

General Prerequisites before starting:

This tech note assumes:

Connecting to NetLinx Master/Refreshing Online Tree

The user should already be able to connect to master controllers and refresh an online tree. If this is new a process, there is a description of how to accomplish this in technote number 982.

DGX/DVX

If one is using a DVX/DGX it should already be on a LAN and configured with a static IP. DHCP will work, but in practice, it is best, at minimum, to have the DVX/DGX remain static, or at the least have a static DHCP lease. To determine the IP of a DVX, hit the status button on the front of the DVX and scroll down with the down arrows until the IP address is revealed. Record this IP for later.

Point to Point

Point to point TX/RX Combinations may be in three possible configurations: 1) connected physically to a LAN, 2) connected directly to a PC, or 3) connected to a LAN with a master present.

User's PC

The user should either have a DHCP or static IP address and be able to be moved from one network subnet to another in case he needs to move between the native subnet of the TX/RX (192.168.1.x) and the installation/client subnet.

Basic Summary of Steps

In order to configure TX's and RX's to communicate with masters, load firmware, etc the following is a general outline of steps

1. Set dip switches 1 and 3 to the "on" position on the Transmitters and Receivers.
2. If using a DVX, enable DXLink Ethernet on the input and/or output ports)
3. Locate the devices on the network
4. Configure the devices via telnet
5. Load Firmware if necessary

Setting Dip Switches

- On Decora transmitter wall plates (AVB-DWP-TX-MULTI-DXLINK), the dip switches are located under the faceplate between the Decora sections containing the video connectors and LED's.
- On standard transmitter wall plates (AVB-WP-TX-MULTI-DXLINK), remove the four screws on the front plate, allowing the back to be removed. The dip switches are just above the silver metal section containing the DXLink connector.

- On Receiver and Transmitter boxes (AVB-TX-MULTI-DXLINK and AVB-RX-DXLINK-HDMI) dip switches are clearly visible on the bottom
- Set dip switches **1 and 3** into the **up** position

Enabling DXLink Ethernet on a DVX

If you are using point to point, ignore this section. This only applies to the DVX 31xx and 21xx series of processor/switchers.

There are two ways of enabling DXLink, depending on your application:

The “Web Interface” way

1. Open any web browser
2. Type the IP address of the master controller
3. In the upper right there is a drop down window, select the “5002 Switch device”.
4. Select the system tab
5. Look to the right, there is another dropdown box, labeled “DXLink Ethernet”
6. Select each input and check the “Auto” box

The “Code” way

Device numbering

To enable output Ethernet to Receiver Boxes, the device number is 5002, the device port number is the output port. For example, on the 2155 the DXLink output is port 3, so we will send commands to 5002:3:0. The inputs are the same concept. For example on the 3155 one of the DXLink inputs is input 9, so we address our configuration strings to 5002:3:0

In your input online events, write the strings like this.

```
SEND_COMMAND 5002:9:0, 'DXLINK_IN_ETH-AUTO'
```

Of course you may use your device name instead of 5002:9:0, let's call it dvInput9 DEFINE_DEVICE

```
dvInput9=5002:9:0 DEFINE_EVENT
```

```
DATA_EVENT[dvInput9]
```

```
{
```

```
Online:
```

```
{
```

```
SEND_COMMAND dvInput9, 'DXLINK_IN_ETH-AUTO'
```

```
}
```

```
}
```

For Receivers/Outputs, the command is similar, but doesn't have the “IN” portion.

```
SEND_COMMAND 5002:9:0, 'DXLINK_IN_ETH-AUTO'
CHANGE TO SEND_COMMAND 5002:3:0, 'DXLINK_ETH-AUTO'
DEFINE_DEVICE dvOutput3=5002:3:0 DEFINE_EVENT
DATA_EVENT[dvOutput3]
{
Online:
    {
        SEND_COMMAND dvOutput3, 'DXLINK_ETH-AUTO'
    }
}
```

Locating the device on the network

Again, there are two methods for locating your devices. The first way, when it works, is fastest but tends to not work in all environments. The latter way is the most direct, reliable, and predictable.

Using a DVX/DGX

This method assumes that a network exists with DHCP that the DVX/DGX is connected to and that DXLink on DVX'es has been enabled as described above

1. Look for the Workspace bar on the left hand side of studio. If you don't see a vertical space with tabs on the bottom that say "Workspace" and "Online Tree", then go to

"View" in the top menu of Studio and click "Workspace Bar"

2. Select the Online Tree tab, right click the "empty online tree" area and select "refresh system online tree"
3. Under "unbound devices" one should see any DXLink devices that are communicating with the DVX/DGX over NDP
4. Right click the device and select "Launch Telnet Window Via NetLinx Studio"
5. Proceed to the "Configure Devices via Telnet" section below.

