Streaming Video Server Software

Inetcam™ Release 2.2.0

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Preface

Thank you for selecting the Inetcam video server software. This Users Guide is a complete "how to" manual designed for easy step by step installation, set-up and operation of the Inetcam Software Release 2.2.0. Inetcam software allows you to broadcast video with spectacular color and quality for your Web site activities, video conferencing or personal security needs. The potential usage of this software is only limited by your imagination.

Inetcam Release 2.2.0 has these improvements:

- Inetcam software will scan all available devices on startup. If you have multiple capture devices, all you need is to start another instance of the Inetcam software without having to specify the device number on the command line. The option is still available to specify the device number, if you so desire.
- Improved file I/O operation so that disk access will be greatly reduced, especially with multiple viewers.
- Compression process is optimized even more, with about a 20% increase in compression speed.

This manual is written for Web designers, multimedia developers, security people, and anyone else who wants to understand how to set up your own video server with as little complexity as possible. You will find easy to use explanations complemented with actual screen captures of the various steps throughout the entire manual. To stay on top of this groundbreaking Web technology we strongly urge you to visit the Inetcam Web site at http://www.inetcam.com for the latest updates and notes.

Chapter 1 - Introduction

What is INETCAM software?

INETCAM software is a video server software package that can serve a video stream or still picture to a viewer or viewers, anywhere on the Internet.

The INETCAM software runs on a PC (486 or higher) equipped with one of the Microsoft Windows 95, 98, or NT operating systems, that connects to any "Video for Windows" compatible camera, a capture device, and Web server.

The advantage of this system is that it does NOT require the installation of special plug-ins or any software on the remote viewer system. All that is required for viewing is an Internet connection and a standard Web browser like Netscape Communicator, Microsoft Internet Explorer, or Opera.
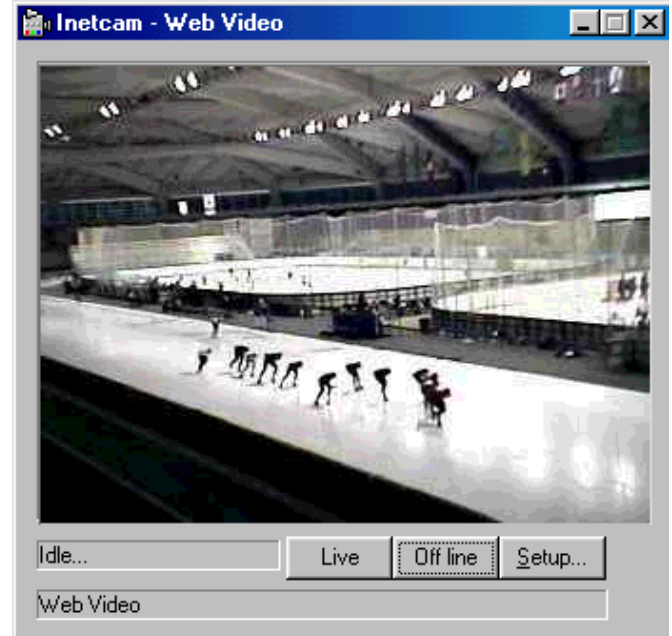
What do I need to run the INETCAM software?

To run the INETCAM software you need:
- A PC running Windows 95, 98 or NT operating system
- A "Video for Windows" compatible camera, or a video camera and capture device
- An Internet connection – either direct or dial-up
- A Web server (Microsoft free Personal Web Server, or Apache for Windows for example)

What can I do with the INETCAM software?

INETCAM™ *Live…From Anywhere!*™
- Security application – You can look at the office location remotely. The automatic and scheduled monitoring of accesses, doors, parking lots, etc., is an important tool in low level security requirements.
- Home security – You can keep an eye on home while at the office.
- Family connection – You can look after children, or look at the relatives across the country. Monitor sick persons, children, or animals and see how are they treated when you are not there.
- Weather monitoring – You can look at the outside at the office, the beach or wherever.
- Traffic monitoring - Should I go this way back home or not? City sights, cultural events, sport, and expos - real time images are a very effective way to spread the news.

- Advertisements - Advertise your new products, show rooms, expo booths, store, businesses, etc. to all the users of the Internet.
- Homepages – Increase the hits on your Internet Web site.
- Miscellaneous – Club sights, theaters, and all locations where the remote viewing is desired is another great use for the **INETCAM** software.

INETCAM software features:

- Supports all of the video frame grabbers, video sources and any data device that interfaces through MCI driver.
- Will support as many cameras as you have connected to your computer simultaneously.
- Supports machines with dedicated IP address as well as dynamically allocated ones. For all the users it provides a permanent network logical name that is dynamically updated, especially beneficial to those users without a fixed IP address.
- Supports all the widely available browsers through the direct use of the latest available JAVA system. Explorer 3.0, 4.0, Netscape 3.0, 4.0, Sun, HP UNIX, IBM and others are supported seamlessly.
- Supports the widely available browsers that support JPEG push technology like Netscape and Opera.
- **INETCAM** software will upload images via FTP to any page on the Internet via adjustable scheduling.
- The user can adjust the quality of the video stream directly allowing for picture size and resolution to match bandwidth availability.
- Precise time can be displayed in a variety of ways to enhance security operations.
- No client plug-ins required, and there are no problems with firewalls.
- Software allows you to control the length of the viewer connection, including the ability for password controlled access.
- Now support of foreign languages – Spanish, Portuguese, French, German and Italian. Viewers in those countries will automatically receive a Java applet in their native language.
- A remarkably low cost, high quality and high performance system unparalleled anywhere!
- Free demo trial system available just by downloading.

Chapter 2 – Installation

Downloading and Installing the INETCAM Software

You can download the software from www.inetcam.com directly, or from a variety of mirror sites on the Internet. Check the INETCAM Web site to ensure that you have the latest version of the software. The INETCAM software file is roughly 3.0 megabytes in size. Download time will depend on the speed of the connection.

The download file contains the software system Microsoft Personal Web Server and all instruction manuals needed to set-up the system.

If you are already running a Web server you will not need to install the Microsoft Personal Web Server executable.

After the download, if you do not have a Web server software package on your PC, install the Microsoft Personal Web Server by opening the file *PWS10A.EXE* (Note: if you are already running a Web server, whether Microsoft or not, do not install this file).

To install the INETCAM video server software please run the *setup.exe* from the download file. The software is available as a 10-day free demo system at this stage. Registration of the software is discussed in the following registration section.

Upgrading

If you have a previous version of the INETCAM software installed, just re-install the software and choose the same directory as your previous installation. During the re-installation, your registration number is the same as of the original installation.

Note: Please keep your verification e-mail that contains the INETCAM registration number.

The registration number can be used when upgrading to the next version. All of your default settings will be remembered after re-installation.

INETCAM Software Installation Program

The INETCAM installation program will install the INETCAM program and some auxiliary files. By default, the program will install the software into the directory:

C:\Program Files\Inetcam

It will also install the program group such as:

Start - Programs - Inetcam

This contains shortcuts for the software, manual and the uninstall program.

On installation, the install program will prompt you to choose if the INETCAM program should be started automatically at the start-up of Windows. We suggest this be utilized, since the INETCAM
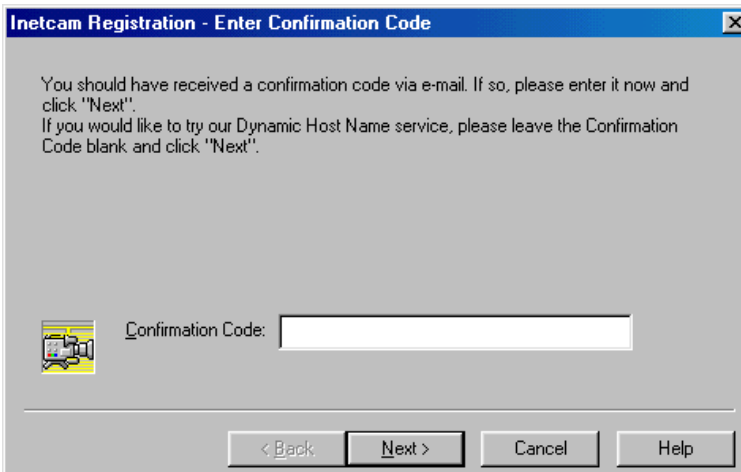
program will automatically update the DNS name in the global registry whenever the PC is on-line or rebooted. The global registry provides a permanent network logical name that is dynamically updated, especially beneficial to those users without a fixed IP address.

Registration of the **INETCAM** Software On-line

After the installation, you will be running in evaluation mode for 10 days. If you would like to continue using the **INETCAM** software past the evaluation period please follow this registration process:

In order to register the software, the **INETCAM** program requires a confirmation code, which is issued to you upon purchase of the software. In order to complete the purchase of the software, if you have not already done so, go to the order form page on the **INETCAM** Web site at URL: https://www.inetcam.com/secured/orderform.html Fill in the fields, including all purchase transaction information.

Upon completion click on the submit button (**Note: Click once only**) and the information is sent by secure 128-bit encryption to **INETCAM INCORPORATED**. You will receive an email from **INETCAM INCORPORATED** confirming your purchase within 24 hours (Note: this procedure is usually within a few minutes). Included in your email response will be a numeric confirmation code.

Use this confirmation code when prompted by the **INETCAM** software for a confirmation code; type the code into the field and click on the 'next' button.

The **INETCAM** program will then confirm your registration with the next window. If you have made an error in typing the correct confirmation code simply click on the 'back' button on the window. This will take you back to the previous window where you can correct your error.

The next step in the registration process will allow you to choose and maintain the global DNS name in the form *name.inetcam.com*. The name will be automatically updated and maintained by the **INETCAM INCORPORATED** servers. This service allows your server to be globally available to everybody on the Internet even if you do not have a fixed IP address. The global DNS always points to your computer whether you are on a cable modem or dial-up service. Proceed to the section: **Registration of DNS and Temporary Names** if you have successfully completed your registration.

