AXIS 207 Network Camera

User's Manual

About this Document

This manual is intended for administrators and users of the AXIS 207 Network Camera, and is applicable for software release 4.21 and later. It includes instructions for using and managing the AXIS 207 on your network. Previous experience of networking will be of use when using this product. Some knowledge of UNIX or Linux-based systems may also be beneficial, for developing shell scripts and applications. Later versions of this document will be posted to the Axis Website, as required. See also the product's online help, available via the Web-based interface.

Safety Notices Used In This Manual

Caution! - Indicates a potential hazard that can damage the product.
Important! - Indicates a hazard that can seriously impair operation.
Do not proceed beyond any of the above notices until you have fully understood the implications.

Intellectual Property Rights

Axis AB has intellectual property rights relating to technology embodied in the product described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the patents listed at http://www.axis.com/patent.htm and one or more additional patents or pending patent applications in the US and other countries.

This product contains licensed third-party software. See the menu item "About" in the product's user interface for more information.

This product contains source code copyright Apple Computer, Inc., under the terms of Apple Public Source License 2.0 (see http://www.opensource.apple.com/apsl/).
The source code is available from:
http://developer.apple.com/darwin/projects/bonjour/

Legal Considerations

Video and audio surveillance can be prohibited by laws that vary from country to country. Check the laws in your local region before using this product for surveillance purposes. This product includes one (1) MPEG-4 decoder license. To purchase further licenses, contact your reseller.

Electromagnetic Compatibility (EMC)

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Re-orient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment to an outlet on a different circuit to the receiver. Consult your dealer or an experienced radio/TV technician for help. Shielded (STP) network cables must be used with this unit to ensure compliance with EMC standards.

USA - This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his/her own expense will be required to take whatever measures may be required to correct the interference.

Canada - This Class B digital apparatus complies with Canadian ICES-003.

Europe - CE This digital equipment fulfills the requirements for radiated emission according to limit B of EN55022/1998, and the requirements for immunity according to EN55024/1998 residential, commercial, and light industry.

Japan - This is a class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Australia - This electronic device meets the requirements of the Radio communications (Electromagnetic Compatibility) Standard 1998 AS/NZS 3548.

Liability

Every care has been taken in the preparation of this manual. Please inform your local Axis office of any inaccuracies or omissions. Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Axis Communications AB makes no warranty of any kind with regard to the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Axis Communications AB shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material.

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UPnP™ is a certification mark of the UPnP™ Implementers Corporation.

This product includes MPEG-4 AAC audio coding technology licensed by Fraunhofer IIS. Refer to FHG audio home page http://www.iis.fraunhofer.de/amm/

Support

Should you require any technical assistance, please contact your Axis reseller. If your questions cannot be answered immediately, your reseller will forward your queries through the appropriate channels to ensure a rapid response. If you are connected to the Internet, you can:

- download user documentation and firmware updates
- find answers to resolved problems in the FAQ database. Search by product, category, or phrases
- report problems to Axis support by logging in to your private support area
- visit Axis Support at www.axis.com/techsup/

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Product Features

AXIS 207 is the world's smallest true MPEG-4 network camera from the market leader in network video. Features MPEG-4 image compression and motion detection for bandwidth efficiency. High quality, progressive scan CMOS image sensor for low light conditions down to 1 lux. Built-in microphone for one way audio. Contains Web server for remote monitoring and surveillance with frame rates up to 30 fps even in VGA 640x480 resolution. Compatible with PDAs/cell phones using 3GPP mediaplayers. Multiple user level password protection to restrict camera access. Shipped with stand, clamp, application software (ACE) and a fixed iris lens. For indoor use.

- True MPEG-4 image compression for optimized bandwidth efficiency
- Built-in Web server for remote monitoring and surveillance
- Built-in microphone for one-way audio
- Excellent low light performance down to 1 lux
- Superior image quality with 30 fps in full VGA resolution

Overview

Microphone - Built-in microphone for one way MPEG-4, ISMA, 3GPP compatible audio.

Power Connector - For connection of the PS-L power adapter (included).

I/O Connector - The I/O terminal connector provides the physical interface to one transistor output, one digital input and an auxiliary connection point for DC power. For more information, see *The I/O Terminal Connector*, on page 34.

Network Connector - The camera connects to the network via a standard network connector. Supporting NWAY, the camera detects the speed of the local network segment (10BaseT/100BaseTX Ethernet).

Serial Number - This number is used during installation.

Control Button - Press this button to install using the AXIS Internet Dynamic DNS Service or to restore the factory default settings, as described in *Resetting to the Factory Default Settings,* on page 33.

Status / Network / Power Indicators

After completion of the startup and self test routines, the multi-colored Network, Status, and Power LED indicators flash as follows:

Network	Amber	Steady for connection to 10 Mbit/s network. Flashes for network activity.
	Green	Steady for connection to 100 Mbit/s network. Flashes for network activity.
	Red	Flashes rapid red, together with the Status indicator, for hardware error.
	Unlit	No connection.
Status	Green	Shows steady green for normal operation. Can be configured to flash green at intervals whenever the camera is accessed. See the online help for more information.
	Unlit	When configured for “no flash” on camera access.
	Amber	Shows steady amber during reset to factory default or when restoring settings.
	Red	Slow flash for failed upgrade (see *Emergency Recovery Procedure,* on page 40.) Rapid flash, together with the Network indicator, for hardware error.
Power	Green	Normal operation.
	Amber	Flashes green/amber during firmware upgrade.

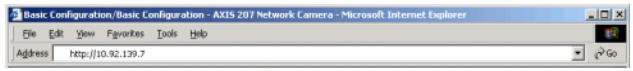
Accessing the Camera

The camera can be used with most standard operating systems and browsers. The recommended browser is Microsoft Internet Explorer with Windows, Safari with Macintosh and Mozilla with other operating systems.

Notes:
- To view streaming video in Microsoft Internet Explorer, set your browser to allow ActiveX controls and allow the AXIS Media Control (AMC) to be installed on your workstation.
- QuickTime™ and Real Player™ are also supported for viewing streaming MPEG-4 video and audio.
- If your workstation restricts the use of additional software components, the camera can be configured to use a Java applet for viewing motion JPEG.
- The AXIS 207 includes one (1) decoder license for viewing MPEG-4 video streams. This is automatically installed with AMC. The administrator can disable the installation of the MPEG-4 decoder, to prevent unlicensed copies being installed.

Access from a browser

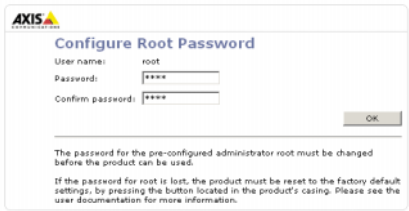
1. Start a browser (e.g. Internet Explorer, Mozilla)
2. Enter the IP address or host name of the camera in the Location/Address field of your browser.



   To access the camera from a Macintosh computer (Mac OSX), simply click on the Bonjour tab and select the AXIS 207 from the drop-down list.
3. If this is the first time the camera is accessed, see *Setting the Password,* on page 9. Otherwise enter your user name and password, as set by the administrator.
4. The camera's Live View page is now displayed in your browser.

Note: The layout of the live view page in the camera may have been customized to meet specific requirements. Consequently, some of the examples and functions featured here may differ from those displayed on your own Live View page.

Setting the Password



1. When accessing the camera for the first time, the 'Configure Root Password' dialog will be displayed on the screen.
2. Enter a password and then re-enter it, to confirm the spelling. Click OK.
3. The 'Enter Network Password' dialog will appear. Enter the User name: root
   Note: The default administrator user name root is permanent and cannot be deleted.
4. Enter the password as set in step 2 above, and click OK. If the password is lost, the camera must be reset to the factory default settings. See page 33.
5. If required, click Yes to install the AXIS Media Control (AMC). You will need administrator rights on the computer to do this.

Accessing the camera from the Internet

Once installed, a camera is accessible on your local network (LAN). To access the camera from the Internet you must configure your broadband router to allow incoming data traffic to the camera. To do this, enable the NAT-traversal feature, which will attempt to automatically configure the router to allow access to the camera. This is enabled from Setup > System Options > Network > TCP/IP Advanced.

For more information, please see *NAT traversal (port mapping)*, on page 29. See also the AXIS Internet Dynamic DNS Service at www.axiscam.net or, for Technical notes on this and other topics, visit the Axis Support Web at www.axis.com/techsup

3GPP Compatibility

The AXIS 207 is 3GPP compatible. In order to view live video over 3GPP the following settings must be made:

- Contact your cell phone provider and make sure that the configuration is correct. It is highly recommended that you have an account with a public IP address.
- The AXIS 207 must have a completely public IP address i.e. no ports blocked by a firewall.
- The AXIS 207 is 3GPP compatible by default but the image settings must be configured as follows:
  Go to Setup > Video & Image > Image Appearance and set the Resolution to 160x120 or 176x144
  Go to Setup > Video & Image > Advanced > MPEG-4 > Bit Rate Control and limit the Maximum Bit Rate to 64 or 128 kbit/s
- Go to Setup > Video & Image > Advanced > MPEG-4 > GOV Settings and set Length to 8.

Focusing

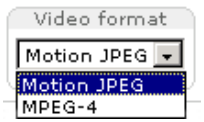
To focus:
Open a browser and examine the image. If required, adjust the focus ring until the focus is satisfactory.

