Veo™

Observer

USER'S GUIDE

Keep an Eye on Your World!

Rev. 01-14-2003

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Welcome to the Veo Observer

Thank you for purchasing the Veo Observer. The Observer combines a high quality digital video camera with Ethernet ready connectivity and a powerful web server to bring clear video to your desktop from anywhere on your local network or over the Internet.

The Observer and your home or business network form a powerful audio/video remote monitoring solution. Just plug the Observer into any available Ethernet port and it's ready to be accessed by any PC on the network running Internet Explorer 5.0 or higher.

The built-in pan and tilt, live streaming audio, and snapshot/video capture functions can all be controlled directly from the camera's on-board homepage. Capability for motion detection with e-mail notification may be added by purchasing an optional motion detector. The included Veo Observer Studio PC software adds multi-camera viewing and convenient, single click access.

Use the Observer to keep an eye on your home or business when you can't be there. Give friends and relatives a window into your world or monitor and record anything from anywhere on the Internet.

1.1 Package Contents

Before installing the Veo Observer, please check your package contents to ensure that all items have been included. If any of the listed items are missing, please contact your reseller from where you purchased the camera for assistance.

The package includes:

1 – Veo Observer camera
1 – Mounting bracket
2 – ¼" Mounting screws and plastic anchors
1 – 10' Power adapter
1 – 15' Category 5 10 Mbps Ethernet cable
1 – Quick Start Guide
1 – Veo Observer camera installation CD-ROM
(located inside the Quick Start Guide)

1.2 Requirements

To connect the camera
- LAN – 10Base-T or 100Base TX Ethernet with one RJ-45 port available

To view the camera web page
- Web Browser – Internet Explorer 5.0 or higher
- PC with Windows 98, Me, 2000, or XP connected to LAN

To run the included software applications
- PC – Intel Pentium II or equivalent, 300MHz or above, 64MB RAM, 150 MB Hard Disk Space, 800x600 resolution with 16-bit color
- Windows 98, Me, 2000, or XP

To access cameras from the Internet
- Broadband Internet Connection (DSL, Cable Modem) with min. 128k upload speed

Note: A fixed IP address is not required to access cameras from the Internet. However, if the IP address provided by your Internet Service Provider is dynamic (changing) then signing up for a dynamic DNS service will make accessing from the Internet much more convenient. Signing up for a DDNS is free and easy. Please refer to *Section 7.6: Dynamic Domain Name Service (DDNS)* for more information.

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1.3 Hardware Description and Features

Lens
VGA CCD sensor with fixed focus lens.

Microphone
Monitor or record sound using the built-in microphone.

Power Button
Turn the camera on or off. When the power button is held down while the camera is on for 6 seconds the camera settings will reset to the factory defaults.

The power button light will blink when video is being streamed.

Rear Connections

External Microphone Connection Port
Connect a standard 1/8" (3.5 mm) computer microphone* into this port to monitor/record audio further away. *(Optional)*
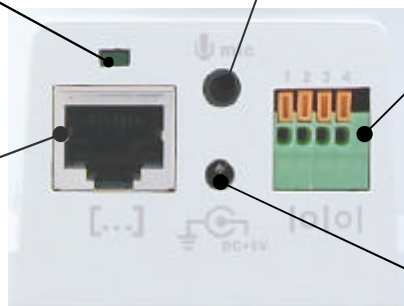
Network Activity LED
The green LED indicates if there is a connection to your network and router. If there is network activity, the green LED will blink.

Motion Sensor Jack
Connect an external motion sensor* to trigger email alerts with images attached. See the motion detection section for more information. *(Optional)*

RJ-45 Ethernet Port
Used to connect the Observer to your LAN using the included Ethernet cable.

Observer - Connections

External Power Connector
Connect the included power supply.

* (External microphone and motion sensor sold separately)

Warning: Use only the included power supply or you may damage your camera.

IP Address Display
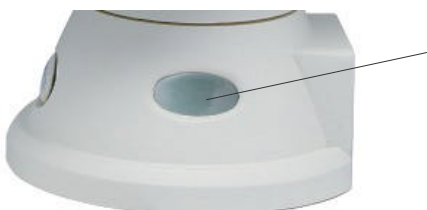
IP Address LCD
The LCD will indicate the last three digits of your IP Address. For example, if the IP Address "192.168.0.123" is assigned to the Veo Observer Camera, the LCD will display "123." Refer to *Section 2.2 Getting an IP address* for more information.

Camera Setup

Before installing the Veo Observer Camera, you should have an available Ethernet LAN connection (RJ-45 port). To view the camera's image or make any manual configuration changes, you will need a Windows PC with Internet Explorer 5.0 or higher, also connected to the LAN.

2.1 Hardware Setup

Connecting the Ethernet cable

Step 1. Plug the included Ethernet cable into the RJ-45 connector at the back of the camera as shown.
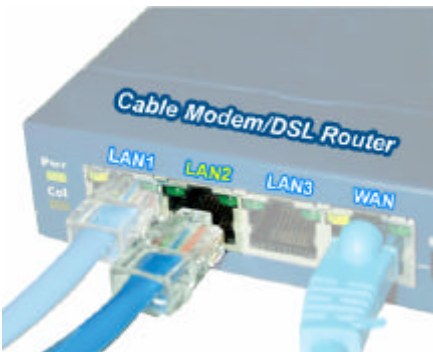
Step 2. Plug the other end of the Ethernet cable into any available LAN port. A typical home router/gateway connection is shown on the left.

Connecting the power adapter

Step 3. Connect the power supply to the back of the camera as shown, and then plug the supply into an available power outlet.

CAUTION: Make sure to only use the power adapter supplied with your Veo Observer Network Camera. Using a non-approved power adapter may damage the camera.

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Turning the camera on

Step 4. Press the power button on the front of the camera to turn it on. The button lights up confirming that the camera is powered up.

Step 5. Check that the green Ethernet status LED on the back of the camera is lit indicating a good LAN connection. The LED will blink when there's activity.
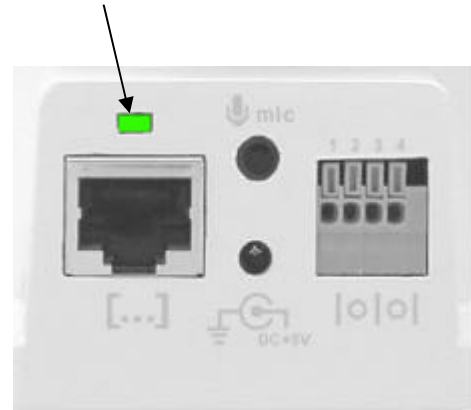
Step 6. Observe the IP address display on the lower left side of the camera and refer to the next section.

2.2 Getting an IP address

As soon as you power up your camera you'll notice that the IP address display starts blinking. This means the camera is searching for an IP address using DHCP. After a few seconds the display stops blinking and shows the last 3 digits of the address it received.

Note: If the display continues to blink for more than a minute, your network may not support DHCP and you will need to assign an address manually. Refer to *Section 5.1: Manually Assigning a Static IP Address* for more information on manually assigning an IP address.

At this point the camera is communicating with your network and is ready to be accessed. You're almost ready to access its home page and begin using the camera. This is accomplished by one of two easy methods. Method B offers a shortcut but you need to know a little more about your network to use it.

IP Address- Method A. Install and run the Observer Setup Utility included on the CD-ROM.

1. Refer to *Chapter 4: PC Software Installation* if you need help installing the software.
2. Click on the Veo Observer Setup Utility icon to run the program.
3. Click the "Search for Camera" button.
4. After a few seconds your camera's MAC address will show up in the list along with any other cameras on the LAN.

Note: Your camera's MAC address can be found on a sticker located on the bottom of the camera. The number looks like 000364017F3B.

5. Select your camera from the list and you will see your camera's IP address and other network settings show up on the right side.
6. Click the "Login" button to launch Internet Explorer and view the camera's home page.
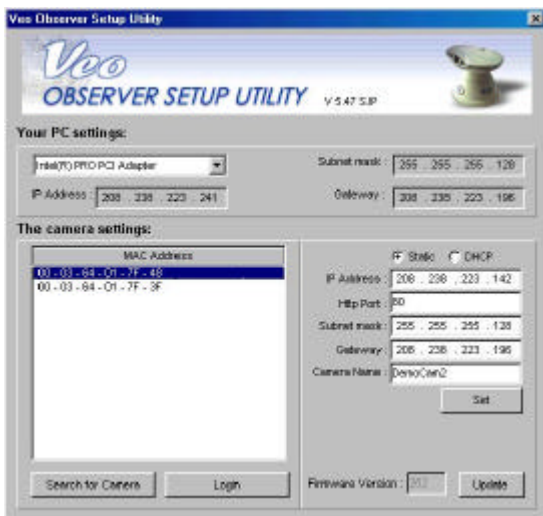
Note: The Observer uses DHCP by default, meaning its address can change. You can assign a static (fixed) IP address by selecting this option and changing the address manually. Refer to *Chapter 5: Observer Setup Utility* for more information.

IP Address- Method B. (Shortcut) Use the IP address display.

Other than the last 3 digits, all devices on a LAN share the same IP address. The portion of the address common to all devices is known as the network address. Most home networks use either 192.168.0 or 192.168.1 for their network address. If you know your network address, you can simply combine it with the 3 digits shown on the camera's display to determine the complete IP address of the camera. For example, if your network address is 192.168.0 and the camera display is showing 020, the IP address for the camera is 192.168.0.20 (drop leading zeros). You can easily determine your network address by checking the IP address of any PC on the network or using the Observer Setup Utility.

Using the IP display to determine your camera's complete IP Address

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2.3 Mounting the Camera

The Observer can sit on a flat surface, such a shelf or bookcase, be mounted to a wall using the included bracket, or mounted atop a tripod stand using the standard tripod mount located on the underside of the base. When using the camera free standing, be sure to secure the cables. Failing to secure the cables could cause the camera to be pulled off the mounting surface resulting in damage to the camera.

CAUTION: The camera should be mounted indoors only. Outdoor exposure may result in damage and will void your warranty

CAUTION: Don't mount the camera with the lens facing into direct sunlight. Prolonged exposure to direct sunlight will damage the sensor.

Wall Mounting

The mounting bracket included with your camera provides convenient mounting to vertical surfaces, such as walls. The camera support platform can be tilted up or down to help point the camera toward your area of interest. You can also rotate the camera in any direction on the platform.

Step 1. Find a suitable location to mount the camera.

Step 2. Using the mounting bracket as a guide, mark the location of the two mounting holes.

Step 3. Drill a ¼" hole for each screw.

Step 4. Use a hammer to tap the two plastic anchors into the holes.

Step 5. Use the two screws to fasten the bracket to the wall.

Step 6. Place the camera on the mounting bracket platform and rotate the camera to be facing in the desired direction.

Step 7. Secure the camera to the mounting bracket using the thumbscrew located on the bottom of the platform.

Step 8. Loosen the tilt adjust thumbscrew and tilt the camera toward the area to be observed.

Accessing the Camera

You can access Observer cameras from any Windows PC on your LAN. There are two easy ways to access a camera, by browsing the camera's on-board homepage using Internet Explorer or using the included PC application Veo Observer Studio.

The browser method does not require any special PC software other than an ActiveX control which is download and installed automatically. This gives you the freedom to access cameras from anywhere on the Internet without needing to install any software. Observer Studio provides powerful additional features such as multi-camera viewing and single click camera access.

The first time you access a camera you should use the browser method. Access to the camera's configuration pages, where you can change your username and password, are accessed from the homepage. With either method, you will need to know about usernames and passwords first.

3.1 Usernames and Passwords

Note: The camera ships with one default username **admin** and password **password** (all lowercase). It is strongly recommended that you change the password the first time you access the camera to prevent unauthorized viewing. Refer to *Appendix A: Restoring Factory Default Settings* to reset your username and password to the factory default settings.

Access to Observer cameras is password protected to ensure privacy. To access the camera you need a username and password. There are three levels of access that can be assigned to each user:

1. **Admin** (Administrator) Administrators have full access to all the camera's features and settings. Administrator accounts should be reserved for those who need to change the camera's configuration. Note: Be sure not to give an admin username and password to anyone other than those who need it.
2. **User** (Normal user) People with user level usernames and passwords can access all the cameras features but are not able to change any settings.
3. **Guest.** (Guest) Guests are only able to view the camera's image. They cannot control the built-in pan and tilt, take snapshots, or record video clips.

Please refer to *Section 3.3: Camera Configuration* for more information on setting up user accounts.

Note: Only one user may access the camera at a time and priority is given to the higher level user. For example, if a normal user is accessing the camera and an admin level user logs on, the normal user will be logged off. If a user of equal or lower level attempts to log in, they will be notified that the camera is busy.

3.2 Web Browser Access

1. From any PC on the local network, start Internet Explorer and enter the camera's IP address in the address bar, as shown below, then press Enter. For help on determining the camera IP address refer to *Section 2.2: Getting an IP address.*

2. The first time you access the camera it will install an ActiveX control on your PC. You should see a dialog like the one shown here. If you don't, your Internet Explorer security settings may prohibit downloading signed ActiveX controls. Please restore the default security settings. For help configuring your Internet Explorer security settings, see *Appendix E: Internet Explorer Security Settings.*
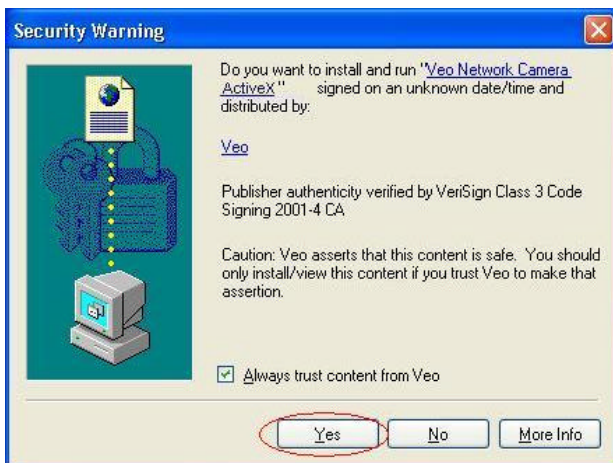
3. The camera's welcome page will appear as shown below. If the welcome page does not appear or Internet Explorer shows an error page, refer to the troubleshooting section in *Appendix G: Frequently Asked Questions, Troubleshooting, and Technical Support.*
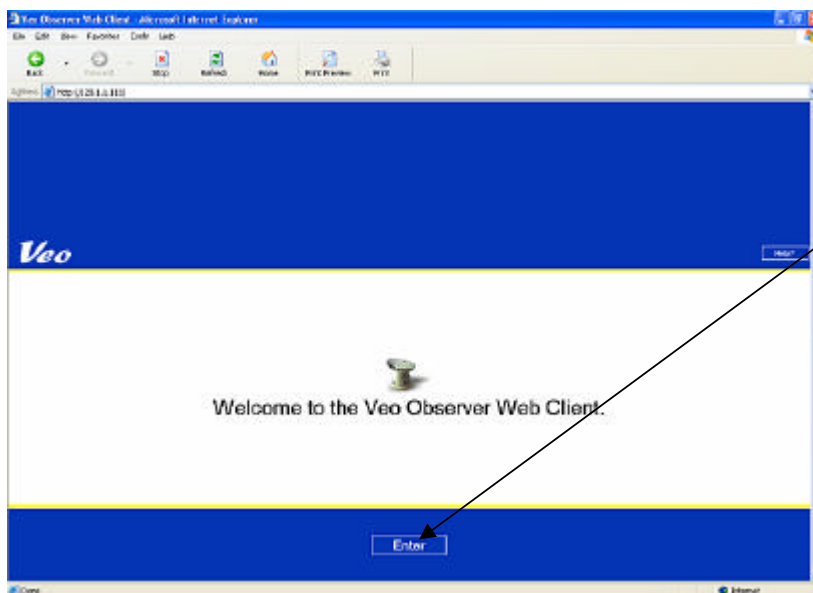
4. Click **Enter** to log in to the camera.

Note: If the Observer ActiveX control is not already installed on your PC, you will notice that it takes some extra time for the page to load. The Enter button won't appear until the page finishes downloading.

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5. The camera login page will appear. Type in your username and password and click **Login**.

Note: The username and password are case sensitive.

Note: If another user is currently logged into the camera you may see a message letting you know that the camera is busy. Priority is given the highest level user. Refer to **Section 3.1 Usernames and Passwords** for more information.