Demo Default Registration Process

If you are using the 10-day free demo, then simply click on the "Next" button to continue to bypass the registration. The system will then assign a temporary name so your friends can find you on the Web. This name will behave the same as any permanent name you would have chosen. The only difference is that temporary names will expire in 10 days. Permanent names are kept on the **INETCAM INCORPORATED** servers without a time limitation.

In this figure note the temporary name will be automatically chosen for you by the system. In the example on the right, the name "e153b11e3" was selected.
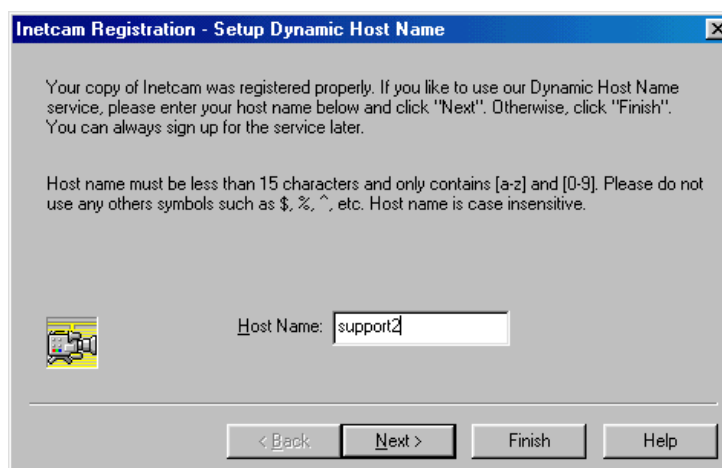
The following screen will confirm the global net registration for the temporary name as:

e153b11e3.inetcam.com

Once the **INETCAM** software is purchased, the system will allow you to chose a name that directly appeals to you, like:

my_name. inetcam.com
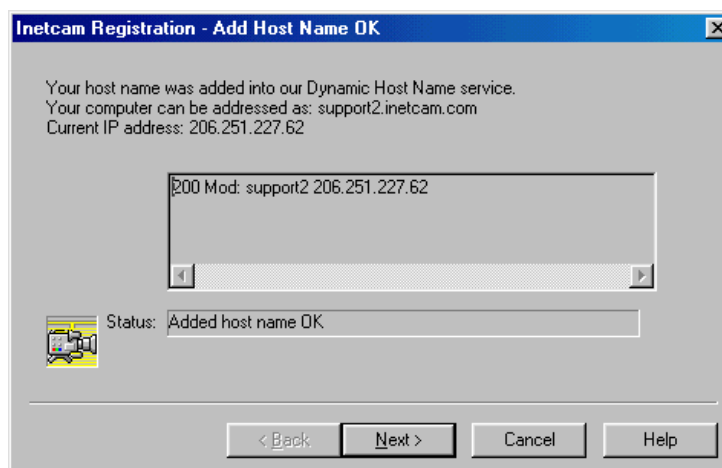
You Can Register Later

If you decide not to register at this time, you can always do so later. Pull down the drop menu by clicking on the camera icon at the upper left-hand corner of the INETCAM program window and select "Register INETCAM". You will then go through the registration process.
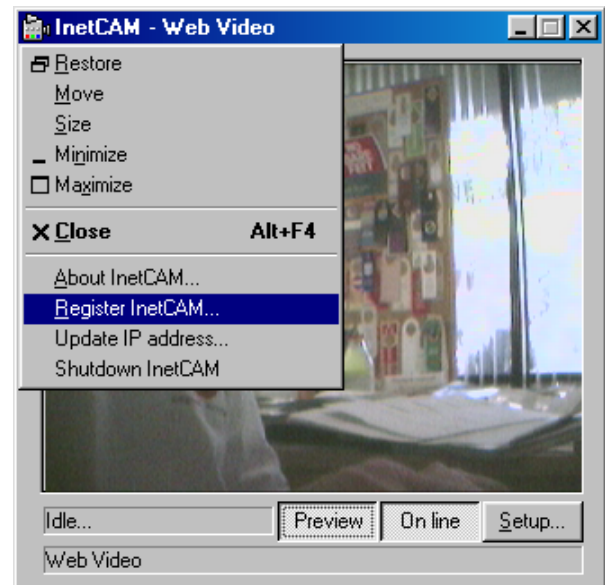
Registration of DNS and Temporary Names

If you have purchased the INETCAM program, this same registration process will allow you to choose and maintain the global DNS name in the form *name.inetcam.com*. Be sure to pick a name that is distinctive for your usage such as sandiegobeach.inetcam.com. The name will be automatically updated and maintained by the INETCAM INCORPORATED servers. This service allows your server to be globally available to everybody on the Internet even if you do not have a fixed IP address. The global DNS always points to your computer whether you are on a cable modem or dial-up service.

After the installation of the software is complete you will be prompted to reboot the computer – select yes and press the enter key.

Chapter 3 – Using the Iɴᴇᴛᴄᴀᴍ Software

Running the Iɴᴇᴛᴄᴀᴍ Software for the First Time

Setting up your Iɴᴇᴛᴄᴀᴍ software to operate for the first time is an easy and straightforward process which will unlock the key to successful video transmission over the Internet. This chapter explains the various features and menu items in a logical sequence to guide you through the setup process.

Miniature Iɴᴇᴛᴄᴀᴍ Icon

After the software has been installed and the computer completes the reboot of the system, the Iɴᴇᴛᴄᴀᴍ icon will automatically appear on the toolbar of Windows.

If you chose the default setting for the Iɴᴇᴛᴄᴀᴍ program to run at Startup you will have a miniature yellow icon in the lower right corner of your screen.

The yellow color of the icon indicates that the Iɴᴇᴛᴄᴀᴍ program is running in the "Idle" mode. When the cursor is moved over the icon, it will identify itself with the process name "Iɴᴇᴛᴄᴀᴍ" and the "appropriate title of the video source"- in this example "Home Office". The "appropriate title of the video source" is explained later in this chapter.

For future reference note that if there are viewers connected to the Iɴᴇᴛᴄᴀᴍ server, the icon will turn green.
When the cursor is moved over the miniature icon, it will identify itself with the process name, the title of the video source and the number of users connected.

INETCAM Video Server Window

Double-clicking the miniature INETCAM icon opens the full INETCAM video server window. You will note that there are three buttons on the right hand side of the window. Also take note of the camera icon in the upper left-hand side of the window – this is a clickable feature. The status of the activity is "Idle".
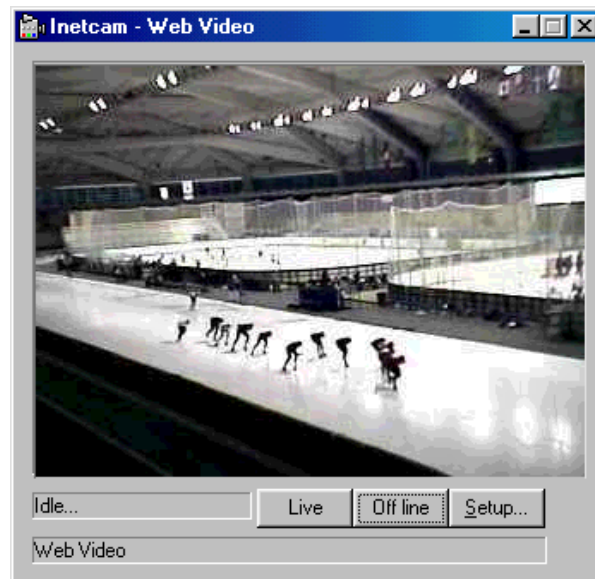
"Live/Preview" Button

The "Live/Preview" button default position is "Live". The "Live" default button position means window activity is inactive until a viewer connects. When a viewer is connected, the image changes according to the activity in front of your camera. The window movement is also relative to the speed of the viewer's connection – the faster the user's connection, the faster the activity changes on your window. If the INETCAM program is "Idle", the image in the window does not change. "Idle" will change to "Serving 1 user(s)" with the connection of one viewer.
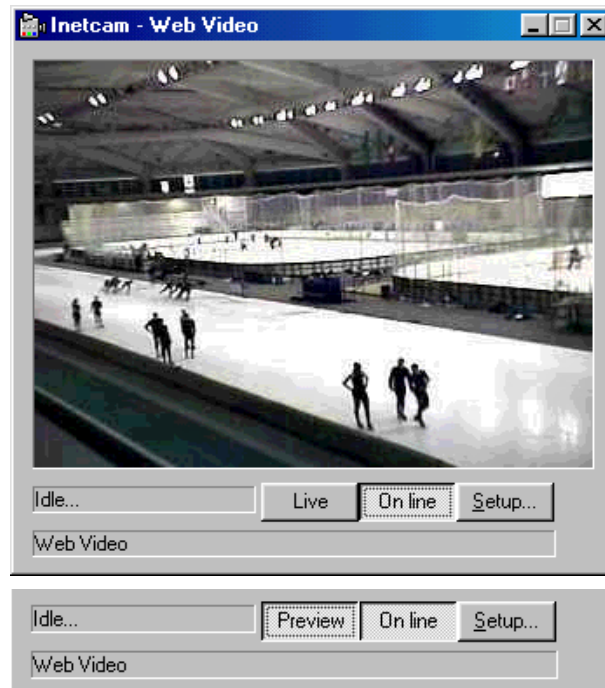
If the button is changed into "Preview" mode, the INETCAM window will display the video as it is taken from the video source. This function allows you to check to see if you camera is working properly and to aid you in pointing the camera at your intended target.

Note: In "Preview" mode the video will change as fast as the specific video hardware on your computer is capable of moving. The speed will also be indicative of the fastest possible image presentation by your server. Any actual real-time viewing of the video over the Internet will be slower by definition.

"On line/Off line" button

"On line/Off line" button allows the administrator to control whether the **INETCAM** video server is serving live images or not.

"On line" means that the video feed is available for viewers.

"Off line" means that the video feed is not available for viewers.

