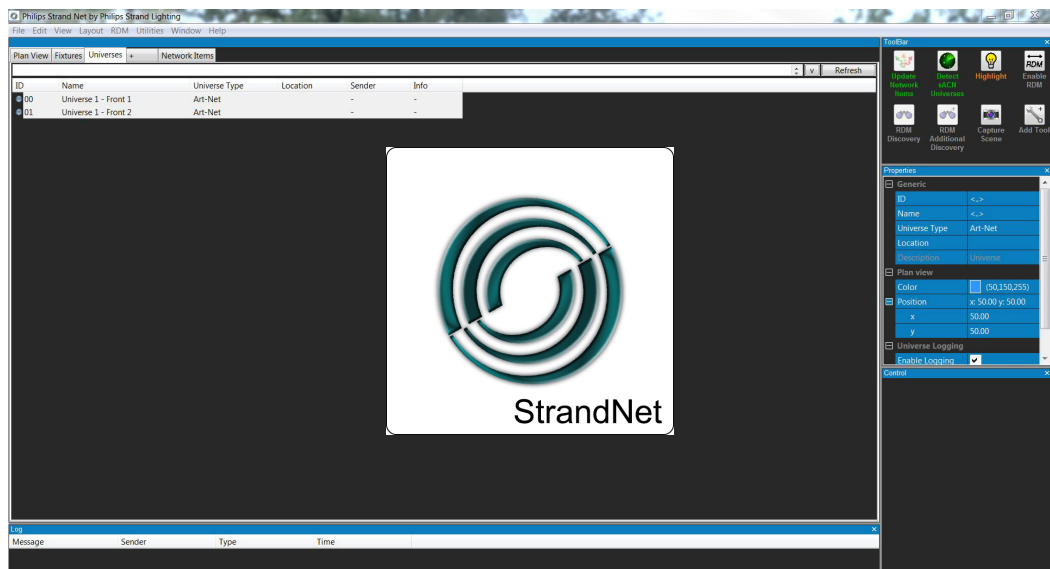




# Strand Net

## DMX512 Node Configuration Software

OPERATION GUIDE



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Version as of: **27 June 2016**

Strand Net Software Operation Guide

# IMPORTANT INFORMATION

## Warnings and Notices

When using electrical equipment, basic safety precautions should always be followed including the following:



- a. **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**
- b. For indoor, dry locations use only. Do not use outdoors.
- c. Do not mount near gas or electric heaters.
- d. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- e. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- f. Not for residential use. Do not use this equipment for other than its intended use.
- g. Refer service to qualified personnel.

**SAVE THESE INSTRUCTIONS.**



**WARNING:** You must have access to a main circuit breaker or other power disconnect device before installing any wiring. Be sure that power is disconnected by removing fuses or turning the main circuit breaker off before installation. Installing the device with power on may expose you to dangerous voltages and damage the device. A qualified electrician must perform this installation.

**WARNING:** Refer to National Electrical Code® and local codes for cable specifications. Failure to use proper cable can result in damage to equipment or danger to personnel.

**WARNING:** This equipment is intended for installation in accordance with the National Electric Code® and local regulations. It is also intended for installation in indoor applications only. Before any electrical work is performed, disconnect power at the circuit breaker or remove the fuse to avoid shock or damage to the control. It is recommended that a qualified electrician perform this installation.

## Additional Resources for DMX512

For more information on installing DMX512 control systems, the following publication is available for purchase from the United States Institute for Theatre Technology (USITT), "Recommended Practice for DMX512: A Guide for Users and Installers, 2nd edition" (ISBN: 9780955703522). USITT Contact Information:

**USITT**  
**6443 Ridings Road**  
**Syracuse, NY 13206-1111 USA**  
**1-800-93USITT**  
**www.usitt.org**

## Strand Lighting Limited Two-Year Warranty

Strand Lighting offers a two-year limited warranty of its products against defects in materials or workmanship from the date of delivery. A copy of Strand Lighting two-year limited warranty containing specific terms and conditions can be obtained from the Strand Lighting web site at [www.strandlighting.com](http://www.strandlighting.com) or by contacting your local Strand Lighting office.

