Server without specifying a path, the Log File will be written to the current working directory.

- *Windows NT*: Define or change the location of the Server Log File from the Configuration window.

Frequency of Entries to the Server Log File

The frequency at which the log file records data depends on the operating system you are using:

- *UNIX* (all platforms): each client connection is written to the log file at the end of the connection unless the **−n** switch is used to set the Server to not log any connections.

- *Windows NT*: the Server Administrator defines the frequency in the Administrator dialog box of the Server Configuration window. If, for

example, the Administrator sets the Server to write statistics to the log file every "n" connections, then:

- the data is cached until "n" is reached
- all "n" is then be recorded in the log file.

The Administrator can also choose to enter zero for the number of log-ins per statistics log in the Configuration window of the Server. This will tell the Server not to enter data to the Log File.

Using the Server Log File

Names of the Server Log File

The default name of the first VDOLive Video Server Log File, on all operating systems, is VDOSTAT_LOG.XXX where "xxx" represents a 3 digit sequence beginning with 000.

Windows NT: the Administrator of a VDOLive Video Server for Windows NT can change the name, and path (location) of the Server Log File. Entries will be written to the new Log File once the Server has been restarted.

UNIX: only the path (location) of the Log File can be changed on UNIX the name of the Log File cannot be changed.

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

On Windows NT:

> ➢ To force a new Log File to start:

1. Stop the Server.

2. In the Configuration window of your VDOLive Video 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.

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.

On UNIX:

> ➢ To force a new Log File to start:

1. Stop the Server.

2. Restart the Server with **-l**.

Format of the Server Log File

The type of data recorded in the log file and the order of the fields is the same for all operating systems.

Each time a user requests a file from your Server, a new line is started in the log file. The fields of each line are separated by a TAB.

Each time the Server is started, or a new Log File is opened, the Field Name line is entered to the Log File. This line lists all the fields of the UserInfo line in the Log File.

After the Field Name line, each line in the Log File is one of the following types:

- ServerStart

- UserInfo

- ServerStop

While a clip is being played by a user of the VDOLive Video Player, 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 clip is finished playing, 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.

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- Time Server was started, in hh:mm:ss format

- Date Server was started, in mm/dd/yy format

- Version information of the VDOLive Video Server, including the build number and date of build.

- Maximum number of users allowed. Displayed as `"MaxUsers:"<#>`

- Maximum bandwidth per channel, in kbps. Displayed as: `"MaxKbps:"<#>`

Other fields are empty for this value.

User Information Line

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

- **Filename**:   Name of File Played

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- **End Status**: Operation which ended the connection between the client and the VDOLive Server. Following is a list of valid status values and their explanation.

Stop Reason	Explanation
Normal	Movie finished playing.
Incompatible Protocols	Client error.
Can't Locate File	Server could not find file. Check file path.
CPU Shortage	Token file allows more concurrent client connections that Server computer can handle. Limit number of client connections or switch to more powerful computer for serving.
Channel Error	Server did not serve client properly and caused client disconnect.
Error in AVI file	Check file format; may not be VDOLive compatible file.
No Video in AVI file	VDOLive files must include at least one frame in the video data stream.
Old Client (new movie)	User must update Player.
Server Stop	Administrator shut down VDOLive Video Server
Too Many Clients	Server refuse to accept client because limit (of concurrent client connections) already reached.
Unsupported Video Format	Check compressed file; may need to re-copy file to server or to recompress clip. Use

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	File|Properties|Details (on computer with VDOLive Tools) to check the format.
Unsupported Audio Format	Check compressed file; may need to re-copy file to server or to recompress clip. Use File|Properties|Details (on computer with VDOLive Tools) to check the format.
User Not Responding	Server times out client connections if no response after 60 seconds.
User Stop	User stopped movie before it was over.
Unknown	Communication error occurred.

Server Stop Line

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

- "Normal"

- Time of shut down in hh:mm:ss format

- Date of shutdown in mm/dd/yy format

This record is entered only when the VDOLive Video Server is stopped properly, in which case it is recorded. In case of any improper shutdown or failure this line does not appear.

Working with Firewalls

Introduction to VDOLive and Firewalls

You should maintain your VDOLive Video Servers outside of your network firewall.

The section below describes two methods of using the VDOLive Video Player to receive video through a firewall. The first method applies only to users of the Checkpoint firewall. The second method applies to all others.

