Setup Examples

NP Redundant ModBus TCP
N+ System
Configuration Example

NP ModBus TCP N+ System Configuration Example

© 2005 - 2020 RTP Corporation

Not for reproduction in any printed or electronic media without express written consent from RTP Corp.

All information, data, graphics and statements in this document are proprietary intellectual property of RTP Corp. unless otherwise indicated and are to be considered RTP Corp. confidential. This intellectual property is made available solely for the direct use of potential or licensed RTP Corp. customers in their application of RTP Corp. products, and any other use or distribution is expressly prohibited. If you have received this publication in error, immediately delete, discard or return all copies to RTP Corp.

RTP Corporation
2832 Center Port Circle
Pompano Beach, FL 33064
Phone: (954) 597-5333
Internet: http://www.rtpcorp.com

File Name: NP Redundant ModBus TCP N+ System Configuration Example.pdf
Last Updated: 12/11/20

NP Redundant ModBus TCP N+ System Configuration Overview

This document provides an example of how to configure the NP ModBus TCP Communications in the N+ system. The hardware configuration of this example consists of two nodes (Each node processor has a dedicated ModBus TCP port), one of the node will have a ModBus TCP port configured as Master and the other node will have a ModBus TCP port configured as Slave. This example will have four Point Groups: Master transmitting Boolean variables to Slave Coils and Master reading Integer values from the Slave Input Registers. In addition, we are going to show the redundant configuration for the NP Modbus. Other types of transfers can be configured similarly.

- Bool Point Groups: The Boolean Output Point Group (BO_), in the ModBus Master, writes Coil data starting at address 1000. Bool Input Point Group (BI_), in the ModBus Slave, receives the Coil data starting at address 1000.

- Integer Point Groups: The Integer Input Point Group (II_), in the ModBus Master, reads Input Registers starting at address 0. Integer Output Point Group (IO_), in the ModBus Slave, provides data in response to the Master's request starting at address 0.

Note: For some devices, the first ModBus address is 1 corresponding to 0 on the RTP ModBus Port on N+ System. If this is the case, the addressing will need to be adjusted to correspond.

Note: In the examples, all variables in the point groups are not used. We chose to configure the unused points as Disabled to demonstrate that all points in a group do not need to be used nor do they need to be in contiguous order. The unused points could have been left in and just not used. In any case, the Slave point group should be configured to include all of the variables in the Master's point group.

NP ModBus TCP – Node Processor Installation

Host Network Connections

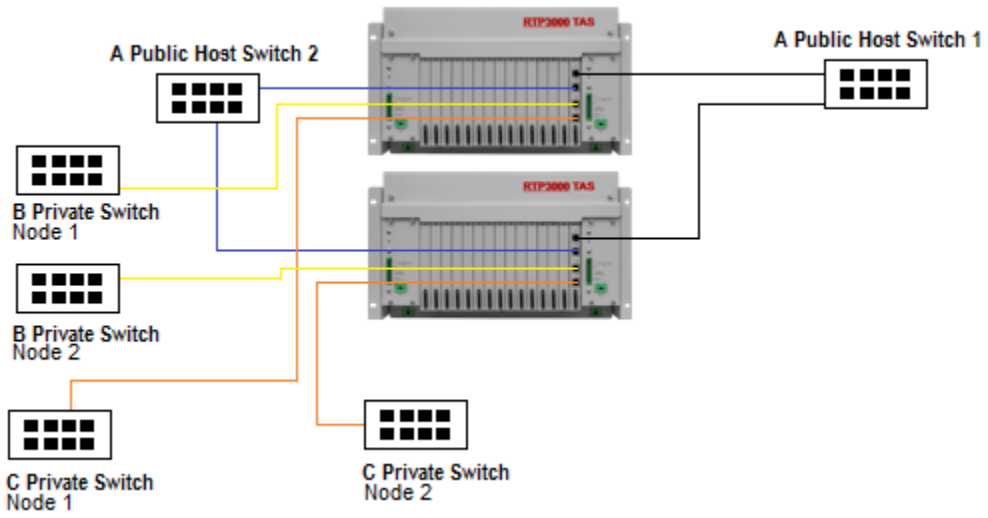
- Connect an Ethernet cable from your PC or laptop computer to the Host Ethernet Switch.
- Connect an Ethernet cable from J1 on the first 3201T Node Processor to the Host Ethernet Switch.
- Connect an Ethernet cable from J1 on the second 3201T Node Processor to the Host Ethernet Switch.

I/O Network Connections

- Connect an Ethernet cable from J3 on the first 3201T Node Processor to the “A” I/O Ethernet Switch Node 1.
- Connect an Ethernet cable from J4 on the first 3201T Node Processor to the “B” I/O Ethernet Switch Node 1.
- Connect an Ethernet cable from J3 on the second 3201T Node Processor to the “A” I/O Ethernet Switch Node 2.
- Connect an Ethernet cable from J4 on the second 3201T Node Processor to the “B” I/O Ethernet Switch Node 2.

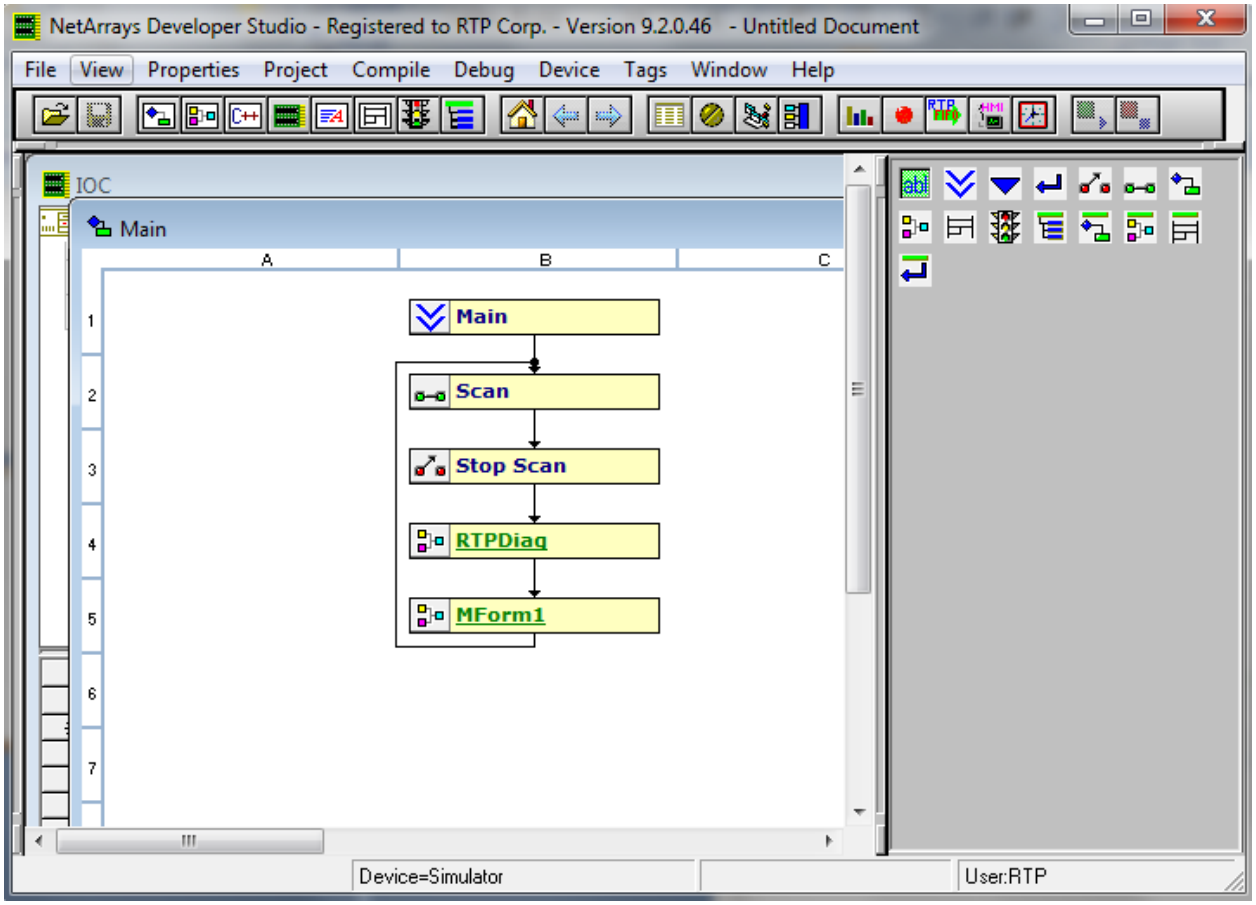
ModBus TCP System Ethernet Connections

The ModBus TCP N+ system Ethernet cables are connected as shown in the figure below.



NP ModBus Master TCP N+ System Configuration

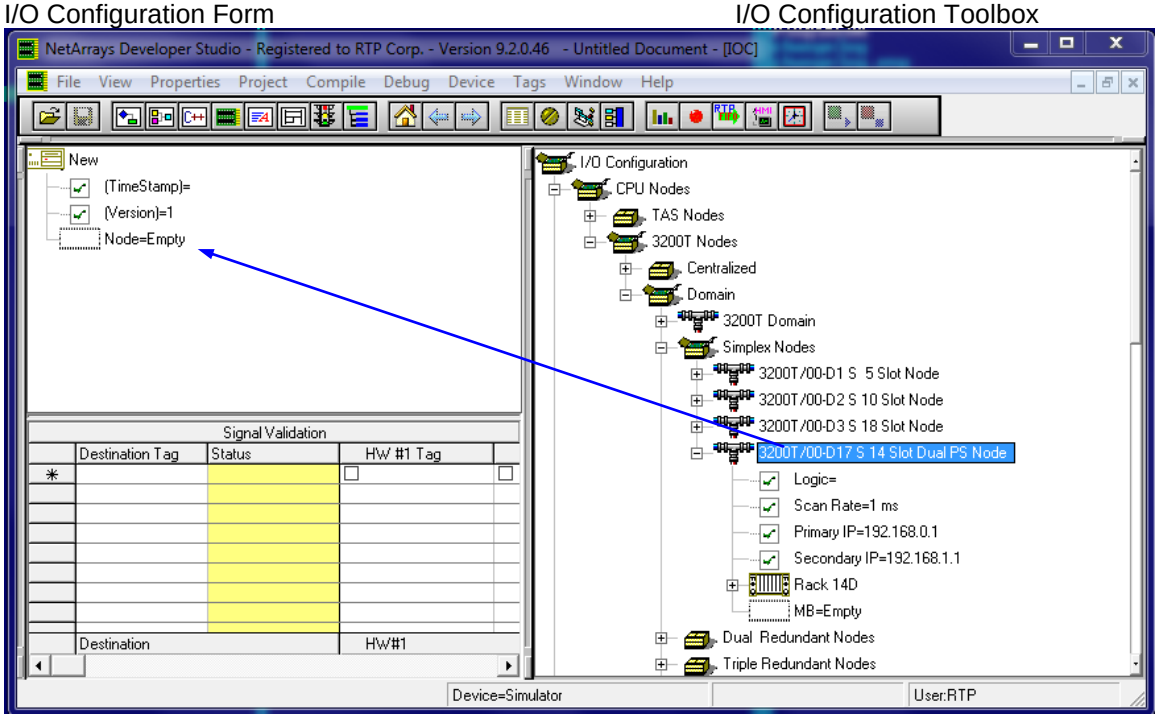
Open NetArrays and log in. If you have not created a user account please refers to the file ug-netsuite.pdf found in the directory C:\RTP NetSuite\Manuals. After logging in, you are going to see the figure below



- Click on the I/O Configuration Studio button in the NetArrays main toolbar . Maximize the I/O Configuration form using the Maximize Icon.

- Drag an icon **RTP3200T Node** from the I/O Configuration Toolbox **CPU Nodes->3200T Nodes->Domain->Simplex Nodes folder** to the "**Node=Empty**" position on the I/O Configuration Form. For this example, the **RTP3200T/00-D17 S 14 Slot Dual PS Node** was chosen. Select an RTP3200T Node that matches your configuration. (This example shows a domain configuration).

I/O Configuration Form I/O Configuration Toolbox

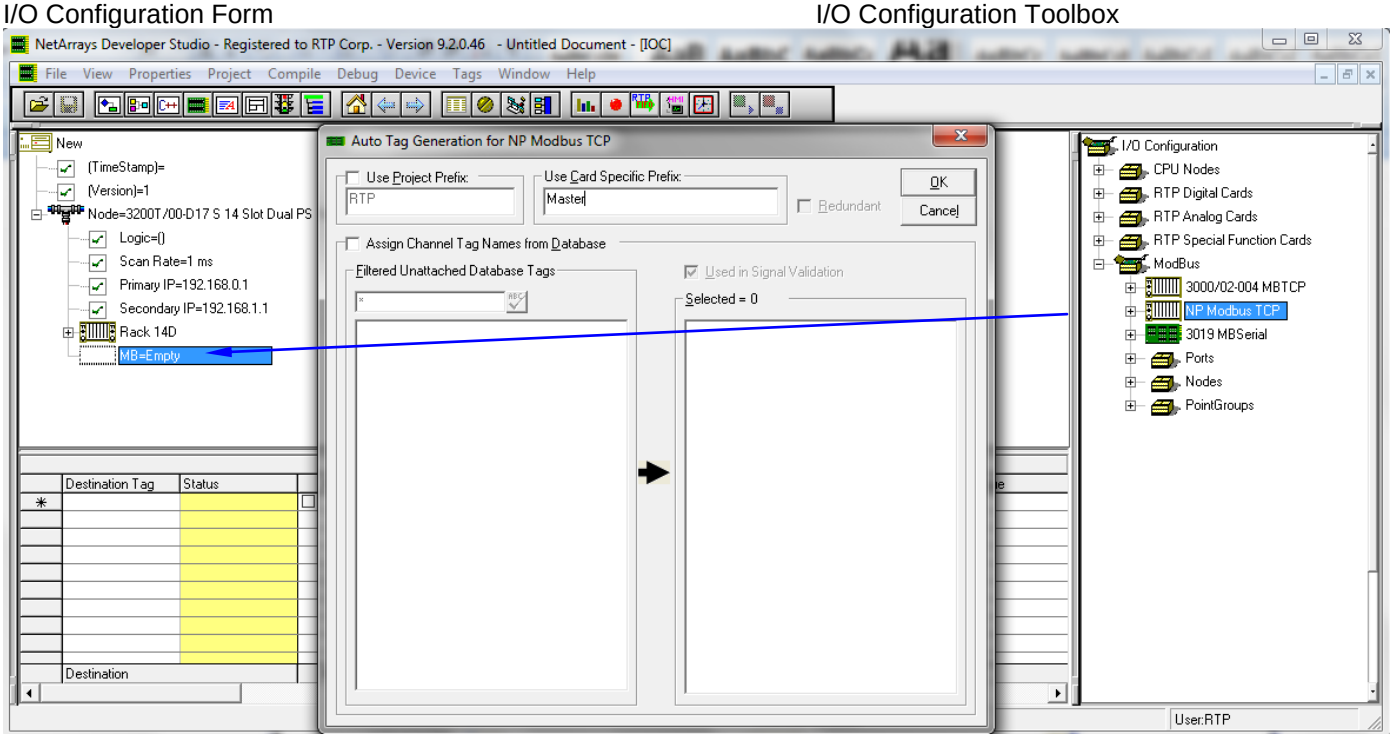


Add a NP ModBus TCP

- If required, in the I/O Configuration Form, expand the "**RTP3200T/00-D17 S 14 Slot Dual PS Node**" (left-click on the ⊞). In the I/O Configuration toolbox expand the **ModBus** branch (left-click on the ⊞). Drag the **NP Modbus TCP** icon to the "**MB=Empty**". The Auto Tag Generation dialogue box will appear. Type **Master** in the **User Card Specific Prefix** and click **OK**. The Prefix of the Tag names for the ModBus TCP Master will be set to "**Master**". This does not affect point group tag names.

I/O Configuration Form

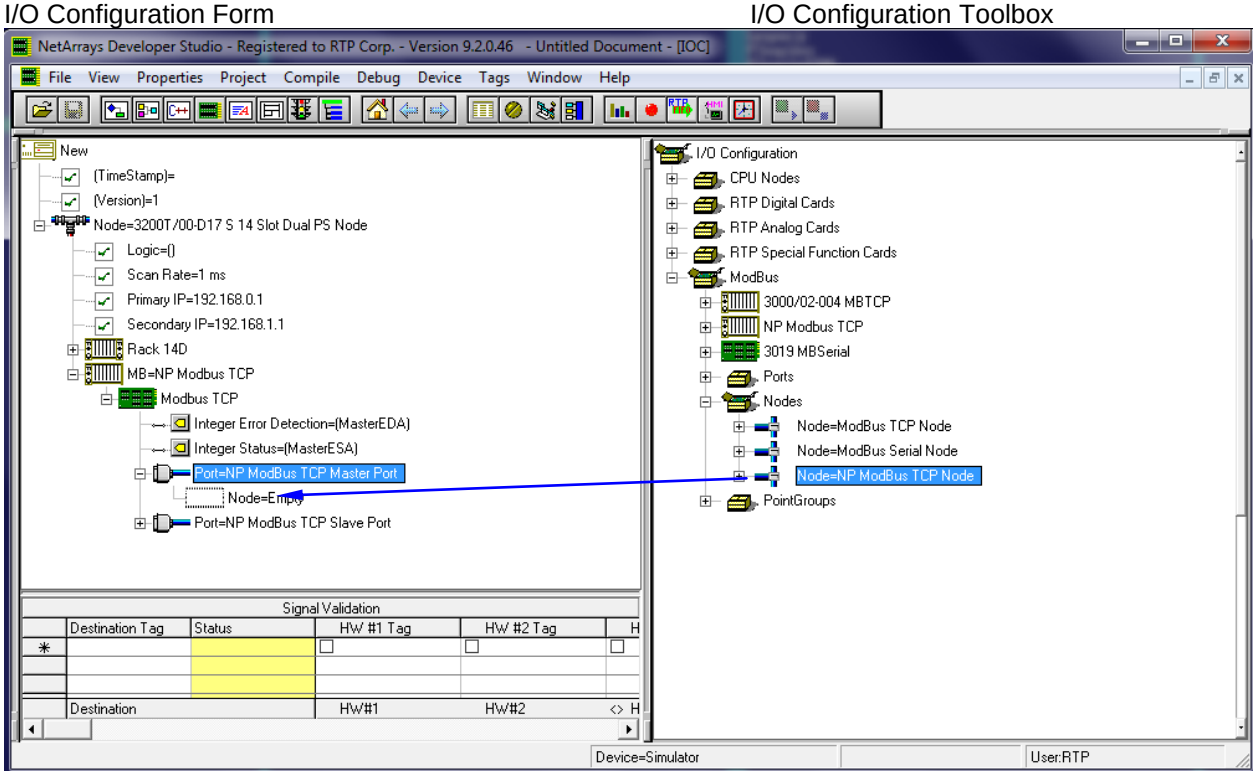
I/O Configuration Toolbox



Add a ModBus Master Port and Node

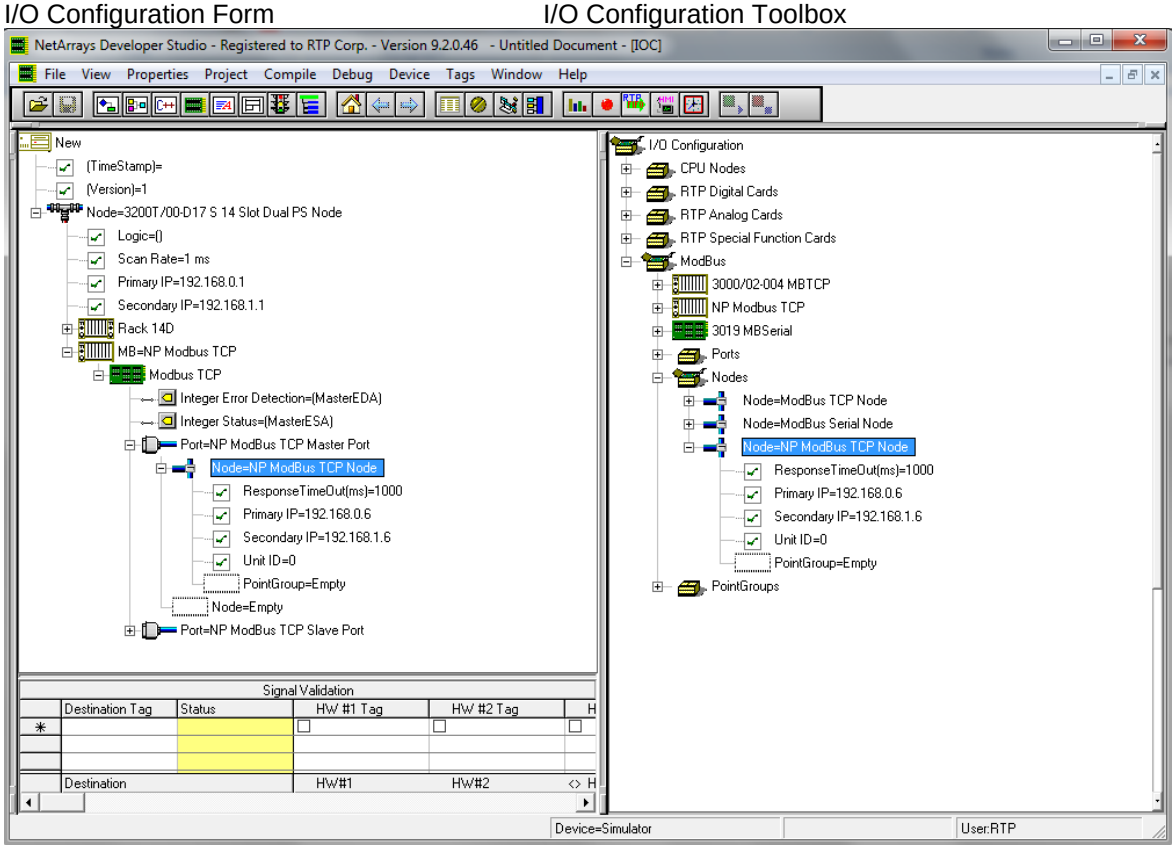
- Expand the "**MB=NP Modbus TCP**" branch on the I/O Configuration Form by clicking on the ⊞. Expand the **Modbus TCP** by clicking on the ⊞. Expand the "**ModBus Port = NP ModBus TCP Master Port**" branch on the I/O Configuration Form by clicking on the ⊞. Expand the **Nodes** branch on the I/O Configuration Toolbox by clicking on the ⊞. Drag the **Node = NP ModBus TCP Node** from the I/O Configuration Toolbox to the "**Node = Empty**" Slot in the I/O Configuration Form.