6. Once you are logged in, the main viewing page will open and the live video will start.
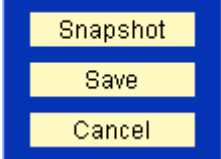
The following features are available on the Live Video page:

Pan/Tilt	
	Clicking any of the yellow directional buttons will cause the camera to move one small step in that direction. Click and hold the left mouse key down to make the camera move one large step. When the camera reaches its end of travel, the buttons for that direction are grayed out and disabled.
Video Window Size	
	You can select one of the three available image sizes. **Note:** Changing the window size only changes the size of the image on your display and does not affect the image being sent by the camera. Only an administrator can change the size of the image streamed from the camera. Refer to *Section 3.3 Camera Configuration* for more information.
Zoom	
	Use the Digital Zoom to zoom the picture 2X.
Brightness	
	Adjusts the brightness level of the image.
Sound on/off	
	Enables or disables audio monitoring.
Snapshot	
	Clicking on **Snapshot** will open a menu with three functions, **Snapshot**, **Save**, and **Cancel**. Click **Snapshot** to capture the current image. Click **Save** to save the image to your hard drive. Click **Cancel** to discard the image.
Record Video	
	Clicking on **Record Video** will open a menu with four functions, **Start**, **Preview**, **Save**, and **Cancel**. Click **Start** to start capturing video. Click **Stop** to stop capturing. Click **Preview** to open Windows Media Player and playback the video. Click **Save** to save the video to your hard drive. Click **Cancel** to discard the video.
Live Video	Takes you back to the main viewing page.
Setup (admin only)	Opens the camera setup pages where you can access all of the camera's configuration settings.
Reset (admin only)	Resets the camera. Resetting has the same effect as turning the power off and then on. **Note:** You must log in again after a reset.
Help	Takes you to the Technical Support section of the Veo Observer website.
About	Provides the version information**.**

3.3 Camera Configuration

Note: You must be logged in as an administrator to access the camera setup pages.

1. Click the **Setup** button at the top of the main page to access the configuration pages.

Camera Information

The following settings are found on the Camera Information page:

Setting	Description	Valid Entries	Default
Camera Name	A name you assign to the camera to help identify it. The name is displayed on the main page.	Up to 12 ASCII characters	None
Location	Enter the camera location such as front door, stock room, etc.	Up to 18 ASCII characters	None
Disable Power Status Light	Disables (turns off) the power/status indicator light.	Enable/Disable	Enabled

User Accounts
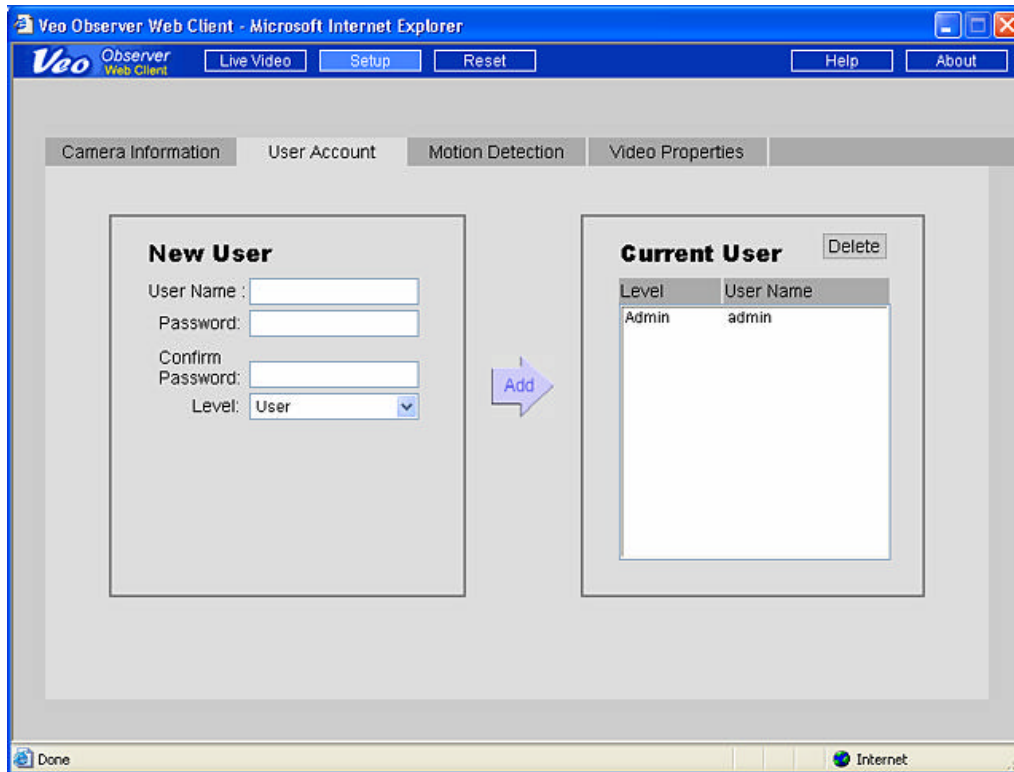
The User Account page is where you add and remove usernames and passwords. User accounts allow you to control access to a camera. You should change the default username and password immediately and don't give this out to anyone. For everyone else, you should set up either User level accounts or Guest level accounts.

Adding a New User Account

Note: The first time you add a new account, it will automatically replace the default Admin account. Therefore, the first account you add should be the Admin level account for yourself. You cannot use admin for the new username. To restore the username and password to the factory defaults, refer to *Appendix A: Restoring Factory Default Settings.*

Step 1. Enter the new username in the User Name box under **New User.** Usernames must be 4-12 characters in length.

Step 2. Enter the Password for the new user. Passwords must be 4-12 characters in length.

Note: Usernames and passwords are case sensitive and can contain letters and numbers only. Make sure to enter your username and password correctly when logging in.

Step 3. Retype the password into the Confirm Password box for confirmation.

Step 4. Select the user level as either Admin, User, or Guest.

Step 5. Click **Add** to add the new user.

To remove an existing user, select the username on the right side and click the **Delete** button. To modify an existing user you need to remove the account and re-enter the information.

Motion Detection

The camera can be triggered by a motion sensor input to send you an email with a snapshot of the current image attached. To enable this capability, check the Enable Detection checkbox and fill in the fields on the page as described below:

Note: To enable motion detection you must first obtain the optional motion sensor and attach it to the motion sensor jack of the camera. Refer to *Appendix F: Motion Sensor Setup* for more information.

SMTP server address
This is the IP address of the server you use to send mail. Almost all mail servers support this basic mail protocol. Usually your Internet Service Provider (ISP) will provide you a server address for sending mail in the form of a domain name such as "mail.ispname.com". You can find this information from the email settings on your PC or by consulting your ISP. From your mail server's domain name, you can determine its IP address by pinging the domain name and observing the reply. To ping your mail server click Start -> Run -> ping mail.ispname.com. For more help with the ping command, refer to *Appendix C.2: Using PING.*

To
Enter the address for the mail recipient.
The format is Recipient Name <Recipient'sUsername@Recipient'sISP.com>
For example: john <john@earthlink.com>

From
Enter the address you use to send mail.
The format is Your Name <YourUsername@YourISP.com>
For example: bob <bob@attbi.com>

Subject
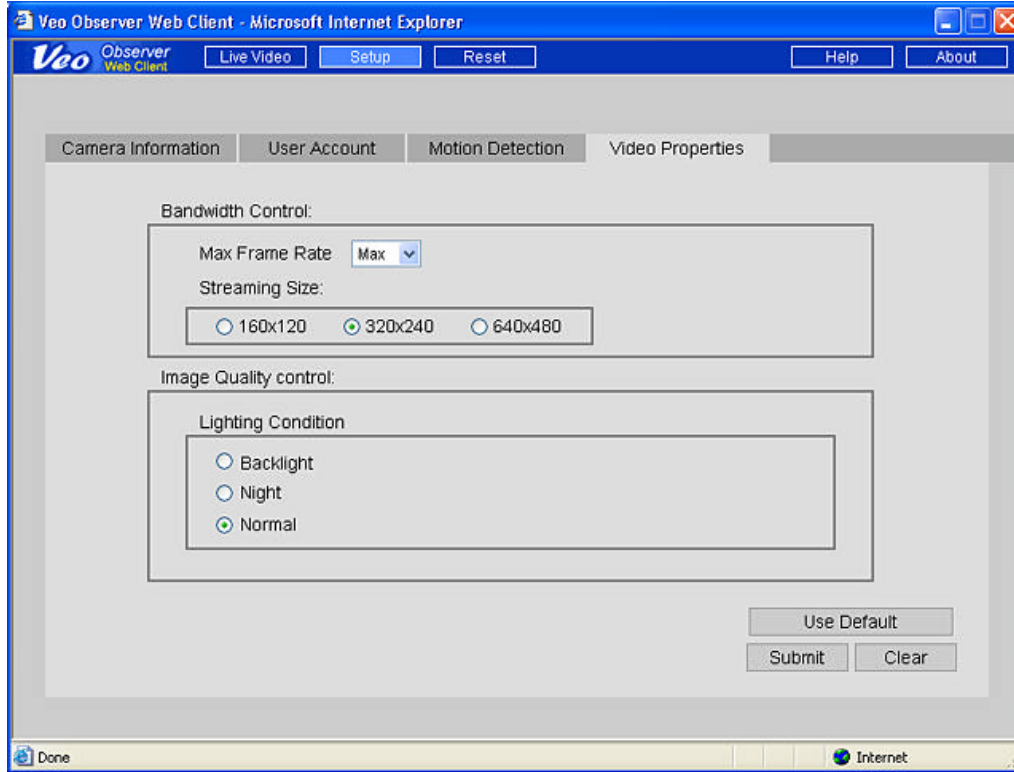The subject for the email message. For example "Motion Detected! Camera 123"

Message
Any text message you wish to include in the body of the email.

Reset Interval
Sets the time interval, after an alert, before another detection event can occur.

Video Properties

Settings on this page affect the camera's image size and quality and bandwidth consumed by the video stream.

Max. Frame Rate Sets the maximum frame rate that the camera can output. **Note:** Actual frame rate will depend on the bandwidth (speed) of your connection.

Streaming Size Sets the resolution (size) of the image output by the camera. Reducing the streaming size will significantly improve video performance (frame rate) when bandwidth is limited.

Lighting Conditions Improves video performance by configuring the camera for the appropriate lighting conditions present in the camera view (scene). Use **Backlight** when the light source is located behind the object you are trying to monitor. Use **Night** for very low lighting conditions and **Normal** for all other situations.

Note: The camera cannot operate in total darkness. The minimum illumination is 1 lux, equivalent to a very dimly lit room. Also, the camera should not be aimed into direct sunlight. Prolonged exposure to direct sunlight can damage the sensor and will void your warranty.

PC Software Installation

In addition to a rich web page interface, the Veo Observer includes several powerful PC applications which provide additional functionality.

To install the Veo Observer Studio software:

1. Insert the Installation CD into the CD-ROM drive. The initial screen will welcome you to the installation process. Click **Install** to begin the software installation.

Note: If the Veo Observer Installation screen does not appear, click on Start->Run and type in: **D:\AUTORUN** in the Run dialog box and then click OK. (assuming that **D:** is your CD-ROM drive; if not change it to the appropriate drive letter). If the Veo Observer Installation screen still does not appear, consult your computer manual or manufacturer to locate the CD-ROM drive.

2. The installation procedure starts and you'll see the Welcome dialog box. Click **Next** to continue.

Welcome Screen

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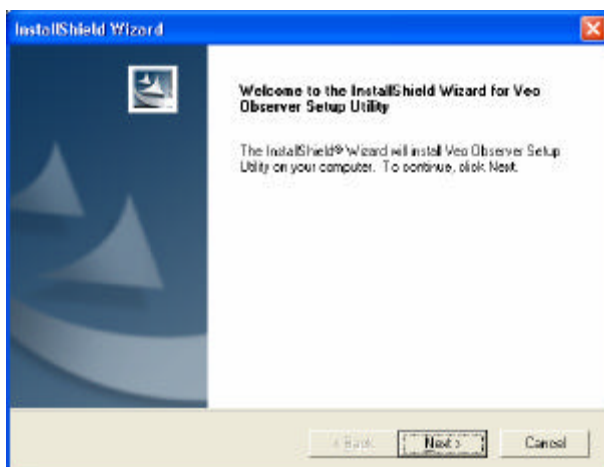
3. You'll see the License Agreement. Please read this agreement carefully. If you agree to the License Agreement, click **Yes** to continue. If you do not agree and click No to the License Agreement, the software will not be installed.
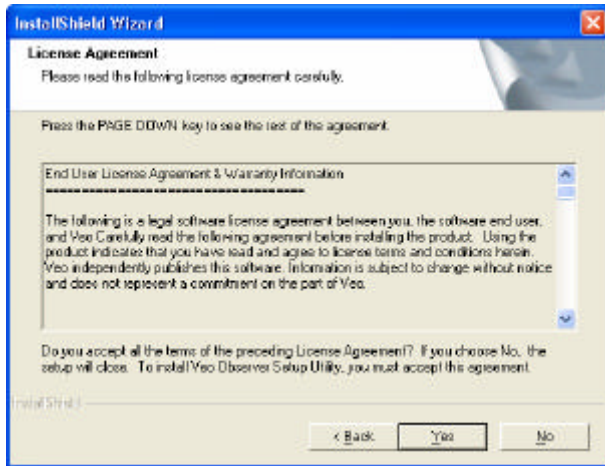
License Agreement Screen

Choose Destination Location Screen

4. The next screen (Choose Destination Location) shows where the Veo Observer Setup Utility will be installed. Click **Next**. (*Optional:* To install the Veo Observer Setup Utility in a differ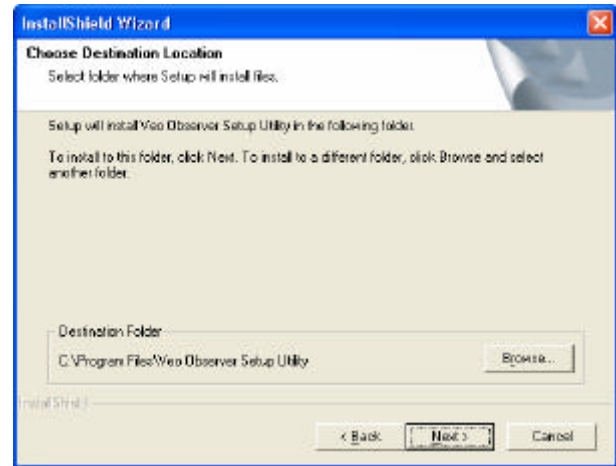ent directory click the Browse button to see the Choose Directory dialog box. Type a new path name for the files in the path box or select an existing directory from the list.)

5. Proceed through the rest of the steps to finish the Veo Observer Setup Utility software installation and then click **Finish**.

6. The next screen will install the Veo Observer Studio on your computer. Click **Next** to continue the software installation.
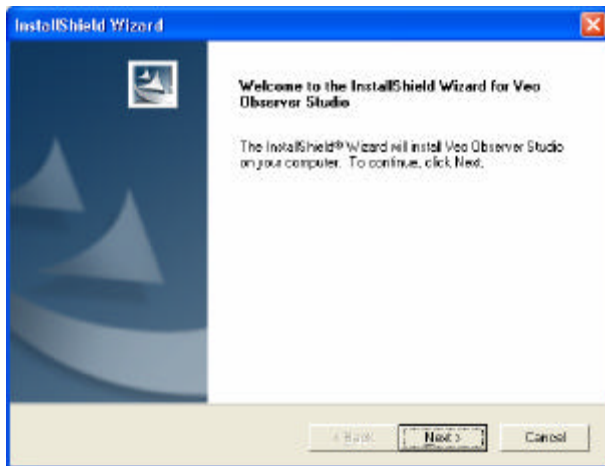
Welcome Screen

Choose Destination Location Screen

7. You'll see the License Agreement. Please read this agreement carefully. If you agree to the License Agreement, click **Yes** to continue. If you do not agree and click No to the License Agreement, the software will not be installed.

8. The next screen (Choose Destination Location) shows where the Veo Observer Studio will be installed. Click **Next**.
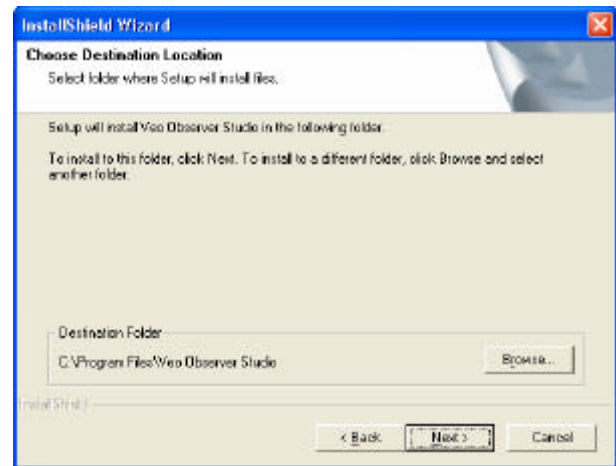
9. Proceed through the rest of the steps to complete the Veo Observer Studio software installation process and then click **Finish.** The software is now installed on your computer.

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Observer Setup Utility

The Observer Setup Utility can be used to manually configure the camera's network settings. It may be necessary to use the setup utility to manually assign an IP address for your camera if your network does not support DHCP. The utility is also very helpful for finding all the cameras on your network.

