

OMC System Software

High-performanceHMI

OMC and TCS-900

Integration and Management

User Manual

IM41S06-E

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Symbol Definition	
	WARNING: Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	RISK OF ELECTRICAL SHOCK: Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	ESD HAZARD: Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user.

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Integration of OMC and TCS-900

Section 1 Introduction

High-performanceHMI can integrate TCS-900 system configuration and its tags into OMC system, realizing the reduction on the operation and maintenance of equipment by users, and the uniformed management and monitor of alarm, trend, and SOE.

1.1 Function

The main functions of the integration of OMC and TCS-900 are:

- Supports adding 16 TCS-900 control domains to one High-performanceHMI project.
- Supports the import and export of SafeContrix configuration in High-performanceHMI system software, and syncing the configuration between engineer stations and operator stations.
- Supports syncing TCS-900 system I/O tags and diagnosis tags to High-performanceHMI tag list.
- Supports syncing TCS-900 system time with OMC system.
- Supports using one SOE server to record SOE data of TCS-900 and OMC, and one SOE server supports 64 control stations.

1.2 Application Scenario

The following figure shows a typical networking diagram of the integration of TCS-900 and OMC systems.

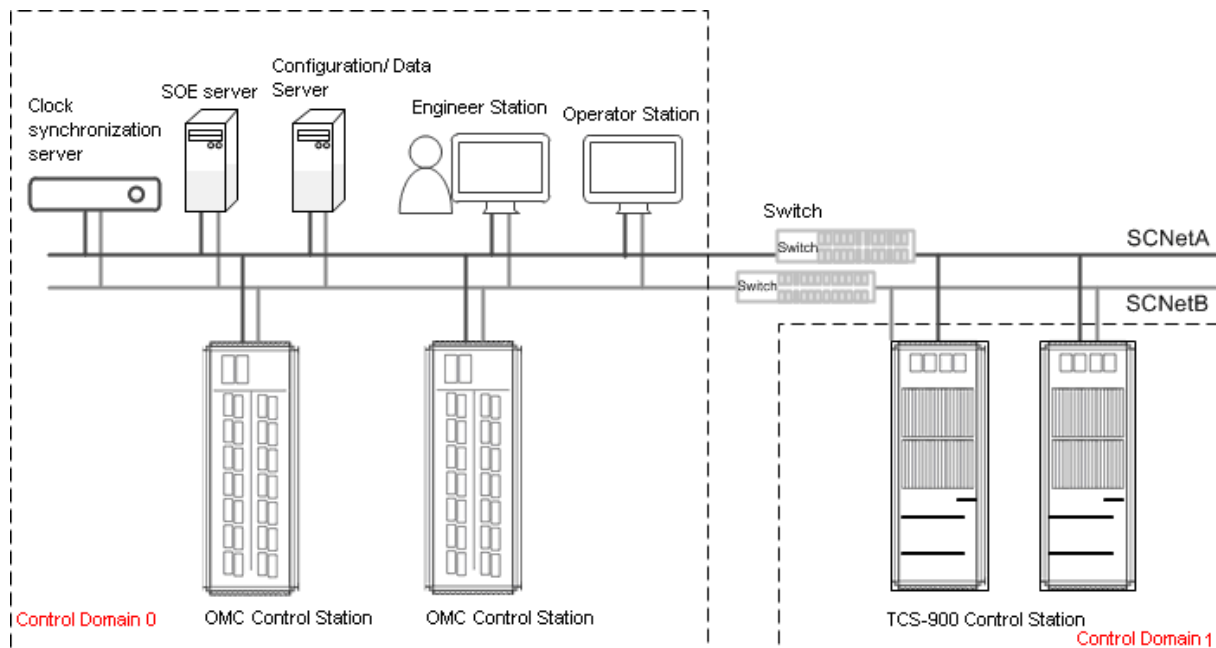


Figure 1-1 Typical network of TCS-900 integrated into OMC system

In this typical networking diagram:

- SafeConrix software and High-performanceHMI software are installed in the engineer station of operation domain 0, and the engineer station obtain the tag data of the control domain 0 and control domain 1.
- In operation domain 0, SOE software is installed in the SOE server, and it access the SOE data from control domain 0 and control domain 1. And one SOE server supports up to 64 control stations.
- The OMC system in control domain 0 and The TCS-900 system in control domain 1 sync time according to the time synchronization server in the operation domain 0.

1.3 Preparation

Before the integration of OMC and the TCS-900 systems, you should install SafeConrix on the High-performanceHMI engineer station.



Tip:

When the TCS-900 system is integrated into the OMC system, there is no need to install SafeConrix clock synchronization software. Install SOE software, OPC software, SISPatch, SISPatch, and ISE software as needed.

1.4 Configuration Flow

When integrating TCS-900 to OMC through High-performanceHMI software, you need to operate according to the following flowchart.

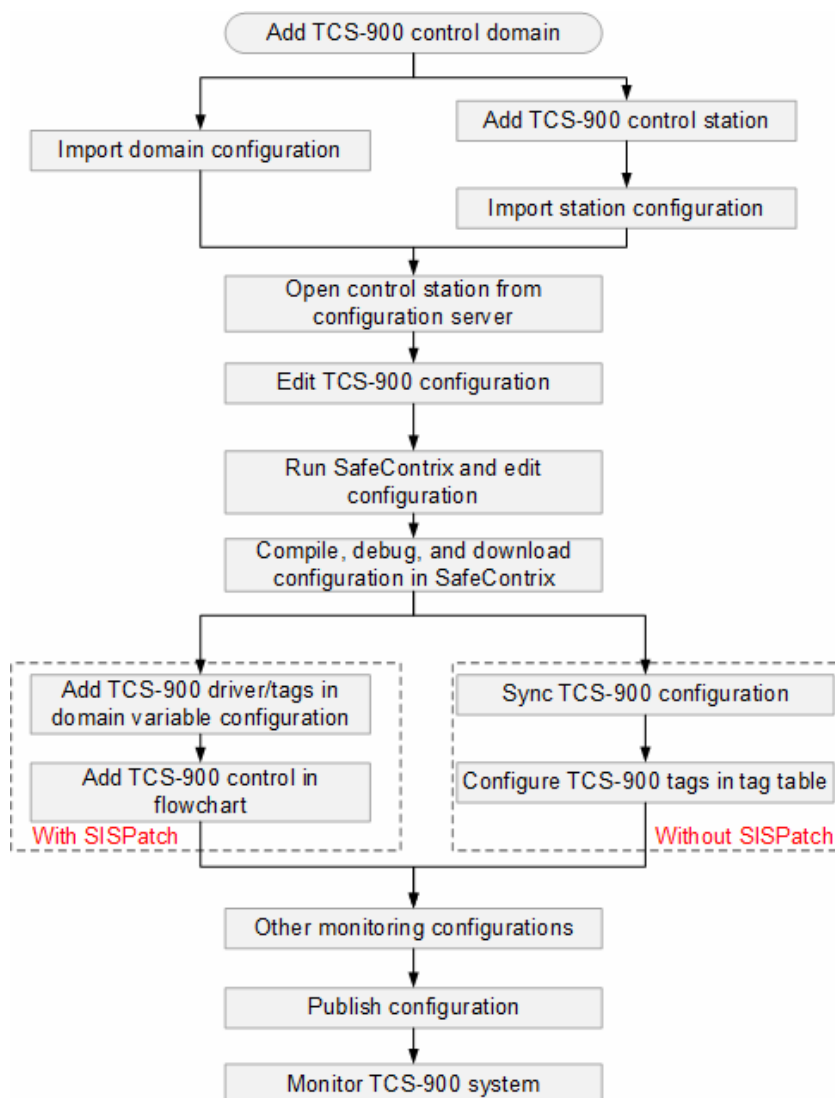


Figure 1-2 Operation flow diagram of integrating High-performanceHMI with TCS-900



Attention:

High-performanceHMI software supports two integration scenarios, one is based on SISPatch, and the other does not depend on SISPatch. These two scenarios cannot co-exist in one project.

Section 2 Configuration

This section mainly introduces how to add TCS-900 control station in High-performanceHMI software, add TCS-900 system tags and add TCS-900 system monitoring screen.

2.1 Adding TCS-900 Control Station

In the High-performanceHMI project, after adding the control station of the TCS-900 system, you can jump from the High-performanceHMI software to the TCS-900 system configuration software SafeContrix. After completing the configuration, compiling, in SafeContrix, sync and save the configuration to the configuration server in High-performanceHMI. Then the TCS-900 system configuration can be published to the nodes of the OMC system.

Through the following steps, you can add the TCS-900 control station:

1. Open VFSysBuilder software, and open the High-performanceHMI project.
2. Add TCS-900 control domain.

Right-click **Control Domain Configuration** in the navigation tree of the High-performanceHMI project, and select **Add Control Domain**. In the pop-up window, select TCS-900, then a control domain named 900 area is added to the navigation tree.

3. Add TCS-900 control station.

In the navigation tree, right-click the added control domain, and select **Add Control Station**. The configuration interface shown in the figure below will be displayed in the right configuration area.

Properties	
Name	Control Station_172_20_2_2
Description	
Address	2
SCnetAAddress	172.20.2.2
SCnetBAddress	172.21.2.2
Type	SCU9010
Engineer	SCU9010
admin	SCU9020

Figure 2-1 Select TCS-900 controller

4. Select controller type.

On the **Type** drop-down list, select **SCU9010** or **SCU9020** as the controller type.

**Attention:**

- A control domain cannot contain both OMC control station and TCS-900 control station.
- After configuring the TCS-900 controller type and controller address, if you open the TCS-900 configuration software SafeContrix for configuration in subsequent operations, you cannot change the controller type, project name, and controller address.
- After importing SafeContrix configuration or changing the address of the control station of TCS-900 in VFSysBuilder, if the address of TCS-900 controller is different from that in High-performanceHMI, you can open SafeContrix through VFExplorer, then the address of control station in TCS-900 in the SafeContrix will be automatically updated to the address set in VFSysBuilder.

As shown as figure below, one High-performanceHMI project can include OMC control domain and TCS-900 control domain at the same time.

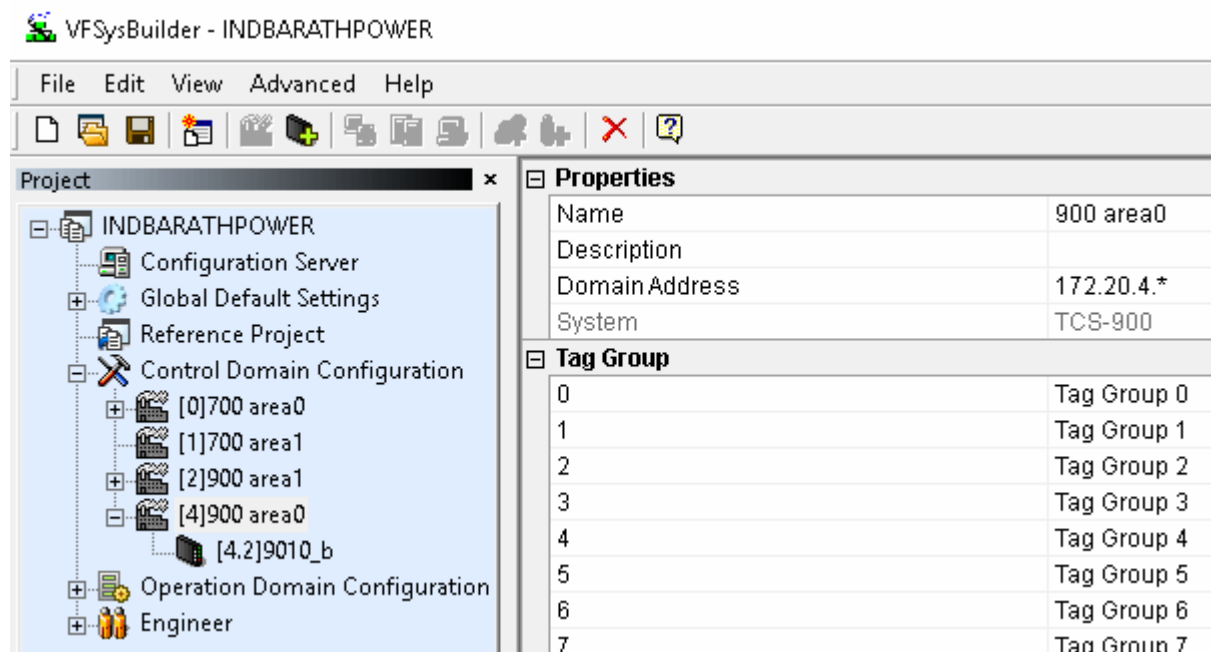


Figure 2-2 High-performanceHMI system builder sample

2.2 Configuring Time Synchronization Server

When the TCS-900 control station is integrated into the OMC system, the TCS-900 control station will synchronize its time in accordance with the configured time synchronization server in the OMC system.

