ProLinx®

6102-WA-MCM to 6102-WA-MCM

ProLinx Wireless

High Speed Wireless Modbus Master/Slave Gateway

Setup Guide

ProSoft®
TECHNOLOGY

July 10, 2007

Please Read This Notice

Successful application of this module requires a reasonable working knowledge of the ProLinx Module, its connected devices, and the application in which the combination is to be used. For this reason, it is important that those responsible for implementation satisfy themselves that the combination will meet the needs of the application without exposing personnel or equipment to unsafe or inappropriate working conditions.

This manual is provided to assist the user. Every attempt has been made to assure that the information provided is accurate and a true reflection of the product's installation requirements. In order to assure a complete understanding of the operation of the product, the user should read all applicable documentation on the operation of the connected devices.

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Important Installation Instructions

Power, input and output wiring must be in accordance with Class I, Division 2 wiring methods – Article 501-4 (b) of the National Electrical Code, NFPA 70 and in accordance with the authority having jurisdiction. The following warnings must be heeded:

a   WARNING – EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIV. 2;

b   WARNING – EXPLOSION HAZARD – WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES, and

c   WARNING – EXPLOSION HAZARD – DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS.

d   "THIS DEVICE SHALL BE POWERED BY CLASS 2 OUTPUTS ONLY."

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Contents

1   Introduction

In This Chapter

This manual is intended to guide you through the setup and configuration of your ProLinx Wireless MCM Master and Slave devices.

> **Important:** This Setup Guide shows you how to set up a simple Modbus wireless network between a ProLinx Wireless MCM Master and a ProLinx Wireless MCM Slave. This guide should be used as a starting point only.
>
> In all likelihood, the requirements of your particular application will involve additional configuration and development. For detailed information on the MCM Master, MCM Slave and ProLinx Wireless protocols, please refer to the following Driver Manuals, on your ProSoft Solutions CD-ROM:

- MCM Driver Manual
- PWP Driver Manual

> For general information on installing and configuring ProLinx modules, please refer to the ProLinx Reference Guide, also on your ProSoft Solutions CD-ROM.

1.1   Before You Begin

The insert included with your modules describes a sample SINGLE-REMOTE SITE SAMPLE application. It is important that you read through the insert and perform any required steps.

Setting up the MCM network is relatively simple using the sample files included on the ProLinx Solutions CD. The flow diagram illustrates the high-level steps used to configure each module.

The default configuration file contains separate configurations for each module. You can use the sample files to get started or you can create the configuration files from scratch. The easiest way to begin is to use the sample configurations. Once you understand how they are created, setting up your network is easy.
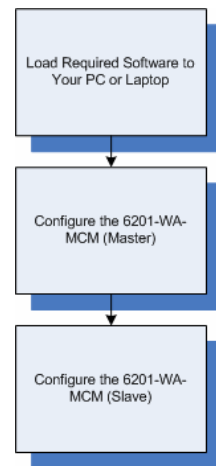
1.2   Using the Sample PCB Files

The sample application uses two 6201-WA-MCM modules to establish wireless communications between a Primary Master at a main site and a slave located at a remote site. One MCM module is configured as a master. The remote slave is attached to this master. The second module is configured as a slave at the same site as the Primary Master. The following diagram illustrates this application.
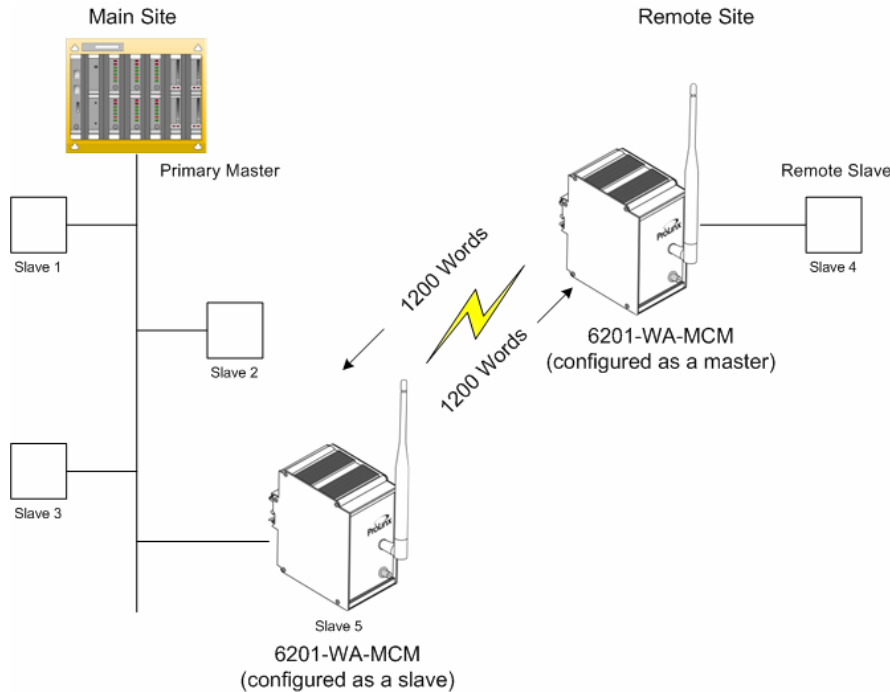
- In this example, the following is assumed:
- A third-party primary master needs to communicate with 4 slaves
- One of the slaves is remote
- The application uses two ProLinx 6201-WA-MCM modules to establish communication between the primary master and the remote slave
- The module's radio communication parameters are preset and configured to pass up to 1200 words in either direction
- One MCM (slave) is connected to the primary master
- One MCM (master) is connected to the remote slave

You can use this guide in one of two ways. First, you can use it as a learning tool to see how the PCB files make the sample application work. You can also follow along with the example and modify the configuration files as you go along.

Whether you are configuring your modules on the fly or just reading through to understand how to use the sample application, there are steps that you must perform even if you are not yet configuring any modules to suit your own application.

1.3   About Transmission Casts

The sample uses a UNICAST transmission type. UNICAST means that you set up Produce and Consume Commands that transfer or receive data between two individual modules. For example, a Produce command can specify that this data is only produced to one particular consuming module based on the consuming modules IP address.

In addition to UNICAST, you also have the flexibility of using MULTICAST (data sent to multiple modules in a MULTICAST Group List but only picked up by the module within that list with a Consume command that has the matching Exchange ID and the IP address of the module multicasting the command), and BROADCAST which sends data out to all modules. With BROADCAST, each module receives the transmission whether it be two modules or 50 modules. Each module receiving the BROADCAST has to check every message to determine if it is intended for the module or not. This can decrease performance times since the module may be checking hundreds of messages that are not intended for it.

Use MULTICAST to limit the modules that should receive the message. For example, five modules may be part of a MULTICAST Group, yet there may be 15 modules on the network. Only five of the 15 modules on the network will be configured to handle certain types of commands while the remaining 10 that are not in the MULTICAST group will ignore the messages not intended for them.

2   Load the Required Software

In This Chapter

There is one application (ProSoft Configuration Builder) and one file (PPF) that you must download from the ProLinx Solutions CD to your PC or Laptop whether you are using the sample configuration or are modifying the configuration to suit the needs of your application. This section describes how to get everything you need loaded to your PC. **You must perform these steps regardless of whether you are configuring your modules now or just reading about the sample applications.**

2.1   Install ProSoft Configuration Builder (PCB)

ProSoft Configuration Builder helps you configure the module for your application.

1   Insert the ProLinx Solutions CD into the CD-ROM drive on your PC or Laptop. The ProLinx Solutions splash page appears:

2   Select Install Configuration Tool.
3   Follow the prompts to install ProSoft Configuration Builder to your hard disk.

2.2   Copy the Sample Application File

1   From the ProLinx Solutions splash screen, click 📖 **Product Documentation**.

2   Choose **Samples → Wireless**.
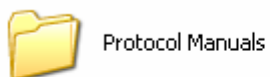
3   Copy the **PROLINX WIRELESS SAMPLE.PPF** file to a location on your PC or Laptop.

3   Configure the MCM Module as a Master

In This Chapter

Based on the sample application, the remote slave is connected to a 6201-WA-MCM configured as a master. The goal here is to begin to establish communications between the two MCM modules. The default configuration is designed to pass 1200 words between each module. Each module is configured separately.

Configuration is accomplished using ProSoft Configuration Builder (PCB). The default configuration file is **PROLINX WIRELESS SAMPLE.PPF**.

