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Section 3 Minerva VDK™ Client and Minerva VDK Utilities

Overview

The Minerva VDK Client and Utilities are used for building PC-based video network applications and are designed for use with Minerva VNP™. This manual describes the installation process and operation for each of the Minerva VDK components. Developers can refer to the *VNP API* and *VDK Client API* sections of this manual for application protocol interfaces and other technical information. The components include:

Minerva VDK Players

1. Minerva VDK Client
2. Sample ActiveX Player
3. Netscape Plug-in

Minerva VDK Utilities

4. Multicast Program Monitor
5. Capture Utility
6. Stream Pump

Minerva VDK Client

The Minerva VDK Client can be used as a stand-alone application. However, it was really designed as a sample application for customers who want to create web-based applications which incorporate the playback of streaming video.

The Client is a Java-based application that includes the Java bean layer and Java bean capture function in an application similar to what customers might require.

The Minerva VDK Client can:

- Play back live MPEG multicast or unicast streams
- Play back stored MPEG files from any Windows workstation on the network
- Capture live streams to disk
- List current live events
- Play stored video with VTR controls (pause, rewind, fast forward)
- Search the database for stored files, and list those files
- Save live events to a video server or local disk

The Client contains two primary components, the Java bean player and the Java-based Minerva VDK Client application.

The Player is embedded in the application as a Java bean. It is DirectShow-compliant meaning that it uses the DirectShow filter graph software architecture to interface with the decoder. Therefore, the Player supports the MPEG-1 decoder software provided free with Windows 95, Windows 98, and Windows NT, as well as hardware decoders such as Sigma Design's Net-Stream II.

The Minerva VDK Client application is composed of Java-based components built on top of the Player. Features such as channel changing, capturing, and listing stored files allow developers to build a feature-rich custom Client applications. Many of these components also can be used as ActiveX controls. (Refer to the ActiveX documentation). The source code for the application is included with the Minerva VDK, as well as documentation on all of the Java classes.

Minerva VDK does not include the source code for the Player. Basic sample web pages using the ActiveX control, the Java bean controls, and the Netscape Plug-in are included in the installation.

Minerva VDK Client installation

The Minerva VDK Client installer is identical to the shareware version, except that the shareware version has a 30 day time limit. The self-extracting, self-installing EXE (executable) is called *VDKClient.exe*.

Requirements

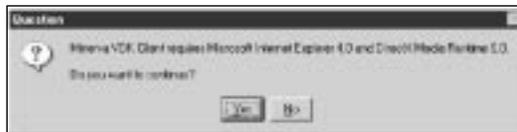
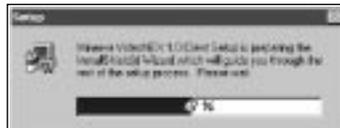
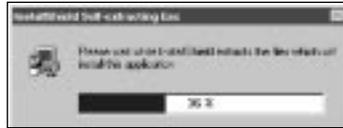
Prior to installation you will need a Windows 95, 98, or NT workstation with:

- 233MHz or higher CPU
- 16Mb RAM
- 6Mb of free disk space
- Microsoft DirectX Media Runtime 6.x. (This can be found at <http://www.microsoft.com> or on the Minerva VNP and VDK CDs.)
- Microsoft Internet Explorer 4.x (for Minerva VDK Client, ActiveX player, and plug-in)
- Netscape 3.x or higher (for Netscape plug-in only)
- Microsoft Windows 95 requires the Winsock 2.0 upgrade (This can be downloaded at http://www.microsoft.com/windows95/downloads/contents/wuadmintools/_s_wunetworkingtools/w95sockets2/default.asp or on the Minerva VNP and VDK CDs.)

Installing the VDKClient.exe

To install the *VDKClient.exe*, double-click the icon and follow the on-screen instructions.

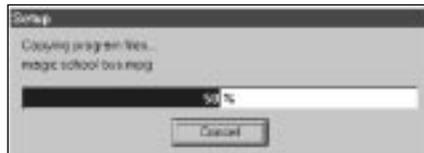




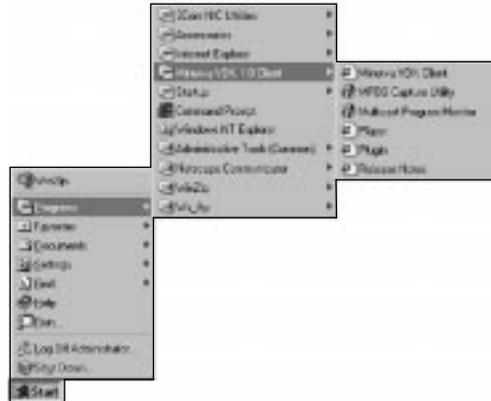
Click **Yes** if you have already installed both Microsoft Internet Explorer 4.0 and Microsoft DirectXMedia 6.0.

If you have not installed these yet, click **No**. Use the Minerva VDK CD to install either or both of these application. Then, restart this installation process.





This installation will create a new entry in Start → Program, called Minerva VDK Client.



The Minerva VDK Client contains the following elements.

Item	Description
Minerva VDK Client	Complete Java-based application for multicast channel changing, file capture, and file playback
MPEG Capture Utility	Captures MPEG streams being unicast or multicast on the network; tests whether multicast packets are arriving at the workstation and whether players are working properly; writes streams to disk for later playback
Multicast Program Monitor	Listens, collects, and displays SAP (session announcement protocol) information; tests whether SAP information is being received by the target workstation and whether all information is arriving
Player	Sample player that uses the ActiveX control, requires Microsoft Internet Explorer 4.x
Plug-in	Sample web page that uses the plug-in, with the channel and port information embedded in HTML source code. Works in both Netscape 3.x and Microsoft Internet Explorer 4.x
User Manual (PDF format)	This manual in PDF format
Release Notes	A PDF file of the latest Minerva VDK release notes

Using Minerva VDK Client

There are two ways to stream video to the Minerva Players:

