

X2BACnet User Manual

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1 Preface

1.1 Disclaimer

This user manual belongs to Shanghai Sunfull Automation Technology Co., Ltd. and authorised Licensor all rights, retain all rights. Without the company's written permission, no unit and individual may unauthorized excerpt, copy the content of the book part or all. The contents of this manual may be changed due to product version upgrades or other reasons. This manual is used in conjunction with Sunfull hardware gateway, and we do our best to provide accurate information in this manual.

1.2 Technical Support

- Email: support@opcmaster.com
- TEL: +86 021-58776098
- website: http://www.opcmaster.com/english/

http://www.bacnetchina.com/english/

1.3 Software Install and Uninstall

X2BACnet software is a green installation.

- No operation of the registry
- Do not operate the sensitive area of the system, including the root directory of the system starting area, the installation directory (Windows directory), the program directory (Program Files), and the account specific directory.
- Do not write anything to the directory outside my directory.

Because the program itself does not have any effect on any file other than its directory, there is no installation and unloading problem at all.

The deletion of the program, as long as the directory of the program and the corresponding shortcut are deleted (if you manually set a shortcut on the desktop or other position), the program is completely clean from your computer, without leaving any garbage.

• No need to install, copy and copy at will.



2 Overview

2.1 Feature

- X2BACnet is a protocol gateway, X means different kind of communication protocol, 2 means to. BACnet means support standard BACnet IP/MSTP protocol. The software supports simulation test. (Note: BAC1002-ARM can't support BACnetMSTP protocol. The following is no longer repeated.)
- Definition: X2BACnet as a communication bridge, it transfer different protocol to BACnetIP Protocol. BACnet gateway make different machine seamless integration.
- Advantage:
 - 1. Easy to Configure and Operation.
 - 2. Support PC simulation with X2BACnet.
 - Support the User review data and communication status. And download files and X2BACnet software from website.
 - 4. Support nearly 500 protocols transfer to BACnetIP/MSTP.
 - 5. Gateway support analog linear transformation, support function, high and low byte exchange function.
 - 6. Support the user permission management.

2.2 Operation Platform

- Support Win 7/Win8/Win10/ XP/2000/2003
- WEB browser with Google Chrome、IE9 and above、Opera、Safari、and firefox



2.3 Applicable product models

BACnet-Lite series:BAC1001-Lite, BAC1002-Lite, BAC2004-Lite BACnet-ARM series:BAC1001-ARM, BAC1002-ARM, BAC2004-ARM, BAC2004-A9 MBus to BACnet gateway series:BAC1001-MBus, BAC1002-MBus, BAC1010-MBus,BAC1011-MBus

2.4 Supported Registered Type and Number

Internal support BACnetIP server gateway, The default port is 47808, Device ID assigned by user, be careful not to conflict with other devices within the same network segment, the support of the server's register type and the number in the following table 2-3-1. BAC2004-ARM limit points to 1024. BAC1002-ARM limit points to 256.

Note: gateway each register can build up another 1024 points, and the maximum 9 types of BACnet register a total of 1024 points, the specific points assigned by the users themselves.

Degister Type		Number o	f Registers	
Register Type	1001/1010	1002/1011	2004(ARM/Lite)	2004-A9
AI (Read only)	256	512	1024	2048
AO(Read and Write)	256	512	1024	2048
AV(Read and Write)	256	512	1024	2048
BI (Read only)	256	512	1024	2048
BO(Read and Write)	256	512	1024	2048
BV(Read and Write)	256	512	1024	2048
MSI(Read only)	256	512	1024	2048
MSO(Read and Write)	256	512	1024	2048
MSV(Read and Write)	256	512	1024	2048



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2.5 Application Fields

Hardware gateway BAC2004 (2 Ethernets & 4 RS485s) and BAC1002-ARM(1 Ethernet & 2 RS485s) support different protocols convert to BACnet protocol, can solve the problem that the large BA company is unable to connect to some of the less common configuration software control equipment. Through hardware gateway to convert different protocols to BACnetIP/MSTP standard protocol, make BACnet client configuration software can access.



3 Configuration And Operation

X2BACnet is a configuration software running on the PC. It used to configure project, upload the project to the machine hardware gateway. Finally, monitor by hardware gateway. X2BACnet also can be used alone on the PC.

Double click X2BACnet. exe(It is recommended to run as an administrator), open the main interface, as the following figure 3-1.

<u>File Edit View</u>	Tools BACn	et Server Web	Server Gateway <u>H</u> elp					
D 📽 🖬 🍘	a 🖪 💕 🞒	8 X B C	X 🚲 🕨 🗉 🛠 🛱 😫					
🗆 🇊 ModbusRT	U	Item ID	Register Type	Register Ad	DataTy	Value	Quality	Timestamp
🗄 🚰 Channe	_1	Tag_1	4X(Holding Register)-F6	1	Word	[degrees-celsius]	Uncertain	
Dev.	ice_1	Tag_2	4X(Holding Register)-F6	2	Word	[degrees-celsius]	Uncertain	
		Tag_3	4X(Holding Register)-F6	3	Word		Uncertain	
		Tag_4	0X(Coil Status)-F5	4	Boolean		Uncertain	
		Tag_5	0X(Coil Status)-F5	5	Boolean		Uncertain	
		D Tag_6	0X(Coil Status)-F5	6	Boolean		Uncertain	
		Tag_7	4X(Holding Register)-F6	7	Word		Uncertain	
		Tag_8	4X(Holding Register)-F6	8	Word		Uncertain	
		Tag_9	4X(Holding Register)-F6	9	Word		Uncertain	
		•	m					
Date	Time	Event						
2018/6/20	15:15:02	Open F	Project 'D:\工作文件夹\products\网	产品\凌动网关30\X	2BACnet-LC	G\X2BACnet(for BTLtestin	ng)\Project\Modb	usRTU.x2b'
2018/6/20	15:15:02	Local V	Veb Server Listening Port:80	10 Å		- 11 - 11 - 11 - 11 - 11 - 11 - 11 - 1	7.89 C 4	
	i							

Figure 3-1 Main interface

The simple operation is as follows.



Figure 3-2 Simple operation flow

3.1 New Driver

Click "Edit" of the menu bar to choose "New driver" or click on the toolbar icon



	lew Driver lew Channel lew Device lew Group lew Tag	Ctrl+D	D B	Register Type	Register Ad	DataTy	Value
	lew Channel lew Device lew Group lew Tag	Ctrl+D	ID	Register Type	Register Ad	DataTy	Valu
IN IN	IEW I AG						
C C Pi D	ut opy aste elete	Ctrl+X Ctrl+C Ctrl+V Del					
В	atch Modify						

, open the Driver Properties window as the following figure 3-1-1.

Figure 3-1-1 New Driver

In the pop-up window, Choose Driver Modbus RTU, As the below Figure 3-1-2.

iver List	1
odbusRTUClient 💌	0K
odbusRTUCLient	
Name: ModbusRTU	Cancel
Scan Rate: 1000 mg	

Figure 3-1-2 choose Driver

Input driver name in the name of the project, the default Scan Rate is 1000 milliseconds. Scan Rate can adjust the frequency of access to all devices. If the time required to access all the devices is greater than the set scan rate, this time is invalid. if the time required to access all the devices is less than the set scan rate, the waiting time needs to reach the set scan rate for the next visit. User can according to the actual situation, change the scan rate.

After finish adding driver, as the below figure 3-1-3.



File Edit View Too	S BAChet Server	The server Gateway		
ModbusRTU	Item ID	Register Type	Register Address	Data

Figure 3-1-3 Finish adding driver

3.2 New Channel

In the current driver, right click to select "New Channel" or click on the toolbar As the following figure 3-2-1.

	💷 🚰 🛄 🖾 🔟 🖺	1 & B	🖻 🗙 🐌 🕨 🤅		
- 🔠 Modbu	ISRTU Item ID		Register Type	Register Address	Data
	New Channel				
	Cut	Ctrl+X			
	Сору	Ctrl+C			
	Paste	Ctrl+V			
	Delete	Del			
	Properties				
< III.	+ -				•

Figure 3-2-1 New Channel

In the pop-up window, according to corresponding set by the driver communication protocol channel names can be arbitrary naming, As the following figure 3-2-2.



0 🖻 🖬 👩	Channel Name	
- 🗐 Modbusi	Communication Parameters	ddress Data
	Port: COM1 - Baud Rate: 9600	•
	Data Bits: 8 Stop Bits: 300 600 1200	
	Parity: None 💌 Flow Control: 2400 4800	
	Response Timeout: 1500 ms 19200 38400	
	56000 57600 76800 0K Cancel 115200	

Figure 3-2-2 Set communication parameters

Since the acquisition terminal is intended to collect data from Modbus slave stations, so the setting of the setting of serial communication parameters should be consistent with the parameters in Modbus Slave.

When communication is normal, response timeout set longer does not affect communication speed. If the response speed of the device is relatively slow, it is recommended to set up a bit longer to avoid communication failure, As the following figure 3-2-3.



X2BACnet - V	Serial Port Communication Configuration		X
File Edit Vie	Channel Name Channel		Det
III) Modbusi	Communication Parameters Port: COM1 Baud Rate: 9600 Data Bits: 8 Stop Bits: 1 Parity: None Flow Control: None Response Timeout: 1500 ms	Address	Dat
✓ III Modbus Slave	- Mbslav1		23
File Connection	Setup Display View Window Help		
Mbslav1 ID = 1 No connect 40001 = 40002 = 40003 = 40004 = 40005 = 40006 = 40007 = 40008 = 4	Fort 2 Fort 2 Mode Ignore Unit ID Bata bits Ignore Unit ID Flow Control Flow Control IStop Bit I Stop Bit		
For Help, press F1	. For Edit, double click on a value Port 8: 96	00-8-N-1	

Figure 3-2-3 Channel parameters are consistent

After finish adding the channel, As the following figure 3-2-4.

	≝ Ø 🗊 Å 🖻			
⊡-∰ ModbusRTU	Item ID	Register Type	Register Address	Data
< <u> </u>	<			•

Figure 3-2-4 finish adding Channel

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3.3 New Device

In the current Channel, Right-click to choose "New Device", or click on the toolbar 4. As the following figure 3-3-1.