Note: The Observer Setup Utility must be run from a PC on the local area network where the camera to be set up is located.

Step 1. Click Start -> Programs -> Veo -> Observer Setup Utility or click the desktop icon to run the program. The screen on the left appears. Click the **Search for Camera** button. The utility finds all the cameras on the local network and shows their MAC addresses in the list.

Your PC's network settings are shown here. Since your PC should be connected to the same LAN as the camera you are trying to set up, it will have almost the same network settings as the camera. Only the last three digits of the IP address should be different.

Step 2. Click on your camera's MAC address in the list. The camera's current network settings appear on the right side.

Note: The camera's MAC address can be found on a sticker attached to the bottom of the camera.

Search For Camera   Finds all cameras that are currently powered on and connected to the LAN.
Login   Opens the home page of the currently selected camera.
Set   Apply the changes you've set to the selected camera.

5.1 Manually Assigning a Static IP Address

If your camera fails to obtain an address automatically by DHCP or you simply wish to ensure that the IP address of a certain camera remains unchanged, you will need to assign a static IP address.

Note: Before you assign a static address to a camera, make sure no other device on your network is configured to use the same address. If you aren't sure if a particular address is in use, ping the address and check to see if there is any response. For help using PING, refer to *Appendix C.2: Using PING.*

**Step 1**. Select the **Static** option.

Step 2. Enter the IP address you wish to use. Make sure the first three sections are the same as the PC and that the last three digits don't conflict with any other device on the network.

Step 3. Enter the Subnet mask and Gateway. These settings should match the PC. Optionally, you may enter a camera name to help identify this camera.

Step 4. Click **Set**. You will see a dialog prompting you to enter a username and password. You must enter a valid admin username and password. Click **OK** to continue.

Step 5. You will see "Resetting camera…Please wait.." in the upper left corner. When the process is complete you will see "settings saved". Click **OK** to continue.

Note: If you leave the IP address unchanged, you'll see a message (shown below) informing you that there may be another device using the same IP address (which in this case is the Observer). Click **Yes** to continue using the IP address you specified.
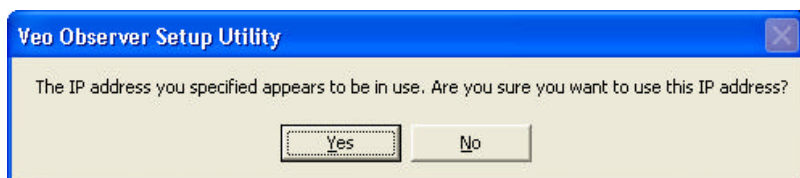
The following tables will help you understand what each of the settings shown here means and how to configure your camera so that it's sure to be able to communicate with your PC.

PC Settings Table (The PC settings are shown to help you set up your camera and cannot be changed.)

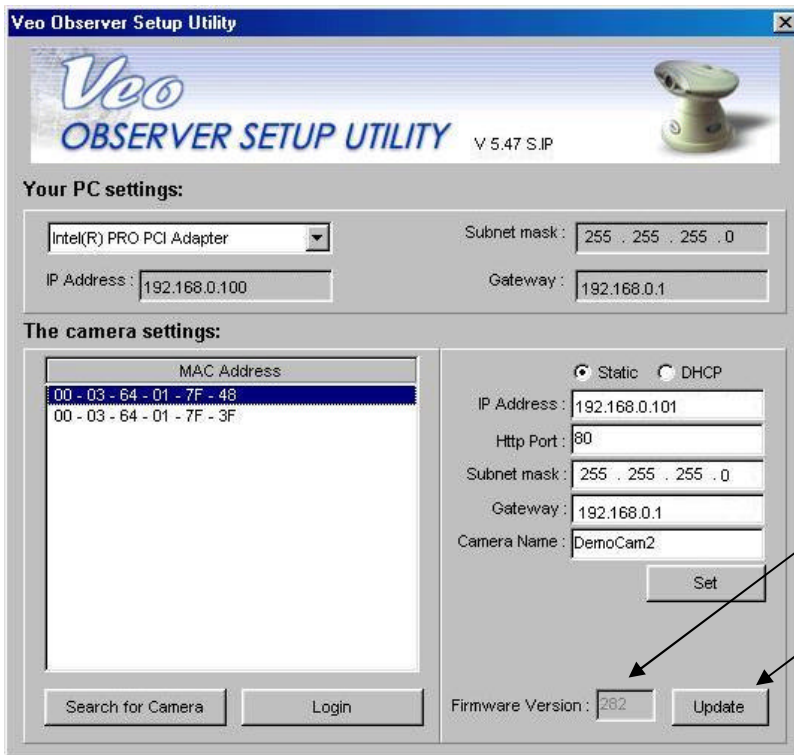| Setting	Description	Notes
IP address	PC's address on the network	Only the last three digits should be different for devices on the same LAN.
Subnet Mask	Subnet that PC is on	Should be the same for all devices on LAN.
Gateway	IP address of router or gateway that PC uses to connect to the Internet	Should be the same for all devices on LAN.

Camera Settings Table

Setting	Description	Notes
Static/DHCP	Sets the IP address mode	Use DHCP to obtain an address automatically, static to enter a fixed address
IP address	Camera's address on the network	The camera's address should be set the same as the PC except the last three digits must be different.
Http Port	Camera web page port	This is always 80 unless you have multiple cameras to access from the Internet. If so, each camera needs its own web port such 81, 82, …
Subnet Mask	Camera Subnet	Use same setting as PC.
Gateway	IP address of router or gateway that camera will use to connect to the Internet	Use same setting as PC.
Camera Name	Name to help identify a camera	Camera name is stored onboard the camera and displayed on the main web page.

5.2 Open a Camera's Home Page

To open a camera's home page, select its MAC address from the list and click **Login**. Internet Explorer is automatically launched and directed to the camera you selected.
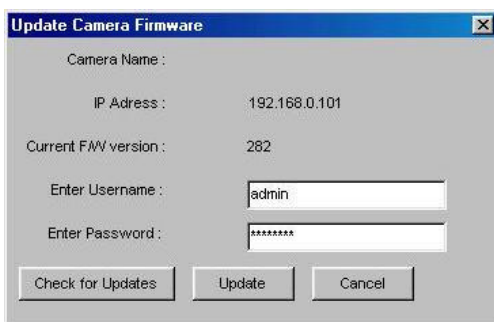
5.3 Updating the Camera's Firmware

Step 1. Visit the Observer support website to download the latest firmware. Place the files on your desktop or in another folder which is easy to get to. If the files are zipped (archived), you will need to unzip them.

Step 2. Run the camera setup utility by clicking the desktop icon.

Step 3. Click the **Search for** Camera button and then select the camera's MAC address in the list box. You will see the camera's current firmware version appear at the bottom right.

Step 4. Click **Update** to start the firmware update process.

Step 5. The dialog on the left appears prompting you for a username and password. Enter a valid admin username and password and click **Update** to continue. You may also click **Cancel** to abort the update process or **Check for Updates** to go to the Observer support site to check for firmware updates.

Note: An admin level user account is required to update the camera firmware.

Step 6. A browse dialog appears prompting you for the location of the new firmware file. Firmware files have a .bin file extension. Navigate to the folder where you placed the downloaded files and highlight the .bin file and then click **Open**.

Step 7. A warning message appears asking if you would like to continue. Click **Yes** to continue the update process. If you need to abort the update process, click **No**.

Step 8. Another dialog box appears to let you know that the update process has begun. This process takes several minutes and it's very important not to disrupt the camera power during the download process. The camera will display "301" in the IP Address LCD display window.

Warning: Do not unplug the camera's power source or Ethernet connection while the firmware is downloading. Doing so can disable your camera.

Step 9. When the download has completed you will see a dialog confirming the successful download. If the camera is set to use DHCP, it will begin the process of acquiring a new address. When the address display stops blinking and shows an address, the camera is ready to be accessed.

Observer Studio PC Application

Veo Observer Studio is a suite of applications designed to enhance your Observer experience. **View Camera** is where you can quickly connect to and control cameras on your local network or anywhere over the Internet. You can also capture snapshots and video to your PC and view up to four cameras at the same time on a single screen. The other applications, **Homepage Designer**, **Movie Maker**, and **Gallery**, provide powerful features for storing, organizing, editing, and sharing content captured with Observer cameras.

To start the Veo Observer Studio you can double click on the desktop icon [icon] or go to Start-> Programs-> Veo-> Observer Studio. The application opens directly to the **View Camera** screen seen below.
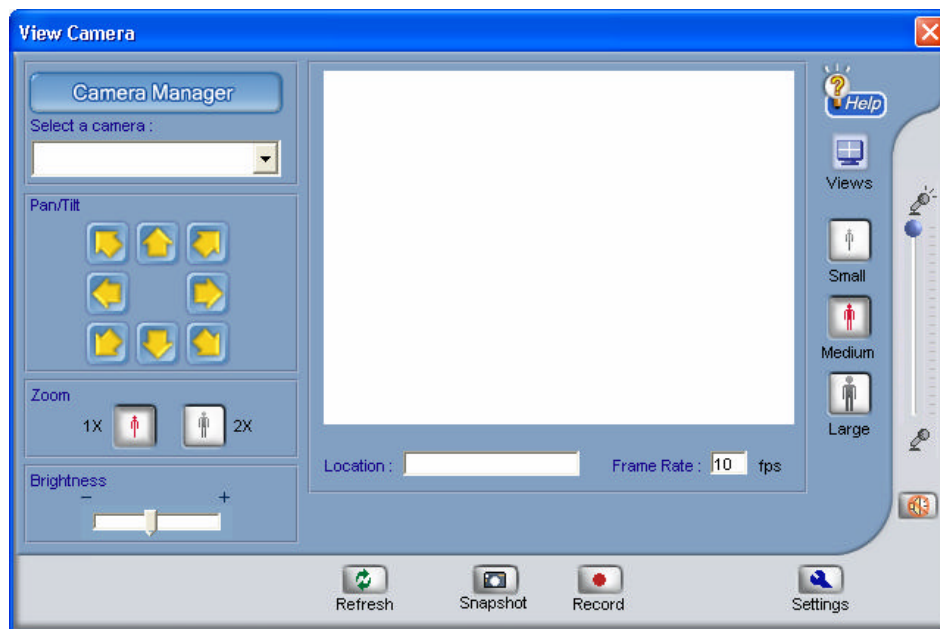
Observer Studio - View Camera screen

The buttons along the top of the main window allow you to quickly navigate between applications.

Home
Returns you to the main window.
Homepage Designer
Opens the Homepage Designer application.
Movie Maker
Opens the Movie Maker application.
View Camera
Opens the View Camera window to display the live video from the camera.
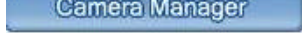**View Gallery**
Opens the album window where your snapshots and video clips can be found.

Before you can connect to a camera and start viewing it, you need to enter the camera's connection information into the camera manager. Once you've entered the information, you'll never need to type it in again.

6.1 Camera Manager

The Camera Manager keeps a list of Observer cameras, along with their IP addresses and login information, allowing you to quickly connect to any camera in the list without having to type in the information.
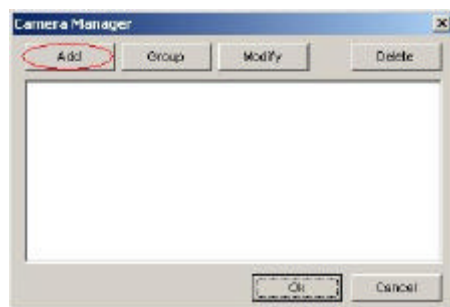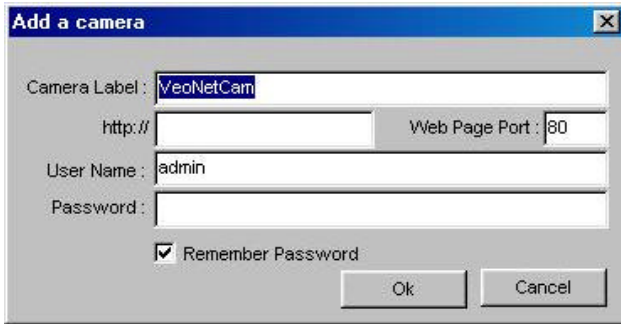
Click the Camera Manager button [Camera Manager] to open the Camera Manager.

Add	Add a camera to the list
Group	Group multiple cameras together for login
Modify	Change a camera's connection information
Delete	Remove a camera from the list
OK	Accept changes and close
Cancel	Close without saving changes

Add a Camera

Click the **Add** button to add a camera to the list. The following window appears:

Note: The information you enter here doesn't change any of the camera's settings. This information is kept on your PC allowing you to connect quickly and easily to any camera without re-entering the URL, port number, username, and password each time. To change a camera's IP address or port number, use the Observer Setup Utility. To change usernames and passwords, go to the camera's home page and click **Setup**.

The default settings will appear in their corresponding boxes. Modify the settings as needed for the camera you wish to connect to.

Camera Label   A label used to help you to remember which camera this is. (12 character maximum)
URL   IP address or domain name for the camera to connect to. (For example 123.45.67.123 or yourcameraname.dyndns.org) You don't need to add http://, it's done for you.
Web Page Port   Always 80 unless you are accessing multiple cameras over the Internet.
User Name   Your username for this camera.
Password   Your password for this camera.
Remember Password   Uncheck this option if you want to enter your password each time you log in.
OK   Save changes and close window.
**Cancel**   Discard changes and close.

Note: Usernames and passwords are case sensitive and require 4 to 12 characters. No special characters are allowed (ASCII characters only).

Hint: If you forget the username and password for a camera, you can reset the camera to factory settings by holding down the power button, while the camera is on, for 6 seconds. The default username is **admin** and the default password is **password**.

Once you have entered the correct settings, click **OK**. The Add Camera dialog box closes and the camera's label appears in the Camera Manager list. Click **OK** to close the Camera Manager. You are now ready to connect (log in) to the camera.

Group

Click the **Group** button to set up a camera group to easily log in. Once you define a group of up to four cameras, you can log in to the whole group with one click.
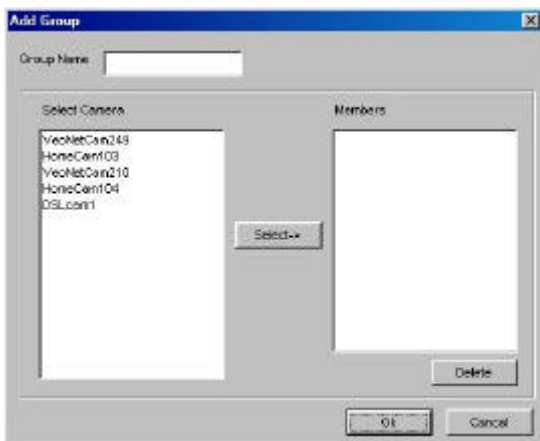
1. Select up to four cameras from the list on the left.
2. Click **Select** to add the cameras to the group.
3. Enter a Group Name in the text box at the top.
4. To remove a camera from the group, select it from the list on the right and click **Delete**.
5. Click **OK** to save the group and exit or **Cancel** to exit without saving.

Note: You can only log in to a group of cameras while in the multi-camera window. See the Multi-Camera Viewing section for more information.

Modify	Used to change the settings of a camera already added to the list.
Delete	Removes a camera from the Camera Manager list.
OK	Save changes and exit.
Cancel	Close Camera Manager without saving changes.

6.2 Logging into a Camera

Step 1. Click the down arrow to display the camera list.

Step 2. Click on a camera from the list to log in to it and begin viewing.

The connection status dialog box appears as shown below.

Note: If the status shows "No Response from Camera," the camera is either offline or you may have entered an incorrect URL or port number. Please check that the camera's IP address or domain name and port number match the information you entered. Refer to the *Troubleshooting section in Appendix G* for help diagnosing connection problems.

As soon as the login process is complete the camera will begin to stream live video and all the camera controls become active. Depending on the speed of your connection to the camera and the image streaming size, you may experience varying amounts of delay before the image appears.

6.3 Camera View Controls

Pan and Tilt Controls: Click on any of the arrow buttons to move the camera one small step in the direction indicated by the arrow. Holding down a button for a few seconds will move the camera one large step.

When the camera reaches its limit of travel range in any direction, the buttons for that direction will be disabled and their appearance will change as shown here.
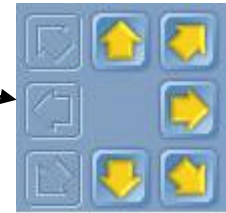
Note: The pan & tilt reaction time will depend on the speed of your connection. Slower connections, especially long distance Internet connections, may introduce delays of up to a few seconds.

Digital Zoom Control

2X   Click to zoom in on the image center
1X   Click to return to normal viewing

Brightness Control

Drag the slider to the right to increase the image brightness or to the left to decrease it. Allow several seconds for the image to update to the new setting.

Image Info

The camera's location setting and average frame rate are displayed beneath the image for your reference only. The location setting can be changed from the camera's setup web page.