"Setup" button

The "Setup" button allows the administrator of the server (yourself or whoever you appoint to run your server) to control various settings of the live **INETCAM** video data stream to the Internet. The "Setup" button opens a control window with eight tabs.
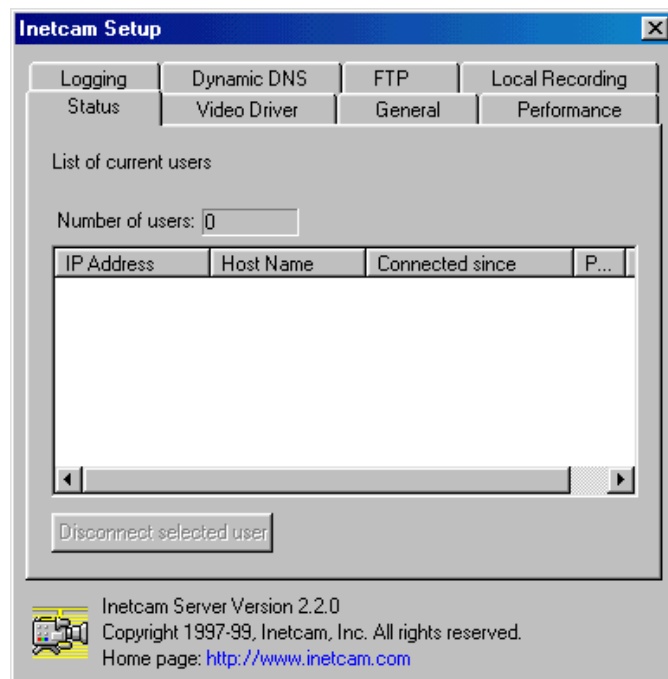
"Status" Tab

The first tab is always on top, when the "Status" button is depressed. This window shows how many people are connected to the Web server. It shows their respective IP addresses, name, what time they connected and quality of compression.
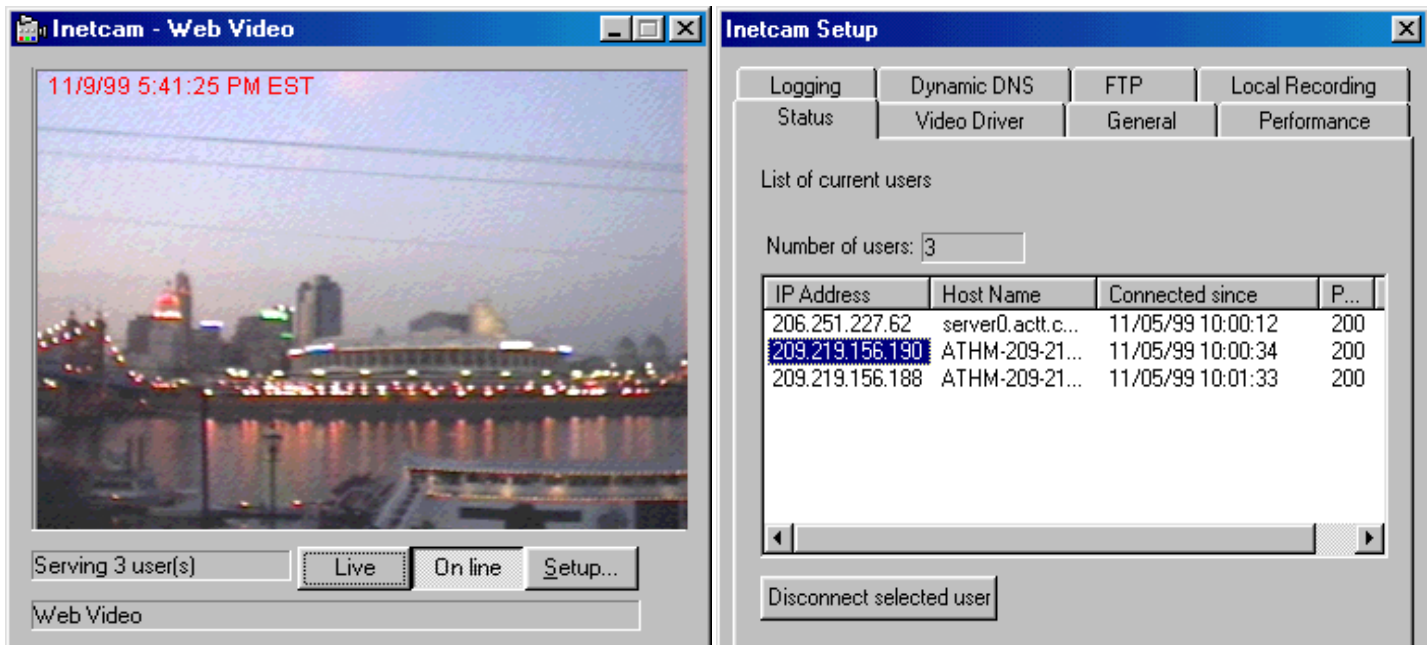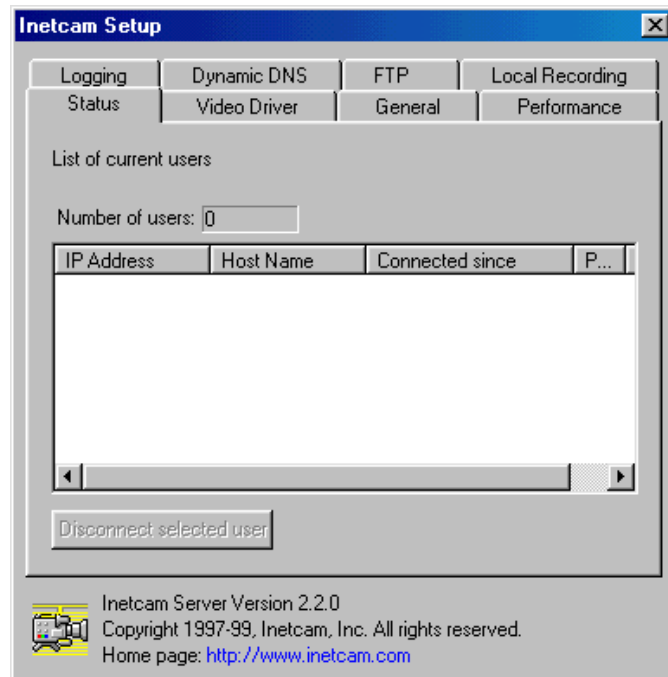
If desired, the administrator can select a specific user and disconnect him forcefully. Moving your cursor over the IP address of the user and then clicking to highlight the user can accomplish this. The "Disconnect selected user" button will change from grayed-out to active. Then click on the button to remove the user. At that point the INETCAM program will stop serving the live video data to the user.

"Video Driver" tab

The "Video Driver" tab allows the administrator to select a specific video source that is available on the computer. In addition it allows setting of the video format and other parameters of the video stream. The settings of the video driver will be specific to the hardware on your computer. Please refer to the hardware manual for the video system on your computer for specific explanations of the options available. In this example the Video Driver description is "MSVIDEO: Brooktree PCI Video Capture Driver Version…."
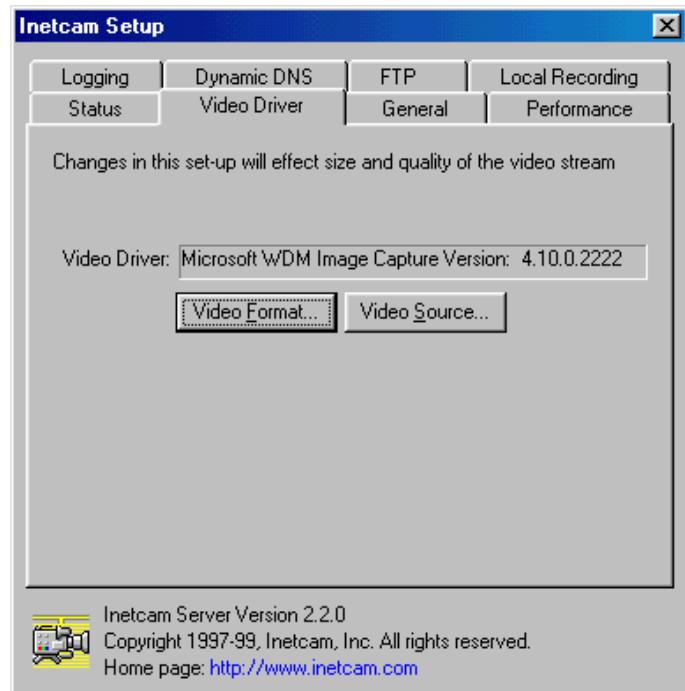
"Video Format" Button

The "Video Format" button allows the administrator to set the dimensions of the image, as well as the level of color rendering. In this example the video image size is set for 320 x 240 pixels. The image format is set for 24 Bit RGB. These options will vary according to the type of video capture device you are using in your computer. Remember that the larger the picture and the higher the image format, the larger your video output will be. The larger your video output is, the larger your file size outputting over your Internet connection. In other words you may want to experiment with various settings to determine the level of quality and the speed of your video output that you find acceptable.
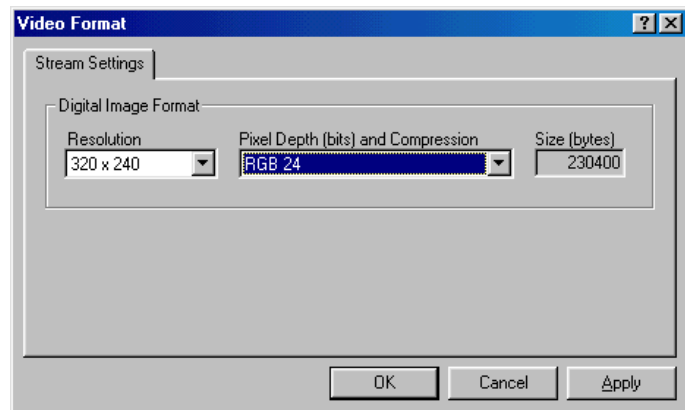
"Video Source" Button

