Exercise - Distributed Devices via a NOC

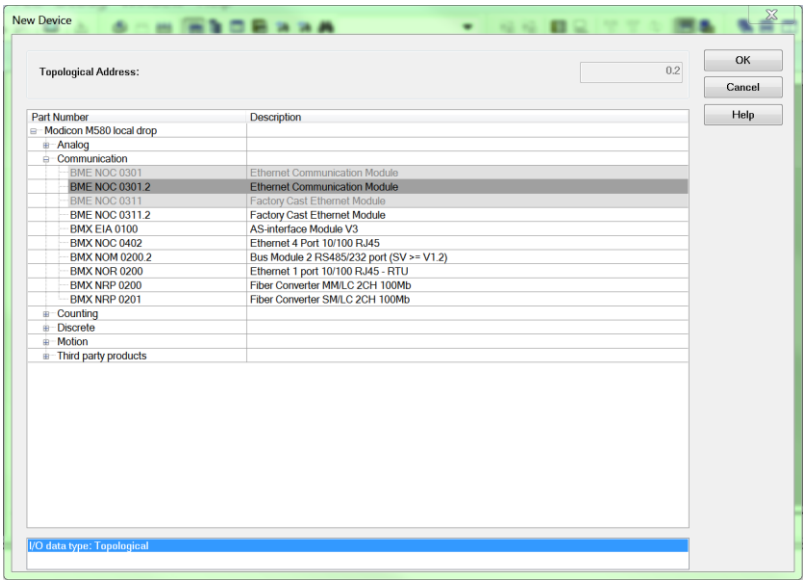
Learning Outcomes

By the completion of this exercise the student will be able to:

- Implement an isolated distributed device network using the **BME NOC 0311** module
- Integrate a distributed device using **Modbus/TCP**
- Monitor and control the heath of a device via the available DDTs.
- Isolate the Distributed I/O from the rest of the Ethernet architecture.

Add the BME NOC 0311 to the Local Rack.

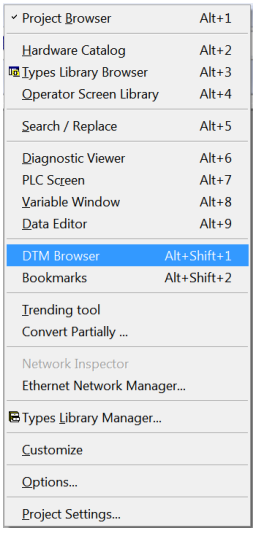
1 Open the **PLC Bus** and insert the **BME NOC 0311.2** module into the correct slot as per the simulator being used.



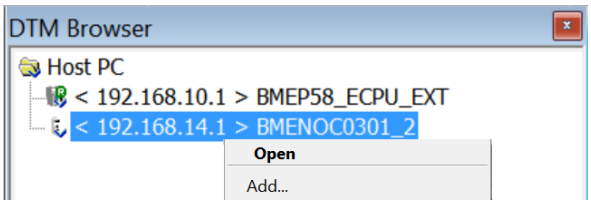
2 Use the default name and click the **OK** button.

Configure the IP address of the BME NOC 0311.

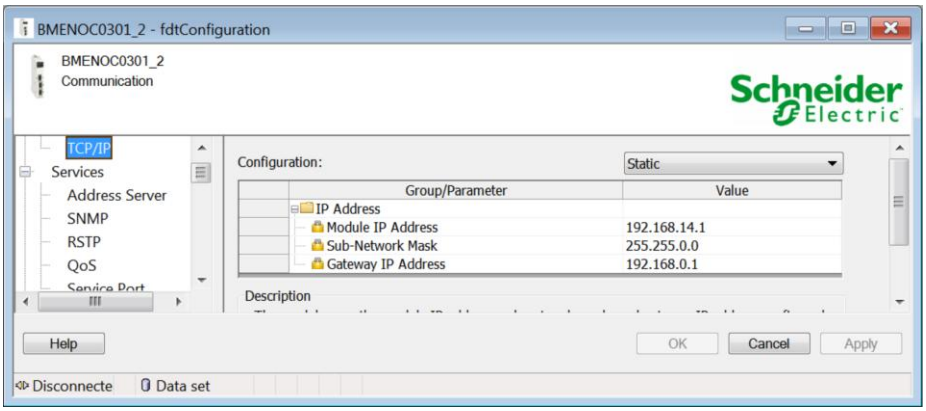
1 View the **DTM Browser** by selecting **Tools » DTM Browser.**



