Using PortVision DX to Update DeviceMaster Firmware

This manual contains the **basic** steps necessary to completely update NS-Link or SocketServer firmware and Bootloader in the DeviceMaster using PortVision DX. The same procedures are used for installing all of the other available firmware.

In the event a failure of these procedures is experienced, it is recommended that Comtrol Technical Support be contacted for additional assistance. This document does not include instructions for configuring security in the DeviceMaster.

This manual will show step-by-step instructions for this procedure when using the Microsoft Windows Operating Systems.

This manual contains no explanations for the procedures outlined here. For full information and details, please see the DeviceMaster user guide and the DeviceMaster NS-Link user guide.
DeviceMaster user guide: ftp://ftp.comtrol.com/dev_mstr/rts/docs/dev_mstr_install_guide.pdf
DeviceMaster NS-Link user guide:
ftp://ftp.comtrol.com/dev_mstr/rts/docs/devicemaster_windows_mgmt_console_userguide.pdf

For new installations see all of the chapters. For an update situation you may already have PortVision DX installed and IP addresses assigned to the DeviceMaster. If that is the case, you may skip some of the chapters as desired, but it is recommended that you save your DeviceMaster configurations in any event.

Please note: *Screen shots showing version numbers will not be correct and are shown as examples.*

Begin by downloading the desired files by clicking on the links and saving to a convenient directory.
PortVision DX: ftp://ftp.comtrol.com/contribs/devicemaster/driver-packages/previous/PortVision_DX_3.05.msi
Bootloader: ftp://ftp.comtrol.com/dev_mstr/rts/software/bootloader/   (select the .cmtl file)
SocketServer: ftp://ftp.comtrol.com/dev_mstr/rts/software/socketserver/   (select the .cmtl file)
*Please note: The extension of the file name has been changed to **.cmtl** instead of **.bin.** **PortVision DX version 3.04 or greater MUST be used with these extensions!***
SocketServer and NS-Link have been incorporated into a single cmtl file. By default, once loaded, the file will show SocketServer in both the web page and PortVision DX until a driver begins communication with this DeviceMaster. Once a driver establishes communications, the firmware will now 'automatically' indicate that it is NS-Link.

Common Application Firmware files for the DeviceMaster UP are also available and may be downloaded from the Comtrol web site: www.comtrol.com

You may also use this link to download files:
ftp://ftp.comtrol.com/html/default.htm

It will be necessary that the PC and the DeviceMaster both have static IP addresses assigned so as to allow full IP communications. Ideally this will be a direct connection between the PC and the DeviceMaster in which case DHCP will not be able to assign IP addresses to either the PC or DeviceMaster. If the update procedure fails, it **will** be necessary to have IP addresses assigned to both the PC and the DeviceMaster. If the DeviceMaster is to be updated while attached to a network, the Bootloader Timeout value may have to be modified which can only be done using IP communications.

Please note: It is mandatory that all security protocols on the DeviceMaster be ***disabled*** before beginning this procedure. If desired, after completion, the secure config, and/or, data options, may be reselected from the DeviceMaster home page > Configure Security options. Do not select the 'Secure Data' mode as this is not compatible with the drivers prior to version 10.10.
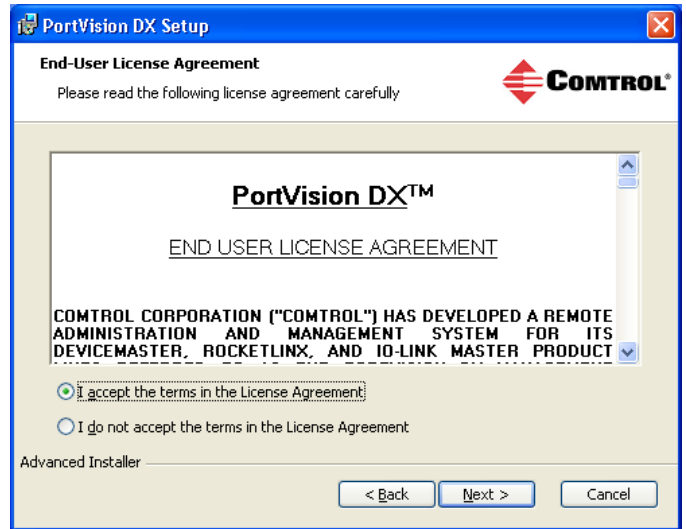
PortVision DX Installation
Back to top

If a previous version of PortVision Plus or PortVision DX is currently installed, uninstall it by going to Control Panel>Add or Remove Programs. Select PortVision from the list and click on 'Remove'. Close Add or Remove Programs.
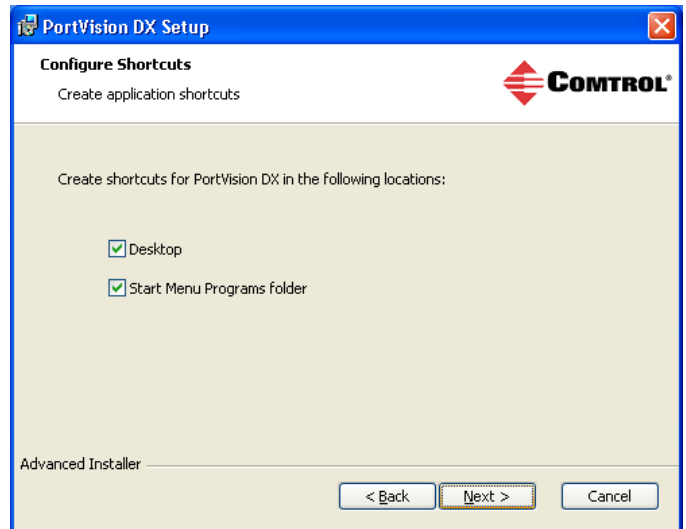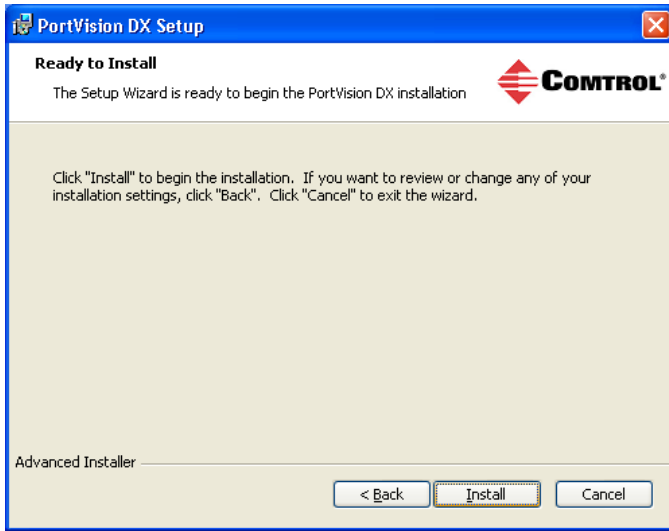Run the PortVision_DX_3.05.msi file going with default options.
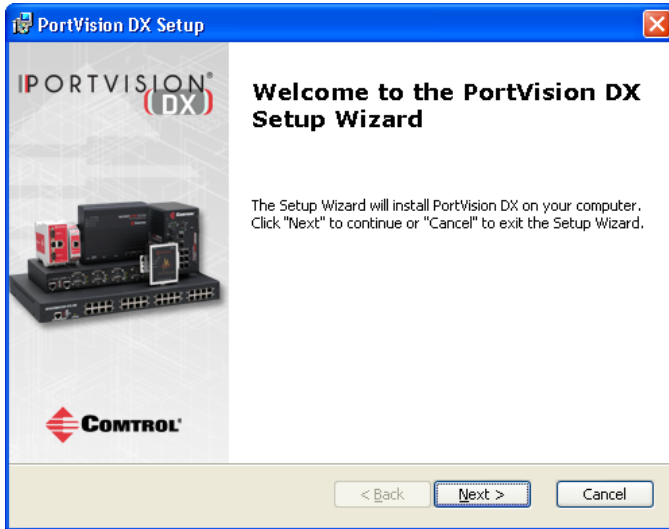
Select Next
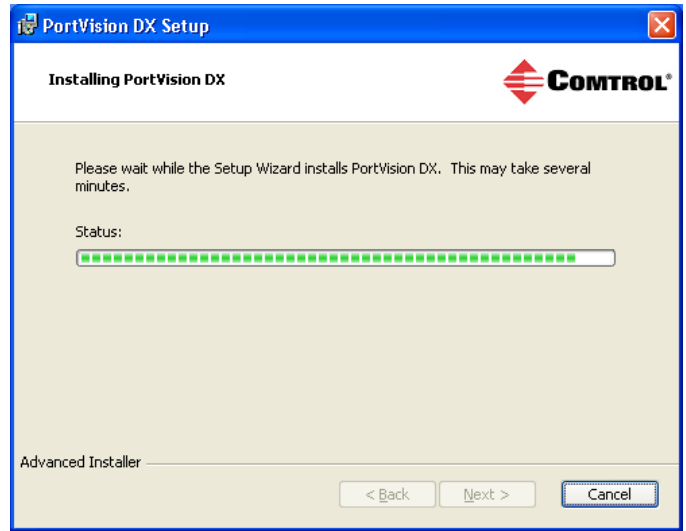