The "Video Source" button allows the administrator to adjust the device settings of your video input. This example shown here is for a Logitech Quick Cam. Note: The options will be different for everyone, depending on the device you are using. You will want to select the settings to match your video system. You can adjust the Brightness and Contrast controls to obtain the best picture for your particular camera and target location. Different lighting conditions will dictate how you set these controls. Saturation is the level or intensity of the color, while Hue is set to give you the best "true" color matching (e.g. skin tone) for your camera system.
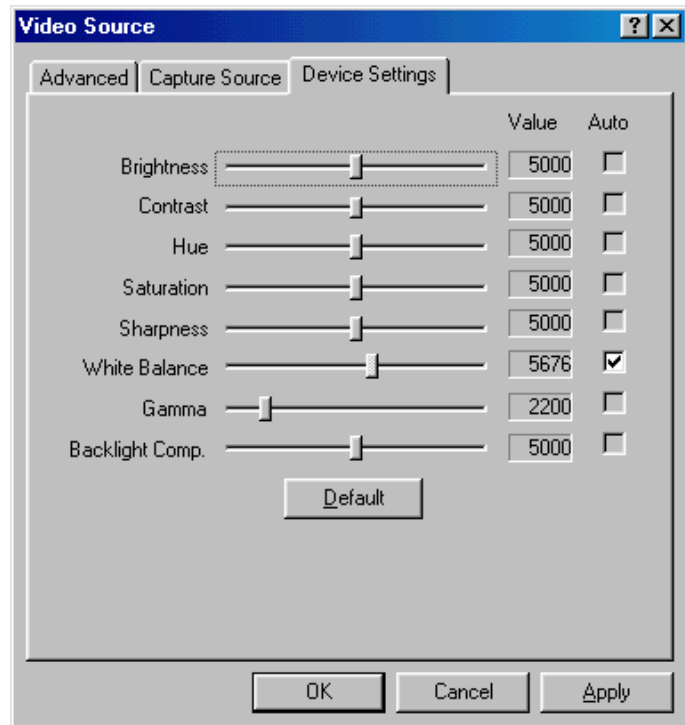
"General" Tab

The "General" tab allows the administrator to fill in the various fields regarding the camera information. This information is available to the viewer. Fill in the Camera Description field with an appropriate name – in this example we have used **INETCAM** manual. The Administrator Name field can be a generic name like "Support" or the actual name of the administrator in charge of the server. Likewise, the Administrator E-mail field should reflect the email address of the administrator. Note: these fields can be left blank however the Camera Description will help to identify your camera to the viewer.
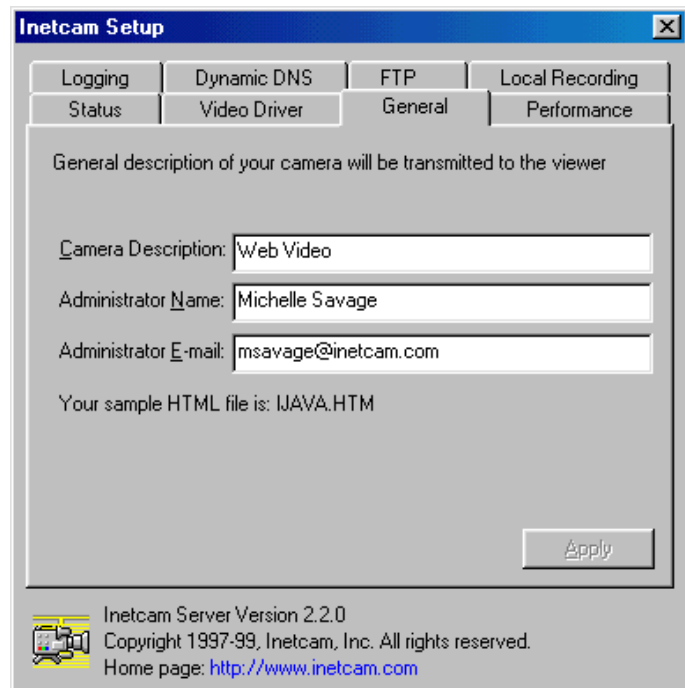
"Performance" Tab

The "Performance" tab allows the administrator to set the parameters of the actual video stream to your viewers. Image Compression indicates the amount the data is to be compressed for transmission - the higher the compression percentage is set the poorer the picture quality. Compression is necessary to speed the transmission of the picture. You can play with the settings to see whether or not the picture quality is acceptable. 65 to 70% is a normal setting allowing for good quality and small file sizes. The maximum frame rate is basically a throttle control for the administrator to control the output of the server. The higher the frame rate the closer the movement in the picture will be to real life.
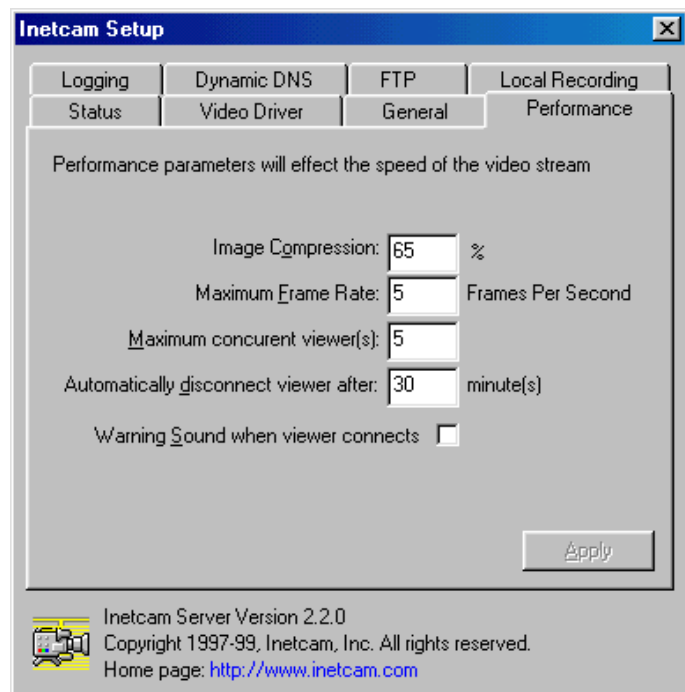
Broadcast television uses 30 frames per second while cartoons may be as little as 9 or 11 frames per second - the higher the setting the higher your bandwidth usage per viewer. Real life processors though, have a much reduced frame rate over Internet connections.

The speed of your computer (including memory) and the number of viewers at any one time will determine the actual frames per second rate -– by setting a lower frame rate you can actually free up resources allowing more viewers to enjoy the pictures with optimal quality. This is particularly important if you have limited bandwidth available for transmissions. Bandwidth is the "ideal" transfer rate that the connection can give you. For example, a dial-up user with a 56K modem will have a bandwidth of 56 Kilobits per second (ideally). In general, this bandwidth is clipped by 15% due to
software overhead, so a 56K-modem user will have about 42 Kilobits per second. Set the maximum concurrent viewer(s) field to a number that will allow quality viewing while not overloading your resources.

You can also limit the time your viewers stay connected by setting the Automatically disconnect viewer after X minutes field – this allows more viewers to connect, sharing your bandwidth. This is especially important if you have a very busy site. If you use "0" in the field all connections will be unlimited. You can also have the system sound a warning on connection of a viewer to alert you to the effect that you have an audience at that point.

"Logging" Tab

The "Logging" tab allows the INETCAM program to keep a record of viewer connections. The default settings for the location of the file would be:
C:\Program Files\Inetcam\Temp\Inetcam0.log
You can specify another directory to keep the file by using the Browse button to find your desired file location. Check the Enable logging field to allow for logging; uncheck for no logging. A Log connection record would look like this:
12.13.226.16 started 14:10:51 Wednesday, July 21,1999
12.13.226.16 ended 14:11:20 Wednesday, July 21, 1999
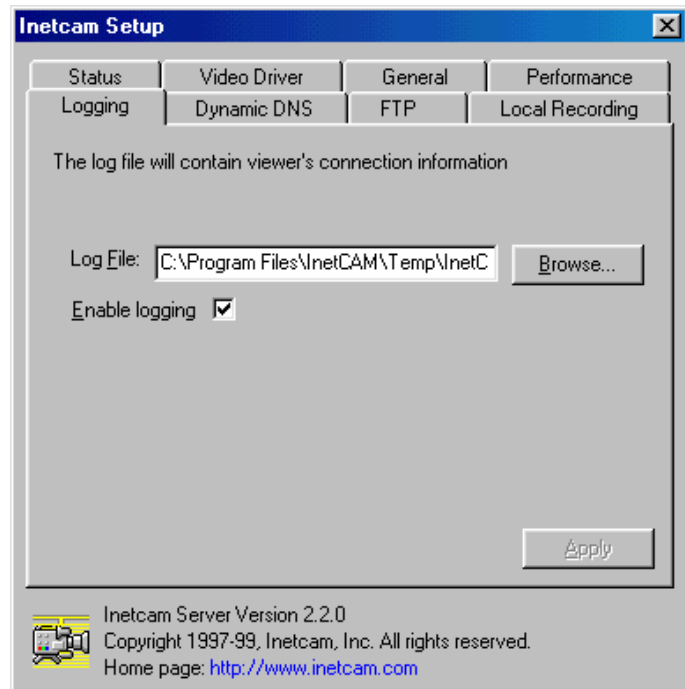
"Dynamic DNS" Tab

The "Dynamic DNS" tab allows the administrator to use a feature that is unique to the INETCAM software. In the world of the Internet there are two types of connections: static and dynamic. When a computer connects to the Internet it is given an electronic address (just like your street address). This electronic address, also known as an IP (Internet protocol), can be a fixed or static location given to you by your ISP (Internet service provider) or it can be a dynamic or unfixed IP. Many ISP's assign a dynamic IP every time you log on to their system. This is like changing your telephone number every time you use the phone. This presents a problem for those individuals that want to connect to your picture.

