

WSNetServer User Manual

Date: July 13 2003

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1 Revision History

2 Introduction

The Windows application "WSNetServer.EXE" is an address boot server for the Ethernet XY controllers and the D51, D9 and G9 mixer surfaces. The network address server maintains a table of mappings from device MAC address to device IP address. When one of the previously mentioned devices boots up it will send an Ethernet broadcast to the network server. If the network server has an entry matching the device, the server will assign an IP address to that device. The server will also assign other settings to the device such as device name, subnet mask, cross point broadcast port number, and in the case of an X or Y controller the signals that the controller will switch.

3 Installation

The WSNetServer.EXE file does not need a windows installer. It may be copied to any directory on a Windows PC, and executed directly from that location or through a shortcut.

4 Normal Operation

4.1 Startup

When the network server is started for the first time you will see the window shown in Figure 1.

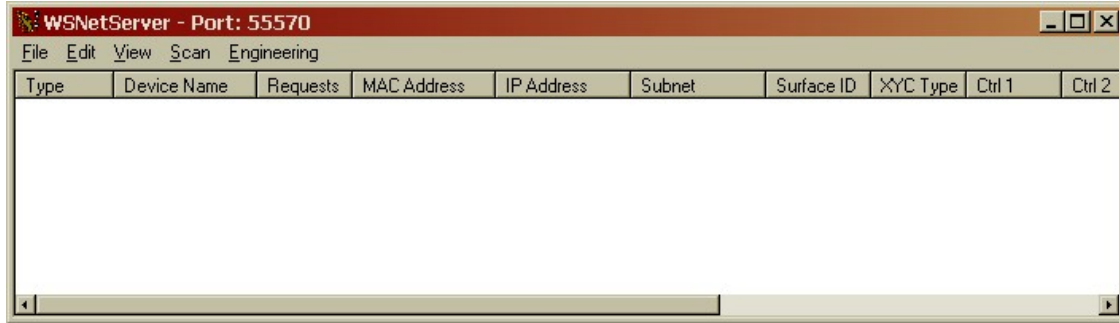


Figure 1: WSNetServer Main Screen

In the future, after you have defined devices and saved the device configuration to a file, the network server will automatically load your most recent device settings upon startup.

4.2 About Box

An about box with the server software revision number and build date is available by clicking on the "File / About..." menus (See Figure 2).

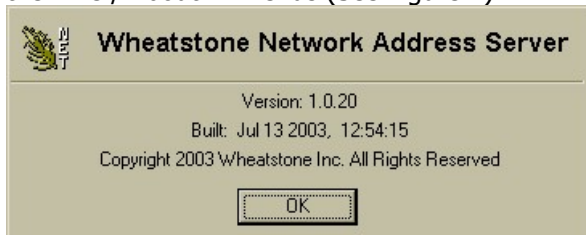


Figure 2: WSNetServer About Box

4.3 Specifying The Cross Point XY Broadcast Port

The network server and the XY controllers look for signal names from a Wheatstone AdvXP or ADR32 router. The router has an UDP port assigned to it for signal name and connection broadcasts. The network server application must be configured with the same UDP broadcast port. You may make this setting by clicking on the "Edit / Broadcast Port" menus (See Figure 3). The UDP broadcast port number will be shown on the title bar of the network server application (See Figure 1). All of the XY controllers that get their settings from this instance of the network server will be configured to listen to the UDP broadcast port that the network server is configured for.

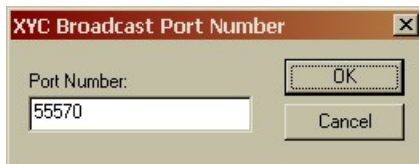


Figure 3: XYC Broadcast Port Dialog Box

4.4 Adding A Device

You will add XY controller and/or mixer surface devices by clicking on "Edit / Add Device..." menus. You will see the dialog box shown in Figure 4.