Select the "I accept…" and click 'Next'
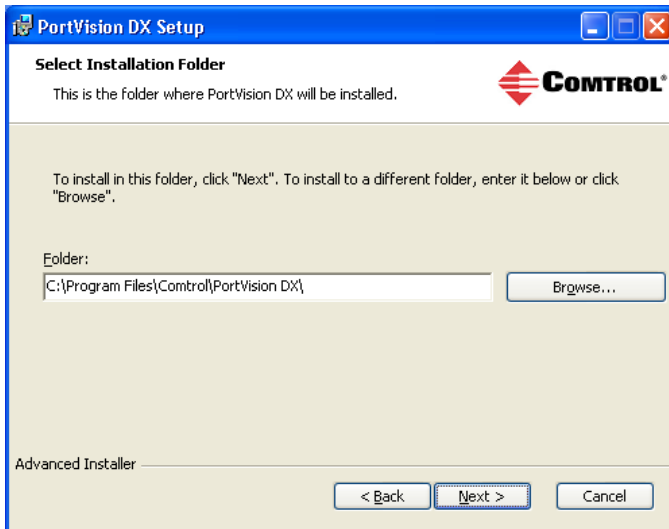
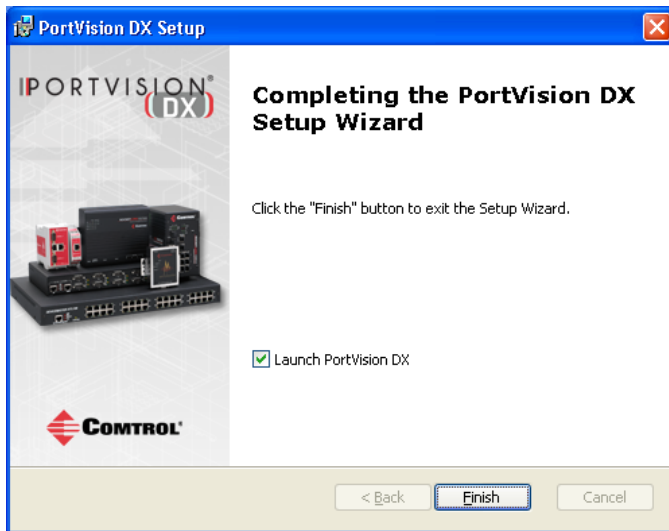Accept the default and click 'Next'

You will get the option to create a desktop shortcut and a Start Menu Programs Folder.
Select Next

2

Select Install

Files will now copy and the application will register itself to the system

Click Finish

PortVision DX

You will now have a PortVision DX icon on the desktop

You may launch PortVision DX by using the desktop icon or from the Start menu.

3

Connect the PC and the DeviceMaster(s) to the same switch whenever possible or connect an Ethernet patch cable directly from the NIC in the PC/laptop to the DeviceMaster. If the DeviceMaster has both an UP and DOWN Ethernet port, connect the patch cable to the DOWN port when direct connecting from the DeviceMaster to the PC

Please note: Do not set any security options on the DeviceMaster until scanned into PortVision DX as doing so will prevent PortVision DX from being able to scan the network, modifying the settings or upload firmware for that DeviceMaster.

Please note: If you are already familiar with PortVision Plus, please note that PortVision DX is an all new application designed to work with and manage the complete line of Comtrol products. Later in this guide I will include a screen shot of some of the ways PortVision DX can display all of these other products. For full information and help with PortVision DX please see the user manual. In this guide we will be concerned with using it only with the DeviceMaster line of products.
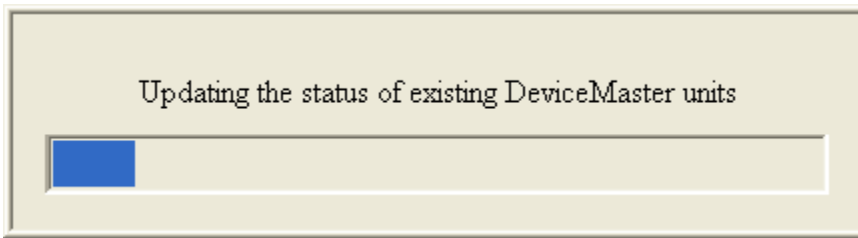
Start PortVision DX
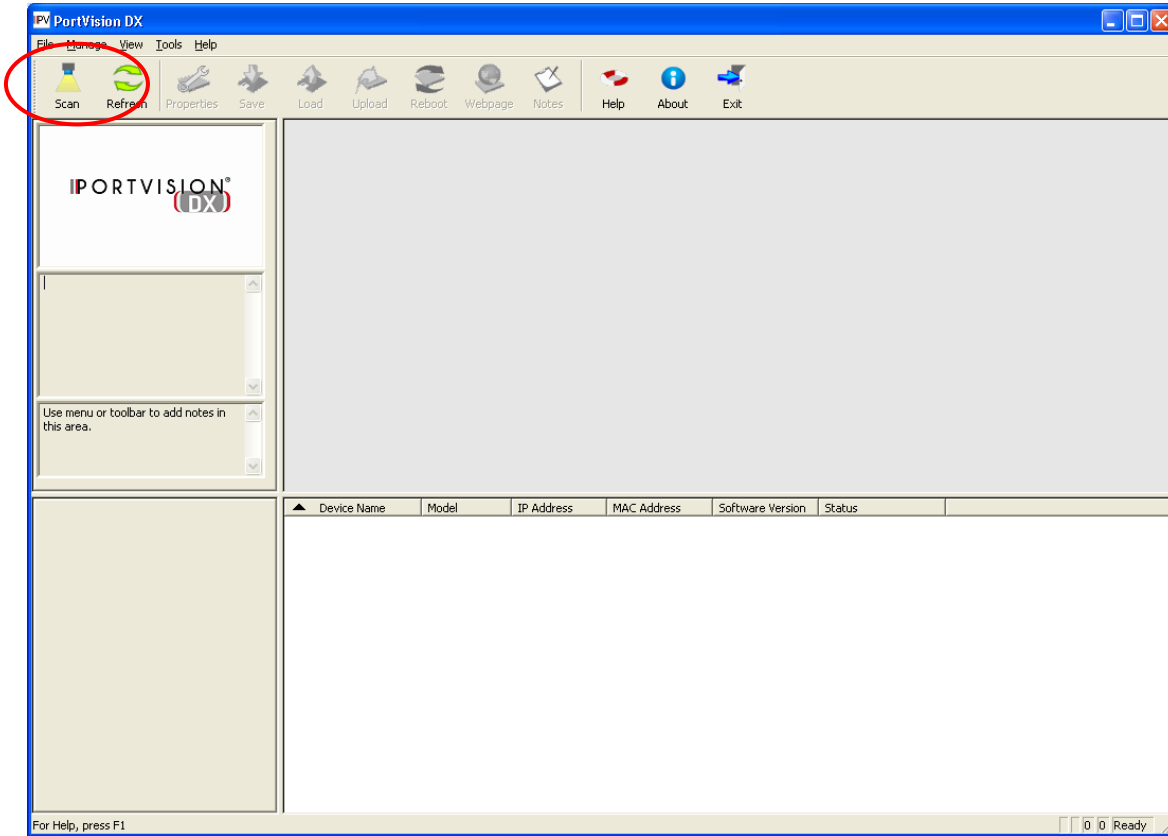

Select the "Scan" icon on launch bar.
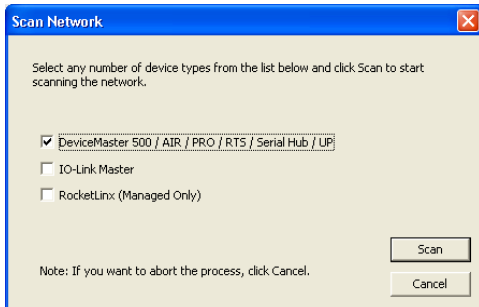
PortVision DX will works with more than just DeviceMaster models. Comtrol's IO-Link Master products and also Comtrol Switches can be managed in PortVision DX. Here we will be concerned only with DeviceMaster models, so we will select only the DeviceMaster 500 /Air / PRO /RTS / SerialHub / UP option as seen here. If you have any of Comtrols switches or IO-Link Master products, please feel free to select them at this time.