Note: The frame rate displayed will vary and may not match the camera's frame rate setting. Actual frame rate is dependent on bandwidth and network traffic. The rate displayed is averaged over several seconds and is updated every few seconds.

Image Display Size Controls

The image display size buttons change the size of the image on your display by scaling the camera image.

Note: The image size buttons do NOT affect the resolution (size) of the image captured by the camera. The image resolution can be changed in the camera's setup web page. Because image resolution has a profound effect on bandwidth consumption and image quality, access is restricted to camera administrators.

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Audio Controls
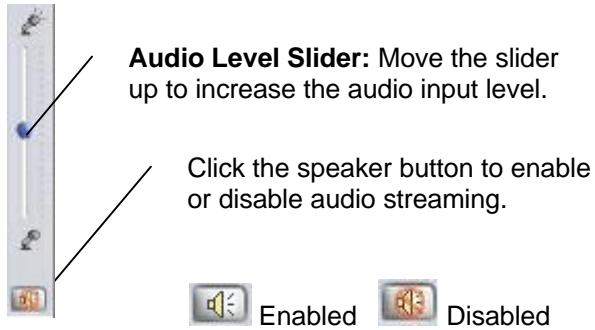
Audio Level Slider: Move the slider up to increase the audio input level.

Click the speaker button to enable or disable audio streaming.

Note: Enabling audio will affect video performance in low bandwidth (Internet) conditions. When not using audio, be sure to leave it turned off for best video performance.

Enabled   Disabled

Settings

Only admin level user may access camera settings. The **Settings** button is not present when logged in as a non-admin user. Click the **Settings** button to open the settings window.

Max. Frame Rate   Sets the maximum frame rate that the camera can output.

Note: Actual frame rate will depend on the bandwidth (speed) of your connection.

Streaming Size   Sets the resolution (size) of the image output by the camera. Reducing the streaming size will significantly improve video performance (frame rate) when bandwidth is limited.

Lighting Conditions   Improves video performance by configuring the camera for the appropriate lighting conditions present in the camera view (scene). Use **Backlight** when the light source is located behind the object you are trying to monitor. Use **Night** for very low lighting conditions and **Normal** for all other situations.

Note: The camera cannot operate in total darkness. The minimum illumination is 1 lux, equivalent to a very dimly lit room. Also, the camera should not be aimed into direct sunlight. Prolonged exposure to direct sunlight will damage the sensor and will void your warranty.

Overlay   If your PC's video graphics adapter supports hardware overlay, you can enable overlay for improved video performance.

Use Defaults   Restore all default settings.

OK   Save changes and exit.

Cancel   Discard changes and exit.

Snapshot

Click the **Snapshot** button to capture the current image and save it to your PC. You'll see a preview of the image. Click **Cancel** to discard the image and return to the live view. Click **Save** to save the image to your hard drive.

Recording a Video

Note: The captured video will be the same size (resolution) as the current streaming size. Changing the display size using the image display controls does not affect the size of the captured video. Use the **Settings** button to change the streaming size (requires admin level user).

1. Adjust the volume using the **Audio Level Slider**.
2. Click [**Record**] to record your video. Click the **Stop** button any time to end recording.
3. After the recording stops, the following buttons will appear on the bottom of the screen:
 [**Save Frame**] - Saves the current frame as a picture file.
 [**Trim Video**] - Trim the video to the selected size and length.

Drag the sliders to select the new start point and end point of video

 [**Play**] - Play the video.
 [**Cancel**] - Discard the clip and return to live video.
4. Click to save your video.

Multi-Camera Viewing

Click the **Views** button to go to the multi-camera viewing window. If you are currently logged in to a camera, its video appears at the top left of the multi-camera viewing area. You can now select up to three additional cameras to log in to from the drop down list at the top. If you have defined any camera groups, you can log in to the whole group at once by selecting the group name from the list. The connection status dialog will show the status of connecting to each camera and then each camera's video will appear in one of the other three video windows.

Enable Audio Click on a camera's video window to select it. A yellow outline will appear around the window.

You may now enable audio for that camera by clicking the audio enable button. Click on another camera's window to hear its audio.

Refresh Click the Refresh button to refresh the camera screen.

Show/Hide Click the Show/Hide button to show or hide cameras that you have logged in to.

Layout Click the Layout button to change the layout of the multi-camera viewing area. The default is four medium (320 x240) camera views on one screen. Changing this setting to One Camera View, will give one large camera view on each screen and a vertical scroll bar will appear on the right side allowing you to scroll down to see other camera views.

Views Click the Views button to return to the single camera viewing window. The currently selected camera will be active. You will not be logged out of any other cameras you are logged in to.

6.4 Using the Gallery

The Gallery is an album application you use to store and access snapshots and video clips captured with Observer cameras. It can also manage other types of media for you such as sound bites and animations.

Note: You must first close the View Camera window before opening the Gallery.

Viewing Pictures in the Gallery

1. Click the **View Gallery** button. The Gallery Display Panel opens up.
2. Select a folder to view its content. The following are buttons and folders used in the Gallery Display Panel along with their description:

[**Min/Max Gallery**] - Toggle button used to minimize or maximize the Gallery Display Panel.

[**Thumbnail Size**] - To change the size of the thumbnails displayed in the gallery.

[**Sort By**] - Sort the thumbnails by type, time, or name. You can also use this to search for a file in the Observer Studio Gallery. When you are done searching, all the matched files will be stored in the Search Results folder.

Folders:

- **Animations** - Contains animated character files.
- **Photographs** - Contains still pictures.
- **Graphics** - Contains background graphics.
- **Videos** - Contains video files.
- **Music** - Contains audio clips.
- **Projects** - Contains all your previously saved projects.

To display the details of a specific file, click [**Properties**].
Note: To delete a file, click on the file and click [**Delete**].

6.5 Movie Maker - Making or Editing a Movie

1. Click on the **Movie Maker** button on the Observer Studio Home Screen.
2. Choose **Create A New Movie** or **Open An Existing Movie Or Project**. If you choose to open an existing

movie, you can click on to display the following options:

Save the movie to a specified location → Save Finished Movie

Preview ← *Preview the movie*
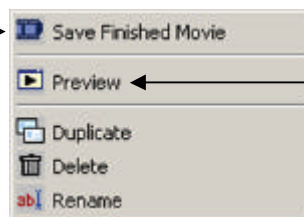
Duplicate
Delete
Rename

3. Simply drag and drop videos or pictures from the Gallery Display Panel into the Movie Maker. The following are buttons used in the Movie Maker along with their description:

[**Back**]   Go back to the previous screen.

[**Continue**]   Continue to the next screen.

[**Save Finished Movie**]   Save your movie at any time in the process.

[**Preview Complete Movie**] Preview the movie you have created.

![icon] [**Add A New Scene**]		Add a new video or picture to your movie. You can either add an existing video/picture from your computer or record a new video/picture from your Veo camera for insertion.
![icon] [**Add Background Music**]		Add music to your movie.
![icon] [**Remove Music**]		Remove music from your movie.

When you are done, click **Continue**.

Note: By default, still pictures will be shown in the movie for three (3) seconds. To change the duration of pictures in the movie or view other options, select your still picture and then click ![icon]. The following box will appear:

Edit the scene ⟶ ☑ Edit This Scene   *Change the duration of scene and other options*

1:26 Scene Duration ⟵

Duplicate the scene ⟶ 🔲 Duplicate

🗑 Delete ⟵ *Delete the scene*

Select **Scene Duration**.

Set Duration ⟶ Duration Time 3 Seconds

Save Changes ⟶ [Save] [Exit]

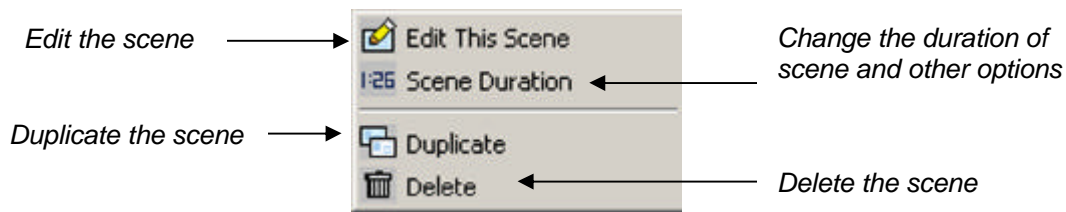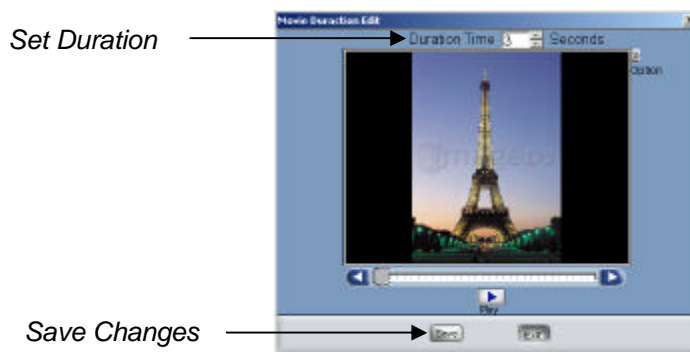**Note:** Video (.avi) files also have a ![icon] [**Trim Video**] button that allows you to adjust the size and length of the video. Refer to Page 28 for more information.

Click **Continue** when you are done.

4. Select a scene from the bottom and click ![icon] [**Transition Effect**].

5. Sample the effects by placing your cursor above each individual effect. Choose the opening effect (how one scene changes to another).

6. Double-click on the remaining scenes in the Movie Maker, then repeat steps 4 and 5 above to apply opening effects to the remaining scenes. Click **Continue** when you are finished.

7. Select a scene to edit by double-clicking on the scene in the Movie Maker. Make sure the scene shows up in the Main Screen.

8. Edit the selected scene.

(See "Applying Text, Images, Videos, and Animated Characters" on Page 34 for more on editing a scene). Click **Continue** when you are done.

9. Repeat steps 7 and 8 to edit the remaining scenes. When you are finished, click **Continue**.

10. a) To preview the complete movie, click ![icon] [**Preview**].

   b) To save the movie for editing later, click ![icon] [**Save**].

   c) To save the movie as a separate file, click ![icon] [**Save As**].

   d) To save the movie on your computer, click **Save Finished Movie**.

e) To send your movie to a friend:
      1) Click **E-mail Movie To A Friend**.
      2) Type in the requested information.
      3) The default name given to the movie is Default.wmv. To rename the movie before sending, click on the words "Default.wmv" in the attachment text box and click [ab] [**Rename**].
      4) Click to send your movie.

Note: Refer to *Section 6.7: Configuring your E-mail Program to Send Files* for instructions on how to configure your E-mail program to send movies.

6.6 Homepage Designer - Designing a Home Page

1. Click on the **Homepage Designer** button on the Observer Studio Home Screen.
2. Choose to **Create A New Homepage** or **Open A Previously Saved Homepage Project**. If you choose to open a previously saved homepage project, you may click on ▶ to get the following options:

Save webpage to your PC →

→ *Publish webpage to your ISP*
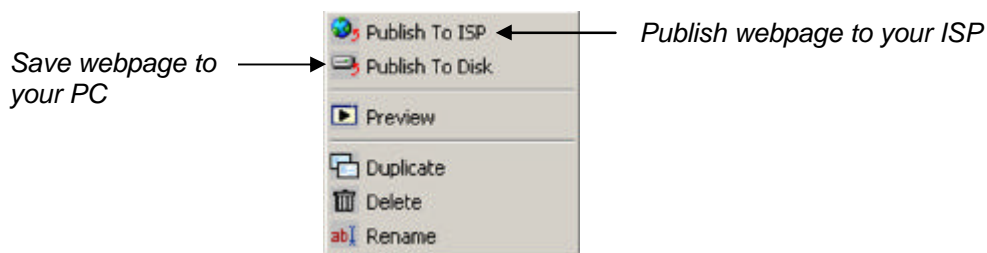
3. If you are designing a new homepage, select a theme from the left panel, then select the background for your homepage. Click **Continue**.
4. Edit your homepage. (See "Applying Text, Images, Videos, and Animated Characters" on Page 34 for more information). To add a new page at any time, click ⊕ [**Add A New Page**]. Click **Continue** when you are done.
5. Define your animated characters' path. (For directions, please refer to Page 35.) Click **Continue** when you are finished.
6. Select a picture or animated character.

[Link All Pages] - Check the box to the left if you want all pages to be linked. Notice that if you check the box to the left of the **Link All Pages** icon, it will turn into . It means that all your pages are successfully linked. When you preview the webpage, you will see that there are two arrow buttons on the bottom for easy navigation between pages. If you have text or pictures on the very bottom, they might be partly covered. Try placing the text/pictures higher on the page.

Click to go to the previous page →

→ Click to go the next page

 [**Page Link**] - Link an object/image/page to another page.

Linking to Another Page

If you want to include a function on your page that allows you to click on a text/picture to link to other web pages, follow the steps below:
a) Select the text or picture on the Main Screen that you want to link .

b) Click on [**Page Link**].
c) Select to link to an existing page or to a page on the Internet. If linking to a page on the Internet, type in the address (URL) of the website, then click **OK**.

Alternatively, you can click on [**Actor Interaction**].

Anchor Actors container

Storyboard container

URL – Link to a page on the internet
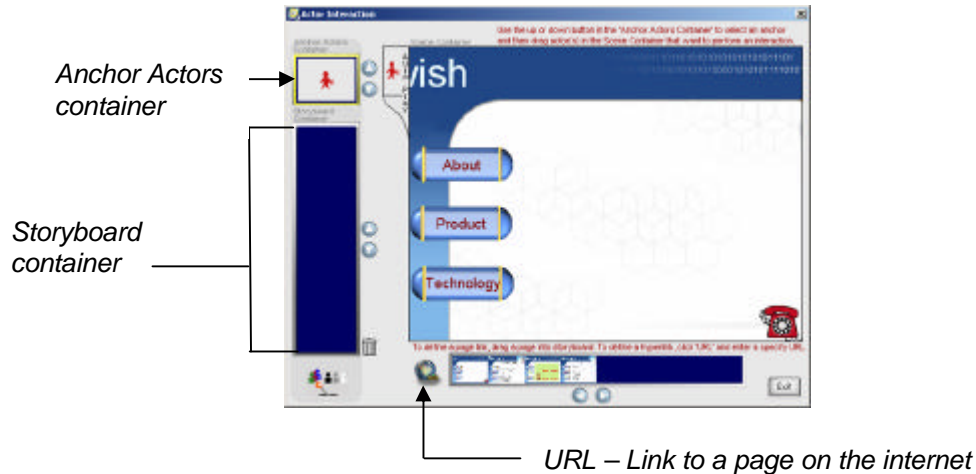
Use the **Up** and **Down** buttons next to the Anchor Actors Container to select the image/text you want to link. Then:
a) Drag a page from the bottom panel into the Storyboard Container to link to one of your existing pages.

       -OR-

b) Click [**URL**], type in the address of the webpage on the Internet, then click **OK**.
Note: When using Homepage Designer, animated characters do NOT automatically move along its path by default. You need to click on it in order for it to start. Refer to the next section on how to automate this process.

Automating Animated Characters in Homepage Designer

a) Click [**Actor Interaction**].
b) Make sure the Anchor Actors Container has **AutoPlay** selected. If not, use the **Up** and **Down** arrows to select it.

Autoplay
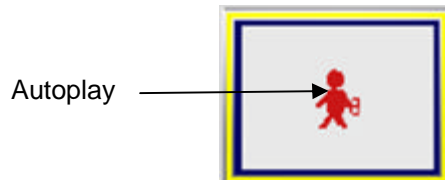
c) Select the animated character that you want to automate and drag it from the right panel into the Storyboard Container. Repeat the same procedure for other animated characters. Click **Exit** when you are finished.

7. Select the background music. Click 🎵 [**Set Background Music**].

8. Choose your background music. To listen to the music before selecting, place your cursor on 🎵 without

clicking. You may click 🎵 [**Mute**] to turn the background music on and off.

Note: When you change the **Mute** button to 🚫, it does NOT remove the background music. You just will not
   be able to hear it. To remove the music entirely, click 🎵 [**Set Background Music**] and choose ✖ . After
   you select your music, click **Continue**.

9. Select the opening effect by clicking 🖼 [**Transition Effect**].

10. Choose the opening effect (how one page changes to another).

11. Double-click on the remaining pages in the Homepage Designer, then repeat steps 9 and 10 above to apply
the opening effect to the remaining scenes. Click **Continue** when you are finished.

12. a) To preview the page, click 🖼 [**Preview**].

   b) To save the page for editing later, click 💾 [**Save**].

   c) To save the page as a separate file, click 💾 [**Save As**].

13. Choose:

   Add a New Page - To add and edit a new page.

       -or-

   Edit Next Page - To edit the next page.

       -or-

   Publish Now - To publish the homepage to your Internet Service Provider.