	A 🗒 📽 🗊 🖆	P X B	3 × ĩ₀ ► ■ %		
	TU Item ID		Register Type	Register Address	Data
s i chann	New Device	Ctrl+D			
	Cut	Ctrl+X			
	Сору	Ctrl+C			
	Paste	Ctrl+V			
	Delete	Del			
	Properties				
e []					

Figure 3-3-1 New Device

In the pop-up window set device properties , As the following figure 3-3-2.

Name: Device_1		
Device ID: 1		
ay Between Polls: 50		ms
)elay After Write: 50		ms
es Integer Order: 21	.	
tes Integer Order: 2143	•	
Bytes Float Order: 4321	-	
Bulk Transfer		
Analaog Adjacent Span:	4	
Analaog Max Span:	8	
Binary Adjacent	4	
Binary Max Span:	64	





In order to improve the communication speed, the packet register communication can be realized under the continuous register address. When the device does not support packet communication, the parameters of the group package should be set to 0. In addition, when the response time of the device is slow, you can set the time interval between the data frame and the frame (that is Delay Between Polls) . The default of Delay Between Polls is 100 microseconds. As the following figure 3-3-3.

2 Bytes Integer Order, 4Bytes Integer Order, and 4 Bytes Float Order means the combination of integer or floating point byte order, the default is 4321. These parameters are used in combination with field devices for data transmission.For example, some meters adjust the sequence of high and low byte in the transmission of data, which will be used at this time. The default parameters are generally used, As the following figure 3-3-3.

Name:	Device_1	
Device ID:	1	
Delay Between Polls:	50	ms
Delay After Write:	50	ms
2 Bytes Integer Order:	21 💌	
4 Bytes Integer Order:	4321 💌	
4 Bytes Float Order:	4321 4312 3421	
-Bulk Transfer	3412	1
Analaog Adj	2143 2134 1942	
Analao	1243	
Bina	ry Adjacent 4	
Binar	y Max Span: 64	

Figure 3-3-3 Byte order

After finish adding the device, As the following figure 3-3-4.



X2BACnet - Untitled.x2	b * BACnet Server V	Veb Server Gateway He		X
D 📽 🖬 🎟 🕫 🔳	ef 👩 😭 🐰 🖻	n ® × ‰ ► ■ %	LOAD LEP	
⊡ ∰ ModbusRTU ⊡ ∰ Channel ☐ ∭ Device_1	Item ID	Register Type	Register Address	DataT
∢ III ► I Monitor Mode:Local PC	∢ Total Items:0 Valid	Items:1024 www.opcmas	ter.com 1356488934	• 0 sut //

Figure 3-3-4 finish adding device

3.4 New Tag

In the current Channel, Right-click to choose directly add tag (also add group first, and then new tag in the group), or click on the toolbar 🚳, As the following figure 3-4-1.

File Edit View	Tools BACnet S	Server Web	Server Gateway	Help		
D 📽 🖬 🎟 s	• 🖪 💣 👩 😭	' X 🖻 f	3 × 🌆 ► 🔳	🛠 🙀 詩		
⊡ 🗊 ModbusRTU	Item ID		Register Type	Register Address	DataType	V
🖻 🚰 Channel						1
	New Group					
	New Tag					
	Export EXCEL. Import EXCEL					
	Cut	Ctrl+	x			
	Сору	Ctrl+	c			
۲ III	Paste	Ctrl+'	v			•
Date	Delete	De	el	Event		1
•	Properties					*

Figure 3-4-1 New Tag

Or right-click on the right side of the edit box blank space, add a new tag. As the

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following figure 3-4-2.

🗅 📽 📮 🇊 🏓 🖪 💣 🞒 😭	ä 🖻 🖻 🗙 🐞	▶ ■ 🛠 鱓 篩		
⊡ · ∰ ModbusRTU ⊟ · ç≇ Channel_1	Item ID	Register Type	Register Addre	Da
	< [+

Figure 3-4-2 New Tag

In the pop-up window, Set the parameters of collection and transfer(BACnet Server), As the following figure 3-4-3.

		- OK
Иал	ne: test1	
Descriptio	on:	Cancel
Data Typ	pe: Word (2Byte, 0~65535)	- I
Register Typ	pe: 4X (Holding Register)-F6	•
Gegister Addres	ss: 1	
Gegister Addres Mask V	alue 🗖 Bit: 0 💌	
≦egister Addres Mask V ⊤Scale—	ss: 1 alue	
Mask V Mask V Scale Enab	alue Bit: 0 💌	
Segister Addres Mask V Scale Enab	ss: 1 Bit: 0 I	
Segister Addres Mask V Scale Enab Gransfer (BACnet Object Type	ss: 1 Bit: 0	

Figure 3-4-3 Tag Properties

In the tag properties pop-up window ,fill in the Name, Description, Data type,

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register, Register Type, Register address etc. As above figure, a register address of collection end is 40001, data type is Word.

When the data type is Short, Word, Long or DWord, can be valued by byte data bits. Click "Mask Value", you can pick up a byte 0-15. As the following figure 3-4-4.

		07/
Name	e: test1	UK
Description	n:	Cancel
Data Typ	e: Word (2Byte, 0~65535)	•
Register Type	e: 4X (Holding Register)-F6	•
Register Addres:	s: 1	
Mask Va	lue 🔽 Bit: 0 💌	
	1	
Scale	a Satting	
1 Litabi	5 6	
	7	
Iransfer (BACnet	Server) 9	
Iransfer (BACnet Object Type:	Server) 9 10 10 11	•

Figure 3-4-4 Mask Value

For some special data, we can also enable the linear transformation function to realize the linear amplification and reduction of data. Note that the initial address of the BACnet server's address is from 0. As above figure, the value of the Modbus register is collected and stored in the AV0 address of the BACnet server.

The supported type of registers are 0X, 1X, 3X, 4X. For the 0X and 4X register types, 0x (Coil Status) -F5 and 4x (Holding Register) -F6 are generally chosen by default. A write function code Behind the bar line.

Click "Scale", You can do the linear transformation, and two minimum value is invalid, you just need to set a maximum. To expand 100 times, Raw Data is set to 1, Engineer Date can be set to 100. As the following figure 3-4-5.



Tag Process Settings	
Conversion Offset: 0 Raw Data Min: 0 Max: 1	Engineer Data Min: 0 Max: 100
	确定 取消



After finish adding a tag, As the following figure 3-4-6.

X2BACnet - Untitled.x2	2b *			
File Edit View Tools	BACnet Server W	eb Server Gateway He	lp	
🗅 🗳 🔒 📾 🏓 🖪	🗳 률 😰 X 🖻	🖻 🗙 🏭 🕨 🔳 🔗		
⊡ 🗊 ModbusRTU	Item ID	Register Type	Register Address	DataType
⊡s [®] Channel <mark>⊞</mark> Device_1	test1	4X(Holding Register)	1	Word
< III •	<			•
Data		Time	Event	
Monitor Mode:Local PC	Total Items:1 Valid	Items:1024 www.opcmast	ter.com 1356488934	0 support@o

Figure 3-4-6 finish adding a tag

You can continue to add steps one by one, and suggest using the copy and paste of the toolbar. Select a tag to copy, click the copy button in the toolbar, or choose the copy on the right button, or use shortcut key Ctr+C and Ctrl+V, as the following figure $3-4-7_{\circ}$





D 🚅 🔒 🌆 🕫 🖪	💣 💋 😭 🐰	🖻 🖻 🗙 🦓 🕨 🔳	え 賢 部	
	Item ID	Register Type	Register Address	DataType
🗄 🚰 Channel	A test1	4X(Holding Register)	1	Word
Device_1	test2	4X(Holding Register)	2	Word
	test3	4X(Holding Register)	3	Word
	test4	4X(Holding Register)	4	Word
	test5	4X(Holding Register)	5	Word
	test6	4X(Holding Register)	6	Word
	test7	4X(Holding Register)	7	Word
	test8	4X(Holding Register)	8	Word
	test9	4X(Holding Register)	9	Word
4 III III	•	III		

Figure 3-4-7 Copy Tag

It can also be edited in the EXCEL table, and then edit the engineering point by importing excel and exporting excel functions.

Right-click the device to choose "Export Excel", As the figure 3-4-8. Save as xls file.

File Edit Viev	v Tools BACnet 9 I 🐗 📆 💕 🚮 🖆	Server Web Serve	r Gateway Help		
⊡ ∰ ModbusR	TU =1_1	Item ID	Register Type	Register Addre	Da
	New Group New Tag Export EXCEL				
	Import EXCEL Cut Copy Paste Delete	Ctrl+X Ctrl+C Ctrl+V Del m			•

Figure 3-4-8 Export EXCEL

Save the completed, open the EXCEL for editing, As the figure 3-4-9.



	9	- (4 -)	÷ [Device_1.xls	[兼容模式]	Microsof	t Excel	-	a des		x
	开始	插入	页面布局	公式 数	据审阅	视图				🥥 -	e x
第二日本		Arial 18 <i>I</i> <u>U</u> 田 - 〇 字()	• 10 • • A* A* ▲ • ₩₫ \$	 三 三		见 → → % , → % 数字 [□]	様式	計●插 計●删 開格:	入▼ Σ * 除▼ 및▼ 式▼ 2* 格	27 0 排序和 查抄 筛选 • 选择 编辑	€#0 ¥
	D7		• (• f _x								*
	A	В	0	>	D	E	-	F	G	Н	-
1 ID 2 3 4 5 6 7 8 9 9	1	Name test1	RegType 4X(Holding Re	egister)-F6	RegAddre 1	ss Data1 Word	Type BA	ACnetTy 1	BACnetAc 0	Description	
10 11 12 13 14 if () 就绪	▶ Sh	eetl 😨	7			0.4		1009	% 🗩	Ū.	×



After editing the Excel file, As the figure 3-4-10.

