



Manual

Version 1.0

DVC-2000

Broadband Desktop VideoPhone

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Package Contents

- D-Link i2eye™ DVC-2000 Broadband VideoPhone
- Cat5 Ethernet Cable
- Standard Composite RCA Audio/Video Cable
- RJ-11 Telephone Cable
- Power Adapter (12V, 1A)
- CD-ROM with Software and Manual
- Quick Installation Guide



Note: Using a power supply with a different voltage than the one included with your product will cause damage and void the warranty for this product.

If any of the above items are missing, please contact your reseller.

Minimum System Requirements

- Broadband Internet connection
- Standard phone line (If you wish to make voice only calls using a standard phone line)
- Optional: Television with standard composite audio and video inputs (white and yellow RCA jacks) or with a RF modulator to enable a TV without AV jacks to be connected using the antenna terminal
- Optional: Connect the i2eye DVC-2000 to a PC equipped with a video capture device that allows input of standard composite video (using RCA Jacks)

Introduction

D-Link is pleased to introduce its latest product in broadband Internet videophone technology. The i2eye™ DVC-2000 Broadband VideoPhone is a full-featured desktop videoconferencing device with a built-in 5" color LCD screen. Since the DVC-2000 is a standalone device, you do not need a computer or television to videoconference over the Internet.

Using advanced video compression technology, the DVC-2000 maximizes the image and audio quality within the available bandwidth. It can send and receive video at up to 30 frames per second to deliver real-time audio and video.

The DVC-2000's unique Auto IP Mapping feature makes initiating a videoconference call over the Internet as simple as dialing a phone number. Instead of identifying your DVC-2000 by an IP address, you will assign it a "phone number" of your choice. As incoming i2eye callers dial that phone number, a remote directory service provided by D-Link (at no charge) automatically converts it into your i2eye's corresponding IP address.

The DVC-2000 features a very intuitive user interface and keypad, making it simple to answer incoming videophone calls or initiate new ones. Browse through all names and numbers in the built-in phonebook directory. Control the display of the LCD screen by switching between the Picture-in-Picture and Full Screen mode. For added convenience, a speakerphone mode provides you with hands-free videoconferencing.

The DVC-2000's privacy mode blocks video and/or audio from being sent to the other end of the call. You can also activate the Do Not Disturb mode to avert any incoming calls. And most importantly, know who's calling before you answer with the built-in caller ID¹. A Setup Wizard guides you step-by-step through the setup process and makes it easy to personalize and change your videoconferencing options. You can also connect the DVC-2000 to a standard phone line and use it as a voice-only analog telephone. Be there real time, anytime. You won't miss a moment with your friends, family, and colleagues with the i2eye DVC-2000 Broadband VideoPhone.

¹ The Caller ID feature identifies incoming IP videophone calls from other i2eye videophone users. This feature is not related to or compatible with the Caller ID feature that may be available with your traditional telephone service.

Features and Benefits

- Built-in 5" LCD screen
- Built-in handset
- Speakerphone mode
- Standalone operation - No computer needed
- Uses broadband cable/DSL or network connections for high-quality video
- H.323 Internet videoconferencing standard compliant
- Uses the D-Link Directory Service for convenient dialing using phone numbers
- Easy Setup Wizard
- Picture-in-Picture view or full-screen view
- Voice-only standard telephone mode
- Flexible calling formats for worldwide use
- Speed Dialing
- Built-in Caller ID¹
- Answer incoming calls using the attached telephone handset
- Auto mapping of IP address
- Advanced video and audio privacy protection
- Video and/or audio mute
- Adjustable tilt and focus lens
- Up to 30 frames per second
- High quality 352 x 288 resolution
- Automatic detection of system upgrades
- 1 Year Warranty

¹ The Caller ID feature identifies incoming IP videophone calls from other i2eye videophone users. This feature is not related to or compatible with the Caller ID feature that may be available with your traditional telephone service.

Hardware Overview

Connections



LEDs

PSTN* LED

This LED indicates when you are in PSTN mode. To toggle to this mode, press the Broadband button.



STATUS

This LED should only light momentarily when powered on. If the LED remains on, please contact Technical Support.

LINK LED

A solid light indicates a good Ethernet connection. This LED blinks during data transmission

* **PSTN Mode:** PSTN stands for Public Switched Telephone Network. This is the international phone standard of transmitting analog voice data over copper wires. In PSTN mode, your DVC-2000 functions as a standard telephone using your standard phone line connection.

Buttons



Numeric keypad used for dialing numbers. The asterisk button functions as a period(.) in Broadband mode. The numeric keypad functions the same as a keypad on a standard telephone when in PSTN mode.

The **Broadband** button toggles between Broadband and PSTN modes.

The **Cancel** button returns you to the previous prompt or screen.

Speed Dial opens up a window with the speed dial list and manual dialing options.

The **directional arrows** are used to navigate through the interface. When entering alphanumeric information the left arrow key performs a backspace, deleting the character to the left of the on-screen cursor. **OK** is used to confirm a selection or open the on-screen keyboard.

The **Speakerphone** button is used to turn the speakerphone on and off.

Self/Remote: Toggles between the local camera view and remote camera view.

Full-Screen/Standard: Toggles between the full-screen and standard displays modes.

The **Privacy** buttons enable and disable audio and video transmission.

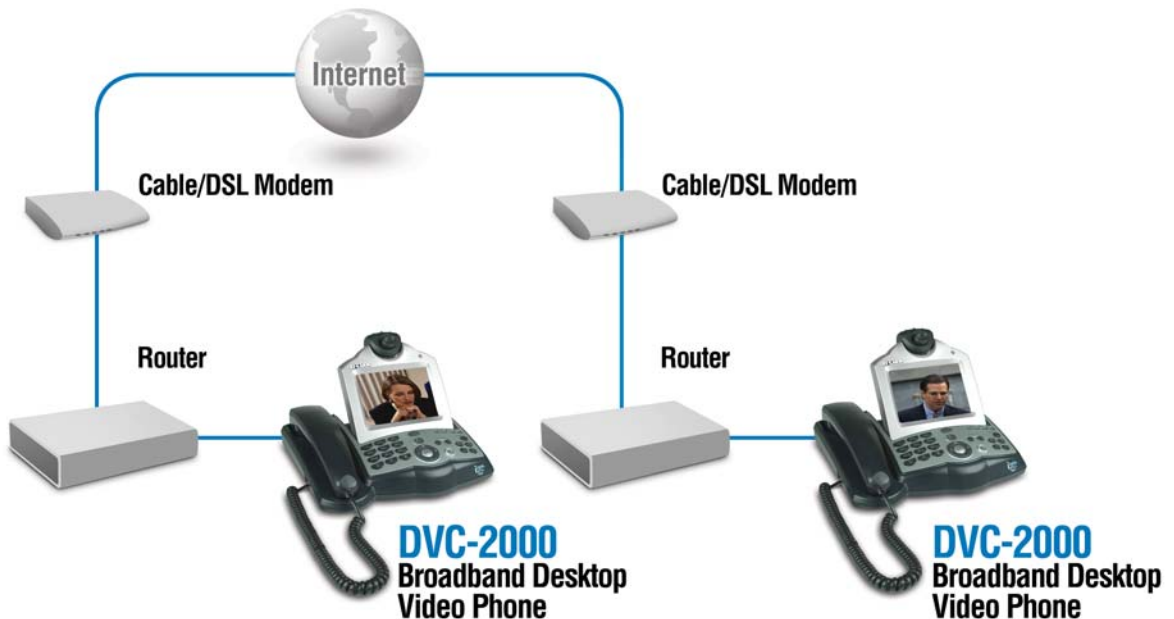
Getting Started

BEFORE YOU BEGIN!

Read the section on *Opening Ports on Routers and Gateways* starting on page 52 in this manual if you are using the DVC-2000 VideoPhone with a router, gateway or broadband modem.

The DVC-2000 needs to be setup before use. You can use the **Quick Installation Guide** (included with the DVC-2000) to perform the hardware installation. Each cable (Ethernet, phone, and AC power) supplied for the **i2eye** has a different color on the end that connects to the DVC-2000. Plug the cables into the matching color coded connector on the back of DVC-2000 (as shown on page 7).

There is an easy to use **Setup Wizard** built-in to the DVC-2000 to accomplish the setup. You will need to enter your name, a videophone number, and your Internet connection information in order to use your VideoPhone.



Using the On-Screen Keyboard

The DVC-2000 uses an on-screen keyboard that allows you to enter text in the **Setup Wizard**. When the cursor is positioned in a field that requires you to enter characters, press the **OK** button to bring up the on-screen keyboard. The keyboard will only appear if the cursor is located in a field that is editable.

To enter text use the arrow buttons on the DVC-2000 to move the cursor to the required character. Press the **OK** button on the phone to enter a character in the field. Enter all of the necessary characters until you've completed the field.

The keyboard allows entering any of the following:

- Numbers 0 through 9
- Upper case mode: Letters A through Z, period (.), dash (-), semi-colon (;), at sign (@), underscore (_), and backslash (\)
- Lower case mode: Letters a through z, asterisk (*), pound sign (#), semi-colon(;), at sign (@), comma (,), and forward slash (/)
- Special characters: Left arrow symbol (←) in the on-screen keyboard to erase one character to the left. Use the CLR option to clear the entire field. The up arrow (↑) and the down arrow (↓) function as shift keys and are used to toggle between upper and lower case mode. The Lock symbol functions as a Caps Lock button allowing the continuous entry of upper case characters.

When you are entering letters, the first letter entered is automatically entered as UPPER case. The keyboard features "wraparound" capability. If you press repeatedly on the left or right arrow keys, the cursor will wraparound to the letter on the opposite end of the row to speed up moving around the keyboard.



When you are finished entering text and numbers, move the cursor to highlight **OK** on the screen and press **OK** on the keypad or you can press the **CANCEL** button on the DVC-2000 to remove the keyboard from the screen, leaving what you typed on the screen.

Using the Setup Wizard

Welcome

Welcome to the i2eye(TM) VideoPhone Setup Wizard. The Wizard will ask you some information about yourself and your Internet connection. This information is required in order to use your i2eye(TM) VideoPhone.

To navigate through the screens in the Wizard, use the directional arrows to move the yellow box. When the item you want is highlighted, you are ready to enter data.

For example, the "NEXT" button is currently highlighted. Pushing "OK" will take you to the next screen.



Next

The first screen that appears during the initial startup is the **Welcome Screen**. This screen explains what information is needed to complete the setup and also explains how to navigate through the **Setup Wizard**. Press the **OK** button on the DVC-2000 to continue to the next screen.

Personal Information

Personal Information

Name:

Country Code:

Area Code:

Phone #:

Previous **Next**

- | | |
|----------------------|--|
| Name: | Enter your name here. This is the name that is displayed to people when they call you from another DVC-2000. |
| Country code: | The Country code for the United States and Canada is "1". See Country codes on page 68 for additional country codes. |
| Area code: | Enter your area code. |
| Phone #: | The phone number you enter is one you create for family, friends and others to call you over the Internet from another DVC-2000 VideoPhone. You can use your regular phone number or make up a new one. Only your name will be displayed at the other end of the video call. Your phone number will not be visible to anyone else. |

Network Address

The **Network Address** screen asks for the information that is necessary to connect a DVC-2000 call over the Internet. There are three types of network connections to choose from: **DHCP**, **Fixed IP**, and **PPPoE**. If you do not know which to choose or you do not have enough information to complete this section, please contact your ISP (Internet Service Provider) or Network Administrator for assistance.

DHCP

Choose DHCP when connecting directly to a broadband modem that offers dynamic IP addressing or when behind a router/DHCP server configured for DHCP.

Network Address

DHCP **Fixed IP** **PPPoE**

IP address:

Subnet Mask:

Gateway:

Host name (optional):

MAC: 00:0f:3d:f7:db:42

Network Address > DHCP

Host Name:

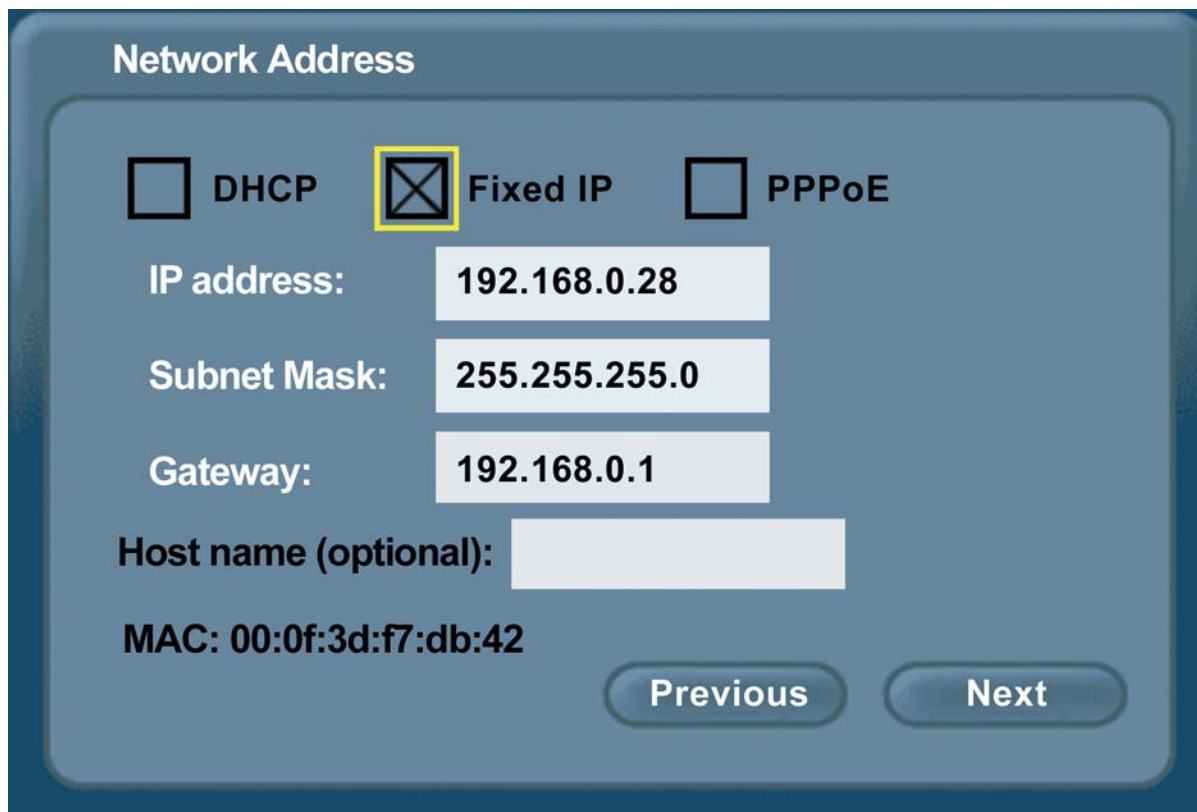
Your Internet Service provider may require you to provide a host name to connect to the Internet. If this is required, you can enter it here.

MAC:

MAC (Media Access Control) is a unique identifier for the Ethernet network hardware of your DVC-2000. If you need to know the MAC address of your DVC-2000, it can be found on this screen.

Fixed IP

Choose Fixed IP when connecting to a broadband connection that offers static IP addressing or when behind a router that does not have a DHCP server enabled. This choice requires the input of specific IP address information.



The screenshot shows a 'Network Address' configuration window. At the top, there are three radio button options: 'DHCP', 'Fixed IP', and 'PPPoE'. The 'Fixed IP' option is selected and highlighted with a yellow border. Below these options are input fields for 'IP address' (192.168.0.28), 'Subnet Mask' (255.255.255.0), and 'Gateway' (192.168.0.1). There is also an empty input field for 'Host name (optional):' and a 'MAC' address of 00:0f:3d:f7:db:42. At the bottom right, there are 'Previous' and 'Next' buttons.

Network Address > Fixed IP

- IP Address:** Input the IP Address provided from your router configuration settings, ISP, or network administrator.
- Subnet Mask:** Input the Subnet mask provided from your router configuration settings, ISP, or network administrator.
- Gateway:** Input the Gateway address provided from your router configuration settings, ISP, or network administrator.

PPPoE

Choose this option when connecting directly to a DSL modem that offers a PPPoE connection.

