CONVERGING SYSTEMS

Integration Note

Automation/Lighting Panel Manufacturer:	Vantage Controls
Platforms:	**InFusion Controller**
Versions:	Vantage Design Center v 3.5.2.0 or newer (***Color Widget compatible***)
Specific Profile/Driver Version:	V66 or later (consolidated version for IP and Serial control). Note: newer profiles will have these features separated.
Download location for Profile/Driver	Vantage dealer portal Note: current name is eNode CS-Bus
Document Revision Date:	November 18, 2015

OVERVIEW AND SUPPORTED FEATURES

The Vantage Design Center and associated hardware support the Converging Systems' family of motor and LED lighting control products using either RS-232 serial connection (IBT-100) or Ethernet (e-Node).

Integration with Converging Systems' platforms is enabled from the range of Vantage wall pads, touchscreens and other user interfaces. Additionally, status available from a number of Converging Systems' controllers can trigger commands and other events within the above lighting /automation system. For example, a motor movement can trigger a lighting event. Or a lighting command issued can signal back to the touchscreen device as to its current setting (slider movement or level setting).

CURRENT DRIVER SUPPORT THE FOLLOWING FEATURES

The following commands are supported by the current driver for the various lighting and motor control devices (except those that are grayed out).

LED Lighting Commands

General Commands	ILC-100	ILC-400	e-Node DMX
General LED Control Commands			
ON	✓	✓	✓
OFF	✓	✓	✓
EFFECT,#	*	*	*
NEXT (n) EFFECT	✓	✓	Effect 1 only
STORE,#	*	*	*
NEXT (n) STORE PRESET	✓	✓	✓
NEXT (n) RECALL PRESET	✓	✓	✓
RECALL,#	*	*	*
DISSOLVE.X=XX	✓	✓	Subset available (see current API)
SEQRATE=XX	*	*	*
SUN_UP		*	*
SUN_DOWN		*	*
SUN.S		*	*
HSB (HSL) Color Space Commands			
FADE_UP	✓	✓	✓
FADE_DOWN	✓	✓	✓
SET,L	✓	✓	✓
HUE_UP	✓	✓	✓
HUE_DOWN	✓	✓	✓
HUE,H	✓	✓	✓
SAT_UP	✓	✓	✓
SAT_DOWN	✓	✓	✓
SAT_S	✓	✓	✓
STOP	✓	✓	✓
COLOR=H.S.L	✓	✓	N/A
PRESETH.X=XXX.XXX.XXX			
RGB Color Space Commands			
RED,R	✓	✓	✓
GREEN,G	✓	✓	✓
BLUE,B	✓	✓	✓
VALUE=R.G.B	✓	✓	N/A
WHITE,W	*	*	*
VALUE=R,G,B,W	*	*	*

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PRESET.X=XXX.XXX.XXX (3-color_			
PRESET.X=XXX.XXX.XXX (4-color)			
STOP	✓	✓	✓
Correlated Color Temperature (CCT) Commands			
CCT,XXXX	*	*	
CCT_UP	*	*	
CCT_DOWN	*	*	
Bi-Directional Commands			
COLOR=?	✓	✓	N/A
VALUE=?	✓	✓	N/A
PRESETH.X=?			
PRESET.X=?			
Accessory Enode Command/Setup Parameters			
Verbose Mode	✓	(WIP)	✓
Telnet Login with Authentication (with e-Node	N/A	N/A	N/A
Telnet Login without Authentication	✓	✓	✓

***note:** When needed, these can be implemented using dealer programmed serial strings. See page xx For more information

Motor Commands

General Commands	IMC-100	BRIC ("Bric Mode")
General Motor Control Commands		
UP	✓	✓
DOWN	✓	✓
STOP	✓	✓
RETRACT	✓	✓
STORE,#	✓	*
RECALL,#	✓	*
PRESET.X=XX.XX		
Bi-Directional Commands		
STATUS=?		
POSITION=?		
Accessory Enode Command/Setup Parameters		
Verbose Mode	✓	x
Telnet Login with Authentication (with e-	N/A	N/A

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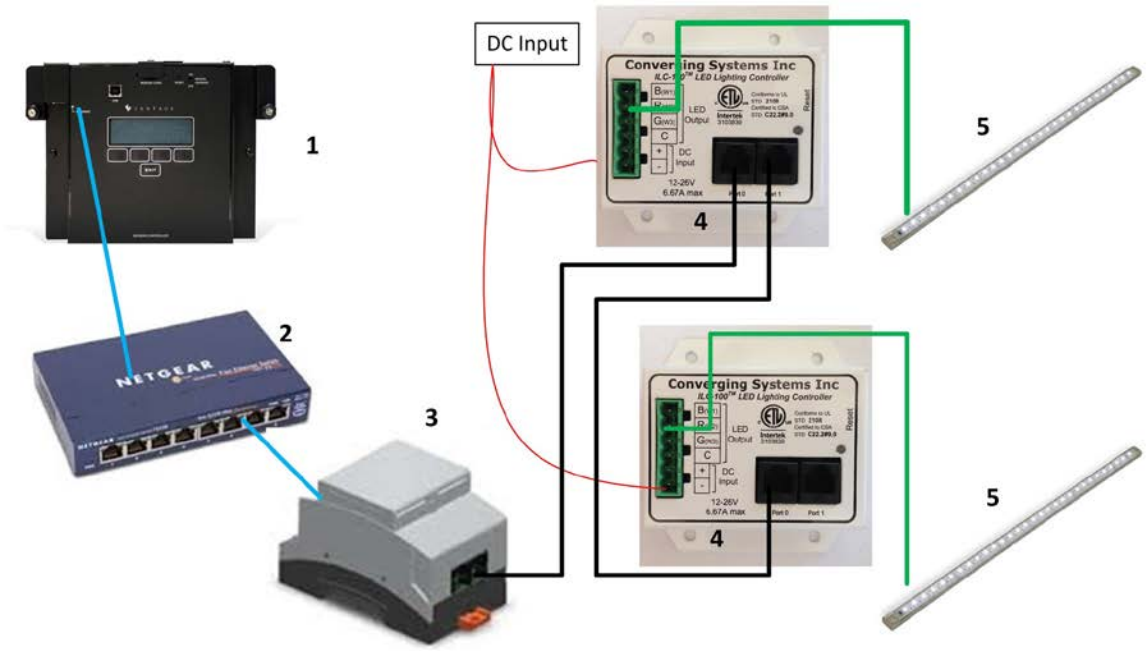
Node		
Telnet Login without Authentication	✓	✓

CURRENT PROFILES DO NOT SUPPORT THE FOLLOWING FEATURES

Other than any features that are grayed out below, any features specified below are currently unsupported.

Any feature not specifically notes as supported should be assumed to be unsupported

WIRING DIAGRAM (for IP connection)



Wiring/Configuration Notes:

1. Maximum length of CS-Bus cabling from e-Node to the last ILC-100 using CAT5e or better cabling (and obeying the 1-1 pin-out requirements for the RJ-25-RJ25 cable) = 4000 feet
2. Maximum number of ILC-100 controllers and Converging Systems' keypads (if provided) that can exist on a single network connected to a single e-Node device = 254
3. Maximum number of e-Nodes that can exist on a Vantage system = 254

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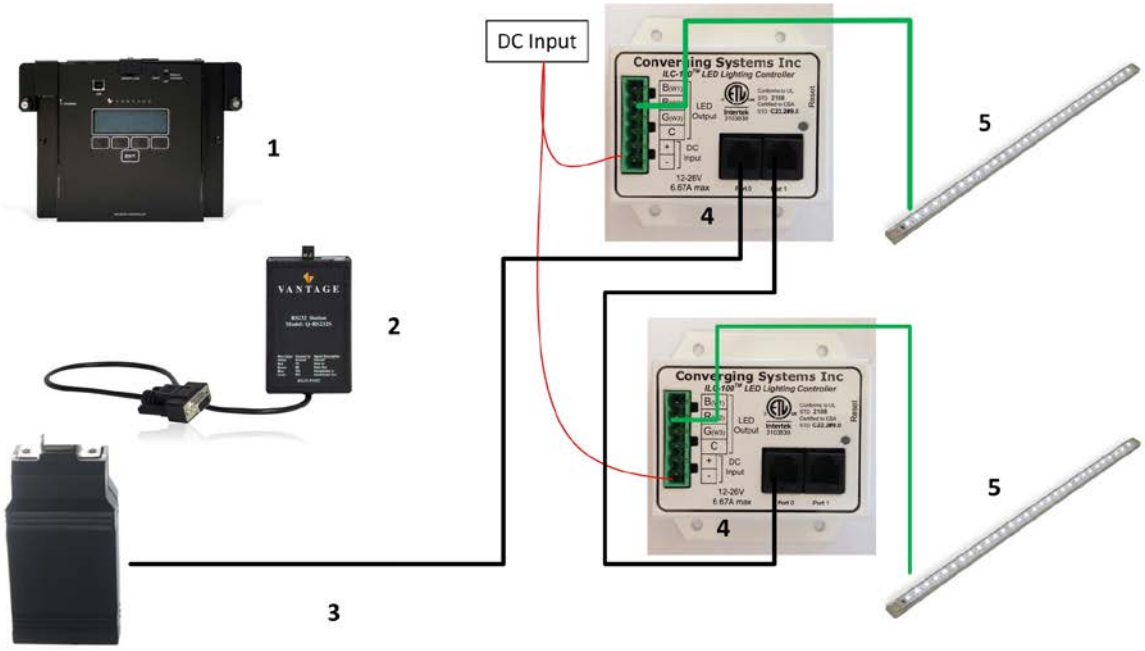
BILL OF MATERIALS (for IP control)

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Vantage InFusion controller	Vantage	Various	Ethernet/USB	various	
2	Network Switch	Various	Various	Ethernet	RJ-45	
3	e-Node	Converging Systems	e-Node	Ethernet	RJ-45 (for Ethernet) RJ-25 for local bus	
4	Lighting Controller (or Motor Controller)	Converging Systems	ILC-100 or IMC-100 or (Stewart BRIC)	CS-Bus protocol	RJ-25 for CS-Bus communication	Must terminate beginning and end of bus with 120 ohm resister on pins 3/4

WIRING DIAGRAM (for RS-232 serial connection)



Wiring/Configuration Notes:

4. Maximum length of CS-Bus cabling from e-Node to the last ILC-100 using CAT5e or better cabling (and obeying the 1-1 pin-out requirements for the RJ-25-RJ25 cable) = 4000 feet
5. Maximum number of ILC-100 controllers and Converging Systems' keypads (if provided) that can exist on a single network connected to a single e-Node device = 254
6. Maximum number of e-Nodes that can exist on a Vantage system = 254

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BILL OF MATERIALS (for RS-232c connection)

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	InFusion	Vantage	Various	Ethernet/Serial/IR	various	
2	RS232Station	Vantage	Q-RS232S	RS-232c	RJ-45 (for serial)	
3	IBT-100	Converging Systems	IBT-100	RS-232c	DB-9 (for Serial) RJ-25 for local bus	
4	Lighting Controller (or Motor Controller)	Converging Systems	ILC-100 or IMC-100 or (Stewart BRIC)	CS-Bus protocol	RJ-25 for CS-Bus communication	Must terminate beginning and end of bus with 120 ohm terminating resister on pins 3/4

System Configuration/Programming

Before proper operation between the Converging Systems' controllers and the Vantage system can begin, it will be first necessary for most applications to configure the Converging Systems' products using the e-Node Pilot (PC-based) application (and the e-Node). In addition, communication parameters within the Vantage Design Center software are also required. Refer to the specified instructions below for the particular subsystem for more information.

You may wish to go the topic that is most relevant for you (click on link).

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Background

The Converging Systems e-Node is an Ethernet communication device which can be used to connect the Vantage Host to one or more Converging Systems motor and/or lighting controllers. Alternatively, the Converging Systems' IBT-100 serial interface device can be used alternatively to connect the same number of Converging Systems' controllers to a Vantage processor in situations where Ethernet communication is not desired (but where bi-directional feedback is still required).

However, regardless of whether you desire to interface ***more than one*** lighting controller (or motor controller) each with its own controllable operation (i.e. its own **Z**one/**G**roup/**N**ode or **ZGN** address) with either the e-Node (Ethernet) or the IBT-100 (RS-232c communication), and/or you desire ***bi-directional communication/feedback*** between your user interface (UI) and a particular motor or lighting controller, **you must still follow the directions below under (i) e-Node Programming** and **(ii) ILC-100/ILC-400 Programming** in order to establish **unique ZGN address(es) for connected loads** and **turn on the NOTIFY command** which provides for that bi-directional communication.

Note: If you plan on utilizing the IBT-100 for serial communication and (i) ***you will not need*** more than one address other than the factory default **ZGN** address of 2.1.0 for lighting controllers or 1.1.0 for motor controllers, and (ii) ***you do not need bi-directional communication*** between the lighting load or the motor load and your User Interface, then you can proceed to the IBT-100 Set up Section and you may skip the (i) e-Node Programming section as well as (ii) the ILC-100/ILC-400 Programming sections below.

Settings that can be implemented using this setup are as follows:

e-Node Programming/Device Programming

Min requirements for this operation

- Computer running Windows XP or later OS, preferably with a wired Ethernet connection to a local router using CAT5 type cabling
- Converging Systems E-Node Ethernet adapter connected using CAT5 cabling to the above router.
- Download of the latest version of e-Node Pilot application, unzipped and operating on your computer platform
- Powered up and connected ILC-x00 controller using straight thru (1-1) wiring using a 6-pin RJ-connector (Do not use 568A or 568B wiring and simply chop off the browns because this does not preserve twisted pairs on pins 1 / 2, 3 /4 , and 5/ 6 which is required).

Recommended RJ-25 6P6C connections 6 wires		
e-Node Side	ILC-x00 side	Color of wire
Pin 1	Pin 1	blue
Pin 2	Pin 2	Blue/white
Pin 3	Pin 3	Orange
Pin 4	Pin 4	Orange/white
Pin 5	Pin 5	Green
Pin 6	Pin 6	Green/white

Suboptimal RJ-11 4P4C connection 4 wires		
e-Node Side	ILC-x00 side	Color of wire
Pin 1	Pin 1	Orange
Pin 2	Pin 2	Blue
Pin 3	Pin 3	Blue/white
Pin 4	Pin 4	Orange/white

Note: For the purposes of commissioning if *you do not have* 6P6C RJ-25 connectors, you can use standard 4-pin RJ11 connectors, but follow the wiring directions above preserving twisted pairs on Pin 2/3 and Pins 1 /4. **This cable will not work for keypad communication or IBT-100 communication**.

Please follow the below steps under "**e-Node Programming**" when using the e-Node for Ethernet communication or to set-up specific loads (lighting or motor) with unique, non-zero, **Z**one/**G**roup/**N**ode or **ZGN** addresses.

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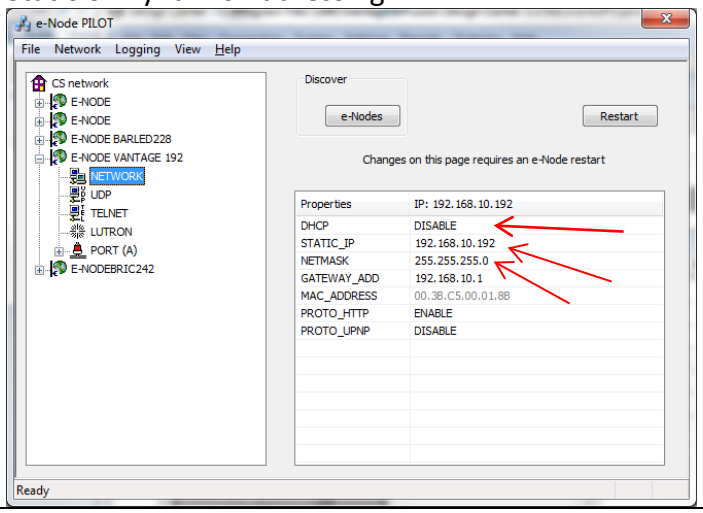
e-Node Programming

Typically, the following features are set-up within the e-Node Pilot application for Ethernet communication

Step	Setting	Choices
EN-1	**IP Address** Set up the e-node with an appropriate Static or Dynamic IP address. Refer to the separate" e-Node Quick Start Guide" on how to make such settings.	Static or Dynamic Addressing 
EN-2	**UDP Port** (transmit and receive) **Note**: Some Vantage systems utilize UDP for particular internal communication processes. The Vantage factory default is the same as that which Converging Systems uses for its e-Node Pilot application (set-up software). Accordingly, in order to have the Pilot software able to operate concurrently with the Vantage processor, it may be required to change either the **Vantage default UDP Port** or **Converging System's default UDP Port**. Here, we will show how to change the Converging Systems' default	The UDP setting needs to be changed in two places in order to make the change effective. It needs to be changed for (i) the application on the PC talking to the e-Node, and (ii) the e-Node itself. To change the **UDP Port** for the PC that is running the Pilot application, select within the Pilot application the **Network tab** and select **Interface** entry. Change the **Send Port** to **4999**

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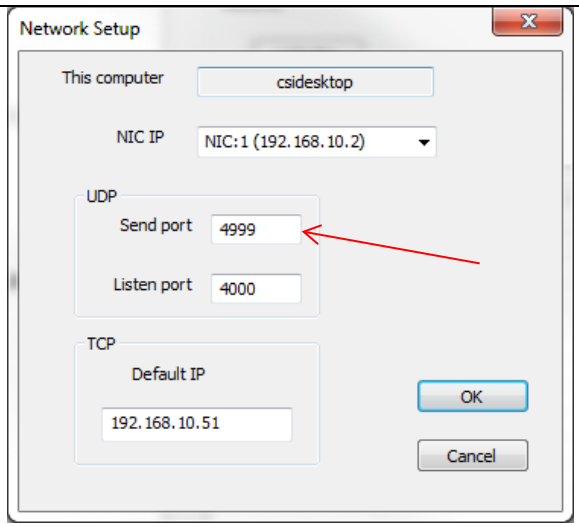
	UDP Port to another acceptable value (e.g. 4999)	 To change the **UDP Port** for the e-Node that will be communicating with the Pilot application, select the **View e-Node tab** and expand the particular e-Node that is in your system. Select the **UDP tab**, and change the **Listen Port** to 4999, then hit **RESTART** to reboot the e-Node. You may need to close and re-open the Pilot application to invoke the change. Here is the applicable page within Pilot where this change is made.
EN-3	Telnet Server Login **Note**: Currently the Vantage driver **<u>does not</u>** support Telnet with Authentication. **Therefore, you must disable LOGIN on the e-Node such that the Vantage processor can communicate with it.**	Select the **View e-Node tab** and select the **Telnet tab**. Set **Login** to **DISABLE** and select the **Restart** button for the particular e-Node that you are utilizing to communicate with the Vantage system.

