# Push Controls
## Module: Ness D8/16

*Script Device: Luke Bowers*

*Guide: Luke Bowers*

# Contents

**Version History**

| Version No. | Date | Description |
|---|---|---|
| 1.1 | | Initial release of documentation |
| 2.4 | 12/10/2016 | Add Gen IV theme guidelines |

# Step 1: Getting Started – Setting Up Your Hardware

For a successful PUSH integration into the Ness D8/16, the following hardware is required:

1. Ness D8/16



2. Push Controller Box (PC4/PC2/PC1)



Phoenix Connector

## Ness D8/16 Programming

The Push D8/D16 module only applies to version 7.8 or above of the D8 and D16.
To check what software version you are running in the D8/D16 enter installer programming mode and enter P 99999999 E (eight 9's), it will then flash back the software version installed in the D8/D16.

The two way communications on the D8x / D16x will only work if the following programming locations are enabled on the panel:

P 199 E

1E ON: Send Address.

2E ON: Send Time Stamp

3E ON: Send Alarms.

4E ON: Send Warnings.

5E ON: Send Access Events.

6E ON: Send Zone Seal State. (D8/D16 V6 and later.)

You must be running version 1.7 or above of the Push Project Editor.
The Push PC4 must be running firmware 1.093 or above.

# Wiring Specifics

## Serial RS232 connection

To connect the D8/16 to the Push PC4 you will require a D8x-D16x SERIAL LEAD 3 WAY - PANEL TO DB9 (Ness Part Number: 450-185). You can wire up a male serial connector to the PC4 and then plug this in to the female DB9 end on the Ness serial lead, the wiring of the serial cable to the Phoenix connector can be seen in Figure 1. Otherwise you can wire directly from the D8/16 board to the Phoenix connector (Figure 2).
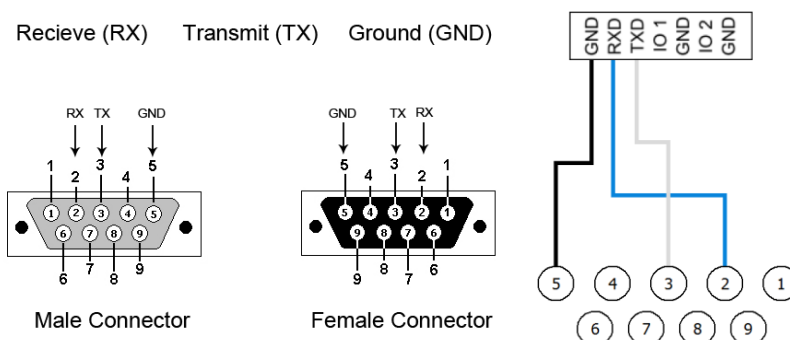


**Figure 1 - Pin numbering for Male and Female DB9 connectors (Left). Diagram showing the connection of a Serial cable to the Phoenix connector. The wiring is as follows, GROUND (GND) is always pin 5, RECEIVE (RXD) is pin 2 and TRANSMIT (TXD) is pin 3. (Right)**
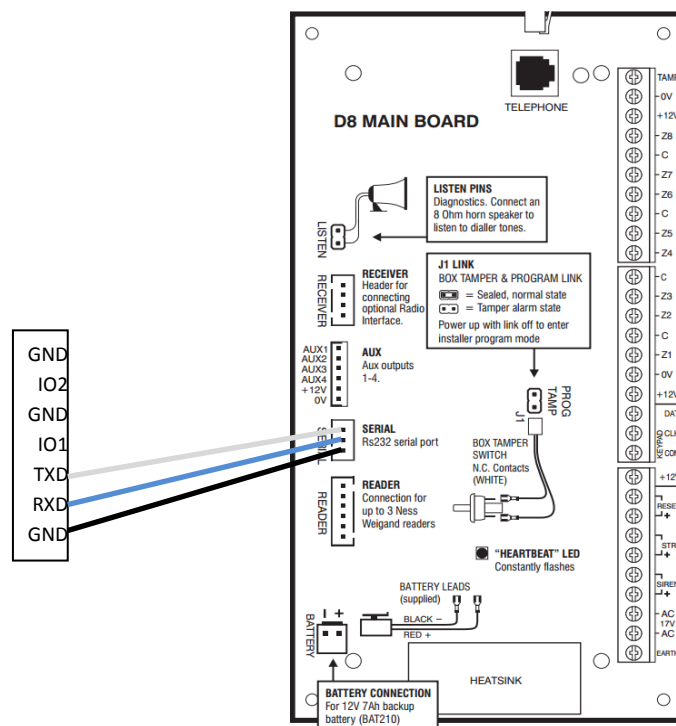