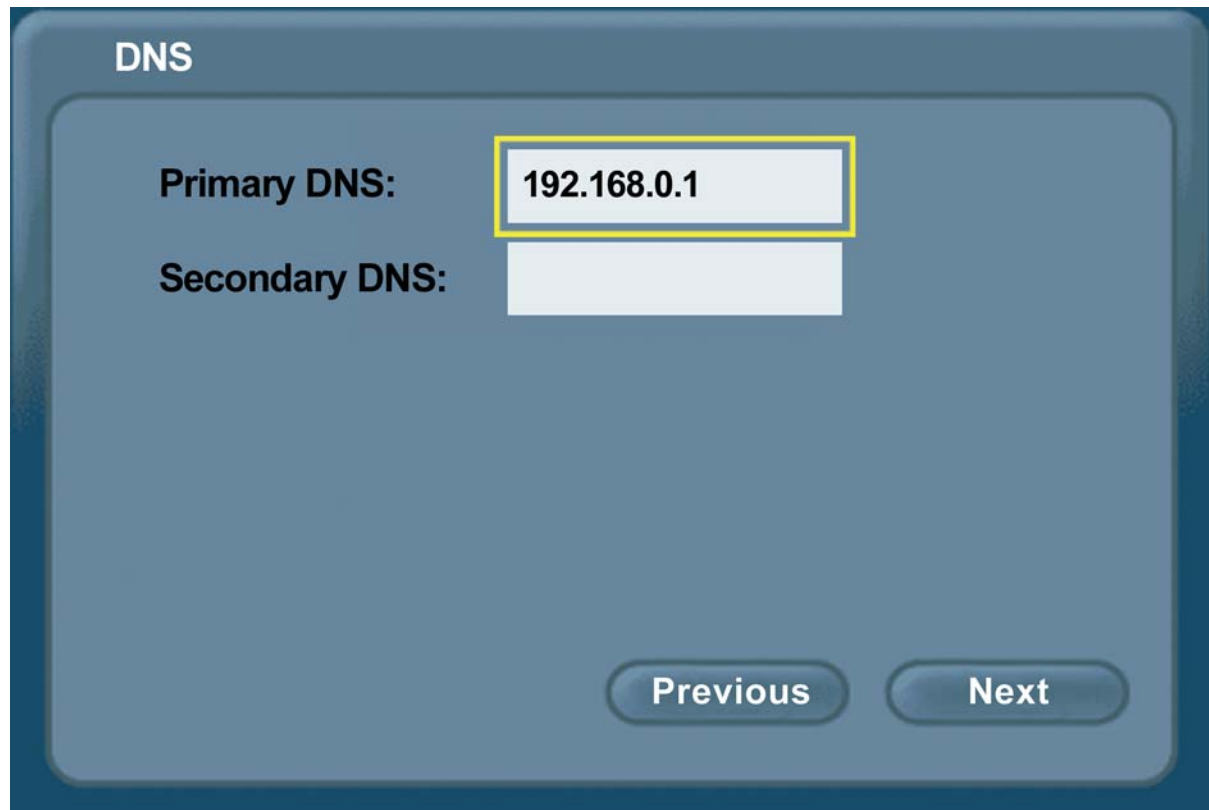
The screenshot shows a 'Network Address' configuration window. At the top, there are three radio button options: 'DHCP', 'Fixed IP', and 'PPPoE'. The 'PPPoE' option is selected and highlighted with a yellow box. Below these options are several input fields: 'Username:' with the value 'RHALO', 'Password:' with the value '04WEST', 'Gateway:' (empty), 'Host name (optional):' (empty), and 'MAC: 00:0f:3d:f7:db:42'. At the bottom right, there are two buttons: 'Previous' and 'Next'.

Network Address > PPPoE

- | | |
|-------------------|---|
| Username: | Your PPPoE username provided by your ISP. |
| Password: | Enter the PPPoE password. |
| Host name: | Your Internet Service provider may require you to provide a host name to connect to the Internet. If this is required, you can enter it here. |

DNS

If you chose Fixed IP on the **Network Address** screen (described on the previous pages) you will see the screen for setting DNS server addresses. The DNS screen asks for information regarding the Domain Name System (DNS) server.



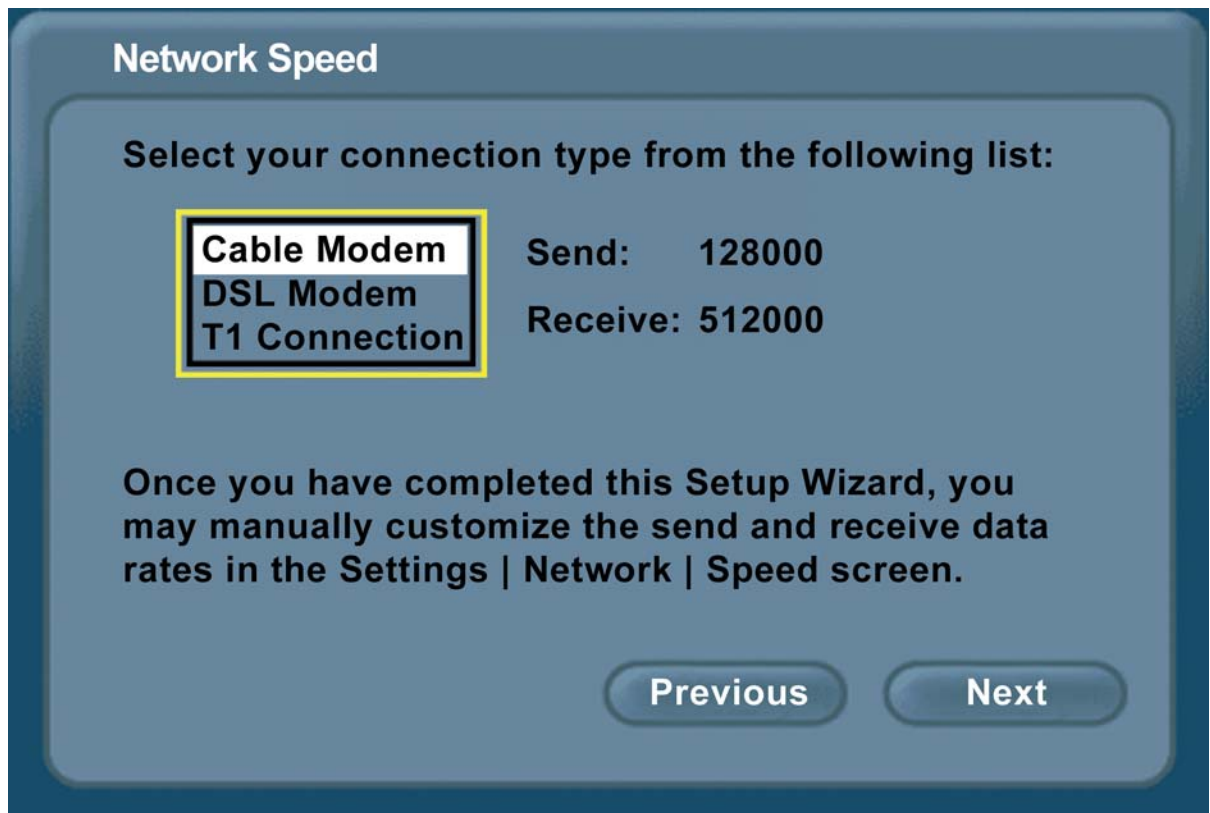
The screenshot shows a 'DNS' configuration window. The title bar says 'DNS'. Below the title, there are two labels: 'Primary DNS:' and 'Secondary DNS:'. The 'Primary DNS:' field contains the IP address '192.168.0.1', which is highlighted with a yellow border. The 'Secondary DNS:' field is empty. At the bottom of the window, there are two buttons: 'Previous' and 'Next'.

Network Address > Static IP > DNS

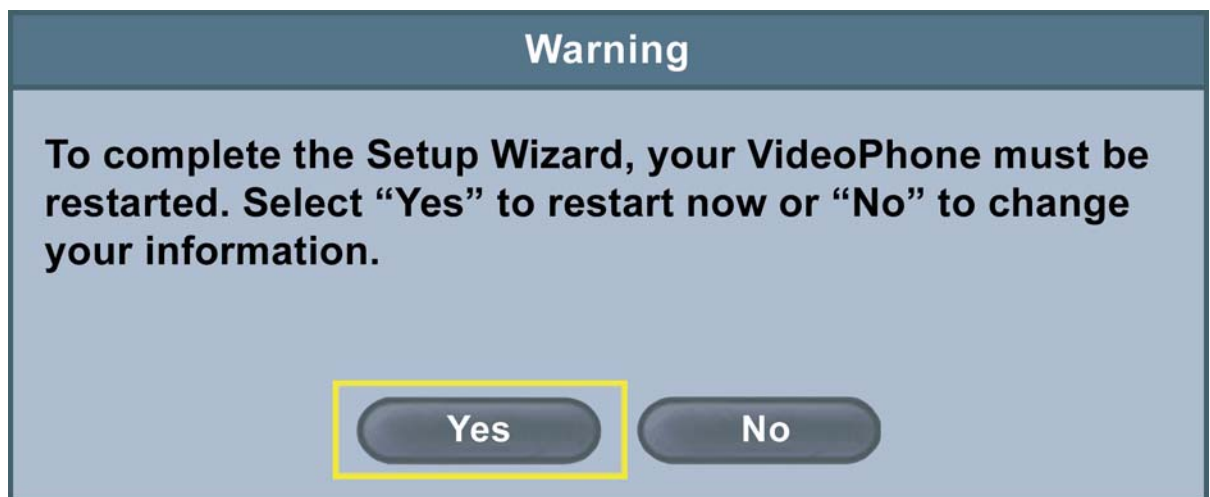
You should be able to get both of these settings from your router configuration settings, ISP, or your network administrator. Only the primary DNS server address is required, though it is best to have both the primary and secondary addresses.

The Domain Name System (DNS) translates Internet domain names (for example www.dlink.com, which is easy for humans to use and remember) to IP addresses, which are what computers and Internet devices use to find each other on the Internet.

Network Speed



The **Network Speed** screen asks you to select the type of broadband Internet connection you use. Each choice has default *send* and *receive* speeds defined for you. If you need to change these settings after completing the **Setup Wizard**, this can be done by selecting the **Settings > Network > Speed** screen.



A message appears asking to restart the DVC-2000 VideoPhone to complete the setup. Press the **Yes** button to restart the device.

Congratulations! You are now ready to make and receive i2eye VideoPhone calls.

Using the DVC-2000 in PSTN Mode

The DVC-2000 offers two different operating modes, PSTN mode and Broadband mode. PSTN Mode is the default startup mode and functions as a standard telephone. The PSTN screen appears after you've completed the Setup Wizard (as shown below). To dial, lift up the receiver or press the speakerphone button and you can make a call as you normally would via your standard phone connection. In PSTN mode you will not be able to see the party on the other end. The DVC-2000 functions as a standard telephone in PSTN mode with no video functionality.



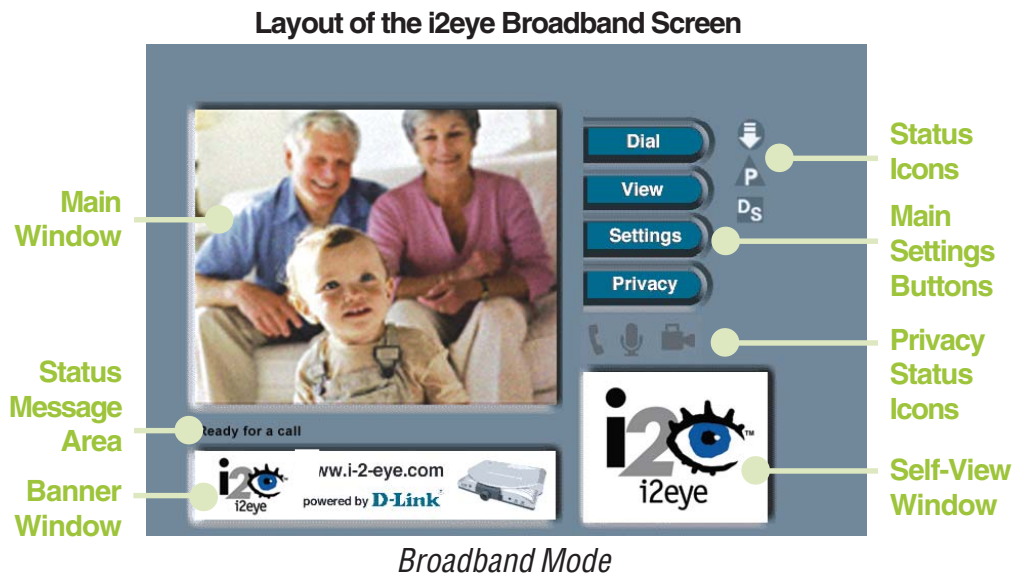
PSTN Mode

To toggle between PSTN and Broadband mode, click on the **Broadband** button.

PSTN Mode: PSTN stands for Public Standard Telephone Network. This is the international phone standard of transmitting analog voice data over copper wires. In PSTN mode, your DVC-2000 functions as a standard telephone using your standard phone line connection.

Broadband Mode: Broadband mode allows you to video conference via your Internet connection using digital communication standards. You can connect to anyone with a broadband connection and an i2eye device from anywhere in the world.

Using the DVC-2000 in Broadband Mode



When powered on and after completing the Setup Wizard, the DVC-2000 is in PSTN Mode. To enter Broadband Mode, press the **Broadband** button on the DVC-2000 and the screen above will appear. The larger **Main Window** displays the self-view until a call is connected and then displays the party you are calling. The smaller **Self-View Window** then displays the self-view when a call is connected. To toggle the images that are in the **Main Window** and **Self-View Window** press the **Self/Remote** button.

Status Icons

The Status Icons appear only briefly at startup. The DVC-2000 uses icons to indicate the unit status. The icons appear on the upper right side of the **Main Screen**. If an icon appears, it indicates an operation is not complete. The icon will disappear after the operation has been completed. If the icon appears with a yellow "X" through it, this means the operation was unsuccessful. If the **Directory Service** status icon is displayed with an "X" through it, you can still make VideoPhone calls by entering the IP address of the phone that you are calling (See **Calling a VideoPhone or H.323 Device with an IP Address** on page 27). Below are the status icons:




Looking for i2eye updates






Obtaining the Public IP address (Router's Address)





DVC-2000 is registering with the Directory Service

If a Status Icon is displayed, this indicates the operation the icon represents is not complete. The i2eye Update Status Icon  appears at startup. While the icon appears, the DVC-2000 is quickly determining if auto-update is enabled. If it is enabled, the DVC-2000 will determine if an update exists. When this is complete, the icon disappears.

If the DVC-2000 cannot connect to the update server, the operation was unsuccessful and the icon will show as:  Typically, this means the DVC-2000 is not connected to the Internet.

The Public IP Status Icon,  appears during startup when the DVC-2000 is attempting to connect to the Internet and determine the Public IP address of your Internet connection. If this operation is unsuccessful and the icon shows as,  the DVC-2000 cannot be used over the Internet. It can be used on an internal network as an internal videoconferencing system.







The Directory Service Status Icon  is displayed at startup, showing the DVC-2000 is registering with the i2eye Directory Service to allow phone number dialing. If the Directory Service cannot be reached, the  icon appears. This means you cannot use phone numbers to call other VideoPhones, but you can still make VideoPhone calls by inputting the IP address of the videophone that you are calling (See **Calling a VideoPhone or H.323 Device with an IP Address** on page 27).

For help, see the **Troubleshooting** section starting on page 57 if any of the Status Icons show an unsuccessful operation has occurred.

Privacy Status Icons

Privacy Status Icons appear on the Broadband mode screen.

Please see the previous page for an illustration.

- | | | | |
|-----------------------|---|---|---|
| Audio |  | If you select Audio Privacy in the Privacy Settings window or by pressing the Audio Privacy button, the other party will not hear you and the audio icon will appear with a slash through it. |  |
| Video |  | If you select Video Privacy in the Privacy Settings window or by pressing the Video Privacy button, the other party will not see you and the video icon will appear with a slash through it. |  |
| Do Not Disturb |  | If you select Do Not Disturb in the Privacy Settings window, your VideoPhone will not ring if dialed and the other party will receive a message that you are not taking calls. |  |

Placing a VideoPhone Call

1. Press the Broadband button if you are not in Broadband Mode already.
2. Pick up the telephone handset.
3. The DVC-2000 VideoPhone senses the phone is off the hook and a message appears stating **Ready to dial phone number**. You can either enter a phone number or press the **Speed Dial** button to select the **Speed-Dial List**.
4. Enter the phone number into the DVC-2000 just as if you were using a regular phone. See **Entering Phone Numbers** on the next page for help on completing a videocall.
5. The DVC-2000 rings while you wait for your call to be answered by the party on the other end of the call.

When the other party answers, the VideoPhone call is connected.

Using Speed-Dial

1. Press the Broadband button if you are not in Broadband Mode already.
2. Press the **Speed Dial** button to bring up the Dial screen.
3. The **Speed-Dial List** appears, displaying the speed dial numbers that have been entered in the DVC-2000. Use the **arrow keys** to navigate to the desired number and press the **OK** button to dial.
4. The DVC-2000 VideoPhone rings while you wait for your call to be answered by the party on the other end of the call.

When the other party answers, the VideoPhone call is connected.

