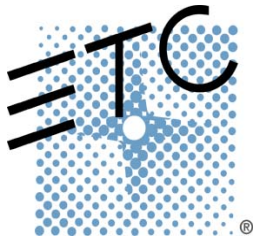
ETCNet2™



Network Configuration Editor User Manual

v3.0.0

Part Number: 4103M1007 Rev A
Released: June 2002

Contents

Introduction

What is Network Configuration Editor?

ETC's Network Configuration Editor (NCE) is a spreadsheet-style software program designed to make configuring ETCNet2™ DMX and Video nodes easy. With NCE you can edit the parameters of any port on any node in an ETCNet2 system. Through an Ethernet connection, you can read the configuration of any node on the network, edit it offline, and send the configuration back to the node via the network for use.

Note: NCE v3.0.x is only compatible with ETCNet2 nodes running version 3.0.x node software. To update nodes from a previous version of software, please read *Appendix C- Upgrading Node Software (page 33)*.

NCE does not work with ETC's older style Remote Video Interface (RVI), Remote Interface Unit (RIU) or with ETCNet2 nodes running in ETCNet1 mode with Expression® family consoles. If you have questions about the type of network you have, please call ETC Technical Services at the office nearest you:

ETC Americas 800/775-4382
ETC Asia . . . . . +852 2799 1220
ETC Europe . . . . . +44 0 20 8896 1000

If you have any comments regarding this manual, please email us at: TechComm@etcconnect.com

Emphasis™ Users

Several parts of this manual don't directly apply to users of NCE on an Emphasis Server. All added notes assume that NCE is running on the Emphasis Server.

Notes have been added in the relevant topics to let you know how they are different for you. Frequently, the changes will be things you don't need to do because Emphasis has already taken care of it. The first of which are meeting the minimum requirements below and performing the initial installation.

If you are running NCE on an additional PC to your Emphasis system, then follow all of the normal instructions.

Minimum requirements

These minimum requirements are for a personal computer running Network Configuration Editor (NCE).

- Pentium® or compatible processor, 266MHz or better
- 32MB RAM
- Screen resolution should be set to 800X600 or greater
- Compatible with Windows® 98, 2000, NT4 (with Service Pack 5 and later), XP.
- Microsoft Internet Explorer 5.1 or higher
- Network Interface Card (NIC) capable of 10Mbps transmission speeds over UTP cable

Product Definitions

ETCNet2 - ETC's current Ethernet protocol suite, ETCNet2 supports IP addressing that allows the use of off-the-shelf Ethernet hubs and switches in networked systems.

ETCNet1 - A proprietary Ethernet based communication protocols used with Expression family consoles, Remote Interface Units (RIU's), Remote Video Interfaces (RVI's) and Obsession® I consoles. Products using these protocols are *not* configurable with NCE.

EDMX™ - Ethernet DMX. On an ETCNet2 network there are 32,767 valid EDMX addresses (from 1-32,767) each of which contain level information of 0 to 100%.

It is important to note that EDMX does not operate on a Highest Takes Precedence (HTP) basis. Instead, it works on an "ownership" scheme based on priority levels of individual sources, such as an Emphasis system, a Unison® zone or a individual input port on a DMX Node.

Please see *Appendix A- ETCNet2™ EDMX™ Rules (page 29)* for a detailed list of rules that determine how priorities work and what source will have control based on individual software configurations.

vPort™ - A vPort is a sequential range of EDMX values assigned a numeric label. By default, a vPort contains 512 sequential addresses (and their associated EDMX values). See *Appendix B- Default vPort™ Table (page 31)* for a table of vPorts and their default EDMX values.

System - A collection of networked or non-networked ETC devices connected via any of a variety of communication protocols for the control of a specific geographic area (i.e. Lobby, Theatre, Ballroom, etc.). A system may also refer to a specific family of controllers (Obsession II system, Expression system, Unison system, etc.) It should be noted that a single network may connect several different systems.

Network - A collection of ETCNet1 or ETCNet2 devices connected via a common media and communication type such as Category 5 UTP.

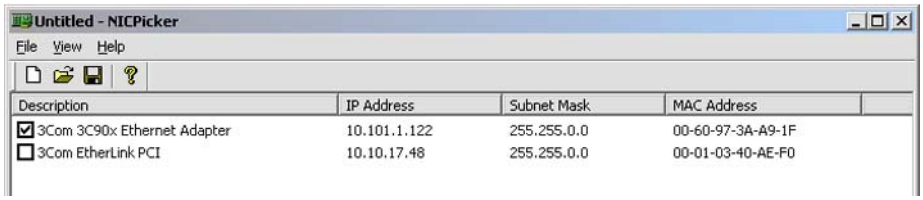
Installing NCE

Install Network Configuration Editor (NCE)

ⓘ Emphasis User: Unless you are upgrading to a more recent version of NCE or node software (currently v3.0.0), it is already installed for you as part of your base system.

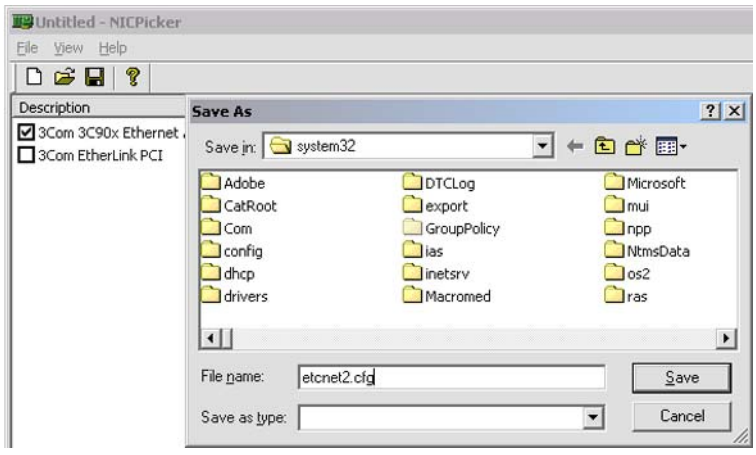
To install the ETCNet2 NCE:

1. Insert the CD-ROM with NCE v3.0.0 on it into the CD-ROM drive on your computer.
2. On your desktop, double-click **My Computer**.
3. Double-click **Compact Disc**.
4. Double-click the **Setup.exe** icon for NCE and follow the instructions on your screen.
5. Use the default installation location
6. Use the default Setup Type of **Typical**.
7. Near the end of the install process, a NICPicker window will appear.