1   Start PCB.
2   Select **File → Open**.
3   Navigate to the location where you copied the **PROLINX WIRELESS SAMPLE.PPF** file and select this file.
4   Expand the **MODBUS Master to MODBUS Slave** folder.
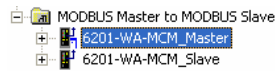
5   Expand the **6201-WA-MCM_Master** module selection.
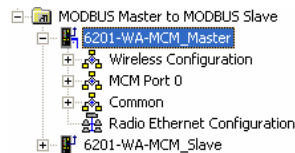
3.1   Complete the PCB Sections

3.1.1   Radio Ethernet Configuration

1   Double-click the ⛁ Radio Ethernet Configuration icon.
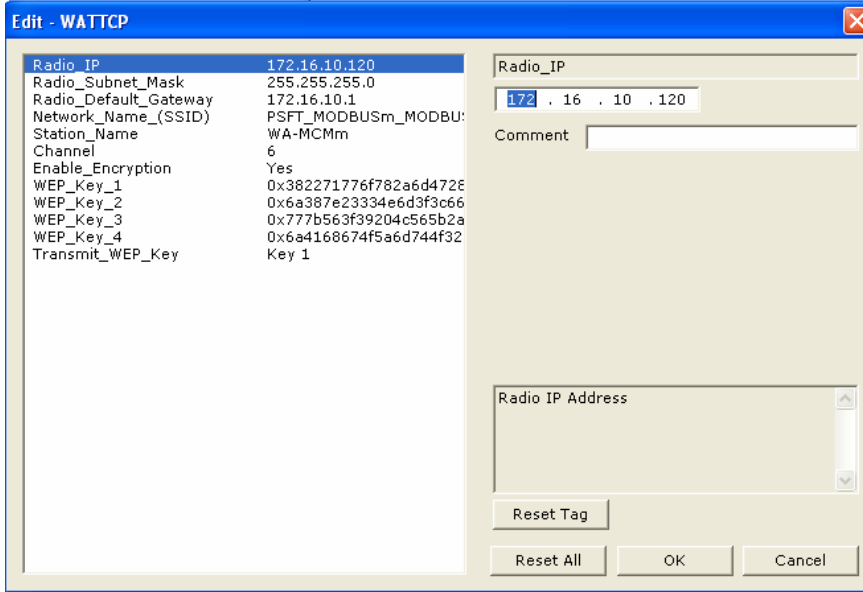
This section is identical for all 6201-WA-MCM modules shipped from the factory. The default Radio IP address is set to **172.16.10.120**. This IP address range is from 120 to 129.

Every MCM module is set up with the defaults shown in the example. You may have to modify values such as the Radio Default Gateway, the Network Name (SSID), and the Station Name to suit the needs of your network. The Station Name may be modified if using more than one MCM.

Note: All modules must have the same Subnet Mask, Default Gateway, and Network Name (SSID) if they are all located on the same network. Please refer to *Default Module Configuration Assignments* (page 35) for a list of pre-assigned ProSoft product IP addresses.

The PWP Driver Manual located on the ProLinx Solutions CD contains a description of the remaining parameters. If you are making changes, be sure to save your changes before moving on to the next step.

3.1.2   RADIO CONFIGURATION

Expand the Wireless Configuration section and double-click on the
RADIO CONFIGURATION icon.
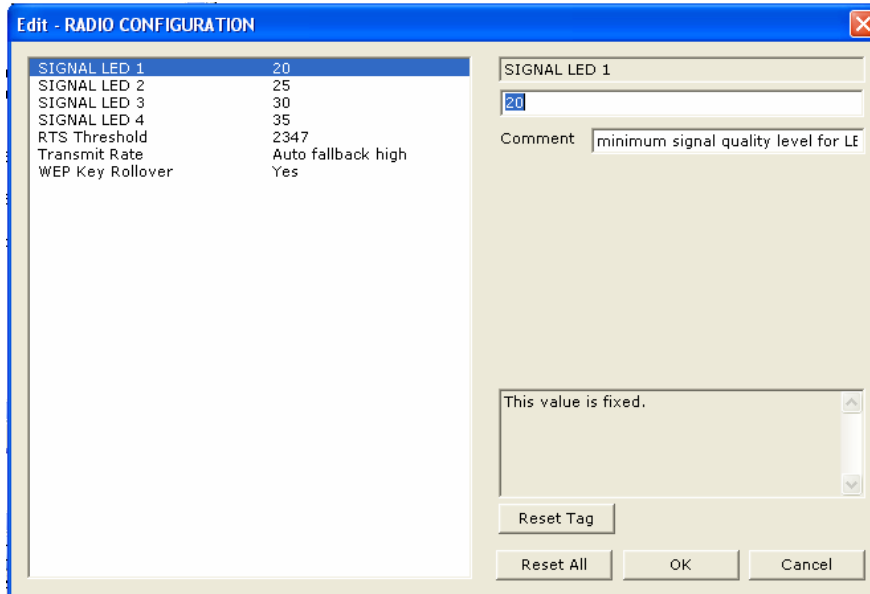
All of the values are default values and should work fine "as is". If you need to change values in the window, make sure to save your changes before moving on to the next step. As you select each parameter, the help window on the screen displays information to help you make your selections. The PWP Driver Manual located on the ProLinx Solutions CD describes each of these parameters.

3.1.3   RADIO SNTP CLIENT
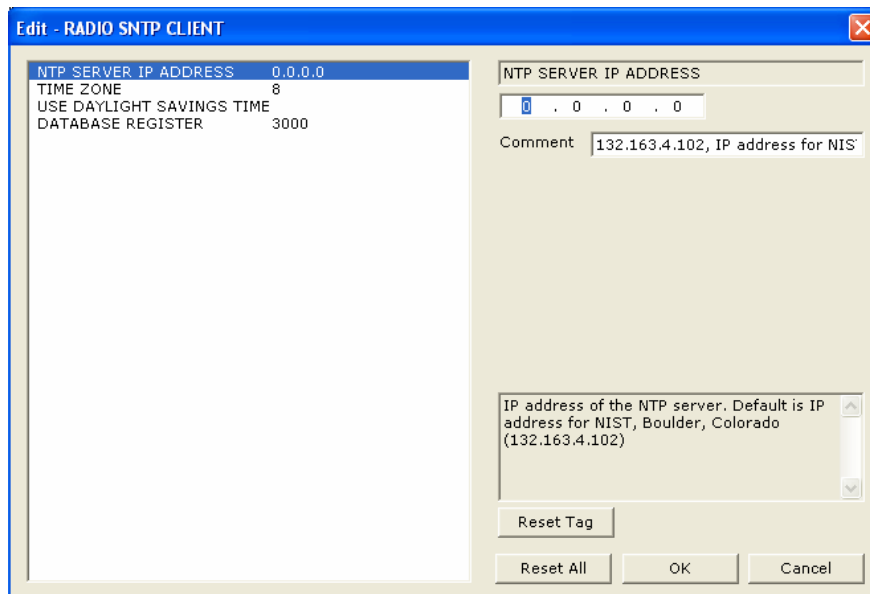
Double-click on the RADIO SNTP CLIENT icon.

This section is used to synchronize the time using a centralized atomic clock. This feature is only usable if your modules are communicating through an access point such as a RadioLinx Industrial Hotspot. The values in this window should be left with the default values. As you select each parameter, the help window on the screen displays information to help you make your selections. The PWP Driver Manual describes each of these parameters.

3.1.4   RADIO PWP EXCHANGES

Double-click the 📋 RADIO PWP EXCHANGES icon.
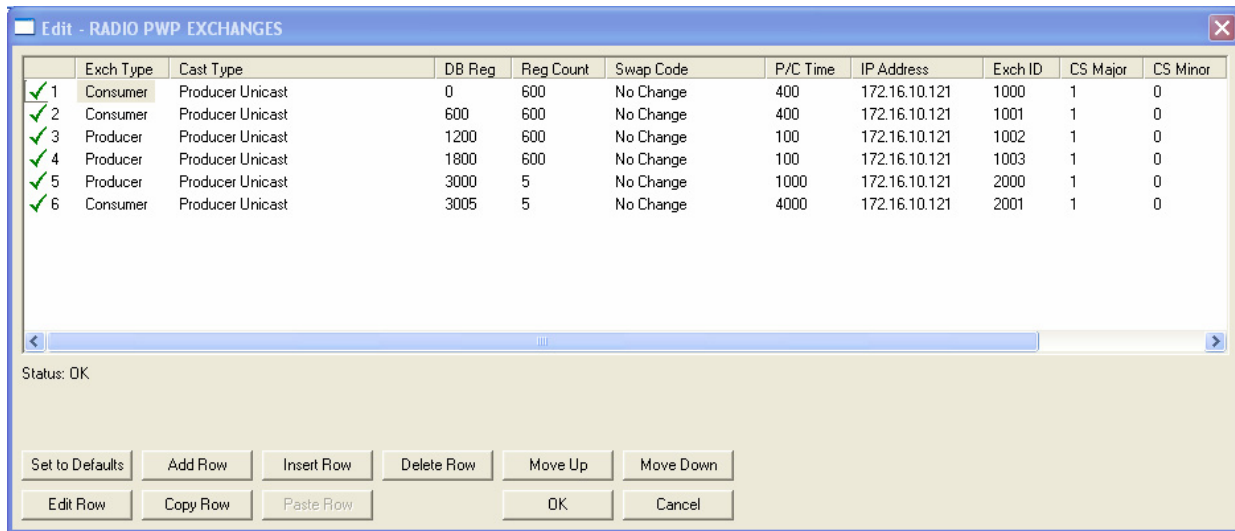
This is the area where you set up data exchange between the MCM modules. Communication is accomplished using Producer and Consumer commands. Using these commands, you specify the IP address of the receiving (Consumer) and sending (Producer) module as well as the database locations to produce data and receive data.

