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DVMS System

Installation Guide

CONTENTS

DEFAULT PASSWORDS

System Manager, Workstation, and System Monitor

Username: Admin

Password: 0308

The default username and password should not be used even in closed networks. Please ensure that the default username and password are not in use after the system has been installed.

BEFORE YOU START

The DVMS software is a distributed, digital video management system for video and audio surveillance applications.

The software can be used for monitoring real-time and recorded video, audio and text data, and to control dome cameras, I/O devices and IP cameras.

The software supports systems consisting of both analog and/or digital surveillance cameras, supporting the creation of analog (DVR), digital (NVR) or hybrid (consisting of both analog and digital) surveillance systems.

A centralized surveillance system can consist of up to 100 local or remote recorders.

This guide gives instructions for setting up the recorders and for installing audio devices, IP cameras, dome cameras, video matrices, digital inputs and outputs, and client programs (System Manager and Workstation).

MANUALS FOR THIRD PARTY DEVICES

When installing third party devices (audio devices, IP cameras, dome cameras, and video matrices), follow the manufacturer's instructions.

TECHNICAL SUPPORT

For technical support and warranty issues, please contact the system supplier.

INTRODUCTION

This chapter describes the system architecture.

SYSTEM ARCHITECTURE

The system has these components:

- 1-100 digital video recorders (DVRs) or network video recorders (NVRs)
- Master Recorder (one of the recorders)
- Client programs
  - DVMS System Manager
  - DVMS Workstation
  - DVMS System Monitor (Optional)
  - DVMS Web Client (Optional)

RECORDERS

The DVRs and NVRs record video and audio from multiple cameras and audio channels and write the data on hard disks. You can access a recorder locally or over a network by using the System Manager and Workstation programs, and monitor recorder functionality through the System Monitor application.

A recorder contains the computer, the operating system, the recorder software, video capture cards (only DVRs), their drivers, and cameras.

An NVR does not have video capture cards. Instead, it records video from IP cameras connected to a network.

In addition, you can connect these devices to a recorder:

- Dome cameras
- Dome camera keyboard
- External devices, such as sensors, to the digital inputs of a DVR
- External devices, such as doors, lights, and gates, to the digital outputs of a DVR

- Video monitors (only DVRs)
- Printer
- Backup unit (NAS or RAID)

MASTER RECORDER

One of the recorders must be a Master Recorder. If the system contains only one recorder, that recorder is the Master Recorder. If there is more than one recorder, you can select the Master Recorder freely. The Master Recorder is set when you install the client programs.

The Master Recorder does these things:

- It verifies the identity of all programs and users who try to log on to the system (authentication).
- It writes all system configuration data and user data on disk.
- It monitors the system.
- It synchronizes the clocks on all recorders.
- It produces reports.

CLIENT PROGRAMS

End users use the **Workstation** program, for example, for these tasks:

- Monitoring real-time video and examining recorded video.
- Exporting video and audio clips to local media.
- Receiving and handling alarm notifications.

System administrators use the **System Manager** program for these tasks:

- Configuring the recorders.
- Adding user accounts and user profiles.
- Monitoring the system.

End users use the **WebClient** or **Spotter Mobile** programs, for example, for these tasks:

- Monitoring real-time video and examining recorded video through a Web browser (WebClient) or smart phone application (Spotter Mobile).

In addition, system administrators can use the **System Monitor** application to monitor the status of the recorders.

This figure shows a system with five recorders:
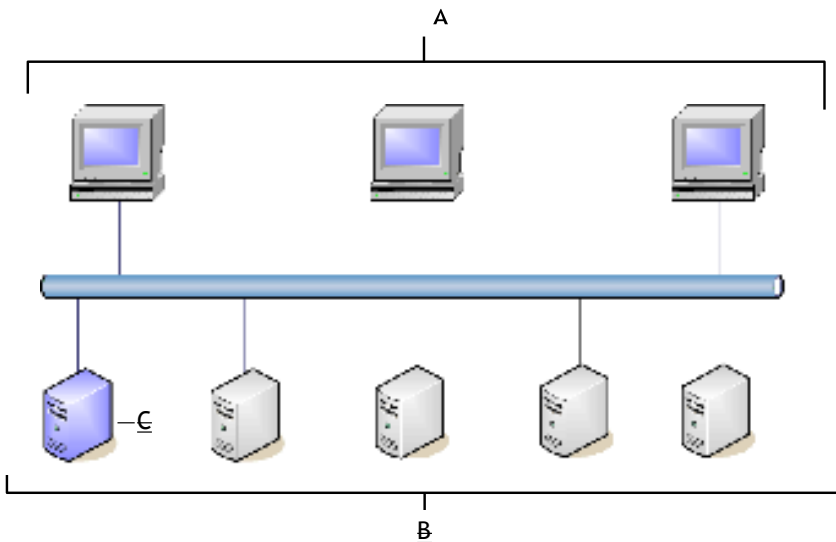
A. *Client computers with the System Manager and Workstation programs* **B**. *Recorders* **C**. *Master Recorder*

SYSTEM REQUIREMENTS

RECORDERS

The recorders require this minimum system configuration:

Hardware:

- Intel Pentium 4 HT 3.2 GHz processor

- 2048 MB RAM

- At least 40 GB hard disk space.
  Note: The recorder reserves 90% of disk space on other drives than drive C for its use. It does not use drive C for storage except when it is the only drive.

- Display adapter with at least 128 MB memory
  (a dual-head display adapter is optional)

- Capture card for DVR models (please see **Error! Reference source not found.** for the list of supported capture cards). Capture cards are not used in NVR models.

Software:

- Microsoft Windows 7 or XP (See *OS Compatibility*)

- Microsoft .NET Framework 3.5 SP1

- Microsoft DirectX 9.0c (installed automatically with the DVMS software)

- Microsoft DirectX for Managed Code (installed automatically with the DVMS software)

CLIENT PROGRAMS

The client programs (System Manager, Workstation, and System Monitor) require this minimum system configuration:

- Intel Pentium 4 HT 3.2 GHz processor (when using H.264 cameras in the system, quad core processors are recommended)

- 2048 MB RAM

- 20 GB hard disk space

- Display adapter with at least 64 MB memory

- Microsoft Windows 7 orWindows XP (See *OS Compatibility*)

- Microsoft .NET Framework 3.5 SP1

- Microsoft DirectX 9.0c (installed automatically with the DVMS software)

- Microsoft DirectX for Managed Code (installed automatically with the DVMS software)

NETWORK REQUIREMENTS

These network requirements apply to systems where users access the recorders over a network.

GENERAL

100M Ethernet is recommended (see *Bandwidth requirements*).

Data can be transmitted over the Internet, intranet, LAN, WAN, WLAN, ISDN, ADSL, or any other network using TCP/IP.

IP ADDRESSES

The recorders must have static IP addresses, so that the client programs can connect to them.

You can use some NAT solutions with the system but not all:

- Static network address translation (NAT) can be used between the recorders and the client programs.

- Dynamic NAT cannot be used because the IP addresses can change.

- Single-address NAT works if there is only one recorder in the NAT system. It does not work if there is more than one recorder in the same system.

PORTS

These ports must be open on the recorders:

- 5008 (TCP), between SM Server and client programs
  Port rule: open inbound

- 5009 (TCP), between DVR Server and client programs
  Port rule: open inbound

- 5010 (TCP), between Watchdog Service and client programs
  Port rule: open inbound

- 5011 (TCP), between Streaming Service and client programs
  Port rule: open inbound

Please see *Appendix A: Networking recommendations* for further information on ports and network information.

NOTE*: If you are using Windows Firewall, the DVMS installer can automatically create exceptions for the required ports. Please see* **Installing the recorder software** *for further information.*

BANDWIDTH REQUIREMENTS

The bandwidth requirements for the network between the recorders and client programs depend on a number of factors. Here are a few aspects to think about:

- Data transmission from the recorders to the client computers (uplink) requires more bandwidth than data transmission from the client computers to the recorder (downlink). The connection does not have to be symmetric.

- Real-time monitoring requires more bandwidth than transmitting recorded video or audio.

- In addition, signaling and protocols increase the required bandwidth.

DATA SECURITY

The system uses a light data protection mechanism and user authentication. However, using public networks always includes a security risk because there are no completely secure systems available on the Internet.

For this reason, dedicated networks should be used whenever possible to prevent unauthorized access to the system. Consider using a Virtual Private Network (VPN) to create a secure connection between computers on a public network.

Antivirus programs should also be used if the system units are on a public network (Internet, intranet).

OS COMPATIBILITY

The DVMS system supports the following operating systems:

Operating System	DVR	NVR	Applications	Gateway
Windows XP SP 32bit	X	X	X	X
Windows Vista	-	-	-	-
Windows 7 Enterprise 32bit	-	X	X	X
Windows 7 Enterprise 64bit (in 32bit mode)	X	X	X	X
Windows 2003 Server	-	-	-	-
Windows 2008 Server R2 Enterprise 64bit (in 32bit mode)	X	X	X	X
Windows 2008 Server R2 Foundation 64bit (in 32bit mode)	X	X	X	X

RECORDER INSTALLATION

This chapter shows how to install the video capture cards and the recorder software on a computer that has no previous DVMS software.

To set up a pre-installed recorder:

1. Connect the display, mouse, and keyboard to the computer.

2. Connect the network cable to the computer (for network use).

3. Connect cameras to the BNC connectors.

4. Connect all power cords and turn on the power.

5. The recorder starts automatically and begins to record images from the connected cameras with the default settings.

To set up a recorder:

1. If your recorder has analog cameras, install the capture card(s) for the cameras. Please see chapter **Error! Reference source not found.** for information on installing capture cards.

2. Install the recorder software. Please see chapter *Installing the software* for information on installing the required software.

