



Push Controls

Module: HVAC

CooLinkNet/CoolMasterNet

Version 1.2

www.pushcontrols.com

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Version History

Version No.	Date	Description
1.0		Initial release
1.1	07/10/2016	Add Gen IV theme guidelines
1.2	15/12/2016	Renamed module to indicate support to CoolMasterNet

Step 1: Getting Started – Setting Up Your Hardware

For a successful PUSH integration into HVAC CoolLinkNet/CoolMasterNet, the following hardware is required:

1. Push Controller (PC4/PC2/PC1)



2. Cool Automation CoolLinkNet or CoolMasterNet



Connection Diagram

The CoolLinkNet/CoolMasterNet device is connected to the network by a standard RJ45 connector, as is the Push controller. The network is the communication medium between the Push controller and the Cool Automation CoolLinkNet/CoolMasterNet device. See the high level image below for a graphical representation of the connections between the platforms.

NOTE: Please refer to the CoolLinkNet/CoolMasterNet documentation for the wiring required between the CoolLinkNet/CoolMasterNet controller and the HVAC system.



Step 2: Setting Up Your Project – Configuring your Push Controller

Configuring a PC4

1. Open the PC4 tree. *Refer to Figure 1*
2. Expand the 'Connected Devices'
3. Right Click on 'Serial Port' and select 'Properties'
4. Select the GUI Two-Way (TCP) option
5. Select 'Apply' then Select 'OK'

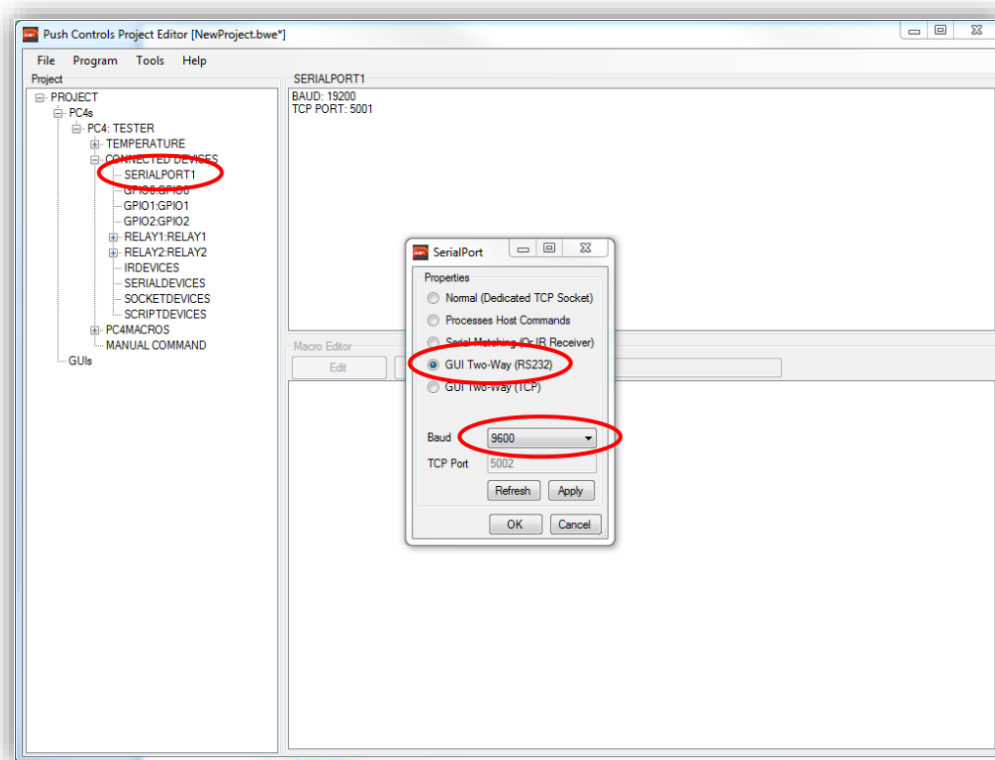
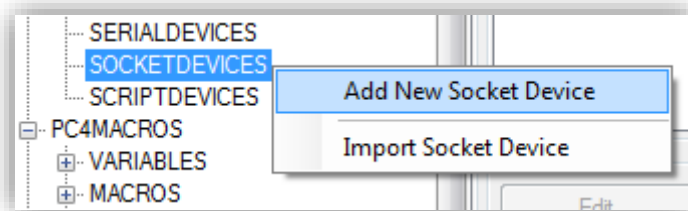


Figure 1 – Highlighting the location of the PC4 and the Serial Port in the project tree, along with the dialog box properties to set. NOTE: dialog box is opened by right clicking SERIALPORT1 and clicking properties.