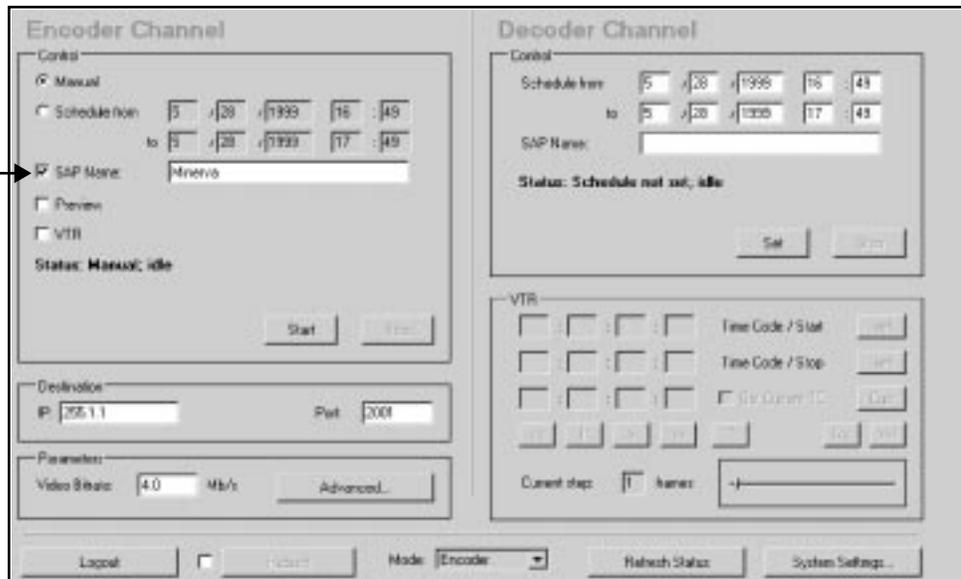
1. Using Minerva VNP
2. Using the Stream Pump

For complete information about streaming video from Minerva VNP, refer to the *Minerva VNP User's Manual*. Or, for a brief look at the steps necessary, refer to the *Minerva VNP Quick-Install* card.

To stream video from the Stream Pump, refer to the Streaming video using the Stream Pump section on page 32.

How to receive transmitted video

Before opening Minerva VDK Client, you need to enter a few settings in Minerva VNP and start the system. Access Minerva VNP from Microsoft Internet Explorer. Enter your user name and password.



The screenshot displays the Minerva VDK Client interface, divided into two main sections: Encoder Channel and Decoder Channel. The Encoder Channel section includes a 'Control' area with radio buttons for 'Manual' (selected), 'Schedule from', and 'SAP Name'. The 'SAP Name' field contains the text 'Minerva'. Below this are fields for 'Destination' (IP: 255.1.1, Port: 3001) and 'Parameters' (Video Bitrate: 4.0 Mb/s). The Decoder Channel section includes a 'Control' area with 'Schedule from' and 'to' fields, a 'SAP Name' field, and a 'Status' field showing 'Schedule not set; idle'. Below this is a 'VTR' section with various controls and a 'Current step' field. At the bottom of the interface are buttons for 'Logout', 'Refresh Status', and 'System Settings...'. An arrow points from the text on the left to the 'SAP Name' field in the Encoder Channel section.

The SAP Name checkbox must be checked for Minerva VDK Client to receive and play this address.

Within the Encoder Channel—Control section of main VNP application window, click the **SAP Name** checkbox. Enter the SAP name for the video stream in the accompanying field.

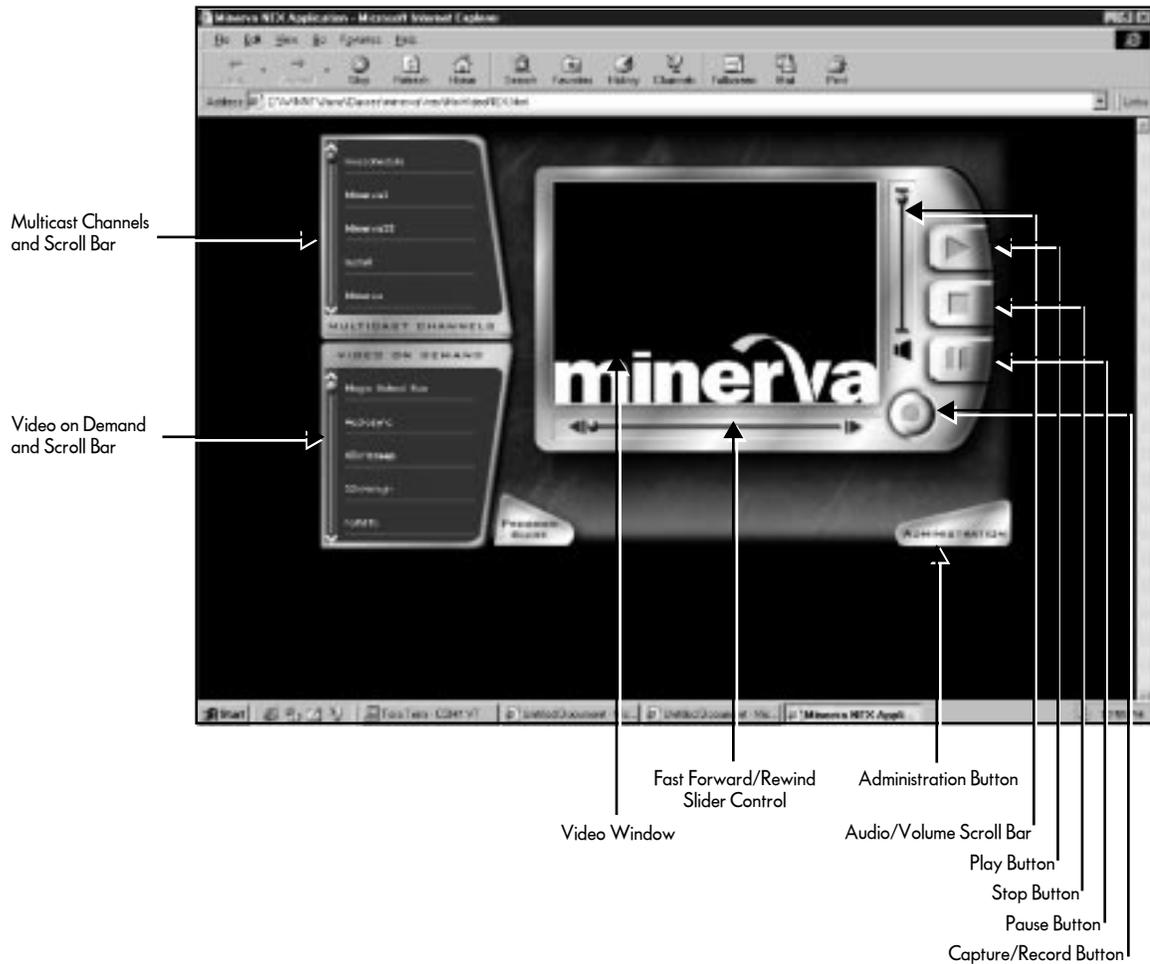
Important: Minerva's VDK Client receives and plays any address as long as the **SAP Name** checkbox is checked in the main Encoder/Decoder window of Minerva VNP.