Note: Upon delivery, the raised line on the focus ring is aligned with the dot above the lens, and the focus is set to infinity.

The Live View Page

Depending on whether or not the Live View page has been customized, the buttons described below may or may not be visible.

To resize the video image, click the View Size buttons: half-size (x½), full-size (x1), x2 or x4. Note that this does not change the video image's resolution, but simply how it is displayed.



The Video Format drop-down list allows the video format on the Live View page to be temporarily changed.

The Output buttons control the output directly from the Live View page. These buttons are configured under Setup > Live View Config > Layout.

Pulse - click this button to activate the port for a defined period of time, e.g. to switch on a light for 20 seconds.
Active/Inactive - click these buttons to manually start and stop a connected device, e.g. switch a light on/off.

The Action buttons can trigger an event directly from the Live View page. These are configured under Setup > Live View Config > Layout.

The Snapshot button saves a snapshot of the video image currently being displayed. Right-click on the video image to save it in JPEG format on your computer. This button is primarily intended for use when the AMC viewer toolbar is not available.

The AMC viewer toolbar (AXIS Media Control) is available in Microsoft Internet Explorer only. It displays the following buttons:

The Play/Stop button starts and stops the live video stream.

The Snapshot button saves a snapshot of the video image currently being displayed. The Snapshot function and the target directory for saving snapshots can be configured from the AMC Control Applet in the Windows Control Panel (Internet Explorer only).

Click the View Full Screen button to make the video image fill the entire screen area. No other windows will be visible. Press Esc (Escape) on the computer keyboard to exit full screen.

AMC audio controls

There are audio controls for controlling the client computer's speaker output. These controls are only available in MPEG-4 video format and when audio is enabled, see *Audio Settings,* on page 18.

Click the Mute/Sound button to switch the sound off and on.

Use the slider to control the volume. The volume can be set between 0 and 100.

Video Streams

The AXIS 207 provides several different image and video stream formats. The type to use depends on your requirements and on the properties of your network.

The Live View page in the AXIS 207 provides access to MPEG-4 and Motion JPEG video streams, as well as to single JPEG images. Other applications and clients can also access these video streams/images directly, without going via the Live View page.

How to stream MPEG-4

This video compression standard makes good use of bandwidth, and can provide DVD-quality video streams at less than 1 Mbit/s. Note that the image settings of the MPEG-4 stream is the same for all clients.

Deciding on the combination of protocols and methods to use depends on your viewing requirements, and on the properties of your network. The available options in AMC are:

Unicast RTP	This unicast method (RTP over UDP) should be your first consideration for live video, especially when it is important to always have an up-to-date video stream, even if some images are dropped.	Unicasting is used for video-on-demand broadcasting, so that there is no video traffic on the network until a client connects and requests the stream. Note: There is a maximum of 20 simultaneous viewers.
RTP over RTSP	This unicast method (RTP tunneled over RTSP) is useful as it is relatively simple to configure firewalls to allow RTSP traffic.	
RTP over RTSP over HTTP	This unicast method can be used to traverse firewalls. Firewalls are commonly configured to allow the HTTP protocol, thus allowing RTP to be tunneled.	
Multicast RTP	This method (RTP over TCP) should be your first consideration for live video, especially when it is important to always have an up-to-date video stream, even if some images are dropped.	Multicasting provides the most efficient usage of bandwidth, especially when there are large numbers of clients viewing simultaneously. Note however, that a multicast broadcast cannot pass a network router unless the router is configured to allow this. It is thus not possible to multicast over e.g. the Internet.

The AMC will negotiate with the camera to determine exactly which transport protocol to use in the order listed above. This order can be changed and the options disabled, to suit any specific requirements.

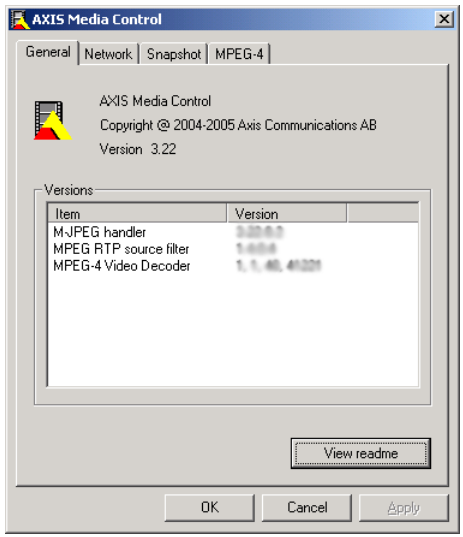
Important!

MPEG-4 is licensed technology. The AXIS 207 includes one viewing client license. Installing additional unlicensed copies of the viewing client is prohibited. To purchase additional licenses, contact your Axis reseller.

MPEG-4 clients

AXIS Media Control (AMC)

The recommended method of accessing live video (MPEG-4 and Motion JPEG) from the AXIS 207 is to use the AXIS Media Control (AMC) in Microsoft Internet Explorer in Windows.



The AMC control panel can be used to configure various video and audio settings. Please see the readme file included in the tool for more information.

The AMC control panel is automatically installed on first use, after which it can be configured. Open the AMC Control Panel from:

- Windows Control Panel (from the Start menu)
- Alternatively, right-click the video image in Internet Explorer and select Settings from the menu.

QuickTime™ & Real Player™

To access the video stream from e.g. QuickTime™ or Real Player™, either one of the following paths can be used:

- rtsp://<ip>/mpeg4/media.amp
- rtsp://<ip>/mpeg4/media.3gp

Notes:
- The AXIS 207 supports QuickTime 6.5.1 (or later) or Real Player 10.5 (or later)
- QuickTime adds latency to the video and audio stream (up to 3 seconds)
- It may be possible to use other players to view the MPEG-4 stream using the paths above, although this is not guaranteed by Axis
- <ip> = IP address

Motion JPEG

This format uses standard JPEG still images for the video stream. These images are then displayed and updated at a rate sufficient to create a stream that shows constantly updated motion.

The Motion JPEG stream uses considerable amounts of bandwidth, but provides excellent image quality and access to each and every individual image contained in the stream. The recommended method of accessing Motion JPEG live video from the AXIS 207 is to use the AXIS Media Control (AMC) in Microsoft Internet Explorer in Windows.

Note also that multiple clients accessing Motion JPEG streams can use different image settings.

Alternative methods of accessing the video stream

Video/images from the AXIS 207 can also be accessed in the following ways:

- The AXIS 207 is 3GPP compatible - enter the path:
  - rtsp://<ip>/mpeg4/media.3gp
    Refer to *3GPP Compatibility*, on page 9 for more information.
- Motion JPEG server push (if supported by the client, e.g. Mozilla/Firefox). This option maintains an open HTTP connection to the browser and sends data as and when required, for as long as required. See *HTML Examples*, on page 22.
- Still JPEG images in a browser. Enter e.g. the path:
  http://<ip>/axis-cgi/jpg/image.cgi?resolution=320x240
- Windows Media Player. This requires AMC and the MPEG-4 viewing client to be installed. The paths that can be used are listed below in the order of preference.
  - Unicast via RTP: axrtpu://<ip>/mpeg4/media.amp
  - Unicast via RTSP: axrtsp://<ip>/mpeg4/media.amp
  - Unicast via RTSP, tunneled via HTTP: axrtsphttp://<ip>/mpeg4/media.amp
  - Multicast: axrtpm://<ip>/mpeg4/media.amp

Note: <ip> = IP address

Configuration

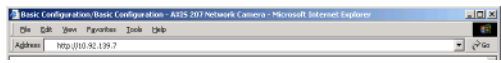
This section describes how to configure the camera, and is intended for product Administrators, who have unrestricted access to all the Setup tools, and Operators, who have access to the settings for Video & Image, Audio, Live View Config and Event Configuration.

The camera is configured under Setup from a standard browser (see *Supported Web Browsers,* on page 41).

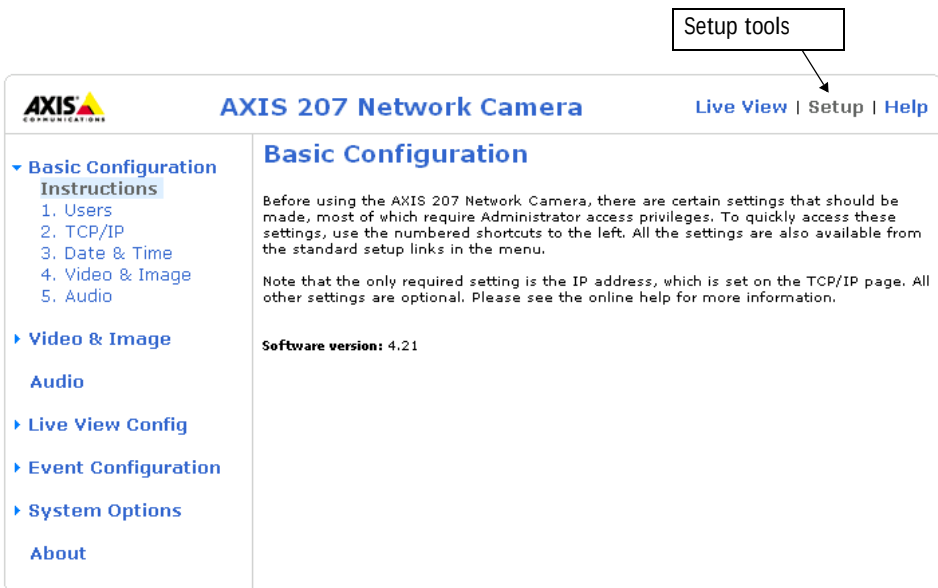
Accessing the Setup tools

Follow the instructions below to access the Setup Tools from a browser.

