xArrow SCADA Tutorial

Version 2.0

xArrow Software 1999 – 2018 http://www.xarrow.com

xArrow SCADA System Installation

1 System Requirements

1.1 Hardware

The configuration part of xArrow SCADA is run on windows platform, the PC requirements as follows:

- CPU: Intel x86 and compatible CPU
- Memory: 64MB and above
- Video Card: Windows compatible video card
- Hard Disk: 250M and above
- Network Card: for device communication and downloading project

The running part is required to run on the following hardware:

- CPU: Generally support ARM CPU, if you need to support other CPU types, please contact us
- Memory: 64MB and above
- Network Card: Should have a MAC address to support TCP / IP communication for device communication and download project.
- RS232/RS485 interface: used for device communication.

1.2 Software

- Configuration: WINDOWS XP/2003/Vista/2008/7/8/10
- Running: Android 4.4.2 and above

2 Installation

2.1 Configuration Environment

1. Launch xArrowAndroid.exe



2. Read And Agree The License Agreement

💻 xArrowAndroid 2.0 Setup	
License Agreement Please review the license terms before installing xArrowAndroid 2.0.	P
Press Page Down to see the rest of the agreement.	
XARROW End User License Agreement Revised: March 2015 IMPORTANT, READ CAREFULLY. THIS XARROW LICENSE AGREEMENT (THE "AGREEMENT") IS A BINDING CONTRACT BETWEEN YOU, THE END-USER (THE "LICENSEE") AND XI'AN RUI JIAN SOFTWARE LTD. ("XARROW" OR THE "LICENSOR").	
EXCEPT TO THE EXTENT YOU ARE BOUND BY A WRITTEN AGREEMENT SIGNED BY BOTH YOU AND XARROW REGARDING THE USE AND LICENSE OF THIS SOFTWARE PRODUCT BY INSTALLING OR USING THIS SOFTWARE PRODUCT, YOU, THE LICENSEE, ARE AGREEING TO BE BOUND BY THE TERMS, CONDITIONS AND LIMITATIONS OF THIS AGREEMENT, WHICH INCLUDES, BUT IS NOT LIMITED TO, THE SOFTWARE USAGE	•
If you accept the terms of the agreement, click I Agree to continue. You must accept th agreement to install xArrowAndroid 2.0.	
< Back I Agree Ca	ncel

3. Select Modules

😐 xArrowAndroid 2.0 Setu	P	
Choose Components Choose which features of xArr	owAndroid 2.0 you want to insta	II. 🤧
Check the components you wa install, Click Next to continue,	nt to install and uncheck the com	ponents you don't want to
Select components to install:	 ✓ xArrowAndroid Core ✓ Training Project 	Description Position your mouse over a component to see its description,
Space required: 38.9MB		
xArrow Software ————		
	< Back	Next > Cancel

4. Choose Folder To Install

🖳 xArrowAndroid 2.0 Setup	_ 🗆 🗙
Choose Install Location Choose the folder in which to install xArrowAndroid 2.0.	P
Setup will install ×ArrowAndroid 2.0 in the following folder. To install in a different fo Browse and select another folder. Click Install to start the installation.	lder, click
Destination Folder C:\Program Files\xArrow\xArrow Android 2.0 Browse.	
Space required: 38.9MB Space available: 3.0GB	
< Back Install	Cancel

🖳 xArrowAndroid 2.0 Setup	
Installing Please wait while xArrowAndroid 2.0 is being installed.	2
Extract: gear1_12.bmp Extract: fire2_10.bmp 100 % Extract: fire2_2.bmp 100% Extract: fire2_3.bmp 100% Extract: fire2_4.bmp 100% Extract: fire2_5.bmp 100% Extract: fire2_6.bmp 100% Extract: fire2_8.bmp 100% Extract: fire2_9.bmp 100% Extract: gear1_1.bmp 100% Extract: gear1_1.bmp 100%	
×Arrow Software	Cancel

5. Install Successfully



2.2 Running Environment

2.2.1 Install

When the configuration program installation is over, user can find the Android APK at: [xArrowAndroid Install Folder\Out\ANDROID_BIN\xArrowAndroid.apk], and install this xArrowAndroid.apk to the given Android device.

For how to install apk to Android device, user can google the internet, here is 2 common way to install:

1. Use ADB

Put the xArrowAndroid.apk to the working folder of the Android SDK use the command: adb install xArrowAndroid.apk

2. Manually Install

Copy the xArrowAndroid.apk to the Android device, use file manager to locate the file, then click on it.

Note: xArrowAndroid.apk need 2 permissions: Storage: Modify/delete SD card contents Phone Calls: Read Phone State and Identity

2.2.2 Running

User can run the xArrow SCADA when it is installed OK on the android device, and click the "Start" button to start the current project.

Note: The APP have a demo project which show the common feature of the software, user can make and download their own project to the device.



移动⊠ DemoProject		!❶! ᡂ��� ㋿ ",⊪100% 💽 晚上10:3
<u>1. Gauge</u>	11. Group Widget	21. Script Sample
2. Rectange, Ellipse, Shapes	12. Real-time Trend	22. User Login
<u>3. Bitmap</u>	13. Historical Trend	23. File Dialog & Message Box
4. Polygon, Polyline, Bezier	14. Historical Data Grid	24. Demo Project
5. Real-time Widgets	15. Empty Data Grid	25. ModbusTCP Example
6. Waterflow, Wheel, Ammeter	<u>16. Bar Graph</u>	
7. ComboBox, ListBox	17. Pie Graph	
8. Animate Widgets	18. User-defined Curve	
9. Button, CheckBox, Radio Button	19. Real-time Alarm	
10. DateTime, Menu, Edit Widget	20. Historical Alarm	

xArrow Software







Double clic	k the header to query the historical data					
索引	时间	value_1	value_2	value_3	value_4	value_5
1	2018-01-20 22:35:30	23.0	27.0	23.0	90.4	20.6
2	2018-01-20 22:35:40	72.0	76.0	72.0	86.4	84.2
3	2018-01-20 22:35:50	121.0	24.0	20.0	23.2	92.2
4	2018-01-20 22:36:00	170.0	73.0	69.0	3.5	31.5
5	2018-01-20 22:36:10	220.0	22.0	18.0	54.6	0.2
б	2018-01-20 22:36:20	261.0	63.0	59.0	88.1	82.3
7	2018-01-20 22:36:30	310.0	11.0	7.0	25.3	93.5
8	2018-01-20 22:36:40	359.0	60.0	56.0	2.7	33.9
9	2018-01-20 22:36:50	408.0	8.0	4.0	57.0	0.5
10	2018-01-20 22:37:00	457.0	57.0	53.0	99.9	47.7

xArrow SCADA buttons as follows:

2.2.2.1 Start

Start current project.

2.2.2.2 Stop

Stop current project.

2.2.2.3 Setting

Configure running properties of xArrow SCADA, as follows:

中国移动 🖞 🌵	◧◖
👏 xArrow SCADA	
WINDOW SETTING	
Window Setting Fullscreen when open view	V
Screen Setting Keep screen always on	打开
Screen Direction	打开
View Setting Adjusted Size	打开
OTHER	
Current Project DemoProject	
LICENSE	
SoftwareID(Click To 7097-52BA-37CA-0FE9-FF	Copy) 2E
Buy Buy the license of xArrowA	Android

2.2.2.4 Exit

Exit xArrow SCADA app.