**Figure 2 - Wiring the D8/16 board directly to the PC4 phoenix connector.**

### Ethernet (RJ45) connection

To connect the Ness D8/16 via Ethernet you will require an IP232 Ethernet to serial bridge and a 3 way lead (Ness Part Number: Part No. K-6002). You need to connect the white serial plug to the D8/16 board and connect the DB9 end into the serial bridge. Then plug an RJ45 cable into the Ethernet socket on the bridge and into the router/switch on the same network as the PC4.

Before any connection can be made, you need to make a few changes in the IP232 Ethernet to serial bridge.

To do this you need to open the IP232 Config Utility program which is available can be downloaded from here: http://nesscorporation.com/online/InstallationManual/IP232_Install_1_1_0.exe

You need to make sure that you have your network cable plugged into the IP232 Ethernet to serial bridge and make sure that it's connected to the same network your computer is plugged into before continuing.

Now you need to click on the Search button, this will go and search for these IP232 Ethernet to serial bridges on your network. Once it finds an IP232 Ethernet to serial bridge it will display down the bottom how many was found, as well as showing it in the dialog along with its MAC address and IP address.
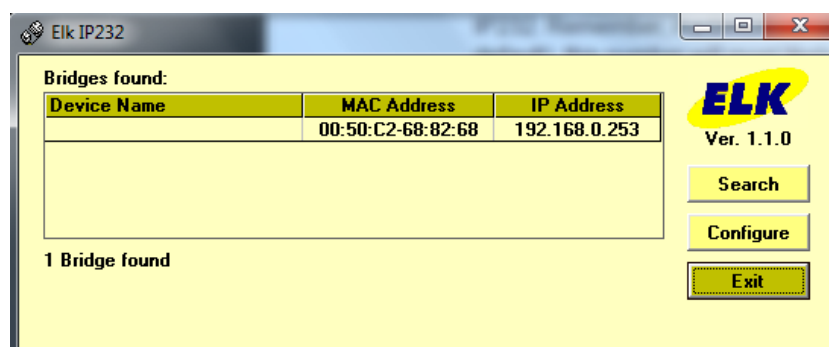


**Figure 3 - Discovered Elk Ethernet to Serial Bridge**

If it fails to find any IP232 Ethernet to serial bridges it will come up with the following error:
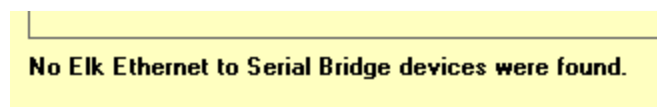


**Figure 4 - Elk Ethernet to Serial Bridge error**

## Ethernet (RJ45) connection (Continued…)

Once it finds your IP232 Ethernet to serial bridge, click on it and select Configure. Once on the configuration page follow the steps below to configure the bridge.

1.  You need to make sure you set the IP address to a static IP address.
2.  You need to enter in an IP address for this RS232 Ethernet to serial bridge.
    a.  This should be on the same network range as your Push PC4. (This is not the Push PC4's IP address)
    b.  If you are unsure what IP settings to use contact the network administrator.
3.  You need to set the Baud rate to 9600 as that is what the D8x/D16x communicates on.
4.  The TCP Port to accept connections is the port number the Push PC4 will communicate out on to the D8x/D16x.
    a.  This port number can be anything, but recommended to use default 2401.
5.  Once the settings have been entered, click on the 'Send Settings (to IP232)' button. This will apply all the settings to the IP232 Ethernet to serial bridge.



