

April 14, 2008

## Re: Basic DVMS Networking Issues

To all of our customers and partners;

The purpose of this technical bulletin is to provide you with basic networking information that will help you configure your DVMS. Due to the wide variety of routers available on the market this bulletin is meant to provide general guidance only.

### Port Forwarding

Every device connected to the internet has at least one identifying IP address, which in turn, is divided into many ports. The computers located on the same LAN (Local Area Network) are assigned their own specific internal IP address, whether static or dynamic. When a computer sends data to another computer, the data is being sent from a port of the sending IP address to a port on the receiving IP address. Each port can only be used by one program at a time.

A computer outside of the private Local Area Network will not be able to detect the DVMS inside the private LAN network. The computer will only “see” the external IP address of the router. When the DVMS needs to be accessible from an external IP address (via client), the router on DVMS internal network needs to know what to do with the data. Port forwarding will tell the internal network router on the DVMS side which DVMS will be receiving/sending the data.

Think of a mailbox in an apartment building analogy. The sender sends a letter to a recipient in an apartment building by writing the street number, address, city, and country of the building itself (the “external IP address”) on the envelope. Then, when the mail reaches the apartment, it is placed in the appropriate unit mailbox in the mail room which reflects the different unit numbers in the building. Think of the different mailboxes as the “internal IP addresses”. Then, the letter would have a recipient’s name on it. This is considered as the “port number”. Imagine if there were 30 people in a building named “Joe”. How would the postman know which Joe to send the mail to? Hence, the “Joe” (port number) needs to be tied in with a unit number (an IP address). This is the process of forwarding a port to an IP address.

In other words, in order to connect to the i3DVR DVMS server, ports need to be forwarded to its internal IP address (which must be static). This would allow the remote DVMS client to “target” the proper internal IP address (the IP address of the DVMS server), and ultimately be able to view the cameras remotely.

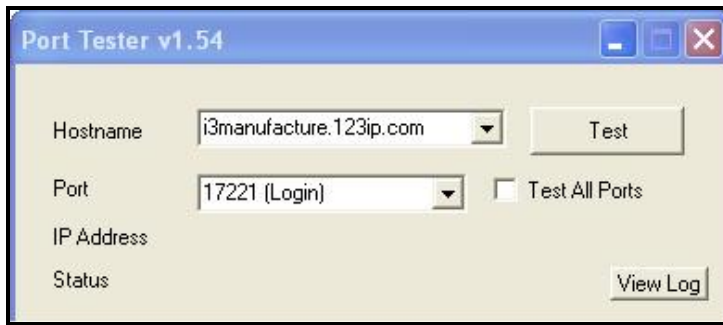
### How to Forward a Port (General Process)

1. Enter the router IP address on the URL address bar of a web browser. Normally, it will ask you for a username and a password
2. Find the Port forwarding section in the setup pages of the router. Some routers may refer to the term port forwarding differently.
3. In the port forwarding list, enter the internal IP address of the server
4. Enter the private port and public port. This will be the same. For example, enter 17221 for both the public and private port
5. Create individual entries for each port. IN our case, there will be three different entries: 17221, 17222 and 48021.
6. If the router allows for port range, for each line then, enter the same start and end port. For example, enter FROM 17221 TO 17221 on the first entry, 17222 TO 17222 on the second entry, and 48021 TO 48021 on the third entry. They should all be forwarded to the same IP address—the internal IP address of the server.
7. Hit save or apply.

In order to verify that the port forwarding has been successfully accomplished, a tool called Port Tester is used (provided on the i3DVR Info DVD).