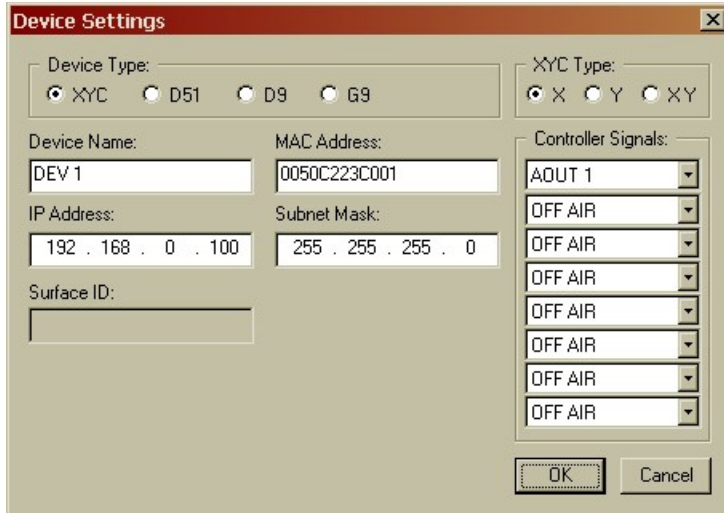


Figure 4: Add (Edit) Device Dialog Box

The "Device Type" setting selects whether we are creating an entry for an XY controller or a mixer surface. To setup an X, a Y or an XY controller select the "XYC" device type. To setup a mixer surface select the appropriate mixer surface type.

The "Device Name" setting gives a unique name that will identify the device on the network. Each XY controller and surface on the network must have a unique device name. In this example we will use the default "DEV 1".

The "MAC Address" field is the MAC address of the Ethernet chip in the device. This should be marked on the device.

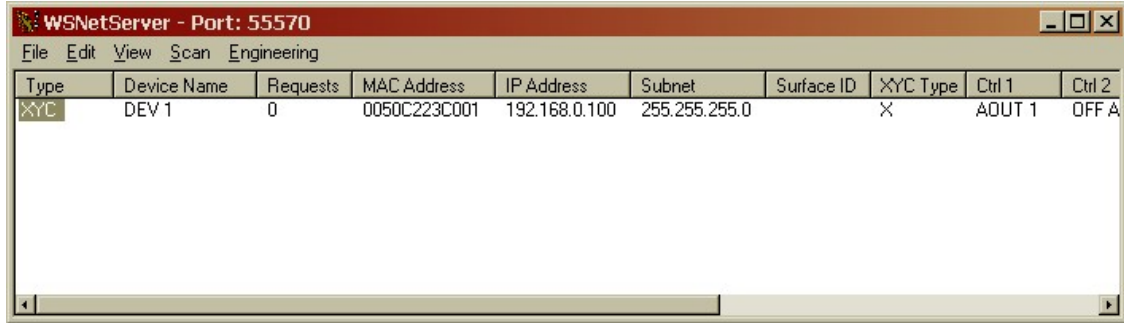
The "IP Address" and "Subnet Mask" fields are the TCP/IP address settings that you would like to assign to the device.

The "XYC Type" setting specifies whether the controller is an X controller, a Y controller or an XY controller. This field is disabled when the Device type is a mixer surface.

There are eight fields labeled "Controller Signals". In an X controller these fields specify the Y signals that the controller will switch. In a single X controller only the first signal has any effect. In a ganged X controller each signal represents the successive ganged controller Y signals. In a Y controller these fields specify the X signals that the controller will switch. In a single Y controller only the first signal has any effect. In a ganged Y controller each signal represents the successive ganged controller X signals. Up to eight controllers can be ganged off of one controller core.

The "Surface ID" setting specifies the mixer surface ID. This field must match the control surface ID that is defined on the AdvXp GUI for the mixer surface. This field is disabled when the Device type is not a mixer surface.

When you press the "Okay" button the device that you just added will appear in a list on the main screen (See Figure 5).

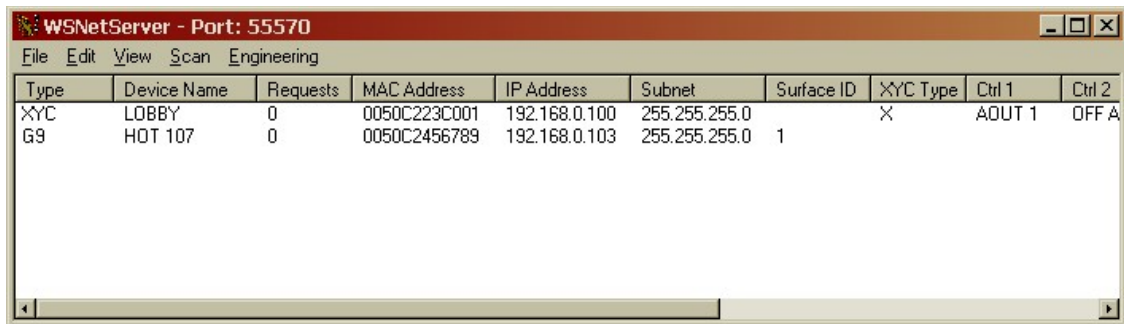


The screenshot shows the WSNetServer application window titled "WSNetServer - Port: 55570". The menu bar includes "File", "Edit", "View", "Scan", and "Engineering". The main display area contains a table with the following data:

Type	Device Name	Requests	MAC Address	IP Address	Subnet	Surface ID	X/YC Type	Ctrl 1	Ctrl 2
X/YC	DEV 1	0	0050C223C001	192.168.0.100	255.255.255.0		X	AOUT 1	OFF A

Figure 5: Main Screen With A Device Added

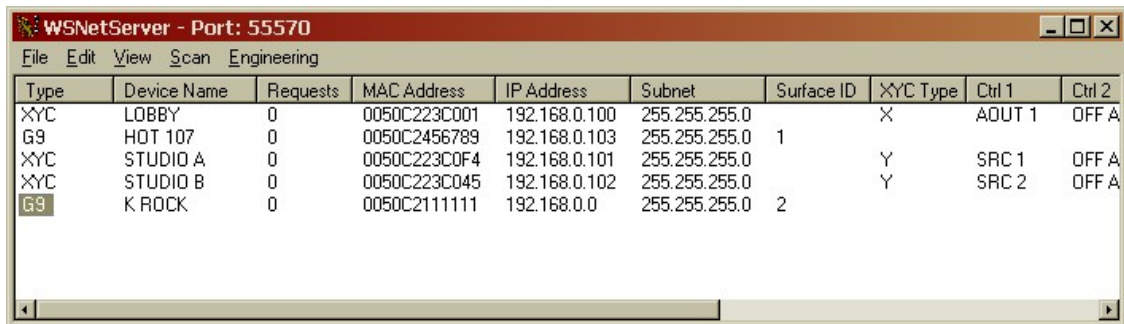
If you add a mixer surface to the device list, the "X/YC Type" and "Controller Signals" fields of the device settings dialog box will become inactive since these settings are not applicable to a mixer surface (See Figure 6). As each device is added to the network server the list on the main screen will grow to show each device's settings (See Figure 7).



The screenshot shows the WSNetServer application window titled "WSNetServer - Port: 55570". The menu bar includes "File", "Edit", "View", "Scan", and "Engineering". The main display area contains a table with the following data:

Type	Device Name	Requests	MAC Address	IP Address	Subnet	Surface ID	X/YC Type	Ctrl 1	Ctrl 2
X/YC	LOBBY	0	0050C223C001	192.168.0.100	255.255.255.0		X	AOUT 1	OFF A
G9	HOT 107	0	0050C2456789	192.168.0.103	255.255.255.0	1			

Figure 6: Adding A Mixer Surface



The screenshot shows the WSNetServer application window titled "WSNetServer - Port: 55570". The menu bar includes "File", "Edit", "View", "Scan", and "Engineering". The main display area contains a table with the following data:

Type	Device Name	Requests	MAC Address	IP Address	Subnet	Surface ID	X/YC Type	Ctrl 1	Ctrl 2
X/YC	LOBBY	0	0050C223C001	192.168.0.100	255.255.255.0		X	AOUT 1	OFF A
G9	HOT 107	0	0050C2456789	192.168.0.103	255.255.255.0	1			
X/YC	STUDIO A	0	0050C223C0F4	192.168.0.101	255.255.255.0		Y	SRC 1	OFF A
X/YC	STUDIO B	0	0050C223C045	192.168.0.102	255.255.255.0		Y	SRC 2	OFF A
G9	K ROCK	0	0050C2111111	192.168.0.0	255.255.255.0	2			

Figure 7: Several Devices Defined

4.5 Editing A Device Setting

After you add a device to the device list you may edit the device's settings by selecting on the device in the list in the main screen and then clicking the "Edit / Edit Device" menus. The same dialog box that you used to add the device to the server will appear with the current device settings. If the X controller that we first added is in the radio station's lobby, you might want to rename the device from the default name "DEV 1" to "LOBBY" as shown in Figure 8.

