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About This Document

This document was created to assist end users with installing and configuring the DVMR for remote and local TCP/IP access using the Remote Viewer program included with the DVMR. If available please have a network administrator or IT support staff configure the DVMR for remote access, as they are more likely to be familiar with the basic configuration and access of TCP/IP related hardware/software.

The terminology used in this document is not technical and was designed to quickly instruct (not teach) the end user on TCP/IP capable hardware, such as the DVMR. Please follow all steps throughout this tutorial and do not skip any steps unless otherwise stated.

It is almost impossible to include every network scenario, but we have chosen a few of the most common applications for end users. We assume you are using a high-speed connection, which does not rely on dial-up. Please read through this document and read the FAQ (Frequently Asked Questions). Please read the Important Notes stated at the end of this document.

Before you begin, lets first understand a bit more about networks and the Internet.

Network:

A computer network basically is a group of devices linked together usually using a communications protocol or language called TCP/IP. Normally these devices consist of PCs (personal computers), servers, and other devices. Most likely if you have multiple computers at a site, the chances are they are linked together forming a computer network.

A local network is a private network of computing devices. No one outside that local network can access without special conditions. So in this tutorial, when referenced to the local network, just assume the local network is the location where the DVMR is installed.

A remote network is a group of computing devices located outside your local network. By special means it is possible for your local network to communicate with remote networks. For example, the Internet provider is just a remote network.

Internet:

The Internet is basically a network of networks. There are physical links connecting the networks within the Internet. Information traveling the Internet usually travels along cables constructed of fiber optic cables, coaxial cables, telephone lines, and also a variety of wireless methods. This explains why many Internet service providers (ISP) are based from cable TV and telephone companies. They already have the physical media in place to transmit data on the Internet.

Below are two popular types of high-speed Internet.

1. *DSL* (Digital Subscribers Link) - This type of service travels along telephone lines. It is a dedicated line directly from the service provider (usually a telephone company) to your residence or place of business. So a DSL connection will run through your current phone lines (ADSL). ADSL provides higher download rates (retrieving data), but slower upload rates (sending data). The highest upload rate you can achieve with ADSL is typically 640 Kbps. SDSL provides the same speed on both download and upload, so it's nice to have when serving data with the high upload rate, but typically you have to have a dedicated line just for the service and it can't be shared with your current telephone lines.

2. *Cable Access* – This type of service travels along the same cable as your CATV (Cable TV). That is why the provider of cable high-speed Internet is usually a cable TV company, since they can use the existing cable ran to the residence or place of business. It is a shared medium between you and your neighbors and is not a dedicated line. This in turn means, during peak hours of the day you may receive slower rates than accessing the unit late at night.

Static vs. Dynamic:

The IP address that your Internet service provider supplies generally comes in one of two forms: static IP addressing or dynamic IP addressing. A static address does not change. They will assign you an IP address and that IP address is yours to keep until you cancel your service. Whichever device you assign this static IP, you can ensure that it will not change. Dynamic addresses on the other hand, may change. A special server located at the ISP automatically assigns these addresses. With dynamic addressing, the ISP will not give you any IP addresses, rather they will tell you to configure your equipment to obtain the IP automatically. This is done using DHCP. Unfortunately, with dynamic addressing the ISP is not guaranteeing that the IP address that was automatically obtained will stay the same, it may change. Many times the IP address that you are assigned will not change for a very long time, yet in some situations it may change on a continuous basis. With the DVMR units, we recommend that you obtain a static IP address from your Internet service provider. The DVMR will still have TCP/IP functionality by obtaining an IP address automatically, the only downfall is that you have to regularly check the IP address within the router or DVMR (depending on how your network is configured) and verify that the address has not changed or has changed. The remote client software that allows remote access to the DVMR requires the user to input an IP address to connect to, but if that address is changed, you are responsible for inputting the new IP address. Therefore, if a user was using DHCP and dynamic IP addressing and the DVMR suddenly lost connectivity remotely, the cause could have been a change in the IP address. Therefore, for the DVMR we highly recommend requesting a static IP address from your ISP.

High-Speed Internet: The term ‘high-speed’ does not really describe your connection too well, other than it’s not dial-up. Often it is asked, “How fast is your high-speed connection?”. This is very important concerning TCP/IP and your DVMR. The speed of your connection is determined by the amount of ‘bandwidth’ available. When you register for a high-speed Internet service they should tell you the amount of bandwidth you will be granted. Bandwidth is basically how large or small the ‘pipe’ is that carries your data across the Internet. For an analogy, you can imagine that high-speed bandwidth is the size of residential plumbing for a house’s water supply, while dial-up bandwidth is the size of a straw. Therefore if you were pushing a large amount of water (or computer data for this analogy) through a house, you would have faster transfer through the use of the plumbing rather than through a straw. The same concept applies with the Internet. For a large amount of data to travel the Internet then there has to be a large pipe to accommodate that data. When receiving high-speed Internet, the provider should give a bandwidth quote telling you how much bandwidth they will provide you. There are two types of bandwidth that you need to be aware of and many times the quote on your bandwidth will be displayed like this → 1000/128. The first number is downstream bandwidth, the second number is upstream bandwidth.

Downstream Bandwidth – This determines the size of the pipe coming into your location. If you are retrieving data from other networks, you should have a large amount of downstream bandwidth. This also is stated in kilobits/sec (Kbps). Take in mind that Kbps is not equivalent to KBps.

Upstream Bandwidth – This determines the size of the pipe going away from your location. If you are providing or sending data to other networks, you need a large amount of upstream bandwidth. This value is given in kilobits/sec (Kbps). Keep in mind that Kbps is not equivalent to KBps

You may ask, “So do I have two separate lines, one for upstream and one for downstream for my Internet connection?”. The answer is ‘No’. You still have one physical line, but within that one line just imagine two separate pipes – one for downstream data transmission and one for upstream transmission.

The location where you install the DVMR must be able to provide data to other remote locations quickly, thus you need as much UPSTREAM bandwidth as possible. You will be serving a large amount of data.

When accessing the DVMR from a remote location (such as a hotel or home), you want as much DOWNSTREAM bandwidth as possible. You will be receiving a large amount of data.

You need high-speed Internet access when utilizing the remote viewing features of the DVMR. Converting real-life images into compressed digital images requires a large

amount of data. You simply can't serve that large amount of data through a dial-up connection, the upstream pipe is way too small. For another analogy, it would be similar to pushing a tidal wave through a straw. Not only do you need high-speed Internet, but remember to request the highest amount of UPSTREAM bandwidth when deciding on a provider for the Internet access, to the location where the DVMR will be installed. Plus, the location from where you are accessing the data using the remote software should be at a location with high-speed Internet with a large amount of downstream bandwidth. You can still access the DVMR using a dial-up connection, but you might receive a single image every several seconds and the software may have problems keeping the connection steady. It is highly recommended to access the DVMR through a high-speed connection as well.

You may ask, "So exactly what numbers would be good rates? What can I compare it to?" Below is a chart describing various bandwidth rates (speeds) that you can compare and determine which would suit your needs for live video data transfer.

UPLOAD RATES in Kbps

56	128	256	384	512	768	1000	2000+
Dial-up Very Poor	ISDN Poor	DSL/Cable Bearable	DSL/Cable OK	DSL/Cable Good	Cable Fast	Cable Speeding	Cable Awesome

DOWNLOAD RATES in Kbps

56	128	256	384	512	768	1000	2000+
Dial-up Websites	ISDN Websites	DSL/Cable Music	DSL/Cable Video	DSL/Cable Streaming Video	DSL/Cable Fast	DSL/Cable Speeding	Cable Awesome

Generally, the higher the values you receive the larger amount the fee, especially if you request a very large upstream bandwidth rate. Today, most high-speed Internet providers supply sufficient downstream rates, but often lack sufficient upstream rates to accommodate serving data. In your case, you are concerned about serving large amounts of data from your DVMR site. So, you have to search for the best provider supplying sufficient upstream rates at a reasonable cost.

Now that you have a better understanding on the importance of how fast your high-speed connection is, you can appropriately request the type of service needed or upgrade your current account if desired.

Network Equipment:

Now that you have a degree of high-speed Internet access, you have to determine what type of equipment you have on the site, so you will better understand how to connect your DVMR to your current network.

Router: A router basically divides networks. Typically a router divides the network from the ISP's (Internet Service Provider) network and your local network. You must have a router to separate these networks. You must have a router to share an Internet connection. If you have a single PC on site that accesses the Internet and you want to enable another device to transmit over the Internet (ex. DVMR) you must have a router to share the Internet connection. If you already have multiple PC's or devices accessing the Internet, then odds are you already have a router installed. A router essentially needs just two ports. One port links the remote network to the router and another port from the router to your local network. For most home users, small office/home office routers have a built-in switch to provide for multiple devices to connect to the router and share that main link to the remote network. Let us assume that the remote network we are referring to is the ISP's network. On your router you should be able to identify several ports. There always should be one port labeled 'WAN' or 'Internet'. That WAN or Internet port is used to connect your ISP's network to your router. The other ports are the 'switched' ports, which allow you to connect multiple Ethernet devices to the router to share the Internet connection. The image below shows a typical home office router.



