



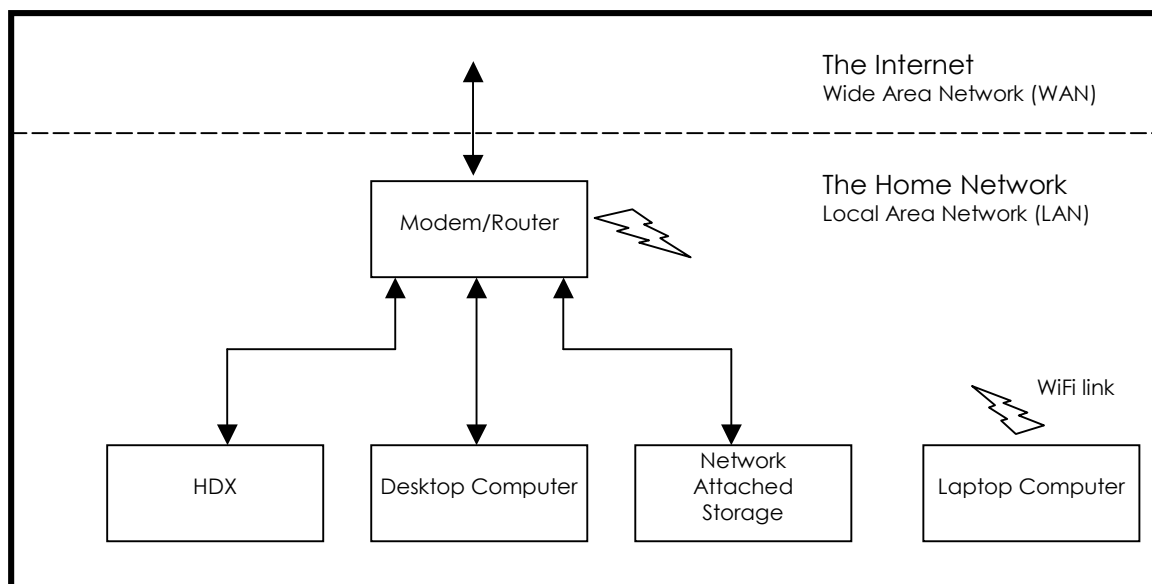
Naim Audio HDX Hard Disk Player – Network Setup

Networking Basics

All devices that connect to a network have an Internet Protocol (IP) address. This address is used as a unique identifier on the network and allows communication between devices to be routed correctly. IP is the standard used by all network devices.

A typical home network will use a Modem/Router to connect to the Internet and will have a number of devices connected directly to the Modem/Router. The Modem/Router acts as a switch to allow intercommunication between the devices on the home network (LAN) and allows each of the devices to access the Internet (WAN). The Modem/Router also offers significant protection to the devices on the LAN side as they cannot be contacted directly by a computer on the WAN side without the LAN side device initiating the communication. **The HDX should never be connected directly to the Internet without a Router in place.**

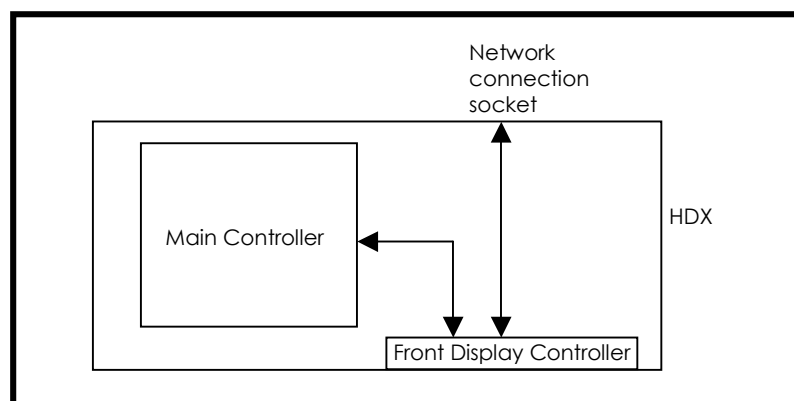
It is usually the Modem/Router that allocates IP addresses to the different devices on the home network. The process of dynamically allocating addresses to devices is known as **DHCP** and the part of the Modem/Router responsible for this is the **DHCP Server**. This system allows devices to be connected and disconnected without the user having to make any adjustments to the device configurations. Because this system is the most common and convenient for home use **the HDX ships with DHCP mode enabled**. Below is a diagram of a typical home network setup:





HDX Network Settings

The HDX differs slightly from most other network devices as it has one network socket but **two IP addresses**. Inside the HDX are two separate network devices. The Main Controller is responsible for ripping CDs and audio playback and has one IP address. The Front Display Controller runs the front panel user interface and has a different IP address. The Main Controller and Front Display Controller communicate with each other inside the HDX on a small internal network, which is exposed on a single network socket. The diagram below shows how the Main Controller and Front Display Controller are connected inside the HDX:



The HDX is always shipped from Naim Audio in DHCP mode, as this is the most common and preferred addressing mode. It is possible to change from DHCP to Static mode using the Naim **Set IP Tool** included on a CD ROM that ships with the HDX, although before doing so the requirements of static IP addressing should be understood.

DHCP addressing mode

This is the preferred addressing mode and should always be used unless it has been determined that a static address is absolutely essential for a given installation.

In DHCP mode the HDX Main Controller and Front Panel Controller both acquire an IP address automatically when the HDX first starts.



Static addressing mode

Static addressing mode should only be used in the following situations:

- The HDX is being used in a NaimNet or NetStreams setup.
- The HDX is being used with a 'hardware VPN' where the network administrator allocates static IP addresses to each device.
- The HDX is being controlled via Ethernet by a Crestron or AMX control system.
- Port forwarding is used to control the HDX from outside the LAN.
- The HDX is to be controlled by a web browser and the network does not have a local DNS server.

Some of the above scenarios are quite specialist. Unless it has been determined that the setup conforms to one of the above, DHCP addressing mode should always be used.

To configure an HDX in static addressing mode the following settings must be known:

- **Server IP address** – This is the address of the server main controller. This address must be unique and should not clash with the DHCP server's address pool (if a DHCP server is present). E.g. If the Netmask is 255.255.255.0 and the DHCP server allocates addresses between 192.168.0.2 and 192.168.0.150 then the Server and Front Panel IP addresses must be set between 192.168.0.151 and 192.168.0.254.
- **Front Panel IP address** – This is the IP address of the Front Display Controller. Usual practice is to allocate the front panel an adjacent address to the server IP address. E.g. if the server IP address is 192.168.0.10 then the front panel IP address should be set to 192.168.0.11.

Four very important rules apply when choosing the addresses for the HDX:

- **The Front panel IP address MUST be different from the server IP address**
- **Both Addresses must be unique (must not be the same as any other IP address in the network)**
- **Both addresses must not overlap with the DHCP server address pool.**
- **Both addresses must be on the same range.** i.e. if the server is on 192.168.0.10 and the Netmask is 255.255.255.0 the front panel must be on an address between 192.168.0.1 and 192.168.0.254 (excluding the server's own IP address).
- **Net Mask** – This determines the range of IP addresses that can communicate with the HDX. This should be compatible with the other devices on the network. For example 255.255.255.0 is a common Netmask.
- **Gateway** – This is the IP address that the HDX will use to access the Internet to perform CD lookups.
- **DNS** – This is the Domain Name System server that the HDX will use to resolve the IP address of the Internet providers used for CD track information and album artwork.