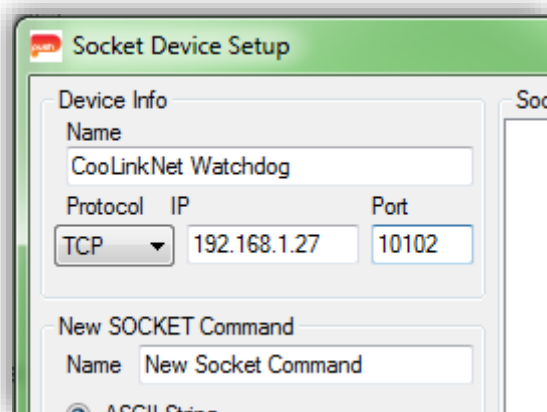
Implementing a PC4 Socket Watchdog

Due to the limitations of the PC4 automatic socket handling is not included, and as such the PC4 may drop a socket connection to a device it is communicating with via TCP. To ensure that the socket between the PC4 and the connected device is always open we have to implement a watch dog that checks whether the port is closed and if so opens it again for communication to flow through. Follow the steps in this section for implementing a socket watchdog for PC4 controllers (PC1/PC2 controllers automatically handle/reconnect socket connections, hence this is not required when dealing with these controllers):

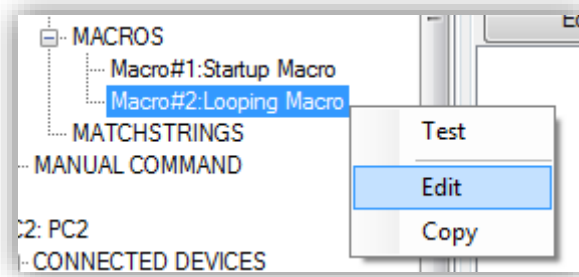
1. Create a new SOCKET device with the IP address and port number set to that of the IP to CoolLinkNet/CoolMasterNet controller.
2. To create a new SOCKET device, right click on the SOCKETDEVICES tag within the CONNECTED DEVICES list in the project tree and select 'Add New Socket Device'



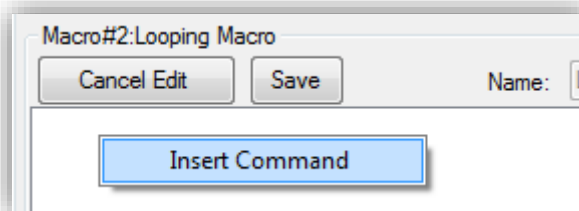
- a. Enter a name for your socket device
- b. Select TCP as the protocol (this is default)
- c. Enter the IP address of the CoolLinkNet/CoolMasterNet unit and 10102 for the port number
- d. Once you create the socket device you will have access to the auto-generated CONNECT and CLOSE socket commands.



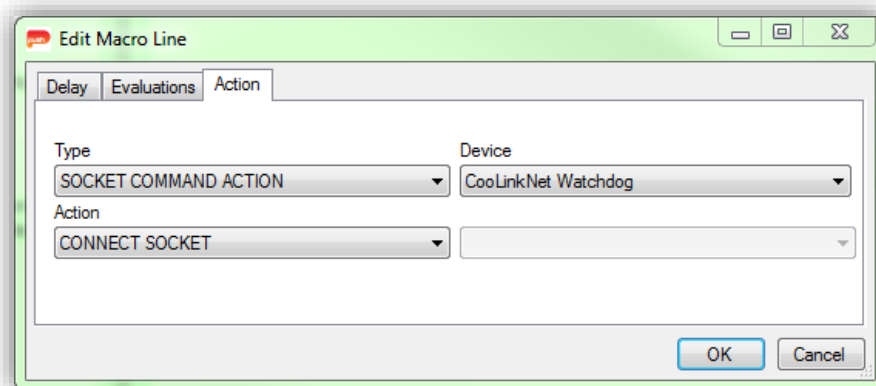
3. Enter the edit mode for the looping macro by selecting the macro in the project tree and clicking the Edit button in the macro editor window pane, or right click on the looping macro in the project tree and select edit.