You notice that there is the one WAN port with 8 other Ethernet ports available for use. All routers have at least 2 IP addresses, always. One IP address is to connect to your ISP and is assigned to your WAN or Internet port and the other IP address is logically connected to all of the other 'switched' ports. For instance the WAN (public) IP from your provider could be 54.63.2.123 and the other IP for your LAN (private) may look like 192.168.x.x.

PORT FORWARDING

Port forwarding is a feature in all routers that allows a device serving data within a local network to be accessed from outside the network (i.e. Internet). By default routers block requests from the outside if they haven't been initiated from within the local network. The router basis these requests on the application's TCP and/or UDP port number. The DVMR uses TCP port 8000 by default. Consider the scenario in which a DVMR is attached to a router. Without port forwarding

configured on a router, a program outside the local network requests a connection to port 8000 (our DVMR), but is denied access as a security measure by the router. So therefore, if you are connecting a DVMR to a router and that DVMR is using a Private IP address, you **MUST** configure port forwarding on that router to tell the router to forward the port to your DVMR rather than block it. More information on port forwarding configuration is stated in the FAQ section.

Switch: A switch basically connects multiple devices together that are located on the same local network. These typically have many more ports than a router, generally anywhere from 5 switched ports to 48 switched ports. You can simply just connect a switch to a router to extend the amount of ports, thus devices allowed on the network or to share an Internet connection. Unless you have more than four devices on your local network, then you should be able to use the available ‘switched’ ports on your router to share an Internet connection. In many enterprise networks, a patch panel or closet is used to house several switches that connect all the networked devices on that location. For this tutorial’s sake, switches will not be used. We will implement a single home office router. Switches are not used to connect networks, this is why you cannot use a switch alone to share an Internet connection.

Modem: A modem converts the electrical signals from your Internet provider to a signaling type that your computer or router can understand. Without a modem, the computer or TCP/IP device would not be able to understand the signaling method used by cable TV and telephone service providers. A modem will typically have one RJ-45 Ethernet port and one other port to accommodate either a cable TV coaxial cable or a DSL telephone line from your Internet service provider. Overall you will have the line from your ISP entering the modem and from the modem to your router’s WAN port via a network cable. So that way the signal has been converted by the modem and also leads to your router, which separates your local network from the ISP’s network.

Ethernet and RJ-45:

Ethernet is a popular communications protocol (language) used for multiple devices to ‘talk’ to each other on a local network. RJ-45 is a type of connector similar to a standard telephone jack that is used in Ethernet cabling. A standard Cat5 network cable has RJ-45 connectors attached that allow direct connections to routers, switches, and PCs. You can distinguish between a telephone line connector and RJ-45 connector by its size. RJ-45 is slightly larger than a telephone line connector (RJ-11), and RJ-45 houses eight wires as opposed to four.

Note: Some devices contain a router, switch, and modem within the same unit.

DVMR Network Configuration

Now that you are familiar with the equipment and should be able to identify a router from a modem and a Cat5 network cable from a telephone cable, we will proceed to determine the network scenario that fits your current network.

Please call your provider to identify what type of service they are providing you. You will need to know the following:

Upload speed – For your own knowledge for expected frame rates

Download speed – For your own knowledge for expected frame rates

Addressing (Static, Dynamic, PPPoE) – For determining what scenario you should follow

Router On Site Or Just A Modem? – For determining what scenario you should follow

*NOTE: If your provider is using PPPoE (usually DSL providers), you MUST have a router installed on site and follow CASE C for DVMR setup and access.

**PLEASE verify Internet access after installing any new equipment (routers, switches, modems, etc.). If possible, use a PC on the network to verify that an Internet connection can be made and that all current configurations on any equipment are up and working properly. Do this before doing ANY configurations with the DVMR. We are assuming that your current equipment is configured properly for Internet access.

PC's TCP/IP Settings

Before configuring the DVMR, please fill out the information below if applicable:

Choose any PC on your network and determine its TCP/IP settings:

IP Address: _____ (ex. 192.168.1.5)

Subnet Mask: _____ (ex. 255.255.255.0)

Default Gateway: _____ (ex. 192.168.1.1)

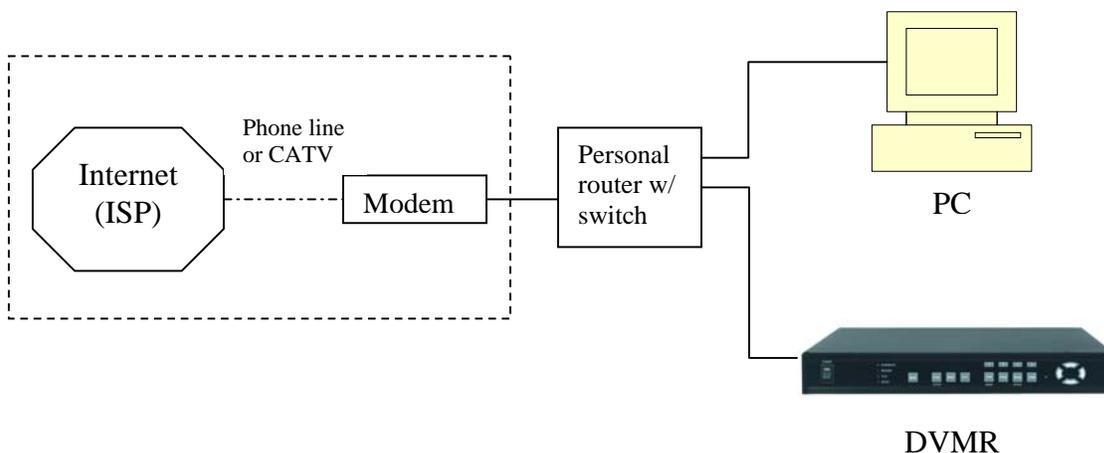
*For information on how to determine this information, please consult the FAQ.

Below are several network scenarios. Each one is labeled with a letter. Please identify which scenario your current network falls within and follow the instructions for configuring and accessing your DVMR via TCP/IP.

The box below represents an area that you can't control. If you are unable or do not have access to your router for port forwarding, please contact your provider and request them to forward a port to the corresponding DVMR IP address:



Case A: Single Static IP w/ Personal Router



Configure the DVMR as follows:

1. Set the DVMR to MANUAL for the TCP/IP settings. Do not use DHCP SETUP for this application or verify that DHCP SETUP is set to MANUAL.
2. IP ADDRESS: assign it a private IP address (ex: 192.168.0.105)
 - a. You need to assign the DVMR an IP address just as you would a PC.
 - b. The IP address you assign must be unique to your local network as well as “match” your local network. *For information on how to choose a unique IP that matches your network, consult the FAQ.
 - c. The IP address you assign must be a private IP address. *For information on what a private IP address is, consult the FAQ.
 - d. When configuring the DVMR's IP address information, the version of firmware within the units may display the IP addresses differently. For simplicity sake, 192.168.1.105 may have to be configured as 192.168.001.105.

3. PORT NUMBER: 8000
 - a. 4-channel: This number is located following the IP ADDRESS
 - b. 8-channel & 16-channel : This number is stated explicitly
 - c. For most situations, please use the default 8000 for simplicity.
4. SUBNET MASK: 255.255.255.0 (example)
 - a. Assign the DVMR the same exact subnet mask as your PC. *For information on how to determine your PC's IP address, subnet mask, and default gateway, consult the FAQ
5. GATEWAY: 192.168.0.1 (example)
 - a. Assign the DVMR the same exact gateway (or default gateway) as your PC. *For information on how to determine your PC's IP address, subnet mask, and default gateway, consult the FAQ
6. Please DO NOT configure MAC ADDRESS or DHCP SETUP
7. You will need to forward port 8000 through your router. Please forward port 8000 to the IP ADDRESS you have assigned the DVMR.*For information on how to forward a port through your router, consult the FAQ.
8. Your DVMR is now ready for access.

