

# **OMC System Software**






**High-performanceHMI**

**OPC UA**

**Function Manual**

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

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# OPC UA Function Manual

## Section 1 Overview





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OPC (Object Linking & Embedding for Process Control), as a universal industrial standard, is usually used for the inter-connection between the control system and other system software. High-performanceHMI provides OPC UA server and client functions, which allows tag and alarm information to be sent to the external or to be received.

- OPC UA (Unified Architecture) server enables the system to send its real-time tag value and alarms to OPC UA client.
- With the OPC UA client function, it can connect with OPC UA server to acquire the real-time tag value from third-party systems.

## Section 2 Authorization Information

Software dongle is required for the OPCUA server to provide real-time tag values and alarm information.

Authorization	Icon	Description
OPC UA authorized Reference domain authorized		Supports acquiring real-time tag and alarm information of the local control domain or reference domain. Number of OPC UA clients can be customized.
OPC UA authorized Reference domain unauthorized		Supports acquiring real-time tag and alarm information of the local control domain. Number of OPC UA clients can be customized.
OPC UA unauthorized Reference domain authorized		Only one OPC UA client can be connected. Auto-deletes all third-party users every 2 hours and does not supports re-connection within 2 minutes.
OPC UA unauthorized Reference domain unauthorized		Only one OPC UA client can be connected. Auto-deletes all third-party users every 2 hours and does not supports re-connection within 2 minutes.

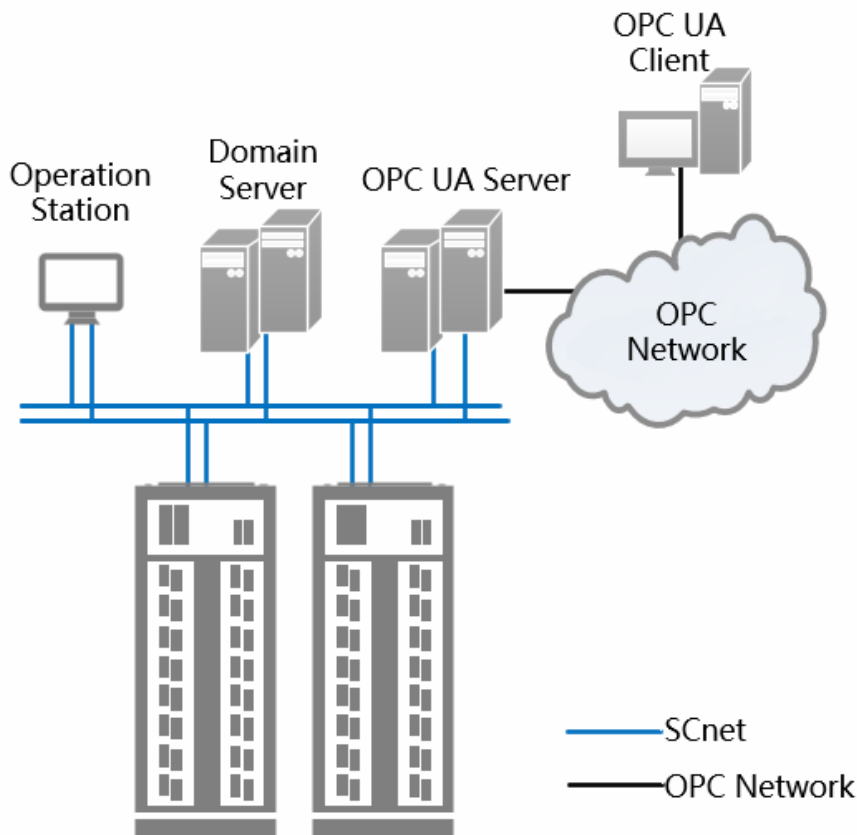
After starting the OPCUA server, you can view the authorization status from the server icon in system tray.

## Section 3 Using OPC UA Server

This section introduces how to start and configure OPC UA server, as well as the connection between client and server.

### 3.1 Typical Application

In the figure below, the OPC UA server collects tag and alarm information in this project through the SCnet network, and sends the collected information to the OPC client through the OPC network.



**Figure 3-1 Typical application of OPC UA**

In this example:

- The OPC UA server collects tag and alarm information

The OPC UA server is equipped with High-performanceHMI monitoring software and

OPC UA server software which allows the server to collect tag and alarm information from the controller through SCnet network.