3 Download Project

To download the project from xArrowMaker(the configuration program) to the APP, user should launch the APP first.

The xArrow SCADA's working interface as follows:



3.1 Make Project

User use xArrowMaker to make the project, for more information about how to use xArrowMaker, user can reference the xArrow help document and the tutorial video: <u>http://www.xarrow.com/download.php?file=GetStart.avi</u>。

3.2 Download Project

When the project is complete, first of all to ensure the xArrow SCADA APP is started. Then in xArrowMaker, click the menu item [Running Configuration\Dowdload] or click the conresponding toolbar button, it will show the download dialog, as follows:



🖺 Maker		
File Project-Manager Running-Con	ifiguration Data-Configuration View Help	
🖀 💭 🖬 🔂 🔊 str (🗖 🐉 🗽 🕨 🗟 🤣	
	DemoProject	
Project Manager Running Configuration System Alarm Script View Data Configuration System DB Station Station String Station String Station Data Configuration Data Configuration Data Configuration	Download Image: Comparison of the second state of the second	
Ready		

[Device IP]: This is the IP address of the Android device which run the xArrow SCADA.

Note: The TCP/IP network between the computer and the Android device must be stable and unobstructed.

[Download...]: Click this button to download the project from the computer to the Android device, as follows:

Download					×
Device					
Device CPU:	ARM			~	
Device IP:	192	. 168 .	1	. 100	
	Expo	ort Protocol T	o Project I	Folder	
					-
	D	ownload			
1.drw - 16030	61(BYTE)				
Sta	rt Device	Stop Dev	ice	Exit	

📱 Maker			_	
File Project-Manager Running-Conl	iguration Data-Configuration View Help			
🖹 🔯 🗊 🔂 🔊 💺 str 🖡	3 💐 🚾 🕨 II 📴 🤣			
	DemoProject			
Project Manager	Download Z	can Period 0	Timeout 400	<mark>Receiv</mark> Receivi
Alarm	Device IP: 192 . 168 . 1 . 100		200 200	Receivi Receivi
System DB	Data		200 200	Receivi Receivi
String Analog Switch Application Data Drawing Configuration				
	Start Device Stop Device Exit			
Ready				>



When download over, user can click the "Start" button to start the project.

移动 ⊠ DemoProject		Ю № 🖉 🧟 "പ1100% 💌 晚上10:35
1. Gauge	11. Group Widget	21. Script Sample
2. Rectange, Ellipse, Shapes	12. Real-time Trend	22. User Login
<u>3. Bitmap</u>	13. Historical Trend	23. File Dialog & Message Box
4. Polygon, Polyline, Bezier	14. Historical Data Grid	24. Demo Project
5. Real-time Widgets	15. Empty Data Grid	25. ModbusTCP Example
6. Waterflow, Wheel, Ammeter	<u>16. Bar Graph</u>	
7. ComboBox, ListBox	17. Pie Graph	
8. Animate Widgets	18. User-defined Curve	
9. Button, CheckBox, Radio Button	19. Real-time Alarm	
10. DateTime, Menu, Edit Widget	20. Historical Alarm	

PLC Connection Samples

1 ModbusTCP

1.1 Test Environment

1.1.1 xArrow SCADA 1.2.5

The Android device used to test is Huawei Honor 6+ (Android 4.4.2), it connected to the router via WIFI, and its IP assigned by the router is 192.168.1.100. The phone have already installed the xArrow SCADA APP (the apk file can be found at [xArrowAndroid Install Folder\Out\ANDROID_BIN\xArrowAndroid.apk]).

1.1.2 Modbus Slave 3.0

Modbus Slave is a modbus simulation program, it install on the computer, worked as a modbus device. The computer connect to the router, and the IP address is 192.168.1.102.



Launch Modbus Slave, configure its connection as TCP/IP, and configure 10 tags, as follows:

📓 Nodbus Slave - Noslavi	
File Connection Setup Display View Mindow Help	
📴 Ibslavi 📃 🗖 🗙	
ID = 1	
No connection	
40001 = 4022 40002 = 40	
40003 = 3823	
40004 = 0	
40005 = 0	
40006 = 0 Connection X	
40008 = 0	
40009 = 0 CRIU CASCII	
40010 = 0 9600 Baud	
☐ Ignore Unit ID	
8 Data bits	
None Parity - DSR CTS	
RTS Toggle 1 [ms] RTS disable	
1 Stop Bit	
For Help, press F1. For Edit, double click on a value	

🕄 Modbus Slave - Moslavi	
<u>F</u> ile Connection Setup Display View Mindow Help	
▋▆▇ॖॖॿॖऻॾॖॿॺॎॣख़	
🗒 Ibslavi 📃 🗌 🗙	
ID = 1	
40001 = 4033	
40002 = 3834	
40004 = 0	
40005 = 0	
40006 = 0	
40007 = 0	
For Help, press F1. For Edit, double click on a value	

1.2 Configuration

1.2.1 Create New Project

🞽 Maker	
File Project-Manager Running-Configuration Data-Configuration View Help	
👔 🖾 🖬 💁 🔊 號 str 🖾 🏽 🦉 🕨 🕨 🗐 🤣	
TestProject	
Project Manager Running Configuration Image: Alarm Image: Alarm	
Ready	

Click [Project Manager] to create new project, as follows:

Project Manager				_ _ X
Current Project:		TestProjec	ct	
Project List:	Double Click Item To La	aunch Project	12120	
Project Name	Project Folder			New Project
TestProject	C:\Program Files\xArrow	\xArrow Android 2.0		
	Create Project			ave As
	Project Name:	TestModbusTCP		ete Project
	Folder:	C:\Program Files\xArrow\x4	Arrow Android	ort Project
	Screen Resolution:	1024 × 768		
	7	ОК	Cancel	
				ypt Project
				Decrypt Project
		>	4	Exit

Project Manager			
Current Project:	TestModbus	ТСР	
Project List: Double Click Item To Launch Proje	ect		
Project Name Project Folder			New Project
TestProject C:\Program Files\xArrow\xArrow Ar TestModbus C:\Program Files\xArrow\xArrow Ar	droid 2.0 droid 2.0		Save As
		R	Delete Project
			Import Project
	>		Set As Current Project
18:54:59 Set [TestModbusTCP] to the current project su 18:54:53 Create new project TestModbusTCP success!	locess		Encrypt Project
			Decrypt Project
	>	4	Exit

1.2.2 Create Station

Click menu [Data Configuration\Station...] to create station, as follows:

Station - 2	
0# Station 1# Station	Code: sta1 ? Description: sta1
	Protocol: NULL
	Select Channel:
✓ Receive(Y) Or Transfer(N)	Device ID:
Is Redundance Station	Scan Period: 20 (ms)
Switch Count: 0 Analog Count: 0	Timeout: 200 (ms) Redundance Station: NULL
Add Delete	ОК

Configure the protocols, as follows:

tation - 2 O# Station 1# Station	Code: sta1 Description: sta1	(?
Select Protocol GE Grace HollySys Koyoele LG Mitsubishi Modbus Modbus Modbus	SOver TCP TCP	OK Cancel	
Receive(Is Redune Version: 1.9 Switch Count: 0	TCP-Slave -Slave	200 (ms	
Analog Count: 0 Add Delete	Redundance Station:	NULL	

Station - 2	X
0# Station 1# Station	Code: sta1 ? Description: sta1
	Protocol: Modbus-TCP
Communication Protocol Station N	on Config
Po	P: 192.168.1.102 int: 502 ✓ Single TCP Connection TCP Connection Reused
Switch Count: 0	OK Cancel (ms) (ms) Redundance Station: NULL
Add Delete	ОК

Note: This IP address is the IP of the Modbus Slave.