If the other party has activated their video privacy, you will not see them; but you will be able to hear them. If they have activated audio privacy, you can see them; but not hear them. If you have activated your video privacy, the other party will not see you and if you activated audio privacy, the other party will not hear you.

Speakerphone Mode

The DVC-2000 has a **Speakerphone mode** if the call needs to be shared with more than one person. This mode is useful when it is desirable to talk without using the telephone handset. In Speakerphone mode, the DVC-2000's speaker and built-in microphone are used.

Switching from a Speakerphone Call to a Private Call

If you are sharing a VideoPhone call with a group using Speakerphone mode and wish to conduct a private conversation, pick up the telephone handset. The others in the group will not be able to hear the conversation.

Switching from a Private Call to a Speakerphone Call

If a VideoPhone call is in progress using the telephone handset, Speakerphone mode can be enabled:

1. Press the Speakerphone button on the DVC-2000.
2. When the dialog appears on the video display telling you to hang up the phone, go ahead and hang up the handset.
3. Speakerphone mode is now active.

When in Speakerphone mode, you should face the DVC-2000 VideoPhone unit when you speak so the microphone will pick up all your words. Speak louder as you move further from the unit.

Entering Phone Numbers

The DVC-2000 can connect with other i2eye VideoPhones throughout the world. During the setup of the DVC-2000, you entered a **Country code** into the **Personal Information** screen, along with an **Area code** and a **Phone number**. To make calling a VideoPhone similar to using a regular telephone, you enter VideoPhone numbers in a format similar to your local telephone system (*See Placing a VideoPhone Call on the previous page*).

Videocalls can also be made from the **Manual Dial** screen using the numeric buttons on the keypad. The Country code and Area code must be dialed along with the Phone number on all calls.

After entering the number into the **Phone number** box, move the cursor to the Dial button using the arrow buttons on the DVC-2000. To make the call, press the **OK** button on the DVC-2000.

Calling a VideoPhone with the Same Country and Area Code

In the **Manual Dial** screen, the country code and area code you entered for your VideoPhone are set as the default entries. To complete a call to another VideoPhone with the same country and area codes (i.e., a local video call), simply enter the phone number of the party you are calling.

Example: The VideoPhone you're calling has a local VideoPhone number of 555-1212. Leave the default country and area code boxes and enter the phone number **5551212**. To make this call with the telephone handset, you would dial **12125551212** (Country code+area code+phone number).

The screenshot shows a 'Manual Dial' dialog box with a blue background. It contains the following elements:

- Manual Dial** (Title)
- Enter a country code:** Input field containing '1' (highlighted with a yellow border)
- area code:** Input field containing '212'
- Phone number:** Input field containing '5551212'
- OR** (Text separator)
- Enter an address:** Empty input field
- Dial** (Button)
- Cancel** (Button)

Calling a VideoPhone with a Different Area Code

To complete a call to another VideoPhone with the same country code, but a different area code (i.e., “a long-distance” call), enter the area code and phone number of the party you are calling. (Remember: The DVC-2000 uses the Internet for completing calls and not long-distance phone lines).

Example: The VideoPhone you are calling has an area code of 949 and a phone number of 555-1212. Leave the default country code box, enter **949** into the area code box and then enter the phone number **5551212**. To make this call with the telephone handset you would dial **19495551212** to complete this call.

The image shows a 'Manual Dial' dialog box with a blue gradient background. It contains the following elements:

- Manual Dial**: Title of the dialog box.
- Enter a country code:** A text label followed by a text input field containing the number '1'. The input field is highlighted with a yellow border.
- area code:** A text label followed by a text input field containing the number '949'.
- Phone number:** A text label followed by a wide text input field containing the number '5551212'.
- OR**: A text label centered between the phone number and address fields.
- Enter an address:** A text label followed by an empty text input field.
- Dial**: A button with rounded corners and a slight shadow.
- Cancel**: A button with rounded corners and a slight shadow.

Calling a VideoPhone with a Different Country Code

To complete a call to another VideoPhone with a different country code (i.e., an “international call”), you need to enter the country code, area code, and phone number of the other party.

Example: The VideoPhone you are calling has a country code of 886, an area code of 2 and a phone number of 5555-1212, you would enter **886** into the country code box, **2** into the area code box and then enter Phone number **55551212**. From the telephone handset, you dial **886255551212** to complete this call.

The image shows a 'Manual Dial' dialog box with a blue background. It contains the following elements:

- Manual Dial** (Title)
- Enter a country code:** Input field containing **886** (highlighted with a yellow border)
- area code:** Input field containing **2**
- Phone number:** Input field containing **55551212**
- OR** (Text separator)
- Enter an address:** Empty input field
- Dial** (Button)
- Cancel** (Button)

Calling a VideoPhone or H.323 Device with an IP Address

If you are unable to dial another DVC-2000 by using its phone number, you can complete a call by entering the IP address of the VideoPhone you want to call. This will require obtaining the IP address for the device you want to call.

To complete a call to another VideoPhone or any other compatible H.323-compliant videoconferencing device, ignore the Country code, Area code and Phone number boxes in the Manual Dial screen. Use the arrow keys to move the cursor to the **Enter an IP address** field.

Example: The VideoPhone or other device you are calling has an IP address of 205.104.32.20, you would enter:

- 205** and then press the * key to enter a period
- 104** and then press the * key to enter a period
- 32** and then press the * key to enter a period
- 20** and navigate to **Dial** and press the **OK** button on the keypad to complete this call.

Manual Dial

Enter a country code:

area code:

Phone number:

OR

Enter an address:

Dial **Cancel**

The DVC-2000 supports domain name lookup. This means you can use the domain name of a Web site as the IP address if a VideoPhone is connected to this Website. For example, you can avoid entering an IP address number and instead use the on-screen keyboard to dial an address such as: www.myvideophone.com

Using the Configuration Menu

The DVC-2000 VideoPhone starts up in PSTN mode. Press the Broadband button to enter Broadband mode and the Broadband mode main window will appear. The larger window initially displays the self-view image. The following buttons appear in the main window:



Dial: Set up a speed dial list and choose from several methods of placing a call to other VideoPhones. You can make a call by entering an i2eye VideoPhone number, by entering an IP address, or select an entry on the speed dial list.

View: Allows you to specify what is seen on the main application screen. Choose full screen view or the default view, as well as Internet connection status.

Settings: Change settings relating to video calls, personal information, and network information.

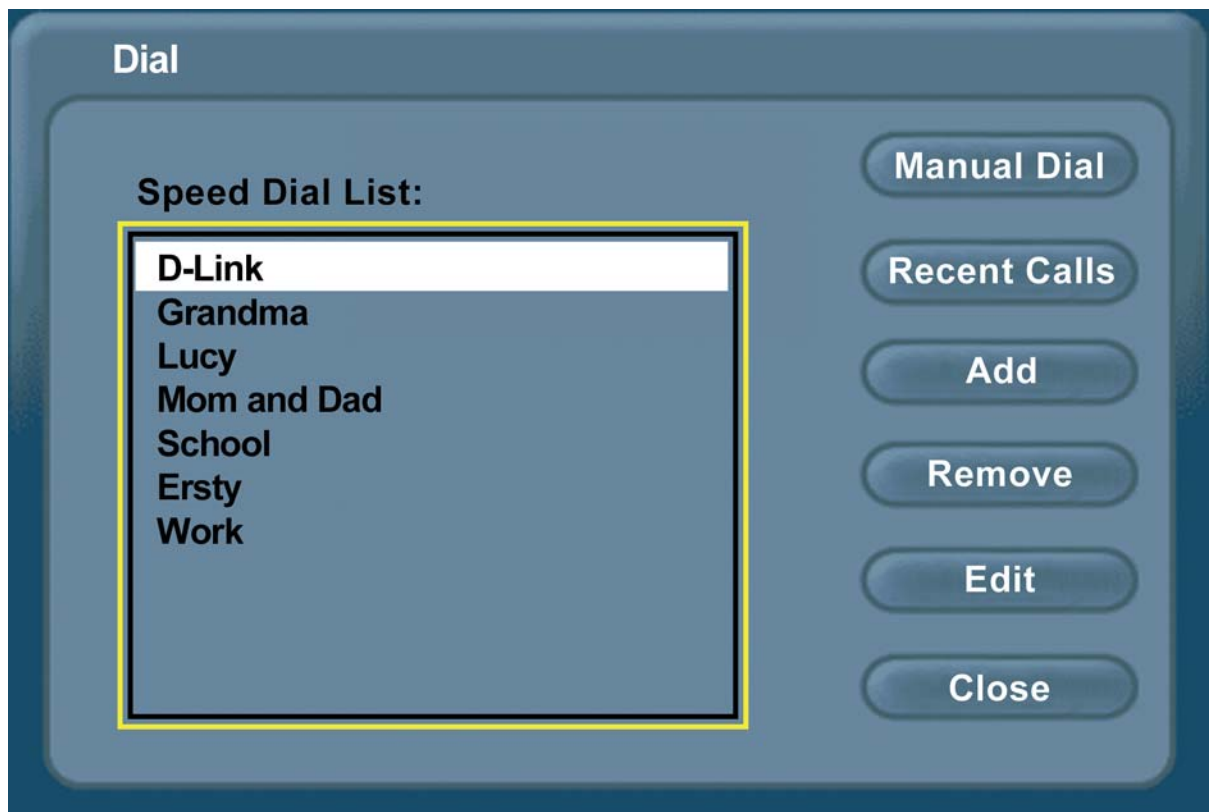
Privacy: Select from several methods of audio and video privacy.



If this warning screen appears, click **OK** and you will be shown the IP address configuration screen. Manually input the IP address. Please see #18 in the Troubleshooting Section in this manual for more information.

Dial

The Dial screen contains the **Speed Dial List** as well as buttons to manage the Speed Dial List and make manual VideoPhone calls

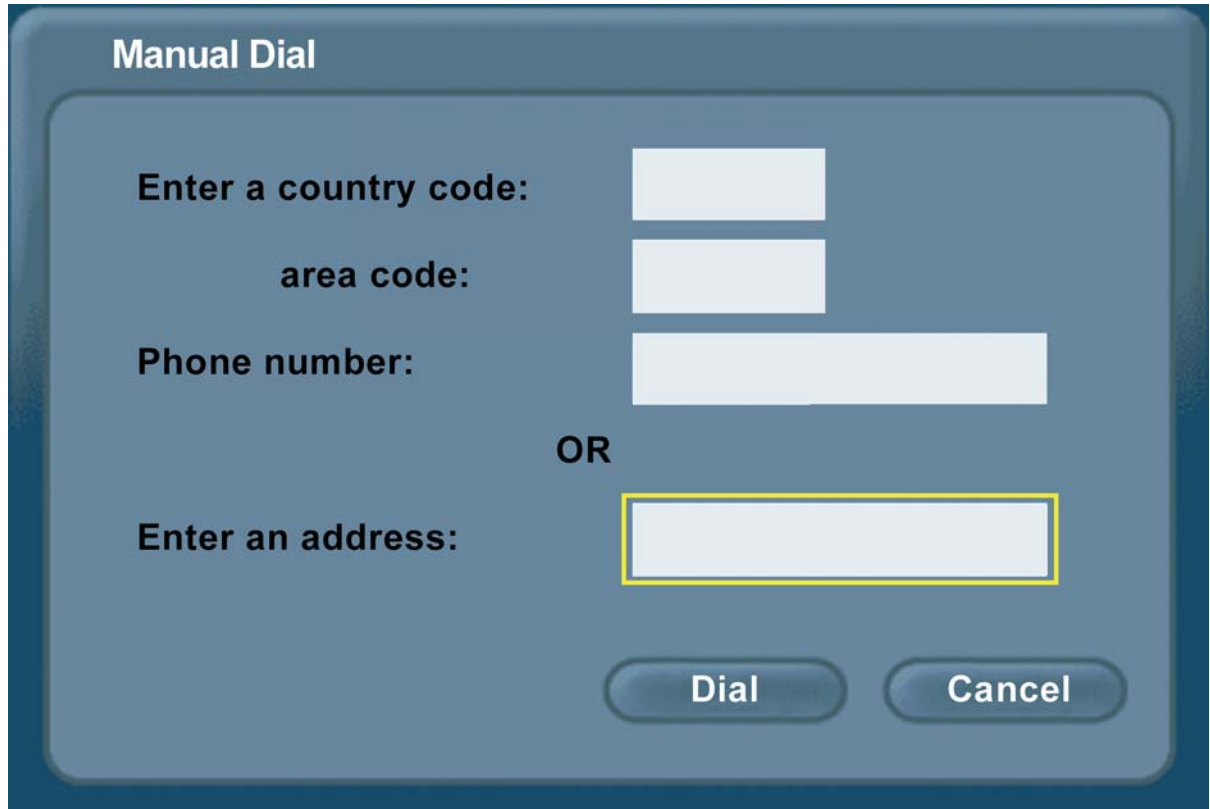


Main Screen > Dial

Speed Dial List: This list contains up to 50 Speed Dial entries. Click the **Add** button to add to this list. A name is dialed by highlighting the item and pressing the **OK** button on the DVC-2000. After 10 entries are created, the Speed Dial List will scroll to display entries 11 through 50.

Manual Dial

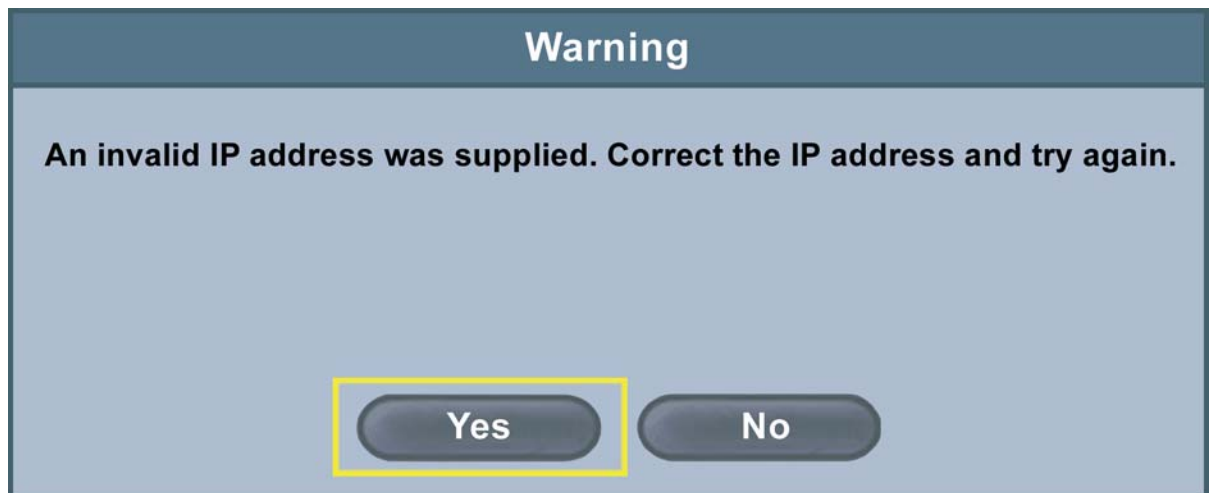
Allows the manual dialing of another user by telephone number or IP address. When you click **Manual Dial** in the Dial screen, the window below will appear. To enter the phone number or IP address, use the on-screen keyboard or numeric keypad.