- The OPC UA client receives alarm and read/write tags

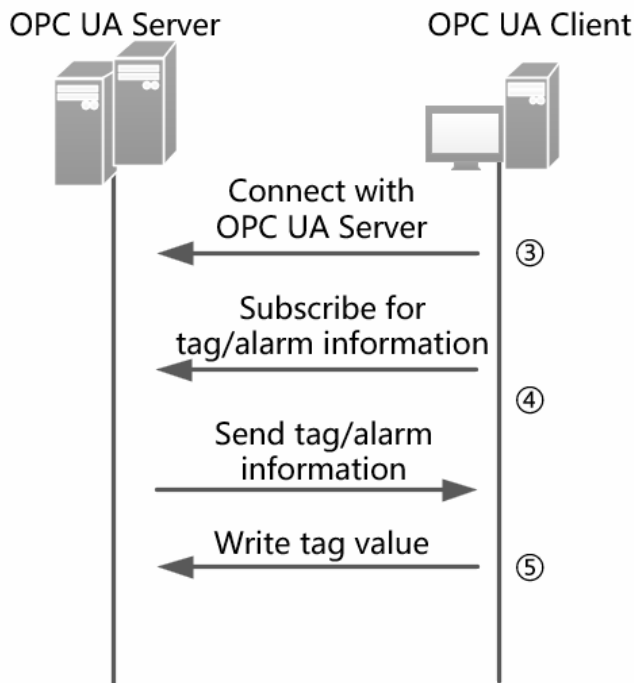
Standard OPC UA client software (such as UaExpert) is installed on the OPC client. The client receives the collected information from the server through the OPC network.

- The OPC UA server collects and sends push event information

The OPC UA server acquires SOE information from the SOE server and operation logs from the domain server, as well as sends push events (configurable). Generally, SOE server shares the same node with the operation station (see figure above).

### 3.2 Work Diagram

OPCUA gets tag and alarm information and sends it to the OPC UA client. See the figure below for its work diagram.



**Figure 3-2 Interaction between OPCUA server and client**

Tips:




The minimum sampling period of OPC UA server is 400 ms, so when the subscription period of OPC UA client is less than 400 ms, the OPC UA server still pushes subscription information every 400 ms.



### 3.3 Starting OPCUA Server


Start OPCUA software before configuration.

- 1) Start VFOpcUaSvr.

Select **Start > OMC > Intelligent Application Management**. In Intelligent Application Management software, click  > **Tool > OPC UA Server**.

- 2) In the system tray, right-click the icon of VFOpcUaSvr.

Check the VFOpcUaSvr status in the system tray. The icon varies with different authorization states.

Right-click  and select **Server Status**. The following dialog box will pop up. If **Running** is displayed in the **Running Status** field, it means the server is running.



The dialog box titled "SystemInfo - VFOpcUaSvr" displays the following information:

Computer Name:	DESKTOP-QKF9LEN
Server Name:	VFOpcUaSvr
Config Info:	D:\ECSRun\TESTPRJ
Running Status:	Running
Client Number:	0
Server Version:	1.0.0
Startup Time:	2023-03-17 12:09:23
Running Time:	0.1 H ( 0.00 D )
Authz:	VFOPCUaSvr (VF OPCUA authority, multi-project connection authority)

An "OK" button is located at the bottom right of the dialog box.


**Figure 3-3 View the running status of OPC UA server**

## 3.4 Configuring OPCUA Server

When OPCUA server is communicating with OPC UA client, you can customize the settings, such as if the server should send push alarms to the client, if the client can write values, and if the VFOpcUaSvr should run at startup.

### 3.4.1 Configuring R/W Properties of Tags

To ensure the data security of OPC UA server, you can configure the R/W properties of the tags in VFOpcUaSvr.

- 1) Right-click  in the system tray and select Writing Tag Settings. The Writing Tag Setting window will pop up.