I/O Configuration Form I/O Configuration Toolbox



- After adding the Node, the I/O Configuration will be as shown below.

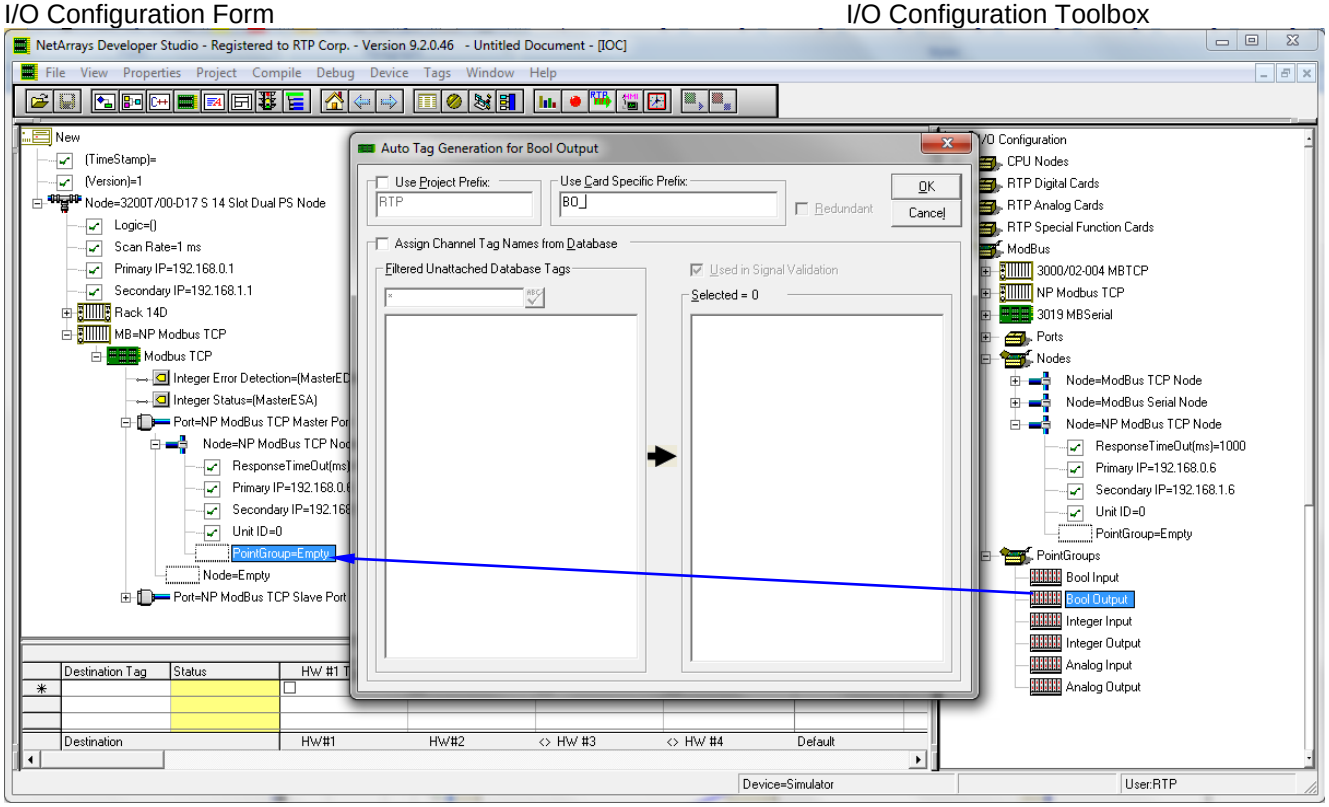
I/O Configuration Form I/O Configuration Toolbox



Add 2 ModBus Master Point Groups

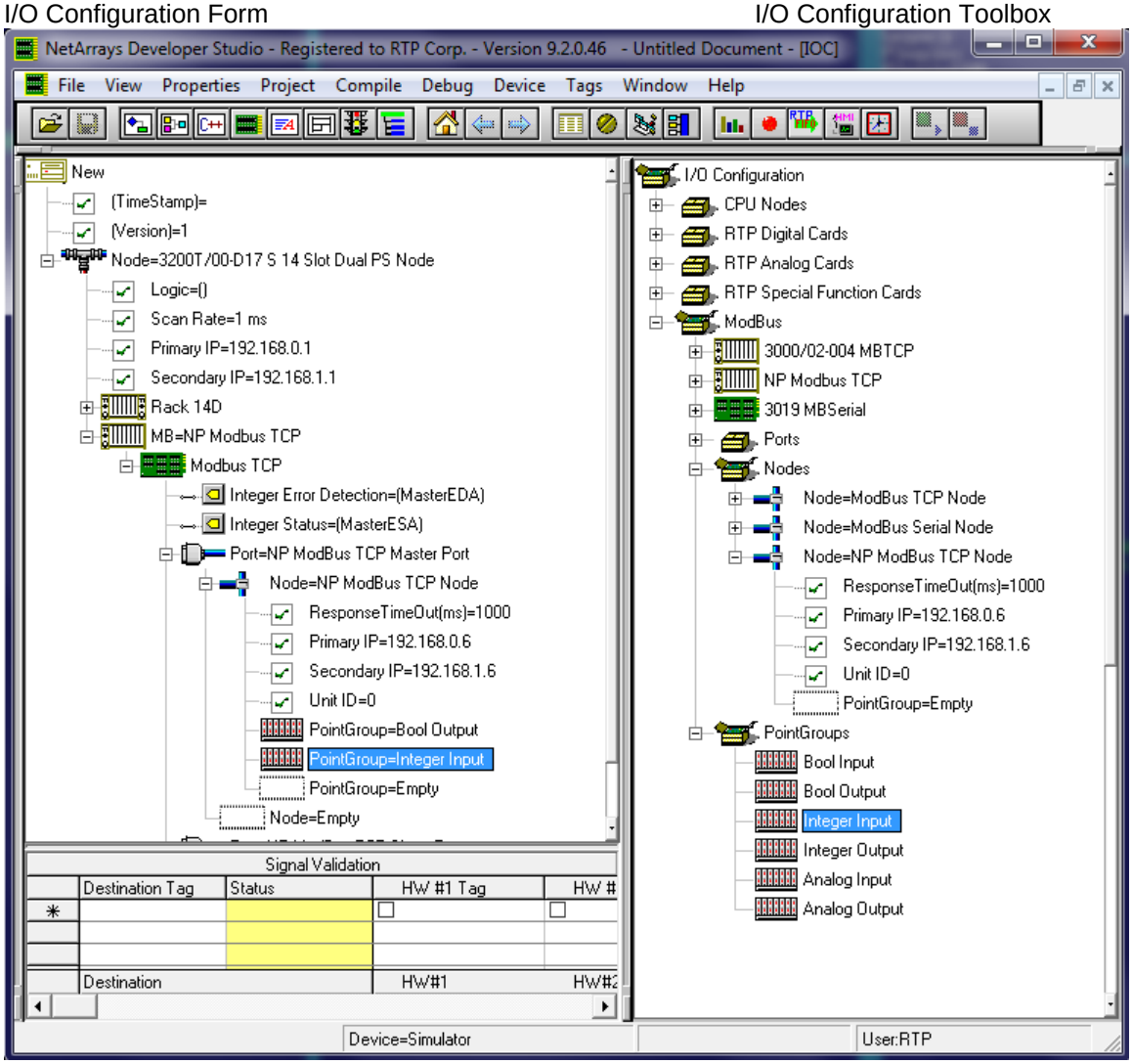
- Move the mouse pointer to the "**MB = NP ModBus TCP Node**" icon on the I/O Configuration Form and expand it by clicking on the ⊞. Then, expand the Port=NP Modbust TCP Master port and Node= NP Modbus Master TCP node. Expand the **Point Groups** on the I/O Configuration Toolbox by clicking on the ⊞. Select the **Bool Output** Point Group icon in the I/O Configuration toolbox and drag it to the "**PointGroup=Empty**" placeholder under the Node in the I/O Configuration form. The Auto Tag Generation dialogue box will appear. In response enter **BO_** in the **Use Card Specific Prefix**, and click **OK**.
- Similarly, drag an Integer Input point group and use **II_** for the **Use Card Specific Prefix.**

I/O Configuration Form I/O Configuration Toolbox



The ModBus Master I/O Configuration should look as pictured below.

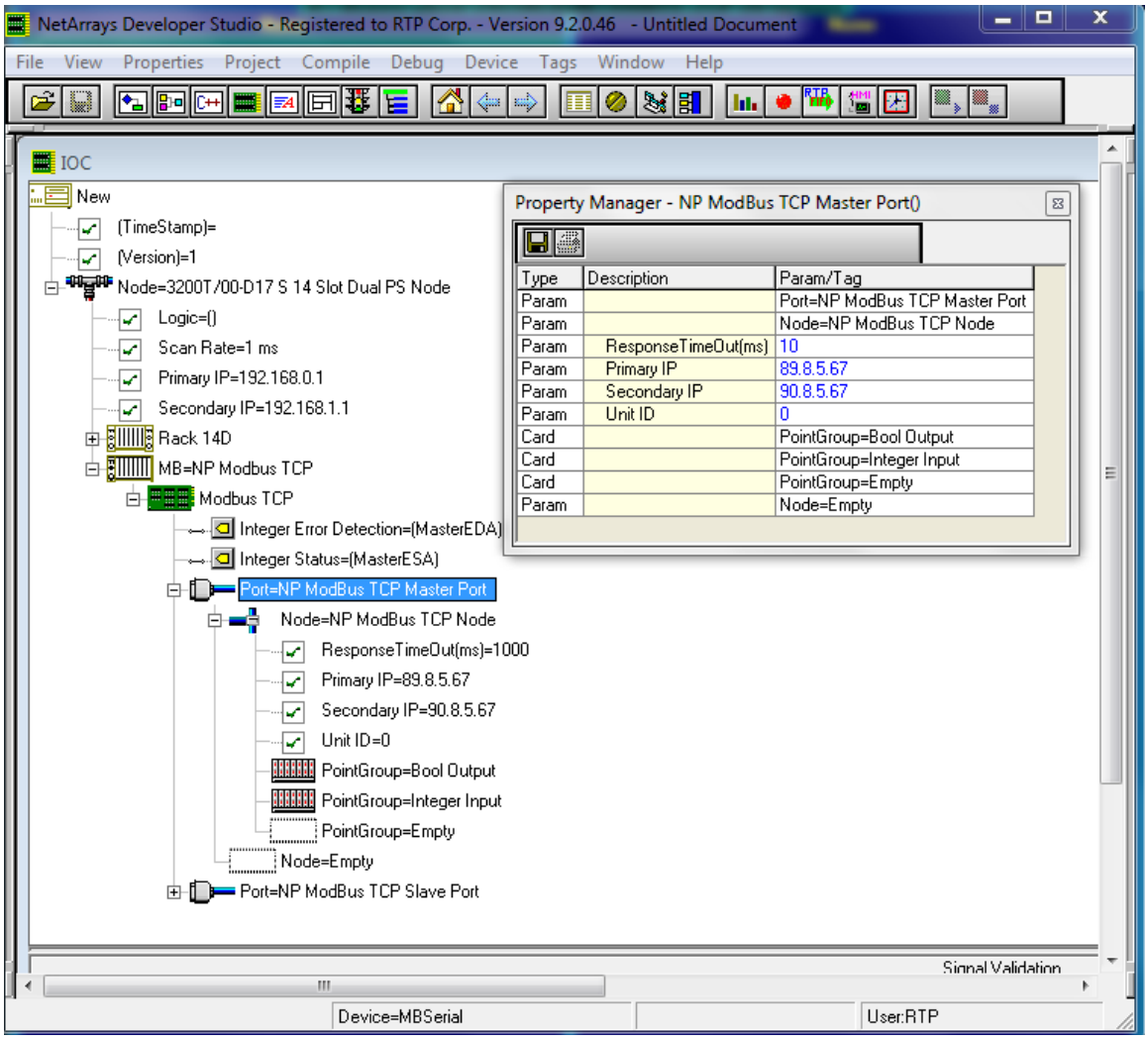
I/O Configuration Form I/O Configuration Toolbox



On the following pages you will be configuring the ModBus Master TCP Port and Point Group properties. Note that when you enter text or a number into the **Property Manager**, it **must** be followed by **Enter**.

ModBus Master TCP Properties

- Left click on the **MB = NP ModBus TCP Node** ⊞ to view the "Modbus tcp" icon. Then, Left click on the Port=NP ModBus TCP Master Port ⊞.and right click to it to display its **Property Manager**. Expand the window as required to edit all applicable parameters.
- The Tag assigned to the **Integer Error Detection** is **MasterEDA**.
- The Tag assigned to the **Integer Status** is **MasterESA**.
- A set of **IP** address must be entered so that the ModBus Master TCP can communicate with the ModBus Slave Port. In this example we chose **89.8.5.67** as the Primary IP address of the port and **90.8.5.67** as the secondary IP address. These are the addresses of the ModBus Slave TCP that the Modbus Master TCP will be communicating to.
- Specify a **Response TimeOut(ms)** value of **10** milliseconds between message retries.
- Close the **Property Manager** display.



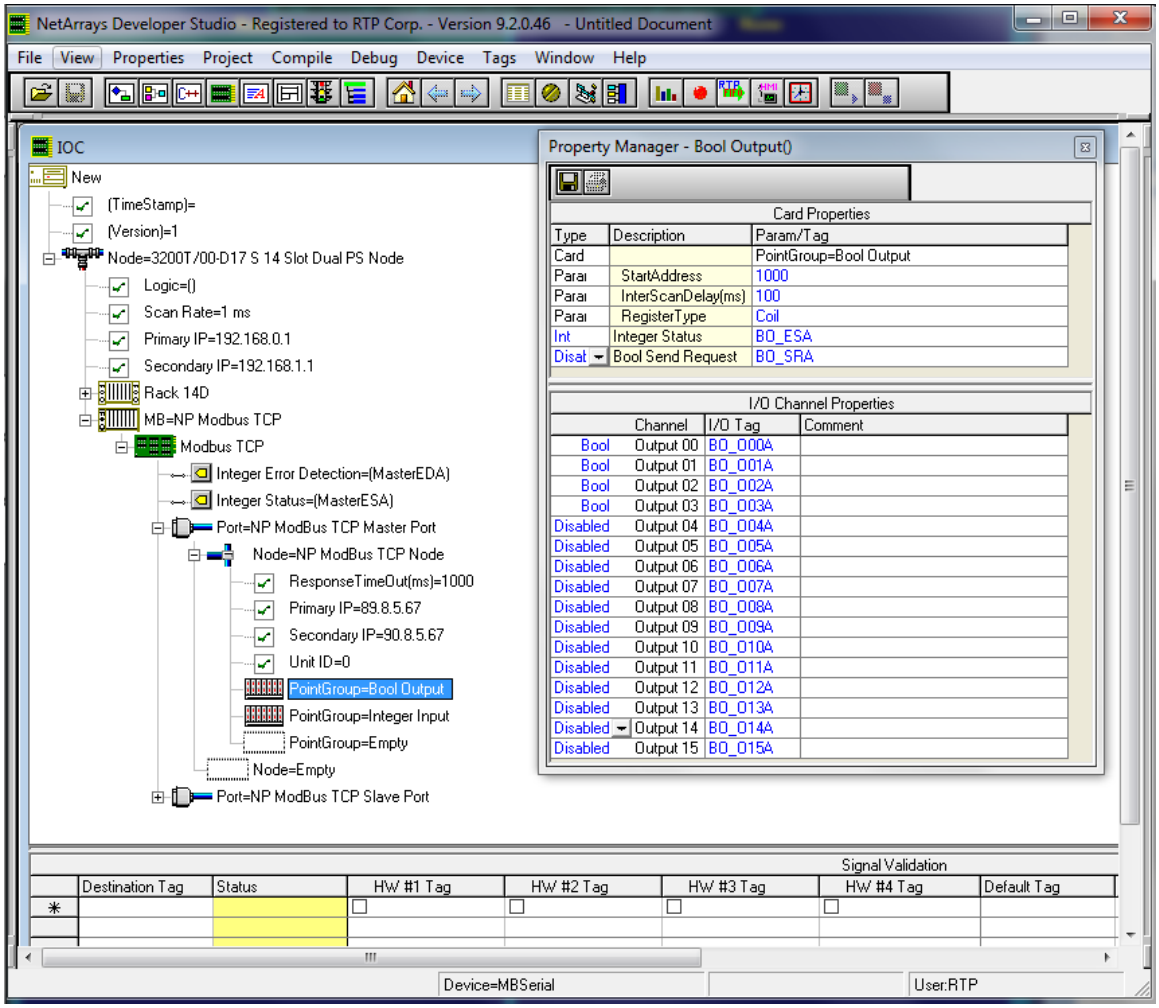
Redundancy in NP Modbus TCP:

As shown in the figure above the NP Modbus TCP Master port has the ability to use as destination port either of the two configured IP addresses (Primary and Secondary) This feature permits system redundancy when any of the destination ports is not available. In addition of these two addresses for the destination ports, NP Modbus TCP Master Port also includes two redundant sourcing ports. In the example illustrated in this document, which shows a simple node, the two sourcing ports are the same as the ports of the node processor. This allows the NP Modbus to communicate for any of the two ports. In the case of different node configuration, for instance Triple and Quad redundant configuration, the NP Modbus TCP will transmit and receive data from Primary Node's port.

ModBus Bool Output Point Group

This Point Group will be writing four Bool outputs into the Coils buffer starting at address 1000.