Accessing the DVMR using the Remote Software for CASE A

LOCALLY:

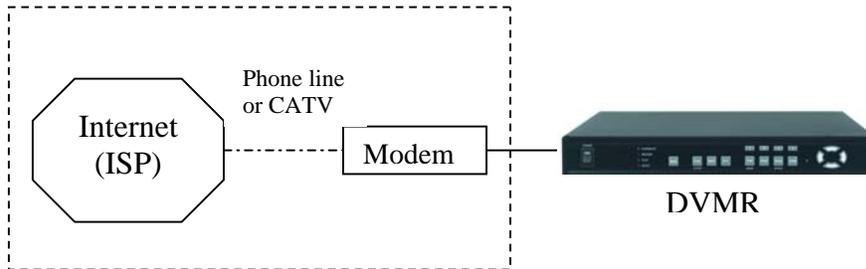
To access the DVMR locally, that is from your local network on site from where the DVMR is installed. Open the remote viewing software and click on the "Settings" button. As far as TCP/IP connectivity is concerned only 4 entries need to be made:

1. IP address: Input the IP address that you assigned the DVMR. As in the above example I would input the private IP address of 192.168.0.105
2. Port: 8000 (this has to match what is configured in the router and in the DVMR)
3. User ID: (always leave the default "admin")
4. Password: this must match what is configured in the DVMR
 1. 4-channel default: "1" (without the quotes)
 2. 8 & 16-channel default: null (NO PASSWORD)

REMOTELY:

To access the DVMR remotely, that is from outside your local network, follow the above directions for accessing locally, except for the IP address. For CASE A, you have received a static IP from your Internet provider. That static IP address is what you must enter into the software for connectivity to take place (NOT the IP of the DVMR). Contact your provider if you have misplaced the forms stating your static IP address. Since you are accessing the DVMR via a router, you must enter the router's WAN IP address which is the exactly the same as the static IP that you have received from your Internet provider.

Case B: Single Static IP Directly Connected to the DVMR



Configure the DVMR as follows:

1. Set the DVMR to **MANUAL** for the TCP/IP settings. Do not use **DHCP SETUP** for this application or verify that **DHCP SETUP** is set to **MANUAL**.
2. **IP ADDRESS:** assign it a public IP address (ex: 24.106.1.195)
 - a. You need to assign the DVMR an IP address just as you would a PC
 - b. The static IP address that you received from your Internet provider is the address that you will assign this DVMR, if you do not know this IP address please contact your provider.
 - c. When configuring the DVMR's IP address information, the version of firmware within the units may display the IP addresses differently. For simplicity sake, 24.106.1.195 may have to be configured as 24.106.001.195.
3. **PORT NUMBER:** 8000
 - a. 4-channel: This number is located following the IP ADDRESS
 - b. 8-channel & 16-channel : This number is stated explicitly
 - c. For most situations, please use the default 8000 for simplicity.
4. **SUBNET MASK:** 255.255.255.240 (example)
 - a. Along with your static IP address you should have received your subnet mask from your Internet provider. Please use that subnet mask when configuring the DVMR. If you did not receive this information contact your service provider.
5. **GATEWAY:** 24.106.1.193 (example)
 - a. Along with your static IP address you should have received your gateway or default gateway from your Internet provider. Please use that gateway when configuring the DVMR. If you did not receive this information contact your service provider.
6. Please **DO NOT** configure **MAC ADDRESS** or **DHCP SETUP**.

7. Your DVMR is now ready for access.

Accessing the DVMR using the Remote Software for CASE B

LOCALLY:

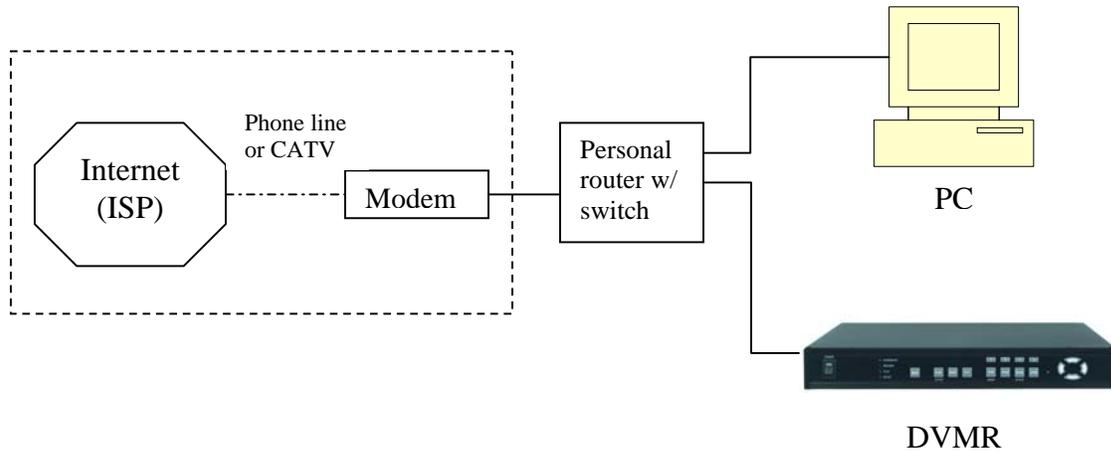
You cannot physically access the unit locally since a router was not used in this case.

REMOTELY:

To access the DVMR remotely, open the remote viewing software and click on the “Settings” button. As far as TCP/IP connectivity is concerned only 4 entries need to be made. For CASE B, you have received a static IP from your Internet provider. That static IP address is what you must enter into the software for connectivity to take place (this should be the same IP address configured in the DVMR). Contact your provider if you have misplaced the forms stating your static IP address. As in the above example I would input the:

1. Public IP address of 24.106.1.195
2. Port: 8000 (this has to match what is configured in the DVMR)
3. User ID: (always leave the default “admin”)
4. Password: this must match what is configured in the DVMR
 1. 4-channel default: “1” (without the quotes)
 2. 8 & 16-channel default: null (NO PASSWORD)

Case C: Dynamic or PPPoE IP w/ Personal Router



Configure the DVMR as follows:

1. Set the DVMR to **MANUAL** for the TCP/IP settings. Do not use **DHCP SETUP** for this application or verify that **DHCP SETUP** is set to **MANUAL**.
2. **IP ADDRESS:** assign it a private IP address (ex: 192.168.0.105)
 - a. You need to assign the DVMR an IP address just as you would a PC
 - b. The IP address you assign must be unique to your local network as well as “match” your local network. *For information on how to choose a unique IP that matches your network, consult the FAQ.
 - c. The IP address you assign must be a private IP address. *For information on what a private IP address is, consult the FAQ.
 - d. When configuring the DVMR’s IP address information, the version of firmware within the units may display the IP addresses differently. For simplicity sake, 192.168.1.105 may have to be configured as 192.168.001.105.
3. **PORT NUMBER:** 8000
 - a. 4-channel: This number is located following the IP ADDRESS
 - b. 8-channel & 16-channel : This number is stated explicitly
 - c. For most situations, please use the default 8000 for simplicity.
4. **SUBNET MASK:** 255.255.255.0 (example)
 - a. Assign the DVMR the same exact subnet mask as your PC. *For information on how to determine your PC’s IP address, subnet mask, and default gateway, consult the FAQ.
5. **GATEWAY:** 192.168.0.1 (example)
 - a. Assign the DVMR the same exact gateway (or default gateway) as your PC. *For information on how to determine your PC’s IP address, subnet mask, and default gateway, consult the FAQ.
6. Please **DO NOT** configure the **MAC ADDRESS** or **DHCP SETUP**.

7. You will need to forward port 8000 through your router. Please forward port 8000 to the IP ADDRESS you have assigned the DVMR.*For information on how to forward a port through your router, consult the FAQ.
8. Your DVMR is now ready for access.

Accessing the DVMR using the Remote Software for CASE C

LOCALLY:

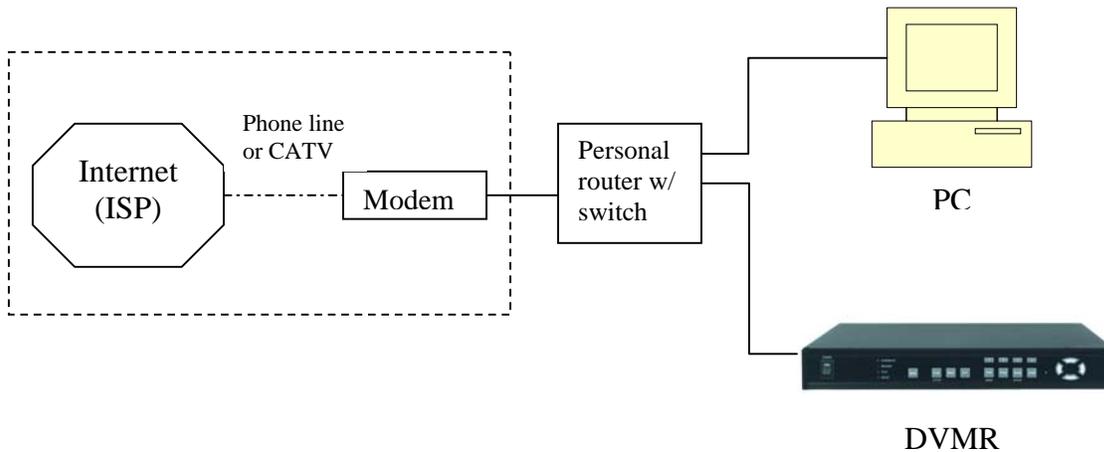
To access the DVMR locally, that is from your local network on site from where the DVMR is installed. Open the remote viewing software and click on the “Settings” button. As far as TCP/IP connectivity is concerned only 4 entries need to be made.