The changes that you make to a device's settings are NOT immediately sent to the device. You must power cycle the device for it to request new settings from the network server. On the main

screen of the network server one of the columns is labeled "Requests". This column shows a count of how many setting requests the server has received from the device since the server started running. If you power cycle a device and do not see this number increment by at least one, then the device is not making a good network connection to the server. In the next section I will discuss a way to query a device for it's current settings as a means to verify that the device received setting changes after a power cycle.

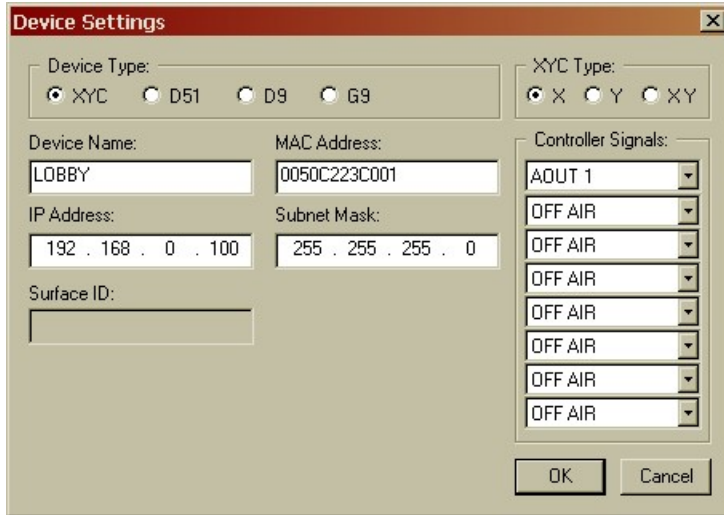


Figure 8: Edit Device Settings

4.6 Device Name Lookup

The network server can scan the network for a device using the device's name. Select a device from the list on the main screen and then click the "Scan / Name Lookup..." menus. The first dialog box that appears will show the device name that you selected. You may change the name of the device that you wish to scan at this point, or accept the selected name by pressing "Okay" (See Figure 9).

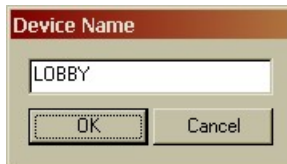


Figure 9: Device Name Dialog Box

After selecting a device name to scan for the dialog box in Figure 10 will appear. If a device with the specified name is located, then the fields of the dialog box will be filled in with the device's settings. If no device with the specified name is found on the network, then an error message will appear (See Figure 11).

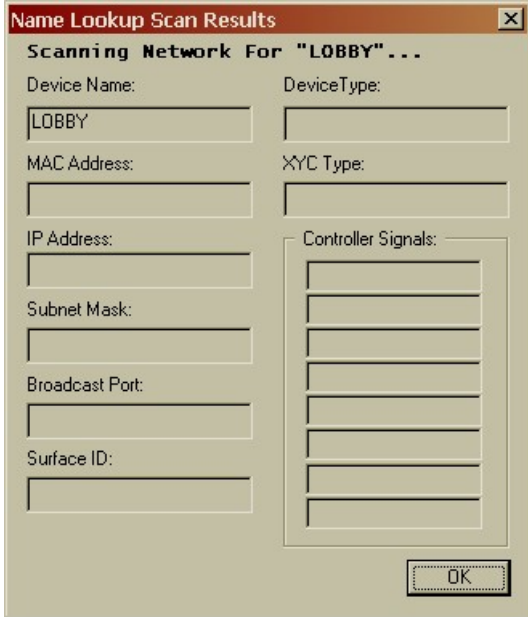


Figure 10: Name Lookup Dialog Box



Figure 11: Name Lookup Failed Dialog Box

4.7 Network Scan

The network server can scan the network for all devices. Click the "Scan / Network..." menus. The dialog box shown in Figure 12 will appear with a list of all the devices that are detected on the network.

A network scan broadcasts one query packet and all devices on the network that hear the broadcast will respond. Since network broadcasts are an unreliable form of communication, occasionally some of the devices on the network may not generate responses. You can clear the network scan results using the "Window / Clear" menus and rescan the network using the "Scan / Re-Scan" menus on the network scan results dialog box if you think that you have missed a device.