Point to Point /Manual Configuration

PC Configuration/Preparation

1. Set the IP in the computer to 192.168.1.x, with "x" representing a number besides 2
 - a. Click Start/Control Panel/Network and Sharing
 - b. On the left hand side of the window, select "change adapter settings"

- c. Find “local area connection”
 - d. Right click and select “properties”
 - e. Select “internet Protocol Version 4 (IPV4)
 - f. Select Properties
 - g. Select “use the following IP address”
 - h. Set IP to 192.168.1.223 (or any other number besides 2)
 - i. Allow it to set the subnet mask to 255.255.255.0
 - j. Hit OK Twice and back out of network settings.
2. Start a continuous ping to 192.168.1.2
 - a. Click start, run/search
 - b. In the run window type CMD
 - c. At the prompt, type “ping 192.168.1.2 –t” The ping should fail.

Setting the TX/RX to Static IP Mode

This step is for units new out of the box. If the transmitter or receiver has been used in the past, one may wish to default it as outlined below then return to these steps. It is easiest to do this via the ICSLan port instead of putting it on DXLink; however, Transmitter wallplates do not have this option. Do not let the term “ICSLan” confuse you. It is simply Ethernet. Once we are done configuring and the device is visible in the online tree, move it to DXLink.

1. Press and hold the ID button on the DXLink Transmitter or receiver until all the LED’s fast flash in unison, then let go. Device should reboot.
2. The above mentioned pings should start responding.
3. If pings are responding, proceed to the “Configure Devices via Telnet” section below, else proceed to the “Defaulting Transmitters and Receivers” section below.

Defaulting Transmitters and Receivers

1. Remove power from the transmitter or receiver
2. Hold the ID button down
3. Reapply power without releasing the ID button
4. After a period of time. LED’s should blink in unison, and then start fast blinking.
5. Release the ID button and allow the unit to reboot

At this point the unit is defaulted to DHCP. It will need to be toggled to static as described above in the prior section if you wish to configure it. The process is nearly identical, except one doesn’t remove power.

Configuring Devices Using Telnet

By now, one should know the IP address of the transmitter or receiver as described above. If not, repeat the above process until it's possible to ping the target device.

1. Telnet to the device
 - a. Open NetLinx Studio
 - b. Go to Tools>Telnet
 - i. The communications setting box will pop up
 - ii. Click "New"
 - iii. In the window enter 192.168.1.2 for the TCP/IP address iv. Enter whatever description is applicable
 - v. Hit "Ok"
 - vi. Highlight "192.168.1.2" and click "select" vii. Hit "Ok"
2. Telnet window should say "Welcome to DXLink"
3. Type "SET IP"
 - a. Select "S" for Static
 - b. Enter proper IP information for your system
 - c. For the purpose of this tech note, set it to something other than 192.168.1.2
4. Type "Set Device" <device number>
 - a. The <Device Number> is the device number that needs to be assigned to the DXLink Device
 - b. Often people set the device numbers starting at 6001, the second at 6002, etc, so the command would be SET DEVICE 6001
5. Type "Set Connection"
 - a. Set Type to TCP
 - b. Enter the IP information for the master controller
 - c. If you ARENT USING a master, set this number to the IP of your PC, preferably one that will be reused to make future troubleshooting easier.
6. Reboot the device

7. If one is using a master, refresh the online tree and verify the unit shows up. If not, proceed to the section below describing firmware loading using a Virtual NetLinx Master if you wish to verify connection, load firmware, send commands, or troubleshoot
8. Once configuration and detection is complete, make DXLink connections
 - a. If the configuration is point to point, repeat this process to configure the other end of the pair.
 - b. If this is the second DXLink device on the Transmitter/Receiver pair, connect them together via DXLink and leave **ONLY ONE OF THE PAIR** connected to the network via ICSLan. Leaving both can result in catastrophic network failure.
 - c. If the Transmitter or receiver is to be used with a DVX/DGX, attach it to DXLink at this point and refresh the online tree again to make sure the device is connecting

Loading Firmware

Firmware files are found on AMX.com. Locate your product under our product pages and download the firmware files available on the right hand side in the column of manuals and other information

With a master

1. Connect to the master with studio and refresh the online tree to verify connection and that All of the transmitters and receivers appear in the online tree. If this isn't something familiar, see tech note 982
2. In Studio go to "Tools>Firmware Transfer>Send to NetLinx Device"
3. Transfer Firmware
 - a. Select the folder containing your firmware "kit" file. The firmware should now appear in the upper left hand box of the firmware transfer window
 - b. At the bottom, put in the device number you wish to send firmware to c. Click Send.

Without a Master

1. The transmitters and receivers should already be pointed at the IP address of the PC being used to transfer firmware. If not, see the "Configure devices via telnet" section.
2. Close any open workspace
 - a. In studio go to File > Close Workspace
3. Go to Settings>Master Communication Settings
4. Highlight <No Active System – Default Settings> on the left hand side
5. Click "Communication Settings"
6. Select "Virtual NetLinx Master"
7. If necessary, select "properties" and select the proper network adapter/IP address for the PC
8. Hit OK Twice

9. Refresh The online tree – the transmitters and receivers should be visible
10. In Studio go to “Tools>Firmware Transfer>Send to NetLinx Device”
11. Transfer Firmware
 - a. Select the folder containing your firmware “kit” file. The firmware should now appear in the upper left hand box of the firmware transfer window
 - b. At the bottom, put in the device number you wish to send firmware to c. Click Send.