The **IP:** and **Port:** fields of the Destination section must also be entered with the location to which video is streaming. Any valid IP address between 224.0.0.2 and 239.225.225.225 may be entered. Any port number between 500 and 65535 may be entered.

Then click the **Advanced...** button in the Parameters section. Confirm all your settings within the Advanced Settings window, and click **OK**.

Again from the Encoder Channel—Control section of main VNP application window, click **Start**. Video will commence encoding within the Minerva VNP encoder and streaming over the network to your PC.

Now, open the Minerva VDK Client application. To launch it, select Start → Programs → Minerva VDK Client.



MULTICAST CHANNELS and scroll bar

All live channels on your network will display, either transmitted from Minerva VNP or the Stream Pump, within the MULTICAST CHANNELS section of Minerva VDK Client. Use the scroll bar to scan up and down this list.

By placing the cursor over one of the MULTICAST CHANNEL options, the channel illuminates. Plus, a pop-up menu displays a description of the stream.

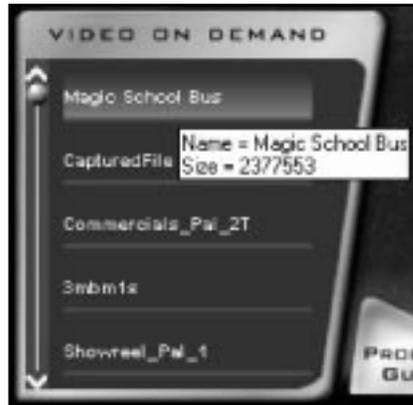


By clicking on a MULTICAST CHANNEL, the live video will begin playing in the video window of the Minerva VDK Client.

VIDEO ON DEMAND and scroll bar

All MPEG files saved to your PC's hard drive or other Windows-based server will display within the VIDEO ON DEMAND section of Minerva VDK Client. Use the scroll bar to scan up and down this list. There must be a reference in *mrvideo.ini* for each folder in which the MPEG files are stored. Refer to the *Adjusting Client parameters* section on page 19 for more information.

By placing the cursor over one of the VIDEO ON DEMAND files, it illuminates. Plus, a pop-up menu displays a description of the file (name and size).



By clicking on a VIDEO ON DEMAND file, the video begins playing in the video window.

Program Guide button

This feature will be available in future releases of the Minerva VDK Client.

Fast Forward/Rewind slide control

This slider bar provides a visual reference for the position of the on-demand video. The slider can be dragged forward and backward to fast-forward and rewind the file. This function only works with stored files.

Video window

View video playback in the video screen of the Minerva VDK Client application. By default, clicking on a selection in either the MULTICAST CHANNEL section or the VIDEO ON DEMAND section starts the video playing automatically.

Additionally, click the **Play** button to re-start any video which has been paused or stopped in the Player. Double-clicking the Video Window pops the screen out of the Client. Another double-click makes the Video Window expand to fill the full screen.

For more details about and options within the Minerva VDK Client Player, refer to the *Playing video in Minerva VDK Client* section on page 13.

Administration button

Click the **Administration** button to adjust the video capture parameters. Refer to the *Capturing video in Minerva VDK Client* section on page 17 for complete capture instructions.

Audio/volume slider

This slider provides a visual reference for the volume of the audio. The slider can be dragged up and down to increase or decrease the audio volume.

Play button

Click the **Play** button to re-start any video which has been paused or stopped. As a default, clicking on a selection in either the MULTICAST CHANNEL section or the VIDEO ON DEMAND section starts the video playing automatically.

Stop button

Click the **Stop** button to stop any video which is playing.

Pause button

Click the **Pause** button to pause any video which is playing.

Capture/Record button

Click the **Capture/Record** button to capture any live video streams which are playing in the Video Window to file. Refer to the *Capturing video in Minerva VDK Client* section on page 17 for complete capture instructions.

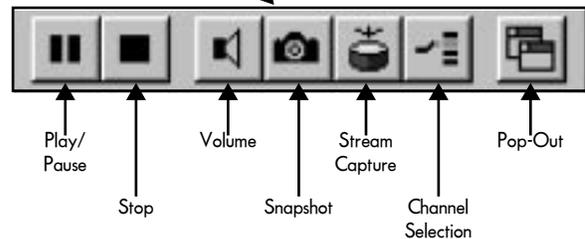
Playing video in Minerva VDK Client

By default, clicking on a selection in either the MULTICAST CHANNEL section or the VIDEO ON DEMAND section starts the video playing automatically.

Additionally, you may click the **Play** button to re-start any video which has been paused or stopped.

Within the video window, additional options exist. Right-click within the video window for the following “control panel” of buttons. Left click to remove this control panel.

Note: This control panel toolbar only displays if Toolbar=true is entered in the *MnCtl.ini* file. Refer to page 21 for more information.



Play/Pause button

When the video is paused, the **Play** button displays. Click the **Play** button to re-start any video which has been paused or stopped.

When the video is playing, the **Pause** button displays. Click the **Pause** button to pause any video which is playing.

Stop button

Click the **Stop** button to stop any video which is playing.

Volume button

Click the **Volume** button to access the Volume/Mute slider.



This slider provides a visual reference for the volume of the audio. The slider can be dragged up and down to increase or decrease the audio volume. Click the **Mute** checkbox to mute the volume.

Snapshot button

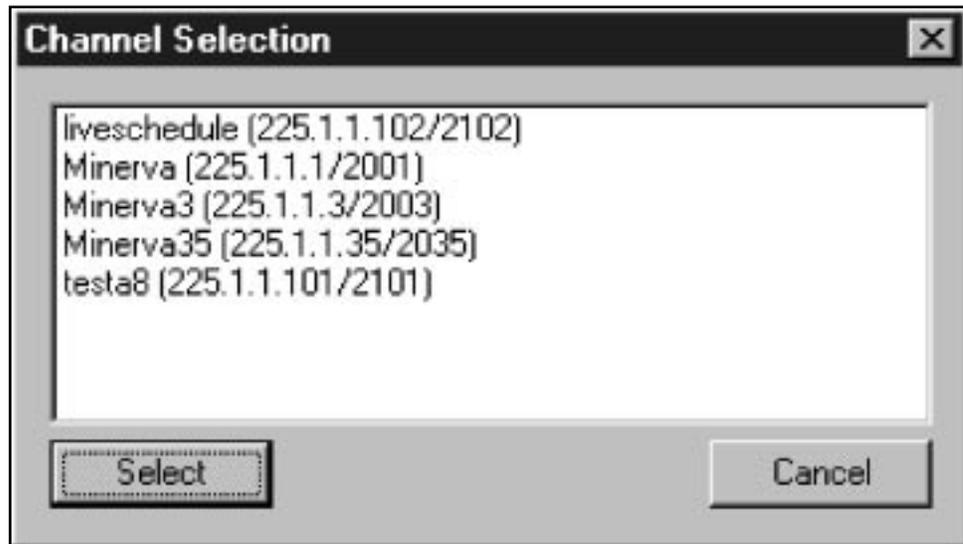
This option is not currently available.