This is to allow to select which Network Interface Card (NIC) you want to use with ETCNet2 applications such as NCE. Checkmark the box of the one you want to use. If only one NIC is available, use that one.

8. Once you have selected your NIC, choose **Save**.
9. A Save dialog box will appear. The default directory and file name to save your selection is correct. ***Do not change the location or the file name!*** The file name must be: **etcnet2.cfg**



10. Click Save.
11. Close NICPicker.
12. Click Finish to complete the NCE installation process.

There are three additional files that must be installed separately from NCE. They contain the *dmxnode.bin*, *vidnode.bin* and *twoport.bin* files for the ETCNet2 DMX, Video Nodes and Two Port Nodes respectively.These files are self-extracting executable files that are used to update software on ETCNet2 nodes and enable the Network Address Server to hand out IP address to those node types.

To install the *dmxnode.bin*, *vidnode.bin* and *twoport.bin* files (follow the same procedure for each of the files):

13. Double-click the **dmx_A3.0.0.9.0.13_R1.0.1_E3.1_T1.3.0.exe** file (**vid_A3.0.0.9.0.12_R1.0.2_E3.1_T1.3.1.exe** for the Video Node file).
    Note: These file names will change slightly with minor updates to the software.
14. Click Unzip.
    Note: You must install the .bin files in the default directory. NCE is programmed to look in the default directory and will not update nodes properly if the .bin files are not stored there.
15. If a dialog box appears asking if it is okay to overwrite the existing files, click “Yes”. This will replace a previously installed version of node software with the current version.
16. Then click “OK” and “Close”
17. Repeat steps 12 through 15 for the other node types.

Network Settings

ⓘ Emphasis User: The Emphasis Server network settings are the default ETC® values and ready for immediate use. No configuration is required.

IP addresses for ETCNet2 nodes are automatically set by NCE based on the IP address of the PC that Network Configuration Editor is installed on.

You also must set an IP address for any personal computer you plan to use on an ETCNet2 network. ETC recommends that the personal computer used on an ETCNet2 network is dedicated to that network so changes to network settings are kept to a minimum.

Note: If the computer you wish to use is currently being used on a non-ETCNet2 network please consult your Network Administrator before changing the IP, Subnet Mask or Gateway addresses.

Default Network Settings for your personal computer

Prior to changing any Network settings on your personal computer please record the current settings in the following spaces below.

- IP Address _____
- Subnet Mask _____
- Gateway _____

To use your personal computer on an ETCNet2 network that does not use a network router (i.e. hub and/or switch only), ETC recommends the following default settings:

- IP Address 10.101.1.101
- Subnet Mask 255.255.0.0
- Gateway 10.101.1.101

Note: If you have a network that does include a network router, you must set the Gateway address to the appropriate port on the router.

Each additional computer on an ETCNet2 network must have it's own IP address which must be different from any other computer on the same ETCNet2 network. Select from the following default range of IP addresses for an additional personal computer running NCE:

10.101.1.101	10.101.1.113
10.101.1.102	10.101.1.114
10.101.1.103	10.101.1.115
10.101.1.104	10.101.1.116
10.101.1.105	10.101.1.117
10.101.1.106	10.101.1.118
10.101.1.107	10.101.1.119
10.101.1.108	10.101.1.120
10.101.1.109	10.101.1.121
10.101.1.110	10.101.1.122
10.101.1.111	10.101.1.123
10.101.1.112	10.101.1.124

Bootp.cfg file settings

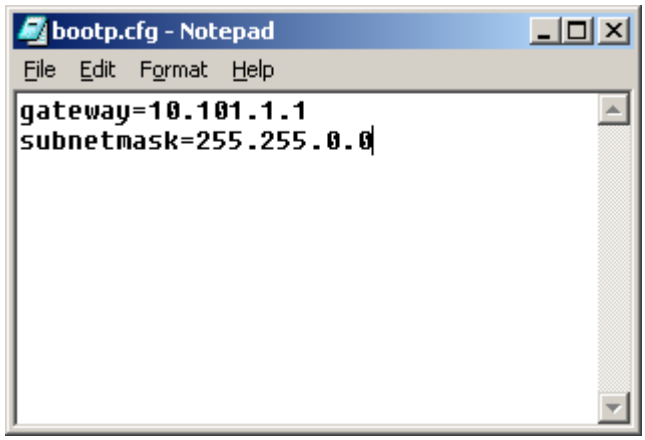
In NCE version 3.0.0, you should not need the bootp.cfg file unless you are running a version of Windows® prior to Microsoft® Windows 98 Second Edition. It is still included with this release and will not overwrite your bootp.cfg file from a previously installed version of NCE. Read on if you think you still need to edit this file.

There is a file installed in the Windows directory that may require user intervention. If you use something other than the default IP addresses, the bootp.cfg file must be set to match the network settings on your personal computer.

To change the bootp.cfg file settings:

1. Using Windows Explorer, browse to the Windows folder (default path is C:\windows – or C:\winnt depending on the operating system of the machine)
2. Double-click on **bootp.cfg** (if it does not automatically open in Notepad, select Notepad in the **Open With** dialogue box. Do not check the "Always open with..." box).
3. Edit the bootp.cfg file so that the Gateway and the Subnet Mask match the Network Settings of your personal computer.
4. Save your changes and close Notepad.

Note: If you are using default IP Addresses the bootp.cfg file will not need to be changed.



Setting the IP address on ETCNet2 Nodes

When ETCNet2 nodes are shipped from the factory, they do not have a valid IP address. They must be assigned an IP address via NCE. NCE automatically sets the IP address for ETCNet2 nodes via the **Network Address Server**.

Note: For a node with factory defaults to receive an IP address it must be powered on and connected to the network. Connect all nodes to the network prior to enabling Network Address Server.

ⓘ Emphasis User: The Network Address Server within NCE will not function on the Emphasis Server. This is because the server already has that same functionality running constantly in the background. NCE's Network Address Server knows not to duplicate it and will simply not run.

To give DMX and Video nodes IP addresses initially, all you have to do is have your Emphasis Server turned on and it will happen automatically for you.