Publishing the webpage to your Internet Service Provider

To publish your webpage, you need to be connected to the Internet. Fill in the requested information, then click
Publish. You will be prompted to type in your user name and password to access the site for publishing.
***Contact your Internet Service Provider for additional assistance if you are experiencing problems
publishing your webpage.***
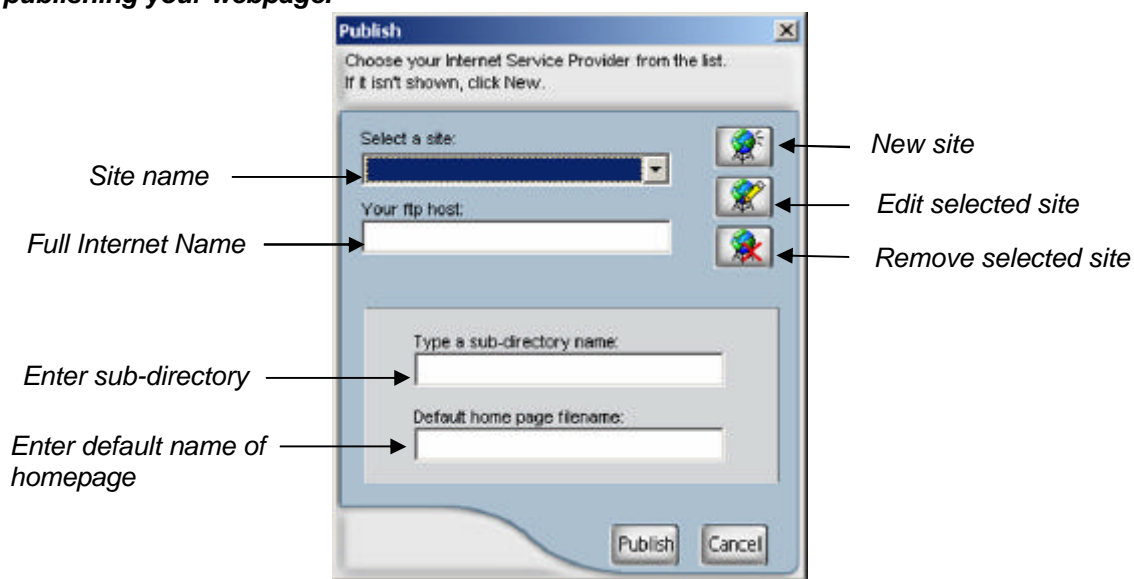
Publishing the webpage to your computer

a) Click on **Publish The Files To The Hard Disk**.

b) Select the destination and rename the file if desired. The webpage along with all supporting files (i.e. images,
music, etc.) will be saved as a *folder* instead of a single file.

c) Click **View A Local Copy of the Page Just Published** to view your webpage. Alternatively, you can open
the folder that you saved, and double-click on the file named **index**.

Note: DO NOT move or delete any items in the web folder. Otherwise, you might experience problems viewing
   the pages.

Applying Text, Images, Videos, and Animated Characters

Adding and Editing Text

a) Click [**New Text**] to add new text to the scene/page.

b) Double-click on the text to edit it. A screen similar to the one below appears:

Preview font

Type text in here

Select font color

Select font

Apply effects to fonts
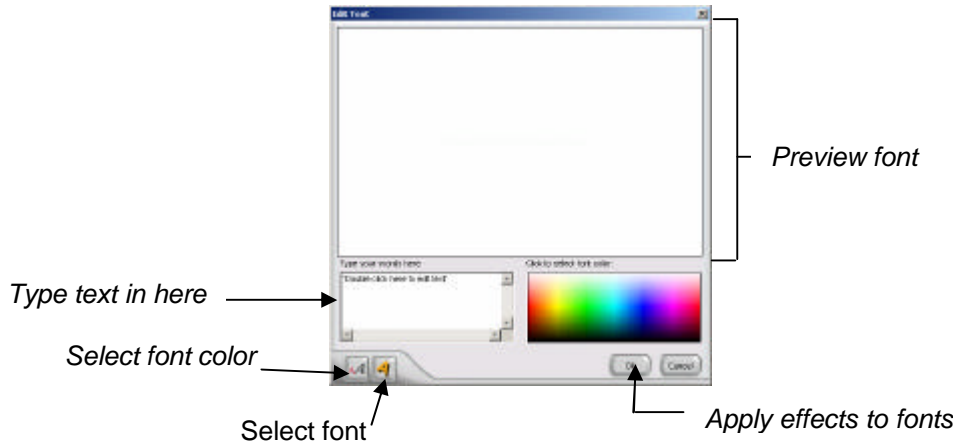
The following are the application buttons and their description:

[**Insert Video**] - Insert a new video clip.

[**Insert Image**] - Insert a new image.

Alternatively, you can drag and drop images/videos from the Gallery Display Panel into the Main Screen.

[**Animation Path**] - Define the path of the images or animated characters (the path an object will follow to move from point A to point B).

[**Sequential Animation Sequence**] - Animations move one after another depending on which one you inserted first.

[**Simultaneous Animation Sequence**] - All animations move at the same time.

Editing an Image or Animated Character

Flip image horizontally (mirror image)

Display more commands

Return image to original size

Flip image upside down

Drag to resize image
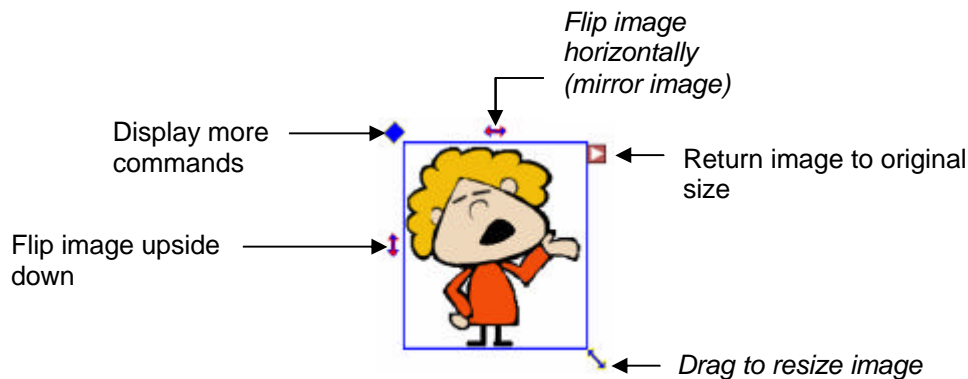
When you click , the following box appears:
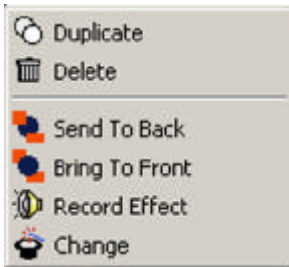
Adding Sound Effects to an Animated Character

You can add a sound effect to an animated character either by inserting a .wav file from the **Sound Effects** folder and then click [Submit] .

Note: Sound Effects are only applied when the animated character is moving along its defined path. If you have not defined a path, the sound effect will be disabled.

Defining the Path of an Animated Character (also works with a still picture).

a) Select the image or animated character that you want to move.

b) Click [Animation Path]. Notice the animated character now follows the mouse cursor.
c) Select the starting point (where you want the animated character to start moving from). Hold the left mouse button down, then freely drag the character along a path you specify to the ending point (where the character finally stops at).

Your selected animated character will follow this path

6.7 Configuring your E-mail Program to Send Files

In order to send your files directly from the Veo Observer Studio, you must change your default mail agent, otherwise known as *Messaging Application Program Interface (MAPI)*. For E-mail programs that do not support MAPI (i.e. AOL, web-based E-mail programs), you need to attach the files manually. For further assistance on how to attach files to your E-mail, contact your E-mail or web-based E-mail provider.

Using MAPI with Microsoft Outlook Express

1. Start Microsoft Outlook Express.
2. Go to **Tools** > **Options**.
3. Click **Make Default** under *Default Messaging Programs - This application is NOT the default* **Mail** handler.
4. Restart your computer.

Using MAPI with Microsoft Outlook

Microsoft Outlook automatically sets up your MAPI E-mail program during installation. Make sure your Microsoft Outlook E-mail application is properly set up with the right *POP account name, password, SMTP mail host account, and other requirements.* For further assistance, contact your Internet Service Provider (ISP) or systems administrator.

Using America Online (AOL), Hotmail, or Yahoo! Mail

In order to send your pictures and videos from the Veo Observer Studio, you'll need to follow the steps outlined below if you are using America Online, Hotmail or Yahoo! Mail. The following steps require that you have America Online 7.0 or higher or the latest version of MSN Messenger or Yahoo! Messenger installed on your computer.

1. To send pictures/videos using America Online, Hotmail, or Yahoo! Mail, please follow the steps below, depending on which version of Windows you are using:

       If you are using Windows 98/Me: Click on Start->Settings->Control Panel->Internet Options.
       If you are using Windows 2000: Click on Start->Settings->Control Panel->Internet Options.
       If you are using Windows XP: Click on Start->Control Panel->Switch to Classic View->Internet Options.

2. Select the "Programs" tab.
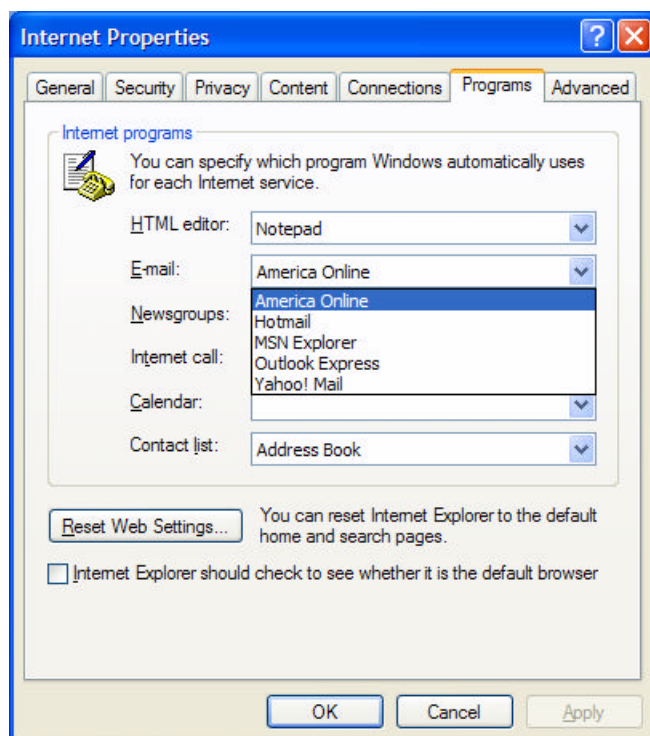
3. Under "E-mail" select the e-mail provider that you normally use to send e-mail. (i.e. America Online, Hotmail, Yahoo! Mail) **Note:** If you do not see America Online, Hotmail, or Yahoo! Mail listed under the "E-mail" section, you'll need to install the latest version of America Online (if using America Online [http://www.aol.com]) or MSN Messenger (if using Hotmail [http://messenger.msn.com]) or Yahoo! Messenger (if using Yahoo! Mail [http://messenger.yahoo.com]). Once the latest versions of the e-mail provider you use is installed, you'll see the options available.

4. After you have selected your e-mail provider, click the "OK" button and then close the Control Panel.

5. Sign on to America Online or connect to the Internet and log in to your web-based e-mail account.

6. Minimize America Online or web browser window (if using Hotmail or Yahoo! Mail).

7. By default, your pictures are saved in the 'Photographs' or 'Videos' folders in the Veo Observer Studio. To find the pictures/videos for e-mailing, go to the 'C:\Program Files\Veo Observer Studio\Gallery' folder.

If you saved a picture (JPG), it will be located in the \Photographs folder. If you saved a Standard Video (AVI), it will be located in the \Videos folder. If you saved a Video Mail (WMV), it will be located in the 'My Documents' folder on your desktop.

8. After going to the corresponding folder for your picture/video, right-click on the picture/video you want to e-mail and then select Send To->Mail Recipient.

9. This will automatically attach the picture/video to your e-mail. Note that most e-mail providers have a maximum file size limitation for sending attachments, so if your picture/video file size is too large, you may not be able to send the picture/video. If this is the case, try using a smaller picture size or recording a shorter video.

10. In America Online, click the "Send Now" button or in Hotmail or Yahoo! Mail, click the "Send" button to send your e-mail.
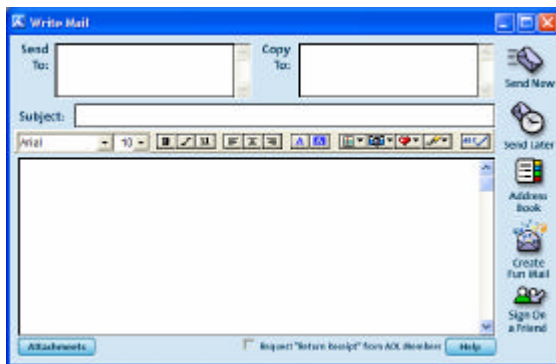
America Online – Sending E-mail
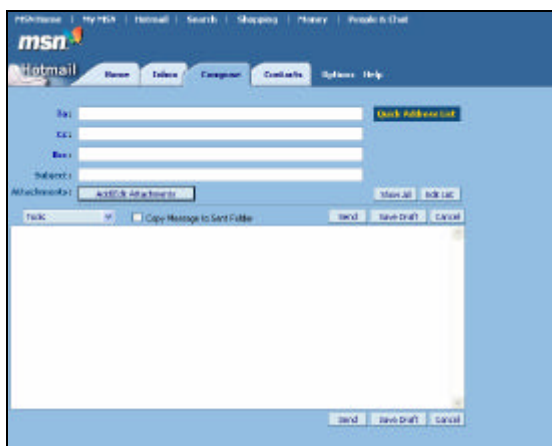
Hotmail – Sending E-mail
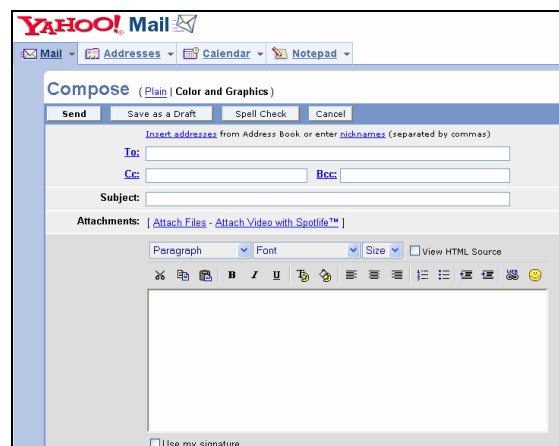
Yahoo! Mail – Sending E-mail

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Accessing Cameras Over the Internet

If your home or business LAN is connected to the Internet through a high speed (broadband) Internet connection, with at least 128 kbps upload bandwidth, you can access your cameras by web browser from anywhere on the Internet. To do this you need to:

1. Know your **WAN** (Internet) **IP** address. This is the IP address that your Internet Service Provider gives you to access the Internet. It may be static (always the same) or dynamic (can change from time to time).
2. Makes sure the two ports used by the camera (80 & 1600) are forwarded by your router or gateway to the camera.
3. Makes sure your camera's default gateway is set to the LAN (local) IP address of your router/gateway.

7.1 WAN IP Address

The WAN (Wide Area Network) IP address that your Internet Service Provider grants you so that you can access the Internet is very different from the LAN or local IP address that your PCs and cameras are using to connect to your local network. Your WAN or Internet IP address is visible to the outside world (Internet) whereas your local addresses are not. To find your home or business network from the Internet you must know your WAN IP address.

Your WAN IP address is stored by your gateway router which uses it to connect to the Internet. All the devices on your network connect to the Internet via your gateway router. You can find your current WAN IP address by checking your router's status page. There are also various websites such as www.whatismyip.com which will tell you the IP address that you are currently using to access the Internet.

> **A word about terminology**
> The term **gateway** is used generically to mean the device that connects a local network to the Internet. A gateway may be a router, a PC running software which allows it to act as a gateway such as a proxy server, or some other device. Most home networks use a NAT (Network Address Translation) router as a gateway. The term gateway router refers to such a device.

Static versus Dynamic IP address

The IP address (or addresses) your ISP has provided you will either be static, which means it never changes, or dynamic, meaning it can change periodically. Dynamic addresses present an additional challenge when trying to locate your network from the Internet since your address may have changed since the last time you checked it. How often your dynamic address changes varies from one service provider to another. Also, any time you reboot your cable or DSL modem, your are likely to get a new address when reconnecting. The solution to the ever changing IP address is known as DDNS or dynamic domain name service. A DDNS will allow you to find your network by a domain name, such as mynetcam.no-ip.com, rather than needing to know the IP address. Setting up a DDNS is covered in *Section 7.6 Dynamic Domain Name Service (DDNS).*

7.2 Network Address Translation (NAT)

Most home routers and business firewalls today perform something called NAT or Network Address Translation. NAT translates your external or WAN IP address into an internal address inside your gateway router. What this means is, you can think of your router as being divided into two halves, the LAN side (inside) and the WAN side (outside or Internet side). When a connection request arrives at your router from the Internet, it will not get any farther than the WAN side unless you have specifically instructed your router to pass this type of request to a specific device on your LAN. This process is know as port forwarding or port redirecting.