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		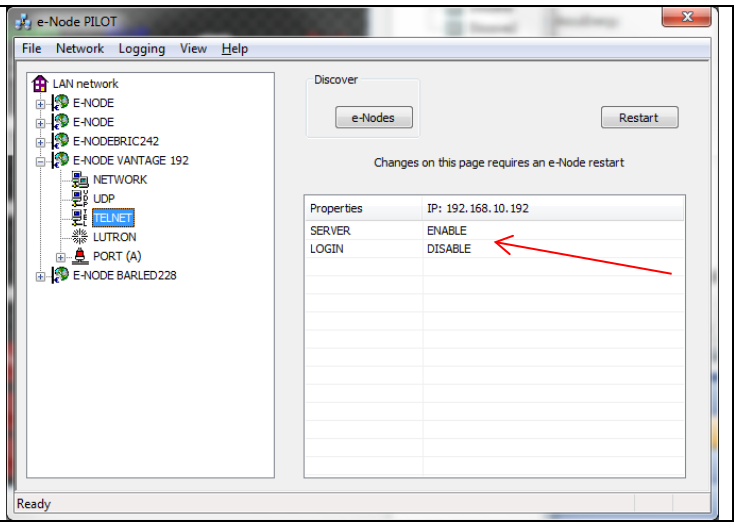

IBT-100 Programming

All of the communication parameters to support the IBT-100 are built into the Vantage eNode driver (although the particular serial interface is called the IBT-100 and not the enode per se), therefore no special programming is required of the IBT-100 serial adapter. However, certain features of the ILC-100/ILC-400 with respect to **NOTIFY** (which permits automatic signaling of color status upon color state changes) described above will need to be programmed using the e-Node. But in this case, after the specific lighting controllers are programmed, the e-Node will no longer be required for Vantage to Converging Systems communication using the IBT-100. For completeness, here are the important attributes for serial communication for background purposes.

Setting	**Choices**
Com Port	RS-232 Port 1 (or as applicable for your interface)
Baud rate and other serial parameters	Set within Vantage profile Default for IBT-100 is 57,600,n,1,none
Connected controller(s) Zone/Group/Node addressing	**Zone** addressing from 1-254 **Group** addressing from 1-254 **Node** addressing from 1-254 **Note**: a wildcard value of 0 can be substituted for any valid address above to provide a broadcast to that subset of addresses

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RS-232C Interfacing Note: If you plan on simply using the IBT-100 for serial communication and desire to have multiple lighting loads (more than one ILC-100 with a unique **Z**one/**G**roup/**N**ode address you must set up your system using the e-Node as specified above as well as the particular lighting load as specified below. However, if you do not care about bi-directional feedback or support of multiple controllers address, no further set-up is required. However, this is not recommended.

ILC-100/ILC-400 Programming

Step	Setting	Choices
DV-1	**ILC-x00 Discovery** and **Address Setup**	More thorough documentation of this step can be found in the *e-Node Commissioning Guide* referenced in Step EN-1 above. However for document completeness, an abridge version of this guide is summarized below. Background. From the factory the **ILC-x00** controllers do not have an assigned UID (unique ID) address. Units come equipped with a factory default address of **Zone**=2, **Group**=1, and **Node**=undefined or a 0. If you set up your Vantage system to communicate with an ILC-x00 with an address of **2.1.0** the ILC-x00 will react but it will not provide feedback data which is required for automatic slider updates within the Vantage systems. ***Therefore, it is advisable to set up a non-zero address for each ILC-x00 controller that is connected to either an IBT-100 or an e-Node.*** The directions below indicated how to perform this operation. (See **Step 2b** below as well as **Appendix 2** for more information on **Z**one/**G**roup/**N**ode addressing.) Process. - Power on the e-Node and any connected ILC-x00 controllers. - Launch the Pilot application and select the Discover **e-Node** within the **View Map** tab. - Now, under the **UID** window, select and enter a

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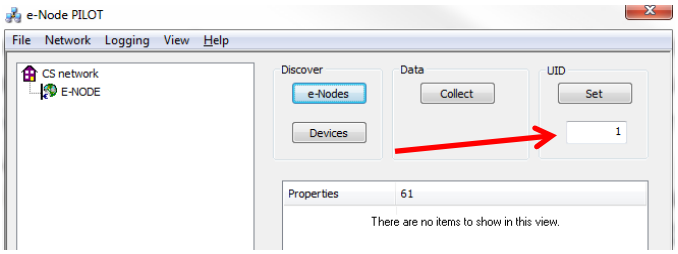
unique UID number/address (good to start with 1 and work upwards but never use a duplicate number) and select **Set**.



- You will now need to hit the discovery button on your respective controller. Now close down the pop-up menu.

- Now you will need to depress for approximately ½ second the "Discovery/Reset" button on an ILC-x00 controller for the unit to become programmed with the selected UID address. See the appropriate section for your particular device.

- **ILC-100.** Take a larger type paper clip or similar device and **gently** insert it into the reset/discovery hole on the side of the chassis and press the momentary button that you will feel for ½ second and then release. The existence of the ILC-100 will appear under the e-Node entry within Pilot.
- **ILC-400**. Remove the white plastic protective shroud to the left of the dual RJ-25 connectors with your finger nail or a small flat-headed to expose a push button mounted to the PCB. Depress the pushbutton for ½ second and then release. The existence of the ILC-400 will appear under the e-Node entry within Pilot

- If you have more than one connected controller (ILC-100 or ILC-400) continue this process until you have **Discovered** all devices. In the example below, three ILC-100 devices have been Discovered or found.

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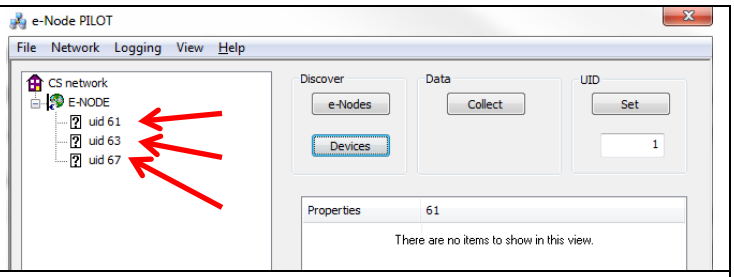
<table>
<tr><td></td><td></td><td> 
</td></tr>
<tr><td>DV-2</td><td>Notify Mode</td><td><u>Background</u>. Should you be implementing Color and Dimmer sliders within your project, the Vantage system needs to receive color data back from the Converging Systems' controllers in order to update Vantage's resources to automatically move the sliders and/or provide data within a data field. Converging Systems' lighting controllers can automatically notify the Vantage system whenever there is a color/lighting state change (recommended). Alternatively, the Vantage driver can "Poll" the lighting device on a regular basis. This later approach is only recommended with older versions of Converging Systems' firmware that did not historically support the Nofity command.

In order to activate this NOTIFY feature within Converging System's controllers, it is necessary to first turn on the appropriate NOTIFY function within the targeted controller (under the LED entry). By default from the factory, NOTIFY is set to OFF to reduce the amount of bus traffic. It is recommended that one of these NOTIFY functions is utilized in any integration with Vantage's products. These choices are as follows:

<table>
<tr><td>HSB color data</td><td>NOTIFY=COLOR</td></tr>
<tr><td>RGB color data</td><td>NOTIFY=VALUE</td></tr>
<tr><td>HSB and RGB color data</td><td>NOTIFY=BOTH*</td></tr>
</table>

*note: this feature is newly added in V3.14 of ILC-100 firmware. However, if is recommended to reduce bus traffic, that either HSB sliders (with NOTIFY=COLOR chosen), or RGB sliders (with NOTIFY=VALUE chosen) should be used on a user interface. If it is absolutely required that both RGB and HSD sliders are</td></tr>
</table>

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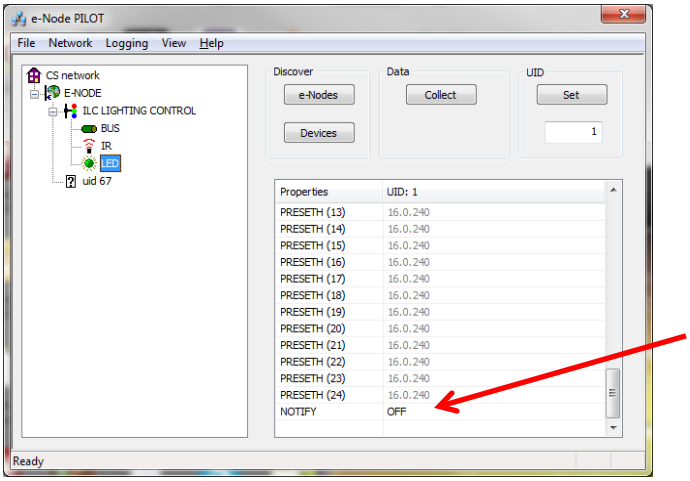
		implemented within the Customer User Interface (and **NOTIFY=BOTH** is chosen), there may be cases where the preponderance of bus traffic received from the LED controller might interfere with valid commands transmitted onto the bus. Although this rare, it may occur. <u>Process</u>. Within the e-Node Pilot application, select each controller (i.e. ILC Lighting Controller) that you wish to adjust from the **View Map** tab. Then open the **LED** tab. Find the **NOTIFY variable,** and set it to **OFF.** This will prevent the selected controller from broadcasting its status after every state change therefore reducing CS-Bus traffic.  **Note:** Prior to V 3.15 of the ILC-100 firmware, it is necessary to reboot the ILC-100 for this new setting to become active after it is changed. For versions 3.15 or later, simply changing this value within Pilot is sufficient. **<u>Legacy Firmware Note</u>**: Earlier version of Converging Systems' color controllers did not support the **NOTIFY** function. In those cases, there is an entry within the Vantage e-Node setup screens that can turn on alternatively the ability for the Vantage system to

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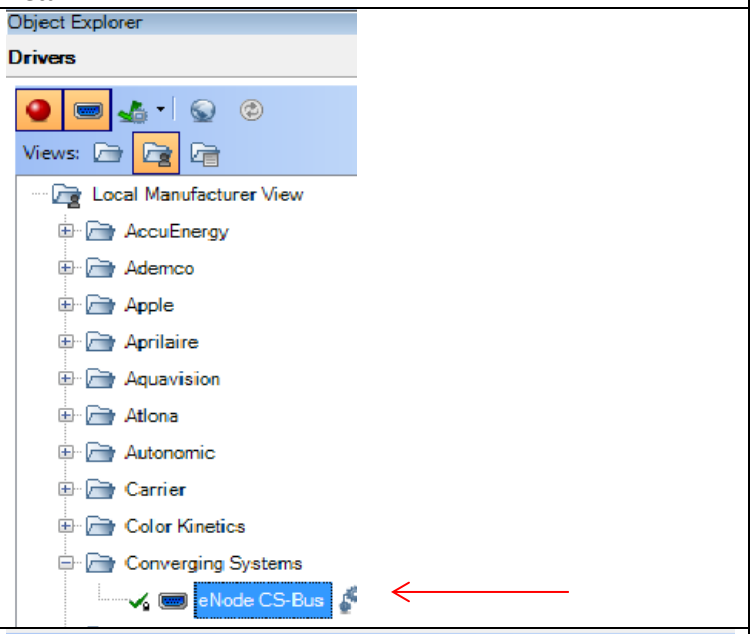
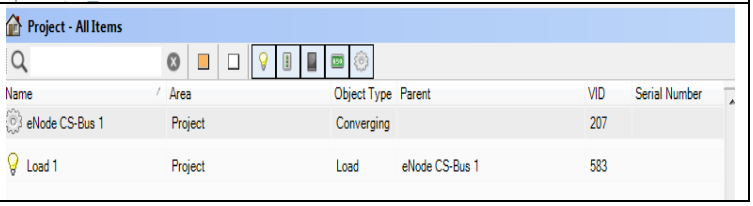
		automatically poll Converging Systems' controllers every x milliseconds to receive the necessary information to update Vantage resources. *With current Converging System' controllers, there really is no need to ever change this function for the Converging Systems controllers automatically broadcast current color state information ONLY upon a sate change to minimize traffic on the bus. You should only make these changes if you have a legacy version of ILC-100 firmware.*

Vantage Programming

Below is a summary of those steps required to import the Converging Systems' e_Node Ethernet adapter/firewall and one or more loads (motors or lighting). Screen shots are provided for additional information. Typically, the following features are set-up within the Vantage commissioning software (Design Center).

1. Import Converging Systems e-Node CS-BUS into your project.

Step	Step	Detail
1a	Import Converging Systems **e-Node CS-Bus** into your project within **Area View** Go to **Drivers** and import the applicable driver by double clicking on the selected driver within the Drivers library. **Note**: Make sure you download latest version from the Vantage library.	
1b	After you have added the **eNode CS-BUS** to your **Area View,** you will see the following entry.	