Configuring the HDX networking settings

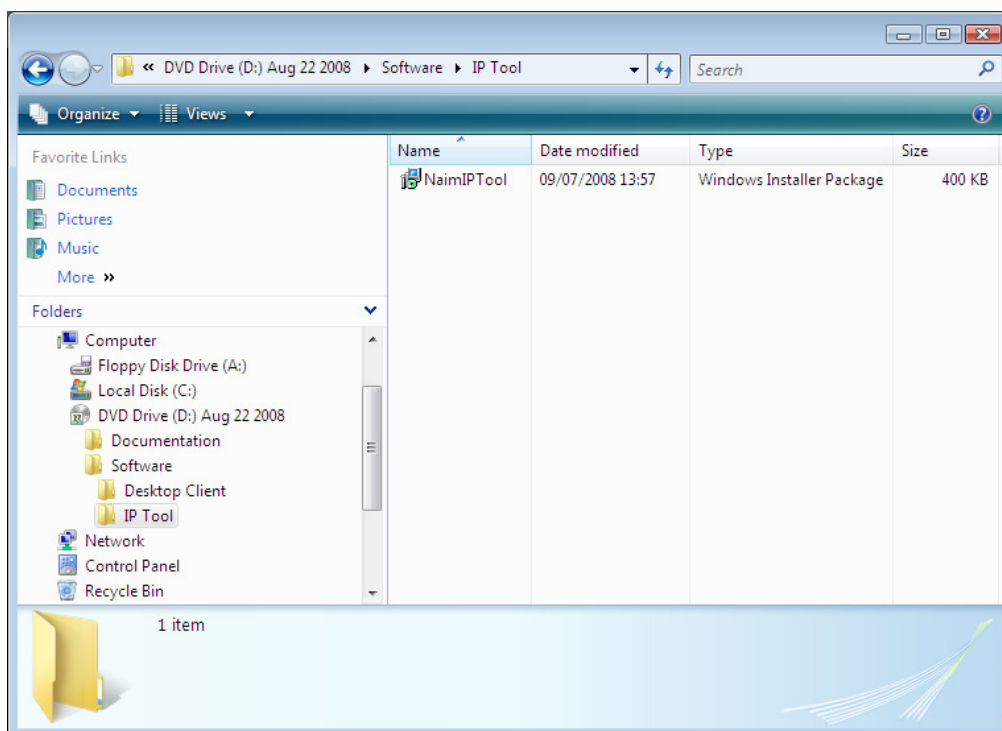
When the correct addressing mode and associated settings have been determined the HDX can be configured. To do this the **Naim Set IP Tool** must first be installed on a PC running XP or Vista. The HDX network settings are then reconfigured using this tool as described below.

After the HDX has been successfully configured it is advisable to make a note of the new network settings in the back of the user manual for future reference.

Installing the Naim IP Tool Application

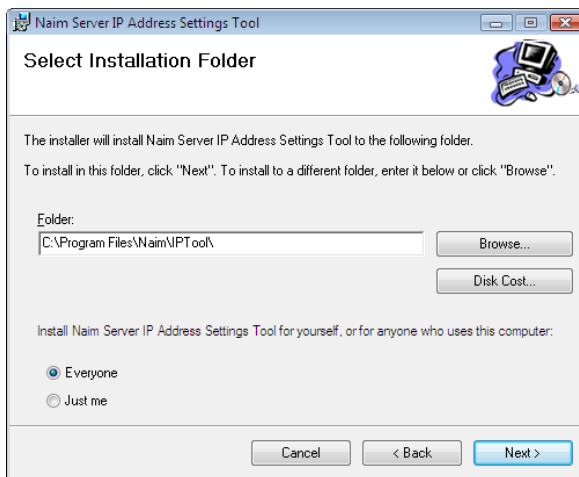
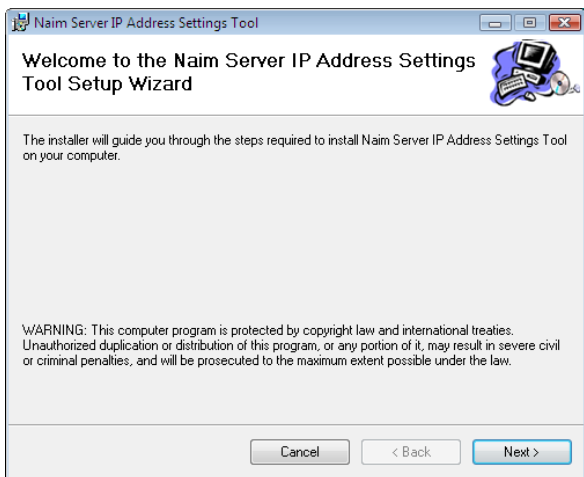
The HDX ships with a CD ROM that contains **documentation**, the **Desktop Client application** and the **Naim Set IP Tool**. Note that the applications on the CD ROM require either Microsoft Windows XP or Vista to run. The application will not natively run on an Apple Mac computer although there ways of running Windows on a Mac, which are described in the troubleshooting section. The following steps describe the installation process using Windows Vista.