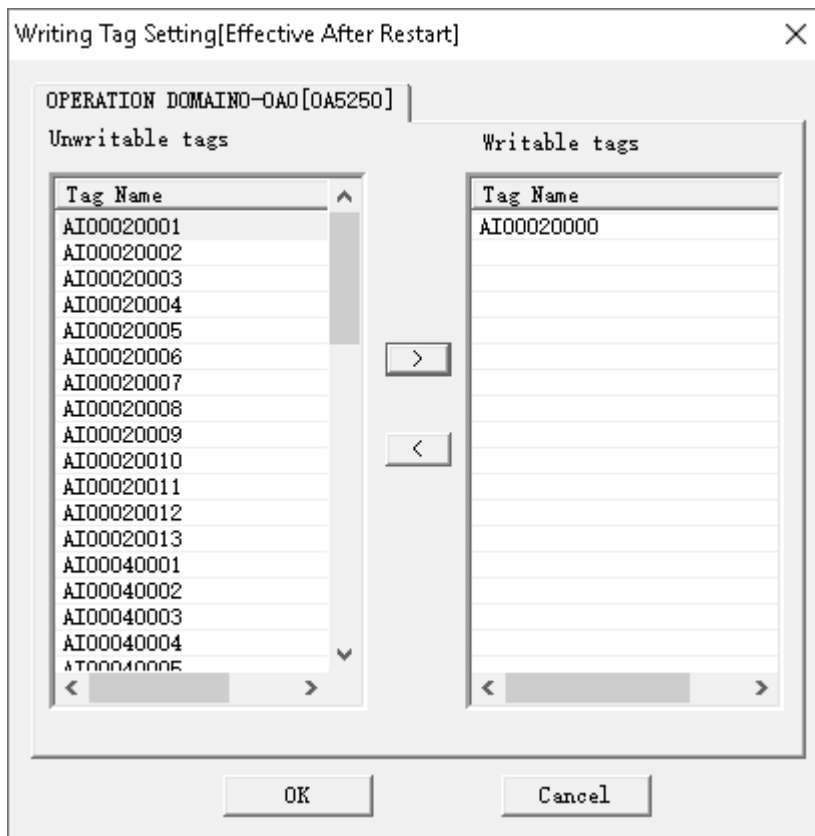


Figure 3-4 Writing Tag Setting dialog box

- 2) For different domains, configure the tags that would allow writing. All tags do not allow writing by default. Click > to add the tags to the Writable tags list.
- 3) Click **OK**.



**Attention:**

After modifying the R/W properties, you need to restart the VFOpcUaSvr to make the changes take effect.

### 3.4.2 Configuring Tag Exporting

The OPC UA server supports providing some open tags to the OPC UA client, thereby improving the query efficiency and speed while reducing network traffic and bandwidth consumption.

#### Step

1. Enable tag filtering function.

Double-click "OPCUAConfig.ini" in the software directory (C: \OMC\VisualField4 by default).

Change "EnableTagFilter=0" to " EnableTagFilter=1" in the [OPCDA] section, save and close the file.

Restart the OPC UA server after modifying the configuration file.

2. Right-click the VFOPCUaSvr icon in the system tray, and click **Tag Export Setting** to open the dialog box.



3. Select tags from the left tag list and click ">>" to add them to the right area.
4. Click **Save**.

#### Export Tags

After setting up tag filtering, you can export the current configuration to a .csv file.

1. Click **Export** in the **Writing Tag Setting** window.
2. In the **Save As** dialog box, select the target folder and enter the file name.
3. Click **Save**.

The figure below shows an example of the exported file. B2 displays the number of operation domains; B3 displays the number of tags in the specified operation domain; B4 to B11 displays the tags that can be subscribed by UA.

	A	B	C	D
1	encode	utf-8	version	1.0.0.2
2	OACount	1		
3	OA2609	8		
4	AI00020000			
5	AI00020001			
6	AI00020002			
7	AI00020003			
8	AI00020004			
9	AI00020005			
10	AI00020006			
11	AI00020007			
12	OA2609	end		
13	ALLOAEND	end		

**Figure 3-1 Example file**




**Tips:**

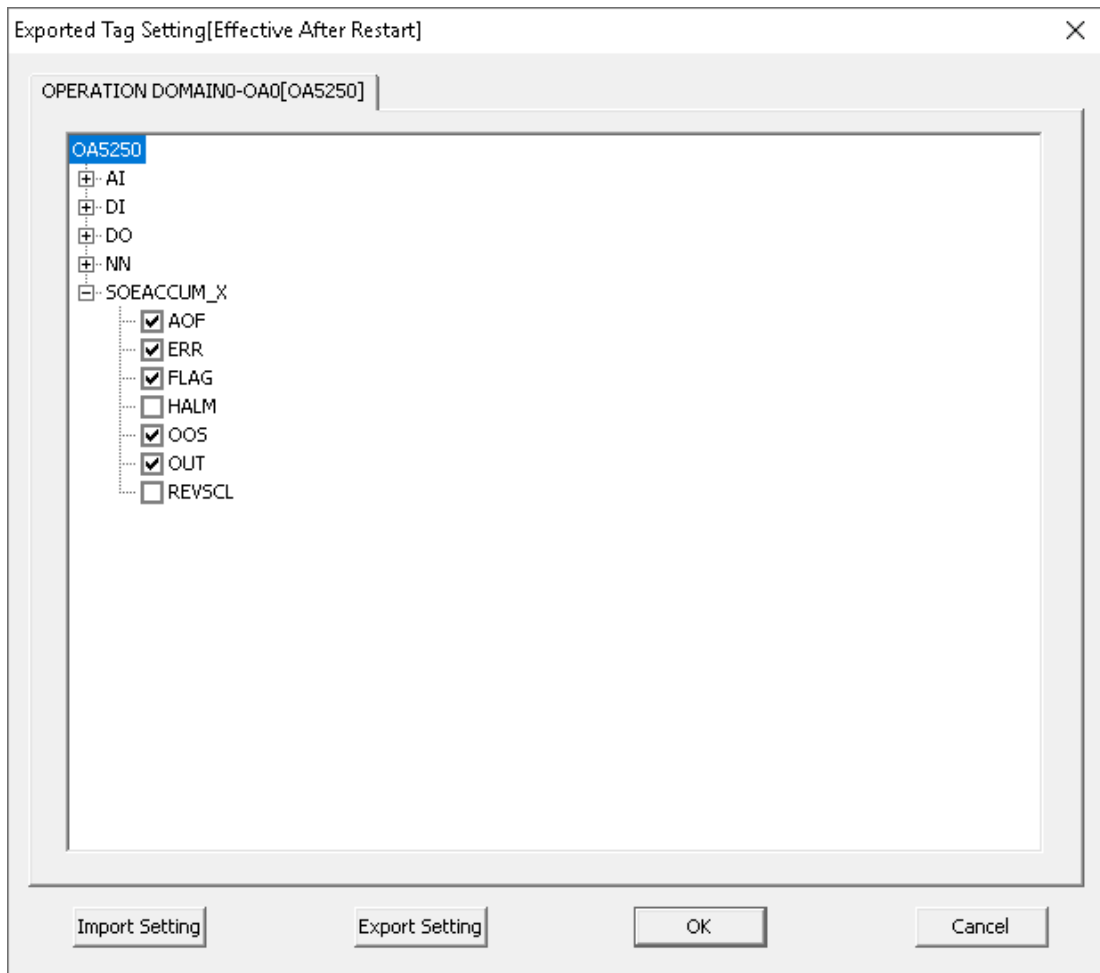
The exported tag filtering file can be imported to VFOPCUaSvr again after modification.