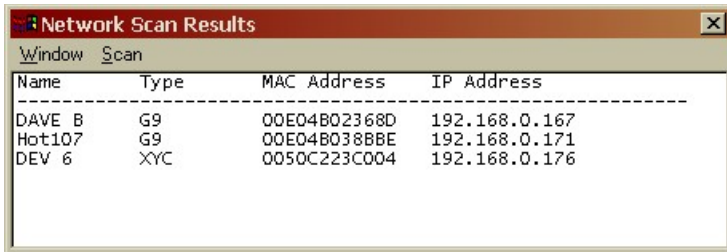


Figure 12: Network Scan Dialog Box

If your network scan shows a device that is not in your device list, then you can add the device to your device list by clicking on the "Edit / Add Device..." menu on the scan results dialog box.

4.8 Saving Network Server Configurations

The device settings that we just made can be saved to a settings file by clicking on the "File / Save WSNetServer Settings..." menus (See Figure 13).

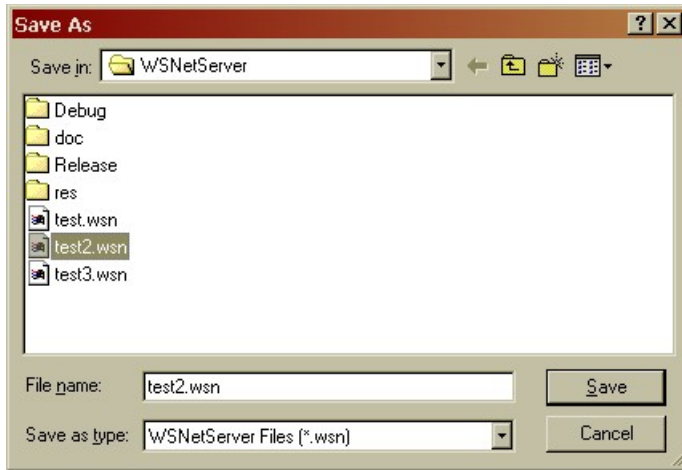


Figure 13: Save Network Server Settings

The default file type for saving network device settings has a file extension "WSN". You may also save settings into a "TXT" plain ASCII text file or a "CSV" comma separated variable file for archive purposes. A "TXT" file may be viewed in Windows Notepad, Wordpad or any other commonly used word processor. A "CSV" file may viewed in Microsoft Excel (See Figure 15) or any other commonly used spreadsheet program. To save either a "TXT" or "CSV" file