- 1) Insert the Naim CD ROM into the PC drive and locate the folder containing the Naim Set IP application installer and double click the **NaimIPTool.msi** installer icon.

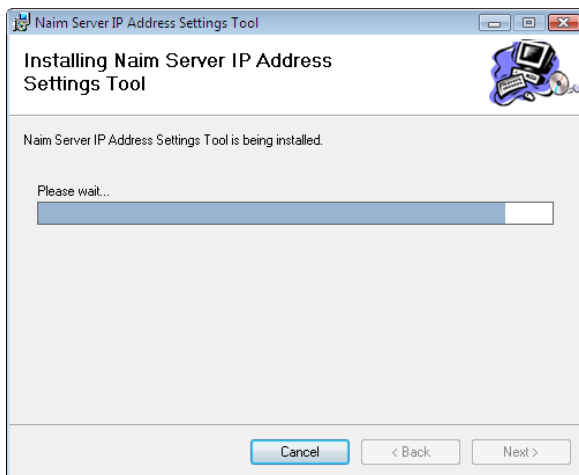
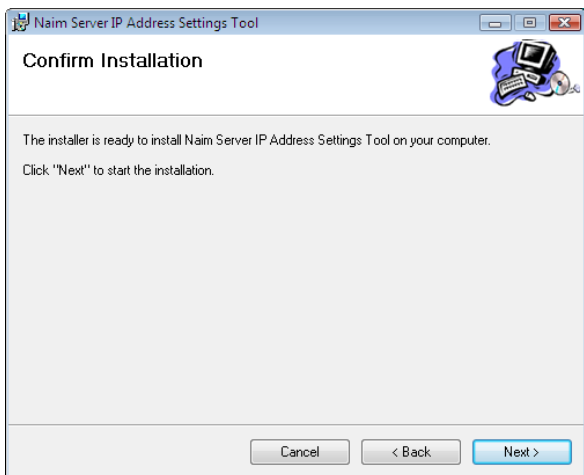




- 2) The Naim Set IP installer will open. Click **Next >** on the first screen. Then select the Folder in which to install the application. The default location is shown below and will be suitable for most typical installations. Click **Next >** when ready to continue.

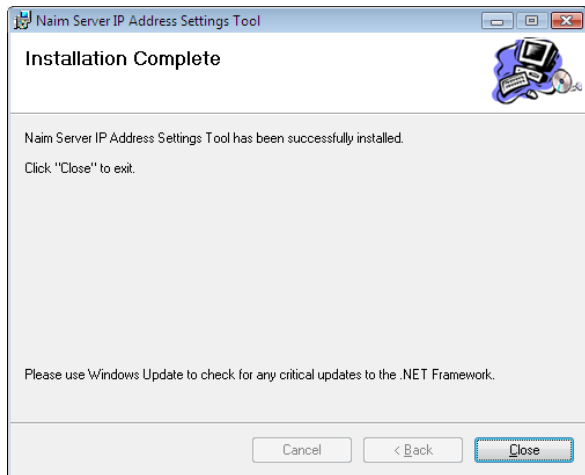


- 3) Press **Next >** again to confirm then wait while the application installs.





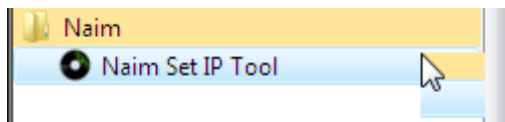
- 4) When the installation is complete the following screen will be shown. Press **Close** to complete the installation.



