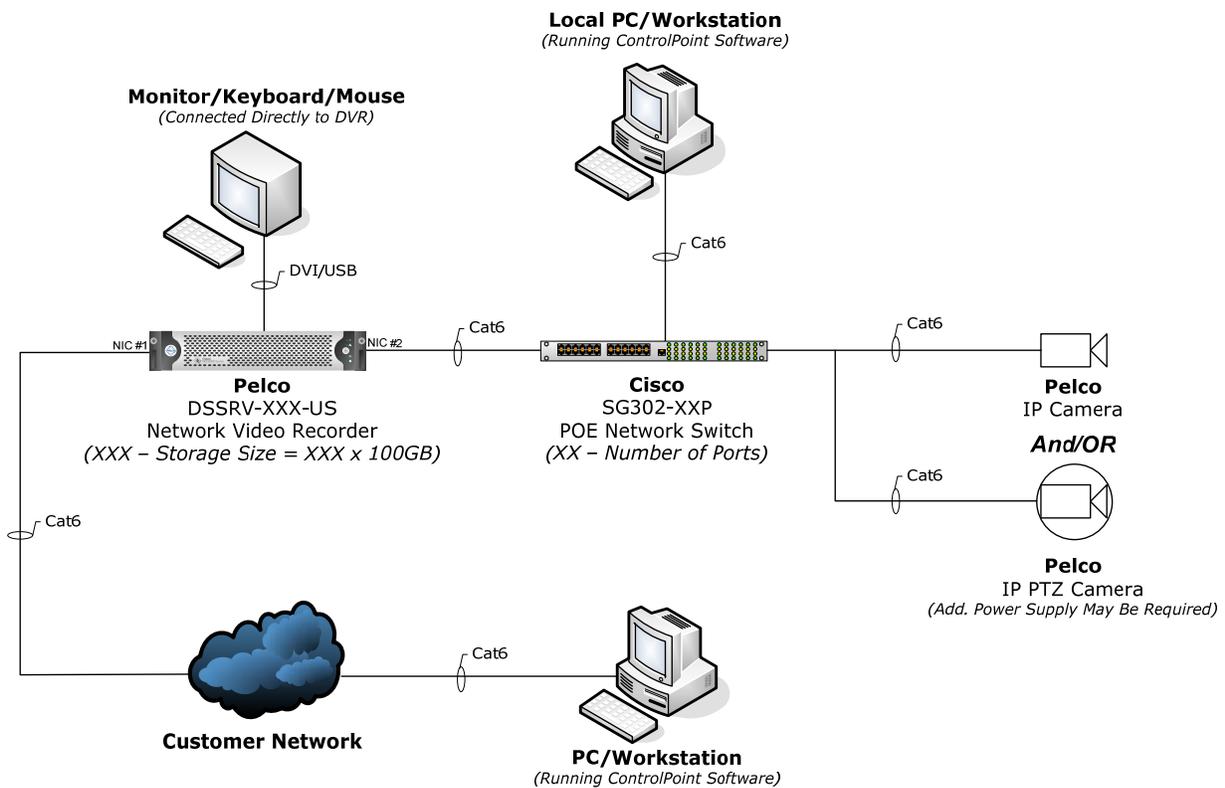


# Pelco Digital Sentry IP Camera System Quick-Setup Guide

## Purpose:

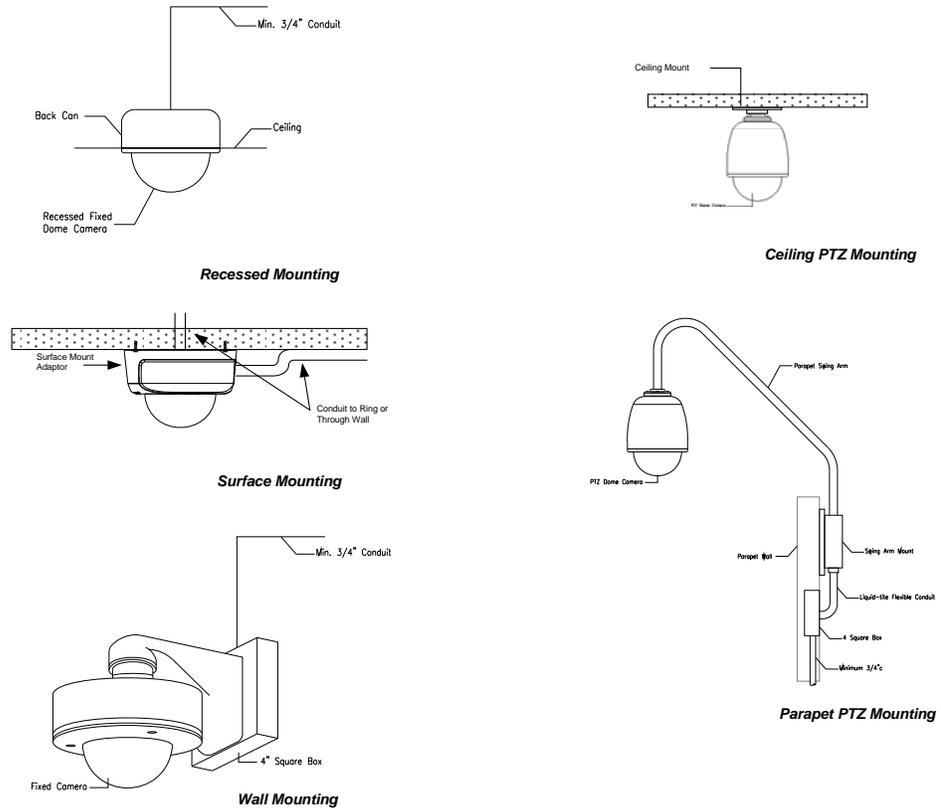
The purpose of this guide is to provide an easy setup reference for customers or Schneider Electric employees new to Pelco Digital Sentry IP camera systems. The idea is to provide a single reference for all steps necessary to get such a system up and running. This guide only includes the steps deemed absolutely necessary for a functional system.

## Typical Design:



## Camera Installation:

This guide assumes camera selection has already occurred. There are a wide variety of camera and camera mounting options available. Once the base camera model is chosen it is a very good idea to consult the specification sheet of that camera for compatible mounting options. Each camera mounting option will come with installation instructions that should be followed as closely as possible. A diagram of typical camera mounting options is shown below.



The Ethernet cable should be terminated with an RJ-45 connector at the camera and either an RJ-45 or patch panel at the switch. It is a very good idea to require the installer to certify each Ethernet run with a commercial cable tester. Most camera system issues can be attributed to improper wiring. Plug the Ethernet cable into the camera during camera installation, but do not plug the other end into the switch.

## Camera Configuration:

Once camera installation is complete the next step is to bring the cameras online. Pelco cameras come shipped from the factory set up for DHCP. This means that when first powered up they will look for a DHCP host to assign them an IP address. In the typical design there will be no DHCP available and after a short time the cameras will default to an IP address of 192.168.0.20. This is very important: when

