Webcam Plugin for HomeSeer

Requirements

- HomeSeer version 2.0.0.0 or greater is required.

Installation

1. To install the Webcam plug-in for HomeSeer version 2.x, select the “Updater” button on the web interface, or select “Updates” from the “Help” menu. Follow the on-screen instructions for the Updater.
2. Select the Webcam plug-in on the package selection screen, then follow the on-screen instructions to finish the update process, and restart HomeSeer.
3. After restarting HomeSeer, click the “Setup” tab and then the “Interfaces” tab on the web site. Click “Disabled” to enable the plugin, and then click “Save” at the bottom of the screen.

Welcome

This on-line reference will help you get started using the WebCam plug-in for HomeSeer®.

Before attempting to use this plug-in, please have a working knowledge of HomeSeer that includes working with events, actions in events, and the ability to use HomeSeer's built-in HTML interface.

For video: A series of images displayed very rapidly to effect motion and transitions. Video is a very rapid series of image captures, sometimes accompanied by audio. streaming support, the WebCam plug-in requires Microsoft's® Media Player™ version 9 or later.

As with all plug-ins, the plug-in software must be installed, activated in HomeSeer, and an appropriate license entered to use it. The HomeSeer Updater can be used to install the software and will also vend (display) a trial code which may be used with the product for 20-40 days if the PC it is being installed on has never had a trial code or registered version for the plug-in before.

To install the plug-in, please click Help... Updates... from the HomeSeer Windows UI User Interface. The screen, in Windows or perhaps in a Web Browser where the user can interact with the software. menu.

Once the plug-in has been installed, it will need to be activated and if necessary, a prompt for a license code will be displayed. On the HomeSeer Windows UI User Interface. The screen, in Windows or perhaps in a Web Browser where the user can interact with the software. menu, click Help... Registrations... Plug-Ins to be taken to the Interfaces tab of the HomeSeer Options configuration page. Here under the Security/I-O/Other section, you can click on the drop-down list of plug-ins and scroll through the list until you find the WebCam plug-in. After finding the WebCam plug-in, click on it to select it and it will be added to the list of plug-ins for HomeSeer. A license screen will be displayed if the plug-in is not currently licensed. You will be prompted to restart HomeSeer so the new plug-in may be loaded.

You are now ready to use the plug-in!

To review the configuration options for the plug-in, please visit this topic: WebCam Configuration

To review the ACTION page that this plug-in provides for your events, please visit this topic: Action List

To learn about Triggers which use cameras as motion detectors, check out the Trigger Information page.

The WebCam plug-in can broadcast a video stream to remote PCs. Learn more about receiving them in the Receiving Streams section.

Viewing captured images can be done using the WebCam Capture Viewer web page.

WebCam Terms

Several terms are used throughout this documentation that you may not be familiar with. Please read through these terms and refer back to them as needed to help you understand image and video capture nomenclature.

- Back Color The background color for image or text. For example, most text is displayed using black (foreground color) text on a white background.
- Bitmap A graphics file format where the image is stored as a series of computer bytes or words that contain information on the color of a particular pixel of the image. When combined, all of the pixels complete an image. The file format is usually indicated by the file extension BMP.
- CODEC COder DECoder - A hardware or (usually) software device that can transform information into another format (code) or transform it from an encoded format (decode). An uncompressed video file is quite large, but when encoded into MPEG format using an MPEG codec, the file size is reduced considerably. xtPopupInit('HotSpot20624');
- Concurrent Use Concurrent Use in the context of the WebCam plug-in refers to devices which allow more than one piece of software to attach to the hardware at once. If this is possible, it is often allowing one piece of software to access one type of input (e.g. TV Tuner) while another piece of software is using a different input (e.g. Composite). It is unusual to find a hardware device that allows concurrent use of any single input. in the context of the WebCam plug-in refers to devices which allow more than one piece of software to attach to the hardware at once. If this is possible, it is often allowing one piece of software to access one type of input (e.g. TV Tuner) while another piece of software is using a different input (e.g. Composite). It is unusual to find a hardware device that allows concurrent use of any single input.
- Coordinates Coordinates are a set of numbers that refer to a location. Using an X,Y grid, coordinate numbers list the X coordinate first and then the Y coordinate. The upper left hand corner of a box on a computer screen is at coordinate location 1,1 and the lower right hand corner of a box that fills a screen at a resolution of 640x480 is 640, 480. s are a set of numbers that refer to a location. Using an X,Y grid, coordinate numbers list the X coordinate first and then the Y coordinate. The upper left hand corner of a box on a computer screen is at coordinate location 1,1 and the lower right hand corner of a box that fills a screen at a resolution of 640x480 is 640, 480.
- DirectX This is a Microsoft technology that interfaces with graphics, sound, and gaming hardware to provide a unified/standard interface for developers. In the context of the WebCam plug-in, it is the primary interface by which the plug-in controls the video capture hardware. A driver from your video capture hardware manufacturer that connects the hardware with DirectX is required to use the hardware with the WebCam plug-in. ®™
- Duration A period of time for an event to last.
- Flip Flip refers to a configuration setting in WebCam where an image can be flipped horizontally, vertically, or both to compensate for cameras mounted upside down or that return a video image in a mirrored effect.