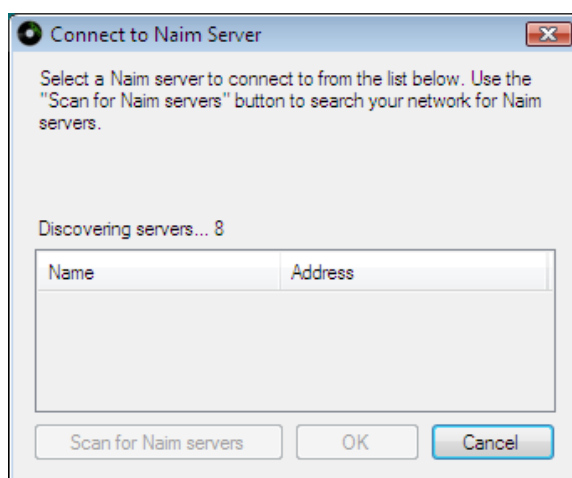


Changing the HDX IP address

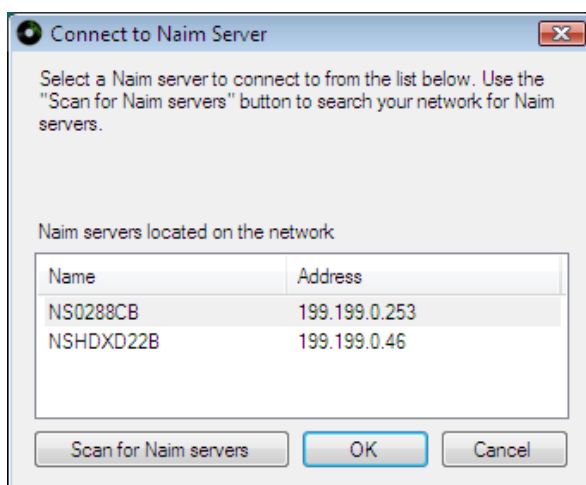
- 1) Select the **Naim Set IP Tool** from the Start menu.



- 2) The Set IP Tool will launch and will start the server discovery process. This process takes 30 seconds and scans the network for any Naim HDX hard disk players or Naim Servers.



- 3) When the discovery process has finished the application will show the name and IP address of any Naim servers found on the Network. In the example below an HDX called NSHDXD22B has been discovered at IP address 199.199.0.46 and an NS02 at IP address 199.199.0.253. Select the server that is to have its IP address changed and click OK.





- 4) The application shows the current settings for the selected server. If the current addressing mode is DHCP then **Dynamic address (use DHCP)** will be selected (see step 5). If the current addressing mode is Static then **Static address** will be selected and the address details will reflect the current network settings (see step 6).
- 5) To change the addressing mode to **Dynamic** select the DHCP option then click **Update**. The application will now send the new configuration to the server and the server will reboot (see step 6).

The screenshot shows a window titled "Naim Server IP Address Settings". It has a menu bar with "File" and "Help". Below the menu bar is a paragraph of text: "Choose the type of network addressing for your server. The current settings are shown below. Press Update to change the settings." There are two radio button options: "Dynamic address (use DHCP):" which is selected, and "Static address:". Under "Static address:", there are five groups of input fields, each with a label and four boxes separated by dots: "Server IP address", "Front panel IP address", "Net mask", "Gateway", and "DNS server". An "Update" button is located at the bottom right of the form area. At the bottom of the window, there is a status bar that reads "Server: NSHDXD22B (199.199.0.46)".