Station - 2	X
0# Station 1# Station	Code: sta1 ? Description: sta1
	Protocol: Modbus-TCP
	IP: 192.168.1.102 Port: 502 Station Number: 1 Address Type: 1 Single TCP Connection: 1 TCP Connection Reused: 0
	✓ Use Protocol's Default Channel
Receive(Y) Or Transfer(N)	Device ID:
Switch Count: 0	Scan Period: 20 (ms) Timeout: 200 (ms) Redundance Station: NULL 🗸
Add Delete	ОК

1.2.3 Configure Analog

Configure [Data Configuration\Analog...] to set analog tags, as follows:

Select Stat	ion		
Station:	sta1		•
	OK	Cancel	

Analog			×
Code:	?	Description:	
I/O Address:		High Limit:	0
Coefficient:	1	Low Limit:	0
Original Value:	0	High High Limit:	0
Base:	0	Low Low Limit:	0
Dead Zone:	0	Variation Range:	0 (%)
Decimal Place:	1	Alarm Delay:	0 (s)
Unit:		Alarm Process:	
Alarm Triggered:	Display no drawing	Drawing Name	ne:
Writeable	Invert	🗌 Lock 📃 Read A	lways
Accumulate	Voice Alarm	Print Alarm	
<< <		Add Delete Ba	atch Add Exit

Click [Add] button to add 4 analog, and navigate to the first one, as follows:

Analog - sta1 1			
Code: analog0	?	Description: analog0	
I/O Address:		High Limit:	0
Coefficient:	1	Low Limit:	0
Original Value:	0	High High Limit:	0
Base:	0	Low Low Limit:	0
Dead Zone:	0	Variation Range:	0 (%)
Decimal Place:	1	Alarm Delay:	0 (s)
Unit:		Alarm Process:	
Alarm Triggered:	Display no drawing	Drawing Nam	e:
Writeable	Invert	🗌 Lock 📃 Read A	lways
Accumulate	Voice Alarm	Print Alarm	
	> >>	Add Delete Ba	etch Add Exit

Configure the I/O address, as follows:

Analog - sta1 1	×
Code: analog0	? Description: analog0
I/O Address: Coefficient: Original Value: Base: Dead Zone: Decimal Place: Unit:	Image: High Limit: 0 1 I/O Config 0 Address: 400001 (%) 0 Format: U16:16-bit Unsigned Integer 1 OK Cancel
Alarm Triggered:	Diama, manana and a standard and a
Vriteable	Invert Lock Read Always Voice Alarm Print Alarm
~~ <	>>>> Add Delete Batch Add Exit

Set writeable property if needed, as follows:

Analog - sta1 1				×	
Code: analog0	?	Description: analog0			
I/O Address:	400001:U16	High Limit:	0		
Coefficient:	1	Low Limit:	0		
Original Value:	0	High High Limit:	0		
Base:	0	Low Low Limit:	0		
Dead Zone:	0	Variation Range:	0 (%)		
Decimal Place:	1	Alarm Delay:	0 (s)		
Unit:		Alarm Process:			
Alarm Triggered:	Display no drawing	Drawing Nam	ie:)	
Vriteable	 Invert Voice Alarm 	Lock Read A	lways		
<< < >>> Add Delete Batch Add Exit					

When all the tag set OK, as follows:

📱 Maker								
File Project-Manager Running-Configuration Data-Configuration View Help								
📸 🐺 🗃 💁 🔊 號 str 🖾 😻 🌠 🕨 🗉 🖏 🤣								
TestModbusTCP								
Project Manager	Index	Code	Description	Station	I/O Address	Writeable	Original Value	Coeffici
Running Configuration	1	analog0	analog0	sta1	400001:U16	Y	0	1
	2	analog1	analog1	sta1	400002:U16	Y	0	1
	3	analog2	analog2	sta1	400003:U16	Y	0	1
	4	analog3	analog3	sta1	400004:U16	Y	0	1
	<							>
Ready								

1.2.4 Make Drawings

Launch Draw, as follows:



🚸 Draw - [default.drw]



Double click the widget to set its properties:

Config				
Widget Property Data Link Common				
Font Color Bk Color Transparent Border Color Border Not Display(Only for Control)	 Align Left Horizontal Center Align Right Align Top Vertical Center Align Bottom 			
Display As: Default	Integer Bit: 0			
Font By Condition	Add Modify Delete			
Mouse Operation Image: Mouse Operation Image: Control Image: Control Image: Control				
Operator: Monitor:	▼ ▼			
ОК	Cancel Apply			



Draw and configure the other 3 widgets, as follows:



1.2.5 Download Project

Note: the xArrow SCADA should already started in the android phone.

🖺 Maker										
File Project-Manager Running-Con	figuration Data-Configuration View Help									
📲 🖓 🗊 🔂 🔊 🗊 🕼 str 🖡	3 🐉 🎦 🕨 🗉 🗟 🤣									
TestModbusTCP										
Project Manager	Download Signal Value	Coeffici								
🖨 🔄 Running Configuration		1								
Alarm	Device CPU: ARM	1								
Script		-								
Niew										
System DB	Export Protocol To Project Folder	1								
Station String Analog System_station System_station System_station Switch Orawing Configuration Gefault	Download Start Device Exit									
Ready										

1.2.6 Run The Project



🕮 Lodbus Slave - Ibslavi	
File Connection Setup Display View Window Help	
🗒 Ibslavi 📃 🗖 🗙	
ID = 1	
40001 = 7858	
40002 = 40	
40003 = 7659	
40004 = 0	
40006 = 0	
40007 = 0	
40008 = 0 40009 = 0	
40010 = 0	
For Help, press F1. For Edit, double click on a value	

2 S7-1200

2.1 Test Environment

• Router is TP-Link(TL-WR842N), provide WIFI connection, its IP address is 192.168.1.1

• The Android phone used to test is Huawei Honor 6+ (Android 4.4.2), the phone connect to route via WIFI, its IP address is 192.168.1.100 (assigned by the router). The phone have already installed the xArrow SCADA APP (the apk file can be found at [xArrowAndroid Install Folder\Out\ANDROID_BIN\xArrowAndroid.apk]).

• PLC's IP is 192.168.1.200, connect to the LAN port of the router.