- In VFSysBuilder, select **Global Default Settings** in the navigation tree, and the time synchronization server configuration interface will be displayed in the configuration area on the right.

Time Synchronization Server		
Time Synchronization Server Count		2
Server 0		
Type		Software Time Synchronization Server
Third Byte Address		0
IP Address of Time Synchronization Server		0.254
Server 1		
Type		Hardware GPS
Third Byte Address		1
IP Address of Time Synchronization Server		1.254

Figure 2-3 Example of time synchronization server configuration

- As shown in the figure above, when TCS-900 system is introduced to the High-performanceHMI, you can set Software Time Synchronization Server or Hardware GPS as the server type.



Tip:

If the time synchronization server address in TCS-900 is different from that of the High-performanceHMI project, open TCS-900 configuration software and the High-performanceHMI time synchronization server address will be automatically synced. The two configured time synchronization servers with the least Third Byte Address in High-performanceHMI will be synced.

2.3 Managing TCS-900 Configuration

When the TCS-900 system is introduced to the High-performanceHMI software, you can import the TCS-900 system configuration to High-performanceHMI, or go to SafeContrix to configure the TCS-900 system.

After adding the TCS-900 system configuration to the High-performanceHMI project, the TCS-900 system configuration can be published to the operation nodes in the High-performanceHMI project.

2.3.1 Importing/Exporting TCS-900 Configuration

VFEplorer supports importing and exporting the TCS-900 configuration (.zip file), to simplify the configuration process. You can export and import the TCS-900 configuration (.zip) by control domain and control station.

Export/Import by Domain

In VFSysBuilder, you can import and export TCS-900 configuration by control domain. Before starting, make sure the control domain is unlocked.

- Export by domain

In the configuration tree, right-click the TCS-900 control domain, and select **Export Domain**. In the pop-up **Save As** dialog box, select the storage path and set the file name.

- Import by domain

Before importing, make sure the domain address of the node in High-performanceHMI is the same as the zip file. Then, right-click the control domain in High-performanceHMI, and select **Import Domain**. In the pop-up window, select the zip file.

Export by Station

You can export the configuration (zip file) through the following two methods.

- Export through SafeContrix

In SafeContrix, select **Tool > Save Version** to save the current configuration as the export version. (Skip this step if you already saved this version.)

Select **Tool > Version Management**. In the pop-up window, click **Export** and configure the storage path.

The exported configuration is saved as 1 sisprj file and 1 folder with the same name. Compress these two files into 1 zip file.

- Export by station through VFSysBuilder

In VFSysBuilder navigation tree, right-click the TCS-900 control station and select **Export Station**. In the pop-up dialog box, select the storage path and set the file name.

Import by Station

You can import TCS-900 configuration by station through the following steps.

In VFSysBuilder navigation tree, right-click the TCS-900 control station and select **Import Station**. In the pop-up dialog box, select the zip file to be imported.

Three possible scenarios might occur when you use this method:

Zip File Type		Instruction
Zip file backed up in SafeContrix		The tags in global tag table will be deleted. After import, sync the tags in VFExplorer.
Zip file exported from VFSysBuilder	TCS-900 tags are synced and the domain address in the zip file is consistent with the current domain address	Check tag conflict and sync the global tag table. After import, there is no need to sync the tags in VFExplorer.
	TCS-900 tags are not synced or the address in the zip file is inconsistent with the current domain address in High-performanceHMI	The tags in global tag table will be deleted. After import, sync the tags in VFExplorer.



Tips:

- Make sure the project is successfully compiled before exporting from SafeContrix.
- Before import, make sure the TCS-900 controller type is the same as that in the file to

be imported. Otherwise, import will fail.

2.3.2 Editing TCS-900 Configuration

You can open SafeContrix in High-performanceHMI software, and create or edit TCS-900 configuration.

1. Open VFExplorer software.
2. Open TCS-900 control station from configuration server.

In the configuration tree, right-click the control station of TCS-900 system, and select **Open from Configuration Server**. After that, the existing configuration will be loaded to High-performanceHMI local engineer station.

Tag Table and **TCS-900 Configuration** will be displayed on the right area.

3. Run SafeContrix.

Right-click the TCS-900 control station, and click **Edit** to open SafeContrix. In SafeContrix, you can create and edit the configuration.

- Create configuration

If the TCS-900 control station configuration did not be imported before you open SafeContrix, you need to create a TCS-900 configuration when open SafeContrix. At the same time, you need to configure admin account and password.

- Open configuration

If a TCS-900 configuration was imported before you open the SafeContrix software, the TCS-900 project will be opened.

4. Edit the configuration in SafeContrix.

Edit, compile, debug and download the TCS-900 configuration.

5. In navigation tree of VFExplorer software, right-click the edited TCS-900 control station, and select Save to Configuration Server or Save to Configuration Server (Locked). Then the TCS-900 configuration of the local engineering station will be saved to the configuration server.



Tips:

- When editing the TCS-900 configuration, up to 4 SafeContrix programs can be opened at the same time for TCS-900 configuration.
 - When SafeContrix software is called from VFExplorer, the configuration operation functions of SafeContrix software such as "Open", "New", "Backup", and "Recent File" are unavailable. When the SafeContrix software is used alone, the TCS-900 configuration created in the High-performanceHMI project cannot be opened.
-

2.3.3 Syncing TCS-900 Configuration

After updating TCS-900 configuration in SafeContrix, you can sync the modification to

High-performanceHMI software.



Tips:

- Before syncing the TCS-900 configuration, make sure the configuration is successfully compiled in SafeContrix and SafeContrix is closed.
 - If the control station address is inconsistent with the station address in High-performanceHMI, Open SafeContrix from VFExplorer and compile the configuration again before syncing.
-

Processing Tags during Import

When TCS-900 tags are imported to High-performanceHMI, the tag attributes must comply with the restrictions in High-performanceHMI, such as:

- Tag name and description

The length of TCS-900 tag name (including the prefix) must be less than or equal to 24 characters. The length of tag description must be less than or equal to 64 characters. If the length of tag name exceeds the limit, you should manually shorten it. If the description exceeds the limit, the system will take the first 64 characters.

- Decimal digits

The decimal digit in High-performanceHMI only supports 5 digits at most.

Steps

1. Sync configuration in VFExplorer.

In the navigation tree of VFExplorer, right-click the TCS-900 control station and select **Synchronize**. **Synchronize Configuration file of TCS-900** window pops up.

2. Process tag names.

While syncing, the tags will be imported to High-performanceHMI project. You can mark the TCS-900 tags in the **Tag name Processing** pop-up window. You can set the prefix and case of the tag name (prefix can be empty).

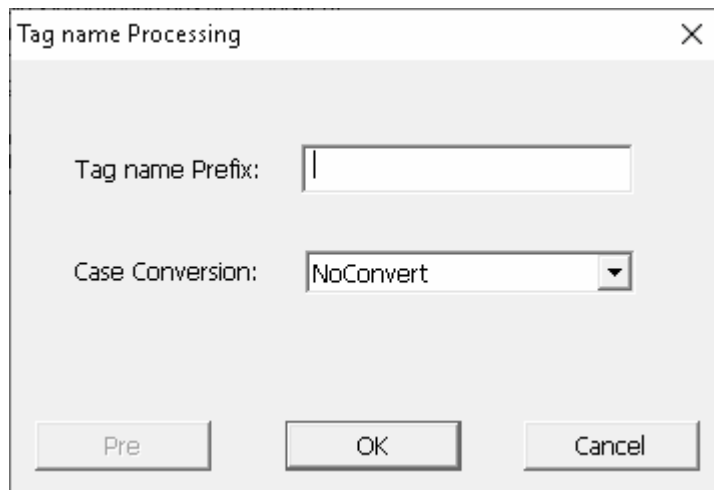


Figure 2-4 Tag name processing

After processing the tag names, click **OK**.

3. (Optional) Process duplicate tag names.

If High-performanceHMI detects duplicate tag names during synchronization, the following dialog box will pop up. Only when all the duplicate names are processed, will syncing continue.

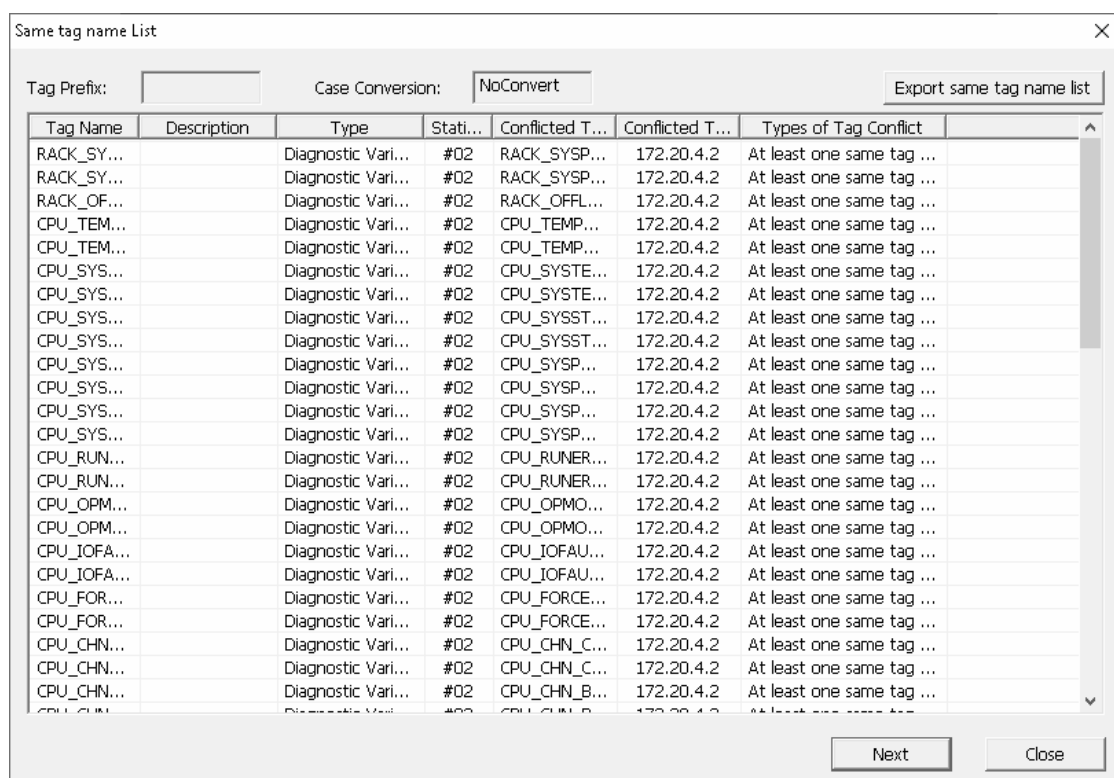


Figure 2-5 Same tag name list

Follow the two methods below to deal with duplicate names:

- Export duplicate tag list.

Click **Export same tag name list** in the figure above, a CSV file will be exported. Change the names in SafeContrix according to CSV file.

- Change prefix.

Click **Next** in the figure above, and **Tag name Processing** window pops up. You can change the tag name prefix and continue syncing.

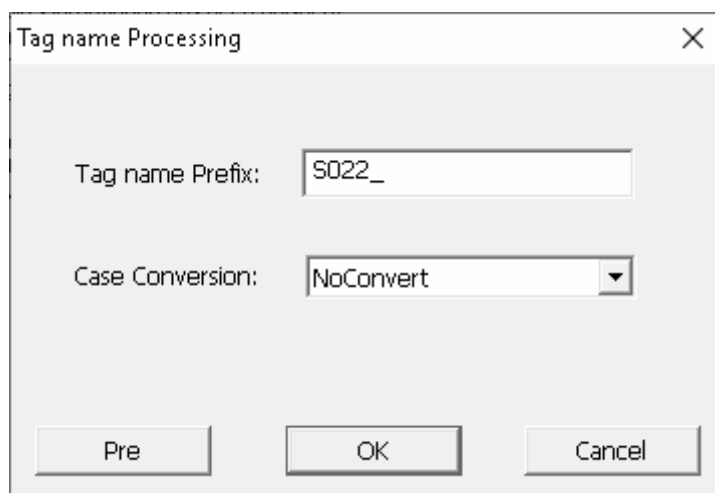


Figure 2-6 Tag name processing

By default, the prefix for duplicate tags is “S[Domain Address][Station Address]”. [Domain address] takes up 2 characters; if the address has only 1 character, then the system will automatically add a zero before it. The length of [Station Address] depends on the station address with up to 3 characters. Take S04126 for example, it means the default prefix for Station 126, Domain 4.