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# PREFACE

## 1. About this Manual

The document is intended for experienced and trained installers and provides instructions on how to configure the following products using Strand Net Software:

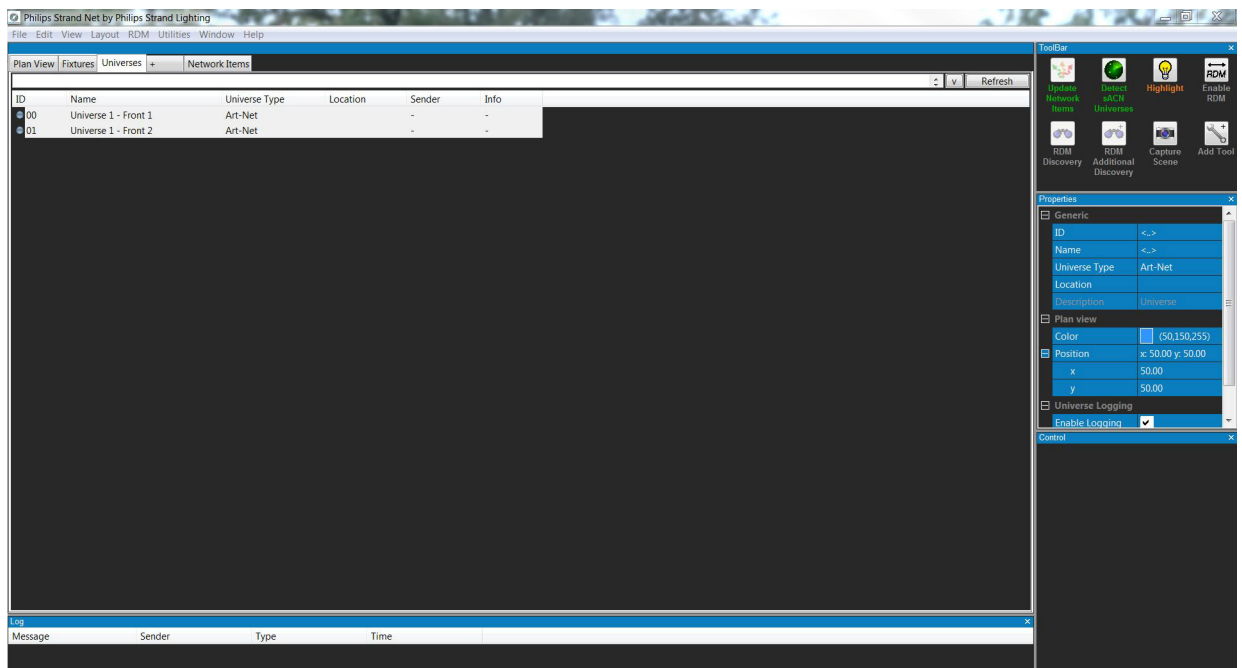
- DMX512 Network Node, POE, Single-Port, 1-Gang (Catalog Number 65161)
- DMX512 Network Node, POE, Three-Port, 2-Gang (Catalog Number 65163)
- DMX512 Network Node, 8-Port, Phoenix Connectors, 1U Rackmount Enclosure (Catalog Number 65168)
- DMX512 Network Node, 8-Port, 5-Pin XLR Connectors, 1U Rackmount Enclosure (Catalog Number 65168-1)
- DMX512 Network Node, Single-Port, PCB Format (Catalog Number 74261)

Please read all instructions before installing or using the products described herein. *Retain this manual for future reference.* Additional product information, including DMX512 Network Node installation guide, may be downloaded at [www.strandlighting.com](http://www.strandlighting.com).

## 2. Getting Started

You will need to download the PhilipsStrandNet.exe (PSN) file via the Strand Lighting web site.

Clicking the PSN file will install a "PSN Install 1.1.msi" file that will install the program on your machine. Follow the generic installation prompts as needed. The first time the program is run it will request access to your Network. Select to give the program access so it can perform its function properly.