The INETCAM program supplies a solution to this problem by
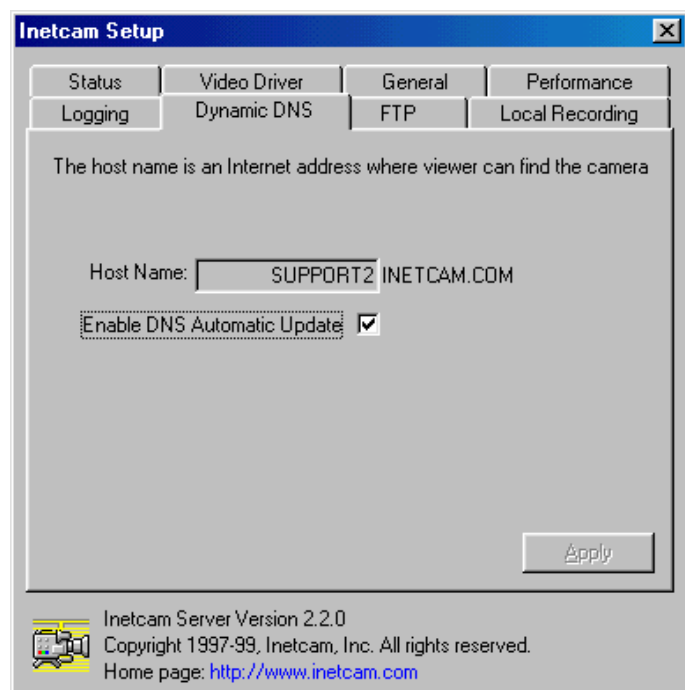
having routing to your picture work every time through a process of automatic DNS updating. In order for this to work you must pick a name for your Webcam. Type the name you pick into the field "*Host Name*". Check the "*Enable DNS Automatic Update*" box. Note: If you have a fixed or static IP you may want to use this process to supplement access to your Webcam.

The Automatic Update process works every time you start your INETCAM program by sending your Webcam name to the INETCAM server. The INETCAM server then knows the dynamic IP of your Webcam. When you design your Webcam page you point your viewers to a URL like http://yourWebcamname.inetcam.com and in this

way your viewers can find your Webcam no matter what your dynamic IP is at that given moment. As a general rule many ISP's charge more money for a fixed or static IP so this process eliminates that extra fee at no charge to you.

If you ever forget your chosen DNS name, please use the "About…" box on the pull-down menu of the **INETCAM** program window. It will contain your logical name and registration verification.
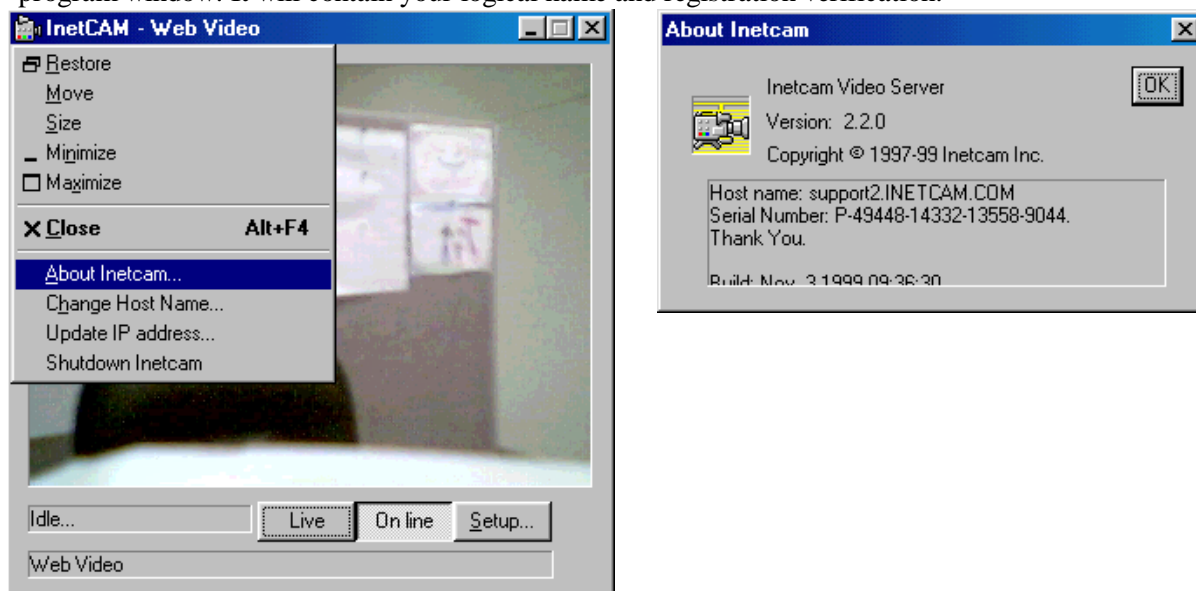
"FTP" Tab

The "FTP" tab allows the administrator to have the **INETCAM** program send a single frame capture of your Webcam view to your Web site location. If you design and maintain your own Web site the ftp process will already be familiar to you. In the field "*FTP Server*" type in the location you currently upload your Web site to:
e.g. *ftp.yourWebsite.com*
In the "*User Name*" field type in the user name your ISP has assigned to you and likewise in the "*Password*" field type in your password. The "*FTP Directory*" field entry should reflect the location you want your Webcam picture to be loaded into – this needs to be the same as your Web page design in order to work properly.
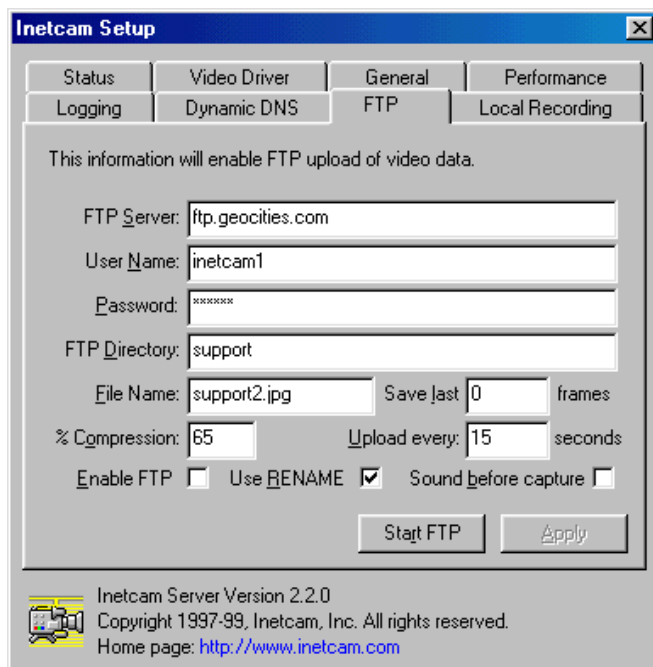
The "File Name" should reflect the name you have used in your Web page design as well. For example you might ftp your picture to yourWebsite/Webcam/ and call the file name myWebcampicture.jpg. You can also save previous frames so that you might have a sequence of event pictures on your Web site. If you do not want to have any previous frames saved place a "0" in the field. The "*% Compression*" field should be set to reflect the quality of the picture you feel is acceptable – the lower the compression the better the overall picture quality, but the larger the file size for uploading and downloading. You can set the **INETCAM** program to upload the picture on a regular basis. In other words if you want to have a new picture available for viewing every minute then type "60" into the "*Upload every ___ seconds*" field. If you want a new picture every 5 minutes then type in "300". *Use RENAME* allows for the file

name to be renamed in order to avoid an interruption in the transmission of the old picture at the time of the new picture save. Enabling "*Warning sound before capture*" will ring a bell on your PC every time some viewer is connecting to the camera. Sometimes it is annoying, however, most of the time it will let you know that somebody is looking. After you have filled in all the fields you must check the "*Enable FTP*" to allow the process. You can make changes to this page and then press the "*Apply*" button to save the changes. In order to start the FTP process in the **INETCAM** program, simply press the "*Start FTP*" button.

"Local Recording" Tab

The "Local Recording" tab allows the administrator to save a series of frames in a specific location on the same machine as the **INETCAM** software is installed. This may be useful to create a time lapse photography record of an event, or to view changing light and weather conditions. In the "*Save To Folder*" field, type in the location you want to save the file or click on the "*Browse*" button and select a location on the machine. Type in your file name in the "*File Name*" field. The "*% Compression*" field should be set to reflect the quality of the picture you feel is acceptable – the lower the compression the better the overall picture quality, but the larger the file size for uploading and downloading. Local Recording allows you to save multiple files over a particular time frame so in the "*Save last ___ frames*" field, type in the number of frames you want to save. In the "*Capture every ____ seconds*" field, type in the interval you want and then check the "Enable Recording" box. An

example of this process might be to record a frame every hour during a 24-hour period, so you would set the fields for 24 frames every 3600 seconds. You can make changes to the setting and save those changes by clicking on the "*Apply*" button. You can start the Local Recording process by clicking on the "*Start Record*".
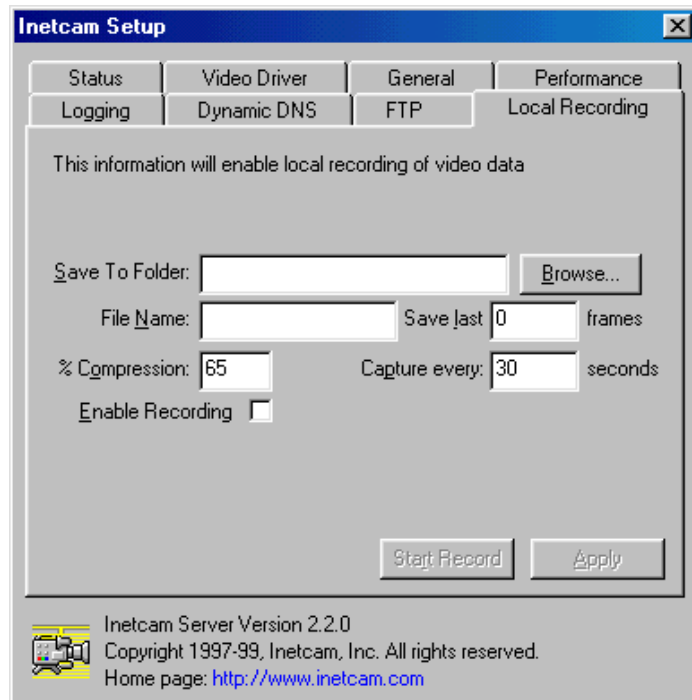
Chapter 4 - Administration

How to make the default INETCAM HTML page available to viewers

In order for viewers to view the output of the INETCAM program several things need to happen. The first step is to assure that the INETCAM video server software talks to the Web server software that you are using for the presentation of your Web site. In other words an *alias* needs to be created to link the two together.