Main Screen > Dial > Manual Dial

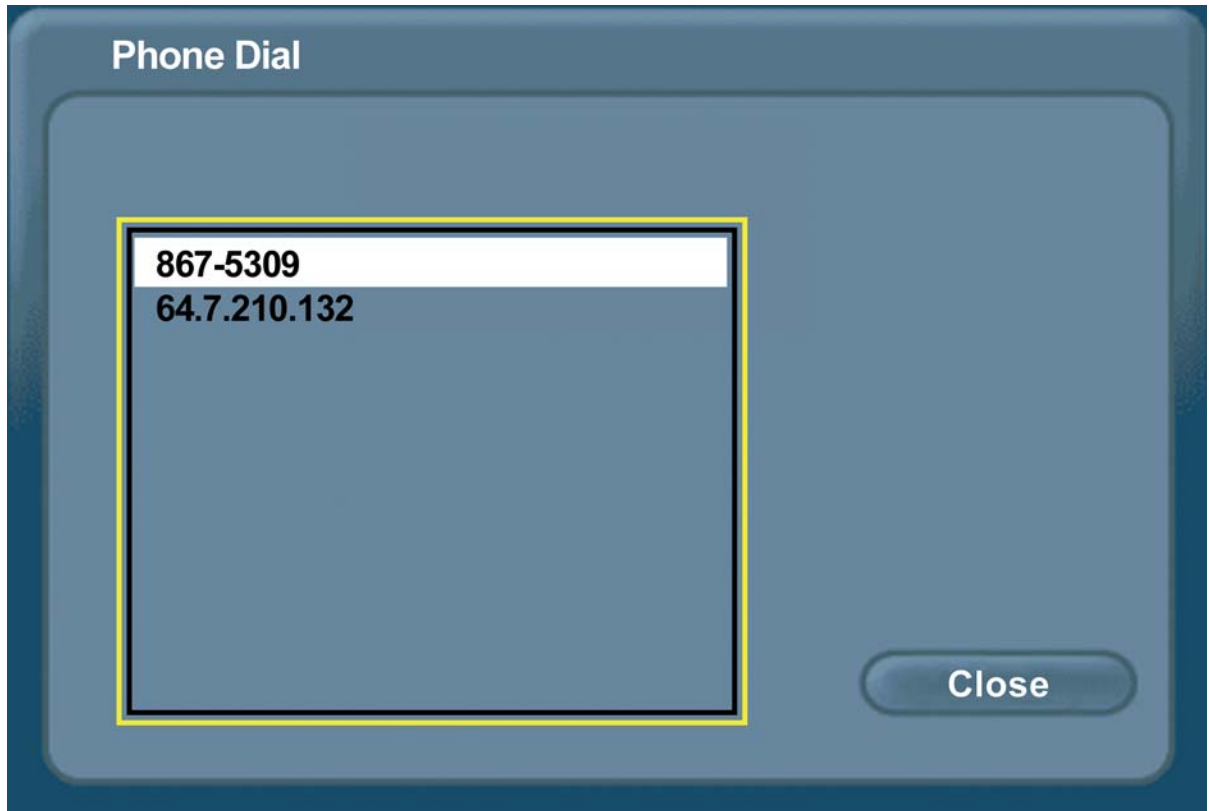
Navigate to **Dial** and press the **OK** button on the DVC-2000 to start a VideoPhone call.

If the Warning screen below appears, an invalid IP address has been entered. Please correct the IP address and try again.



Recent Calls

The Recent Calls feature displays a list of recently dialed calls. To access this feature, select **Recent Calls** on the Dial screen. The window below will appear. Navigate to the desired phone number using the up and down arrow buttons on the DVC-2000 and press the ENTER button to dial the number.



Main Screen > Dial > Phone Dial

Add

To add a **Speed Dial** entry, enter a name and a number (or an IP address). Click OK to complete the addition of a Speed Dial entry.

Add Speed Dial

Name:

Enter a country code:

area code:

Phone number:

OR

Enter an address:

OK **Cancel**

Main Screen > Dial > Add

Remove

Removes a selected entry from the **Speed Dial** list.

Edit

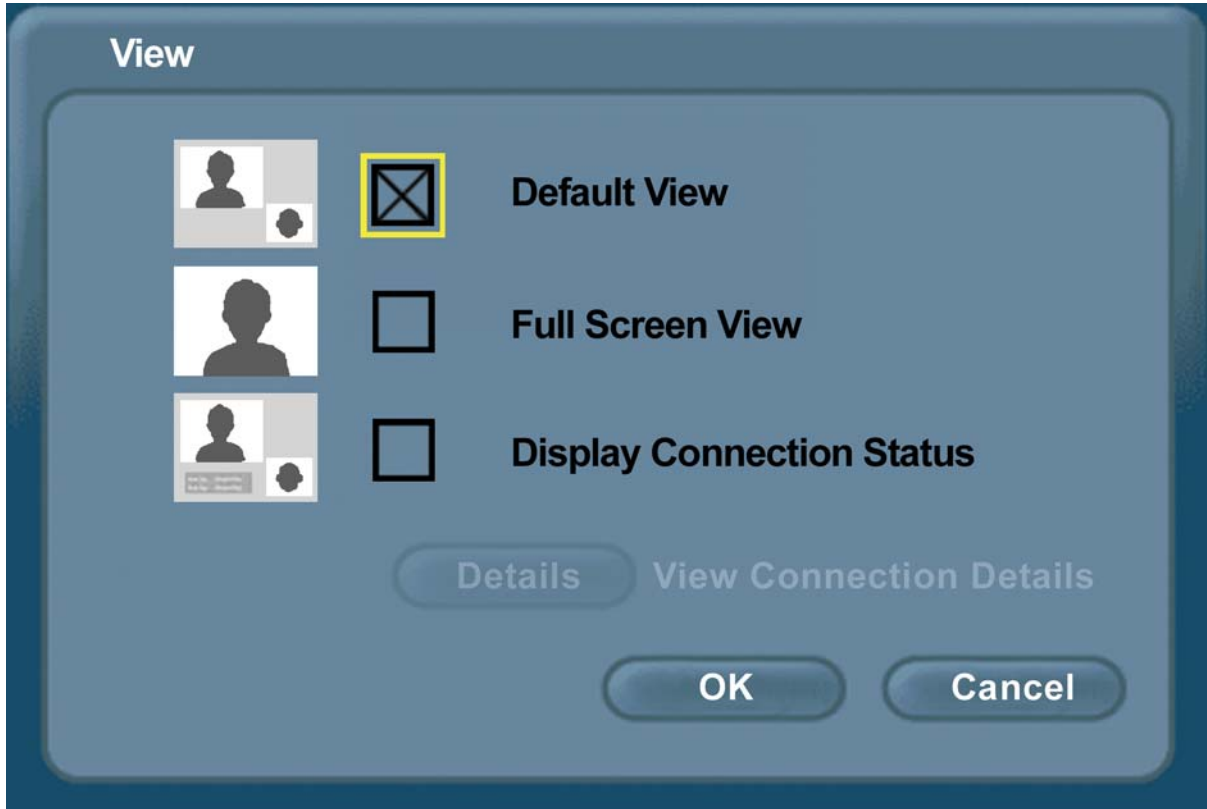
Allows the modification of either the name or number (or IP address) of the selected Speed Dial entry.

Close

Closes the **Dial** screen, saving the current entries to the Speed Dial list.

View

The View screen allows the user to modify what the Main Screen may look like.



Default View:



This is the standard view showing both the larger main view window and the smaller self-view window.

Full Screen View:



The main video window only is seen in this view. When no call is in progress, the self-view will display. Once a call is connected, the remote caller's video will display as well as a self-view picture-in-picture.

Display Connection Status:



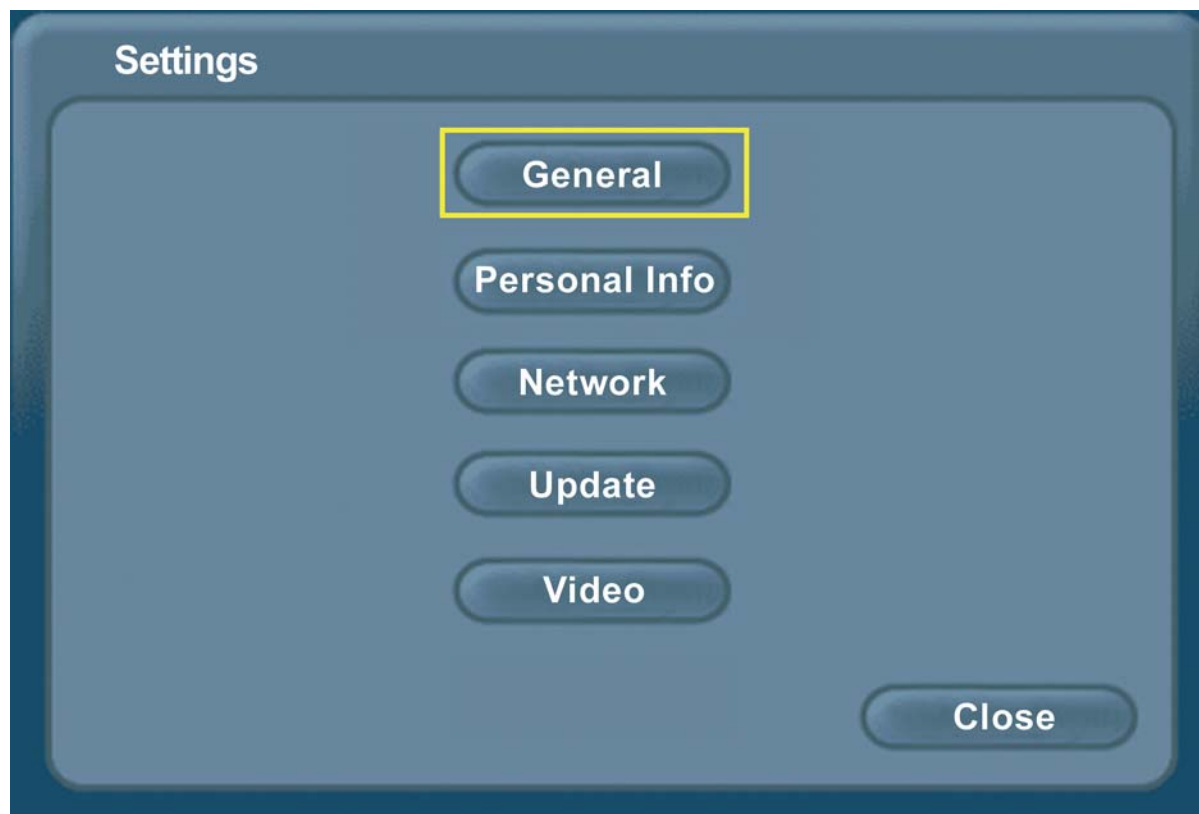
This view is the same as the default view with the addition of connection status information appearing in the lower left corner of the main screen.

**Details (Button)
View Connection
Details:**

Click this button to view the connection details. Items such as video and audio formats and call rates will be displayed. The connection details can be viewed only while the DVC-2000 VideoPhone is on a call.

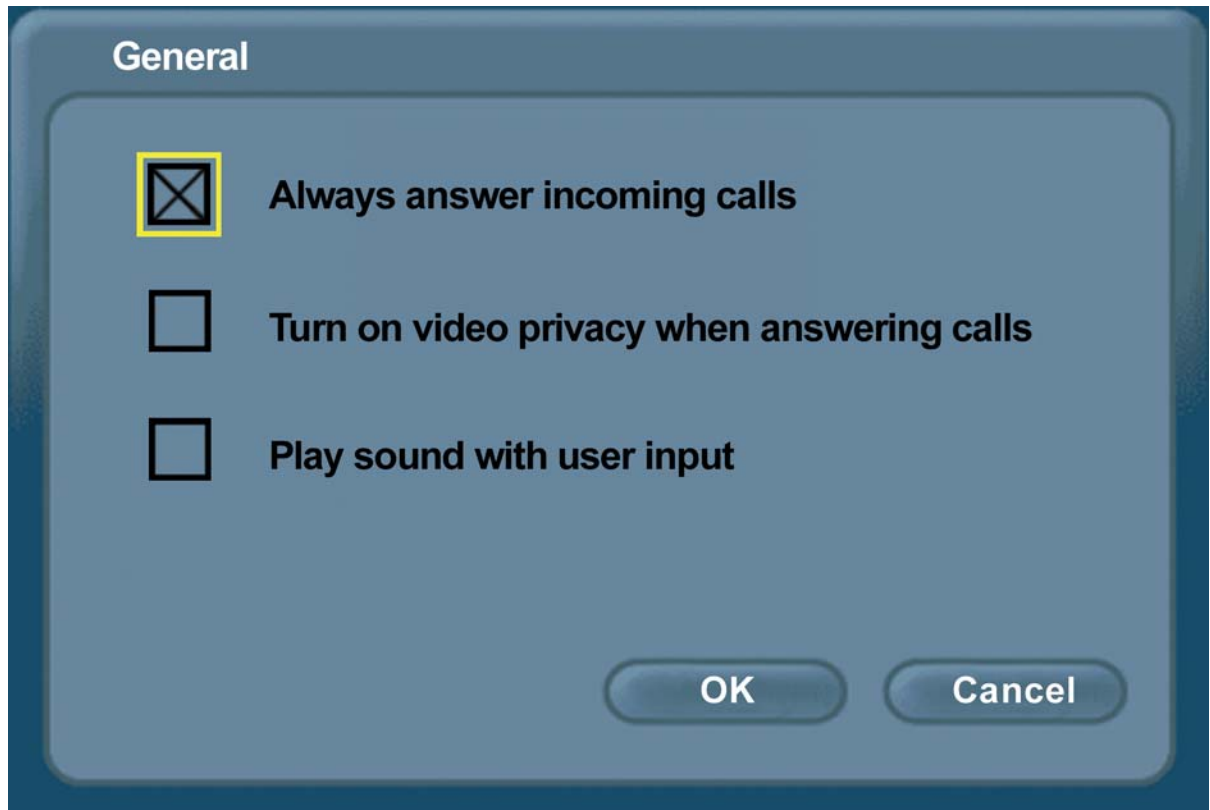
Settings

The Settings screen contains six buttons that allow customization of the DVC-2000.



- | | |
|-----------------------|--|
| General: | Controls settings that adjust the way you view, listen and use the DVC-2000 VideoPhone. |
| Personal Info: | Contains information about the user and allows editing of user information. |
| Network: | The Network Settings screen allows you to setup your network address, DNS address, public IP address, transmit and receive network speeds and offers a PING network diagnostic tool. |
| Update: | DVC-2000 will look for system updates each time it starts up. This setting allows you to search for an update manually. |
| Video: | This will allow you to adjust the video display settings. |

General



Main Screen > Settings > General

Always answer incoming calls:

Selecting this checkbox allows the DVC-2000 to automatically accept any incoming call. You will hear two short beeps if a call is received with auto-answer turned on. If this checkbox is not selected and a call is received, a dialog box appears asking if you want to accept the incoming call.

Turn on video privacy when answering calls:

When this checkbox is selected, video privacy will be turned on whenever a call is received. This blocks a caller from seeing you until you turn off video privacy.

Play sound with user input:

Select this checkbox to hear a beep with each function pressed. You will hear no sound if this is not selected.

Personal Information

Personal Information

Name: John Smith

Country Code: 1

Area Code: 949

Phone #: 5551212

Previous Next

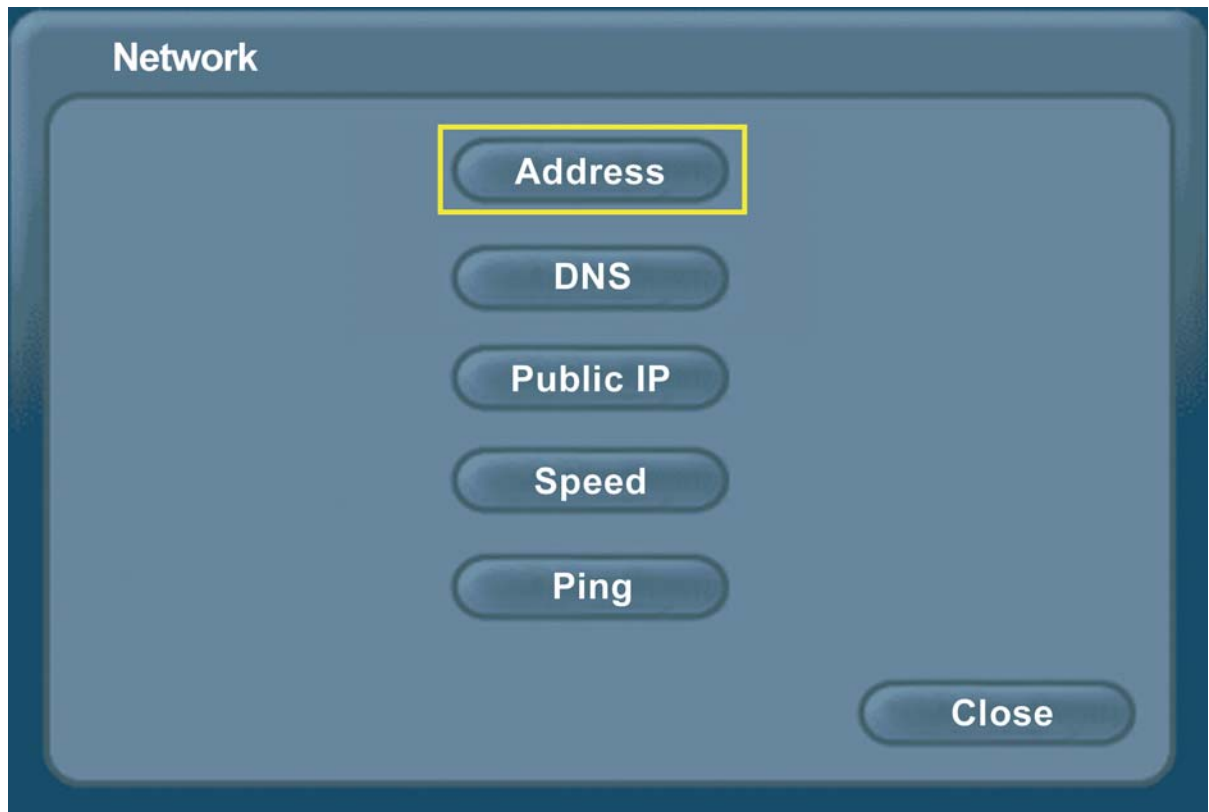
Main Screen > Settings > Personal Information

Name: Enter your name here. When a call is placed from your VideoPhone, the name you enter will be displayed as a Caller ID on the remote end of the call. Unless the VideoPhone you call has auto-answer turned on, the party you wish to call will decide whether or not to accept your call based on this name.