2.1.1 Hardware

PLC: S7-1215C(6ES7 215-1AG40-0XB0), Firmware Version: 4.1.3 Program Software: TIA Portal V13 SP1 + UPD7

2.1.2 Software

xArrow SCADA 1.3.0
2.2 PLC Settings

2.2.1 New Project

M Siemens Project Edit View Insert Online	Options Tools Window He	-lp	Totally Integra	
? Semens Project Edit View Insert Online ? Save project ? Save project Project tree Devices ? Online access ? Card Reader/USB memory	Options Tools Window He X Di Carlo C	slp Create a new project Project name: Path: Author: Comment: W	Totally Integra	ted Automation PORTAL Tasks Tasks Tasks Tasks Options ✓ Find and rep Find: Whole words onl Match case Find in substruct Find in substruct Find in hidden ts Use regular expr Whole documen Form current po Selection Down Up Find Replace with:
Details view				Replace
	VA		ск 🗃 🔮 🖡 🕞	19:41 19:41 2017/3/11

2.2.2 CPU Configuration

2.2.2.1 Add New CPU



2.2.2.2 Device Configuration

1. Set IP Address



2. Set Protection

🔁 🛃 Save project 📑 🐰 💷	🗈 x 🤊 ±	(~ ± 🖥 🛄 🗓 🚆 💋 Go	online 🖉 Go offline 🛔 🖪 🖪 🔛			Totally Integrat	ted Automation PORT/
Project tree		Project1 > PLC_1 [CPU 1215C	DC/DC/DC]			_₽■×	Hard 🗊 🗉
Devices				🛃 Topology view	H Network view	Device view	Options
3 O O 8	🔲 📑	PLC_1	- 🖽 🕅 🚮 🏛 🔍 🗉			🖬 🔤	
Project1 Add new device Devices & networks Devices & networks Device configuration Online & diagnostics Program blocks Frogram blocks Technology objects Fright Recharges Device Lags Device Lags	c <u>1</u>	Rack_0 C III PLC_1 (CPU 1215C DC/DC/DC) General IO tags Sys Port [X1 P2] Web server access Hardware identifier D 114/DQ 10 General D binital inpurs	tem constants Texts Full access (no protection) Read access HM access No access (complete protection)	Interview Interview	tulinfo û ⊻ Diagno wrrte rasswo	stics	✓ Catalog ✓ Catalog ✓ Gearch> Mill ✓ Filter ✓ Filter ✓ Filter ✓ Signal bo. ✓ T Batteryb ✓ T Batteryb ✓ T DO ✓ T DO ✓ T DVDQ ✓ T A
Gui Vatch and force tables Goi Online backups Goi Tacces Goi Tacces Goi Tacces Goi Tacce proxy data Goi Tacce modules Goi Tacce al modules Goi Tacce Go		bigital outputs bigital outputs big tail outputs big tail outputs hardware identifier H 21A0 2 High speed counters (HSC) Pulse generators (HTO/PWM) Startup Cycle Communication load System and clock memory Web server	Full access (no protection): TA Portal users and HM applications will have No password is required.	e access to all functions.			 Im AU Im AUAQ Im Communi Im Technolo.
Details view		User interface languages Time of day Protection Configuration control	Connection mechanisms	ccess with PUT/GET commun	nication from remote partn	ier (PLC, HMI, OPC 🗸	< III

3. Set DB Block (Optional)

2		
M Siemens - C:\Siemens Project\Project1\Project1		_ 🗆 >
Project Edit View Insert Online Options Tools	Nindow Help	Totally Integrated Automation
📑 🎦 🖬 Save project 🚇 💥 🗐 🕮 🗙 🍤 🛎 🦳 🛀		PORTAL
Project tree	dd new block	X → → → × Hard → ↓
Devices	Name:	Index IN Device stress
Devices	Data_block_1	k view Device view Options
š	Type: 📑 Global DB 💌	▲ ✓ Catalog ≦
E Project1		s search> Mi Mi o
Add new device	OB Congrege:	_ → Filter
	Organization Number: 1	
Provide configuration	Manual	Signal bo
Online & diagnostics	Automatic	🗋 🗗 🕨 🛅 Communi 🛛
Program blocks =		🕨 🧊 Batteryb
Add new block	FB Description:	• 🖬 DI
- Main [OB1]	Function block Data blocks (DBs) save program data.	
Technology objects		
External source files		N Diagnostics
PLC tags		
▶ L PLC data types	FC	
Watch and force tables	Function	Finite Communication
Online backups		
 Images Images Images 		
Program info		iy displayable
Text lists	DR	bra
Local modules		Ties
🕨 🙀 Common data	Data block	
Documentation settings	More	
Languages & resources	Additional information	
▶ 🙀 Online access 🗠 🗠		
✓ Details view		
		< 11 >
Name		> Information
		20:01
		CH 📟 🥨 - 🔶 🔽 地 2017/3/11

1	2				
W	Siemens - C:\Siemens Project\Project1\Proj	ect1			_ 0 ;
P	roject Edit View Insert Online Options	s Tools Window Help		Totally Integrate	ed Automation
E	🗄 🞦 🔚 Save project 📕 💥 🗐 🗎 🗙 🕨	ን ድ 🖓 🗄 🛄 🛄 🔛 🖉 🖓 Go	o online 🖉 Go offline 🔚 🖪 🖪 🗶 🖃 🛄		PORTAL
	Project tree	I	CDC/DC/DC] + Program blocks + Data_block_1 [DB1]	_ # = X	Tasks 📑 🗉 🕨
	Devices				Options [
	1º 0 0	Data block 1 (DR1)		3	
2		para_plock_1 [pp1]			✓ Find and rep
Ē	▼ 🔄 Project1	General	c	Comment	
Ē	Add new device	General			Find:
Ē	Devices & networks	Information	Attributes		
	PLC_1 [CP0 1215C DODODC]	Time stamps			Whole words onl
ā	9 Online & diagnostics	Compilation	Only store in load memory		Match case
	Program blocks	Protection	Data block write-protected in the device		Find in substruct
	Add new block	Attributes	Optimized block access		Eind in hidden te
	Main [OB1]	Download without reinitializ			
	Data_block_1 [DB1]			>	
	Technology objects		nosti	tics	Use regular expr
	External source files				O Whole document
	PLC tags				From current por
	Le PLC data types				O Colorian
	Watch and force tables				Selection
	 De Contine backups Tra cont 				Down
	Device providate				Oup
	Program info		< III >		Eind
	Text lists				
	Local modules		OK Cancel		Replace with:
	🕨 🥁 Common data	<u> </u>	Sector Se		
	Documentation settings				Replace
	Languages & resources	×			
	✓ Details view				
					< III >
	Name Offset I	Da			> Languages
	🦻 🥭 📋 🚺 🚻		СН		20:03 2017/3/11