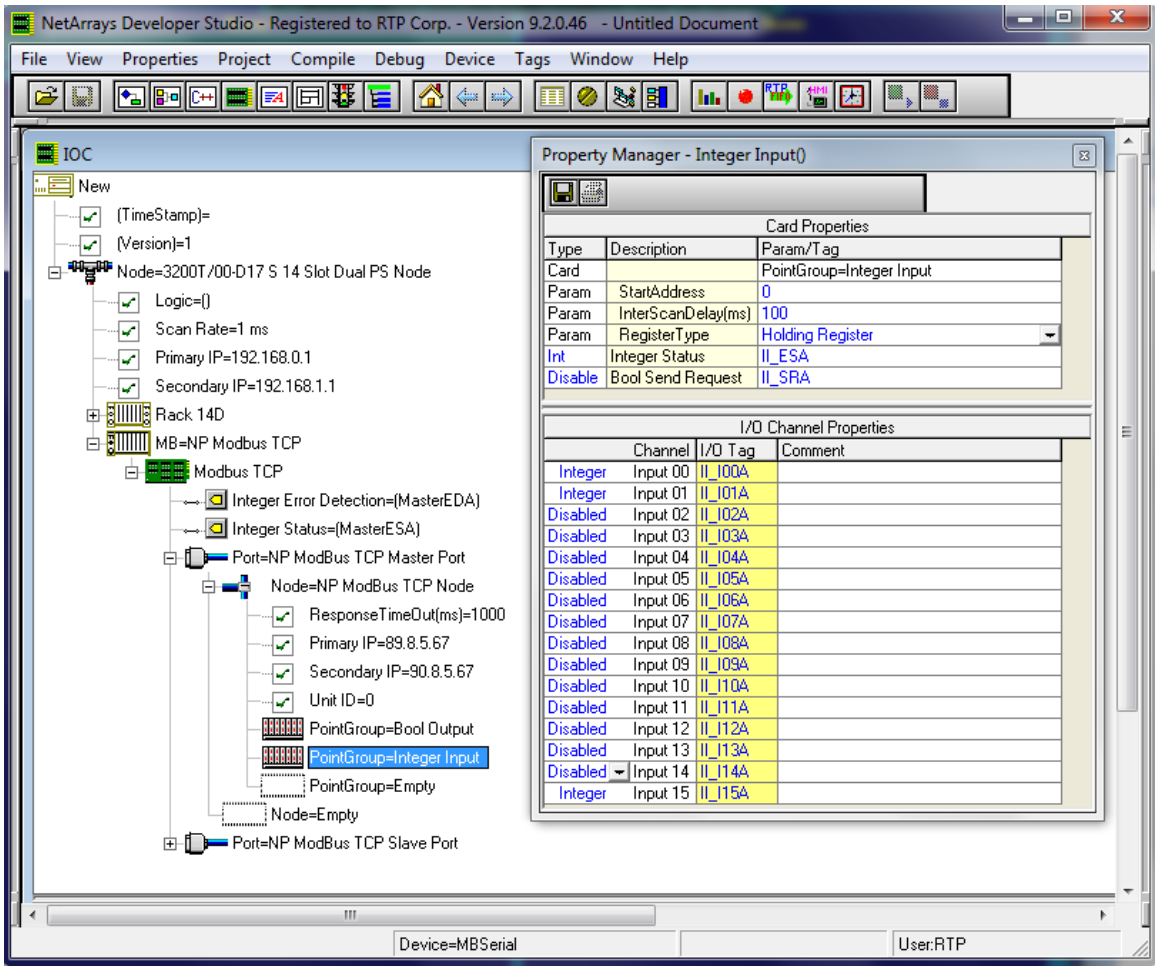
- Select the ModBus Bool Output Point Group and right click to display its **Property Manager**. Select **Properties**.
- A **StartAddress** of **1000** is entered for the starting point for this Point Group's data in the ModBus Slave Data Image.
- An **InterScan Delay** of **100** milliseconds is specified. This is the default value.
- The **Register Type** of this point group is "**Coil**". We will be writing Coil Inputs to the ModBus slave.
- The Tag assigned to the **Integer Status** is **BO_ESA**".
- **Bool Send Request Enabled** is **Disabled**. This is the default value.
- The **I/O Tags** assigned are "**BO_O00A**", "**BO_O01A**", "**BO_O02A**", and "**BO_O03A**".
- **Channel** Output 04 through Output 15 are disabled by selecting "**Disabled**".
- Close the **Property Manager** display.


NetArrays Developer Studio - Registered to RTP Corp. - Version 9.2.0.46 - Untitled Document
File View Properties Project Compile Debug Device Tags Window Help
IOC
New
(TimeStamp)=
(Version)=1
Node=3200T/00-D17 S 14 Slot Dual PS Node
Logic=()
Scan Rate=1 ms
Primary IP=192.168.0.1
Secondary IP=192.168.1.1
Rack 14D
MB=NP Modbus TCP
Modbus TCP
Integer Error Detection=(MasterEDA)
Integer Status=(MasterESA)
Port=NP ModBus TCP Master Port
Node=NP ModBus TCP Node
ResponseTimeOut(ms)=1000
Primary IP=89.8.5.67
Secondary IP=90.8.5.67
Unit ID=0
PointGroup=Bool Output
PointGroup=Integer Input
PointGroup=Empty
Node=Empty
Port=NP ModBus TCP Slave Port
Property Manager - Bool Output()
Card Properties
Type Description Param/Tag
Card PointGroup=Bool Output
Parai StartAddress 1000
Parai InterScanDelay(ms) 100
Parai RegisterType Coil
Int Integer Status BO_ESA
Disat Bool Send Request BO_SRA
I/O Channel Properties
Channel I/O Tag Comment
Bool Output 00 BO_000A
Bool Output 01 BO_001A
Bool Output 02 BO_002A
Bool Output 03 BO_003A
Disabled Output 04 BO_004A
Disabled Output 05 BO_005A
Disabled Output 06 BO_006A
Disabled Output 07 BO_007A
Disabled Output 08 BO_008A
Disabled Output 09 BO_009A
Disabled Output 10 BO_010A
Disabled Output 11 BO_011A
Disabled Output 12 BO_012A
Disabled Output 13 BO_013A
Disabled Output 14 BO_014A
Disabled Output 15 BO_015A
Signal Validation
Destination Tag Status HW #1 Tag HW #2 Tag HW #3 Tag HW #4 Tag Default Tag
Device=MBSerial
User:RTP

ModBus Integer Input Point Group

This Point Group will be reading three Integer inputs from the Input Registers starting at address 0.

- Select ModBus Integer Input Point Group and right click to display its **Property Manager**. Select **Properties**.
- A **StartAddress** of **0** is specified for the starting point for this Point Group's data in the ModBus Slave Data Image. This is the default value.
- An **InterScan Delay** of **100** milliseconds is specified. This is the default value.
- The **Register Type** of this point group is "**Holding Register**". We will be reading input data from the ModBus slave.
- The Tag assigned to the **Integer Status** is "**II_ESA**".
- **Bool Send Request Enabled** is **Disabled**. This is the default value.
- The **I/O Tags** assigned are "**II_I00A**", "**II_I01A**", and "**II_I15A**".
- **Channel** Input 02 through Input 14 are disabled by selecting "**Disabled**".
- Close the **Property Manager** display.



Save the Project

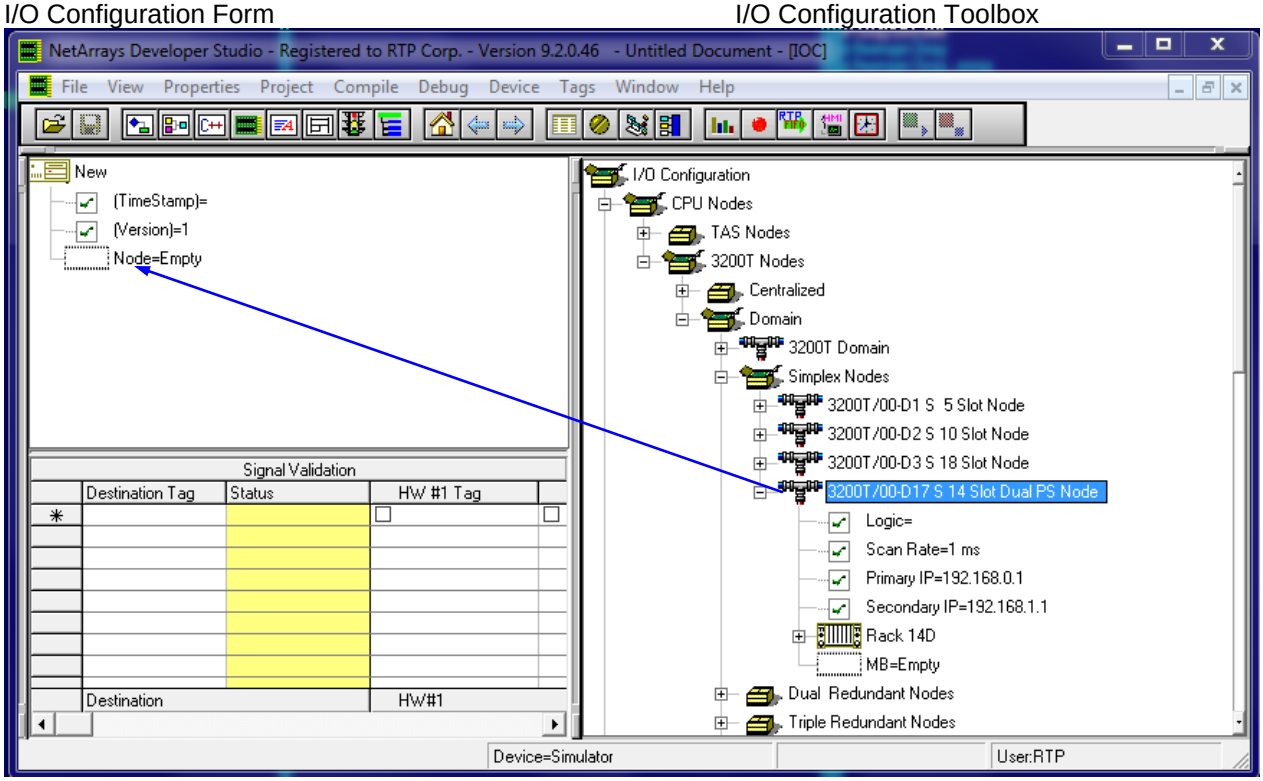
- Before proceeding, save the project. From the NetArrays **File** menu select **Save New Project As…** type the project name in **File name:** and click **Save** (We used "ModbusTCPMaster.dbn").

Open a new instance of NetArrays and add a 3200T Node and Rack to the I/O Configuration

- Click on the I/O Configuration Studio button in the NetArrays main toolbar . Maximize the I/O Configuration form using the Maximize Icon.

- Drag an icon **RTP3200T Node** from the I/O Configuration Toolbox **CPU Nodes->3200T Nodes->Domain->Simplex Nodes folder** to the "**Node=Empty**" position on the I/O Configuration Form. For this example, the **RTP3200T/00-D17 S 14 Slot Dual PS Node** was chosen. Select an RTP3200T Node that matches your configuration. (This example shows a domain configuration).

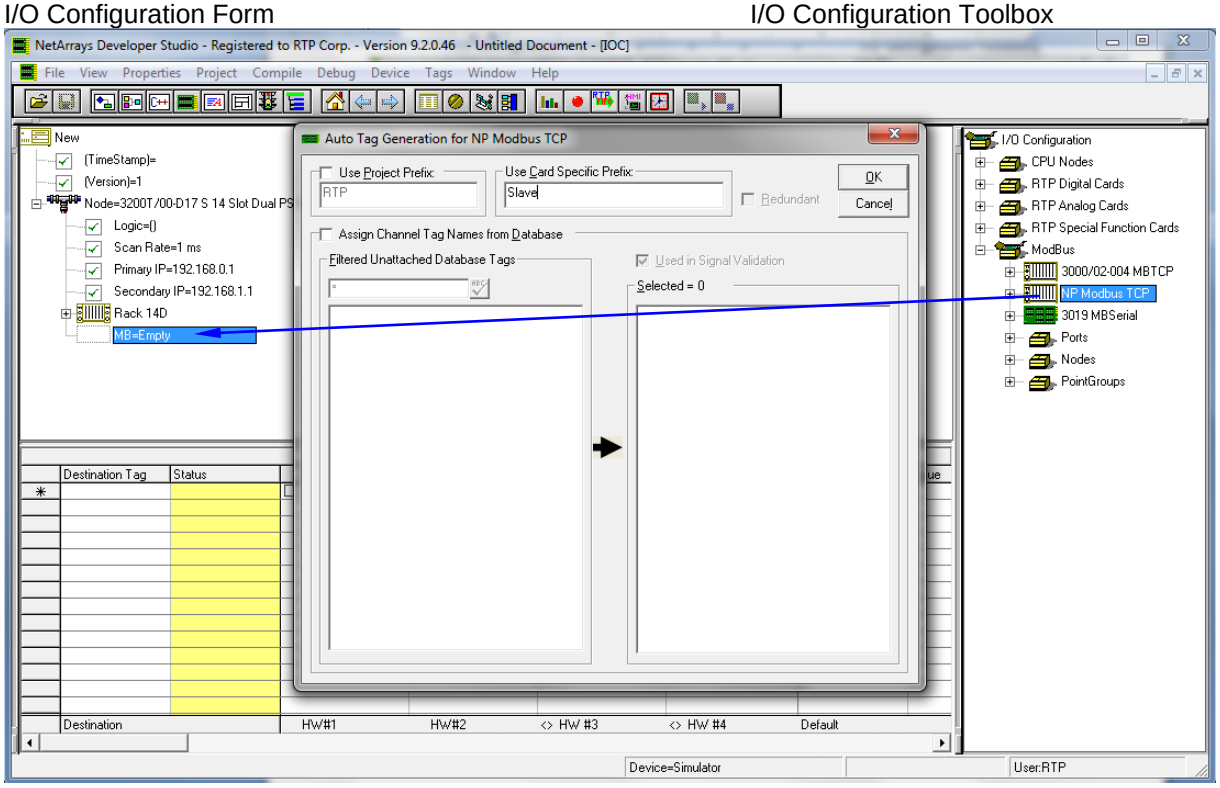
I/O Configuration Form I/O Configuration Toolbox



Add a NP ModBus TCP

- If required, in the I/O Configuration Form, expand the "**RTP3200T/00-D17 S 14 Slot Dual PS Node**" (left-click on the ⊞). In the I/O Configuration toolbox expand the **ModBus** branch (left-click on the ⊞). Drag the **NP Modbus TCP** icon to the "**MB=Empty**". The Auto Tag Generation dialogue box will appear. Type **Slave** in the **User Card Specific Prefix** and click **OK**. The Prefix of the Tag names for the ModBus Master Card will be set to "**Slave**". This does not affect point group tag names.

I/O Configuration Form I/O Configuration Toolbox



Add a ModBus TCP Point Groups to the I/O Configuration in the slave port.

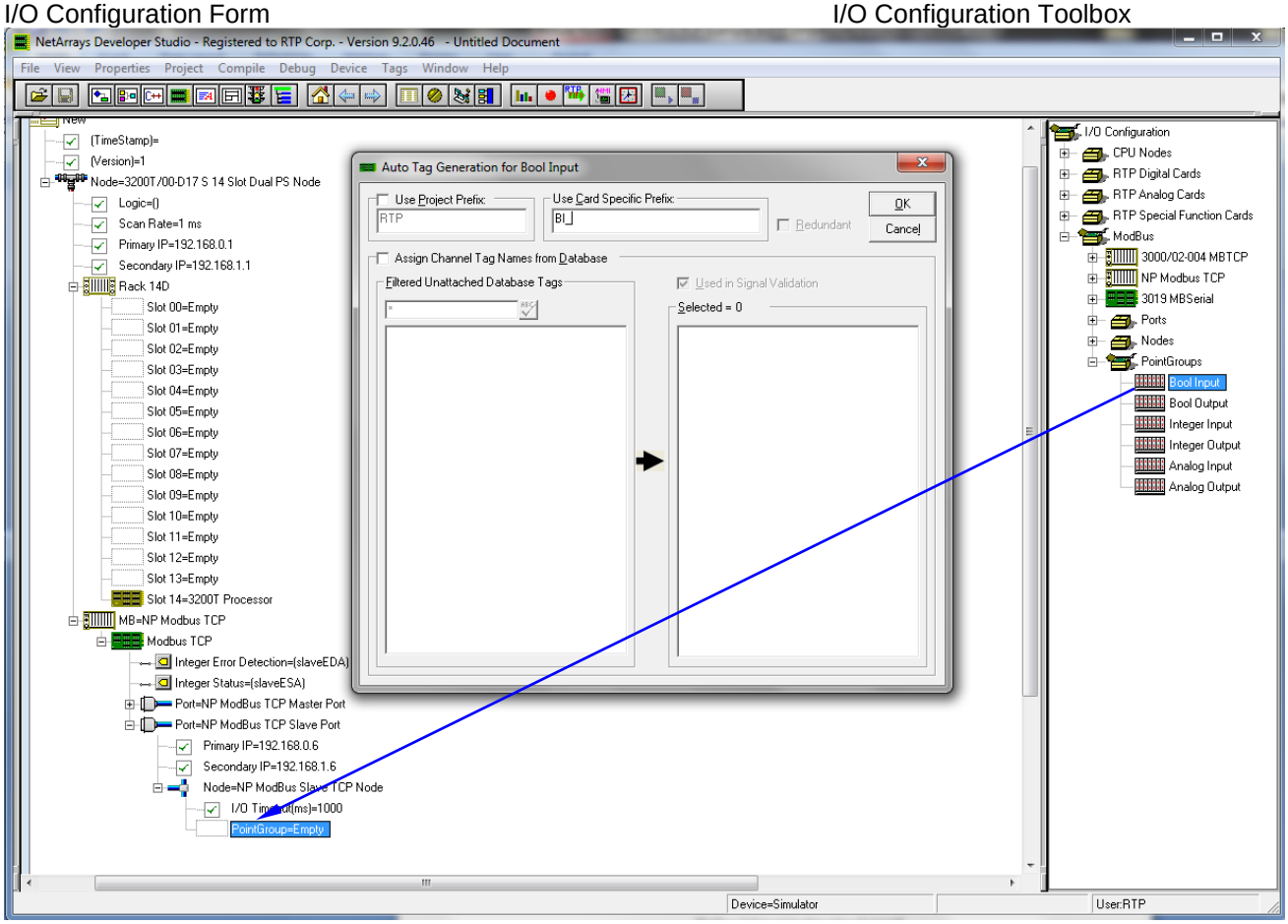
Add 2 ModBus Slave Point Groups

- Move the mouse pointer to the "**Node=ModBus TCP Node**" icon on the I/O Configuration Form and expand it by clicking on the ⊞. Then, expand the Port=NP Modbust TCP slave port and Node= NP Modbus Slave TCP node. Expand the **Point Groups** on the I/O Configuration Toolbox by clicking on the ⊞. Select the **Bool Input** Point Group icon in the I/O Configuration toolbox and drag it to the "**PointGroup=Empty**" placeholder under the Node in the I/O Configuration form. The Auto Tag Generation dialogue box will appear. In response enter **BI_** in the **Use Card Specific Prefix**, and click **OK**.

- Similarly drag an Integer Output point group and use **IO_** for the **Use Card Specific Prefix.**

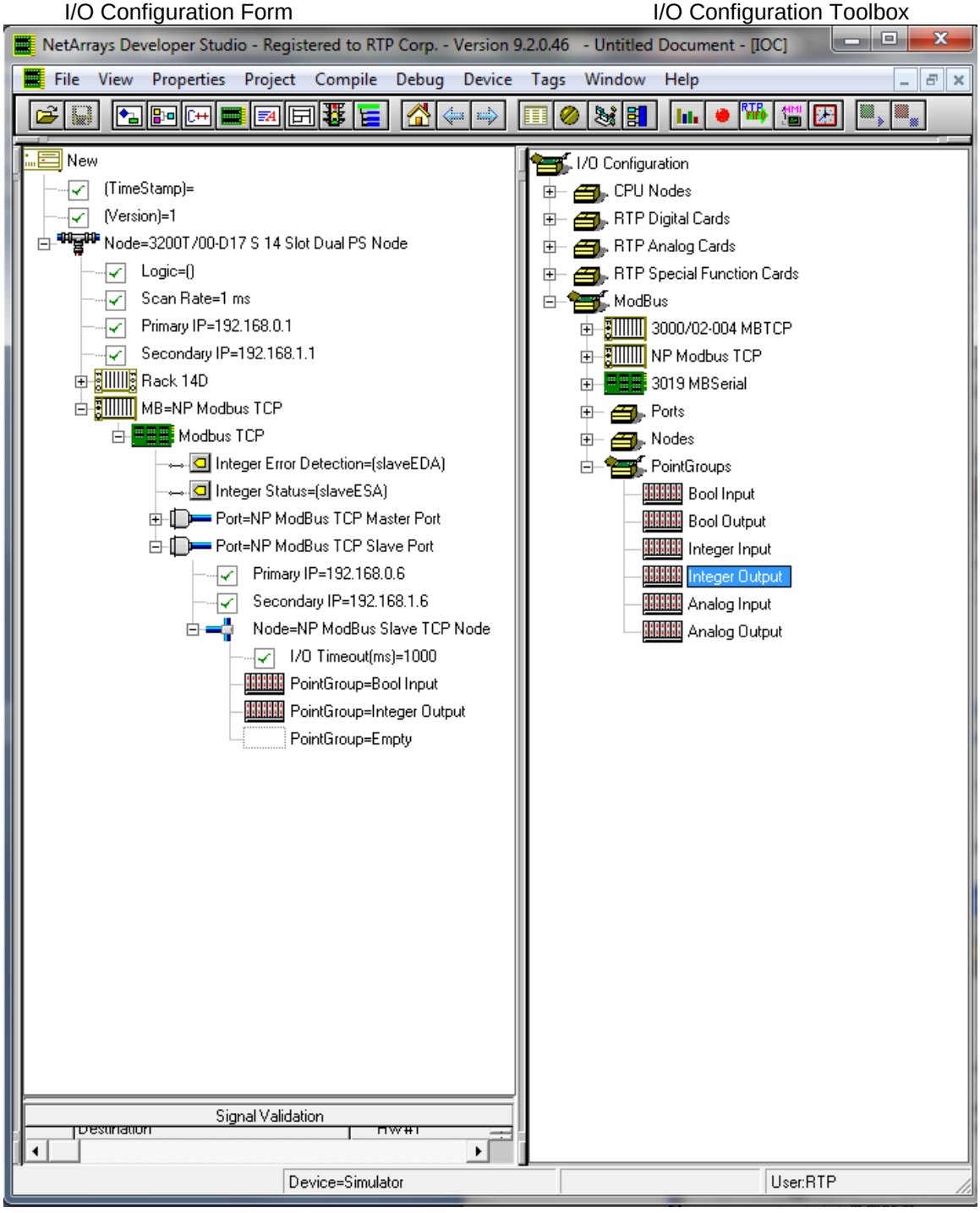
I/O Configuration Form

I/O Configuration Toolbox



The ModBus Slave I/O Configuration should look as pictured below.