Country Code: Each country is assigned a country code for making video calls between countries, similar to the regular international telephone system. The country code for the United States and Canada is "1". Other country codes are listed on page 68. Enter your country code here (up to 3 digits).

Area Code and Phone Number: The phone number is one you create for friends, family, and others to call you. This is not associated with your home phone, though you may wish to use your home phone number to make remembering the number easier. You may make up a new one if desired. This phone number will not be visible to any other users. The DVC-2000 can support global phone number formats (up to 4 digit area codes and up to 9 digit phone numbers are supported).

Network



Main Screen > Settings > Network

- | | |
|-------------------|--|
| Address: | Controls how the DVC-2000 obtains an IP address. |
| DNS: | Allows you to enter a primary and secondary DNS address. |
| Public IP: | This screen controls how a Public IP address is obtained. If the Public IP button is “greyed out” it means that your DVC-2000 is searching for a public IP address. If this lasts more than 30 seconds, the DVC-2000 will most likely not find a public IP address. Please see #18 in the Troubleshooting section in this manual for more information. |
| Speed: | Allows for setting transmit and receive speeds that best match your current connection. |
| PING: | The PING network utility allows you to test the network connection of the DVC-2000 by “pinging” another IP address. |

Address

DHCP

DHCP is the default option and is used when connecting directly to a broadband modem that offers dynamic IP addressing or when behind a router/DHCP server configured for DHCP.

Network Address

DHCP **Fixed IP** **PPPoE**

IP address:

Subnet Mask:

Gateway:

Host name (optional):

MAC: 00:0f:3d:f7:db:42

Previous **Next**

Main Screen > Settings > Network > Address > DHCP

Host Name:

Your Internet Service provider may require you to provide a host name to connect to the Internet. If this is required, you can enter it here.

MAC:

MAC (Media Access Control) is an unique identifier for the Ethernet network hardware of your DVC-2000. If you need to know the MAC address of your DVC-2000, it can be found on this screen.

Fixed IP

Fixed IP is used when connecting to a broadband connection that offers static IP addressing or when behind a router that does not have a DHCP server enabled. This choice requires the input of specific IP address information.

Network Address

DHCP Fixed IP PPPoE

IP address: 192.168.0.28

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

Host name (optional):

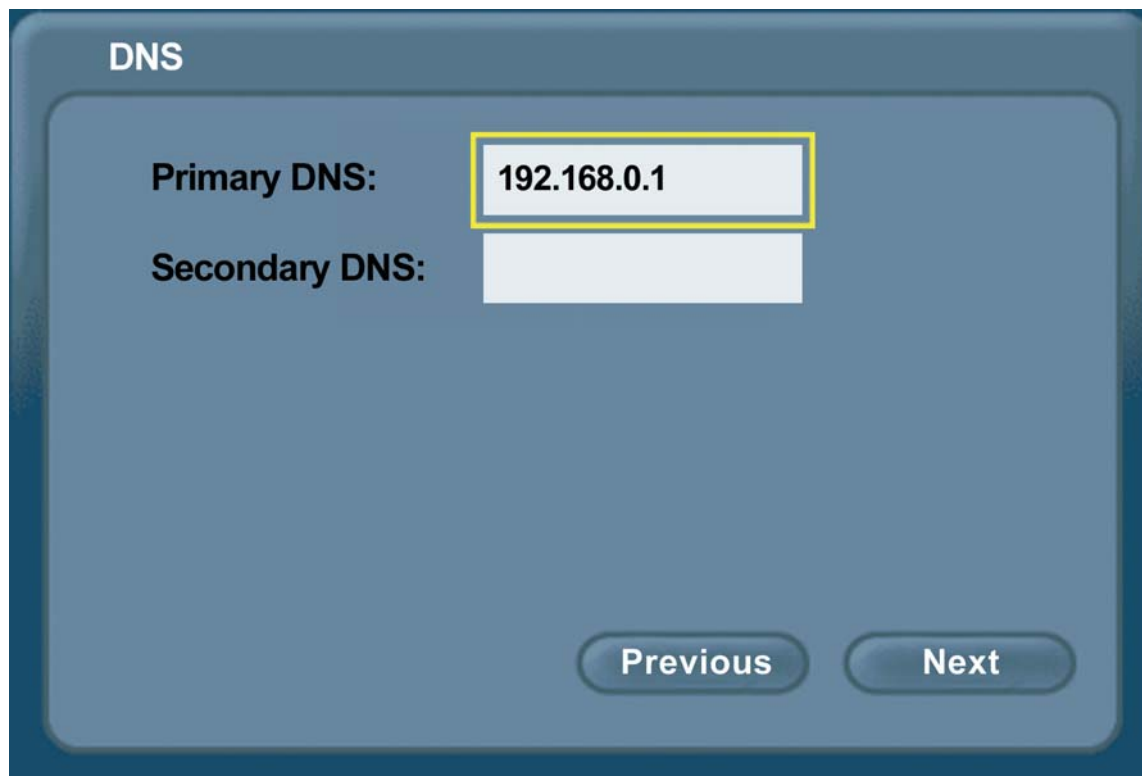
MAC: 00:0f:3d:f7:db:42

Previous Next

Main Screen > Settings > Network > Address > Fixed IP

- | | |
|---------------------|---|
| IP Address: | Input the IP Address provided from your router configuration settings, ISP or network administrator. |
| Subnet Mask: | Input the Subnet mask provided from your router configuration settings, ISP or network administrator. |
| Gateway: | Input the Gateway address provided from your router configuration settings, ISP or network administrator. |

Note: Use the asterisk (*) button on the numeric keypad to enter a period (.), also referred to as a dot in the IP information.

DNS

DNS

Primary DNS:

Secondary DNS:

Previous **Next**

Main Screen > Settings > Network > Address > DNS

Primary DNS:

Enter the Primary Internet DNS (Domain Name System). These are Internet server addresses that you should be able to obtain from your router configuration settings, ISP, or network administrator.

Secondary DNS:

Enter the Secondary DNS address if you have one. Though both primary and secondary DNS addresses are preferred, only the primary address is required.

The Domain Name System (DNS) translates Internet domain names (for example **www.dlink.com** which is easy for people to use and remember) to IP addresses, which are what computers use to find each other on the Internet.

PPPoE

PPPoE is used when connecting directly to a DSL modem that offers a PPPoE connection. Your user name and password for the PPPoE account must be entered in the provided fields.

Network Address

DHCP Fixed IP PPPoE

Username:

Password:

Gateway:

Host name (optional):

MAC: 00:0f:3d:f7:db:42

Previous **Next**

Main Screen > Settings > Network > Address > PPPoE

- Username:** Your PPPoE username provided by your ISP.
- Password:** Enter the PPPoE password.
- Host name:** Your Internet Service provider may require you to provide a host name to connect to the Internet. If this is required, you can enter it here.

Warning

These changes will cause the system to restart. Do you wish to continue?

Yes **No**

When this screen appears, click on Yes to save the changes and restart the system.

Public IP Address

This screen allows you to view or edit the VideoPhone's public IP address.

Public IP Address

Auto-detect public IP address

Use private IP address (192.168.0.108)

Specify public IP

Public IP address:

OK **Cancel**

Main Screen > Settings > Network > Public IP

Auto Detect public IP address:

This is the default and recommended setting. If the DVC-2000 is behind a NAT router, and you leave this checkbox selected, the VideoPhone will automatically use your public IP address for placing and receiving calls. For the majority of broadband connections, leaving this checked will result in simplified installation and use.

Use Private IP address:

(Optional) Select this checkbox to use your VideoPhone ONLY within a private network (LAN) or across a VPN connection. If you select **Use Private IP address**, the VideoPhone will not be able to place or receive calls outside the private network and the **Status Icons** on the **Main Screen** will appear with an "X" to indicate the DVC-2000 is not connected to the Internet.

Specify public IP:

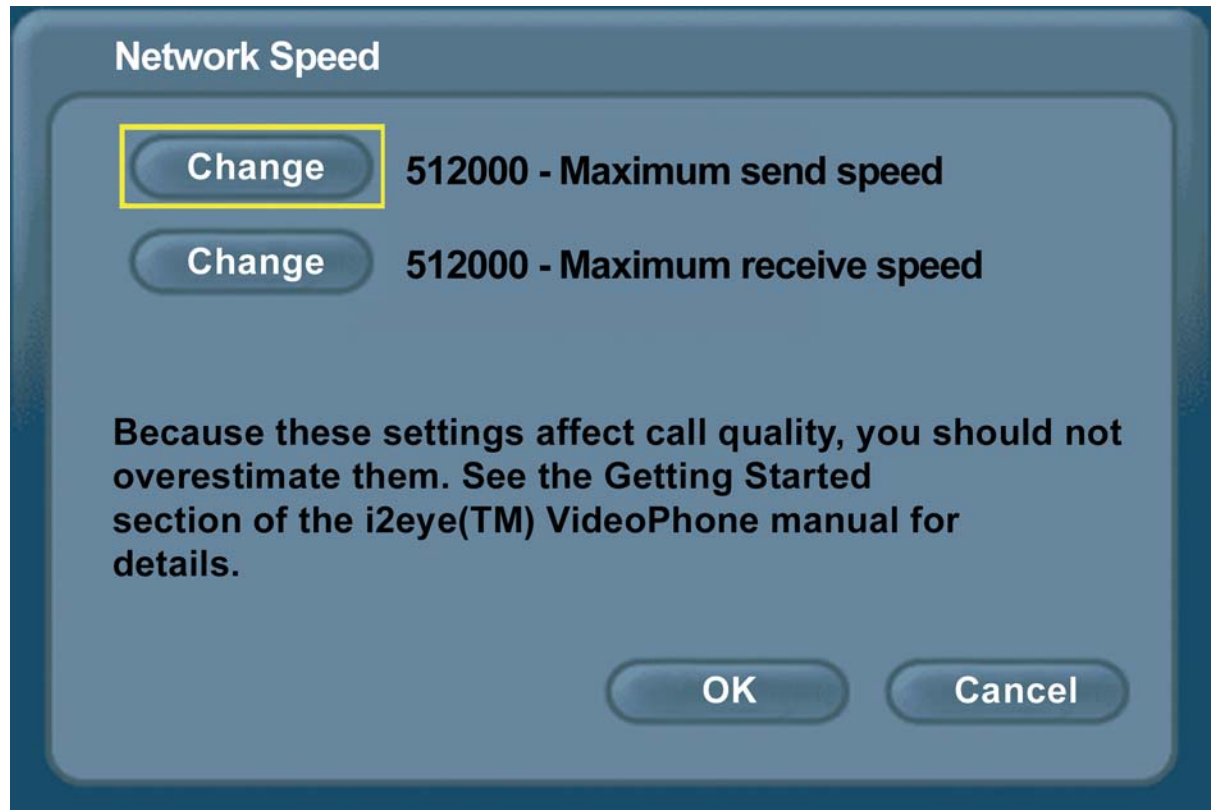
(Optional) Select this checkbox if you want to manually change the DVC-2000 VideoPhone's public IP address.

Public IP address:

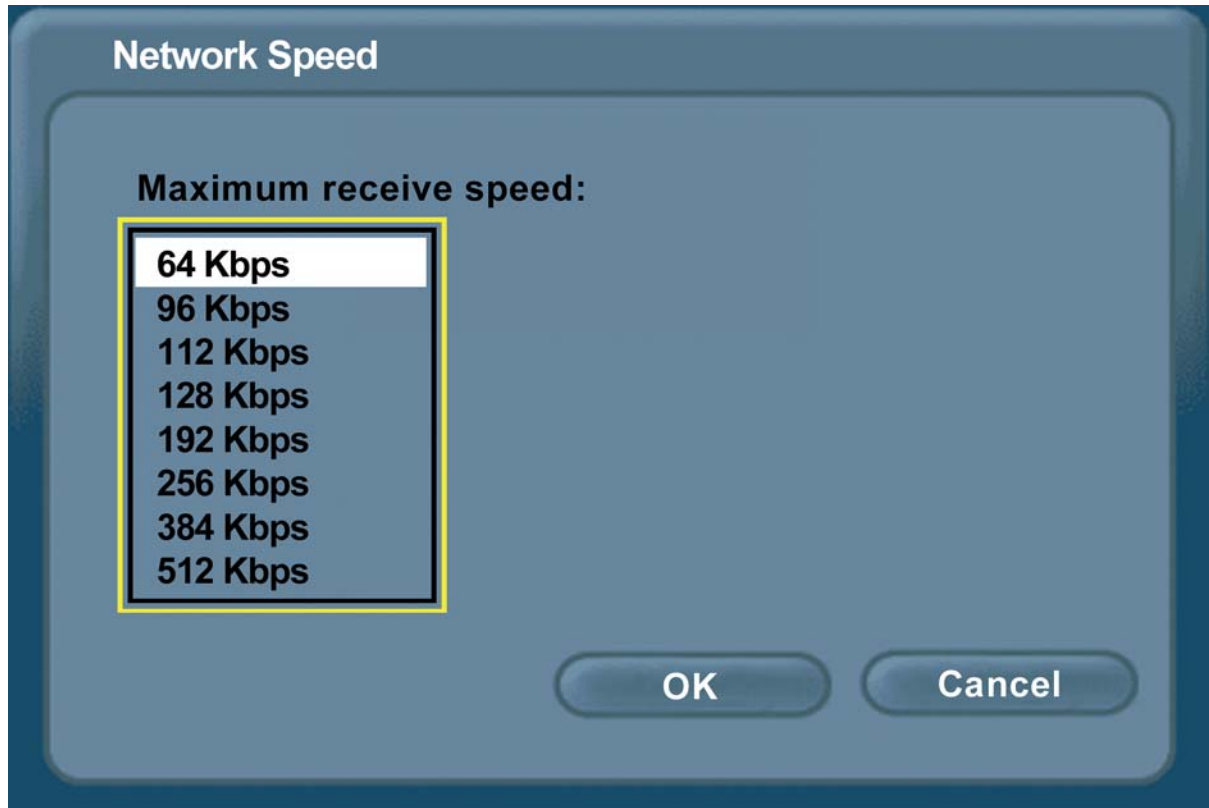
Enter the public IP address. (Only available for editing when **Specify public IP** is selected.)

Network Speed

The **Network Speed** screen offers you the option of selecting the speed that is the best match for your current network or connection. Change the settings by selecting the send or receive **Change** button and



Main Screen > Settings > Network > Network Speed



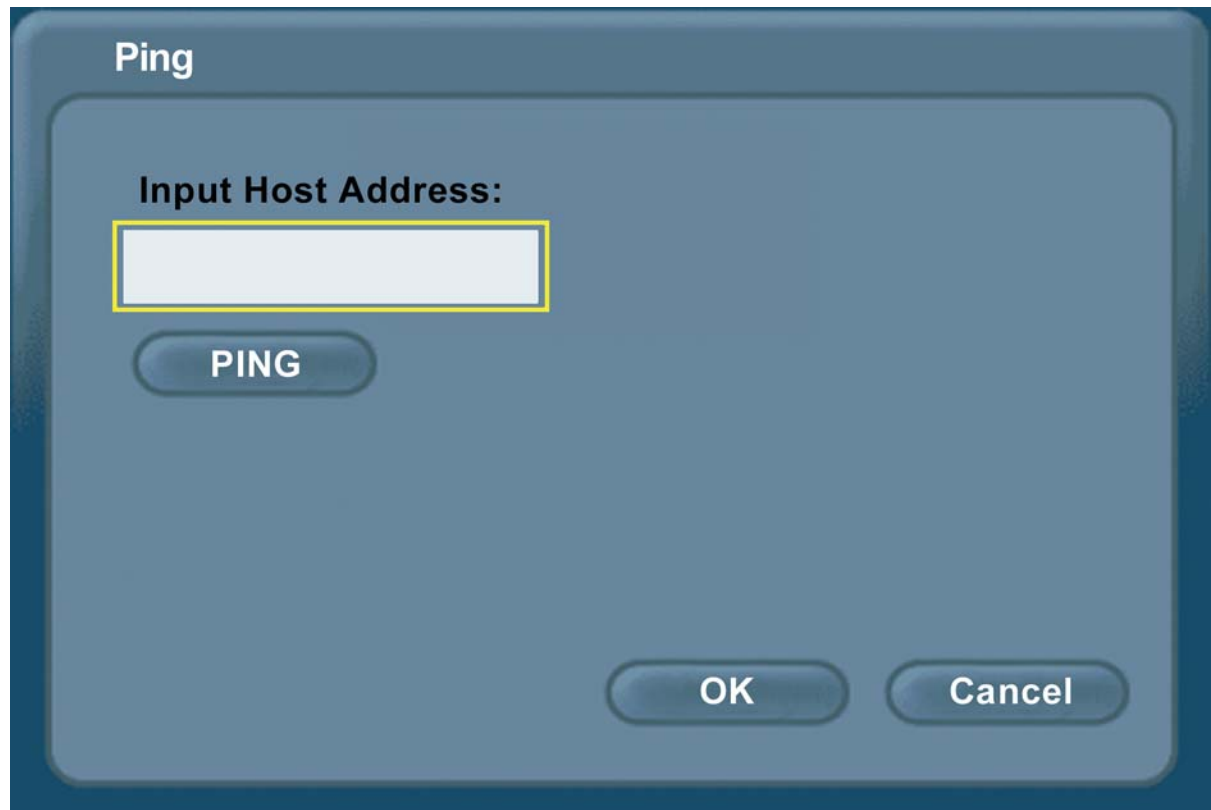
Main Screen > Settings > Network > Network Speed

Select the value desired by moving the selection up or down in the list box.