Stream Capture button

Click the **Stream Capture** button to capture live video streams which are playing. Refer to the *Capturing video in Minerva VDK Client section* on page 17 for complete capture instructions.

Channel Selection button

Click the **Channel Selection** button for another method of selecting a MULTICAST CHANNEL for playback. The Channel Selection window displays.



All the live streams on the network will display within the Channel Selection window. Click on an option to display the live video which is currently streaming over the network on this channel.

Pop-Out button

Clicking the **Pop-Out** button allows you to:

- Maximize the video window
- Resize the video window
- Reposition the video window within your monitor

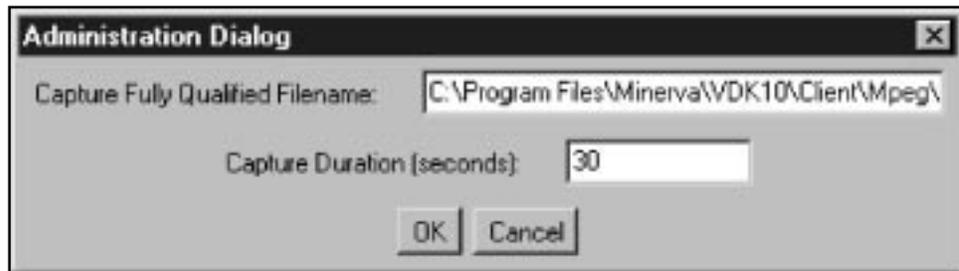


Instead of clicking the **Pop-Out** button, you can also double-click on the video window to expand it to the maximum size of your monitor. To resize the video window in any proportion, click on the edges and drag. When the video window is smaller than your maximum monitor size, you can click directly on the screen and drag it around, repositioning it within your monitor. To close the video window back into the Minerva VDK Client, click on the X (close icon) in the upper right corner or double-click on the video window itself.

Capturing video in Minerva VDK Client

Complete the following steps to capture live video to your hard disk.

1. Click on the live video within the **MULTICAST CHANNELS** section which you want to capture. The video will display in the video window automatically.
2. Then, click the **Administration** button at the bottom right of Minerva VDK Client. The Administration Dialog window will display.



3. The name of the video displays in the **Capture Fully Qualified Filename:** field. Enter the length of your capture in seconds in the **Capture Duration (seconds):** field. Then click **OK**.
There is no need to set the parameters in the Administration screen if the default settings are okay. In this case, simply click the **Capture/Record** button.
4. When the video gets to the point at which you want to start the capture, click the red **Capture/Record** button (or the **Stream Capture** button from the video window control panel). Your stream capture begins immediately, and the capture bar displays.



The capture bar displays the start time, end time, and time remaining in the capture. The capture bar provides a visual display for the progressing time of the capture. If it is necessary to stop the capture mid-stream, press the **STOP** button. The video will be saved up to that point.

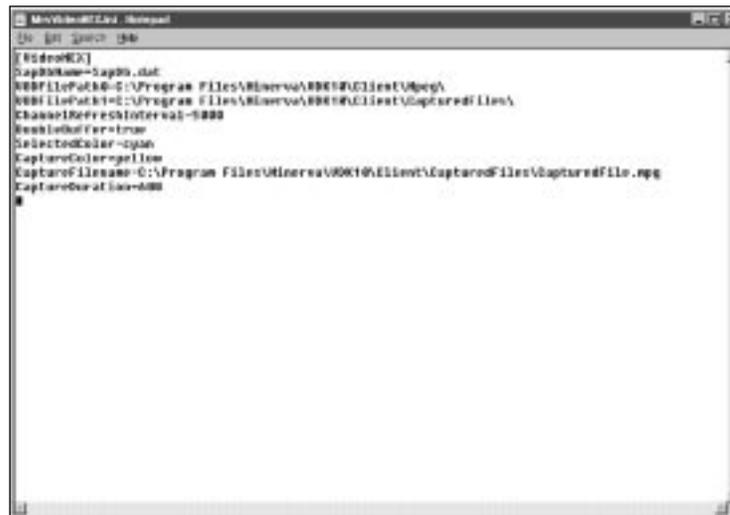
5. Once your capture is complete, the filename will display in the VIDEO ON DEMAND section of the Client. Click on it to play back the captured stream.

Adjusting Client parameters

Once the Minerva VDK Client is installed, there are a number of parameters, movie lists, and other functions that can be adjusted by making changes in the appropriate INI files. There are two files named MrvVideoNEX.ini (NEX) and MnCtl.ini (Ctl). NEX only applies to the Minerva VDK Client; while Ctl changes apply to the Minerva VDK Client, the ActiveX control, and the Plug-in.

MrvVideoNEX.ini

From your Windows directory, locate the MrvVideoNEX.ini file. Double-click on it to open it automatically in Notepad.



```
[MrvVideoNEX]
SapDbName=SapDb.dat
RDPFilePaths=C:\Program Files\Minerva\RDPEXEC\bin\Udpq\
RDPFilePaths=C:\Program Files\Minerva\RDPEXEC\bin\Udpq\
ChangeRefreshInterval=5000
SelectColor=0000
ExplorerColor=0000
ExplorerFileName=C:\Program Files\Minerva\WORK\EXE\bin\Udpq\Udpq.exe
ExplorerDefaultIcon=000
```

In this window, you can only change any of the optional parameter settings. Do not add any new settings. The following are examples of optional parameter settings that may be changed.

SapDbName=SapDb.dat

This entry sets the dat file name for storing SAP (session announcement protocol) announcements. Typically this file name is never changed, since it requires a registry entry change.