**Figure 5 - Elk Ethernet to Serial Bridge Configuration page - highlighting the properties that need to be adjusted**

# Step 2: Setting Up Your Project – Configuring the PC4

Ensure your project contains the PC4 that is connected to the Ness D8/16. If the project does not contain the connected PC4 right click on, you can add a PC4 manually or from the network. *See below*
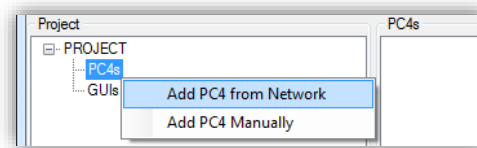


**Figure 6 - Two options to add a PC4 to the project tree**

## Add PC4 Manually

To add a PC4 Manually enter the MAC Address, which can be found on the sticker attached to the bottom of the PC4, and the IP Address of the PC4 (if you have the IP address of the PC4 use this, otherwise leave the default).

- After clicking Add, the PC4 should show up in the Project Tree.
- Connect the PC4 to the network (the green lights on the network port should be flashing).
- Right click the PC4 in the project tree *(Refer to Figure 9)* and select properties.
- In the properties window *(Refer to Figure 7)* click on "Get Settings from PC4", this will upload vital information to the box (specifically the IR Version)
- Modify the name to something appropriate, i.e., room name or the name of the hardware the PC4 is controlling.
- Uncheck "Use DHCP" and enter an IP address inside of the subnet range.
- Click "Apply Settings to PC4", this will download the changes made to properties to the PC4 and you will be notified by a dialog box that the IR Version has changed and the project tree is being refreshed.
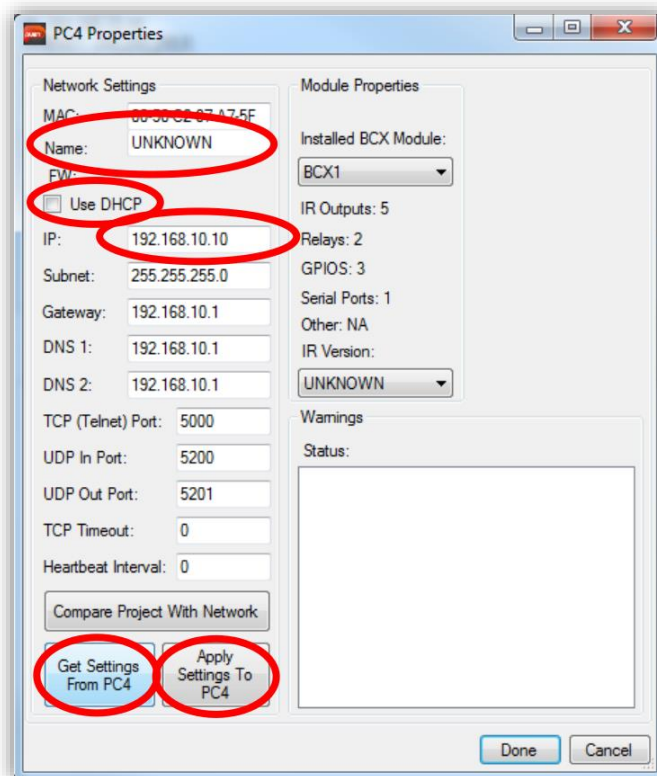- Click OK and this completes the process of manually adding a PC4 to a new project.



**Figure 7 - The PC4 Properties Window: highlighting the fields required to add a PC4 manually.**

## Add PC4 from Network

To add a PC4 from the network, first ensure the box is connected to the network successfully (the green lights on the network port should be flashing).

- Click on "Discover", this will show all PC4s connected to the network
- Select the PC4 you wish to configure (the name of the PC4 will be NOT_SET if it is at factory settings), and click "Web Config"
- You should be presented with the PC4 web configuration interface. *Refer to Figure 8*
- Click Configuration
- Enter username: admin, password: push, click Ok
- In the Configuration screen *Figure 8* change the name to something appropriate, i.e., room name or the name of the hardware the PC4 is controlling.
- Uncheck 'Enable DHCP' and set the IP address to an address outside of the DHCP range.
- Click 'Save Config' and, with the PC4 you configured selected, click Add to Project.
- This completes the addition of a PC4 to a new project using the 'from Network' option.