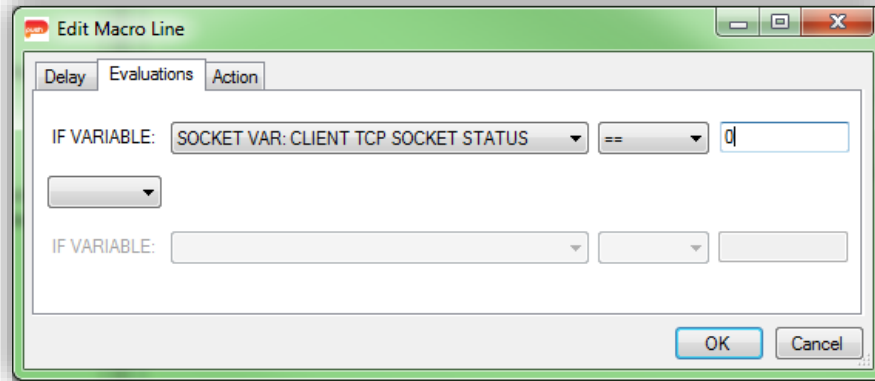
4. Once you are in edit mode add a new command by right clicking within the white area of the macro window pane and select 'Insert Command'



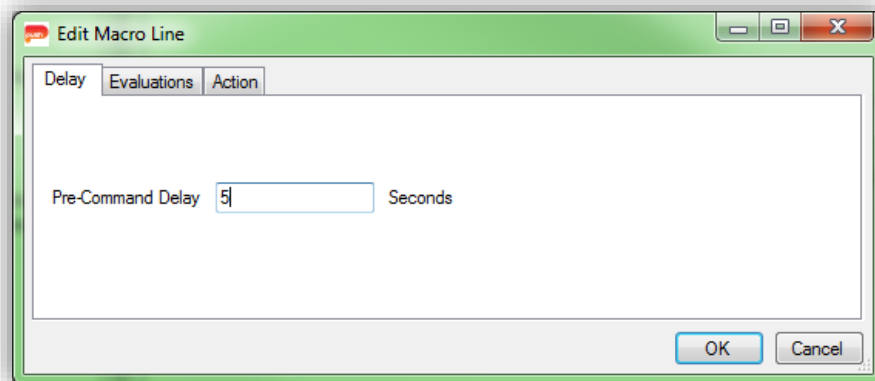
5. You will be prompted with a dialog box on the Action tab, which requires you to enter a number of parameters via dropdown boxes:
 - a. Type: Select SOCKET COMMAND ACTION
 - b. Device: Select the SOCKET device you created in step 1
 - c. Action: Select CONNECT Socket



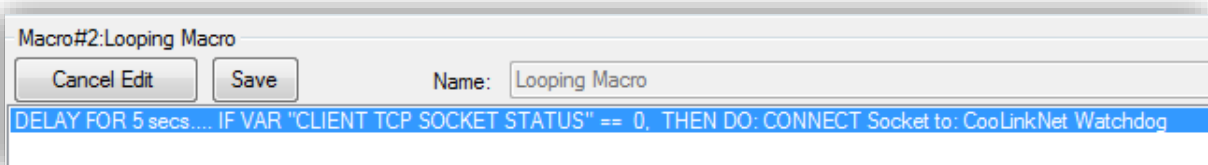
6. Once you have entered the Action parameters navigate to the Evaluations tab and provide the following parameters:
 - a. Variable: SOCKET VAR: CLIENT TCP SOCKET STATUS
 - b. Evaluator: ==
 - c. Value: 0



7. Once you have finished providing the Evaluation parameters navigate to the Delay tab and enter 5 into the Pre-Command Delay field (this will ensure we only check the status of the SOCKET every 5 seconds, if we don't do this the controller will be spammed with checks)



8. Once you have finished entering the delay within the Delay tab click OK and you should see a command similar to the screenshot below.