3. Install cameras and other devices. Please see chapter *Installing devices* for further information.

4. Install the client applications. Please see chapter *Installing client programs* for further information.

5. If your system will utilize WebClient or Spotter Mobile users, you will need to install the Gateway server. For further information, please see chapter *Gateway server installation*.

6. For advanced users only: if your system contains VCA components, install and configure the required software. Please see chapter *Installing VCA components* for further details.

To update recorder software and client applications:

1. Please see chapter *Updating* for information on updating recorder or client software.

INSTALLING THE SOFTWARE

INSTALLING THE .NET FRAMEWORK

Install .NET Framework 3.5 SP1, and all critical updates on the computer.

To install .NET Framework:

1. Click **Start** and then click **Windows Update**.

2. Install these components (you can not install them all at one time):

    - .NET Framework 3.5 SP1

    - Security updates and critical updates

3. Start **Windows Update** again until you have installed all the necessary components.

INSTALLING THE RECORDER SOFTWARE

To install the recorder software:

1. Put the DVMS Installation CD into the CD drive. The setup program starts automatically. If the setup program does not start automatically, you can also start it by double-clicking the file *dvms_X.X.X.msi* (X.X.X is the version number).

2. In Welcome to the DVMS Installation Wizard, click **Next**.

3. The Firewall settings information screen opens. After reading, click **Next**.

4. By default, the setup program installs the recorder and the applications System Manager, Workstation, and System Monitor.

    a. If you do not want to install the applications on the recorder, open the menu next to **Applications** and select **Entire feature will be unavailable**.

    b. If you want the Workstation application to start automatically, open the menu next to **Start Workstation automatically** and select **Will be installed on local hard drive**.

c. If you want the System Monitor application to start automatically, open the menu next to **Start System Monitor automatically** and select **Will be installed on local hard drive**.

d. If you want firewall exceptions set automatically for Windows Firewall, open the menu next to **Set firewall exceptions** and select **Will be installed on local hard drive**. Do not select this option if you are not using Windows Firewall.

5. Click **Next**.

6. Select the destination folder and click **Next**.

7. In the Installation Configuration dialog box, specify the IP address or DNS name of the Master Recorder. The Master Recorder is the recorder where all system configuration data is stored when more than one recorder is used in the same system. Click **MASTER_RECORDER** and click **Set**. In the **Property value** box, type the IP address or DNS name of the Master Recorder. (This dialog box is not shown if only the recorder is installed). If the Master Recorder is the local computer, use the default value 127.0.0.1. Then click **Next**.

8. Select the video standard and click **Next**. Then click **Next** to start the installation.

9. After **DirectX 9.0c** installation has started, select **I accept the agreement** and click **Next**.

10. When the recorder has been installed, the dialog box Recorder has been successfully installed is shown.

11. Click **Finish**.

For information about setting up the recorder, see *Recorder installation*.

For information about how to install the client programs, see *Installing client programs*.

SET THE TCP/IP ADDRESSES

To set the TCP/IP addresses in Windows XP:

1. Click **Start**, point to **Settings** and then click **Control Panel**.

2. Double-click **Network Connections**.

3. Right-click **Local Area Connection** and choose **Properties**.

4. Click **Internet Protocol (TCP/IP)** and then click **Properties**.

5. Select **Use the following IP address** and type a static IP address. Also specify the **Subnet Mask**, **Default Gateway** and **DNS Server address**.

SET THE MASTER RECORDER'S IP ADDRESS TO THE SYSTEM FILES

If the recorder will function as the Master Recorder of a system, and if it will be accessed over a network, you have to set the recorder's IP address through the System Manager application.

To set the IP address through System Manager:

1. Start System Manager locally on the Master Recorder as instructed in the *Administrator's Guide*.

2. In the **System** tab, click **Change recorder addresses**.

3. Click on **Local Recorder**.

4. Click the **Change recorder address** button .

5. Type the new IP address or DNS name of the recorder into the **New recorder address** field.

6. Click **OK**.

NOTE: You only need to set the local IP address for the Master Recorder of a system if the recorder can be accessed over a network. If the recorder is accessed locally, there is no need to set the address.

ENABLE TIME SYNCHRONIZATION

When more than one recorder is used in the same system, the Master Recorder keeps the clocks of all recorders synchronized. For this reason, one recorder should not belong to more than one system.

The Master Recorder synchronizes the clocks once a day. However, if the time difference between the clock on the Master Recorder and the clock on the other recorder is more than 29 minutes, the clocks are not synchronized.

For the time synchronization to work correctly, the Windows time synchronization must be disabled on the other recorders. However, it can be enabled on the Master Recorder.

To disable Windows time synchronization:

1. Click **Start**, point to **Settings**, click **Control Panel**, and then double-click **Date and Time**.

2. On the **Internet Time** tab, make sure that the check-box **Automatically synchronize with an Internet time server** is not selected.

GET A LICENSE KEY

By default, the recorder supports only one IP camera. To get the full functionality, get a license key from the system supplier. For the license key, you need the MAC address of the recorder and the serial number of the software. The serial number is on the cover of the DVMS Installation CD.

To get a license key:

1. Double-click the **DVMS System Manager** icon on the computer desktop to start System Manager. The License Information dialog box is automatically shown when no license key has been specified.

2. Copy the MAC address and send it together with the serial number of the software to the system supplier. In return, you will receive the license key. **NOTE**: *When updating a recorder, the new version must have an equal number of camera channels as the previous version or more. Otherwise, you may not be able to restore the settings from the previous version properly.*

3. When you have the license key, click the **Update License Key** button in the License Information dialog box and type the new license key. The system is updated and System Manager closed.

4. Restart System Manager. All camera channels specified by the license key are now available.

NOTE: The default unregistered state that allows the use of one IP camera has been time limited. The unregistered state can be active for up to 60 days, after which a valid license key is required. Unless a valid license key is not

added to the system within 60 days after the installation, the system will
cease to operate.

SETTING UP THE SYSTEM

After connecting the cameras and other devices to the recorders, configure the
system settings and add user accounts and user profiles.

To configure the system:

1. Start System Manager locally or over a network (click the **DVMS System Manager** icon on the desktop).

2. Add recorders to the system and configure their settings on the **Recorders** tab.

3. Add user profiles on the **Profiles** tab.

4. Add user accounts on the **Users** tab.

5. Install the client programs on the end users' computers. See *Installing client programs.*

For more information about how to configure the system, see the
Administrator's Guide.

INSTALLING DEVICES

INSTALLING IP CAMERAS

You can connect supported IP cameras and video servers to a recorder over a TCP/IP network. An IP camera has a built-in component for capturing video images. The camera is connected directly to a local area network, and it has its own IP address.

You can also use video servers to change analog cameras into IP cameras. Video servers are also connected directly to the local area network, and they have their own IP addresses.

Depending on the software license, you can connect analog and IP cameras to the same recorder. Alternatively, all cameras can be IP cameras.

For a list of supported cameras, see the document *Supported IP Cameras* on the DVMS Installation CD.

Please see the *Administrator's Guide* for instructions on installing IP cameras to the system.

NOTE: *A 4-camera video server must be configured to start from camera number 1, 5, 9 or 13 etc.*

INSTALLING PTZ DRIVERS FOR IP CAMERAS

The recorders support the PTZ (pan, tilt, and zoom) functions for IP cameras and video servers.

It is important to note, that for most IP dome cameras, the dome functionality is installed simultaneously with the camera driver through ***automatic camera search*** or ***IP camera finder***. Please see the *Administrator's Guide* for further information.

In some cases, however, especially for some older camera models, the PTZ functionality driver needs to be installed separately. For information about these camera models, see the documents *Supported IP Cameras* and *Supported Dome Cameras & Plugins* on the DVMS Installation CD.

To install the PTZ driver for a camera not supported through *automatic camera search* or *IP camera finder*:

1. To install the driver, double-click the driver installer <driver name>_XX.msi, where XX is the version number. For information about

the drivers, see the document *Supported Analog Dome Cameras & Plugins* on the DVMS Installation CD.

2. Click **Next** until you get to the **Destination Folder** dialog box. Make sure that you select the same folder as where the recorder is installed.

3. Click **Next** until the DVMS Driver Configuration tool starts. Configure the driver as follows:

   a. Select the option **Show Dome camera drivers**.

   b. From the drop-down list, select the driver that you just installed.

   c. Type the number of the camera in the **DVR camera ID** box.

4. Click **Configure** and do the following:

   a. In the dialog box that is shown, click **Add Connection**.

   b. In the **Connection Name** dialog box, type a descriptive name for the connection and click **OK**.

   c. Click **Add Camera**.

   d. Type or select at least the necessary settings. See more details below.

5. Click **OK** and **Close** to close all dialog boxes.

NOTE: In the camera setup dialog box, type or select at least these settings:

- Type a descriptive name for the camera.

- Type the IP address of the camera (and the port).

- Type the user name and password that are in the camera's settings (by clicking **Launch camera setup application**, you can access the camera's settings). The user name and password that you type here are written to the recorder's settings.

- For some cameras, you must choose the camera's mounting type, ceiling or desktop. If you select the incorrect option, the camera will move to the opposite direction when the user tries to control it.

- For some cameras, you can click **Menu** to access additional camera settings. The menu opens on the video window. To see the menu, open a web browser and type the IP address of the camera in the address bar. Use the **Up**, **Down**, **Left**, and **Right** buttons to navigate in the menu.

- If the dome camera is connected to an Axis video server, select the **Camera connected to Axis video server** check box. Then select the number of the camera input (ID) on the Axis server.

- To make sure that the camera's IP address is correct and to access other camera settings that are not shown in the dialog box, click **Launch camera setup application**.

- Some models have a **Reset Camera** button for restarting the camera.

- Some models (some Bosch PTZ IP cameras) require additional ports to be opened to the recorder's firewall. Please refer to the camera manuals for further information.

NOTE: The PTZ driver installs only the camera control functions. For instructions on how to install and configure an IP camera or a video server, see Installing IP Cameras.