VODFilePath0=C:/Program Files/Minerva/VDK10/Client/Mpeg/

This entry sets the folder location for the MPEG files that appear in the VIDEO ON DEMAND section of the Client. (Refer to page 10 for more information.) These entries are sequenced. Additionally, there can be up to 20 entries, so that MPEG files can be stored in different folders, as well as on other Windows computers. For example:

VODFilePath1=\\server\c\movies

This is a valid entry and will cause all the MPEG files in that folder to be accessible from the Client. One caution: the more VODFilePath entries there are, the longer it takes for the list box to fill, particularly if there are multiple server entries. Before creating server entries, confirm that the specific server can be mapped from the particular Client.

ChannelRefreshInterval=5000

This entry sets the interval in milliseconds that the Multicast Channels list is refreshed. This number can be reduced so non-existent entries are deleted sooner. If a non-VNP source is transmitting (such as a video server that is multicasting a file) and if that source sends SAP announcements infrequently, then a live channel maybe deleted. It will not reappear until the source re-sends an announcement.

SelectedColor=cyan

This entry specifies the background color to display when an item in the MULTICAST CHANNELS or VIDEO-ON-DEMAND list is selected.

CaptureColor=yellow

This entry specifies the color of the letters in the MULTICAST CHANNEL or VIDEO-ON-DEMAND list when an item is being captured.

**CaptureFilename=C:/Program Files/Minerva/VDK10/Client/CapturedFiles/
CapturedFile.mpg**

This entry sets the filename for the Capture Utility. A server name is valid, such as
CaptureFilename=\\server\c\capturedfiles\capture.mpg

CaptureDuration=600

This entry sets the default length for a capture session in seconds. There is no limit to this number. The capture will stop when the hard disk reaches capacity or when the time limit ends.

MnCtl.ini

From your Windows directory, locate the MnCtl.ini file. Double-click on it to open it automatically in Notepad.



In this window, you can add or change any of the optional parameter settings. The following are examples of optional parameter settings that may be added or changed. The settings listed are the defaults for each option.

LogoImage=C:/Program Files/Minerva/VDK10/Client/bin/minerva.gif

This entry sets the file location for the graphic that appears in the video window when the application is launched. This can be changed to any legal HTML graphic, such as BMP or GIF.

Note: This function is not available with the 30-day shareware version.

Toolbar=false (screen shot)

This entry turns the toolbar on and off. If true, then the toolbar is displayed permanently. If false, then the toolbar can be accessed by right-clicking the mouse with the cursor in the video window.

UseSapFile=true

This entry turns the use of SAP announcements on or off. If true, then the multicast channel list can be accessed from the toolbar. If false, then the multicast channel list cannot be accessed.

Packetformat=raw

This entry allows you to specify a packet format that will be recognized by the Player. Valid values include raw, OPV (emulates Optivision stream format), and MNS (MediaNow! stream format). The OPV and MNS values refer to proprietary formats which are supported by the Stream Pump.

mux=mls

This entry specifies the expected MPEG multiplexer type.

border=0

This entry specifies the number of pixels in the gray border which surrounds the video window.

keepaspectratio=true

If true, then this entry instructs the player to always maintain the native aspect ratio of the video when the video window is resized by the user. If false, then the native aspect ratio is not maintained when the video window is resized.

repeat=true

If true, then this entry causes stored files to be repeated in a loop. If false, then stored files will play once and end on the final video frame.

localinterface=204.247.143.100

This entry specifies which ethernet interface should be used to receive video. This specification is only necessary if the receiving machine has more than one ethernet interface.

Minerva VDK Utilities

These five Minerva VDK Utilities/applications are available for use on your video network. All five Utilities are included in the Minerva VDK application and shareware versions.

1. MPEG Capture Utility
2. Multicast Program Monitor
3. Player
4. Plug-in

MPEG Capture Utility

This utility is used to capture MPEG streams being unicast or multicast on the network. The Capture Utility can be used to test whether multicast packets are arriving at the workstation or to capture streams to disk to test whether players are working properly. Additionally, it can

be used as an application to write streams to disk for later playback. This utility has an ActiveX API but no remote control capability.



Address field

Enter the IP address of the stream being captured in this field.

Port field

Enter the port of the stream being captured in this field.

Local Interface multiple-selection field

Click the selection arrow to select the local interface type. If there is more than one card installed in your system, select between <any> or one of the actual IP addresses listed.

Filename button

The file name and location of the MPEG video which is being captured is entered in the corresponding field.

To change this default file name or location, click the **Filename** button. The Windows Save As dialog box will display in which any adjustments may be made.

Stream status box

The current status of the stream being captured displays in this box. Use the scroll up and down buttons to scan through the information.

Bytes Received field

The current number of bytes for the stream being captured displays in this field.

Mbps field

The rate at which the stream is being captured in megabits per second displays in this field.

PacketFormat multiple-selection field

Click the selection arrow to select the packet format of the stream. Typically the packet format is raw. However, you may select between **<any>**, **MNS** (MediaNow! stream format), **OPV** (a stream coming from an Optivision encoder), **OVS** (a stream coming from an Oracle Video Server), or **RAW**.

Lost-Recovered field

If either MNS or OPV streams are being received, then the number of lost and/or retransmitted packets will display.

Mux multiple-selection field

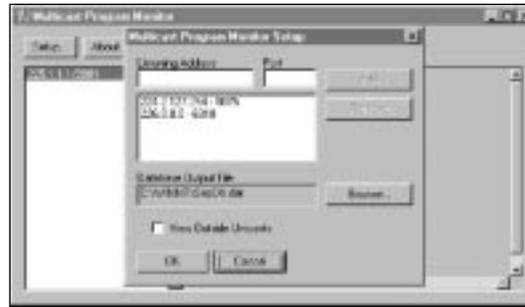
Click the selection arrow to select the multiplex type of the stream being captured. You may select between **<any>**, **m1s** (MPEG-1 system), **m2p** (MPEG-2 program), or **m2t** (MPEG-2 transport).

Unicast checkbox

To capture a unicast stream over the network, click the **Unicast** checkbox. To capture a multi-cast stream over the network, leave this checkbox blank.

Setup... button

Change an existing multicast address or enter a new multicast address into the Multicast Program Monitor by clicking the **Setup...** button. The Multicast Program Monitor Setup screen displays.



Listening Address field

Enter the new multicast address to which you will listen in this field. Once both the **Listening Address** and **Port** have been entered, click the **Add** button. Your new address will display below in the address selection box.

Port field

Enter the new port to which you will listen in this field. Once both the **Listening Address** and **Port** have been entered, click the **Add** button. Your new address will display below in the address selection box.