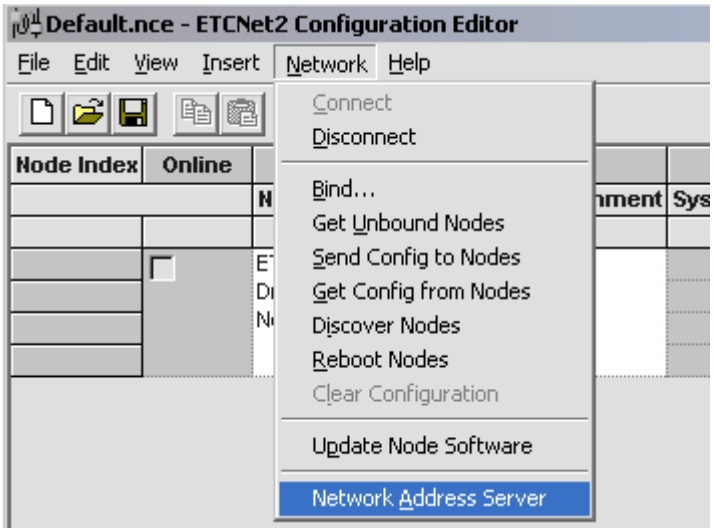
Enabling Network Address Server is a two step process, first you must connect NCE to the network, then you must enable Network Address Server.

To connect NCE to the network:

- Open the **Network** menu, click **Connect.**

To set IP addresses for ETCNet2 DMX and Video nodes:

- Open the **Network** menu, click **Network Address Server**



Once Network Address Server is enabled, it will send IP addresses to all ETCNet2 nodes (that are currently at factory defaults) on the network. No user intervention is required during this process.

On larger networks that employ a network switch or router, the Network Address Server resolves IP addresses for nodes on different network segments automatically.

Note: Any programmable switch or router to be used on an ETCNet2 network must be configured prior to using ETCNet2 nodes or Network Configuration Editor.

Note: To resolve IP addresses on nodes that currently have an IP address, see below.

What to do if a Node has an IP address but the address is not compatible with the current network address scheme.

It's possible that you may want to use a node that was previously used on a different network. If the IP address for that node is not compatible with the address scheme on your network you will need to assign it a new IP address.

The following procedure also resolves the IP addresses for a node in the event that it has the same IP address as another node already on the network.

To assign an IP address to a node that already has an IP address:

1. Connect the node in question to the network but do not power it on.

ⓘ Emphasis User: If this is being performed on an Emphasis Server, then you will not need to perform step 2.

2. In NCE, enable **Network Address Server**.
3. Apply power to the node.
4. The node will take a new IP address that is compatible with the TCP/IP settings of NCE and the PC it is running on is configured.

Note: Although there is a network function called **Reboot Nodes**, it will not work in this instance because the node you need to reboot has an IP address that can not be “seen” by NCE. A node must be configured with a valid IP Address for your network and properly connected to NCE and the network in order for **Reboot Nodes** to work.

Overview

NCE and the ETCNet2 DMX node

NCE allows you to configure the DMX512 and RFU ports on the ETCNet2 DMX node. Each DMX port may be defined as either an input or an output, regardless of the gender of the physical connector.

DMX Input

When a port on the node is configured for Input, the node receives DMX512 from an external source and outputs EDMX to the ETCNet2 network.

DMX Output

When a port is configured for Output, the node receives EDMX channels from the ETCNet2 network and outputs DMX512 to a DMX512 device. A DMX512 output always starts with DMX 1.

EDMX and vPorts

A vPort's range of up to 512 EDMX addresses can be assigned (sequentially) anywhere in the range of 32,767 addresses allowed on an ETCNet2 network. There are 64 default vPorts in NCE. A vPort can be assigned to any DMX input or DMX output port on an ETCNet2 network.

Any DMX port may be mapped to specific addresses in the EDMX universe of 32,767 values. This is accomplished in one of two ways.

Editing EDMX numbers

When you have a device inputting DMX512 onto a ETCNet2 network you will typically have at least two ETCNet2 DMX nodes. One will generally serve as a DMX512 input and the other as a DMX512 output device. Match the EDMX Start values for each port on both nodes so that they communicate the correct values.

Editing EDMX numbers is the most flexible manner of numbering but can make for a lot of bookkeeping due to the large numbers involved.

Using vPorts

A vPort is a range of EDMX values assigned a numeric label. Once your vPorts are set up, you can assign them to physical ports without having to edit EDMX addresses on a port by port basis.

EDMX consists of 32,767 addresses. A vPort is a collection of up to 512 sequential addresses that can be placed anywhere within that range.

Each of the 512 possible addresses in a vPort is an EDMX value. In a default configuration, vPort 1 = EDMX addresses 1-512, vPort 2 = EDMX addresses 513-1024 and so on.

Note: NCE defaults to having 64 vPorts. Additional vPorts can be created and will start with vPort 65.

Getting Started

There are two approaches to creating a configuration in Network Configuration Editor. The first is to create a configuration for each node from scratch and then download the configuration to the nodes. A second, faster and easier approach is to install your network with all of the nodes and then use the **Get Unbound Nodes** command in NCE. This is used to get the existing factory default configurations from your nodes and begin building from there.

Building Configurations

To use the **Get Unbound Nodes** command you must have all nodes installed on the network and also have your personal computer properly configured.

Once your nodes are installed and your personal computer's IP address is set, you're ready to begin building a configuration.

Connect to the network

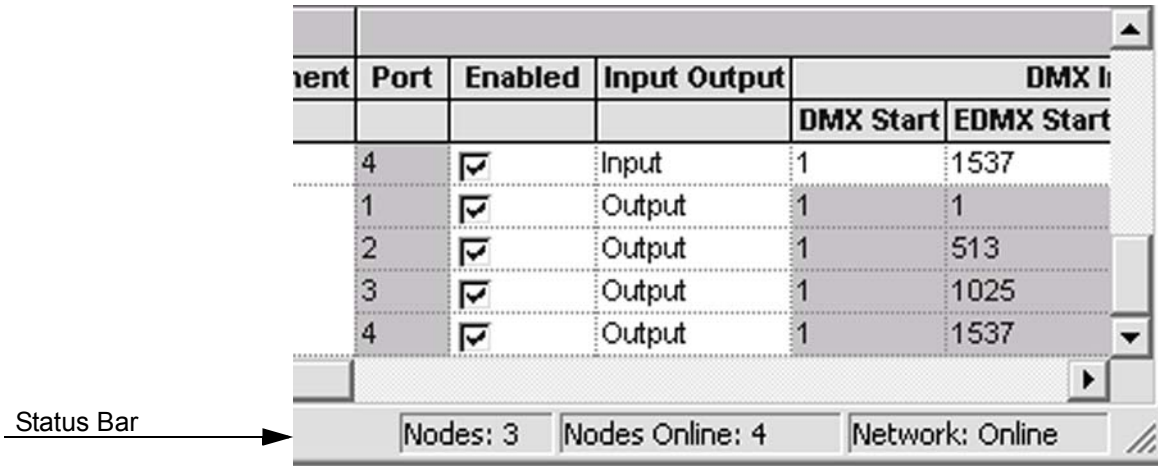
Once you've opened NCE you must first connect your PC to the network.