**Figure 8 - PC4 Web Configuration page: highlighting the key elements required for adding a PC4 using the network.**

## Configuring the Serial Port (connected via serial)

- Open the PC4 tree. *Refer to Figure 9*
- Expand the 'Connected Devices'
- Right Click on 'Serial Port' and select 'Properties'
- Select the GUI Two-Way (RS232) option
- Ensure the Baud rate is set to '9600'
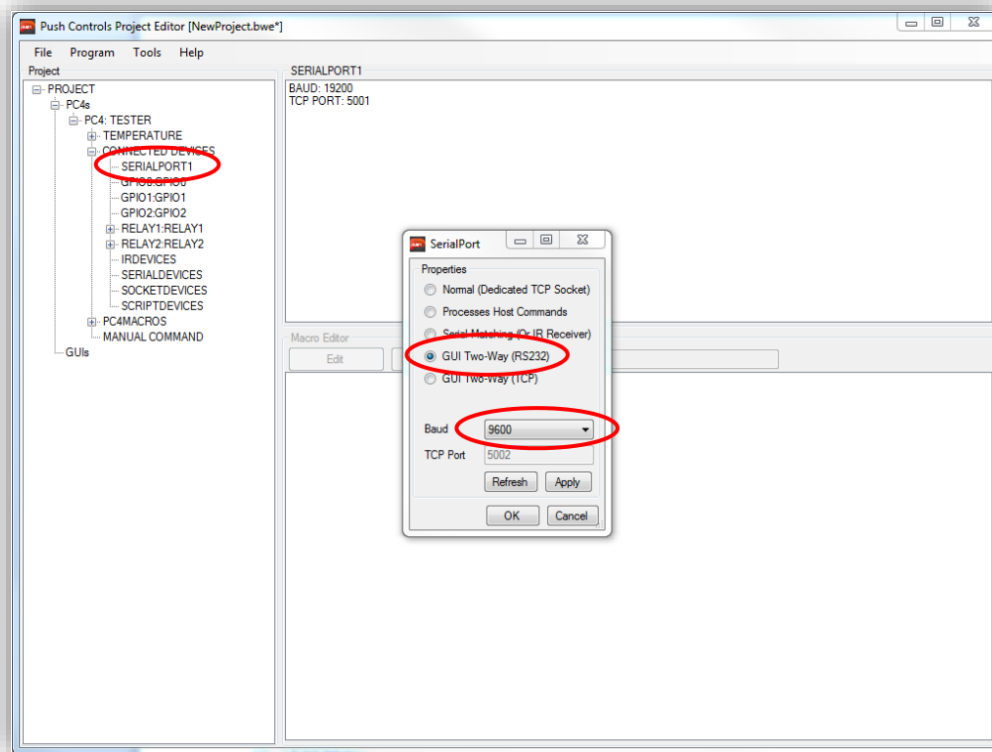- Select 'Apply' then Select 'OK'



**Figure 9 – Highlighting the location of the PC4 and the Serial Port in the project tree, along with the dialog box properties to set. NOTE: dialog box is opened by right clicking SERIALPORT1 and clicking properties.**

## Configuring the Serial Port (connected via Ethernet bridge)

- Open the PC4 tree. *Refer to Figure 9*
- Expand the 'Connected Devices'
- Right Click on 'Serial Port' and select 'Properties'
- Select GUI Two-Way (TCP)
- Select 'Apply' then Select 'OK'

# Step 3: Setting Up Your Project – Importing the Ness D8/16 Module

Import the Ness D8/16 module by completing the following actions:

- Right click on 'PROJECT' at the top of the tree and select 'Import Module'. *Refer to Figure 10*
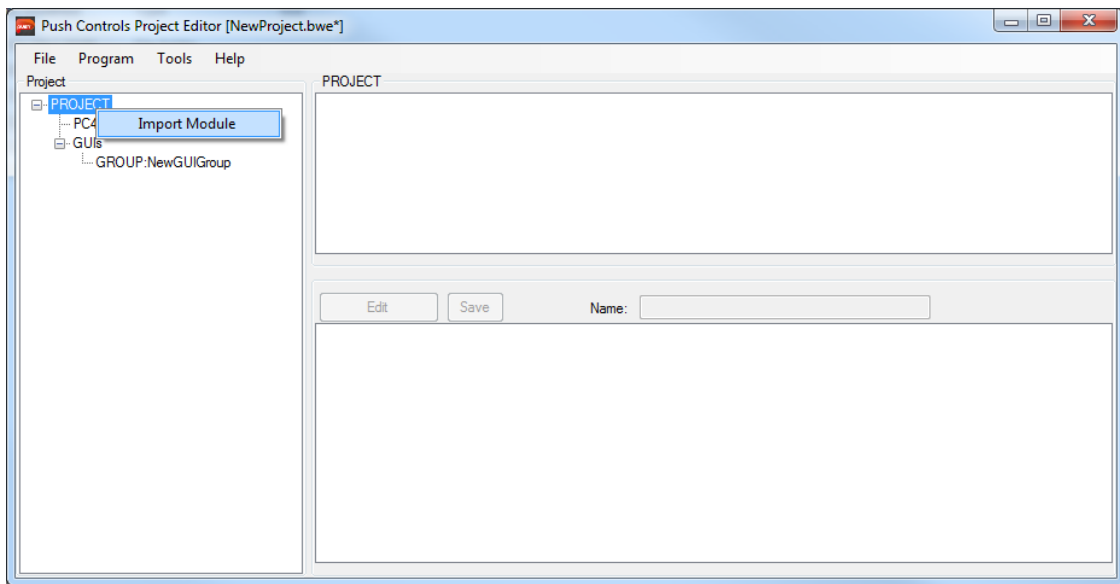- Locate and select 'Ness_D8-16_X.pemod' (where X is the current version number)



**Figure 10 – Right click on PROJECT, inside the project tree, to import a module.**

The selected module will now appear in the module browser window (See Figure 11), where you can see everything that is included in the module.

Note: A GUI group must be available in the GUI's section of the Project Editor, in order to import the Ness D8/16 module.
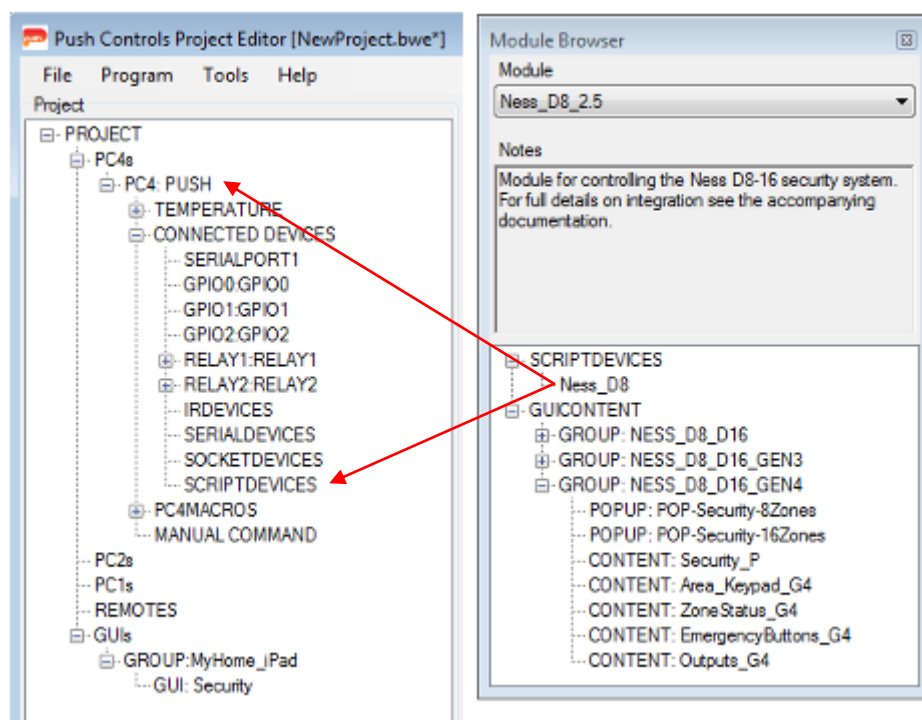