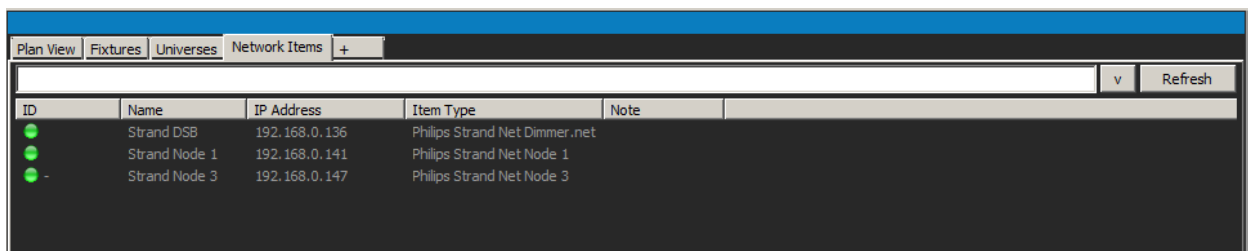
# INTERFACE LAYOUT

## 1. Overview

Apart from the generic windows Tool Bar at the top of the screen, PSN consists of 5 prominently used and default windows. These are the 5 windows: Main tabbed window, Log Window, ToolBar Window, Properties Window, and Control Window. On launch of PSN, you are offered the option to load the saved interface settings. Loading this dxl file will bring in previously viewed nodes and universes as well as sizing the windows to their previous position. Multiple dxl files can be saved to be loaded for different sites.

## 2. Main Window

The Main Window ([Figure 1](#)) is where the majority of the Network monitoring will take place. By default there are 4 Tabs: Plan View, Fixtures, Universe and Network Items. More tabs can be added manually from the various controls available to you.



ID	Name	IP Address	Item Type	Note
●	Strand DSB	192.168.0.136	Philips Strand Net Dimmer.net	
●	Strand Node 1	192.168.0.141	Philips Strand Net Node 1	
●	Strand Node 3	192.168.0.147	Philips Strand Net Node 3	

**Figure 1: Main Window**

### Network Items Tab

The Network Items tab allows you to view (1) Nodes that are currently connected to your Network, (2) Nodes that were connected but have been disconnected from the network, (3) Nodes manually added from the Edit -> Add Network Item Options, and (4) Nodes that were saved in the settings dxl file for PSN - this file is loaded by default on launch of PSN. Selecting a node will fill the properties window (more on this window below) with the Node's full list of properties and configuration options.

### Universes Tab

The Universes tab allows you to view (1) Universe currently running on the Network, (2) Universes previously running on the Network, (3) Universes manually added to the interface from the Edit controls, and (4) Universes saved to the dxl file. Selecting a universe will populate its properties into the properties window.

### Fixtures Tab

The Fixtures tab is typically not used for the configuration of a network system and is beyond the scope of this manual. PSN does have a fixture library and will allow you to layout your complete Network system with nodes and fixtures if you choose to do so.

### Plain View Tab

The Plan View tab will show you a 2 dimensional layout of your system with all populated Nodes and Universe. Selecting a node in this view will display its properties in the properties windows and show links between it and the universes it is connected to. A reverse connection is displayed when a Universe is selected here.

**Note:** If RDM controls are desired for the system, an RDM tab can be added to this section as well. By selecting the + tab and then selecting a List view tab for RDM Device List a new RDM Devices tab will be added.

### 3. Log Window

The Log Window (Figure 2) continuously logs the connection and disconnection of nodes on the Network. Also, as PSN notices new universes or connections to tracked universes are lost, these are displayed and time stamped here.

Log			
Message	Sender	Type	Time
Lost	4 Shownet	Universe	06/02/16 10:43:38
Back	4 Shownet	Universe	06/02/16 10:35:52
Lost	4 Shownet	Universe	06/02/16 10:34:59
Back	4 Shownet	Universe	06/02/16 10:32:06
Lost	4 Shownet	Universe	06/02/16 10:31:03
Back	4 Shownet	Universe	06/02/16 10:30:41
Lost	4 Shownet	Universe	06/02/16 10:29:29

Figure 2: Log Window

### 4. ToolBar Window

The ToolBar Window (Figure 3) is more of a Tool Box or a Tool Window. This window allows updating Nodes with the specified configurations after customizing ports. This is also where sACN (Streaming ACN, DMX over Ethernet) can be detected. If sACN universe is on the Network but it is not displayed in the Universes tab, it will need to be detected from the ToolBar Window by clicking the Detect sACN Universes button. Enabling RDM controls from the Node throughout the ports will also be done from the ToolBar Window. Each port can have RDM enabled or disabled as required.