The prefix is in string format. It must start with an English letter and supports the combination of English letters (upper or lower case), numbers (0–9) and _. The length of the prefix is between 1 and 10.

4. Click OK.

Result

After the tags are successfully synced, the window prompts successfully synced. Select the current node and see if the last modified time of the **Tag Table** becomes the last sync time. After that, you can configure the alarm attributes, tag group and other settings of TCS-900 tags in **Tag Table**.

2.4 Configuring TCS-900 Tag through VFTAGBuilder

After syncing TCS-900 configuration, the tags of TCS-900 will be updated to High-performanceHMI configuration. You can configure the tags in VFTAGBuilder.

2.4.1 Tag Conversion

The conversion logic during syncing is as follows. In VFTAGBuilder, you can select the tags of TCS-900 system according to High-performanceHMI tag type.

TCS-900 System Tag	High-performanceHMI Tag Type (After Conversion)
AI, PI variable	TCS-900 AI

TCS-900 System Tag	High-performanceHMI Tag Type (After Conversion)
AO variable	TCS-900 AO
DI variable	TCS-900 DI
DO variable	TCS-900 DO
Operation variable	TCS-900 operation variable
Communication variable	TCS-900 communication variable
Memory variable	TCS-900 memory variable
Synchronization variable	TCS-900 synchronization variable
Diagnostic variable	TCS-900 diagnostic variable



Tips:

The diagnosis tags of TCS-900 modules can be synced to High-performanceHMI. For the details on the diagnosis tags, please refer to *SISPatch User Manual*.

2.4.2 Configuring Tag Attributes

In VFTAGBuilder, you can configure the alarm attributes, tag group and other settings of TCS-900 tags.

1. Open tag table.

In VFExplorer, select the TCS-900 control station. Double-click **Tag Table** on the right, and VFTAGBuilder software starts.

2. Configure tag attributes.

In VFTAGBuilder, you can configure tag attributes for one tag or for a batch of tags.

- Configure attributes of one tag

Select the tag to be configured, and configure the settings of group, level, alarm. Alarm configuration includes alarm on/off, alarm limit, and alarm level.

- Configure attributes in batches

Multi-select tags in tag list. Select **Operation > Modify in Batch**, and configure the attributes.



Tips:

- After the tags are synced, the basic information of TCS-900 tags cannot be modified, including No., type, name, description, decimal digit, data type, range limit, and unit.
- You cannot enable or disable Fault Alarm of the tags in High-performanceHMI. Instead, you can sync the configuration from SafeContrix. If you enable the tags with QLT suffix, Fault Alarm of this tag in High-performanceHMI can be enabled. Otherwise, it is disabled by default.
- Tag configuration of TCS-900 is basically the same as High-performanceHMI tag

configuration. For details, see *Tag Builder User Manual*.

- After configured tag's alarms, the tag's alarm can be monitored by viewing process alarm. For the detail of viewing process alarm, refer to "".
-

2.5 Configuring TCS-900 Monitoring through SISPatch

The tags of the TCS-900 system can be synced to High-performanceHMI software in the form of driver through SISPatch. You can add the TCS-900 control to the graphics to monitor the TCS-900 system.



Attention:

You cannot load the TCS-900 configuration through SISPatch and VFSysBuilder for the same project.

2.5.1 Preparation

Before performing TCS-900 tag configuration in High-performanceHMI software, the following tasks need to be completed.

- Install SISPatch correctly.
- Complete TCS-900 system configuration.

2.5.2 Configuring TCS-900 Tags based on Domain Variables

Integrate the TCS-900 tags into High-performanceHMI system through SISPatch in the form of TCS-900 driver. You can perform monitoring configuration of the TCS-900 system after the tags are successfully loaded.

Load TCS-900 Configuration to High-performanceHMI System

Through the following operations, you can import the TCS-900 tag into the High-performanceHMI system and manage it.

1. Open the domain variable configuration software, select **Edit > Operation Domain Driver Settings** in the menu bar, and the following window pops up.