By design the INETCAM installation procedure creates a default directory alias /inetcam for the Microsoft Personal Web Server. This alias allows the Personal Web Server to point to the directory on the computer where the INETCAM software is installed.

If you are using a different Web server, you will need to follow your server manual instructions on how to set up a directory alias so you can have the /inetcam alias point to the directory where the INETCAM software is installed. For information on the Apache Web installation please see the FAQ section of this User Guide.

Once you have the alias set up, the viewers will be able to access your video stream by pointing their Java enabled browser to http://your.host.name/inetcam/ijava.htm. By definition the *your.host.name* is either your current IP address or the name you selected (name.inetcam.com) in the registration process for the INETCAM software.

In your INETCAM directory, you will find two HTML files: ijava.htm and ijpeg.htm. The INETCAM program created these files for you based on your configuration. Every time you modify your configuration, such as camera description, administrator name, administrator e-mail address, the INETCAM program will overwrite these files. You can use these files as samples of how to place the INETCAM video stream into your Web page.

Note: Please do not modify these files since all of your modification will be overwritten once you change the configuration.

The file ijava.htm is an HTML page that is embedded in the INETCAM Java applet so anyone with a
Java 1.1 enabled browser can view your video stream (e.g. Microsoft Internet Explorer or Netscape Communicator).

The file ijpeg.htm has a "pushed JPEG" image. Both Netscape and Opera browsers support "pushed JPEG".

While Opera does not support Java at this time, a viewer with the Netscape browser can decide to use the Java URL, or he can access your *push* video at http://your.host.name/inetcam/ijpeg.htm. Internet Explorer does not support push at this time.

How to embed the INETCAM video stream into your Web page

There are two ways to embed the code for the INETCAM video stream into your Web page: Java applet and "push JPEG" image. Here is the HTML code to add a Java applet:

```
<applet archive=inetcam.jar code=inetcam.class name=inetcam width=320
height=270>
     <param name=cabbase value="inetcam.cab">
     <param name=SERVER_NAME value="">
     <param name=IMAGE_TYPE value="JPEG">
     <param name=COMPRESSION value="65">
     <param name=CGI_BASE value="/inetcam/CGI">
     <param name=CGI_NAME value="nph-jpeg.exe?">
     <param name=SERVER_PORT value=80>
     <param name=DEVICE value=0>
</applet>
```

The first and last lines are standard HTML APPLET tags. Other lines that begin with the "param" tag are applet parameters. Let's look at them one by one:

`<param name=cabbase value="inetcam.cab">` to specify the cab file alternative for Internet Explorer browser. CAB file is equivalent to JAR (Java Archive) file; we use CAB file for Internet Explorer because IE 3.x only supports CAB file.

`<param name=SERVER_NAME value="">` to specify the INETCAM server name. By default, the INETCAM server is the same server where this applet comes from, so we leave it empty. If you want this applet to receive the video stream from a different server then you can specify the host name here. For security reasons, most Web browsers only allow a Java applet to make a network connection to the same server that the applet comes from. You can always leave the value empty or just omit this line.

`<param name=IMAGE_TYPE value="JPEG">` to specify the image format that this applet supports. Currently, the INETCAM program only supports JPEG so "JPEG" is the only valid value. If a new format becomes available, all you need to do is to download a new applet from the INETCAM home page and modify this image format value.

`<param name=COMPRESSION value="65">` to specify the default compression ratio (in percents). The user can change this compression ratio while the applet is running.

`<param name=CGI_BASE value="/inetcam/CGI">` to specify the directory alias on where to find the CGI module. The value `"/inetcam/CGI"` corresponds to the default installation. If you move the INETCAM CGI modules to another location, or are using a different alias, then you must specify the correct directory alias.

`<param name=CGI_NAME value="nph-jpeg.exe?">` to specify the CGI module name. `"nph-jpeg.exe?"` is the JPEG CGI module for INETCAM Java applet. If a new CGI module becomes available and you want to use it then you can change the value for this parameter.

`<param name=SERVER_PORT value=80>` to specify the port number of your Web server. 80 is the default port number for any Web server but if you want to set your Web server to listen to other port number then you will need to modify this value accordingly.

`<param name=DEVICE value=0>` to specify the video capture device number. The INETCAM program supports multiple video devices simultaneously, value 0 means the first video capture device, 1 is second and so on.

The above description is utilized for embedding a Java applet into your Web page. An alternative to this is "pushed JPEG". Here is the HTML code for "pushed JPEG":

`<IMG SRC=/inetcam/CGI/nph-cjpegcgi.exe?-quality=35+-device=0>`

This is simply an HTML code for an image, which is created by a CGI module. There are only two parameters that can be utilized with this module:

`-device=0` to specify the video capture device number. The INETCAM program supports multiple video devices simultaneously, value 0 means the first video capture device, 1 is second and so on.

`-compression=65` to specify the compression ratio (in percent). Unlike the Java applet, the user (viewer) cannot change the compression ratio.

Show viewers the INETCAM video stream in a separate window

When a viewer connects to the INETCAM video stream, the most common practice is to see the video data integrated into a Web page in the browser. However you can also create the INETCAM window as a separate process, using a pop-up window. This will allow the viewer to monitor your video output while continuing with their travels through the rest of your Web site. The pop-up window can be setup by using standard pop-up window html code.

How to set passwords for people for accessing the INETCAM video stream

You can protect the access to your INETCAM video stream by setting the password in the Web site software. If you are using the Microsoft Personal Web Server, change the selection from "allow anonymous" access to "basic" access. This will enable you to specify individual usernames and passwords and provide them to the people you want to have access to your video server. Depending on the server software being utilized you can set permissions on specific directories. For more information check out the FAQ section of this User Guide.

Who Can and Cannot View INETCAM Output

Generally anybody that has access to your site will also be able to view your INETCAM video stream. In order to view the INETCAM video stream data in Java format a viewer has to have a Java compatible browser. This means a minimum browser version of Microsoft Explorer 3.0, or Netscape 3.0. If the browser is not Java capable, we suggest upgrading the browser.

For those who cannot view Java, such as individuals behind corporate firewalls, the INETCAM program also provides output with JPEG push technology. Browsers such as Netscape Navigator, Netscape Communicator, and Opera all handle JPEG push output through the firewalls.

Providing JAVA Applets in Different Languages

Starting with the release version 1.4, INETCAM software provides support for different languages. The INETCAM software server provides different viewers from different countries with information in their respective language.

Currently supported languages are Spanish, Portuguese, French, German and Italian. Please, contact support@inetcam.com to find out more information on when a specific language will be available.

Chapter 5 - The Viewer Window

Understanding JPEG Push and Java Streaming Output

The whole point of having a Webcam is so your viewers can view your Webcam content, whether it's a view from inside your house, or outside your window. There are two basic ways to view the streaming video output of your INETCAM software. The first way is viewable on browsers that are designed to utilize JPEG push technology, like Netscape Navigator and Opera browsers. Your JPEG push picture would look similar to this example:

The second way to view the streaming is on browsers that are designed to run Java applets such as Netscape Communicator or Microsoft Internet Explorer.

Java allows for a variety of features to be utilized by the viewer. As an example, the viewer can see the time and date at the camera location. This is helpful to an audience spread around the world.

Java Window Features

A current time reading can be viewable to your viewers. As shown in this figure, the red color is the time stamp indicating the precise time at the camera location (in this case in Pacific Daylight Savings Time - PDT).

Viewing the INETCAM Logo Pause/Play Button

If the viewer moves the cursor over the Java window the INETCAM logo becomes visible. The green triangle to the right of the logo controls the stream for the viewer; by clicking on the green triangle the streaming will stop and two red lines appear in place of the green triangle – green equals go while red equals stopped. By pressing on the two red bars the streaming will start again and the green triangle reappears.

INETCAM Info Button

By clicking on the Java window just above the INETCAM logo, another button appears called INETCAM Info.

By clicking on the button another window opens for the viewer with a series of tabs and fields which are filled with an array of information.

The tabs are as follows:
- Image Info
- Adjustment
- Server
- Client

"Image Info" Tab
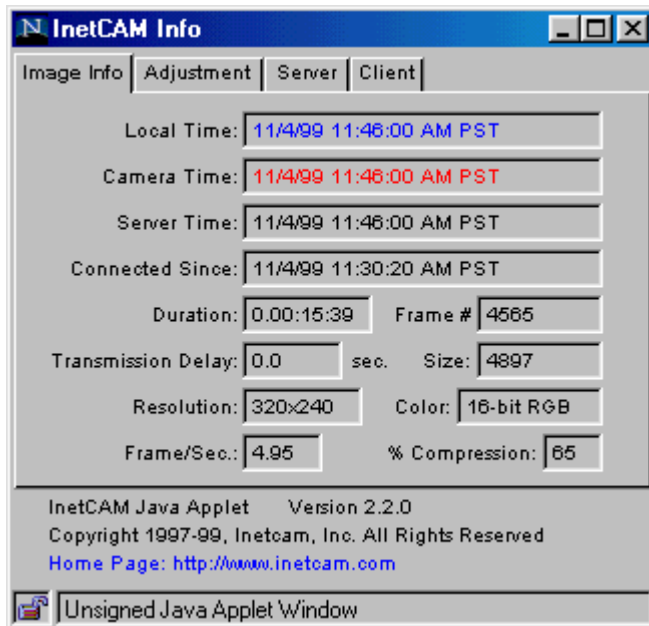
By default, the "Image Info" tab is displayed and is dynamically updated with transmitted information.