Address selection box

All multicast addresses which are available for listening display in this box.

Database Output File field

The file name and location of the SAP database file displays here. To change this default file name or location, click the **Browse...** button.

View Outside Unicasts checkbox

If any SAP announcements are being transmitted to a unicast address, then you need to check this checkbox in order to receive them.

Add button

Once both the **Listening Address** and **Port** have been entered with new multicast information, click the **Add** button. Your new address will display below in the address selection box.

Remove button

To remove an address listed in the address selection box, click on the address to highlight it and then click the **Remove** button.

Browse... button

To change this default file name or location which displays in the **Database Output File** field, click the **Browse...** button. The Windows Save As dialog box will display in which any adjustments may be made.

OK button

Once all necessary information has been added, click the **OK** button to complete the setup process.

Cancel button

To back out of the Multicast Program Monitor Setup screen with out saving any new changes, click the **Cancel** button.

About... button

Clicking the **About...** button provides general application information.

Player

The Player provides a simple implementation of the ActiveX control for playing video. This application only plays live streams. Launch this application by selecting Start → Programs → Minerva VDK 1.0 Client → Player. Start your video by entering the multicast address of the stream and port in the appropriate fields, along with the mux type and packet format.



Address: field

Enter the IP address of the stream being captured in this field.

Port: field

Enter the port of the stream being captured in this field.

Mux: field

Click the selection arrow to select the multiplex type. You may select between **m1s** (MPEG-1 system), **m2t** (MPEG-2 transport), **m2p** (MPEG-2 program), or **<any>**.

Packet Format: field

Click the selection arrow to select the packet format of the stream. Typically the packet format is raw. However, you may select between **OPV** (a stream coming from an Optivision encoder), **MNS** (MediaNow! stream format), **OVS** (a stream coming from an Oracle Video Server), **RAW**, or **<any>**.

Play button

Once all fields have been entered, click **Play** to display video in the player window.

In the event that video is not detected for the network parameters provided, the message, "Waiting for Data," will display for an extended period of time. The message "Data Detected" should appear within two seconds. Video decoded by MPEG-1 software will appear within three to five seconds. Whereas, video decoded by MPEG-1 or MPEG-2 hardware will appear within one to three seconds.

Pause button

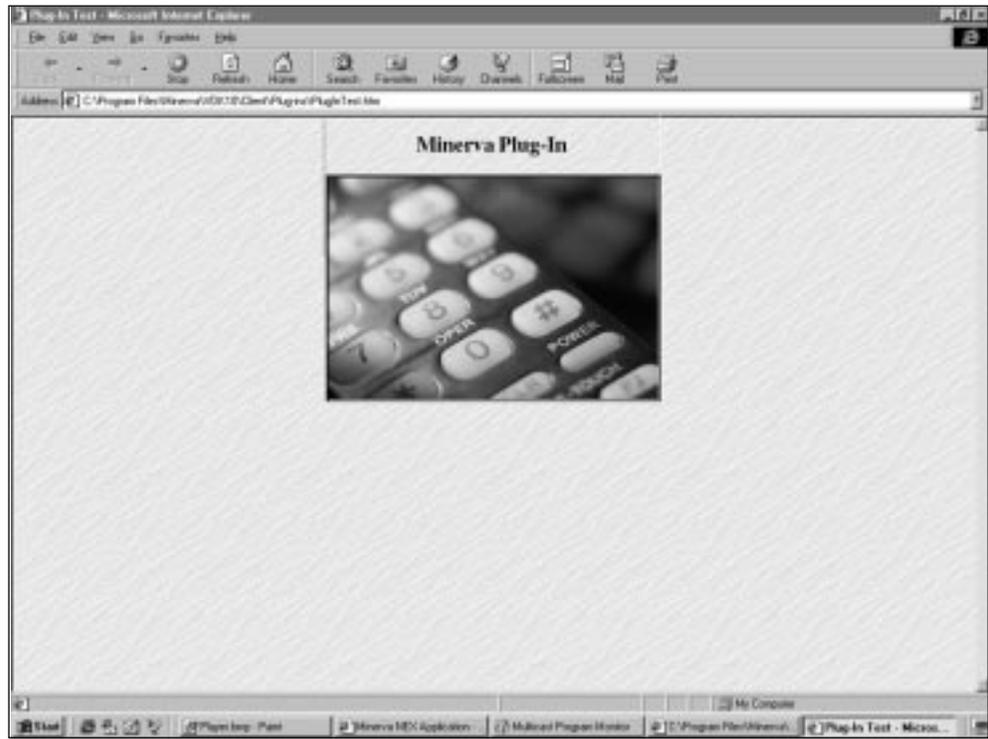
To temporarily halt video which is playing in the player window, click the **Pause** button. To resume playing the video, click **Pause** again.

Stop button

To stop video which is playing in the player window, click the **Stop** button.

Plug-in

The Plug-in works in both Netscape Navigator and Internet Explorer. The filename for this plug-in is *NPMNow.dll*. It only plays live video, with the address and port hard-coded in the HTML source. To access the Plug-in, select Start → Programs → Minerva VDK Client → Plug-in.



Tip: If there is a problem playing live video in the Plug-in, then confirm that the Plug-in file (*NPMNow.dll*) is in the Plug-in directory for the browser which you are using.

Streaming video

There are two ways to stream video to the Minerva Players:

1. Using Minerva VNP
2. Using the Stream Pump

Streaming video from Minerva VNP

For complete information about streaming video from Minerva VNP, refer to the *Minerva VNP User's Manual*. Or, for a brief look at the steps necessary, refer to the *Minerva VNP Quick-Install* card.

Streaming video using the Stream Pump

The Stream Pump is a standalone application used for multicasting or unicasting MPEG-1 System or MPEG-2 Transport files onto the network. It can be used to test clients, networks, and multicasts — all without the requirement of an encoder. The Stream Pump works with the Client player and transmits SAP information as well as the stream. In addition to being used as a standalone application, the Stream Pump can also be used as an ActiveX Control.

Note: While the full version of the Stream Pump places no restriction on the number of streams, the shareware version is limited to 2 streams.