Figure 2-7 I/O driver settings

2. Click **Add IO Driver**, and the I/O driver settings wizard pops up.

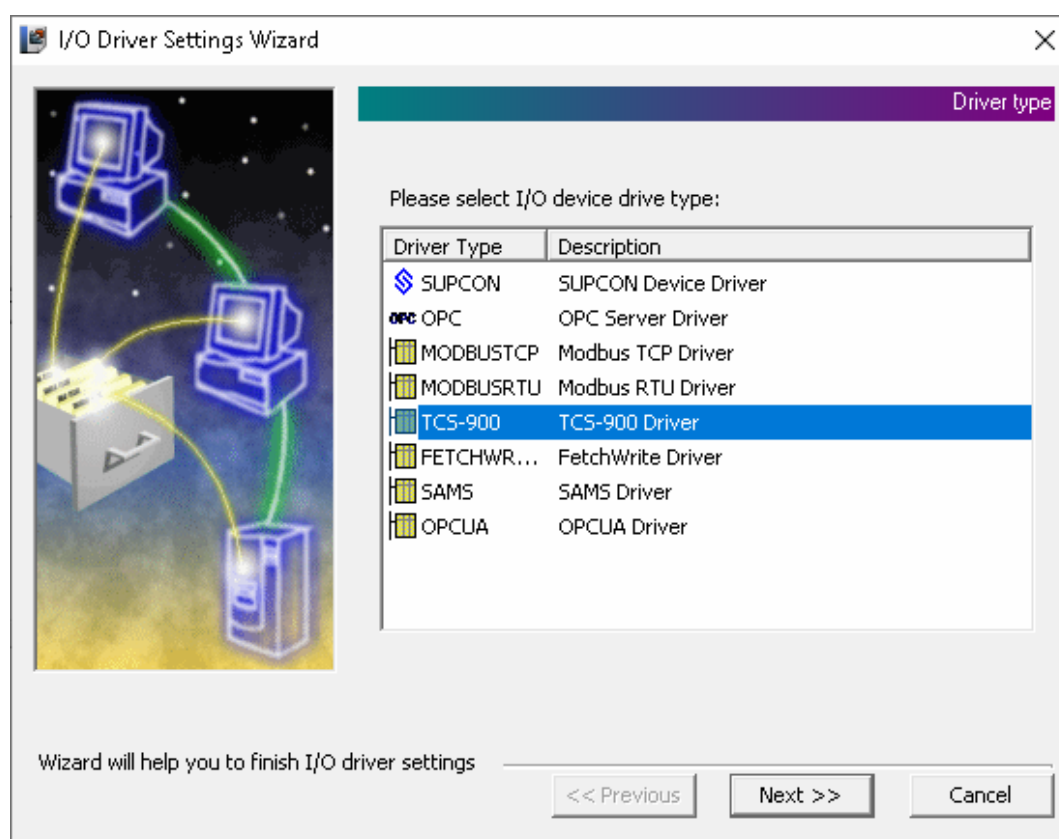


Figure 2-8 I/O driver settings wizard

3. Select **TCS-900** in the driver list, and click **Next**.

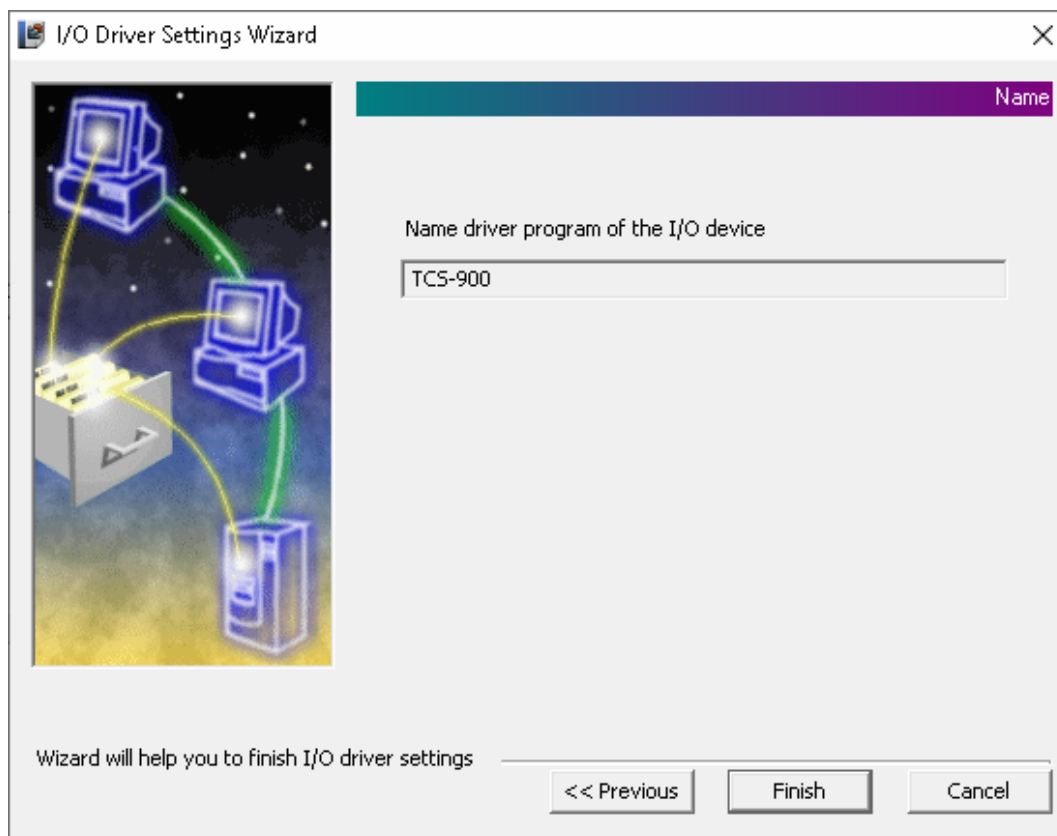


Figure 2-9 Driver program name

4. Click **Finish** to end the driver configuration and enter the TCS driver configuration interface.

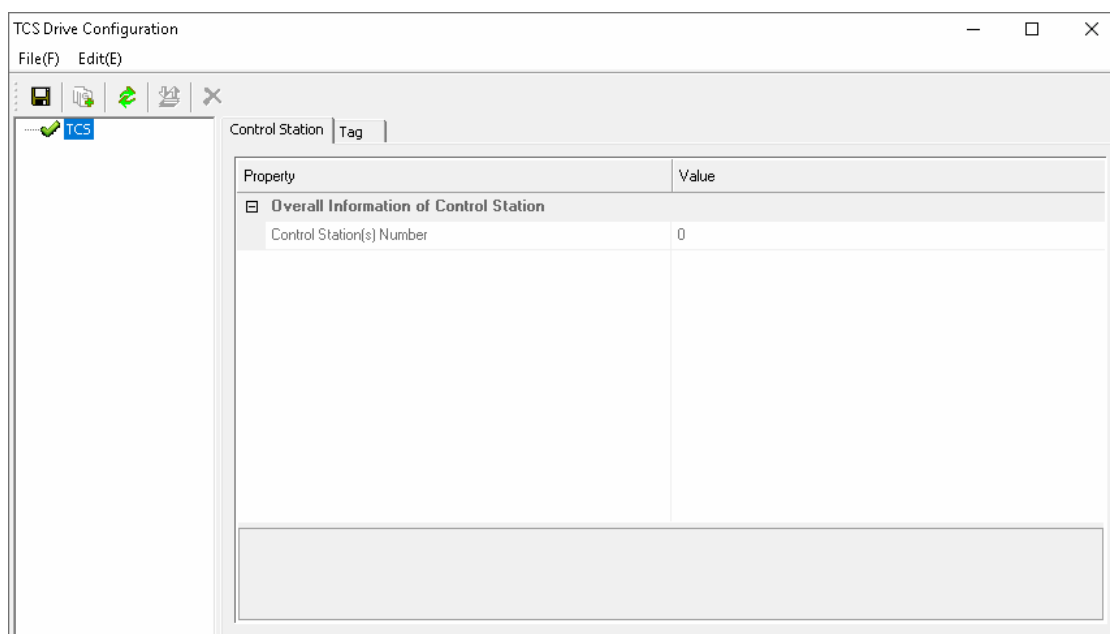



Figure 2-10 TCS-900 driver configuration

5. Click  on the toolbar to select the TCS-900 configuration to be loaded.

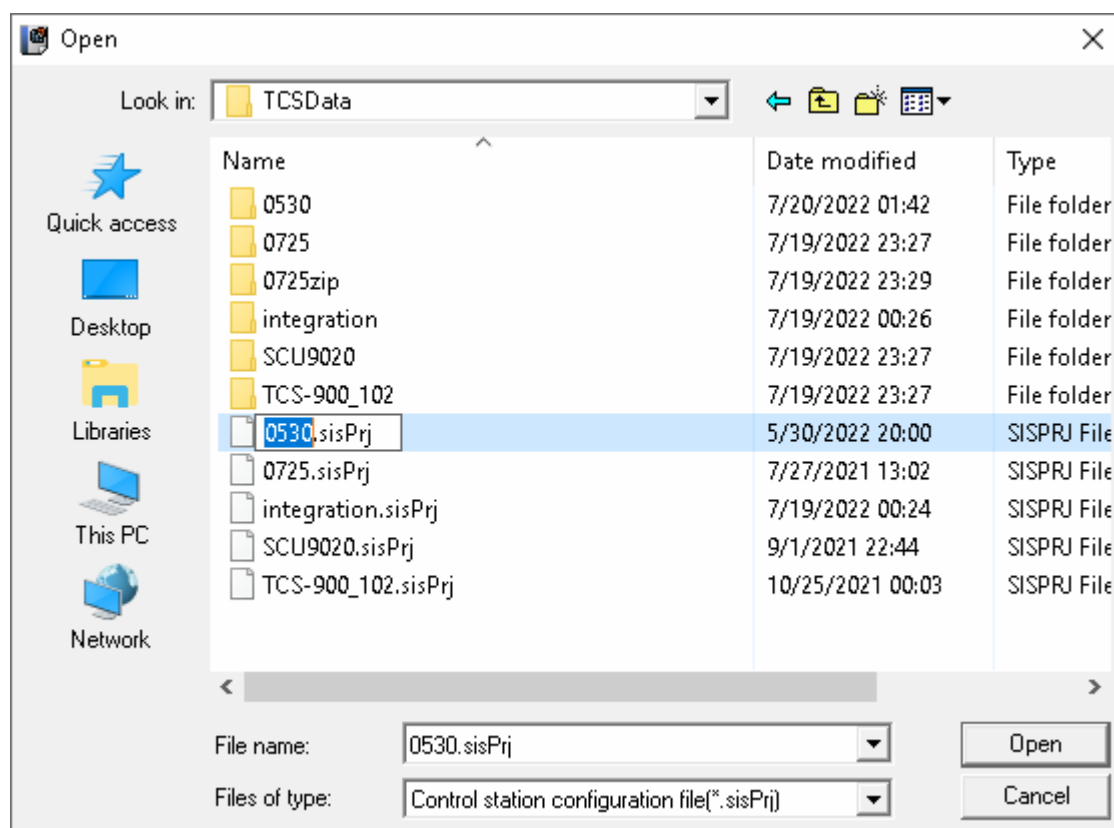


Figure 2-11 Select TCS-900 configuration



Tip:

When TCS-900 system is integrated into High-performanceHMI software, TCS-900 project under High-performanceHMI configuration saving path should be selected. By default, the TCS-900 system is saved in the path of "D:\ECSdata\Project Name\Control\Control domain name\Control station name" with the suffix of .sisprj.

6. Select the TCS-900 configuration and click **open**. Return to **TCS Drive Configuration** window to add the loaded TCS-900 configuration to TCS driver, as shown in the following figure.

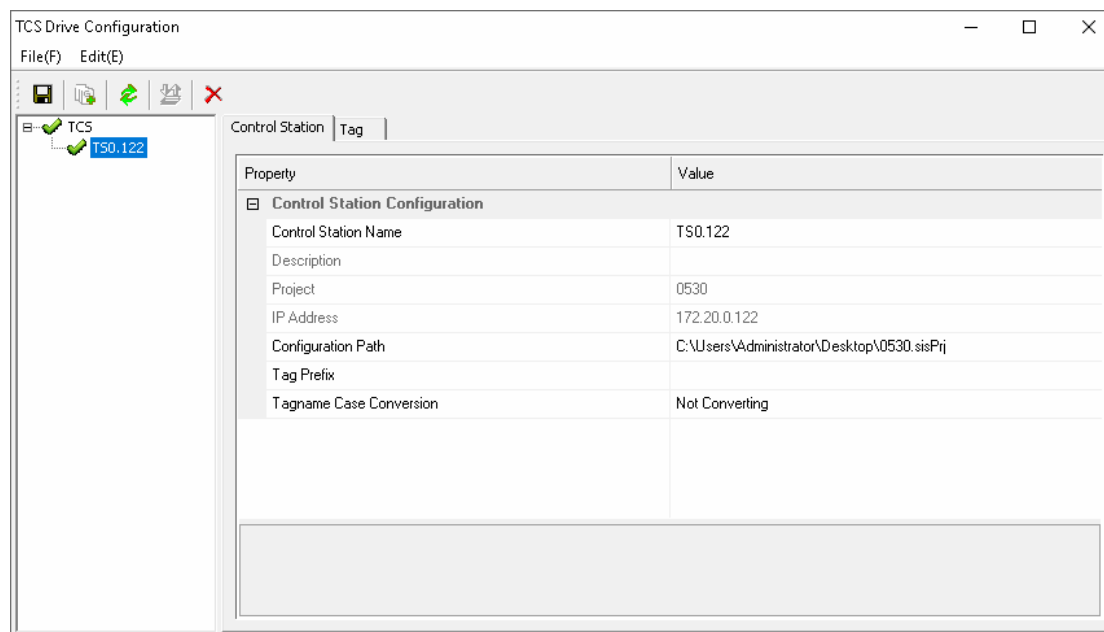


Figure 2-12 TCS driver configuration interface

The control station after importing is identified as "TS + the last 2 bits of IP address", such as TS0.2.

- After loading the TCS-900 configuration, the TCS-900 configuration information can be configured according to the following table.

Table 2-1 TCS-900 configuration properties

Configuration Item	Configuration Instruction
Control station name	The name of the control station can only contain numbers / English letters and symbols " - ", " _ ", " . ". It supports up to 128 characters, and the name cannot be repeated.
Configuration path	The storage path of .sisPrj configuration file. This field will be automatically filled out if the configuration is loaded. You can change the storage path here.
Tag prefix	You can avoid tags with duplicate names as importing multiple TCS-900 configurations. Add a prefix to the TCS-900 tags by stations in High-performanceHMI software.
Tag name case conversion	On the drop-down list, select whether to perform case conversion. <ul style="list-style-type: none"> Lowercase: the TCS-900 tag names (except the suffix) imported into High-performanceHMI are displayed in lowercase. Uppercase, the TCS-900 tag names (except the suffix) imported into High-performanceHMI are all displayed in uppercase.

Configure TCS-900 Tag Attributes

After loading TCS-900 configuration, the tags in the configuration can be configured as the domain variable tags of High-performanceHMI.

- On **TCS Driver Configuration** window, select the **Tag** tab to display the interface shown in the figure below.

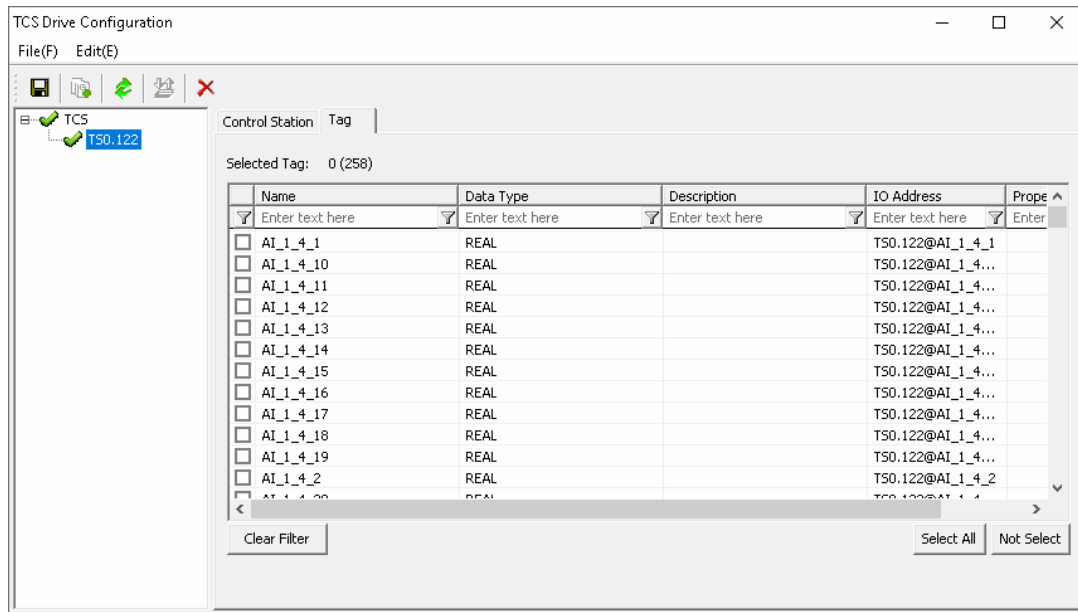



Figure 2-13 TCS driver tags configuration

2. Select the tag in the tag list and click the Save button  in the toolbar.
3. Return to the domain variable configuration interface, and the selected tag will be added as the drive tag of High-performanceHMI, as shown in the figure below.

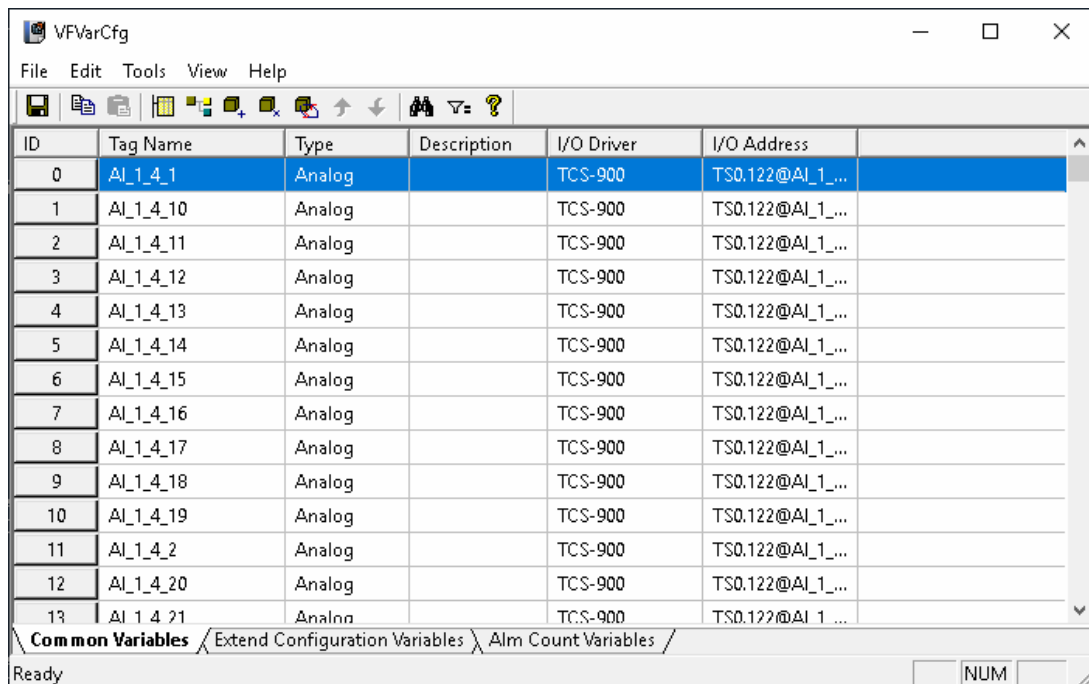


Figure 2-14 TCS-900 driver tag example

4. Configure the properties of the tag.

Double-click the tag to be configured in the tag list, and configure the tag properties in the tag configuration interface as shown in the figure below.

The screenshot shows the 'Analog Settings' dialog box with the 'Basic' tab selected. The 'Tag Name' field contains 'AI_1_4_1'. The 'Description' field is empty. The 'Address' dropdown is set to 'TCS-900', and the 'Driver' dropdown is also set to 'TCS-900'. The 'I/O Address' field contains 'TS0.122@AI_1_4_1'. The 'Low Limit' is set to '0' and the 'High Limit' is set to '100'. The 'Unit' dropdown is set to '%'. The 'Range Switch' checkbox is unchecked. The 'Tag Group' dropdown is set to 'Tag Group 0' and the 'Tag Level' dropdown is set to 'Tag Level 0'. The 'Read Only' radio button is selected, and the 'Read/Write' radio button is unselected. The 'OK' and 'Cancel' buttons are at the bottom right.

Figure 2-15 TCS-900 tag property configuration example




Tip:

For detailed configuration of tag attributes, please refer to *Domain Variable Config Software User Manual*.