- Fore Color The foreground color for image or text. For example, most text is displayed using black (foreground color) text on a white background.
- Format In the context of the WebCam plug-in, the format refers to the video size and color depth for the capture. The formats available are the ones supported by the video capture device that is being used. The format generally has three components: The size of the image (refer to the coordinate glossary term), the number of colors it supports, and the depth or varying shades of color for each pixel of the image.
- Frame Rate This term applies to video only - it refers to how many images are captured per second to construct the video. The typical "fastest" frame rate supported is 32fps (frames per second), but for slower computers, slower video capture hardware, or for reduced video file sizes the frame rate may be much less. When a frame rate of 32 is specified and the computer or hardware cannot provide this rate, frames are dropped during the capture operation.
- Hex Short form of Hexadecimal, a base 16 counting system used commonly with computers. Rather than using two characters to represent numbers greater than 9, the letters A through F are used for numbers 10 through 15. Thus, C refers to 12 in decimal form. The number 3D is 3*16^1 + D*16^0 which is (16*3) + (1*13) = 61 in decimal form. Hexadecimal notation is used to define colors in computers. Colors are referred to by their Red(R), Green(G) and Blue(B) components. Thus, the color F233BD has a Red component value of 242, a Green component value of 51, and a Blue component value of 189. The result of this mixture is a rather pinkish-purple color that I would not put on the walls of my home.
- Image Refers to a single captured frame from a camera or TV tuner device. It is akin to snapping a photograph.
- Input In the context of the WebCam plug-in, this refers to the specific source on a capture device to capture images or video from. For example, popular capture hardware includes a TV Tuner input for capturing from a TV signal, and a composite input for capturing from a camera, VCR, DVD player, or some other device with composite video outputs. When setting up a capture event, the input is required to be specified if your video capture device has more than one input.
- Interval The time in between events. For example - if the interval between image captures is set to 0:00:05, then an image will be captured every 5 seconds.
- Mask In the context of the WebCam plug-in, a mask refers to an area of an image coming from a video source that you do NOT wish to be considered when using the motion detector feature. A mask is a rectangular or square region created by providing upper left corner and lower right corner coordinates. If a square section in the middle of a video image should not be considered for motion detection, then only one mask is needed. If only the center should be considered, then the outside regions of the video source will need to be masked, and this can be done by using four rectangular masks that together create a frame around the center area to be used.
- Overlay An overlay is an image or text that is to be placed on top of the captured image or video. A common text overlay is the date and time that the image or video was captured to provide a timeline for the image event. The network logo that appears on many U.S. television channels is an example of an image overlay.
- Pixels Pixels are the thousands or millions of dots that make up a picture on a computer screen or in a video or image file. The icons on your Windows desktop are often 32 pixels wide by 32 pixels tall. If your computer's screen resolution is set to 800 x 600, then it is 800 pixels across and 600 pixels tall.
- Server Port This refers to the specific network location on a computer (server) where a service may be accessed. For example, when you point your web browser to http://HomeSeer.com, although it is not specified it is talking to the HomeSeer.com server port number 80 and asking for an HTTP transfer of information from that port. In the context of the WebCam plug-in, this port number is the one you wish to use to stream video out to a client program that is accessing it. If your HomeSeer web server is using port 80, then use a different port for the streaming server service (e.g. 88, 8080, 8088, etc.)
- Stream Rather than capturing video into a file and then transferring the entire file to a remote computer to