### 3.4.3 Configuring Pin Filtering

OPC UA server collects information of all tags from the controller through SCnet network. In VFOPCUaSvr, you can filter specific pins of the tags to allow the client to acquire only specific pins.

- 1) Open Exported Tag Setting window.

Right-click  in the system tray and select **Field Filter Setting**. The **Exported Tag Setting** window will pop up.



**Figure 3-5 Exported Tag Setting window**

- 2) Select pins to be acquired by the client.

For example, in the figure above, "HALM" and "REVSCL" are not open to the client.

- 3) Click **OK** to complete the configuration.



**Tip:**

For function block tags, after you modify their pins, please modify the filtering settings as needed.

For example, if you added two pins for the function block SOEACCUM\_X, download and publish the configuration. Then modify the filter settings and restart VFOPCUaSvr.


### 3.4.4 Configuring Run at Startup Function

VFOpcUaSvr needs manual start at first use. Afterwards, you can configure to allow it to run automatically at system startup.

- 1) Select Automatic Start.

Right-click  in the system tray and select **Automatic Start**.

- 2) Check result.

Right-click  in the system tray again and check if **Automatic Start** is selected.

### 3.4.5 Configuring Alarms and Events

VFOpcUaSvr gets controller alarms with its High-performanceHMI monitoring service, and gets system events through the SOE server.

After VFOpcUaSvr gets the alarms and events, you can select the data source server of the event to select if to send the alarms and events to the client, or if to sends the suppressed alarms to the client.

#### Enable/Disable Sending Push Alarms and Events

Follow the steps below to configure if the VFOpcUaSvr sends alarms and events to its connected OPC UA client.

Right-click  in the system tray and select **Alarm & Event > Start**. If a "√" is presented before **Start**, it means the push alarms and events function is enabled.




---

#### Tip:


Restart VFOpcUaSvr to make any changes take effect.

---

#### Enable/Disable Sending Suppressed Alarms

High-performanceHMI supports the Alarm Suppress function to eliminate the impact of alarms of low priority. You can configure the settings to allow the server to send suppressed alarms to the client.


By default, the server sends suppressed alarms to the client.

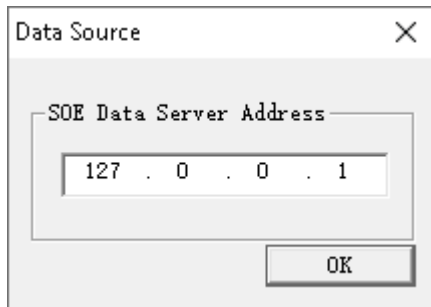
To disable this function, Right-click  in the system tray and select **Alarm and Event**. Cancel Selection of **Display SUP ALM**.

### Configure Data Source

To send events externally, the VFOpcUaSvr should get the data from the SOE server.

- 1) Go to Data Source window.

Right-click  in the system tray and select **Alarm & Event > Data Source**.



**Figure 3-6 Data source configuration**

- 2) Configure SOE data server address.