1. Start your browser and enter the IP address or host name of the camera in the location/address field.



2. The Live View page is now displayed. Click Setup to display the Setup tools.



AXIS Media Control

The AXIS Media Control (AMC) is installed automatically the first time the camera is accessed from Microsoft Internet Explorer. The AMC control panel can be opened by right-clicking on the video image in the Live View web page. The AMC control panel can be used to configure various video and audio settings. Please see the readme file included in the tool for more information.

Video and Image settings

The following descriptions offer examples of the features available in the AXIS 207. For details of each setting, please refer to the online help available from the setup tools. Click to access the online help.

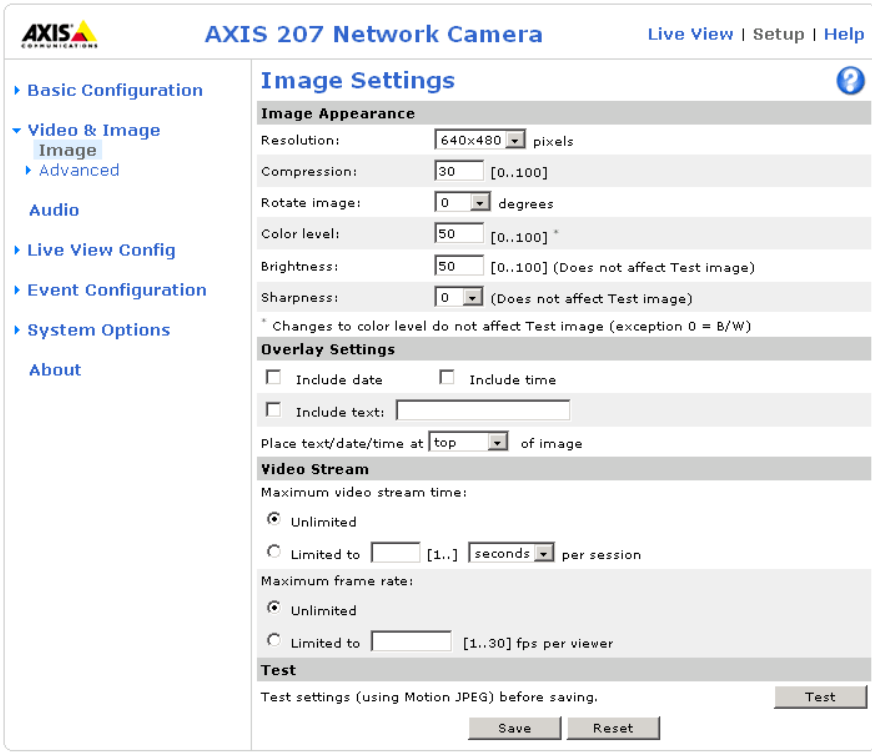


Image Appearance

Use these settings to change the image as required. The video image can be rotated and also fine-tuned by adjusting the color level, the brightness and the sharpness.

The configuration of the video image will affect the camera's overall performance, depending on how it is used and on the available bandwidth. Setting higher resolution and lower compression improves video image quality, but increases the amount of bandwidth used.

Please see the online help for further information on these settings.

Overlay Settings

Use these settings to include a text, date and time overlay.

The text, date and time overlay is included on one line at the top or bottom of the video image.

Video Stream

Define the maximum video stream time per session in seconds, minutes or hours. When the set time has expired, a new stream can be started by refreshing the page in the Web browser. For unlimited video stream time, set this value to 0. Note that the maximum video stream time does not apply to clients connecting via multicast.

The frame rate allowed to each viewer can also be limited, to avoid bandwidth problems on the network. To allow the highest available frame rate, set to 0.

Test

For a preview of the image before saving, click Test. When satisfied with the settings, click Save. Please note that the preview image will be in JPEG format, even though the settings are valid both for Motion JPEG and MPEG-4.

Please refer to the online help for more information .

Advanced - Camera Settings

These pages include different settings for fine-tuning the video image.

To compensate for the lighting conditions, the white balance and exposure control can be adjusted.

Please see the online help for further instructions on these settings.

Low Light Behavior

Exposure priority defines the balance between image quality and the frame rate. Higher image quality may reduce frame rate and increase motion blur. A prioritized frame rate may instead increased image noise. Depending on requirements, use this to give higher priority to the image quality or to the frame rate.

Advanced - MPEG-4 Settings

GOV Settings

The GOV structure describes the composition of the MPEG-4 video stream. Setting the GOV-length to a high value saves considerably on bandwidth. The Cyclic refresh parameter gives a smoother bit rate and can be useful if there is limited bandwidth available.

Note: Cyclic refresh should not be enabled if Event handling is enabled and the file format is set to MPEG-4 under Upload images/video (under Setup > Event configuration > Event settings).

Bit Rate Control

Limiting the maximum bit rate is a good way of controlling the bandwidth used by the MPEG-4 video stream. Leaving the Maximum bit rate as unlimited will provide consistently good image quality, but at the expense of increased bandwith usage whenever there is more activity in the image. Limiting the bit rate to a defined value will prevent excessive bandwidth usage, but images will be lost when the limit is exceeded.

Note that a maximum bit rate can be used for both variable and constant bit rates.

The bit rate type can be set as Variable Bit Rate (VBR) or Constant Bit Rate (CBR). VBR will adjust the bit rate according to the images' complexity, thus using a lot of bandwidth for a lot of activity in the image and less for lower activity in the monitored area.

Audio Settings

General

The AXIS 207 has a built-in microphone for one way MPEG-4, ISMA, 3GPP compatible audio.

Enable audio - click the checkbox to enable Audio (disabled by default).

Note: To receive synchronized video and sound, it is recommended that the time setting is synchronized with an NTP Server. This is enabled under System Options > Date & Time. Please refer to the help pages for more information.

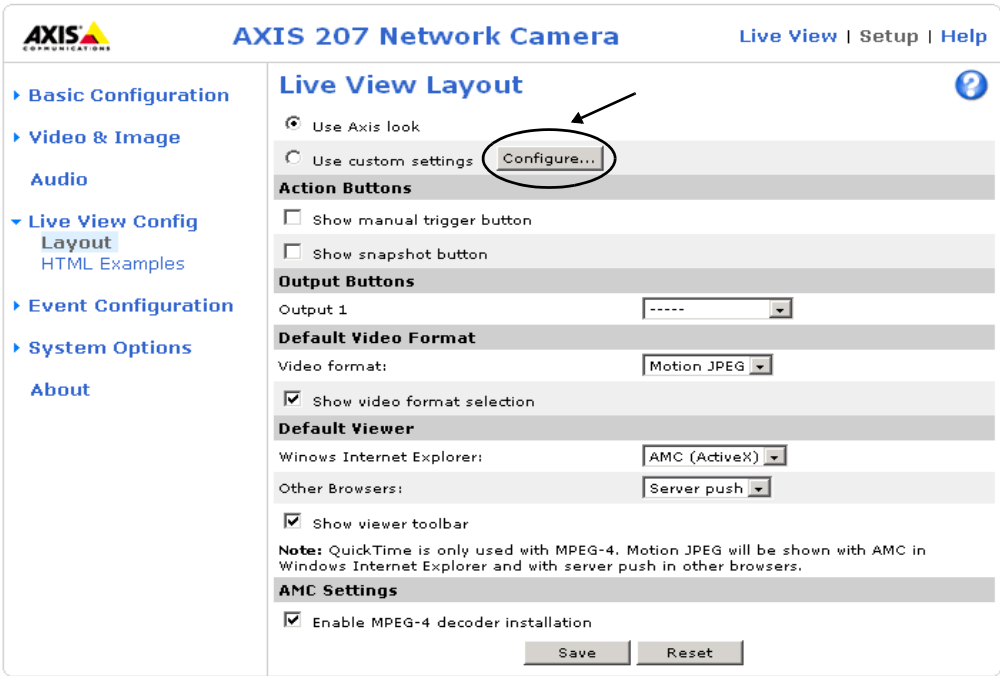
Live View Config

Layout

These are the tools for deciding the layout of the Live View page.

The layout can be set in 3 ways:

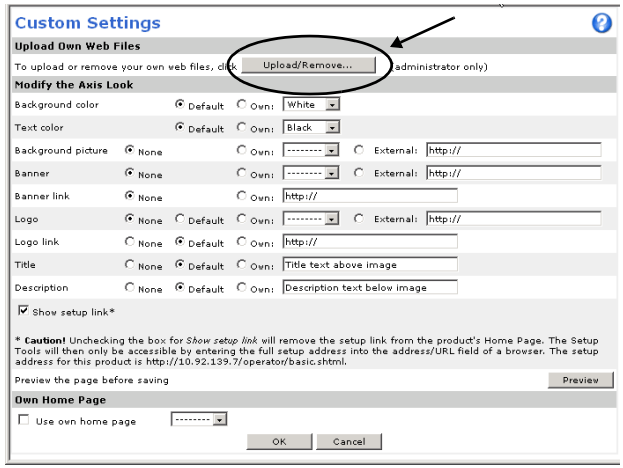
- Use Axis look - the layout is unchanged.
- Use custom settings - modify the Axis look, with your own colors, images etc. Click the Configure button and see *Customizing the default page*, on page 20.
- Own Home Page - Upload and use your own custom page as the default web page. Click the Configure button and see *Customizing the default page*, on page 20.