Select Scan

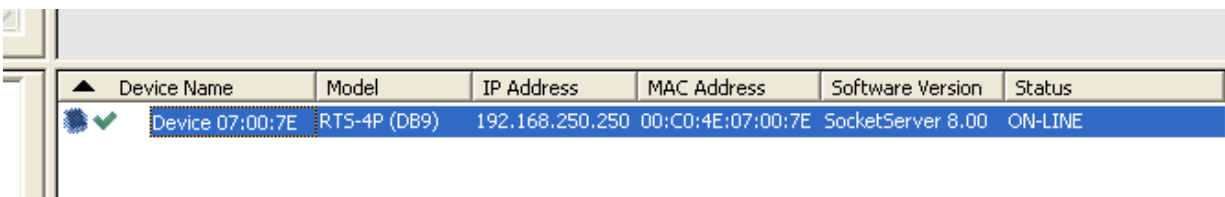Updating the status of existing DeviceMaster units

PortVision DX will now Scan for the different devices selected. Please be patient as this may take a couple of minutes depending on the number of Comtrol products selected and available on your system

Your line item(s) may be slightly different depending on the hardware, version of software, IP address assigned, etc. Note the IP address. You will be using telnet to communicate to the DeviceMaster. The IP address must be compatible with the IP address assigned to the PC. If you do not see the DeviceMaster listed, click the "Scan" icon on the launch bar.
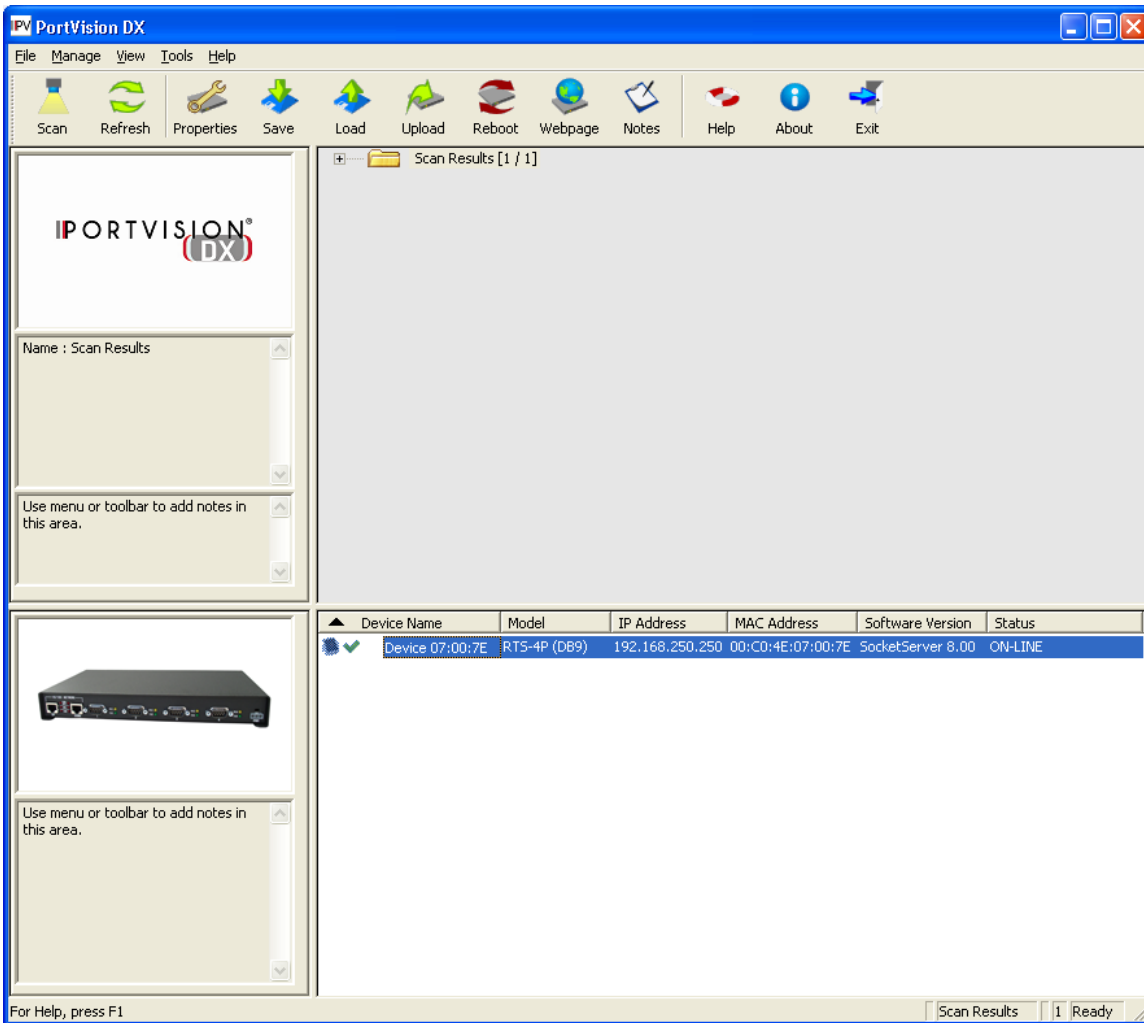

The graphic will show a picture of the model of the device highlighted.
In the highlighted line you will see the major details of this DeviceMaster
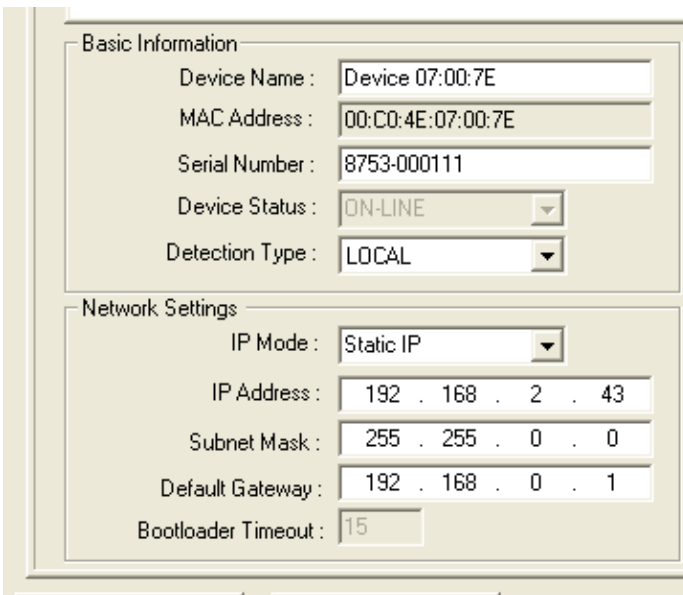
	Device Name	Model	IP Address	MAC Address	Software Version	Status
✱✓	Device 07:00:7E	RTS-4P (DB9)	192.168.250.250	00:C0:4E:07:00:7E	SocketServer 8.00	ON-LINE

Configure the DeviceMaster's IP information

Highlight the line item and then "Double Click" it to open the IP programming pages.
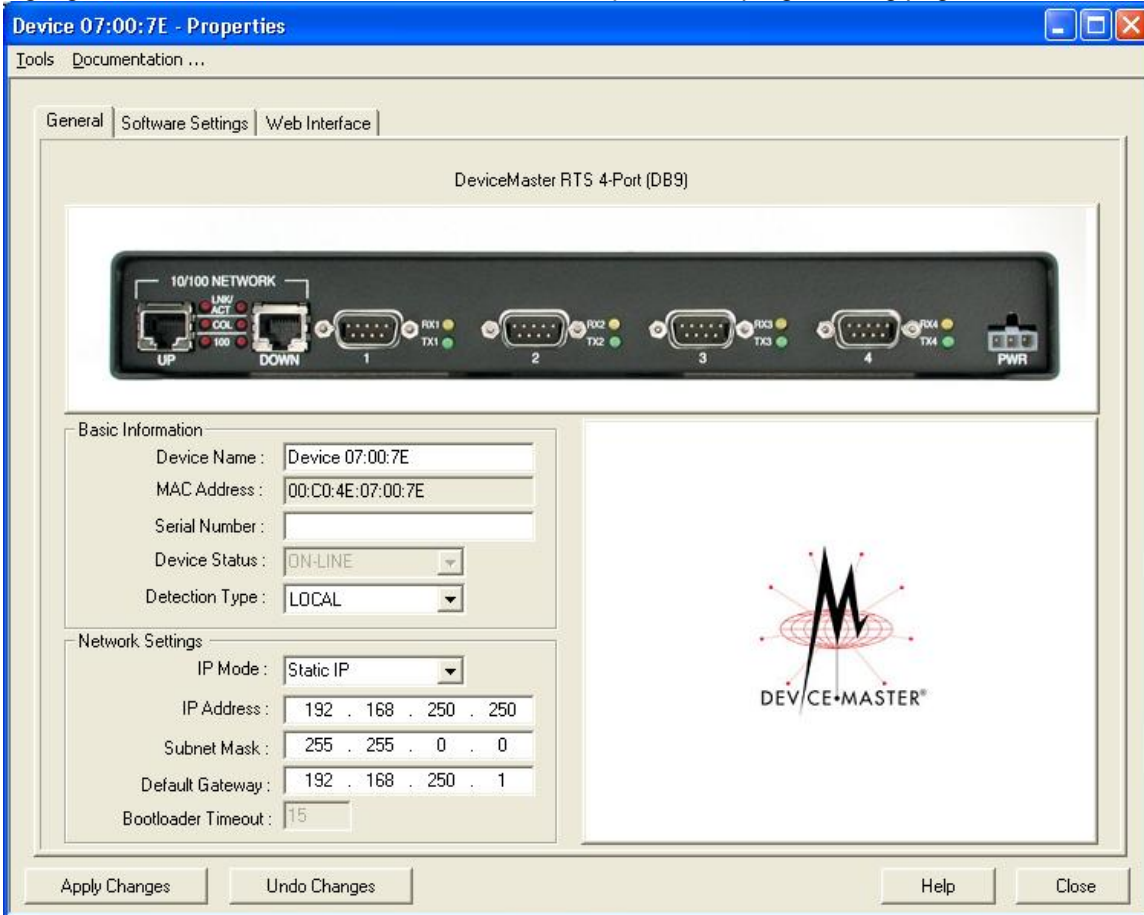
The IP Programming window will open.

Device name may be changed to something more user friendly such as the location the DeviceMaster will be placed.

You may manually enter the **Serial Number** of the DeviceMaster for future reference. The serial number is not discoverable by PortVision DX.

Local indicates that the DeviceMaster is on the same physical Ethernet segment as PortVision PortVision DX and MAC mode communications will be used.