2.5.3 Configuring TCS-900 Monitoring based on Graphics

In High-performanceHMI software, TCS-900 control station can be diagnosed and the tags in TCS-900 system can be monitored.

After installing the SISPatch software, the SIS system real-time diagnosis control can be selected on the flow chart configuration toolbar. You can view the SIS fault diagnosis information through real-time diagnosis control.

1. Open VFDdraw software, click the icon  in the quick toolbar on the left, that is "TCS control station diagnostic control". Press and hold the icon and drag it on the canvas until a

rectangular box shows up.

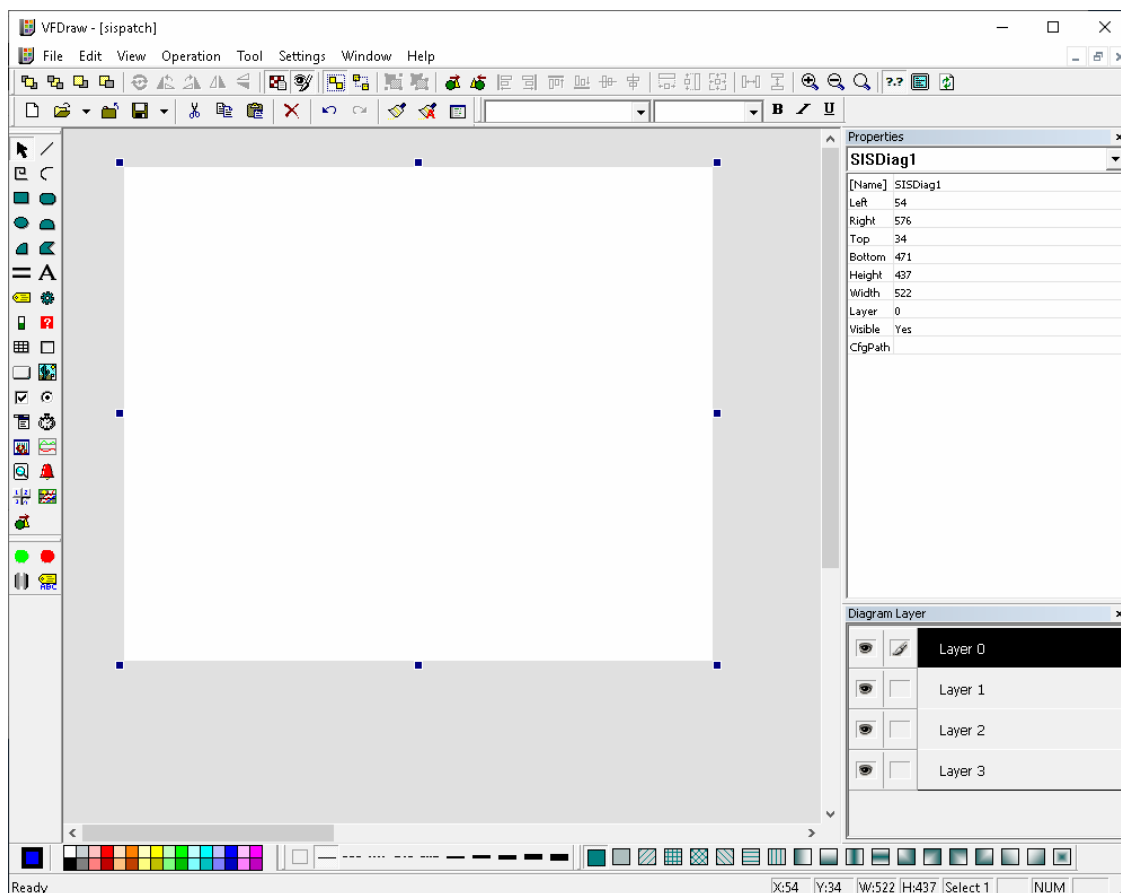


Figure 2-16 Add diagnostics control

2. Double-click the control, or right-click it and select **Control Properties** to open the window as shown in the following figure.

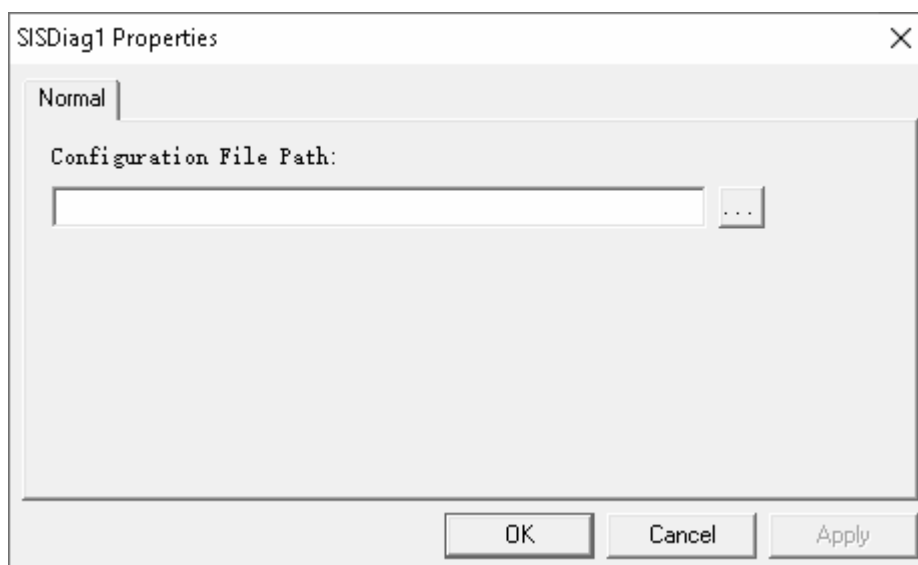



Figure 2-17 Diagnostic control properties

3. Click  to load the configuration files.

When selecting the configuration, you should select the TCS-900 project in the storage path

under High-performanceHMI configuration. By default, TCS-900 is saved to the path of “D:\ECSDData\Project Name\Control\Control Domain Name\Control Station Name”, and its suffix is .sisPrj.

- After loading the configuration file, click **OK** to make it to take effect, and the diagram of the configuration will be displayed.

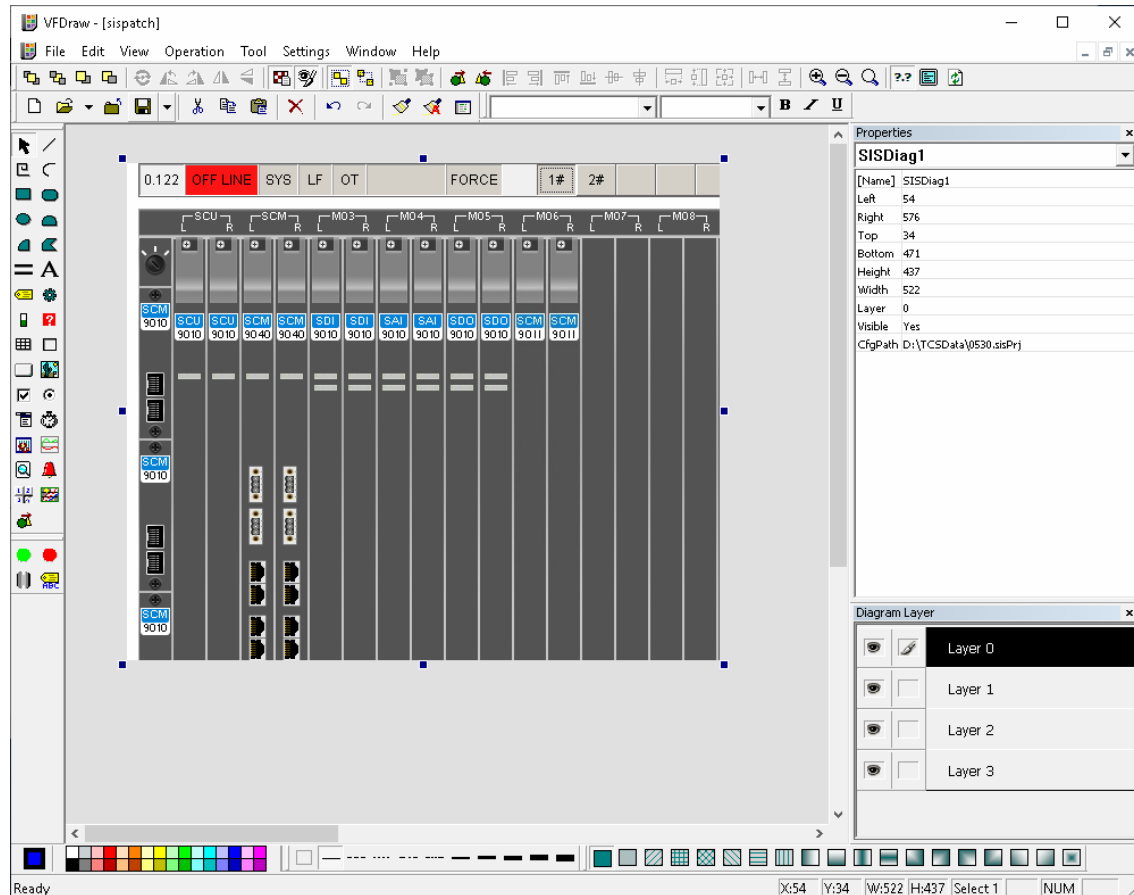



Figure 2-18 Control station configuration

In the monitoring, if the corresponding indicator above the card is red (such as: ) , it means that the card is faulty. Double-click the card slot and the diagnosis information window pops up, with two tabs of real-time diagnosis and detailed diagnosis. There will be corresponding actual value after each diagnostic item. If the diagnostic item fails, it will be displayed in red.

For detailed diagnosis information and indicator identification of TCS-900 system card, please refer to the *SafeManager Software User Manual*.

2.6 Other Monitoring Configurations

After syncing and publishing the configuration of TCS-900 tag, TCS-900 tags can also be added to various monitoring interfaces of High-performanceHMI for monitoring. The monitoring configuration method of other monitoring screens is basically similar to OMC tags. For detailed operation, please refer to the *HMI Config User Manual*.

2.7 Publishing Configuration

After adding TCS-900 system configuration in High-performanceHMI project by importing or directly editing, TCS-900 system configuration can be released to other nodes in High-performanceHMI project.

1. Select TCS-900 control station in configuration tree.
2. Select **Save to Configuration Server** or **Save to Configuration Server (Locked)** in its right-click menu.
3. Select **Edit > Publish Configuration** in the menu bar, TCS-900 configuration will be published to other nodes of High-performanceHMI project in the form of all release.
 - The TCS-900 system configuration will be published to all the High-performanceHMI nodes in the first publish. You can select online publishing for non-first publish.
 - TCS-900 monitoring configuration and tag configuration information will be published to each High-performanceHMI node in the form of online publish.
 - After TCS-900 control station configuration being edited, saved to the configuration server, it supports to be published into the running list for diagnostic software to analyze.

Section 3 Monitoring TCS-900

When TCS-900 system is integrated into High-performanceHMI, TCS-900 system can be monitored through tag panel and alarm list. This section introduces how to monitor the TCS-900 system in this situation. For details on monitoring TCS-900 system using SISPatch, please refer to *SISPatch User Manual*.

3.1 Diagnosing System Status

In High-performanceHMI Real-time Monitoring Software, you can view the status of TCS-900 system.

1. Start High-performanceHMI Real-time Monitoring Software.
2. Enter diagnosis interface.

On the drop-down list in the upper-right corner of the software, select **System Status**. The following interface is displayed.