2. Set-up communication parameters for the e-Node within Area View (Ethernet or Serial)

Step	Step	Detail
2a	Set-up communication parameters for the Converging Systems interface (**e-Node IP device** or **IBT-100 serial device**) that will be used with one or more Intelligent Lighting Controllers (ILC-100/ILC-	Determine what will be the communication linkage that you will use to connect to the Converging Systems' device. -Refer to **Step 2b** if you will be using IP Communication and the **e-Node**. -Refer to **Step 2c** if you will be using RS-232c

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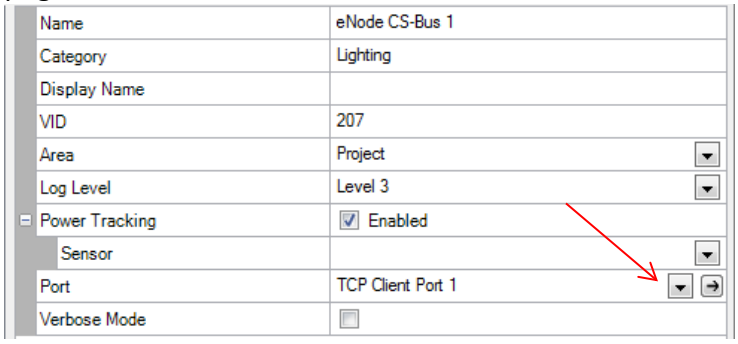
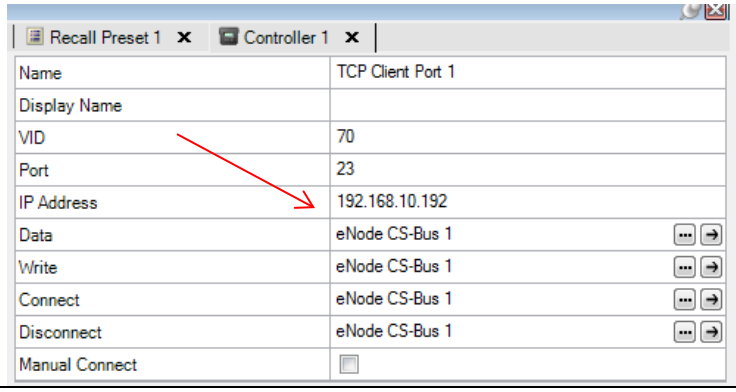
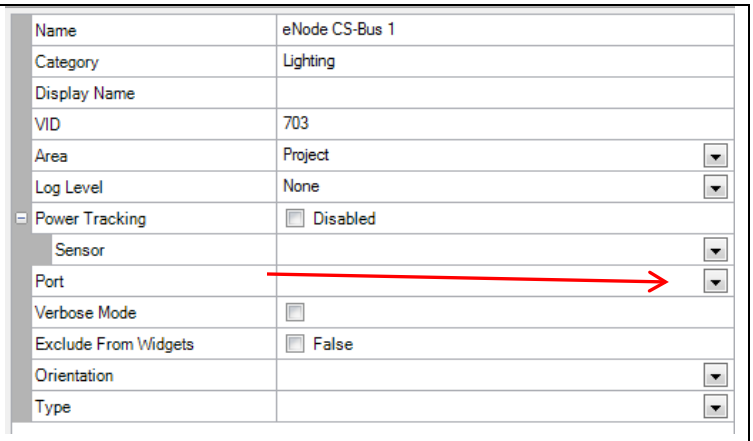
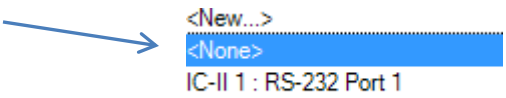
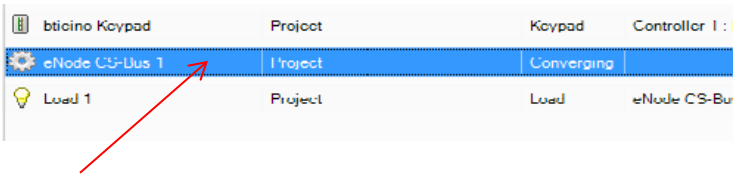
	400) with the **Area View**	Communication and the **IBT-100**.
2b	Communication Setup for **Etherne**t connectivity (e-Node)	-Highlight **Port** entry and select the expand icon→ to the right of **TCP Client Port 1** to advance to the next page  **IP Address.** Enter the e-Node's **IP Address** (preferably static) and verify **Port** is set to 23 
2c	Communication Setup for RS-232c connectivity (**IBT-100**)	**RS-232-C Communication (Serial)**: -Highlight **Port** entry and select the expand icon→ to expose available choices.

		 -Select New and enter an available RS-232 Port. If an available port is show, select that instead.  Note: Up to 254 Converging Systems loads (Lighting or Motor controllers) can be supported with a single IBT-100 serial interface device.

3. Set up Verbose Mode (set to True or checked)

3a	Set up Verbose Mode This is a setting which combined with a **NOTIFY** setting on supported CS-Bus controller device(s) impacts network traffic and functionality of various bi-directional feedback features. Please see **Appendix 4** for more information. ***Recommended Setting is Case 4 (see next step)*** ***Please check for any***	-Double click on the **eNode CS-Bus** entry on the **Project-All items** section to go back to the main eNode CS-Bus page.  Here you will find the Verbose Mode setting.

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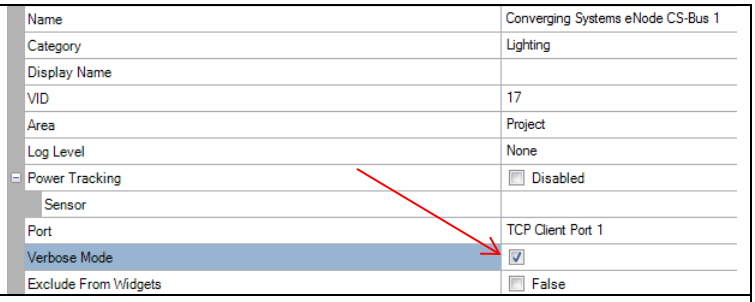
<table>
<tr><td></td><td>firmware and Integration Note updates here as changes are expected to the recommended setting in the near future.</td><td> 
</td></tr>
<tr><td>3b</td><td>Case 1</td><td>If you desire to have both (i) FADE sliders automatically respond to color state changes, PLUS (ii) LED status indicators on wall pads operational, select this case.

<table><tr><th>Vantage Setting</th><th>CS-Bus Controller Setting</th></tr><tr><td>Verbose Mode

unchecked ☐</td><td>Notify OFF</td></tr></table></td></tr>
<tr><td>3c</td><td>Case 2</td><td>If you desire to have FADE sliders automatically respond to color state changes (but no capability for having RGB on-button LED status indicators active), select this case.

<table><tr><th>Vantage Setting</th><th>CS-Bus Controller Setting</th></tr><tr><td>Verbose Mode

checked ☑</td><td>Notify VALUE</td></tr></table></td></tr>
<tr><td>3d</td><td>Case 3</td><td>If you desire to have on wall pad LED feedback active (but no capability for having FADE sliders automatically respond to color state changes) select this case.

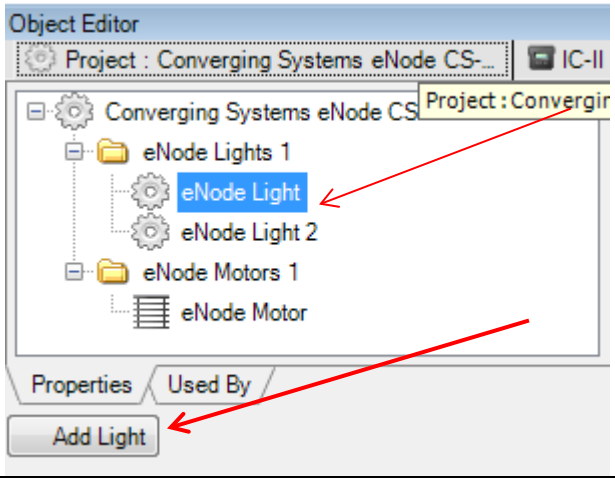
<table><tr><th>Vantage Setting</th><th>CS-Bus Controller Setting</th></tr><tr><td>Verbose Mode

checked ☑</td><td>Notify COLOR</td></tr></table></td></tr>
<tr><td>3e</td><td>Case 4</td><td>If you desire to have on wall pad LED feedback active and also have the capability for having FADE sliders automatically respond to color state changes select this case.

<table><tr><th>Vantage Setting</th><th>CS-Bus Controller Setting</th></tr><tr><td>Verbose Mode</td><td>Notify ALL (COLOR+VALUE)</td></tr></table></td></tr>
</table>

		checked ☑		

4. Add one or more loads

4a	Add one or more loads	
4b	Within the **Object Editor**, add the appropriate lighting or motor load by highlighting category (eNode Loads for lighting, or eNode Motors for motors) and selecting "**Add Light**" or "**Add Motor**" as appropriate.	In this case, the first device (Child Device) has been added as **eNode Light**. A second device (Child Device) has been added as **eNode Light 2**. 

5. Set Zone/Group/Node addresses for each added loads

5a	Set **Z**one/**G**roup/**N**ode addresses for all added loads	**Z**one/**G**roup/**N**ode addresses are entered using the e-Node Pilot application. After those addresses are established from within Pilot, they can be entered into Design Center. Below is a screen shot from e-Node Pilot application showing an address of **Zone**=2, **Group**=1 and **Node**=1 for one specific Converging Systems lighting load. You will use this information within Design Center after you have established the address using e-Node Pilot.

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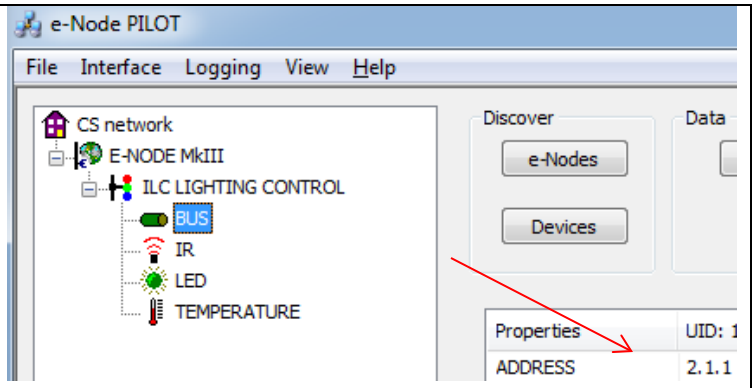
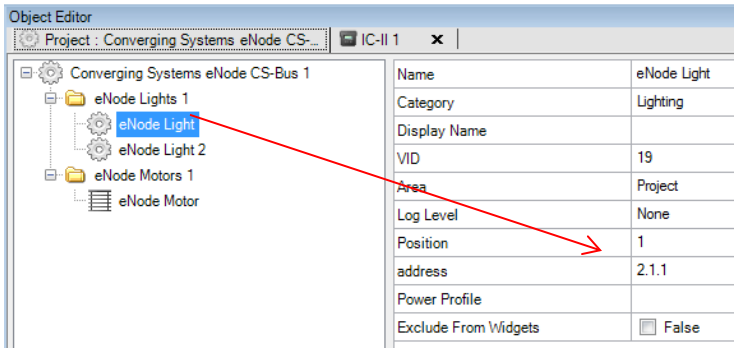
		 Note: **Zone** addressing from 1-254 **Group** addressing from 1-254 **Node** addressing from 1-254 **Note**: a wildcard value of 0 can be substituted for any valid address above to provide a broadcast to that subset of addresses
5b	Select load to be programmed and provide a customized name (if desired) and the unique **Z**one/**G**roup/**N**ode address as appropriate.	Select the applicable Child Device. If you have one lighting controller ILC-100 or ILC-400, you will have one Child Device. If you two lighting controllers, you will have two Child Devices. -For each Child Device, enter the appropriate Zone/Group/Node address in the format of **Z.G.N** Below, the address of **2.1.1** is entered for the First Child Device (**eNode Light**)  -Next, the address of **2.1.2** is entered for the Second Child

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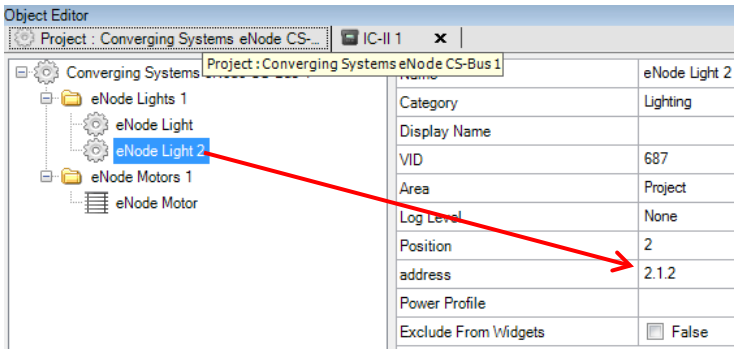
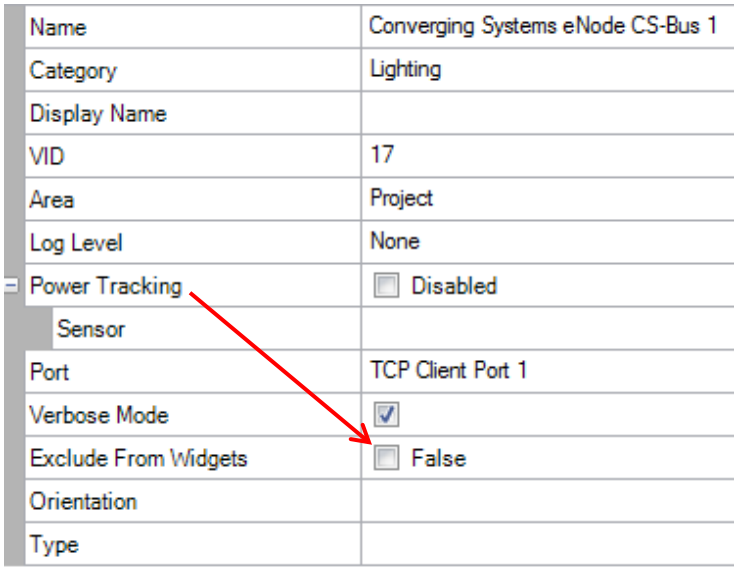
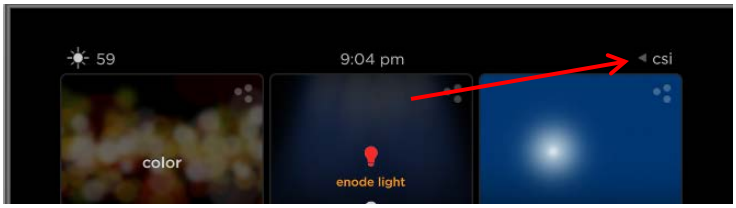
		Device (**eNode Light2**).  Note: Your address entry may vary depending upon your system design.
5c	Make adjustment to **Widget Setting (if using Widgets)**	It is recommended that in order to achieve the results documented within this manual, you make the proper setting within the Exclude From Widgets as follows. **MAKE SURE THE EXCLUDE FROM WIDGETS IN UNCHECKED.** 

6. Create Tasks or Macro to be attached to a specific button push or action

6a	Either use existing supported functionality with the new Color Widget (for supported Touchscreens) or add Tasks for additional functionality	**<u>Background on Tasks.</u>** There are two general types of hardware controls available from Vantage to control Converging Systems controllers—**Equinox Touchscreens** and **Stations**. **Equinox Touchscreens** (Equinox 41 and Equinox 73) now support a set of Color Widgets which has been engineering

	on all user interfaces.	to work with the Converging Systems line of LED lighting controllers. ***Color Widgets support a specific set of commands and operations which are a subset of all the supported commands within the Converging Systems' eNode driver.*** For those supported operations within the Widget, no specialized programming whatsoever needs to be performed in order to create a basic project supporting the CSI lighting products—the Widget simply auto-populates once the CSI eNode driver is loaded. **This saves dealers a tremendous amount of programming effort to control and receive feedback from Converging Systems' controller.** See **Step 6b** for more information on the Color Widget. For information on adding additional functionality as a button outside the Color Widget see **Step 6c**. **Other Stations** (Equinox 41 and traditional Wallpads/Stations) do **not** support the new Color Widget and therefore the traditional process of (i) selecting one or more **existing** supported commands from the list of supported CSI commands within the Vantage eNode driver and making them into a task, or (ii) creating **new** tasks for unsupported Converging Systems functions (typically for innovative functions that were added by CSI to their API after Vantage completed their CSI eNode driver) is required.
6b	Auto-configuration using the Color Widget (no tasks need to be created in this case)	-Verify that the **Lighting Tab** has been selected within the user profile. Press the **User Profile** link at the upper right hand corner of the home page to access the **User Profile.**  -Once the **User Profile** button has been selected the following **Dashboard** will be revealed. Make sure that the **Lighting** entry is checked.