1. IP address: input the IP address that you assigned the DVMR. As in the above example I would input the private IP address of 192.168.0.105
2. Port: 8000 (this has to match what is configured in the router and in the DVMR)
3. User ID: (always leave the default “admin”)
4. Password: this must match what is configured in the DVMR
 - a. 4-channel default: “1” (without the quotes)
 - b. 8 & 16-channel default: null (NO PASSWORD)

REMOTELY:

To access the DVMR remotely, that is from outside your local network, follow the above directions for accessing locally, except for the IP address. For CASE C, you have received a dynamic or PPPoE IP from your Internet provider. That IP address is what you must enter into the software for connectivity to take place (NOT the IP of the DVMR). There are several ways to determine your IP address. You may be able to contact your provider to determine your current IP address. You can also try accessing your router and locating the status page that should list the WAN or Internet IP address. Since you are accessing the DVMR via a router, you must enter the router’s WAN IP address which is the exactly the same as the IP that you have dynamically received from your Internet provider. Take into consideration that this scenario is not recommended, due to the nature of dynamic addressing. Dynamic addresses may change randomly or on power failures. If you are unable to connect suddenly, first verify that your dynamic IP address has not changed.

Case D: Multiple Static IPs w/ Personal Router



Configure the DVMR as follows:

1. Set the DVMR to MANUAL for the TCP/IP settings. Do not use DHCP SETUP for this application or verify that DHCP SETUP is set to MANUAL.
2. IP ADDRESS: assign it a public IP address (ex: 24.106.1.195)
 - a. You need to assign the DVMR an IP address just as you would a PC
 - b. For this case you must have received several available static IP addresses. Of those, choose one that is not in use to which you can assign the DVMR, if you do not know your available IP addresses please contact your provider.
 - c. When configuring the DVMR's IP address information, the version of firmware within the units may display the IP addresses differently. For simplicity sake, 24.106.1.195 may have to be configured as 24.106.001.195.
3. PORT NUMBER: 8000
 - a. 4-channel: This number is located following the IP ADDRESS
 - b. 8-channel & 16-channel : This number is stated explicitly
 - c. For most situations, please use the default 8000 for simplicity.
4. SUBNET MASK: 255.255.255.240 (example)
 - a. Along with your static IP addresses you should have received your subnet mask from your Internet provider. Please use that subnet mask when configuring the DVMR. If you did not receive this information contact your service provider.
5. GATEWAY: 24.106.1.193 (example)
 - a. Along with your static IP addresses you should have received your gateway or default gateway from your Internet provider. Please use that gateway when configuring the DVMR. If you did not receive this information contact your service provider.
6. Please DO NOT configure the MAC ADDRESS or DHCP SETUP.
7. Your DVMR is ready for access.

Accessing the DVMR using the Remote Software for CASE D

LOCALLY:

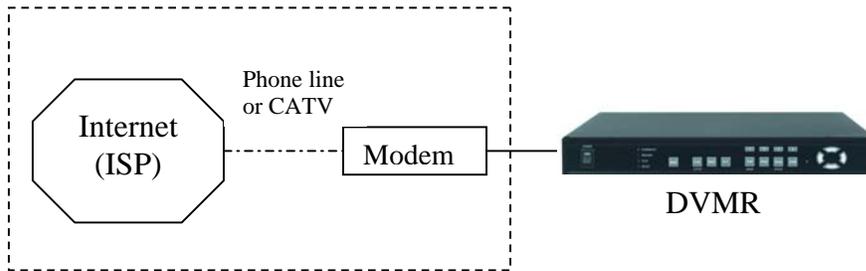
To access the DVMR locally, open the remote viewing software and click on the “Settings” button. As far as TCP/IP connectivity is concerned only 4 entries need to be made. For CASE D, you have received a static IP from your Internet provider. That static IP address is what you must enter into the software for connectivity to take place (this should be the same IP address configured in the DVMR). Contact your provider if you have misplaced the forms stating your static IP address. As in the above example I would input the:

1. Public IP address of 24.106.1.195
2. Port: 8000 (this has to match what is configured in the DVMR)
3. User ID: (always leave the default “admin”)
4. Password: this must match what is configured in the DVMR
 - a. 4-channel default: “1” (without the quotes)
 - b. 8 & 16-channel default: null (NO PASSWORD)

REMOTELY:

To access the DVMR remotely, just follow the same instructions for local access.

Case E: Dynamic IP Directly Connect to the DVMR



Configure the DVMR as follows:

For this application you can still use the DVMR for remote access, yet you will have to verify the IP address within the DVMR on a continuous basis to ensure the IP address hasn't changed.

1. Unplug the power from the modem
2. Turn off the DVMR
3. After waiting 5 minutes, power on the modem followed by the DVMR.
4. Enter the TCP/IP Setup menu
5. Enter DHCP Setup (for the 8 & 16 channels just set DHCP to Detect and move to step 10)
6. Select IP DETECT MODE
7. Press ENTER
8. It should now display DHCP
9. Cursor down to REQUEST IP and hit ENTER
10. The unit will now send a request to a DHCP server asking for IP address information.
 - a. If it is unable to detect an IP address, contact your ISP to reset the modem, before trying again.
 - b. After an IP has been received, the lease time listed under IP LEASE TIME is just notifying you when the DVMR will try to renew the IP address. Typically it will try to receive the same IP, but it is a good idea to check your IP on a continuous basis.
11. Exit DHCP SETUP
12. Select IP ADDRESS to determine the IP address the unit has received.
13. The DVMR is now ready for access.

Accessing the DVMR using the Remote Software for CASE E

LOCALLY:

You cannot physically access the unit locally since a router was not used in this case.

REMOTELY:

To access the DVMR remotely, open the remote viewing software and click on the “Settings” button. As far as TCP/IP connectivity is concerned only 4 entries need to be made. For CASE E, you have received a dynamic IP from your Internet provider. That dynamic IP address is what you must enter into the software for connectivity to take place (this should be the same IP address configured in the DVMR). Check you DVMR’s current IP address for access:

1. IP Address: 24.106.1.195 (example)
2. Port: 8000 (this has to match what is configured in the DVMR)
3. User ID: (always leave the default “admin”)
4. Password: this must match what is configured in the DVMR
 - a. 4-channel default: “1” (without the quotes)
 - b. 8 & 16-channel default: null (NO PASSWORD)

FAQ

How do I determine my PC's TCP/IP settings?

For Windows 98 / ME Users

1. Click on the Start Menu, select RUN
2. Type 'winipcfg' (without the quotes), hit Enter
3. Use the drop down list to select your 10/100 Fast Ethernet Adapter (not the PPP adapter)
4. Now you will see your IP Address, Subnet Mask, and Default Gateway information

For Windows 2000 / XP

1. Click on the Start Menu, select RUN
2. Type 'cmd' (without the quotes), hit Enter
3. The command prompt will appear. At the prompt type - "ipconfig" (without the quotes)
4. This will list your current IP address, subnet mask, and default gateway.

How do I choose a unique IP that matches my network?

For your home or small office, ensure that all devices on your network are running. Chose an IP address that you wish to assign the DVMR. To ensure the IP address that you will assign the DVMR matches your network, review the "PC's TCP/IP Settings" that you had recorded earlier. See some examples below:

-If your "IP Address" entry in "PC's TCP/IP Settings" was 192.168.0.y **and** your "Subnet Mask" was 255.255.255.0 then use 192.168.0.x for your DVMR's IP Address ("x" meaning any number between 2-254 that you wish, as long as it passes the "PING" test).

- If your "IP Address" entry in "PC's TCP/IP Settings" was 192.168.1.y, **and** your "Subnet Mask" was 255.255.255.0 then use 192.168.1.x for your DVMR's IP Address ("x" meaning any number between 2-254 that you wish, as long as it passes the "PING" test).