**Figure 11 – Dragging and dropping content from the Module Browser window**

## GUI Theme

The Ness D8 module contains 3 (three) themes, each theme is grouped into a GUI Group as follows:

1. NESS_D8_D16_GEN4: contains GUI components with Gen IV theme
2. NESS_D8_D16_GEN3: contains GUI components with Gen III theme
3. NESS_D8_D16: contains GUI components with older theme

The example in the following sections will use Gen IV theme, if you are using another theme please use the equivalent component from the respective theme's GUI Group.

## Add GUI Components to GUI page

Each of the elements contained in the module need to be dragged and dropped into their respective positions within the project. The items under the SCRIPTDEVICES category need to be dragged onto the desired PC4/PC1. The GUICONTENT area can include any number of the following items POPUP, CONTENT or SCRIPT and are imported in the following manner *Refer to Figure 11*:

- POPUP content can be dragged directly into an existing GUI group
- CONTENT requires an existing page to be dragged in to. To include content you can either drag it onto the page name (see Figure 11) or drag onto an open GUI page. To import whole page content a page needs to be made, which matches the resolution of the page being imported.

Note: items should be imported in the order that they appear inside of the Module Browser window due to the dependencies certain modules contain.
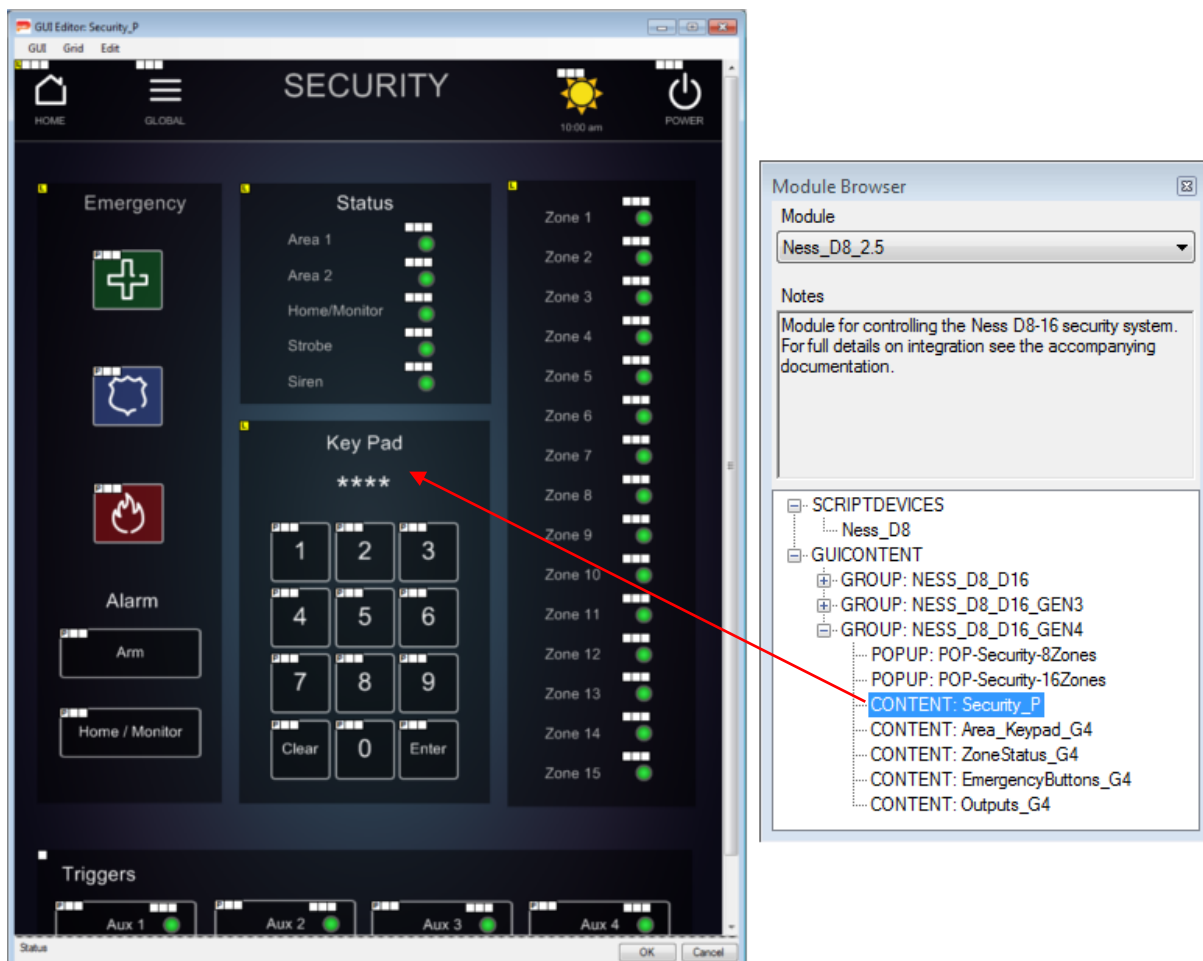