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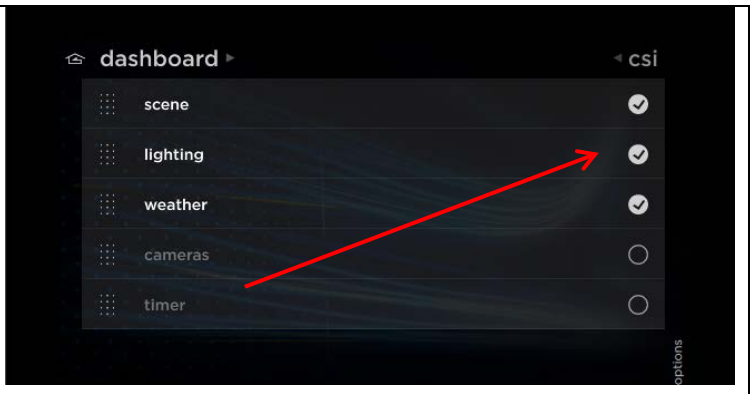
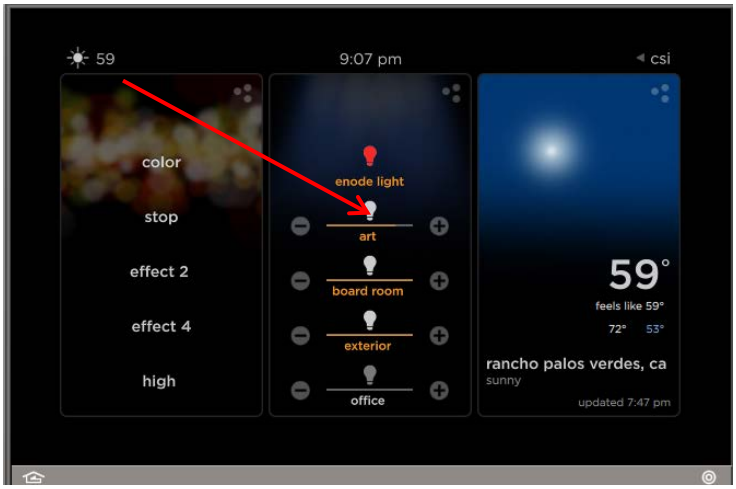
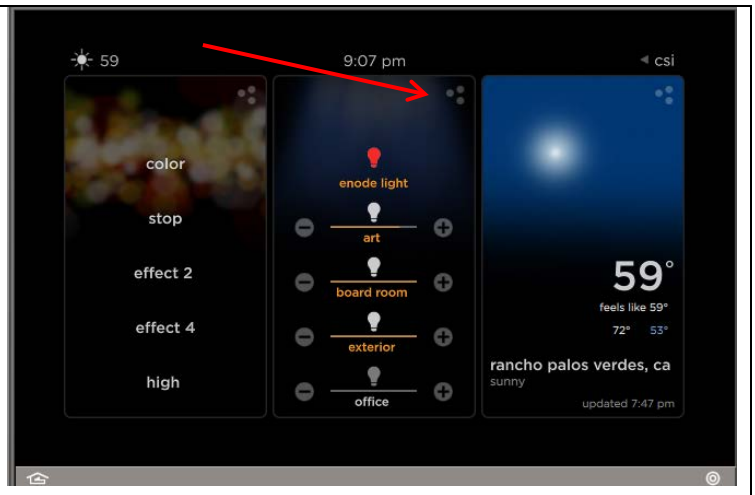


-You will see the Lighting screen

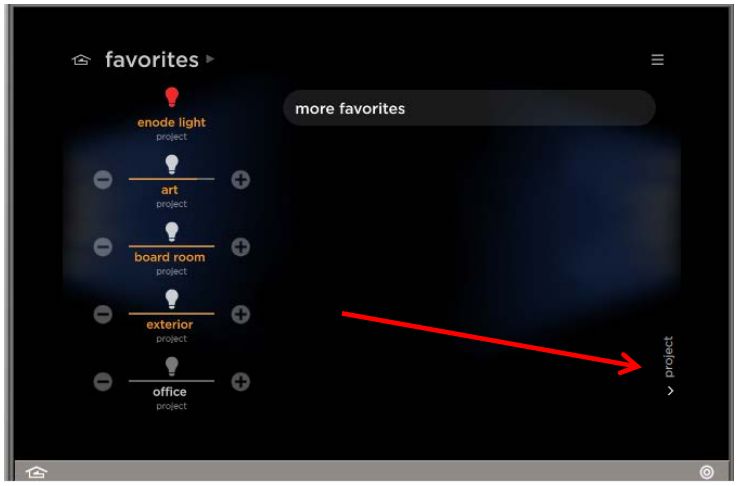
Note: Your user interface will not be populated with the sliders below the red arrow below. These sliders are populated outside of Design Center by the Touchscreen user by creating **Favorites**.



-To access the **Color Widget**, select the **three access dots** at the upper right hand corner of the Lighting Screen.



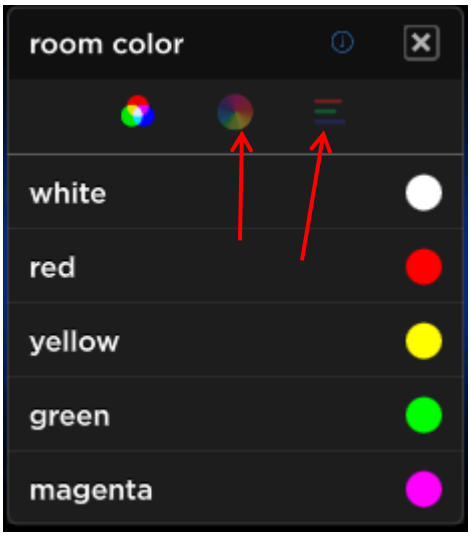
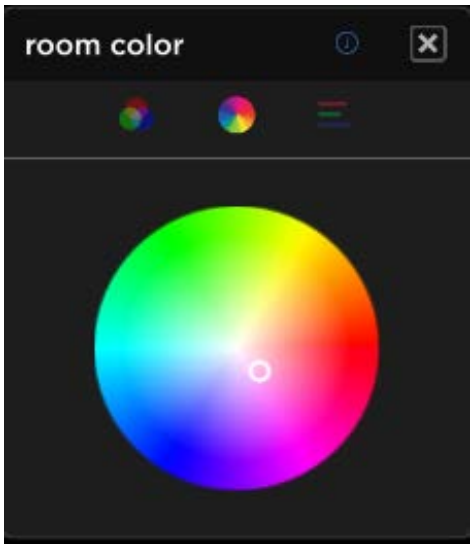
-This will reveal the following user screen. Select the Project link at the bottom right hand corner of the screen.

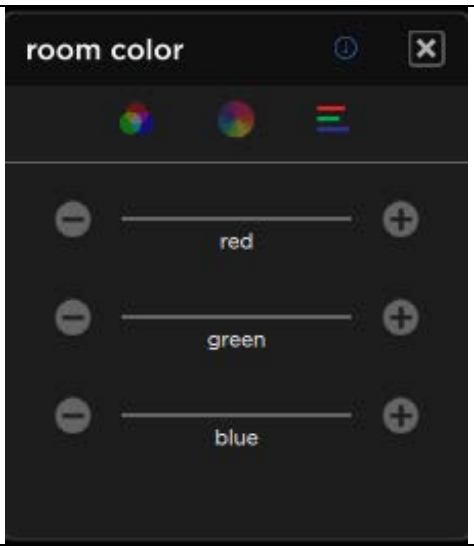
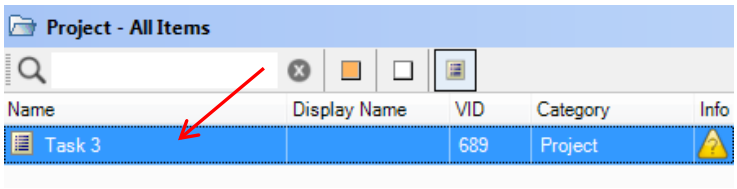
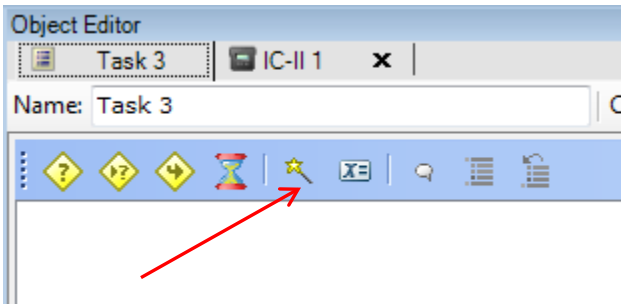


Note: Until you add your own Favorites, those items appearing in the left column will not appear.

-Finally, you will find the new **Color Widget Control Panel**. This is where you can select the **Color Picker icon** to expand the supported user interfaces.

-Currently, three separate user interfaces are available.

		Those can be selected from the **Page Selector** at the top **Color Widget page**.   -Proceed to the next step to add tasks for additional buttons or controls beyond the scope of the **Color Widget**.

		
6c	Creation of Tasks for (i) Additional Control beyond that offered by **Color Widget** or for (II) normal operation of Wall Pad Stations.	-Select the **Programming View** tab, place your cursor within the middle window and enter Ctrl "**T**" to add a new task.  -Double click on the **Task Name** (in blue above) to start programming the new Task. Once the **Object Editor** pop up appears, select the Wand to start the **Procedure Wizard**.  -Expand the categories within the **Procedure Wizard** to find subcategories. Virtually all of the Converging Systems Certified Driver commands can be found within two categories **-Toggling** , or - **Advanced Control/Color Control**.

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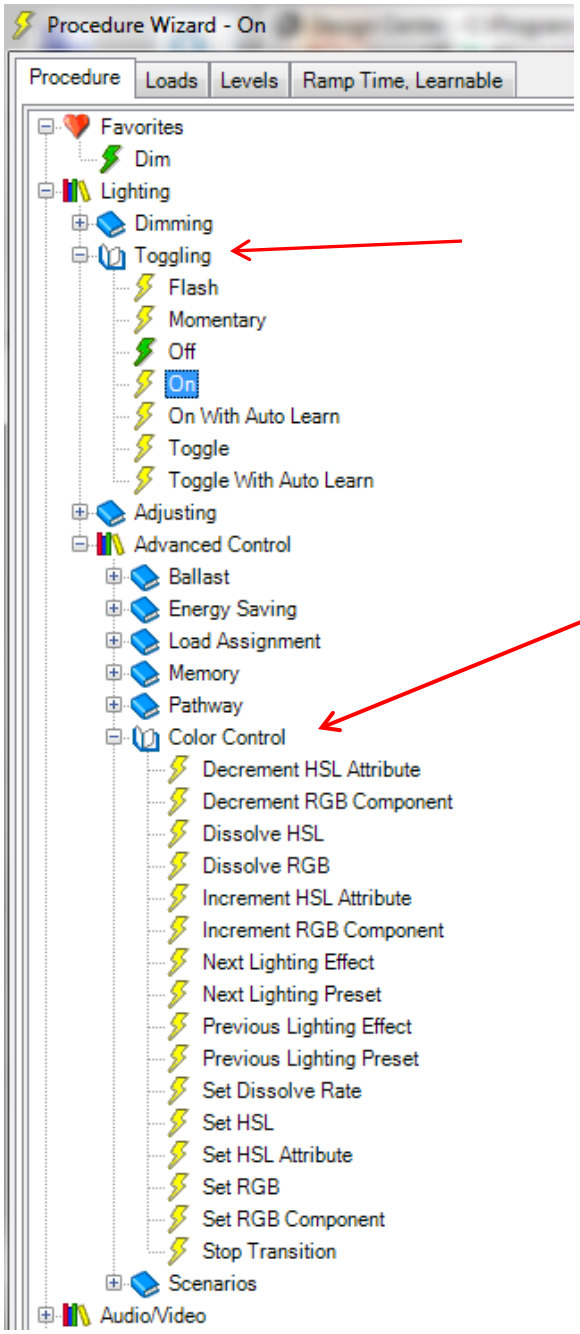
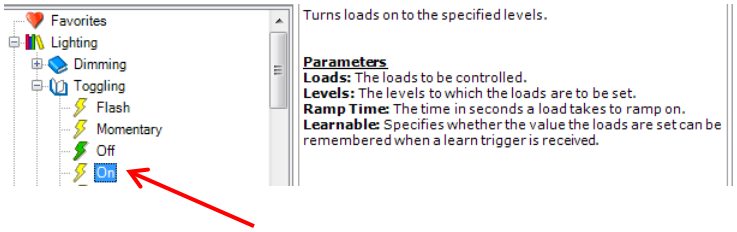
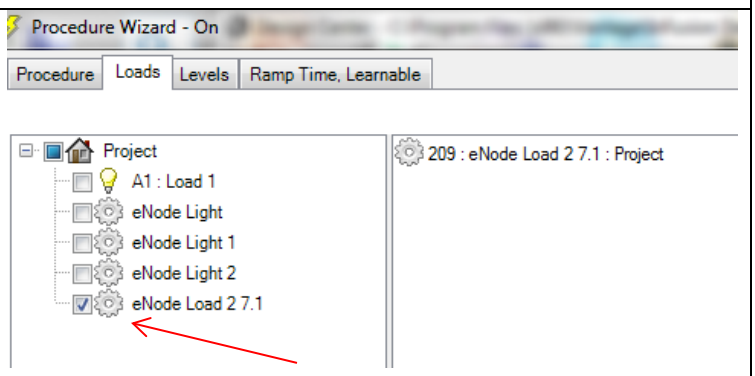
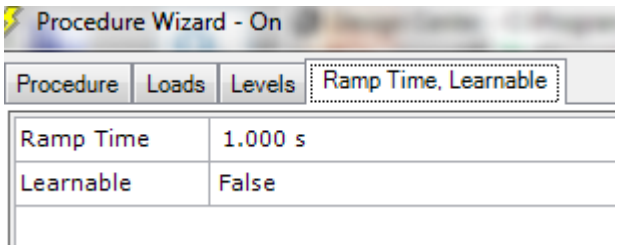
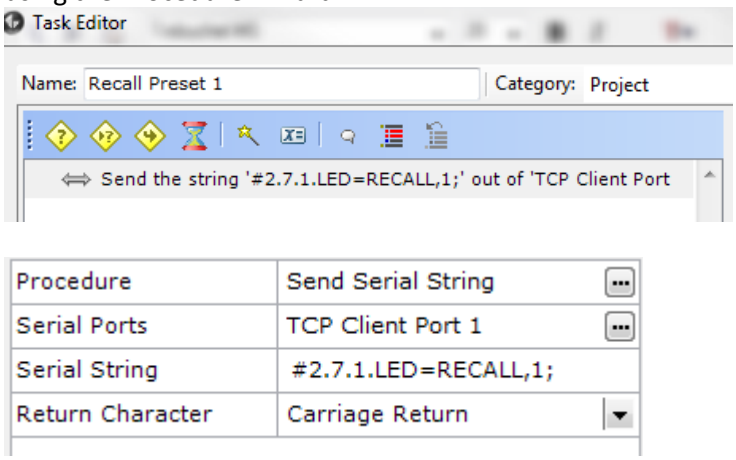
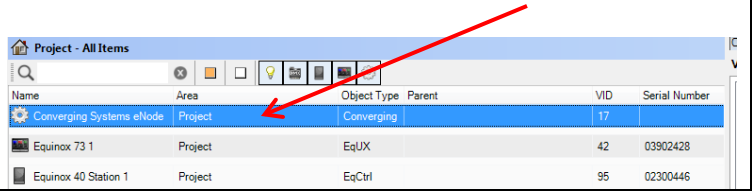


Select any relevant command from within these two sections and proceed through the Wizard to complete the button programming for your first new button.

Programming Note: Tasks can be created from Commands ONLY IF they initially exist in the Vantage e-

		Node CS-Bus driver. Consult pages 2-3 this Integration Note to determine CS-Bus commands supported as of the date of this Integration Note by Vantage. Should a command not exist in the driver, that *unsupported* or *new command* **can** be supported through a custom serial command tool that a Vantage dealer can utilize within Design Center. (See **Step 6g** below.)
6d	As an example, let us now build a new task (**LED ON)** that we can assign to the keypad shown in **Step 7b** below. You will use the **Procedure Wizard** to add those new Tasks. **Note**: Individual tasks need to be added to your Design Center active library prior to macro development (detailed in **Step 6i** below).	In this case, **LED ON** is a simple command that will appear within the Lighting/Toggling menu tree. (For more complex commands, go to the Lighting / Advanced Control menu tree). -Go to **Toggling** and select **On** 
6e	Continuing through the **Procedure Wizard**, next select a pre-created Load to which you wish to map the **ON** command. Check the applicable check boxes to which the command will apply	
6f	Advance through the **Procedure Wizard** and make any additional changes that are appropriate (lighting levels, RGB levels, HSB levels, etc.). Hit **OK** when done. You have now created a Procedure for a new Task. **Note**: some items that are	

	encountered within the **Procedure Wizard** such as Ramp Time are not applicable but if dissolve times are required these can be programmed	
6g	**(Requirement in some cases to create serial strings).** Currently, Recall Next, Recall Previous, Effect Next, Effect Previous are examples of commands that are supported within the Vantage driver. However, **Recall x**, and **Effect x**, can only be currently supported using dealer customized serial strings. *Consult the "CS-Bus Messaging Manual" for actual software strings required for operation. It is important to add the trailing **SEMI-COLON** at the end of the string, and preserve the end-of-command **Carriage Return** character as shown in this example.*	Here are some examples of Tasks that have been entered using the Procedure Wizard 
6h	Checking your inventory of Tasks	-Within **Area View**, select a particular user interface for which you have created Tasks (i.e. Converging Systems eNode). 

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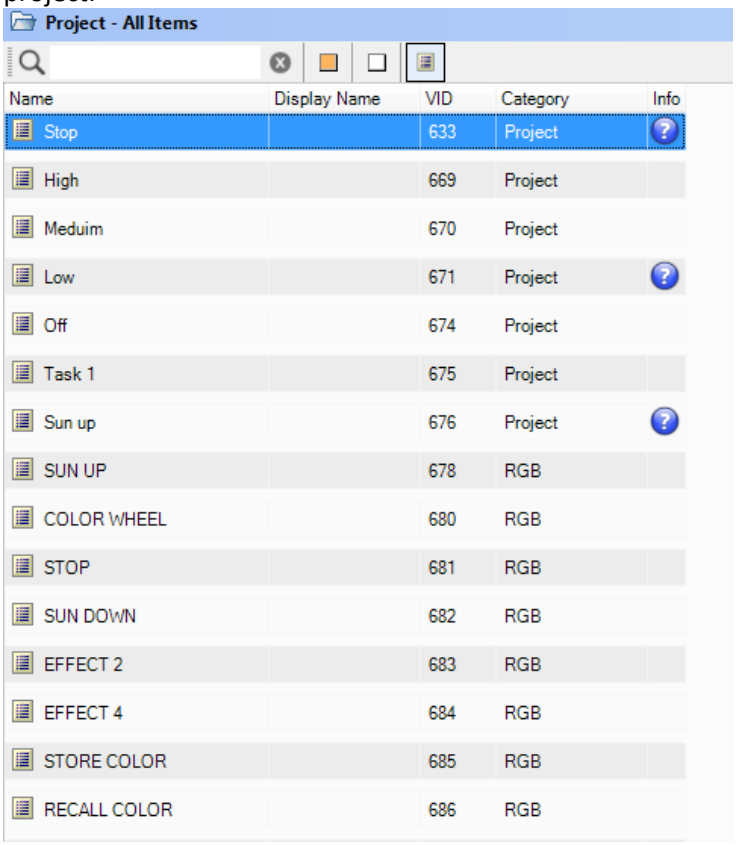
		-Within the **Programming View**, you can see in tabular format all of those tasks created. You can use this tool to determine if you have forgotten to create any specific Tasks. Here is an example of Tasks created and available within this project. 
6i	Create any macro-type tasks (one or more New Tasks combined together) if required. The **Edit Task** option is utilized to combined existing tasks with other existing tasks to create Macro-type Tasks. **Note**: Only after an initial library of tasks are developed using the **Procedure Wizard** should	Here is an example of a Macro-type Task that has been created combining a simple ON with a Dissolve task.