Set the **IP Address, Subnet Mask** and **Default Gateway** to be compatible with your network. IP Communications will be required for later

Change the IP information to match to the desired network. In this example, the IP address to be used will be 192.168.2.43 as my PC has IP address 192.168.2.10. Once the values have been entered, select 'Apply Changes' and then select 'Close'. The DeviceMaster will now reboot to set the new IP information.

The new IP address should now display and the DeviceMaster should show as ON-LINE once PortVision DX refreshes itself. You may also Right Click the DeviceMaster and select "Refresh Device" instead of waiting fo PortVision DX to poll.
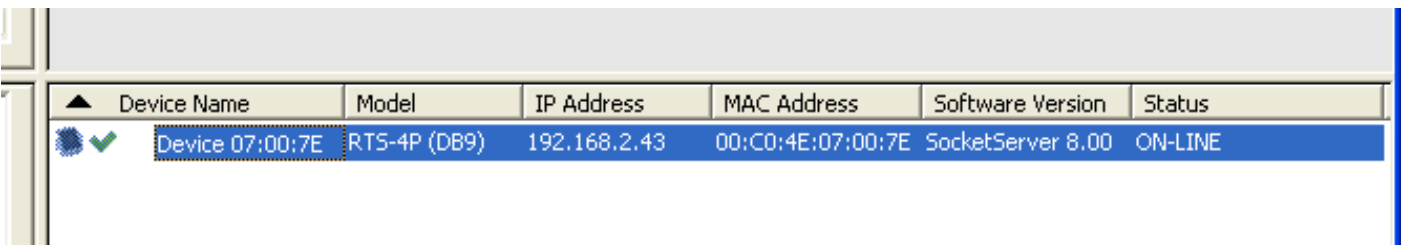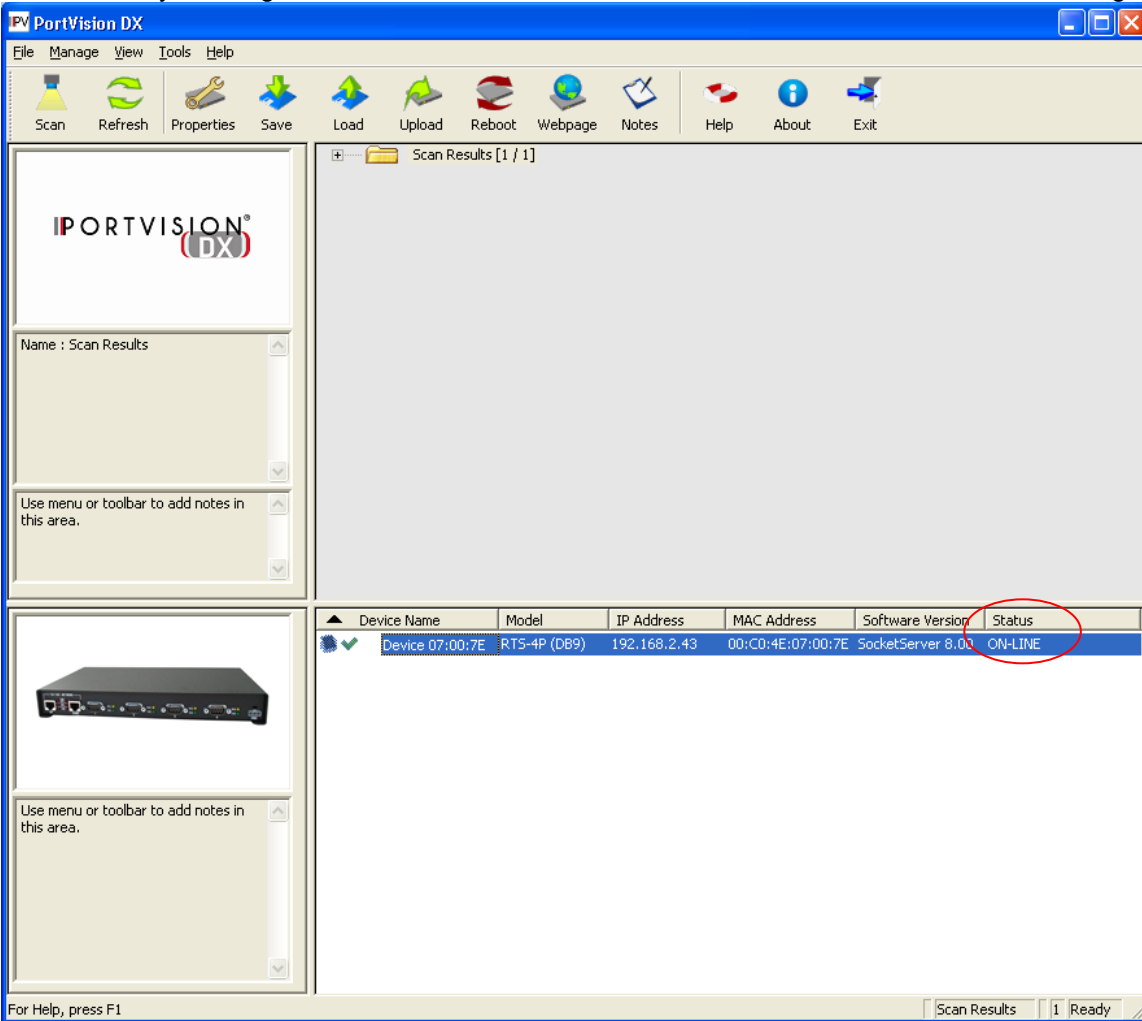
Note the details displayed. The new IP address is now displayed. If any of the columns are blank, then PortVision DX is not in full communications with the DeviceMaster. If this should be the case, please call Comtrol Tech Support at 1-763-957-6000 and ask for your support representative.

Setting the Bootloader Timeout Value in the DeviceMaster
Back to top

If this is a new DeviceMaster with a new installation, skip this chapter and proceed to Updating the Firmware.
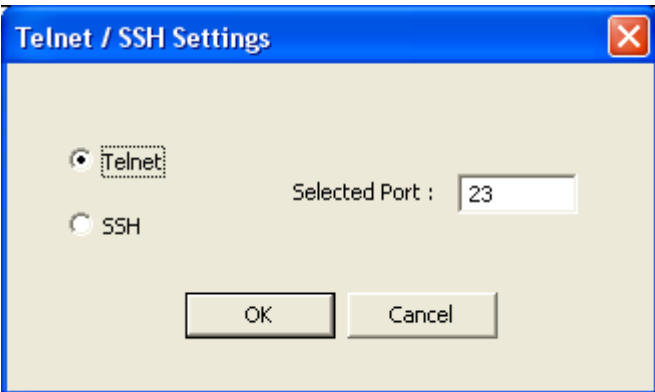If this is an update of a previous installation, please continue.

Highlight the line item as shown *(version numbers shown in screen shots will not be current)*


Right Click on the DeviceMaster and select "Telnet / SSH Session" from the pop-up menu.
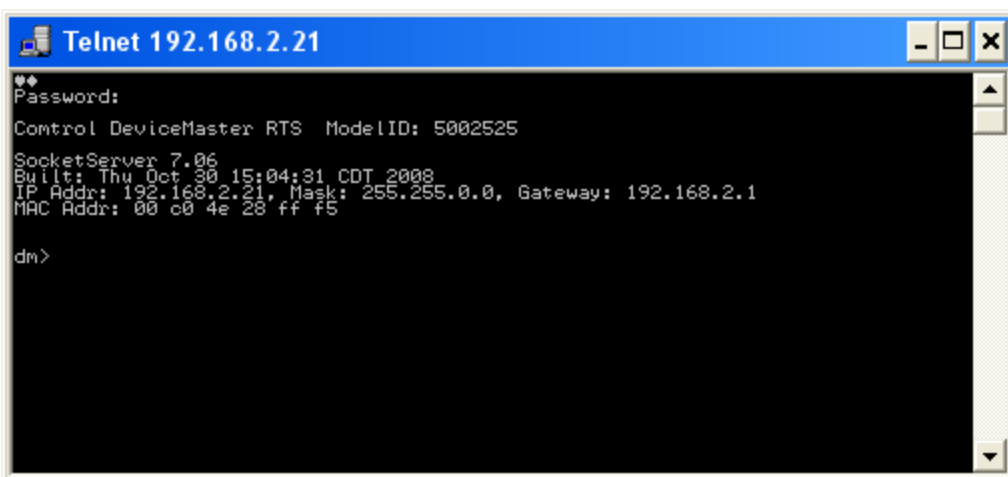

Click "OK" leaving the Selected Port set to the default 23.

A Telnet window will open to a Password prompt as shown on the next page.
Please note: The following screen shots are shown using the telnet application included in WindowsXP.
PortVision Plus now includes PUTTY as the telnet application as there are now several versions of Windows that do not, by default, install the telnet application. This difference will not affect the text seen in the window.