view it, the video can be "streamed" over the network as it is being captured from the video capture device. This means that the video image is available for viewing only a short period of time after it has begun being captured. If the video is not also being captured into a file, then the video stream is NOT saved as it is being served up. In the WebCam plug-in, the plug-in can serve streaming video such that a copy of Microsoft's Media Player 9 software can be used to view the stream.

- Threshold In the context of the WebCam plug-in, this refers to the amount of change that can occur between subsequent image comparisons before it is considered "movement" by the motion detector software feature of the plug-in. Typically a threshold of 30 is a good starting point. If you set the threshold higher, then a more significant amount of movement will be needed to trigger the motion detector. A lower threshold setting may trigger the motion detector very often.
- Thumbnail Refers to a term describing a greatly reduced version of an image, often used as an index to several images to help locate a specific desired image.
- Transparency Color The Transparency Color for an image is the color that should be made invisible, so that anything behind it will show through. For example, an overlay of the American flag onto a captured video image with the transparency color set to white will result in the image behind the flag appearing at each alternating white stripe location and where every star appears on the flag.
- Video A series of images displayed very rapidly to effect motion and transitions. Video is a very rapid series of image captures, sometimes accompanied by audio.
- Windows Media Streaming Profile A streaming profile refers to settings for the streaming server with regard to image quality, audio quality, and the speed at which the images should be served. The Windows Media Streaming Profile refers specifically to a collection of common settings that are loaded with Windows Media technology. Profiles exist for streaming video over a low bandwidth (e.g. dialup) network or a high-speed (100Mbps) local area network.

Action List

After the WebCam plug-in is installed an activated in HomeSeer, a new tab appears on the event properties screen of HomeSeer (and in the HTML UI) called "WebCam Capture". All WebCam related actions are defined on this page.

Setting up a WebCam capture will be explained in more detail in the sections following this one, but the list of capture operations that the plug-in supports and what they do are as follows:

- **Capture a Single Picture**
  This operation allows you to snap a single picture and store it in a JPEG (JPG) file.
- **Recurringly Capture Pictures for Duration**
  This operation allows you to snap pictures at a very fast (e.g. 1 second) interval for a specified period of time.
- **Recurringly Capture Pictures until Count**
  This allows you to capture a set number of pictures at a very fast (e.g. 1 second) interval until the specified number of pictures has been captured.
- **Recurringly Capture Pictures at Interval until Stopped**
  Unlike the previous two "recurringly" operations, the capture of pictures in this operation is done at a set interval between pictures, and continues until a "stop" action is performed for the same capture device (and input if applicable) specified in this operation.
- **Recurringly Capture Pictures at Interval for Duration**
  Combining both an interval between pictures and a duration gives us this operation.
- **Capture Video for Duration**
  This operation is as named - a video is captured to a file for a specified amount of time.

- **Capture Video until Stopped**
  When you are not sure how much video you need captured, used this operation which captures the video until it is stopped or the hard drive fills up. This operation is stopped by executing an action that has the "stop" operation specified for the same capture device (and input if applicable) specified in this operation.
- **Capture Video and Stream it for Duration**
  Rather than capturing video into a file, this operation allows you to stream video over the network and capture it into a file for a set period of time.
- **Capture Video and Stream it until Stopped**
  As with the previous "Capture Video and Stream it for Duration" operation, this captures to a file and streams the video, but it continues to do so until a "stop" operation is performed specifying the same capture device and input (if applicable) as was specified in this operation.
- **Stream Video until Stopped**
  When saving a video to a disk file is not needed or the length of time needed to view the video exceeds the hard drive capacity, this operation allows you to stream the video over the network only, until a "stop" operation is performed that specifies the same capture device and input (if applicable) as was specified in this operation.
- **Stop Capturing or Streaming**
  For all operations that are of the type "Until Stopped", this action is used to cease the capture or stream operation. The capture device and input (if applicable) are the only parameters needed for this action.