"Local Time" is the current local time on the viewer's computer.

"Camera Time" is the transmitted time stamped at the time the image was generated.

"Server Time" is the internally generated time at the moment of data transmission.

"Connected Since" is a permanent time that shows the start of the viewer connection to the I N E T C A M server.

"Duration" is the calculated time elapsed from "Connected Since" until present.

"Frame #" is a perpetual counter of the displayed framed.

"Transmission delay" is the actual time that it takes the Internet to transmit the frame from the time frame is generated to the viewer display.

"Size" is the frame size in bytes.

"Resolution" is the size of video data frame in pixels.

"Color" is the color or B&W format of the video data stream.

"Frame/Sec" is the number of frames being transmitted per second. The higher the number of frames the smoother the motion. The video server administrator may throttle this function.

"% Compression" is the compression factor in %. The more compression the smaller the file's size with a decrease in picture quality.

"Adjustment" Tab
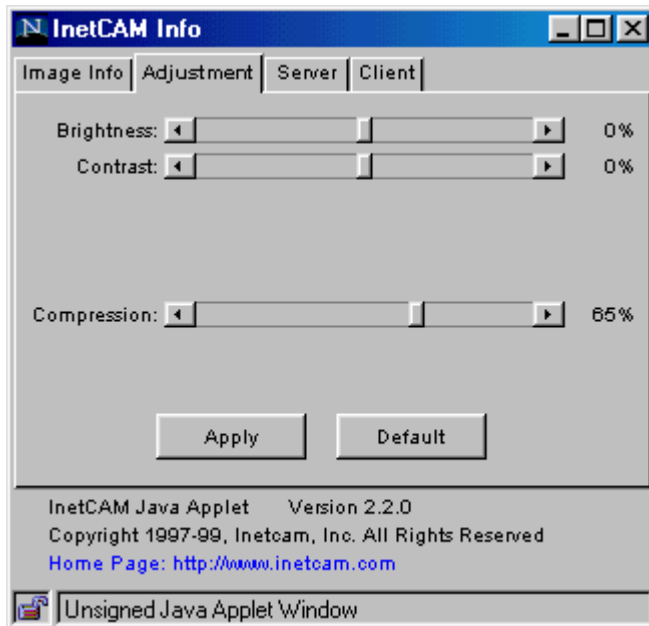
The "Adjustment" tab allows the viewer to display adjustment bars for brightness, contrast, and compression values. This allows the viewer to brighten or darken the picture or adjust the contrast if the picture is not clear enough.

Once the value on any of the bars is chosen, the viewer needs to press the "Apply" button for the changes to take place.

Please note that some of the settings take effect not at the display site, but at the INETCAM server site, so allow time for data to be transmitted back and take effect (most notably on "compression" value). The higher the compression value, the smaller the amount of transmitted video data and, it yields a higher video rate.

"Server" Tab
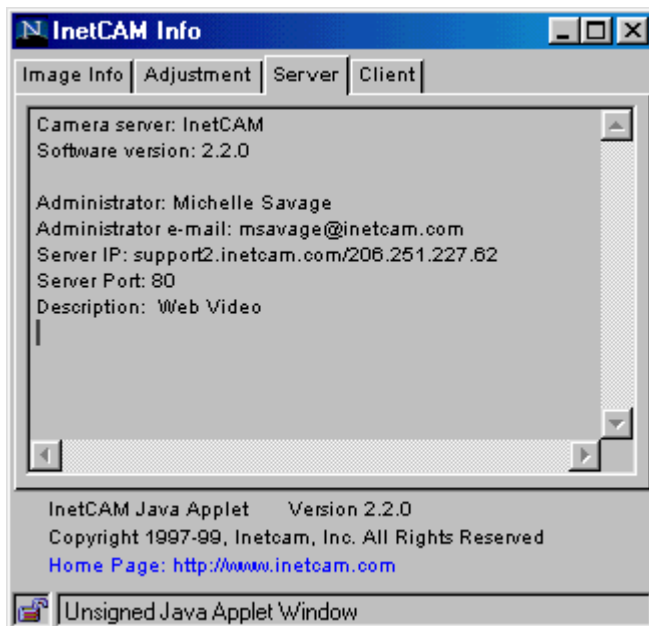
The "Server" tab provides information on the INETCAM server. Including software version, administrator name and e-mail and Internet address. This tab can be used for information as well as location of administrator's name and e-mail address. This tab is made available to all users.

"Client" Tab
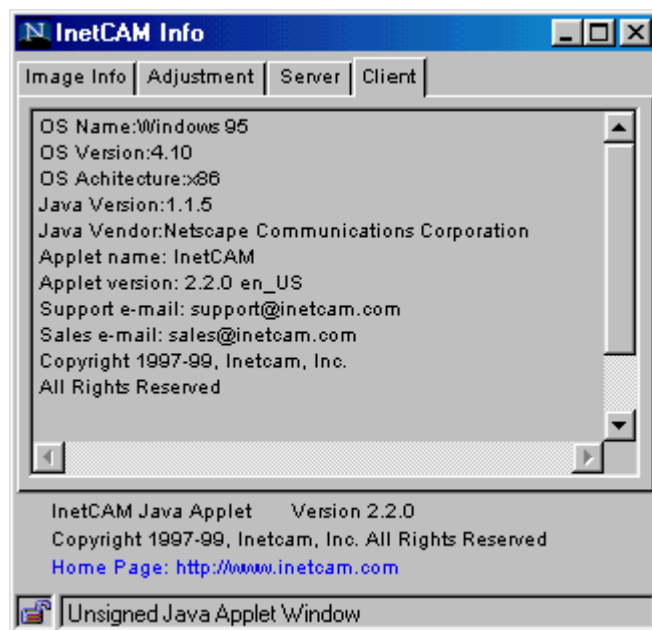
The "Client" tab provides information on the viewer platform and Internet connection, including Java software and IP address. This tab is used for information and debugging. It allows viewing of the user's software system and provides information for technical support. It is made available to all users.

Chapter 6 - Frequently Asked Questions (FAQ's)

What is the difference between Ɪɴᴇᴛᴄᴀᴍ software and other video conferencing software?

Do I need a fixed connection to use the Ɪɴᴇᴛᴄᴀᴍ software?

Do I need a need to keep my dial-up networks connected all the time?

How do I tell my friend where to see my camera on the Internet?

Is the free trial demo version of the Ɪɴᴇᴛᴄᴀᴍ software restricted in any way?

How do I shutdown my Ɪɴᴇᴛᴄᴀᴍ program?

Can I use the dynamic DNS name that I got for other use?

I have registered my Ɪɴᴇᴛᴄᴀᴍ software and selected a host name, but my viewers can not access my computer using my-host-name.inetcam.com. What should I do?

Does the Ɪɴᴇᴛᴄᴀᴍ software work with specific hardware on my computer?

Can I change the access passwords often?

After installing Personal Web Server and the Ɪɴᴇᴛᴄᴀᴍ software, I can view my video page fine. Why do my friends get a password authorization dialog?

Can I use more than one camera connected to my machine?

How do I add another camera or video device?

How do I set up the FTP upload?

How do I set up a pop-up window for my live video?

How do I use a remote Web server (e.g. Geocities, Tripod, my_domain.com, etc.) with the Ɪɴᴇᴛᴄᴀᴍ software?

How do I use Apache as a Web server with the Ɪɴᴇᴛᴄᴀᴍ software?

How do I change the time/date caption on my video?

Can I change the warning sound that I hear when someone connects to my video?

I'm using Windows 95 and I get the error "Can't connect to server, click refresh or reload." How do I fix this?

What Web servers can I use with the Ɪɴᴇᴛᴄᴀᴍ software?

What is the difference between INETCAM software and other video conferencing software?

There are a number of differences. Here are several:

1. You do not require the viewer to have any software on his or her PC.
   Basically, all of the modern videoconferencing software requires both sides to install a specific package. Here, the viewer can simply connect to your site and see the video immediately. Imagine yourself visiting a friend in another city and wanting to connect to the camera at home or in your office. With any other setup, this would require you to install a specific package at the viewer's PC and then have somebody at the camera site start the video conferencing tool.

2. With the INETCAM program all controls are external and there are *NO plug-ins* required on the viewer's browser.
   No other software is required either. We have even looked at the cameras on airport Internet terminals, which certainly do not allow you to install software.

3. The software on the camera sites will work in the background allowing you to perform other tasks
   This means the INETCAM software can always be left on. If there are no current viewers, the INETCAM Web server module will simply idle in the background.

4. The same INETCAM single platform license will cover as many cameras as you have connected to the PC.
   If there are 5 video sources, one can generate 5 independent INETCAM servers and allow different people to connect to different cameras.

Do I need a fixed connection to use the INETCAM software?

No. INETCAM software can be used with dial-up networks. Once the dial-up is connected, the INETCAM program automatically goes on-line for all the users (provided they have access passwords).

Do I need a need to keep my dial-up networks connected all the time?

No. Whenever the computer is dialed into the network, INETCAM software will automatically register the newly assigned dynamic IP address with specificname.inetcam.com logical name.

How do I tell my friend where to see my camera on the Internet?

We provide a free service through the INETCAM Global DNS. The IP updater in the INETCAM software which sends your current IP to the Global DNS service allows you to have a fixed URL address for your friends to use. It always points to your computer whether you are on a cable modem or dial-up service.

Is the free trial demo version of the INETCAM software restricted in any way?

No. However, the trial time for the demo version is set to 10 days.

How do I shutdown my INETCAM program?

Double click the INETCAM icon to bring up INETCAM window. Pull down its menu by clicking the top left icon and select *Shutdown INETCAM*; an alternative way is to right click on the INETCAM icon on your task bar tray and select *Shutdown INETCAM*.

Can I use the dynamic DNS name that I got for other use?