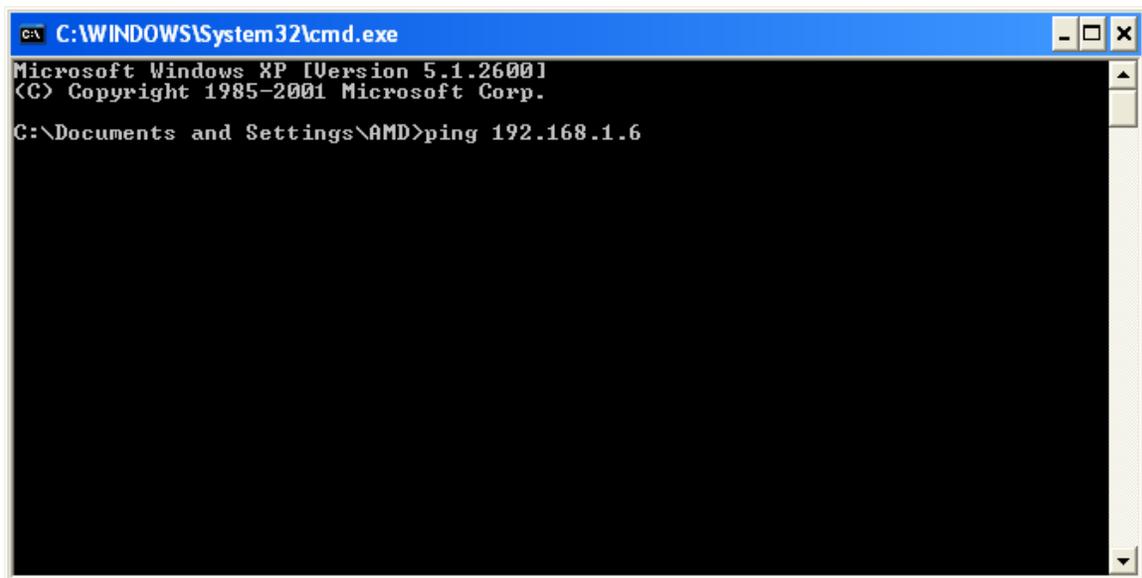
After choosing an appropriate IP address, 'PING' the IP address that you plan to assign to the DVMR. If you receive a "Request timed out", then you may use that IP address (the PING test has passed).

*If your "IP Address" entry under "PC's TCP/IP Settings" is not a 192.168.z.y address with a "Subnet Mask" of 255.255.255.0 then please contact our Support Center.

**If your "IP Address" entry, under "PC's TCP/IP Settings" is not a 192.168.z.y address, please contact our Support Center.

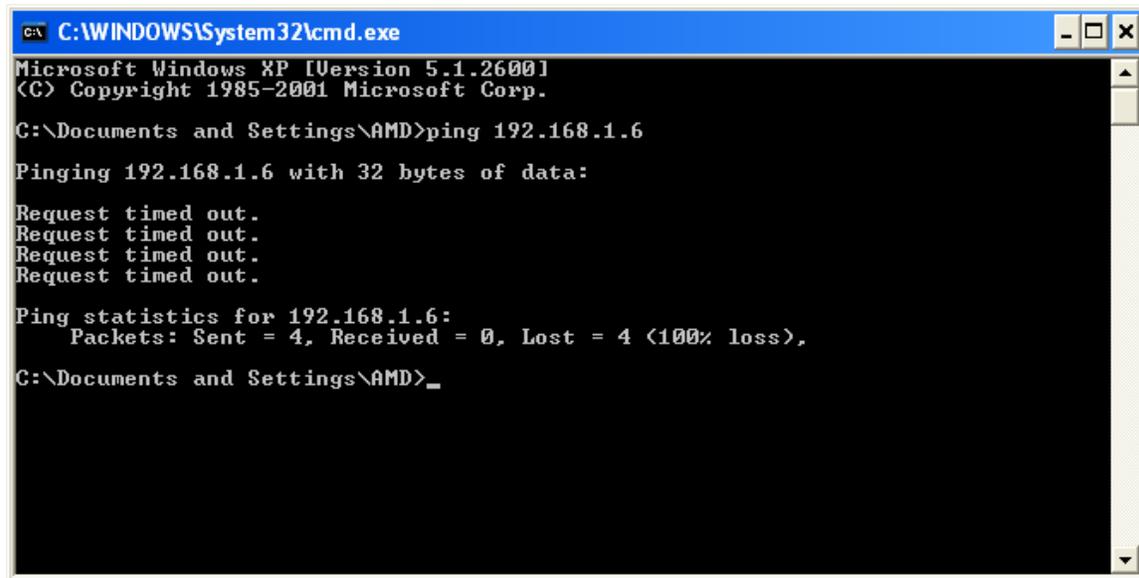
How do I "PING" an IP address?

1. Open an MS-DOS (or Command) prompt
2. At the prompt type - "ping xxx.xxx.xxx.xxx" (without the quotes and replace the x's with an IP address)
3. Press Enter

A screenshot of a Windows XP command prompt window. The title bar reads "C:\WINDOWS\System32\cmd.exe". The window content shows the following text:

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\AMD>ping 192.168.1.6
```

Ping Result. When testing for a usable IP address, verify that you get a "Request timed out" message. This ensures that the IP address that you have tested is not being used by another device on your network.

A screenshot of a Windows XP Command Prompt window. The title bar reads "C:\WINDOWS\System32\cmd.exe". The window content shows the following text:

```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\AMD>ping 192.168.1.6

Pinging 192.168.1.6 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.6:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Documents and Settings\AMD>_
```

How do I open an MS-DOS or Command Prompt?

Windows 98 / ME

Start -> Programs -> Accessories -> MS-DOS prompt

Windows 2000 / XP

Start -> (All) Programs -> Accessories -> Command Prompt

How do I choose a private IP address:

Below lists the ranges for private addresses:

Private Class A address space: 10.0.0.0 - 10.255.255.255

Private Class B address space: 172.16.0.0 - 172.31.255.255

Private Class C address space: 192.168.0.0 - 192.168.255.255

For most cases you will choose a private IP address that falls in the Class C address space. (ex. 192.168.1.x or 192.168.0.x)

How do I forward a port in my router?

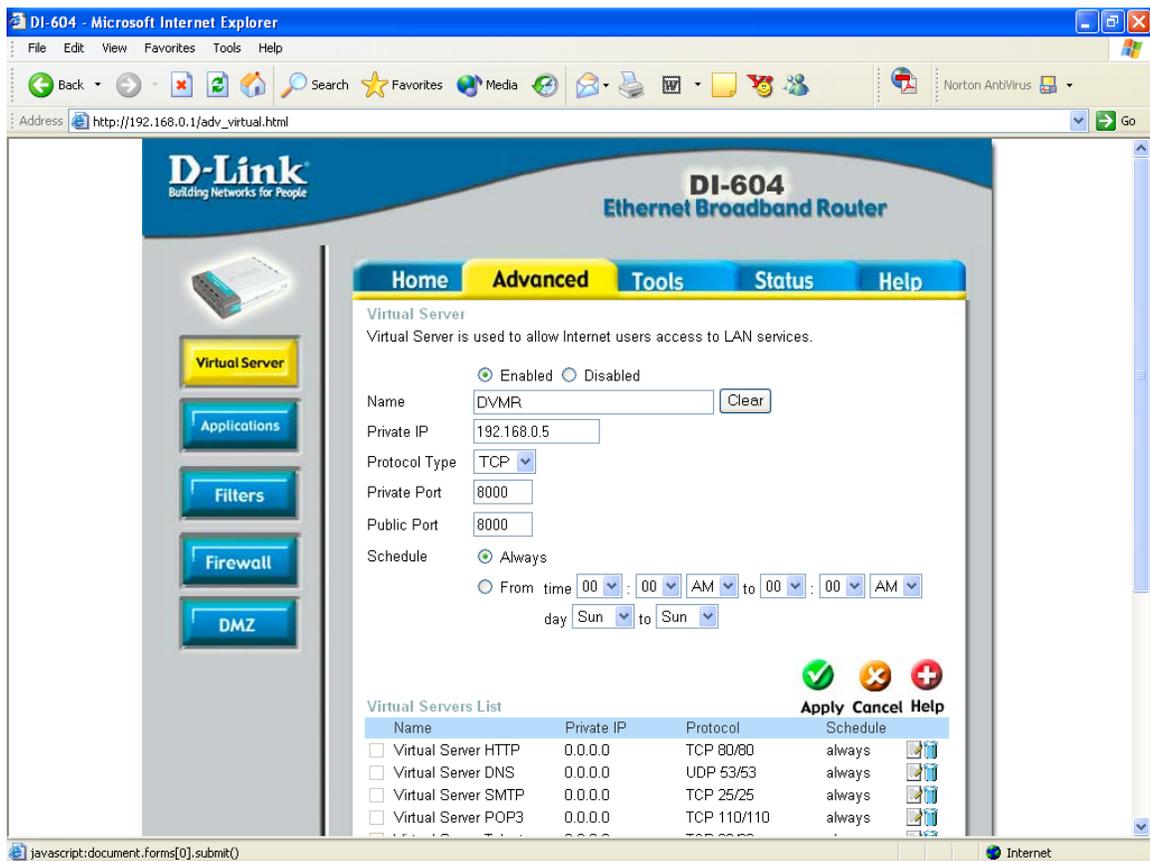
For cases A & C you must forward a TCP port through your router. This port is the Port Number specified in the DVMR. For most cases you should be able to leave the default at 8000.

Every router has a different procedure for forwarding ports. Please consult your router's user guide on how to correctly configure Port Forwarding.

For your convenience, we have provided two example configurations.

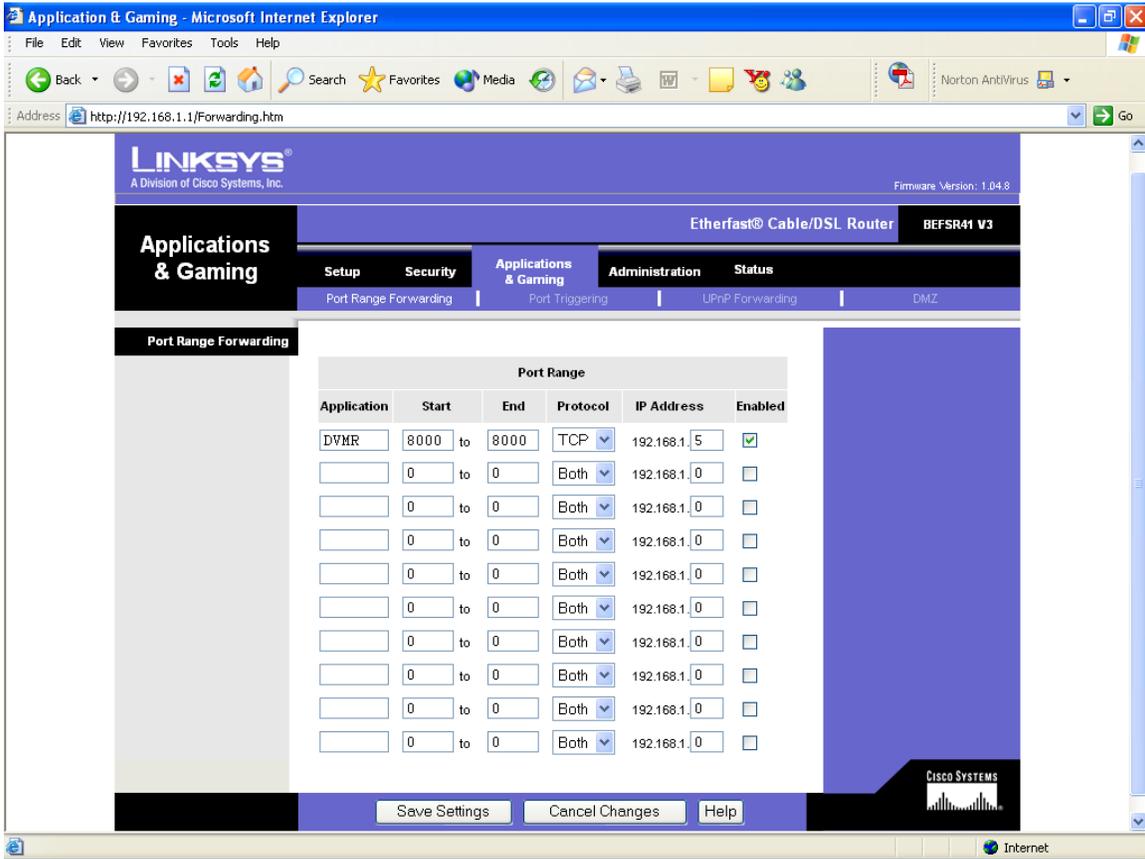
For D-Link DI-604 broadband routers:

1. Open a web browser and type `http://192.168.0.1` into your Address bar (the default IP address to access the router).
2. You will have to supply your User Name and Password to log onto the router.
 - a. Default from factory: User Name: **admin** Password: [leave blank]
3. Select the Advance tab.
4. Verify that 'Virtual Servers' is selected as the item you want to configure.
5. Click the "Enabled" option button
6. Give a description to the "Virtual Server" (ex: DVMR)
7. Set the "Private IP" address the IP address you have assigned the DVMR
8. Select TCP as the "Protocol Type"
9. Set both the "Private Port" and "Public Port" the same value that you set the Port Number on the DVMR. (ex: 8000)
10. Set the schedule for when you will allow access to the DVMR
11. Click Apply
12. After the settings on the router have saved, you can exit the browser. Port Forwarding is complete.



For Linksys BEFSR41 Cable/DSL routers:

1. Open a web browser and type http://192.168.1.1 into your Address bar (the default IP address to access the router)
2. You will have to supply your User Name and Password to log onto the router.
 - a. Default from factory: User Name:[leave blank] Password: **admin**
3. Select “Applications & Gaming” from the menu bar:
4. Enter a description for your Port in the Application entry (ex: DVMR)
5. Enter the Port number you have assigned the DVMR into the “Start” and “End” fields
6. Select TCP as the “Protocol”
7. Enter the IP address of the DVMR
8. Check the “Enabled” checkbox
9. Click “Save Settings”
10. After the settings have been saved exit the browser. Port Forwarding is complete.



Can I configure my DVMR for remote access using a Dial-Up connection?

Yes, it is possible, but not recommended. With a live video feed, the bandwidth that a dial-up connection provides is very poor. In addition, you will have to install a device that allows your DVMR to connect directly to your dial-up phone line (roughly \$200).

Why is my remote video jerky?

The frame rates received via the Internet are all dependent on your connection condition and speed at both the DVMR site and the location from where you are accessing the DVMR. The fastest frame rates are achieved locally.

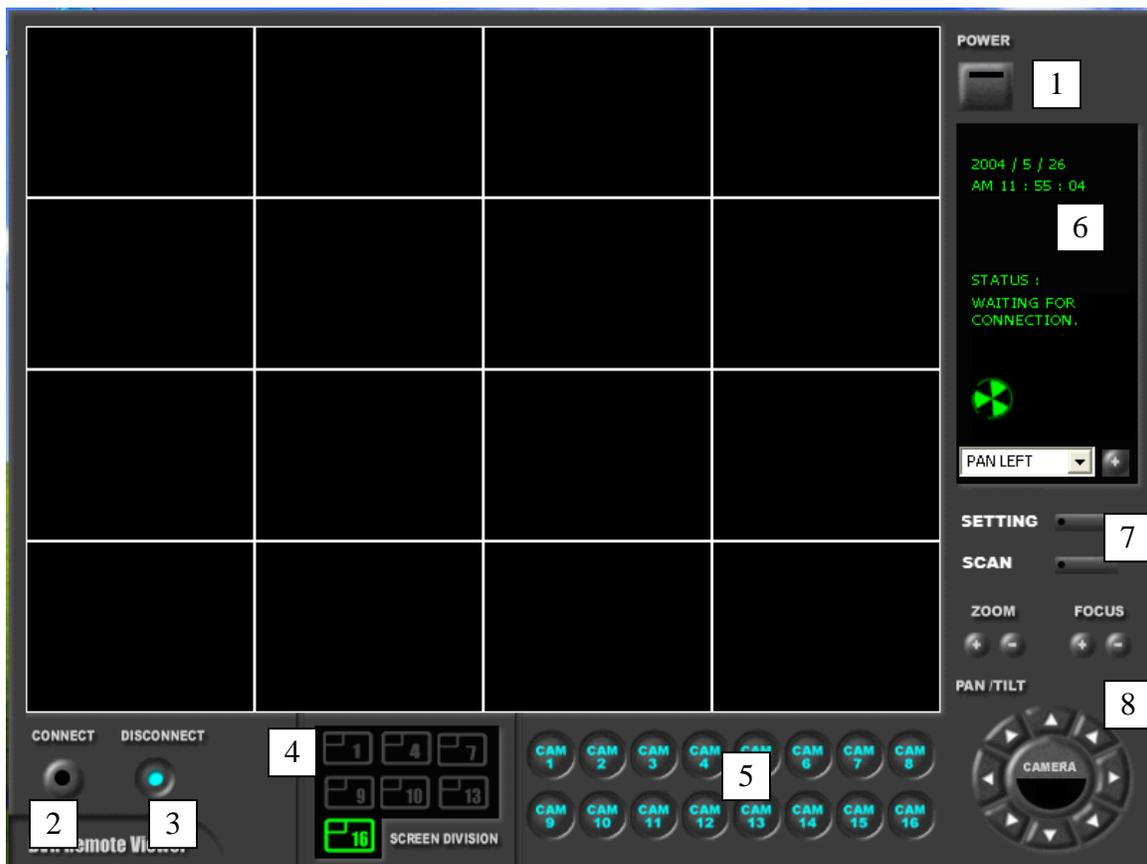
See the Important Notes at the end of this document.

Remote Viewer Tutorial

Be certain to only operate the 4-channel DVMR with the Remote Viewer 4 software, the 8-channel DVMR with the Remote Viewer 8 software, etc.

Below you will find the 3 screens associated with the Remote Viewer. Please take a moment to familiarize yourself with the interface.

Main Interface



1. **Power switch:** Press the Power switch to exit the program. Please Disconnect the live feed before powering off the software.
2. **Connect button:** Press the Connect button to view the live images from the DVMR. These are the same images being displayed on the monitor of

the DVMR, with a delay depending on your Internet connection at both the DVMR location and from where you're currently accessing.

3. **Disconnect button:** Press this button to disconnect from the DVMR unit. Then you may power off the software.
4. **Screen Division button:** Select how many channels to view simultaneously (single, 4-split, 9-split, or 16-split). When you select a view you will see the Channel Numbers highlighted which determine what channels are currently being viewed.
 - a. Simply double-clicking an image will switch you to single, full-screen mode.
5. **Channel Number button:** Select the channels that you want to view based on what Screen Division view is enabled.
 - a. In single channel Screen Division, you can simply select individual channels in full screen.
 - b. In 4-split Screen Division, you may view 4 consecutive channels. For instance if you select channel 2, then you will view channels 2, 3, 4, and 5. If you selected channel 9, you will view channels 9, 10, 11, and 12. If you selected channel 16, you will view channels 16, 1, 2, and 3.
 - c. In 9-split Screen Division, you may view 9 consecutive channels. For instance if you select channel 2, then you will view channels 2, 3, 4, 5, 6, 7, 8, 9, and 10. If you select channel 8, you will view channels 8, 9, 10, 11, 12, 13, 14, 15, and 16.
 - d. In 16-split Screen Division, you will view all 16 channels simultaneously.