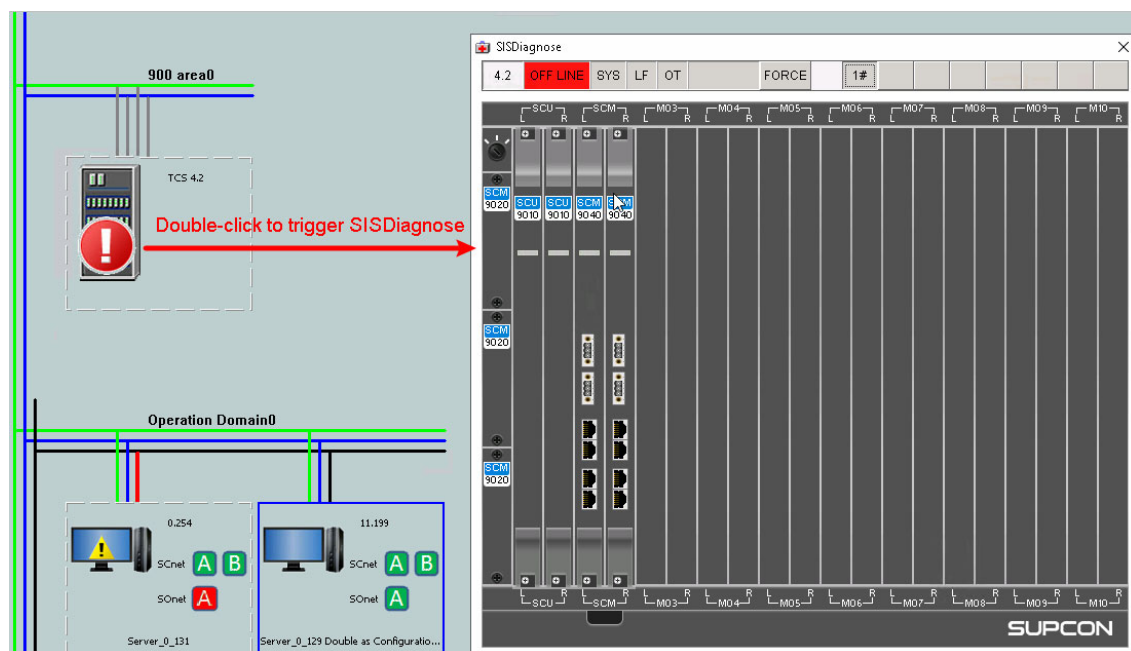


Figure 3-1 System status

3. View the diagnostic information.

In the above figure, double-click control station icon. **SISDiagnose** window pops up.

In SISDiagnose, you can view the system status through the indicators and check the diagnosis details by double-clicking the modules.



Tip:

For details on indicator and module diagnosis descriptions, please refer to *SISPatch User*


Manual.

3.2 Viewing System Alarms

In High-performanceHMI real-time monitoring software, you can view TCS-900 system alarms.

1. Start High-performanceHMI real-time monitoring software.
2. View system alarms.



In the toolbar, click . **System Alarm** window pops up, which displays the alarms of OMC and TCS-900 systems.

3. Filter SIS alarms.

Click SIS button in the bottom of the window to filter alarms from TCS-900 system.

After clicking SIS button, the alarm information will be displayed in two sections. The upper section displays TCS-900 alarms and the lower section OMC alarms.

System Alarm				
	Time	Description	Alarm...	
	2022-07-20 01:02:51.080	4.3 Communication Module Hardware Disconnect	SIS	
	2022-07-20 01:02:51.080	4.2 Communication Module Hardware Disconnect	SIS	
	Time	Description	Alarm Type	
➔	2022-07-20 00:25	Controller Lost	SYSALM	
	2022-07-20 00:24	Controller Lost	SYSALM	
	2022-07-20 04:3	Communication Module	SIS	
	2022-07-20 04:2	Communication Module	SIS	
	2022-07-20 00:254	OS SOnet A Comm	SYSALM	
	2022-07-20 00:254	OS Config Inconsistent	SYSALM	
Alarm Amount: 2/6				

Figure 3-2 System alarm

3.3 Viewing Process Alarm

High-performanceHMI real-time monitoring software displays the process of TCS-900 system tags.

1. Start High-performanceHMI real-time monitoring software
2. View the process alarm



Click the icon on the toolbar of High-performanceHMI real-time monitoring software, and pop up the "Process Alarm" dialog box shown as figure below. The dialog box lists the process alarms of OMC system and TCS-900 system. As shown as "A1123LZI_20103A_QLT" in figure below, the tags with QLT suffix are the flag tags of TCS-900 signal points.

Process Alarm					
Process(9)					
	Time	Tag	Description	Alarm Type	Value
	2022-07-26 15:55:38.451	A1123LZI_20103A_QLT	a1123LZI_20103A	OFF	OFF
	2022-07-26 15:55:38.451	A1123LZI_10601C_QLT	a1123LZI_10601C	OFF	OFF
	2022-07-26 15:55:38.451	A1123LZI_10601B_QLT	a1123LZI_10601B	OFF	OFF
	2022-07-26 15:55:38.451	A1123LZI_10601A_QLT	a1123LZI_10601A	OFF	OFF
	2022-07-26 15:55:38.451	A1123LZI_10301C_QLT	a1123LZI_10301C	OFF	OFF
	2022-07-26 15:55:38.451	A1123LZI_10301B_QLT	a1123LZI_10301B	OFF	OFF
	2022-07-26 15:55:38.451	A1123LZI_10301A_QLT	a1123LZI_10301A	OFF	OFF
	2022-07-26 16:07:52.456	A1123LZI_20103B	D-201液位	LL	0.000
	2022-07-26 16:07:50.956	A1123LZI_20103A	D-201液位	LL	0.000

Figure 3-3 High-performanceHMI process alarm sample

3.4 Viewing Tag Panel

In High-performanceHMI system, you can view the real-time value, alarm status and other information of TCS-900 tags through tag panel. If grouped by type, there are two types of panels: analog and digital panel.

3.4.1 Analog Panel

The following tags uses analog panel: TCS-900 AI tags, TCS-900 AO tags, TCS-900 communication tags (not-BOOL), TCS-900 memory tags (not-BOOL), TCS-900 synchronization tags (not-BOOL), TCS-900 operation tags (not-BOOL), TCS-900 diagnostic tags (not-BOOL).

Panel Diagram

TCS-900 analog tag panel includes: tag name, alarm ACK mark, alarm level mark, alarm status, real-time value, and jump buttons.

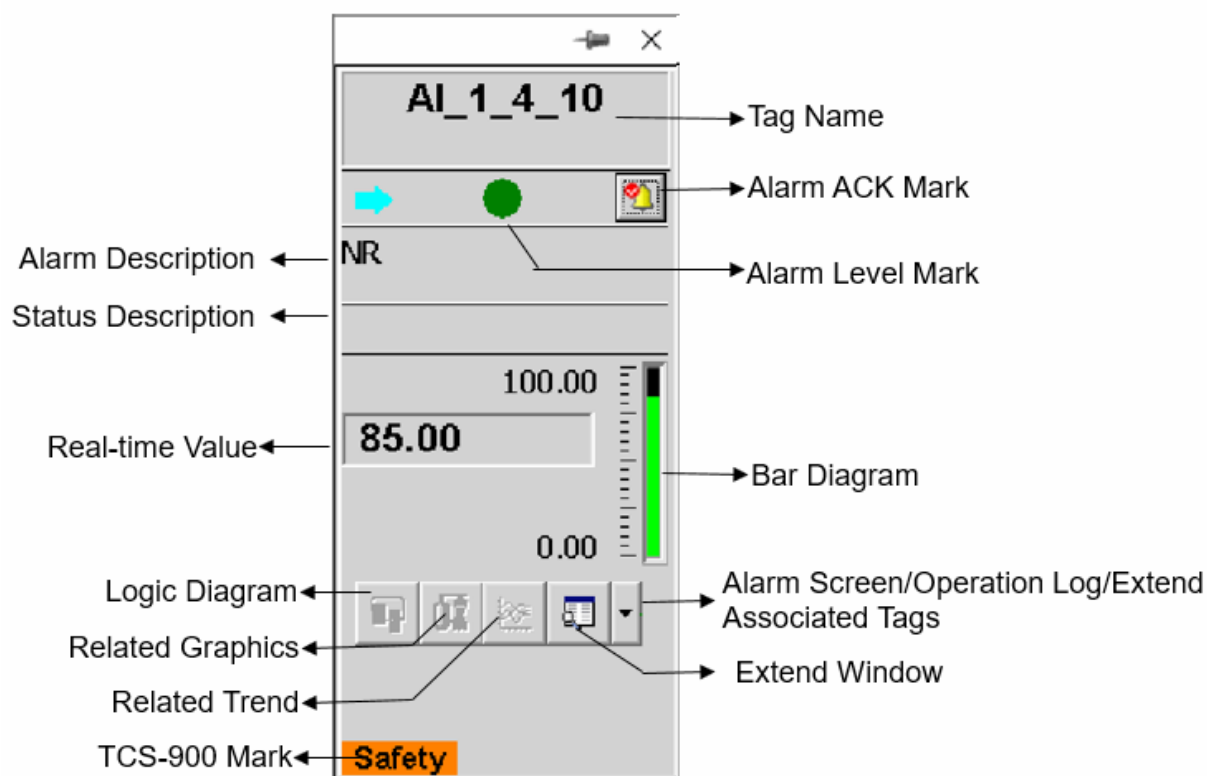


Figure 3-4 TCS-900 analog tag panel

The displayed information on the panel is determined by the system settings and current status.

- Alarm level: determined by real-time value of the tag, alarm limit set in tag properties.
- Decimal digit: determined by the system configuration.
- Alarm level mark and color: determined by the settings in **Global Default Settings > Alarm Level** in VFSysBuilder.

Extended Panel

The extended panel includes: alarm on/off status, alarm limit, quality code and other information.

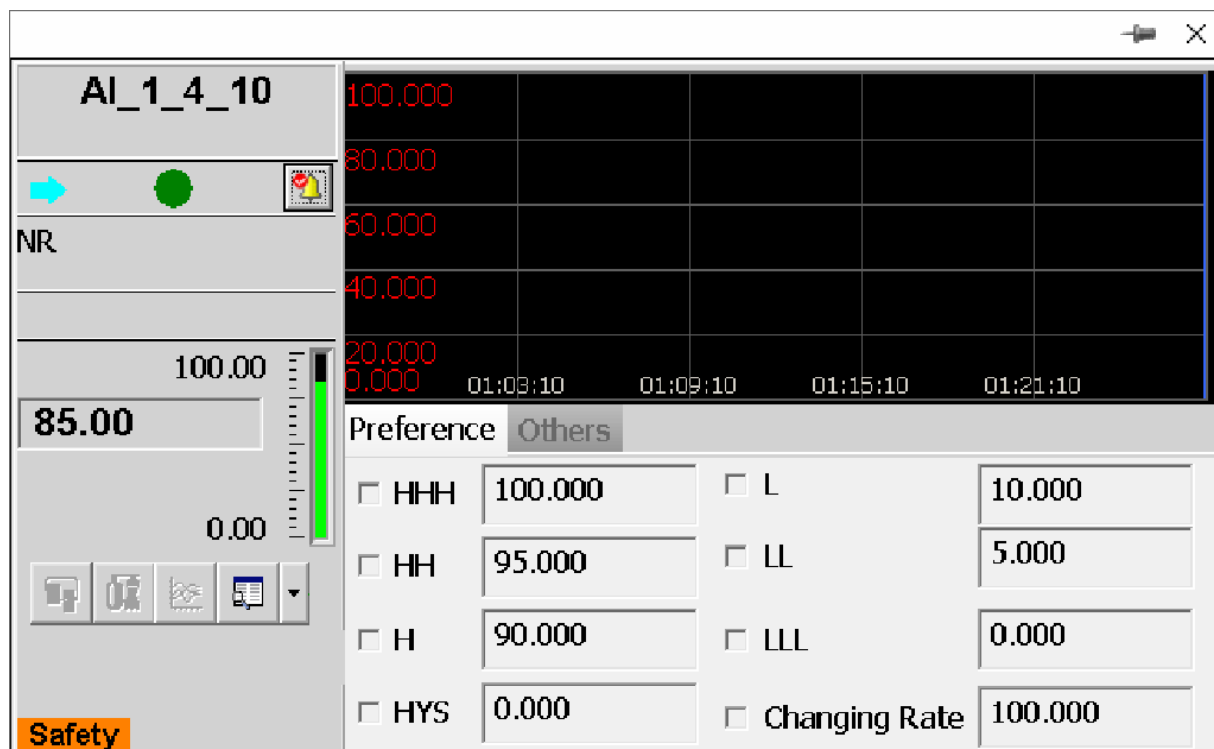


Figure 3-5 TCS-900 analog panel (preference)