The other settings on this page concern which features to include, e.g. action button, output button, default video stream and viewer. See page 21 for more information.

Customizing the default page

The appearance of the default Live View page can be customized to suit your own requirements, or you can upload and use your own home page. To upload your own files, click the Upload/Remove button and see the description below.



Upload Own Web Files

Your own web files, background pictures, etc., must first be uploaded to the camera in order to be available for selection in the Custom Settings setup dialog. Once uploaded, the files are shown in the drop-down lists.

1. Click the Upload/Remove button.
2. Enter the path to the file, e.g. a file located on your workstation or click the Browse button.
3. Select the user level for the uploaded file. Setting the user access level means that you have complete control over which pages can be viewed by which users.
4. When the path is shown correctly in the text field, click the Upload button.

All uploaded files are shown in the list in the lower section of the page. To remove a file, check the box provided next to it and then click the Remove button.

Unchecking the box for Show setup link will remove the setup link from the product's Home Page. The Setup Tools will then only be accessible by entering the full setup address into the address/URL field of a browser.

> If the setup link is hidden, setup can be reached at this url: http://<ip address>/operator/basic.shtml.

Own Home Page

To use a previously uploaded web page as the default page, check the box, select the page from the drop-down list and click OK.

Action Buttons

The manual trigger buttons can be used to manually trigger and stop an event from the Live View page. See *Event Configuration,* on page 23.

Enabling the display of the Snapshot button allows users to save a snapshot from the video stream by clicking the button. This button is mainly intended for use with browsers other than Internet Explorer, or when otherwise not using AXIS Media Control (AMC) to view the video stream. AMC (an ActiveX control) for Internet Explorer provides its own snapshot button.

Output Button

The output buttons are used to manually activate the output from the Live View page, e.g. to switch a light on and off. There are 2 options for how the output is activated:

- The Pulse button activates the output for a defined period
- Active/Inactive displays 2 buttons, one for each action (on/off)

Default Video Format

Select the default video format to use on the Live View page. Checking the box for Show video format selection displays a drop-down list on the Live View page allowing you to temporarily change the format.

When using MPEG-4 as the video format, the default viewer is AXIS Media Control with Internet Explorer.

Note: It is also possible to view Motion JPEG when MPEG-4 is chosen as default and vice versa.

Default Viewer

From the drop-down lists, select the default method for viewing video images depending on the browser. The camera will attempt to show the video images in the selected video format and viewer. If this is not possible, the camera will override the settings and select the best available combination.

Browser	Viewer	Description
Windows Internet Explorer	AMC	Recommended viewer in Windows Internet Explorer (MPEG-4 / Motion JPEG)
	QuickTime	MPEG-4 only
	Java applet	A slower imaging alternative to AMC - no download required (Motion JPEG only)
	Still image	Displays still images only. Hit the Refresh button in your browser to view a new image
Other browsers	Server Push	Recommended viewer for other browsers (Motion JPEG)
	QuickTime	MPEG-4 only
	Java applet	A slower imaging alternative to Server Push (Motion JPEG only)
	Still image	Displays still images only. Hit the Refresh button in your browser to view a new image

Check the Show viewer toolbar box to display e.g. the AXIS Media Control (AMC) or QuickTime viewer toolbar under the video image in your browser.

AMC Settings

The administrator can disable the installation of the MPEG-4 decoder included with AMC. This is used to prevent the installation of unlicensed copies. Further decoder licenses can be purchased from your Axis dealer.

HTML Examples

You can add live video from the AXIS 207 to your own web site. The camera can transmit a Motion JPEG stream to up to 20 simultaneous connections, although an administrator can restrict this to fewer. If MPEG-4 is set as video format, multicasting is used and the video stream will be available for an unlimited number of viewers connected to the parts of the network where multicast is enabled. Please note that a separate MPEG-4 license is required for each viewer.

Select the preferred Video Format from the drop down list. The available options are Motion JPEG, MPEG-4 using AMC and MPEG-4 using QuickTime.

The Motion JPEG selection has additional settings for Image Type, Image size and other optional settings to configure the video stream to suit your Web page.
Click Update once satisfied.

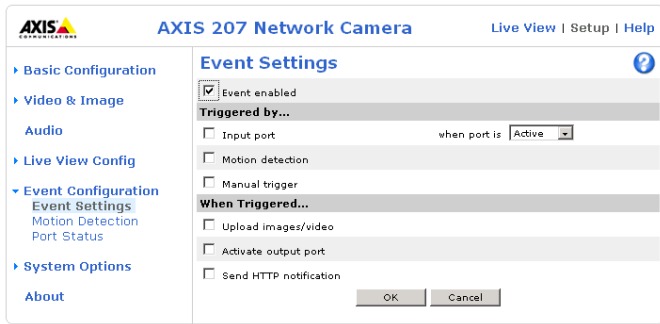
The camera generates the required source code for your configuration. Copy this code and paste it into your own Web page code.

Event Configuration

An event in the AXIS 207 is when a trigger is activated, causing a certain action to be performed. The event is the set of parameters (or conditions) that specifies how and when which actions will be performed. A common event is when the camera uploads images, triggered by an alarm.

This section describes how to configure the AXIS 207 to perform certain actions when an event (e.g. an alarm) occurs.

Triggered by...



Input Port

This describes the state that the input must be in for an event to be triggered e.g. a door sensor connected to the camera's input port. If the door sensor is active, an event is triggered.

Motion Detection

Movement in a motion detection window can be used to trigger an event. Select the motion detection window from the drop-down list and specify whether to trigger the event when motion stops or starts. For information on how to set up motion detection windows see *Motion Detection*, on page 25.

Manual Trigger

This option makes use of the action buttons on the live view page, which are used to start or stop the event manually, e.g. activate an alarm connected to the camera's output port. Alternatively the event can be triggered via the product's API (Application Programming Interface).

When Triggered...

Upload images/video - this option sends the saved images in email messages to specified email addresses.

Enter the file format (MPEG-4 or JPEG), email address, subject and additional information for the email message. Multiple email addresses can be entered. Check the Include audio checkbox if audio is to be included in the email (MPEG-4 only).

Note: Mail servers must be configured under System Options > Network > SMTP

Pre-trigger and Post-trigger buffers - This function is useful when checking to see what happened immediately before and/or after a trigger, e.g. 30 seconds before and/or after a door was opened.

Include pre-trigger buffer - images stored internally in the server from the time immediately preceding the trigger. Check the box to enable the pre-trigger buffer and enter the desired length of time (and the required image frequency if JPEG is selected).

Include post-trigger buffer - contains images from the time immediately after the trigger. Configure as for pre-trigger.

Notes:
- Pre-trigger and Post-trigger buffers will be lost if the connection to the mail server fails.
- Cyclic refresh must be disabled if Event handling is enabled and the file format is set to MPEG-4 See Setup > Video & Image > Advanced > MPEG-4.
- The maximum length of the pre-/post-buffer depends on the video image size (and frame rate).

Base file name - this name will be used for all of the image files saved. If suffixes are also used, the file name will take the form <basename>.<suffix>.<extension>

Add a sequence number suffix - keep track of uploaded images by assigning each image with a number.

Use own file name format - check this radio button to use a customized file name. Enter the file name in the Base file name field above. It is possible to perform advanced file name formatting, by including special patterns in the file name.

Activate output port - the output port controls external equipment connected to the I/O port on the AXIS 207 e.g. an alarm bell or light.

Send HTTP notification to - This method sends notification messages to an HTTP notification server that listens for these. The destination server must first be configured on HTTP server settings...

Please see the online help for more information.

Motion Detection

The motion detection feature is used to generate an alarm whenever movement occurs (or stops) in the video image. A total of 10 Include and/or Exclude windows can be configured.

- Included windows target specific areas within the whole video image
- Excluded windows define areas within an Include window that should be ignored (areas outside Include windows are automatically ignored)

Once configured, the motion detection windows will appear in the list of available triggers, for triggering events. See section on *Event Configuration* above.

Note: Using the motion detection feature may decrease the camera's overall performance.

How to configure Motion Detection

1. Click Motion Detection in the Event Configuration menu.
2. Click the Configure Included Window radio button.
3. Click New.
4. Enter a descriptive name under Window name.
5. Adjust the size (drag the bottom right-hand corner) and position (click on the text at the top and drag to the desired position).
6. Adjust the Object size, History and Sensitivity profile sliders (see table below for details). Any detected motion within an active window is then indicated by red peaks in the Activity window (the active window has a red frame).
7. Click Save.

> To exclude parts of the Include window, click the Configure Excluded Windows button and position the Exclude window as required, within the Include window.

Please see the online help for descriptions of each available option.

	Object Size	History	Sensitivity
High level	Only very large objects trigger motion detection	An object that appears in the region will trigger the motion detection for a long period	Ordinary colored objects on ordinary backgrounds will trigger the motion detection
Low level	Even very small objects trigger motion detection	An object that appears in the region will trigger motion detection for only a very short period	Only very bright objects on a dark background will trigger motion detection
Default value	Low	Medium to High	Medium to High

Examples:

- Avoid triggering on small objects in the video image by setting the object size level to high.
- To reduce the number of triggers if there is a lot of movement during a short period of time, select a high history level.
- To only detect flashing light, low sensitivity can be selected. In other cases, a high sensitivity level is recommended.