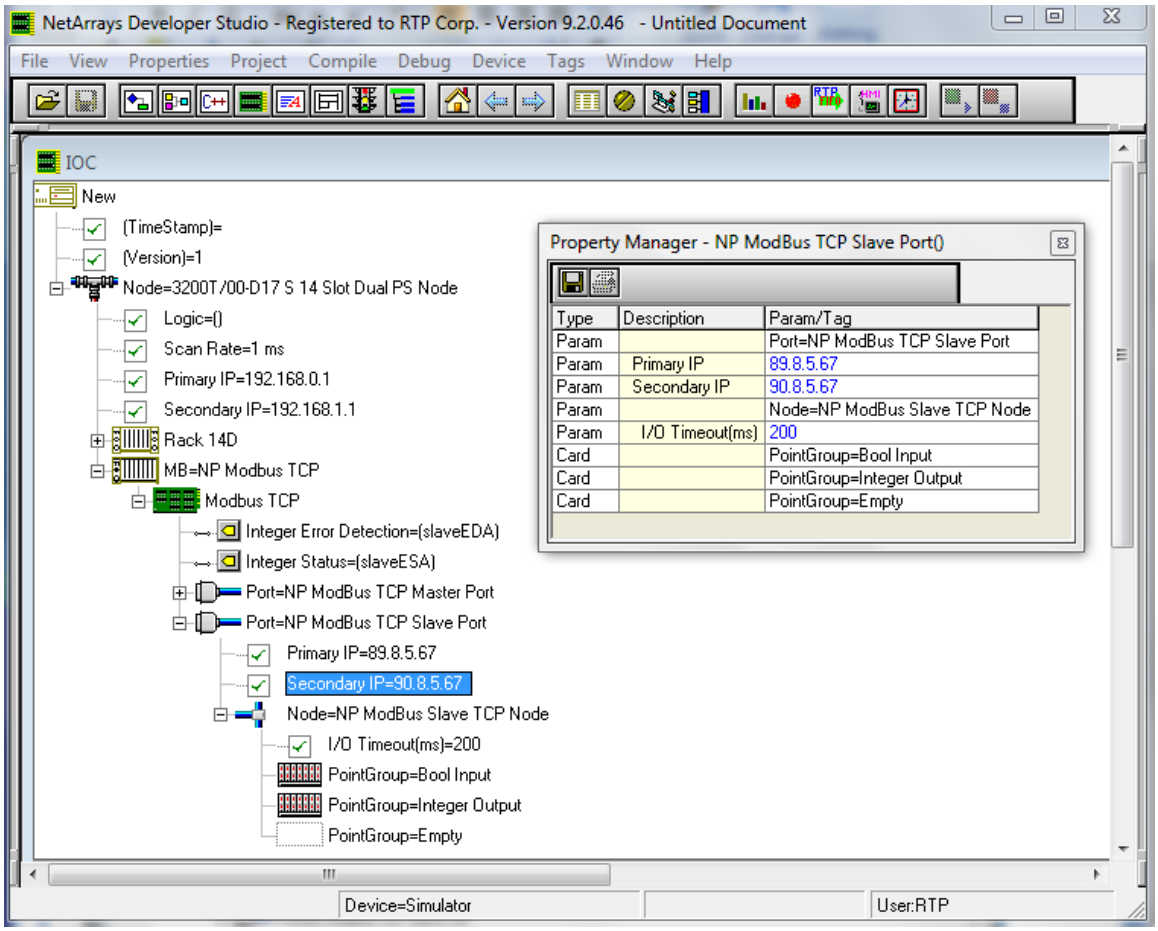
I/O Configuration Form I/O Configuration Toolbox



On the following pages you will be configuring the NP ModBus Slave TCP and Point Group properties. Note that when you enter text or a number into the **Property Manager**, it **must** be followed by **Enter**.

ModBus Slave TCP Properties

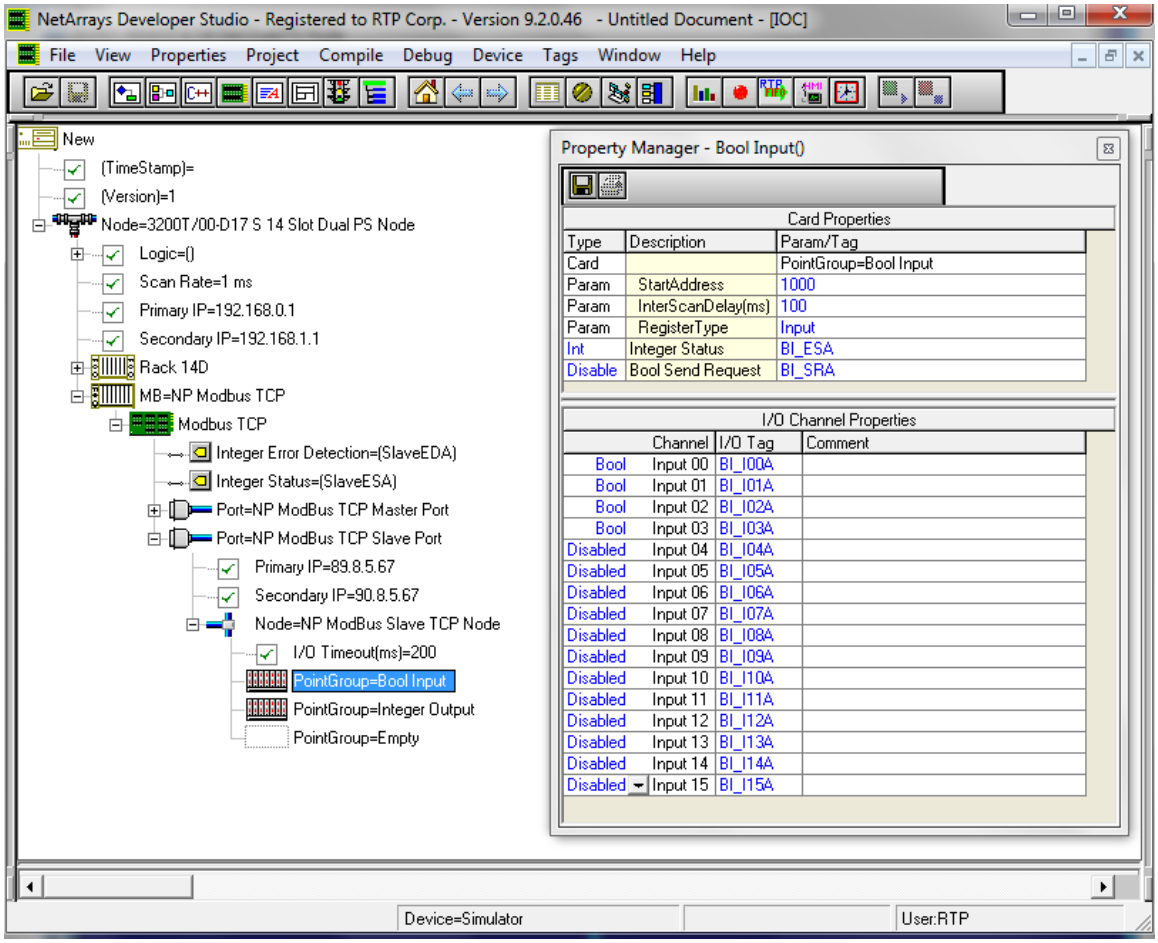
- Left click on the **"MB=NP Modbus TCP"** ⊞ to view the icon . Then, expand "Modbus TCP" by left clicking on ⊞ . Right click on Port=NP Modbus TCP slave port and click on properties to display its **Property Manager**. Expand the window as required to edit all applicable parameters.
- The **Tag** assigned to **Integer Error Detection** is **SlaveEDA**.
- The **Tag** assigned to **Integer Status** is **SlaveESA**.
- An **IP** address must be entered so that the ModBus Slave TCP Port can communicate with the ModBus Master TCP Port. Enter **89.8.5.67** for the Primary IP **(**the same as the NP ModBus TCP Master port Address) and **90.8.5.67** for the Secondary IP.
- Specify an **I/O Timeout(ms)** value of 200 milliseconds between messages retries.
- Close the **Property Manager** display.



ModBus Slave Bool Input Point Group

This Point Group will be reading four Bool inputs from the Coils buffer starting at address 1000.

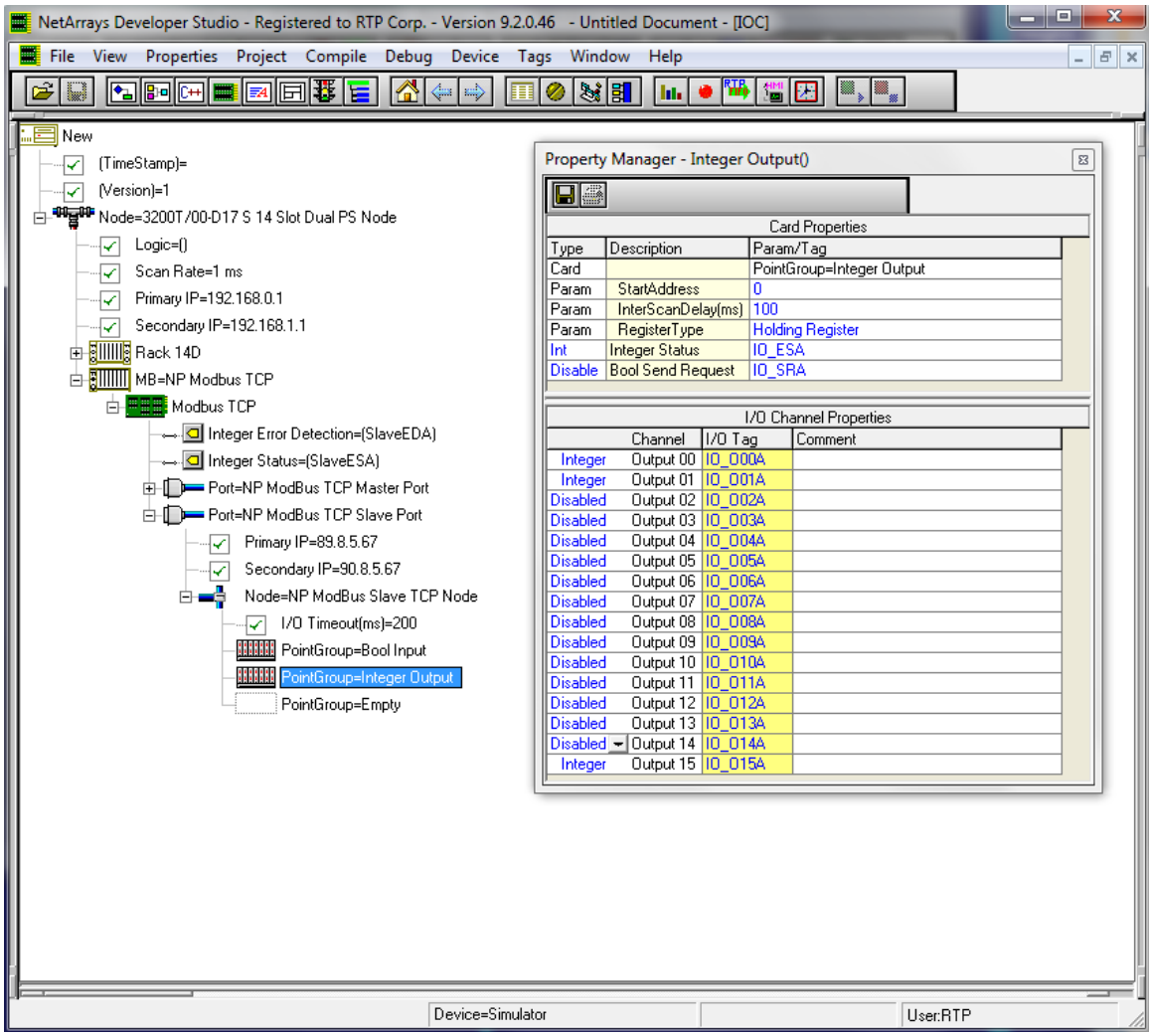
- Select ModBus Slave Input Point Group and right click to display its **Property Manager**. Select **Properties**.
- A **StartAddress** of **1000** is entered for the starting point for this Point Group's data in the ModBus Slave Data Image.
- An **InterScan Delay** of **100** milliseconds is specified. This is the default value.
- The **Register Type** of this point group is "**Coil**". We will be reading Coils from the ModBus Master.
- The Tag assigned to the **Integer Status** is "**BI_ESA**".
- **Bool Send Request Enabled** is **Disabled**. This is the default value.
- The **I/O Tags** assigned are "**BI_I00A**", "**BI_I01A**", "**BI_I02A**", and "**BI_I03A**".
- **Channel** Input 04 through Input 15 are disabled by selecting "**Disabled**".
- Close the **Property Manager** display.



ModBus Slave Integer Output Point Group

This Point Group will be writing three Integer outputs into the Input Registers starting at address 0.

- Select ModBus Integer Point Group and right click to display its **Property Manager**. Select **Properties**.
- A **StartAddress** of **0** is specified for the starting point for this Point Group's data in the ModBus Slave Data Image.
- An **InterScan Delay** of **100** milliseconds is specified. This is the default value.
- The **Register Type** of this point group is "**Holding Register**". We will be writing data to the Input Registers.
- The Tag assigned to the **Integer Status** is "**IO_ESA**".
- **Bool Send Request Enabled** is **Disabled**. This is the default value.
- The **I/O Tags** assigned are "**IO_O00A**", "**IO_O01A**", and "**IO_O15A**".
- **Channel** Output 02 through Output 14 are disabled by selecting "**Disabled**".
- Close the **Property Manager** display.



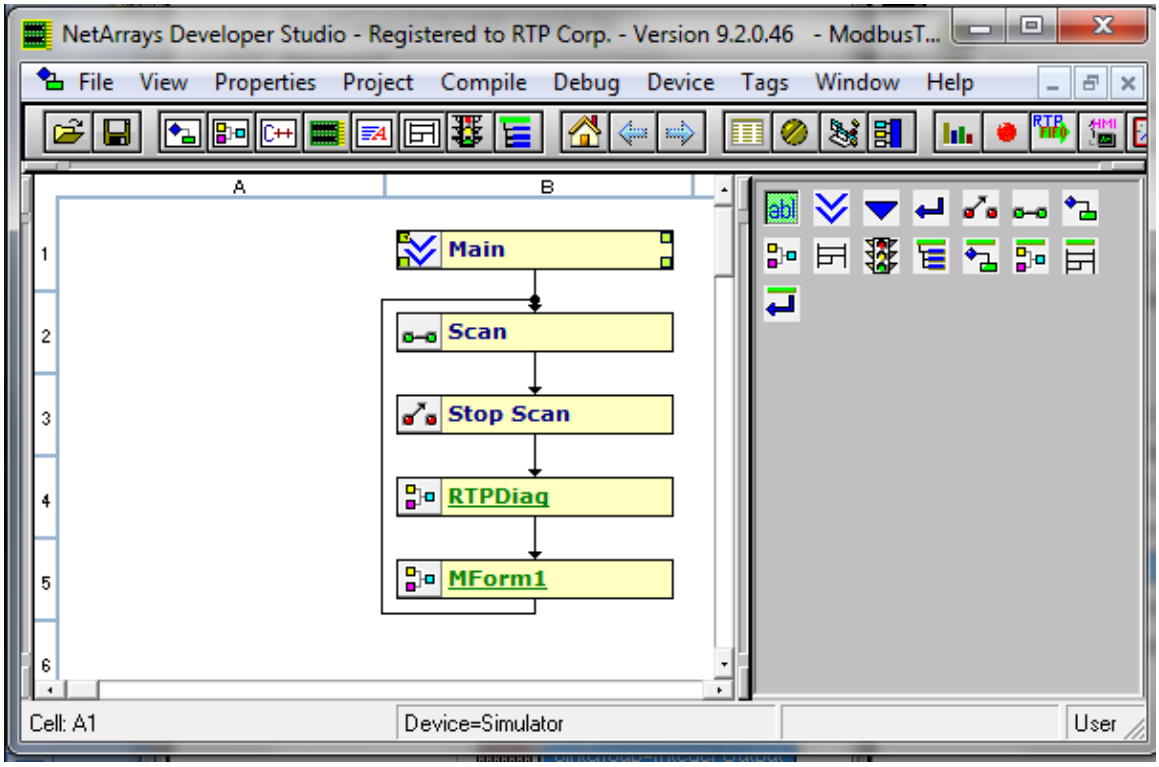
Save the Project

- Before proceeding, save the project. From the NetArrays **File** menu select **Save New Project As…** type the project name in **File name:** and click **Save** (We used "ModbusTCPSlave.dbn").

NetArrays Project Programs

You have completed the I/O configuration of the ModBus Master TCP project and the ModBus Slave TCP project. The next step is to add some logic to the NetArrays projects program to test the Modbus TCP operation.

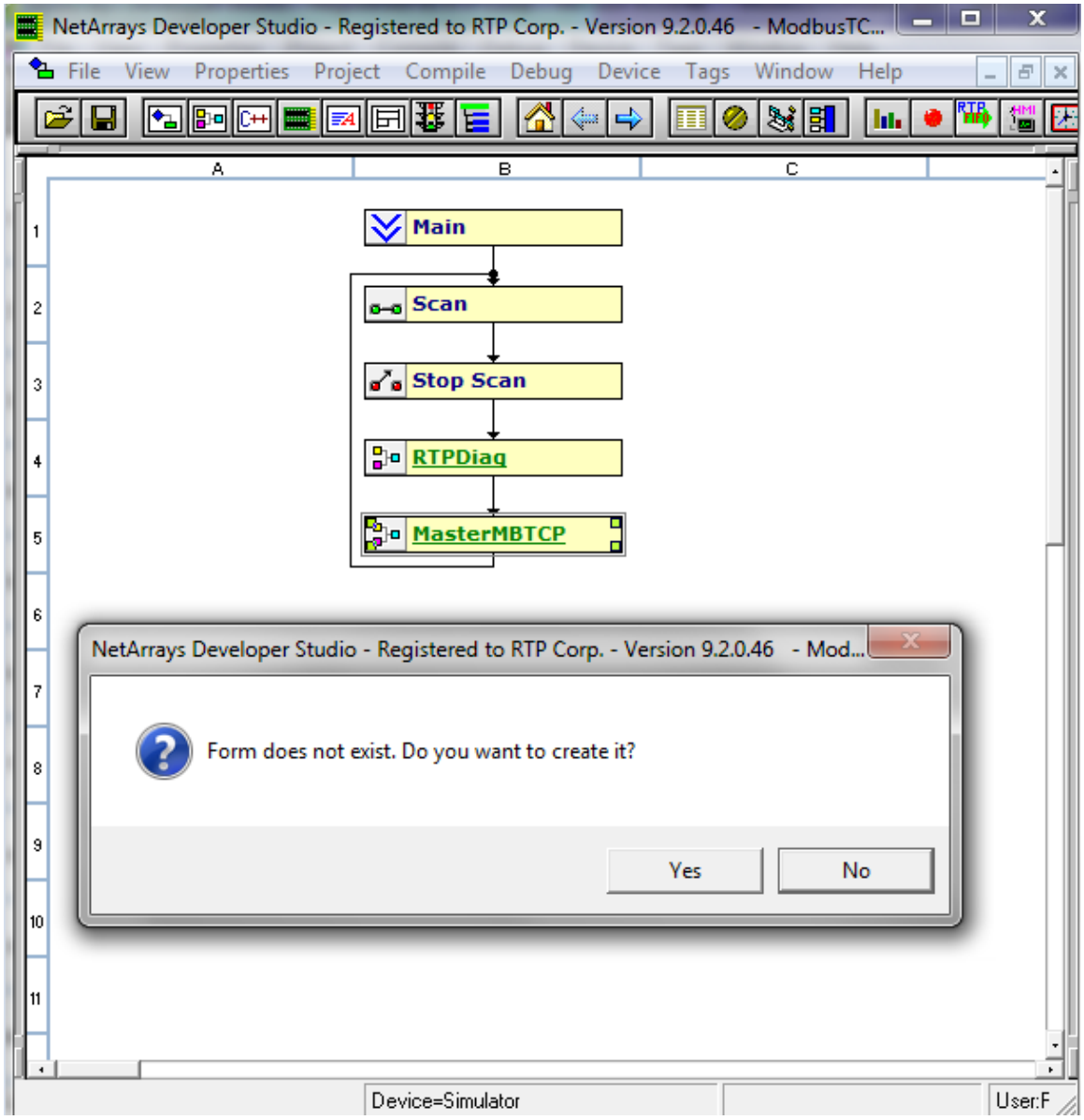
In ModbusTCPMaster.dbn project, click on the icon.