6. **Status Window:** Display's the current time and date based. The date is in the format: Year / Month / Day. You will also see the status of your connection.
 - a. Connection Established: There is successful TCP/IP connectivity between the DVMR and your remote software on the PC.
 - b. Request Timed Out: The connection has been lost or dropped. This can result from a bad network connection, a slow network connection, or an excessively busy network.
 - c. Waiting For Connection: A connection could not be established. This can result from incorrect IP address information, port number, or password setting. Incorrect port forwarding configuration can also cause this connectivity issue.
 - d. Try Request Image x: The connection has been lost or dropped. The software will try to re-establish the connection. If it cannot re-establish the connection it will disconnect. This can result from a

bad network connection, a slow network connection, or an excessively busy network.

e. **R-Pos & P-Pos (8 & 16 channel only):**

1. R-Pos indicates what percentage of the hard drive(s) has been consumed.
2. P-Pos indicates the position of the hard drive(s) that is being played back (in units of percentage).

7. **Setting, Scan, and Rotate buttons:**

- a. Setting: Enables the software configuration screen
- b. Scan: Enables the remote playback screen.
- c. Rotate (**4-channel only**): When in single channel view, hitting the rotate button will sequence through all active channels at a speed specified in the settings menu.

8. **PTZ control:** You can control a PTZ camera via the software with these controls

- a. First, you must input or configure the specific PTZ protocol into the software in order to communicate with the PTZ device.
- b. When you press any of the controls for the PTZ, please press and hold the button for 1-2 seconds per instance to compensate for the data transmission rate. If you do not and instead simply click the PTZ buttons, you may get undesired results (having the requested operation transmitted repeatedly, regardless of your intention).

Settings Interface

4 Channel Setting Screen

LABEL:	This just identifies your settings. The settings are automatically saved under this label when you hit 'OK'.
IP Address:	Based on your network scenario and from where you're accessing, enter the appropriate IP address.
PORT:	Enter the Port Number you assigned the DVMR
ID:	Always enter 'admin'
Password:	This must match the password on the DVMR. For simplicity, just use numbers.
PT TYPE:	If using a PTZ device or camera, select the protocol your PTZ camera is using from the list of preconfigured protocols.
Circular Monitoring Interval:	This determines the speed at which the channels sequence, when the ROTATE button is used from the main interface.
Scan Rate:	This sets the rate of the fast-forward button under SCAN mode. When 1x tries to display each individual image recorded, you can increase this rate to quickly scan through the hard drive.
Reconnection Count:	The time the program waits before trying to re-establish a lost connection

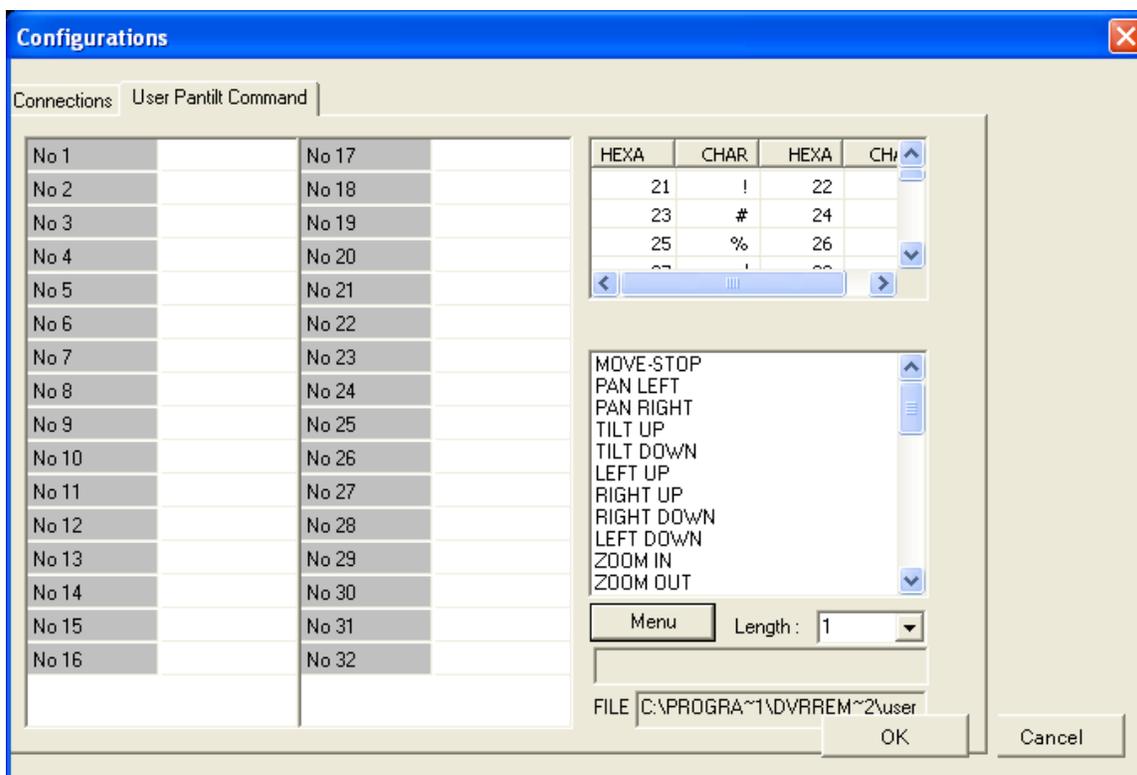
Run in full screen mode:	When checked, this will enable the program to re-adjust the interface to completely fill your computer screen.
Receive Events:	If an alarm is configured on the DVMR unit, the software will receive events in the same manner as the DVMR itself. When the alarm is enabled, the software will record the DVMR event in its event list. From this event list you can remotely playback the incident, by simply selecting which event you want to play back under SCAN mode. Motion events are always stored, regardless if you select this option.
Display PlayTime on Image:	When in Scan mode, this option displays the time/date information for the currently viewed data and displays it as a title.
Set Path to Save Recorded Images:	Determines the location and folder on your PC where the saved video clips are stored. If you do not specify a valid location, then the program will save all files in the default location of: C:\Program Files\DvrRemoteViewer4
Record Duration:	This tells the program how long to record before starting a new file. These units are in real-time seconds. You must compensate for the delay in data transfer. If you set this value to 5 sec, then it will record for 5 seconds (regardless of how much video came across the network) and then it will start a new file.

8 & 16 Channel Setting Screen

Name:	This just identifies your settings. The settings are automatically saved under this label when you hit 'OK'.
IP Address:	Based on your network scenario and from where you're accessing, enter the appropriate IP address.
PORT:	Enter the Port Number you assigned the DVMR
User ID:	Always enter 'admin'
Password:	This must match the password on the DVMR. For simplicity, just use numbers.
Circular Monitoring Interval:	Currently not used.
Scan Rate:	This sets the rate of the fast-forward button under SCAN mode. When 1x tries to display each individual image recorded, you can increase this rate to quickly scan through the hard drive.
Reconnecting Count:	The time the program waits before trying to re-establish a lost connection
Run in full screen mode:	When checked, this will enable the program to re-adjust the interface to completely fill your computer screen.

Receive Events:	If an alarm is configured on the DVMR unit, the software will receive events in the same manner as the DVMR itself. When the alarm is enabled, the software will record the DVMR event in its event list. From this event list you can remotely playback the incident, by simply selecting which event you want to play back under SCAN mode. Motion events are always stored, regardless if you select this option.