Selecting a setting that is too low or too high may will have an adverse effect on your DVC-2000's performance. Contact your Internet Service Provider or Network Administrator for correct values. The send and receive settings can be different speeds. Typically Cable and DSL modems receive at a higher speed and send at a lower speed.

Ping

PING is a network or Internet utility, used to test a network or Internet connection. If you are having problems establishing a connection to another VideoPhone after the setup of the DVC-2000, you can use the PING function to test if your Internet connection is working correctly.



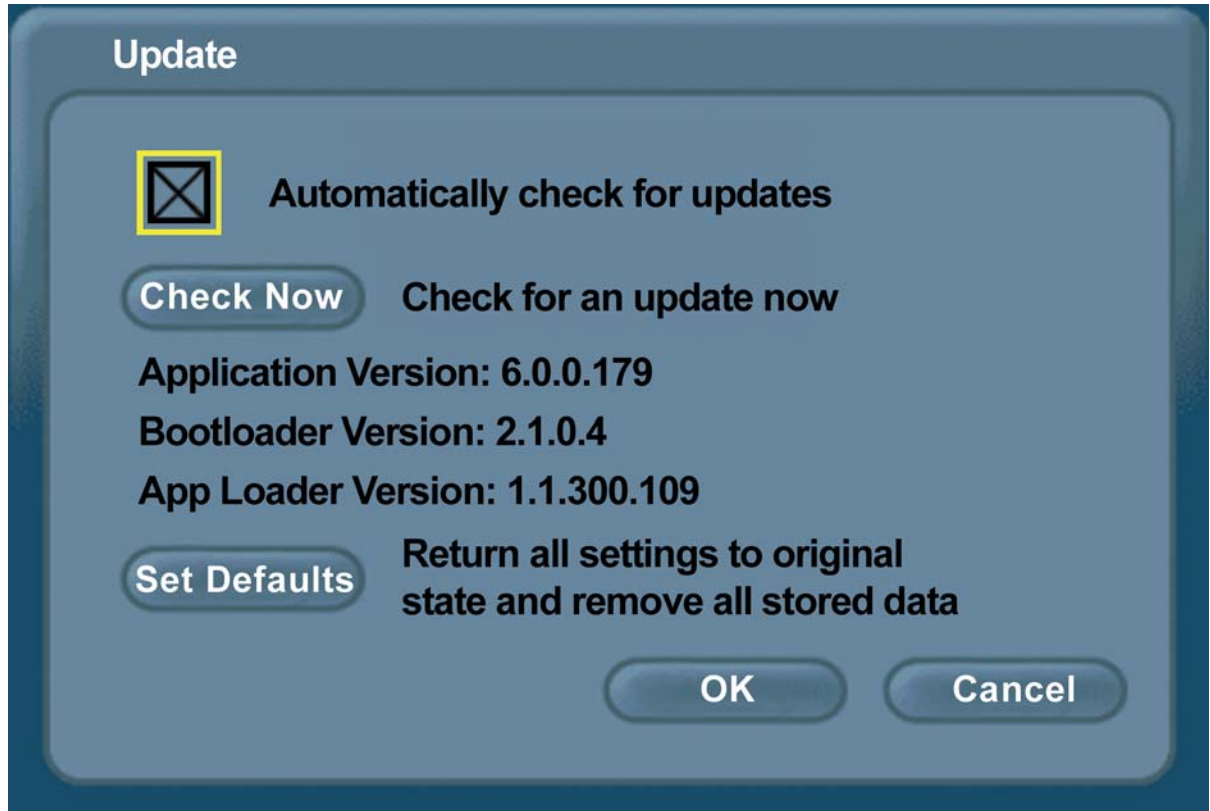
Main Screen > Settings > Network > PING

To use the PING function, enter a known IP address on your network or on the Internet into the **Input Host Address** box. Press the **PING** button. If the IP address is valid, and the connection is made successfully, a *“Pass. Host is Reachable”* message is received. If you enter a valid IP address and the PING utility fails to reach the host, you will receive a *“Fail. Host is not Reachable.”* message. This indicates that a possible problem with your Internet connection exists.

Press **OK** to return to the **Network Settings** screen.

Update

The Update screen allows you to check for system software updates and restore the DVC-2000's default settings.



Main Screen > Settings > Network > Update

Automatically check for updates:

Select this option and the DVC-2000 will automatically check for system software updates.

Check Now:

Check Now for an update right now.

Version:

Displays the current version information.

Set Defaults:

This option will restore all settings to factory defaults. All speed dial entries that have been added will be erased.

If you select **Check Now** then the DVC-2000 will check for an update. If an update is found the following message will appear.

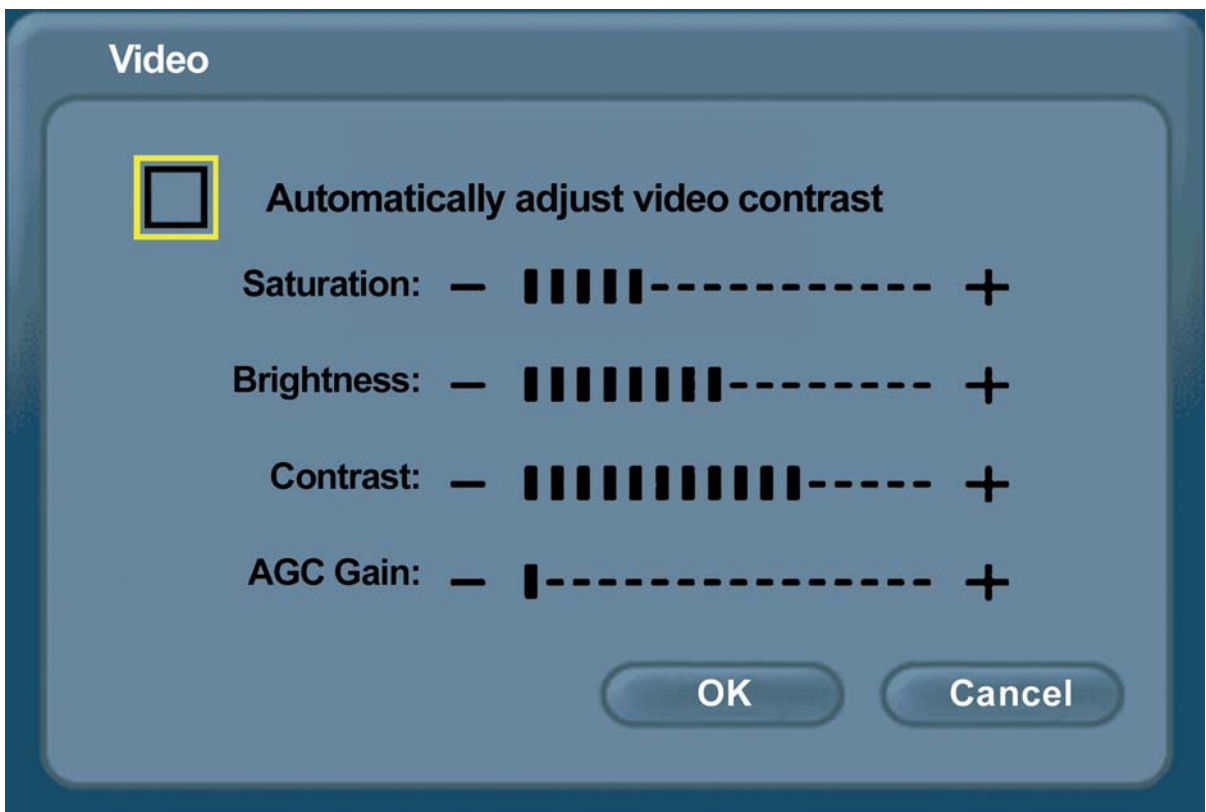


Clicking **YES** will begin an update of the firmware in the DVC-2000. A restart of the DVC-2000 is required after the update is complete.

Video

You can fine tune the video display from the **Video Settings** screen. Control over the following settings is available:

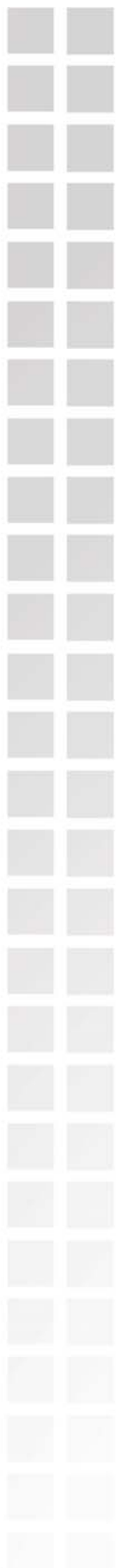
- Color **Saturation**
- Image **Brightness**
- Image **Contrast**
- Video **AGC Gain**



Main Screen > Settings > Video

The DVC-2000 has the **Automatically adjust video contrast** checkbox enabled by default, allowing automatic adjustment of the video contrast every 30 seconds.

To manually adjust the Video Settings, you must uncheck the **Automatically adjust video contrast** checkbox.

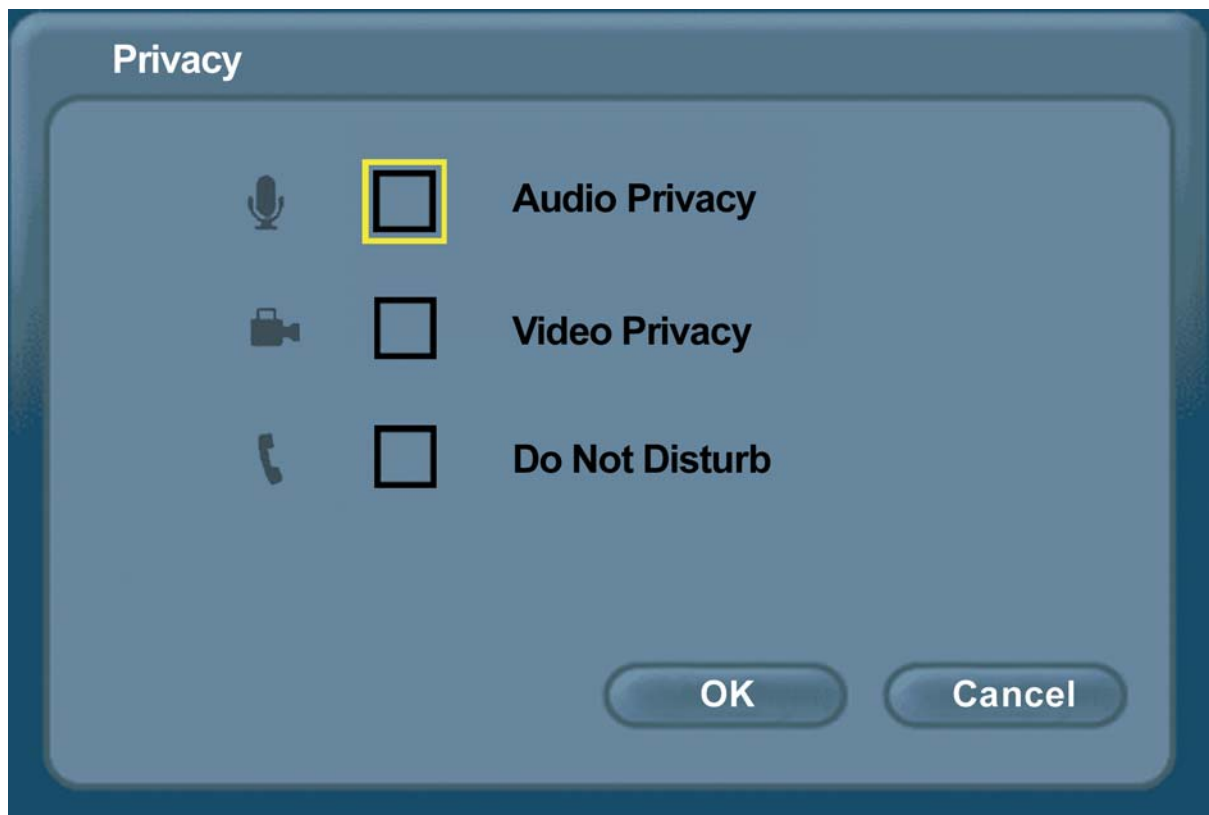


To adjust any of the four video controls:

1. Use the up/down arrow keys to select which control needs adjustment.
2. Press the right arrow to increase the setting and the left arrow to decrease the setting.

Arrow down to **OK** and press the **OK** button on the DVC-2000 to implement the **Settings** you've selected.

Privacy

**Audio Privacy:**

Audio Privacy prevents the audio on your side from being sent to the remote caller. No one on the other end of the VideoPhone call will be able to hear you if this setting is checked, although they can see you.

Video Privacy:

Video Privacy keeps your video from being sent to the remote caller. The person on the other end of the videoconference call will not be able to see you if this setting is checked.

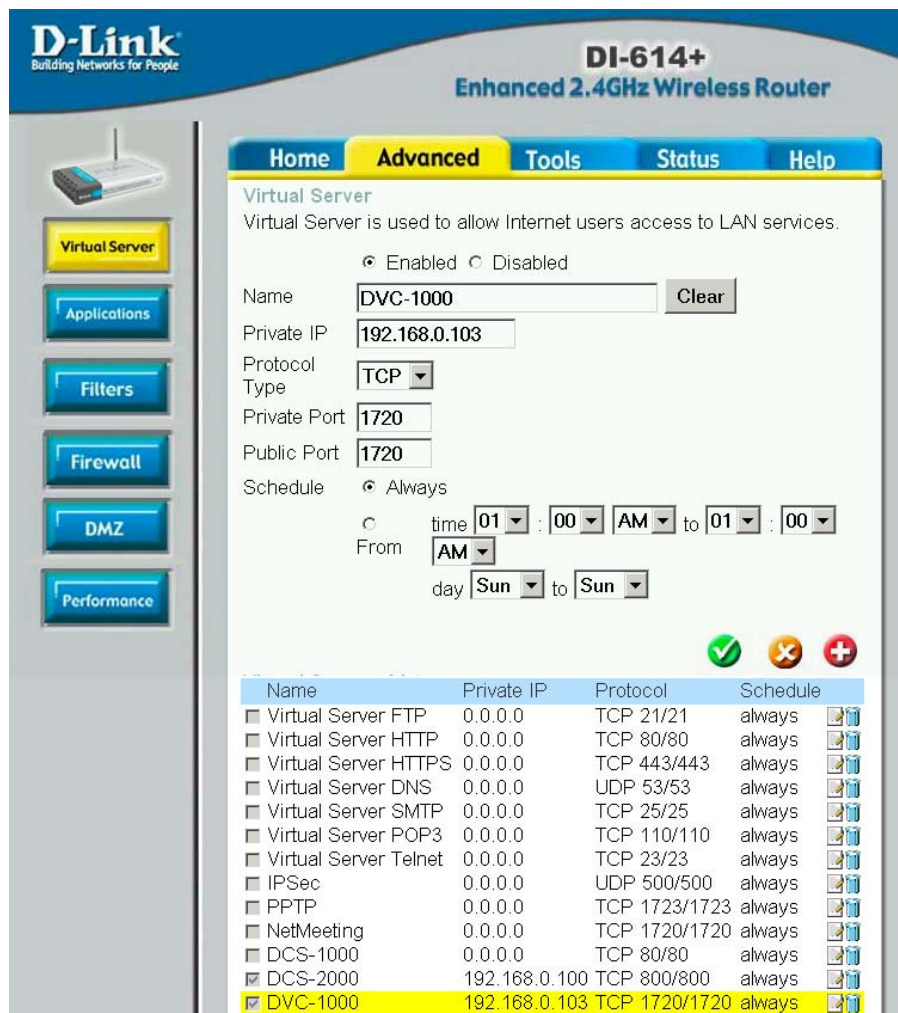
Do Not Disturb:

This setting will keep a caller from being able to connect to your VideoPhone. When a caller tries to connect with you, they will receive a message indicating that you are unavailable.