**Figure 12 - Dragging content onto a GUI page**

# Step 4: Setting Up Your Project – Setting Script Device Parameters

The Ness D8/16 must have the correct protocol set for communications to and from the PC4. The following are the steps to take to set the protocol for the Ness D8/16.

- Right click on the newly added script device, and select "Properties". *Refer to Figure 13*
- Set the Protocol. *Refer to Figure 14*

    o If connecting via RS232 (Serial), ensure the Protocol is set to 232.
    o If connecting via IP (Network), ensure the Protocol is set to TCP. Control over the network will also require the IP Address of the Elk Ethernet Bridge and the Port number chosen when setting up the Ethernet Bridge.
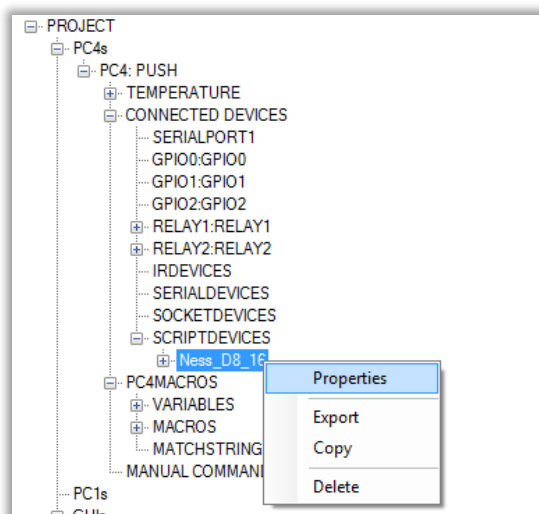


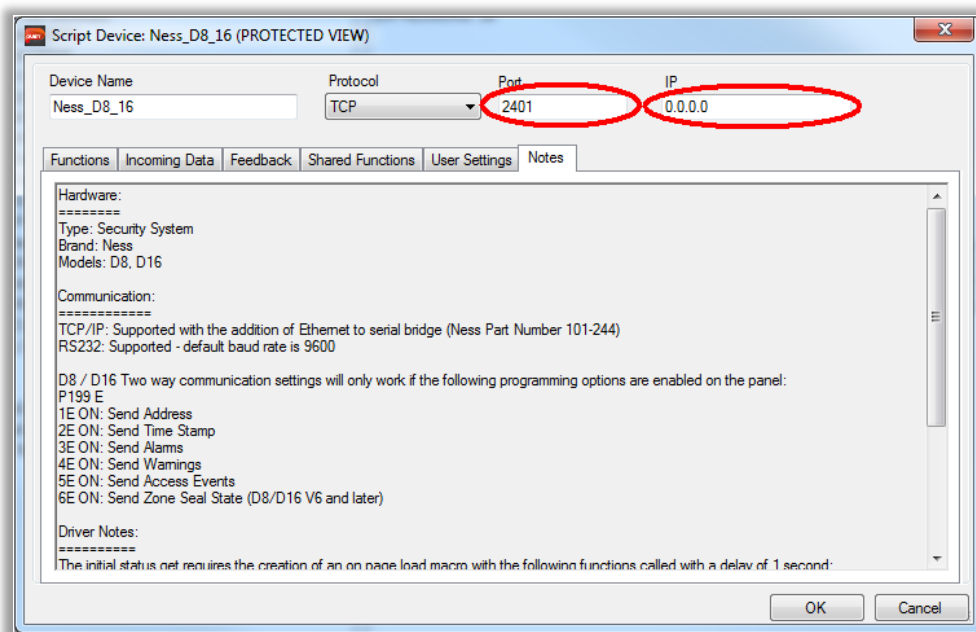**Figure 13 - Configuring device parameters: right click the device and select properties**