Configuring a PC1/PC2

The PC1 and PC2 controllers do not require any extra configuration when dealing with TCP/UDP devices, all that is required is the correct Protocol, IP and Port information is provided within the script device properties, which is covered in the following sections.

Step 3: Setting Up Your Project – Importing the CoolLinkNet_CoolMasterNet Module

Adding Script Device

Import the CoolLinkNet/CoolMasterNet module by completing the following actions:

- Right click on 'PROJECT' at the top of the tree and select 'Import Module'. *Refer to Figure 2*
- Locate and select 'CoolLinkNet_CoolMasterNet_X.pemod' (where X is the current version number)

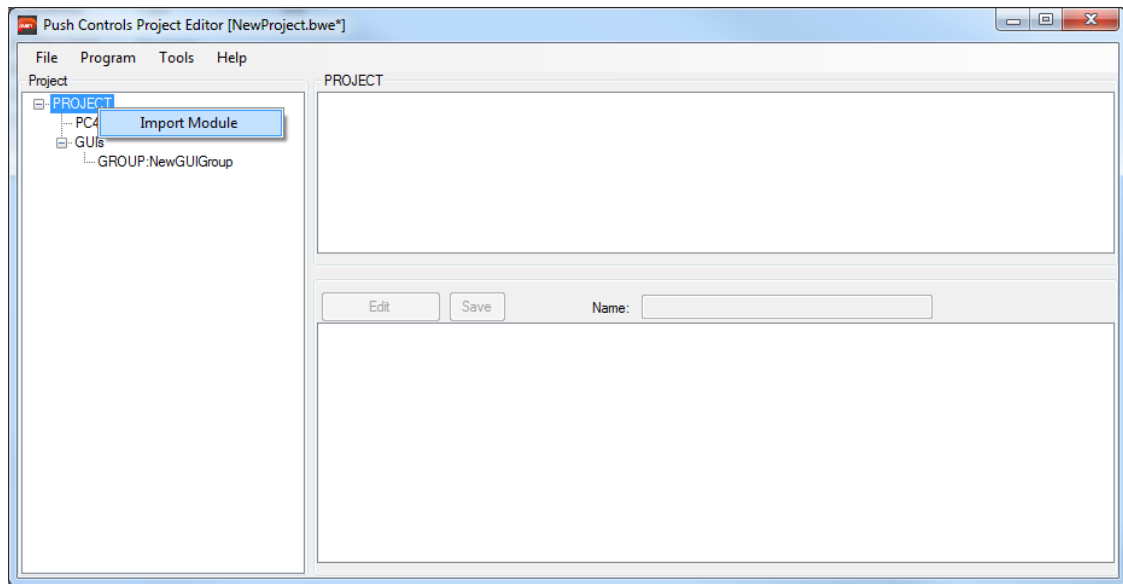


Figure 2 – Right click on PROJECT, inside the project tree, to import a module.

The selected module will now appear in the module browser window (See Figure 3), 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 HVAC Coolmaster module.