first setting up cameras do not plug in and power up more than one camera at a time. Powering up two cameras at the same time will result in both cameras going to 192.168.0.20. If you stagger the time between plugging cameras in (allow each camera 30sec-1min to power up) then the next camera plugged in will automatically go to 192.168.0.21 and so on. However, we have found it easiest just to power up one camera at a time.

**Step 1:** Set up your laptop or DVR network card to a static IP address of 192.168.0.XXX where XXX is a number that will not be used by any camera on the system (usually 233 or similar).

**Step 2:** Plug one of the IP cameras into the POE switch.

**Step 3:** Wait. Usually it is a good idea to use the command prompt (run-> cmd) and do a continuous ping (type ping -t 192.168.0.20) and let it run until you see a response. This lets you know when the camera has completed its power up sequence and defaulted to the .20 IP address. Pelco provides two free software applications, Pelco Device Utility and Endura Utilities, that will search the network and provide a list of Pelco devices found. They are useful, but not necessary.

**Step 4:** Open Internet Explorer and go to the address of the camera (192.168.0.20). The web page for the camera should open. In order to see video on your laptop you will need either Apple Quicktime or Pelco's Video application installed (it comes preinstalled on the DVR).

**Step 5:** Verify the camera you have connected to is the one you were expecting. Ex: make sure the cable is labeled correctly and the image shown is correct for that camera. Have someone wave or walk in the field of view.

**Step 6:** Log into the camera by clicking the login link on the upper right. The default username/password for all Pelco cameras is admin/admin. Click on the settings link.

**Step 7:** On the general page give the camera a descriptive name. This is usually a camera number followed by the location of the camera or area the camera is watching. Camera numbering and location should be worked out ahead of time to have an easy way to refer to each camera and check off a list when complete.