**Figure 14 – Device Properties Window: Set the protocol to be used for communication with the device when using TCP ensure you provide the IP Address and Port number of the Elk Serial to Ethernet Bridge**

# Step 5: Getting Feedback on Page Load

To ensure that the Push App receives feedback information when a page is loaded, we need to "fetch" it when we first load the page.

- o Create a macro with all of the "status" functions stored within it.
    - o Right click on MACROS, select "Add new Macro".
    - o Give the new macro a name.
    - o Expand the SCRIPTDEVICES tree, then the Ness_D8_16 tree. *Refer to Figure 15*
    - o Expand the FUNCTIONS tree. *Refer to Figure 15*
    - o Drag and drop the required functions into this new Macro. *Refer to Figure 15*
        - ▪ statusArming (retrieves the current arming system status)
        - ▪ statusOutputs (retrieves all of the output statuses)
        - ▪ statusZone (retrieves the statuses for all zones)
    - o Ensure there is a 1 second delay before the first command, and 0.5 sec delay for each subsequent command
    - o Select "Save"
    - o Open any page within the GUI Group *Refer to Figure 16*
        - ▪ Select GUI > Page Macros > When This Page Loads >
        - ▪ Choose the newly created macro from the list.
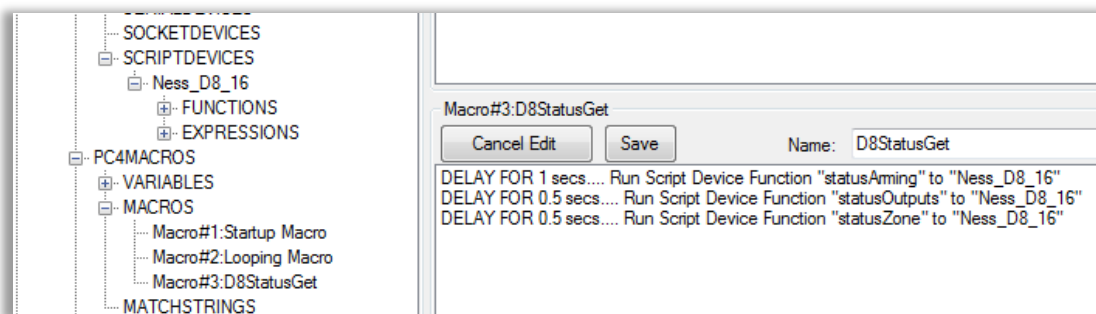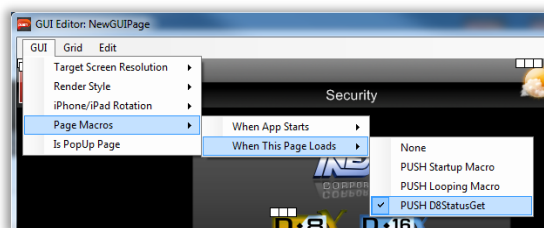    - o Select "OK" from the bottom right hand side of the GUI editor.



**Figure 15 - Edit D8 Status Macro**



**Figure 16 - Set Macro for page load**