To connect your PC to the network:

- On the **Network** menu, click **Connect.**

Note: The status bar along the bottom of the window shows information about devices on the network and whether or not your PC is connected.

On the status bar:
Nodes = the number of nodes in the configuration.
Nodes Online = the number of nodes on the network.
Network: Online = PC is connected to the network.
Network: Offline = PC is not connected to the network.



Get Unbound Nodes

Build a new configuration file from nodes already on the network by using the **Get Unbound Nodes** command. When you start with a blank configuration, this command will add any nodes on the network to your configuration as new nodes. This command will also add new nodes to an existing configuration. You must be connected to the network to get a configuration file from a node.

To get the configuration files from unbound nodes:

- On the **Network** menu, click **Get Unbound Nodes**.
- Click “Yes” when prompted.

Once the unbound nodes appear in your configuration file, proceed with editing parameters of the nodes. When the configuration is complete, send the configuration to the nodes to complete the process.

Other Network commands

Send a Configuration to a Node

Use the **Send Config to Nodes** command to update a node on the network with a configuration from your pc. Configuration file nodes must be bound to network nodes before sending a configuration to a node.

- On the **Network** menu, click **Send Config to Nodes**.

Note: To get a config from a specific node, highlight the node (or nodes) by clicking (or control-clicking to select multiple nodes) in the Node Index column and follow the same procedure.

Read a Configuration from a Node

Use the **Get Config from Nodes** command to update an existing configuration file. Configuration file nodes must be bound to network nodes to be able to get a configuration from a node.

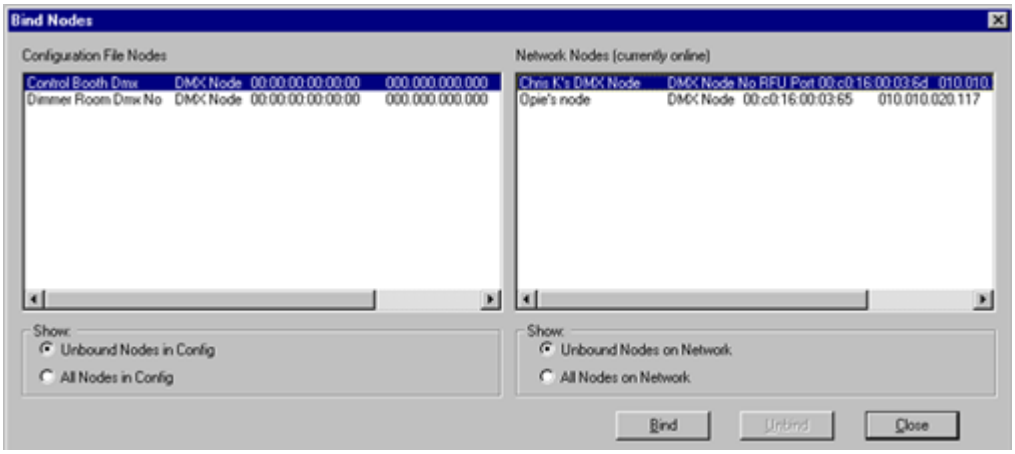
To get the configuration from a node:

- On the **Network** menu, click **Get Config from Nodes**.

Note: To get a config from a specific node, highlight the node (or nodes) by clicking (or control-clicking to select multiple nodes) in the Node Index column and follow the same procedure.

Binding Nodes

If you've created the configuration offline you must bind the nodes in your configuration file to the physical nodes on the network. When planning your network, keep track of the MAC address's of your nodes. Use the MAC address to identify your nodes when working in the **Bind Nodes** display.



To bind configuration file nodes to physical nodes:

- On the **Network** menu, click **Bind**.
- In the **Bind Nodes** window, click a node in the **Configuration File Nodes** window and the corresponding node in the **Network Nodes** window, click **Bind**.

Discover Nodes

The **Discover Nodes** function switches any ETCNet2 node running in ETCNet1 mode into ETCNet2 mode (i.e. a node previously connected to an Expression family console).

Note: Discover Nodes does not allow ETCNet1 devices (ETCNet Remote Interface Unit or ETCNet Remote Video Interface) to operate in ETCNet2 mode.

To set all nodes on the network in ETCNet1 mode to ETCNet2 mode:

- Reset all nodes by either using the power switch on the front of the Video Node or by unplugging power and reconnecting power.
- On the **Network** menu, click **Discover Nodes**.

Reboot Nodes

The **Reboot Nodes** feature is used in the event that you want to reboot your nodes remotely.

To reboot all nodes:

- On the **Network** menu, click **Reboot Nodes**.

Note: To reboot a specific node, highlight the node (or nodes) by clicking (or control-clicking to select multiple nodes) in the Node Index column and follow the same procedure.

Clear Configuration

The **Clear Configuration** feature is used to restore the factory defaults to any nodes selected. It is password protected to prevent its accidental use.

Clear Configuration is reserved for use only at the direction of ETC Technical Services.

Update Node Software

To update node software you must first enable Network Address Server. Once Network Address Server is enabled you can update node software.

ⓘ Emphasis User: All you need to do is select Update Node Software as the function of the Network Address Server is already being performed in the backgound. See next entry for Network Address Server for more details.

To update Software in all Nodes:

- On the **Network** menu, click **Network Address Server**.
- On the **Network** menu, click **Update Node Software**.

Note: To update software for a specific node, highlight the node (or nodes) and follow the same procedure.