8

Please note: Version numbers displayed will be different than shown in these examples.


```
Telnet 192.168.2.21                          - □ ×
♥◆
Password: _
```
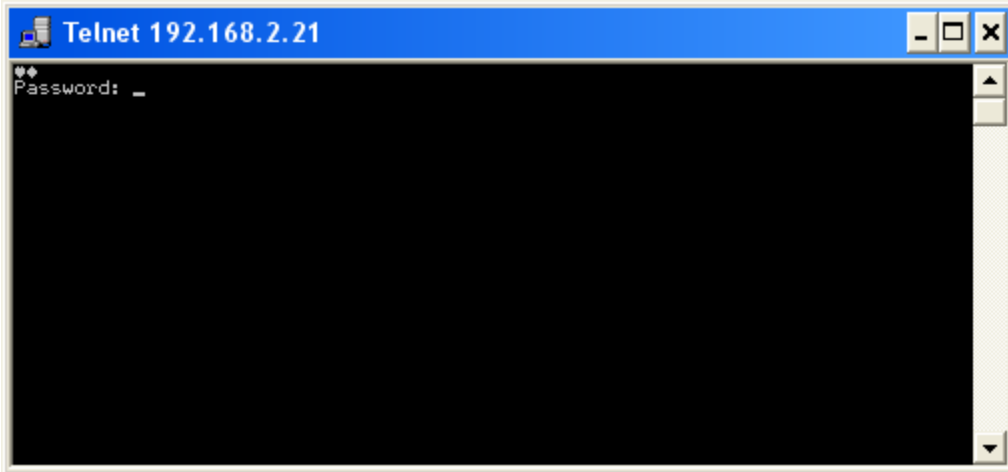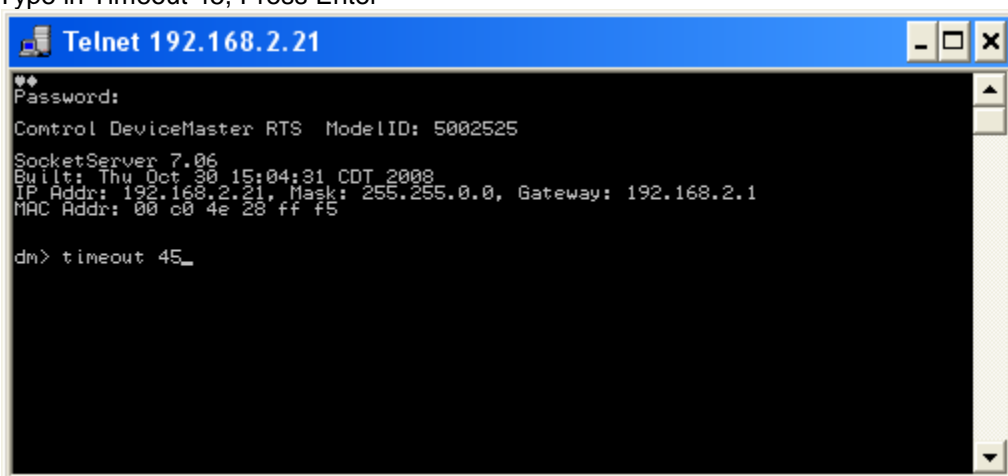
If no password has been assigned, press the 'Enter' key. If a password has been assigned to this DeviceMaster enter the password and press the 'Enter' key.


```
Telnet 192.168.2.21                          - □ ×
♥◆
Password:

Comtrol DeviceMaster RTS   ModelID: 5002525

SocketServer 7.06
Built: Thu Oct 30 15:04:31 CDT 2008
IP Addr: 192.168.2.21, Mask: 255.255.0.0, Gateway: 192.168.2.1
MAC Addr: 00 c0 4e 28 ff f5

dm>
```
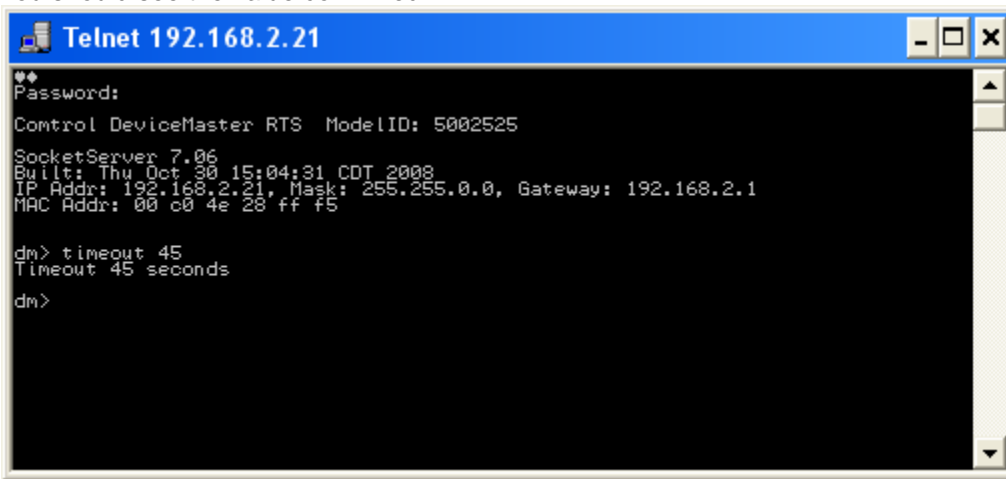
You should now see something like the screen above. The prompt may indicate dm> or RedBoot>. Either prompt is acceptable.
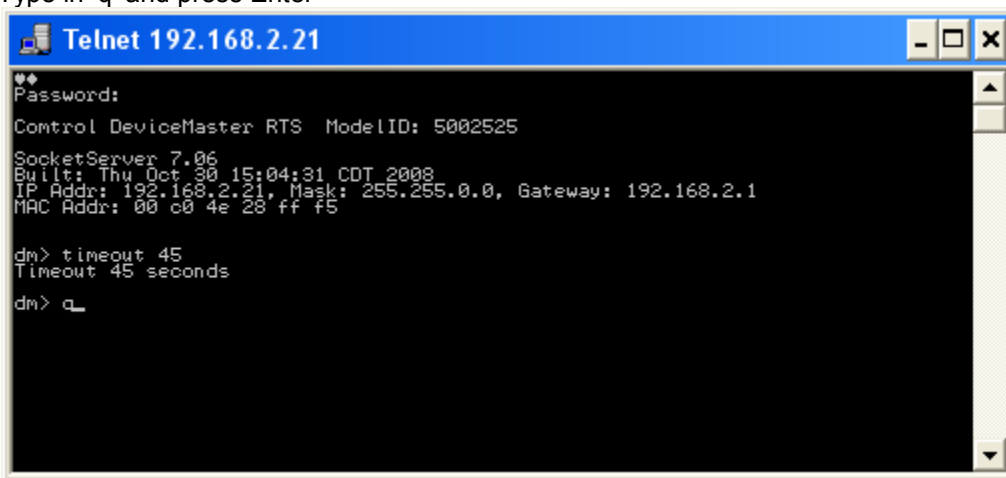
Type in Timeout 45, Press Enter


```
Telnet 192.168.2.21                          - □ ×
♥◆
Password:

Comtrol DeviceMaster RTS   ModelID: 5002525

SocketServer 7.06
Built: Thu Oct 30 15:04:31 CDT 2008
IP Addr: 192.168.2.21, Mask: 255.255.0.0, Gateway: 192.168.2.1
MAC Addr: 00 c0 4e 28 ff f5

dm> timeout 45_
```

9

You should see the value confirmed

Type in 'q' and press Enter

The Telnet window will close.

Updating the Firmware

This procedure is based on the DeviceMaster being directly connected to the PC using an Ethernet cable. A standard straight-through patch cord connected to the PC will be required. If the DeviceMaster has both an UP and DOWN Ethernet port, connect the Ethernet cable to the DOWN port which has a crossover built into it. If the DeviceMaster has only a single Ethernet port, it is smart enough to detect the type of cable used.

Please note: The SocketServer and NS-Link firmware files have been incorporated into a single bin (binary) file (called socketserver-9.36.cmtl). By default, once loaded, the file will show SocketServer in both the web page and PortVision DX until a driver begins communication with this particular DeviceMaster. Screen shots will show .bin extensions. Where ever a .bin extension is seen, substitute .cmtl. The screen shots have not yet been updated to show this change.

Once a driver establishes communications, the firmware will now immediately indicate that it is NS-Link without the driver having to upload a different firmware file to the DeviceMaster, or the DeviceMaster being rebooted, as in the past. This provides much faster driver initialization and recovery times.