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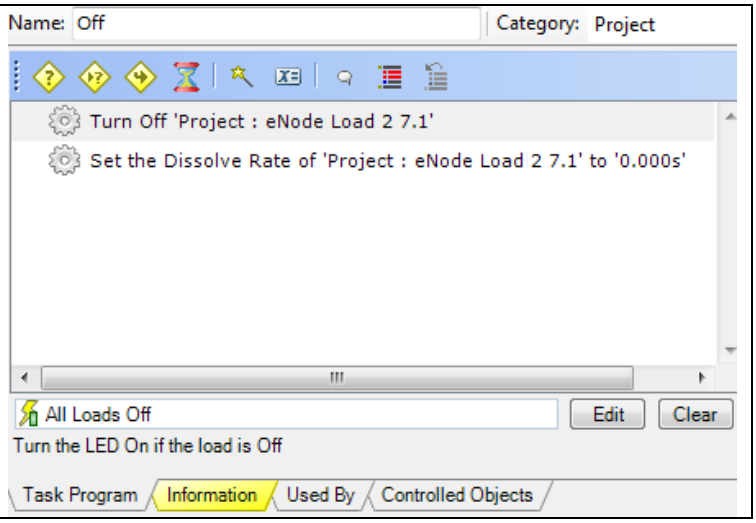
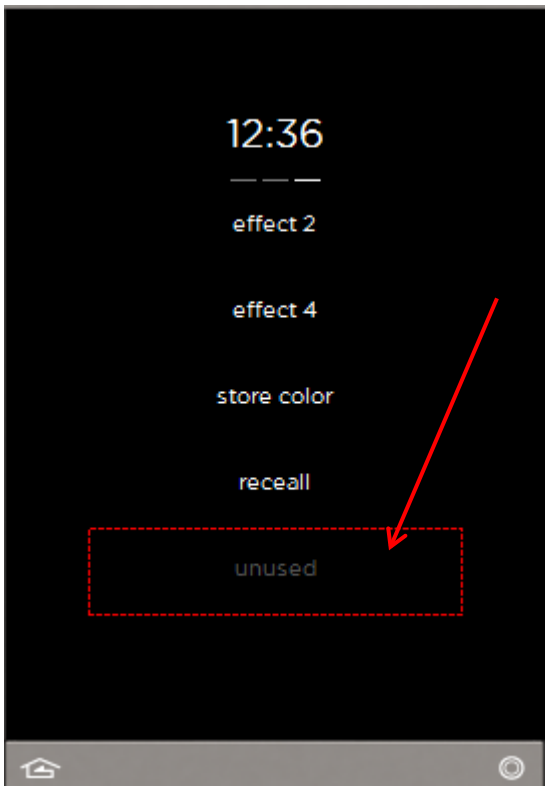
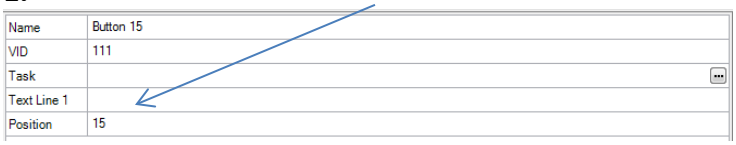
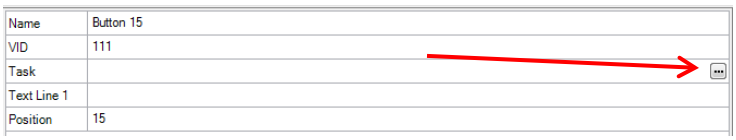
	the **Edit Task** option be utilized to combined those existing tasks with other existing tasks to create Macro-type Tasks.	

7. Create a Button/Scene and Link a Task

7a	Background	Depending upon the type of User Interface, the procedure to create a button differs. Please refer to the appropriate section below depending upon the type of User Interface you are programming. -**Standard WallPads/Stations**. (Equinox 40 and all other standard Keypad Stations). See section 7b below. These devices can be programmed to activate (i) any task(s) that have been previously created within steps referenced in **Section 6** above as well as (ii) any lights/loads that have been created in **Section 5** above. **Important Note**: *Currently as we understand it, if you want to create a button/scene within an Equinox Touchscreen (Equinox 41 and 73), you first need to create that (i) Task for a particular WallPad and assign it to a button on a particular Wallpad. For that reason it is important to observe the directions within **Step 7b** before proceeding to **Step 7c** for users of these Touchscreens.* -**Equinox Touchscreens** (Equinox 41 and Equinox 73 or similar). See **Step 7c**.

7b	Adding a Task to a button on a **Wall Pad/Station**	(If you have not already added a specific Vantage Station, within **Area View** add a Station/ Keypad or other user interface.) -Left click on a to-be-programmed button to expose the **Object Editor.**  **-**Enter your desired text for the button under **Text Line 1.**  **-**Select **Task** line and pick the expansion icon  to select a pre-programmed task from **Section 6** above. 

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		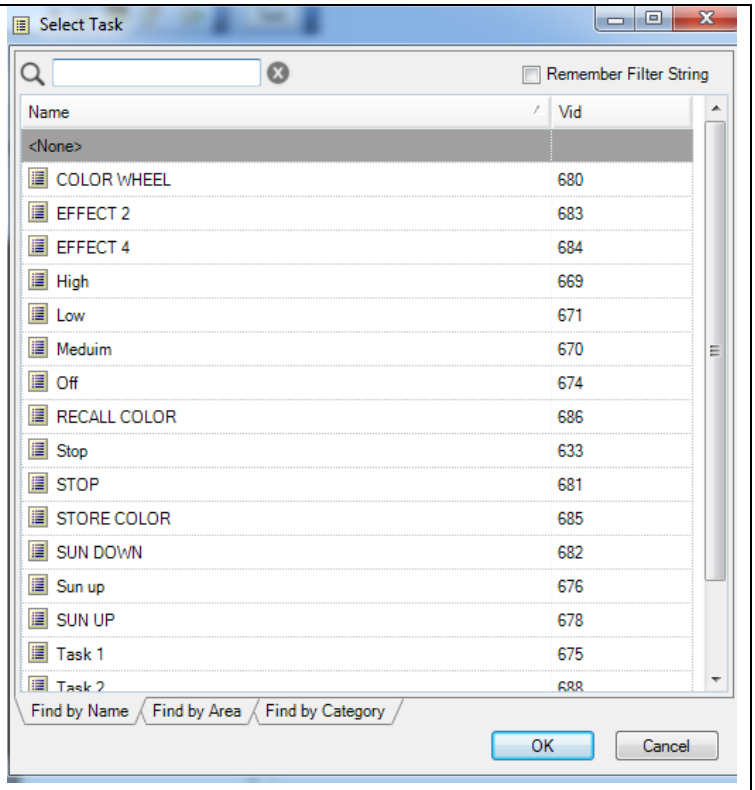 -Select the applicable (pre-programmed task) and hit OK to finish the programming for this particular button.
7c	Adding a Task/Scene to a "button" on a **Touchscreen** (Equinox 41 and 73)	**Background**. Buttons/Scenes on an Equinox Touchscreen can control three types of outputs. These are : -**Type 1**. Tasks that have been already programmed to a particular button on a Wallpad (in **Step 7b**) -**Type 2**. Light loads that have already been programmed within **Section 5** above. -**Type 3**. Advanced (timer or trigger) operations involving a combination of the above two types along with a timer function. The following steps document **Type 1** tasks. Refer to Vantage documentation for a more thorough review of programming **Type 2** and **Type 3** operations. -Double click on the applicable touchscreen model from within **Area View**,

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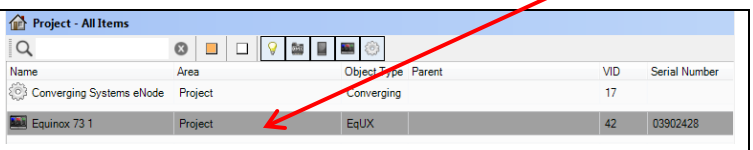
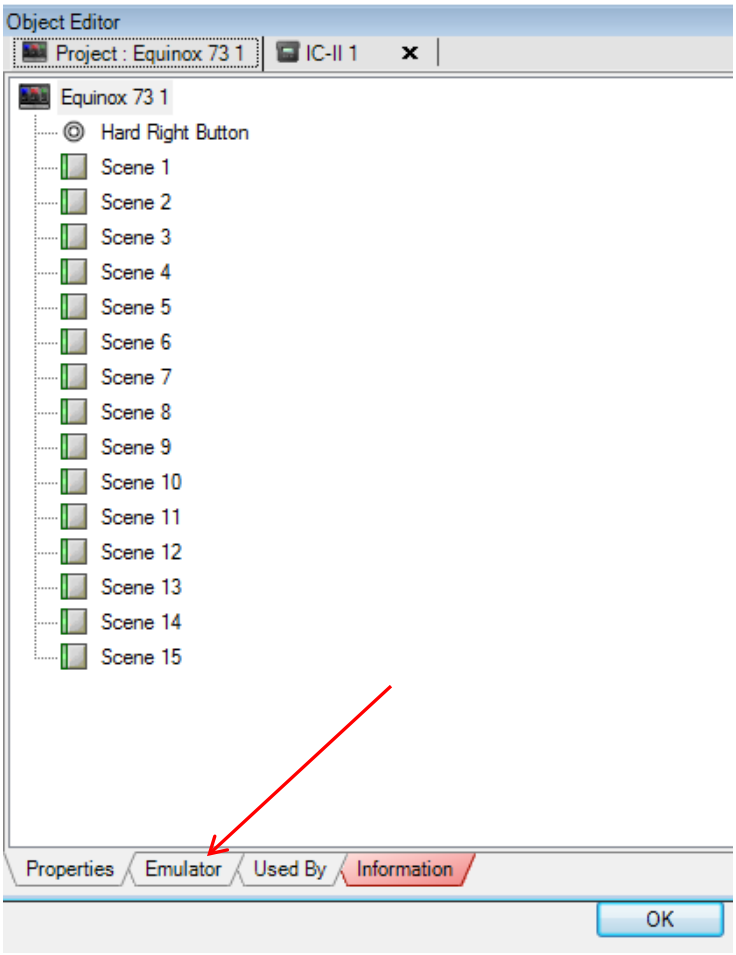
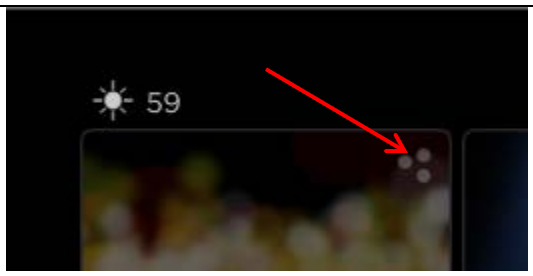


-After the **Object Editor** appears, select **Emulator** to launch the Emulator**.**



Note: you can also perform this same programming from an iPad running the Vantage Equinox application

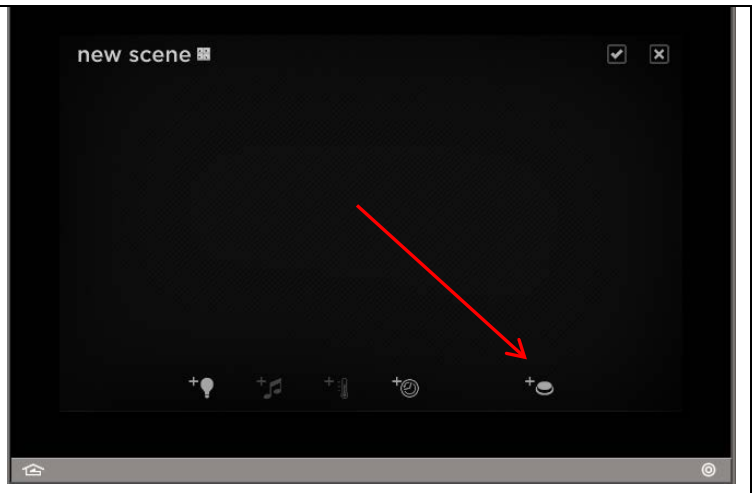
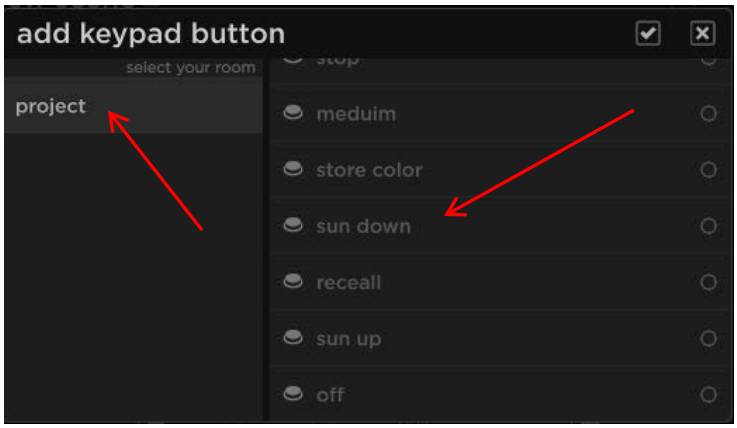
-Swipe over panes until you reach the **Lighting Scenes pane** and hit the **triple button setting** button.



-Within the **Scene** screen, hit the **triple line icon** at the upper right hand corner of the screen to expose the **configure scene** window.

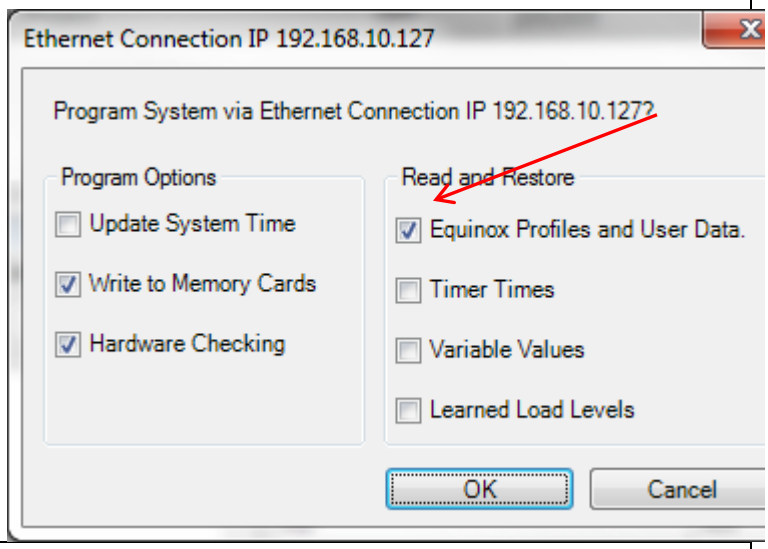
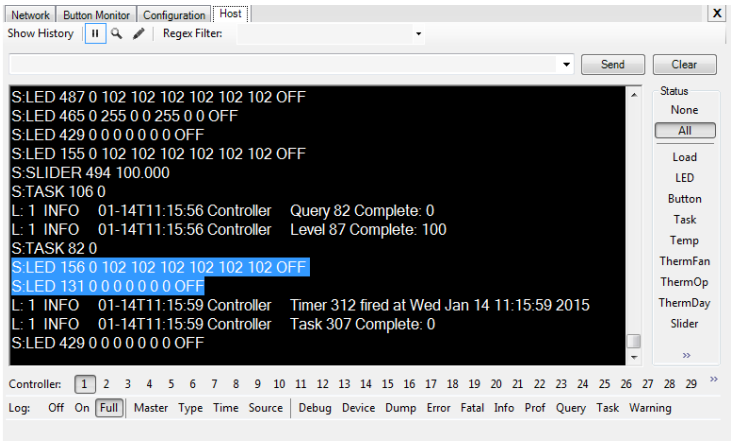
-To add a button (known here as a Scene), select the + icon to add a new scene. The check it  and open it with the expansion button 

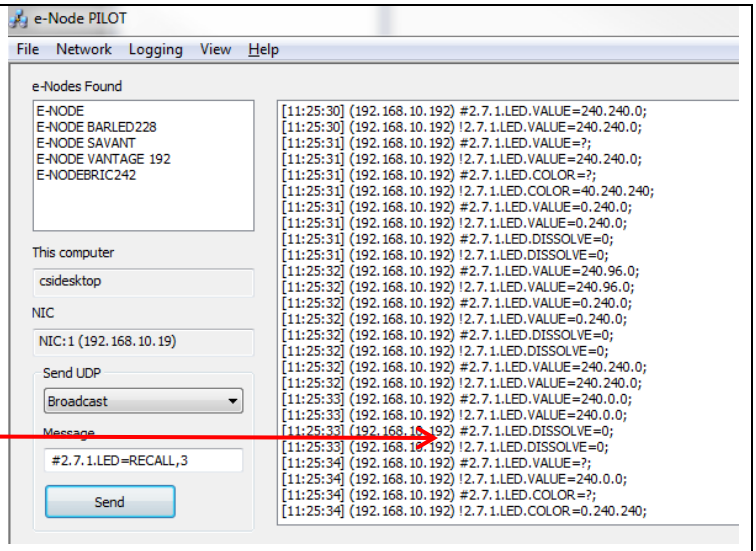
-Select the **edit** button to expose the new scene window. Next select the **add** button icon.