In the sample application, the modules are set up to send 1200 words back and forth between the each MCM module. Each module contains a database and both modules are capable of producing or consuming data. This is accomplished using ProSoft Wireless Protocol (PWP) commands. In the sample, we are sending all 1200 words and receiving 1200 words back even though we are actually sending only 50 words of data from remote Slave 5.

Two Produce commands and two Consume commands are used to make this happen Each command sends (or receives) 600 words of data. The following example shows both produce commands from the sample application.

Producer Command Narrative for the First Command:

1 Send data using Unicast Mode
2 Send the data to IP Address 172.16.10.121.
3 Send 600 registers beginning at DB Register 1200.
4 Do not set a Swap Code.
5 Send the data every 100 ms.
6 Use an Exchange ID of 1002.

Producer Command Narrative for the Second Command:

1 Send data using Unicast Mode
2 Send the data to IP Address 172.16.10.121.
3 Send 600 registers beginning at DB Register 1800.
4 Do not set a Swap Code.
5 Send the data every 100 ms.
6 Use an Exchange ID of 1003.

Note: IP Address 172.16.10.121 is the other 6201-WA-MCM module that will be configured as an MCM slave.

The Consume commands perform the same function for data coming into the module from the MCM slave once configured.

	Exch Type	Cast Type	DB Reg	Reg Count	Swap Code	P/C Time	IP Address	Exch ID	CS Major	CS Minor
✓ 1	Consumer	Producer Unicast	0	600	No Change	400	172.16.10.121	1000	1	0
✓ 2	Consumer	Producer Unicast	600	600	No Change	400	172.16.10.121	1001	1	0

These commands are prepared the same way.

Consumer Command Narrative for the First Command:

Consume data using Unicast Mode.

1 Consume this data only from IP Address 172.16.10.121.
2 Consume 600 words and store them beginning at DB register 0.
3 Do not use a Swap Code.
4 Consume data every 400 ms.
5 Only consume data with an Exchange ID of 1000.

The second line does exactly the same thing for another 600 words. However it consumes this data into database registers beginning a register 600 and uses an Exchange ID of 1001.

In order for these commands to work, the 6201-WA-MCM (to be configured as the slave module) must also be configured to consume data being produced by the 6201-WA-MCM (configured as a master) into the appropriate database registers and as well as be set up to produce data to allow the MCM master to consume. Setting up the corresponding MCM Slave configuration is discussed later in this guide.

Note: The sample configuration file also shows an additional Produce and Consume command. These commands are designed to pass a time value from the MCM master to the MCM slave module and then loop back from the

MCM slave to the MCM master. These commands are included for testing and verification purposes only and are not necessarily required for your application.

How it's Done

1 Double-click on the ⊞ RADIO PWP EXCHANGES icon.
2 Click the Add button. PCB adds a default row.
3 Click the Edit button. The Edit window appears.
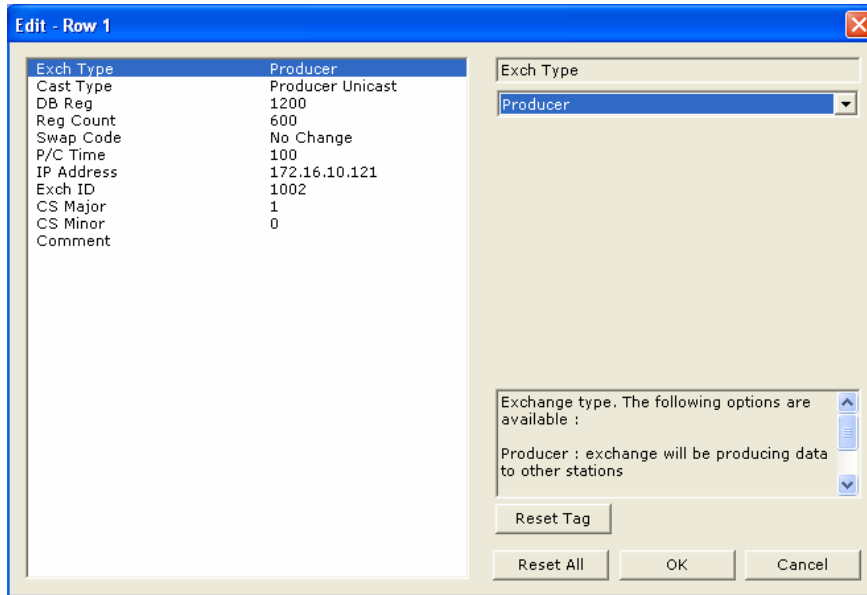
4 Define each element of the command by selecting the element, then select or enter the desired values.
5 Choose OK when done.

Note: In addition to the help on the dialog, the PWP Driver Manual located on the ProLinx Solutions CD provides descriptions of each parameter.

About Transmission Casts

The sample uses a UNICAST transmission type. UNICAST means that you set up Produce and Consume Commands that transfer or receive data to or from a single module (IP Address). For example, a Produce command can specify that this data is only produced to one particular consuming module based on the consuming modules IP address.

In addition to UNICAST, you also have the flexibility of using MULTICAST (data sent to multiple modules in a MULTICAST Group List but only picked up by the module within that list with a Consume command that has the matching Exchange ID), and BROADCAST which sends data out to all modules. With BROADCAST, each module receives the transmission whether it be two modules or 50 modules. Each module receiving the BROADCAST has to check every message to determine if it is intended for the module or not. This can decrease performance times since the module may be checking hundreds of messages that are not intended for it.

Using MULTICAST limits the modules that may be the intended recipients of the message. For example, five modules may be part of a MULTICAST Group, yet there may be 15 modules on the network. Only five of the 15 modules on the network may be configured to handle certain types of commands while the remaining 10 will have one specific function that will never change. MULTICAST would be used to only send data to the five modules in the MULTICAST Group rather than sending it to all 15 modules when we already know that the 10 non-members of the group will never have a need to receive the MULTICAST data.

3.1.5 RADIO PWP MULTICAST GROUP LIST

This section does not contain any data in the sample application since UNICAST transmission is used. For complete information on using this section, refer to the ProLinx PWP Driver Manual located on the ProLinx Solutions CD.

3.1.6 MCM Port 0

The sample configuration file requires that the module currently being configured be configured as a Master. This was done in the MCM Port 0 section.

1 Expand the MCM Port 0 section.

MCM Port 0
Modbus Port 0
Modbus Port 0 Commands

1 Double-click on the Modbus Port 0 icon.

Edit - Modbus Port 0

Enabled	Yes
Type	Master
Float Flag	No
Float Start	7000
Float Offset	2000
Protocol	RTU
Baud Rate	115200
Parity	None
Data Bits	8
Stop Bits	1
RTS On	0
RTS Off	0
Minimum Response Delay	0
Use CTS Line	No
Response Timeout	100
Retry Count	0
Internal Slave ID	1
Bit Input Offset	0
Word Input Offset	0
Output Offset	0
Holding Register Offset	0
Use Guard Band Timer	No
Guard Band Timeout	0
Minimum Command Delay	0
Error Delay Counter	0
Command Control Reg	-1

Type

Master

Comment   Port type M=Master, S=Slave

Port type (Master/Slave

Reset Tag

Reset All   OK   Cancel

The "**Type**" parameter lets you specify whether the module is to be configured as a Master or a Slave. In this case, **Master** was selected since this is the MCM module connected to the remote slave. The remaining parameters are set to ensure that the MCM module can communicate with the slave. Refer to the MCM Driver Manual located on the ProLinx Solutions CD for detailed information on each of these parameters.