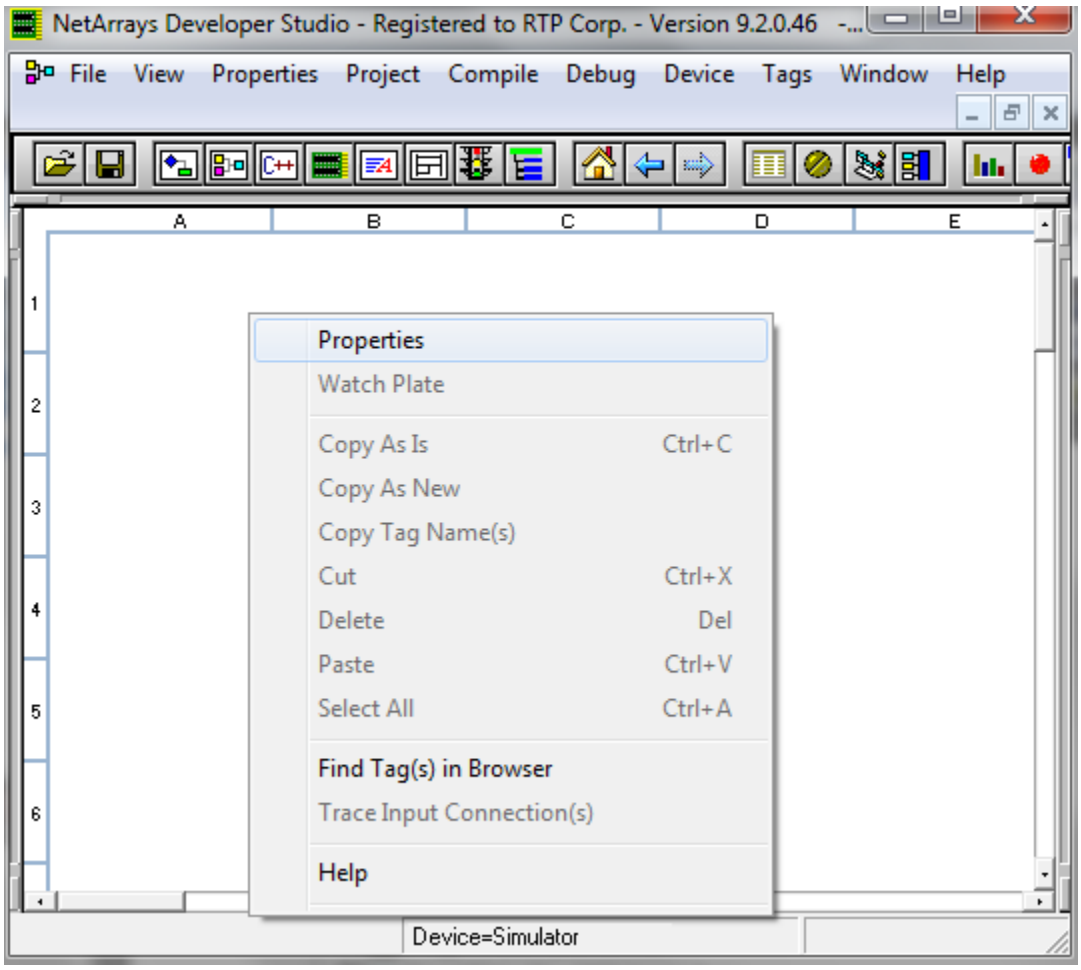
- Right click on the **MForm1** and select **Properties** from the pop-up menu. In the Property Manager display, type in the Tag name **MasterMBTCP**, followed by **Enter**. Close the Property Manager display

Construct the MasterMBTCP Form

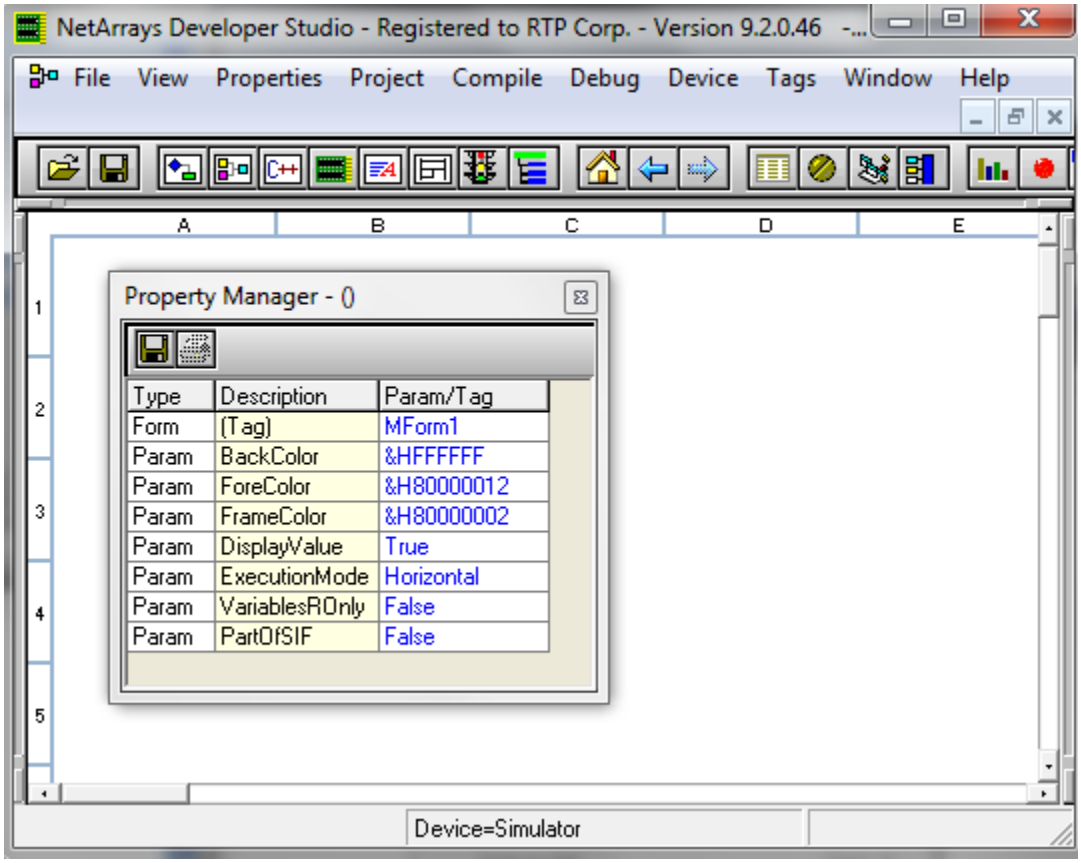
- Double-click on the **MasterMBTCP Form** to display the module form. When prompted, answer **Yes** to display the Module Form.



Right click in a blank area of the page and select **Properties**.



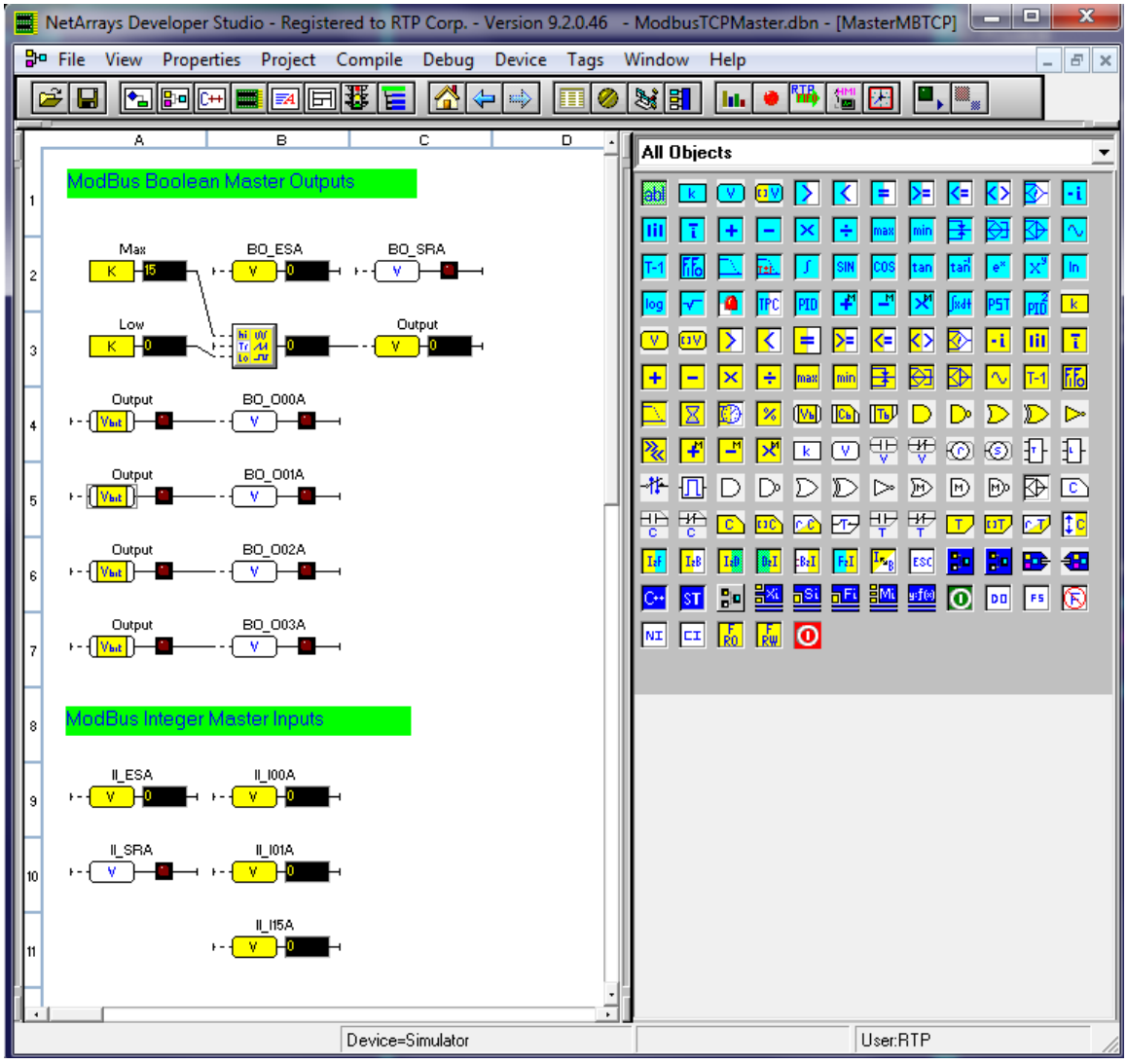
- Set "**PartOfSIF**" and "**VariablesROnly**" **False**. Close the **Property Manager** Window. This will allow placing the Non-SIL MODBUS variables on this MForm.



- Place the objects into the Module Form and connect the inputs to the outputs as shown in the following figures. Note: When entering a Tag name, you can either type the entire name or start typing the name and select the name from the available existing Tags. All of the I/O Tags on the 2 module forms will already exist as a function of the Auto Tag Generator. The Tag Prefix will be Master for BO_,and II_.

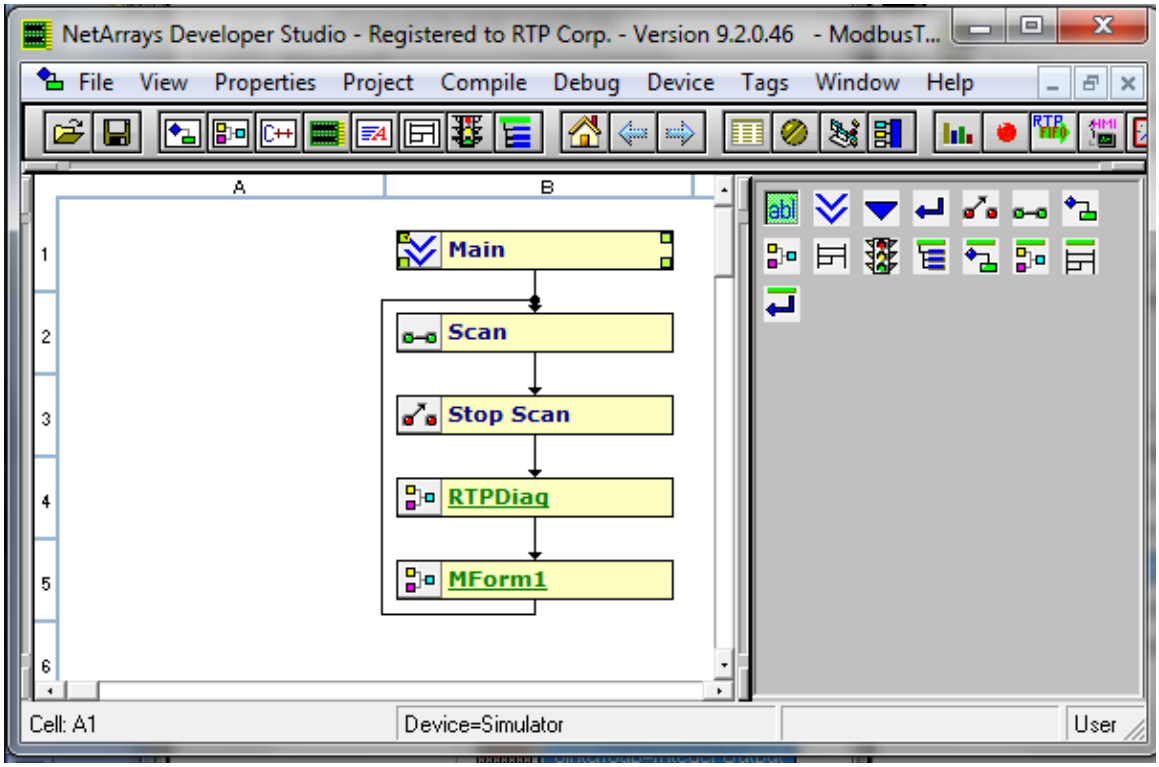
- Add variables to the **MasterMBTCP** MForm as shown below. These variables will drive the ModBus source variables.

Note: comments have been added to the MForms for clarification. They are not needed for program operation.


NetArrays Developer Studio - Registered to RTP Corp. - Version 9.2.0.46 - ModbusTCPMaster.dbn - [MasterMBTCP]
File View Properties Project Compile Debug Device Tags Window Help
ModBus Boolean Master Outputs
Max
BO_ESA
BO_SRA
Low
Output
Output
BO_O00A
Output
BO_O01A
Output
BO_O02A
Output
BO_O03A
ModBus Integer Master Inputs
II_ESA
II_I00A
II_SRA
II_I01A
II_I15A
All Objects
Device=Simulator
User:RTP

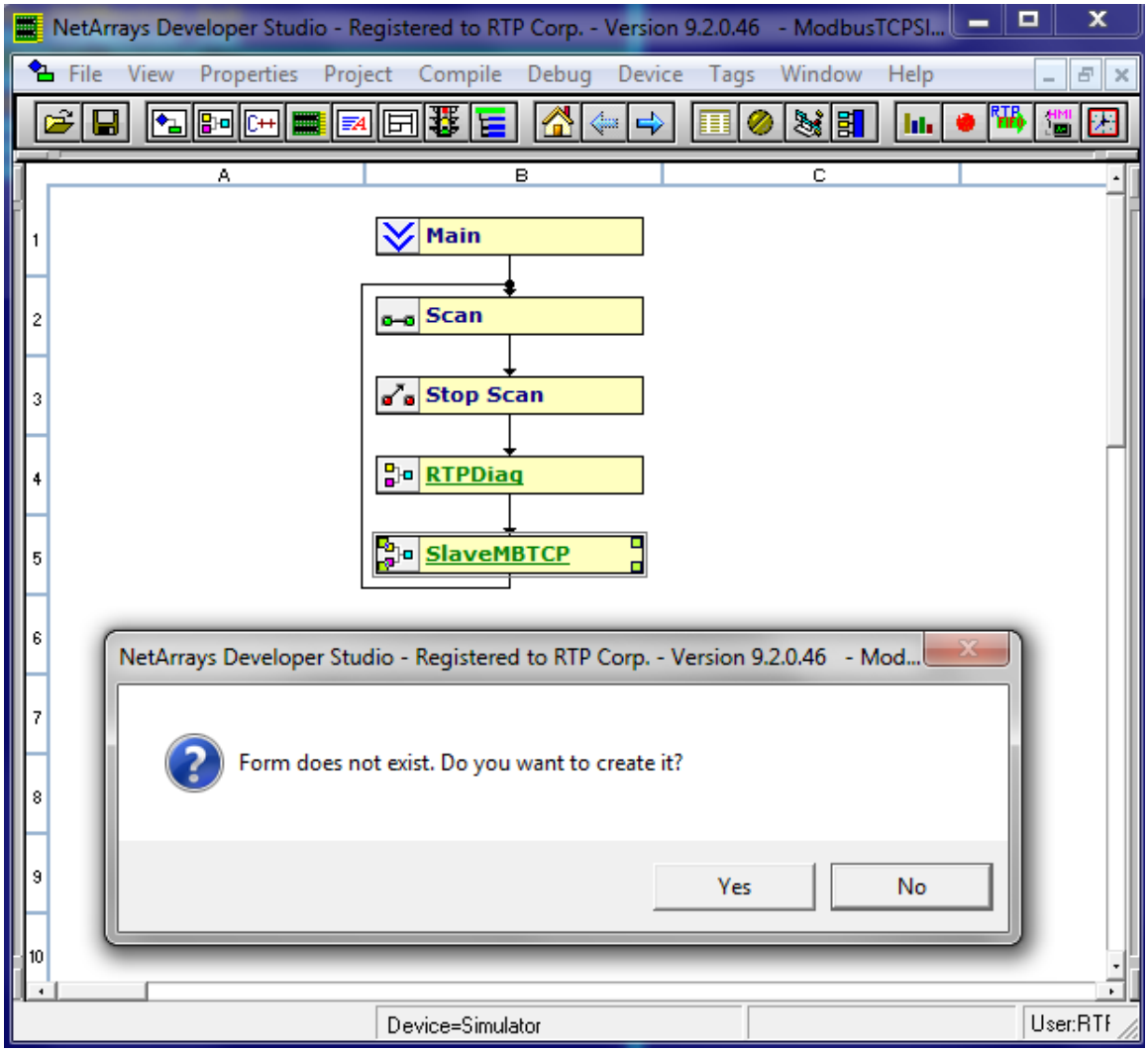
Construct the ModBus Module Form in Slave TCP Project.

- In ModbusTCPSlave.dbn project, return to the Main Form by clicking on the button in the Main Toolbar.