If SocketServer does not change to NS-Link, then a driver loaded in the PC is NOT in communication with the DeviceMaster. (Additional information is included in the Firmware_ReadMe.txt)

Return to PortVision DX.
Your line item (highlighted entry) may be slightly different depending on the hardware, version of software, IP address assigned, etc.
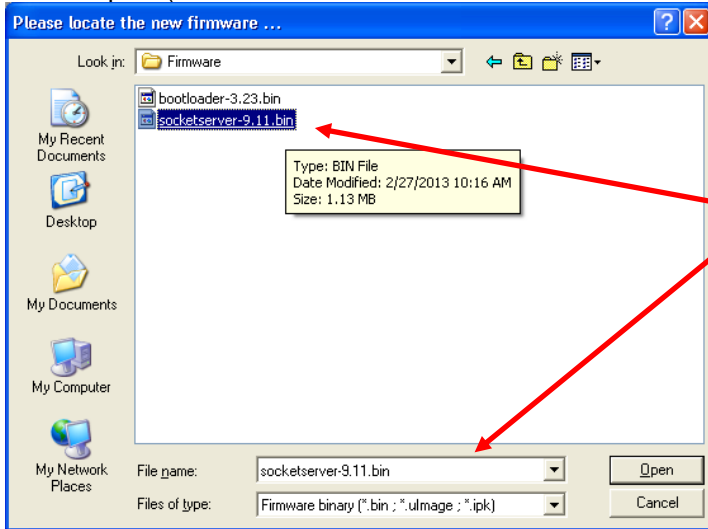Highlight the line item and select the 'Upload' icon from the launch bar.
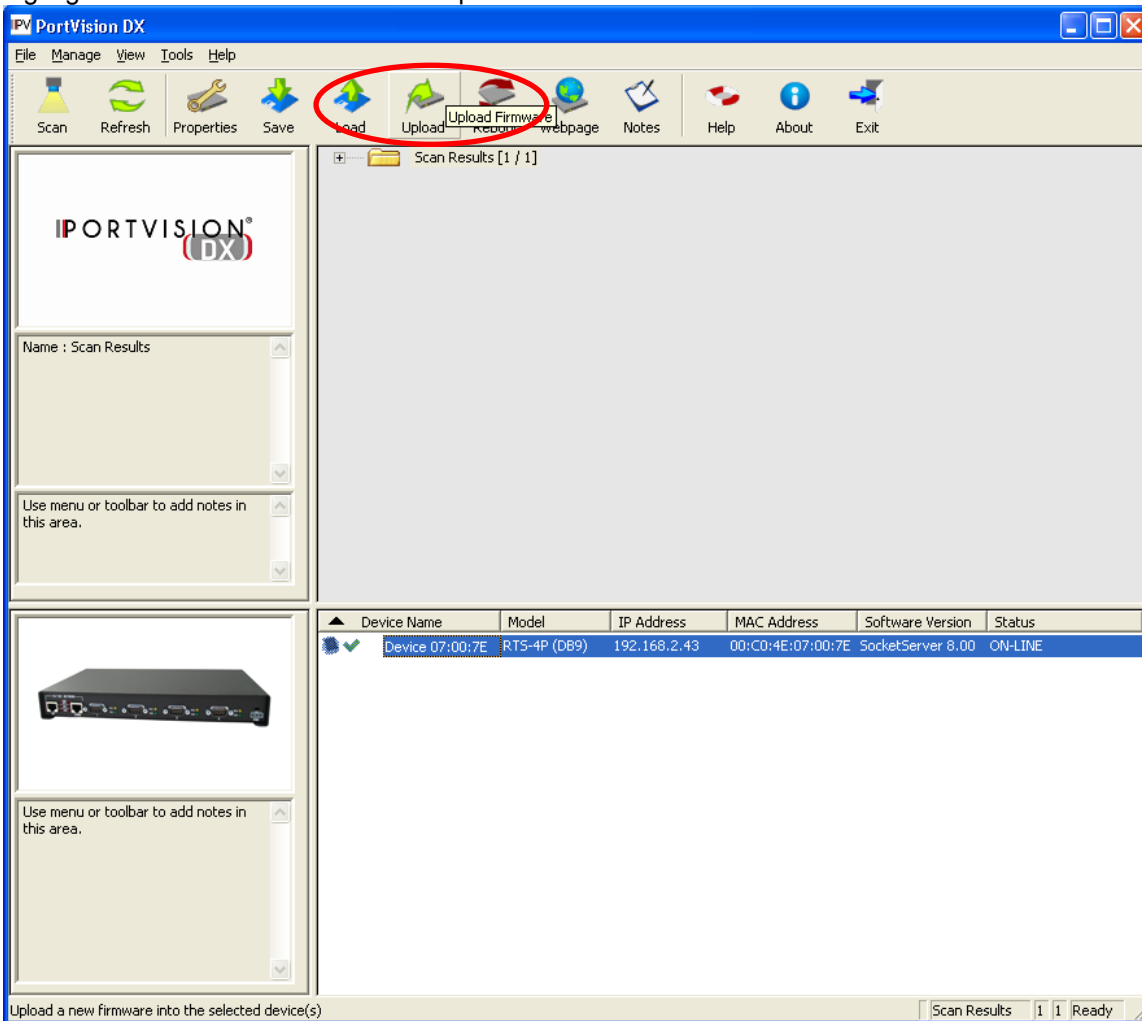
With the mouse hovering over the 'Upload' icon you will see displayed Upload Firmware

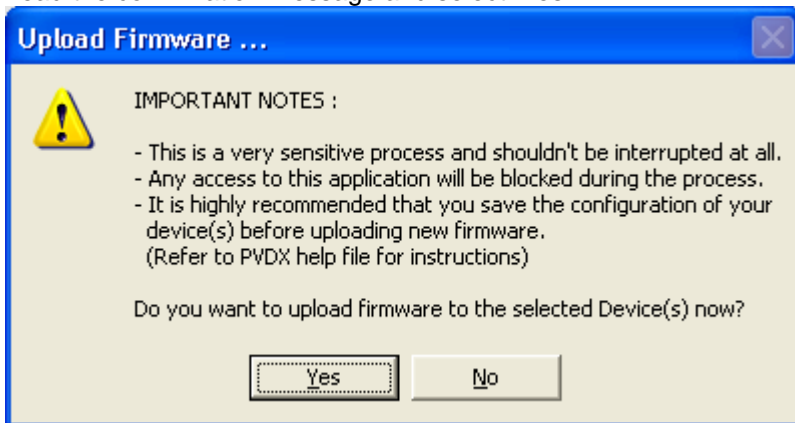Path out to the SocketServer-9.36.cmtl file location.
NOTE: Upload the SocketServer-9.36.cmtl file FIRST! This is critical!

Select 'Open' (note: screen shots will not show current versions)

Remember, .bin is to be replaced by .cmtl

Read the confirmation message and select 'Yes'

During this process you may receive notifications from the Windows Operating System that
the Ethernet connection has been lost or that a network cable is unplugged.
This is normal and expected so please disregard these notices.

During the process of PortVision DX uploading the firmware you may see several pop-up dialog boxes informing you of
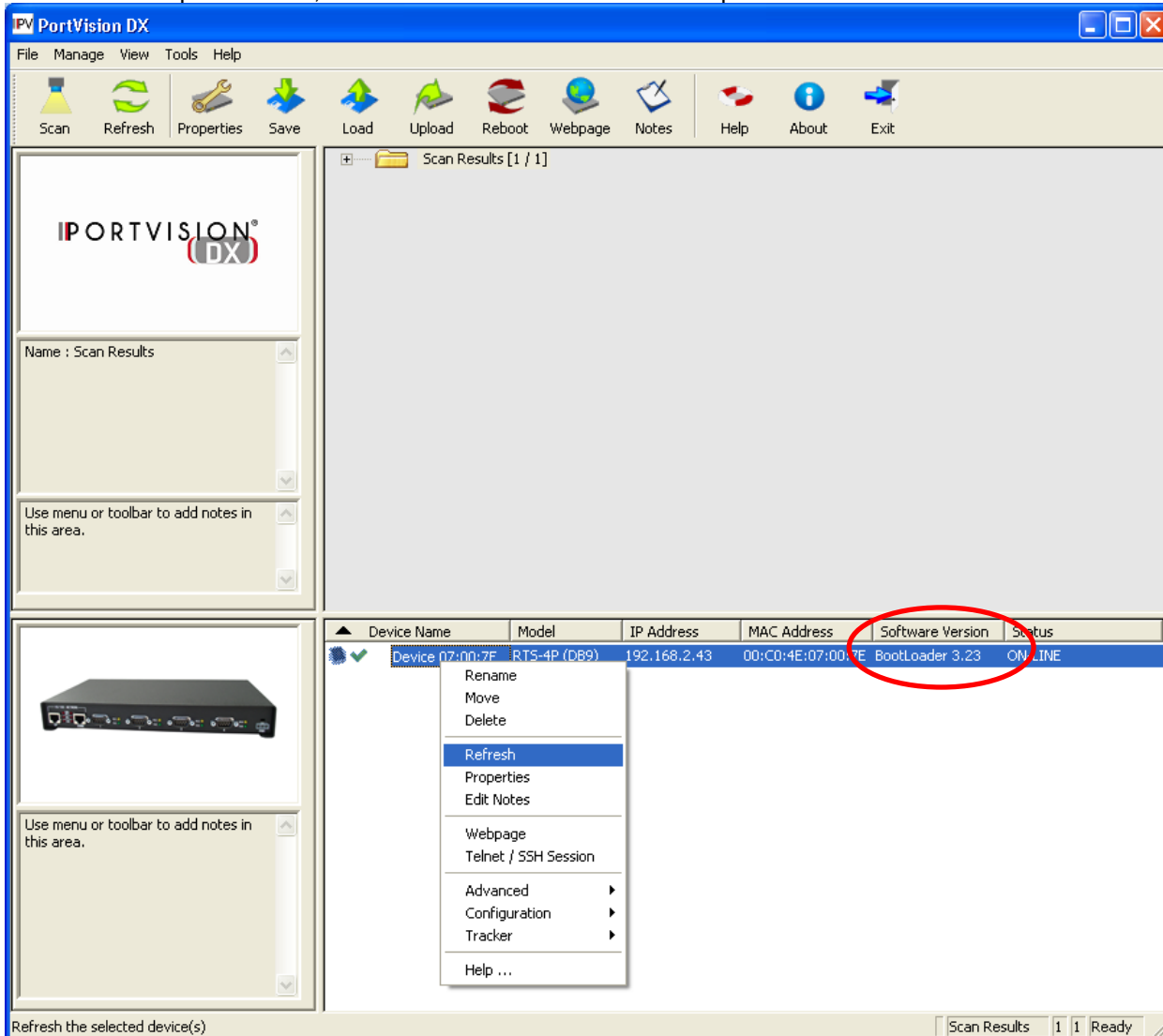the state of the process.
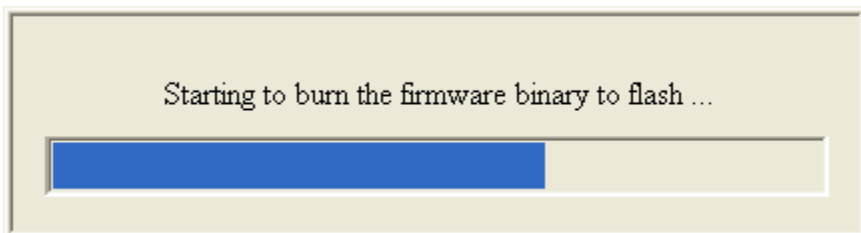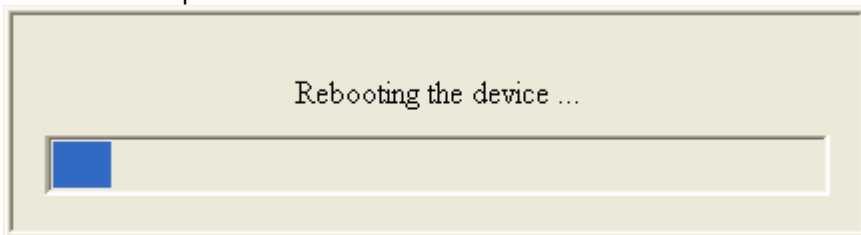
Once uploading has completed the following screen will show.