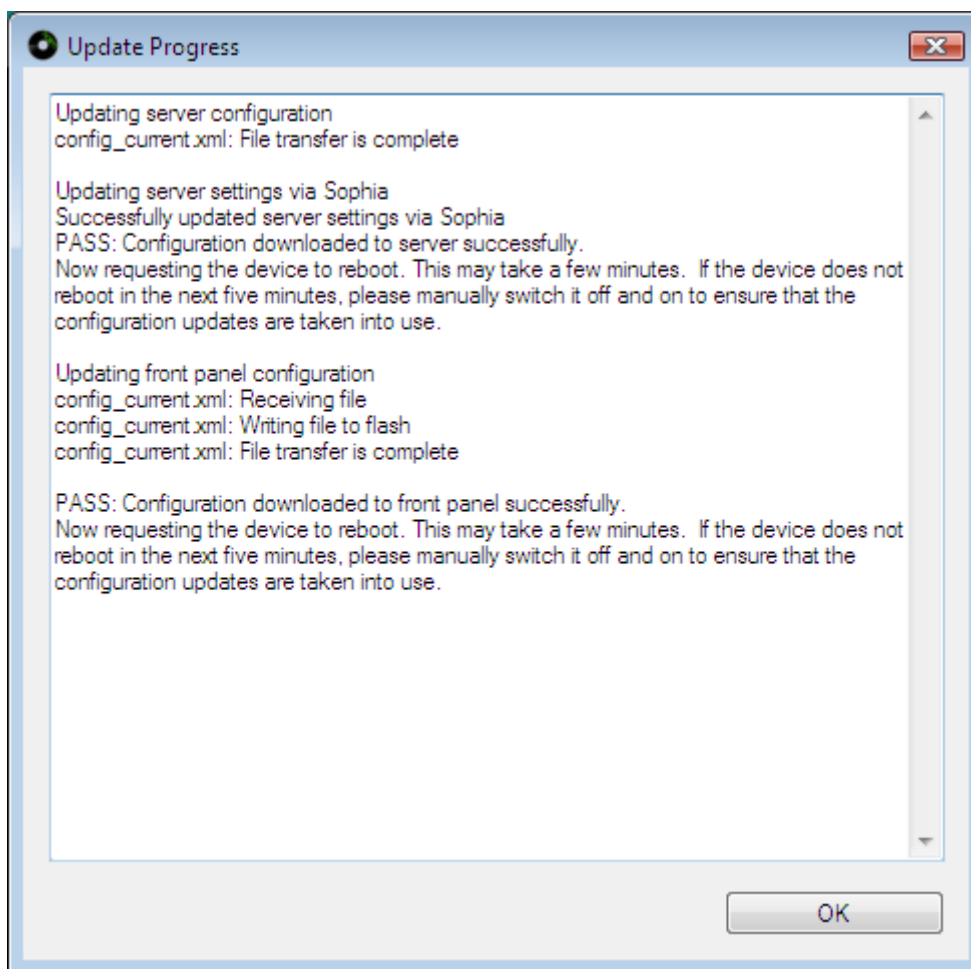


6) To change the addressing mode to **Static**, select the Static option and enter the required networking settings. Follow the advice in the previous sections to determine what these settings should be. Click **Update** when all the settings have been entered. The application will now send the new configuration to the HDX and the HDX will reboot.

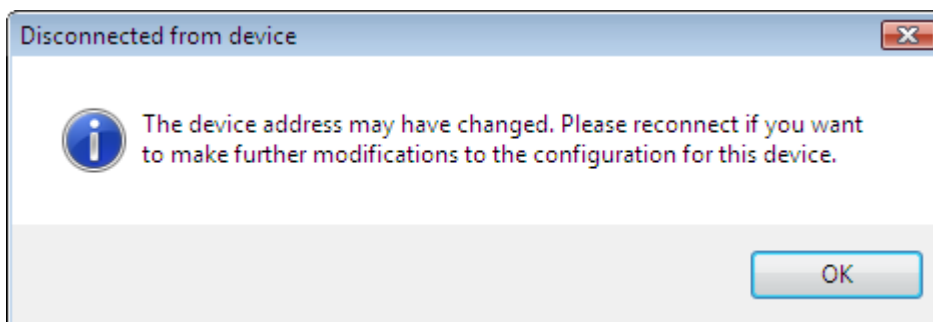
The screenshot shows a window titled "Naim Server IP Address Settings" with a standard Windows-style title bar (minimize, maximize, close buttons). The window has a menu bar with "File" and "Help". Below the menu bar is a text area with the instruction: "Choose the type of network addressing for your server. The current settings are shown below. Press Update to change the settings." There are two radio button options: "Dynamic address (use DHCP):" which is unselected, and "Static address:" which is selected. Under "Static address:", there are five rows of IP address input fields, each with four boxes separated by dots. The "Server IP address" row contains 192, 168, 0, 10. The "Front panel IP address" row contains 192, 168, 0, 11. The "Net mask" row contains 255, 255, 0, 0. The "Gateway" row contains 192, 168, 0, 1. The "DNS server" row contains 192, 168, 0, 1. To the right of these fields is a button labeled "Update". At the bottom of the window, a status bar displays "Server: NSHDXD22B (199.199.0.46)".