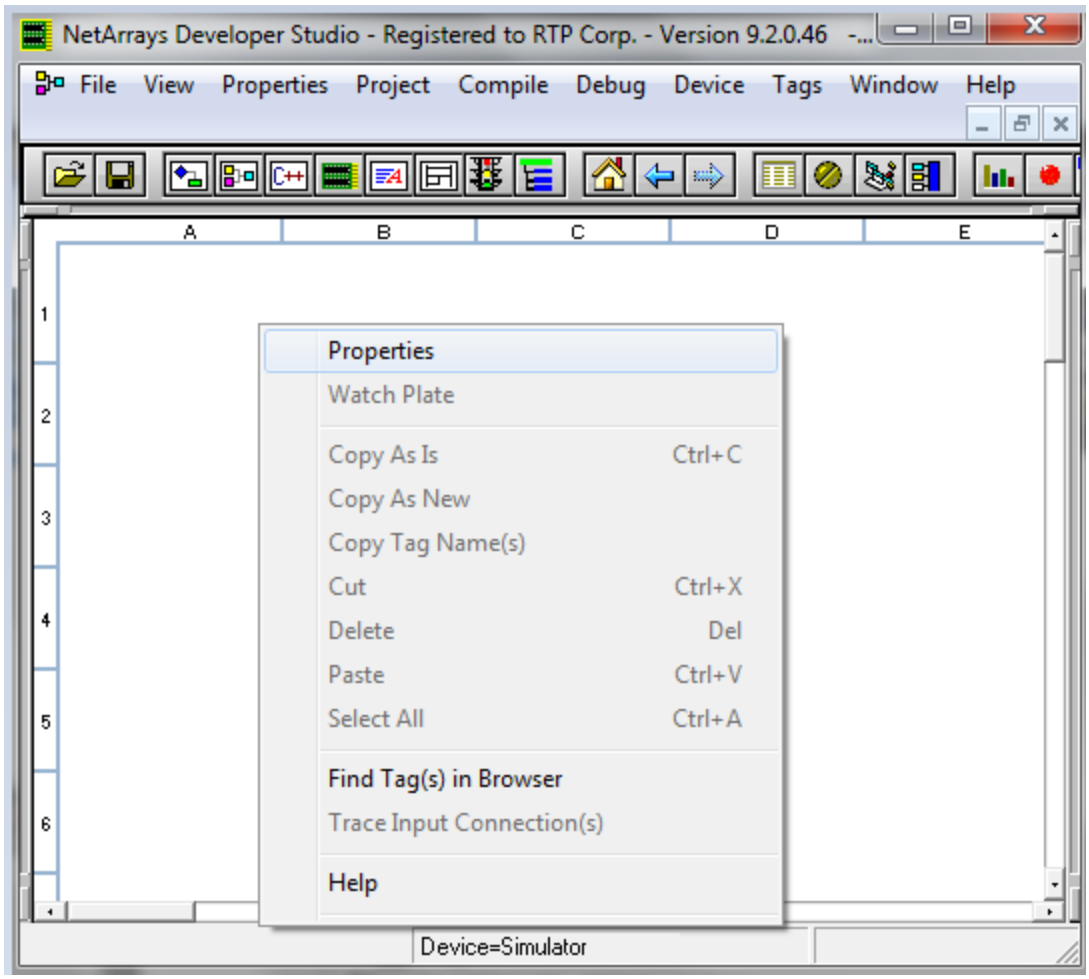


- Right click on the **MForm1** and select **Properties** from the pop-up menu. In the Property Manager display, type in the Tag name **SlaveMBTCP**, followed by **Enter**. Close the Property Manager display

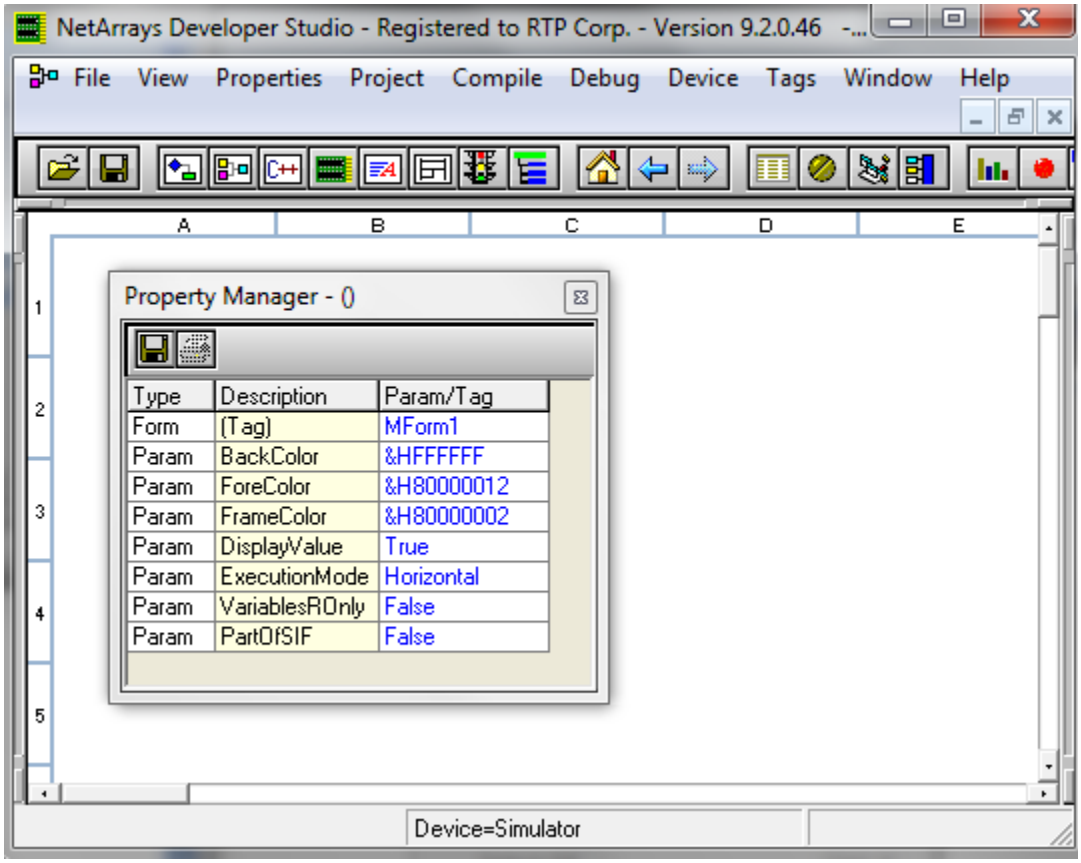
- Double-click on the **SlaveMBTCP**, object to create a new Module Form. When prompted, answer **Yes** to display the Module Form.



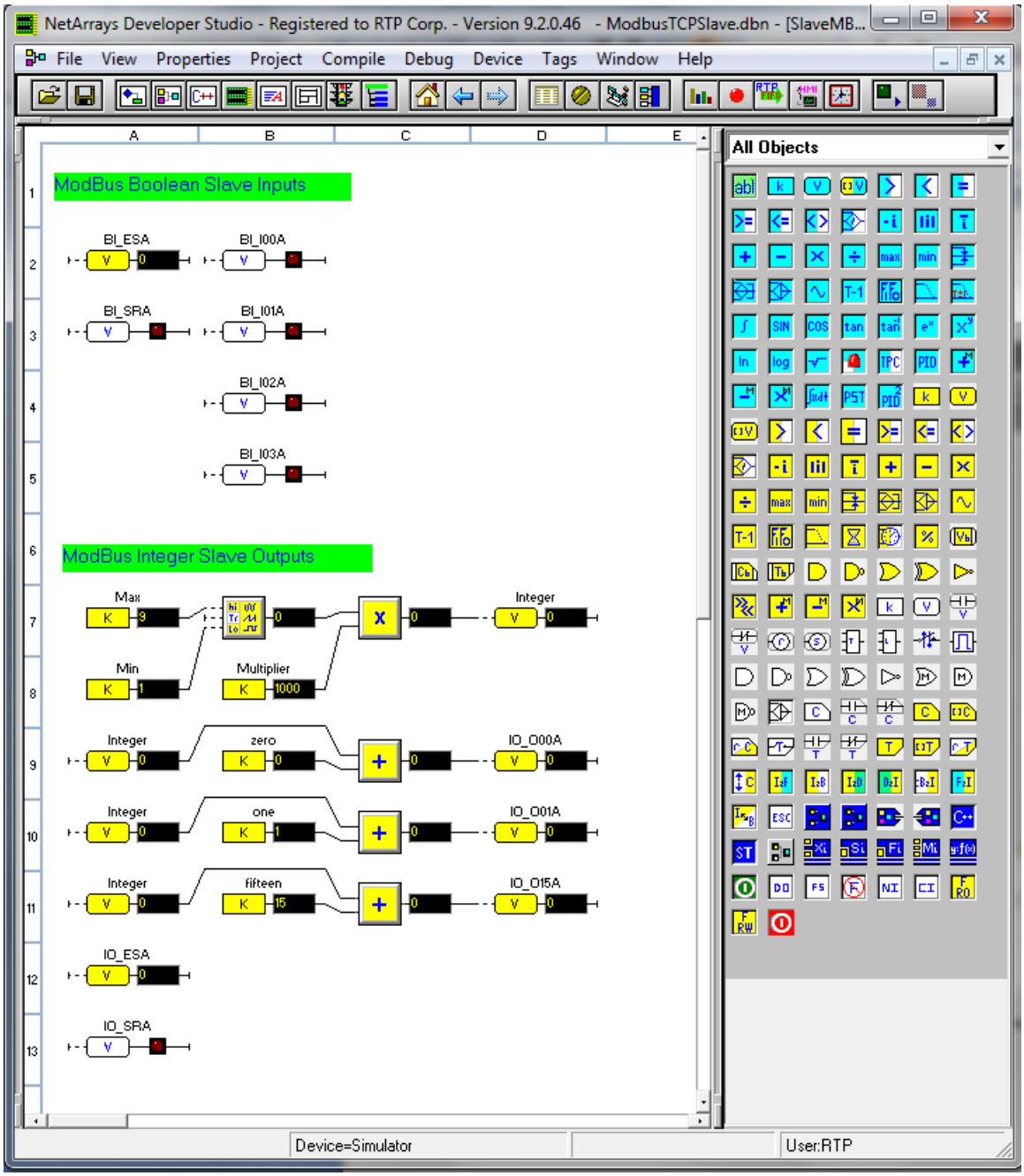
Right click in a blank area of the page and select **Properties**.



- Set "**PartOfSIF**" and "**VariablesROnly**" **False**. Close the **Property Manager** Window. This will allow placing the Non-SIL MODBUS variables on this MForm.


NetArrays Developer Studio - Registered to RTP Corp. - Version 9.2.0.46
File View Properties Project Compile Debug Device Tags Window Help
A B C D E
1 2 3 4 5
Property Manager - ()
Type Description Param/Tag
Form (Tag) MForm1
Param BackColor &HFFFFFF
Param ForeColor &H80000012
Param FrameColor &H80000002
Param DisplayValue True
Param ExecutionMode Horizontal
Param VariablesROnly False
Param PartOfSIF False
Device=Simulator

- Add variables to the **SlaveMBTCP** as shown below. These variables will show ModBus inputs, ModBus outputs and ModBus status.

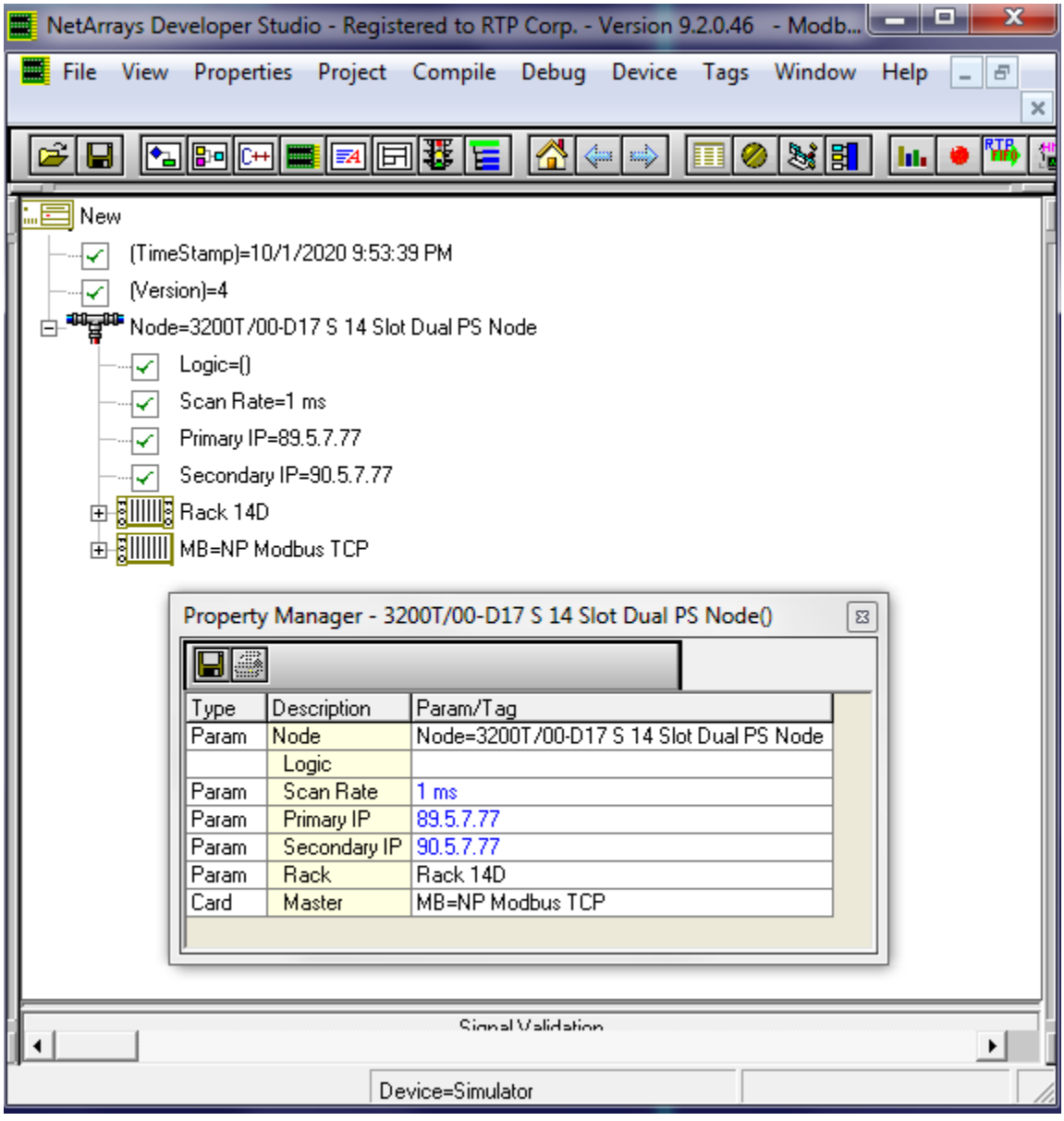


The following addresses are going to be used for the two nodes in this example:

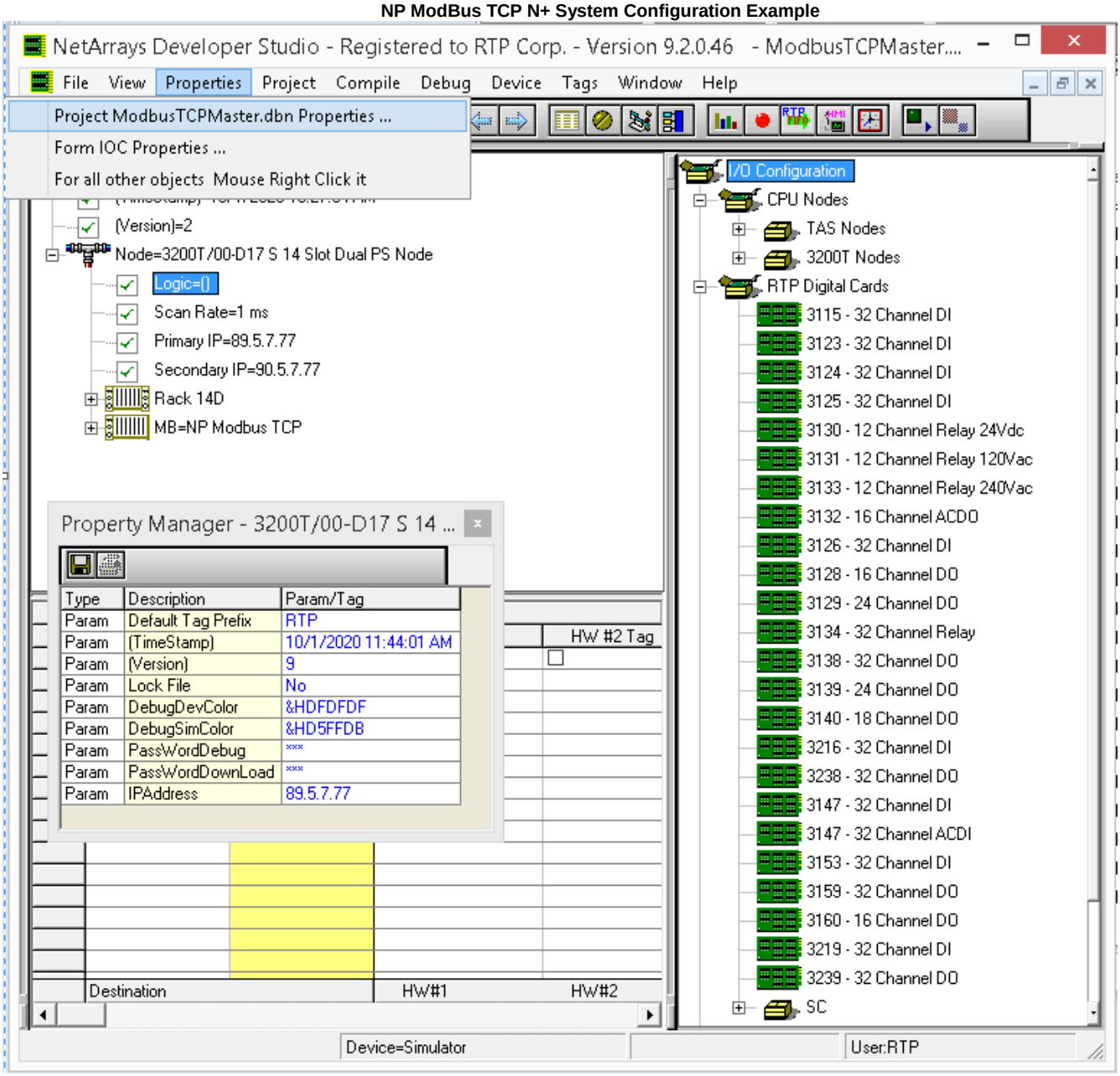
Device Name	Type	IP Address1	IP Address 2
MBTCPMaster	Single	89.5.7.77	90.5.8.77
MBTCSlave	Single	89.5.8.78	90.5.8.78

Enter Node IP Address and Save File for the Master ModBus TCP Node.

- Left Click on **Node=3200T/00-D17 S 14 Slot Dual PS Node,** select **Properties**, and enter the IP Addresses of your RTP3201T Node Processor (Primary IP **89.5.7.77** and Secondary IP **90.5.7.77** as shown in the picture below.)



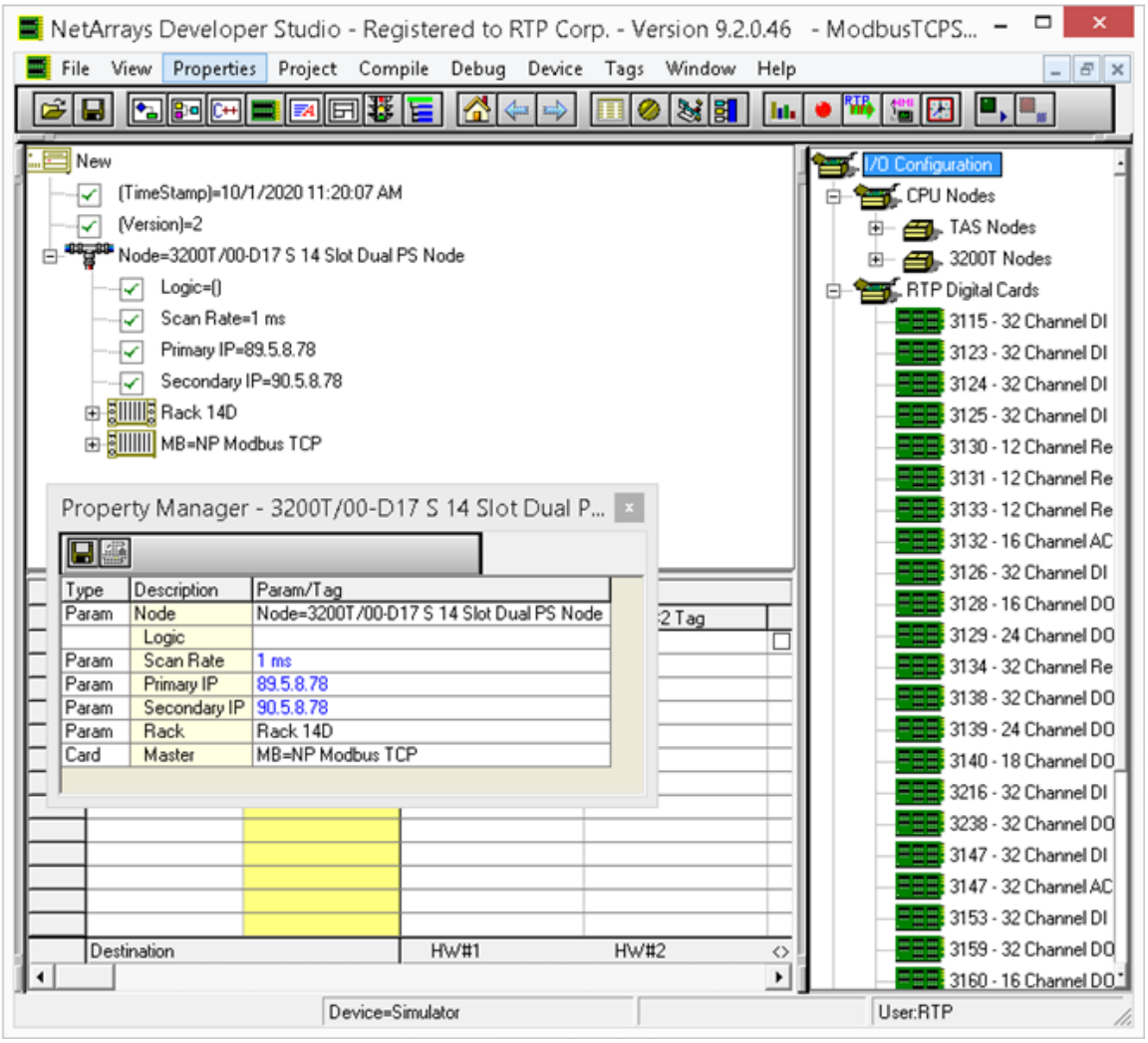
- Click on **Properties,** select **Project ModbusTCPMaster.dbn** (name of the NetArrays project) **Properties**, and enter the IP Address of your RTP3201T Node Processor (**89.5.7.77** is shown as an example) in the **IPAddress** field in the **Property Manager** window.