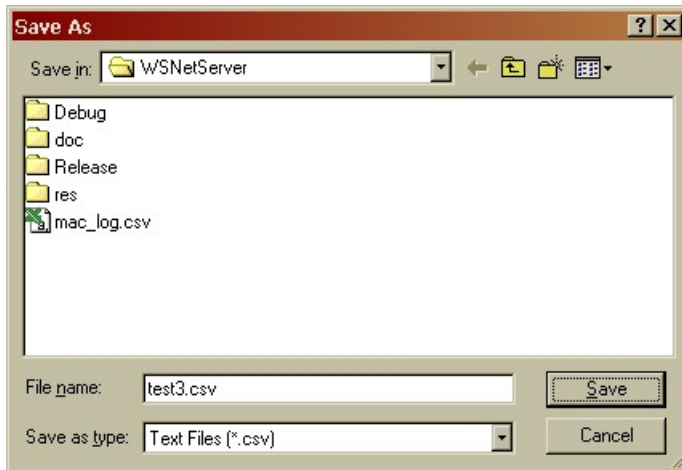


Figure 14: Save Settings In A "CSV" File

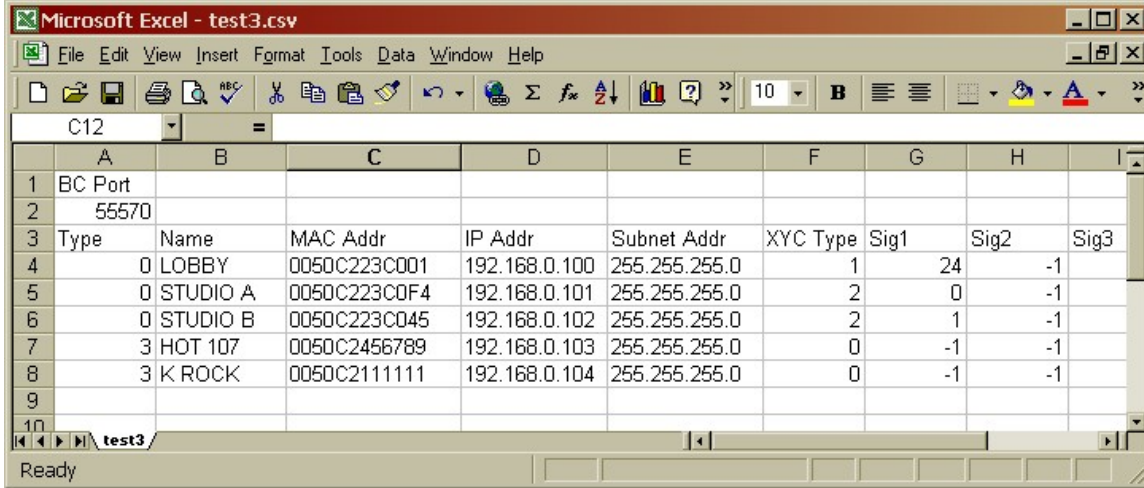


Figure 15: Viewing Network Server Settings In Microsoft Excel

The "Type" column holds a numerical identifier for the device type. The number to device type mapping is shown in Table 1. The "XYC Type" column holds a numerical identifier for the XY controller type. The number to XYC type mapping is shown in Table 2. The "Sig1" through "Sig 8" columns hold the **signal numbers** associated with ganged X or Y controllers. A negative one in these columns indicates no signal is selected. Mixer surfaces will always put a negative one in these columns.

Type #	Device Type
0	XY Controller
1	D51 Mixer Surface
2	D9 Mixer Surface
3	G9 Mixer Surface
4	G5 Mixer Surface

Table 1: Device Types In CSV File

XYC Type #	XY Controller Type
0	X Controller
1	Y Controller
2	XY Controller

Table 2: XYC Types In CSV File

4.9 Loading Network Server Configurations

Saved device settings can be loaded from a settings file by clicking on the "File / Load WSNetServer Settings ..." menus (See Figure 16).

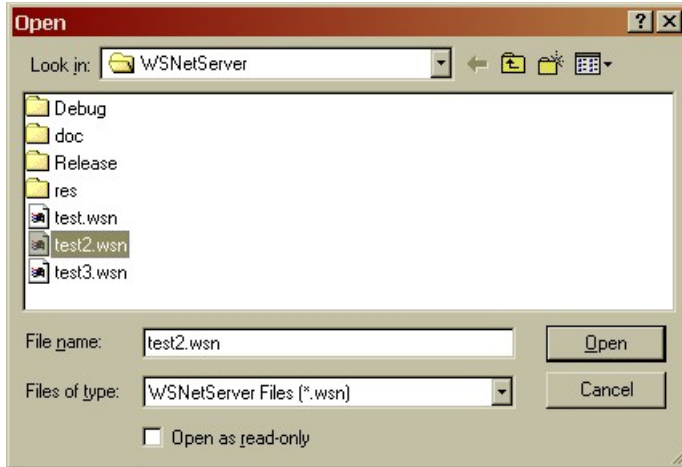


Figure 16: Load Network Server Settings

4.10 Setting XY Controller Visibility

The XY controllers will retain their signal visibility settings in Flash memory on the controller circuit board. The network server will not maintain visibility settings for any of the XY controllers.

To modify or examine an "XY or "X" controller's source signal visibility settings select the controller you wish to modify (or examine) in the list on the main window, then click on the "Edit / X Controller Visibility..." menu. The dialog box in Figure 17 will appear. This dialog box is used to select the controller index when a ganged controller is used. If you do not have a ganged controller, then select "Controller 1". If you do have a ganged controller then select the controller index that you would like to adjust.



Figure 17: Ganged Controller Selection

Select "OK" on the ganged controller index dialog box. The dialog box shown in Figure 18 will appear. If the controller does not respond, then the error dialog box shown in Figure 19 will appear. When the controller responds with its current visibility settings the dialog box shown Figure 18 will change to show the current visibility settings as shown in Figure 20.