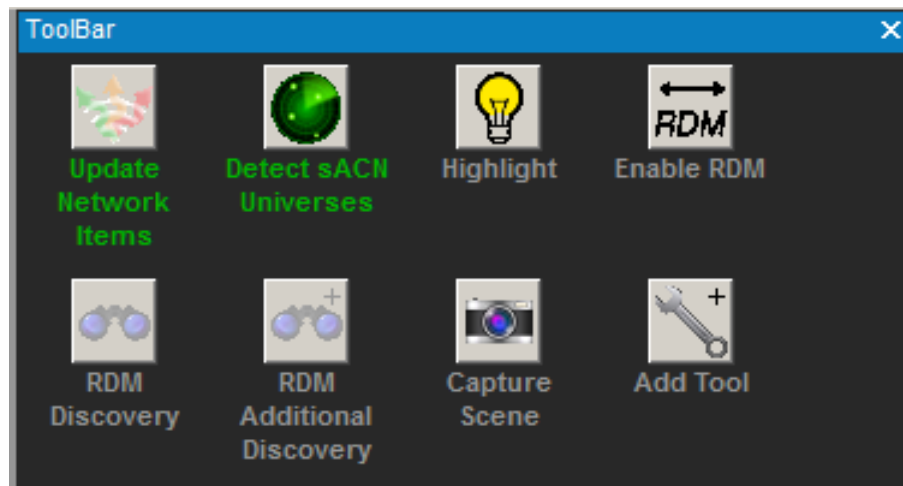


Figure 3: ToolBar Window

## 5. Properties Window

The Properties Window allows you to view the properties of a Node or Universe and to make changes to customize Nodes for a desired system configuration. Refer to ["Interacting with Nodes" on page 7](#) and ["Interacting with Universes" on page 12](#) for further details.



Figure 4: Properties Window

## 6. Control Window

The Control Window (Figure 5) populates differently depending on what is selected. If a Node is selected from the Main Window (Figure 1 on page 4), RDM control options for each port become available. If a Universe is selected from the Main Window, Universe control commands become available. More information on this will be provided under Interacting with Universes and RDM Controls.

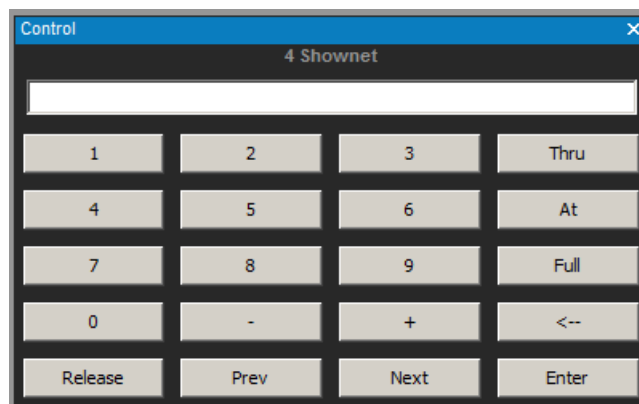


Figure 5: Control Window



# INTERACTING WITH NODES

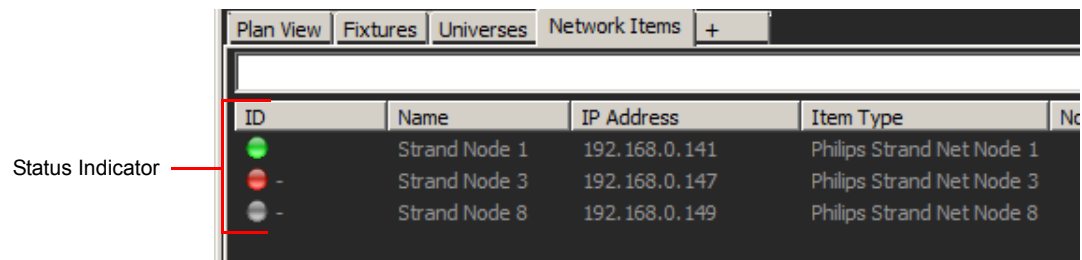
## 1. Network Status Indicators

Most interactions with nodes will be initiated either from the Network Items tab or the Plan View tab. From the Network Items tab, nodes have 3 states distinguished by their status indicator in the ID column:

**Table 1: Network Status Indicator Colors and Meanings**

Status Indicator Color	Meaning
Green	Node is live and communicating with PSN.
Red	Node was seen by PSN, but has since been removed from the network and is lost.
Grey	The node is saved to PSN but has not been seen on the Network by PSN.
Orange	This network item has a duplicate IP or this Node has a duplicate ID or IP.