Installing the Stream Pump

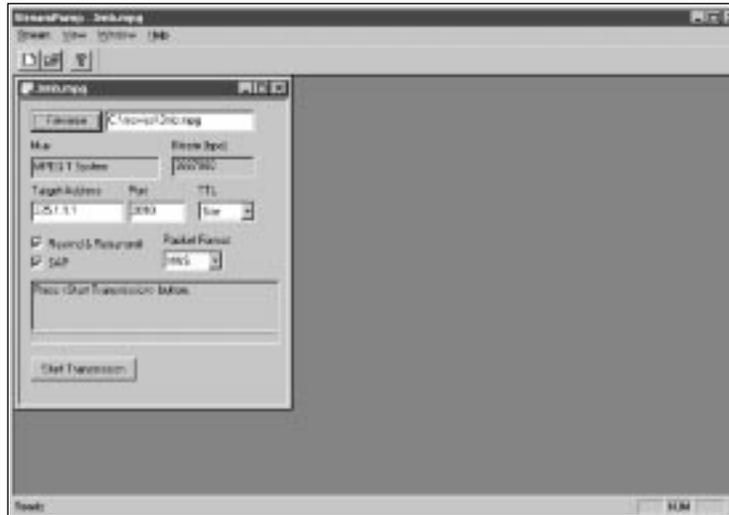
The Stream Pump application file, *pump.exe*, is in a folder with the Minerva VDK application. The Stream Pump should be installed on the server from which you plan to stream. There is no additional software required, and the system requirements are the same as the Minerva VDK Client.

To install the Stream Pump, simply double-click the *pump.exe* icon on the Minerva VDK CD. Then follow the instructions in each dialog box.

This installation will create a new entry in Start → Programs. To access this application, click Start → Programs → Minerva Stream Pump → MPEG Stream Pump.

Using the Stream Pump

To stream MPEG files over the network, select Stream → New. Then complete the entries to the following fields as explained.



Filename button

To change the default file name or location which displays, click the **Filename** button. The Windows Save As dialog box will display in which any adjustments may be made.

Mux field

The multiplex type displays in this field: either MPEG-1 system or MPEG-2 transport.

Bitrate (bps) field

The current bitrate for the stream being captured displays in this field in bits per second.

Target Address field

Enter the IP address to which you will stream your video in this field. Valid unicast or multicast addresses are between 224.0.0.2 and 239.225.225.225.

Port field

Enter a port number to which you will stream your video in this field. Valid port numbers are between 500 and 65535.

TTL selection box

This is the multicast time-to-live (TTL) for SAP packets. Time-to-live refers to the number of hops or routers which the multicast packets are able to make before stopping. While the default for this field is 64, any number from 1 to 127 can be entered.

Entering 1 means that the packets will stop at the first (or local) hop. Entering 2 to 16 means that the packets will make 2 to 16 hops prior to stopping; this is usually within a site network. Entering 17 to 64 means that the stream will make 17 to 64 hops prior to stopping; this is usually within a regional network. Entering 65 to 127 means that the stream will make 65 to 127 hops prior to stopping; this is usually within a worldwide network.

Rewind & Retransmit checkbox

Click this check box to automatically rewind and retransmit the currently playing MPEG file. If you don't want this video to continue to play in a loop, leave this option unchecked.

SAP checkbox

Check this checkbox to have any SAP announcements sent to IP address 224.2.127.254 and port number 9825.

Packet Format selection box

Click the selection arrow to select the packet format of the stream. Typically the packet format is raw. However, you may select between **OPV** (emulates a stream coming from an Optivision encoder), **MNS** (MediaNow! stream format), **OVS** (a stream coming from an Oracle Video Server), **RAW**, or **<any>**.

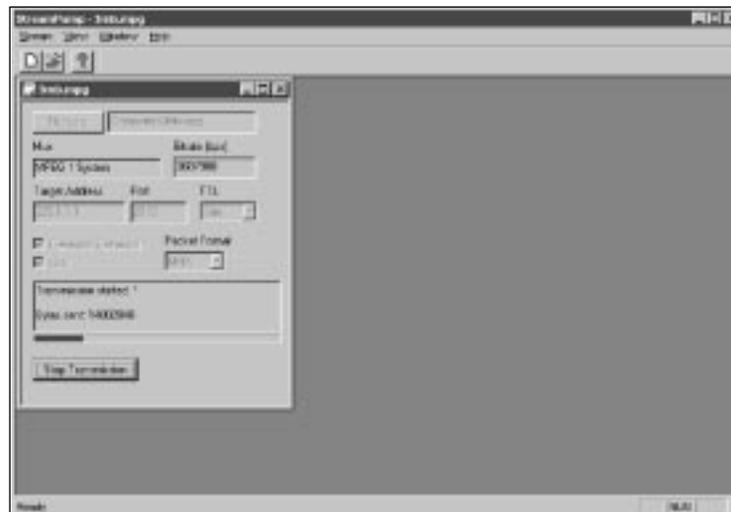
Status field

While the Stream Pump is idle, this window prompts you to press the **Start Transmission** button to start the Stream Pump. Once transmission commences, the Stream Pump window displays transmission information in the status window.

Start Transmission / Stop Transmission button

Finally, click the **Start Transmission** button. To end transmission mid-stream, click **Stop Transmission**.

Once transmission commences, the Stream Pump window displays transmission information in the status window. Additionally, the status bar below shows a visual position of the transmission process.



Supported decoders

The Minerva player technology is DirectShow-compliant. This means that any DirectShow-compliant decoder should work seamlessly with the Minerva VDK players. In some cases, untested decoders may require additional work by Minerva or the decoder vendor. At the date of printing for this documentation, the following decoders have been tested.

- MPEG-1 software decoder installed with Microsoft Windows 95, 98, 2000, and NT. This decoder only supports MPEG-1 system streams, and works best on machines faster than 200MHz.
- REALMagic Netstream II PCI hardware decoder from Sigma Designs. This decoder will play back MPEG-1 system, MPEG-2 program, and MPEG-2 transport streams. Please see the Sigma Designs web site for more information (www.sigmadesigns.com).
- Stream Express MPEG-2 software decoder from MediaMatics. This decoder will play back MPEG-1 system streams and MPEG-2 transport streams. This decoder requires at least a 266MHz Pentium II workstation. Please contact MediaMatics for more details on purchasing this decoder (www.mediamatics.com).

Troubleshooting

I installed and started the Minerva VDK Client but I cannot play the sample file "Magic School Bus." Why won't it play?