Note: To update node software or give out IP addresses via NCE you must have the upgrade itself installed on your hard drive. Software upgrades are distributed separately from NCE and by default are installed in the C:\etc\nodesbin directory. **Do not change this directory!** When you run **Update Node Software**, the Network Address Server looks in this directory for node software.

Network Address Server

ⓘ Emphasis User: The Network Address Server within NCE will not function on the Emphasis Server. This is because the server already has that same functionality running constantly in the background. NCE's Network Address Server knows not to duplicate it and will simply not run.

The Network Address Server is used to download new software to an ETCNet2 node or to dynamically assign IP addresses to nodes requesting an IP address like nodes that are powering up for the first time.

To enable Network Address Server:

- On the **Network** menu, click **Network Address Server**.

You will know that the Network Address Server is running by seeing the message "Bootp Started" displayed in the lower-left corner of the NCE window on the status bar. You can also check by clicking on the Network menu and seeing a checkmark in front of Network Address Server.

Basic Configurations

NCE is designed to make configuring an ETCNet2 node easy. To meet the needs of all types of networks, NCE provides both basic and advanced levels of programming for all types of nodes.

NCE supports four types of ETCNet2 nodes:

- DMX Node
- DMX Node without RFU
- Video Node
- DMX Node Two Port

Note: Fields that are greyed out are not editable based on selected parameters.

How to Configure an ETCNet2 DMX node

To configure an ETCNet2 DMX node you must first add a node to your configuration or get unbound nodes from the network.

To add a node to a configuration:

- Open the **Insert** menu and click **DMX Node**.

The default view shows **Node Properties** and **DMX Port Properties**. The screen shot below is the left side of the screen and shows **Node Properties**, which has two editable text fields, the **Node Name** and **Comment** fields.

Text entered in the **Name** field is stored in the node and will appear each time that node is bound to NCE, but text entered in the **Comment** field is only stored in the NCE configuration, not in the node.

Node Properties		
Name	**Type**	**Comment**
ETC Node	DMX Node	

To edit Node Name:

- Double-click in the **Name** field to place a cursor in the field then type the name you wish to assign to the node.

Note: Be sure to use names that have meaning to you so that when you look at a list of nodes, you can more easily see what you are doing. For instance: “Moving Lights in Catwalk 1” is descriptive for both location and use.

DMX Node Two Port

You can name the node and the ports of a 2 port DMX node in NCE and have those names appear on the LCD screen of the 2 port node.

To name the node and or ports of the DMX Node 2 port:

- In the Name field, type the name of the node, the name of port 1 and the name of port 2 with each of them separated by a colon ':'. For example node1:port1:port2.
- There is an additional (fourth) field that can be used to determine the state of the LCD backlight on the node. Valid values are "ON" or "OFF". The syntax to enable the backlight is: node1:port1:port2:ON.

Note: If nothing is entered in the Name field, the IP address of the node will appear on the LCD screen. If nothing is entered in the Port 1 or Port 2 portion of the name field, the EDMX start value will be displayed. These are the default settings of nodes as they will not have any names until you assign them.

DMX Port Properties

The right side of the display shows **DMX Port Properties**.

Port	Enabled	Input Output
1	☑	Input
2	☑	Input
3	☑	Input
4	☑	Input

Port The **Port** column displays the DMX512 port number on your ETCNet2 DMX node.

Enabled Check the box in the **Enabled** column to activate a DMX port.

Input Output Click on **Input Output** to designate your port as either an input or an output. If a port is designated as Input, the Output Port Properties will be greyed out and non-editable for that port.

DMX Input Port Properties

When a port on the ETCNet2 DMX node is configured as Input, the port receives DMX512 from an external source, such as a console, and outputs EDMX onto the ETCNet2 network.

To view the properties of a DMX input port:

- On the **View** menu, select **DMX Inputs**.

DMX Start The number entered in the **DMX Start** column is the first DMX channel that the DMX Input port listens to.

EDMX Start The number entered in the **EDMX Start** column is the first EDMX value that the **DMX Start** is mapped to output to the network. Valid numbers range from 1-32,767.

EDMX Channels Enter a number between 1-512 in the **EDMX Channels** column to designate the number of EDMX channels you want to input. An EDMX port defaults to 512 channels.

Note: if there are fewer than 512 DMX channels being input, the number of EDMX channels will be reduced accordingly.

EDMX End The **EDMX End** column will change to reflect the last EDMX channel used on the Input port. Changing the DMX Start, DMX Channels, or EDMX Start columns will cause the EDMX End column to increment or decrement accordingly.

DD A check mark in the **DD** column indicates that Dimmer Doubling is enabled. When Dimmer Doubling is enabled the number of EDMX channels for a port is divided into two ranges of 256 channels.

DD EDMX Start The **DD EDMX Start** address column displays the start address of the “B” channels on a Dimmer Doubled port.

DD EDMX End The **DD EDMX End** address column displays the end address of the “B“ channels on a Dimmer Doubled port.

HLL **HLL** is an abbreviation for Hold Last Look (Forever). If an ETCNet2 DMX node input port loses the DMX stream from its source, the node will continue to play the last look for an infinite amount of time when the HLL box is checked.

HLL Time **HLL Time** is also used in the event of a loss of DMX input. If the HLL box is not checked, the node will check to see if an **HLL Time** is set. If a time is set, then the node will hold the last look for the amount of time specified. Time is displayed in seconds. The default time is 180 seconds (3 minutes).

vPort Enter a number from 1-64 in the **vPort** column to use a default set of 512 EDMX channels. When you specify a vPort, NCE displays the default EDMX start address and EDMX end address for that vPort. A table of vPorts and their default values is located in *Appendix B- Default vPort™ Table (page 31)* of this manual.

Note: When you assign a vPort, the DMX Start address defaults to 1. Changing the DMX Start address to a number other than 1 will clear the vPort selection.

Port Priority Use a **Port Priority** setting to determine which ports have control of any EDMX channels. A valid Port Priority is numbered from 1-20. Port priorities are used to establish the relative priority or importance of a DMX port based on levels (*1 having highest priority, 20 having lowest*). When an EDMX channel is patched to more than one DMX input port, Port Priority determines which DMX port controls that channel. As a rule, DMX Ports

with higher priority levels take control of EDMX channels from ports with lower priority levels.

Note: An input port will only take control of EDMX values when valid DMX is coming into the port.