2 In the DTM manager, right-click the **BMENOC0311** and select **Open** from the menu.



3 In the browser tree, select **TCP/IP**.



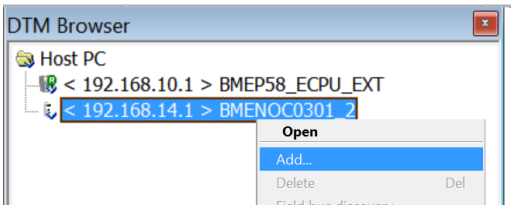
4 Note that the IP address is automatically set. In the above picture it is set to 192.168.14.1.

5 Click the **Cancel** button.

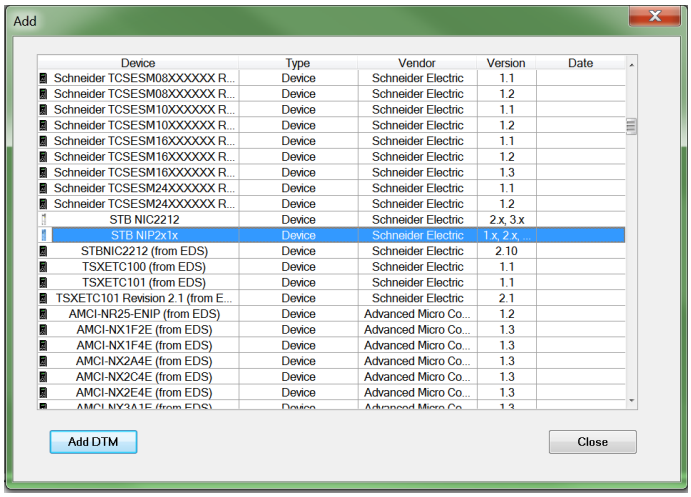
Exercise - Distributed Devices via a NOC (cont.)

Add the Advantys STB DTM.

1 Right-click the **BMENOC0311** and select **Add...** from the menu.



2 Locate and Select the **STB NIP2x1x** item from the list of available DTMs. Click the **Add DTM** button.

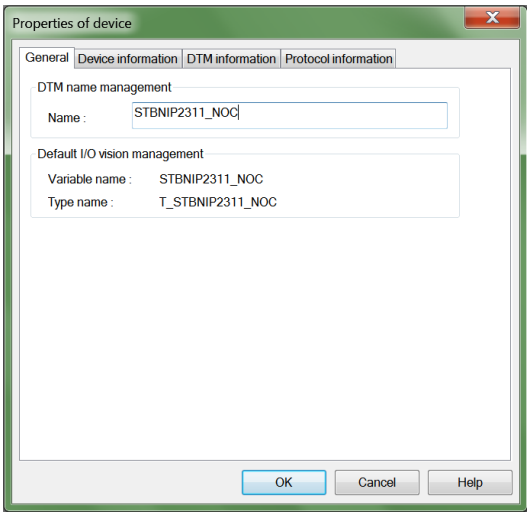


This DTM is installed by the Advantys Configuration Software.

Note:

If there the STB NIP2x1x does not appear in the list; check your installation of Avantys.

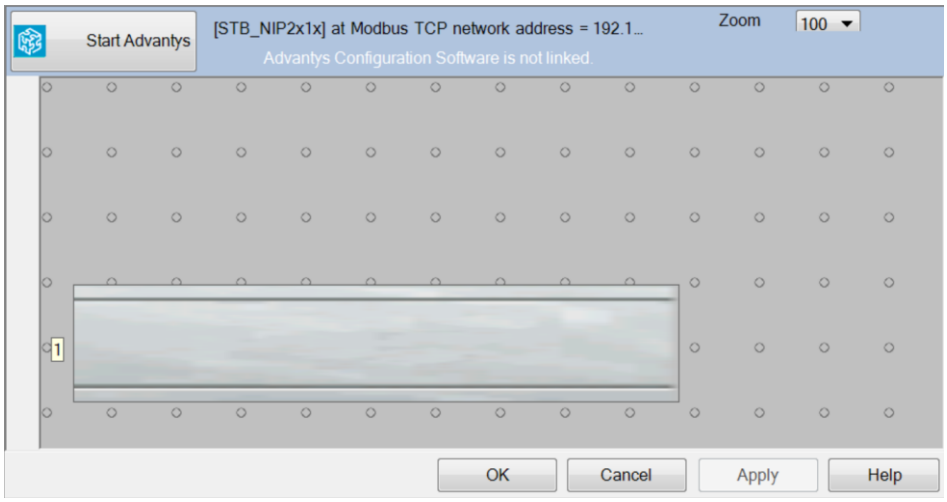
3 Use **STBNIP2311_NOC** for the DTM **Alias name.**