Yes. Once your name is registered (*your_name.inetcam.com)* you gain a few extras. Your DNS name is also an active pointer to your computer, independently of whether the system has a Static IP address or a dynamic one; this means you now have the ability to pursue other activities such as file transfer or remote control.

I have registered my INETCAM software and have selected a host name, but my viewers can not access my computer using the DNS name of my-host-name.inetcam.com. What should I do?

First of all you should check to see if the INETCAM software and the Web server are installed and operate properly. On the same computer that runs the INETCAM software, open a Web browser and type in this URL: http://127.0.0.1/inetcam/ijava.htm

If you will see your own video display on the browser window, then your system is functioning properly. It is possible the DNS server was off-line temporarily. Ask your viewer to try back later.

Does the INETCAM software work with specific hardware on my computer?

The INETCAM program requires that your digital camera, USB camera, or frame grabber video capture hardware support 'Video for Windows' interfaces. Check the specifications of the hardware provider to ensure that your equipment has a compliant Windows capture device driver.

Can I change the access passwords often?

As the administrator of your system, you can change the password to access your camera as often as you like. Change the password within your Web server system.

After installing Personal Web Server and the INETCAM software, I can view my video page fine. Why do my friends get a password authorization dialog?

You will need to refresh the "/inetcam" alias for Personal Web server (PWS). Double-click the PWS icon in the task bar tray. Select the "Administrator" tab from the dialog, and click the "Administrator" button. PWS will bring up your default Web browser and bring you directly to the PWS Administration page. On this page you will see a tab labeled "Directories", click on this tab and you will see a table of directory paths and aliases. Go to the line with the alias "/inetcam" and click "Edit..." on the same line. This will show you the current alias setting for "/inetcam". All you have to do here is to click OK and close the Web browser. Now click OK on the PWS dialog to close it down.

Your friends now can access your INETCAM pages without password checking. If however, you would like to restrict your Web page to a certain group of friends, then you will need to go into the same PWS Administration Web page and add a user name and password for each individual that you want to have access to your Web page. Also uncheck the *Allow Anonymous* option on the PWS Administration Web page.

Can I use more than one camera connected to my machine?

Yes. The INETCAM server will support as many cameras as are actively connected to the computer. The viewers on the Internet will be able to choose different cameras, different compression rates and other values all by being connected to the same physical computer. Note: the newer version of the Microsoft Personal Web Server that ships with Windows 98 cannot support the same number of connections as the older version which shipped with Windows 95. This issue of connection limitations does not exist for Apache or other Web servers.

How do I add another camera or video device?

By default, the INETCAM program will connect to the first available video source (driver). To select another driver, you can pass an integer parameter to the INETCAM server (WNETCAM.EXE). The drivers are enumerated from 0 to 9, 0 being the first driver, 1 being second and so on. If you have two video sources and you would like to select the second source, then you want to start the INETCAM program with an integer parameter set for 1.

This is one way to do it:
You will create another shortcut to start the INETCAM server on the second video device.
1/ Go to Start-Settings-Task Bar & Start Menu
2/ Select "Start Menu" tab and click "Add...".
3/ On the "Command Line" field enter:
"C:\Program Files\inetcam\Programs\wnetcam.exe" 1
Note: If you installed the INETCAM software in a location other than "C:\Program Files\inetcam" then substitute the correct path. Also include the double quotes as shown, and ensure that the parameter 1 is outside the quotation marks.
4/ Click "Next" and add a name for this shortcut, "inetcam #2" for example.
5/ Select a start menu folder to put the shortcut into. A folder named INETCAM would be a logical choice.
6/ To run the server with the second video source just pull down the start menu and select the shortcut.

How do I set up the FTP upload?

Bring up the I N E T C A M window and click the "Setup" button. Select FTP tab and fill in the FTP fields with the following information:

FTP Server: the name of your ftp server e.g. ftp.yourdomain.com

User name: your user name that allows you to upload to the ftp server

Password: the password that corresponds to your user name to gain access to the ftp server

Directory: the subdirectory you want to put the image into

Note: that each FTP user has a home directory on the server and the default setting for the home directory is to leave this field blank. If you specify a subdirectory then it must exist prior to the upload; in another words you must create this subdirectory manually. When in doubt just leave it blank.

File name: a .JPG file name e.g.: mycampicture.jpg

Avoid using long file names with special characters. Some FTP servers do not like long file names that include spaces.

Check the *Enabled FTP box* and click *Apply*. Then click on *Start FTP*. After the FTP process has started, the I N E T C A M program will upload the HTML page and Java class to the Web server (FTP server) and then one picture every interval, specified earlier in the "Interval" field.

You can access the live picture at: http://your-Web-server/ftpcam0_0.htm

The page will then display the current image. Note: Depending on the configuration of some NT4 servers it is possible to encounter an issue where the ftp process to the server will not complete the operation properly. In the FTP configuration make sure the *Use RENAME* feature is unchecked.

How can I set up a pop-up window for my live video?

Please go to the sample page supplied with the I N E T C A M package and use the sample HTML code for the pop up window.

How do I use a remote Web server (e.g. Geocities, Tripod, my_domain.com, etc.) with the I N E T C A M software?

Open the file IJAVA.HTM that is in your I N E T C A M directory.

In the HTML code, find this line of code: "archive=inetcam.jar code=inetcam.class".

Next add this piece of code in front of the archive so it looks like this:

codebase="http://INETCAM_HOST_NAME/inetcam" archive=inetcam.jar code=inetcam.class.

Note: INETCAM_HOST_NAME is the host_name.inetcam.com or valid IP address of the computer running the I N E T C A M program.

Leave the rest of the file unchanged; then save it and upload it to your Web server. This will be the only file you need to upload. Now your viewers can access the camera by pointing their browser to http://your_server/your_path/ijava.htm. You can edit the file to add or change the look of this Web page. You can also add another camera by adding the same applet tag but with a different "codebase" value.

How do I use Apache as a Web server with the I N E T C A M software?

You need to specify an alias for /inetcam by adding the following line into your HTTPD.CONF file that belongs to the Apache folder: Alias /inetcam/ "C:/Program Files/inetcam/". In order to do this open the HTTPD.CONF file in the Conf folder of the Apache Group program folder with Notepad. Using the *Search*/*Find* menu function look for the word *alias* in the code. Add the Alias /inetcam/ "C:/Program Files/inetcam/" exactly as it appears below in the exact location with the exact spacing.

Aliases: Add here as many aliases as you need (with no limit). The format is
Alias fakename realname
#
Note that if you include a trailing / on fakename then the server will
require it to be present in the URL. So "/icons" isn't aliased in this
example, only "/icons/".
#
Alias /icons/ "C:/Program Files/Apache Group/Apache/icons/"

Alias /inetcam/ "C:/Program Files/inetcam/"

Then copy the entire CGI file in the INETCAM directory into the Apache/cgi-bin directory.

You will need to modify the HTML files to reflect new CGI virtual path:

For IJAVA.HTM change this line:
<param name=CGI_BASE value="/inetcam/CGI">
Into:
<param name=CGI_BASE value="/cgi-bin">

For IJPEG.HTM change this line:
<IMG SRC=/inetcam/CGI/nph-cjpegcgi.exe?-qua+30 WIDTH=320 HEIGHT=240>
Into:
<IMG SRC=/cgi-bin/nph-cjpegcgi.exe?-qua+30 WIDTH=320 HEIGHT=240>

You also want to save the new HTML file using a different name since the name IJAVA and IJPEG are used for the sample pages and it will be overwritten. For example copy the html code of ijava.htm to a new file, and save as ijavab.htm; and similarly copy the html code of ijpeg.htm and save as ijpegb.htm
Adjust the links on your Web pages to point to the new pages and you are ready to go.

How do I change the time/date caption on my video?

The current IJAVA.HTM file has these parameters:

<param name=CAPTION_X value="10">
<param name=CAPTION_Y value="10">
<param name=LTIME_X value="10">
<param name=LTIME_Y value="20">
<param name=CTIME_X value="10">
<param name=CTIME_Y value="30">

Here is what the parameters mean:

<param name=CAPTION_X value="10"> == X coordinate for the caption in pixel, 0 mean no caption, 1 if left most
<param name=CAPTION_Y value="10"> == Y coordinate for the caption in pixel, 0 mean no caption, 1 if top most
<param name=LTIME_X value="10"> == X coordinate for local time in pixel, 0 mean no local time, 1 if left most
<param name=LTIME_Y value="20"> == Y coordinate for local time in pixel, 0 mean no local time, 1 if top most
<param name=CTIME_X value="10"> == X coordinate for captured time in pixel, 0 mean no captured time, 1 if left most
<param name=CTIME_Y value="30"> == Y coordinate for captured time in pixel, 0 mean no captured time, 1 if top most

Of course, no parameter is the same as 0.

Can I change the warning sound that I hear when someone connects to my video?

Yes. Go to start-settings-control panel. Double click on the 'Sounds' icon. Scroll down the list of Windows Events and click on 'Question'. The INETCAM capture warning sound is tied to the Question event. Simply browse for the sound that you would like attached to this event.

I am using Windows 95 and I get the error "Can't connect to server, click refresh or reload." How do I fix this?

This error can happen if you have an old version of the Winsock, which is the Windows networking software. Windows 95 often has the old version which can cause this error, but Windows 98 and Windows NT will have a new version so if you get this error on those operating systems please contact technical support because the error is caused by something else. To upgrade the Winsock on Windows 95, go to www.microsoft.com and download the "Windows Socket 2 Update". Once you download the new version, install it then restart. This should fix your problem, if not, you have an error caused by something else so you will need to contact technical support at support@inetcam.com or 858-558-7200 during Pacific Time business hours.

What web servers can I use with the INETCAM software?

Currently, the Web servers that work best with the INETCAM software are Microsoft Personal Web Server (which is included with your downloaded version of the INETCAM software), Apache, IBM Apache, Lotus Domino, and IIS. Most other Web servers (Shareware, Freeware, etc) do not support INETCAM's streaming video.