Port Status

Under Event Configuration > Port Status there is a list showing the status for the camera's input and output. This is for the benefit of Operators, who have no access to the System Options section.

Example: If the Normal state for a push button connected to an input is set to Open circuit - as long as the button is not pushed, the state is inactive. If the button is pushed, the state of the input changes to active.

System Options

Security

User access control is enabled by default. An administrator can set up other users, by giving these user names and passwords. It is also possible to allow anonymous viewer login, which means that anybody may access the Live View page, as described below:

Users - the user list displays the authorized users and user groups (levels):

Viewer	Provides the lowest level of access, which only allows access to the Live View page.
Operator	An Operator can view the Live View page, create and modify event types and adjust certain other settings. Operators have no access to the System Options.
Administrator	An administrator has unrestricted access to the Setup Tools and can determine the registration of all other users.

User Settings - check the relevant checkboxes to enable:

- Anonymous viewer login - allows any viewer direct access to the Live View page.
- Maximum number of simultaneous viewers - enter a value here to restrict the number of Motion JPEG and MPEG-4 viewers accessing the unit. This is useful if you need to save on bandwidth. Note that the limit of 20 users does not affect or include the number of multicast viewers.

Date & Time

Current Server Time - displays the current date and time (24h clock). The time can be displayed in 12h clock format in the Overlay (see below).

New Server Time - Select your time zone from the drop-down list. If you want the server clock to automatically adjust for daylight savings time, select the Automatically adjust for daylight saving time changes.

From the Time Mode section, select the preferred method to use for setting the time:

- Synchronize with computer time - sets the time from the clock on your computer.
- Synchronize with NTP Server - the camera will obtain the time from an NTP server every 60 minutes.
- Set manually - this option allows you to manually set the time and date.

Note: • If using a host name for the NTP server, a DNS server must be configured under TCP/IP settings. See Network > TCP/IP below.

Date & Time Format Used in Images - specify the formats for the date and time (12h or 24h) displayed in the video streams.

Use the predefined formats or use your own custom date and time formats. See Advanced File Naming & Date/Time Formats in the help files for information on how to create your own file formats.

Network - Basic TCP/IP Settings

IP Address Configuration

The camera's IP address can be set automatically via DHCP, or a fixed IP address can be set manually. A host name can be used and there are options for setting up notification of changes in the IP address. DHCP is enabled by default.

Notes:

- DHCP is a protocol for automatic IP address assignment on a network. IP address assignment via DHCP may lead to the situation where the IP address changes and you lose contact. Configure the options for notification of IP address change (under Services) to receive notification from the camera when the IP address changes.
- Alternatively, if your DHCP server can update a DNS server, you can access the AXIS 207 by host name which is always the same, regardless of the IP address.

Services

Options for notification of IP address change - if the IP address for the camera changes, e.g. automatically by DHCP, you can choose to be notified of the change. Click Settings... and enter the required information.

AXIS Internet Dynamic DNS Service - use the AXIS Internet Dynamic DNS service to assign a host name for easy access to your AXIS 207 Network Camera.

Click Settings... to register your AXIS 207 with the Axis Internet Dynamic DNS service, or to modify the existing settings. The domain name currently registered at the Axis Internet Dynamic DNS service for your product can at any time be removed.

For more information, please refer to the online help

Network - Advanced TCP/IP Settings

DNS Configuration

DNS (Domain Name Service) provides the translation of host names to IP addresses on your network.

Obtain DNS server address via DHCP - automatically use the DNS server settings provided by the DHCP server. Click the View button to see the current settings.

Use the following DNS server address - enter the desired DNS server by specifying the following:

Domain name - enter the domain(s) to search for the host name used by the AXIS 207. Multiple domains can be separated by semicolons (;). The host name is always the first part of a Fully Qualified Domain Name, e.g. myserver is the host name in the Fully Qualified Domain Name myserver.mycompany.com where mycompany.com is the Domain name.

DNS servers - enter the IP addresses of the primary and secondary DNS servers.

NTP Configuration

Obtain NTP server address via DHCP - check this radio button to automatically look up and use the NTP server settings as provided by DHCP. Click the View button to see the current settings.

Use the following NTP server address - to make manual settings, check this radio button and enter the host name or IP address of the NTP server.

Host Name Configuration

The AXIS 207 can be accessed using a host name, instead of an IP address. The host name is usually the same as the assigned DNS Name.

For more information, please see the online help

Link-Local Address

This is enabled by default and assigns the AXIS 207 an additional IP address for use with UPnP™. The AXIS 207 can have both a Link-Local IP and a static/DHCP-supplied IP address at the same time - these will not affect each other.

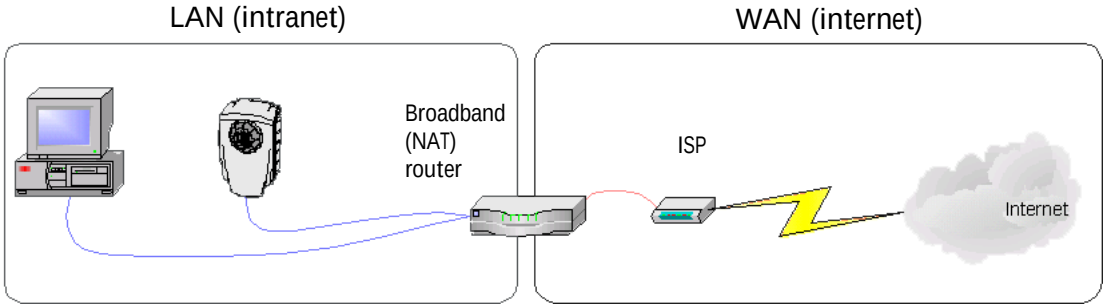
HTTP

The default HTTP port number (80) can be changed to any port within the range 1024-65535. This is useful for e.g. simple security port mapping.

NAT traversal (port mapping)

A broadband router allows devices on a private network (LAN) to share a single connection to the Internet. This is done by forwarding network traffic from the private network to the “outside” i.e. the Internet. Security on the private network (LAN) is increased since most broadband routers are pre-configured to stop any attempts to access the private network (LAN) from the public network / Internet.

Use NAT traversal when your AXIS 207 is located on an intranet (LAN) and you wish to make it available from the other (WAN) side of a NAT router. With NAT traversal properly configured, all HTTP traffic to an external HTTP port in the NAT router will be forwarded to the camera.



Notes:
- For NAT traversal to work, this must also be supported by the broadband router.
- The broadband router has many different names: “NAT router”, “Network router“, Internet Gateway”, “Broadband sharing device” or “Home firewall” but the essential purpose of the device is the same.

Enable/Disable - When enabled, the AXIS 207 will attempt to configure port mapping in a NAT router on your network, using UPnP™. Note that UPnP™ must be enabled in the camera (see System Options > Network > UPnP).

AXIS Internet Dynamic DNS Service - Use this free service to assign a host name (user-friendly name) for easy access to your AXIS 207 Network Camera. If the IP address of the camera or NAT router changes, the AXIS Internet Dynamic DNS Service will automatically be updated with the new IP address.

Use manually selected NAT router - Select this option to manually select a NAT router and enter the IP address for the router in the field provided.

If a router is not manually specified, the AXIS 207 will automatically search for NAT routers on your network. If more than one router is found, the default router will be selected.

Alternative HTTP port - Select this option to manually define an external HTTP port. Enter the port number in the field provided. If no port is entered here a port number will automatically be selected when NAT traversal is enabled.

Notes:
- An alternative HTTP port can be used/be active even if NAT traversal is disabled. This is useful if e.g. your NAT router does not support UPnP and you need to manually configure port forwarding in the NAT router.
- If a manually selected port is already in use, another will automatically be selected.
- When the port is selected automatically it will be displayed in this field. This can be changed by entering a new port number and clicking Save.

RTSP

The RTSP protocol allows a connecting client to start an MPEG-4 stream. Enter the RTSP port number to use. The default setting is 554.

Network Traffic

Connection Type - The default setting is Auto-negotiate, which means that the correct speed is automatically selected. If necessary, you can set the connection speed by selecting it from the drop-down list.

For more information, please see the online help.

SMTP (email)

Enter the host names or addresses for your primary and secondary mail servers in the fields provided, to enable the sending of notifications and image/video email messages from the camera to predefined addresses via SMTP.

If your mail server requires authentication, check the box for Use authentication to log in to this server and enter the necessary information.

UPnP™

The camera includes support for UPnP™, which is enabled by default. If also enabled on your computer, the camera will automatically be detected and a new icon will be added to "My Network Places."

Note: UPnP must also be enabled on your Windows XP or ME computer. To do this, open the Control Panel from the Start Menu and select Add/Remove Programs. Select Add/Remove Windows Components and open the Networking Services section. Click Details and then select UPnP as the service to add.

RTP (multicast) MPEG-4

These settings are the IP address, port number, and Time-To-Live value to use for the video stream(s) in multicast MPEG-4 format. Only certain IP addresses and port numbers should be used for multicast streams. For more information, please see the online help.