0		7-(2-)	∓ [Device_1.xls	兼容模	式] - Mi	crosoft Ex	cel	-	A.M.		×	_
	ディー	插入	页面布局	公式 数	据	审阅	视图				🥑 -	-	×
影	● よ ■ い い い い い い い い い い い い い	Arial BIUU S	• 10 • • A A • A • ♥ ★ □	 三 三		常规 99 ← 0 *:8 \$?8 数字	* % •	A 样式	計● 插 計● 删 開格: 単元	入▼ Σ▼ 除▼ 및▼ 式▼ 2▼ 格	▲ 排序和 查 筛选 → 选 編辑	花 找和 择•	
	F12		• (*) fx										≽
	A	В	(>		D	E		F	G	Н		
1	ID	Name	RegType		RegA	ddress	DataType	e BA	CnetTy	BACnetAd	Descriptio	on	
2		1 test1	4X(Holding Re	egister)-F6		1	Word		1	0			
3		2 test2	4X(Holding Re	egister)-F6		2	Word		1	1			
4		3 test3	4X(Holding Re	egister)-F6		3	Word		1	2			
5		4 test4	4X(Holding R	egister)-F6		4	Word		1	3			-
6		5 test5	4X(Holding Re	egister)-F6		5	Word		1	4			
7		6 test6	4X(Holding Re	egister)-F6		6	Word	_	1	5		_	
8								_					
9					_			_					
10								-				_	
11								-		-		-	
12					_							-	
13								_					
14													Y
14	I I I S	heetl 🦯 🗘							111				
就约	者								1009	6 😑 🔛		•	

Figure 3-4-10 Edit the EXCEL

Back to X2BACnet software, Right-click the device to choose "Import Excel", find

the edited Excel file to import. As the following figure 3-4-11.

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X2BACnet - Unti	tled.x2b *	18 40 8	10 10 10		x
File Edit View	Tools BACnet	Server Web Serve	r Gateway Help		
	• 🖪 💣 👩 🖆	7 🎖 🖻 🖻 🗙	🍋 🕨 🔳 📯 🙀 😫		
⊡- Modbus RTU		Item ID	Register Type	Register Addre	Dat
Channel_1	Gannel_1		4X(Holding Register)-F6	1	Wo
	New Group				
	New Tag				
	Export EXCE				
	Import EXCE	L			
	Cut	Ctrl+X			
	Сору	Ctrl+C			
	Paste	Ctrl+V			
	Delete	Del			+
I Monitor Mode:	Properties	D2	24 www.opcmaster.com 135648	89340 support@opcn	na //

Figure 3-4-11 Import EXCEL

The import is complete, the following figure 3-4-12.

) 🖻 🖬 🌆 🕫 🔳	💕 🞒 😭 👗 🖻	n 🖻 🗙 🏭 🕨 🔳 🛠 🛒 🕷	t .	
ModbusRTU	Item ID	Register Type	Register Addre	DataType
🗄 🚰 Channel_1	test1	4X(Holding Register)-F6	1	Word
Device_1	test2	4X(Holding Register)-F6	2	Word
	test3	4X(Holding Register)-F6	3	Word
	test4	4X(Holding Register)-F6	4	Word
	test5	4X(Holding Register)-F6	5	Word
	test6	4X(Holding Register)-F6	6	Word

Figure 3-4-12 Complete the import

3.5 BACnet Server

3.5.1 BACnet IP Setting

BACnet server support BACnet IP protocol and BACnet MSTP protocol. Click on the menu bar "BACnet server" option "BACnet IP Setting", As the following figure 3-5-1-1.

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File Edit View Tools E	ACnet Server	Web Server Gateway He	р		
🗅 🖨 🖬 🎟 🕫 🔳 (BACnet IP	Setting	LOAD 1		
⊡ · ∰ ModbusRTU	BACnet M	STP Setting	Register Address	DataType	
🗄 🚰 Channel	BACnet Ch	aracters Encoding	1	Word	
Device_1	, conce chi	and certa Encouning regretery.	2	Word	
	test3	4X(Holding Register)	3	Word	
	tes <mark>t</mark> 4	4X(Holding Register)	4	Word	
	test5	4X(Holding Register)	5	Word	
	test6	4X(Holding Register)	6	Word	
	test7	4X(Holding Register)	7	Word	
	test8	4X(Holding Register)	8	Word	
	test9	4X(Holding Register)	9	Word	
•		III			

Figure 3-5-1-1 BACnet IP Setting

Set the BACnet device ID in the pop up dialog, fixed port number is 47808, as below the 3-5-1-2. Note that device ID should not repeat with other BACnet devices in the same network segment, otherwise it will lead to communication failure. In addition, the gateway can be named in order to quickly distinguish different address gateways in the upper computer system.

le Edit View Tools B	ACnet Server Web Server Gateway Help		
) 😅 🔒 🎯 🍠 🖪 💣	🞒 🖆 👗 🛍 🛍 🗙 🦓 🕨 🔳 📯 🍃	AD 1	
ModbusRTU	BACostID Server Setting	er Address	DataType
🗄 🚰 Channel 🛛 👔			Word
Device_1	Device Name: SunFull BACnet Server		Word
A	Provention		Word
1			Word
	Fort: 47808		Word
	Device ID: 10		Word
			Word
1 A	OK Cancel		Word
<u> </u>			Word
•	III		
	Time	Europe	

Figure 3-5-1-2 BACnetIP Server Setting



3.5.2 BACnet MSTP Setting

Click on the menu bar "BACnet server" option "BACnet MSTP Setting", As the following figure 3-5-2-1.

File Edit View	Tools B	ACnet Serve	r Web	Server Gateway	Help			
	A 🖪 (BACnet	P Setting					
🗆 🗊 Simulator		BACnet	MSTP Set	ting		Register Addres	s DataType	Value
🗄 覺 Channe	L1	Sort Obi	ect Insta	oce Number		8	Word	0
Dev.	ice_1	BACast Characters Face dias		10	7	Word	0	
		BACnet Characters Encoding			•	6	Word	-44
		🚺 Ta	g_5	Random		5	Word	32
		🚺 Ta	g_4	Sine		4	Word	18
		🚺 Ta	Tag_3 Sine Tag_2 Const			3	Word	18
		🚺 Ta				2	Word	4660
		Tag_1 Const			1	Word	0	
		•	۰ m					
Date	Time		Event					
1 2018/6/28	11:25:28	3	UDP Po	rt: 0xBAC0 [47808]			
1 2018/6/28	11:25:28	3	Succeed	to Open BACnet	IP Server.			
A 2018/6/28	11.25.29	5/28 Succeed to Open BAChetIP Server						

Figure 3-5-2-1 BACnetMSTP Server Setting

In the pop-up dialog, select "Enable MSTP Slave", set the DeviceID and MAC address (the device ID and Mac address are as consistent as possible), the serial channel, the baud rate and other parameters of the BACnet slave device. The gateway can also be named, so that the different gateways can be distinguished in the upper computer configuration, and the device ID in the BACnetMSTP server and the device ID in the BACnetIP server are shared. The specific setting is as shown in figure 3-5-2-2.

It is suggested that the COM1 port be used as the BACnetMSTP communication port.



Enable MSTP :	Slave: 🔽	Device Name: Su	nFull BACn	et Server
-Parameter —				
Device ID:	2603	Mac Addres	s: 29	
Port:	COM1	💌 Baud Rat	e: 38400	•
Data Bits:	8	💌 Stop Bit	s: 1	*
Parity:	None	Timeou	1t: 50	ms



3.6 Upload the project(Remote Gateway Monitor Mode)

Before uploading project, we must ensure that the monitoring mode is Remote Gateway mode, and the specific mode switching operation is as follows.

- on the menu bar , monitor mode under the tool need to be chosen "Remote Gateway".
- Double click the "Monitor Mode" of the status bar at the bottom of the software can also switch monitoring mode.

After Configuring the project, the project can be uploaded to the hardware gateway(BAC2004-ARM/BAC1002-ARM) to debug by starting monitor.

If the project is modified, it is necessary to upload the project to the gateway for debugging until there is no problem, finally monitor by hardware gateway.

Click "Gateway" on the menu bar to choose "Upload " or click on the toolbar

😫 to upload the project, As the Figure 3-6-1.

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ModbusRTL	Item ID	Register Type	Register A	DataType	Value
🖻 🚰 Channel	test1	4X(Holding Register)	1	Word	223
Devic	test2	4X(Holding Register)	2	Word	1
	test3	4X(Holding Register)	3	Word	44
	test4	4X(Holding Register)	4	Word	0
	test5	4X(Holding Register)	5	Word	97
	S test6	4X(Holding Register)	6	Word	0
	test7	4X(Holding Register)	7	Word	0
	test8	4X(Holding Register)	8	Word	567
	test9	4X(Holding Register)	9	Word	0
< >	4	m	1		

24 / 54 Add: 28 Senang Crescent,#05-11,Bizhub 28,Singapore 416601 Tel: +65 80385403 URL: www.bacnetchina.com milesgoiiot@gmail.com / sales@opcmaster.com



Figure 3-6-1 Upload the project

In the pop up dialog box enter the gateway IP address, click the "Upload", As the Figure 3-6-2.

le Edit View	Tools BACnet	Server Web Server Gatewa	y Help		
) 🖻 🖬 🗊	🖪 🖪 💣 🚳 🗈	위 🕹 🖻 💼 🗙 🚺 🕨 I	- 🛠 🙀 😫		
	d Project (Device II	D:10)	[<u>.</u>	X	alue 23
IP A	ddress: 192.168.1	. 88		Ping	4
					C
-ojec	t Path: C:\Users\.	Administrator\Desktop\Untitled	i. x2b	Upload] 7
·ojec	t Path: C:\Users\.	Administrator\Desktop\Untitled 4X(Holding Register)	1. x2b 8	Upload Word	567
-ojec	t Path: C:\Users\. test8 test9	Administrator\Desktop\Untitled 4X(Holding Register) 4X(Holding Register)	1. x2b 8 1 9 1	Upload Word Word	7 567 0

Figure 3-6-2 Upload

After uploading, the pop-up dialog prompt succeed to upload, As the Figure 3-6-3.

If uploading is failed, it will also pop up the failure prompt box.