NOTE 2: The Axis PTZ driver makes it possible to control not only the Axis 213 PTZ IP camera, but also analog dome cameras that are connected to an Axis 241Q or 241S video server. Note that the dome cameras must be supported by Axis. Contact Axis to get the dome camera driver and load it on the Axis video server.

INSTALLING AUDIO DEVICES

Audio recording requires the following:

- A digital recording interface, for example, a PCI audio card or a USB device

- A preamplifier, if necessary

For more information about suitable audio devices, please contact the system supplier.

To install an audio device:

1. Connect the device to the recorder.

2. Install the audio driver (capture driver).

For more information about installing an audio device, see the manual supplied with the device.

To configure audio channels:

1. Start System Manager.

2. In Hardware Settings, on the Audio tab, click Add.

3. Select the capture driver from the list.

4. Select one of these options:

    - **Mono**. Select to use two mono channels.

    - **Stereo**. Select to combine two mono channels into one stereo channel.

5. Click **OK**.

For information about how to change audio detection settings, see the *Administrator's Guide*.

INSTALLING AUDIO COMMUNICATION

You can connect a call button, a microphone and a (loud)speaker to a recorder and use them as a door or gate phone. Each recorder can have one such audio communication channel. Audio is transmitted over a TCP/IP network.

When the call button is pushed, the system sends a call signal to the Workstation program. This is shown by an animated telephone icon on the user's desktop and a ringing sound.

The user can then answer the call, which opens a direct, two-way communication channel between the user and the person who pushed the call button.

The users can also open the communication channel from Workstation when there is no call signal.

To connect the devices:

1. Connect a call button or an equivalent device to one of the digital inputs on the recorder.

2. Make sure that the user's workstation has audio hardware that supports two-way audio. For example, the audio device can be an integrated sound card.

3. Connect a microphone and a speaker or an earphone to the recorder and to the user's workstation.

**To set up audio communication:**

1. Start System Manager.

2. In **Hardware Settings**, on the **Audio Communication** tab, select the capture driver and the playback device used on the recorder.

3. In **Audio Communication Settings**, type a name for the communication channel (or use the default name).

4. Type a general description and an administrative description of the channel. All users can see the general description, whereas only system administrators can see the administrative description.

5. Select the digital input that the call button is connected to.

INSTALLING ANALOG PTZ CAMERAS

NOTE: Supported dome camera models are listed in the document plugin.pdf on the DVMS Installation CD.

HARDWARE INSTALLATION

Connect the dome camera to the RS-232 serial port of the recorder and the video cable to a BNC connector. Because most dome cameras use the RS-485 or RS-422 standard for transferring control data, use an RS-232/RS-485 or RS-232/RS-422 converter.
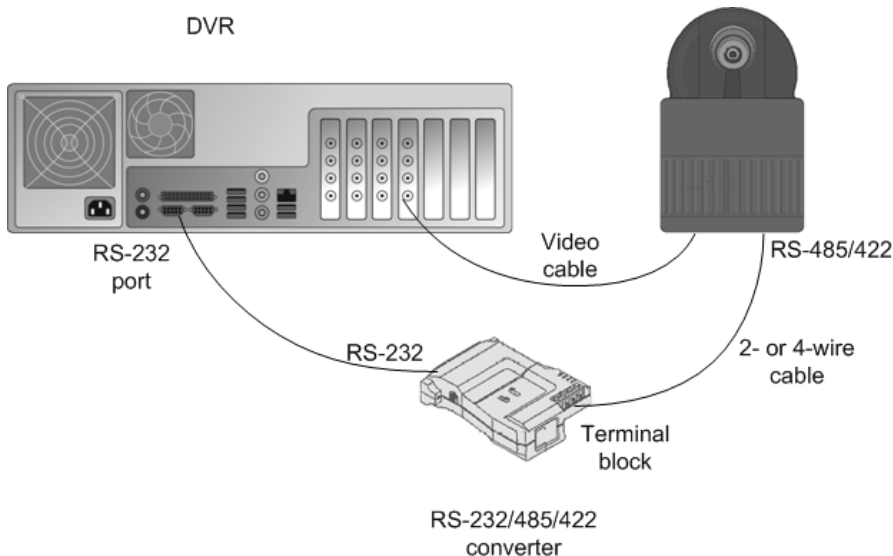
Connecting a dome camera to a recorder.

For wiring instructions, see *Wiring*.

INSTALLING MULTIPLE DOME CAMERAS

Use one of these options to connect more than one dome camera to a recorder:

- A multiport serial board.
- A daisy chain configuration (each camera is connected in a series from the previous camera).
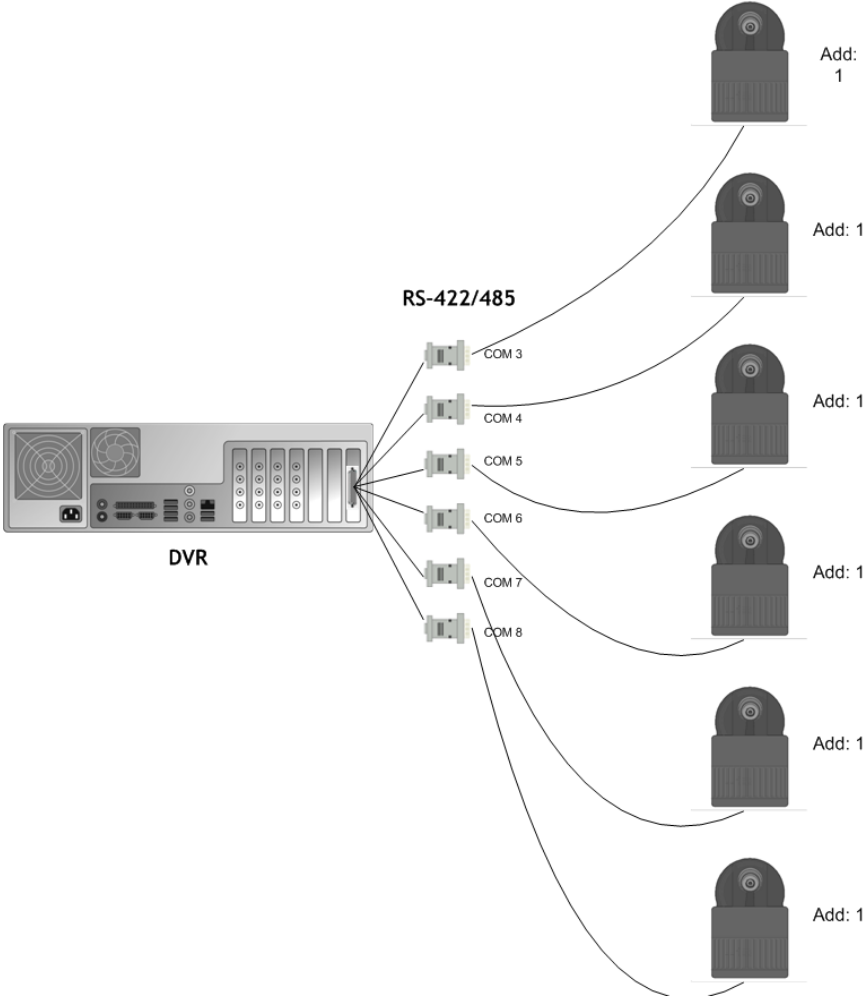- A daisy chain configuration together with a multiport serial board

NOTE: If you connect more than one camera directly to the same serial port (star configuration), the control signal from the recorder can become too weak.

USING A MULTIPORT SERIAL BOARD

You can use a multiport serial board to connect more than one dome camera to a recorder. Usually, such a board is put into one of the PCI slots of the

recorder or plugged to a USB port. Use a board that has RS-422/485 ports. Connect the cameras to the ports by using 2- or 4-wire connectors.

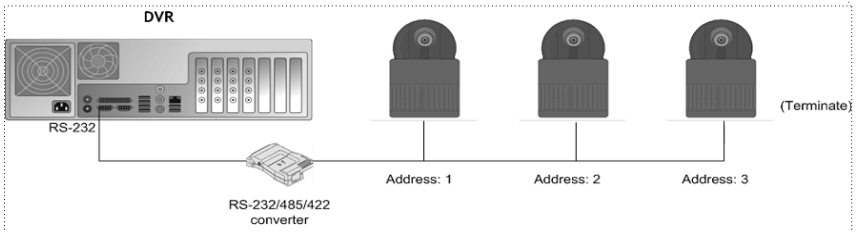Multiport serial boards are available, for example, from Moxa.

Using a multiport serial board to connect multiple dome cameras

USING A DAISY CHAIN CONFIGURATION

In a daisy chain configuration, the cameras are connected in one line.
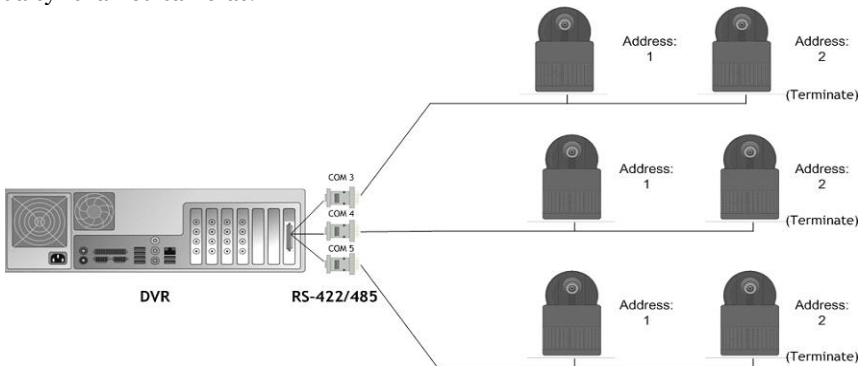
It is important that you do these:

- Give each camera a unique address by using the switches or dials on the camera.

- Terminate the last camera in the chain.