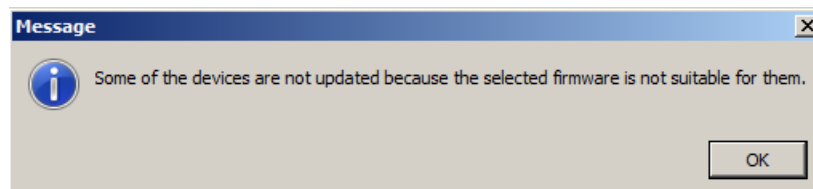
**Note:** Some configuration options such as Updating the Node's IP Address or Updating the Node's Firmware can only be done if the node's status indicator is green.



**Figure 6: Network Item Status Indicators**

## 2. Updating Firmware

In order to update the firmware of a Network Item, the Node's status indicator (refer to [Figure 6](#)) must be green. Right click the node needing to be updated and select Update Firmware. The Update files for all Nodes have ".dfu" file extensions. Navigate to the correct DFU file for the selected node and select Open. If the wrong device type update file was selected the following error message will be displayed immediately as shown in [Figure 7](#).



**Figure 7: Firmware Error Message**

If the correct firmware file was selected, the node will go through three phases during the update: Connecting, Erasing, and Updating [0-100%]. Currently, if the Update fails at any given point in this process the node will need to be restarted. Later updates to PSN will correct this issue. The Firmware version for the Node can be verified in the Properties Window ([Figure 4 on page 6](#)) after selecting the Node.

### 3. Setting / Updating IP Address

In order to update the IP Address of a Network Item from the list of Network Items, the Node must be active (green status indicator). If the Node is not live but is connected, confirm your computer and the Node are in a compatible IP range. Right Click the Node intended to be updated and select Set IP Address.

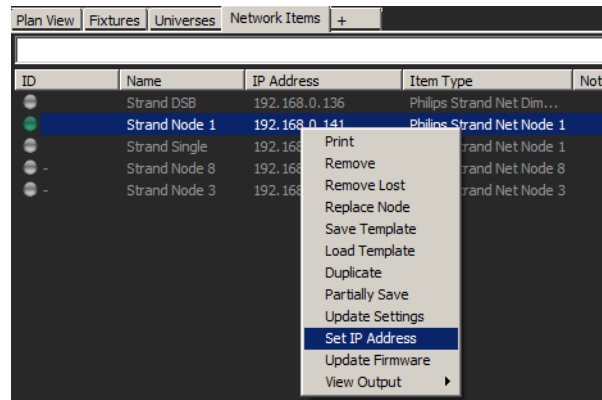


Figure 8: Setting / Updating IP Address

The Configure IP Settings window will launch at this point. From here, you can set the Node's IP to Dynamic or Static. Under Static, there are options for changing the IP Address, Network Mask and the Gateway. The Default IP Address for Nodes will be in the range of 192.168.0.XXX. Select "OK" after adjusting the IP Settings accordingly to confirm and save the changes.

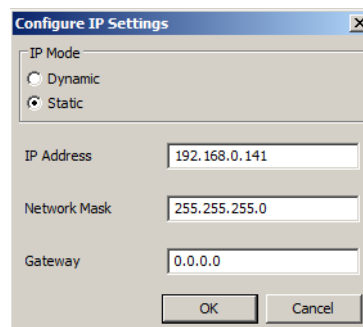


Figure 9: Configuring IP Settings

### 4. Save / Load Configuration Templates

After setting up a Node to a specific configuration, there is an option to save this configuration as a template. In order to save a Node the Node does not have to be active. Right clicking the Node and selecting Save Template will launch the explorer window in which you can set a file name and location to save your Node Template.

These Saved Templates can then be loaded into other Nodes; speeding up setup time and allowing for offline configuration of a Node. A Node must be active in order to load a saved template onto it. In order to load a saved template, Right click the active Node and select Load Template. A template from an 8 port node can be loaded onto a single port node. The first port from the 8 port node template will be populated onto the single port. Similar actions can be done with a 3-port node and an 8-port node template.

### 5. Configuring Ports

From Network Items you can configure the ports on a Node. A Node does not have to be active to change the local configuration of a port. The port will not be updated until PSN has seen the Node Live and updated its network

settings. If changes are made to a Node while it is disconnected, they next time it is seen, PSN will ask if you want to Read the Node's configuration or to Program the Node with the saved Configuration.