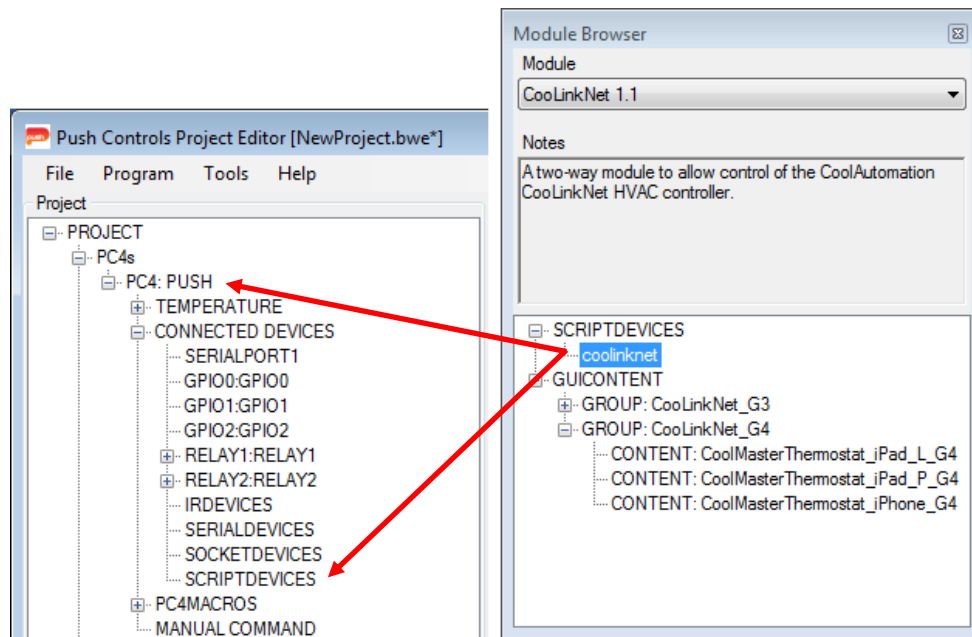


Figure 3 – Dragging and dropping content from the Module Browser window

Adding GUI Components

Themes Available

The CooLinkNet_CoolMasterNet module contains Gen IV and Gen III themes, each theme is grouped into a GUI Group as follows:

- CooLinkNet_CoolMasterNet _G4: contains GUI components with Gen IV theme (available in portrait and landscape orientation for iPad/tablet)
- CooLinkNet_CoolMasterNet _G3: contains GUI components with Gen III theme

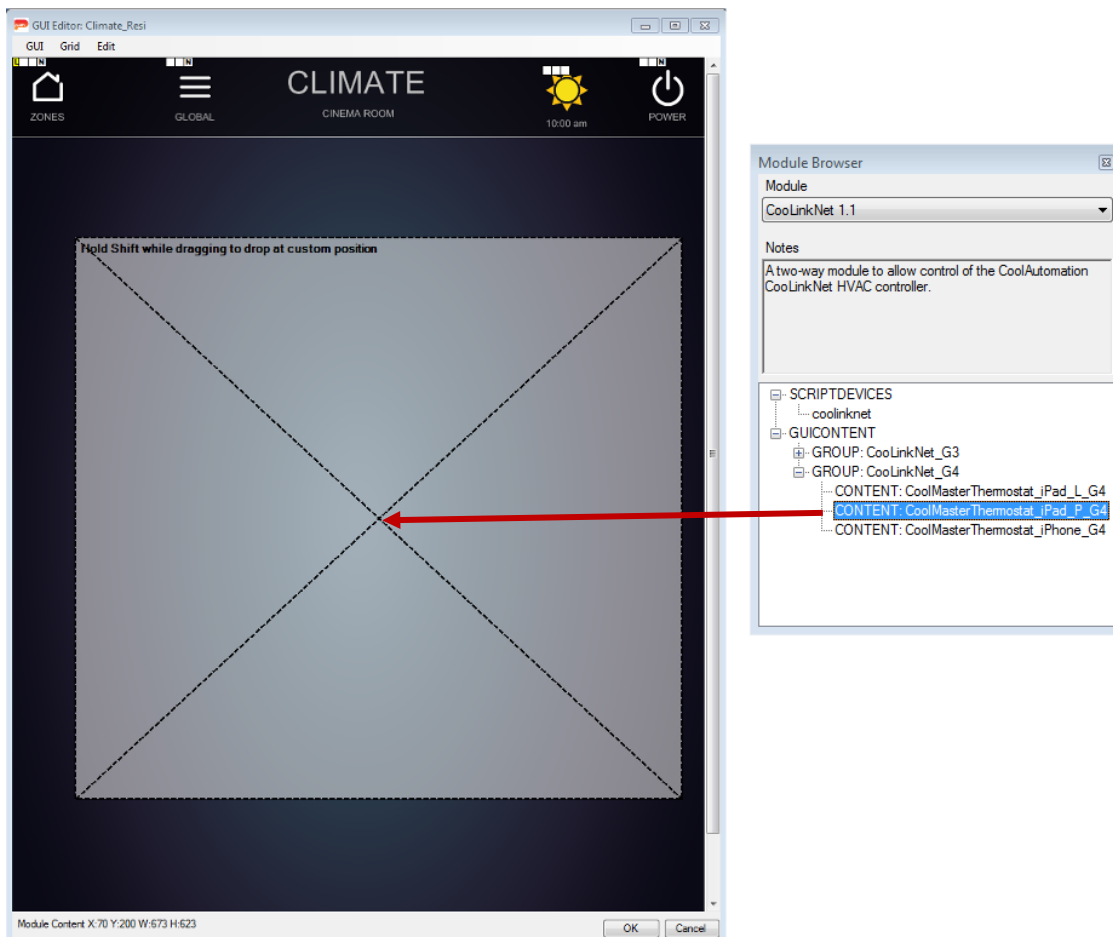
The example in the following sections will use Gen IV theme, if you are using Gen III theme in your project please use the equivalent component from the Gen III GUI Group. NOTE: the GUI component for iPad/tablet in Gen III is generic, applicable for both portrait and landscape orientation.