Using a daisy chain configuration to connect multiple dome cameras

COMBINATION

You can also use a configuration that combines a multiport serial board with daisy- chained cameras.

Using a combination of daisy chained cameras with a multiport serial board
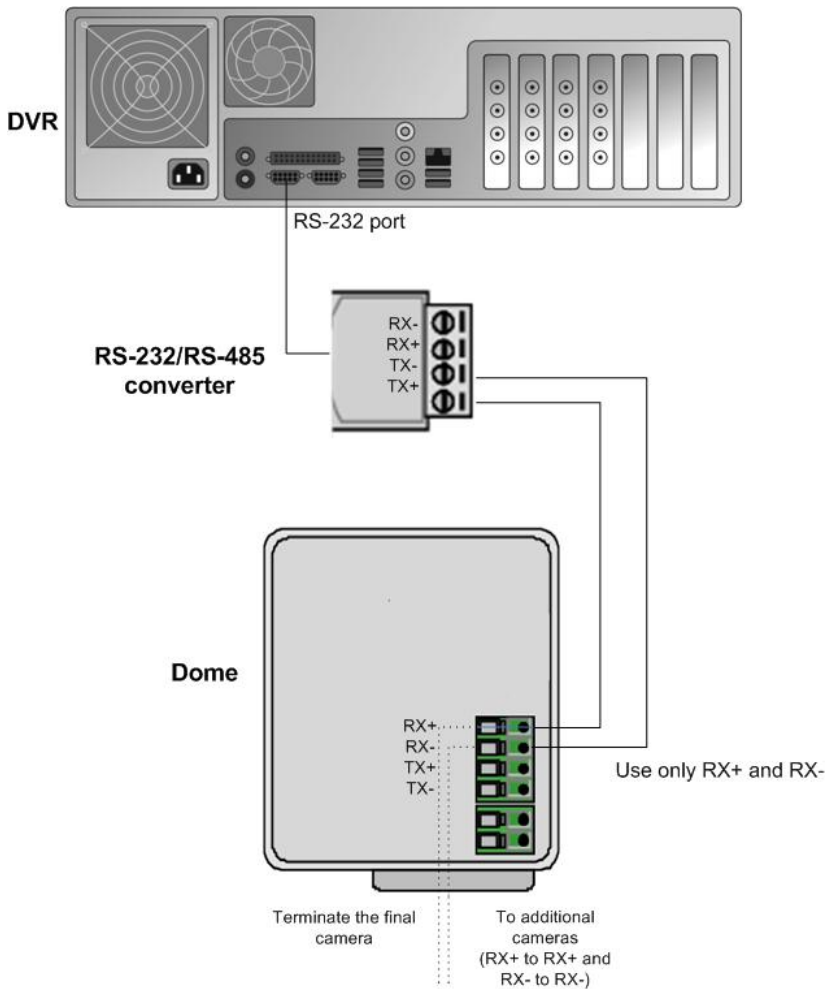
RS-232 pin assignment

Connect the RS-232/RS-485 or RS-232/422 converter to the RS-232 port on the recorder using a 9-pin D-connector. If you make the connections yourself, connect the conductor wires as shown in this table.

| Recorder	RS-232 port	RS-232/RS-485 or RS-232/422 converter
Pin	Signal	Signal
1	Not used	
2	Receive Data (Rx)	Tx
3	Transmit Data (Tx)	Rx
4	Not used	
5	Signal ground	Signal ground
6	Not used	
7	Not used	
8	Not used	
9	Not used	

SIMPLEX WIRING

Wire the dome camera to the RS-232/RS-485 converter. Connect pins as shown in this table and figure.

RS-232/RS-485 converter	Camera pin
Tx-	Rx-
Tx+	Rx+

DVR

RS-232 port

RS-232/RS-485 converter

RX-
RX+
TX-
TX+

Dome

RX+
RX-
TX+
TX-

Use only RX+ and RX-

Terminate the final camera

To additional cameras
(RX+ to RX+ and RX- to RX-)

DUPLEX WIRING

Wire the dome camera to the RS-232/RS2-485 converter. Connect the pins as shown in this table and figure.

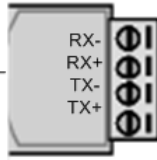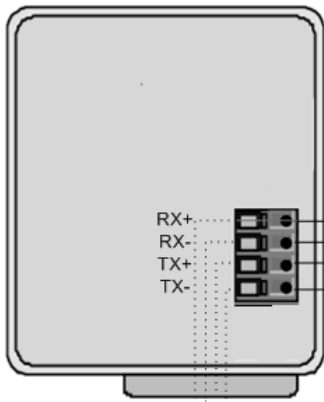| RS-232/RS-485 converter	Camera pin
Tx-	Rx-
Tx+	Rx+
Rx-	Tx-
Rx+	Tx+

DVR
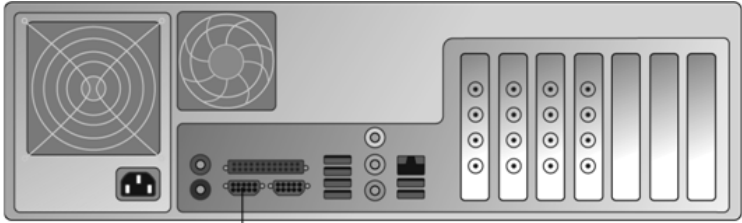
RS-232 port

RS-232/RS-485 converter
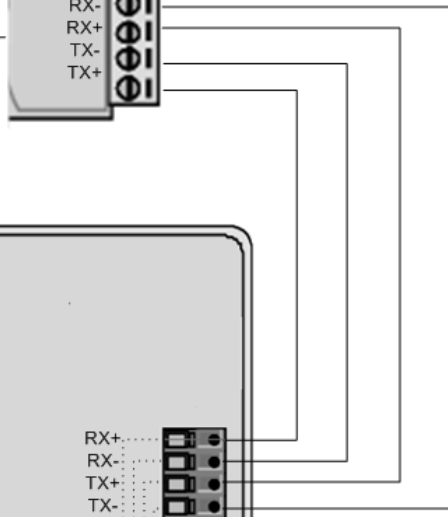
RX-
RX+
TX-
TX+

Dome

RX+
RX-
TX+
TX-

Terminate the final camera

To additional cameras
(RX+ to RX+
RX- to RX-
TX+ to TX+
RX- to RX-)

CAMERA ADDRESSES

When cameras are daisy chained, each camera must have a unique address. Set the address by using the switches or dials on the camera. See the camera manual for more details.

NOTE: Terminate the last camera in each chain by using the termination switch or jumper on the camera.

INSTALLING ANALOG PTZ CAMERA DRIVERS

Available dome camera drivers are on the DVMS Installation CD, in the folder Plug-in**.**

To install the dome camera driver:

1. Double-click the driver installer <driver name>_xx.msi, where xx is the version number. For more information about the driver names, see the document plugin.pdf on the DVMS Installation CD.

2. Click **Next** until you get to the **Destination Folder** dialog box. Make sure that you select the same folder where the recorder is installed.

3. Click **Next** until the DVMS Driver Configuration tool starts. Configure the driver as follows:

   a. Select the option **Show dome camera drivers**.

   b. From the drop-down list, select the driver that you just installed.

   c. Type the number of the camera in the **DVR camera ID** box. The number is the same as the number of the video input and the number of the camera in the client programs.

4. Click **Configure** and do the following:

   a. In the dialog box that is shown, click **Create New**.

   b. In the **Connection Setup** dialog box, type a descriptive name for the connection, and select the CoM port that the dome camera is connected to. Then click **OK**.

   c. In the **Choose Connection for the New Camera** dialog box, select the connection and click **OK**.

5. In the camera setup dialog box, do the following:

   a. Type a descriptive name for the camera.

b. Type the camera's address in the **Camera address** box. The camera address is set by using the switches or dials on the camera. Usually, the default address is **0** or **1**.

6. Close all dialog boxes.

For more information about the drivers, see the document *Supported Dome Cameras & Plugins* on the DVMS Installation CD.

INSTALLING EXTERNAL DEVICES

External devices - such as joystick controllers for dome cameras - can be configured through Workstation. The control devices can be configured to support customized controls for axis movement and buttons / keys.

Please note that the driver for the external device has to be installed in the system. The drivers for Pelco KBD300A keyboard and DirectX compatible control devices (such as DirectX joystics) are included in the default installation.

Please see the *User's Guide* for further information on configuring external devices.

PELCO KBD300A KEYBOARD

The system supports the Pelco KBD300A keyboard, which you can use to control dome cameras locally or over a TCP/IP network. The keyboard has a joystick, a numerical keypad, and keys for different functions. You can use the keyboard to pan, tilt, and zoom a dome camera. In addition, you can move a dome camera to a preset position or start a camera tour.

The Pelco KBD300A drivers are included in the standard installation package, and the keyboard can be installed directly through the Workstation application. Please see the *User's Guide* for further information on configuring Pelco KBD300A the keyboard.

INSTALLING VIDEO MATRICES

The NVRs support the use of external video monitors for analog cameras. These video matrices are supported:

- Pelco CM6700 and CM6800

- Bewator Visilynx 3i

Video matrices are connected to the recorder's serial port, for example, to COM1.