		 -Select your **room**, then from the list of applicable Tasks (that have been programmed to a particular button location within **Step 7b** above), add a **check mark** to the appropriate entry.  -To save, hit the **check mark** at the top of (i) the current page and (ii) the next page to save the scene/button.

8. Upload project and Test

8a	Upload project and Test	Make sure you are connected to your Vantage processor and upload your project. The orange/yellow indicator to the left of Ethernet is required to be active or connected in order to perform the upload 
8b	When uploading the project, pay particular attention to the	If you do **not** have any Equinox components in your project, make sure that you **uncheck** the box in front of the entry

	checkboxes that are presented.	Equinox Profiles and User Data. If you do not have any Equinox components in your system, having this box checked might interfere with the proper functioning of your system. 
8c	Troubleshooting	Two tools can be used to help diagnose problems with the above programming. Vantage has a Diagnostics tool within its Design Center which can be used to verify communications. For more information on running that diagnostics, see **Appendix 6**.  Converging Systems' has a software tool within its e-Node Pilot Software called **Traffic**, which can be used to monitor traffic flowing to and from the respective Converging Systems' hardware devices. Here is a screen shot of data that can be seen.

	CS-Bus commands that are seen on our communication bus (CS-BUS), can be revealed here.	

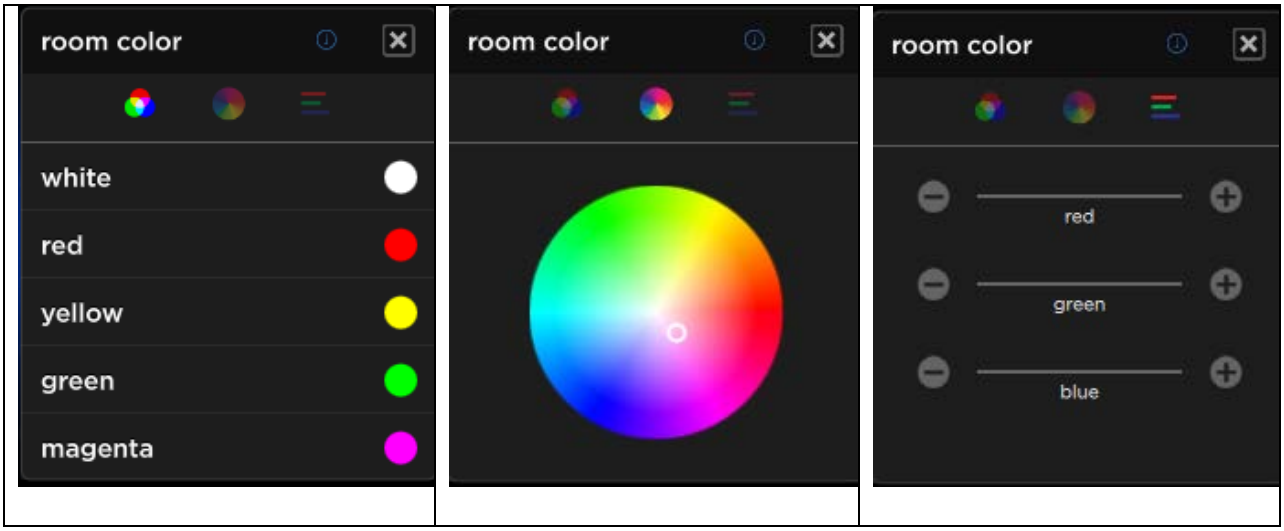
Vantage Programming-User Interfaces

The individual installer typically designs the User Interface (UI) for the particular needs of the end-user. Converging Systems has created a number of sample User Interfaces (UI) which may be helpful to the dealer before the dealer starts his or her own design process. Sample UI screens are pictured below.

LED CONTROL ENVIRONMENTS

The following illustrations provide some sample UI for LED control interfaces.

Color Widget (available for Equinox 41 and 73)



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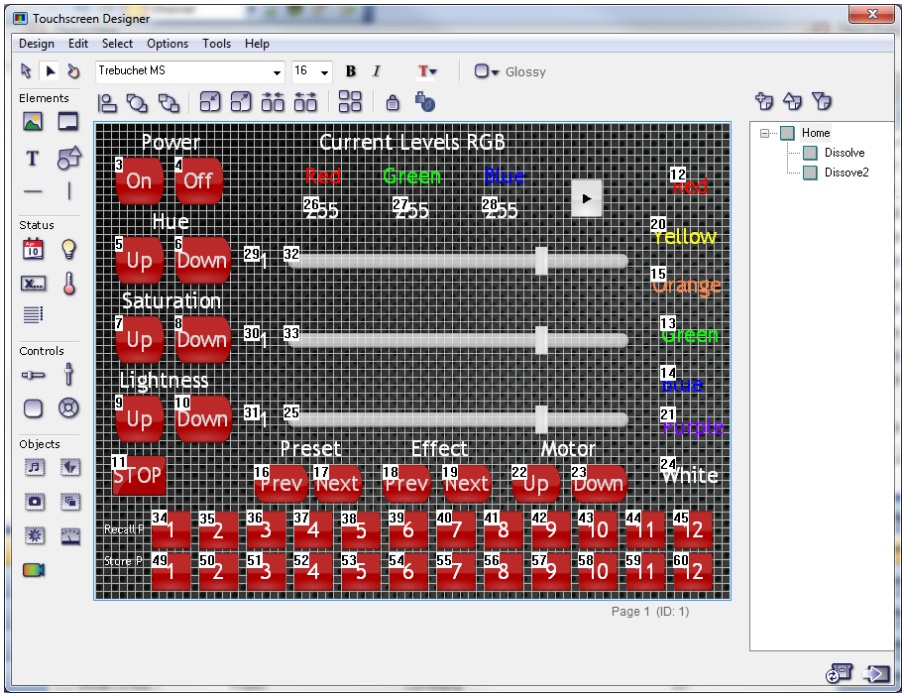
Scene and Special Feature Buttons (available for Equinox 41 and 73)

Legacy Vantage 1030 Touchscreen UI



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MOTOR CONTROL ENVIRONMENTS

The following illustrations provide some sample UI for Motor control interfaces.

WIP

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Appendix 1

Common Mistakes

1. Forgetting to set turn **off** Telnet Login under the TELNET page. Typically, Telnet sessions require a LOGIN ID. Currently within the Vantage setup, Telnet is used without LOGIN. IF the LOGIN setting within the e-Node is not set to **DISABLE**, the Vantage processor will be unable to establish a Telnet session with the e-Node. After this LOGIN is disabled, you must hit the **RESTART** button in order for this change to become valid.

2. Forgetting to update Zone/Group/Nodes addresses within the default serial driver for specific controllers. The default driver from Converging Systems is set to 2.1.0 for lighting devices, and 1.1.0 for motor devices. The "0" in the last location refers to a wildcard setting which causes all devices with a Node address from 1 to 254 to respond. If you have a setup with uses specific addresses other than 2.1.1 for instance (i.e. 2.1.2 for the second controller, 2.1.3 for the third controller, etc.) you must update the serial driver accordingly.

3. Make sure that you do not use the Communication Device created by more than one Generic Serial Device or Generic Ethernet Device.

4. Forgetting to change the e-Node **UDP LISTEN_PORT** to something different than that which Vantage uses (we suggest 4999). Also, make sure you set up Pilot's **Network Interface** to the same **Send Port** (4999). Remember to hit Restart for the applicable e-Node and restart Pilot after you make these changes. 2. Forgetting to set the addresses for controllers (motor or lighting) from within BluePrint.

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Appendix 2

COLOR SPACE ISSES

Note on Color Space. Converging Systems recommends that only the HSB (Hue, Saturation and Brightness color space is used for it is infinitely more accurately and user friendly to control color. It should be noted that the current Color Picker/Widget from Vantage operates in the RGB color space. However, if an installer were to add a dimmer button to a Vantage interface (standard keypad or Touchscreen), built-in Converging Systems' technology into our LED controllers and our e-Node/dmx CAN ACCURATELY convert those RGB attributes into our own color computer work space and assure hue accurate dimming. **This is true for either ILC-100/ILC-400 controllers or Converging Systems' own eNode/dmx interface product**. This differentiates the CSI DMX processing from alternative products in the marketplace which have particular difficulty with Hue Accurate Dimming.

Over time, Vantage may be able to add sliders to custom UI screens for dealers. Should those new sliders become available, we would recommend that all sliders be configured as HSB sliders (as opposed to RGB sliders).

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Appendix 3

ADVANCED VANTAGE PROGRAMMING-
Bi-directional Feedback of Color Space Information

In addition to standard control of typical LED functions such as On/Off/Store and Recall, the Vantage interface allows bi-directional slider control of two different color spaces. In addition, the interface allows the concept of keypad LED (RGB) indicators to represent the actual color selected by a user through that keypad for a connected ILC-X00 controller.

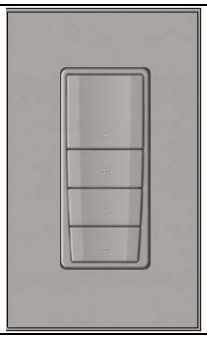
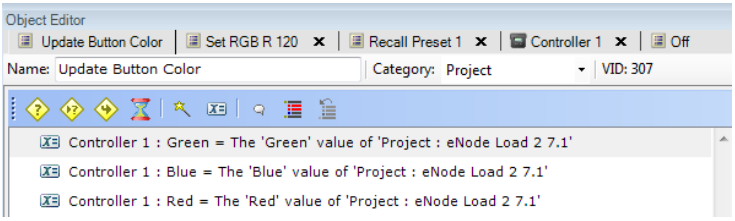
Note on Color Space. Converging Systems **recommends that only the HSB** (Hue, Saturation and Brightness) color space is used for it is infinitely more accurate and user friendly to control color. Since there is no concept of dimming within the RGB color space, having RGB sliders only frustrates the user who may just want to dim an existing colored output. However, if you desire to have the Vantage keypad LED button indicators properly read back the ILC-X00 color setting, it is imperative to utilize RGB information available from the ILC-X00 controllers as well. Although, the Vantage processor cannot make color space conversions from one color space (HSB) to another color space (RGB), a software technology within ILC family of LED controllers permits both color space data to be made available to the Vantage system.

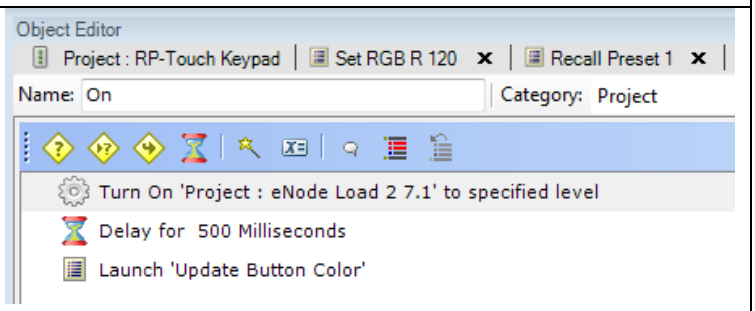
Examples

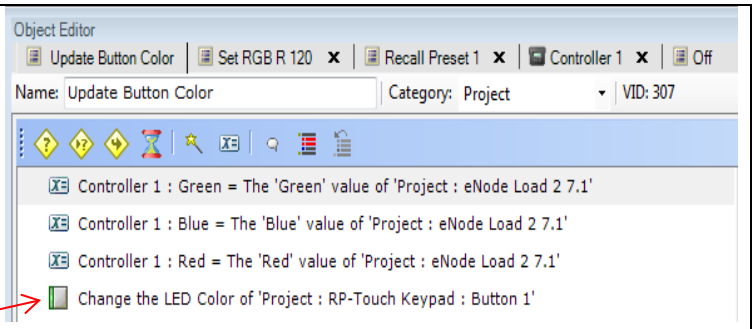
Below are several examples for the utilization of bi-directional color space information available from the ILC family of LED controllers. Please refer to the applicable section below for you particular application.

Case 1. Application where the Vantage keypad LED indicators are able to mirror the lighting level and/or color status of connected ILC controllers

1	Determine if you targeted keypad or user interface has 3-color LEDs that can be controlled by a connected intelligent lighting load	An example of a compatible keypad includes the RP-Touch Keypad with RGB LED indicators that can be remotely controlled.

<table>
<tr><td></td><td></td><td>  </td></tr>
<tr><td>2</td><td>Create a Task entitled Update Button Color. This task queries data available from the ILC LED controller which is passed back to the Vantage system and then able to update the wall pad’s LED indicators to reflect the actual color selected by the user interface</td><td>Within the Object Editor, here are the tasks which make us the procedure.
 
</td></tr>
<tr><td>3</td><td>Here are the actual inputs to create a method by which the Red, Green, and Blue color channels are queried and made available to the Vantage System.</td><td>Each of the above first three tasks are detailed below.

<table>
<tr><th>Controller</th><th colspan="3">ASSIGNMENT</th></tr>
<tr><td></td><th>Variable</th><th>Operation</th><th>Value</th></tr>
<tr><td>1: Red</td><td>Red</td><td>Assign Value</td><td>RGB</td></tr>
<tr><td>2: Green</td><td>Green</td><td>Assign Value</td><td>RGB</td></tr>
<tr><td>3: Blue</td><td>Blue</td><td>Assign Value</td><td>RGB</td></tr>
</table></td></tr>
<tr><td>4</td><td>Next, create a Procedure for your first targeted user interface button. In this case, the ON button will perform the following steps:
-turn on the ILC-100 controller,
-wait 500 milliseconds, then
-read the RGB data available to it in order to update the wall pad’s LED indicator for the top button</td><td> 
</td></tr>
<tr><td>5</td><td>After you have entered similar Task information for any particular User Interface</td><td>Here is the Object Editor summary of the programmed Update Button Color Task as per this example.</td></tr>
</table>

	buttons, you can verify your programming by selecting the Task under **Programming View**	
6	Upload and Test	In this case a macro has been established for the ON button whereby when the button is pressed, the ILC controllers are triggered to turn on, AND logic is invoked that provides feedback to the Vantage setting as the actual color levels reached after the ILC controller is turned on. If you signal and ILC-100 controller to go to BLUE, the on-board wall pad LEDs will also appear blue. Test all buttons programmed.

Case 2. Application where the Vantage keypad touchscreen sliders are able to mirror the lighting level and/or color status of connected ILC controllers.

1	Determine if your targeted keypad or user interface has the ability to support sliders with feedback.	An example of a compatible touchscreen includes the TPT 1040 device which can be remotely controlled. 