Be aware of the **Variable Names** that are being created based upon the **Alias Name**.

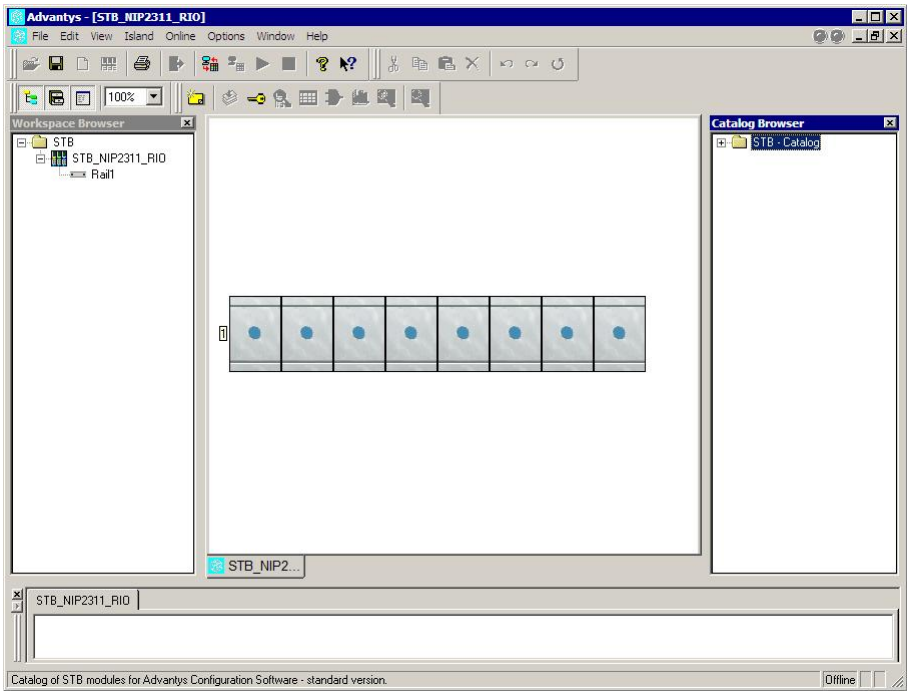
Use the DTM to configure the new module.

1 Double-click the new **STB** item within the **DTM Browser**. The DTM will open and will show a view of an empty island configuration.