Line Termination

Line Termination is a property of input ports but can only be enabled in the Node Details screen.

To enable Line Termination: on the **View** menu select **Node Details**.

DMX Output Port Properties

When a port on the ETCNet2 DMX node is configured as Output, the Node can receive EDMX from the network and output DMX512 to other DMX512 compliant devices.

To view the properties of a DMX output port:

- On the **View** menu, select **DMX Outputs**.

EDMX Start

The number in the **EDMX Start** column displays the first EDMX address assigned to a port. Valid numbers range from 1-32,767.

EDMX Channels

The number in the **EDMX Channels** column, enter the number of EDMX channels you want assigned to that port. A maximum of 512 EDMX channels can be assigned to a port.

EDMX End

The **EDMX End** column is for display only and shows the last EDMX address assigned to a port.

DD

A checkmark in the **DD** column indicates that Dimmer Doubling is enabled. When Dimmer Doubling is enabled the number of EDMX channels for a port is divided into two ranges of 256 channels.

DD EDMX Start

The **DD EDMX Start** address column displays the start address of the “B” channels on a Dimmer Doubled port.

DD EDMX End

The **DD EDMX End** address column displays the end address of the “B“ channels on a Dimmer Doubled port.

vPort

Enter a number from 1-64 in the **vPort** column. Each vPort has a default set of 512 EDMX channels. When you specify a vPort, NCE displays the EDMX start address and EDMX end address for that vPort. A table of vPorts and their default values is located in *Appendix A* of this manual.

Port Speed

Port Speed is a property of DMX output ports but it can only be accessed via the Node Details screen. To change Port Speed: on the View menu select Node Details. Under Port Speed select from Max, Fast, Medium, Slow. Refresh rate is (average): Max = 42Hz, Fast = 39Hz, Medium, = 35Hz, Slow = 30Hz.

HLL

HLL is an abbreviation for Hold Last Look (Forever). If an ETCNet2 DMX node output port loses the EDMX stream from its source, the node will

continue to play the last look for an infinite amount of time when the HLL box is checked.

HLL Time — **HLL Time** is also used in the event of a loss of EDMX input. If the HLL box is not checked, the node will check to see if an **HLL Time** is set. If a time is set, then the node will hold the last look for the amount of time specified. Time is displayed in seconds.

Data Loss Fade Enabled — When HLL is disabled, check the **Data Loss Fade Enabled** box to set a fade time a DMX port so that if it does lose EDMX the port will fade out.

Data Loss Fade Time — The **Data Loss Fade Time** is the amount of time that it takes for a port to fade from the last known level to a level of zero if EDMX has been lost.

Data Loss Port Disable — The **Data Loss Port Disable** box allows you to determine the state of a DMX output port in the event that EDMX input is lost. When this box is checked, and there is a loss of EDMX input, the DMX output port is disabled. When this box is not checked, and EDMX input is lost, the DMX output port goes to zero and continues to output valid DMX512 with zero levels on the DMX line until EDMX input is reestablished.

Edit vPort Table

To edit vPorts:

- On the **Edit** menu, click **Edit vPorts**.

EDMX values

The default vPort table shows the list of **vPort ID** numbers in the left-hand column. To change the EDMX Start and EDMX Channels for a vPort, click in a text box in one of these columns and enter a new value.

Note: If a DMX port (Input or Output) is assigned to that vPort, the EDMX values for that port will be updated in the configuration when the vPort is updated.

Dimmer Doubling

Dimmer doubling can be enabled in the vPort menu.

A checkmark in the **DD** column indicates that Dimmer Doubling is enabled. When Dimmer Doubling is enabled the number of EDMX channels for a port is divided into two ranges of 256 channels.

The **DD EDMX Start** address column displays the start address of the “B” channels on a Dimmer Doubled port.

The **DD EDMX End** address column displays the end address of the “B“ channels on a Dimmer Doubled port.

View menu

There are a number of viewing options available that can be used to get specific information about your ETCNet2 nodes.

View DMX Nodes

To get information on DMX nodes, select **View DMX Nodes**.

To view DMX nodes:

- Open the **View** menu, click **DMX Nodes**.

View Video Nodes

To get information about Video nodes, select **View Video Nodes**.

To view Video nodes:

- Open the **View** menu, click **Video Nodes**.

View vPorts

To see what vPorts are used on any current input or output port, select **View vPorts**.

To view vPorts:

- Open the **View** menu, click **vPorts**.

View DMX Inputs

To check settings for all of the DMX Input ports in your configuration, select **View DMX Inputs**.

To view DMX Inputs:

- Open the **View** menu, click **DMX Inputs**.

View DMX Outputs

To check settings for all of the DMX Output ports in your configuration, select **View DMX Outputs**.

To view DMX Outputs:

- Open the **View** menu, click **DMX Outputs**.

View Video Ports

To check settings for all of the Video ports in your configuration, select **View Video Ports**.

To view Video Ports:

- Open the **View** menu, click **Video Ports**.

View RFU Ports

To check settings for any RFU ports in your configuration, select **View RFU Ports**.

To view RFU Ports:

- Open the **View** menu, click **RFU Ports**.

View Node Addresses

There are many different types of network addresses used to define a node and its functions in an ETCNet2 network. These addresses are automatically set by NCE and do not require additional configuration by the user.

To see Node addresses:

- On the **View** menu, click **Node Addresses**.

View Node Details

The **Node Details** window is an expanded view of every parameter of the ETCNet2 nodes in your configuration. These parameters are primarily used by ETC personnel for diagnostics and troubleshooting.

To see all available parameters of your nodes:

- On the **View** menu, click **Node Details**.

Configure an ETCNet2 Video node

To configure an ETCNet2 Video node you must first add a node to your configuration.

To add a node to a configuration:

- On the menu bar, click **Insert** and click **Video Node**.

The ETCNet2 Video node is used to provide remote displays of your control system. There are 11 properties of a video node that can be edited by the user.

Node Index	Online	Node Properties			Video Port Properties			RFU Port Properties	PC Keyboard Port Properties
		Name	Type	Comment	System ID	Display Number	Locked	System ID	System ID
	☑	ETC Video Node	Video Node		0	CRT1	☐	0	0
					0	CRT2	☐		
							☐		
							☐		
							☐		
							☐		
							☐		
							☐		

Video Port Properties

System ID

The System ID is used in networks where there is more than one Emphasis or Obsession II system. Use the System ID to identify which system your video ports are connected to.