M Siemens - C:\Siemens Project\Project1\Project1	1									_ 0
Project Edit View Insert Online Options	Tools Window Help								Totally Integra	tod Automation
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Project tree	(Project1 → PLC_1 [CPU 1215	C DC/DC/DC] → Prog	ram blocks 🔸	Data_bloc	.k_1 [DB1]				_ # = X	Tasks 🔳 🗉 🕨
Devices										Options
B 0 0 B B		6 6 🖿 🔣 😤							3	
2	Data_block_1									✓ Find and rep
👻 🗖 Project1 🔗	Name	Data type	Offset Ste	rt value	Retain	Accessible f	Visible in	Setpoint	Comment	
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Devices & networks	2 🔄 = db0.0	Bool	fals	se .						
FLC_1 [CPU 1215C DC/DC/DC]	3 📶 = db0.1	Bool	fals	se .						Whole words only
Device configuration	4 < <add new=""></add>									
😼 Online & diagnostics										Match case
👻 🛃 Program blocks	=									Find in substruct
Add new block										📃 Find in hidden te
- Main [OB1]										Use wildcards
Data_block_1 [DB1]	<								>	
Technology objects	db0.1				Q P	roperties [🗓 Info 🔒	🖏 Diagn	ostics	- Use regular expr
External source files	Commi									O Whole document
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Le PLC data types	General	General								0.1.4
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 Las Device proxy data No. Device proxy data 			Data type	Bool						
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A Languages & resources	*									
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	-									
Name Offset										Languages
	-				_			_		
🚱 🥭 🚞 🝳 👫									сн 🚎 😨 🚆 🔺 😼	20:04

4. Download configuration to PLC

M Siemens - C:\Siemens Project\Project1\Proj	ect1			_						T X
Project Edit View Insert Online Option	Extended download to	o device					×	Tata Ibu Jata an		
📑 🎦 🔚 Save project 昌 🐰 🗎 🖆 🗙		Configured acc	err noder of PLC 1*					rotally integra	PORTA	L
Project tree		Devise	Device time	flot	Turne	Addross	Subpat		Hard III N	
		PLC 1	CPU 1215C DC/D	1 X1	PN/IE	192 168 1 200	Sooner			
Devices		- sage						Device view	Options	
										査
arks								~	✓ Catalog	
ž 💌 🗋 Project1									Search> Mi MI	1
Add new device			The state of loc inte		- Deviat					심욡
🗧 📥 Devices & networks			type of the PGPC inte	пасе:	PIN/IE			s.	enter	8
▼ PLC_1 [CPU 1215C DC/DC/DC]			PG/PC inte	rface:	💹 Intel(R) P	RO/1000 MT Network Co	nnection 💌 😻 💁		CPU	9
Device configuration			Connection to interface/su	bnet:	Direct at sk		- 💎	1 a	Signal bo	-
🕓 Online & diagnostics				eway:			- 💎		Communi	8
Program blocks									Dattery D	12
Technology objects							en la desta a			ine
External source files		Compatible de	vices in target subnet:			Snow all compa	tible devices			to
PLC tags		Device	Device type	Туре		Address	Target device	ostics		s o
Le PLC data types	·· I	PLC_1	CPU 1215C DC/D	. PN/IE		192.168.1.200	PLC_1		AQ	
Watch and force tables	F	-	-	PN/IE		Access address	-		▶ 🖬 Al/AQ	1
 De Traces 									• Communi	a
Pavice providete									• Technolo	sks
Program info	C Flack (CD								-	
Text lists	E Fidsti LED									
Local modules										5
Common data							<u>Start search</u>			ara
Documentation settings										ries
Languages & resources	Online status informatio	in:								
 Online access 	Retrieving device in	formation					~			
Y Display/hide interfaces	Scan and information	on retrieval compl	eted.							
۲	Display only or rest						*			
✓ Details view	Display only end in	lessages								
									<	1
Name						Lo	ad <u>C</u> ancel		> Information	<i>*</i>
Portal view Overview	🚓 PLC 1	Data block 1					~	The project Project1 was s	aved success	
									20-34	
								🕅 🔮 🖡 🔺 🖡	2017/3/1	1

ect Edit View Insert Online Optic	ins Tools ≌C)≜(2ii≜	Wind	low Help 🔃 🛅 🖳 🖬 💋 G	io online 🖉 Go offline 🛔 🖪 🖪 🛃 🔒				T	otally integra	ted Automation PORT
roject tree	🕮 🖣 Proj	ject1	→ PLC_1 [CPU 1215	ic DC/DC/DC]					_ # = ×	Hard 🗊 🛙
Devices					Jacob Topology	view 🛔	Network vie	w 👔 D	evice view	Options
900	Load res	suits						×	- 🖪 🔲	
									^	✓ Catalog
Project1	- 🕑 🕯	Status	and actions after downlo	ading to device						Search Mr. M
Add new device	Cantor		Terest	M		A				
A Devices & networks	status 10	0	= PLC 1	Developing to device completed without ones		Action			4 8	Filter
PLC_1 [CPU 1215C DC/DC/DC]		M.	• ruc_i	Downloading to device completed without error.						🕨 🧊 CPU
Device configuration			 Canada mandulara 	Canal an advice offer developeding to device		Canada all				🕨 🍋 Signal bo
Online & diagnostics		4	 start modules 	stant modules alter downloading to device.		Start all				🕨 🕅 Communi
Program blocks										🕨 🧃 Battery b
Technology objects									~	🕨 🧊 DI
External source files									📵	🕨 🧰 DQ
PLC tags								postics		🕨 🧰 DI/DQ
PLC data types								liostics		🕨 🧰 Al
Watch and force tables										🕨 🗖 AQ
Online backups										Al/AQ
🕨 📴 Traces										🕨 🍋 Communi.
Device proxy data										🕨 🛅 Technolo
Program info								10.814		
Text lists								33 PM		
Local modules	<			III				43 PM		
Common data								40 PM		
Documentation settings								40 RM		
Languages & resources					Finish	Load	Cancel	53 PM		
Online access					THIST	LUBU	Cancer	13 PM		1
Displayhide interfaces	× 😞	v (tart downloading to dev	ice.			3/11/2017 8	-34:17 PM	=	
11	>			inter -			3/11/2017 8	34:17 PM		1
Details view			 Hardware configure 	ation			3/11/2017 8	-35-12 PM		
1	- X	1	Hardware confi	nutation was loaded successfully			3/11/2017 8	-35-55 PM		
	×		Ince black the	- In the state of			3/11/2017 0	DELEA DUA	×	
Name	<								>	> Information
Portal view 🔠 Overview	💑 PLC_	1	👅 Data_block_1					🗸 The proje	ct Project1 was s	aved success
	Δ									20:3

- 5. Connect PLC to route
- 6. Restart PLC

Check if the PLC connected OK:

ping 192.168.1.200

If all OK, it will show the following:

🛤 Command Prompt	-	×
Microsoft Windows XP [Version 5.1.2600] (C) Copyright 1985-2001 Microsoft Corp.		-
C:\Documents and Settings\Tiger>ping 192.168.1.200		
Pinging 192.168.1.200 with 32 bytes of data:		
Reply from 192.168.1.200: bytes=32 tine=10ms TTL=30 Reply from 192.168.1.200: bytes=32 tine=3ms TTL=30 Reply from 192.168.1.200: bytes=32 tine=2ms TTL=30 Reply from 192.168.1.200: bytes=32 tine=48ms TTL=30		
Ping statistics for 192.168.1.200: Packets: Sent = 4, Received = 4, Lost = 0 (0%, loss), Approximate round trip times in milli-seconds: Minimum = 2ms, Maximum = 48ms, Average = 15ms		
C:\Documents and Settings\Tiger>_		
		-