2 Double-click on the ⊞ Modbus Port 0 Commands icon.

	Enable	Internal Address	Poll Interval	Reg Count	Swap Code	Node Address	ModBus Function	MB Address in Device	Comment
✓ 1	Yes	0	0	50	No Change	4	Preset Multiple Registers (4X)	0	
✓ 2	Yes	1200	0	50	No Change	4	Read Holding Registers (4X)	1200	

Status: OK

[Set to Defaults] [Add Row] [Insert Row] [Delete Row] [Move Up] [Move Down]
[Edit Row] [Copy Row] [Paste Row] [OK] [Cancel]
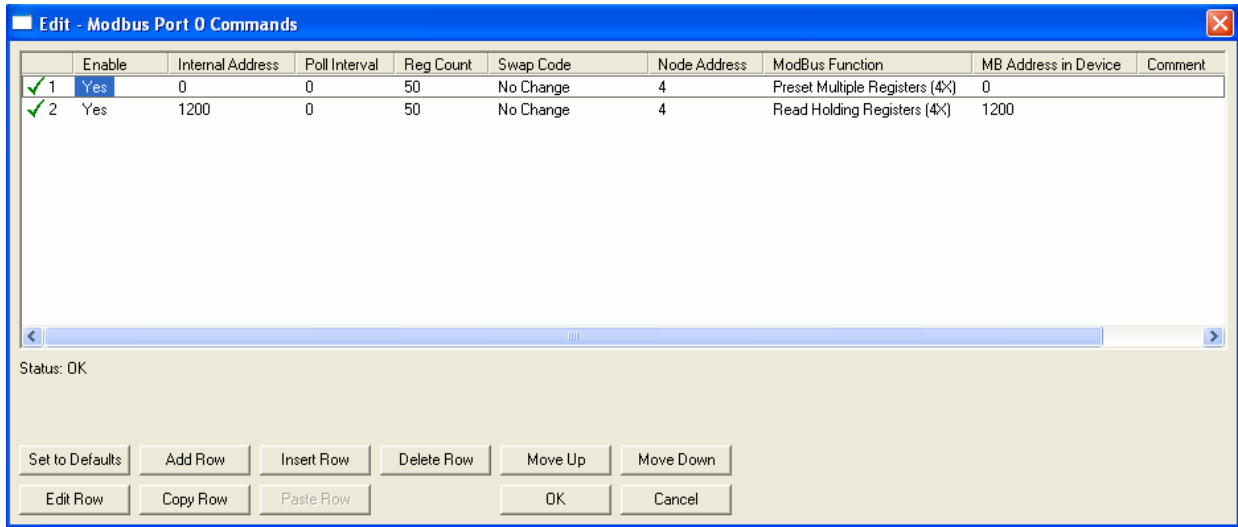
In the sample application, there is one slave device connected to the MCM Master module. This slave will read and write 50 words of data into the MCM master which in turn sends and receives this data between itself and the MCM slave. The command in this example shows how the data in the slave is passed through (and received from) the MCM master.

Line 1

The **Internal Address** field for Line 1 specifies that data from the slave will be placed in the MCM master database starting at register 0. The command also shows the **Reg Count** at 50 indicating that 50 words will be written to the MCM master module by the slave device. The **Node Address** field indicates that the data is being written by Slave 4. The **Modbus Function** indicates the function that the command is to execute. In this case, it is essentially a write command. The **MB Address in Device** specifies the Modbus starting register or digital point to be considered by the command in the Modbus slave device. Refer to the MCM Driver Manual located on the ProLinx Solutions CD for detailed information on each of these parameters.

Line 2

This part of the command handles the reading of data from the MCM master by the Modbus slave (Slave 4). The **Internal Address** specifies the starting location within the MCM master module where data from the Primary Master is stored. In this case, data for the Modbus slave to read is stored in registers beginning at register 1200. The **Reg Count** also specifies that 50 words of data will be stored in these registers. The **Node Address** specifies that the data is to be read by Slave 4. The **Modbus Function** indicates the function that the command is to execute. In this case, it is essentially a read command. The **MB Address in Device** specifies the starting register or digital point to be considered by the command in the Modbus Slave device. Refer to the MCM Driver Manual located on the ProLinx Solutions CD for information on each of these parameters.

How it's Done

The sample has the two commands already set up. You can use these commands and modify them to your needs by clicking the **Edit Row** button after selecting the command. You can also add new commands by clicking the **Add Row** button, and then clicking the **Edit Row** button.

Common Expand the Common section.

Double-click on the ▦ DATA MAP icon.
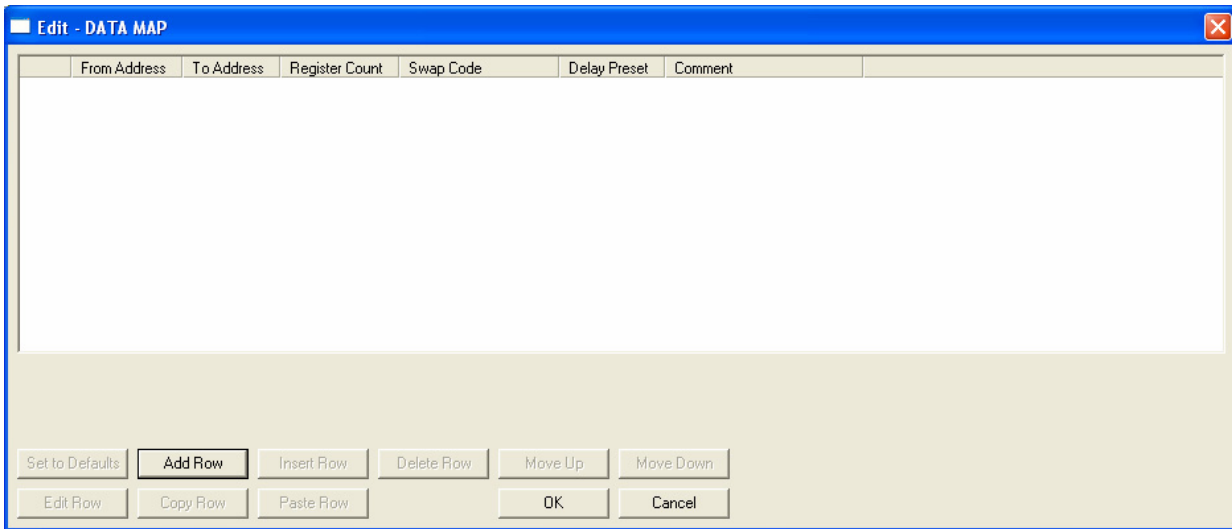
This section does not require any editing for the sample application. Refer to the MCM Driver Manual located on the ProLinx Solutions CD for information on setting up data mapping for your application

3.1.7   *Save and Download the File to the 6102-WA-MCM (Master)*

1   Connect your PC or Laptop to the DEBUG port of the 6102-WA-MCM **(Master)** module. Apply power to the module if you have not already done so.

2 Choose **File → Save As…** and save the .PPF file to a location on your hard drive.
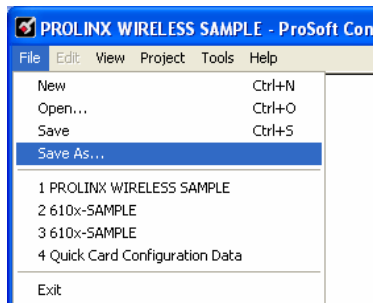
3 Right-click on 6201-WA-MCM_MASTER and select **Download from PC to Device**.
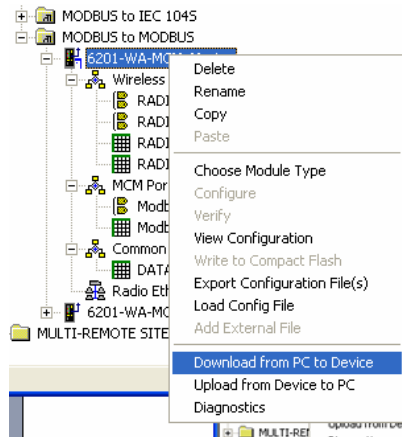
4 Select the appropriate COM port and click the **Download** button.
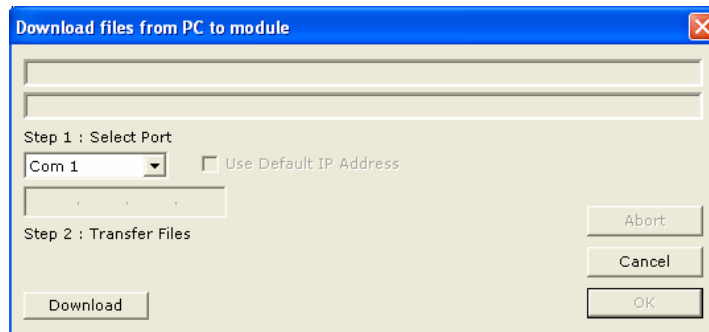
The download is complete when the OK button becomes active. When the download is complete, click **OK**.

Note: Once the configuration is downloaded to the module, the Port 0 Err LED may be flashing. This is common behavior since a Modbus device is not directly connected to Port 0 on the MCM master.