Port Configuration

Using the DVC-2000 with D-Link Routers

Most D-Link routers support a feature that allows easy one-click configuration of the **DVC-2000**. You will not need to manually configure the ports. Upgrading your router to the latest firmware might be necessary to support this feature. If you have other routers or you are having difficulty with the **DVC-2000**, please read the information on the next three pages to learn how to open ports on routers.



To complete the configuration that allows the **DVC-2000** to work with your D-Link router, the D-Link DI-614+ router is shown above. In the DI-614+ configuration utility, go to the **Advanced>Virtual Server** screen and check the **DVC-1000** box in the **Virtual Servers List**. Click on **Apply**. No additional configuration is needed with supported D-Link routers.

Note: The **DVC-1000** is an earlier i2eye product already supported by D-Link routers that uses the same port settings as the **DVC-2000**.

Opening Ports on Routers and Gateways

The firewall security features built into most routers and gateways may prevent users from accessing the video and audio of their DVC-2000.

A router connects to the Internet through a series of numbered ports. The ports used by the DVC-2000 are often blocked from access over the Internet by the firewall features of the router.

You may be able to connect to another VideoPhone, but not receive any video or audio. This is a typical scenario of a firewall blocking the ports needed by the DVC-2000 to send audio and video.

If this is the case, you need to open the ports on your router to the Internet to allow access to the DVC-2000.

The port numbers used by the DVC-2000 are:

1720

15328

15329

15330

15331

15332

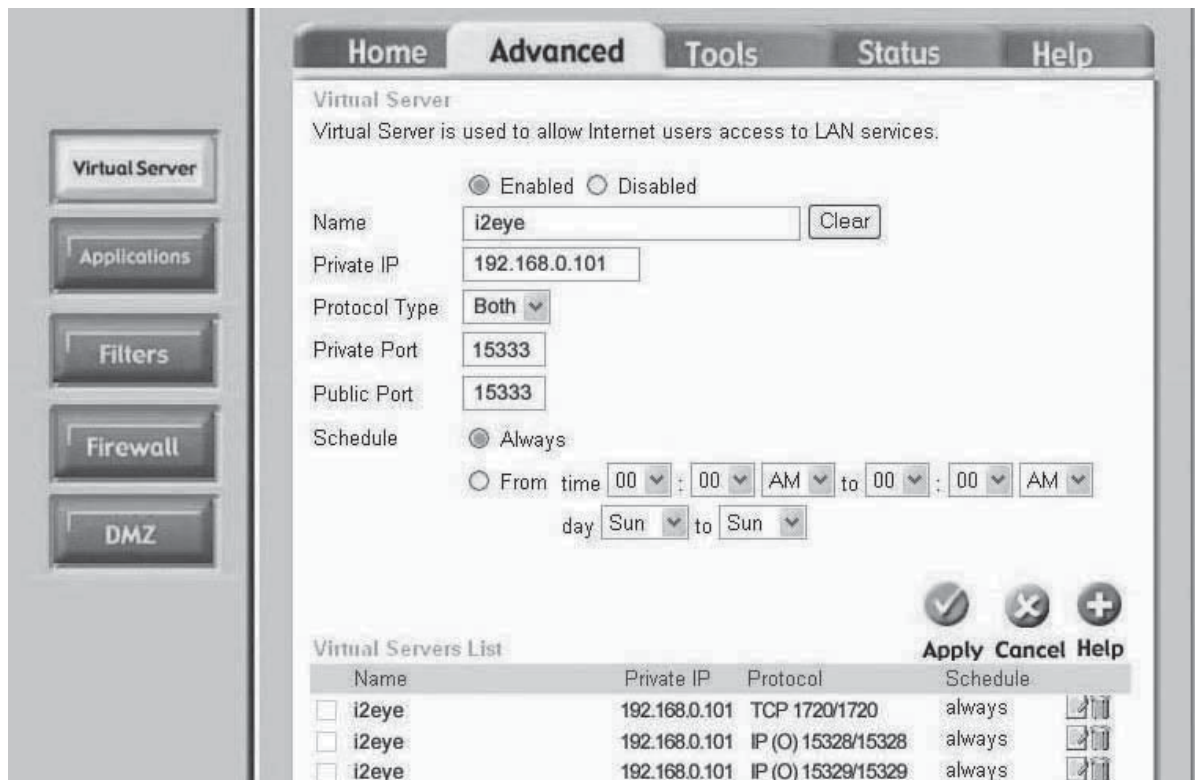
15333

The router or gateway that you are using may be different from the D-Link DI-614+ wireless router example shown on the following pages. However, the general procedure for opening ports will be similar. (If you do not have a D-Link router, look for *Virtual Server*, *Firewall Rules*, *Port Forwarding*, *Advanced* or *Firewall* in your router's configuration utility.)

In the example that follows we begin by opening the DI-614+ Web configuration utility and going to **Advanced > Virtual Server**.

Follow the steps on the following pages to open the ports on your router for successful operation of the DVC-2000.

How to Open Ports on a Router



A total of 7 ports must be opened for the DVC-2000 to work with most routers or firewalls. To open these ports, please do the following:

A. Click **Enabled**

B. Give the Virtual Server a **Name** (such as i2eye)

C. Under **Private IP**, enter the IP address obtained from the DVC-2000

(How to obtain an IP address from the DVC-2000: Turn the DVC-2000 on. Highlight the Settings button on the Main Screen. Navigate to Settings>Network>Network Address >IP address)

D. Under **Protocol Type**, choose **Both** (TCP and UDP)

E. Under **Private Port** and **Public Port**, enter **15328**

F. Under **Schedule**, click **Always**

G. Click **Apply** to save this entry

You have now completed the entering of one port to be opened. You will need to open six more ports.

Repeat steps **A** through **G** five more times for each one of the following five ports: **15329**, **15330**, **15331**, **15332** and **15333**.

The last port will be opened slightly differently:

- Repeat steps **A** through **C** on the previous page.
- Choose **TCP** as the Protocol Type
- Enter **1720** as the Private Port and Public Port
- Under Schedule, Click Always
- Click Apply to complete

You have now completed the opening of the 7 ports. Your DVC-2000 is ready to use with your router or gateway!

(Important: Not all routers and gateways are the same. Please refer to your user product's manual for specific instructions on opening ports).

Network Configuration

From the following sections, choose the heading that best applies to your equipment or networking configuration.

Network with Multiple Public IP Addresses

A Public IP address is visible on the Internet. (Most commonly found in business environments.)

Recommended Procedure: If there is an available public IP address, simply enter the IP address, subnet mask, and gateway into the applicable fields in the **Network Settings** screen. If the network has a DHCP server, select the checkbox under the **Network Settings** that says, "Automatically obtain IP address." (The network administrator will be able to tell you whether or not the network has a DHCP server.)

Potential Issues: Some firewalls are configured in a way that could potentially restrict H.323 data flow. Most current corporate firewalls are H.323 compliant. If this is the case, configuring the firewall is accomplished by simply opening the necessary H.323 ports into the network:

Port 1720 (TCP)

Ports 15328 – 15333 (UDP & TCP)

If your particular firewall does not have this option, consult the firewall's documentation on how to open specific ports needed for H.323 communications.

Broadband Modem and One PC

(This is the most common scenario found in a home or home office that currently has one PC connected to its broadband modem.)

Recommended Procedure: Request from your ISP an additional public IP address. With a second public IP address, the VideoPhone will be visible to the outside world just as the existing PC. The ISP can either assign a static IP address or allow you to dynamically request the IP address via DHCP. Follow the instructions in *Broadband Modem Only* section, below, depending on what your ISP requires.

Because most broadband modems have only one Ethernet port, it will be necessary to install a hub or switch between the modem and the rest of the network. Using an Ethernet cable, connect the modem's Ethernet port to the applicable uplink port on the hub. Once that is done, you can plug the PC and DVC-2000 VideoPhone into any other available port.

Broadband Modem, Multiple PC's, and a Hub

Commonly found in small offices, home offices, or homes with more than one PC where multiple public IP addresses are available.

In order to install the DVC-2000 VideoPhone as another device behind a hub assign an available public IP address to the VideoPhone.

Refer to the *Broadband Modem Only* section, below, for detailed installation instructions.

Broadband Modem, Multiple PC's, and a Router

Commonly found in small offices, home offices, or homes with more than one PC where only one public IP address is available.

Refer to the *Opening Ports on Routers and Gateways* section starting on page 52 for detailed installation instructions.

Broadband Modem Only

This section applies only in the instance that the broadband connection is used exclusively with the DVC-2000 VideoPhone and there are no PCs or other devices connected to the broadband modem. Broadband cable modems allow this type of installation.

Recommended Procedure: Many ISPs act as DHCP servers and dynamically assign a public IP address whenever the modem requests one. If your ISP has a DHCP server, select the checkbox under the Network Settings. By choosing this option, you are not required to know the IP address, gateway, subnet mask, or DNS numbers. They will all be filled in automatically.

If your ISP offers Fixed IP addresses (also called Static IPs), all of the networking values will have to be manually entered. Simply enter the public IP address, subnet mask, gateway, and DNS numbers given to you by the ISP into the appropriate network settings fields.

If you have a DSL modem, which offers a PPPoE connection, choose the PPPoE option on the network settings screen. Fill in your username and password to authenticate.

Potential Issues: In order for the DVC-2000 VideoPhone to function properly over the Internet, there must exist a public IP address for the world to see. If your ISP is acting as a NAT and assigning private IP addresses, you will have to request a public IP address in order for your VideoPhone to be able to receive calls.

Troubleshooting

1. The DVC-2000 will not make a call using a phone number

- Check that you did not misdial the number.
- The VideoPhone is not connected to the Internet.
- The VideoPhone is not registered with the Directory Service. It may take the VideoPhone up to 10 minutes to register. Verify all network settings, including DNS.
- Far side of the call is not registered with the Directory Service. If you are calling someone who has an videoconference endpoint besides a DVC-2000 VideoPhone, you will have to make direct IP calls to them. If the far side has a DVC-2000 VideoPhone and you cannot connect to them via the Directory Service, they are probably not registered.

2. The DVC-2000 can't make direct IP calls

- VideoPhone is not connected to the Internet. See the Internet Connection section in this Troubleshooting Guide.
- The person you are trying to call is unreachable. Ensure the IP address of the person you are trying to call is correct.

3. The DVC-2000 or television produces an off-hook signal

- The telephone is off the hook. Hang up the phone.

4. The DVC-2000 or television produces a fast busy signal

- Person you are trying to call is not registered with the directory service. Call the person using direct IP or wait until the person is registered with the directory service.
- Person you are trying to call is in a call or has rejected your call. Try your call at a later time.

5. DVC-2000 doesn't ring with an incoming call

- VideoPhone is set for Auto-Answer. If the VideoPhone is set up for Auto-Answer then the phone will not ring with an incoming call. Fix by turning off Auto-Answer via the Settings>General menu.
- Telephone cable is not properly plugged in to wall or DVC-2000. Verify that the cable is connected properly.

6. VideoPhone freezes-up while answering a call

- VideoPhone is not functioning properly behind a firewall. See troubleshooting question #8 on the following page.

7. Poor video in a call

- Camera out of focus. The far site should focus their camera by twisting the knob on the VideoPhone until the image is in focus.
- Incorrect Network Speeds. See Incorrect Network Speeds Section in this Trouble Shooting Guide
- Excessive motion in the picture you are receiving. A background with less motion provides a better, smoother video picture.

8. No video in a call

- Incorrect network speeds. See Incorrect Network Speeds Section in this Troubleshooting Guide.
- VideoPhone is not functioning properly behind a firewall. Place the IP address of the VideoPhone in the DMZ of the firewall. Consult your router's documentation or your network administrator for help on doing this.
- Port forward the appropriate ports to the VideoPhone. The VideoPhone needs ports 1720 (TCP) and ports 15328-15333 (TCP and UDP) open to function properly. See the section *Opening Ports on Routers and Gateways* on page 52, or consult your router's documentation or your network administrator for help on doing this.
- The VideoPhone is not functioning properly behind NAT (Network Address Translation). Go to Settings>Network>Public IP. Press Enter on the remote when the cursor is over "Auto detect public IP address." If the VideoPhone is unable to detect the public IP address, it should be entered manually using "Use specific IP address." The VideoPhone's public IP address is given to you by either your ISP or network administrator.

9. Video freezes during a call

- Far side muted their video. If the far side mutes their video you will not be able to see him or her.
- Network is congested. Give the VideoPhone a couple of minutes to try to recover, or disconnect the call and try again at a later time.

10. No audio in call

- Port forward the appropriate ports to the VideoPhone. The VideoPhone needs ports 1720 (TCP) and ports 15328-15333 (TCP and UDP) open to function properly. See the section *Opening Ports on Routers and Gateways* on page 52, or consult your router's documentation or your network administrator for help on doing this.
- VideoPhone is not functioning properly behind NAT. Go to the Settings>Network>Public IP screen. Select "Auto detect public IP address." If the VideoPhone is unable to detect the public IP address, it should be entered manually using "Use specific IP address." The public IP address is given to you by either your ISP or your network administrator.
- Incorrect network speeds. See the Incorrect Network Speeds section in this Troubleshooting Guide

11. Audio stops during a call

- Far side muted their audio. If the far side mutes their audio you will not be able to hear him or her.
- Network is congested. Give the VideoPhone a couple of minutes to try to recover, or disconnect the call and try again at a later time.

12. Audio has an echo

- Far side television is too loud. The far side audio volume needs to be turned down.

13. Excessive delay during a conversation

- Incorrect network speed settings (too fast). Decrease the send/receive speeds from the Settings>Network>Speed screen and attempt the call again.

14. Error displays on Main Screen.

- Unable to find the Update Server.
- No connection to the Internet.
- Local setting may be incorrect.
- Firewall not allowing FTP out.

In the above cases, consult your router manual/network administrator.

- Update Server is temporarily unavailable.

If the Update Status Icon is the only one showing as “failed”, you will not be prevented from making and receiving videocalls.

15. Error displays on main screen.

- VideoPhone cannot obtain public IP address (Router's address). See “VideoPhone cannot obtain IP address automatically” section, #18.

16. Error displays on main screen.

- VideoPhone could not register with the Directory Service. Sometimes it takes the VideoPhone up to ten minutes to register. Verify all network settings, including DNS. Check your network settings. If this is the only Status Icon showing as “failed”, you will not be able dial a videophone number to make a call. It will be necessary to dial using an IP address.

17. Upon starting the image in the Main window has a red or yellow tint

- Enable Automatically adjust video contrast under Settings > Video.

18. VideoPhone cannot obtain IP address automatically

- Not properly connected to a DHCP server. Check connection to LAN, by verifying a link light on the back of the VideoPhone. Make sure that the router is setup for DHCP. Consult either your router's user manual for reference or your network administrator.
- IP address is not accessible to the VideoPhone.
- Need to statically assign an IP address, subnet mask, gateway and DNS values. If the VideoPhone is on a private network consult your router's user manual or network administrator.
- Broadband Modem not enabled to assign more than one private IP (This is common in DSL environments)
- Reset modem. Once booted, connect the VideoPhone and allow the DHCP function to assign an IP (be sure both the DHCP checkbox on the Network Address screen and the Auto-detect Public IP checkbox on the Public IP Address screen are checked).

19. VideoPhone reports packet loss

- Incorrect Network Speeds. See Incorrect Network Speeds section in this Troubleshooting Guide.
- Network line is congested. If the packet loss is from one to six percent it will probably be due to network congestion. The VideoPhone will be able to recover.

20. VideoPhone is not connected to the Internet

- Ethernet cable is not properly plugged into the VideoPhone. Ensure that the RJ-45 cable is properly plugged into the back of the VideoPhone. A steady green light on the Ethernet port indicates a valid link has been made.
- Invalid DNS entries. The VideoPhone requires at least one valid DNS entry. Consult your ISP or network administrator for the DNS IP addresses.
- Invalid IP, subnet mask and/or gateway. All three of these values have to be correct for the VideoPhone to function properly. Recheck all of these values. Consult your ISP or network administrator for these values.

21. Public IP button is not enabled

- VideoPhone hasn't been able to detect IP address yet. The VideoPhone can take up to ten minutes to auto detect the public IP address. Also, check the DNS settings in the Network>DNS screen.

22. Incorrect network speeds

- Incorrect entries for network speed. Consult your ISP or network administrator to verify the correct send and receive speeds for your VideoPhone.
- Incorrect entries for network speed. While in a call, turn on Connection Status from the View menu. If the VideoPhone is reporting packet loss, decrease your receive speed until the VideoPhone reports zero percent packet loss. If you are not reading any packet loss, increase your download speed, to the point where you do not report packet loss. The far side might need to increase their upload speed to be greater than or equal to your download speed.