Ports & Devices

I/O Ports - the pinout, interface support and the control and monitoring functions provided by this connector are described in *The I/O Terminal Connector*, on page 34.

LED Settings

The Status indicator LED on the front of the camera can be set to flash at a configurable interval (or to not light up at all) whenever the unit is accessed. For a listing of all LED behavior, see page 7, or the online help.

Note: The LED does not flash when the stream is retrieved using MPEG-4 multicast.

Maintenance

- Restart - The camera is restarted without changing any of the settings.
- Restore - The unit is restarted and most current settings are reset to factory default values. The settings that will not be reset are as follows:
  - the boot protocol (DHCP or static)
  - the static IP address
  - the default router
  - the subnet mask
- Default - The default button should be used with caution. Pressing this will return all of the camera's settings to the factory default values (including the IP address)

Upgrade Server - See *Upgrading the Firmware*, on page 36.

Backup - To take a backup of all of the parameters, and any user-defined scripts, click this button. If necessary, it will then be possible to return to the previous settings, if settings are changed and there is unexpected behavior.

Restore - click the Browse button to locate the saved backup file (see above) and then click the Restore button. The settings will be restored to the previous configuration.

Note: Backup and Restore can only be used on the same unit running the same firmware. This feature is not intended for the configuration of multiple units or for firmware upgrades.

Support

The support overview page provides valuable information on troubleshooting and contact information, should you require technical assistance.

Logs & Reports - when contacting Axis support, please be sure to provide a valid Server Report with your query.

View Information - The Log file, the Server Report and the Parameter List all provide valuable information for troubleshooting and when contacting Axis support.

Configuration

Log Level for Log Files - from the drop-down list, select the level of information to be added to the Log file

Log Level for Email - from the drop-down list, select the level of information to send as email and enter the destination email address.

Resetting to the Factory Default Settings

To reset the camera to the original factory default settings, go to the System Options > Maintenance web page (as described in *Maintenance,* on page 32) or use the Control button on the underside of the camera (see page 6) as described below:

Using the Control Button

To reset the camera to the factory default settings using the Control Button:

1. Disconnect the power adapter.
2. Press and hold the Control button while reconnecting the power.
3. Keep the Control button pressed until the Status Indicator color changes to amber (this may take up to 15 seconds).
4. Release the Control button.
5. When the Status Indicator changes to Green (which may take up to 1 minute), the process is complete and the camera has been reset. The unit will now have the default IP address 192.168.0.90

Advanced

Scripting is an advanced function that provides the possibility to customize and use scripts. This function is a very powerful tool.

Caution!

Improper use may cause unexpected behavior or even cause loss of contact with the unit. If a script does cause problems, reset the unit to its factory default settings. A backup file may be of use to return the unit to its latest configuration.

Axis strongly recommends that you do not use this function unless you fully understand the consequences. Note that Axis support does not provide assistance for problems with customized scripts.

For more information, please visit the Developer pages at www.axis.com/developer

Plain Config - this function is for the advanced user with experience of Axis network camera configuration. All parameters can be set and modified from this page. Help is available from the standard help pages.

The I/O Terminal Connector

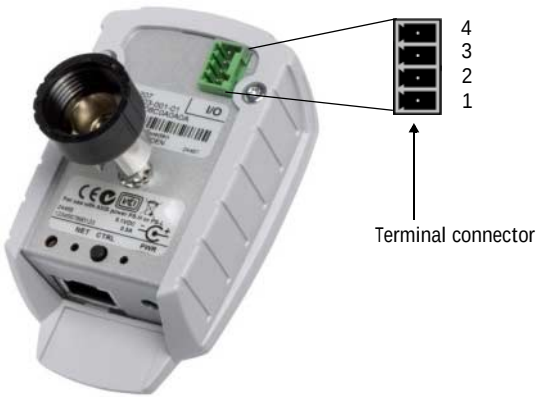
Pinout and Interface

The 4-pin I/O terminal connector provides the interface to:

- 1 transistor output
- 1 digital input
- auxiliary power and GND

The terminal connector is used in applications for e.g. motion detection, event triggering, time lapse recording, alarm notification via email, image storage to FTP locations, etc.

- Input - for connecting e.g. a push button. If the push button is pressed, the state changes and the input becomes active (shown under Event Configuration > Port Status).
- Output - connects e.g. an alarm device that can be activated by Output buttons on the Live View page, or by an Event Type. The output will show as active (Event Configuration > Port Status) if the alarm device is activated.

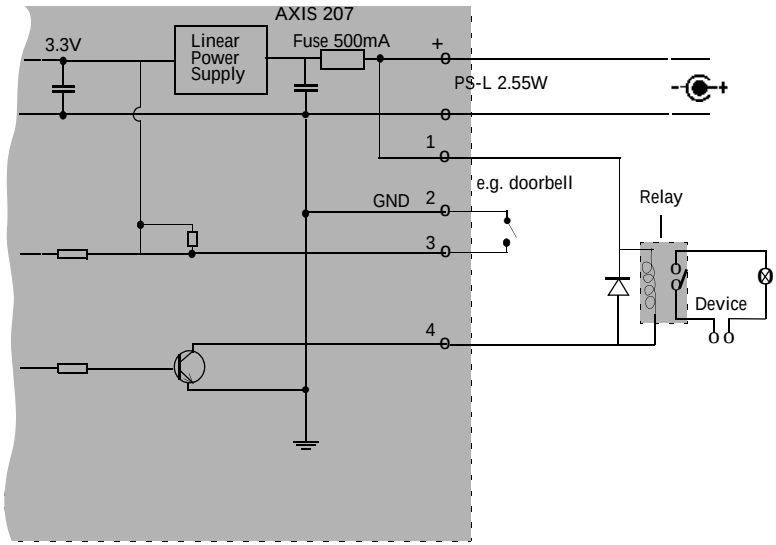


Pin	Function	Description
4	Transistor Output	With a maximum load of 100mA and a maximum voltage of 24V DC, this output has an open-collector NPN transistor with the emitter connected to pin 2 (GND). If used with an external relay, a diode must be connected in parallel with the load, for protection against voltage transients.
3	Digital Input	Connect to GND to activate, or leave floating (or unconnected) to deactivate.
2	GND	
1	Auxiliary DC Power Input	5VDC/min 2.5W. Electrically connected in parallel with the PS-L power connector, this pin provides an auxiliary connector for mains power to the unit. This pin can also be used to power auxiliary equipment, max 50mA.

Connect input/output devices to the terminal connector as follows:

1. Push the cable securely into the connector.
2. Once devices are connected, connect the terminal connector to the camera, making sure that all cables are securely fastened.

Schematic Diagram - Terminal Connectors



Troubleshooting

Checking the Firmware

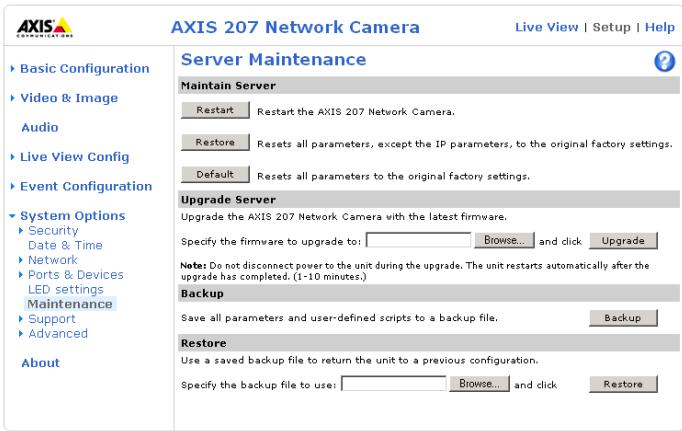
One of your first actions when troubleshooting a problem should be to check the currently installed firmware version. The latest version may contain a correction that fixes your particular problem. The current firmware version in your camera can be seen on the page Setup > Basic Configuration.

Upgrading the Firmware

Firmware is software that determines the functionality of the AXIS 207. When you upgrade the firmware with a file from the Axis Web site, your Axis camera will receive the latest available functionality. Always read the upgrade instructions and release notes available with each new release, before updating the firmware.

Note: Preconfigured and customized settings will be saved when the firmware is upgraded (providing the features are available in the new firmware) although this is not guaranteed by Axis Communications. Always read the instructions and release notes available with each new release, before upgrading the firmware.

1. Save the firmware file to your computer. The latest version of the firmware is available free of charge from the Axis Web site at www.axis.com/techsup
2. Go to Setup > System Options > Maintenance in the camera's Web pages.
3. In the Upgrade Server section, browse to the desired firmware file on your computer. Click Upgrade.



Notes: After starting the upgrade process, always wait at least 5-10 minutes before restarting the camera, even if you suspect the upgrade has failed.

Your dealer reserves the right to charge for any repair attributable to faulty upgrading by the user.

Emergency Recovery Procedure

If power or the network connection to the camera is lost during the upgrade, the process will fail and the unit will become unresponsive. A flashing red Status LED indicates a failed upgrade. To recover the unit, follow the steps below. The serial number is found on the label attached to the bottom of the camera.