**Step 8:** Go to the Network -> General page and turn off DHCP. Give the camera a static IP address. Again, this should be worked out ahead of time and is usually correlated with camera number. Ex: 192.168.0.101 for camera #1 192.168.0.102 for camera #2 etc... If the network is being managed you will usually be given a range of IP addresses from IT to use. Set the subnet mask to 255.255.255.0 and the gateway to 192.168.0.1 (unless the range you use is different). The gateway is usually the IP address of the network switch, but if all IP addresses used are in the range of 192.168.0.XXX the gateway is unnecessary and can be left blank. Hit save at the bottom and the camera will reboot to the new IP address.

**Step 9:** Plug in the next camera. While this camera is powering up proceed to step 10.

**Step 10:** To aim and focus the camera (this step is unnecessary for PTZ cameras). Physically go out to the camera and plug in with a portable LCD screen (the ToteVision LCD-411 and carrying case TB-410 are the best in my opinion). These can be purchased online or from ADI. You will also need the Pelco cable IX-SC which is a BNC to mini-stereo adaptor for plugging in to Pelco cameras.

**Step 11:** Once plugged in to the camera adjust the aim of the camera to hit your target view. The outer ring of the camera can rotate the camera clockwise or counterclockwise 90° and the camera can be tilted up and down 45° in either direction. You cannot rotate the camera beyond these limits without damaging it. If you need to rotate the camera further then pull the camera down, turn it 180°, and reinstall it.

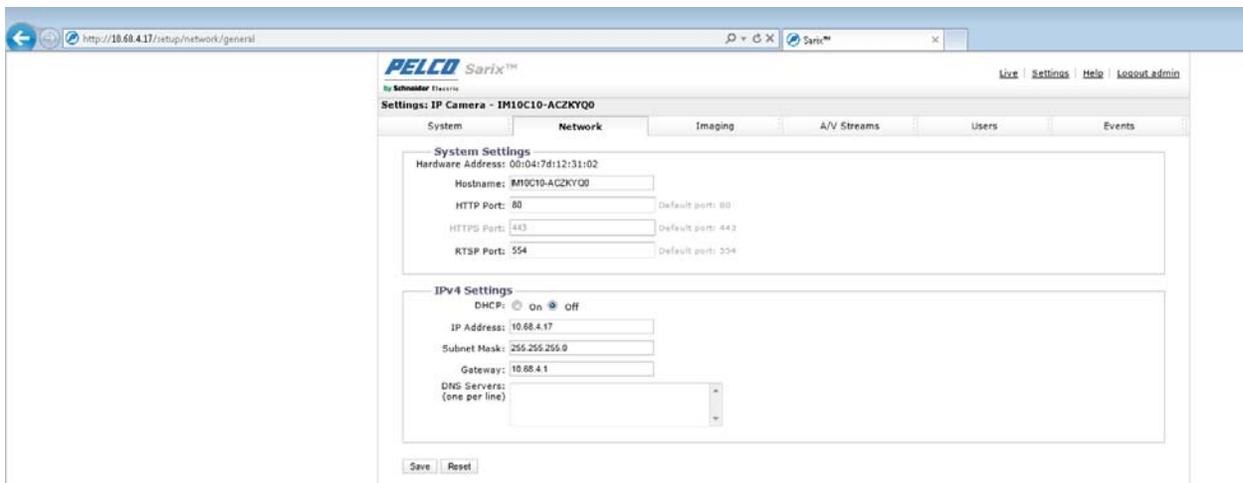
**Step 12:** Adjust the back focus. This is the back knob located on the camera lens. Loosen the knob like a screw to free it for adjustment. Adjust it to fit everything you want to monitor into the field of view. You may need to jump back and forth between step 13 and step 12 until you are satisfied. Tighten the knob down to lock the back focus in place.

**Step 13:** If your camera model comes with automatic focus this step can be skipped. You can adjust focus settings or force an auto-focus from the camera's web page under Image -> Focus. If your camera is manual focus only then you will need to adjust the front knob on the lens similar to the back focus. With the portable LCD adjust the focus until the area you want to monitor is in sharp focus. Tighten down the knob when complete.

**Step 14:** Make sure the "UP" image arrow is pointing straight up or else your image will be angled. The inner metal ring (independent of the outer ring used to aim the camera) can be rotated up to 90° clockwise or counterclockwise to make this arrow point up.

**Step 15:** Verify that the image is in focus and catching the entire desired monitoring area from the camera's web page. Often times the image in the portable LCD is slightly different than that of the web page. If everything looks good, close up the camera and repeat steps 1-15 with the next camera.