4 Configure the MCM Slave Module

In This Chapter

Configuring this module as a slave is done the same way as the master with a few exceptions outlined in this section.

1 Remove the cable from the Debug port of the MCM Master module and plug it into the Debug port of the MCM module to be configured as a slave.
2 With PCB open, expand the 6201-WA-MCM_Slave module selection.
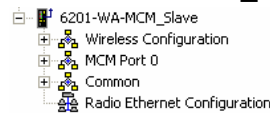
4.1 Complete the PCB Sections for the Slave

4.1.1 Radio Ethernet Configuration

1 Double click on the 🖧 Radio Ethernet Configuration selection.
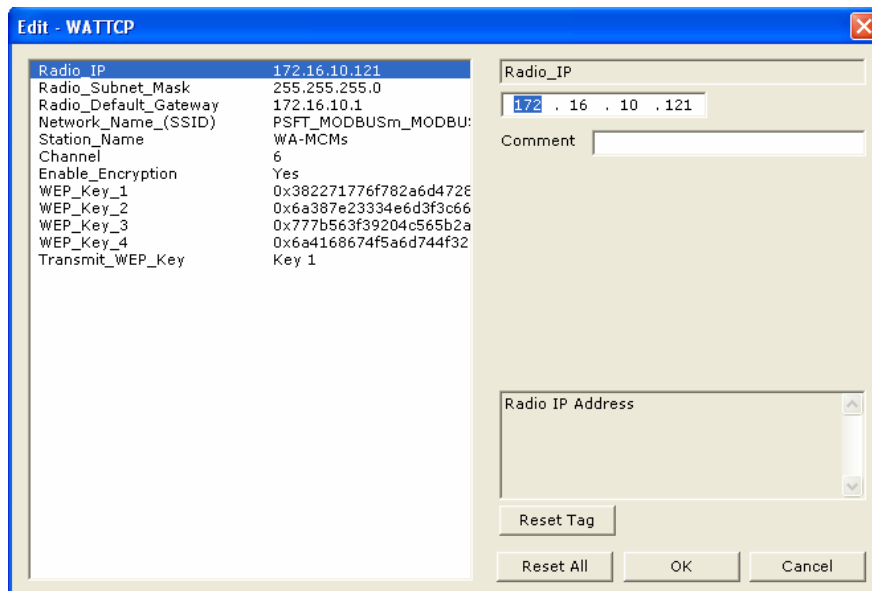
This section is identical for all 6201-WA-MCM modules shipped from the factory.

In the sample application, this radio's IP address is set to **172.16.10.121**. All 6201-WA-MCM modules can use IP Address values for 172.16.10.120 to 129. In our sample application, the MCM Master IP address is set to 172.16.10.120, so here we used the next IP address in the range which happens to be 121. When you build your own application, you will have to modify the Radio Default Gateway, Network Name (SSID), and Station Name to suit your needs.

Note: All modules must have the same Subnet Mask, Default Gateway, and Network Name (SSID) if they are all located on the same network.

The PWP Driver Manual located on the ProLinx Solutions CD describes each parameter. If you are making changes, be sure to save your changes before moving on to the next step.

4.1.2   RADIO CONFIGURATION (Slave)

Expand the Wireless Configuration section and double-click on the
🅱 RADIO CONFIGURATION icon.
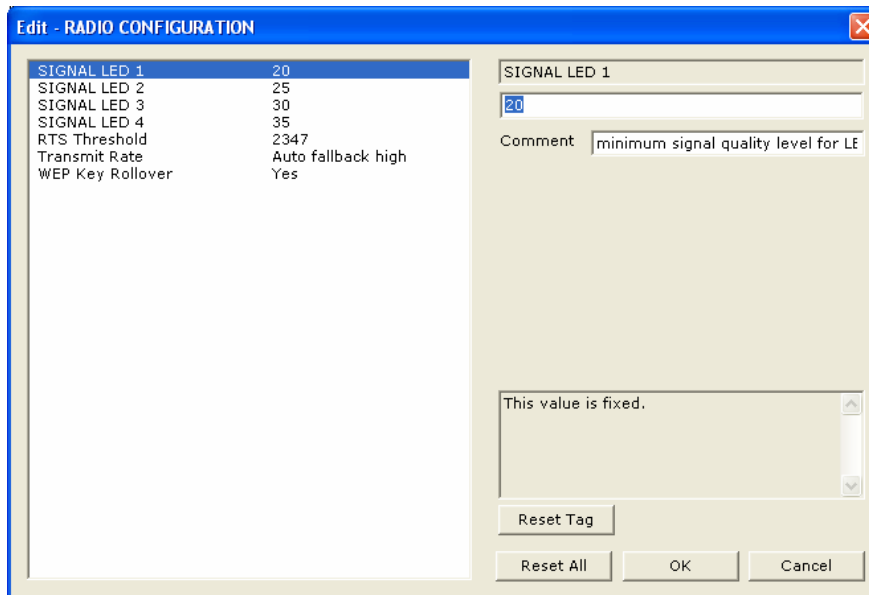
All of the values are default values and should work fine "as is". If you need to change values in the window, make sure to save your changes before moving on to the next step. As you select each parameter, the help window on the screen displays information to help you make your selections. The PWP Driver Manual located on the ProLinx Solutions CD describes each parameter in detail.

4.1.3   RADIO SNTP CLIENT
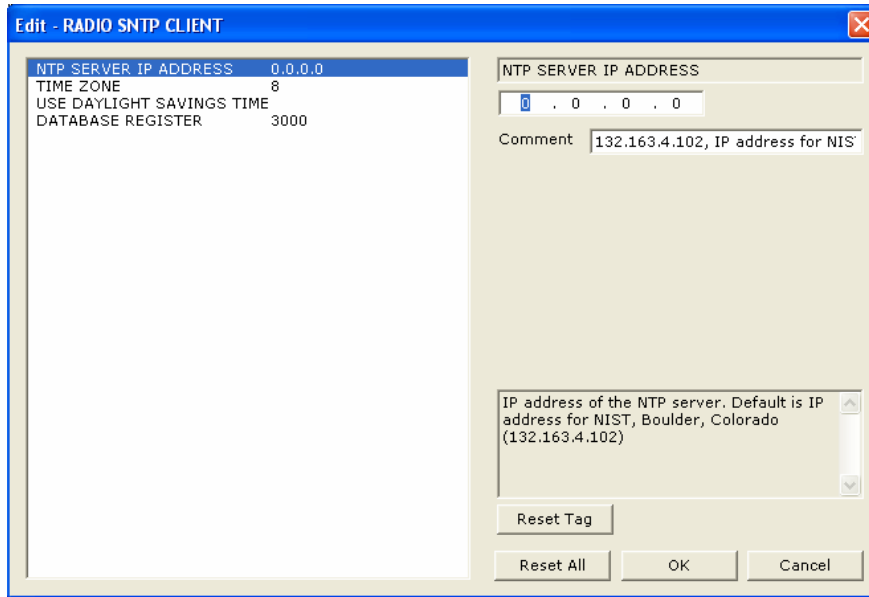
Double-click on the ⓑ RADIO SNTP CLIENT icon.

This section is used to synchronize the time using a centralized atomic clock. This feature is only usable if your modules are communicating through an access point such as a RadioLinx Industrial Hotspot. The values in this window should be left with the default values. As you select each parameter, the help window on the screen displays information to help you make your selections. The PWP Driver Manual located on the ProLinx Solutions CD describes each parameter in detail.

4.1.4   RADIO PWP EXCHANGES

Double-click on the ⊞ RADIO PWP EXCHANGES icon.
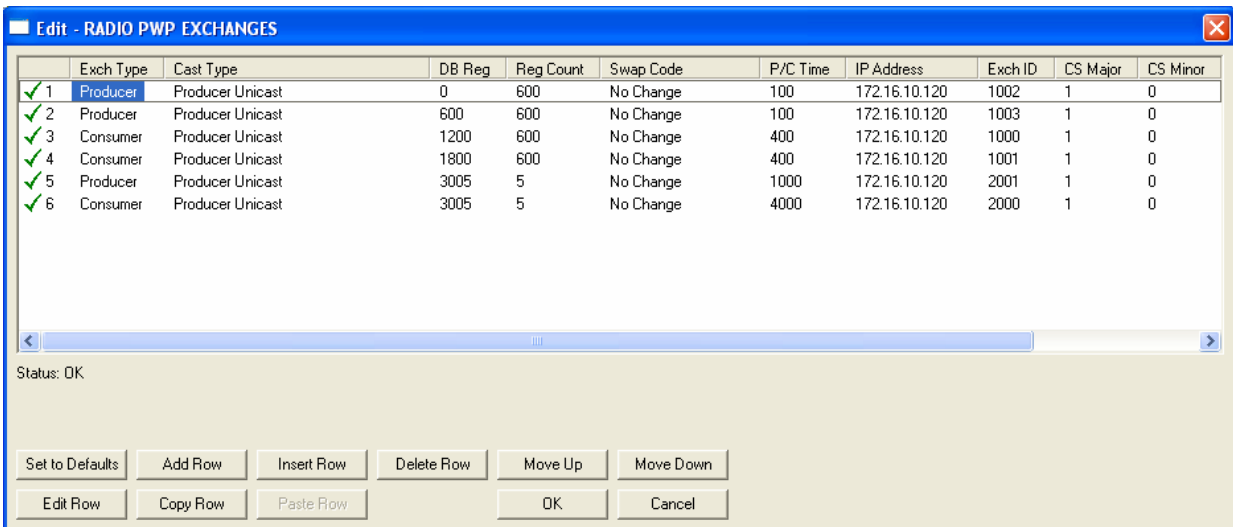
The commands in this section correspond to commands set up in the MCM master module. For example, the MCM master module has a Produce command to send data to the MCM slave. The MCM slave must have a corresponding Consume command to match up with the MCM master Produce command in order to accept the MCM master produced data.