In addition, you can control dome cameras through these video matrices:

- Pelco CM6700

- Bewator Visilynx 3i

- Bosch Allegiant

Appendix A shows a sample installation of dome camera control for Pelco CM6700.
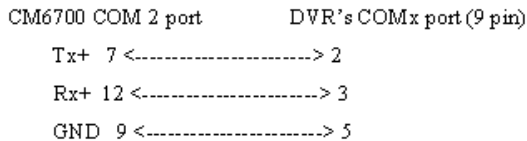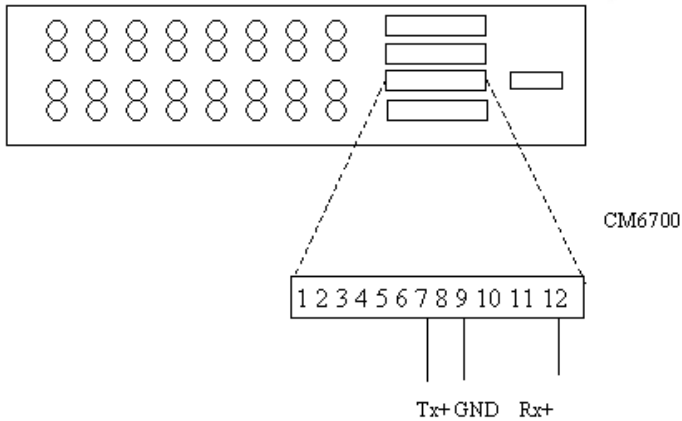
INSTALLING THE PELCO CM6700 VIDEO MATRIX

The Pelco CM6700 series has these video matrix models:

CM6700-MXB2	NTSC, 16 video inputs, 2 video outputs
CM6700-MXB2-X	PAL, 16 video inputs, 2 video outputs
CM6700-MXB4	NTSC, 16 video inputs, 4 video outputs
CM6700-MXB4-X	PAL, 16 video inputs, 4 video outputs

To connect the Pelco CM6700 video matrix:

- Connect one end of a null modem cable to the COM port (RS-232) of the recorder and the other end to the COM2 port of the Pelco video matrix. **NOTE**: If the distance between the recorder and the matrix is more than 15 meters, use an RS-422/485 line and an RS-232 converter to RS-422/485.

Pin diagram for connecting the Pelco CM6700 Switch *to a recorder using a RS-232 connection.*

To install the matrix driver:

1. To install the matrix driver, double-click the file *PelcoCM6700G3_XXX.msi.*

2. Click **Next** until you get to the **Destination Folder** dialog box. Make sure that you select the same folder where the recorder is installed.

3. Click **Next** until the DVMS Driver Configuration tool starts. Do the following:

   a. Select the option **Show video switch drivers**.

   b. From the drop-down list, select the driver that you just installed.

4. Click **Configure** and then type or select these settings in the **Switch Setup** dialog box:

- **Switch ID**: You cannot change the ID because the driver supports only one matrix at a time.

- **Name**: The default name is Switch 1, but you can type a more descriptive name for the matrix.

- **Serial port**: Select the serial port that the Pelco CMC6700 is connected to.

- **Setting DVR date/time on CM6700**: Sets the CM6700 date and time so that they are the same as the date and time on the recorder.

- **CM6700 Camera Names**: Here you can give a name for each camera that is connected to CM6700.
  NOTE: These names are saved only on CM6700. They have no connection to the camera names set in the recorder's camera settings. Click **Send** to save the names on CM6700.

- **Number of CM6700 video outputs**: Type the number of available video outputs.

5. Close all dialog boxes.

INSTALLING THE BEWATOR VISILYNX 3I VIDEO MATRIX

The Visilynx 3i video matrix contains 32 loop-through video inputs and 8 outputs.

To connect the matrix to the recorder:

- Connect one end of a null modem cable (female – female) to the PCCON port on the Visilynx 3i rear panel and the other end to the recorder's serial port (either to COM1 or COM2).

To install the matrix driver:

1. To install the matrix driver, double-click the file Visilynx3iG3_XX.msi.

2. Click **Next** until you get to the **Destination Folder** dialog box. Make sure that you select the same folder where the recorder is installed.

3. Click **Next** until the DVMS Driver Configuration tool starts. Do the following:

   a. Select the option **Show video matrix drivers**.

b. From the drop-down list, select the driver that you just installed.

4. Click **Configure** and then type or select these settings in the **Switch Setup** dialog box:

- **Switch ID**: It is not necessary to change the ID because the recorder supports only one matrix at a time.

- **Name**: The default name is Switch 1, but you can type a more descriptive name for the matrix.

- **Serial port**: Select the serial port that Visilynx3i is connected to.

- **Setting DVR date/time on Visilynx3i**: Sets the Visilynx3i date and time so that they are the same as the date and time on the recorder.

- **Ping button and response time indication**: Shows the response time from the video matrix.

- **Number of video outputs:** Type the number of available video outputs in the video switch.

5. Close all dialog boxes.

CONNECTING DIGITAL INPUTS AND OUTPUTS

You can connect external devices to the digital inputs and outputs of a recorder by using an I/O card. Available cards and the default configuration depend on the recorder model. For more information about the cards, see the folder Manuals on the DVMS Installation CD.

SETTING UP THE HARDWARE WATCHDOG

MiraCap capture cards have a hardware watchdog, which restarts the computer if it stops responding. The watchdog is not in use by default.

To use the watchdog:

- If the computer has an external reset cable, connect the cable from the PC's reset switch to one of the two watchdog pins on the capture card.

- Connect the reset cable provided with the capture card from one of the two watchdog pins on the capture card to the reset pin on the mother

board. The location of the reset pin on the mother board depends on the type of motherboard. For more information, see the motherboard manual.

INSTALLING CLIENT PROGRAMS

There are three client programs:

System Manager. This is used by the system administrators for configuring the system and the recorders and for creating user accounts and user profiles.

Workstation. This is the end users' program.

System Monitor. This is used by the system administrators for monitoring the system and the recorders.

You can use the client programs locally on the recorder or on a computer that has a network connection to the recorder system.

INSTALLING THE .NET FRAMEWORK

Install DirectX 9.0c, .NET Framework 3.5 SP1 and all critical updates on client computers.

To install .NET Framework:

1. Click **Start** and then click **Windows Update**.

2. Install these components (you can not install them all at one time):

    - .NET Framework 3.5 SP1

    - Security updates and critical updates

3. Start **Windows Update** again until you have installed all the necessary components.

INSTALLING THE CLIENT PROGRAMS

To install the client programs:

1. Put the installation CD into the CD drive. The setup program starts automatically. If the setup program does not start automatically, you can also start it by opening the folder Setup and double-clicking the file *dvms_X.X.X* (X.X.X is the version number).

2. In Welcome to the DVMS Applications Installation Wizard, click **Next**.

3. The Firewall settings information screen opens. After reading, click **Next**.

4. By default, the setup program installs the recorder and the applications System Manager, Workstation, and System Monitor.

   a. To refrain from installing the recorder components, open the menu next to **Recorder** and select **Entire feature will be unavailable**.

   b. If you want the Workstation application to start automatically, open the menu next to **Start Workstation automatically** and select **Will be installed on local hard drive**.

   c. If you want the System Manager application to start automatically, open the menu next to **Start System Monitor automatically** and select **Will be installed on local hard drive**.

   d. If you want firewall exceptions set automatically for Windows Firewall, open the menu next to **Set firewall exceptions** and select **Will be installed on local hard drive**. Do not select this option if you are not using Windows Firewall.

5. Click **Next**.

6. Select the destination folder and click **Next**.

7. In the Installation Configuration dialog box, specify the IP address of the Master Recorder. Click **MASTER_RECORDER**, click **Set**, and type the IP address or DNS name of the Master Recorder in the **Property Value** box. The Master Recorder can be any of the recorders in the system. Then click **Next**.

8. After **DirectX 9.0c** installation has started, select **I accept the agreement** and click **Next**.

9. When the recorder has been installed, the dialog box **Recorder has been successfully installed** is shown.

10. Click **Finish**.

Gateway server installation

WebClient is a browser-based application that is used for viewing video from recorders over a network. WebClient uses the same user profiles, user names, and passwords as System Manager and Workstation.

To be able to use WebClient, the Gateway server must be first installed on a computer running a HTTP server. DVMS recorder software is not required on the server. The Gateway server needs to be able to connect to the NVR master server.

Minimum system requirements

Client:

- Internet Explorer 6 or Mozilla Firefox 2.0 or newer
- Java Runtime Environment 6

Server:

- Windows XP, Windows 7 Enterprise, or Windows 2008 Server
- HTTP server software
- Intel Core 2 Duo processor
- 2 GB RAM

NOTE: *Please note also that the minimum system requirements are recommended for mostly live viewing. If multiple users access the same WebClient server simultaneously mainly for search and play back functions, a more powerful processor is required, for example, Intel Core 2 Quad or better.*

System Restrictions

The Gateway server can be installed on any Microsoft Windows XP, 7 Enterprise, or 2008 Server that meets the system requirements. DVMS software is not required on the server.

The Gateway server has a limitation of 32 simultaneous streams for all WebClient connections. The limit is universal and user independent; if, for example, User A has 30 open video streams and User B has 2 open video

streams, neither can open any more streams unless one or more of the currently open streams are closed.

INSTALLING THE GATEWAY SERVER

To install the Gateway server:

1.   Double-click the **Gateway.exe** installation packet to start the installation.

2.   After the **DVMS Gateway Setup** screen has loaded, select the destination folder and click **Next**.

3.   Type the **SMServer IP address** (the IP address of the master recorder) into the **SM Server IP** field.

4.   Click **Next**

5.   When the software has been installed, click **Finish**.

VERIFYING THE INSTALLATION

To verify that the server has been correctly installed:

Open a compatible web browser and type the following address:

http://[WEBCLIENT SERVER URL]:[PORT]/

For example, if the WebClient server is on the same computer: *http://localhost:9999/*

If the server is correctly installed, the logon screen is displayed. Type a user name and password in the corresponding boxes and click **Log On**. The user name and password are set in the System Manager program.

STREAMING OPTIONS

The users can view the WebClient streams in JPEG format (default) or in the native format in which they are received by the recorders. This does not require any action on the server side: the users can decide to view the streams in native format by adding *?video=native* to the end of the WebClient URL.

For example, if the WebClient Gateway server is on the same computer:

http://localhost:9999?video=native

UPDATING

UPDATING A RECORDER

To update a recorder, first remove the current software version and then install the new software version.

IMPORTANT: Backup system settings and recorder settings in System Manager before removing the current version and then restore the settings after the update is completed.