**Note:** White balance and exposure settings may also need to be adjusted for some cameras and locations. Video from each camera should be checked at least once during the day and once at night to ensure that all focus, balance, and exposure settings are working.



IP Camera Network Configuration Page

## **DSSRV Configuration:**

The DSSRV is a server grade network video recorder. Installation instructions are included with the DSSRV and should be followed closely. The DSSRV comes with a mouse and keyboard, but does not come with a monitor. The monitor connections on the DSSRV are DVI only (no VGA) so be prepared. A permanent monitor/keyboard/mouse connection for the DSSRV is optional. One of the first things I do is enable remote desktop to the DSSRV so that I can use my laptop for making any future changes to the DSSRV configuration.

**Step 1:** After DSSRV installation is complete make all power and network connections and power up the DSSRV.

**Step 2:** At the welcome screen login under the DSServiceUser account. The password is dsserviceuser (all lower case).

**Step 3:** Change the DSServiceUser password under Control Panel -> User Accounts if desired. This is usually a good idea for security, but make sure the new password is recorded and available for whoever is going to need access to the system. Set up remote desktop (right-click my computer, choose the remote tab). Choose the level of security for remote access that you wish to allow (usually any version of Windows).

**Step 4:** Set up network connections. In the typical system shown above one network card is used for the local camera network and the other network card can be configured for a corporate or remote network connection. The local camera network card (NIC#2 in typical design) must be set up in the same IP address range as the cameras. For example if you are using the IP address range of 192.168.0.XXX for cameras your DSSRV camera NIC could have an IP address of 192.168.0.10. Subnet and gateway should be the same as the cameras (255.255.255.0 and 192.168.0.1 for example). Typically the system designer or IT person will assign IP addresses to each piece of equipment ahead of time. This not only keeps things organized, but helps with troubleshooting. The other network card (NIC#1) can be set up however necessary to provide a remote connection to the camera system. Typically this is a static IP on a customer network. This keeps all camera traffic isolated and off the customer's network.

**Step 5:** Run the DS Quick Setup Wizard and choose new installation. If you do not have all cameras complete you can come back to this later and choose add cameras to add new cameras to the system.

**Step 6:** Choose a username and password for the camera server (default is admin/admin). This is separate from the username/password used to log in to the DSSRV. This username and password becomes the administrator password for camera configuration and viewing. Similar to the DSSRV logon password, it is a good idea to change this password from the factory default, but make sure it is saved somewhere. Hit next.

**Step 7:** The setup wizard will ask you to choose a computer name and lists the IP addresses of both network cards (if available). Rename the DSSRV if desired and choose the IP for the local camera network. Click next.

**Step 8:** The storage locations box comes up. The default settings should be correct (large storage drives selected). Hit next.

**Step 9:** The wizard will now search the network for all IP cameras and provide them to you in a list with a checkbox in the left column. Select all cameras you want to record on this DSSRV by clicking their corresponding checkbox. If you set up the camera names as described above they will automatically be brought into the system with the same name. **Do not hit next yet.**

**Step 10:** If you are going to be recording more than 8 cameras, you will need to obtain a license for each additional camera above 8. This can be done by emailing a PO and the product ID (click enter license on the camera dialog box) to Pelco Sales. They will email you back a license key to enter under the enter license button in the camera dialog box.

**Step 10:** Across the bottom of the camera selection dialog box you will see tabs that say Quality, PTZ, Authentication, Recording, Motion, and Audio.

**Quality: Not correct by default.** Look up the datasheet for each camera model you are using. Set the resolution and framerate to the highest settings shown on the datasheet.

**PTZ:** Should be correct by default. Verify PTZ is enabled if using a PTZ camera.

**Authentication:** All settings should be correct by default.

**Recording: Not correct by default.** Choose motion recording. Motion recording greatly increases the days of recording you can provide by not recording cameras when there is no motion. Storage is costly and usually selected to provide a specified number of days storage so motion recording can greatly reduce the amount of storage required and thus the cost of the system. Motion recording also saves on read/write cycles to the hard drives reducing failure rates and maintenance costs.

**Motion: Not correct by default.** By default In-Camera motion detection is selected. However, you cannot use in-camera motion detection if you have set camera quality to maximum. Also, I prefer the server motion settings and ease of changing several cameras very quickly. If you do not load up the DSSRV with cameras the server-side motion detection does not over tax the CPU. Choose server side motion detection for all cameras and leave the other settings at default. They will be adjusted per camera later.