If you remember the example in the **MCM Master** section, the first Produce command is as follows.

✓ 3	Producer	Producer Unicast	1200	600	No Change	100	172.16.10.121	1002	1	0

This command states:

Send 600 words of data beginning at data register 1200 to 172.16.10.121 (the MCM slave) using an exchange ID of 1021. Send data every 100 ms using UNICAST.

We now need to build the Consume command on the **MCM Slave** in order to accept the data. The corresponding Consume command on the MCM Slave looks like this:

✓ 3	Consumer	Producer Unicast	1200	600	No Change	400	172.16.10.120	1002	1	0

This command states:

If the Exchange ID transmitted from 172.16.10.120 (the MCM Master) is 1002, receive 600 words of data and place them in 600 registers beginning at database register 1200. Check for data every 400 ms.

The second Consume command is set up the same way. It must correspond to the second Produce command in order to accept the data coming from it.

Referring to the MCM Master PWP Exchanges section, the **MCM Master** also had two Consume commands. These commands are as follows:

✓ 1	Consumer	Producer Unicast	0	600	No Change	400	172.16.10.121	1000	1	0
✓ 2	Consumer	Producer Unicast	600	600	No Change	400	172.16.10.121	1001	1	0

This first command states:

If the Exchange ID transmitted from 172.16.10.121 (the MCM Slave) is 1000, receive 600 words of data and place them in 600 registers beginning at database register 0. Check for data every 400 ms.

The second Consume command is set up the same way. It must correspond to the second Produce command from the MCM Slave in order to accept the data coming from it.

We now need to build the Produce commands on the **MCM Slave** to correspond with the Consume commands on the MCM Master. The corresponding command looks like this:

✓ 1	Producer	Producer Unicast	0	600	No Change	100	172.16.10.120	1000	1	0

This command states:

Send 600 words of data beginning at data register 0 to 172.16.10.120 (the MCM Master) using an exchange ID of 1000. Send data every 100 ms using UNICAST.

Both the MCM Slave and the MCM Master have corresponding Produce and Consume commands. The following diagram illustrates the sample application:

6201-WA-MCM (Master)   PWP Exchanges

	Exch Type	Cast Type	DB Reg	Reg Count	Swap Code	P/C Time	IP Address	Exch ID	CS Major	CS Minor
✓ 1	Consumer	Producer Unicast	0	600	No Change	400	172.16.10.121	1000	1	0
✓ 2	Consumer	Producer Unicast	600	600	No Change	400	172.16.10.121	1001	1	0
✓ 3	Producer	Producer Unicast	1200	600	No Change	100	172.16.10.121	1002	1	0
✓ 4	Producer	Producer Unicast	1800	600	No Change	100	172.16.10.121	1003	1	0

6201-WA-MCM (Slave)

	Exch Type	Cast Type	DB Reg	Reg Count	Swap Code	P/C Time	IP Address	Exch ID	CS Major	CS Minor
✓ 1	Producer	Producer Unicast	0	600	No Change	100	172.16.10.120	1000	1	0
✓ 2	Producer	Producer Unicast	600	600	No Change	100	172.16.10.120	1001	1	0
✓ 3	Consumer	Producer Unicast	1200	600	No Change	400	172.16.10.120	1002	1	0
✓ 4	Consumer	Producer Unicast	1800	600	No Change	400	172.16.10.120	1003	1	0

Both modules send 1200 words (using two commands) between each other even though in our sample application, the slave connected to the MCM Master is sending 50 words. This allows the ability to connect additional slaves to a single device up to the capacity of the MCM Slave database. In addition, this has been done to use the maximum MCM Slave and Master exchange data with only two PWP transmission packets. Each PWP packet can transmit up to 600 words. The PWP Driver Manual located on the ProLinx Solutions CD describes each command parameter in detail.

4.1.5   RADIO PWP MULTICAST GROUP LIST

This section does not contain any data for the sample application. The sample application uses UNICAST transmission and therefore there is no need to enter IPs of other devices in this section. The ProLinx PWP Driver Manual describes this section in detail.

MCM Port 0 Expand the MCM Port 0 folder and double-click on the [Modbus Port 0] icon.
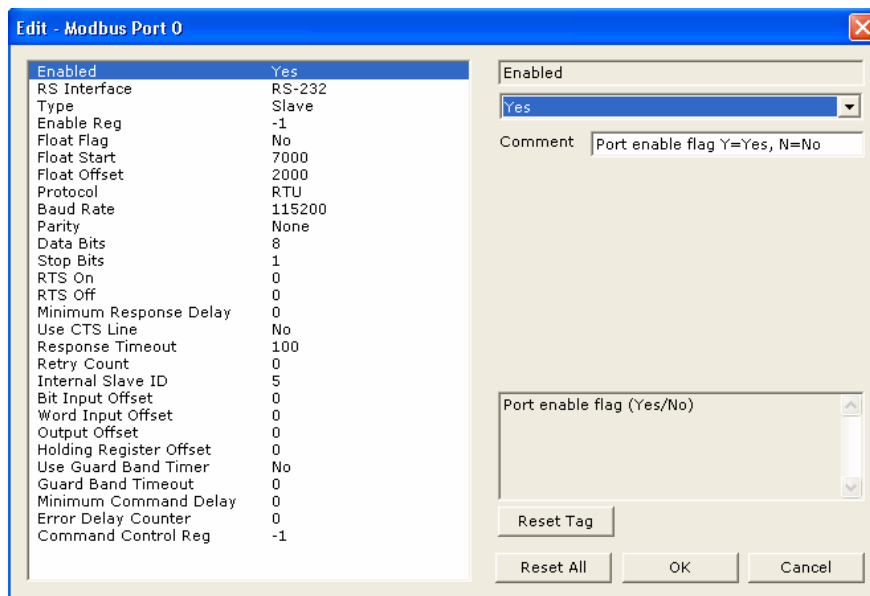
As with the 6201-WA-MCM Master, the 2nd module in the sample application must be configured as a slave in order to make the application work. This is done the same way as the master. Select the "**Type**" field and then select **Slave** from the drop-down list.

You must also specify this module as a slave node on the network. To do this, select the Internal Slave ID parameter and enter the slave ID. In the sample application, there are three slave devices located at the main site. There is one slave device located at the remote site connected to the MCM Master. The MCM Slave is also considered a slave device and must be identified as such. The three devices at the main site are identified as slaves 1, 2, and 3. The slave device at the remote site is identified as slave 4. Therefore, the MCM Slave is identified as slave 5. In our application, we entered a 5 in the Internal Slave ID parameter. Click **OK** to save changes..

The default values do not have to be changed for this application. However, refer to the MCM Driver Manual for information on each of the remaining parameters.

4.2 Modbus Port 0 Commands

A 6201-WA-MCM module configured as a slave cannot issue commands and therefore, this section is commented out.

4.3 Save and Download the Configuration File to the 6201-WA-MCM

1 Ensure that your PC or Laptop is still connected to the DEBUG port of the **6201-WA-MCM (Slave)** module. Apply power to the module if you have not already done so.