7) After the network settings have been changed and the Update button clicked (as described in step 5 or 6) the following screen will be shown. The server will automatically shutdown then restart using the new network settings. Check that the message in the Update Progress window confirms that both the server and front panel configurations were downloaded successfully. The message displayed should look like the message below. When it has been confirmed that the configuration was sent successfully click OK to continue.



8) The following message will then be shown. Click Ok then close the Set IP Tool.





Troubleshooting

The Set IP Tool does not discover the HDX

It is possible that a firewall running on the computer is blocking the communication between the Set IP Tool and the HDX. If this is suspected to be the case, more detailed information about how to allow certain applications to communicate through the firewall will be available from the firewall's vendor website. This process is usually known as 'adding exceptions to a firewall'.

Incorrect static address settings have been entered by accident

Launch the Set IP Tool, re-enter the details and click update. The new configuration will be sent to the HDX. Alternatively return the HDX to DHCP mode if the HDX was not intended to be set to static addressing mode.

The front display permanently shows 'Please Wait...'

The most likely cause is that the HDX has been configured in static addressing mode with incompatible settings. Either return the server to DHCP mode or correct the static address settings. Here are some examples of incompatible settings

1) Example 1

Server IP = 192.168.0.10
Front panel IP = 192.168.0.10
Netmask = 255.255.255.0

In this example the server and front panel IP addresses are identical. Two devices on a network must never have the same IP address.

2) Example 2

Server IP = 192.168.0.10
Front panel IP = 192.168.1.11
Netmask = 255.255.255.0

In this example the server IP and front panel IP addresses are on different address ranges. The IP addresses should be changed so the first three parts of the IP are the same. E.g. 192.168.0.10 and 192.168.0.11

3) Example 3

Server IP = 192.168.0.10
Front panel IP = 10.15.35.50
Netmask = 255.255.255.0

In this example the server and front panel IP addresses are on completely different ranges. This can happen if an incorrect configuration is sent to the HDX from the NetStreams Dealer Setup application. Either correct the problem using the Set IP Tool or check the addresses allocated to the HDX and front panel by the Dealer Setup application.



CDs do not lookup correctly

This is usually caused by one of three things:

- 1) There is no Internet connection.
 - Check the HDX is connected to the network
 - If Ethernet Over Mains equipment is used, ensure it is plugged in and switched on.
 - Check the Internet connection is working on another machine on the same network. If there appears to be no Internet connection check the network switches, cabling and Modem/Router (reboot it if necessary).
- 2) The Gateway setting is incorrect
 - If the HDX is in static IP mode check the gateway address is correct.
- 3) The DNS setting is incorrect
 - If the HDX is in DHCP mode check the router is configured using the DNS settings supplied by the Internet provider.
 - If the HDX is in static IP mode check the DNS setting is correct.

After removing then replacing the network cable, CDs do not lookup and DTC cannot connect

If the HDX is in DHCP mode and the network connection is removed, the HDX will revert to an 'auto IP' address. The auto IP address is unlikely to be compatible with the network to which it was previously connected, so, when the HDX is reconnected there will be a period of time before the HDX can connect to the network. The HDX will eventually change IP address back to a compatible address but the time it will take to do this will vary depending on network conditions. The quickest way to recover from this situation is to ensure the network is connected and reboot the HDX.