Click 'OK'

If you now right click on the DeviceMaster and select "Refresh" from the pop-up menu, you may see the Software Version show a version of Bootloader.
If this version is prior to 3.39, then the Bootloader file should be updated.

By default PortVision DX will only refresh itself every 120 seconds. You may manually refresh it as often as you like to see the current status in order to see Bootloader displayed with its version number.

Once the SocketServer-9.36.cmtl has uploaded you should see this screen. Note the highlighted line item details. The Software Version column should now indicate **SocketServer 9.36** and the status should be ON-LINE. Refresh as necessary until the update is shown. (note: screen shots will not show current versions)
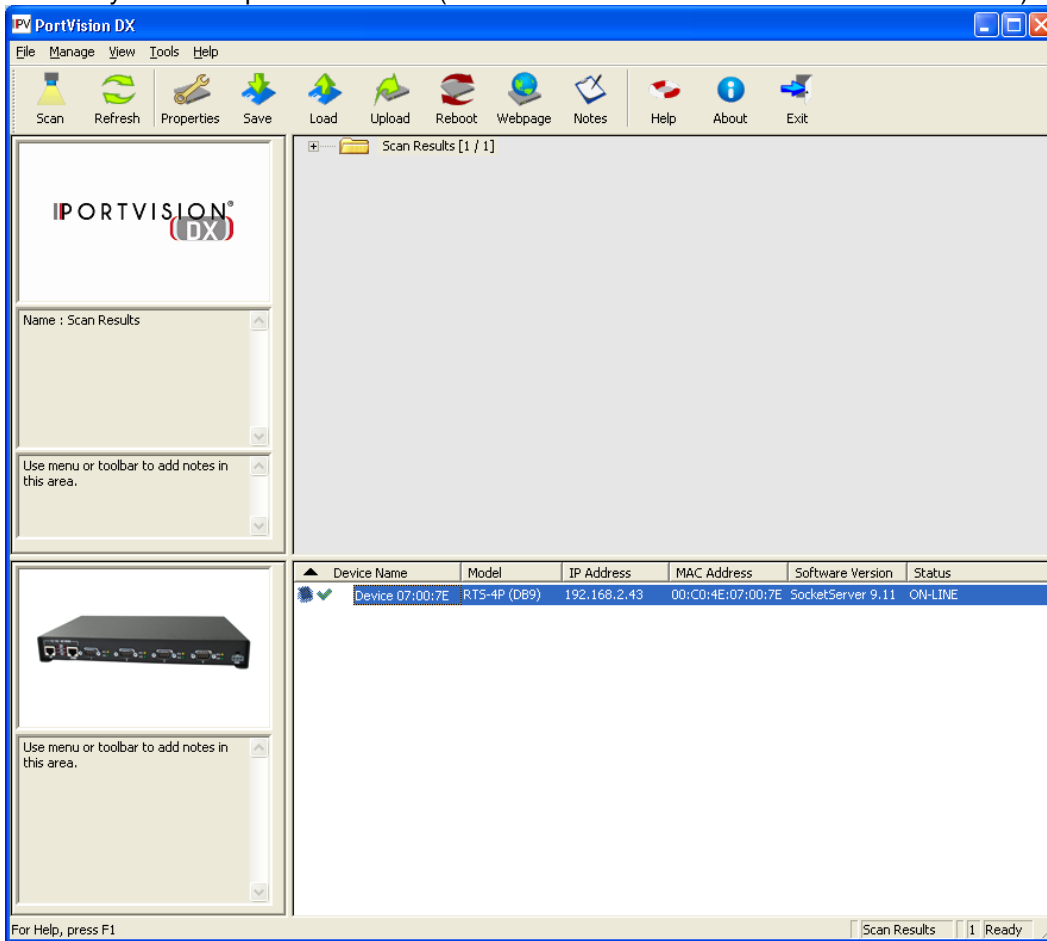

If the upload failed for any reason, repeat the process for SocketServer-9.36.cmtl until success is achieved.
NOTE! If the SocketServer-9.36.cmtl upload failed for any reason DO NOT ATTEMPT TO LOAD BOOTLOADER!
Immediately call Comtrol Technical Support at 763-957-6000 for instructions.
If the upload was successful, continue to the next step.

The procedure for uploading Bootloader is exactly the same as done with SocketServer. The only difference will be the name of the file selected for upload.

Uploading of Bootloader should only be done when the DeviceMaster is directly connected from the network port on the DeviceMaster to the network port on the PC. Failure to do it in this manner may result in a DeviceMaster that is no longer usable and would need to be returned to Comtrol for reflashing. This is not the case with SocketServer. Do not attempt uploading Bootloader across a WAN or wireless connection under any circumstance. If you find yourself in a situation where firmware needs to be updated and when you cannot connect directly, you may see another method designed for this in the document downloaded from this link:
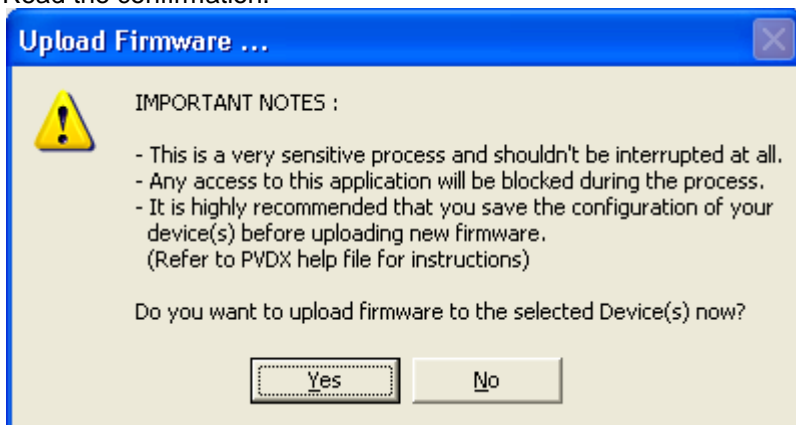ftp://ftp.comtrol.com/contribs/devicemaster/help_files/firmware_update_tftp_instructions.pdf