To remove the current recorder version:

1. Click **Start**, point to **Settings**, click **Control Panel**, and then double-click **Add or Remove Programs**.

2. Click DVMS and then click **Remove**.

To install the new recorder version:

- Follow the instructions in *Installing the recorder software*.

UPDATING CLIENT PROGRAMS

The client programs are updated automatically to the same program version as the recorder when they are started.

To manually update the client programs, first remove the current version and then install the new version by running the file *DVMS_setup_X.X.X.msi*.

To remove the current version:

1. Click **Start**, point to **Settings**, click **Control Panel**, and then double-click **Add or Remove Programs**.

2. Click DVMS and then click **Remove**.

To install the new version:

- See *Installing the client programs*.

INSTALLING VCA COMPONENTS

Important: This section is intended only for advanced users. As the VCA functionality is included as a manually configured optional component, the system supplier takes no responsibility for any user defined VCA configurations.

The DVMS system supports using capture card based VCA metadata for creating alarms based on metadata information.

These instructions can be used for creating a VCA metadata configuration for one channel. The first channel that delivers VCA metadata to the recorder is used, so specific care should be used to ensure that the channel is the required one. For solutions with more than one VCA metadata channel, please contact the system supplier.

To use capture card based VCA metadata:

1. Install the DVMS software as instructed in *Installing the recorder software*.

2. Install MS SQL Server with *ExpressInstaller.exe* (found in the Setup folder). If you are using Windows XP, you may need to update to MSI 4.5 before installing the database. MSI 4.5 is included on the installation CD.

3. Upgrade the DVMS license to include VCA channels.

4. Use *VCAConfigurator* (in the DVMS folder) to create a *hwguid.txt* file. This file is needed for the VCA capture card license. Each VCA card has a separate HWGUID, so a separate license is required for each card. **NOTE:** Starting *VCAConfigurator* automatically pauses the recorder functions. Exiting *VCAConfigurator* automatically restarts the recorder functions.

5. Contact the system supplier to get the VCA capture card license. Attach the *hwguid.txt* file to the mail.

6. After getting the capture card license, use *VCAConfigurator* to import the license and to configure VCA zones and calibration:

   a. Calibrate the VCA functionality.

   b. Create zones and rules.

   c. Test the functionality of your rules.

NOTE: These features are still undocumented. As the configuration rules and parameters are extremely flexible and it is easy to do user errors, the system supplier can take no responsibility for the functionality of any user specified configurations. Please ask the system supplier for configuration services for the VCA functionality.

7. Configure the metadata driver metadata. The configuration is done through *System Manager* by adding a new text channel (see *Administrator's Guide* for further details). *NOTE: The port 5151 is used in the configuration files and should not be changed without consulting the system supplier*.

8. Configure the VCA alarms through *System Manager*. The VCA events are used as alarm start and end triggers. Please see the *Administrator's Guide* for information on creating alarms.
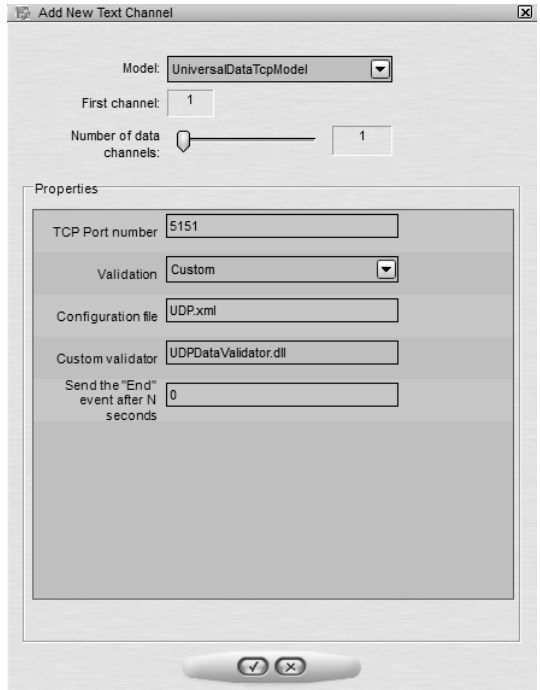
SUPPORTED CARDS

Please contact the system supplier for a current list of capture cards that support VCA functionality.

APPENDIX A: NETWORKING RECOMMENDATIONS

INTRODUCTION

This document contains a brief description of the network configurations used in DVMS systems. It should be noted that the document concentrates in providing a general overview on building working surveillance systems in various network models.

All data communication within the DVMS system use TCP/IP protocol and networks. The network itself can be LAN, WAN or DSL. The use of virtual private networks (VPN) and effective firewalls is highly recommended. If a computer within the system network is used for other than surveillance purposes and is vulnerable to viruses or other harmful attacks, anti-virus protection is heavily recommended.

Building a functional and secure surveillance system requires a clear and detailed understanding of the network and its elements. If there is any doubt regarding the network or its elements, consulting the company's internal IT department or the ISP is heavily recommended.

DVMS SYSTEM COMPONENTS

DVMS system components can be divided into applications and servers.

Applications are used to open communication with and between the servers, and to send connection requests to servers, while servers accept connection requests from applications or from other servers. Communication between the system components is implemented with TCP/IP protocol through TCP ports 5008-5011.
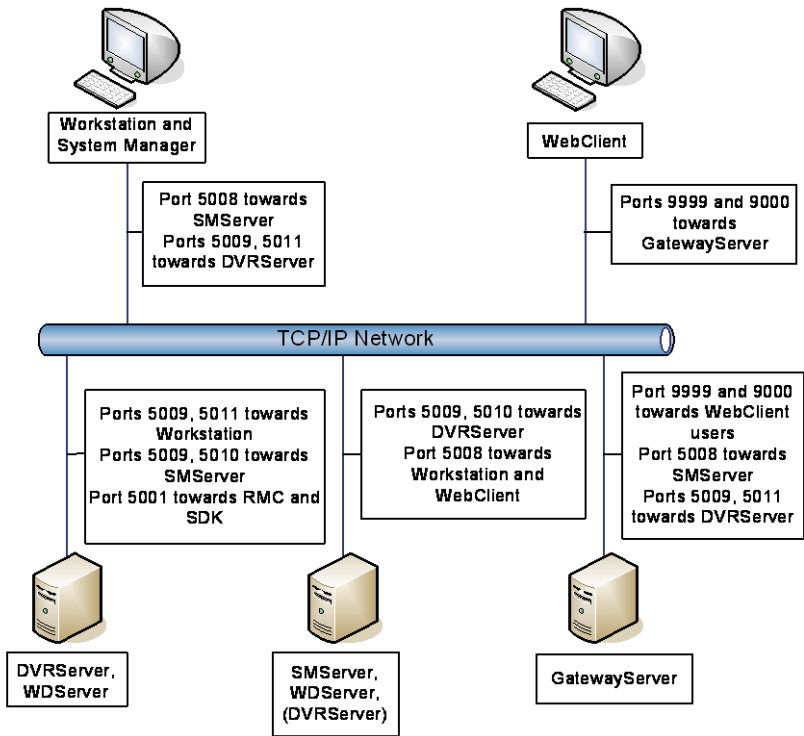
Figure 1 – DVMS communication ports.
Notice that the servers and applications
can be installed on a single computer.

TCP PORTS

In all NVR installations, the following TCP ports must be open on all recorders for the applications and servers to function correctly:

- 5008, between SMServer and client applications
  Port rule: open inbound

- 5009, between DVRServer and client applications, and between SMServer and DVRServers
  Port rule: open inbound

- 5010, between Watchdog Server and client applications, and between Watchdog Server and DVRServers
  Port rule: open inbound

- 5011, between Streaming Service and client applications
  Port rule: open inbound

Optional ports:

- 5001, only used if the system includes SDK or RMC. Between DVRServer and SDK or RMC.
  Port rule: open inbound

WebClient and GatewayServer specific ports:

- 9000 and 9999, between WebClient and GatewayServer.
  Port rule: open inbound

APPLICATIONS

VAU

VAU is an invisible application. It is used to automatically update the user applications (Workstation and System Manager) to the latest versions from the Master Recorder SMServer.

VAU is installed during the application installation, and the application is started automatically when either Workstation or System Manager is run.

VAU uses the Master Recorder IP Address or hostname to contact SMServer (TCP port 5008). After VAU has connected to SMServer, it downloads the latest version information. If the version information differs from the previous application startup, VAU downloads all files needed to update the application. If the downloaded version information matches the local version information, only the configuration files will be downloaded. The configuration information includes – for example – the SMServer address to which Workstation or System Manager will contact at startup. After updating the version or downloading the configuration files, Workstation or System Manager will be started and VAU will close.

WORKSTATION AND SYSTEM MANAGER

When the Workstation or System Manager application is started, the user's username and password are used to download the corresponding user profile from the the SMServer (TCP port 5008). The profile data includes all information regarding the DVRs connected to the system and available for the user profile. The applications access the DVRs through TCP port 5009. Video, audio and data streams requested through the applications use TCP port 5011.

WEBCLIENT

The WebClient application can be used with IE 6 or later, or Mozilla Firefox 2 or later from any computer in the Internet. If the GatewayServer server application is installed with the default values, TCP ports 9999 and 9000 must be open between the WebClient browser computer and the GatewayServer server computer. The default ports can be changed during the GatewayServer installation.

SERVERS

SMSERVER

SMServer is the server application used in the Master Recorder (i.e. the NVR or DVR that acts as the focal point in communicating with the client applications and other recorders in the system).

SMServer listens on TCP port 5008 for the client applications. SMServer uses TCP port 5009 to connect to the other DVRs for time synchronization, settings changes etc.

DVRSERVER

DVRServer listens on TCP port 5009. Video, audio and data streams require TCP port 5011 to be open.

If the system includes SDK or RMC, DVRServer also listens on TCP port 5001.