1. Unix/Linux - From the command line, type the following:
   arp -s <IP address of camera> <Serial number> temp
   ping -s 408 <IP address of camera>

   Windows - From a command/DOS prompt, type the following:
   arp -s <IP address of camera> <Serial number>
   ping -l 408 -t <IP address of camera>
2. If the unit does not reply within a few seconds, restart it and wait for a reply. Press CTRL+C to stop Ping.
3. Open a browser and type in the camera's IP address. In the page that appears, use the Browse button to select the upgrade file to use, e.g. axis207.bin. Then click the Load button to restart the upgrade process.
4. After the upgrade has completed (1-10 minutes), the unit will automatically restart and show a steady green on the Power and Status LEDs and flashing green or amber on the Network LED.
5. Referring to the installation guide, reinstall the camera.

If the emergency recovery procedure does not get the camera up and running again, please contact Axis support at www.axis.com/techsup/

Axis Support

If you contact Axis support, please help us to help you solve your problems, by providing the server report, the log file and a brief description of the problem.

Server Report - go to Setup > System Options > Support Overview. The server report contains important information about the server and its software, as well as a list of the current parameters.

The Log file is available from Setup > System Options > Logs & Reports. The Log file records events in the unit since the last system restart and can be a useful diagnostic tool when troubleshooting.

Symptoms, Possible Causes and Remedial Actions

Problems setting the IP address	
When using ARP/Ping	Try the installation again. The IP address must be set within two minutes after power has been applied to the camera. Ensure the Ping length is set to 408. See the Installation Guide.
The camera is located on a different subnet	If the IP address intended for the camera and the IP address of your computer are located on different subnets, you will not be able to set the IP address. Contact your network administrator to obtain an appropriate IP address.
The IP address is being used by another device	Disconnect the camera from the network. Run the Ping command. (In a Command/DOS window, type ping and the IP address of the unit). If you receive: Reply from <IP address>: bytes = 32; time = 10 ms..... - this means that the IP address may already be in use by another device on your network. You must obtain a new IP address and reinstall the unit. If you see: Request timed out - this means that the IP address is available for use with your camera. In this case, check all cabling and reinstall the unit.
Possible IP address conflict with another device on the same subnet	The static IP address in the camera is used before the DHCP server sets a a dynamic address. This means that if the same default static IP address is also used by another device, there may be problems accessing the camera. To avoid this, set the static IP address to 0.0.0.0.
The camera cannot be accessed from a browser	
The IP address has been changed by DHCP	1) Move the camera to an isolated network or to one with no DHCP or BOOTP server. Set the IP address again, using the AXIS IP Utility (see the Installation Guide) or the ARP/Ping commands. 2) Access the unit and disable DHCP in the TCP/IP settings. Return the unit to the main network. The unit now has a fixed IP address that will not change. 3) As an alternative to 2), if dynamic IP address via DHCP or BOOTP is required, select the required service and then configure IP address change notification from the network settings. Return the unit to the main network. The unit will now have a dynamic IP address, but will notify you if the address changes.
Other networking problems	Test the network cable by connecting it to another network device, then Ping that device from your workstation. See the instructions above.
Camera is accessible locally, but not externally	
Broadband router configuration	To configure your broadband router to allow incoming data traffic to the camera: Enable the NAT-traversal feature which will attempt to automatically configure the router to allow access to the camera. This is enabled from Setup > System Options > Network > TCP/IP Advanced.
Firewall protection	Check the Internet firewall with your system administrator.
Default routers required	Check if you need to configure the default router settings.
Problems with the MPEG-4 format	
No MPEG-4 displayed in the client	Check that the correct network interface is selected in the AMC control panel applet (network tab).
	Check that the relevant MPEG-4 connection methods are enabled in the AMC control panel applet (network tab).
	In the AMC control applet, select the MPEG-4 tab and click the button Set to default MPEG-4 decoder.
No multicast MPEG-4 displayed in the client	Check with your network administrator that the multicast addresses used by the AXIS 207 are valid for your network.
	Check with your network administrator to see if there is a firewall preventing viewing.
Multicast MPEG-4 only accessible by local clients	Check if your router supports multicasting, or if the router settings between the client and the server need to be configured. The TTL (Time To Live) value may need to be increased.

Poor rendering of MPEG-4 images	Color depth set incorrectly on clients. Set to 16-bit or 32-bit color.
	If text overlays are blurred, or if there are other rendering problems, you may need to enable Advanced Video Rendering from the MPEG-4 tab in the AMC control panel applet.
	Ensure that your graphics card is using the latest device driver. The latest drivers can usually be downloaded from the manufacturer's web site.
Color saturation is different in MPEG-4 and Motion JPEG	Modify the settings for your graphics adapter. Please see the adapter's documentation for more information.
Lower frame rate than expected	Reduce number of applications running on the client computer.
	Check with the system administrator that there is enough bandwidth available. See also the online help.
	Check in the AMC control panel applet (MPEG-4 tab) that video processing is not set to Decode only I frames.
	Lower the image resolution.
Lost or poor images in pre-trigger buffer (MPEG-4 video stream)	Make sure that Cyclic refresh under Setup > Video & Image > Advanced > MPEG-4 is disabled.
Image degeneration	Decrease the GOV length, see the online help for more information.
The Power indicator is not constantly lit	
Faulty power supply	Check that you are using an AXIS PS-L power supply.
The Status and Network indicator LEDs are flashing red rapidly	
Hardware failure	Contact your Axis dealer.
The Status indicator LED is flashing red and the camera is inaccessible	
A firmware upgrade has been interrupted or the firmware has otherwise been damaged	See the *Emergency Recovery Procedure* above.
No images displayed on web page	
Problem with AMC. (*Internet Explorer only*)	To enable the updating of video images in Microsoft Internet Explorer, set your browser to allow ActiveX controls. Also, make sure that AXIS Media Control (AMC) component is installed on your workstation.
Installation of additional ActiveX component restricted or prohibited	Configure your camera to use a Java applet for updating the video images under Live View Config > Layout > Default Viewer for Internet Explorer. See the online help for more information.
Video/Image problems, general	
Image too dark or too light	Check the video image settings. See the online help on Video and Image Settings.
Missing images in uploads	This can occur when trying to use a larger image buffer than is actually available. Try lowering the frame rate or the upload period.
Slow image update	Configuring, e.g. pre-buffers, motion detection, high-resolution images, high frame rates, etc, will reduce the performance of the camera.
Poor performance	Poor performance may be caused by e.g. heavy network traffic, multiple users accessing the unit, low performance clients, use of features such as Motion Detection, Event handling, Image rotation other than 180 degrees.
Poor quality snapshot images	
Screen incorrectly configured on your workstation	In Display Properties, configure your screen to show at least 65000 colors, i.e. at least 16-bit. Using only 16 or 256 colors will produce dithering artifacts in the image.
Browser freezes	
Netscape 7.x or Mozilla 1.4 (or later) can sometimes freeze on a slow computer	Lower the image resolution.
Problems uploading files	

Limited space	There is only limited space available for the upload of your own files. Try deleting existing files to free up space.
Motion Detection triggers unexpectedly	
Changes in luminance	Motion detection is based upon changes in luminance in the image. This means that if there are sudden changes in the lighting, motion detection may be triggered mistakenly. Lower the sensitivity setting to avoid problems with luminance.
No audio	
Incorrect setup	Check the sound card in the PC. Ensure that the mute button is not pressed and the volume settings are correct.
Audio volume too low/high	
Volume settings incorrect	The volume of the microphone is either too high or too low. Change the volume for the microphone in the toolbar on the Live View page.
Poor audio quality	
Too many users	Too many users/clients connected to the AXIS 207 may adversely affect the sound quality. Try limiting the number of clients allowed to connect under Basic Configuration > Users.
CPU overloaded	Reduce the number of listeners and viewers and decrease the image resolution and compression.
Unsynchronized audio and video	It is recommended that the camera's time setting is synchronized with an NTP Server. This is enabled under System Options > Date & Time.

For additional assistance, please contact your reseller or see the support pages on the Axis Website at www.axis.com/techsup

Technical Specifications

Item	Specification	
Supported Operating Systems	Windows (XP, 2000) Linux, Mac OSX	
Supported Web Browsers	For Windows - Internet Explorer 5.x or later, Mozilla 1.4* or later. For Linux - Mozilla 1.4* or later. For Mac OSX - Mozilla 1.4* or later, Netscape 7.1* or later, Safari*. * = some limitations may apply	
Networking	Required protocols: Standard TCP/IP protocol suite Supported protocols: 10baseT Ethernet, 100baseTX Fast Ethernet, TCP/IP, HTTP, FTP, DHCP, SMTP, NTP, ARP, BOOTP, DNS, UPnP, RTP. Connection via RJ-45 twisted pair cable.	
Management	Remote configuration and status via web-based tools. Watchdog with automatic unit or process reboot. Can be monitored by other systems via digital output.	
Compression	Motion-JPEG. Snapshot JPEG images available. Ten user-controlled compression levels. MPEG-4 Part 2.	
Video Features	Time stamp, text overlay, image rotation, color control. Maximum frame rate: 30 fps. Light sensitivity: 1 - 10 000 Lux. 1/4” progressive scan CMOS image sensor.	
Video Resolutions	640x480, 480x360, 352x288, 320x240, 240x180, 176x144, 160x120.	
Lens	Fixed iris; f/2.0. Field of view; 54 degrees. Shutter speed; 1/2 - 1/10 000s	
Audio Features	One way AAC LC audio, 16KHz sampling (MPEG-4, ISMA and 3GPP compliant).	
Internal Microphone	Built-in condenser microphone.	
General I/O	1 digital alarm input and 1 output transistor (max 24 V, 0.1 A) on a single terminal connector.	
Pre/Post Alarm Buffer	Memory available for pre/post alarm image storage: up to 4 MB	
Security	Multi-user password protection.	
Operating Conditions	Temperature: +5°C to +50°C (41°F to 122°F) Humidity: 20-80% RHG. For indoor use only	
Approvals - EMC	EMC EN55024:1998+A1+A2 EN55022:1998+A1 Class B EN61000-3-2:2000 EN61000-3-3:1995+A1 FCC Part 15 Subpart B Class B by compliance with EN55022:1998 Class B	VCCI:2003 Class B ITE C-Tick AS/NZS 3548 Canadian ICES-003 Class B by compliance with EN55022:1998 Class B Approvals
Approvals - Safety	Safety EN60950 UL CSA (power supply only)	
Hardware	ARTPEC-A CPU and compression chip.	32MB SDRAM 4 MB FLASH
Power	PS-L power adapter, 5.1 V DC, min 500mA. Included.	