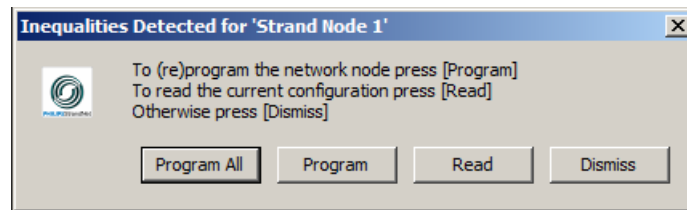


Figure 10: Node Configuration Inequalities

## 6. Input / Output / Vision.Net

Selecting a Node from the Network Items list populates that Node's configuration into the Properties window. A section of the Node's properties can be configured here to include each port's configuration. Each port on a Node has the option to be set as Disabled, Input, Output or Vision.Net.

- **Disabled:** If the Port is set to Disabled, then there will be no communication on the port.
- **Input:** When a port is set to Input, it is assumed that the port will be receiving DMX which the Node then converts to a specified communication protocol (Art-Net, ShowNet, sACN) and sends it out on the Ethernet Network. An Input port has 3 Input Modes: Disabled, Backup and Normal.
- **Output:** As an output, a port will be transmitting DMX out. The output DMX for this port is determined by the Output Mode, Net Slot configuration and the Ethernet protocols active on the Network at the Time. There are 6 output Modes: Disabled, Out Zero, Single, Priority, HTP and Softpatch.
  - a. Out Zero sends all zeros on the line. Single allows the selection of one communicated universe to be converted to DMX on the port.
  - b. Priority allows for the selection of a Primary and Secondary Communication to be converted to DMX and transmitted on the port.
  - c. With HTP (Highest Takes Precedence) the Node will listen to up to three separate universes over Ethernet and transmit DMX out on the port based on HTP between the 3.
  - d. Softpatch also allows for listening to 3 separate Universes with an output determined by Softpatch / Net Slot custom priority between the three. This Softpatch configuration can be saved and reused from the Softpatch configuration window.
    - 1) From the Softpatch window there are options for setting up the merge type between the three focal universes (Primary, Secondary and Tertiary).
    - 2) Each Input Universe can be custom configured to an output channel based on the set priority.
    - 3) The Port's DMX output is determined from the Softpatch priorities.
    - 4) From the Softpatch window, you can save and load any Softpatch configuration. This enables easy setup of reused Softpatch Net Slot and priority configurations.