**Audio:** Not usually used.

**Step 11:** Hit next. A summary of all settings will appear. Hit next.

**Step 12:** Once complete a screen will appear asking if you want to open ControlPoint and view the cameras. Check or uncheck the box and hit finish.

**Step 13: This step should never be skipped for correct configuration.** Motion settings and mask need to be tuned individually for each camera. Failure to do so may result missing critical events. Open DS Admin (programs->Pelco->DSAdmin), type in the administrator password for camera configuration. DSAdmin should automatically connect to the local DSSRV system. Expand the local DSSRV system and click on the cameras directory and you should see the following tabs to the right: General, Video Settings, Motion, On Screen Display, Time-lapse Storage, Motion Storage, and PTZ. The location of these settings varies by version of DSSRV and in some versions the settings are only available when you select individual cameras. Configure all cameras for the following:

**Motion Storage:** Full week fast. When motion is detected camera will record at maximum quality.

**Pre-Motion Recording:** frames to trigger recording: 1/pre-recording seconds: 3.

**Post-Motion Recording:** frames to stop recording: 8/post-recording seconds: 10.

These settings ensure that recording does not stop if someone stops moving in the camera frame for a second and ensures that camera captures some portion of time before and after motion was triggered.

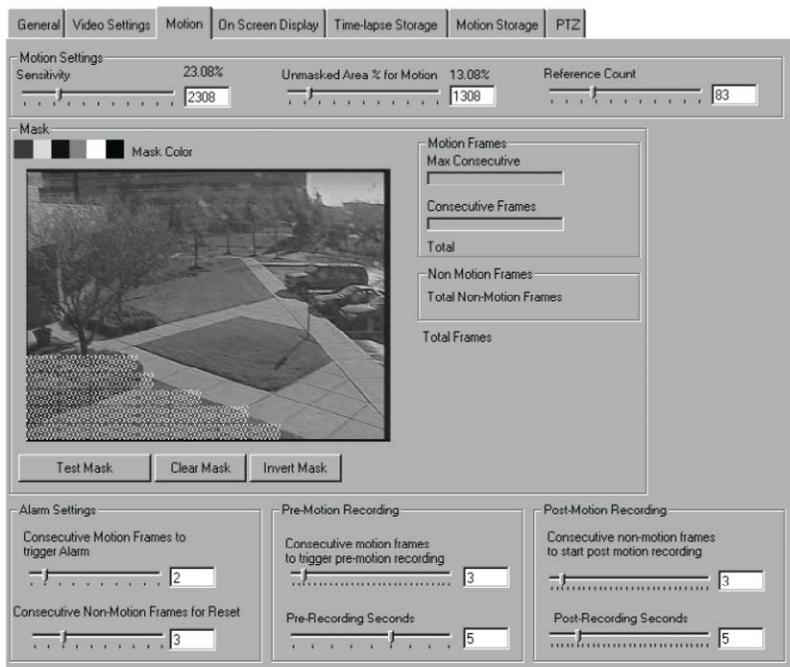
**Sensitivity:** The change in pixel value for that pixel to be considered changed. A change from black to white is 10000. Lower this number to make the motion detection more sensitive to changes in color.

**Unmasked Area for Motion:** The percent change of the unmasked area to trigger motion. Basically, how big of an area of the image must change to trigger motion recording. The default setting is usually fine for short to medium distances, but if a camera is viewing a large area then the unmasked area setting needs to be reduced to a setting such that it will trigger off a person walking. For example: if a person only takes up 2% of the full image then the area % needs to be set to at least 2% if not less.

**Reference Count:** This setting indicates how often the reference image is updated. The reference image is compared to each new image to check for motion. For example if you have a camera at 8 frames per second a reference count of 80 would mean the reference image is updated every 10 seconds. The default setting is usually fine.

**Motion Mask:** All undesired objects capable of motion should be masked out to prevent undesired triggering of motion. This includes trees with leaves that will blow in the wind, public streets in the background of a camera image, etc...

Once all settings are adjusted, watch the camera for motion. When motion occurs a blue outline should appear around the image indicating motion recording. If no image appears, the camera is not recording and settings should be tightened.



DSAdmin Motion Detection Settings Tab

## ControlPoint Configuration

ControlPoint is free user-friendly camera-viewing software that can be installed on any PC and used to connect to the DSSRV to view cameras. ControlPoint comes pre-installed on the DSSRV and will automatically add the DSSRV when the quick-setup is run. For viewing from other PCs follow the steps below.