2.3 Configuration

2.3.1 Create Station

Station - 2			×
0# Station 1# Station	Code: sta1 Description: sta1		?
Select Protocol Image: Grace Image: Grace	i c CP Ethernet	OK Cancel	
Switch Count: 0 Analog Count: 0	Timeout: Redundance Station:	200 NULL	(ms)
Add Delete		K	

Station - 2	×
0# Station 1# Station	Code: sta1 ? Description: sta1
Communication	Config
CPU PLC Type: Rack: Slot: Net PLC IP: OK	\$71200 0 2 192 . 168 . 1 . 200 1el Cancel
Is Redundance Station Switch Count: 0 Analog Count: 0	Scan Period: 20 (ms) Timeout: 200 (ms) Redundance Station: NULL
Add Delete	

2.3.2 Configure Analog

Configure [Data Configuration\Analog...] to set analog tags, as follows:

Select Stat	ion		
Station:	sta1		•
	OK	Cancel	

Analog - sta1 1	×
Code: analog0	? Description: analog0
I/O Address:	I/O Config
Coefficient: Original Value: Base: Dead Zone: Decimal Place: Unit:	I/0: DB:Data Block Data Block: 1 Address: 0 Format: U8:8-bit Unsigned Integer ✓
Alarm Triggered:	OK Cancel
Accumulate	Voice Alarm Print Alarm
	>>>> Add Delete Batch Add Exit

Analog - sta1 1			X
Code: analog0	?	Description: analog0	
I/O Address	DB1:0:U8	High Limit:	0
Coefficient:	1	Low Limit:	0
Original Value:	0	High High Limit:	0
Base:	0	Low Low Limit:	0
Dead Zone:	0	Variation Range:	0 (%)
Decimal Place:	1	Alarm Delay:	0 (s)
Unit		Alarm Process:	
Alarm Triggered:	Display no drawing	🔽 Drawing Nam	e:
Writeable	Invert	🗌 Lock 📃 Read A	lways
Accumulate	Voice Alarm	Print Alarm	
<	> >>	Add Delete Ba	atch Add Exit

💾 Maker									
File Project-Manager Running-Configuration Data-Configuration View Help									
🕍 🐺 🖬 🖻 🥦 🧏 🗺 📾 🐞 🎦 🕨 🗉 🖷 🤣									
Test_S71200									
Project Manager	Index	Code	Description	Station	I/O Address	Writeable	Original Value	Coefficient	Bi
System	1	analog0	analog0	sta1	DB1:0:U8	Y	0	1	0
Alarm	2	analog1	analog1	sta1		N	0	1	0
Script A View	3	analog2	analog2	sta1		N	0	1	0
Data Configuration	4	analog3	analog3	sta1		N	0	1	0
Gradient Station Gradient Station	<	111							
Ready									1:

2.3.3 Configure Switch

Configure [Data Configuration\Switch...] to set switch tags, as follows:

Select Stati	ion		
Station:	sta1		▼
	OK	Cancel	

Switch - sta1 1	
Code: switch0	I/O Config
I/O Address Original Value Alarm Triggered	I/0: Q:Output Data Block: [s] Address: 0
Writeable	OK Cancel
<< <	Add Delete Batch Add Exit

Switch - sta1 1
Code: switch0 ? Description: switch0
I/O Address: Q:0:BITO Alarm Delay: 0 (s) Original Value: 0 Alarm Process:
Alarm Triggered: Display no drawing 🗸 Drawing Name:
Writeable Invert Lock Read Always Print Alarm Voice Alarm
<< < >>> Add Delete Batch Add Exit

💾 Maker										
File Project-Manager Running-Configuration Data-Configuration View Help										
溢 🖓 🗉 🖻 🔉 🧏 str 🖾 😻 🚾 🕨 🕨 🗉 🤯										
Test_S71200										
Project Manager	Index	Code	Description	Station	I/O Address	Writeable	Original Value	Lock	Invert	F
	1	switch0	switch0	sta1	Q:0:BIT0	Y	0	N	N	Ν
Alarm	2	switch1	switch1	sta1	Q:1:BIT0	Y	0	N	N	Ν
A View	3	switch2	switch2	sta1	DB1:0:BIT0	Y	0	N	N	Ν
Data Configuration	4	switch3	switch3	sta1		N	0	N	N	Ν
System DB	5	switch4	switch4	sta1		N	0	N	N	Ν
Station String Analog Switch Station Switch Station Station String String S										
	<									>
eady										

2.3.4 Make Drawings



2.3.5 Run Emulator

DB1:0 2.0 Q0.0 DB1:0.0 Q0.1 ON	
DB1:0 2.0 Q0.0 OFF DB1:0.0 0 Q0.1 ON	
DB1:0 2.0 Q0.0 OFF DB1:0.0 0 Q0.1 ON	
DB1:0.0 Q0.1	
	=
	~

2.3.6 Download Project

Note: the xArrow SCADA should already started in the android phone.

🖺 Maker					×
File Project-Manager Running-Config	uration Data-Configuration View Help				
📸 💭 🛒 🔂 🧏 str 🖾	🐮 🚾 🕨 🔲 🤣				
Project Manager	Download	Original Value	Lock	Invert	F
Running Configuration	Device	0	N	N	N
System	Device CPU: ARM	U	IN	IN	
Alarm		0	N	N	Ν
View	Device IP: 132 . 166 . 1 . 200	0	N	N	Ν
🖨 🔄 Data Configuration	Export Protocol To Project Folder	0	N	N	Ν
E System DB		n	N	N	N
Station	Download	Ū			
🕀 🧰 String					
🕀 🧰 Analog					
🖻 🔄 Switch					
🐺 sta1					
Application Data					
	A				
	Start Device Stop Device Exit				
					>
Ready					

2.4 Running

ſ	中国移动 4G	<u>ි</u> ස	🚓 🕯 🖬 💷 16:52	
	DB1.0 2.0	0.07		
	DB1:0.0 C	03.1		
				\bigcirc
				\triangleleft
				>

3 Fx3U

3.1 Test Environment

3.1.1 xArrow SCADA 1.3.0

The Android device used to test is Huawei Honor 6+ (Android 4.4.2), it connected to the router via WIFI, and its IP assigned by the router is 192.168.1.100. The phone have already installed the xArrow SCADA APP (the apk file can be found at [xArrowAndroid Install Folder\Out\ANDROID_BIN\xArrowAndroid.apk]).