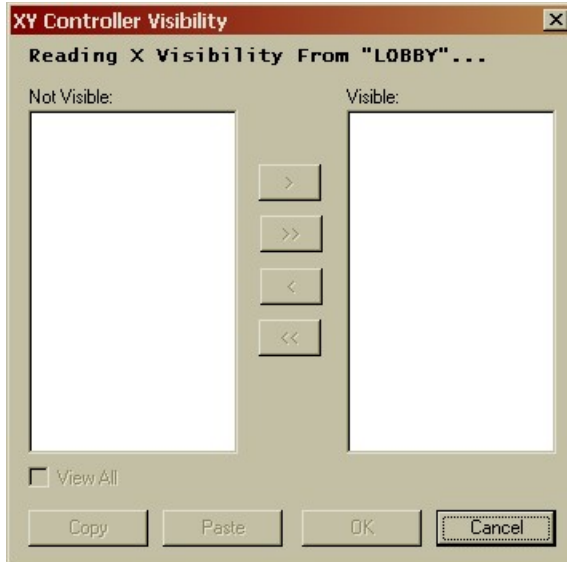


Figure 18: Reading X Visibility Dialog Box

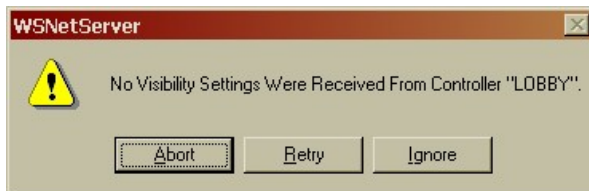


Figure 19: Error Reading Visibility Dialog Box

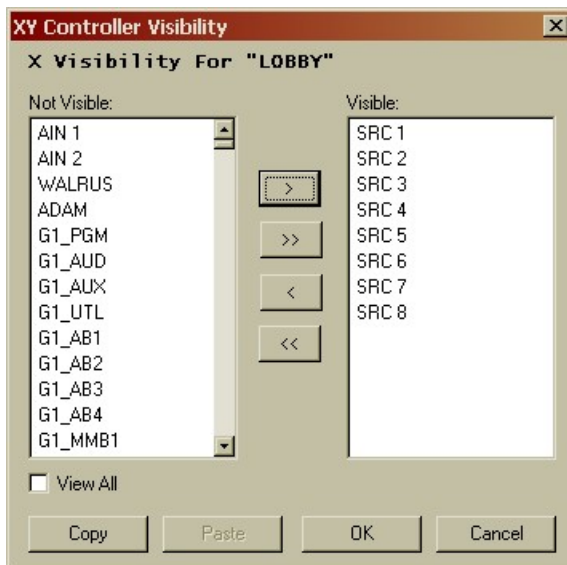


Figure 20: Setting X Controller Visibility

You can use the four buttons in the center of the visibility dialog box to move signals to or from the visibility list. The signals shown in the right list will be visible on the controller. You can check the "View All" check box to allow visibility to all signals in the router. When you are finished making changes press the "Okay" button to send the changes to the controller.

If you want to apply the same visibility settings to several controllers, then you can copy and paste the settings from this controller to other controllers. After you have chosen the visibility settings for a controller, but before you close the visibility dialog box with the "OK" button, press the "Copy" button. This will copy the visibility settings into the network server's clipboard. When you bring up another visibility settings dialog box, you can press the "Paste" button and the previously copied settings will be pasted into the new visibility dialog box. After pasting the settings press "OK" to send the pasted settings to the second controller.

To modify or examine an "XY or "Y" controller's destination signal visibility settings select the controller you wish to modify (or examine) in the list on the main window, then click on the "Edit / Y Controller Visibility..." menu. The procedure will be the same as described above for X controller visibility, except that the dialog box will show destination signals rather than source signals (See Figure 21).

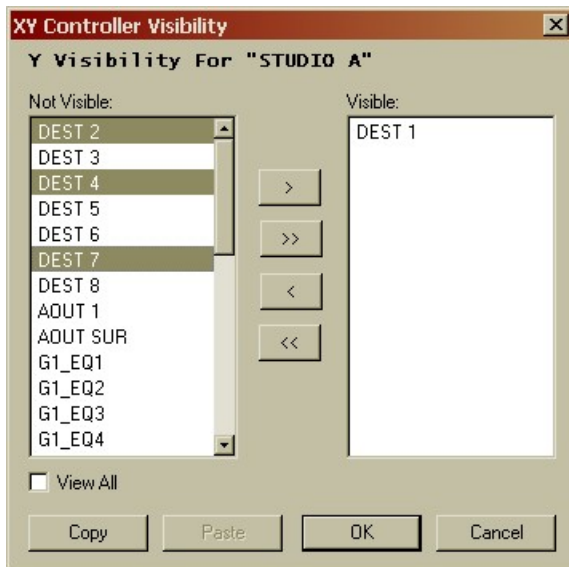


Figure 21: Setting Y Controller Visibility

4.11 Upgrading XY Controller Software

Software updates to the XY controllers may be performed through the network server. If a software update ever becomes necessary you will receive a HEX file to update the controller. Click on the "Edit / Software Update..." menu. A file open dialog box will appear (See Figure 22), open the HEX file that contains the software update and press "Open".