X2BACnet - Unt	it <mark>led.x2</mark> b		in an an in		- 0	23
File Edit View	Tools BACne	et Server Web Server	Gateway Help	0		
	(2BACnet Succ 'C:\U	eed to upload Jsers\Administrator\De	esktop\Untitled.x2	b' project!	8	alue 23 4
-ojed	All test9	4X(Holding R	egister) 9	确定 Word	5 0	67
< <u> </u>	•	m				ŀ
Monitor Mode:Re	mote GateWay	Total Items:10 Valid	Items:1024 www	opcmaster.com 1	13564889	1340 : //

Figure 3-6-3 Succeed to upload

Note: the IP address of the gateway must be correct.the default gateway IP address is 192.168.1.88, the IP address of PC to set up to the same network segment, the project can be uploaded after successfully Ping.



After uploading the project, click the menu bar "Tools" to select "Start Monitor" or click the toolbar icon ,you can see real time data on the device. As the Figure 3-6-4, The collected data is consistent with the slave simulated data.

X28ACnet - M	Mont ModultU20					- 0 0							
tile Edit Verw	Tools MAC	et Sever Web	Server Gateway Help										
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Di Chante		Harris ID.	Register Type	torgester was	. I Lata type	VAUP	_	Quarty	1010 de 1071	BACKET Object -	1 BACKET INL	- Opdate C.	100
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		×					10.	August .	(A.A. 981) A. (A)		-		
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2058/6/21	11:24:16	Modbu	eRTU.Channel_LDevice_1.000 01	01 01 01 90 48			0000	01 * 1					
2058/6/21	11:24:16	Modby	sRTU.Channel_LDevice_L(TX) 01	03 00 03 00 06 35	CIE		0000	02 = 0					
2018/6/21	11:24:16	Modbu	sRTU.Channel_1.Device_1.(R0) 01	03 0C 00 2C 00 23	00 06 03 09 00	58.00.09.71.36	0000	v3 = 0					
2018/6/21	11:24:17	Modby	sRTU.Channel_1.Device_1.(TX) 01	01 00 00 00 03 7C	08		1214	thelest			1111		
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2018/6/21	11:24:18	Modby	sRTU.Channel_LDevice_LITX0-01	01 00 00 00 03 7C	06		4000	05 - 35					
2018/6/21	11:24:18	Modbu	sRTU.Channel_1.Device_1.(ROI) 01	01 01 01 90 48			4000	06 + 6					
2018/6/21	11:24:18	Modbu	sRTU.Channel_1.Device_1.(TX) 01	03 00 03 00 06 35	CII	C122121212	4000	27 = 777	8				
2018/6/21	11:24:18	Modbu	sRTU.Channel_1.Device_1.(ROC 01	03 OC 00 2C 00 23	00 06 03 09 00	58 00 09 71 36	4000	38 - 38					
2018/6/21	11:24:19	Modbu	eRTU.Channel_1.Device_1.(TX) 01	01 00 00 00 03 70	00		4000	18 - 8					
2018/6/21	11:24:19	Modbu	eRTU.Channel_1.Device_1.000.01	01 01 01 90 4B	31a		-		And the other Designation of the local division of the local divis				
2018/6/21	11:24:19	Modbu	eRTU.Channel_L.Device_L(TX) 01	03 00 03 00 06 35	C8		No.	dance and these	while clic	k on a value	P.10		
2018/6/21	11:24:19	Modbu	ARTU-Channel_1.Device_1.(R0) 01	01 0C 00 2C 00 23	00 06 03 09 00	58 00 09 71 36:	-						-12

Figure 3-6-4 Remote gateway monitor

3.7 Download the Project

Before uploading project, we must ensure that the monitoring mode is Remote Gateway mode, and the specific mode switching operation is as follows.

- on the menu bar , monitor mode under the tool need to be chosen "Remote Gateway".
- Double click the "Monitor Mode" of the status bar at the bottom of the software can also switch monitoring mode.

Download project is to download the last configuration project from the hardware gateway to PC, and edit the project and view real-time data on the PC to facilitate user debugging. Click on the "Gateway" choose "Download ", user name: admin, password: admin123456. As the Figure 3-7-1.



File Edit View Tools	BACnet Server	Web Server Ga	teway Help				
	🖆 🚮 🖆 👗 🖻		Setting				
B ModbusRTU	Item ID	Regis	Download	A	DataType	Value	Quality
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Device_1	test8	4X(Holong rug rug rug rug rug rug rug rug rug ru			Word		Uncernta
	test7	4X(Holdin	g Register) 7		Word		Uncernta
	test6	4X(Holdin	g Register) 6		Word		Uncernta
	test5	4X(Holdin	g Register) 5		Word		Uncernta
	test4	4X(Holdin	g Register) 4		Word		Uncernta
	test3	4X(Holdin	g Register) 3		Word		Uncernta
	test2	4X(Holdin	g Register) 2		Word		Uncernta
	test1	4X(Holdin	g Register) 1		Word		Uncernta
				_			,

Figure 3-7-1 Download Project

In the pop up dialog box enter the gateway IP address, can be downloaded from the gateway of the current project, as the Figure 3-7-2.



Figure 3-7-2 Download Project

Users can also through the WEB server log in to the gateway, download the project.

3.8 Local PC Monitor

After completing the project configuration, click the menu bar "Tools" to select "Start Monitor" or click the toolbar icon ▶, as shown in figure 3-8-1 below. It will start the X2BACnetRunTime.exe program. User only need to start the program in the background to realize the function of gateway conversion on PC.

27 / 54



File Edit View To	ools BACnet Server W	leb Server Gateway He	lp		
	Monitor Mode	🕨 📉 🐹 🕨 🔳 🔗	LOAD T		
	Start Monitor	Register Type	Register Address	DataType	
🗄 🚰 Channel	Stop Monitor	4X(Holding Register)	1	Word	
Devi	Device	4X(Holding Register) 4X(Holding Register)	2 3	Word Word	
	Group	4X(Holding Register)	4	Word	
	Tag	AX(Holding Register)	5	Word	
	testo	4X(Holding Register)	6	Word	
	test7	4X(Holding Register)	7	Word	
	test8	4X(Holding Register)	8	Word	
	test9	4X(Holding Register)	9	Word	
۰ III					
Data		Time	Event		

Figure 3-8-1 Start Monitor

X2BACnetRunTime run successfully. We can view the running log .As the Figure

3-8-2.

Settting Licence	Log	
Date	Time	Event
8 2015/10/27	15:22:18	Licence is invalid, Welcome to use 30 m
1 2015/10/27	15:22:18	Succeed to Load 'D:\工作文~1\products\
1 2015/10/27	15:22:18	Web Server Listening Port:8080
•		

Figure 3-8-2 Log

Return procedure monitoring interface, can see some real time data on the device and the data on the interface is consistent, As the Figure 3-8-3.



) 📽 🖬		1 @ D		而唱		- 1 V 14 - mb			
Modbu	IsRTL Ite	em ID		Reg	ister Type	Register A	DataType	Value	Quality
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	Device 1	test2		4X(H	lolding Register)	2	Word	1	Good
L.		test3		4X(H	Holding Register)	3	Word	44	Good
	6	test4		4X(H	Holding Register)	4	Word	0	Good
	A	test5		4X(H	Holding Register)	5	Word	97	Good
		test6		4X(H	Holding Register)	6	Word	0	Good
		test7		4X(H	Holding Register)	7	Word	0	Good
					J J /				and the second se
	M	test8		4X(H	Holding Register)	8	Word	567	Good
Monitor M	د مde:Loca	test8 test9 I PC Total	Items	4X(F 4X(F :10 Val	Holding Register) Holding Register) III id Items:1024 www	8 9 v.opcmaster.cc	Word Word m 1356488934	567 0 0 support@op	Good Good Pcmaster.com
Monitor M	۲ ode:Loca	test8 test9 I PC Total	Items	4X(F 4X(F :10 Val	Holding Register) Holding Register) III id Items:1024 www	8 9 v.opcmaster.cc	Word Word m 1356488934	567 0 0 support@op	Good Good ▶ cmaster.com
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III Monitor M D - 1 0001 = 0002 = 0002 =	ode:Loca	test8 test9 I PC Tota 40011 40012	Items = =	4X(H 4X(H :10 Val	Holding Register) Holding Register) III id Items:1024 www 40021 = 40022 =	8 9 v.opcmaster.cc 0 40031 0 40032	Word Word = 0 = 0	567 0 0 support@op	Good Good ▶ pcmaster.com
Monitor M D = 1 0001 = 0002 = 0003 = 0004 =	+ (* ode:Loca 223 1 44 0	test8 test9 I PC Tota 40011 40012 40013 40014	l Items = = =	4X(F 4X(F :10 Val	Holding Register) Holding Register) III id Items:1024 www 40021 = 40022 = 40023 = 40024 =	8 9 0 40031 0 40032 0 40033 0 40034	Word Word = 0 = 0 = 0 = 0	567 0 0 support@op	Good Good comaster.com
Monitor M D = 1 0001 = 0002 = 0003 = 0004 = 0005 =	• • • • • • • • • • • • • • • • • • •	test8 test9 I PC Total 40011 40012 40013 40014 40015	= = = =	4X(F 4X(F :10 Val	Holding Register) Holding Register) III id Items:1024 www 40021 = 40022 = 40023 = 40024 = 40025 =	8 9 0 40031 0 40032 0 40033 0 40034 0 40035	Word Word = 0 = 0 = 0 = 0 = 0 = 0	567 0 0 support@op	Good Good comaster.com
Monitor M D = 1 0001 = 0002 = 0003 = 0004 = 0005 = 0006 =	+ 44 0 97 0	test8 test9 I PC Total 40011 40012 40013 40014 40015 40016	= = = = = =	4X(F 4X(F :10 Val	Holding Register) Holding Register) III id Items:1024 www 40021 = 40022 = 40023 = 40024 = 40025 = 40025 = 40026 =	8 9 0 40031 0 40032 0 40033 0 40033 0 40035 0 40035	Word Word = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0	567 0 0 support@op	Good Good icmaster.com
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Figure 3-8-3 Successful Communication



4 WEB Server

BACnet Gateway with a WEB server, the default port is fixed for 80. Users can through the browser can login to the WEB server, in a WEB page can modify hardware gateway IP address, serial interface communication mode, view real-time data, download X2BACnet PC configuration software and project etc.