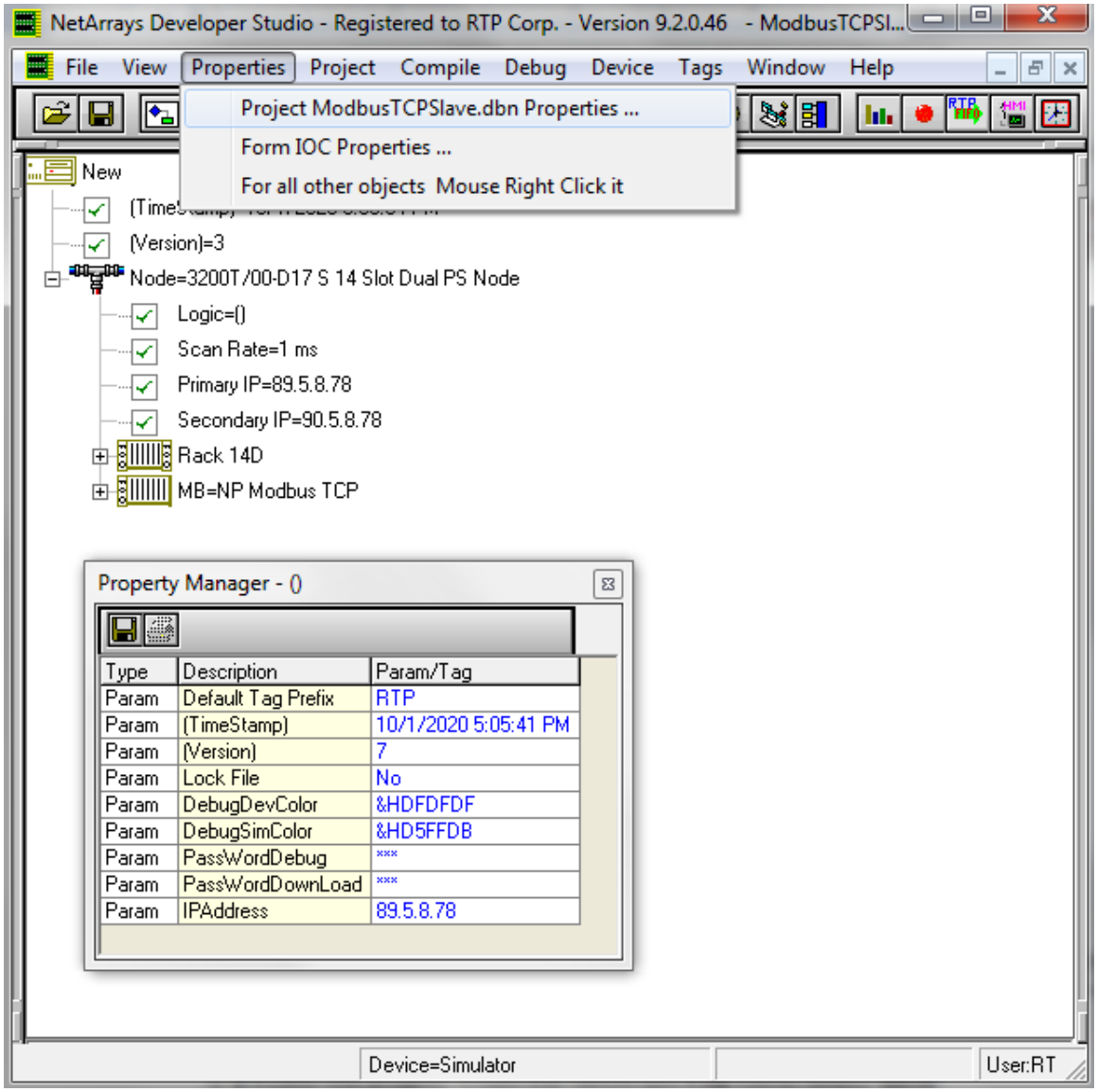
- Note that **PassWordDebug** and **PassWordDownload** are set to "**rtp**" by default. If your RTP32001T Node has different passwords, change the **Properties** to match. Then use **<u>your</u>** passwords for the download and debug steps instead of "**rtp**".
- Save the project. From the NetArrays **File** menu select **Save ModbusTCPMaster.dbn** (note that the name will be different if you saved the project file under another name).

Enter Node IP Address and Save File for the Slave ModBus TCP Node.

- Left Click on **Node=3200T/00-D17 S 14 Slot Dual PS Node,** select **Properties**, and enter the IP Addresses of your RTP3201T Node Processor (Primary IP **89.5.8.78** and Secondary IP **90.5.8.78** as shown in the picture below.) Having two IP Addresses allows the system to have a redundant port in case that communication is not possible in one of the two networks.



- Click on **Properties,** select **Project ModbusTCPSlave.dbn** (name of the NetArrays project) **Properties**, and enter the IP Address of your RTP3201T Node Processor (**89.5.8.78** is shown as an example) in the **IPAddress** field in the **Property Manager** window.

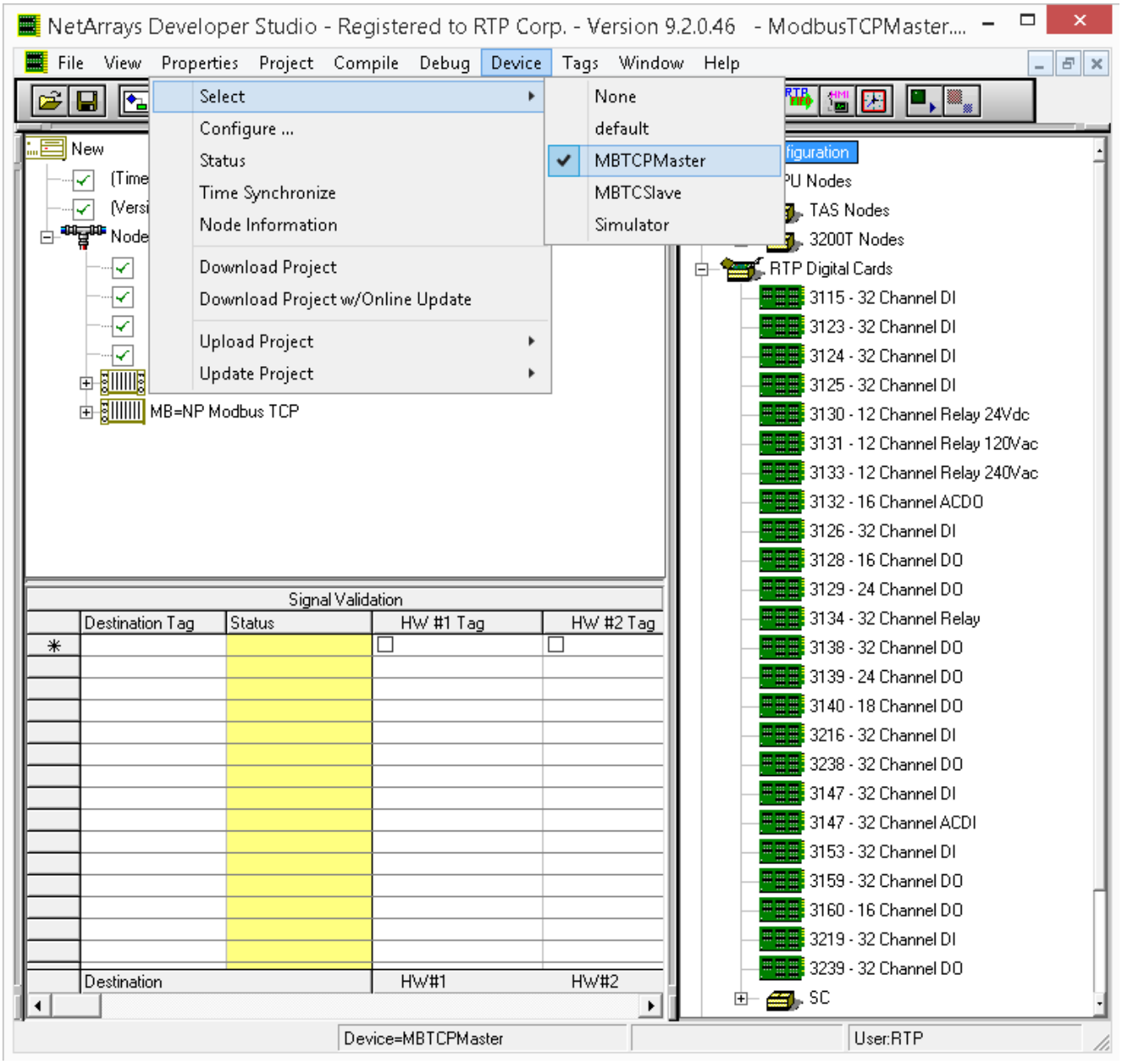


- Save the project. From the NetArrays **File** menu select **Save ModbusTCPSlave.dbn** (note that the name will be different if you saved the project file under another name).

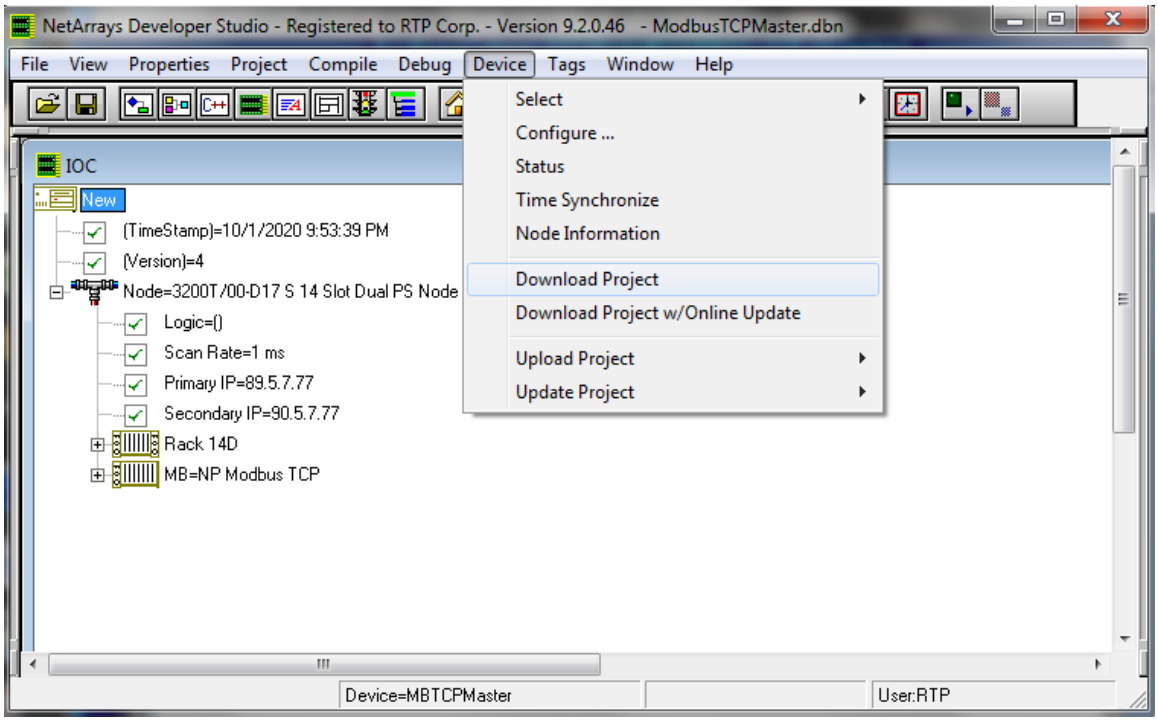
Verification

Downloading the Program to the node containing the master Modbus TCP node.

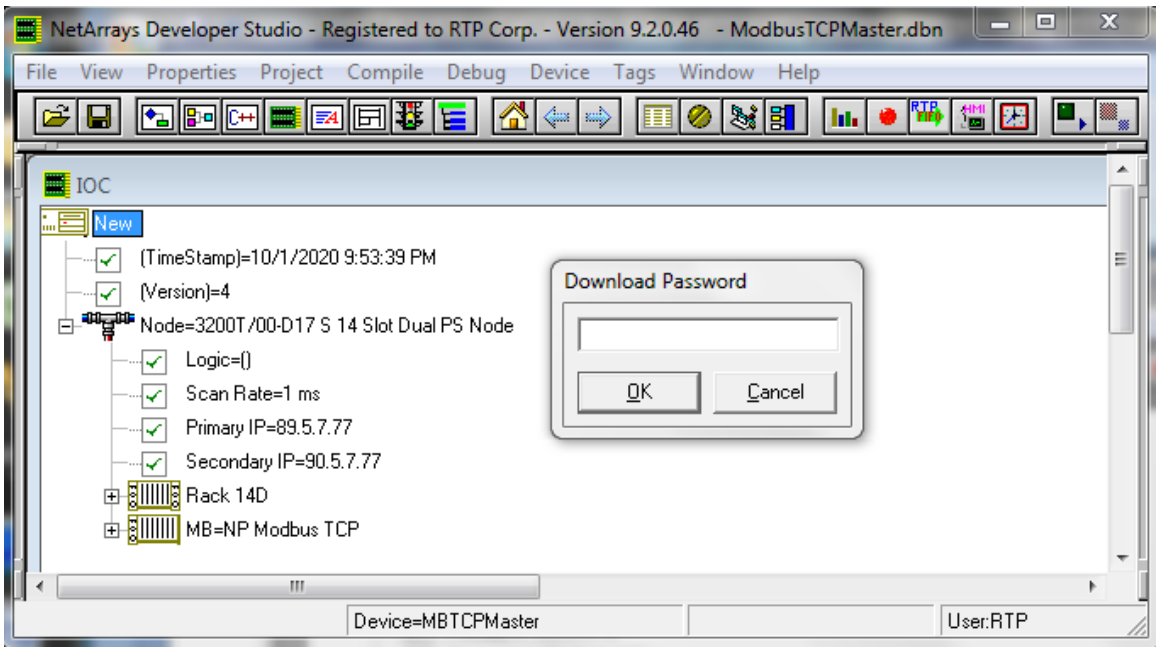
- Make sure that the Node processor is configured and Ethernet cables are connected.
- Connect power to the chassis power supply.
- In NetArrays, select the target node containing the Master ModBus TCP from the **Device ▸ Select** menu.



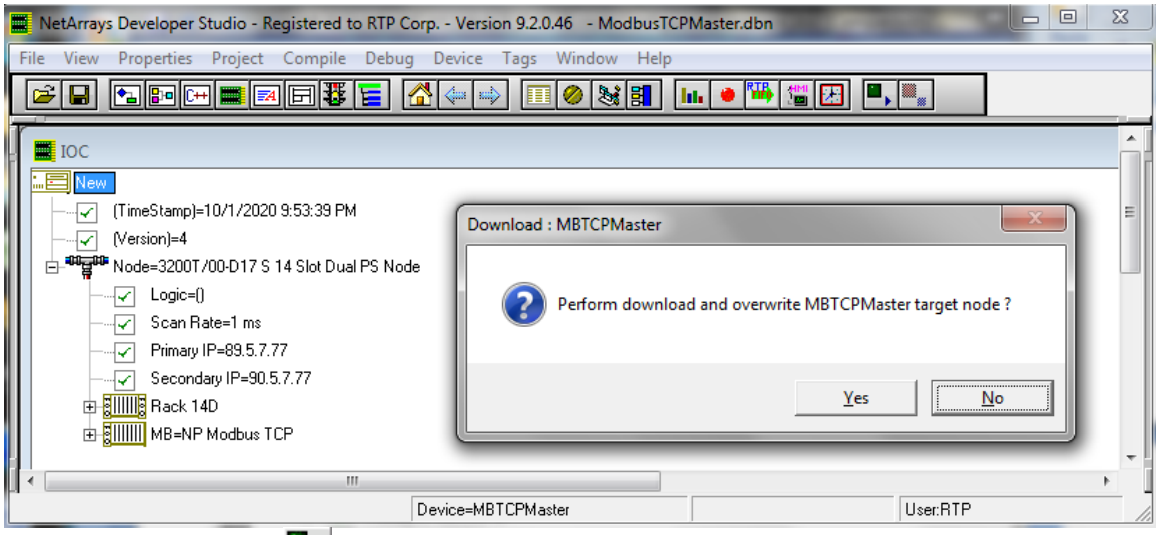
- Download the project to the Node by clicking **Device**, then **Download Project** from the **Main** Menu.



- Enter the Download Password **rtp** and select **OK**.

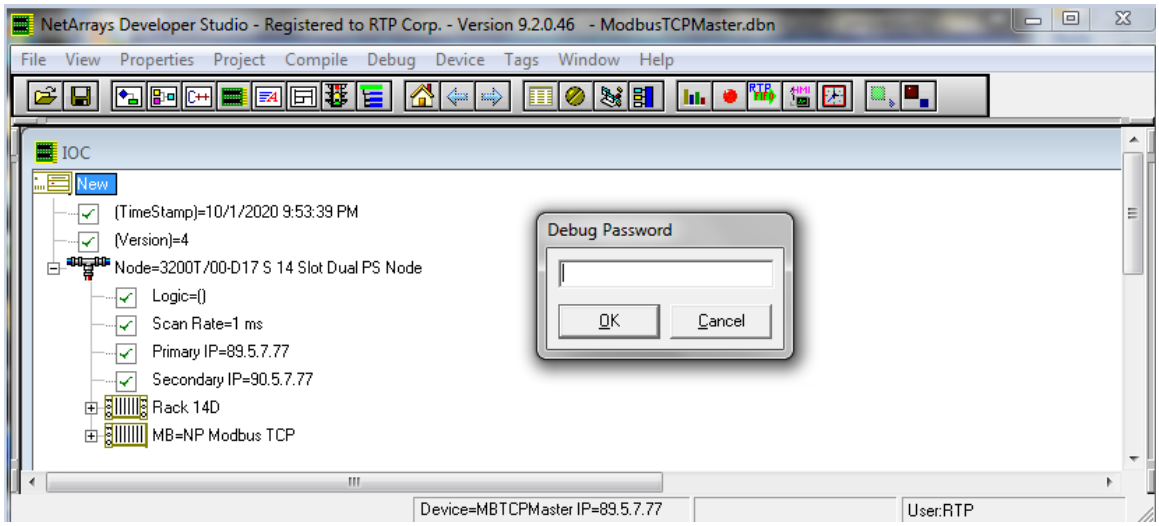


- Click "**Yes**" to overwrite to the current Target Node.



- Click on the (Run) button in the Main Toolbar to enter Debug Mode.

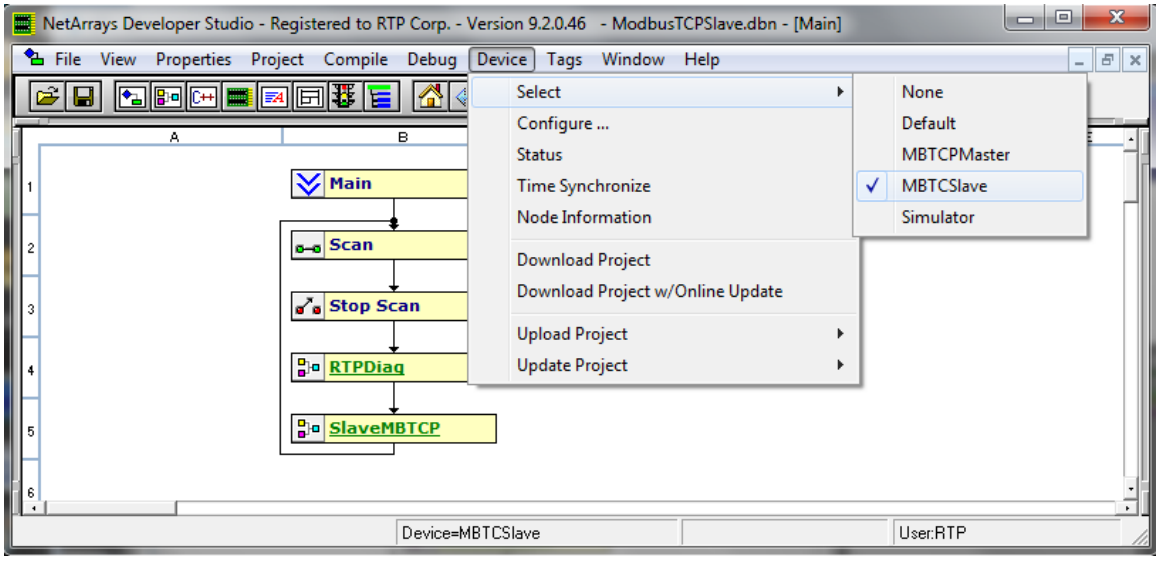
- Enter the Debug Password **rtp** and select **OK**.



