## AD\ANTECH Enabling an Intelligent Planet

### **Advantech AE Technical Share Document**

Date	2017/10/16	SR#	1-3054853387				
Category	□FAQ ■ SOP	Related OS	N/A				
Abstract	IAG_FAQ_ADAM-6000_6200_How to use Node-RED to poll Modbus TCP data						
Keyword	Node-RED, Modbus TCP, ADAM-6000, ADAM-6200						
Related							
Product	ADAM-6000, ADAM-6200						

#### Problem Description:

Node-RED is a visual tool for wiring the Internet of Things. It's built on Node.js and support browser-based flow editing. User can download different Node-RED library to develop their own IoT application.

This document will show how to use an open source Node-RED library to poll Modbus TCP data from ADAM Ethernet module.

#### Answer

**Step 1**: Go to below link to install Node.js to your PC. <u>https://nodejs.org/en/download/</u>

**Step 2**: Open command line and enter the command below to install Node-RED. **Note**: This command only works after Node.js have installed successfully. install -g --unsafe-perm Node-RED

**Step3:** Open command line again and enter below command to run Node-RED on your PC Node-RED You should see below screen in command line.

\$ node-red							
Welcome to Node-RED							
25 Jun 22:51:09 - [info] Node-RED version: v0.17.4							
25 Jun 22:51:09 - [info] Node.js version: v6.11.1							
25 Jun 22:51:09 - [info] Loading palette nodes							
25 Jun 22:51:10 - [warn]							
25 Jun 22:51:10 - [warn] [rpi-gpio] Info : Ignoring Raspberry Pi specific node							
25 Jun 22:51:10 - [warn]							
25 Jun 22:51:10 - [info] Settings file : /home/nol/.node-red/settings.js							
25 Jun 22:51:10 - [info] User Directory : /home/nol/.node-red							
25 Jun 22:51:10 - [info] Server now running at http://127.0.0.1:1880/							
25 Jun 22:51:10 - [info] Creating new flows file : flows_noltop.json							
25 Jun 22:51:10 - [info] Starting flows							
25 Jun 22:51:10 - [info] Started flows							

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then you can then access the Node-RED editor like below picture at <u>http://localhost:1880</u>.

( i   localhost:1880/#		V C Q Search	☆ 自 🖡 🎓 💟 🚍
Node-RED			Deploy -
Q filter nodes	Flow 1	+	info debug
~ input			
⇒ inject			
catch			
status			
🗦 link 🖓			
)) mqtt			
Attp			
websocket			
)) tcp			
) udp 🖓			

**Step 5:** Enter below command in the root directory of your Node-RED install

npm install node-red-contrib-modbustcp

More information can refer to the below link

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https://www.npmjs.com/package/ Node-RED-contrib-modbustcp

After finishing installation, you will see "modbustcp" node appears on your Node-RED editor.

Node-RED								- Deploy -	≡
Q filter nodes	Flow 2	Flow 1	Flow 3		+	info	debug	dashboard	×
) mqtt					-	Information			^
🔷 http						Modbus TCP client node. Conn	ects to a Modbus TCP server to re	ead register values at a give	n poll
websocket						Function codes currently supp	ported include:		
i) udp						<ul> <li>FC 2: Read Discrete Inputs</li> <li>FC 3: Read Holding Register</li> <li>FC 4: Read Input Registers</li> </ul>	ers		
output					Choose a function code (FC) from the dropdown menu, select the coil/input/register start address (0:65535), and the quantity of coils/inputs/registers to be read from the start address. Input a poll rate (greater than zero) in seconds to setup the poll rate. Choose or edit the Modbus TCP server configuration.				
debug						Outputs an object called <b>msg</b> co coils/inputs/registers.	ontaining <b>msg.payload</b> with an a	rray of the read	



#### Step 6: Pull and connect the node as below flow

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**Step 7:** Double click the modbustcp node and enter the setting below. This example will read the Modbus address from 00001 to 00008 Note: The start address is 0, if you set 1, it will read 00002 to 00009

Edit modbustcp	node
Delete	Cancel Done
v node propert	ies
Name	ADAM-6066
III FC	FC 1: Read Coils
Address	0
Quantity	8
A country	0
O Poll Rate	1 second(s)
Server	modbustcp@10.1.1.66:502 🔻

Click the small pen to set the Modbus server information, enter the IP of ADAM module as below.

				_
modbustcp > E	dit modbustcp-server node			
Delete		Cancel	Update	
Host	10.1.1.66			
Port	502			
📕 Unit Id	1			
O Reconnect	Interval (s)			
5				

Step 8: Click Deploy button on the upper right button to run the flow

Then click the green tab on debug node, you will see the Modbus tcp data on the right column.

Rode-RED							1	=/ Deploy 🔻	≡
Q filter nodes	Flow 2	Flow 1	Flow 3	Flow	÷	info	debug	dashboard	ж
) mqtt					^			T current flow	w 💼
The http						2017/10/25 下午2:51:37 node: b7 ADAM-6066 : msg.payload : array[	c8dcfb.04d93 81		
websocket					-11	[ false, true, true, true	true, false, false, false ]	3	
👌 tcp	)) ADAM-6066		msg.pavload	-2		2017/10/25 下午2:51:38 node: b7 ADAM-6066 : msg.payload : array[	c8dcfb.04d93 8]		
) udp	Connected: Rate: 1	s				[ false, true, true, true,	true, false, false, false ]		
)) modbustcp						2017/10/25 下午2:51:39 node: b7 ADAM-6066 : msg.payload : array[	c8dcfb.04d93 8]		
						[ false, true, true, true,	true, false, false, false ]		
✓ output						2017/10/25 下午2:51:40 node: b7	c8dcfb.04d93		
debug						ADAM-6066:msg.payload:array[ [ false, true, true, true,	8] , true, false, false, false ]		



You can open adam.net Utility to check whether the DI status is correct.

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Note: The "node-red-contrib-modbustcp" version in this document is 0.2.2. User might install to newer version since this open source library will keep updating by the author. However, the concept to use this node for polling Modbus TCP data is the same.