Note: the factory default gateway IP address is 192.168.1.88, the user to change the IP address for the first time, users only need to direct connect a network cable and gateway. Need to set the PC and gateway to the same network segment, and then in the browser input 192.168.1.88 complete gateway IP address changes.

In the pop up window enter the user name and password to login, As the Figure 4-1.

Username: admin

Password: admin123456

🚽 User Login	×	* 100	Contractorio de la California		
← → C ① 不安	全 192.168.1.88/login.html				야 ☆ 📀 Օ
			迅饶		
			sunfull		
			专注白坎 物物方联		
			与江曰江 1010 旦 软		
		User Login		Language ~	
		Username	admin		
		Password			
			Login Reset		

Figure 4-1 Login

4.1 Download

Click "Download", you can download the following files, As the Figure 4-1-1.



X2BACnet ×		Concession and	and, the second second	
€ → C ① 192.168.1.8	8/index.html			아 ☆ 😌 🔕
远绕 sunfull 专注自控 物物互联	Download			(*
	Download List	Size	Date Modify(*unknown)	
	X2BACnet	41.1 MB	2016-06-08 16:00:00	
	BACnetScan	5.4 MB	2016-06-08 16:00:00	
- Download	Modbus_Poll	207 KB	2016-06-08 16:00:00	
🔦 Web Service	Modbus_Slave	177 KB	2016-06-08 16:00:00	
🚰 User Admin	Project File	c•)	.*	
Network				
T Firmware				
Memory				
Communication Traffic				
Internal Variable				
🛢 Tag List	~			Copyright © 2011-2016 www.bacnetchina.com

Figure 4-1-1 Download

X2BACnet: Configuration Software

BACnetSCan: the tool of Scanning BACnet device

Modbus_Poll: the tool that simulate Modbus master station

Modbus_Slave: the tool that simulate Modbus Slave station

Project Files: the last configuration project that Upload to gateway

4.2 Network

Click "Network", you can set gateway IP address, as shown in figure 4-2-1 below.

- Ethernet 1: 172.24.13.88
- Ethernet 2: 192.168.1.88(Communication port)

X2BACnet X	-	and a constant	And Manual State, Name		<u> -</u> 0 - ×
← → C ① 192.168.1.88/index.	html				야 ☆ 📀 Օ
运使 sunfull 表注自控 物物互联	Network				(*
		Network1		Network2 (Default)	
	IP Address	172.24.13.88	IP Address	192.168.1.88	
📥 Download	Subnet Mask	255.255.255.0	Subnet Mask	255.255.255.0	
🔦 Web Service	Default Gateway	172.24.13.1	Default Gateway	192.168.1.1	
曫 User Admin			OK Reload		
Network					
T Firmware					
Memory					
Communication Traffic					
Internal Variable					
🛢 Tag List 🗸 🗸				Copyright @ 2011-2016	www.bacnetchina.com





4.3 User Admin

Users can manage their landing accounts by adding, modifying, deleting, and so on, as shown in figure 4-3-1 below.

0	X2BACnet	×				- Advertise						100	<u> </u>	<u> </u>
4	→ C ① 192.168.1	1.88/index.htr	nl									☆	•	0
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¥	Download			Ac	cess	User				•				I
*	Web Service					Add Rese	et							I
*	User Admin		Username	Pas	sword		Access	Modify	Sav	e	Delete			1
٠	Network		admin	adm	nin 123456		Admin	Modify	Sa	ve	Delete			1
T	Firmware													1
0	Memory													I
8	Communication Traffic													1
۲	Internal Variable													1
	Tag List	*								Copyright © 2	011-2016 www.ba	cnetchina	com	*

Figure 4-3-1 User Admin

4.4 Firmware

In this page, user can view the firmware version information, machine code and license key.

X2BACnet X		
← → C ① 192.168.1.88/inde	x.html	x 🖲 🗘
支注自控 物物互取	Firmware	(*)
	Name	X2BACnet Build: Feb 2 2018(Unicode-BACnetIP)-LOG SunFull BACnet Ser
	Machine Code	004555A0-B0C0-0000-7375-6E66756C6C31
📥 Download	Licence Key	7C070000-8C1AF410-5E07E2071F4E20AC6C
🔦 Web Service		
🚰 User Admin		кехоа
Network		
T Firmware		
Memory		
Communication Traffic		
Internal Variable		
🛢 Tag List 🗸 🗸 🗸		Copyright © 2011-2016 www.bacnetchina.com 🔶







4.5 Memory

X2BACnet X		Observation would be a	
← → C ① 192.168.1.88/in	dex.html		☆ 🖲 🔿
这 使 sunfull 专注自控 物物互联	Memory Memory Load	37%	(*
	Total Memory	29580K	
📥 Download	Used Memory	10796К	
🔦 Web Service		Restart Gateway Delete Project File	
誉 User Admin		Backup Project File Restore Project File	
Network			
▼ Firmware			
Memory			
Communication Traffic			
 Internal Variable 			
🛢 Tag List 🗸 🗸			Copyright © 2011-2016 www.bacnetchina.com 👻



1. check the system memory usage. (this function automatically refreshes the gateway memory information every 5S).

2. Restart Gateway (remote restart the current gateway).

- 3. Delete Project File (delete the current gateway configuration project).
- 4. Backup Project File (can backup the current project to the isolation area).
- 5. Restore Project File (restore a project that has been backed up by the user).

The project can be backed up to the isolation area, which has 2 advantages.

First, it prevents the wrong operation from uploading the wrong project and can be quickly restored.

Two, it is easy to debug. Once the project is modified, it can be quickly restored.

4.6 Communication Traffic

In addition, the real-time dynamic data frame can be viewed in the web page to facilitate the user to understand the real-time communication state intuitively. Through the analysis of the data frame, the cause of the failure can be found, which brings great convenience to the user.

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Figure 4-6-1 Communication Traffic

4.7 Real-time Data

Check the equipment real-time data on the web, as the Figure 4-7-1.

专注自控 物物互联	Device_1								
	Tag Name	Register Name	Address	Data Type	Value	Quality	TimeStamp	Object Ty	pe Instance Number Description
	Tag_1	0X(Coil Status)-F5	1	Boolean	1	good	2018-06-21T11:25:54	BI	0
United	Tag_2	0X(Coil Status)-F5	2	Boolean	0	good	2018-06-21T11:23:45	во	Modbus Slave - Mbslav1
Jownload	Tag_3	0X(Coil Status)-F5	3	Boolean	0	good	2018-06-21T11:23:45	BV	<u>File Connection Setup Display View Windo</u> Help
Veb Service	Tag_4	4X(Holding Register)-F6	4	Word	44	good	2018-06-21T11:26:03	AI	□ ☞ 🖬 🖨 📑 🗏 ≜ 🔋 🕅
1	Tag_5	4X(Holding Register)-F6	5	Word	35	good	2018-06-21T11:26:08	AO	Mbslav4
Jser Admin	Tag_6	4X(Holding Register)-F6	6	Word	6	good	2018-06-21T11:26:15	AV	00001 = 1
letwork	Tag_7	4X(Holding Register)-F6	7	Word	777	good	2018-06-21T11:26:18	MSI	00002 = 0 00003 = 0
imuaro	Tag_8	4X(Holding Register)-F6	8	Word	88	good	2018-06-21T11:26:22	MSO	🗒 Mbslav1
iniwale	Tag_9	4X(Holding Register)-F6	9	Word	9	good	2018-06-21T11:26:24	MSV	ID = 1
Memory									40004 = 44 40005 = 35
Communication Traffic									40006 = 6 40007 = 777
									40008 = 88 40009 = 9
nternal Variable									For Help, press F1. For Edit, double click on a valu
ag List 🗸 🗸									

Figure 4-7-1 Real-time data

Click the tag, in the pop-up window user can also write value on a web page, as the Figure 4-3-2.



C X2BACnet X		-	1000	Sec. of the sec	-		1				÷ - 0 -×	3
← → C ① 不安全 192.16	8.1.88/index.html										야 ☆ 📀 (0
专注自控 物物互联	Device_1											•
	Tag Name	Register Name	Address	Data Type	Value	Quality	Time	Stamp	Object Type	Instance Number	Description	
	Tag_1	0X(Coil Status)-F5	1	Boolean	1	good	2018	-06-21T11:25:54	ВІ	0		
	Tag_2	0X(Coil Status)-F5	2	Boolean	0	good	2018	-06-21T11:23:45	во	0		1
Download	Tag_3	0X(Coil Status)-F5	3	Boolean	0	good	2018	-06-21T11:23:45	BV	0		1
< Web Service	Tag_4	4X(Holding Register)-F6	4	Word	44	good	2018	-06-21T11:26:03	AI	0	indoor temperation	1
Mi Hara Adada	Tag_5	4X(Holding Register)-F6	5	Word	35	good	2018	-06-21T11:26:08	AO	0	setting temperation	1
Ser Admin	Tag_6	4X(Holding Register)-F6	Tag_4				×	06-21T11:26:15	AV	0		1
Network	Tag_7	4X(Holding Register)-F6	100					06-21T11:26:18	MSI	0		1
▼ Firmware	Tag_8	4X(Holding Register)-F6	100					06-21T11:26:22	MSO	0		1
	Tag_9	4X(Holding Register)-F6				OK Car	ncel	06-21T11:26:24	MSV	0		1
i Memory												1
Communication Traffic	1											1
												1
Internal Variable												1
🛢 Tag List 🗸 🗸												1
ModbusRTU V Channel_1 V												





5 JS Script Editor

Hardware gateway also has JS script editor. Users can achieve some logic control by editing script language. There are some common functions in the script editor. The user can select some functions to edit the language. After the editor is complete, click "Syntax Check", and the syntax will be checked automatically. If there are any grammatical errors, it will prompt which specific line of grammar has problems.

5.1 Operation steps

Click the menu bar view to select the JS script editor, or click the toolbar to open the script editor, as shown in figure 5-1-1.