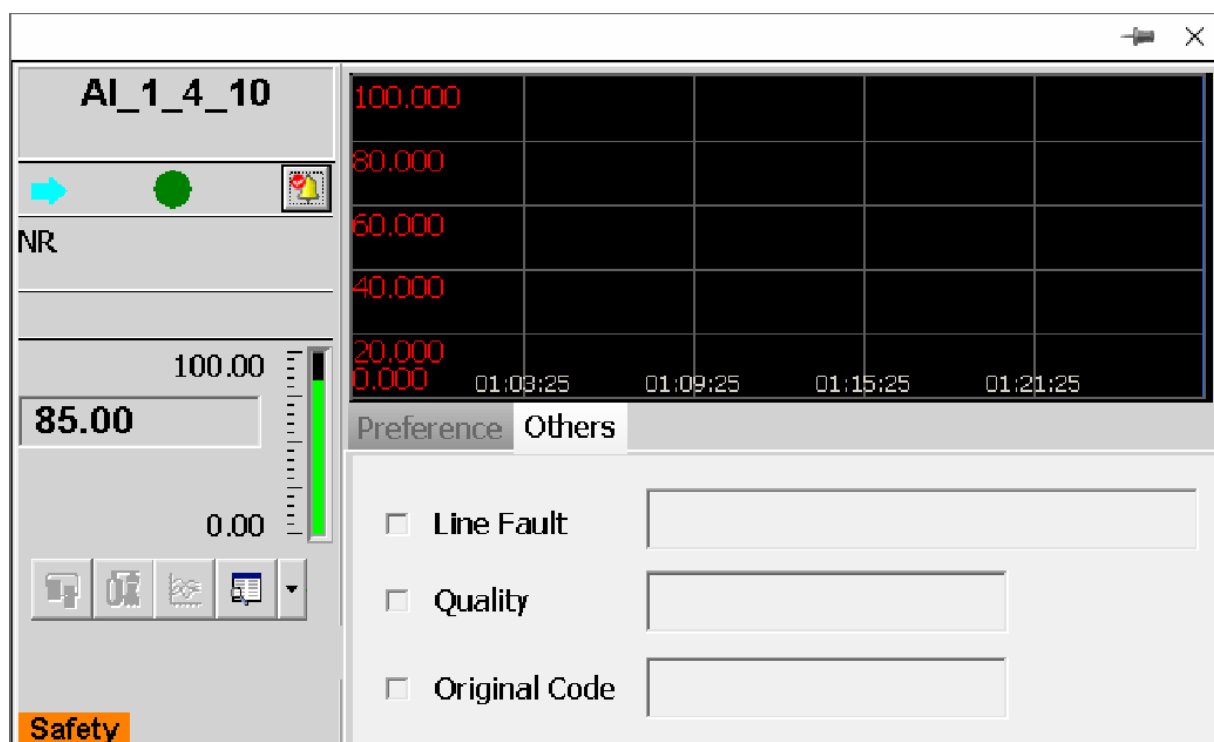


Figure 3-6 TCS-900 analog panel (others)

3.4.2 Digital Panel

The following tags use analog panel: TCS-900 DI tags, TCS-900 DO tags, TCS-900

communication tags (BOOL), TCS-900 memory tags (BOOL), TCS-900 synchronization tags (BOOL), TCS-900 operation tags (BOOL), TCS-900 diagnostic tags (BOOL).

Panel Diagram

TCS-900 analog tag panel includes: tag name, alarm ACK mark, alarm level mark, alarm status, real-time value, and jump buttons.

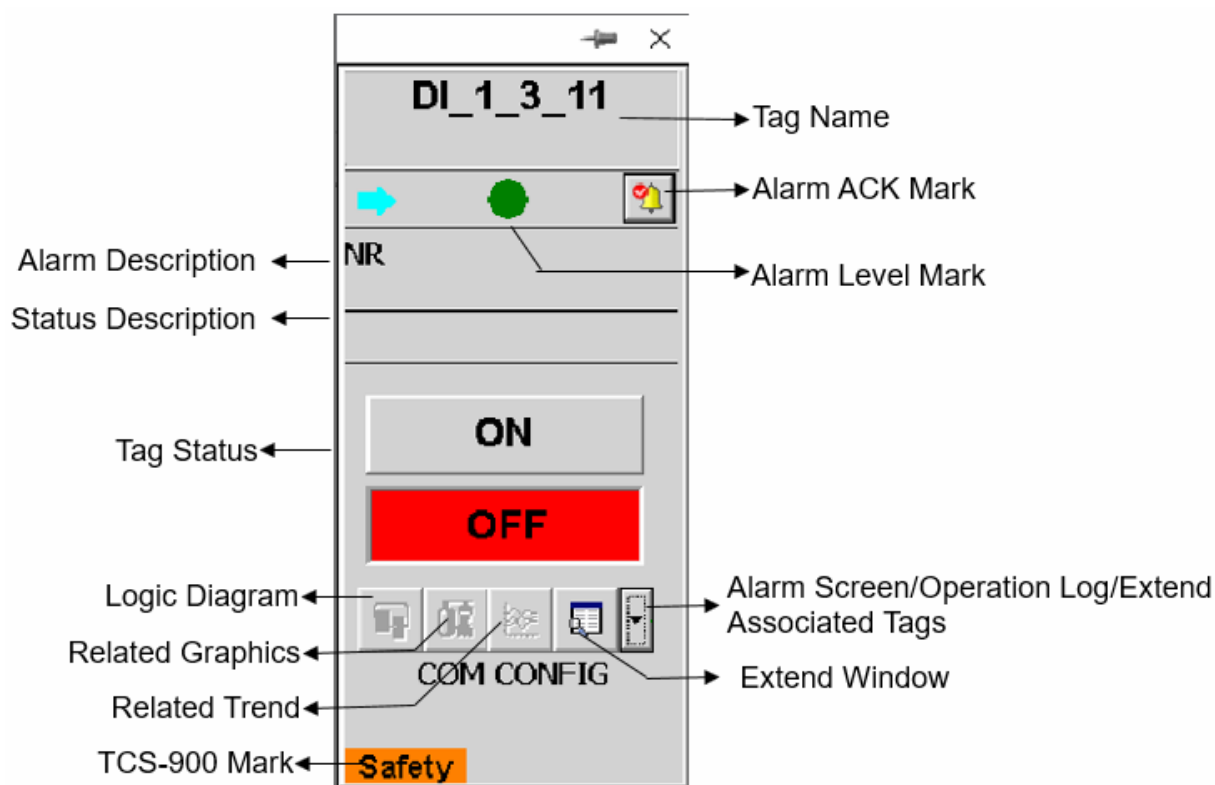


Figure 3-7 TCS-900 digital tag panel

The displayed information on the panel is determined by the system settings and current status.

- Alarm level: determined by ON alarm level and OFF alarm level in tag configuration.
- ON/OFF color: determined by the on/off color in tag configuration.
- Alarm level mark and color: determined by the settings in **Global Default Settings > Alarm Level** in VFSysBuilder.

Extended Panel

The extended panel includes: alarm on/off status, quality code and other information.

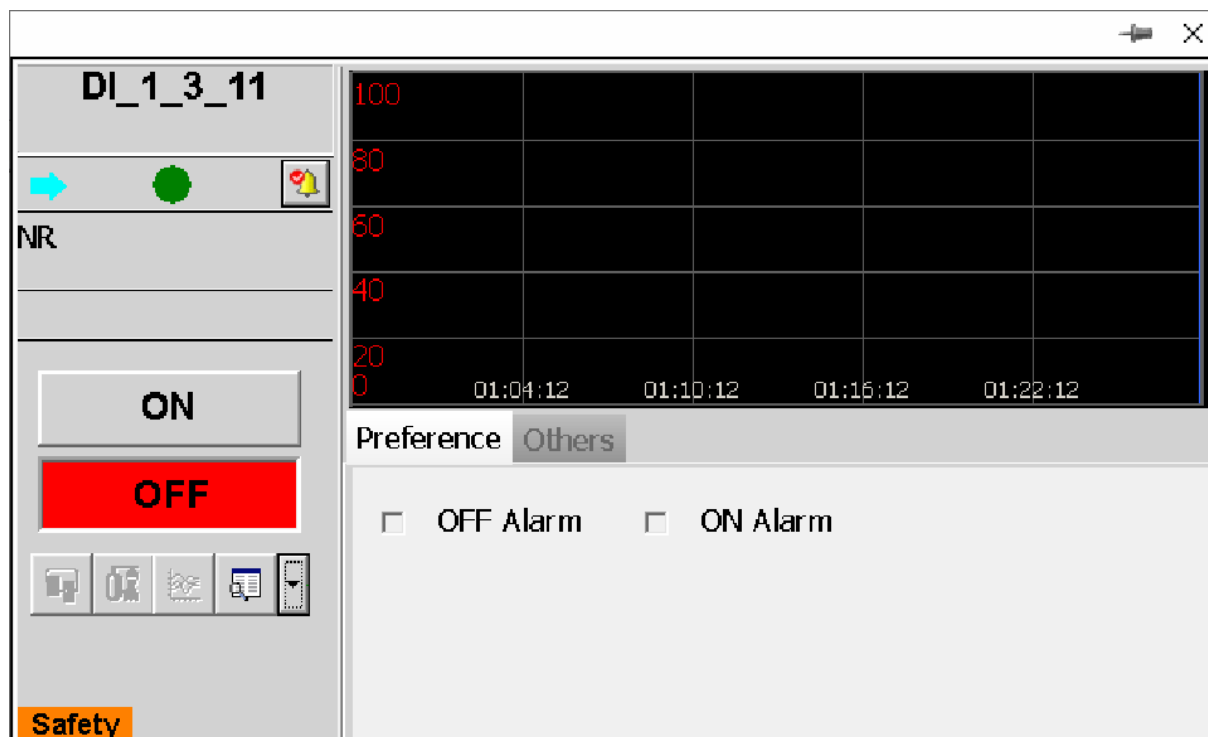


Figure 3-8 TCS-900 digital panel (preference)

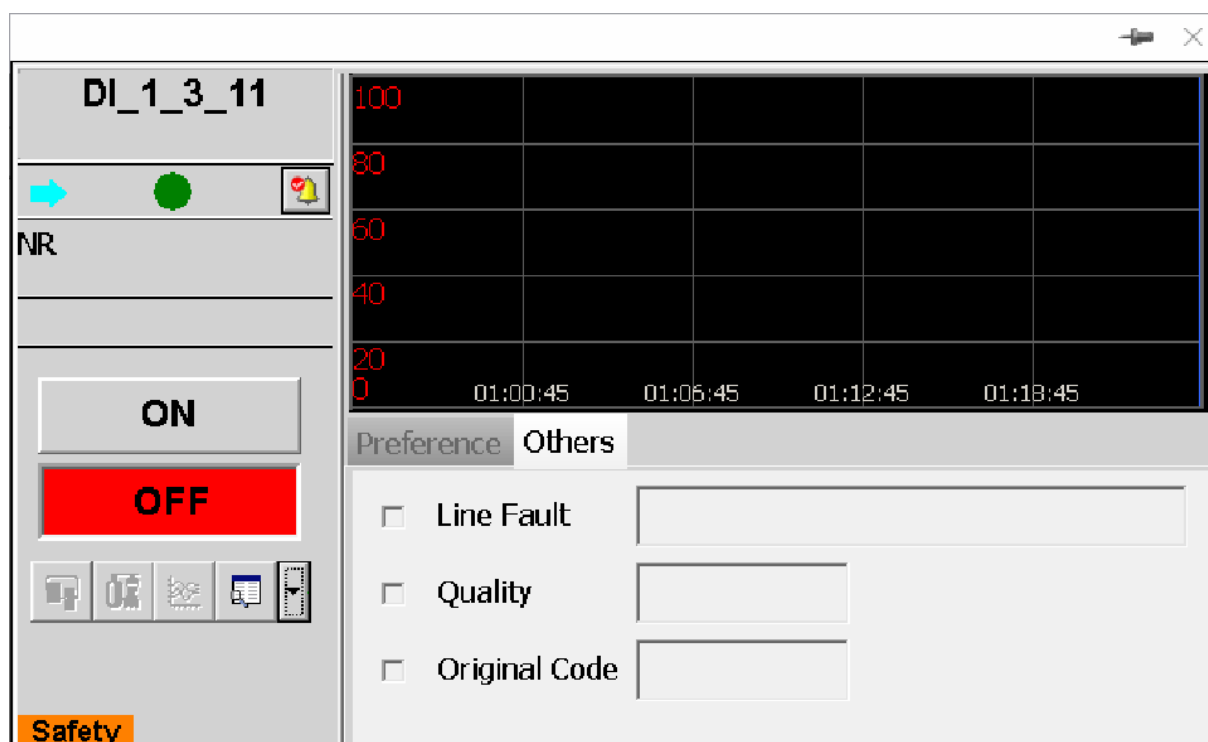


Figure 3-9 TCS-900 digital panel (others)

3.5 View OPC Data

After integrated TCS-900 system to OMC, OPC server can send the TCS-900 tag information and alarm information to OPC clients.

3.5.1 OPC DA

I/O tags' value and diagnose tags' value of TCS-900 can be sent to OPC client by VFOPCServer. Taking OPC client as example, it can get the TCS-900 tags' value by following steps.

1. Start OPC Client
2. Select the command of " OPC > Connect " in the menu bar, and popup the dialog box shown as figure below.