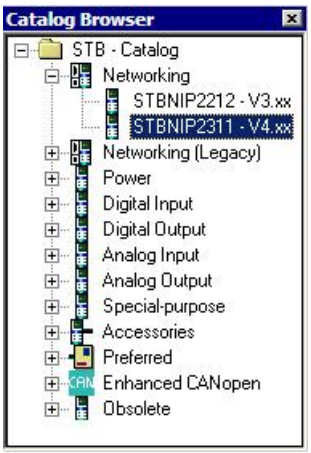


2 Click the **Start Advantys** button.

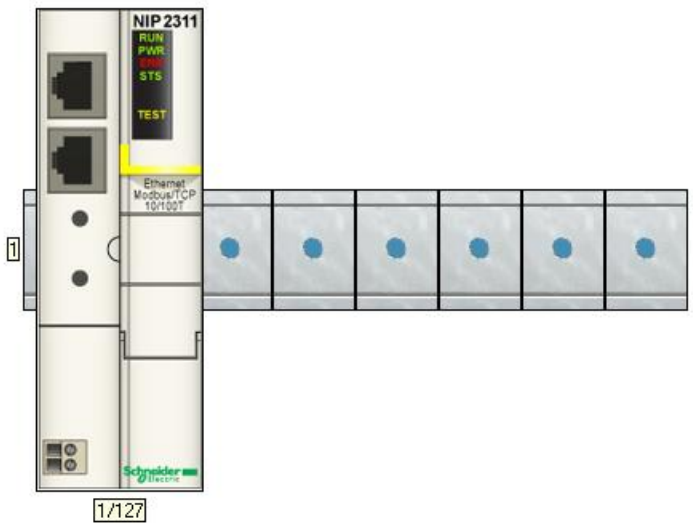
The **Advantys Configuration Software** will open, and a **Blank** configuration is shown.



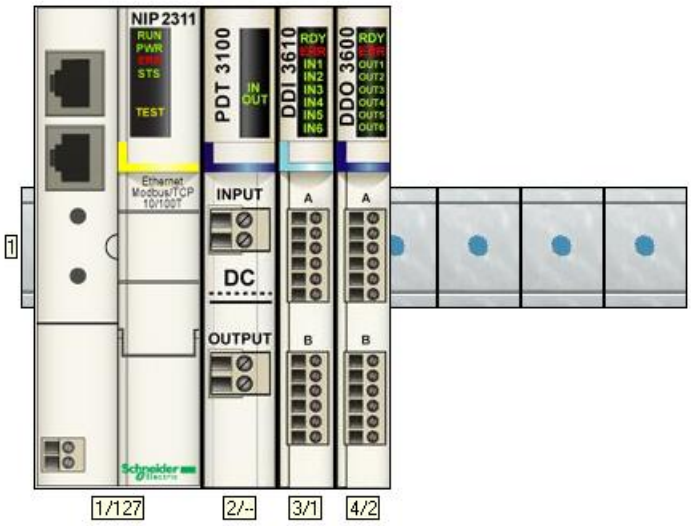
3 From the **Catalog Browser**, expand the **Networking** family and select the **STBNIP2311 - V4.xx** NIM (Network Interface module).



4 To add the **NIM** to the configuration either double-click the **STBNIP2311 - V4.xx** or drag & drop it to the empty island.

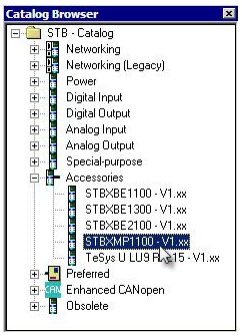


5 Configure the remaining components of the island using the same method as above.

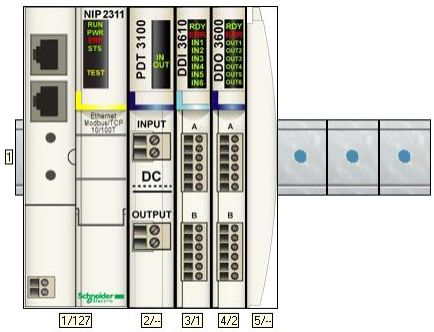


The remaining components can be located in the **Catalog Browser** in the **Power**, **Digital Input** & **Digital Output** families respectively.

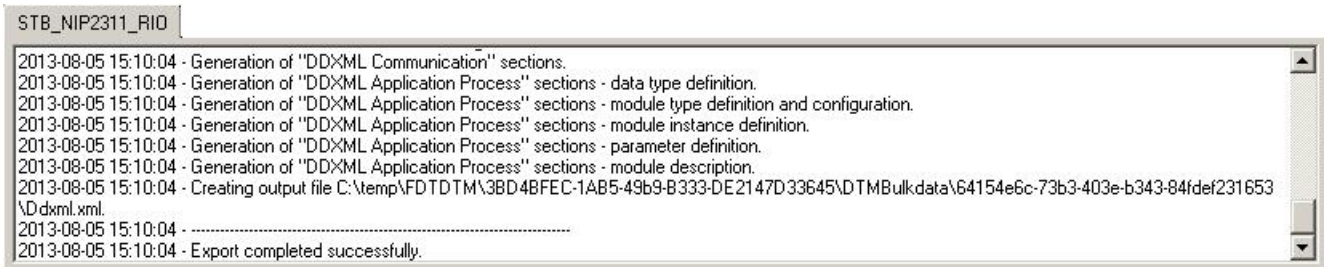
6 The last item to add is the terminator that resides at the end of the Island. Locate the **STBXMP1100 - V1.xx** from the **Accessories** family and add it to the Island.