Using VDOLive with Checkpoint Firewall-1™

Both versions 2.0 and 2.1 of Checkpoint Firewall-1 support use of VDOLive. For version 2.0 support, install add-on code available from your reseller. Support for VDOLive is built in to version 2.1 and can be turned on or off.

➢ To configure your Checkpoint Firewall-1 version 2.0 to allow VDOLive Video Players to receive video from outside the firewall:

1. Contact your reseller to receive a patch.

➢ To configure your Checkpoint Firewall-1 version 2.1 to allow VDOLive Video Players to receive video from outside the firewall:

1. Turn **on** the built-in support for VDOLive. Refer to your Firewall-1 documentation for details.

Using VDOLive with other Firewalls

Packet Filtering Firewalls

A system administrator can allow VDOLive Video Player users inside the network firewall to view video from outside the firewall, by taking the following steps:

1. Configure the packet filtering router to allow in-bound and out-bound traffic for TCP port 7000 and in-bound traffic for a UDP port of your choice.

2. Give the port number for in-bound data to users of the VDOLive Video Player; they enter it in the Setup|Settings window of the VDOLive Player.

The following examples are provided as guidelines for reference. Your firewall may require slightly different commands. Please refer to the documentation for your firewall or to your vendor.

Examples

For the purposes of these examples:

- You have a packet filtering router (such as a Cisco or a UNIX host with a kernel capable of filtering IP packets) that connects the internal and external networks.

- The external network IP is 202.45.112.0 and the internal network's IP is 35.222.14.0.

Free BSD host

If a FreeBSD host serves the above-mentioned router, add the following commands to the initialization files:

```
# Enable control circuit traffic for server
/sbin/ipfw addf accept tcp from 0.0.0.0/0 7000
to 35.222.14.0/24
/sbin/ipfw addf accept tcp from 35.222.14.0/24
to 0.0.0.0/0 7000
# Enable incoming UDP video stream
/sbin/ipfw addf accept udp from 0.0.0.0/0 to
35.222.14.0/24 32649
```

Cisco router

If a Cisco router (running IOS 10.3 and above) serves as the above-mentioned router you might want to add the following rules to the extended access lists of the interfaces.

Lines in the example below may have been broken for the sake of clarity.

```
!Enable in-bound control circuit traffic for new
server.
! IOS 10.2 users need to use the established
keyword.
access-list 101 permit tcp 0.0.0.0
255.255.255.255 eq 7000
35.222.14.0 255.255.255.0
! Enable incoming UDP video stream.
```

```
access-list 101 permit udp 0.0.0.0
255.255.255.255 35.222.14.0
255.255.255.0eq 32649
! Enable out-bound control circuit traffic for
new server. access-list 102
permit tcp 0.0.0.0 255.255.255.255 0.0.0.0
255.255.255.0 eq 7000
!
interface Ethernet 0
ip address 35.222.14.1
ip access-group 101 out
!
interface Ethernet 1
ip address 202.45.112.10
```

ip access-group 102 out

Appendices

Appendix A: Troubleshooting Your Server

VDOLive Video Server for Windows NT

Server Service could not be installed

If your Server Service did not install properly:

1. Check to see that the Service has not already been installed.

2. Make sure you are logged in with Administrator privileges and try again to install the Server Service, using the **vdosrv -install** command (page 53). 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:

1. Check to see that the Service has not already been removed.

2. Make sure you are logged in with Administrator privileges and try again to remove the Server Service, using the **vdosrv-remove** command (page 53). 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 vdosrv** to launch the VDOLive Video Server as a Service from a command prompt, and the following error message was displayed:

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

–or–

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

```
Could not start the VDOSrv service on
\\SERVER-NAME.
Error 2140: An internal Windows NT error
occurred.
```

Then:

- Ignore the HELPMSG 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 VDOSrv 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 Administrator privileges and try again to remove the Server Service, using the **net stop vdosrv** command. Only a user with administrative privileges can stop or start a Service.

VDOLive Video Server for UNIX

Server could not be started

- If, when you try to start the Server the following error message is displayed:

    ```
    ./vdosrv: Already running
    ```

  then use the **-f** switch (page 39) to force the Server to restart.

- If using **-f** produces the following error:

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`Can't open lock file: Permission denied.`

Then login with the necessary privilege, remove the lock file:

`/tmp/.vdosrv-lock`

and then try again to start the Server.

Server could not be stopped

If, when you try to stop the Server with the **-k** switch you get the error:

`Can't open lock file: Permission denied.`

Then login with the necessary privilege, remove the lock file:

`/tmp/.vdosrv-lock`

and try again to stop the Server.