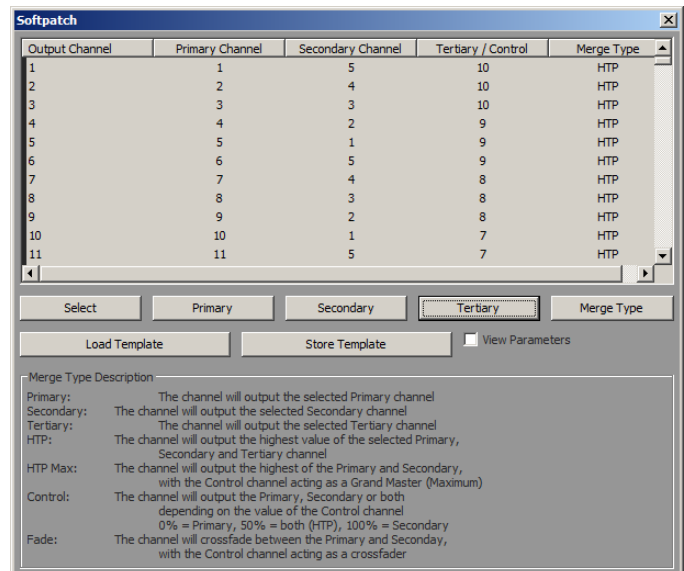


Figure 11: Softpatch Window

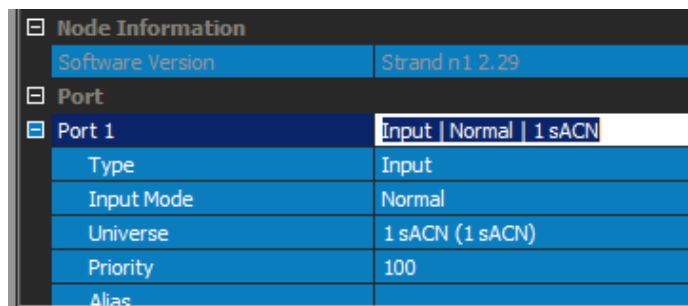
- **Vision.Net:** Setting a port to Vision.Net allows it to communicate bi-directionally with Vision.Net devices. Setting the Area ID tells the port which area to listen to and communicate back on. This Node and port then becomes an Ethernet to Hard Line Vision.Net Bridge. Any Vision.Net Commands received over Ethernet addressed to the set Vision.Net Area are then transmitted out the port on the Hard Line Vision.Net Network. Any commands received over Hard Line Vision.Net are then sent over Ethernet addressed from the port's configured Vision.Net Area.

## 7. Viewing Port Output

If a Node is active and has ports set to outputs, you are able to View the output of these ports. By Right clicking the Node and selecting View Output and then selecting View Port # a new window will be populated showing the output of selected port number. If the port is not actively outputting any DMX, the output page for this port will show empty channels. The displayed output on for a Port is retrieved from the Node over Ethernet. It Displays What the Node firmware is sending out on the DMX line.

## 8. Port Configuration Shorthand

The second method for configuring a port is done using the shorthand notation on the ports main line. By going to the input field on the line that displays the full configuration of a port (see Figure 12 and the Input field for Port 1 that reads "Input | Normal | 1 sACN") and using the shorthand notation can configure the Type, Mode and Universes of a given port. Any invalid information will set the port to Disabled.



**Figure 12: Node Information - Port**

Example: For setting Port 1 to "Input | Normal | 1 sACN" as in Figure 12, the shorthand notation is the following: i,s1  
 In the notation, starting with an "i" implies the Port will be an Input. By default, in shorthand notation, the Input Mode is set to Normal but can be changed between Disabled, Normal or Backup Input Modes in the following ways:

Notation	Meaning
- ( <i>dash</i> )	Sets a Port to Disabled
i,d,1	Sets a Port to Input   Disabled
i,b,s1	Sets a Port to Input   Backup   1sACN
i,n,s1	Sets a Port to Input   Normal   1sACN (same results as "i,s1" example above)

The default Universe protocol is Art-Net. This means if a universe number is specified then the Universe protocol will be set to Art-Net. By default, Art-Net universes are index on an 8 bit hexadecimal value ranging from 00-FF. The other available protocols can be referenced with the following shorthand: Art-Net (a), sACN (s), ShowNet (n).

Notation	Meaning
i,1	Input   Normal   01 Art-Net
i,d	Input   Normal   0D Art-Net
i,s2	Input   Normal   1sACN
i,n3	Input   Normal   4 ShowNet

To set the Port's Mode to Output requires swapping the "i" for an "o" at the beginning of the notation. The default Output type is Single, but the other Output Modes can be set as well: Out Zero (z), Single (s), Priority (p), HTP (h),

Softpatch (sp). If an Output Mode allows several Communication options, these can be included in the Shorthand notation by appending them on to the end of the string:

Notation	Meaning
o,s1	Output   Single   1 sACN
o,s,s1	Output   Single   1 sACN
o,z	Output   Out Zero
o,p,n1	Output   Priority   1 ShowNet
o,p,n1,s2,a3	Output   Priority   1 ShowNet   2 sACN   03 Art-Net
o,h,s1,n3	Output   HTP   1 sACN   3 ShowNet
o,sp,n3	Output   Softpatch   3 ShowNet
o,sp,n3,s1,a0	Output   Softpatch   1 sACN   00 Art-Net

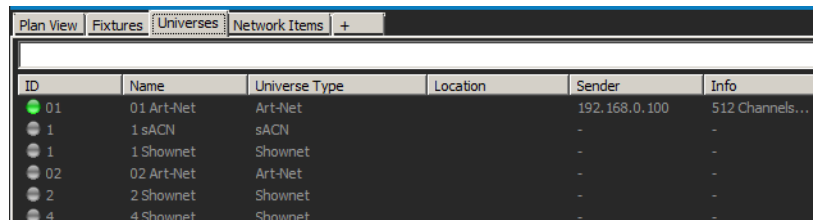
Changing the Mode to Vision.Net is done by replacing the "o" with a "v" at the start of the notation. This is followed by a number to specify the Area number for the port. Otherwise, the Area will default to 1.