The Island configuration should now look similar to this.



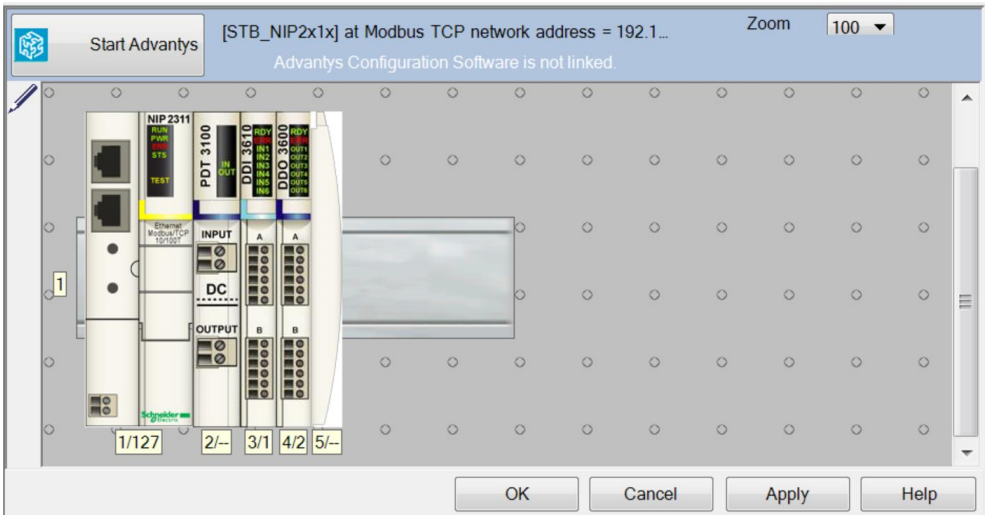
7 The final step is to save the configuration. Using the **Advantys Configuration Software** toolbar, click **File » Save**, this will build the Island and then **Export** the data back to **Unity Pro.**



8 Close **Advantys Configuration Software**.

The DTM in **Unity Pro** is updated accordingly.

9 Click the **OK** button.

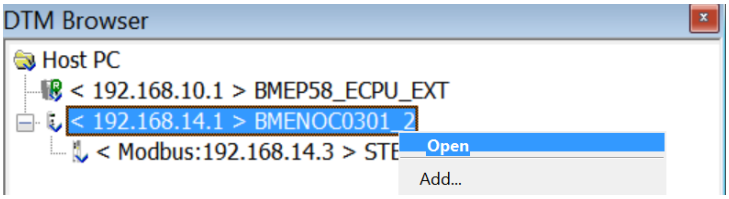


10 Close the DTM.

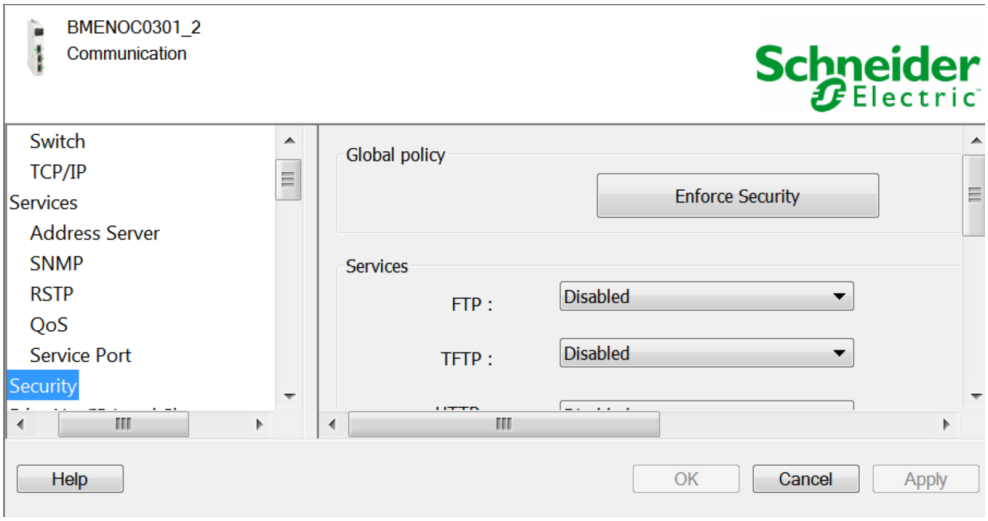
Exercise - Distributed Devices via a NOC (cont.)