£ ⊑	Item Update	Interval	12	· · · · · · · · · · · · · · · · · · ·			
MOD	Internal Tag			Register Type	Register Address	DataType	Value
	JS Script Editor		1	3X(Input Register) 3X(Input Register)	70.8 60	Word Word	(degrees-celsius
	Clear Messag Log Errors O	Clear Messages Log Errors Only		4X(Holding Register)-F6 4X(Holding Register)-F6 3X(Input Register)	1.81 10000000000000 3.811111111111111000000000000000 51.3	Word Word	(degrees-celsiu
~	Show Frame Frame Displa	y Mode 🔸	cs	4X(Holding Register)-F6 3X(Input Register)	2.&111 1000000000000000000000000000000000	Word Word	
	Save Log Bad Value	,	LO.	3X(Input Register) 3X(Input Register)	50.8 50.11	Word Word	
	Language Set	tting	PC.	3X(Input Register) 3X(Input Register)	50.10 50.0	Word Word	
~ >	Toolbar Status Bar		Ŀ	4X(Holding Register)-ro 3X(Input Register)	4.&1110000000000000000000000000000000000	Word	:
- Barris		CLOCK	23	4X(Holding Register)-F6	9.&1111/1000000000000000	Word	20

Figure 5-1-1 Open JS Script editor

Right click on the script editor to choose "New JS Script", as shown in figure 5-1-2.



MODBUS-RTU							
22F	Item ID Register Type Register Address				Register Address	DataType	Value
∃ <u>s</u> -f 22F	JS Se	ript List	Other Designation	and in the second s		Word	
. КТЗО	TD			D		Word	[degrees-celsius]
	10	ID JS Script Description Execute Cycle/Tag Name/Time		Word			
						Word	[degrees-celsius]
				-		Word	
				New J	IS Script	Word	
				Dalata	IC Contest	Word	
				Delete	e JS Script	Word	
				Modif	fy JS Script	Word	
						Word	
						Word	
						Word	
						Word	*
						Word	*
	-	_				Word	
				111			
	1						

Figure 5-1-2 New JS Script

Open to see JS editing script, as shown in figure 5-1-3 below.

Internal Tag Internal Tag Internal Tag Syntax Check 1 1 2	Execute Ty	pe: Cycle	▼ Execute	Cycle(ms):	1000	5	1	C
> > <= == && & >> < <= = + ? * / /// : """ KeyBoard Function Internal Tag External Tag Syntax Check 1 1 2 3 4	if	else	else if	switch	for	while	var	Lancel
1 & >> ~ = + ? * / /// : """ KeyBoard Function Internal Tag External Tag Syntax Check 1 1 2 3 4	>	<	>=	<=	==		8.8	
+ ? * // : "" KeyBoard Function Internal Tag External Tag Syntax Check 1 1 2 3 4	1	a	>>>	~~	*	~	=	
KeyBoard Function Internal Tag External Tag Syntax Check 1 1 2 3 4	+	?	*	1	11		""	
1 2 3 4	KeyBoard.	. Fun	ction In	nternal Tag	External T	ag Synt	ax Check	
	1		1	2	3		4	

Figure 5-1-3 JS Script Editor

1. Function

Users can choose different functions to implement logical functions. See the 5-2 chapter for specific functions. As shown in figure 5-1-4.



Name: JS1	De	scription:								0	K
Xecute Type:	Cycle	💌 Execu	ite Cycle(ms)	100	0					Car	cel
if	else	else if	switch		for	while	v	ar	1		
>	<	≻=	<=		==	11	8	æ			
	&			i T	•	~		-			
+	2	*		1 -	11						
			<u> </u>								
Solact Lund	tion										2.
Select Funct	tion				_						23
Select Funct	e Func	tion Name	Output	TD	▼ Function	Parameter		Para		Type	22
Select Funct eserch Function Typ Tag	tion e Func GetT	tion Name agBCD	Output	ID	▼ Function Source T	. Parameter ag Name		Paran In	neter	Type	20
select Funct eserch Function Typ Tag Tag	e Func GetT GetT	tion Name agBCD agBCDR	Output int int	ID 0 1	▼ Function Source T Destinat	. Parameter ag Name ion Tag Name	• • • • • • • • • • • • • • • • • • •	Paran In In	neter	Type	2
select Funct eserch Function Typ Tag Tag Tag	tion Func GetT GetT GetT Maye	tion Name agBCDR agQuality Value	Output int int var	ID 0 1	▼ Function Source T Destinat	. Parameter 'ag Name ion Tag Name	2	Paran In In	neter	Туре	2
Select Funct eserch Function Typ Tag Tag Tag Tag Tag	tion GetT GetT GetT Move Read	tion Name agBCD agBCDR agBQuality Value FromTag	Output int int var var	ID 0 1	▼ Function Source T Destinat	. Parameter ag Name ion Tag Name	8	Paran In In	neter	Туре	2
Select Funct eserch Function Typ Tag Tag Tag Tag Tag System	e Func GetT GetT Move Read Sleep	tion Name agBCD agBCDR agQuality Value FromTag P	Output int int var var void	ID 0 1	 Function Source T Destinat 	. Parameter ag Name ion Tag Name		Paran In In	neter	Туре	2
Select Funct ieserch Tag Tag Tag Tag Tag Tag System Tag System Tag	e Func GetT GetT GetT Read Sleej Writ	tion Name agBCD agBCDR agQuality Value FromTag P eToTag	Output int int var var void bool moid	ID 0 1	▼ Function Source T Destinat	. Parameter 'ag Name ion Tag Name	0	Paran In In	neter	Туре	Σ
Select Funct eserch Punction Typ Tag Tag Tag Tag Tag Tag System Tag System	e Func GetT GetT GetT Read Sleej Writ aler	tion Name agBCD agBCDR agGuality Yalue FromTag p aToTag t	Output int int var var void bool void	ID 0 1	Function Source T Destinat	<u>. Parameter</u> ag Name ion Tag Name		Paran In In	neter	Type	2
Select Funct	e Func GetT GetT GetT Move Read Slee Writ aler	tion Name agBCD agBCDR agQuality Value FromTag P eToTag t	Output int int int var var void bool void	10 0 1	Function Source T Destinat	<u>Parameter</u> ag Name ion Tag Name		Paran In In	neter	Туре	

Figure 5-1-4 select Function

2. Internal Tag

Users can use the "Internal Tag" function to build a new variable and related functions, used to receive or store variable data, such as taking the current value of Tag, and mapping to a new internal variable. In the script editor, click the "Internal Tag", or In menu bar click "view" to select "Internal Tag", open the window of Internal tag list. In the pop-up window, right click "New" ,as shown in figure 5-1-5.



💽 JavaScrip	ot						l	- 0	23
Name: JS1	I)escription: [_				0	OK
Execute Ty	pe: Cycle	💌 Execute	Cycle(ms): 1	000				Car	ncel
if	else	else if	switch	for	while	v	ar		
>	<	≻=	<=	==		6	na		
	&	>>>	<	*	~		=		
+	?	*	1	11		-	"		
KevBoard.		ction III	nternal Tag	Externs	1 Tag Synt	tax Ch	eck		
2 Internal 1	Fag List								X
ID Item :	ID		DataType	Value	BACnet Object	Туре	BACne	t Instance	Numb
5) 1 \$. MOD:	BUS-RTU. 22F.	KT30. CommStat	us Boolean		BI		7		
🚺 2 Sum			DWord		AI		1		
			New.	1					
			Cut		Ctrl+X				
			Сору		Ctrl+C				
			Paste		Ctrl+V	-			
			Delet	e					
•			Expo	rt EXCEL.					્ય
			Impo	+ EVCEL					

Figure 5-1-5 New Internal tag

Note: in the above figure, there is an internal variable BI point that address is 7, which represents the communication state of the Device"KT30". at least one point is communicated normally under the device, the value of the internal variable is 1, if all the points under the device are not normal (that is, the device is off-line), this internal change The value of the quantity is 0. If there are currently N devices, it will automatically generate N internal variables. Users should avoid duplication of register addresses when configuring the project.

In the pop-up window, set the variable related properties. If you want to quickly view the current value of the internal variable, you can click the menu bar "view" option and select the "internal variable" to see the real time data in the pop-up window, as shown in figure 5-1-6.



Edit	Viev	v Tools BACnet Server Wel	Serv	ver Gateway Help
🖻 🖬		Item Update Interval	X	1 🐌 🕨 🗶 🙀 😫
		Internal Tag		Register Type
- 5 2		JS Script Editor		3X(Input Register)
		Clear Messages		4X(Holding Register)-F6 4X(Holding Register)-F6
	✓	Show Frame		3X(Input Register) 4X(Holding Register)-F6
		Frame Display Mode	<_s	3X(Input Register)
		Save Log	LO	3X(Input Register)
		Bad Value	C_S DC	3X(Input Register) 3X(Input Register)
		Language Setting		3X(Input Register)
	1	Toolbar		4X(Holding Register)-F6
	×.			3X(Input Register)
	•	Status Bar		3X(Input Register)
				4X(Holding Register)-F6

Figure 5-1-6 Open Internal tag to check real-time data

Click on the internal variable, as shown in figure 5-1-7.

ID	Item ID	DataType	Value	BACne
5]1	\$.Simulator.Channel_1.Device_1.CommS	Boolean	1 [Online]	BI

Figure 5-1-7 real-time data

3. external variables

In addition, users can also use relevant functions for logical control according to the changes in the data of external variables, such as different logical controls based



on the range of numerical changes of an external variable. In the script editor, click "external variables", and double-click on a variable in the expanded variable table, as shown in figure 5-1-8.

Name: JS	1 I	lescription	:			OK
Execute T	vpe: Cvcle	- Exec	ute Cvcle(ms):	1000		1
			1	1000		Cancel
11	etze	else 11	switch	tor	while v	ar
>	<		<=	==		1&
1	æ	>>>		· ·	~]	=
+	?	*		11	;	
KeyBoard.	Fun	ction	Internal Tag	. External Tag	Syntax Che	2ck
Select Ex	cternal Tag					
Simu	lator	ID	Item ID	DataType	BACnet Object	Type BACnet Instan
	hannel_1	1	Tag 3	Word	AO	4
I	👢 Device_1	D12	Tag_4	Word	AO	5
		1 3	Tag_5	Word do	ubleclick to sel	ect a external tag
		1	Tag_6	Word	AO	9
		6 5	Tag_7	Word	AO	12
		6	Tag_8	Word	AO	13
		07	Tag_1	Word	AO	0
		6 8	Tag_2	Word	AO	1
		•		m		
		Selecter	l tag name		1.62	
		Simulato	r. Channel_1. Devi	.ce_1.Tag_3		
						-

Figure 5-1-8 select the external tag

4. grammar check

After completing the programming, users can check the grammatical error with the syntax check function, and give hints if the program has problems.