Notation	Meaning
v	Vision.Net   1
v,1	Vision.Net   1
v,2	Vision.Net   2

# INTERACTING WITH UNIVERSES

## 1. Universe Status Indicators

The Universes tab has several options for interacting with a universe. [Figure 13](#) shows the Universe tab. It shows all Universes manually added to the current configuration, all active Universes, all lost Universes and all universes that have been saved but have not currently been see by PSN.



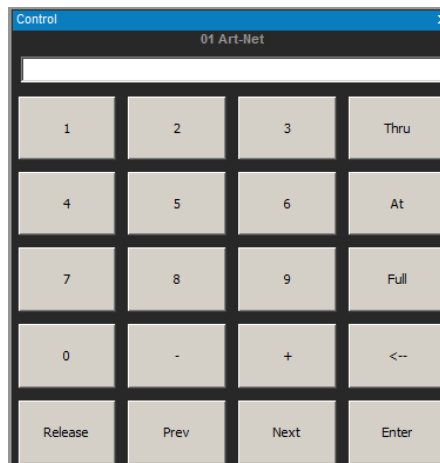
**Figure 13: Universes Tab**

From the Universes tab all active Universes can be viewed with their communication protocol (Art-Net, ShowNet, sACN), the IP Address of their sender and basic channel information. If a Universe is live, Right clicking it and selecting View Universe will generate an extra tab actively showing the output of that universe.

**Table 2: Universe Status Indicator Colors and Meanings**

Status Indicator Color	Meaning
Green	Active universe.
Red	Lost universe.
Grey	Inactive or manually added universe.
Orange	This universe is coming from multiple IP addresses and thus has multiple sources sending this universe. However, when using sACN you can specify the "Expected number of senders" since sACN uses priorities. If the expected number of senders is set to 2, and there is just 1 sender online, the indicator will still be orange since this is not expected.

Selecting any universe (alive, lost or inactive) will display a small window ([Figure 14](#)) with console-like controls in the bottom right Control window. This allows the user to manually control the output of the selected universe from PSN and change specific values and channels with generic console command line arguments (i.e. 1 Thru 10 At Full).



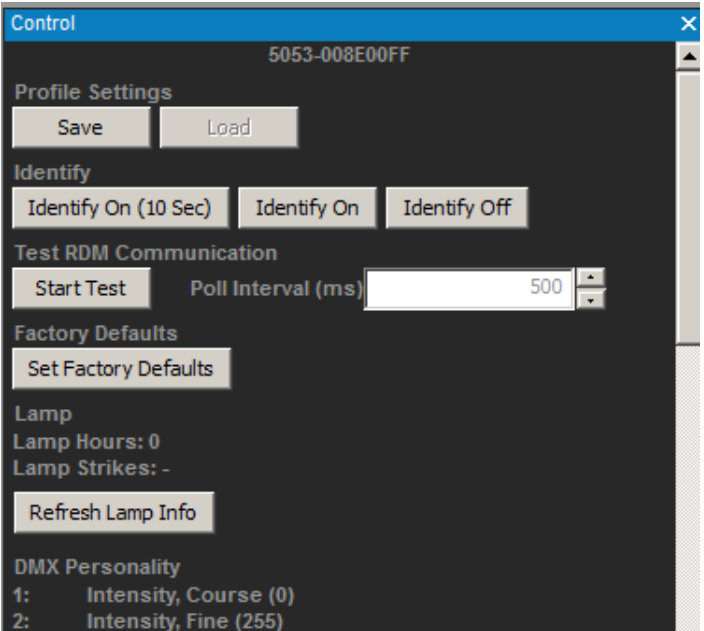
**Figure 14: Universe Controls Window**

## 2. RDM Controls

The same Control window used by Universe controls can be used for RDM Controls after selecting a Node to communicate through. Each port on a node can generate RDM. The ports cannot currently pass through RDM through an additional node, but through PSN and the connected Nodes RDM control over fixtures can be achieved. After discovering all RDM accessible devices on a given port, they are populated into the RDM Devices tab. Selecting a fixture from this list gives new RDM control options from the Properties Window and the Control Window.



RDM Properties Window



RDM Control Window

Figure 15: RDM Properties and Control Windows



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