Configure the IP settings of the STB via the BME NOC DTM.

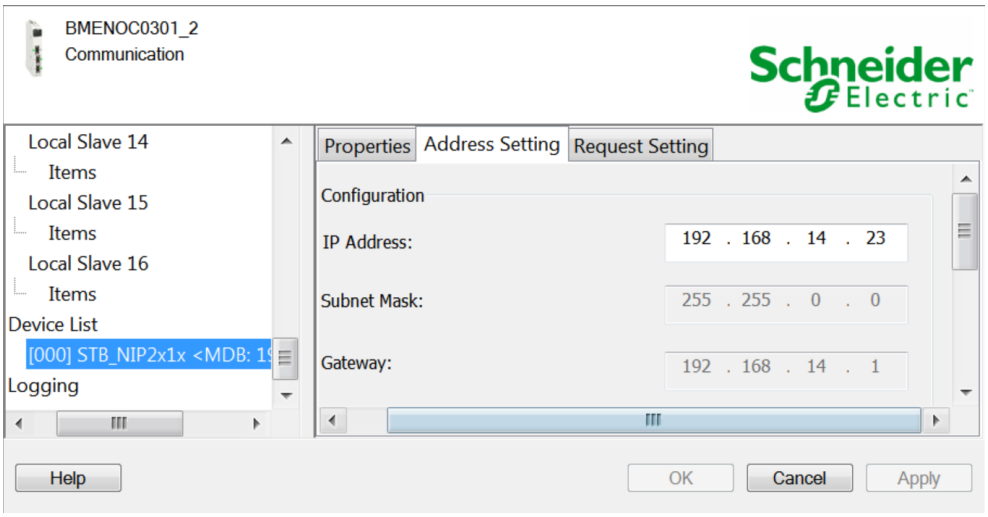
1 From the **DTM Browser**, right click the BME NOC DTM **BMENOC0311** and select **Open...** from the popup menu.



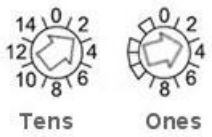
The BME NOC DTM will open.



2 Locate the **Device List**, select the **STBNIP2311_NOC** item, and then select the **Address Setting** tab. Configure the **Address Server** settings as follows, ensure the **Identifier** uses the correct format as shown below.



By doing this, the PLC will assign the IP Address 192.168.11.23 to the STB with role name of `STBNIP2311_0XX`. To match this name, on the simulator, set the rotary switches on the front of the STB to 3 for ones, and 2 for Tens.



3 Click the **OK** button to accept the changes.

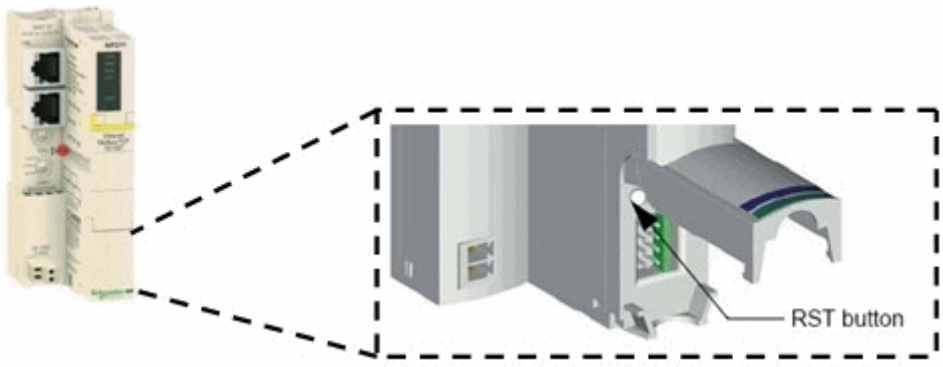
4 **Build** the application.

5 **Save** the application.

Exercise - Distributed Devices via a NOC (cont.)