Set the SOE data server address in the pop-up window.

When the local computer serves as the SOE server, set the IP to "127.0.0.1".

- 3) Click **OK** to save the current configuration.

### 3.4.6 Reloading the Configuration

Generally, after the configuration is published, the VFOpcUaSvr will get the configuration simultaneously and acquire the alarm information based on the configuration.

If the configuration of VFOpcUaSvr is inconsistent with the High-performanceHMI configuration, you can manually reload the configuration. Right-click  in the system tray and select **Alarm & Event > Reload Config**.

## 3.5 Viewing Server Data with OPC UA Client

VFOpcUaSvr supports the connection with standard OPC UA clients. Only the connected clients can get the push information from the server.

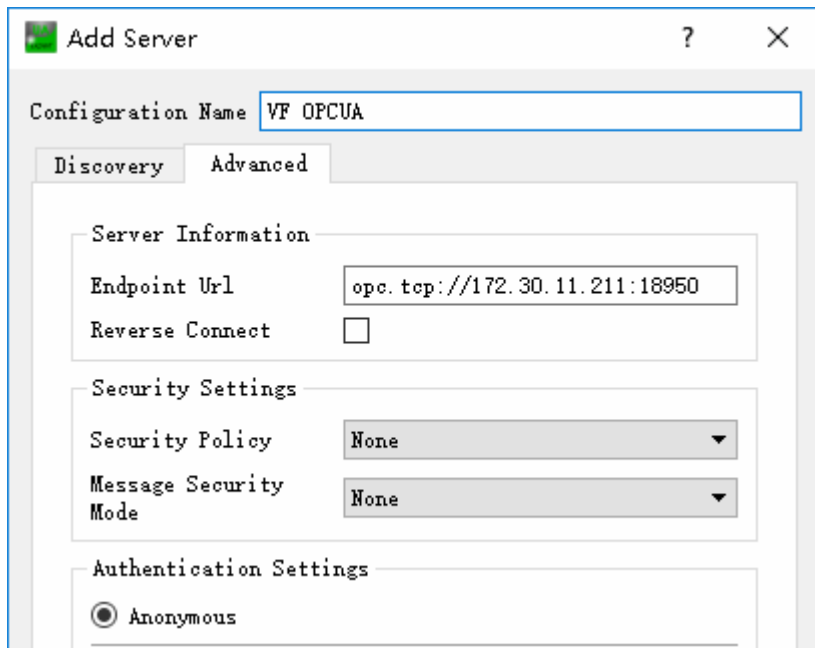
### 3.5.1 Connecting with OPC UA Server

This part takes UaExpert as an example to introduces the connection of OPC client with VFOpcUaSvr.

- 1) Run UaExpert and create a project.
- 2) Add OPC UA server

Select **Server > Add** from the menu. **Add Server** window will pop up.

- Click **Discovery** tab and select “Anonymous” in “Authentication Settings” to auto-recognize available OPC UA servers.
- Click **Advanced** tab and customize the server to be connected.



**Figure 3-7 Add OPC UA server**



Configure the properties of the server based on the following table.

Item	Description
Configuration Name	Enter the name of OPC UA server. This will be the source server name of tags, events, and alarms.
Endpoint Url	Configure the address of the OPC UA server. Follow the format of "opc.tcp://server IP:port number". The port number of OPC Server is 18950.
Authentication Settings	Set the authentication method for logging in to the OPC UA server. OPCUA server only supports Anonymous login.

Click **OK** to save the configuration.

- 3) Connect with OPC UA server.

Connect with OPC UA server to get its data.

In the **Project** tree, right-click the added server and select **Connect**. The icon before the server turns from  to , which means they are connected.



### 3.5.2 Viewing Real-time Tag Value

After the client is connected with the server, you can view the real-time tag values in the server.

In the **Address Space** tree, select the tag to be viewed and drag it to the Data Access View pane.