- 5. execution mode
- ♦ execution mode selection cycle, cycle (MS): 1000, which represents a script execution every 1000ms.
- change of execution mode. Roll call needs input. The following figure 5-1-9,
 which assigns the value of internal variable VarName_1 to the return Tag_3 and

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Tag, The initial value of the internal variable VarName_1 can be assigned to batch names.

Name: JS1	1)escription:					OK
xecute Typ	pe: Change	▼ Tag Na	me: VarName_	1			Cancel
if	else	else if	switch	for	while	var	
>	<		<=	_==		<u>&&</u>	
				•	~	=	
+	?	*	1	11		""	
KeyBoard	. Fun	etion	nternal Tag	External	Tag Synt	ax Check	
1 Move	eValue('Var eValue('Var	Name_1','Simi Name_1','Simi	ulator.Channe ulator.Channe	el_1.Device_ el_1.Device_	1.Tag_3'); 1.Tag_4');		
1 Move	eValue('Var eValue('Var	Name_1','Simi Name_1','Simi	ulator.Channe ulator.Channe	al_1.Device_	1.Tag_3'); 1.Tag_4');		

Figure 5-1-9 change script

Note:

- In order to prevent the mistake, you can point out external variables, or internal variables in the script force box, double click to select a name and then copy it from the script box to the top name box.
- Only when the value of internal variable VarName_1 changes, can script be executed to save resources.
- execution mode selection timing, select a time point, after the arrival of this time,
 the implementation of the script. It can be applied to the timing switchgear.



Name: JS	1 I	Description:					ОК
Execute T	ype: AtTime	▼ OnTime	0:00:00 ÷	Ē			Cancel
if	else	else if	switch	for	while	var	-
>	<	>=	<=	==		8.8.	
1	٨	>>	<<	· 1	~	=	
+	?	*	1	11			
KeyBoard 1 Wr	iteToTag('Sir	nulator.Channe	nternal Tag <mark>el_1.Device_1</mark>	External ?	Tag Synt	ax Check	
KeyBoard 1 Wr 2	Fur	nulator.Channe	nternal Tag el_1.Device_1	External :	Tag]Synt	ax Check	

Figure 5-1-10 timing switchgear

5.2 Function description

The commonly used functions in the JS script editor are as follows:

Operating function

5.2.1 ReadFromTag

It is a value function from Tag.

Grammar:

Var szValue = ReadFromTag ("ModbusRTU.Channel_1.Device_1.tag_1");

5.2.2 WriteToTag

It is a write value to a Tag function, used to assign an external variable to a Tag, to perform a write operation on the device, or to assign a new internal variable to the user.

Grammar:

var szValue = 100;

WriteToTag('ModbusRTU.Channel_1.Device_1.tag_1',0); //write the value to the 'tag_1'

5.2.3 GetTagQuality

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It is a quality stamp from Tag.

The results returned conformed to the OPC specification. That is, Good returns 192, Bad returns 0, Uncertainn is 64, indicating that the value is not assigned and has not been updated.

Var varQuality = GetTagQuality ('szTagName'); //where 'szTagName' is selected from external variables.

5.2.4 MoveValue

It is implements the transfer of source data to destination data and data transfer between different points.

Grammar:

MoveValue ('Source Tag Name', 'Destination Tag Name'); //Source Tag Name is the name of the source data point, and Destination Tag is the destination data name. The parameters here can be either external variables or internal variables. As shown in figure 5-1-9.

MoveValue function application scenario:

(1) the gateway collection side can access and control each other (no matter what protocol can be interchanged).

Gateway acquisition gateway uses two COM ports to collect different ModbusRTU slave devices, one for collecting temperature points of air conditioning equipment, and one for collecting IO modules. According to the temperature of the air conditioner, the IO module is controlled by the output of a sound and light alarm, that is, the MoveValue function can be used for logical editing, and the data of two acquisition terminals are accessed and controlled by each other.

(2) use one internal variable point to control all external variables.

MoveValue ('internal variable', 'external variable 1'');

MoveValue ('internal variable', 'external variable 2' ');

MoveValue ('internal variable', 'external variable 3' ');

MoveValue ('internal variable', 'external variable 4' ');

MoveValue ('internal variable', 'external variable n' ');



This is the realization that when the internal variables change, the external variable 1-N can change at the same time.

For example, if you change the temperature on the interface, the setting temperature of the N thermostat of the gateway will be changed together.

5.2.5 GetTagBCD

It is used to get the BCD code of a label.

Grammar:

Var mBCD = GetTagBCD ('szTagName');

If the single register (Word, Short) value is 4660 (0x1234), the GetTagBCDR function is used to get BCD data to be decimal number 1234.

If the double register (Dword, Long) value is 305419896 (0x12345678), the GetTagBCDR function is used to get BCD data to be decimal number 12345678.

5.2.6 GetTagBCDR

It is used to get the BCD code of a tag, but the value is BCD code with high and low inversion.

Grammar:

Var mBCDR = GetTagBCDR ('szTagName');

serch					-		
Function Type	Function Name	Output	Description		ID	Function Parameter	Parameter Type
ag	GetTagBCD	int	Get BCD from	n tag	0	Tag Name	In
ag	GetTagBCDR	int	Get inverse	BCD from tag			
ag	GetTagQuality	int	Get quality	from tag			
ag	MoveValue	var	Move Value				
ag	ReadFromTag	var	Read value :	from tag			
ystem	Sleep	void	Sleep				
ag	WriteToTag	bool	Write value	to tag			
ystem	alert	void	Show a mess	age dialog	-		
						m	

figure 5-2-6-1 Get BCDR

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If the single register (Word, Short) value is 4660 (0x1234), the GetTagBCDR function is used to get BCD data to be decimal number 3412.

If the double register (Dword, Long) value is 305419896 (0x12345678), the GetTagBCDR function is used to get BCD data to be decimal number 56781234.

For an example:

If you need to get the BCD code of Simulator. Channel 1. Device 1. Tag 1', assign it to T1. Get the Simulator. Channel 1. Device 1. Tag 2'inverse BCD code and assign it to T2. The code is shown as shown in figure 5-2-6-2.

🖸 JavaScr	ipt	-			- Marcell			
Name: J	S1 D	escription: 🗌						ОК
Execute 3	fype: Cycle	💌 Execute	Cycle(ms):	1000				Cancel
if	else	else if	switch	for	while	var		
>	<	>=	<=	==		8.8		
1	æ	>>>		_	~	=		
+	?	*	1	11		""		
KeyBoar	1 Fun	ction Ir	iternal Tag	External	Tag Synt	ax Check		
1 Va	ar mBCD=Get	tTagBCD('Simi	ulator.Channe	_1.Device_	1.Tag_1');//ge	t BCD code from	Tag_1	
2 W 3 Va	riteToTag('T1' ar mBCDR=G	,mBCD);// ass etTagBCDR('S	ign mBCD to	T1 nel_1.Devid	ce_1.Tag_2'));/	/get the inverse	BCD code from Tag	_2
4 W	riteToTag('T2'	,mBCDR); //a	ssign mBCDR	to T2				
3.1								
•	111							

figure 5-2-6-2 Get BCD

Start monitor later, in the Internal tag list value display is as the figure 5-2-6-3.

X2BACnet - Simulator.x2b *	-		THE R.				Ŀ	- 0	23
<u>File Edit View T</u> ools BACne	et Server Web S	Server Gateway <u>H</u>	elp						
	6 X B 6	× ñg 🕨 📕 🤊	🗞 🙀 🙀						
🖃 🇊 Simulator	Item ID	Register Type	Register Address	DataType	Value	Quality	Timestamp		BACne
🗄 🖳 Channel_1	Tag_8	Ramp	8	Word	0	Good	2018-06-27T	09:05	AO
Device_1	Tag_7	Ramp	7	Word	0	Good	2018-06-271	09:05	AO
	Tag_6	Random	6	Word	84	Good	2018-06-271	09:07	AO
	Tag_5	Random	5	Word	72	Good	2018-06-277	09:07	AO
	Tag_4	Sine	4	Word	0	Good	2018-06-277	09:07	AO
	Tag_3	Sine	3	Word	0	Good	2018-06-277	09:07	AO
	Tag_2	Const	2	Word	4660	Good	2018-06-27T	09:06	AO
	Tag_1	Const	1	Word	4660	Good	2018-06-271	09:06	AO
	Inte	ernal Tag List						- Σ3	
	ID	Item ID		DataType	Value	BACnet Object	t Type BAG	Cnet Ins	ta
	1	 Simulator. Char 	nnel_1.Device_1.CommS.	Boolean	1 [Online]	BI	0		
	2	T1		Word	1234	AI	0		
	3 3	T2		Word	3412	AI	1		
									_
1									
1									_
									_
									-
									-
1	· -								+
Ready			ш						1.

figure 5-2-6-3 check BCD value

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Add: 28 Senang Crescent,#05-11,Bizhub 28,Singapore 416601 Tel: +65 80385403 URL: www.bacnetchina.com milesgoiiot@gmail.com / sales@opcmaster.com



System function

The output string of alert () function is mainly used for debugging. The results returned are displayed on the log of Runtime.exe. It can also be displayed on the state of the web communication.

Grammar:

For example, the return value of the output quality stamp

```
Alert (varQuality.toString ());
```

The Sleep (1000) function is used for latency, indicating a delay of 1 seconds. Unit milliseconds.

5.3 Example

Open the script editor to reduce the current value of Tag " Simulator.Channel_1.Device_1.Tag_1" by 20 times and map it to the internal variable T1.

```
var szValue=ReadFromTag('Simulator.Channel_1.Device_1.Tag_1');
```

var newValue=Number(szValue);//String strongly transformed integer

newValue=newValue*0.5;

WriteToTag("T3",newValue.toString());

The script editor supports all mathematical calculations, such as taking random numbers between 0-255.

