

Description: Guide to configuring and running the Modbus OPC Server 3.x **OS Requirement:** Win 2000, XP Pro, Server 2003, Vista, Server 2008, Windows 7

General Requirement: ICONICS Modbus OPC Server 3.x

Introduction

The Modbus OPC Servers allows you to configure OPC Tags that acquire process data from Modbus compliant devices. The device has many features including RTU and ASCII Serial communication supports, tag multiplier, simulating process data, and much more.

This document will guide you through the steps of configuring your Modbus 3.x server.

Configuring the Modbus Server

 Start the Modbus Configurator by going to Start → Programs → ICONICS Modbus OPC Server 3.x → Modbus OPC Configurator

file Edit Yeaw Go Iool	is theip		_			
0	+ 曲 法 电	E 12	计算机		2	
E 12 Address Space	Name	Smilate	File Name	Baud Rate	Transmission Mode	Byte Size
Conversions	PortA	No	COMIL	9600	RTU	
Device Parameters Simulation Signals Aarm Definitions	PortB	No	COM2:	9600	RTU	1

Figure 1 - Modbus Configurator

- Select File → New from the menu and specify a name for the configuration. We will use MyModbus.mdb in this example and Click on "Save" to create the new configuration.
- 3. Select File → Make Active... and click on "Yes" to confirm in the dialog window that comes up.
- 4. In the tree-control in the left-hand pane, right-click on Address Space and select New → Port
- 5. Give the Port a name and specify the settings for the port. If you do not have a device to connect to yet, you can check to simulate the device.



Figure 2 - Device Port Settings

NOTE: These Settings must match the settings of our Modbus device.

- 6. Click on the "Apply" button when you are done.
- 7. In the left-hand pane, right-click on the port that you have just created and select New → Device
- 8. Give the device a name and configure the device. You can configure your device similar to Figure 3.

	MyDevice	
Address:	1	Simulate
Г Туре		Timeouts (ms)
C Custom	O 884	Read: 1000 <u>W</u> rite: 1000
184	O 984	Timeouts to Suspend Sonon
O 384	Micro 84	suspend: 1 5 period: 1 60000
O 484	C Quantum	- Optimizations
O 584	C ModCell	The numbers below indicate how much unused
O 584L	Other (any)	data can be transferred in one message to merge
Parameters:		together addresses that are close but not adjacent.
<not assign<="" td=""><td>ed></td><td>Bjts: 160 Words: 5</td></not>	ed>	Bjts: 160 Words: 5

Figure 3 - Device Properties

- 9. Click on the "Apply" button when you are done.
- 10. Right-click on the device that you have just created and select New → Data Item
- 11. Give the data item a name and set its properties. You can create a Temperature tag as shown in Figure 4 if you wish.

Name: Temperature					
Description:	☑ <u>S</u> imulate				
Location type © 0xxxx: Coil (bit, r/w) © 1xxxx: Input (bit, ro) © 3xxxx: Input register (word, ro) © 4xxxx: Holding register (word, r/w)	Signal: Ramp(T)				
Mgdbus type C BOOL © UINT C STRING C INT C UDINT C DINT C REAL Data length (bytes): 10	Starting address: 1 Bit field				

Figure 4 - Temperature Tag Settings

- 12. Click on "Apply" when you are done.
- 13. Create another Data Item. You can create a Pressure tag as show in if you wish.

OPC Servers – Modbus OPC Server 3.x Quick Start

PPLICATIONS NOTE



Figure 5 - Pressure Tag Properties

- 14. Click on "Apply" when you are done.
- 15. Right-click on the device in the left-hand pane and select Monitor View to see live data.

Item ID	Value	Timestamp	Quality	Subquality	Limit
MyPort.MyDevice.Pressure	1 (VT_I4)	05/22/06 17:04:53.719	Good	Non-specific	Not Limited
MyPort.MyDevice.Temperature	1 (VT_I4)	05/22/06 17:04:53.719	Good	Non-specific	Not Limited

Figure 6 - Monitor View

16. You can exit the configurator. Any OPC client can now browse to the Modbus OPC Server and use the OPC tag.

Scaling

Scaling is an advanced capability of the Modbux OPC Server 3.x. It is used to convert raw device data into meaningful engineering data. In the following example, we will demonstrate how a temperature sensor with a value from 0 to 65535 to have engineering values from -10 to 300 Degrees Celsius.

- 1. Start the Modbus OPC Configurator if its not already started
- 2. In the tree-control in the left-hand pane, right-click on the Conversions folder and select New → Conversion
- 3. Set the High Instrument Range IR to 65535
- 4. Set the Low Engineering Units EU to -10 and the High Engineering Units EU to 300.

Name: Temperature Conversion						
Lype of convenion Convenion parameters No (make float)						
Clamping None Clamp on EU As specified	Clamping parameters Logy clamp: 0 High clamp: 100					
Apply Beset Add New						

Figure 7 - Temperature Conversion Properties

5. Click on "Apply" when you are done.

April 2010

- 6. If you have followed the example and created a Temperature tag in the previous section, select the tag.
- 7. In the tag configuration, check Use Conversion and select the Temperature Conversion we have just created.

	conversion
Name:	Temperature Conversion



8. Click on "Apply" when you are done.

Alarming

You can configure alarm limits for each tag in your Modbus configuration. You can directly connect industry standard OPC Alarm & Event Clients to your server such as theICOINCS AlarmWorX32 viewer to this server.

- In the tree-control on the left-hand pane, right-click on Alarm Definitions and select New → Limit Alarm Definition
- 2. Give the alarm a name and configure the alarm settings. You can use as a guide to configure a Temperature Alarm.

Name: TempAlarm					
Limit alarm definition					
Limit: Value:	Message Body:	Severity:	Req. Ack.:		
И <u>Н</u> іНі 90	Too Hot	500			
🖬 Hj 🛛 80	Too Warm	500			
<u>R</u> eturn to normal	Return to Normal				
✓ Lo 30	Too Cold	500			
✓ LoLo 20	Almost Freezing	500	$\overline{\mathbf{v}}$		
Apply Beset Add New					

Figure 9 - Limit Alarm Settings

- 3. Click on "Apply" when you are done.
- 4. If you have followed the example and created a Temperature tag in the previous section, select the tag.
- 5. In the tag configuration, check Generate Alarm and select the alarm that you have just created in the Limit Alarm dropdown list.

Generate /	Alarms		
Mess. <u>p</u> refix:			
Limit Alarm:	TempAlarm	Digital Alarm:	<not assigned=""></not>

Figure 10 – Set Alarm on Temperature Tag

6. Click on "Apply" when you are done.