For a detailed look at each of the settings on the capture action page, let's start by looking at the first item: Capture File

If a WebCam Motion Detector trigger is configured in the system, and it is set up to be a trigger that can be selectively enabled or disabled, then another WebCam action tab will appear in the Windows UI and a new Action link will appear in the HTML Events View UI. This additional set of actions will allow you to enable or disable selected motion detector triggers. Take a closer look at this action page here: The Action Form - WebCam Motion Detectors

The Action Form

The action form has the same appearance in the HTML UI as in the Windows UI. The form and an explanation for the various options available in setting up a WebCam action are explained in this section.

The first input on the WebCam capture action screen is for the name of the file that the captured image or video is to be placed into. By default, it is populated with a file name that makes use of several special "file replacement characters" which are replaced by actual values when the capture is executed.

The capture filename can make use of any of the special replacement variables listed here. It can also have a file extension, or a fully qualified path at the beginning of the filename. If a fully qualified path is specified, then the path must be relative to the HomeSeer HTML folder or the image viewer built into the plug-in will not function properly.

One feature of the WebCam Plug-In is that a copy of the last captured video or image is always created as "Latest.jpg" or "Latest.avi" (or other extensions as appropriate). This allows you to view the file Latest.jpg and through refreshing the view, you will always be updated with the last image captured by the plug-in for

that video capture device and input.

Examples:

C:\Program Files\HomeSeer\HTML\WebCam Captures\Capture ### for <mmm>-<dd>.JPG

C:\Temp\Captures that will not appear in the image viewer\My capture file.jpg

The Action Form - Capture Device and Input

An essential part of the capture action is in telling the plug-in which device, and which input on that device, to use for the capture operation. The next two drop down lists in the plug-in action page allow you to select these items.

If your device does not have multiple inputs, then it will not be listed at all under the "Device Input Selection" drop down list. If it does have multiple inputs, then you will be required to select one of the inputs listed before the WebCam Capture action can be saved.

The Action Form - Capture Operation, Timers and Count

The capture operation drop-down list is where you choose the WebCam Capture action for this event. The WebCam Capture action list may be referenced here for more information on each operation.

Some operations require a parameter entered in one or more of the three boxes directly below the operation list. The first and second boxes accept time values entered in ***hh:mm:ss*** form. **Example**: 00:05:30 for 5 minutes and 30 seconds. The first box is for the Interval, if needed, which specifies the amount of time between picture captures. The second box, if needed, is where you would enter a duration for the capture action to run.

The third box is where you can enter a count, or a limit on the number of images which will be captured before the event turns itself off if you chose a count based operation in the Capture Operation drop down list.

The Action Form - Format

The format for the WebCam Capture action is where you specify the size and color depth for the captured images or video.

When capturing video, use the smallest format and lowest color depth that you are willing to put up with and the speed of the video capture (frame rate) will be improved.

The Action Form - TV Settings

If the WebCam plug-in determines that there is a TV tuner capable capture device in the system, then the action form will include these two TV capture settings:

There are additional TV tuner settings in the WebCam Configuration screen.

In the TV Channel box enter the TV channel number. The TV Input Select drop down should be set to Antenna or Cable so that the channel number entered is tuned properly.

The Action Form - Frame Rate

The frame rate is only used for video captures, and it determines how quickly individual frames are grabbed from the video capture device. The industry norm (high) rate is 32 frames per second.

If you select a frame rate that is higher than what your computer or the video hardware can support, then frames will be dropped during the capture operation. This is normal. If you choose (Default), the default value for this selection, then the default rate specified by the capture device will be used.

The Action Form - Streaming

There are two options for configuring the WebCam Plug-In to stream video.

If video is being captured to a file at the same time it is being streamed, then the file extension of the capture file must be ".wmv".

The streaming video port is a network resource setting. For example, web servers default at port 80. The port number is of your own choosing, but some ports are used by common network services such as email, ftp, etc. Port numbers that are typically able to be used are 82-89 or 8000-8088, but there are hundreds of others available. The port number you specify here is what you will use in the Media Player to receive the streamed video. For example, if the name of your HomeSeer machine is Charlie, and the port that you set here is 88,

then in the Windows Media Player you will click File... Open URL... and enter: http://Charlie:88 for the URL to receive the video stream from. If you leave the streaming video port blank, the port that was specified in the WebCam Configuration will be used.