Examples are as follows:

Var Rand = Math.round (Math.random () * 255);

Alert (rand.toString ());

Note: Excute Type represents how long the execution of a script!



JavaScrip	tp	escription:	-		Constant Spin		
Execute Typ	pe: Cycle	- Execute	Cycle(ms): 1	000			Consol
if	else	else if	switch	for	while	var	
>	<	>=	<=	==		8.8	
	&	>>		<u> </u>	~		
+	?	*	1				
KeyBoard	. Fun	 ction Ir	ternal Tag	External	Tag Synt	ax Check	
1 var 2 var 3 new 4 Writi 5	szValue=Re newValue= Value=new eToTag("T3	eadFromTag('S Number(szValı Value*0.05; ",newValue.toS	imulator.Chan ue);//String str String());	nel_1.Devid	ce_1.Tag_1'); sformed intege	r	
۰ <u>ا</u>	11					÷	

Figure 5-3-1 script example

View the T1 real-time data under the internal variables in the View menu bar. As shown in figure 5-3-2.

口原門國法國政	0 6 × 1 1	3 × ∄₀ ≥	- = 2	開設							
🖂 🍘 Simulator	Item ID	Register Type		Register Address	DataType	Value		Quality	Time	Timestamp	
E Ta Channel_1	Tag_8	Ramp		8	Word	0	-	Good	2018	3-06-27T17:42	
Device 1	Tag_7	Ramp		7 Word 6 Word	Word	0 76		Good	2018	2018-06-27T17:42 2018-06-27T17:43	
	Tag_6	Randon	n		Word			Good	2018		
	Tag_5	Randon	n	5	Word	30		Good	2014	3-06-27T17:43	
	Tag_4	Sine		4	Word	57		Good	2018	3-06-27T17:43	
	Tag_3	Sine		3	Word	57		Good	2018	3-06-27T17:43	
	Tag_2	Const		2	Word	0		Good	2018	3-06-27T17:42	
	Tag_1	Const		1	Word	4660		Good	2018	3-06-27T17:42	
	and all all all all all all all all all al	Intern	al Tag Lis	t			1		8		
	_	ID	Iten ID			DataType	Valu		BACnet C		
		1	\$. Sinul	ator. Channel_1. Devic	*_1. ConnS	Boolean	1 [0	nline]	BI		
		2	TI			Ford	1234		AI		
		1	T2			Word .	0	_	AI		
		N 4	T3			Word	233	_	AI		
				redu	ced I	av 20 1	tim	A			
		_		icuu	ccui	Jy 20	LIT I	105			

Figure 5-3-1 reduced by 20 times



6 BACnet client (master station) access

BACnetScan was developed by Shanghai Sunfull Automation Co., LTD, It is a

BACnet client scan software, easy to operate and quick scan speed from machine.

- Support BACnet Ethernet, BACnet IP and BACnet MSTP.
- Support read and write present value property, export EXCEL etc.
- Supoort Chinese and English Language.

With BACnetscan scans the current local area network (LAN) all BACnetIP equipment.

Right click BACnet IP and select "Search Device..." or click Solution. As the Figure 5-1.

🔓 BACnetScan - 无标题		
File Edit View Tools Help		
8 A 🖆 🗨 🗙		
BACnet	Property	Valu
BACnet Search Device	e	
BACnet IP Se	tting	
www	.opcmaster.com 13564889340 support	@opcmaster.com

Figure 6-1 Search Device

Searched BACnet Device 10 in same Network segment as below Figuer 6-2.



🐍 BACnetScan - 无标题		
File Edit View Tools	Help	
🚳 A 🖆 🗡 🗙		
BACnet	Property	Value
BACnet Etherne	Address	192.168.1.88:47808
🖻 💂 BACnet IP	SNET	0
Device:10	5 SADR	
BACnet MS/TP	🗊 vendor-name	Shanghai Sunfull Automation Co., LTI
•	max-apdu-length-accepted	1476
- 10 - 11 - 11 - 11 - 11 - 11 - 11 - 11		
< <u> </u>	∢ [•
Ready	www.opcmaster.com 1	3564889340 support@opcmaster.com

Figure 8-2 Searched Device 10

Click Device ,property and valve on the right, right click Search Object or click

button 💾 ,As the following figure 8-3.

File Edit View	Tools	Help			
🗟 A 🖆 🗡	×				
□ I BACnet □ BACnet Etherne I Address			Value		
			192.168.1.88:47808		
🖻 覺 BACnet	IP	M SNET	0		
	Sea	arch Object	Shanghai Sunfull Automation Co., L		
24 DACIE	✓ Aut	to Read Properties	1476		
	De	lete Del			
• [Exp Exp Exp	port to X2Modbus port to X2BACnet port to X2OPC	1		

Figure 8-3 Search Object

Pay attention to check the "Auto Read properties" said at the time of scanning point, automatically read all attributes of the point also.

Can see from figure 5-4 gateway configured within all points have been scan to, choose one of the points, right-click to choose "read object properties", you can see the current object attribute values.



& BACnetScan - 无标题	í.	A local Days of the	
File Edit View Tools Help			
🛞 M 🖆 🖌 🗙			
BACnet	*	Property	Value
		🗊 object-identifier	(Analog Output, 1)
		🗊 object-name	"test1"
		🗊 object-type	Analog Output
(Analog Output, 0)	=	D present-value	223.000000
(Analog Output 1)		🗊 status-flags	{false,false,false,false}
(Analog Output 2)		🗊 event-state	normal
(Analog Output, 2)		nout-of-service	0
(Analog Output, 3) (Analog Output, 4) (Analog Output, 5)		Dunits	no-units
		🗊 relinquish-default	0.000000
		description	"Analog Output 1"
🔤 🎬 (Analog Output, 6)	-	•	•
Ready		www.opcmaster.com 135648893	40 support@opcmaster.com

Figure 8-4 Read object properties

7 Common Problems

7.1 Hint " Failed to call 'http://192.168.1.88/soap' WEB server!"

When starting monitor in the Local PC monitor mode, the error message is constantly prompted in the print message bar "Failed to call 'http://192.168.1.88/soap' WEB server!". There are three main reasons for this situation:

- The first possibility is that the current monitoring mode is gateway mode, which needs to be adjusted to Local PC monitor mode.
- The second possibility is that the port number of the current WEB server is occupied by other applications on the local computer.
- The third possibility is that the X2BACnetRuntime program is closed, and only needs to restart the monitor.

7.2 Pay attention to the difference of "Upload" and "Download"

It is particularly reminded that after the completion of the project configuration on PC, the project will be uploaded to the gateway through the button "Upload project". When you look at the project in the gateway, you download the project inside the gateway to the configuration software through the button "download project".

7.3 Gateway to realize ModbusRTU to BACnet common

problems

Q1: There are a lot of Modbus drivers in Sunfull gateway. If we need to collect datas from a watt hour meter with standard ModbusRTU protocol, which driver should I choose?

A1: For devices that support standard ModbusRTU protocol, you need to select the driver whose name is ModbusRTUClient.

Q2: How many buses can the Sunfull gateway take at most? Can each bus be mixed with different devices (for example, a bus is connected to the water meter and meter simultaneously)? How many devices can be supported in series by each bus?

A2:

- 1) Sunfull gateway can support 4 RS485 access at most (e.g.BAC2004 supports 4 road 485, BAC1002 supports 2 485/232).
- 2) for the sake of communication stability, it is recommended that customers connect the same equipment to each bus, such as configuring the COM1 connection meter and

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COM2 receiving the water meter.

 no more than 32 buses are recommended for each bus, and one bus must be connected with multiple devices in series. It is necessary to ensure the unique device ID between devices.

Q3: for example, I have 20 same types of electric meters on a bus, and a X2BACnet software is completed to configure one of the meters. How to quickly complete the other 19 units In the software?

A3: in order to save time for users, Sunfull gateway has made copy paste and batch modification in many places. For example, the copy and paste of the same device point information, the copy and paste between the channels, the point bit information (register type, register address, data type, etc.) are modified in batch.

When the user completes a point configuration of an electric meter, the other 19 units can quickly complete the configuration by copying and pasting the current device, and the user pays attention to the equipment station number corresponding to the site equipment.

Q4: I use the BAC2004 gateway to collect the ModbusRTU data provided. Why does the reading of the single precision floating-point format correspond to the actual value of the field?

A4: for collecting ModbusRTU data, Sunfull gateway opens the single precision floating point sequence in the device properties. Users need to switch the regular 4321 byte format to 2143. After saving, the project can be uploaded to the gateway again.

Note: for such read - up data and field data, users can consider switching byte order (gateways open 2 byte integer order, 4 byte integer order, and single precision floating order).

Q5: when building a project with X2BACnet configuration software, the server-side BACnet address is very messy, can it be configured quickly through a single key arrangement?

A5: In X2BACnet configuration software, "BACnet server" menu bar, the design of "Sort Object Instance Numer", users only need to click, can quickly arrange the BACnet address from 0 in order.

Q6: the upper computer system is BA System. When we integrate the BACnet gateway, can we scan the roll call to display in Chinese??

A6: In the X2BACnet configuration software, under the "BACnet server" menu bar, the "BACnet Character Encoding" option is added, and the user only needs to switch to the "Unicode" character set to support Chinese.

Q7: When the network controller integrate the BACnet gateway quickly through the BACnetIP protocol, why can't we find the Sunfull gateway?



A7:

- 1) Users need to ensure that the Sunfull gateway is in the same network segment as the network controller, and the subnet mask and the default gateway must also be guaranteed to be consistent with the scene.
- 2) Ensure that Sunfull BACnet server device ID is unique and cannot be duplicated with other devices on the same network.
- 3) Do not check the menu bar "BACnet server" under " BACnetMSTP Settings", if open MSTP, it means convert to BACnetMSTP server, it is not able to search the BACnetIP.
- 4) the user can also be tested by the BACnetScan scanning tool developed by Sunfull. If BACnetScan can find the fast Sunfull BACnet gateway, it is no problem to scan the BACnetIP. It is necessary to confirm whether the communication parameters of the Network controller and gateway are set correctly.