If the network connection to the HDX is regularly lost, for example if the router is routinely powered off or the network connection to the HDX is only made when ripping CDs, either:

- 1) Reboot the HDX every time the network connection is reconnected
- 2) Configure the HDX in static IP addressing mode. Ensure the settings are carefully chosen as described above.

The front display very occasionally shows 'Please wait...'

This is likely to be caused by the network's DHCP server giving a new IP address to the HDX. When the front display controller receives a new IP address it momentarily shows 'Please wait...' while it saves the new address.

The Set IP tool does not work on Apple Mac computers

The Set IP Tool can only be run under Microsoft Windows XP or Vista. There are several ways that windows programs can be run on a Mac. Two possibilities are:

- Use Boot Camp. This software allows the Mac to run either Windows or the Mac operating system.
- Use Mac Virtualization software like VMWare Fusion or Parallels. This allows Windows to be run without rebooting the Mac.

These instructions are for HDX. What about the NS01, NS02 and NS03?

The concepts and procedures described above are identical for the NS01, NS02 and NS03. The one difference is that the NS01 and NS02 do not have a front display so only have one IP address.



Glossary

- **Auto IP Address** – The address the HDX will revert to if it is in DHCP mode and there is no DHCP server.
- **DHCP addressing mode** – in this mode the DHCP server automatically allocates the IP addresses to the HDX.
- **DHCP address pool** – The address pool is the range of addresses used by the DHCP server when allocating IP addresses to devices on the network. The current DHCP pool settings can usually be determined by checking the Modem/Router configuration.
- **DHCP server** – This allocates the IP addresses to the devices on the network. In a typical home setup the DHCP server is built into the Modem/Router.
- **DNS**– The Domain Naim System is a system of converting a domain name (e.g. www.naimaudio.com) to an IP address. When accessing the Internet the DNS service is usually provided by the ISP. The local DNS server in the Mode/Router performs the same function but on the local network. For example it allows the user to type the HDX name into a web browser (e.g. <http://NSHDX1234/>) and it translates the HDX name to the correct IP address.
- **Firewall (software)** – A software firewall runs on a computer and prevents unwanted intrusions from other computers. Microsoft Windows XP and Vista are both supplied with software firewalls. Normally Windows will advise if these are not enabled. Examples of other software firewall vendors are ZoneAlarm, Norton and Eset. It is recommended to always run a software firewall on any computer connected to the Internet.
- **Firewall (hardware)** – Most Modem/Routers have a build in firewall, often known as a hardware firewall. These prevent unwanted intrusions from computers on the Internet by stopping any incoming communication not initiated from the local network. A hardware firewall is not a substitute for a software firewall and it is recommended that both are always used together.
- **Gateway** – This is the IP address that the HDX uses to access the Internet. In a home network this is often the same IP address as the Modem/Router
- **IP Address** – This is the unique address of a device on a network. The HDX has two IP addresses. One for the Main Controller and one for the Front Display Controller.
- **ISP** – The Internet Service Provider is the company that provides the Internet connection to the home.
- **Static addressing mode** – in this mode the user manually allocates the IP addresses to the HDX. This method is more complicated than DHCP and should only be used if it has been determined that static addressing mode is necessary.
- **LAN** – The Local Area Network is the home network that is 'behind' the Modem/Router.



- **Modem/Router** – This device has many functions and is usually the hub of a home network. It's functions normally include:
 - Broadband modem. Connects the home network to the Internet
 - Ethernet switch. Allows multiple devices to be connected together to form a network
 - WiFi access point – Allows wireless connection of devices to the home network
 - Firewall – Prevents unwanted intrusions from the Internet
 - DHCP server – Automatically allocates IP addresses
- **Netmask** – The Netmask determines the range of IP addresses that the HDX can communicate with. It must be compatible with the other devices on the network. For example if the Netmask 255.255.255.0 and the IP address is 192.168.0.10 only devices in the range 192.168.0.0 to 192.168.0.255 can be accessed.
- **WAN** – The Wide Area Network is the network 'outside' the Modem/Router. This is the network provided by the ISP and enables connection to the Internet.

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