The Streaming Video Profile field contains several streaming profiles loaded by default by the installation of the Windows Media Player or other Windows Media technologies. Microsoft Windows Media programs can be used to add or change these profiles. From the list of profiles shown, select the profile that provides the streaming services that are right for your streaming needs. The streaming profiles contain settings for the bandwidth of the stream and the audio quality.

The Action Form - Video CODEC

A CODEC is a COder/DECoder that can translate data on-the-fly. When video is captured, the data is not compressed and so the video files and their merged audio is quite large. There are several CODECs installed on computers today. Many of these CODECs provide video and audio compression to various levels depending on the CODEC and the quality of the converted video it was made to produce. DVDs are encoded using MPEG technology.

When streaming is used in conjunction with video capture, a CODEC should NOT be selected as the Video Streaming Profile and the Microsoft Encoder Technologies will provide a CODEC to compress the video stream.

Use of a CODEC that is not compatible with the capture hardware or DirectX will result in the capture failing or even a lock-up of the WebCam plug-in itself.

A common CODEC that is found on many systems is the Intel Indeo CODEC.

The Action Form - Audio Device

If it is desired to have audio captured with your video, choose an audio device from the drop down list.

Note that the use of some CODECs and audio devices are not compatible.

If your video capture device does not support audio, it is still possible to capture audio from another device to

have it captured in the video file. This is useful if you have a video camera but use a microphone connected to the PCs sound board for audio.

The Action Form - Text Overlay

Text overlays are very common in video capture. They are the method used to place the date and time the image or video was captured on security captures, and/or the location name for the video input that is being recorded. You can have up to six (6) text overlays per image or video capture.

The text that you can overlay may also include the special replacement variables that the capture filename can use.

The foreground color and background color are entered in the HEX form, RGB format. (Example: 3C24E9) The foreground color is the color of the text characters themselves, and the background color is the color of the area behind the text. You may also use a transparent background for the text overlay by simply checking the "Transparent Background" checkbox..

Choose the font that you wish to use to draw the text keeping in mind that some fonts are much easier to read when they are used on small text. The Font Size will accept any number that you type, but the size will be scaled to the nearest size to what you enter that is supported by the font.

Next, enter the coordinate for the beginning position of the text. The coordinates refer to the X,Y location of the upper left hand corner of the text being rendered.

There are several more (6 total) text overlays that may be configured so that you may place text in several places on the captured image and avoid covering up critical area on the image.

After entering the text overlay information, the OK button (Windows UI) or Submit button (HTML UI) may be depressed to have the plug-in examine the settings to determine if anything needs to be corrected in the settings.

Now you are ready to use the event!

The Action Form - Bitmap Graphic Overlay

A graphic overlay, in bitmap (BMP) format may be superimposed over the captured image.

The first box is for the name of the graphic to be overlayed. Fully quality the path and the filename as it does not have to be under the HomeSeer folder hierarchy.

You may optionally enter a transparency color value next. The transparency color is entered in HEX RGB format. (Example: 40A2FD) Any colors matching this color in the bitmap overlay file will become transparent, allowing the captured image to show through.

The overlay coordinates are the X,Y coordinates where you want the upper left hand corner of the graphic to be placed. The upper left hand corner of the captured image is at location 0,0. If your captured image was 320x240 in size, and you have a 10x10 graphic to be overlayed at the lower right hand corner, you would enter the coordinates 310x230.

The Action Form - Devices and Waits

You may optionally have HomeSeer turn a device on before the capture begins, and off after the capture is completed. In addition, you can tell HomeSeer to wait a period of time after turning on the device before continuing with the capture. This feature helps with the integration of cameras such as the X-10 brand cameras which are individually turned on/off when multiple cameras are used.

The list of devices for the ON and OFF selections is read from HomeSeer.