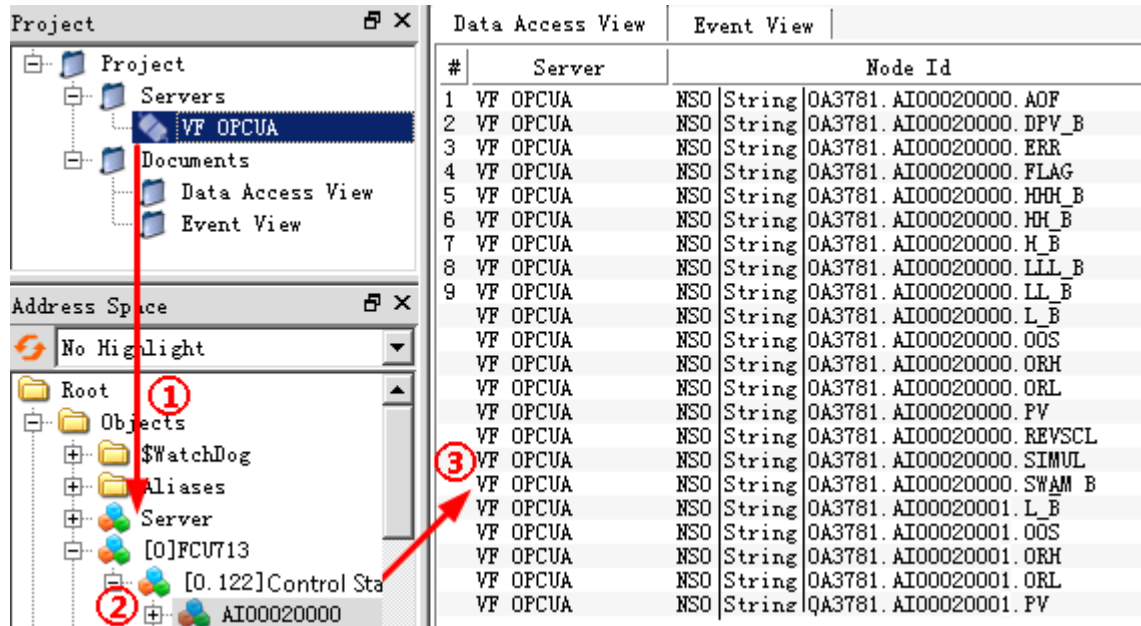


Figure 3-8 Add a tag and view its value

### Data Access View Description

The data access view pane includes information like server, tag value and type. The table below lists the details of these items.

Table 3-1 Tag properties in OPC UA client

Item	Description
Server	Server of the tag.
Node Id	<p>Displays in the format of "address space nodeid type domain alias". There are two ways to use domain alias:</p> <ul style="list-style-type: none"> <li>Default mode: The Node Id of local tags does not contain domain alias, such as "AI00001.PV". The Node Id of referenced domain tags contains domain alias, such as "OA123.AI00001.PV", where "OA123" is the domain alias of the referenced domain.</li> <li>Enable domain alias: To include the domain alias to the Node Id of local tags, modify the configuration file "OPCUAConfig.ini" in the High-performanceHMI installation path and add "GenNodeidWithOAName=1" in the [OPCDA] section. In this case, the local tags displayed and subscribed by the client also need to include domain aliases.</li> </ul>
Display Name	Tag name.
Value	Real-time tag value.
Datatype	Data type of tag.
Source Timestamp	Time at which the client got the data

Item	Description
Server Timestape	Time at which the data was sent to the server
Statuscode	Tag status: Good or bad
AccessLevel <sup>Note 1</sup>	R/W permission configured in the server. <ul style="list-style-type: none"> <li>● CurrentWrite: the tag is writable and it was set as writable tag in the OPC UA server.</li> <li>● CurrentRead: the tag allows reading only.</li> </ul>
UserAccessLevel	R/W permission of the current user.

Note 1: For PV parameter of AI/DI tags and OUT parameter of AO/DO tags, they should be in the force status to write values successfully.

## Write Tag

If a tag allows writing, you can write its value in OPC UA client.

In UaExpert, select a tag from the list and enter the new value in the **Value** column.



### Tip:

- You can check whether the tag supports writing through AccessLevel. Refer to Table 3-1 Tag properties in OPC UA client.
- When writing a String-type tag, the value is limited to a length of 512 bytes. If it exceeds 512 bytes, the server will truncate the value to the first 512 bytes before writing the tag.



### Attention:

To set whether to record the writing operation in the operation logs: Open "OPCUAConfig.ini" in the installation path and modify the value of "OpenUserWriteOpLog". If OpenUserWriteOpLog=0, writing will not be recorded. If OpenUserWriteOpLog=1, writing will be recorded.

## 3.5.3 Viewing Alarm Events and Logs

If the OPC UA Server has the sending alarm and event function enabled, you can view the alarms and events in OPC UA client.

### 1) Add Event View.

In UaExpert, select **Document > Add** from the menu. Add Document window is displayed. Select **Event View** from **Document Type**, and click **Add**. After adding, the **Event View** node is added to the Project tree.

2) Add OPC UA Server

Right-click on the **Configuration** area of **Event View** tab, and click **Add custom node**.  
Select the added OPC UA server from the drop-down list. And enter 2253 for the **Numeric** value. The node ID of OPCUA must be 2253.