Adding a GUI Component to a 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 Push Controller. The GUICONTENT area of the CooLinkNet_CoolMasterNet module includes CONTENT which is imported in the following manner *Refer to Figure 3:*

- CONTENT requires an existing page to be dragged in to and requires the HVAC Coolmaster script to be imported before adding GUI component to the page. To include content you can either drag it onto the page name (see Figure 3) or drag onto an open GUI page (hold down shift to drag the content to any position on the page).

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

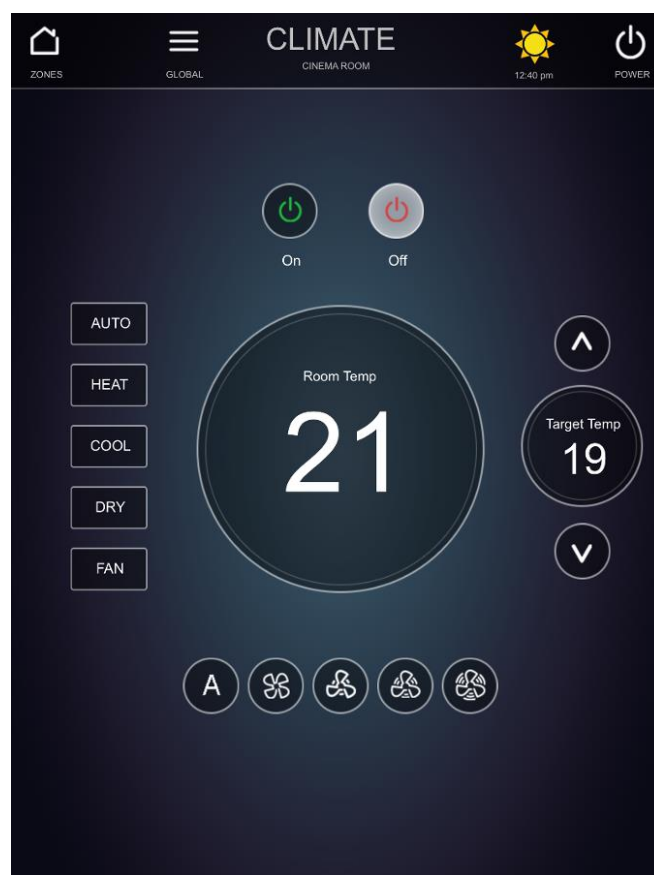


Once the GUI content has been dragged onto the page a dialog box will appear asking for three parameters:

1. the name of the CoolLinkNet/CoolMasterNet area, to be displayed as a label on the interface
2. the number of the unit programmed into the CoolLinkNet/CoolMasterNet, e.g. 100, or 001 etc., and
3. the line number being used on the CoolLinkNet/CoolMasterNet, which is a number, e.g. if line 4 is being used (L4) then enter the number 4.

<i>Zone Name</i>	Office 1	The name of this HVAC zone, to be displayed as a label on the interface
<i>Unit Number</i>	101	The unit number of the associated controller, e.g. 100/001 etc.
<i>Line Number</i>	4	The line number of the line connected on the CoolLinkNet controller, e.g. if L4 enter 4 in this field

Once you provide the parameters the programmed component will be added to the page (see below).