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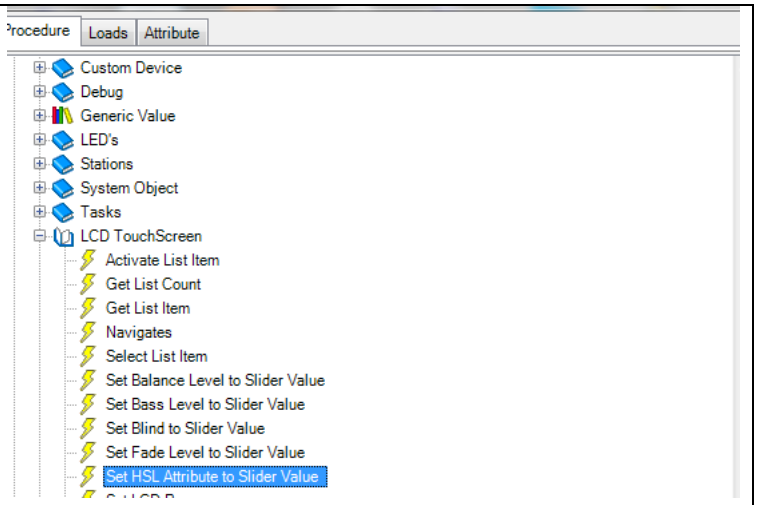
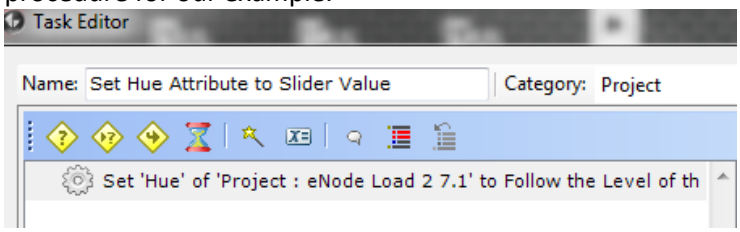
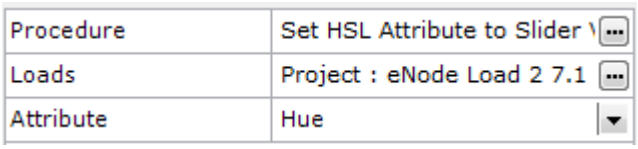
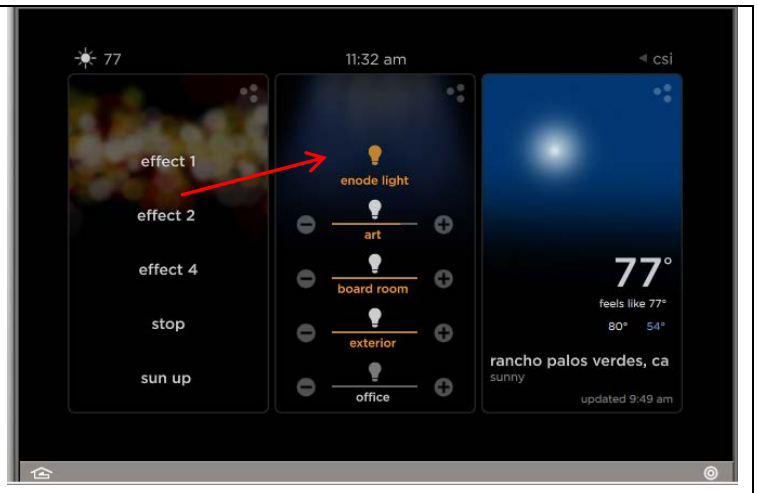
2	Select a Procedure (from Tasks/LCD Touchscreen) entitled **Set HSL Attribute to Slider**. This Procedure has been created to query the connected ILC controller and then make its color level data available to the Vantage systems. This enables a slider to actually move depending upon color data coming back to the Vantage system.	
3	Customize this procedure with the specifics of your actual load that the same slider will control.	Within the Task Editor, here are the customizations to the procedure for our example.  The entries to the Task Editor are shown below 
4	Upload and Test	In this case, the targeted slider will control the particular HUE (or color) of a connected ILC-100. In addition, it will move to reflect the current HUE setting of that same ILC-100 if it has been adjusted to change from some other UI page or by some other user. If you signal an ILC-100 controller to go to BLUE, the Light icon will change color to Blue. (Way cool.) .

		 **Note**: We expect that over time, additional feedback icons will become available from Vantage to enhance this user-feedback technology.

Appendix 4

Verbose Mode/Notify

Converging Systems' devices can either be set to automatically broadcast status upon state changes, or they can remain quiet until polled by Vantage. The back channel data that is transmitted back from Converging Systems controller(s) is then used by the Vantage system to automatically move sliders, update on-button LEDS, etc. Converging Systems recommends Case 1 below if you want both sliders to react and on-board keypad LEDs to respond as well. Other choices are possible below, however, which will reduce CS-Bus traffic.

Case	Vantage Verbose Mode setting	Vantage Queries after every action	e-Node Notify Setting NOTIFY=	e-Node feedback provided		Vantage FADE Slider feedback	Vantage RGB LED wall pad Status signaling	Reduced Network traffic on CS-BUS
1	☐	Yes	OFF	**No** auto Feedback		Yes	yes	No
2	☑	No	VALUE	Auto **HSB** Feedback		yes	no	Yes
3	☑	No	COLOR	Auto **RGB** Feedback		no	yes	Yes
4*	☑	No	ALL	Auto **RGB** and **HSB** feedback		Yes	Yes	Yes

*Note: this new feature is available with ILC-100 fw versions 3.02.03 or later.

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Appendix 5

DMX Options

Note: These directions related to the e-Node/dmx *MkIII* device. The MkIII device has an on-board RJ-45 connector (marked as Port 2) to be used with remote DMX fixtures

Note on DMX Lighting Devices. There are many third-party lighting devices available in the marketplace that support the DMX512 lighting standard ("standard for digital communication). DMX devices were originally utilized for theatrical interior and architectural lighting application only, but recently their adoption rate has grown in other areas where colored lighting is desired. DMX 3-color lighting fixtures utilize the Red, Green, Blue (RGB) color space which although practical for theatrical uses and the trained lighting designer is quite limited for traditional dimming application ***for the technology inherently lacks the most basic dimming slider*** which would preserve a specific hue while lowering the brightness to full off. But that has all changed now...

Converging Systems' e-Node/dmx. Converging Systems has developed an adaptation of its lighting/dimming technology currently available within its ILC-x00 line of LED controllers and has re-purposed that technology into a separate product known as the e-Node/dmx. The existing Vantage drivers compatible with the ILC-x00 LED controllers can also drive directly the e-Node/dmx (color engine/dmx translator), and the e-Node/dmx makes the necessary color adjustments within its own processor to translate incoming commands to outgoing DMX commands **and transmits those directly onto *a DMX bus***. What is unique about this implementation is that the Converging Systems' hue-accurate dimming technology (with a built-in dimmer slider) can now drive DMX fixtures by using Vantage device drivers already in existence for other Converging Systems' products. (See the listing of commands that are supported with the e-Node/dmx device see LED Commands in this document.)

Please follow the directions which follow to drive DMX fixtures from a Vantage Controls system

WIRING DIAGRAM (for DMX control using e-Node/dmx and IP)

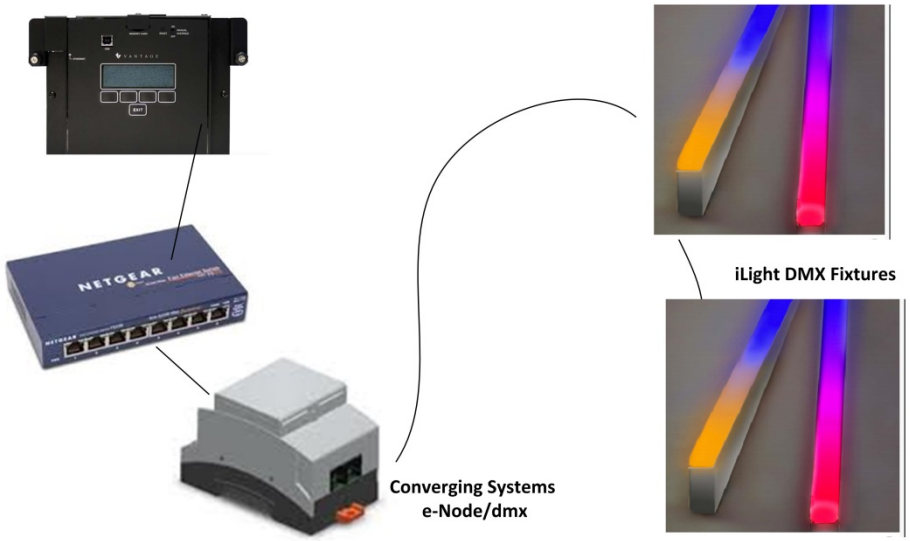

Figure 1

Wiring/Configuration Notes:

1. Maximum length of CS-Bus cabling from e-Node to the last DMX fixture using DMX cabling = 1200 meters (3,900 feet)
2. Maximum number of DMX fixtures connected to a single e-Node/dmx device = 32. If more than 32 fixtures are required, implement additional e-Node/dmx devices.
3. Maximum number of e-Nodes that can exist on a Vantage system = 254

BILL OF MATERIALS (for IP control)

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	InFusion	Vantage	Various	Ethernet/USB/HDMI	various	
2	Network Switch	Various	Various	Ethernet	RJ-45	
3	e-Node/dmx	Converging Systems	e-Node/dmx	Ethernet	RJ-45 (for Ethernet) RJ-25 for local DMX bus	
4	Third party DMX fixtures	Various	Various	DMX512	RJ-25 for DMX communication	Must terminate final OUT or THRU connector on last DMX fixture using a 120 ohm resistor

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e-Node Programming/Device Programming

Minimum requirements for this operation.

-e-Node/dmx with power supply
-Necessary cabling to connect e-Node/dmx to first DMX fixture (see "e-Node Interfacing with DMX Guide"). For reference the pin-outs on the e-Node/dmx are as follows.

e-Node/dmx (MkIII) PORT 2 RJ-45 connector

Pin	Signal
1	Data +
2	Data -
3	No not connect
4	No not connect
5	No not connect
6	No not connect
7	Ground
8	

Note: For connection to various DMX fixtures, see the wiring diagram in the applicable e-Node/dmx (MkIII) manual.

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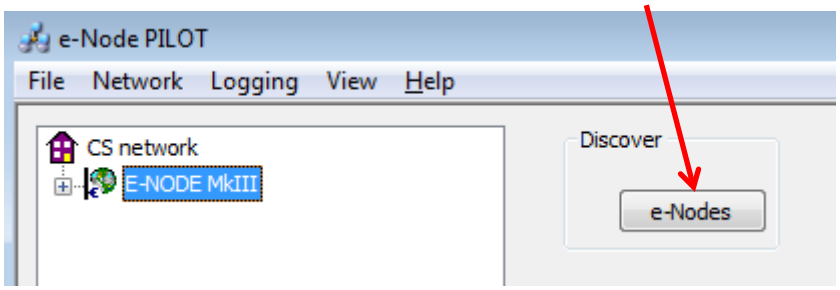
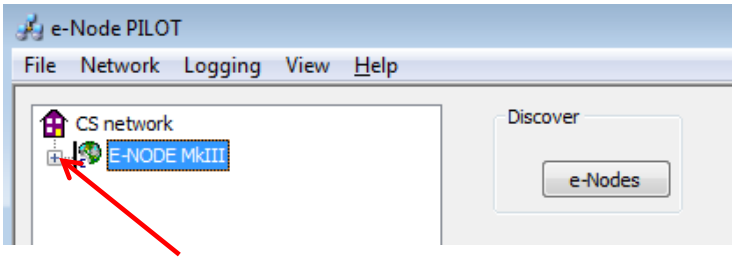
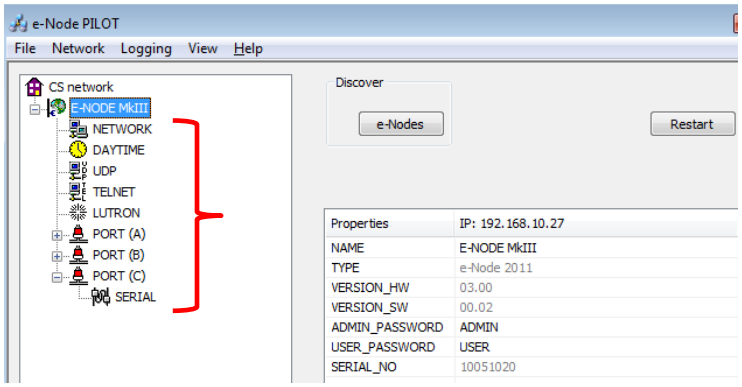
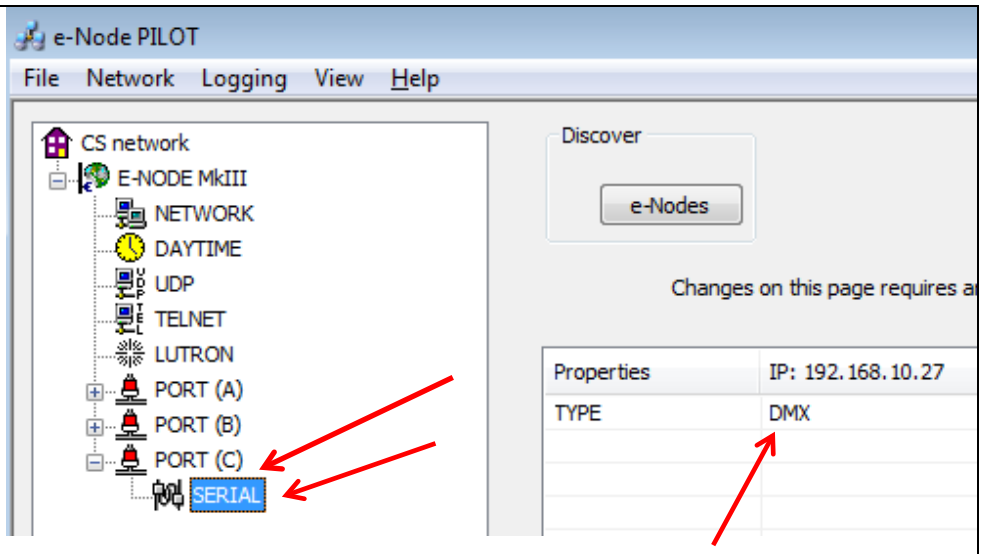
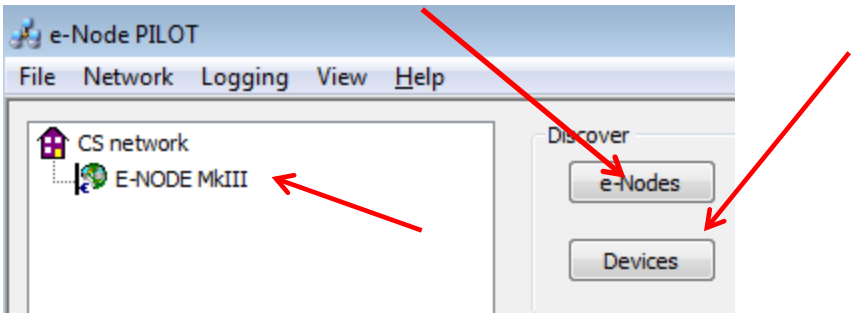
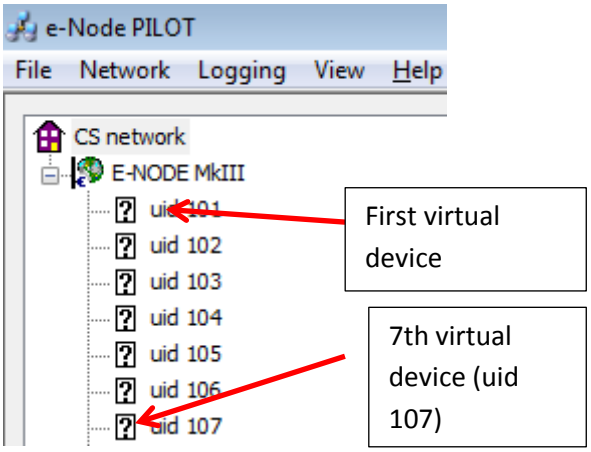
e-Node/dmx Programming

Step	Setting	Choices
DMX-1	e-Node/dmx setup	Follow the directions under e-Node Programming at the beginning of this Integration Note Step EN-1 and EN-2.
DMX-2	Verify the e-Node DMX is set to communicate to DMX fixtures	-Select the **View e-Node** tab and select the **Discover** e-Nodes button. Any e-Node(s) connected on the same network will appear as shown.  -Select the + mark in front of the e-Node/dmx that you wish to program to expose the sub-tabs.   -Expand the **PORT(C)** tab and then expand the **Serial** tab.

		 -Verify that after the **TYPE** entry, the data field indicates DMX. If it does not indicate DMX, select DMX from the pull down menu and reboot the e-Node/dmx by selecting the **Restart** button in order to make this setting active. Note: the e-Node/dmx can also be configured to communicate with standard CS-Bus devices (ILC-100, ILC-400) and therefore only when this entry is set to DMX, will the e-Node/dmx properly communicate to DMX fixtures. To program the e-Node/dmx to be able to communicate with standard CS-Bus devices, within **Port (C)** under Type, select the **CS-Bus** option and reboot the e-Node/dmx device by selecting the **Restart** button within Pilot.
DMX-3	Device Discovery	-Select the **View Map** tab and select the **Discover e-Nodes** button. Any e-Node(s) connected on the same network will appear as shown. -Next highlight the e-Node Discovered and this hit the **Discover Devices** button.  -Immediately 32 virtual “DMX Devices” will appear as follows:



Note: this picture shows the first 7 devices discovered. In a real example, all 32 virtual devices will appear.