2 Choose **File → Save As…** and save the .PPF file to a location on your hard drive.
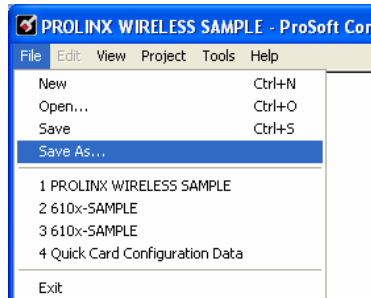
3 Right-click on 6201-WA-MCM Slave and select **Download from PC to Device**.
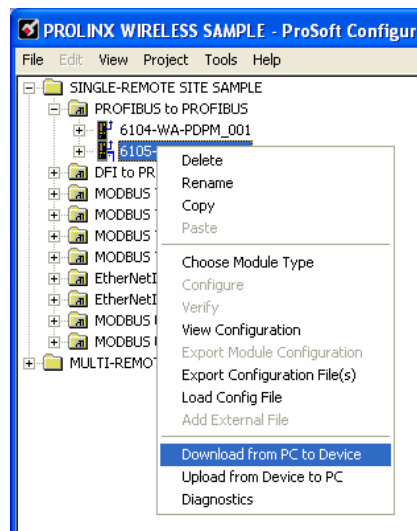
4 Select the appropriate COM port and click the **Download** button.
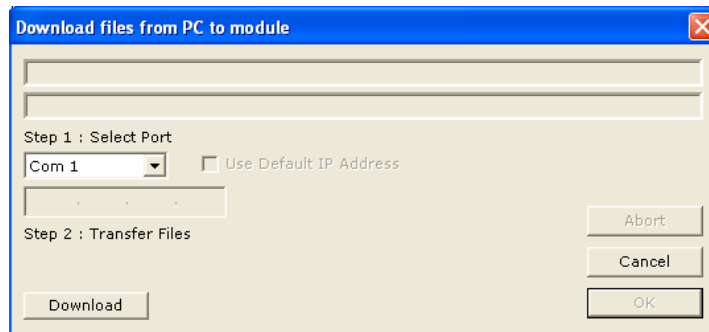
5 The download is complete when the OK button becomes active. When the download is completed, click the **OK** button.

5   Verify Data Exchange

Run Diagnostics Using PCB

Debug Port

Ⓐ Move the connector from the Debug Port on the slave module and plug it into the Debug Port of the Master module. Ensure that power is applied to both modules.

Power Connector

Ⓑ Right-click on 6201-WA-MCM Master and select Diagnostics.

Ⓒ Enter "?" to display the Diagnostic menu.

Press "D" to display the Database menu.

Press "3" to show database registers beginning at 3000.

Press the "S" key to refresh the database values. The circled values in the example should change each time you press the "S" key indicating that data is being passed between modules. If these values do not change, contact ProSoft Technical Support.

The data shown represents clock values originating from the 6201-WA-MCM Master. The values are stored in 5 registers beginning with register 3000. The clock values are being passed wirelessly to the 6201-WA-MCM Slave. The MCM Slave module is taking this data and passing it back to the MCM Master and placing it into 5 registers beginning at register 3005.

6   Default Module Configuration Assignments

In This Chapter

6.1   IP Addresses

IP Address are assigned in ranges to each of the WA modules. This information is used in the Radio Ethernet Configuration section of the configuration file. The following table shows the range assignments and the default value pre-configured in the module:

Module	IP Address Range	Address Set in the Module (Default)
6105-WA-PDPM	172.16.10.100 – 172.16.10.109	172.16.10.100
6104-WA-PDPS	172.16.10.110 – 172.16.10.119	172.16.10.110
6201-WA-MCM	172.16.10.120 – 172.16.10.129	172.16.10.120
6201-WA-MNET	172.16.10.130 – 172.16.10.139	172.16.10.130
6201-WA-DFCM	172.16.10.140 – 172.16.10.149	172.16.10.140
6201-WA-DFNT	172.16.10.150 – 172.16.10.159	172.16.10.150
6201-WA-ASCII	172.16.10.160 – 172.16.10.169	172.16.10.160
6201-WA-104S	172.16.10.170 – 172.16.10.179	172.16.10.170
6201-WA-DEM	172.16.10.180 – 172.16.10.189	172.16.10.180
6201-WA-RIO	172.16.10.190 – 172.16.10.199	172.16.10.190
6303-WA-MBP	172.16.10.200 – 172.16.10.209	172.16.10.200

The purpose for reserving up to 10 IP addresses per module is for addressing and establishing radio communications between modules of the same model number (for example 6102-WA-MCM to 6102-WA-MCM).

6.2   WATTCP Parameters

The following default parameters are applicable to all WA modules:

Radio_Subnet_Mask :   255.255.255.0

Radio_Default_Gateway: 172.16.10.1

7   Support, Service & Extended Warranty

In This Chapter

Be sure and read the full Warranty that can be found on our web site at
www.prosoft-technology.com *for details and other terms and conditions. The*
content in this summary is subject to change without notice. The content is
current at date of publication.

ProSoft Technology, Inc. strives to provide meaningful support to its customers.
Should any questions or problems arise, please feel free to contact us at:

Internet	Web Site: http://www.prosoft-technology.com/support
	E-mail address: support@prosoft-technology.com

Those of us at ProSoft Technology, Inc. want to provide the best and quickest
support possible, so before calling please have the following information
available. You may wish to fax this information to us prior to calling.

1 Product Version Number
2 System architecture
3 Network details

In the case of hardware, we will also need the following information:

1 Module configuration and contents of file
2 Module Operation
3 Configuration/Debug status information
4 LED patterns
5 Information about the processor and user data files as viewed through the
   development software and LED patterns on the processor
6 Details about the networked devices interfaced, if any

For technical support calls within the United States, an after-hours answering
system allows pager access to one of our qualified technical and/or application
support engineers at any time to answer your questions.

7.1   How to Contact Us: Sales and Support

All ProSoft Technology Products are backed with full technical support. Contact our worldwide Technical Support team and Customer Service representatives directly by phone or email:

USA / Latin America (excluding Brasil) (Office in California)

+1(661) 716-5100
+1(661) 716-5101 (Fax)
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+1.661.716.5100, support@prosoft-technology.com
Languages spoken include: English, Spanish

Asia Pacific (office in Malaysia)

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Languages spoken include: French, English

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Rua Vergueiro, 2949 - sala 182 - Edifício Vergueiro Work Center
Vila Mariana - São Paulo
Cep: 04101-300 – Brasil
+55-11-5084-5178, eduardo@prosoft-technology.com
Languages spoken include: Portuguese, English

7.2   Return Material Authorization (RMA) Policies and Conditions

The following RMA Policies and Conditions apply to any returned product. These RMA Policies are subject to change by ProSoft without notice. For warranty information, see Section C below entitled "Limited Warranty". In the event of any inconsistency between the RMA Policies and the Warranty, the Warranty shall govern.

7.2.1   All Product Returns

1 In order to return a Product for repair, exchange or otherwise, the Customer must obtain a Returned Material Authorization (RMA) number from ProSoft and comply with ProSoft shipping instructions.

2 In the event that the Customer experiences a problem with the Product for any reason, Customer should contact ProSoft Technical Support at one of the telephone numbers listed above in Section A. A Technical Support Engineer will request several tests in an attempt to isolate the problem. If after these tests are completed, the Product is found to be the source of the problem, ProSoft will issue an RMA.

3 All returned Products must be shipped freight prepaid, in the original shipping container or equivalent, to the location specified by ProSoft, and be accompanied by proof of purchase. The RMA number is to be prominently marked on the outside of the shipping box. Customer agrees to insure the Product or assume the risk of loss or damage in transit. Products shipped to ProSoft without an RMA number will be returned to the Customer, freight collect. Contact ProSoft Technical Support for further information.

4 Out of warranty returns are not allowed on RadioLinx accessories such as antennas, cables, and brackets.

The following policy applies for Non-Warranty Credit Returns:

a   10% Restocking Fee if Factory Seal is *not* broken

b   20% Restocking Fee if Factory Seal is broken

ProSoft retains the right, in its absolute and sole discretion, to reject any non-warranty returns for credit if the return is not requested within three (3) months after shipment of the Product to Customer, if the Customer fails to comply with ProSoft's shipping instructions, or if the Customer fails to return the Product to ProSoft within six (6) months after Product was originally shipped.

7.3   Procedures for Return of Units Under Warranty:

1 A Technical Support Engineer must pre-approve all product returns.

2 Module is repaired or replaced after a Return Material Authorization Number is entered and a replacement order is generated.

3 Credit for the warranted item is issued within 10 business days after receipt of product and evaluation of the defect has been performed by ProSoft. The credit will only be issued provided the product is returned with a valid Return Material Authorization Number and in accordance with ProSoft's shipping instructions.

        a)   If no defect is found, a credit is issued.

        b)   If a defect is found and is determined to be customer generated or if the defect is otherwise not covered by ProSoft's Warranty, or if the module is not repairable, a credit is not issued and payment of the replacement module is due.