7.3 Port Forwarding

All TCP/IP (Internet) networking uses software ports. Ports can be thought of as channels on your television. By default, all web page traffic is on channel (port) 80. By default, the Observer uses port 80 to deliver its web page to your browser and port 1600 to send video. Therefore, both of these *channels* (ports) must be open (not blocked by your router/firewall) to incoming traffic in order for you to connect to the camera from the Internet. Also, these two ports must be forwarded or redirected to the camera's LAN IP address by your gateway router. Your router's setup software should provide a utility for port forwarding or redirecting. **Appendix D: Router configuration** contains setup help for some popular home networking gateway routers currently on the market.
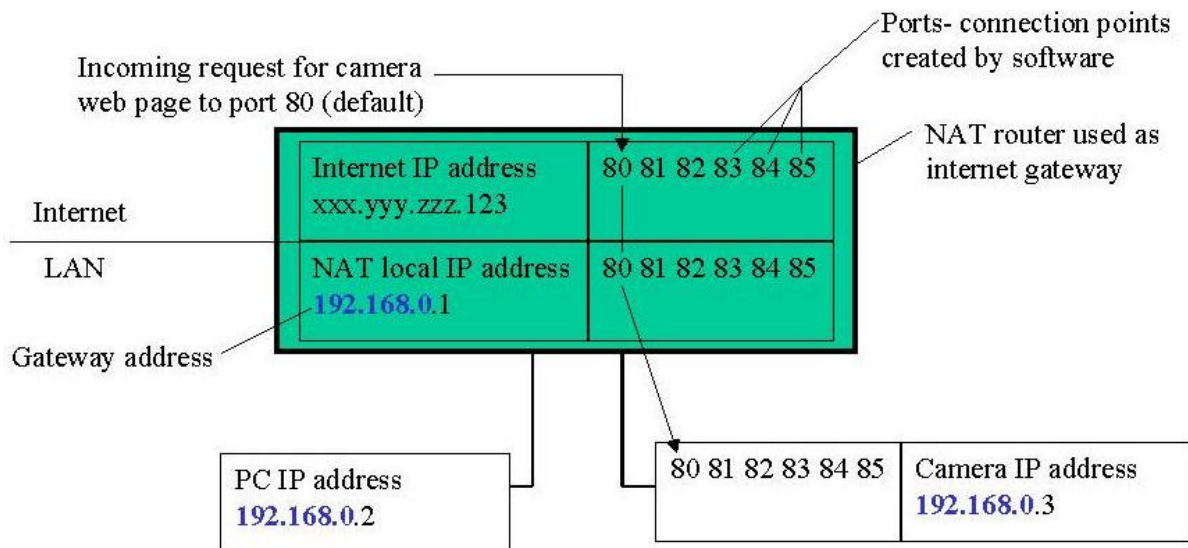
NAT and port forwarding for a typical home gateway router.

In the case shown in the illustration above, port 80 and port 1600 should be forwarded to IP 192.168.0.3.

Note: Forwarding ports to your camera does not pose any additional security risk to your LAN. Before setting up port forwarding, it's best to configure your camera to use a static LAN IP since your port forwarding setup will need to be updated if the camera's LAN IP address changes.

7.4 Default Gateway

Devices (PCs, cameras, etc.) on your network connect to the Internet via a gateway. For most home networks, a NAT type router serves as the gateway. For business LANs, the gateway may be a PC running gateway software. In order for any device on your network to get connected to the Internet, it must know the LAN IP address of your gateway. If your camera is set up to use DHCP, then it will retrieve this information automatically from your router.

However, if you have configured your camera to use a static IP address, you must also be sure that you have set the correct gateway IP address in order to connect your camera to the Internet. Refer to **Chapter 5: Observer Setup Utility** for more help on this topic.

Note: It may not be possible to test WAN (Internet) access to your cameras from a PC connected to the LAN. To be sure that your cameras are accessible by the Internet, you should contact someone you know with Internet access (preferable broadband) and have them enter your WAN IP address into their browser.

You camera is now live on the Internet. Browsing your camera from the Internet is the same as browsing on your LAN except that you must enter your WAN IP address (or camera domain name if you've set up a DDNS service) instead of the LAN IP address.

7.5 Accessing Multiple Cameras over the Internet

When accessing multiple cameras over the Internet, you must assign separate port numbers for each camera. The reason for this is simple. Your gateway router needs some way of knowing which camera to direct an incoming request to. Unless directed otherwise, your browser will always send web page requests to port 80. Since port 80 can only be forwarded to one LAN IP address, all incoming web page requests on port 80 will go to this address.

The solution to this problem is to set up each camera to use a different port number (Refer to *Chapter 5: Observer Setup Utility* for help setting a camera's port number). For example, you may set up your second camera to use port 81 for its web page. When you want to access this camera, you would tell your browser to use port 81, instead of port 80. In your router's port forwarding setup, you would need to forward port 81 to the LAN IP address of the second camera. Web page requests arriving at port 81 will automatically be directed to the second camera's address.

To instruct your browser to use a different port, other than 80, to access a web page, you would add the port number at the end of the IP address or URL, separated by a colon. For example, to access a camera on port 81 if your WAN IP address is 123.456.789.111, you would enter http://123.456.789.111:81 into your browser's address bar. You can do the same thing with a URL such as http://MyNetCam.DynDNS.org:81.

Note: Increasing the camera's web page port number automatically increases it's streaming port by the same amount. For example, setting the web page port to 81 sets the streaming port to 1601. You must forward both ports to the camera's LAN IP address to enable remote access.

The steps to set up remote access are as follows:

1. Configure each camera to use a separate web page port such as Camera_1 = 81, Camera_2 = 82. Use the Observer Setup Utility to do this.
2. Go to your gateway router setup page and configure port forwarding to port 81 and 1601 to LAN IP address of Camera_1 and port 82 and 1602 to the LAN IP address of Camera_2.
3. From somewhere on the Internet, bring up Internet Explorer and enter your WAN IP address followed by a colon and the port number such as: http://123.456.789.111:81 to access Camera_1.

Note: Some routers use port 80 for remote configuration and it's possible to experience a conflict when using port 80 for camera access. Therefore, you should use port 81 for your first camera, port 82 for the second, etc.. This setup also makes it easier to remember which camera is using a particular port number.

7.6 Dynamic Domain Name Service (DDNS)

Your Internet Service Provider (ISP) provides you at least one IP address which you use to connect to the Internet. The address you get may be static, meaning it never changes, or dynamic, meaning it's likely to change periodically. Just how often it changes, depends on your ISP. A dynamic IP address complicates remote access since you may not know what your current WAN IP address is when you want to access your network over the Internet. The solution to the dynamic IP address problem comes in the form of a dynamic DNS service.

The Internet uses DNS servers to lookup domain names and translate them into IP addresses. Domain names, such as www.veo.com, are just easy to remember aliases for IP addresses. A dynamic DNS service is unique because it provides a means of updating your IP address so that your listing will remain current when your IP address changes. There are several excellent DDNS services available on the Internet and best of all they're free to use. Two such services you can use are www.no-ip.com and www.DynDNS.org. You'll need to register with the service and set up the domain name of your choice to begin using it. Please refer to the home page of the service for detailed instructions.

A DDNS service works by uploading your WAN IP address to its servers periodically. Your gateway-router may support DDNS directly, in which case you can enter your DDNS account information into your router and it will update the DDNS servers automatically when your IP address changes. Please consult your router's documentation for more information. If your router does not support DDNS, you can run a small client utility on any PC on your network which will perform the updating. The client utility is usually provided for free by the service. Check the service's webpage for further information and terms and conditions.

Restoring Factory Default Settings

Press and hold the Power button down for 6 seconds to reset the camera to the factory defaults. You will see "300" displayed in the IP Address LCD display to indicate that the camera has been reset. Release the Power button to reset the camera.

Note: You will need to reconfigure your camera settings after resetting the camera. The Veo Observer will revert back to the factory default username (**admin**) and password (**password**) if the camera is reset. The network settings on your camera will also revert back to DHCP, thus, you may need to reconfigure the camera using the Observer Setup Utility. Refer to *Chapter 5: Observer Setup Utility* for directions on configuring the camera's settings.

External Microphone

If you would like to use an external microphone (not included), you can attach any standard 1/8" (3.5 mm) microphone to the Veo Observer's external microphone connection port located on the rear of the camera. Using an external microphone will automatically disable the camera's built-in microphone. The use of an external microphone is recommended in noisy areas or if the camera is located far away from the audio source.

To use the external microphone, follow the steps below:

1. Turn off your camera and plug an external microphone into the external microphone jack.

2. Turn the camera back on and the camera will automatically sense the external microphone and disable the internal microphone.

3. You can now record or monitor audio using your external microphone.

Network Utilities

Microsoft Windows includes various network information utilities to determine various network configurations. To determine your IP address and network settings, follow the steps below, depending on your operating system.
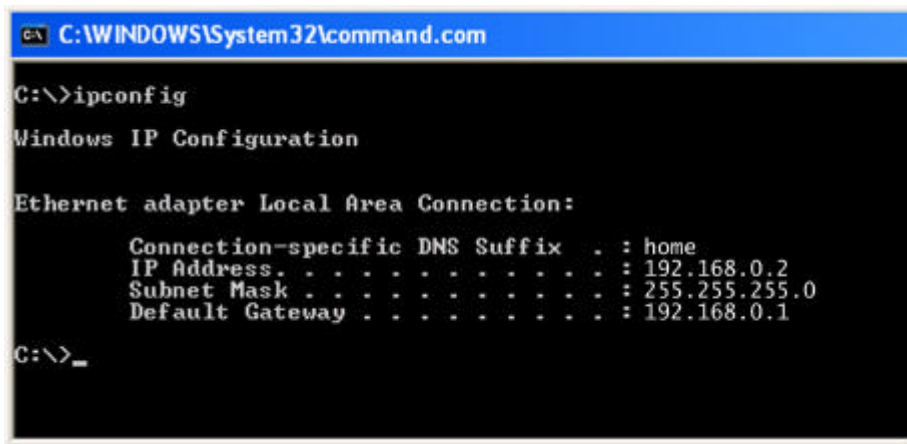
C.1 Determining your IP Address and Network Settings

Windows 98/Me:
1. Click on Start->Run and type in: **command** and then press ENTER

2. In the MS-DOS window, type in: **winipcfg** and then press ENTER

3. This will display your network card's Adapter Address, IP Address, Subnet Mask, and Default Gateway.
More information regarding WINIPCFG can be obtained by typing in: winipcfg /? at the MS-DOS prompt. WINIPCFG is located in the C:\Windows folder.

Windows 2000/XP:
1. Click on Start->Run and type in: **command** and then press ENTER

2. In the MS-DOS window, type in: **ipconfig** and then press ENTER

3. This will display your network card's IP Address, Subnet Mask, and Default Gateway.
More information regarding IPCONFIG can be obtained by typing in: ipconfig /? at the MS-DOS prompt. IPCONFIG is located in the C:\Windows\System32 folder.

```
C:\WINDOWS\System32\command.com

C:\>ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection:

        Connection-specific DNS Suffix  . : home
        IP Address. . . . . . . . . . . . : 192.168.0.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.0.1

C:\>_
```

C.2 Using PING

PING is a very useful utility for checking to see if a camera is responding or checking to see if an IP address is available. In Windows 98/Me, PING is located in C:\Windows. In Windows 2000/XP, PING is located in C:\Windows\System32.

Windows 98/Me/2000/XP:
1) Click on Start->Run and type in: **command** and then press ENTER

2) In the MS-DOS window, type in: **ping XXX.XXX.XXX.XXX** and then press ENTER
(where XXX.XXX.XXX.XXX is your IP address) For example, if your Camera uses the IP address of 123.123.123.123, you would type in: **ping 123.123.123.123**

3) If there is a camera, or a PC or other network device online and using this address you will see:

Pinging 123.123.123.123 with 32 bytes of data:

Reply from 123.123.123.123: bytes=32 time<1ms TTL=128
Reply from 123.123.123.123: bytes=32 time<1ms TTL=128
Reply from 123.123.123.123: bytes=32 time<1ms TTL=128
Reply from 123.123.123.123: bytes=32 time<1ms TTL=128

Ping statistics for 123.123.123.123:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

If there is NO response on this address you'll see

Pinging 123.123.123.123 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 123.123.123.123:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

This indicates that the address is available for use. However, there could still be a device which is currently offline which is configured to use the address. To be certain, make sure all your network devices are on and connected to your network when checking for address availability.

Router Configuration

The following section describes the initial configuration of the router and port forwarding for four of the most common routers, 3Com 3C855 Cable/DSL Gateway, NETGEAR Cable/DSL Router Gateway RP614, SMC Barricade Broadband Router SMC7004VBR, D-Link DI-604 Ethernet Broadband Router, Linksys EtherFast Cable/DSL Router BEFSR41. *Refer to your router documentation or router manufacturer's website for assistance with configuring your router to work with the Observer network camera.*

Port Forwarding for the Veo Observer

The Veo Observer requires certain ports to be open on your router to allow other computers on the Internet to "see" the camera from your own internal network. Normally, your router will have the less common ports disabled or blocked by the router's built-in firewall. So that the Veo Observer application can work properly and is not blocked, the firewall needs to be told about them. In each instance there will be a trigger port and incoming port(s), where traffic on the trigger port tells the Firewall to open the incoming ports. The Veo Observer requires that Port 80 and 1600 are opened to the Internet.

There are two ways to configure Port Forwarding on your computer, through the "Virtual Server" or "DMZ" settings on your router. The "DMZ" setting exposes the camera to unrestricted 2-way communication from outside of your network and is not recommended unless you are experiencing connection issues. Contact your router manufacturer for further information on the "Virtual Server" and "DMZ" settings on your router if you are unsure of their functions.

3Com 3C855 Cable/DSL Gateway

The 3Com 3C855 Cable/DSL Gateway setup program is web-based, which means that it is accessed through your web browser. To use the Setup Wizard:
1. Ensure that you have at least one computer connected to the router.
2. Launch your web browser on the computer. Enter the following URL in the location or address field of your browser: http://192.168.1.1.
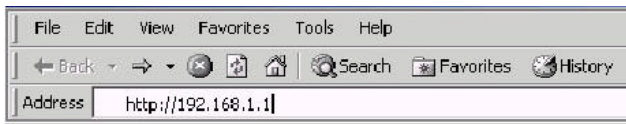
3. To log in as an administrator, enter the password (the default setting is admin) in the System Password field and click **Log in**.
4. If the password is correct, the OfficeConnect Cable/DSL Gateway Welcome screen will appear.
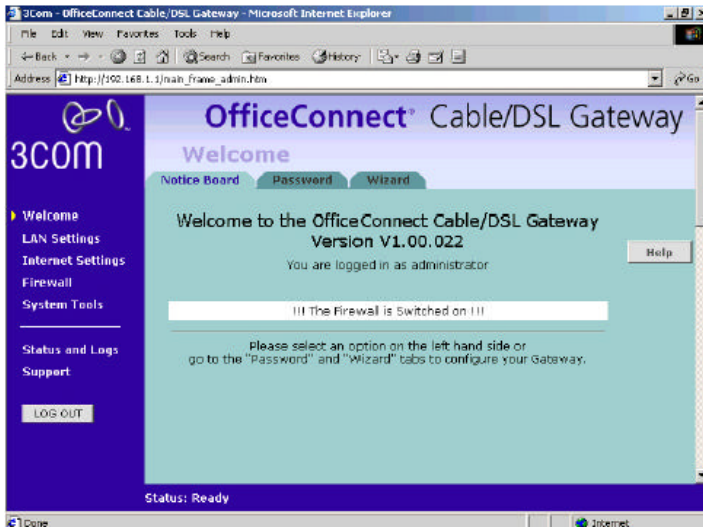
5. Click on **LAN Settings**.

6. Activate the DHCP Server option, select **Enable the DHCP server with the following settings:** and specify the IP pool range. The largest available continuous IP pool will be automatically entered. If this is not appropriate, make the required changes.

At this time you should choose between opening selected ports for the camera so its used as a Virtual Server/Special Application or setting the camera as a DMZ server. Activating and configuring a virtual server allows one or more of the computers on your network to function as an Internet service host. For example, the camera can be configured as a virtual server allowing others outside of your network so that others can view your camera.

Setting the camera as a DMZ Host allows the camera to be exposed to unrestricted 2-way communication from outside of your network. This feature should be used only if the Virtual Server or Special Applications options do not provide the level of access needed for certain applications. To configure the camera as a DMZ host, enter the last digit(s) of the IP address of the computer in the IP Address of DMZ Host text box, and then click the SAVE button.