## Using Port Tester

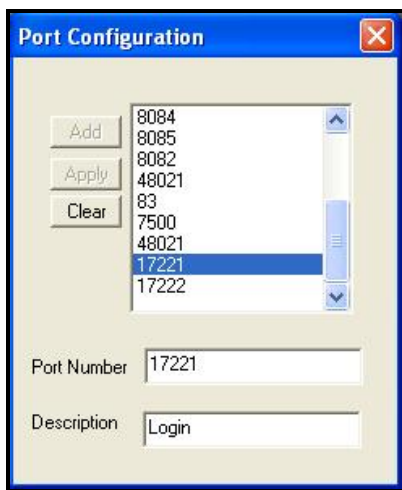
1. Run Port Tester application
2. Choose the port to test from the drop-down box
3. Enter the external IP address in the Hostname field. There are preset ports already set in the drop-down box.
4. Click Test to test the port.
5. A message of “Success” or “Failed” will appear on the status line. Failed message will indicate that the port is not opened.



### Note:

If the ports that you want to test are not in the drop-down box, do the following:

1. Right-click on the Port Tester item on the task bar and choose **Edit Ports** from the context menu
2. In the port configuration window, choose any one port that you are not testing, and replace the port number with the desired number. Name this port accordingly in the Description field.



3. Hit **Apply** to save the port. Click on the ‘X’ to close the window. The port should now be available in the drop-down box.

Check the router settings to verify that the forwarding rules are correct. Remember that only one port can be used by one program. There are times that the port tester may report “success”, but a remote client may still not be able to connect to the DVR system. Verify that there are no conflicts in the router. In other words, make sure that the ports are forwarded to no other than the IP address of the DVR system.

## What ports to forward?

For SRX-Pro systems, the ports that need to be forwarded are:

- 17221 (used to log into the SRX-Pro Server)
- 17222 (used to for video display)
- 48021 (used for remote backup)

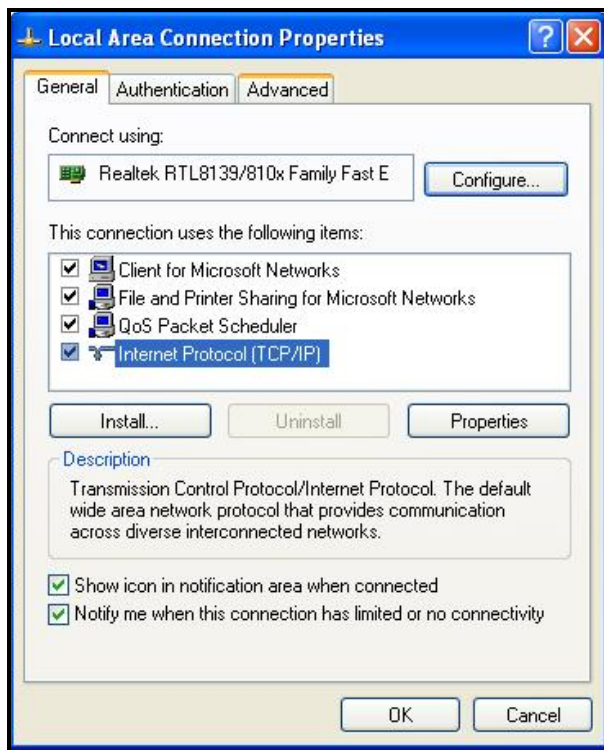
## Assigning IP address to SRX-Pro unit:

### Operating System: XP Professional

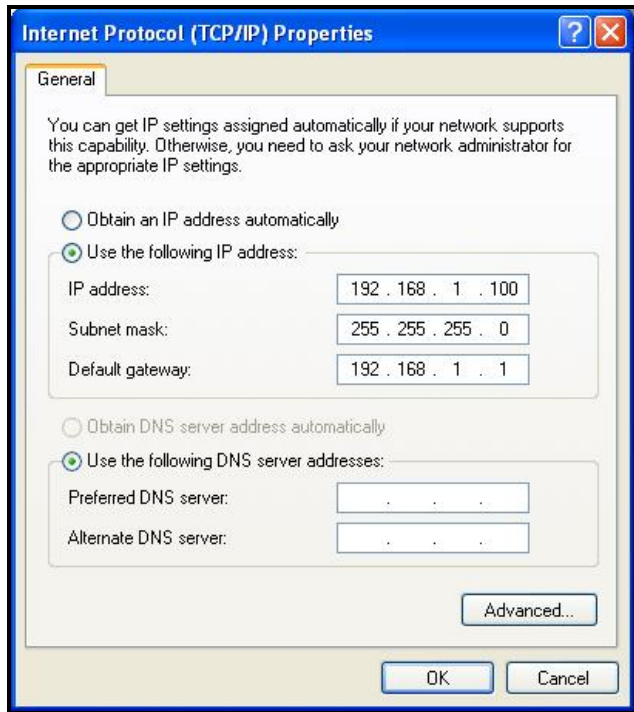
Applicable models:

24020C, 24024R, 48024RS, 48032RS

1. In the SRX-Pro Server, log in as the “i3dvr” user (master user). The default password is “i3dvr”.
2. Press Ctrl + Alt + Shift + F4 simultaneously on the keyboard and re-enter the password for confirmation
3. The SRX-Pro Server software will be closed and the Desktop will be displayed
4. Access the Start Menu, and open the Network Connections window
5. Right-click on the Local Area Network icon, and choose **Properties** from the context menu. Local Area Connection Properties window will be displayed.



6. Highlight the Internet Protocol (TCP/IP) and click on the **Properties** button. Internet Protocol (TCP/IP) Properties window will be displayed.



7. Select **Use the following IP address** radio button, and enter the static IP address, subnet mask and gateway. The gateway IP address is usually the internal IP address of the router. Fill in the DNS server fields if required (contact the Network administrator for this information)

**Note:** Make sure that that static IP address that you assign is not being used by another computer in the network.

8. Click **OK**. This will close the Internet Protocol (TCP/IP) Properties window.
9. Click **OK** again. This will close the Local Area Network Properties window, and will apply the appropriate IP address to the DVMS.
10. To verify that the IP address has been applied to the server, open the command prompt on the DVMS. To do so, go **Start -> Run....**Enter 'cmd' in the "Open" field.
11. The command prompt window will appear. Type "ipconfig" in the command prompt. The newly assigned IP address should be displayed.
12. To verify that the server is reachable on the internal network, go to **another PC / DVMS** in the network, and open up a command prompt. Type "ping <IP ADDRESS>", where <IP ADDRESS> is the IP address of the first DVMS. In our example, you would type "ping 192.168.1.100". You should get 4 successful responses.
13. Provided the successful responses have been received, the DVMS can now be reached through the internal network. If the DVMS needs to be reachable over the Internet, port forwarding needs to take place on the router. (See corresponding section for more information)

## Operating System: Embedded XP

Applicable Models:

UL 6010/UL6016, PL12010/PL12016

The default Windows user "i3dvr" has limited privileges. In order to access the Network settings, first log out of the default account, and login as the Administrator.

1. Log into the SRX-Pro (Ultra) Lite Server software as the "i3dvr" user.
2. Press Ctrl + Alt + Shift + F4 simultaneously on the keyboard and re-enter the password for confirmation
3. The SRX-Pro (Ultra) Lite Server software will be closed and the Desktop will be displayed
4. When the software is closed, press Ctrl + Alt + Scroll Lock simultaneously on the keyboard. Windows Security Dialog window will be displayed.
5. Click on **Log Off**.
6. When the Login screen appears, enter "Administrator" for the user name and "Tech Support" for the password. Note: The password is case-sensitive.
7. Upon successful login, the SRX-Pro splash screen will be displayed and SRX-Pro (Ultra) Lite Server software will be loaded.
8. Once the SRX-Pro software has successfully loaded, log in as the "i3dvr" user and close the application again by pressing Ctrl + Alt + Shift + F4 simultaneously on the keyboard.
9. Click on the Start Menu, and click on the Network Connections.
10. Repeat Steps 5-13 from the previous section.

With any questions, please contact our technical support at 1.877.877.7241 or [support@i3dvr.com](mailto:support@i3dvr.com)

Thank you very much for your attention and cooperation.  
Best regards,



**Olga Alexeenko**  
Training Coordinator  
1.416.261.2266 x135  
[oalexeenko@i3dvr.com](mailto:oalexeenko@i3dvr.com)