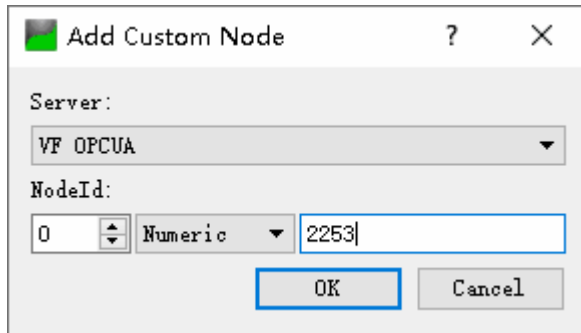


Figure 3-9 Example of adding custom node

3) Click **OK** and add the subscribed OPC UA servers. After adding, the **Event** tab displays the collected alarms and events in the server, as shown in the figure below.

Events							
Events Alarms Event History							
A	C	Time	Severity	Server/Object	SourceName	Message	Active
▲		11:11:01.113	30	supcon.opcu...	DI03160006	Standby	INACTIVE
▲		11:11:01.114	30	supcon.opcu...	DI03160007	Standby	INACTIVE
▲		11:11:01.115	30	supcon.opcu...	DI03160008	Standby	INACTIVE
▲		11:11:01.116	30	supcon.opcu...	DI03160009	Standby	INACTIVE
▲		11:11:01.116	30	supcon.opcu...	DI03160010	Standby	INACTIVE

Figure 3-10 Example of alarms and events displayed



Tip:

- In the High-performanceHMI monitoring software, after a user acknowledged an alarm, the "ClientUserID" of that alarm on the alarm list will become the user who acknowledged the alarm.
- By right-clicking on "Alarm & Event > Operation Domain Alias" from the context menu of VFOpcUaSvr, you can control whether the SourceName column displays the domain alias of the event source. If there is a "/" before "Operation Domain Alias", the domain alias will be displayed. For example, in the above picture, DI03160006 will be displayed as OA0. DI03160006.

## Acknowledge Alarm



**Attention:**

By default, the OPCUA server does not support acknowledging an alarm in the client. If you want to enable this function, contact the field engineer.

To acknowledge an alarm in the OPC UA client.

- 1) In the Event View tab of UaExpert (as shown in the above figure), click **Alarms** tab.
- 2) Right-click an alarm and click **Acknowledge**. On the pop-up Comment Acknowledge window, enter the remarks.
- 3) Click **OK**. The A column displaying a green tick means the alarm has been acknowledged.

### 3.6 Alarms and Events Provided by OPCUA Server

VFOPC UA server provides the clients with alarm information including control domain address, and control station address.

Here details the format of different alarms and events.

- Process Alarm: displays as "Tag Name".
- System Alarm: displays as "Systemalarm".
- The alarm fields are shown below:

Name	Data Type	Description
SourceName	UA_String	Data Source
Severity	UA_Int16	Event Level
ClientUserId	UA_String	User ID of a client, such as a person who acknowledges an alarm
EnabledState.Id	UA_Boolean	If the alarm is available
ActiveState.Id	UA_Boolean	If the alarm is activated
ActiveState.TransitionTime	UA_UtcTime	Time when the alarm was generated and resolved.
AckedState.Id	UA_Boolean	If the alarm is acknowledged
AckedState.TransitionTime	UA_UtcTime	Alarm Acknowledgement Time
ActiveTime	UA_UtcTime	Time when the alarm is generated
ConditionClassId	UA_NodeId	Node corresponding to the alarm type
ConditionClassId.ConditionClassName	UA_LocalizedText	Alarm type (process, system alarm)
InputNode	UA_NodeId	Data source node

Name	Data Type	Description
TagType	UA_String	Tag type
PRJName	UA_String	Project name
GroupName	UA_String	Alarm group name
ReginName	UA_String	Alarm region name
Unit	UA_String	Unit
AreaAddr	UA_UInt16	Control domain address
CSAddr	UA_UInt16	Control station address
AOF	UA_Boolean	AOF standard

### 3.6.1 Supported Alarms, Events and Logs

As shown in Figure 3-10, the client receives the alarms, SOE events, and operation logs from the server. **EventType** column helps differentiate the type of OPC information. The table below lists the three types of supported information recorded by OPC A&E.

EventType	Description	Event Type
SUPCON_NonExclusiveLevelAlarmType	High-performance HMI alarm	Conditional event
SimpleEventType	SOE recording	Simple event
AtEventType	Operation Logs	Tracking event

### 3.6.2 Comparison Table of OPC A&E Level and High-performanceHMI Level

This part introduces the relationship between alarm, event, log levels in OPC UA server and OPC A&E.

#### Process Alarm Level

As in Figure 3-10, OPC UA client receives the alarms from OPC UA server. Severity column is used to distinguish the level of High-performanceHMI process alarms. This table lists the relationship between OPC A&E and High-performanceHMI alarm severity level.

