



Abstract:

This document provides a step by step procedure for configuring Modbus I/O transfer on the RAM to poll any Modbus Ethernet Slave device.

Products:

RAM Cellular RTU

Use Case / Problem Solved: Short Description

The RAM Cellular RTU can be used as a Modbus Data Concentrator. This document steps through the configuration one I/O Transfer (Modbus Write) enabling the RAM to move data to and from any Modbus Ethernet Slave device. Many Transfers can be added to meet the application requirements (Read & Write transfers). Data that is gathered by the RAM can then be used in a variety of application scenarios including and not limited to:

1. Easy remote connectivity and monitoring
2. Transferred as DNP3 data
3. Controlled using the Event Engine
4. Used for Alarming and Notification (Email/SMS)

Required Software:

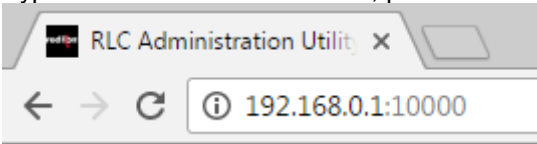
Web browser

Required Firmware:

Any 4.xx firmware

Log into the RAM Web Browser

- a. Type the device's LAN/WAN IP, port 10000 into a web browser



- b. User Name: admin
c. Password: Last six digits of the device's serial number

A screenshot of an 'Authentication Required' dialog box. The text inside reads: 'http://192.168.0.1:10000 requires a username and password. Your connection to this site is not private.' Below the text are two input fields. The 'User Name:' field contains the text 'admin'. The 'Password:' field contains six asterisks '*****'. At the bottom right are two buttons: 'Log In' and 'Cancel'.

Configure RAM Modbus Station Parameters

1. Navigate to: *Automation – Modbus – Local Station*
2. Set Enable Modbus to *Yes*
3. Define Station Name
4. Define Station Number
5. Define Modbus Local Port (Standard TCP Port for Modbus is 502)

Local Station

Define Local Station Properties

Enable Modbus	<input type="text" value="Yes"/>		
Station Name	<input type="text" value="RAM"/>		Required
Station Number	<input type="text" value="1"/>		Required
Modbus Local Port	<input type="text" value="502"/>		Required

6. Click *Save*

Add a Remote Station Definition

1. Navigate to *Automation – Modbus – Remote Station*
2. Click *Add*
3. Enter Station Name for remote device
4. Enter remote device Station Number (Modbus station address)
5. Enter the Remote IP Address
6. Enter Remote IP Port (IP port 502 is the standard default Modbus)
7. Optionally enter the Station Online address

Modbus Remote Station Settings

Station Name	<input type="text" value="ModbusSlave"/>	?	Required
Station Number	<input type="text" value="2"/>	?	Required
Connection Type	<input type="text" value="IP"/>	?	
Remote IP Address	<input type="text" value="192.168.0.2"/>	?	Required
Remote IP Port	<input type="text" value="502"/>	?	Required
Message Timeout (ms)	<input type="text" value="3000"/>	?	Required
Message Retries	<input type="text" value="3"/>	?	Required
Station Online Address	<input type="text"/>	?	

Finish

8. Select Finish. The Remote Station will appear in the table.

Modbus Remote Stations

Remote Stations Table Properties							
Station Name	Station Number	Remote IP Address	Remote IP Port	Message Timeout (ms)	Message Retries	Station Online Type	Station Online Address
ModbusSlave	2	192.168.0.2	502	3000	3		

Local Station Serial Ports I/O Transfers Forwards Display Config File

Revert / Refresh Save Apply

Add Edit Delete Copy Up Down

9. Click Save

Configure I/O Transfers

1. Navigate to *I/O Transfers* found at the bottom of the page or via *Automation - Modbus - I/O Transfers*
2. Click *Add*
3. Define the first I/O Transfer as needed, example below

I/O Transfer Settings

Station Name	ModbusSlave	?
Protocol	Modbus	?
Send Mode	Rapid Fire	?
Port	TCP/IP	?
Command Type	Write	?

Local
DO1
Discrete Output
1

➔

Remote
Discrete Output
1

Number Of Registers	8	?	Required
Create Tags for Range:	Yes	?	
WARNING: Creating tags for this range may overwrite existing tags. View conflicts			
Enter Update Interval (ms)	3000	?	Required
Scan Enable Type	None	?	
Scan Enable Address		?	

Finish

Note: the Scan Enable Address may be added to control when the IO Transfer is active or inactive. The Event Engine may be used to control this behavior.

4. Click *Finish*
5. Repeat steps 2 through 4 as needed

Testing: Use Test I/O to monitor values on RAM

1. Navigate to Automation - I/O Setting - Test I/O
2. Add Raw I/O for both Local DO (1 > 8)
3. Select "Start"

Note: Scrolling down may be required to view all registers

Scan Rate (s): Paused Start Last Scan: Unknown
Data Used (kB): 0.0 Idle Timeout On Off ?

Add a Tag To List Add Multiple Load Set Traffic ▼

Add Raw I/O Discrete In ▼ Start Address Register Count To List Add

x

DO1 - 0:00001

DO2 - 0:00002

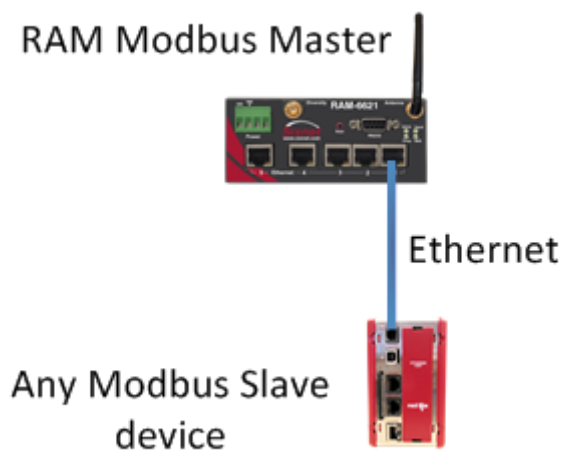
RLY1 - 0:00003

<DO4> - 0:00004

<DO5> - 0:00005

Topology:

Note: This is a very simple topology used to define the setup for this document, however many network variations can be supported.



For more information: <http://www.redlion.net/support/policies-statements/warranty-statement>