DVRServer never contacts the applications or SMServer. However, if IP cameras are installed in the system, DVRServer contacts the IP cameras using TCP or UDP (TCP port 80) depending on the camera model.

WATCHDOG SERVER

Watchdog Server provides system monitoring functions. In severe situations such as system malfunction or hard disk failure, Watchdog can – for example – restart the computer or send e-mail containing information about the malfunction.

Watchdog Server is automatically installed with SMServer and DVRServer. Watchdog Server takes care of the connections and operational reliability of the DVR system through TCP port 5010.

WEBCLIENT GATEWAYSERVER

The optional WebClient GatewayServer server application must be installed on a computer with Windows XP, Vista, or 2003 Server operating system. The DVMS software is not required on the server. The WebClient Gateway Server contacts the SMServer through TCP port 5008.

When the WebClient applet is used from any computer, the WebClient Gateway Server and the WebClient applet communicate by default through TCP ports 9999 (applet download) and 9000 (direct communication between the server and the applet). These TCP ports can be changed during the GatewayServer installation.

IP ADDRESSES OR HOSTNAMES

The system can be configured to contact the DVRs through their IP address or hostname.

If the system is intended to be used from outside a closed network, it is recommended to build the system using DVR hostnames instead of IP Addresses. This makes it possible to contact the system from outside the local network with minimal effort. Please refer to the *Administrator's Guide* for further information on setting the recorder hostnames through the System Manager application.

Even if the system uses public IP Address, is run in a closed network, or is used through VPN, using hostnames instead of IP addresses can enhance general usability.

CLOSED NETWORK

The most secure way to build a surveillance system is to use a dedicated network that does not allow outside connections. This may not be feasible in

all cases, for example if e-mail alerts are used in the system, or if Internet access is required.

PUBLIC IP ADDRESSES

Using public IP Addresses with the Workstation and System Manager applications outside the local network, one address is required for each DVR and for the SMServer.

A better way to use a limited number of public IP Addresses is by using the WebClient application. By providing a public IP Address fort the WebClient Server, it is possible to access cameras in realtime and playback modes through Internet Explorer 7.

VIRTUAL PRIVATE NETWORK (VPN)

VPN (Virtual Private Network) can be used to establish secure connections between two or more LANs, or to have a well-protected point-to-point connection over the Internet. VPN tunnels can be created using hardware-to-hardware connections, usually firewalls.

VPN tunnels are typically created with the combination of a hardware firewall VPN server and software VPN client connections. VPN uses encryption and authentication protocols preventing unknown computers from accessing data delivered between two or more computer sites.

After VPN is configured, the DVMS can be installed and used as if in a closed network.

CONFIGURING A VPN

When the DVMS system is used with VPN, communication links (tunnels) are created between DVRs, SMServer and Workstation/System Manager.

An easy way to use VPN is to create a LAN to LAN connection. The DVRs should be on the VPN server network, and the clients on the VPN client network, as DVRs do not automatically send data to the applications. All data connections are initiated by the client applications.

To configure a VPN:

- Create a VPN tunnel on the LAN where the DVMS system is located. This is the VPN server.

- Create a similar tunnel on the client site LAN (Workstation/System Manager).

- Select a VPN mode that allows continuous connection.

- Test the connection. Once connected, start configuring the DVMS system.

FIREWALL WITH NAT / PORT FORWARDING

Firewall devices and programs protect computers by controlling communication between LAN (local area network) and WAN (Internet). Firewalls can be used to multiply IP Address space in a network and to manage NAT changes.

In this section, we consider firewalls as local network firewalls protecting all computers in the network in which the DVRs and the SMServer are located. In a DVMS system with a firewall with NAT / Port Forwarding, server names should be used instead of IP Addresses.

CONFIGURING EXTERNAL CLIENT COMPUTERS

If a firewall with NAT or port forwarding is used, the client computers (containing the Workstation or System Manager applications) need to be configured to use server names instead of their IP Addresses.

Configuration changes should be made only to the external client computer.

To change the SMServer and DVR IP addresses to their hostnames, open the file *C:\WINDOWS\system32\drivers\etc\hosts* with a simple text editor such as Notepad.

The contents of file should read as:

```
# Copyright (c) 1993-1999 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for
Windows.
#
# This file contains the mappings of IP addresses to host names.
Each
# entry should be kept on an individual line. The IP address
should
# be placed in the first column followed by the corresponding
host name.
```

```
# The IP address and the host name should be separated by at
least one
# space.
#
# Additionally, comments (such as these) may be inserted on
individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#     102.54.94.97     rhino.acme.com         # source
server
#      38.25.63.10     x.acme.com             # x client host

127.0.0.1       localhost
```

Add SMServer and DVRServers IP Addresses and names in the following format:

```
        127.0.0.1           localhost
        192.168.1.1         SMServer
        192.168.1.2         DVRServer1
        192.168.1.3         DVRServer2
```

Note - *Write first the SMServer's or DVR's IP Address, press TAB, and write the hostname.*

The IP Addresses in the example above are for the dedicated SMServer and two dedicated DVRs. Thus, with this configuration, the system needs three public IP Addresses.

If there is only one public IP Address (NAT, port forwarding) there can be only one DVR at the site, and the SMServer needs to be installed in the same DVR computer (the Master Recorder). Inside a local LAN, the   Workstation and System Manager applications need no extra configuration.

CONFIGURING THE FIREWALL

If the system is behind a firewall, and the Workstation or System Manager applications are located outside the local network, necessary communication ports have to be opened in the firewall. If a software firewall is used, make sure that the dedicated ports are open on all DVMS system computers.

Follow these guidelines:

- In the client application computers run from outside the local network, change the settings in the file *hosts* as described above.

- Allow ports 5008 - 5011 to be open in the firewall to enable connections from outside the LAN (the client applications).

- Use static IP Addresses.

- If port forwarding technique is used, define the SMServer and DVR addresses to be WAN site firewall addresses.

- In the local network, no additional changes to the settings need to be done.

- WebClient Server needs ports 9000 and 9999 to be open outside the local network.

- If e-mail notification is used, allow SMTP port 25 to be open.

- If IP cameras are used, allow port 80 to be open to the DVRs.
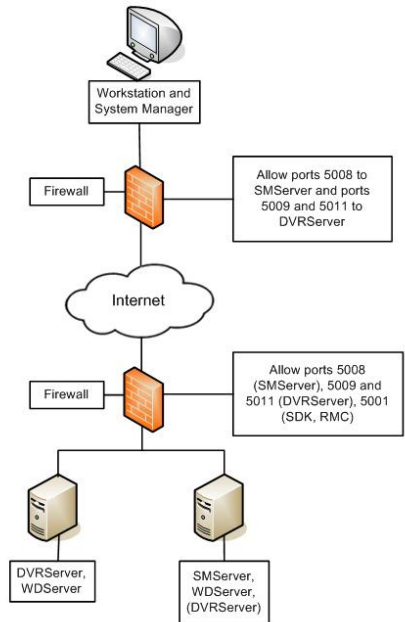
Figure 2 – DVMS System with firewalls

DOMAIN

Building a DVMS system in a domain does not differ considerably from other networks. In a domain, only administrative user can install DVRs, SMServer and the client applications. When client applications are used, restricted user can access the applications depending on the user rights policies.

In a domain, all computers are named, and the DVRs can be named according to the domain infrastructure. Use static IP Addresses with the DVRs and the SMServer

APPENDIX B: CONTROLLING DOME CAMERAS THROUGH A VIDEO MATRIX

Users can control Pelco dome cameras that are connected to a Pelco CM6700 video matrix from the Workstation program. The cameras are connected to the matrix using coaxial cabling, and control messages are transmitted in the same cable. The Pelco ASCII protocol is used for dome camera control.

This figure shows the configuration:
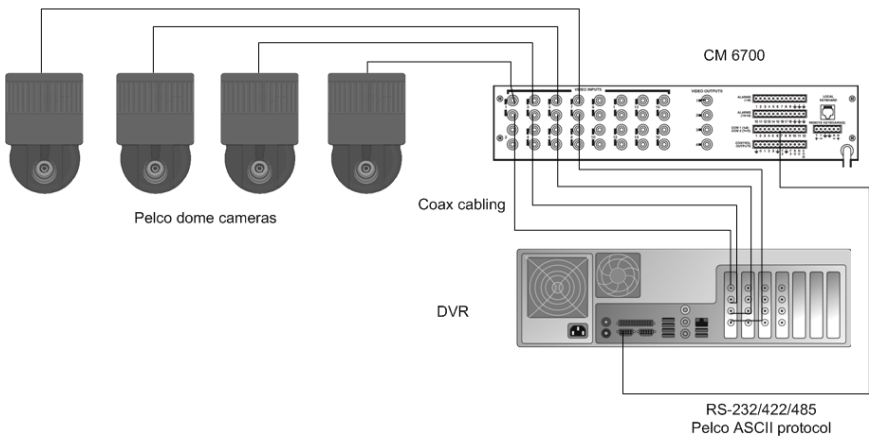
A sample system

INSTALLATION

To connect the matrix to the DVR:

1. Connect one end of a serial cable to the COM port (RS-232) of the DVR and the other end to the COM2 port of the Pelco video matrix.
   NOTE: If the distance between the DVR and the matrix is more than 15 meters, use an RS-422/485 line and an RS-232 converter to RS-422/485.