Veo Observer as a Virtual Server

1. Click on the **Firewall** button.
2. Click on **Special Applications**.
3. Click on the **New** button.
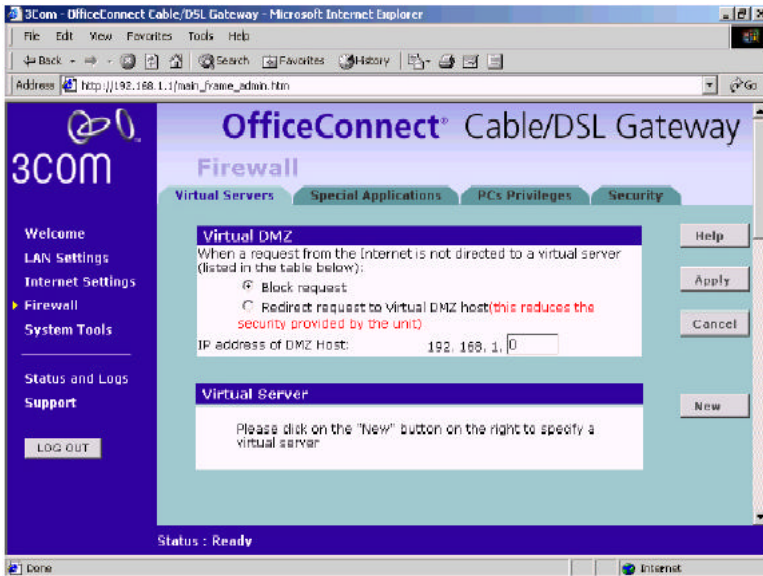
4. Select **Other.** Enter the name of the camera.
5. Trigger: 80
6. Incoming Ports: 1600
7. Click **Add** to save the settings.
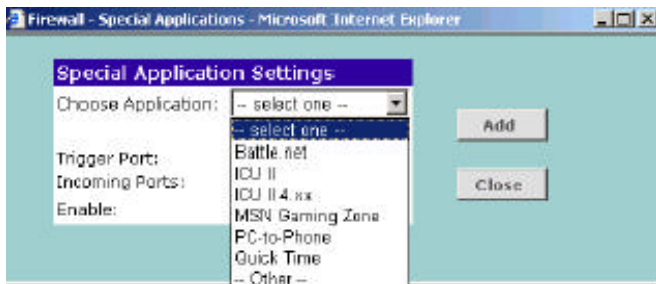
Veo Observer as a DMZ Server

1. Click on the **Firewall** button.
2. Select **Redirect Request to Virtual DMZ Host.**
3. Enter the IP address for the camera in the field labeled *IP Address for DMZ* .
4. Click **Apply.**

The Veo Observer should now be configured to work with your network and be accessible to the Internet.

NETGEAR Cable/DSL Router Gateway RP614

The NETGEAR Cable/DSL Router Gateway RP614 setup program is web-based, which means that it is accessed through your web browser. To use the Setup Wizard:

1. Start a web browser on the computer connected to the router.
2. In the Address or Location box, type http://192.168.0.1 and press Enter.
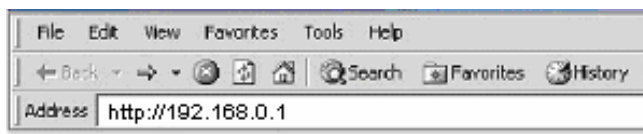
3. In the User Name box, type **admin**
4. In the Password box, type **password**, click **OK**.

5. To set the router for DHCP click on *LAN IP Setup.*

6. Select *Use Router as DHCP server.*
7. Enter a *Starting IP Address* and an *Ending IP Address.*

8. Click **Apply**.
9. On the Main menu in the Maintenance section click on Attached Devices. Write down the IP address assigned to the camera.
10. Click **OK**.

Veo Observer as a Virtual Server
1. Click on **Port Forwarding**.
2. Click on **Add Custom Service.**
3. Enter a name for the camera under *Service Name.*
4. For the *Starting Port* enter **80**.
5. For the *Ending Port* enter **80.**
7. Enter the IP address assigned to the camera for *Server IP Address.* Repeat the process for port **1600**.
8. Click **Apply** at the bottom of the menu.

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Veo Observer as a DMZ Server

1. On the Main menu in the *Advanced* section click on **Security**.
2. Click **Default DMZ Server**.
3. Type the IP address for the camera.
4. Click **Apply**.
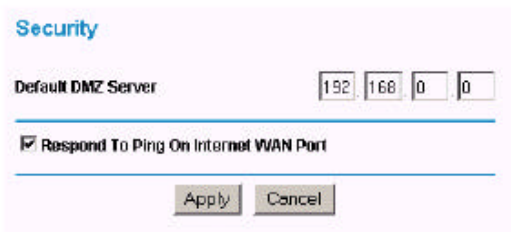
The Veo Observer should now be configured to work with your network and be accessible to the Internet.

SMC Barricade Broadband Router SMC7004VBR

The SMC Barricade Broadband Router SMC7004VBR setup program is web-based, which means that it is accessed through your web browser. To use the Setup Wizard:

1. To access the Barricade's management interface, enter the IP address of the Barricade in your web browser http://192.168.2.1
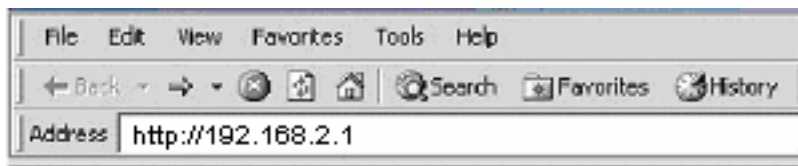
2. Click **Advanced Setup**.
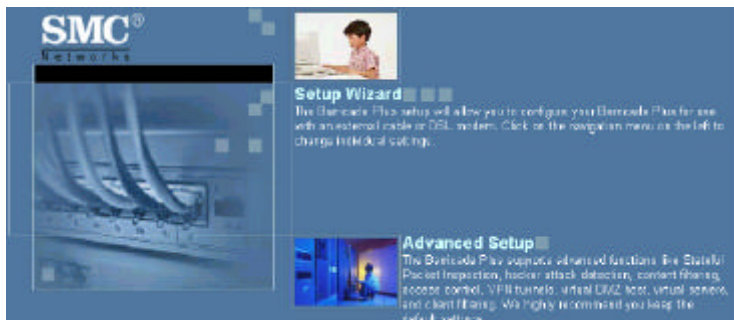
3. Click **Status.** Under *DHCP Client Log* determine the IP address assigned to the camera.

4. Click on **LAN**.
   For *DHCP Server* click **Enabled**.
   For *Lease Time* select **Forever**.
   Click **Apply.**

5. Click **Firewall.** For *Enabled or Disabled Firewall features* click **Enabled.** Click **Apply**.

6. Click on **DMZ**. Enter the camera IP address for the *Client PC IP address*. Click **Apply**.
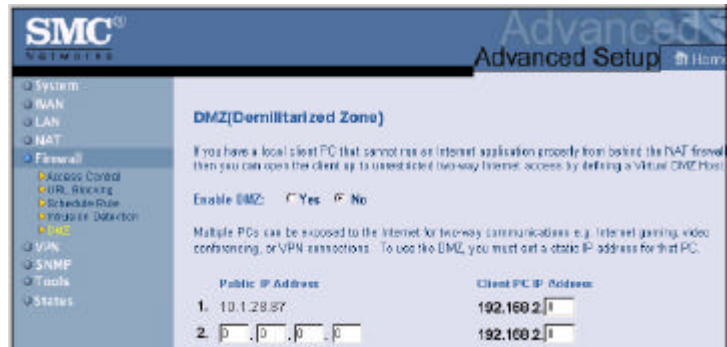
The Veo Observer should now be configured to work with your network and be accessible to the Internet.

D-Link DI-604 Ethernet Broadband Router

The D-Link DI-604 Ethernet Broadband Router setup program is Web-based, which means that it is accessed through your web browser. To use the Setup Wizard:

1. Ensure that you have at least one computer connected to the router.
2. Launch your web browser on the computer. Enter the following URL in the location or address field of your browser: http://192.168.0.1.
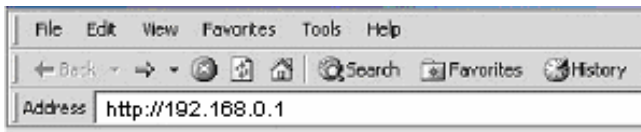
3. After the connection is established, the logon screen will pop up. To log in as an administrator, enter the username of "admin" and the password (there are no default password, leave it blank). Click the **Next** button.

4. On the Home page click on **DHCP**. Click **Enabl***e*. Click **Apply***.*
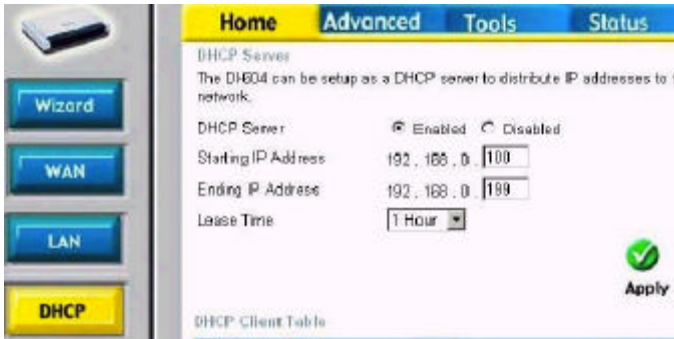
5. Click **Advanced.**
6. Click on **Applications.**
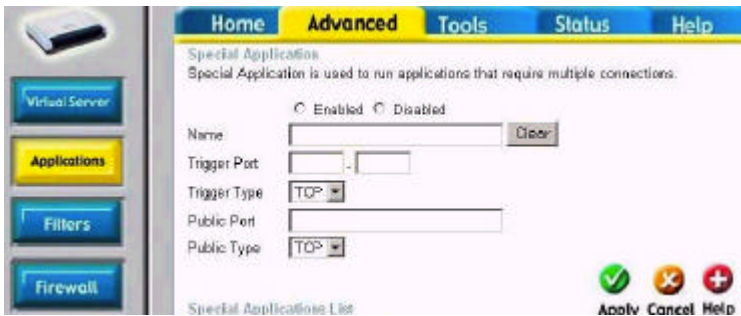
Trigger Name: Enter the name of the camera.
  Trigger Port: 80,1600
  Trigger Type: TCP
  Public Port: 80,1600
  Click **Apply.**

7. Click on Tools->Time. Make sure the time is properly set and then click **Apply.**

The Veo Observer should now be configured to work with your network and be accessible to the Internet.

Linksys EtherFast Cable/DSL Router BEFSR41

The Linksys EtherFast Cable/DSL Router BEFSR41 setup program is Web-based, which means that it is accessed through your web browser. To use the Setup Wizard:

1. Ensure that you have at least one computer connected to the router.
2. Launch your web browser on the computer. Enter the following URL in the location or address field of your browser: http://192.168.1.1.
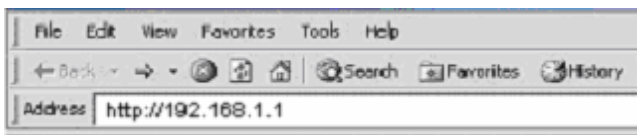
3. After the connection is established, the logon screen will pop up. To log in as an administrator, leave the username blank and type in 'admin' as your password. Click the **OK** button.
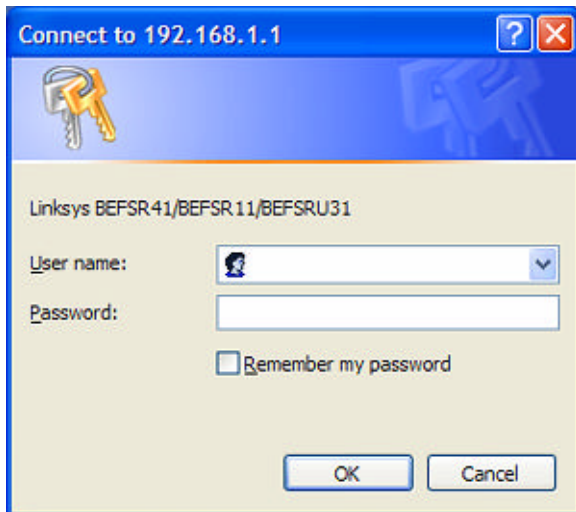
4. On the Home page click on **Advanced**.
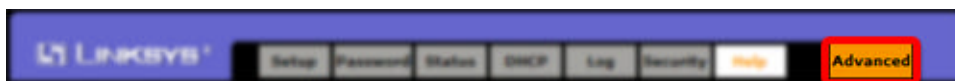
5. On the next screen, click on **Forwarding**. You can then set the Ports and IP Address for the camera on the following screen:
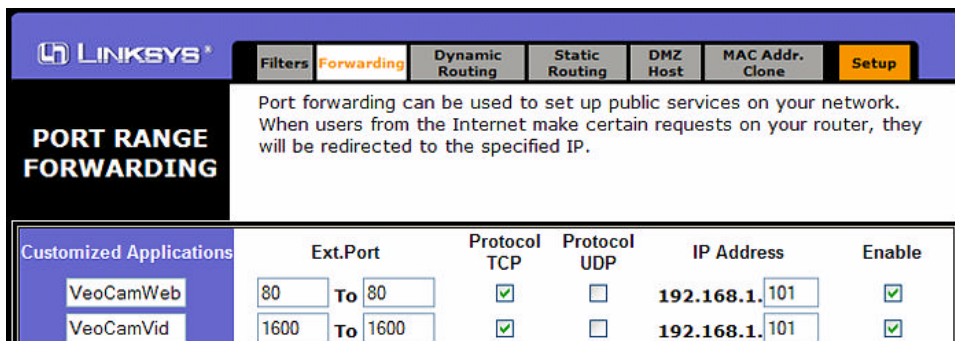
Line #1:
Customized Applications: VeoCamWeb
Ext. Port: 80 to 80
Protocol: TCP
IP Address: 192.168.1.101
Enable: Checked in

Line #2:
Customized Applications: VeoCamVid
Ext. Port: 1600 to 1600
Protocol: TCP
IP Address: 192.168.1.101
Enable: Checked in

6. Click on **Apply** to save the settings.

The Veo Observer should now be configured to work with your network and be accessible to the Internet.

Internet Explorer Security Settings

The Veo Observer web page communicates with the camera using a combination of JavaScript and an ActiveX control. The ActiveX control must be downloaded from the camera and installed on your PC. There are four things that your Internet Explorer security settings must allow for the web page to work correctly.

1. Download *signed* ActiveX controls
2. Run ActiveX controls and Plug-ins
3. Script ActiveX controls marked safe for scripting
4. Active Scripting. (JavaScripts)

All these things are enabled by the default Internet Explorer Security settings. You can restore the default settings in Internet Explorer by clicking Tools -> Internet Options -> Security -> Default Level.
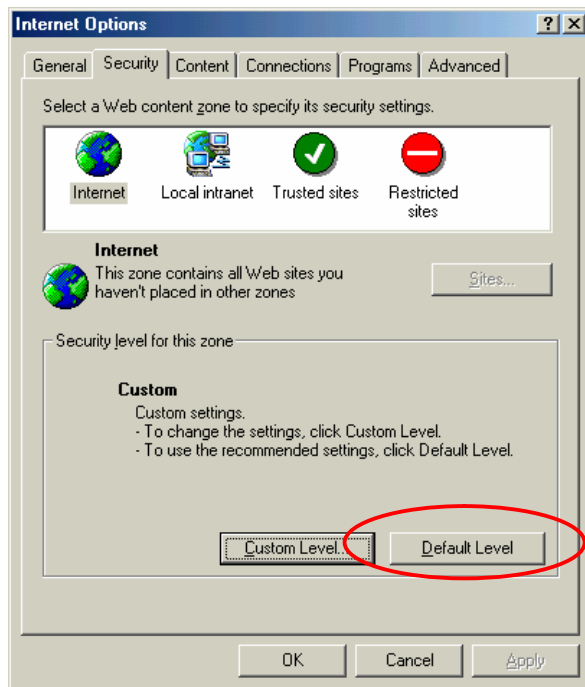
You can also click Custom Level and set each of the four items listed above to "enable". The default security level in Internet Explorer is set to "Medium."

CAUTION: You do not need to enable the option for downloading *unsigned* ActiveX controls. Unsigned ActiveX controls may cause problems on your computer or allow hackers or a virus to be installed on your system without your knowledge. Signed ActiveX controls have a digital signature encoded in them verify the identity of the author (Veo).

Motion Sensor Setup

By connecting the optional motion sensor to the camera's motion sensor jack, you can enable motion detection alert emails with an attached image. After connecting the sensor as shown, you must configure the camera's motion detection settings. Refer to **Section 3.3 Camera Configuration** of the User's Guide for further information.

Please visit http://www.veo.com/observer/ for information on purchasing the optional motion sensor.

Mounting the motion sensor to the camera mounting bracket

The motion sensor mounts to the underside of the camera mounting bracket. You need to first attach the metal motion sensor mounting bracket to the backside of the sensor as follows:

1. Remove the sensor front cover by firmly holding the back half of the sensor housing and pulling the front half outward.