**Step 1:** Download the latest version of ControlPoint from [www.Pelco.com](http://www.Pelco.com).

**Step 2:** Install ControlPoint on the desired PC.

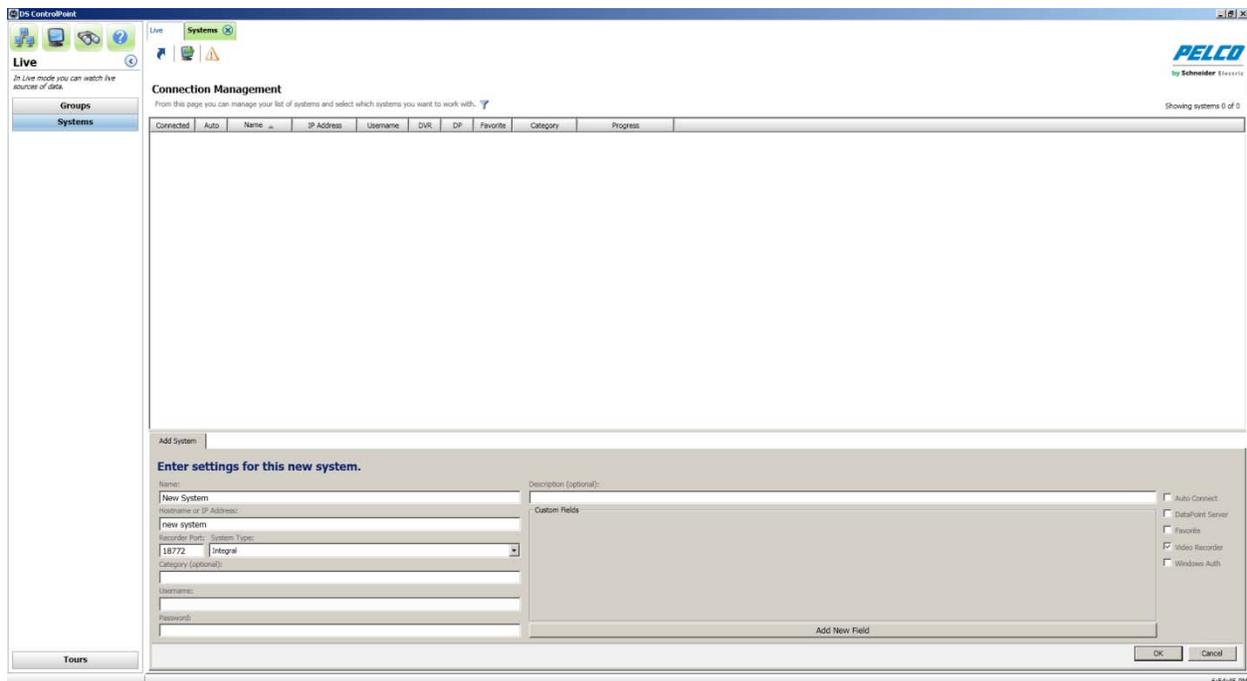
**Step 3:** Open ControlPoint and select the setup option (looks like 3 computer monitors).

**Step 4:** Choose manage systems and click the add new system (monitor with a green plus sign).

Give the new system to be added a descriptive name. Under hostname or IP address you can either enter the DSSRV computer name or its IP address. If the customer network side of the DSSRV is set to DHCP then the DSSRV computer name must be used. Enter the camera system administrator username and password (other users can be created with lower level access in DSAdmin). Check the autoconnect box, make sure video recorder is also checked, and hit ok.

**Step 5:** The DSSRV should appear on the list and attempt to connect. Right-click and choose connect if it does not automatically connect the first time.

You should now be able to navigate to see the DSSRV under the live tab with a list of all attached cameras. Hit the question mark for a full ControlPoint user manual.



ControlPoint Add System Dialog

**Integration with Andover Continuum:**

Pelco Digital Sentry systems are designed to integrate with Andover Continuum to provide camera floorplans, video integration with access control, and more.

Integration Instructions Forthcoming...

**Conclusion:**

This guide is meant to provide a quick step-by-step setup for a Digital Sentry system with Pelco cameras. There are many features left out of this guide to keep it short and simple. Please consult the relevant installation guides and user manuals for additional information. Also, the Schneider Electric lessons learned database: <http://buildingskb.schneider-electric.com/> is a good place to go for any questions.