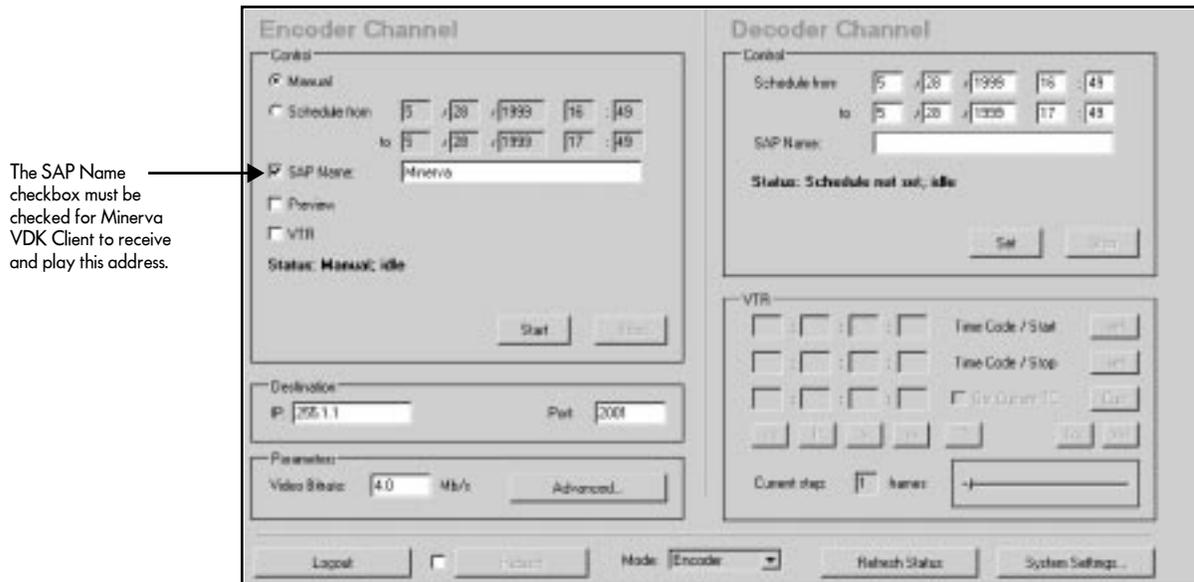
There are two programs required to play video with the Minerva VDK Client, DirectX Media Runtime 6.0. This file is located on the Minerva VDK CD and is also available on our FTP server. Install DirectX 6.0 first. After a successful install you will be prompted to reboot the PC.

I am running Windows 95, and the Minerva VDK Client application doesn't work properly.

1. If you are running Windows95, you must first install the Winsock2 update before the Minerva VDK Client will work. Download this file from www.microsoft.com.
2. Once the update is installed, then install DirectX 6.0.
3. Finally, install the Minerva VDK Client software.

Why doesn't the stream name show up in the Minerva VDK Client application under Multicast Channels?

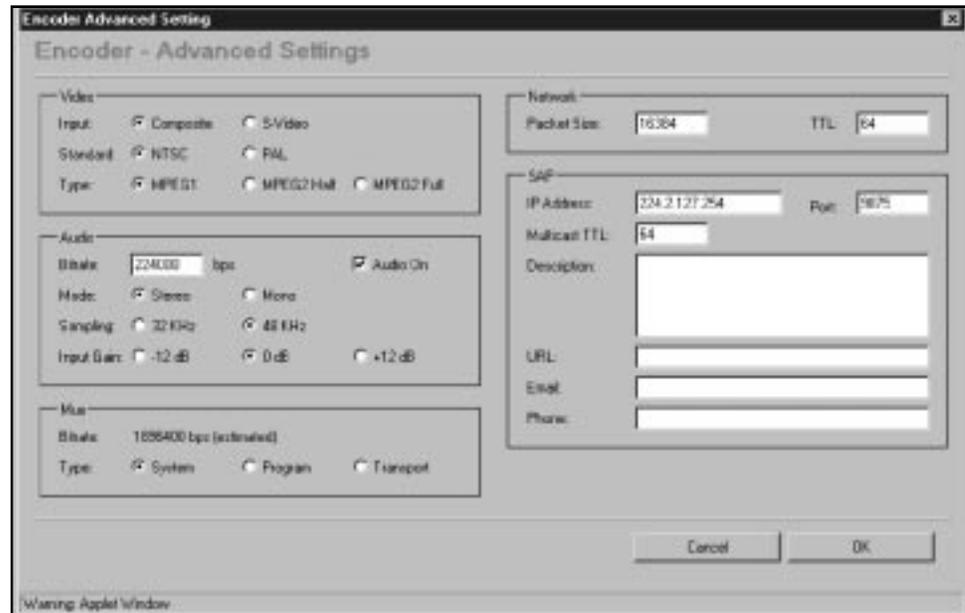
1. Make sure the **SAP Name** checkbox is checked in the main Minerva VNP window as shown below. Then enter your SAP name in the accompanying field.
2. The **IP:** and **Port:** fields of the Destination section must also be entered with the location to which video is streaming.



3. Also within the Minerva VNP application, click the **Advanced...** button in the main window to access the Encoder – Advanced Settings window. Within the SAP section, make sure that the **IP Address:** and **Port:** fields are set to 224.2.127.255 and 9875, respectively.

Why is there is no audio coming from the live stream which is playing on the Minerva VDK Client?

1. From the Encoder – Advanced Settings window of the Minerva VNP application, make sure **Audio On** checkbox is checked within Audio section.



2. Check to see that all audio cables are connected properly.
3. Within the Minerva VDK Client application, try scrolling the volume scroll bar up or down a notch to re-initiate the audio.

Why is Program Guide button in the Minerva VDK Client not doing anything?

The Program Guide feature is not supported in this release. It will be available in future releases.

Why is the live video not playing on the Minerva VDK Client? The message “Waiting for Data” continually displays.

1. Make sure **IP:** field of the Destination section of the main Minerva VNP application window is set to a multicast IP address.
2. Make sure the file you are selecting is not an MPEG-1 QSIF stream.
3. Make sure ethernet cables are properly connected.

Why is my captured stream not showing up as one of the selections under the VIDEO ON DEMAND section of the Minerva VDK Client?

Click the **Administration** button to access Administration Dialog screen. Check that the pathname where the file should be saved is accurately entered in the **Capture Fully Qualified Filename:** field. This pathname must match one of the VODFilePaths in the MrvVideoNEX.ini file (located in C:\WINNT\Java\classes\minerva\nex). If not, add an additional VODFilePath to this INI file. Refer to the *Adjusting Client parameters* section on page 19 for more information.

Why won't live video play from the Plug-in player?

If there is a problem playing live video in the Plug-in, then confirm that the Plug-in file (*NPMNow.dll*) is in the Plug-in directory for the browser which you are using. In addition, confirm that you have modified the HTML source code to match your destination IP address and port.

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