The Action Form - WebCam Motion Detectors

The WebCam plug-in is unique in that it provides a trigger that is NOT always enabled by default. Normally, HomeSeer monitors for triggers continuously, and it is up to you to provide a condition, usually through a virtual device status, to control whether the events that monitor that trigger should be run or not. With the WebCam plug-in, a motion detector trigger is using a capture device the entire time it is enabled, and this may

not be desirable as you may wish to capture images from the device when you are not using it as a motion detector.

In this scenario, you may wish to configure an event that is triggered by a WebCam motion detector, and let's call that motion detector "Night Motion Detector" in this example. Once the motion detector is configured, you want to be able to turn it on and off selectively - e.g. just at night, so that during the day you can periodically capture images from the camera. To do this, configure the trigger to NOT be an always on trigger, and then provide a name for the trigger in the box provided (see below). After the configuration is completed, refresh your event display and a new WebCam action tab will appear in the Windows UI, or a new WebCam Action link will appear in the HTML UI, and this is the "WebCam Motion Detectors" action.

The WebCam Motion Detectors action page looks like this:

The first step in configuring a motion detector action is to choose whether you want to enable or disable the detector in the first drop down list box.

In the second drop down list box, you will find the names of all of the motion detectors that you have configured in a trigger screen that were given names and set up to NOT be always enabled. In this example, our "Night Motion Detector" appears in the list.

Once this information has been entered, click Submit (HTML UI) or OK (Windows UI) to accept this action.

It is now possible to create an event that enables the motion detector trigger perhaps at dusk or when the security system is armed in the night mode. Once motion is detected, the event that is run might turn OFF the motion detector trigger and then launch another event that is going to capture video for five minutes. After five minutes of capturing video, yet another event might be run to re-enable the motion detector trigger that captured the motion in the first place.

WebCam Configuration

There are several topics in the WebCam configuration screen. The configuration screen is accessed by clicking the menu option under the WebCam menu titled "WebCam Configuration"

Or it may be accessed by clicking the "WebCam Configuration" link in your HomeSeer HTML user interface, or by pointing your web browser to the **\WebCamConfig** page on your HomeSeer web server.

Please click an area below to display information about that configuration option.

The device name comes from your video capture devices that were discovered by the plug-in. These cannot be changed.

The device's friendly name, or the name as you would like it to be known by, may be entered here. For

example, "Logitech QuickCam Express" may be referred to throughout the plug-in as just "QC" if you enter QC in the friendly name field.

The WebCam plug-in will find all DirectX compatible capture devices in your system. If there is one that you do not wish to use with the WebCam plug-in, you can check this box and it will be removed from all of the dialog boxes that refer to devices in the system. Once removed, and after restarting HomeSeer, the device will appear with an option that you can select to again use the device with the plug-in.

If the manufacturer of your capture hardware allows simultaneous use of the hardware at once by different software applications, then you can check this box and the WebCam plug-in will no longer prevent concurrent use of the same video resource by different WebCam actions taking place at the same time.

Video flipping refers to the plug-in's ability to flip the image vertically or horizontally. If you mounted a camera on the ceiling of your front porch and the camera is hanging down, then you can choose to flip the image vertically using this configuration option so the resulting captures are right-side up.

When two machines connect over a network, it is often to a specific port or service location on a machine since a computer can have many different services running over one network connection. This configuration option sets the port number for streaming video operations. This port may be overridden in the actual capture action configuration. More information about the port number can be found in the Receiving Streams section.

Streaming profiles are configuration settings for how video and audio should be streamed, or broadcast over the network. For example, if the intended audience of the stream is made up of dial-up Internet users, then you would not want to select a stream that transmits the audio at 1500Kbps over their 45Kbps connection. Several profiles are provided by default. New profiles can be created using Microsoft Media Technologies software. This configuration sets the default profile, but any profile may be selected to override this default when a WebCam Capture action is being configured to include streaming.

Thumbnails are small versions of the captured images and videos. The WebCam Capture Viewer web page will display thumbnail images, if they exist, which allow you to more easily select the image or video you wish to view. If you enter a non-zero value in this field, thumbnails of that number's width will be created of each captured image, and a thumbnail of that width will be created using the first frame of captured video. Enter zero to disable thumbnails and you can select images to view based upon their capture filename.

When accessing the WebCam Capture Viewer page in your browser, this option determines how many thumbnail images are displayed across the screen before a new row is started.