7.4   Procedures for Return of Units Out of Warranty:

1 Customer sends unit in for evaluation.
2 If no defect is found, Customer will be charged the equivalent of US $100 plus shipping, duties and taxes that may apply. A new Purchase Order will be required for this evaluation fee.
   If the unit is repaired the charge to the Customer will be 30%* of the list price plus any shipping, duties and taxes that may apply. A new Purchase Order will be required for a product repair.
3 For an immediate exchange, a new module may be purchased and sent to Customer while repair work is being performed. Credit for purchase of the new module will be issued when the new module is returned in accordance with ProSoft's shipping instructions and subject to ProSoft's policy on non-warranty returns. This is in addition to charges for repair of the old module and any associated charges to Customer.
4 If, upon contacting ProSoft Customer Service, the Customer is informed that unit is believed to be unrepairable, the Customer may choose to send unit in for evaluation to determine if the repair can be made. Customer will pay shipping, duties and taxes that may apply. If unit cannot be repaired, the Customer may purchase a new unit.

7.4.1   Un-repairable Units

- 3150-All
- 3750
- 3600-All
- 3700
- 3170-All
- 3250
- 1560 can be repaired, if defect is the power supply
- 1550 can be repaired, if defect is the power supply
- 3350
- 3300
- 1500-All

* 30% of list price is an estimated repair cost only. The actual cost of repairs will be determined when the module is received by ProSoft and evaluated for needed repairs.

Purchasing Warranty Extension:

As detailed below in ProSoft's Warranty, the standard Warranty Period is one year (or in the case of RadioLinx modules, three years) from the date of delivery. The Warranty Period may be extended for an additional charge, as follows:

- Additional 1 year = 10% of list price
- Additional 2 years = 20% of list price
- Additional 3 years = 30% of list price

7.5   LIMITED WARRANTY

This Limited Warranty ("Warranty") governs all sales of hardware, software and other products (collectively, "Product") manufactured and/or offered for sale by ProSoft, and all related services provided by ProSoft, including maintenance, repair, warranty exchange, and service programs (collectively, "Services"). By purchasing or using the Product or Services, the individual or entity purchasing or using the Product or Services ("Customer") agrees to all of the terms and provisions (collectively, the "Terms") of this Limited Warranty. All sales of software or other intellectual property are, in addition, subject to any license agreement accompanying such software or other intellectual property.

7.5.1   *What Is Covered By This Warranty*

a   *Warranty On New Products*: ProSoft warrants, to the original purchaser only, that the Product that is the subject of the sale will (1) conform to and perform in accordance with published specifications prepared, approved, and issued by ProSoft, and (2) will be free from defects in material or workmanship; provided these warranties only cover Product that is sold as new. This Warranty expires one year (or in the case of RadioLinx modules, three years) from the date of shipment (the "Warranty Period"). If the Customer discovers within the Warranty Period a failure of the Product to conform to specifications, or a defect in material or workmanship of the Product, the Customer must promptly notify ProSoft by fax, email or telephone. In no event may that notification be received by ProSoft later than 15 months (or in the case of RadioLinx modules, 39 months) from the date of delivery. Within a reasonable time after notification, ProSoft will correct any failure of the Product to conform to specifications or any defect in material or workmanship of the Product, with either new or used replacement parts. Such repair, including both parts and labor, will be performed at ProSoft's expense. All warranty service will be performed at service centers designated by ProSoft. If ProSoft is unable to repair the Product to conform to this Warranty after a reasonable number of attempts, ProSoft will provide, at its option, one of the following: a replacement product, a full refund of the purchase price or a credit in the amount of the purchase price. All replaced product and parts become the property of ProSoft. These remedies are the Customer's only remedies for breach of warranty.

b   *Warranty On Services*: Material and labor used by ProSoft to repair a verified malfunction or defect are warranted on the terms specified above for new Product, provided said warranty will be for the period remaining on the original new equipment warranty or, if the original warranty is no longer in effect, for a period of 90 days from the date of repair.

c   The Warranty Period for RadioLinx accessories (such as antennas, cables, brackets, etc.) are the same as for RadioLinx modules, that is, three years from the date of shipment.

7.5.2   *What Is Not Covered By This Warranty*

a   ProSoft makes no representation or warranty, expressed or implied, that the operation of software purchased from ProSoft will be uninterrupted or error free or that the functions contained in the software will meet or satisfy the purchaser's intended use or requirements; the Customer assumes complete responsibility for decisions made or actions taken based on information obtained using ProSoft software.

b   With the exception of RadioLinx accessories referenced in paragraph 1(c) this Warranty does not cover any product, components, or parts not manufactured by ProSoft.

c   This Warranty also does not cover the failure of the Product to perform specified functions, or any other non-conformance, defects, losses or damages caused by or attributable to any of the following: (i) shipping; (ii) improper installation or other failure of Customer to adhere to ProSoft's specifications or instructions; (iii) unauthorized repair or maintenance; (iv) attachments, equipment, options, parts, software, or user-created programming (including, but not limited to, programs developed with any IEC 61131-3 programming languages, or "C") not furnished by ProSoft; (v) use of the Product for purposes other than those for which it was designed; (vi) any other abuse, misapplication, neglect or misuse by the Customer; (vii) accident, improper testing or causes external to the Product such as, but not limited to, exposure to extremes of temperature or humidity, power failure or power surges outside of the limits indicated on the product specifications; or (viii) disasters such as fire, flood, earthquake, wind or lightning.

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7.5.5   LIMITATION OF REMEDIES**

IN NO EVENT WILL PROSOFT (OR ITS DEALER) BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES BASED ON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL THEORY. DAMAGES THAT PROSOFT AND ITS DEALER WILL NOT BE RESPONSIBLE FOR INCLUDE, BUT ARE NOT LIMITED TO: LOSS OF PROFITS; LOSS OF SAVINGS OR REVENUE; LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT; LOSS OF DATA; COST OF CAPITAL; COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES, OR SERVICES; DOWNTIME; THE CLAIMS OF THIRD PARTIES, INCLUDING CUSTOMERS OF THE PURCHASER; AND INJURY TO PROPERTY.

** Some areas do not allow time limitations on an implied warranty, or allow the exclusion or limitation of incidental or consequential damages. In such areas the above limitations may not apply. This Warranty gives you specific legal rights, and you may also have other rights which vary from place to place.

7.5.6   Time Limit for Bringing Suit

Any action for breach of warranty must be commenced within 15 months (or in the case of RadioLinx modules, 39 months) following shipment of the Product.

7.5.7   No Other Warranties

Unless modified in writing and signed by both parties, this Warranty is understood to be the complete and exclusive agreement between the parties, suspending all oral or written prior agreements and all other communications between the parties relating to the subject matter of this Warranty, including statements made by salesperson. No employee of ProSoft or any other party is authorized to make any warranty in addition to those made in this Warranty. The Customer is warned, therefore, to check this Warranty carefully to see that it correctly reflects those terms that are important to the Customer.

7.5.8   Intellectual Property

a   Any documentation included with Product purchased from ProSoft is protected by copyright and may not be photocopied or reproduced in any form without prior written consent from ProSoft.

b   ProSoft's technical specifications and documentation that are included with the Product are subject to editing and modification without notice.

c   Transfer of title shall not operate to convey to Customer any right to make, or have made, any Product supplied by ProSoft.

d　　Customer is granted no right or license to use any software or other intellectual property in any manner or for any purpose not expressly permitted by any license agreement accompanying such software or other intellectual property.

e　　Customer agrees that it shall not, and shall not authorize others to, copy software provided by ProSoft (except as expressly permitted in any license agreement accompanying such software); transfer software to a third party separately from the Product; modify, alter, translate, decode, decompile, disassemble, reverse-engineer or otherwise attempt to derive the source code of the software or create derivative works based on the software; export the software or underlying technology in contravention of applicable US and international export laws and regulations; or use the software other than as authorized in connection with use of Product.

7.5.9　　　Additional Restrictions Relating To Software And Other Intellectual Property

In addition to complying with the Terms of this Warranty, Customers purchasing software or other intellectual property shall comply with any license agreement accompanying such software or other intellectual property. Failure to do so may void this Warranty with respect to such software and/or other intellectual property.

7.5.10　　　Allocation of risks

This Warranty allocates the risk of product failure between ProSoft and the Customer. This allocation is recognized by both parties and is reflected in the price of the goods. The Customer acknowledges that it has read this Warranty, understands it, and is bound by its Terms.

7.5.11　　　Controlling Law and Severability

This Warranty shall be governed by and construed in accordance with the laws of the United States and the domestic laws of the State of California, without reference to its conflicts of law provisions. If for any reason a court of competent jurisdiction finds any provisions of this Warranty, or a portion thereof, to be unenforceable, that provision shall be enforced to the maximum extent permissible and the remainder of this Warranty shall remain in full force and effect. Any cause of action with respect to the Product or Services must be instituted in a court of competent jurisdiction in the State of California.

Index