Configuring a PoE IP Camera

Establishing a live feed from a Power over Ethernet IP Camera with Local access

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**Author:**  James Quaglia
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**Executive Summary**

Power over Ethernet (PoE) IP Cameras are a very convenient solution to many surveillance and other video capture problems. PoE enables data and power to be sent to and from the camera with a single ethernet cable. This application note will show how to correctly configure an IP camera for local network access.

**Objective**

This application note will show how to correctly configure an Axis P1355-E PoE IP camera for access to the live feed from both a local IP Address using the router control interface and Port Forwarding.

**Introduction**

Axis Communications AB is a Swedish manufacturer of network cameras for the physical security and video surveillance industries. Their IP camera can be set up to establish a live feed onto local network address and then access for various purposes. This application note will specifically describe the necessary steps, including both hardware and software, to configure these devices correctly for network access.

**Hardware**

The outdoor-ready AXIS P1355-E Network Camera is a fixed day and night camera, delivering excellent, light sensitive performance in a robust design. In addition to the Axis camera, a network router is also required. There are hundreds of different brands of routers. For simplicity this application note will be using a NETGEAR N150 router.

Note: Any network router can be used, however certain discrepancies in the default gateway protocol will have to be acknowledged and accounted for.
Camera dimensions

Dimensions

Without sunshield

With sunshield

Wall mount arm

Back side of wall mount bracket

Router Interface

Product Diagram

PCs and notebooks with Wireless-G or Wireless-N

- Wi-Fi on/off button
- Connects to desktop PCs and notebooks
- Connects to broadband modem
- Power on/off button
- Connects to power
**Router Configuration**
The first step in configuring the hardware is to connect the power cable into the router. Lights on the front of the router will begin to flash. A ethernet cable from an Internet Modem Device must be plugged into the WAN port of the router if public access is wished. The WAN or (Wide Area Network) port a network that covers a broad area (i.e., any telecommunications network that links across metropolitan, regional, national or international boundaries) using leased telecommunication lines. The router takes this network and branches access to it, thus allowing other devices to access the internet. After about 30 seconds, the router is automatically configured based on its installed firmware and then begins to look for devices.

**Camera Configuration**
The Axis camera needs to be one of the devices that the router finds in order to correctly configure network access to the live stream. Interfacing the camera to the router is done by inserting an Ethernet Cable into one of the ports on the back of the device. The other end of that cable is then inserted into the camera itself. Since the camera is PoE, this single cable provides data transfer capabilities and also a power signal to run the device.

**Computer Configuration**
A computer is needed to configure the camera and router correctly. Connect a computer to the local network of the router either by Wi-Fi or by an additional ethernet cable connection to the router.

**Software**
Once the router and camera are correctly plugged in and powered on, hardware setup is complete. Software manipulation from the networked laptop is the next step.

**DHCP**
The Dynamic Host Configuration Protocol (DHCP) is a standardized network protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses for interfaces and services. With DHCP, computers (or cameras) request IP addresses and networking parameters automatically from a DHCP server, reducing the need for a network administrator or a user to configure these settings manually.
IP Address Discovery
The camera and laptop connected to the router have been automatically assigned to a local IP Address using the DHCP. As previously mentioned, different brand of routers will have different default address set up protocols which will result in differently formatted address. This is not a problem, just a variation the setup routine. To find out what IP Address the laptop has been assigned to is a simple task. On a Windows OS computer, open up the command prompt by clicking the Start button in the bottom left of the Desktop. Then type “cmd” and press Enter. A black terminal window will open up. Type “ipconfig” and press Enter. The current Windows IP Configuration will be displayed in the command window. The picture below illustrates this process.

The IPv4 Address is the IP Address assigned to the computer. The Default Gateway is the IP Address where access to the router software configuration page. Opening up an Internet browser and typing that address into the browser bar is the next step.
Log on to the router
From a browser on the desktop computer, access the NETGEAR Genie Web interface (http://routerlogin.com) or by typing in the Default Gateway. Default login details on a NETGEAR DEVICE are userid = "admin" and password = "password":

![Router login interface](image.jpg)
Find the IP address of the IP camera
Click on the BASIC tab and click on Attached Devices:

The Device name of the Camera will show up in the 2nd column. The corresponding IP Address in the same row, but one column to the left will be the IP Address of the Camera. Simply type the address found into the browser bar of any computer connected to the router’s network and the live stream page will be displayed. Learning the IP address that the router has automatically configured for the IP camera is the only required step to accessing the live feed on the local network.
Recommendations

It is recommended that a static IP Address be configured inside of the Axis Live View configuration page. DHCP is convenient to initially determine which address to assign the camera to in order to gain access to the live view/configuration pages for the first time. However, everytime the camera is plugged in to the camera, with DHCP enabled there is a chance that a different IP address may be assigned, potentially causing confusion. Eliminate this problem in the following ways.

Choosing a Static IP Address
Clicking Setup in the top right corner of the Live View Page will bring you to the configuration page for the Axis Camera.
By Default, in the picture above, “Obtain IP address via DHCP” is selected. Simply select “Use the following IP address:” and type in the IP Address of the camera previously found in the Attached Devices page of the router. For the Subnet mask: and Default router: options, type in the information from the command prompt window from earlier.

Conclusions
This application note demonstrates how to configure an Axis Camera for local network access on a NETGEAR router. The steps above will successfully establish access to the live stream feed of an Axis Camera by typing in the assigned IP Address of the camera into the browser bar of any local computer that is connected to the router by either ethernet or WiFi. By using this technique, the user can save time and frustration by following concise instructions on how to configure the Axis P1355-E PoE IP Camera.

References