When using the WebCam Capture Viewer web page, a hyperlink is displayed whenever the image "Latest.jpg" is displayed. This is so that you can click Refresh and always see the latest image captured. The file Latest.jpg is created after every capture and is a duplicate of the last image captured. If you want this or any other image that you are viewing to be automatically refreshed at a regular interval in your browser, enter a non-zero value here. The value you enter will determine how many seconds between automatic refreshes that your browser will initiate.

The WebCam plug-in creates a directory under HomeSeer's HTML directory called WebCam, and under that are directories for each of the capture devices in your system. If the capture devices have multiple inputs, then directories are created under the device named directory for each input. These directories are where WebCam stores the captured images and videos by default. If you used a fully qualified path for your capture file and it is not one of these default paths, you can enter that directory name in the additional paths box so that the

WebCam Capture Viewer web page will be able to display the images. **Note:** Only directories under HomeSeer's HTML directory may be used with the WebCam Image Viewer web page.

The WebCam plug-in will display some high-level status information in your HomeSeer event log at all times. There are other debug messages which are designed to help HomeSeer troubleshoot technical issues that may arise with the plug-in. This option allows you to determine if you wish to have any debug information captured, and if so, whether it should be recorded in the HomeSeer event log (ah.log), the WebCam log (WebCam.log) or both.

You will need to click this button, SAVE, to record any configuration settings that you have changed.

Receiving Streams

Before you create an action to stream video using the plug-in, there are some important configuration options that you should set so that the WebCam plug-in will have defaults to use if the options are not set in the streaming video action. Please visit the WebCam Configuration topic to learn more about these settings.

When setting up an action to stream the video over the network, please keep in mind that if you desire capturing the video to the hard drive at the same time, you MUST have a WMV extension at the end of your capture file name (e.g. "Capture ###.wmv") and you should not use a CODEC as the Windows Media Video format already includes a Windows Media Encoder setting.

To view the stream after the action that is doing the streaming has been launched, start up the Windows Media Player program on the PC that you wish to view the stream at. The PC you are viewing the stream on will need to be able to connect to the HomeSeer PC on the port that you have the stream originating on. This means that if your HomeSeer PC is behind a network device such as a router, and the client PC viewing the stream is on the Internet, you may have to set up port forwarding so that the port may be accessed, and a dynamic DNS service so that the HomeSeer PC's Internet address is known and accessible. Please consult the HomeSeer message board for more information regarding these two advanced network topics.

After starting Windows Media Player 9, click on File... and then choose the Open URL... command as shown here:

The Open URL command will prompt for the URL to connect with. The URL should be entered using the format shown next:

In this example, **MyHomeSeerPC.domain.com** is the name that the HomeSeer PC is known by on the Internet. If you know your external (Internet) IP address, you can use that instead. IP addresses generally take the form of 15.23.122.16 -- four numbers between 0 and 255 separated by periods. If the IP address starts with 192 or greater, then this is your local network IP address, not the Internet address.

The **:88** at the end tells the Media Player which port on the HomeSeer PC to look for the stream to be on. This is the port number that you specified in the stream action of the plug-in, or if you did not specify one, then it is the port number that you set as the default port to use in the WebCam Plug-In Configuration screen. ***Note***: *With Microsoft browsers and the Media Player, the http:\\ is required when a :port designation is appended to the end of the URL -- thus, MyHomeSeerPC.domain.com:88 by itself will not work.*

Once the URL has been entered, Media Player will connect to the HomeSeer PC and begin to receive and display the stream. Media Player will end the streaming when the event that is streaming the video over the network ends or is stopped.

You can configure more than one stream to occur at the same time, but each must be done using a different port and a different video capture device.

Trigger Information

The WebCam plug-in supports only one trigger - motion detection. This trigger is powerful and unique at the same time. It is powerful because the trigger can be configured to mask out certain areas of the image so that when wind moves tree limbs that happen to be in part of the camera image, it will not trigger a false motion detection. The trigger is unique in that it can be configured such that it can be turned on or off selectively. Rather than use a condition to determine whether the event associated with the trigger should be processed, the trigger is capable of being turned on or off selectively so that the capture resource is not tied up when the motion detector trigger is not needed.