Auto-configure the Advantys STB Island

1. Power cycle the Advantys STB island, so it will take into account the new rotary switches configuration.
2. Open the front door of the Network Interface Module (NIM).
3. Using a screw driver, **press and hold** the **RST** button for 3 seconds to reset the Island to its factory settings. (This action has nothing to do with the IP Address: It is just to reset the modules configuration).



4. When the reset is done, both **PWR** and **RUN** LEDs should be steady on.

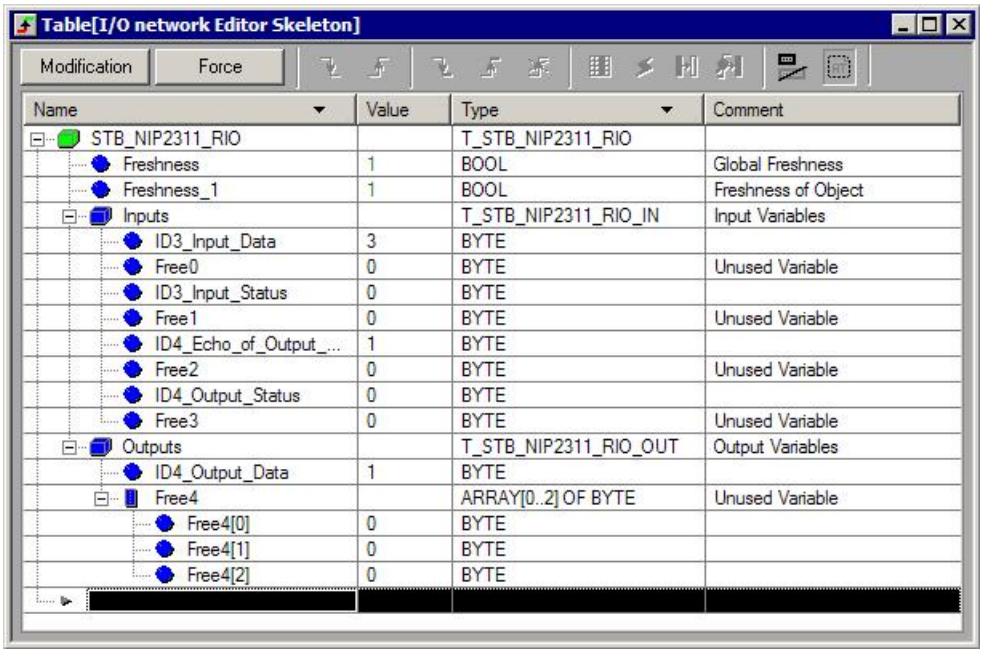
Test the Distributed Device.

Connect, **Transfer** and **RUN** the application.

5. Use a Red patch cable to connect the **Device** port of the NOC to one of the available Ethernet ports on the **STBNIP2311**.
6. Open the **Data Editor**, select the **STBNIP2311_NOC** variable and add it to an **Animation Table**.

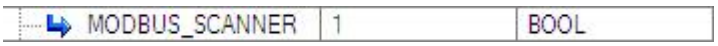
Exercise - Distributed Devices via a NOC (cont.)

7 Expand the structure and click the **Modification** button to be able to modify the values of this variable.



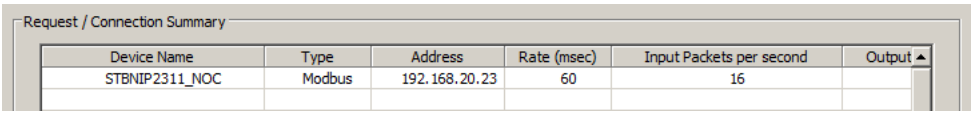
8 Set a value to **ID4_Output_Data** and observe the outputs of the STB on the simulator.

9 Add the **BMENOC0311.MODBUS_SCANNER** variable to the **Animation Table**, confirm the Distributed Device Service (Modbus Scanner) is now in operation.



10 **Save** the application.

11 View the **Device List**, and observe the **Request/Connection Summary** information, making note of the addresses being used. In order to view the Request/Connection Summary section the DTM may have to be maximised, or locate the scroll bar and scroll down.



12 The exercise is now over click the link to go back to the Chapter 2 Organisation Chart or to the Table of Contents.