Highlight the line item in PortVision DX and select 'Upload Firmware' from the launch bar.
Path to the Bootloader-3.39.cmtl file. (note: screen shots will not show current versions)
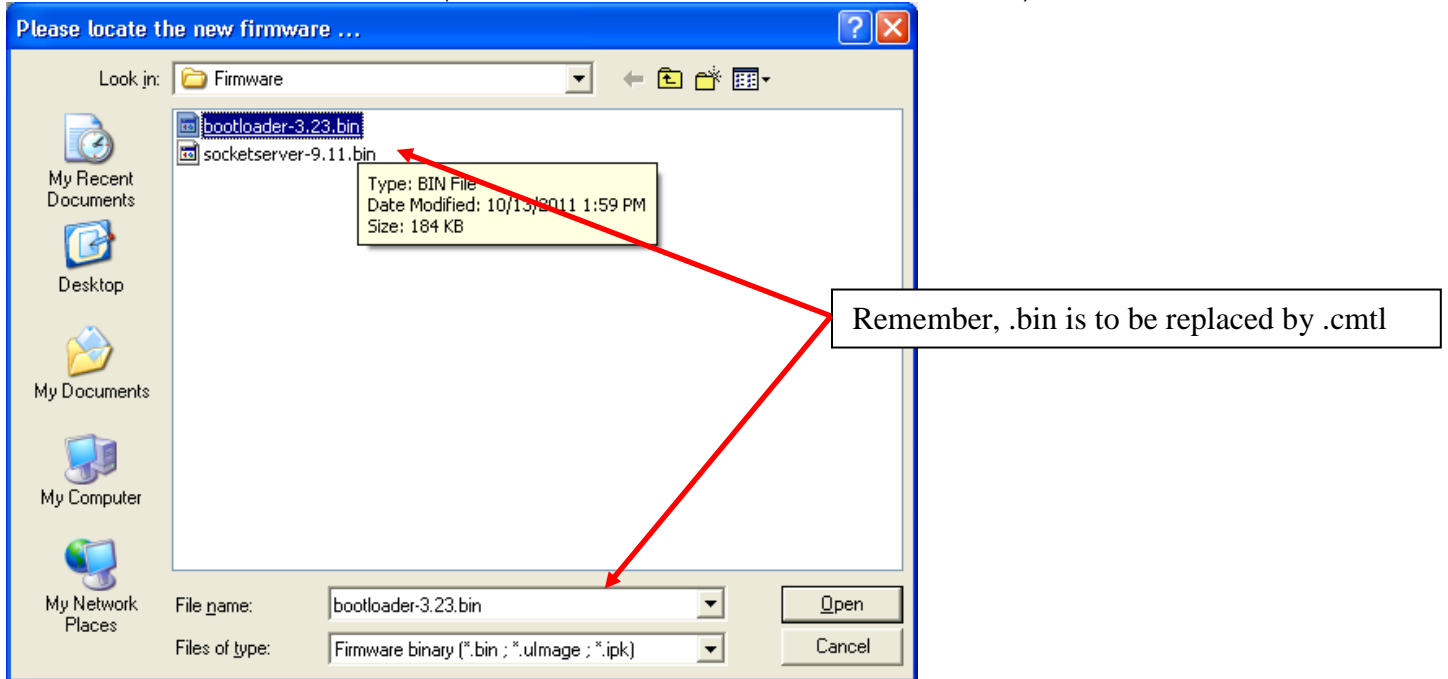

Click 'Open'

Read the confirmation.

Click 'Yes'

During this process you may receive notifications from the Windows Operating System that
the Ethernet connection has been lost or that a network cable is unplugged.
This is normal and expected so please disregard these notices.

You should see the status bar again in PortVision DX proceeding.

Once completed the following screen will show.
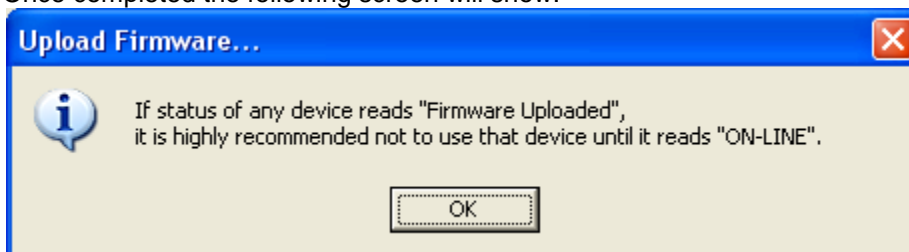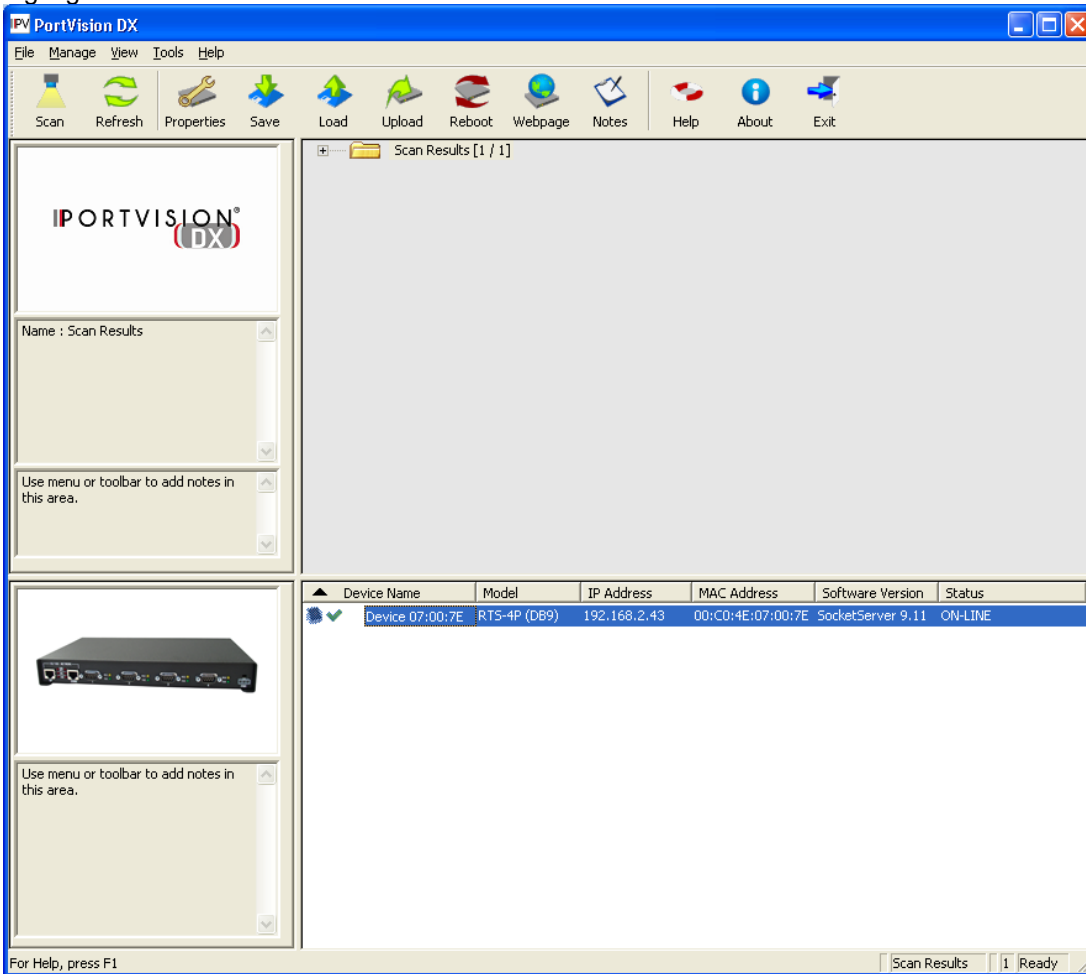

Click 'OK'
Firmware Updates are now complete.
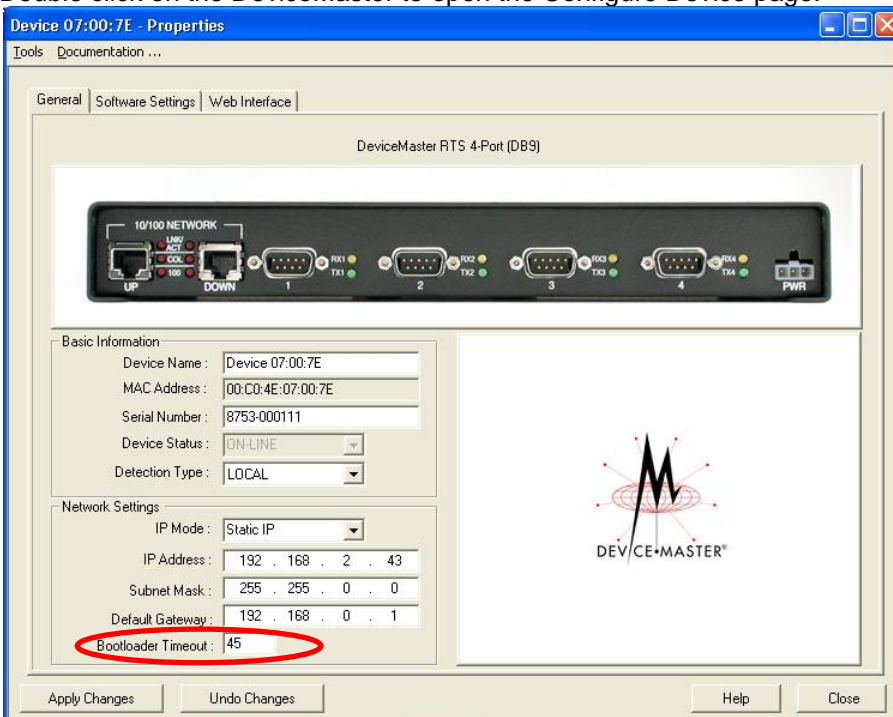Repeat for additional DeviceMaster's as necessary.

Resetting the Timeout Value in the DeviceMaster to 15 seconds

Highlight the line item as shown.

Double click on the DeviceMaster to open the Configure Device page.

Change the Bootloader Timeout value to 15. (Optional: Setting this value to 1 will speed up booting and recovery times in the event of a reboot of the DeviceMaster.)

Click "Apply Changes" and "Close". The new Bootloader Timeout setting will take effect on
the next reboot of the DeviceMaster.

Repeat for additional DeviceMasters as necessary.

Instructions Revision History

Version 1.02
Replaced references of .bin to be .cmtl
Updated version numbers in text.
Added warnings about using PortVision DX 3.04 with .cmtl files

Version 1.01
8/8/2014
Changed the IP Configuration instructions.

Version 1.0
Initial release 12/10/2013

Mac Harned
Mac.harned@comtrol.com
Senior Technical Support Engineer