Display Number

Select CRT 1-CRT 8 to identify which video ports on the Emphasis system or Obsession II system you want the ETCNet2 video node to mimic.

	Obsession II	Emphasis
Monitor	Display	Display
CRT 1	User one - CRT 1 - console	CRT 1 - console
CRT 2	User one - CRT 2 - console	CRT 2 - console
CRT 3	User one - expanded channel display 1	
CRT 4	User one - expanded channel display 2	
CRT 5	User two - CRT 1 - console	
CRT 6	User two - CRT 2 - console	
CRT 7	User two - expanded channel display 1	
CRT 8	User two - expanded channel display 2	

Locked

Enable the Lock feature to lock the properties of a video port so that they can only be changed by Network Configuration Editor.

Note: In version 3.0.0 of NCE you must either lock both video ports or neither of the video ports. This is due to the fact that currently an Obsession II processor and NCE treat video ports slightly differently.

PC Keyboard Port Properties

If a keyboard is connected to a video node you can also set a System ID for the keyboard. The System ID is used in networks where there is more than one Emphasis or Obsession II system. Use the System ID to identify which II system your keyboard is connected to.

RFU Port Properties

ETCNet2 DMX and Video Nodes also support a Remote Focus Unit (RFU). There is one property that may be set for an RFU, **System ID**.

To view the RFU port properties of a video or DMX node:

- On the **View** menu, click **RFU Ports**.

Node Index	Online	Node Properties			RFU Port Properties
		Name	Type	Comment	System ID
	☐	ETC Video Node	Video Node		1

System ID

The System ID is used in networks where there is more than one Emphasis or Obsession II system. Use the System ID to identify which system your RFU port is connected to.

Remote Macro Properties

The Video Node is capable of taking eight (8) individual closures that will fire a user specified macro on an Emphasis system.

Remote Macro Properties				Remote Trigger Properties	
System ID Leading Edge	Leading Edge Macro	System ID Trailing Edge	Trailing Edge Macro	System ID	Trigger ID
0	1901	0	0	0	1
0	1902	0	0		
0	1903	0	0		
0	1904	0	0		
0	1905	0	0		
0	1906	0	0		
0	1907	0	0		
0	1908	0	0		

Leading Edge Macro

The **Leading Edge Macro** number will fire the corresponding macro on the Emphasis system with the same System ID. This macro will fire at the moment the external closure is *closed*.

Leading Edge System ID

The System ID is used in networks where there is more than one Emphasis system. Use the System ID to identify which system your remote macro leading edge trigger is sent to.

Trailing Edge Macro

The **Trailing Edge Macro** number will fire the corresponding macro on the Emphasis system with the same System ID. This macro will fire at the moment the external closure is *opened or released after being closed*.

Trailing Edge System ID

The System ID is used in networks where there is more than one Emphasis system. Use the System ID to identify which system your remote macro trailing edge trigger is sent to.

Remote Trigger Properties

The **Remote Trigger** function allows you to program a macro on an Emphasis system to send an On or Off signal to the remote macro port on a Video Node. This remote dry contact closure can be used to control any external device capable of using this type of closure. The **Remote Trigger** has a *normally open* and *normally closed* output.

Trigger ID

The **Trigger ID** is used to identify which remote trigger command this video node will respond to. The remote trigger ID must match the remote trigger ID set on the controlling Emphasis system.

System ID

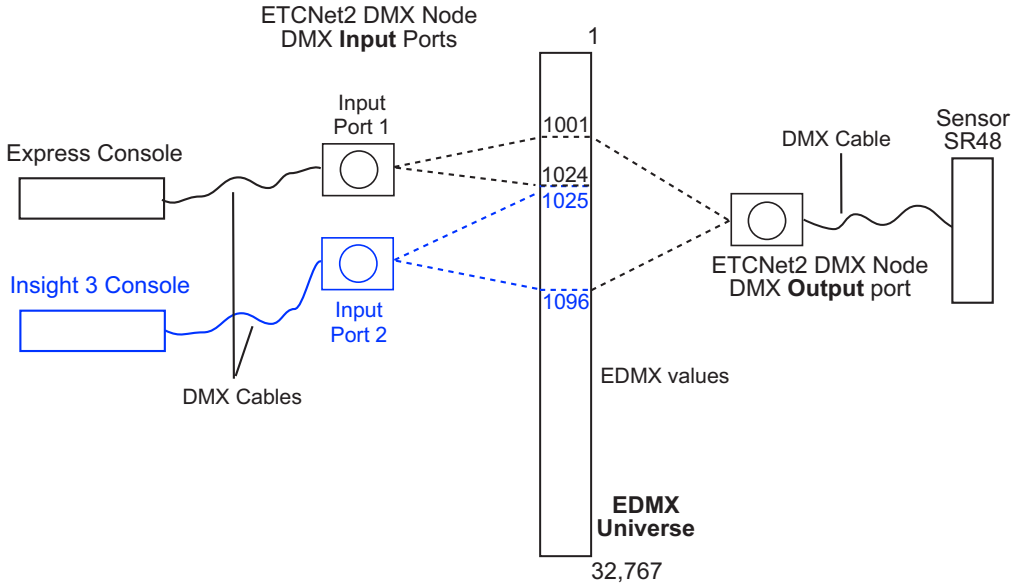
The System ID is used in networks where there is more than one Emphasis system. Use the System ID to identify which system your remote macro leading edge trigger is sent to.

Advanced Configurations

Creating a DMX Offset

Network Configuration Editor also makes it easy to configure large networks with multiple nodes and with more than one console controlling the same dimmer rack.

For example, two consoles can send DMX512 levels to a single dimmer rack and share certain dimmers by programming offset EDMX addresses in Network Configuration Editor. In the following diagram there are two consoles controlling a single rack.



In this configuration, the Express console sends DMX512 to Input port 1 on the ETCNet2 DMX Node and the Insight 3 console sends DMX512 to Input port 2. A second ETCNet2 DMX Node is located in the dimmer room with port 1 configured as Output.