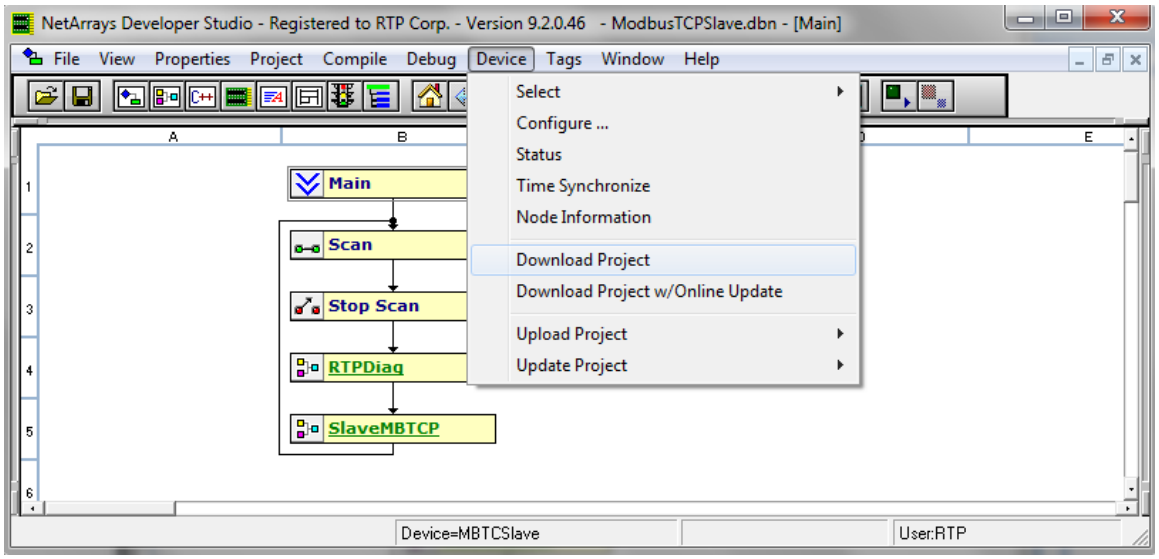
- The background color of the Module and Flow Chart forms will change to color light blue to indicate that debug is active. While in debug mode, the Run button is disabled and the End button is enabled.

Downloading the Program to the node containing the slave Modbus TCP node.

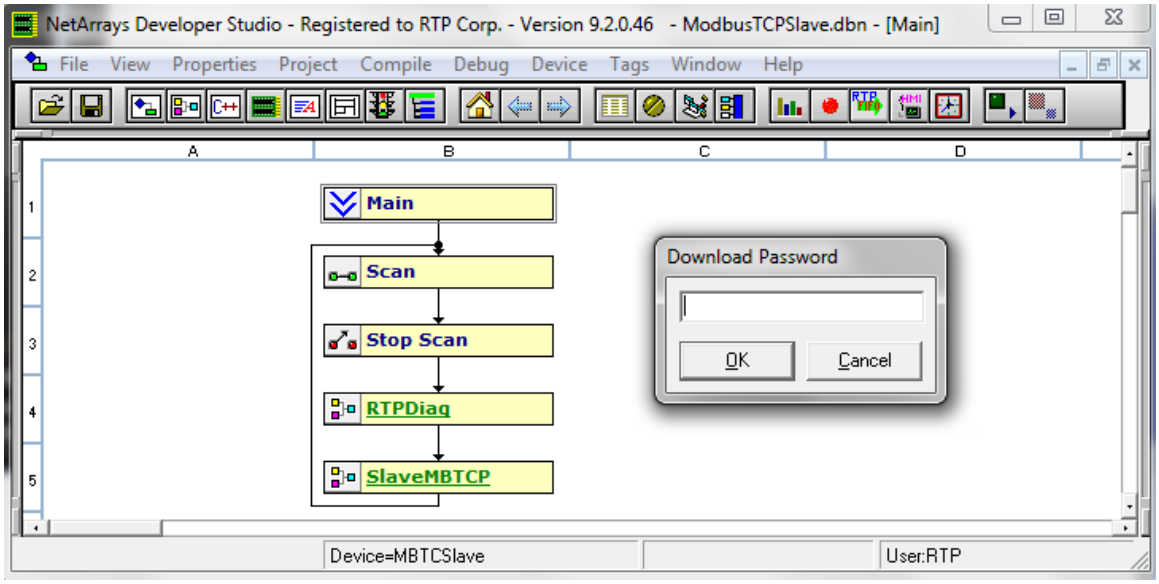
- Make sure that the Node is configured and Ethernet cables are connected.
- Connect power to the chassis power supply.
- In NetArrays, select the target node containing the Slave ModBus TCP from the **Device ▸ Select** menu.



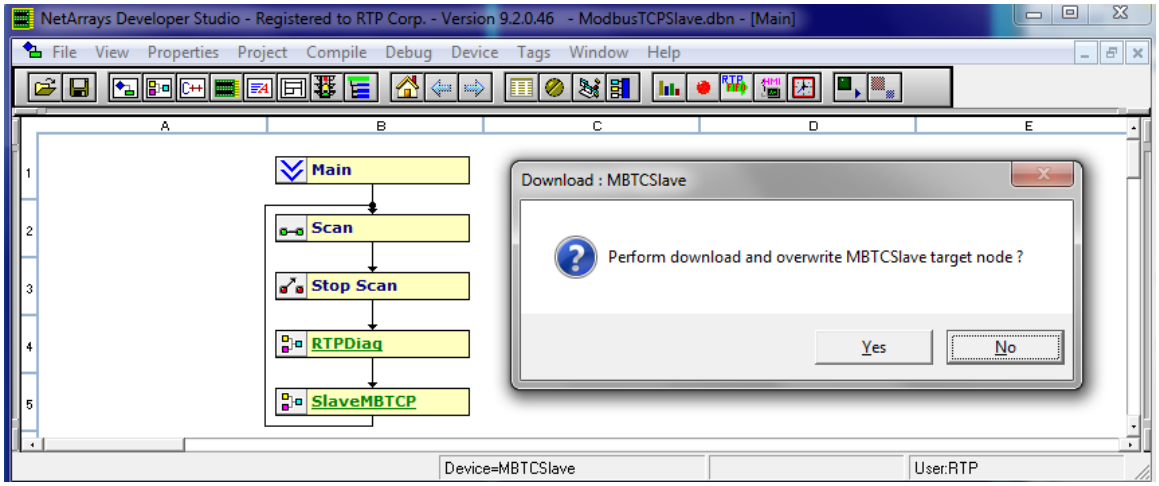
- Download the project to the Node by clicking **Device**, then **Download Project** from the **Main** Menu.



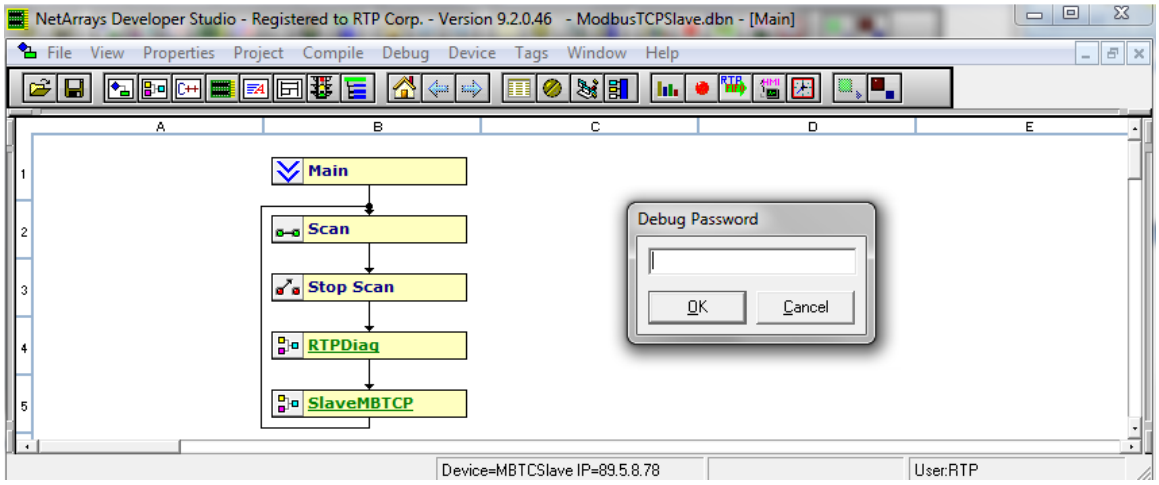
- Enter the Download Password **rtp** and select **OK**.



- Click "**Yes**" to overwrite to the current Target Node.



- Click on the (Run) button in the Main Toolbar to enter Debug Mode.
- Enter the Debug Password **rtp** and select **OK**.



Verify Module Forms: Master and Slave

- In the Project **ModbusTCPMaster.dbn**, return to the Main Form of this project by clicking on the button in the Main Toolbar.
- double-click on the **MasterMBTCP** object to open the Module Form.
- Observe that the ModBus card and Point Group status variables equal zero.

Observe that the values from the Bool Output Point Group (BO) and Integer Input Point Group (II) are changing.

- In the Project **ModbusTCPSlave.dbn**, return to the Main Form of this project by clicking on the button in the Main Toolbar.
- double-click on the **SlaveMBTCP** object to open the Module Form.
- Observe that the ModBus card and Point Group status variables equal zero.

Observe that the values from the Bool Input Point Group (BI) and Integer Output Point Group (IO); are changing.

- Place the ModbusTCPMaster.dbn and ModbusTCPSlave.dbn projects side to side to compare the changing variable values.

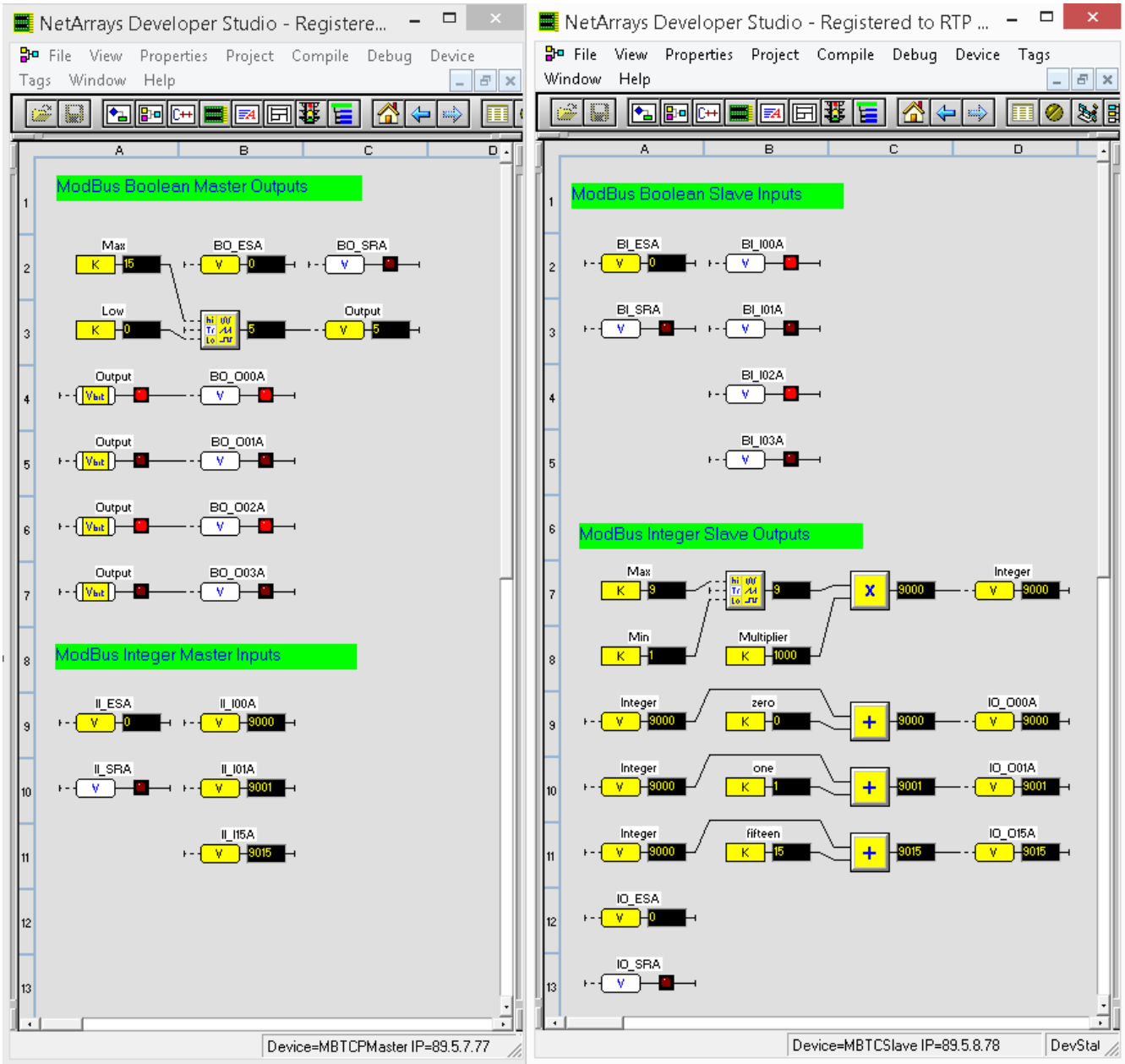
- Observe* that the values from the Bool Input Point Group (BI) are equal to the values of Bool Output Point Group (BO); the variable BI_I00_A matches the variables BO_O00_A. The same should be true for the other three sets of points.

- Observe* that the values from the Integer Input Point Group (II) are equal to the values of Integer Output Point Group (IO); the variable II_I00_A matches the variables IO_O00_A . The same should be true for the other two sets of points.

* Note: Due to transmission delays, there will be short periods of time when the output variables are being driven before the input variables are updated. However, the inputs should match the outputs most of the time.

- A typical run of the two project simultaneously is shown below.

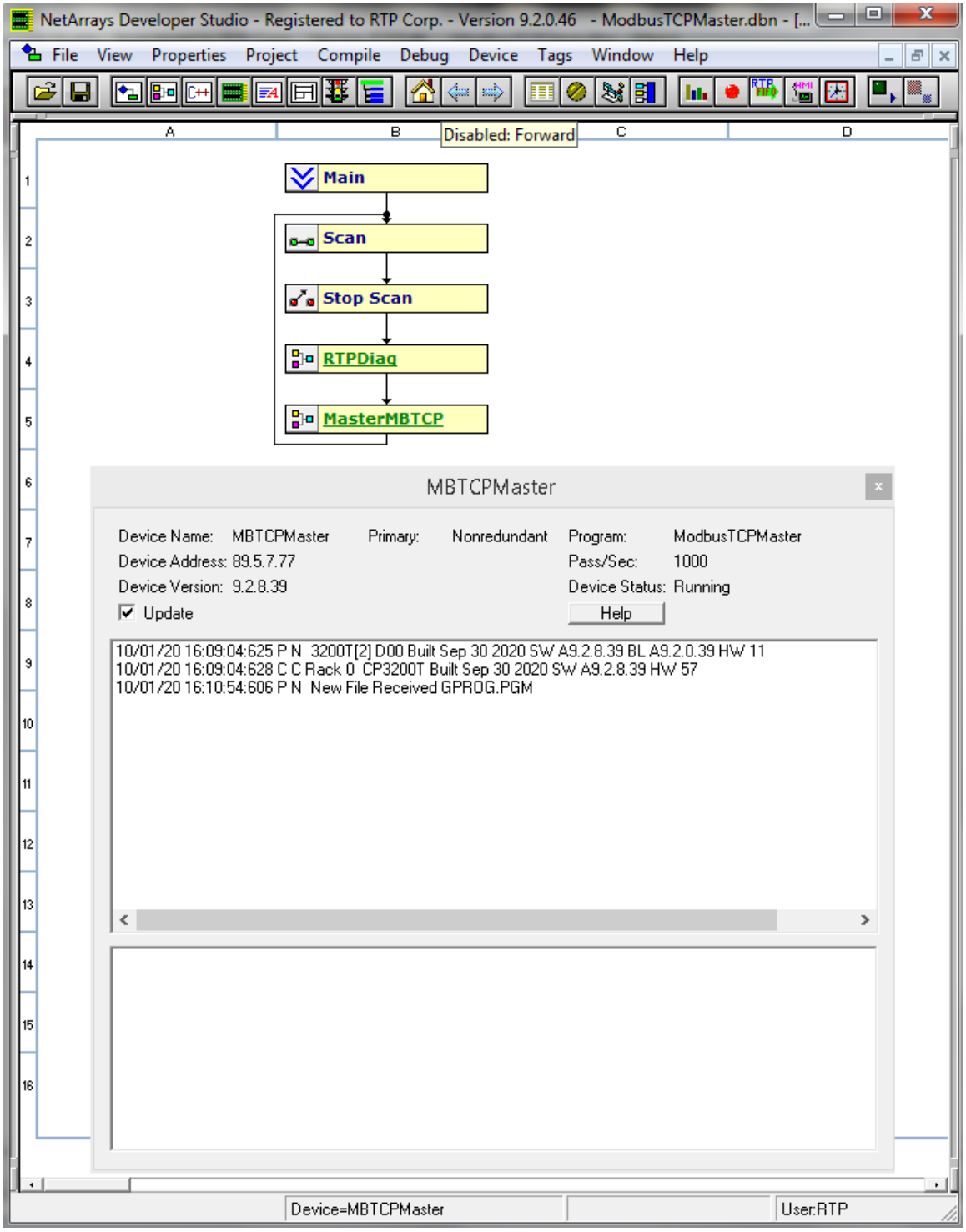
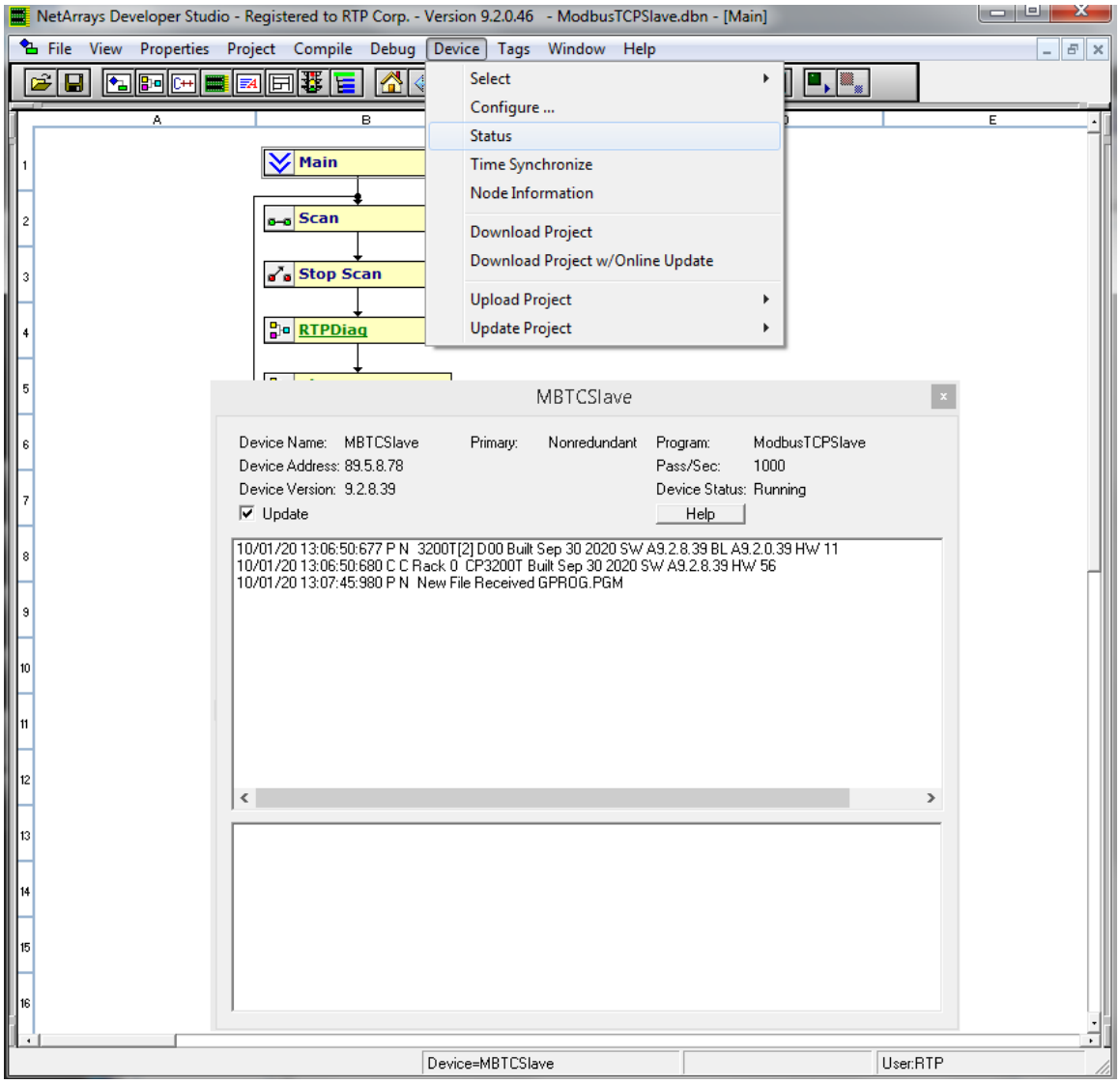
- If any inputs do not match the outputs, carefully check the configuration of the ModBus card and the Point Groups.



Status Window

The Status Window should show the RTP3201T Node's **Device Status: = "Running"**. The bottom panel should be empty to indicate that there are no I/O Errors. The top panel shows historical messages and should not be of concern.

Status of **ModbusTCPMaster.dbn** project



Status of **ModbusTCPSlave.dbn** project