Item	Specification	
Metrics	Height: 85 mm ($3^1/_3$") Width: 55 mm ($2^3/_{16}$") Depth: 34 mm ($1^1/_3$") (camera only) Weight: 177g (0.39 lb) including stand	
Complimentary software	AXIS Media Control (AMC) - ActiveX component software required for Microsoft Internet Explorer - installed automatically on first use.	Optional: AXIS IP Utility - for installation in Windows. AXIS 207 supported by AXIS Camera Station, AXIS Camera Recorder and AXIS Camera Explorer.
MPEG-4 AAC audio coding technology	This product includes MPEG-4 AAC audio coding technology licensed by Fraunhofer IIS. Refer to FHG audio home page http://www.iis.fraunhofer.de/amm/	
MPEG-4 licensing	License for one MPEG-4 encoder and one MPEG-4 decoder is included.	Additional licenses can be bought separately from Axis Communications.
	THIS PRODUCT IS LICENSED UNDER THE MPEG-4 SYSTEMS PATENT PORTFOLIO LICENSE FOR ENCODING IN COMPLIANCE WITH THE MPEG-4 SYSTEMS STANDARD, EXCEPT THAT AN ADDITIONAL LICENSE AND PAYMENT OF ROYALTIES ARE NECESSARY FOR ENCODING IN CONNECTION WITH (i) DATA STORED OR REPLICATED IN PHYSICAL MEDIA WHICH IS PAID FOR ON A TITLE BY TITLE BASIS AND/OR (ii) DATA WHICH IS PAID FOR ON A TITLE BY TITLE BASIS AND IS TRANSMITTED TO AN END USER FOR PERMANENT STORAGE AND/OR USE. SEE ADDITIONAL LICENSE MAY BE OBTAINED FROM MPEG LA, LLC. SEE <HTTP://WWW.MPEGLA.COM> FOR ADDITIONAL DETAILS.	

Glossary of Terms

AAC - An audio compression format defined by MPEG-2. Higher quality than MPEG-1 but requires less data for audio reproduction.

Active Speaker - a speaker with a built-in power amplifier.

ActiveX - control (or set of rules) used by a browser. ActiveX controls are often downloaded and installed automatically as required.

ADPCM - Adaptive Differential Pulse Code Modulation. Predicts the analog signal digitally and the difference is coded.

AMC - AXIS Media Control. The control required for viewing video images in Internet Explorer. Installs automatically on first use.

API - Application Programming Interface. The Axis API can be used for integrating Axis products into other applications.

ARP - Address Resolution Protocol. A protocol for assigning an IP address to a physical device address that is recognized in the local network. The ARP command can be used to set the IP-address for your product.

ARTPEC - Axis Real Time Picture Encoder - used for video image compression.

CCD - Charge Coupled Device. CCD is one of the two main types of image sensors used in digital cameras. When a picture is taken, the CCD is struck by light coming through the camera's lens. Each of the thousands or millions of tiny pixels that make up the CCD convert this light into electrons.

CGI - Common Gateway Interface. A set of rules (or a program) that allows a Web Server to communicate with other programs.

CMOS - (Complementary Metal Oxide Semiconductor) CMOS is a widely used type of semiconductor that requires less power than chips using just one type of transistor. CMOS image sensors also allow processing circuits to be included on the same chip, an advantage not possible with CCD sensors.

Client/Server - Describes the network relationship between two computer programs in which one, the client, makes a service request from another - the server.

dB (Decibels) - A unit to measure sound level changes. A 3dB change is the smallest level change we can hear. A 3dB change is actually twice or half the audio power level. A gain of 0dB will leave the signal level unchanged.

DNS - The Domain Name System (DNS) locates and translates Internet domain names into IP (Internet Protocol) addresses.

Ethernet - A widely used networking standard.

ETRAX - Axis' own microprocessor.

Firewall - A virtual barrier between a LAN (Local Area Network) and other networks, e.g. the Internet.

FTP - File Transfer Protocol. Used for the simple transfer of files to and from an FTP-server.

HAD - Hole Accumulation Diode. A HAD CCD design allows for more light to reach the imager, which reduces video noise to improve signal-to-noise ratio by up to 6dB (2x better than a standard CCD imager). Particularly effective when shooting in dark situations.

HTML - Hypertext Mark-up Language. Used widely for authoring documents viewed in web browsers.

HTTP - Hypertext Transfer Protocol. The set of rules for exchanging files (text, images, sound, video, and other files) on the World Wide Web.

Intranet - A private network limited to an organization or corporation. Usually closed to external traffic.

IP - Internet-Protocol. See TCP/IP.

IP address - A unique number used by a network device, to allow it to be identified and found on the network. The 32-bit IP address is made up of four groups (or quads) of decimal digits separated by periods. An example of an IP address is: 192.168.0.1

ISMA - Internet Streaming Media Alliance

ISP - Internet Service Provider

JPEG - A standard image format, used widely for photographs. Also known as JPG.

LAN - A local area network (LAN) is a group of computers and associated devices that typically share common resources within a limited geographical area.

Linux - A popular operating system, which is “open source” and practically free of charge.

Lux - A standard unit for the measurement of light, where 1 Lux equals the light emitted from a single candle at a distance of one meter.

Mbit/s - Megabits per second. A unit for measuring speeds in networks. A LAN might run at 10 or 100 Mbit/s.

Motion JPEG - This format uses standard JPEG still images for the video stream. These images are then displayed and updated at a rate sufficient to create a stream that shows constantly updated motion.

MPEG-4 - A standard video format, used for low bandwidth video streams.

Multicast - Multicast reduces bandwidth usage by delivering a single stream of information to multiple network recipients. This is primarily used on private networks (intranets).

NTSC - National Television Standards Committee. NTSC is the standard format used for televisions in most of North and Central America, and Japan.

NWAY - A network protocol that automatically negotiates the highest possible common transmission speed between two devices.

PAL - Phase Altering Line. PAL is the standard format used for televisions in most of the world (other than the US, Canada, and Japan).

PCM - Pulse Code Modulation. Analog signal converted directly to a digital.

Ping - A small utility used for sending data packets to network resources to check that they are working and that the network is intact.

Pre/post alarm image - The images from immediately before and after an alarm.

Protocol - A special set of rules governing how two entities will communicate. Protocols are found at many levels of communication, and there are hardware protocols and software protocols.

Router - A device that determines the next network point to which a packet should be forwarded on its way to its final destination. A router is often included as part of a network switch (see below).

RTP - Real-Time Transfer Protocol. A transfer protocol designed for delivery of live contents, e.g. MPEG-4, via unicast or multicast.

RTSP - a control protocol, and a starting point for negotiating transports such as RTP, multicast and Unicast. RTSP can be considered a “remote control” for controlling the media stream delivered by a media server. RTSP servers typically use RTP as the protocol for the actual transport of audio/video data.

Simplex - In simplex operation, a network cable or communications channel can only send information in one direction.

SMTP - A common e-mail protocol.

Subnet Mask - An IP address consists of two components: the network address and the host address. ‘Subnetting’ enables a network administrator to further divide the host part of the address into two or more subnets. The subnet mask identifies the subnet to which an IP address belongs.

Switch - Whilst a simple hub transmits all data to all devices connected to it, a switch only transmits the data to the device it is specifically intended for.

TCP/IP - Transmission Control Protocol/Internet Protocol. A suite of network protocols that determine how data is transmitted. TCP/IP is used on many networks, including the Internet. TCP keeps track of the individual packets of information and IP contains the rules for how the packets are actually sent and received.

UDP - UDP is an alternative to TCP (Transmission Control Protocol). The advantage of UDP is that it is not required to deliver all data and may drop network packets when there is e.g. network congestion. This is suitable for live video, as there is no point in re-transmitting old information that will not be displayed anyway.

Unicast - a communication between a single sender and a single receiver over a network. This means that the video stream goes independently to each user, and each user gets their own stream. A benefit of unicasting is that if one stream fails, it only affects one user. See Multicasting.

UPnP - Universal Plug and Play. An ‘address’ on the network. UPnP is an architecture for pervasive peer-to-peer network

connectivity of intelligent appliances, wireless devices, and PCs of all form factors.

URL - Uniform Resource Locator. An ‘address’ on the network.

WAN - Wide-Area-Network. Similar to a LAN, but on a larger geographical scale.

Web server - A program on a computer (server) providing the resources (e.g. web pages) requested by the user (client).

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