Frequently Asked Questions

What is D-Link's DVC-2000?

i2eye™ is a breakthrough communications video appliance that provides IP videoconferencing using a built-in video display. The DVC-2000 contains a video camera that can stream up to 30 frames per second over the Internet to friends, family and business associates.

When connecting my DVC-2000 behind a router or firewall, what ports do I need to open?

The VideoPhone needs ports 1720 (TCP) and ports 15328-15333 (TCP and UDP) open to function properly. See the section *Opening Ports on Routers and Gateways* on page 52, or consult your router's documentation or your network administrator for help on doing this.

I've seen videophones that connect using the phone line, and the picture is always small and choppy. How is i2eye different?

i2eye connects over high-speed broadband, and it delivers up to 30 frames per second. Videophones using a slow analog *plain old telephone* line can't deliver smooth video pictures. They show what appears to be a series of still pictures rather than full motion video.

What is the D-Link Directory Service?

The D-Link Directory Service is a D-Link hosted server which allows you to register a "phone number" with your DVC-2000 VideoPhone. When someone with a DVC-2000 dials this "phone number", your DVC-2000 will ring and you will be able to accept a call. In the same manner you can call others by dialing their "phone number". This allows you to contact another DVC-2000 without knowing its IP address. Any DVC-2000 connected to a broadband modem will have the capability of using the Directory Service.

Can I use the DVC-2000 with a computer and monitor?

Yes. The DVC-2000 can be used with a computer and monitor. However, you will need a TV Tuner / Video Capture device or a video card that accepts video input from an RCA jack.

Can I use the DVC-2000 with a non-D-Link directory service?

No. The DVC-2000 is designed to automatically connect to the D-Link Directory Service. This is a free service and is available to anyone with a DVC-2000. The Directory Service allows for calling another DVC-2000 VideoPhone by using a phone number instead of using an IP address.

Do I need a PC to use i2eye?

i2eye is a complete standalone system that handles all the communications, so you don't need a PC. All you need is a broadband connection. You can also use it with a TV or a PC with video input capabilities.

Can I connect i2eye without wires?

Yes! D-Link now offers the DVC-1100 Wireless Broadband VideoPhone. You can also add the optional DWL-810+ device to the DVC-2000, allowing you to configure your complete system without wires (note: you need a wireless router or access point). The DWL-810+ bridges from i2eye's wired Ethernet connection to a wireless router or access point that is connected to the cable or DSL modem.

How easy is i2eye to setup?

Very easy. When users first turn on i2eye they will be walked through a Setup Wizard that is designed to get the VideoPhone up and working quickly. The wizard asks for the information needed to connect to a broadband Internet connection. Once the information is sent, i2eye will connect to the D-Link i2eye server. The server will assign an "Internet telephone number" to the device. It will not be necessary to work with cumbersome IP addresses when you want to communicate using the i2eye.

What devices can I connect to with the DVC-2000?

Connect any i2eye DVC-1000, DVC-1100, or DVC-2000 product. You can also connect to any hardware or software that is H.323 compatible. If you are not sure if your hardware or software is H.323 compatible, please contact the manufacturer/developer. If you are using a PC with a Windows operating system, you can use Microsoft NetMeeting with any webcam to connect to the DVC-2000. NetMeeting is a common H.323-compatible videoconferencing software application.

What standards drive i2eye?

i2eye is based on the H.323 industry standard video streaming over IP protocol. This ensures that any H.323 compliant device will communicate together seamlessly. i2eye is a broadband appliance that draws from D-Link's extensive experience as a leading Ethernet manufacturer.

Do I have to take every call?

i2eye's configuration menu provides settings for three types of privacy: **Audio Privacy**, **Video Privacy**, and **Do Not Disturb**, so you are in control.

When the Audio Privacy is activated, incoming callers will be able to see video from your end, but not hear you. When the Video Privacy is activated, incoming callers will be able to hear audio from your end, but not see you. And when Do Not Disturb is activated, incoming callers will receive a message indicating that you are not available. If you do not answer a call within 10 rings (one minute) the call will terminate and the caller will receive an "Incomplete Call" message.

Glossary

Bandwidth: A measure of the rate at which data can be sent and received through a network. This value is usually given in bits per second (bps) or mega bits per second (Mbps).

CIF (Common Intermediate Format): An intermediate video format. When DVC-2000 video is transmitted over a network, the sizes will be CIF, QCIF, or SQCIF. The VideoPhone will default to CIF. CIF resolution is 352 x 288.

DHCP (Dynamic Host Configuration Protocol): A protocol that network devices use to obtain an IP address, subnet mask, gateway and DNS addresses automatically. A DHCP server can be a router, ISP server, or PC running Internet connection sharing. See Static IP address.

Directory Service: A service that allows users to make videoconferencing calls with telephone numbers. It does this by correlating telephone numbers to actual public IP addresses.

DMZ (Demilitarized Zone): Devices set up to be in the router's DMZ will see all network traffic.

DNS (Domain Name System): A system used to translate computer names into IP addresses. For example, a DNS server would translate www.dlink.com into 64.7.210.132.

DSL (Digital Subscribers Line): A technology that delivers digital information at a high speed through a user's telephone line. The most common DSL is ADSL (Asymmetrical Digital Subscribers Line) where the download speed is usually much higher than the upload speed.

Dynamic IP address: An IP address for a particular network device (PC, VideoPhone, router) that is dynamically assigned by a router or ISP and will not remain the same from session to session. See DHCP.

Ethernet: The port on the back of the DVC-2000 VideoPhone that is used to send and receive data over a network.

Far side: The remote connection of the videoconference. Your connection is the Local Connection.

Firewall: A security mechanism placed between networks, which restricts certain types of data to devices behind the firewall.

H.323: Standard defining videoconferencing over the Internet.

Home Gateway: A term commonly interchanged with router. Also called a residential gateway.

IP address (Internet Protocol Address): An IP address is a number that identifies a computer connected to the Internet. Every computer that is connected to the Internet must have a unique IP address. An IP address consists of four sections separated by periods. Each section contains an 8-bit value represented as a number ranging from 0 to 255.

ISP (Internet Service Provider): A commercial organization that provides subscribers with access to the Internet.

LAN (Local Area Network): A network that is designed to span small distances. These are most commonly used in small buildings, businesses and homes with multiple PCs. See WAN.

NAT (Network Address Translation): A technology that allows multiple network devices to share the same IP address. NAT devices forward all incoming and outgoing information to the correct network devices. Most NAT devices have firewall capabilities.

Port Forwarding: The router will forward public-side incoming information to a specified device on the private side. The router will forward only the data that is received on the specified ports. This is usually set through the advanced settings in the router's web interface. Also known as **Virtual Server** or **Firewall Rules**.

Ports: A port is a specified path in which data travels. Each type of data that is transmitted over the Internet travels down a specified port. A router will forward information from one port to another, and a firewall will open only a specified number of ports.

Private IP address: An IP address that is behind a NAT, which is not visible to the Internet. The preferred ranges for private IP address are either 192.168.x.x or 10.0.0.x.

Public IP address: An IP address that is not behind a NAT router. This IP address is visible from the Internet.


QCIF (Quarter Common Intermediate Format): An intermediate video format. QCIF resolution is 176x144. The DVC-2000 VideoPhone will send QCIF-sized video only if the remote endpoint cannot decode CIF.

QoS (Quality of Service): Allows guaranteed bandwidth and packet delivery between network devices over a network.

Router: A device that attaches two or more network devices and forwards data accordingly. Most consumer type routers act as DHCP servers, NATs and firewalls.

SLIC (Subscriber-Line Interface Circuit): Provides a phone's analog dial tone, busy tone, dual-tone multiple-frequency (DTMF) generation and decoding, caller ID and ring-signaling functions. The SLIC allows the DVC-2000 to work with a standard telephone without connecting to the phone system.

SQCIF (Subquarter Common Intermediate Format): An intermediate video format. SQCIF resolution is 128x96. The DVC-2000 VideoPhone will send SQCIF-sized video only if the remote endpoint cannot decode CIF or QCIF.



Static IP address: An IP address for a particular network device (PC, VideoPhone, router) that doesn't change. See DHCP.

TCP (Transmission Control Protocol): An Internet protocol used by the DVC-2000 VideoPhone in addition to UDP.

UDP (User Datagram Protocol): The Internet protocol most commonly used by the DVC-2000 VideoPhone to send and receive audio and video data.

WAN (Wide Area Network): A network that is designed to span large distances. See LAN.

Technical Specifications

Internal Processor

ARM-9 ASIC Communication Processor

Standards Compliant

ITU H.323 (IP communications)

Video: H.263

Audio: G.711, G.723

Data Rates/Frame Rates

64 Kbps—512 Kbps

Up to 30fps

Video

Built-in 5" LCD Screen

Up to 30fps CIF (352 x 288 pixels), QCIF (176 x 144)

Picture-In-Picture (PIP)

Automatic brightness control

DVC-2000 Robust Video

Audio

Telephone interface- Full Duplex Audio

Echo cancellation

Voice only to and from Voice over IP endpoints

DVC-2000 Robust Audio

Speakerphone

Input/Output

Power

Audio Out

Video Out

10BaseT Ethernet (RJ-45)

SLIC for telephone

Camera

Manual tilt

Manual focus



LED Indicators

Status

PSTN

Link

User Interface

Dialing

Diagnostics

Quality of service measurement

Manual or auto answer

Incoming Caller ID

Privacy shutter via video mute and/or audio mute

Do Not Disturb mode

Dialing Capabilities

Speed dial list allows up to 50 entries

Manual dialing with telephone handset using Directory Service

Manual dialing with direct IP entry

Remote Software Update

Software update, automatic or manual

Network

Standard:IEEE 802.3

IP-based network including Ethernet, Cable, DSL, or T-1

DHCP compliant or fixed IP with subnet mask, DNS and gateway

Physical

Dimensions (HxWxL): 3.25" x 9.25" x 10.5"

Weight: 2.85 lbs

Electrical

Power supply:

Auto-switching 1 Amp; 12 Volt output

Patent Pending

Country Codes

Code	Country	Code	Country
93	Afghanistan	253	Djibouti
355	Albania	767	Dominica
213	Algeria	809	Dominican Republic
684	American Samoa	593	Ecuador
376	Andorra	20	Egypt
244	Angola	503	El Salvador
809	Anguilla	240	Equatorial Guinea
268	Antigua	291	Eritrea
54	Argentina	372	Estonia
374	Armenia	251	Ethiopia
297	Aruba	500	Falkland Islands
247	Ascension Island	679	Fiji
61	Australia	358	Finland
43	Austria	33	France
994	Azerbaijan	596	French Antilles
242	Bahamas	594	French Guiana
973	Bahrain	241	Gabon
880	Bangladesh	220	Gambia
246	Barbados	995	Georgia
375	Belarus	49	Germany
32	Belgium	233	Ghana
501	Belize	350	Gibraltar
229	Benin	30	Greece
809	Bermuda	299	Greenland
975	Bhutan	473	Grenada
591	Bolivia	671	Guam
387	Bosnia and Hercegovina	502	Guatemala
267	Botswana	224	Guinea
55	Brazil	245	Guinea-Bissau
284	British Virgin Islands	592	Guyana
673	Brunei	509	Haiti
359	Bulgaria	504	Honduras
257	Burundi	852	Hong Kong
855	Cambodia	36	Hungary
237	Cameroon	354	Iceland
1	Canada	91	India
238	Cape Verdi	62	Indonesia
345	Cayman Islands	98	Iran
236	Central African Republic	964	Iraq
235	Chad	353	Ireland
56	Chile	972	Israel
86	China	39	Italy
57	Colombia	225	Ivory Coast
269	Comoros and Mayotte	876	Jamaica
242	Congo	81	Japan
682	Cook Islands	962	Jordan
506	Costa Rica	7	Kazakhstan
385	Croatia	254	Kenya
53	Cuba	965	Kuwait
357	Cyprus	856	Laos
420	Czech Republic	371	Latvia
45	Denmark	961	Lebanon
246	Diego Garcia	266	Lesotho

Code	Country	Code	Country
231	Liberia	381	Serbia and Montenegro
218	Libya	248	Seychelles
423	Liechtenstein	232	Sierra Leone
370	Lithuania	65	Singapore
352	Luxembourg	421	Slovakia
853	Macao	386	Slovenia
389	Macedonia	677	Solomon Islands
261	Madagascar	252	Somalia
265	Malawi	27	South Africa
60	Malaysia	82	South Korea
960	Maldives	34	Spain
223	Mali	94	Sri Lanka
356	Malta	290	St. Helena
692	Marshall Islands	869	St. Kitts/Nevis
222	Mauritania	249	Sudan
230	Mauritius	597	Suriname
52	Mexico	268	Swaziland
373	Moldova	46	Sweden
33	Monaco	41	Switzerland
976	Mongolia	963	Syria
473	Montserrat	886	Taiwan
212	Morocco	7	Tajikistan
258	Mozambique	255	Tanzania
95	Myanmar (Burma)	66	Thailand
264	Namibia	228	Togo (Togolese Republic)
674	Nauru	690	Tokelau
977	Nepal	676	Tonga
31	Netherlands	216	Tunisia
599	Netherlands Antilles	90	Turkey
869	Nevis	688	Tuvalu (Ellice Islands)
687	New Caledonia	256	Uganda
64	New Zealand	380	Ukraine
505	Nicaragua	971	United Arab Emirates
227	Niger	44	United Kingdom
234	Nigeria	598	Uruguay
683	Niue	1	USA
850	North Korea	7	Uzbekistan
967	North Yemen	678	New Hebrides
47	Norway	39	Vatican City
968	Oman	58	Venezuela
92	Pakistan	84	Viet Nam
680	Palau	681	Wallis and Futuna
507	Panama	685	Western Samoa
675	Papua New Guinea	381	Yemen
595	Paraguay	243	Zaire
51	Peru	260	Zambia
63	Philippines	263	Zimbabwe
48	Poland		
351	Portugal		
974	Qatar		
40	Romania		
7	Russia		
250	Rwanda		
670	Saipan		
378	San Marino		
239	Sao Tome and Principe		
966	Saudi Arabia		
221	Senegal		

Contacting Technical Support

You can find software updates and user documentation on the D-Link website.

D-Link provides free technical support for customers within the United States and within Canada for the duration of the warranty period on this product.

U.S. and Canadian customers can contact D-Link technical support through our website, or by phone.

Tech Support for customers within the United States:

D-Link Technical Support over the Telephone:

(877) 453-5465

24 hours a day, seven days a week.

D-Link Technical Support over the Internet:

<http://support.dlink.com>

email: support@dlink.com

Tech Support for customers within Canada:

D-Link Technical Support over the Telephone:

(800) 361-5265

Monday to Friday 7:30am to 12:00am EST

D-Link Technical Support over the Internet:

<http://support.dlink.ca>

email: support@dlink.ca

When contacting technical support, please provide the following information:

- *Serial number of the unit*
- *Model number or product name*
- *Software type and version number*

Warranty

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. ("D-Link") provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and
- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type ("Warranty Period"), except as otherwise stated herein.

1-Year Limited Warranty for the Product(s) is defined as follows:

- Hardware (excluding power supplies and fans) One (1) Year
- Power Supplies and Fans One (1) Year
- Spare parts and spare kits Ninety (90) days

D-Link's sole obligation shall be to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund at D-Link's sole discretion. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or have an identical make, model or part. D-Link may in its sole discretion replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product ("Software") will substantially conform to D-Link's then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days ("Warranty Period"), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link's sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link's functional specifications for the Software or to refund at D-Link's sole discretion. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Software will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for hardware and software of D-Link's products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold "As-Is" without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same.
- The original product owner must obtain a Return Material Authorization ("RMA") number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided.
- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the Product and will not ship back any accessories.
- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer and upon request.

■ Return Merchandise Ship-To Address

USA: 17595 Mt. Herrmann, Fountain Valley, CA 92708

Canada: 2180 Winston Park Drive, Oakville, ON, L6H 5W1

(Visit <http://www.dlink.ca> for detailed warranty information within Canada)

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: This limited warranty provided by D-Link does not cover: Products, if in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

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CE Mark Warning: This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For detailed warranty outside the United States, please contact corresponding local D-Link office.

FCC Caution:

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment; such modifications could void the user's authority to operate the equipment.

(1) The devices are restricted to indoor operations within the 5.15 to 5.25GHz range. (2) For this device to operate in the 5.15 to 5.25GHz range, the devices must use integral antennas.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this equipment must be installed to provide a separation distance of at least eight inches (20 cm) from all persons.

This equipment must not be operated in conjunction with any other antenna.

Registration

**Register your product online at:
<http://support.dlink.com/register>**



Product registration is entirely voluntary and failure to complete or return this form will not diminish your warranty rights.

(06/20/05)