The parameters for DMX Input port 1 are:

DMX Start = 1
EDMX Start = 1001
EDMX Channels = 24

Continued on next page

The parameters for DMX Input port 2 are:

DMX Start = 1
EDMX Start = 1025
EDMX Channels = 72

Node Properties		DMX Port Properties						
Name	Type	Port	Enabled	Input Output	DMX Input Port Properties			
					DMX Start	EDMX Start	EDMX Channels	EDMX End
Control Booth Dmx Node	DMX Node	1	☑	Input	1	1001	24	1024
		2	☑	Input	1	1025	72	1096
		3	☐	Input	1	1025	511	1535
		4	☐	Input	1	1537	512	2048

The parameters for DMX Output port 1 are:

EDMX Start = 1001
EDMX Channels = 96

Node Properties		DMX Port Properties					
Name	Type	Port	Enabled	Input Output	DMX Output Port Properties		
					EDMX Start	EDMX Channels	EDMX End
Dimmer Room Dmx Node	DMX Node	1	☑	Output	1001	96	1096
		2	☐	Output	513	512	1024
		3	☐	Output	1025	512	1536
		4	☐	Output	1537	512	2048

Note: Certain fields in the above screen shots are minimized so that the graphics will fit on the printed page.

Appendix A- ETCNet2™ EDMX™ Rules

With ETCNet2 v3.0.0, the rules for determining ownership of EDMX addresses are complete and straightforward.

It is important to note that EDMX does not operate on a Highest Takes Precedence (HTP) basis. Instead, it works on an “ownership” scheme based on priority levels of individual sources, such as an Emphasis system, a Unison zone or a individual input port on a DMX Node.

Only one source can have control over a given EDMX address at a time. However, several outputs can all “listen” to a single source.

System “givens”. The first few points are either stating the way things are or stating the way they need to be to have a valid network setup.

- There are 22 discreet priority settings within EDMX. The lowest number will always be the highest priority.
- Unison with a zone in “Replace Mode” is equal to priority zero (0).
- DMX Node input ports, Emphasis and Obsession II all have a modifiable priority of 1 through 20.
- Unison in “Pass-Through-If-Active” mode is equal to priority 21.
- All devices (ETCNet2 nodes, Emphasis components and so on) must have unique IP addresses on the network.
- Emphasis and Obsession II systems must have unique System ID’s on the network. This only applies if you have multiple control systems on the same network.
- ETCNet2 nodes don’t have System ID’s so they are considered to have an ID of zero (0).
- Zero is lower than one.

Arbitration. Who has control?

- The lowest priority value has the highest priority. (1 has a higher priority than 2)
- If multiple devices have the same priority, the lowest System ID has the highest priority.
- If two ETCNet2 DMX Nodes have the same priority (and by definition the same System ID), the node with the lower IP address will have the higher priority.
- If two input ports on a ETCNet2 DMX Node have the same priority (and by definition the same IP address), the lowest numbered port has the highest priority.

Appendix B- Default vPort™ Table

Use the default vPort table is for reference when working with NCE.

vPort	EDMX#	vPort	EDMX#	vPort	EDMX#	vPort	EDMX#
1	1-512	17	8,193-8,704	33	16,385-16,896	49	24,577-25,088
2	513-1,024	18	8,705-9,216	34	16,897-17,408	50	25,089-25,600
3	1,025-1,536	19	9,217-9,728	35	17,409-17,920	51	25,601-26,112
4	1,537-2,048	20	9,729-10,240	36	17,921-18,432	52	26,113-26,624
5	2,049-2,560	21	10,241-10,752	37	18,433-18,944	53	26,625-27,136
6	2,561-3,072	22	10,753-11,264	38	18,945-19,456	54	27,137-27,648
7	3,073-3,584	23	11,265-11,776	39	19,457-19,968	55	27,649-28,160
8	3,585-4,096	24	11,777-12,288	40	19,969-20,480	56	28,161-28,672
9	4,097-4,608	25	12,289-12,800	41	20,481-20,992	57	28,673-29,184
10	4,609-5,120	26	12,801-13,312	42	20,993-21,504	58	29,185-29,696
11	5,121-5,632	27	13,313-13,824	43	21,505-22,016	59	29,697-30208
12	5,633-6,144	28	13,825-14,336	44	22,017-22,528	60	30,209-30,720
13	6,145-6,656	29	14,337-14,848	45	22,529-23,040	61	30,721-31,232
14	6,657-7,168	30	14,849-15,360	46	23,041-23,552	62	31,233-31,744
15	7,169-7,680	31	15,361-15,872	47	23,553-24,064	63	31,745-32,256
16	7,681-8,192	32	15,873-16,384	48	24,065-24,576	64	32,257-32,767

Appendix C- Upgrading Node Software

To upgrade the software in your ETCNet2 nodes, you will need a copy of NCE that matches the same version of nodes software. NCE and nodes with a major version number difference (2.x.x vs. 3.x.x) will not talk to one another. They require the same major version number to communicate properly.

Assuming you have nodes running a previous version of software, you should have the same version of NCE available as well. If not, you can find it on ETC's website at: www.etcconnect.com under Software Downloads.

To perform the upgrade:

1. Install the version of NCE and node software that you are upgrading to. It should install the new node software files over the old node software files. When it asks to confirm, click on "OK".
2. Launch the previous version of NCE.
3. **Connect** to the network and **Get Unbound Nodes**.
4. Confirm that all of your nodes are present in the configuration. If not, attempt to get them online. Only nodes that are currently online will be upgraded.
5. Tell all of the nodes to download new software by selecting **Update Node Software**. ***Do not start the Network Address Server yet***.
6. All of the nodes should drop offline. This should be confirmed by seeing that the checkmarks in the Online column are no longer checkmarked. The nodes will not reappear online under this version of NCE.
7. Close the previous version of NCE.
8. Open the new version of NCE.
9. **Connect** to the network.
10. Start the **Network Address Server**.

ⓘ Emphasis User: If this is being performed on an Emphasis Server, then you will not need to do this step

11. After a couple of minutes, you will start to see the Nodes Online counter rise. This is showing you how many nodes have completed their software download and are now online under the new version of software.
12. Once all of your nodes are online again, **Get Unbound Nodes**.
13. You should now be ready to use your nodes under the new version of software.

If you have missed any nodes in the upgrade process (nodes that were on loan to another space, ones you forgot in your equipment locker, etc....), you can put them on the network and perform the steps listed above again.

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Product information and specifications subject to change • **4103M1007** • Rev A• Released 6/02