Step 4: Set Device Parameters

The CoolLinkNet/CoolMasterNet must have the correct protocol set for communications to and from the Push controller. The following are the steps to take to set the protocol for the CoolLinkNet/CoolMasterNet.

- Right click on the newly added script device, and select “Properties”. *Refer to Figure 4*
 - Set the Protocol to TCP,
 - Set the IP address to the IP address of the CoolLinkNet/CoolMasterNet
 - Set the port number to 10102

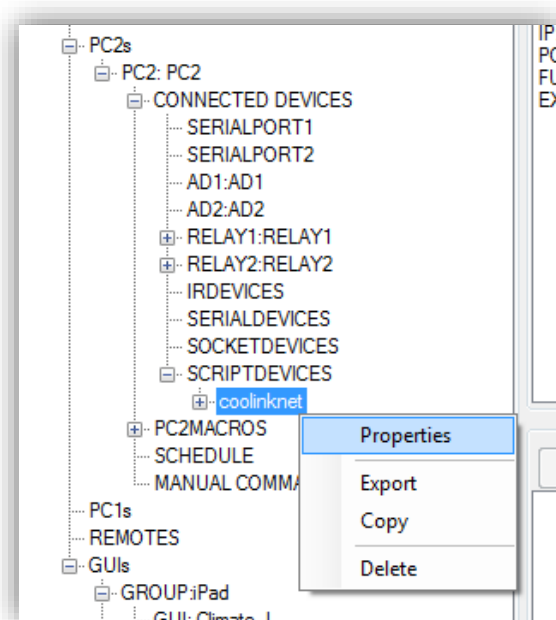


Figure 4 - Configuring device parameters: right click the device and select properties

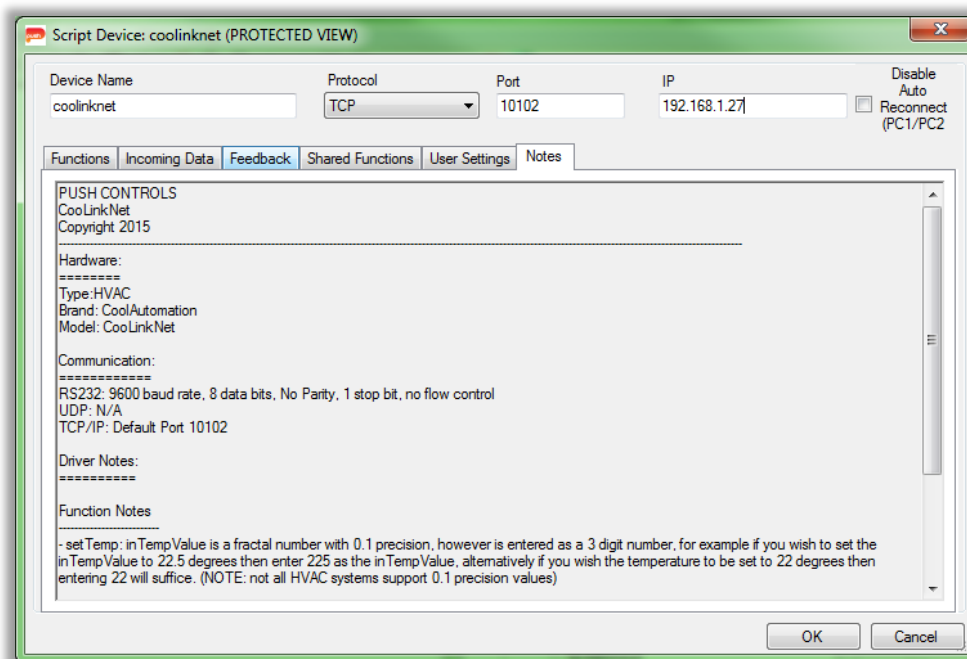
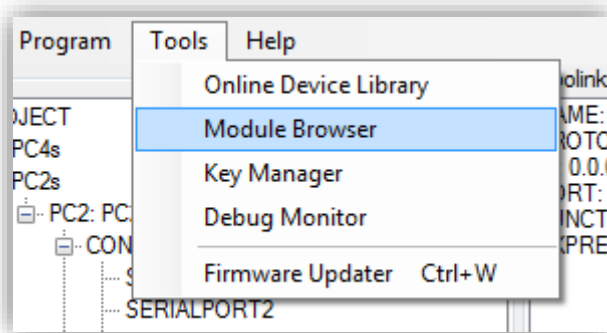