2. Set the connection type with the DIP switch SW5 on the matrix.

3. Select **Coaxitron** as receiver protocol for each dome camera.

4. Set other video matrix parameters. For more information, see the matrix manual.
   NOTE: The RS connection speed must be the same on the DVR and the matrix. The default speed on the DVR is 9600.
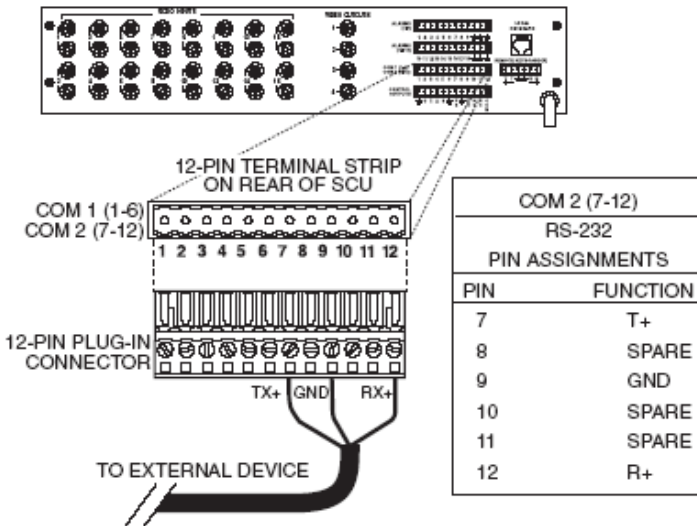
RS-232 port wiring. © Pelco
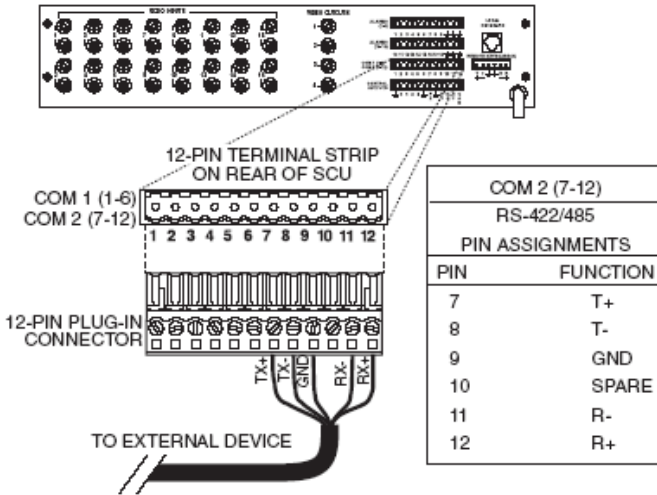
RS-422/485 port wiring. © Pelco

COM 2 (7-12)	
RS-422/485	
PIN ASSIGNMENTS	
PIN	FUNCTION
7	T+
8	T-
9	GND
10	SPARE
11	R-
12	R+
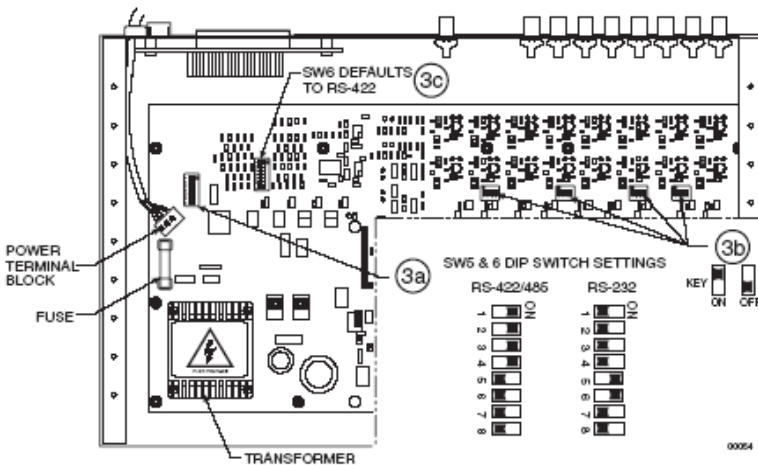
Set the DIP Switch SW5 (COM2) for RS-232 or RS-422/485. © Pelco

PELCO DOME CAMERA SETTINGS

Pelco dome cameras recognize the used protocol automatically. Therefore, it is not necessary to configure the dome cameras or change the identifier DIP switches. Cameras are identified by the video matrix connection ID. In other words, a camera that is connected to video input 1 has 1 as camera address.

INSTALLING THE CAMERA DRIVER

To install the dome camera driver and to configure the dome cameras, perform these steps:

1. Install the dome camera driver and configure the first dome camera.

2. Configure the remaining dome cameras.

The more detailed instructions are given below.

INSTALLING THE DOME CAMERA DRIVER

To install the dome camera driver:

1. To install the driver, double-click the file PelcoG3_ASCII_XX.msi on the DVMS Installation CD.

2. Click **Next** until you get to the **Destination Folder** dialog box. Make sure that you select the same folder where the recorder is installed. The default is *C:\Program Files\DVMS*.

3. Click **Next** until the DVMS Driver Configurator tool starts. Do the following:

    • Select the option **Show dome camera drivers**.

    • Type the number of the first dome camera in the **DVR camera ID** box. The number is the same as the camera number in the user interface.

    • From the drivers drop-down list, select PelcoG3_ASCII.

4. Click **Configure** and do the following:

    d. In the dialog box that is shown, click **Create New**.

e. In the **Connection Setup** dialog box, type a descriptive name for the connection and then select the COM port that the dome camera is connected to. Then click **OK**.

f. In the **Camera Setup** dialog box, type or select the necessary settings. For more information about the options, see *Camera setup options*.

g. Click **OK**.

CONFIGURING THE REMAINING CAMERAS

To configure the remaining cameras:

1. Type the subsequent camera number in the DVMS Driver Configuration utility.

2. From the drivers drop-down list, select Pelco_ASCII and click **Configure.**

3. The **Camera setup** dialog is shown.

4. Type or select the necessary settings.

5. Add the remaining cameras. When completed, all dome cameras must be shown in the driver setup dialog box as shown in the figure below.

6. Click **Close**.
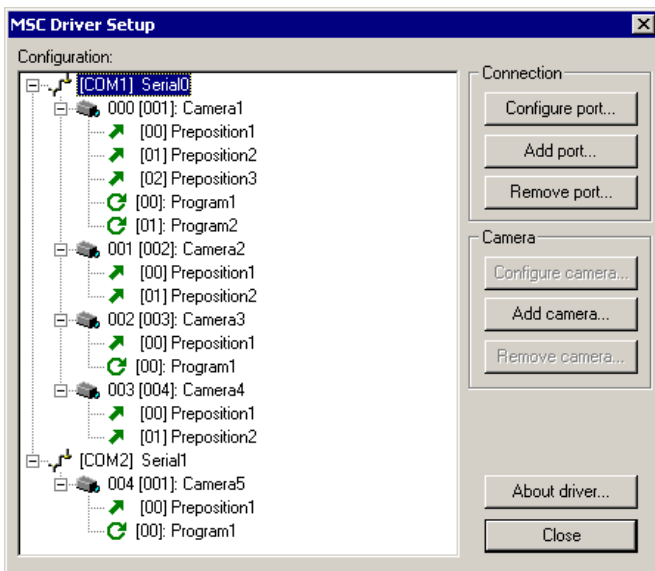
A sample setup of configured dome cameras.

CAMERA SETUP OPTIONS

DVR camera ID. This is the camera number on the DVR. The correct ID is shown automatically.

Connection. Shows the name of the connection and the COM port that the matrix is connected to.

Name. Type a descriptive name for the camera.

Ping. To make sure that the video matrix is connected to the DVR, click **Ping.** Note that this command tests only the connection to the matrix. It does not test the connection to each camera that is connected to the matrix.

Auxiliary video selection. When users control the dome camera, video from the dome camera is sent to the video output (monitor) that is selected here.

Camera address selection. The number of the video input on the video matrix that the dome camera is connected to.

Number of presets. The number of preset positions that the camera supports. The number is usually 32 but see the camera manual for more

information. If you are configuring a new camera, it is not necessary to click **Set.** If you are editing a camera setup, click **Set** to apply the change.

Camera speed. The user can pan and tilt a dome camera at three different speeds. To adjust the speeds, select **Custom**, and drag the slider either to Min or Max. To use the default speed, select **Default**.

Camera menu. Click **Show menu** to access additional camera settings. To see the camera menu, connect a video monitor to the video output.

  For more information about the parameters, see the camera manual.

Number of relays. Type the number of relays that the camera supports in this box. To find out the supported number of relays, see the camera manual. The DVR supports eight relays at the most. If you are configuring a new camera, it is not necessary to click **Set.** If you are editing a camera setup, click **Set** to apply the change.

The figure below shows an sample driver setup. In the example, two video matrices, connected to COM1 and COM2, are used. The driver connections are shown on the first level and the cameras are shown on the second level. Preset positions and camera tours are shown on the third level.

You can set positions and camera tours in the Workstation program. For more information, see the *User's Guide*.
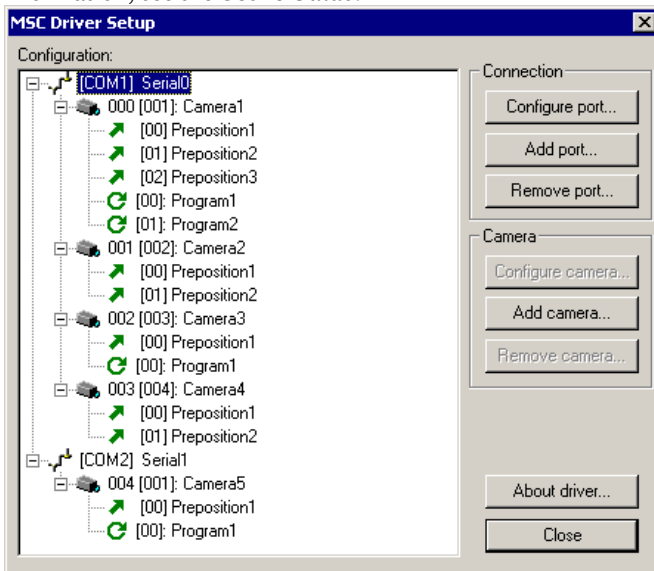
A sample driver setup.

COMMUNICATION SETTINGS

The default communication settings are 9600 b/s, 8 bits, 1 stop bit and odd parity.

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