IP Cameras Troubleshooting Tips

The Top Ten Tips of Troubleshooting

- Reboot the camera
- Ping & discover the camera
- Check ARP tables
- Check for IP conflicts
- Disable antivirus software and firewalls
- Verify camera power & connection
- Check the cabling
- Know the password
- Look to the manufacturer for help
- Reset the camera to factory default

Tips Explained

1. Reboot the camera: Some consider the 'Golden Rule' of IT troubleshooting to first reboot the device before proceeding. Simply restarting the camera gives the chance for cache to flush, settings to recalibrate, and connections to be renegotiated.This step is the least difficult and cheapest to perform, one only has to remove power, wait 10 or 15 seconds, and then restore power.

2. Ping the camera and discover it: Type "cmd" into the Windows search box to open a DOS command prompt and the use the "ping" command to see if you can connect to the camera. For example, if your camera's address is 192.168.2.150, use "ping 192.168.2.150 -t" at the command prompt, if you receive "Destination Host Unreachable" or "Request Timed Out" replies that means you are not connecting to the camera via the network. There can be many reasons for that, the most basic being that the camera and the computer are on different networks or subnets. If you are receiving proper connection replies, use a web browser or the manufacturer's discovery utility to connect to the camera.

If you need help with this process, review the instruction manual on using manufacturer's camera discovery utilities, pinging cameras and setting your PC's IP address to be on the same network as the camera.

3. Check ARP tables to cross reference MAC and IP addresses: Knowing the camera's MAC address is a vital clue to discovering a camera's IP address, it's usually printed somewhere on most units on the camera or housing. It's good practice to keep a record of the MAC and IP addresses of installed cameras for troubleshooting purposes. In a similar manner to ping in Tip #2 above, the ARP command can be used to show the IP and MAC addresses of devices connected to the network, just type "arp -a" at the command prompt. You can find the IP address of the camera by knowing the MAC address and vice versa.

4. Confirm IP Addresses are not conflicting: Take care that two devices are assigned the same address, because this often has the result of 'cancelling out' network access to either device. A simple "fat finger" while inputting the camera's address, gateway or subnet can cause all kinds of havoc. The ARP command listed in Tip #3 can help with this.

5. Disable Antivirus Software or Firewalls: In some cases, a computer's antivirus utility will conflict a camera's ability to send video, or a firewall setting may prevent the connection altogether. While not an acceptable 'permanent solution', sometimes a worthwhile provision measure is to disable antivirus software or loosen firewall protections. If the connection with the camera is achieved at this step, then a final configuration of the antivirus software or firewall can take place that permits proper operation.

6. Verify Camera Power and connection: If possible, look at the camera to make sure it is powered up. Most cameras have LED's that indicate the camera's power status, and if it is connected to and transmitting data to the network. Many times these LED's may be concealed inside the camera's housing. If the camera is externally powered (non-PoE) check the power supply if no LED's are lit.

If it's a PoE camera and not powered, check to see if it is plugged into a PoE switch or midspan. Verify that the camera is receiving the proper wattage of PoE power, outdoor cameras with heater/blowers and PTZ cameras often require High-PoE or PoE+ 30W or 60W of PoE power that is higher than most standard 15W PoE switches provide, often requiring different wattage midspans. Some cameras that require >15W of power will boot up and connect with 15W, but not transmit images or respond to PTZ commands.

Another pitfall may be the PoE network switch itself. Some PoE switches do not have enough power to supply 15W to every port and will not supply power to another camera if it is already overloaded. To troubleshoot, connect the camera into a suitable PoE injector or midspan to see if that is the problem. An IPVM report on network switch PoE power problems illustrates this problem in more detail.

7. Check the Cabling: If the camera's link and/or activity lights aren't blinking, it's likely a cable. A high frequency of connection issues center around cabling problems. Basic IT troubleshooting places a huge emphasis on checking transmission cables. Since the final assembly is only as robust as it's weakest link, checking data cables for kinks, frays, shorts, and bad terminations is a very basic troubleshooting step. Cable and patch panel connections made in a hurry by hand can get crossed wires or connectors come loose.

Sometimes the power wires to a PoE camera in the cable may be powering the camera up, but the data wires may be crossed or not connected preventing network connection. To troubleshoot, use a cable tester to test the cabling or use a known good cable to connect to the camera and see if it connects. If a patch panel is used, check the patch cable, that often gets overlooked.

8. Know the password: If you can ping the camera, but can't connect to it with the VMS, web browser or discovery tool, it might be because of an incorrect login or password. IPVM maintains a list of camera manufacturer's default passwords that might help. If the defaults don't work, someone probably changed them and you'll need to find out what they were changed to in order to connect.

9. Don't be a hero, call for help: If you've tried the above steps and still can't connect to the camera, visit the manufacturers website for specific model troubleshooting guides and if those don't help, call the camera manufacturer's tech support line. Many times they know "tricks" specific to their hardware and can remotely connect to your PC via the internet to diagnose. Don't be afraid to ask for help, many times technicians waste hours tracking down a problem that the manufacturer's help desk representative can fix in a few minutes. The manufacturer's technician can also start an RMA process to return the camera if it is faulty and needs to be repaired or replaced under warranty.

10. Factory Default the Camera: Some consider this the most drastic troubleshooting step to take. Unlike Tip #1 that restarts the camera, factory defaulting removes all setting and configuration and returns the device to it's 'factory default' settings. Most IP cameras have a pin hole / reset button on the back of the device that enables factory defaulting the camera (note: not all).

Unfortunately, camera operating systems can sometimes become corrupt, or errors in the configuration can cause a camera to 'become lost'. Defaulting a camera takes it back to a fixed reference point where reconfiguration can begin. However once you default it, the camera loses all settings and history which may be vital for further troubleshooting. It may be best to wait until after calling tech support before trying this step.