The motion detector trigger can be chosen by accessing the trigger selection and then choosing the WebCam Motion Detector trigger option - here is what it looks like in the HTML user interface:

The configuration options for the motion detector trigger are as follows:

The device to use and device input selection are similar to the capture action page selections - they are the capture device, and the specific input on that device that you wish to use as a motion detector.

The format is also like the format selection on the capture action page, but in this case, you may wish to choose the largest format possible for your capture device to provide as much resolution for the motion detector as possible. Keep the format size in mind because you will need it if you are going to configure the motion detector masks farther below on this form.

Next is the Threshold setting. The threshold represents a single number that the plug-in generates to determine how much of the image has changed from one frame to another. The bigger the number, the more that has changed. If you were to put a black cloth over the camera and then pull it away instantly, the plug-in would return a value of 100, meaning the entire image changed. A default value of 30 is inserted here, but you can change it to suit your needs. Values below 15-20 may be too sensitive for many applications. Remember, even changes in light level are considered change that is interpreted as motion by the detector.

The last option before configuring the optional detection masks is to decide if you want this motion detector to always be enabled or not. When a motion detector is enabled, its capture resources are being used, and for most video capture hardware, this means that a capture cannot take place on it unless the detector is first disabled. If you wish to configure the detector to always be enabled, simply put a check in the box next to the words "Always Enabled". If you would like the ability to enable or disable the detector in an event action, then do NOT check the box, and instead enter a name for this detector in the "Motion Detector Name" box.

Motion Detector Masks

When motion detectors are used in environments where some portions of the video image are expected to have motion, such as when a camera is mounted outdoors and has trees or other items affected by wind, then it may be desirable to "mask" the portions of the video image so that movement of these items does not trigger a false motion detection.

The motion detector trigger configuration screen allows you to establish up to 10 mask areas, which are rectangular areas that you define, on your motion detector image.

The masks are configured using the same coordinate and sizing system used throughout the plug-in. The coordinates of the upper (top) left corner of the mask are entered in the first two boxes, and then the height and width of the mask are entered in the next two boxes. Thus, if you wanted to mask off the entire left hand side of your video camera for a width of about 100 pixels, and your camera format was set to 320x240, then you would enter the following for the mask: *Top*:**0** *Left*:**0** *Height*:**240** *Width*:**100**

Once the optional masks have been configured, you can click OK on the Windows UI or Submit on the HTML UI to complete the trigger setup.

WebCam Capture Viewer

When you click on the link for the WebCam Capture Viewer or point your browser to the **WCPicView** web page, you will see links to your capture devices and inputs, or if you have thumbnail generation enabled, you will see links to your capture devices and inputs along with thumbnail images of the captures that have already been done such as the example below.

By clicking on one of the thumbnails, you will launch the viewer to display the full size image in its own window. There are several operations you can perform in the individual image viewer which will be discussed in the Viewing one Image or Video topic next.

Viewing one Image or Video

Clicking on a thumbnail displays the individual image or video viewer window. (Click the following image for a full size view):

The image viewer will begin playing a video immediately if the file the thumbnail is linked to is a video, but please keep in mind that this is *NOT* video streaming, so the entire video has to be downloaded to the PC it is being displayed on before it will begin to appear. During this download time, a **red X** may appear in the window where the video will display.

At this point, you may **DELETE** the image by clicking on the "Delete" link underneath the image.

You can **REFRESH** the image by clicking on the "Refresh" link if it is displayed. If auto-refresh is not enabled, the only the file "Latest.jpg" will display the Refresh link.

You can **ADVANCE** the display to the next image in the device directory by clicking on the image itself, or you may proceed **DIRECTLY** to any image in the device directory by clicking the drop down list of files and selecting the one you wish to view.

Note: Because of the way the viewer handles the files in the directory, it will report that there are no more files to be viewed when there is one file left in the directory. You may access the file by opening the viewer again after refreshing the file/thumbnail display and delete it

Support

For Support:

Help Desk: www.homeseer.com (select ***HelpDesk*** from the ***Suppot*** menu)

Support is also available on our message board at:

http://board.homeseer.com

Look for the forum dedicated to the Webcam plugin.