Set Path to Save Recorded Images:	Determines the location and folder on your PC where the saved video clips are stored. If you do not specify a valid location, then the program will save all files in the default location of: C:\Program Files\DvrRemoteViewer8
Set Record Interval:	This tells the program how long to record before starting a new file. These units are in real-time seconds. You must compensate for the delay in data transfer. If you set this value to 5 sec, then it will record for 5 seconds (regardless of how much video came across the network) and then it will start a new file.

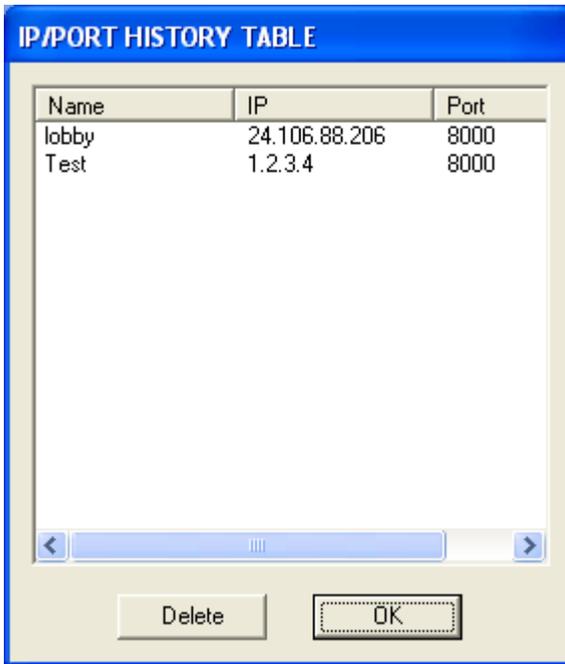
Loading PTZ Controls for the 8 & 16 Channel DVMR



This screen is used for advanced users to create their own user-defined pan/tilt/zoom protocols to match their PTZ camera. You can load pre-configured protocols by selecting the Menu button and choosing 'Load User PT File" (current protocols pre-configured include Pelco-D and HMC-250). For more information on PTZ setup and defining your own protocol, please contact your vendor.

IP load

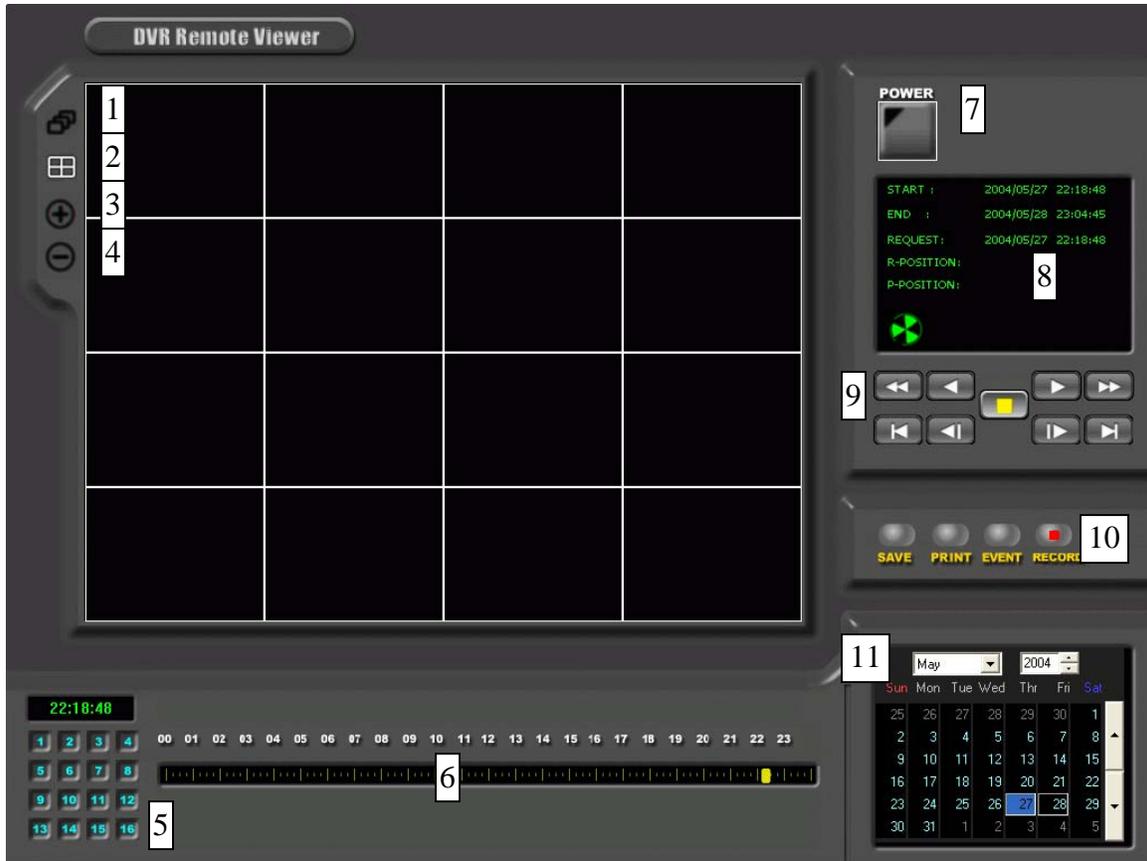
IP Load button



Name	IP	Port
lobby	24.106.88.206	8000
Test	1.2.3.4	8000

If you have several DVMR units you can load the DVMR specific IP and Port numbers from this table. Every time you change an IP address **and** the LABEL to different values within the Settings screen, it is automatically saved to this table. You can use this table to quickly switch from one unit to the next, without having to remember each individual configuration. Simply select the name you wish to load and click 'OK'. If you entered this window unintentionally, you can exit w/o choosing a label by triple-clicking in the blank space of that window, then click 'OK'.

SCAN INTERFACE



1. Choose this icon to view individual channels.
2. Choose this icon to view the 4-split screen view.
3. Choose this icon to increase the number of channels to view simultaneously.
4. Choose this icon to decrease the number of channels to view simultaneously.
5. Channel Number Buttons – Please see Channel Number Buttons previously described in the Main Interface section.
6. Use this scrollbar to select the time you wish to playback.
7. This Power Button exits the SCAN Mode
8. This lists the status of your playback. Please see Status Window under the Main Interface section.
- 9.



 Play Fast Backward – Speed is determined by the Scan Rate set in the Settings Interface	 Play Fast Forward – Speed is determined by the Scan Rate set in the Settings Interface
 Play Backward (1X). This will try to receive each individual image recorded.	 Play Forward (1X). This will try to receive each individual image recorded.
 Move to the start of recording. (Press the Stop button first)	 Move to the end of recording. (Press the Stop button first)
 Move to the previous hour. (Press the Stop button first)	 Move to the previous hour. (Press the Stop button first)
 Stop playback	

Speed of playback in DVMR unit according to Scan Rate

Scan rate set in Settings	 or 	 or 
1x	1x	1x
2x	1x	2x
4x	1x	4x
8x	1x	8x
16x	1x	16x
32x	1x	30x
64x	1x	60x

10. Command Buttons:

- a. **SAVE:** After pressing the Stop button, you can save the currently viewed channels as an image (.jpg).
 - b. **PRINT:** After pressing the Stop button, you can print the currently viewed channels.
 - c. **EVENT:** If your DVMR is set to Motion or Alarm recording, the event lists are saved in this list. Double-click the event you wish to playback. You must have the 'Receive Events' option selected under the Settings Screen to receive events from alarms.
 - d. **RECORD:** Press this button to record the currently viewed channels to the specified location in the Settings screen. Press the button again to stop recording and allow the video capture to be saved before any other action.
11. **Calendar:** Use this to select the date you wish to playback. The filled in square outlines the date that is at the beginning of the hard drives. The outlined square indicates the date at the end of the hard drives. Select the date you wish to view. Verify a filled in square for that particular date. If an invalid date is selected it will default to the beginning of the hard drive(s).

Important Notes Regarding the Remote Viewer and the DVMR

1. When you are in SCAN MODE and are playing back data, you are actually accessing the DVMR remotely and placing the unit itself in playback mode, which in turn disables recording.
2. **As of this writing (5-28-04), please click the STOP button when in SCAN MODE before exiting SCAN MODE, otherwise, the DVMR unit will remain in playback mode, therefore recording will be stopped.**
3. When selecting a date/time to play back. First, ensure that the stop button has been pressed (screen should have no images displayed). Next, select the date you wish to view and verify that it is a valid date on the hard drive and that the selected data is outlined with the box filled in. Then, select the time you wish to access for that particular date. Finally, hit the single-arrow play or double-arrow play button.
4. To see continuous live view, we recommend NOT setting the DVMR for motion detection. The remote viewer only records when there is motion and this motion is not fluid. The remote SCAN MODE option still operates as normal. We recommend only using the remote playback feature if you set the DVMR for Motion Record.
5. The DVMR still records while in Live View mode, but recording rates drop by a small amount. Therefore, we recommend accessing the DVMR remotely only when needed.
6. The remote viewer is only compatible with Windows operating systems.
7. If the connection is lost during remote playback, exit SCAN MODE, reconnect to the live view, then re-enter SCAN MODE.