2. Locate the two mounting holes on the backside of the sensor housing.

3. Align the two threaded holes in the metal sensor mounting bracket with the holes in the sensor housing.

4. Use the two screws included with the sensor bracket to attach the sensor housing to the bracket by inserting the screws through the housing and threading them into the bracket as shown.

With the sensor-bracket attached to the sensor you're ready to attach the sensor-bracket to the underside of the camera-mounting bracket as follows:
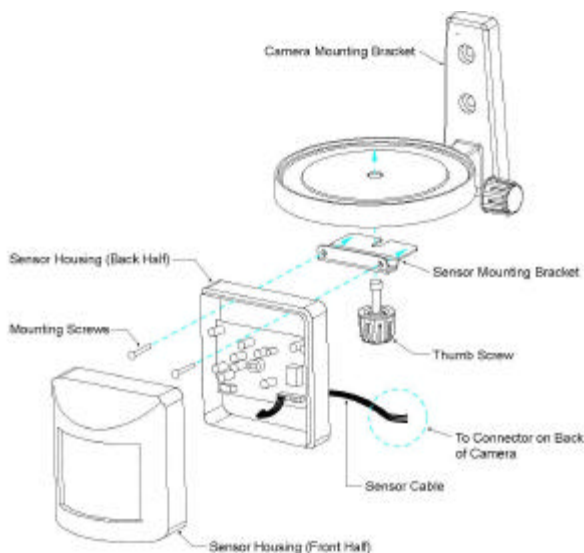
1. Loosen the thumbscrew on the underside of the camera-mounting bracket.

2. Align the slot in sensor-mounting bracket with the thumbscrew hole in the bottom of the camera mounting bracket.

3. Re-insert the thumbscrew through both brackets and into the base of the camera as shown on the left.

4. Rotate the sensor so that it's facing the same direction as the camera lens.

5. Tighten the thumbscrew (you may need to push hard while threading the thumbscrew through the camera mounting bracket base).

Wiring the sensor to the camera

CAUTION: Disconnect all power to the camera before making any connections.
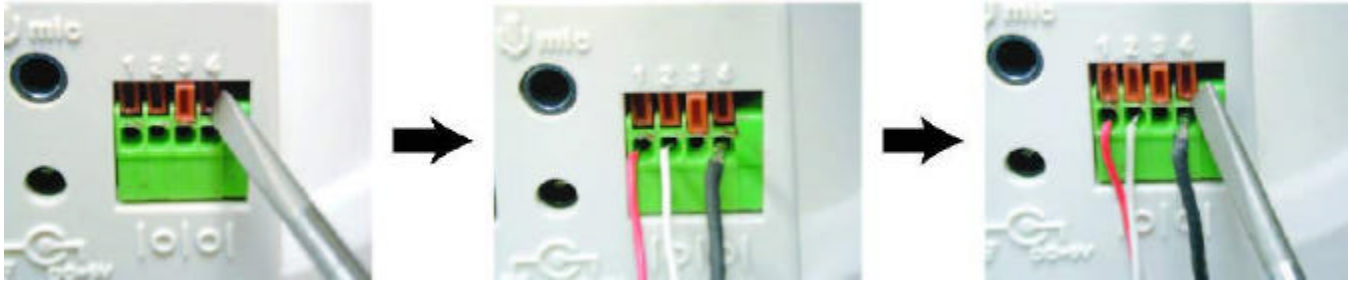
1. Locate the motion sensor connector at the rear of the camera. The holes for inserting the sensor wires are labeled 1 through 4 from left to right.
2. Use a small screwdriver to depress and latch down the orange tabs over holes 1, 2 and 4.
3. Insert the red wire into hole #1 until the insulation just reaches the back of the camera.
4. Use the screwdriver to press down and release the orange tab above hole #1 locking the wire in place.
5. Repeat steps 3 & 4 for the white wire (hole #2) and the black wire (hole #4).

Wire Color Chart	
Connector #1	Red
Connector #2	White
Connector #3	Not used
Connector #4	Black

The sensor is ready for use with the camera. Reconnect the power supply to the camera and turn the camera on. Refer to **Section 3.3: Camera Configuration** of the User's Guide for help configuring the camera to work with the sensor.

Notes:
1. The range of the sensor is approximately 15 to 18ft.
2. There is a red LED behind the sensor lens which lights when the sensor is activated.

Frequently Asked Questions, Troubleshooting, and Technical Support

Appendix

G

Problem or Question	Resolution or answer
What username and password do I use the first time I access the camera or after a factory default reset?	Username = admin, password = password (all lowercase)
What do I do if I can't remember my username and password?	Restore the factory default settings by pressing and holding down the power button for 6 seconds. **Note:** Any configuration settings you have entered will be lost.
The IP display continues to blink 000 and doesn't show an address after 1 minute.	1. Check the green Ethernet status LED at the back of the camera. It should be on and will blink when network communication is taking place. If not, check that both ends of the Ethernet cable connection are secure. 2. Your network may not be configured for DHCP. Use the Observer Setup Utility to manually configure the camera's network settings. Refer to *Section 5.1 Manually Assigning a Static IP Address.*
The camera welcome page does not appear when I try to browse the camera.	**LAN** connection to camera: 1. Confirm that you are using the correct IP address and port number using the Observer Setup Utility. 2. Use the Login button in the Observer Setup Utility. **Internet** connection to camera: 1. Try to PING the camera's IP address or domain name. See *Appendix C.2: Using PING* for help. **Note**: You will not be pinging the camera itself but rather the gateway/router connecting the camera to the Internet. The gateway may be configured not to respond to pings on its WAN IP. 2. Confirm that the camera's gateway setting matches the LAN IP of the gateway/router connecting it to the Internet. Refer to *Chapter 5: Observer Setup Utility* for more help. 3. Confirm that the http port used by the camera (default = 80) is forwarded to the camera's LAN IP address in the gateway/router's configuration. Refer to *Appendix D: Router Configuration* for more help. 4. Confirm that the camera can be browsed on the local network.
The camera cannot be pinged.	**LAN** connection to camera: 1. Check that the camera is on and that the Ethernet status LED is on or blinking. 2. Cycle the power off and then on and re-check. 3. Confirm that the IP address of the camera does not conflict with another device on the network by pinging the address with the camera powered off.

	Internet connection to camera: 1. Confirm that IP address is correct. If you have a dynamic address, it may have changed since you last checked it. Refer to **Section 7.1: WAN IP Address.** 2. Since you are actually pinging the WAN IP of the gateway/router connecting the camera to the Internet, make sure that the gateway/router is configured to respond to pings on its WAN IP. 3. Confirm that the camera can be pinged locally. If not, see above.
Internet Explorer displays the following message: "Your current security settings prohibit downloading ActiveX controls".	Restore the default IE security settings (Medium) or configure the individual settings to allow downloading and scripting of *signed* ActiveX controls. Refer to **Appendix E: Internet Explorer Security Settings** for more help.
Internet Explorer shows: "Error on Page" in the status bar in the lower left corner of the webpage.	Most likely, the camera ActiveX control did not download and install correctly. Check your Internet Explorer security settings and then close and restart Internet Explorer. Try to browse and log in again.
How can I tell if the camera's ActiveX is installed on my PC?	Go to C:\Windows\Downloaded Program Files and check to see if there is an entry for the file **XNC600NetCam Control**. The status column should show "Installed". If the file is not listed, make sure your Security Settings in Internet Explorer are configured properly and then try reloading the camera's home page.
The camera ActiveX does not install properly or cannot be installed.	Install the Veo Observer ActiveX Control from the Veo Observer CD ROM. Insert the Veo Observer CD ROM into your computer. Browse to the "ActiveX for Web Client" folder on the CD ROM and then double-click on the "Veo ActiveX.exe" program to install the camera ActiveX. Once installed, try accessing the camera's home page again.
When trying to log in to the camera, this message appears: "Another user is already logged onto the camera. Please try again later."	Only one user may be logged in to a camera at one time. **Note:** A higher-level user may displace a lower-level user.
My browser does not seem to work too well with the Veo Observer Web Client.	Make sure that you are using Internet Explorer 5.0 or higher. If you are experiencing problems, try upgrading to the latest version of Microsoft's Internet Explorer from the Microsoft webpage at: http://www.microsoft.com/windows/ie

Performance Issues	
Slow frame rate	Your connection to the camera does not have enough bandwidth to support a higher frame rate for the streamed image size. Try reducing the video streaming size to 160x120 or 320x240 and/or disabling audio.
Blank screen or very slow video when audio is enabled	Audio will consume 128 kbps and audio is always given priority over video. Disable audio to improve or restore video.
Image is noisy or grainy	Noise is significantly increased in low light conditions. If possible, increase the light on your subject.
Audio is choppy	Your Internet connection may not have enough bandwidth to support streaming audio from the camera. Disable the audio streaming if the sound is choppy or inaudible.
Pan/Tilt does not respond quickly	There may be a slight delay when you are using the Pan/Tilt feature in conjunction with streaming audio and video. If you find that there is a significant delay while panning or tilting the camera, try disabling the audio streaming and/or reducing the video streaming size.

Technical Support:

While we hope your experience with the Observer network camera is enjoyable, you may experience some issues or have some questions that this User's Guide has not answered.

To obtain the latest information and support for your Observer network camera, please visit our webpage at: **http://www.veo.com/observer/support.asp** for additional FAQ's and troubleshooting tips.

You may also click the button in the Veo Observer Studio PC Application to go directly to the Observer Technical Support section on the www.veo.com webpage.

When obtaining technical support, please make sure to have the following information handy:

Operating System:

Internet Explorer Version:

Router Brand/Model:

Broadband Internet Service Type (DSL/Cable Modem):

Broadband Internet Service Provider:

Estimating Bandwidth Consumption

Here is a guide to help you understand the bandwidth requirements for your camera.

Bandwidth is equal to the average frame data size in kilobits multiplied by the average frame rate in frames per second. Frame data size, or the number of bits comprising a single video frame varies a great deal from depending on scene complexity and lighting conditions. This is due to the variable nature of JPEG image compression. Shown below are some average figures. Your results may vary.

Image Streaming Size	Average range of Data Sizes
160 x 120	32 - 48 kilobits
320 x 240	64 – 96 kilobits
640 x 480	320 – 480 kilobits

For example, streaming 4 fps of 160 x 120 video requires 128 to 192 kbps (kilobits per second). Therefore, with a 128K upload connection; you will typically see 3 to 4 frames per second with 160 x 120 and 1 to 2 frames per second with 320 x 240.

Note: Audio streaming requires 128 kbps. Most DSL/Cable modem upload speeds may not even reach up to 128 kbps. Thus, you may not be able to receive any video while streaming audio on a 128 kbps connection.

For optimal video performance, disabling audio streaming will result in the best performance.

Technical Specifications

Veo Observer Network Camera Technical Specifications		
	Resolution	VGA (640 x 480)
	Type	CCD
	Color depth	24 bit
	Streaming Sizes	160 x 120, 320 x 240, 640 x 480
Image	Compression	Motion JPEG (in hardware)
	Frame rate	160 x 120 10 fps 320 x 240 10 fps 640 x 480 5 fps
	Sensitivity	1 lux
	Aperture	F2.0
Lens	Construction	5 element, all glass
	Type	Fixed Focus
Pan-Tilt	Range	120° pan (+/- 60°), 60° tilt (+/- 30°)
Network Connection	Ethernet	RJ-45, 10/100 baseT
Audio	Sampling	8 kHz, mono, 16 bit PCM
Power	Voltage	5 VDC
	Enclosure	Indoor use only
Environmental	Max. Humidity	80%
	Operating Temperature	32 to 122° F (0 to 50° C)

Glossary

Term	Explanation	Relates to camera how
DDNS	Dynamic Domain Name System. DNS service which self-updates periodically to deal with changing IP addresses.	If you don't have a static IP address, you need a DDNS to simplify remote access.
DHCP	Dynamic Host Configuration Protocol. Allows network connected devices to set their IP address, default gateway, and subnet mask automatically. Most home networking routers support DHCP.	Allows camera to auto configure for a network.
Display size	The number of pixels used to display an image on your monitor. Display size may be different than image resolution.	The small, medium, and large buttons on the main page change this setting.
DNS	Domain Name System. Lookup service that translates domain names into IP addresses.	If you want to access cameras by convenient name instead of an IP address, you need to register a domain name.
Gateway	A device which connects one network to another.	Provides Internet connection.
Gateway-Router	A combination device that allows multiple devices on a LAN to connect to the Internet using one WAN IP address. Most home networking routers are also gateways.	Provides the network to connect cameras and allows cameras to be connected to the Internet.
Image resolution	The number of pixels captured in an image.	Found on the settings web page.
IP address	Unique number used to identify each device on a TCP/IP network.	Each camera must have a unique IP address.
ISP	Internet Service Provider	Provides your WAN IP address for Internet access.
LAN	Local Area Network. A group of computers, printers, cameras, and other network connected devices which share a common network address such as 192.168.0.X	Cameras must be attached to a LAN.
LAN IP address	Term used to differentiate a local address from the WAN IP address used by a gateway router.	Camera use a LAN IP address to communicate with your LAN.
MAC address	Media Access Control address. A unique hardware identifier for each network device.	Allows the network to distinguish between multiple cameras on the network, similar to a serial number.
NAT	Network Address Translation. The process of "translating" one WAN IP address into multiple LAN IP addresses. Most home networking routers user NAT to create LAN IP addresses.	Translated addresses cannot be seen directly from the Internet. Port forwarding is required.
Network address	The first 9 digits of the IP address of any device connected to a TCP/IP LAN. You can find out your network address by checking the IP address of any PC on the network.	Combine the three digits on the camera display with your network address to get the camera's full IP address.
Router	A device that routes traffic on a network.	Provides LAN infrastructure.
SMTP	Simple Mail Transfer Protocol.	The camera sends email with this protocol.
TCP/IP	Transmission Control Protocol/Internet Protocol. The most common communication protocol for Ethernet	Used to communicate with PC clients.

	networking and all of the Internet.	
URL	Uniform Resource Locator. The complete specification that your web browser needs to locate a resource (web page or other) on any TCP/IP network.	Your camera's URL looks like "http://IP address:port number". The port number is 80 by default.
WAN	Wide Area Network. Several LANs which are interconnected.	When you connect to the Internet, you form a WAN with your ISP's network.
WAN IP address	External address used by a gateway-router to connect your LAN to an outside network (the Internet). This is the IP address or addresses provided by your ISP that you use to connect to the Internet.	You must know the WAN IP address you are using to connect to the Internet to access cameras remotely over the Internet.

Warranty

Veo Statement of Limited Warranty

Veo warrants this product to be free from defects in material and workmanship for a period of (2) years from the date of original purchase. If this product proves to be defective in material or workmanship during the warranty period, Veo will, at its sole option, repair or replace the product with a similar product. Replacement product or parts may include remanufactured or refurbished parts or components.

Who the warranty protects:

This warranty is valid for the original consumer purchaser only.

What the warranty does not cover:

- Any Veo product on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
    - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
    - Repair or attempted repair by anyone not authorized by Veo.
    - Any damage of the product due to shipment.
    - Removal or installation of the product.
    - Causes external to the product, such as electric power fluctuations or failure.
    - Use of supplies or parts not meeting Veo's specifications.
    - Normal wear and tear.
    - Any other cause which does not relate to a product defect.
- Removal, installation and set-up service charges by any third party.
- Costs associated with shipping and/or transporting the product for repair, replacement, or exchange.

How to get service:

For information on obtaining warranty service, fill out a technical support form on the Veo web site, located on our webpage at: http://www.veo.com/support.asp.

To obtain warranty service, you will be required to provide:

- A copy of the original dated sales slip or sales invoice
- Your name
- Your address
- The serial number of the product
- A description of the problem

A Technical Support Representative will determine if your problem is covered under this warranty agreement. If the problem is covered, you will be issued a Return Merchandise Authorization number (RMA) with specific instructions regarding how the product must be returned to Veo for repair or replacement.

At this time, replacement or repaired products can only be sent to U.S. addresses. Products cannot be sent to P.O. boxes.

Limitation of implied warranties:

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION CONTAINED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Exclusion of damages:

VEO'S LIABILITY IS LIMITED TO THE COST OF REPAIR OR REPLACEMENT OF THE PRODUCT. VEO SHALL NOT BE LIABLE FOR:

- DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, LOSS OF PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF GOODWILL, INTERFERENCE WITH BUSINESS RELATIONSHIPS, OR OTHER COMMERCIAL LOSS, EVEN IF ADVISED OF THEIR POSSIBILITY OF SUCH DAMAGES.
- ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.
- ANY CLAIM AGAINST THE CUSTOMER BY ANY OTHER PARTY.

Effect of local law:

This warranty gives you specific legal rights, and you may also have other rights which vary from locality to locality. Some localities do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

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