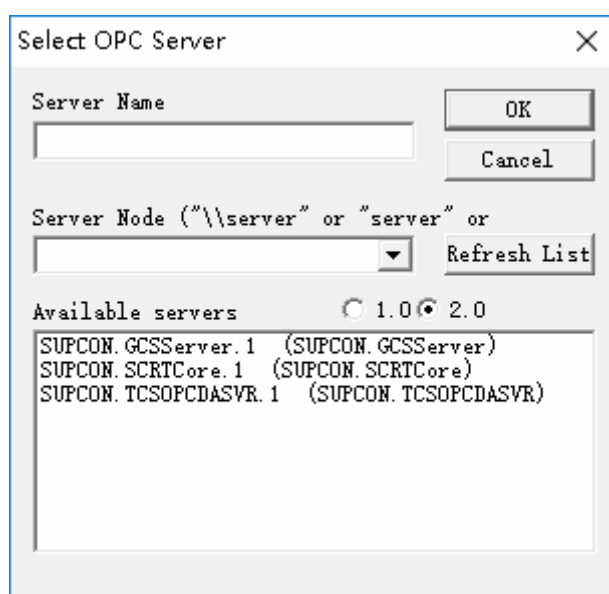


Figure 3-10 Select OPC server

3. Select VFOPCServer
Select "SUPCON.SCRTCore" in the " Available servers " and click "OK" to return to OPC client main interface.
4. Select TCS-900 tags for OPC Client
Select "OPC > Add Item" to pop up the dialog box shown as figure below.

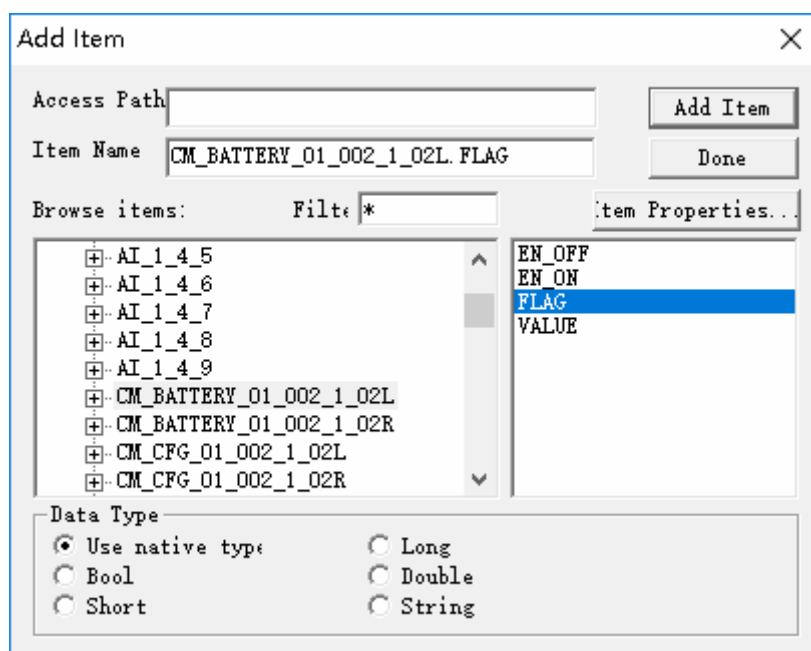


Figure 3-11 Add items for OPC client

As shown as figure above, the item named " CM_BATTERY_00_002_1_02L.FLAG " added to the OPC client. And this tag is the diagnosis tag of TCS-900 communication module's battery.

5. Select tags in the list and click "Add Item".
6. Repeat step 5 to add all the tags to OPC client and click "Done".

After subscribed all the tags, the OPC Client lists the tags as shown as figure below.

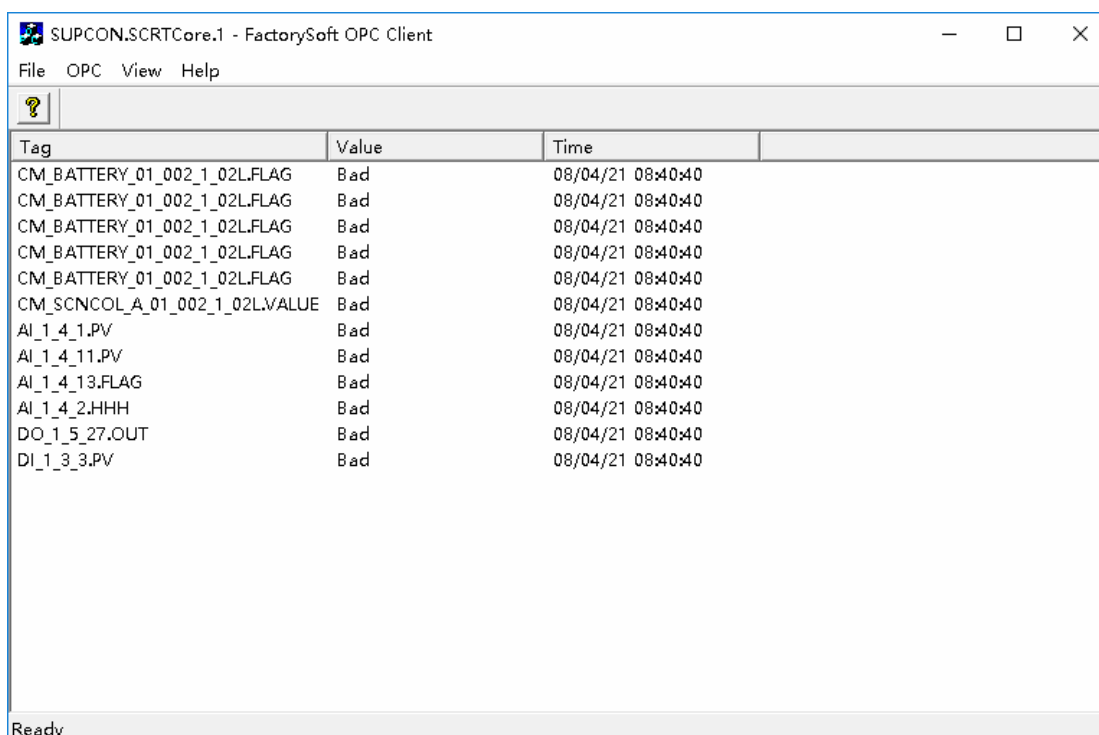


Figure 3-12 OPC client lists the subscribed tags

**Tips:**

For detail of TCS-900's diagnosis tags, refer to *SISPatch User Manual*.

3.5.2 OPC AE

Alarm and event of TCS-900 system can be sent to OPC client by VFOPCAEServer. Taking AlarmClient as example, OPC client can get TCS-900 alarm and event by following steps.

1. Start AlarmClient
2. Connect to VFOPCAEServer
 Select the command of " OPC > Connect " in the menu bar, and popup the dialog box shown as figure below.
 Input the OPC server address in " Server Node " and click " Refresh List ". " Select VFOPCAEServer, as shown as " SUPCON. VFOPCAEServer.1" in figure below , and click "OK".

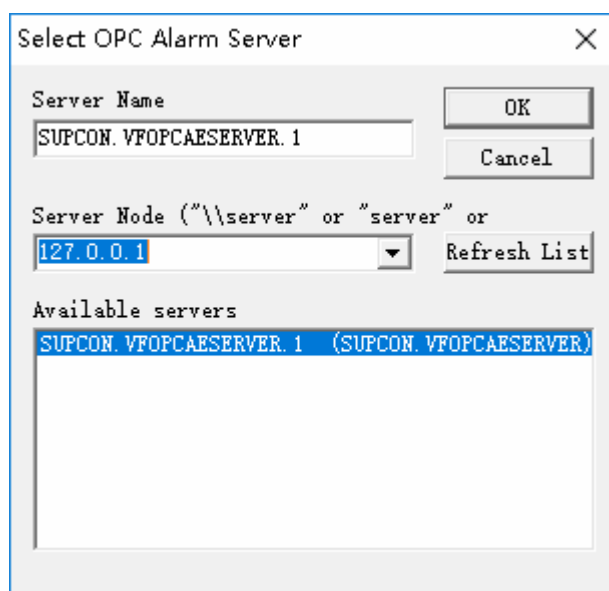
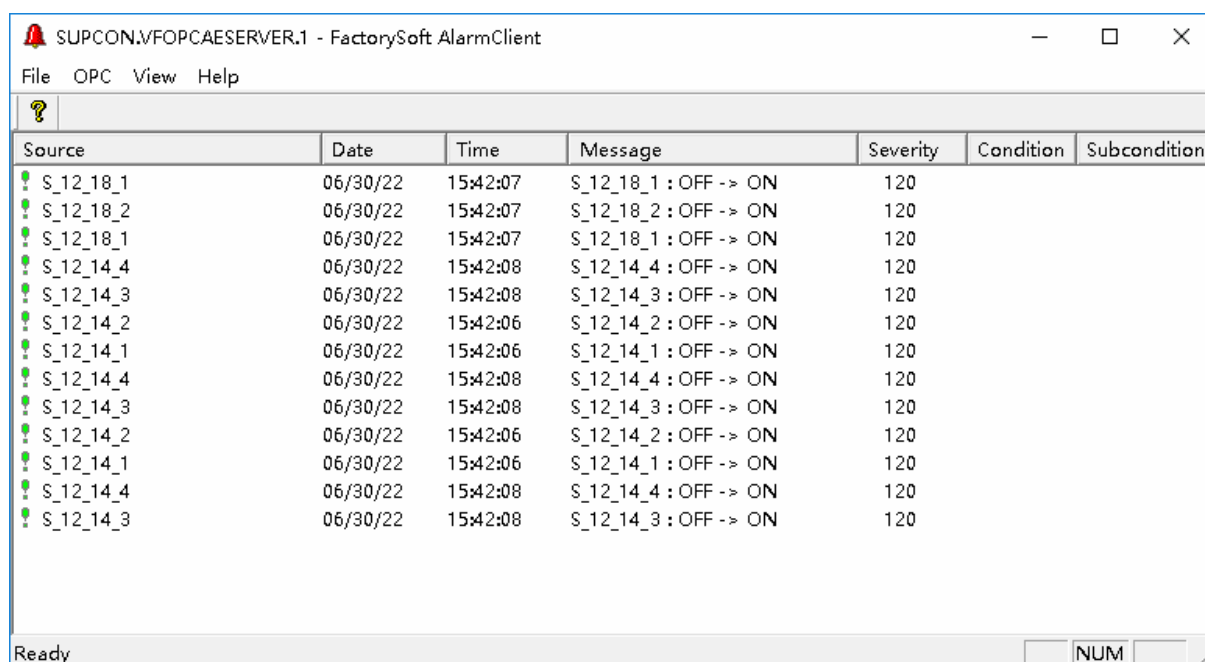


Figure 3-13 Connect AlarmClient to VFOPCAEServer

3. After connected, AlarmClient lists the alarms and events supplied by VFOPCAEServer. And the information includes source ,time and others as shown as figure below.



Source	Date	Time	Message	Severity	Condition	Subcondition
S_12_18_1	06/30/22	15:42:07	S_12_18_1 : OFF -> ON	120		
S_12_18_2	06/30/22	15:42:07	S_12_18_2 : OFF -> ON	120		
S_12_18_1	06/30/22	15:42:07	S_12_18_1 : OFF -> ON	120		
S_12_14_4	06/30/22	15:42:08	S_12_14_4 : OFF -> ON	120		
S_12_14_3	06/30/22	15:42:08	S_12_14_3 : OFF -> ON	120		
S_12_14_2	06/30/22	15:42:06	S_12_14_2 : OFF -> ON	120		
S_12_14_1	06/30/22	15:42:06	S_12_14_1 : OFF -> ON	120		
S_12_14_4	06/30/22	15:42:08	S_12_14_4 : OFF -> ON	120		
S_12_14_3	06/30/22	15:42:08	S_12_14_3 : OFF -> ON	120		
S_12_14_2	06/30/22	15:42:06	S_12_14_2 : OFF -> ON	120		
S_12_14_1	06/30/22	15:42:06	S_12_14_1 : OFF -> ON	120		
S_12_14_4	06/30/22	15:42:08	S_12_14_4 : OFF -> ON	120		
S_12_14_3	06/30/22	15:42:08	S_12_14_3 : OFF -> ON	120		

Figure 3-14 Connect AlarmClient to VFOPCAEServer



Tips:

TCS-900 information is items with "S" prefix in the list.

Section 4 Revision

Table 4-1 Revision history

Version	Applicable Product Version	Remarks
V1.0 (20230301)	OMC High-performanceHMI V4.70.00.00	First release
V1.1 (20230830)	OMC High-performanceHMI V5.10.00.00-M	Updated screenshots. Added following chapters: <ul style="list-style-type: none">● Syncing TCS-900 Configuration● Configuring TCS-900 Tag through VFTAGBuilder● Viewing Tag Panel● Viewing OPC Data