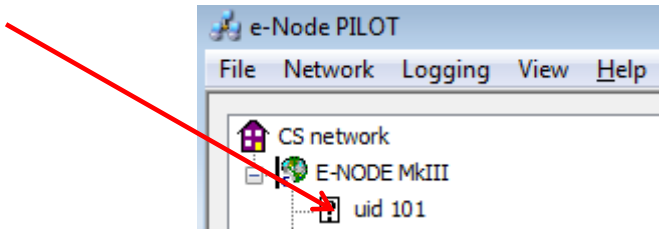
DMX-4 — Set up Device Address-ing

The DMX data packet is mapped to CS-Bus messages by assigning a unique **Z**one/**G**roup/**N**ode number to three successive DMX channels. These are mapped as shown in the following table:

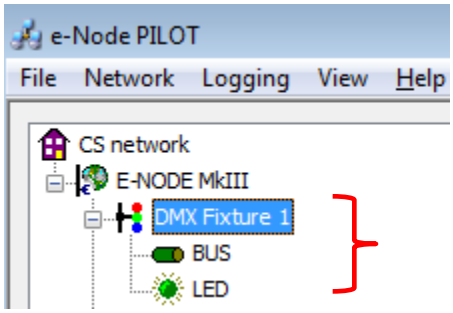
DMX Fixture	Default UID	DMX Channel Allocation	CS-Zone/Group/ Node
1	101	10-19	2.1.1
2	102	20-29	2.2.1
3	103	30-39	2.3.1
4	104	40-49	2.4.1
5	105	50-59	2.5.1
6	106	60-69	2.6.1
7	107	70-79	2.7.1
8	108	80-89	2.8.1
9	109	90-99	3.1.1
10	110	100-109	3.2.1
11	111	110-119	3.3.1
12	112	120-129	3.4.1
13	113	130-139	3.5.1
14	114	140-149	3.6.1
15	115	150-159	3.7.1
16	116	160-169	3.8.1
17	117	170-179	4.1.1
18	118	180-189	4.2.1
19	119	190-199	4.3.1
20	120	200-209	4.4.1

21	121	210-219	4.5.1
22	122	220-229	4.6.1
23	123	230-239	4.7.1
24	124	240-249	4.8.1
25	125	250-259	5.1.1
26	126	260-269	5.2.1
27	127	270-279	5.3.1
28	128	280-289	5.4.1
29	129	290-299	5.5.1
30	130	300-309	5.6.1
31	131	310-319	5.7.1
32	132	320-329	5.8.1

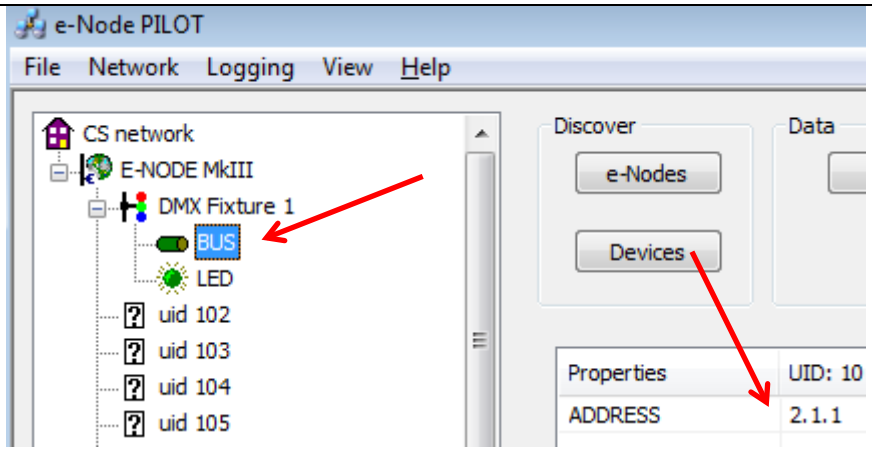
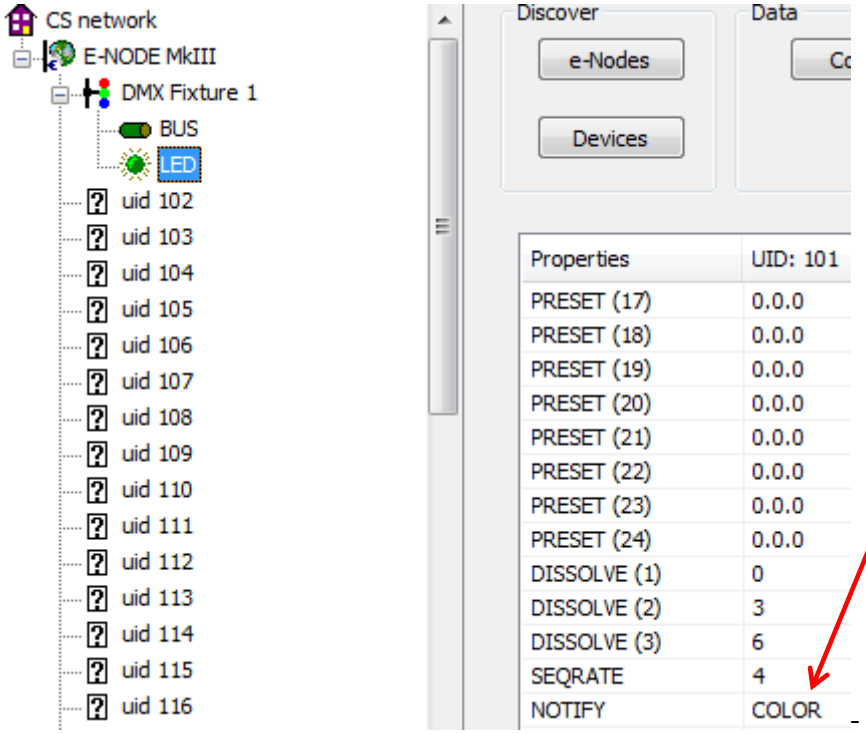
-To see these entries, click on the **?** in front of any particular **uid** listing which will expand its directory.



-After the directory is expanded, you will see these entries:



-If you desire to change any **Z**one/**G**roup/**N**ode address, click on the **BUS** entry, and change the address as appropriate.

		
DMX-4	Turn on NOTIFY as applicable for your project	-Program the Device **Notify** parameter for the e-Node/dmx. Change the parameter for the specific device (UID-DMX Fixture) for which you which to invoke the NOTIFY function. **Note**: See section DV-2 above for explanation of the NOTIFY function.  Proceed to standard Vantage Programming (Steps 1 onwards above in the main body of this Integration Note).

		Note: the e-Node/dmx takes care of everything else!!!
DMX-5	Proceed through standard Vantage Programming.	In this case, you will not be programming ILC-100 or ILC-400 devices, so you can skip to the Vantage Programming Section above).

Converging Systems' e-Node/dmx firewall/translator/Ethernet device is a very useful device to enable up to 32 3-color fixtures to be controlled from a Vantage system, as if it were controlling Converging Systems' ILC-100 devices through a separate standard e-Node. Following are some hints that should be followed to make sure that your e-Node/dmx can properly communicate with you Vantage project.

1	Make sure that you set the Zone,Group,Node address for each DMX fixture as shown in e-Node Pilot under **View Map/Discover Devices for applicable loads within Design Center.**
2	Pay particular attention to the specific commands that you are implementing for DMX devices as translated through the e-Node. DMX devices are RGB devices and lack the special intelligence of Converging Systems' ILC controllers. Therefore, to set color, you must use the RGB Component commands from within Design Center

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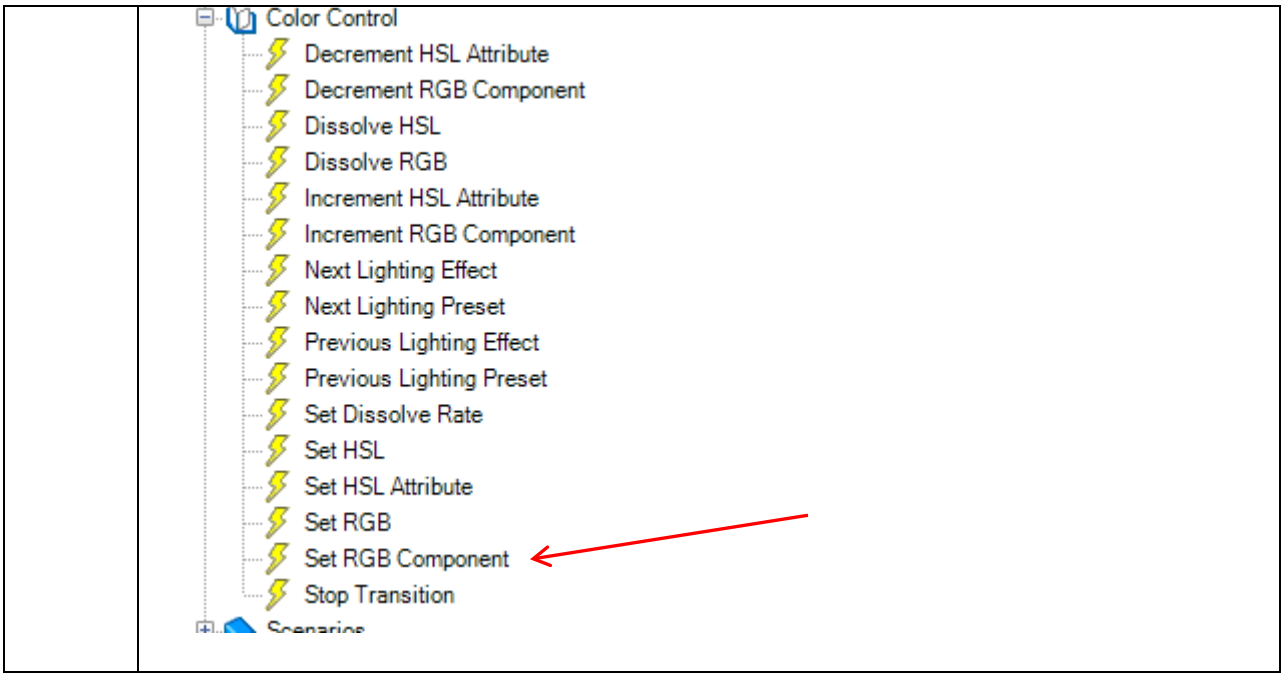

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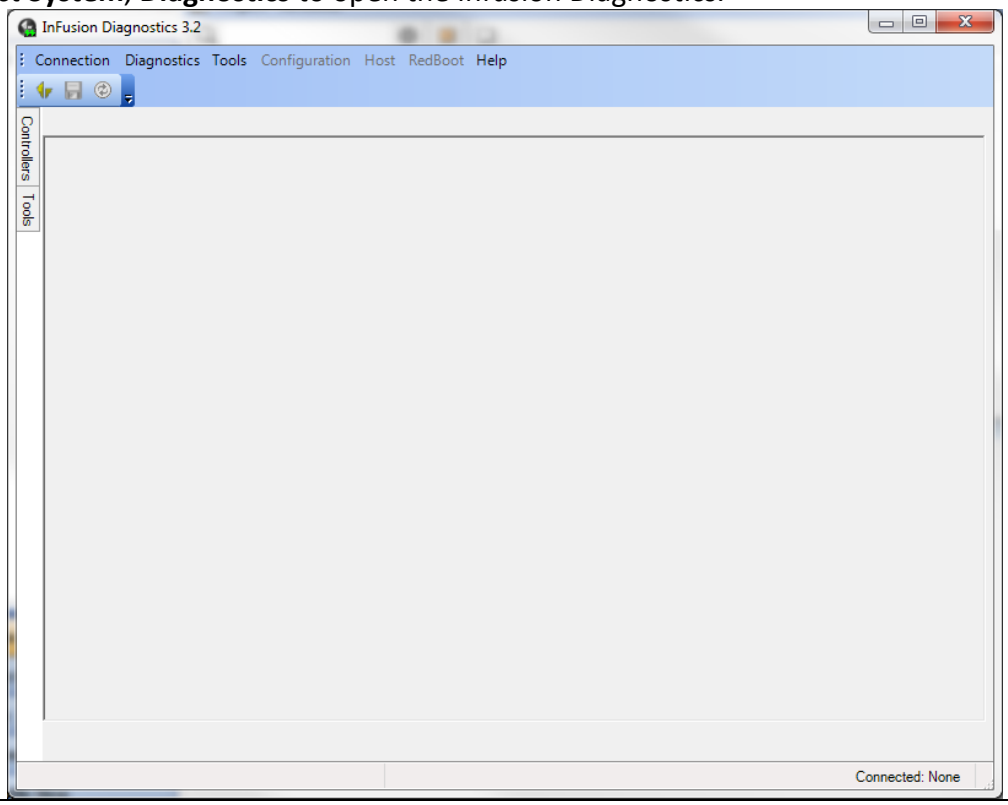
Appendix 6

Troubleshooting

The Vantage Controls Design Center has a useful tool that can be used to monitor traffic to and from the Vantage processor and connected peripherals. This tool is especially useful when system operation is not performing as expected. Follow the below instructions to load this tool.

1	Select **System**, **Diagnostics** to open the Infusion Diagnostics. 
2	Within the Diagnostics Window, select **Diagnostics**, **Host Commands** to open up this window.

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	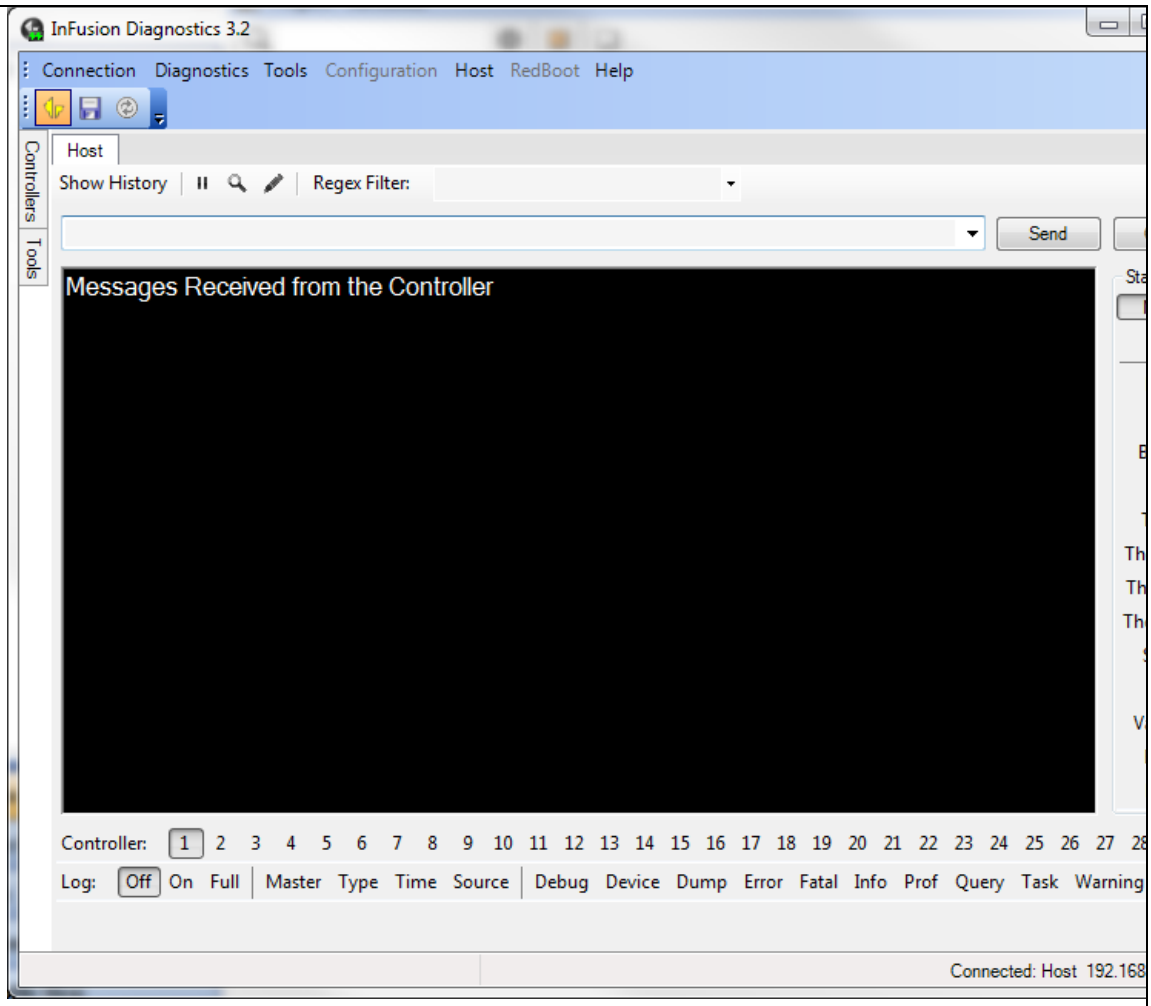
3	Finally, turn on **Log to On** and monitor the traffic flowing to and from the e-Node and connected motor and/or lighting controllers. Here is an example of communication that might be received from a sample button push from within Vantage.