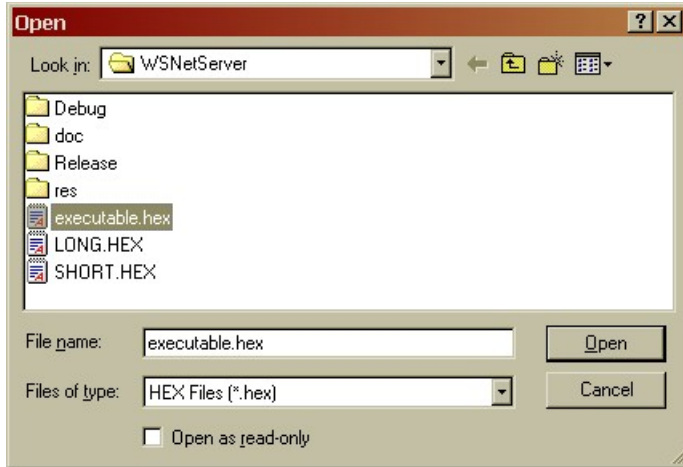


Figure 22: Select A Software Update HEX File

A dialog box with a progress indicator will appear (See Figure 23). When the software upload is complete the "Cancel" button will change to "Done". If an error occurs an error message dialog box will appear.

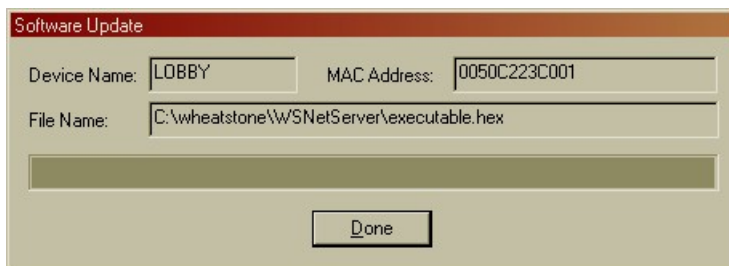


Figure 23: XY Controller Software Update Dialog Box

4.12 Determining An Unknown Device MAC Address

If for some reason you lose the documentation that describes your device's MAC address, you can use the network server to determine the device's MAC address. You may be able to determine a device's MAC address using the Network Scan method see section 4.7. The network scan method may not locate a device that has never been configured with an IP address, or a device that has been configured with an IP address that does not match the network that you are currently running on. The method described below will help to find the MAC address of a device if these situations occur.

Open the network server activity log window by clicking on the "View / Activity Log Window..." menu. A log message window will appear. Clear the log message window by clicking on the "Clear!" menu. Power cycle the device under question and it will attempt to retrieve a MAC address from the network server. Each attempt will generate a message in the log window with the device's MAC address and device type listed (See Figure 24).

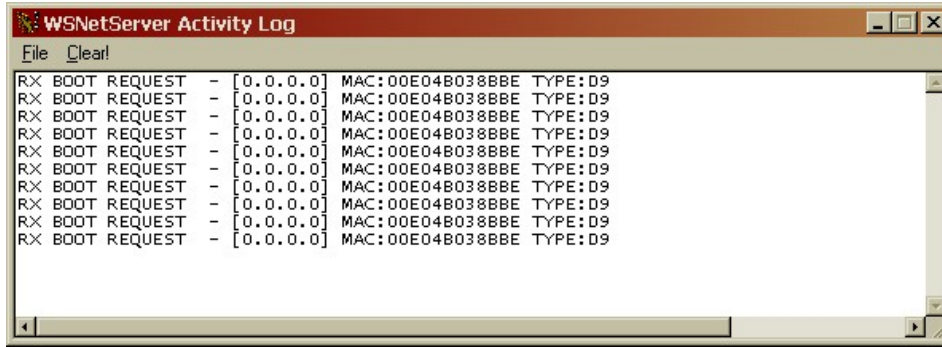


Figure 24: Activity Log Window