3.1.2 Fx3U + Fx3U-ENET-ADP

Program Software: GX Works2 1.555D



Program Cable: SC-09

The PLC connect to the LAN port of the router, its IP address of the PLC is 192.168.1.250

3.1.3 Router

TP-Link, Address is 192.168.1.1



3.2 PLC Settings

Launch GX Works2.

uelSOFT系列 GX Works2					
: 工程 (E) 编辑 (E) 搜索/替换	@) 转换/编译(C)	视图(V) 在线(0)	调试(B) 诊断(D)	工具(T) 窗口(W)	帮助任)
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C" 6 6 6 8 4.					
📲 工程					
100 用户库					
「「「」 は 我 日 称					
» *					
	简体中文				数:

3.2.1 New Project

新建	\mathbf{X}
系列(<u>S</u>):	FXCPU
机型(I):	FX3U/FX3UC
工程类型(P):	简单工程
	□ 使用标签(L)
程序语言(G):	梯形图
	确定取消

3.2.2 PLC Connection



计算机侧 I/F 串行详细设置	X
	确定
(包含FX-USB-AW/FX3U-USB-BD) 〇 USB	取消
COM端口 COM 2 🔽	详细设置
传送速度 115.2Kbps ▼	

3.2.3 Configure



FX参数设置		
存储器容量设置 软元件 特殊模块设置	设置 PLC名设置	PLC系统设置(1) PLC系统设置(2) 以太网端口设置
使用CH CH2 I	输入格式 10进制数 💌	打开设置
IP地址	192 168 1 250	时间设置
子网掩码类型	255 255 255 0	日志记录设置
默认路由器IP地址	192 168 1 1	必要时设置(默认 / 有更改)
通信数据代码设置 C 二进制码通信 (ASCII码通信 「 茶止与MELSOFT直接连接 「 不响应网络上的CPU搜索		
显示画面打印 显示画面预	览	した「「「」」」の記念をしていた。

_	协议		打开方式		本站	通	信对象	通信对象	
1	TCP	-	MC协议	-	2000		Pr <u>Bur</u>	「「「」」「「」」	
2	TCP	-	MELSOFI注接	•		_			
3	TCP	-	MELSOFT连接	-					
4	TCP	-	MELSOFT连接	•					
请以	↓10进制数输 <i>)</i>	(本站)	端口号、通信对象 	up₩ I	1址与通信为 11111	才象端 I	ㅁ号.		

3.2.4 Write configuration to PLC

在线数据操作							X
串行通信CPU模块连接(RS-232C)							系统图像(<u>G</u>)
🔜 🕨 📼 🖬 o 读取()	◎ 写入(V	<u>V)</u> ⊂ 校验	۵₩	0 ⊞	除(1)		
CPU模块	执行对象数据	的有无(无	/ 4	「)			1
标题					~		
📴 编辑中的数据	参数 + 程序(P)	全选(A)	取消	肖全选 <mark>(N</mark>)			
模块名/数据:	名	标题	对象	详细	更新时间	对象存储器	容量
■ 味 TestFx □= ♣ PLC数据						程序存储器/软元	
🚰 MAIN					2017/03/17 15:45:01		
■ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●			⊻ ▼		017/03/17 15:45:01		
一 主局執九件注释							
COMMENT					2017/03/17 15:53:23		
□ [] [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] 「○ [] □ [□ [2017/03/17 15:45:01		
					2011/03/11/13.43.01		
必须设置(未	後置 / 已设置)	必要时	设置(月	彩设置 /		40.000 JF	
程序大小						16,000 2	更新为最新的信息(<u>R)</u>
关联功能任▲						执行	fe Xa
远程操作 时钟设置	PLC存储器清除						

PLC写入
1/1
100/100%
参数 写入 : 完成 PLC写入 : 結束
<
□ 处理结束时,自动关闭窗口。
〔

3.2.5 Restart PLC

Restart PLC, and connect PLC to the LAN port of the router.

If all ok, user can ping the PLC from the computer, as follows:



3.3 Configuration

3.3.1 Create New Project

Project Manager				
Current Project:		TestModbus	TCP	
Project List:	Double Click Item To La	aunch Project		
Project Name	Project Folder			New Project
TestProject	C:\Program Files\xArrow	\xArrow Android 2.0		
TestModbus	C-\Program Files\v&rrow	VvArrow Android 2.0		ave As
	Create Project			<u>×</u>
	Project Name:	TestFx3U		ete Project
	Folder:	C:\Program Files\xArrow\x	Arrow Android) rt Project
	Screen Resolution:	1024 × 768		
<	1.000			Current Project
		ОК	Cancel	
<		>	4	Exit

Project Manager					X
Current Project:		TestFx3U			
		·			—
Project List:	Double Click Item To Launch Project		1	New Project	
Project Name	Project Folder	120			
TestModbus	C:\Program Files\xArrow\xArrow Android	12.0		Save As	
TestFx3U	C:\Program Files\xArrow\xArrow Android	12.0	<u> </u>	0010110	
				Delete Project	
				·	
				Import Project	
			6	Set As Current Project	
<		>			
				Encrupt Project	
			1	Enclypt Project	
				Decrupt Project	
				p and but to bar	
			_		
<		>	=	Exit	

3.3.2 Create Station

Click menu [Data Configuration\Station...] to create station, as follows:

Station - 2	
0# Station 1# Station	Code: sta1 ? Description: sta1
	Protocol: NULL
	Use Protocol's Default Channel
	Select Channel:
Receive(Y) Or Transfer(N)	Device ID:
Is Redundance Station	Scan Period: 20 (ms)
Switch Count: 0 Analog Count: 0	Timeout: 200 (ms) Redundance Station: NULL
Add Delete	ОК

Configure the protocols, as follows:

Station - 2	×
0# Station 1# Station	Code: sta1 ? Description: sta1
Select Protocol	Protocol: NULL
✓ Receive(Y) Or Is Redundance Protocol: Q-Series Version: 1.4	Fatek GE Grace HollySys Koyoele LG Mitsubishi Fx2N(232)-ProgramingPort Fx2N(232)-ProgramingPort Fx2N(485) MC-Ethernet(ASCII) Q-ProgrammingPort MC-Ethernet(TCP) MC-Ethernet(TCP) NS
Switch Count Analog Count: 0	Redundance Station: NULL
Add Dele	te OK

Station - 2		×
0# Station 1# Station	Code: sta1 ? Description: sta1 Protocol: Q-Series MC-Ethernet(TCP) Config)
	Communication Config	
	Net Frame: A Compatible 1E Net: TCP UDP PLC IP: 192 . 168 . 1 . 250 PLC Port: 2000 Local Port: 2000	_
✓ Receive(Y) Or Transfer(N) Is Redundance Station	OK Cancel (ms)	_
Switch Count: 0 Analog Count: 0	Timeout: 200 (ms) Redundance Station: NULL	
Add	Delete OK	

Note: This IP address is the IP of the PLC.

Station - 2	×
0# Station 1# Station	Code: sta1 ? Description: sta1
	Protocol: Q-Series MC-Ethernet(TCP)
	PLC IP: 192.168.1.250 PLC Port: 2000 Local Port: 2000 Frame: A Compatible 1E Net: TCP
	V Use Protocol's Default Channel
	Select Channel:
✓ Receive(Y) Or Transfer(N)	Device ID:
SRedundance Station	Scan Period: 20 (ms)
Switch Count: 0	Timeout: 200 (ms)
Analog Count: 0	Redundance Station: NULL
Add Delete	ОК

3.3.3 Configure Analog

Configure [Data Configuration\Analog...] to set analog tags, as follows:

Select Stat	ion		
Station:	sta1		•
	OK	Cancel	

Analog - sta1 1	
Code: analog0	Description: analog0
I/O Address:	High Limit: 0
Coefficient:	1 Low Limit: 0
Original Value:	0 High High Limit: 0
Base:	0 Low Low Limit: 0
Dead Zone:	0 Variation Range: 0 (%)
Decimal Place:	1 Alarm Delay: 0 (s)
Unit:	Alarm Process:
Alarm Triggered:	Display no drawing Vame:
🔲 Writeable	Invert Lock Read Always
Accumulate	Voice Alarm Print Alarm
	>>>> Add Delete Batch Add Exit
Analog - sta1 1	X
Analog - sta1 1	
Analog - sta1 1 Code: analog0	Description: analog0
Analog - sta1 1 Code: analog0	Pescription: analog0
Analog - sta1 1 Code: analog0	Pescription: analog0
Analog - sta1 1 Code: analog0 I/0 Address: Coefficient:	Pescription: analog0 High Limit: 0 High Config
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value:	Pescription: analog0 High Limit: 0 I/O Config
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base:	Pescription: analog0 High Limit: 0 I/O Config I/O: D:Data Register
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base: Dead Zone:	? Description: analog0 I/O Config I/O D:Data Register Address: 0 (%)
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base: Dead Zone: Decimal Place:	? Description: analog0 I/O Config I/O: D:Data Register Address: 0 [Decimal] (%)
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base: Dead Zone: Decimal Place: Unit:	? Description: analog0 I/O Config I/O: D:Data Register I/O: D:Data Register Address: 0 [Decimal] (%) Format: 116:16-bit Signed Integer
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base: Dead Zone: Decimal Place: Unit: Alarm Triggered:	? Description: analog0 I/O Config I/O: D:Data Register Address: 0 [Decimal] (%) Signed Integer OK Cancel
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base: Dead Zone: Decimal Place: Unit: Alarm Triggered: Writeable	? Description: analog0 I/O Config I/O: D:Data Register Address: 0 (%) Signed Integer OK Cancel Invert Lock Read Always
Analog - sta1 1 Code: analog0 I/O Address: Coefficient: Original Value: Base: Dead Zone: Decimal Place: Unit: Alarm Triggered: Writeable Accumulate	? Description: analog0 I/O Config I/O: D:Data Register I/O: D:Data Register Address: 0 [Decimal] (%) Signed Integer OK Cancel Invert Lock Read Always Voice Alarm

Analog - sta1 1			
Code: analog0	?	Description: analog0	
I/O Address:	D:0:116	High Limit:	0
Coefficient:	1	Low Limit:	0
Original Value:	0	High High Limit:	0
Base:	0	Low Low Limit:	0
Dead Zone:	0	Variation Range:	0 (%)
Decimal Place:	1	Alarm Delay:	0 (s)
Unit:		Alarm Process:	
Alarm Triggered:	Display no drawing	Drawing Nam	ie:
Vriteable	Invert	🗌 Lock 📃 Read A	lways
Accumulate	Voice Alarm	Print Alarm	
<< <	> »	Add Delete Ba	atch Add Exit

When all the tag set OK, as follows:

📱 Maker								
File Project-Manager Running-Configuration Data-Configuration View Help								
[🔁 💭 😇 🔂 🧏 str 🖪	📸 💭 🗐 🛐 🔊 🧏 號 str 🖾 🏶 🌆 🕨 🗉 🖏 🧇							
			TestF>	3U				
Project Manager	Index	Code	Description	Station	I/O Address	Writeable	Original Value	Coefficie
System	1	analog0	analog0	sta1	D:0:116	Y	0	1
- 🔄 Alarm	2	analog1	analog1	sta1		N	0	1
S Script	3	analog2	analog2	sta1		N	0	1
Data Configuration System DB Station String Analog System_station System_station System_station System_station System_station Switch Drawing Configuration	×	Ш						>
Deadu	p							

3.3.4 Configure Switch

Configure [Data Configuration\Switch...] to set switch tags, as follows:

Select Station		
Station: sta1		···
ОК	Cancel	

Switch - sta1 1	
Code: switch0	? Description: switch0
I/O Address: Original Value:	Alarm Delay: 0 (s) 0 Alarm Process:
Alarm Triggered:	Display no drawing Drawing Name:
Vriteable	Invert Lock Read Always Voice Alarm
	> >> Add Delete Batch Add Exit

Switch - s	ita1 1 🛛 🗙
Code:	switch0 ? Description: switch0
L	/O Address: Alarm Delay: 0 (s)
Or	I/O Config Cess:
Alarr	I/O: Y:Output Relay v Ig Name:
🗌 Wrib	Address: 0 [Hex]
🗌 Print	Format: BIT:Bit Value
	OK Cancel Batch Add Exit

Switch - sta1 1
Code: switch0 ? Description: switch0
I/O Address: Y:0:BIT Alarm Delay: 0 (s) Original Value: 0 Alarm Process:
Alarm Triggered: Display no drawing V Drawing Name:
Writeable Invert Lock Read Always Print Alarm Voice Alarm
<< < >>> Add Delete Batch Add Exit

When all the tag set OK, as follows:

💾 Maker									×
File Project-Manager Running-Configuration Data-Configuration View Help									
📸 💭 🛅 💁 🎘 號 str 🖾 🏶 🌆 🕨 🗉 🖏									
	TestFx3U								
Project Manager	Index	Code	Description	Station	I/O Address	Writeable	Original Value	Lock	In
System	1	switch0	switch0	sta1	Y:0:BIT	Y	0	N	Ν
Alarm	2	switch1	switch1	sta1	Y:1:BIT	Y	0	N	Ν
A View	3	switch2	switch2	sta1		N	0	N	Ν
Configuration	4	switch3	switch3	sta1		N	0	N	Ν
Station String Analog System_station stal Switch Switch Stal Table Switch Switch Stal Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Table Switch Stal Switch Table Switch Table Switch Table Switch Table Switch Switch Stal Switch Sw									
	<								2
Ready									

3.3.5 Make Drawings



Double click the widget to set its properties:

Config	
Widget Property Data Link Common	
Font Color Bk Color Transparent Border Color Border	 Align Left Horizontal Center Align Right Align Top Vertical Center
Not Display(Only for Control)	Align Bottom
Display As: Default 🗸 🗸	Integer Bit: 0
- Mourse Operation	Add Modify Delete
Enable Control	box to input data
Operator:	
ОК	Cancel Apply



3.3.6 Run Emulator

Note: first close all other connections to the PLC, also including program software.

🖸 eEmulator		
文件图 帮助社		
		-
DC	36.0	
		_
YO	0 077	
Y1	ON	
		~
<		≥

3.3.7 Download Project

Note: the xArrow SCADA should already started in the android phone.

💾 Maker			[×
File Project-Manager Running-Co	nfiguration Data-Configuration View Help				
🔁 🐺 🖬 💁 🔊 🗺 str	🖾 📚 🔯 🕨 🗉 🧔 🤣				
	Download				
Project Manager		ole	Original Value	Lock	In
Running Configuration			0	N	N
Alarm	Device CPU:		0	N	N
	Device IP: 192 . 168 . 1 . 100		-		
🔁 View			0	N	N
Data Configuration	Export Protocol To Project Folder		0	Ν	N
System DB					
😟 🧰 String	Download				
🖻 😋 Analog					
system_station					
Star					
sta1					
🗈 📄 Application Data					
Drawing Configuration					
····· 😭 default					
					>
Ready					
3.4 Running

Note: first close all other connections to the PLC, also including program software.