Figure 5 – Device Properties Window: Set the protocol to be used for communication with the device

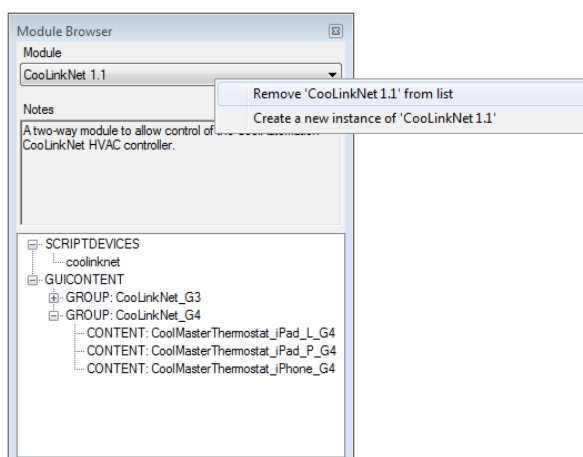
Creating Multiple Instances

Some projects may require you to install multiple CoolLinkNet /CoolMasterNet units, if you require more than one unit you can create as many instances of the CoolLinkNet_CoolMasterNet module as you require. To create a new instance, follow the steps below.

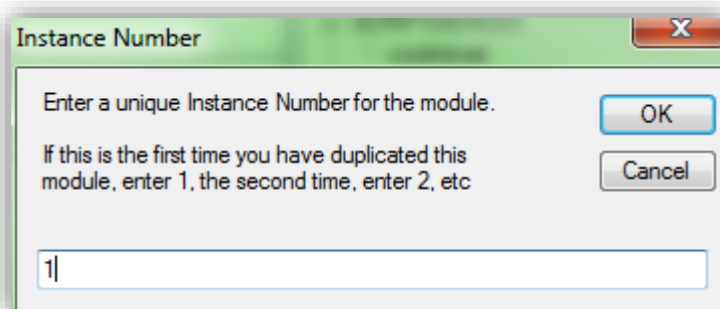
1. Open the module browser by clicking Tools -> Module Browser



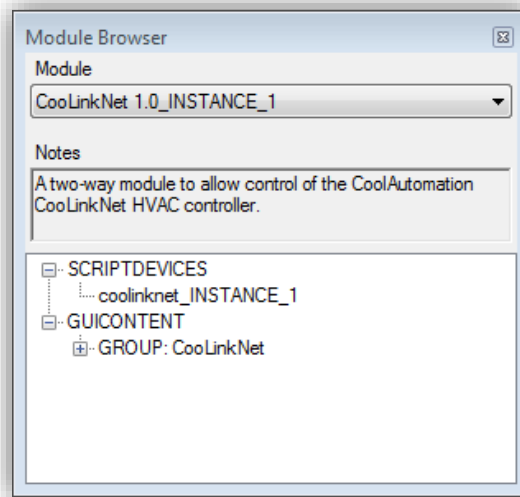
2. With the CoolLinkNet/CoolMasterNet module selected in the dropdown box, right click on the dropdown box and select 'Create a new instance of 'CoolLinkNet_CoolMasterNet ...'



3. In the dialog box presented provide a number corresponding to the number of instances you currently have of the CoolLinkNet/CoolMasterNet module



4. You will now see a new instance has been added to the module browser window.



5. For the second CoolLinkNet/CoolMasterNet you are controlling ensure you have set the IP address correctly and also imported the thermostat CONTENT from within the new instance in the module browser, not the original!
 - a. Note only one CoolLinkNet/CoolMasterNet can be controlled per PC4 controller, there isn't a hard upper limit on PC1 or PC2 controllers, however it wouldn't be recommended having more than 5 assigned to any one controller.