Severity	High-performanceHMI Process Alarm Severity Level
1	0
30	1
60	2
90	3
120	4
150	5
180	6
210	7
240	8
270	9

Severity	High-performanceHMI Process Alarm Severity Level
300	10
330	11
360	12
390	13
420	14
450	15
480	16
510	17
540	18
570	19
600	20
640	21
680	22
720	23
760	24
800	25
840	26
880	27
920	28
960	29
980	30
990	31

### System Alarm, Operation Logs, and SOE Records

In Figure 3-10, OPC UA client receives the alarms, operation logs, and SOE records from OPC UA server. Severity column is used to distinguish the level of High-performanceHMI system alarm, High-performanceHMI operation logs, SOE records. This table lists the relationship between High-performanceHMI system alarm, High-performanceHMI operation records, and SOE records.

Severity	High-performanceHMI Alarm and Event Type	
30	High-performanceHMI System Alarm Level 1	OMC Operation Logs
60	High-performanceHMI System Alarm Level 2	OMC SOE Records
120	High-performanceHMI System Alarm Level 3	TCS-900 SOE Records

### 3.6.3 Open System Status Tag

High-performanceHMI supports OPC communication and sends the system status tag to the OPC client. Meanwhile, OPC UA supports trans-domain reference, which means the tags from the referenced domain can be provided to the OPC client.

To make the system status tags open to the client:

- 1) In the installation directory of High-performanceHMI (C: \OMC\VisualField4\), double-click OPCUAConfig.ini file to open it.
- 2) Change "SYSOPENENABLE" from 0 to 1. Save and close the file.

```
[OPCDA]
; When =1, DA is ReadOnly.
ReadOnly=0
; When =1, Display Point2Point tag field.
DisplayP2PField=0
;When =1, Open System Diagnose Tag.
SYSOPENENABLE=1
```

**Figure 3-11 Change configuration file**

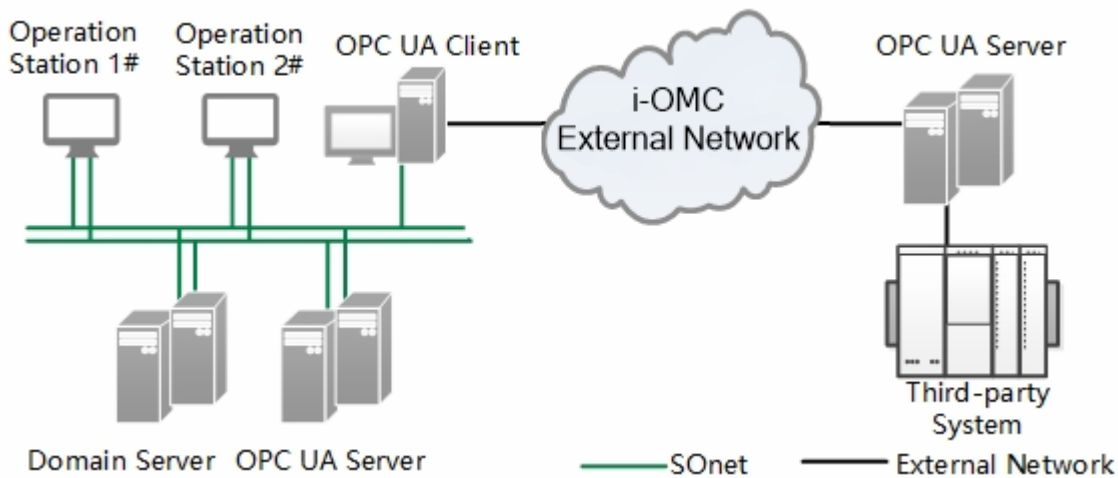
After modification, restart the OPC UA server to make the changes take effect. Please refer to *Diagnose Software User Manual* for details of the diagnostic tags supported by OPC UA.

## Section 4 Using OPC UA Client

High-performanceHMI software offers OPC UA driver which allows the client to receive tag and alarm information from the server. This section introduces the configuration of OPC UA driver and how to acquire OPC UA server data.

### 4.1 Typical Application

The network diagram below illustrates the connection of OPC UA servers and client. The client can subscribe to the third-party tag and alarm information from the OPC UA server.



**Figure 4-1 Typical network diagram of OPC UA client**

The general process of acquiring OPC UA data from the third party is as follows:

- Connect with a specific OPC UA server.

The OPC UA client connects with a specific server using OPC UA driver.

- Subscribe to the server and view tag information

You can subscribe to the server for specific tag data and view the real-time value of the subscribed tags in High-performanceHMI monitoring software.



## 4.2 Adding OPC UA Driver

To use the computer as the OPC UA client, add OPC UA driver in VFVarCfg first.

### 4.2.1 Adding Driver

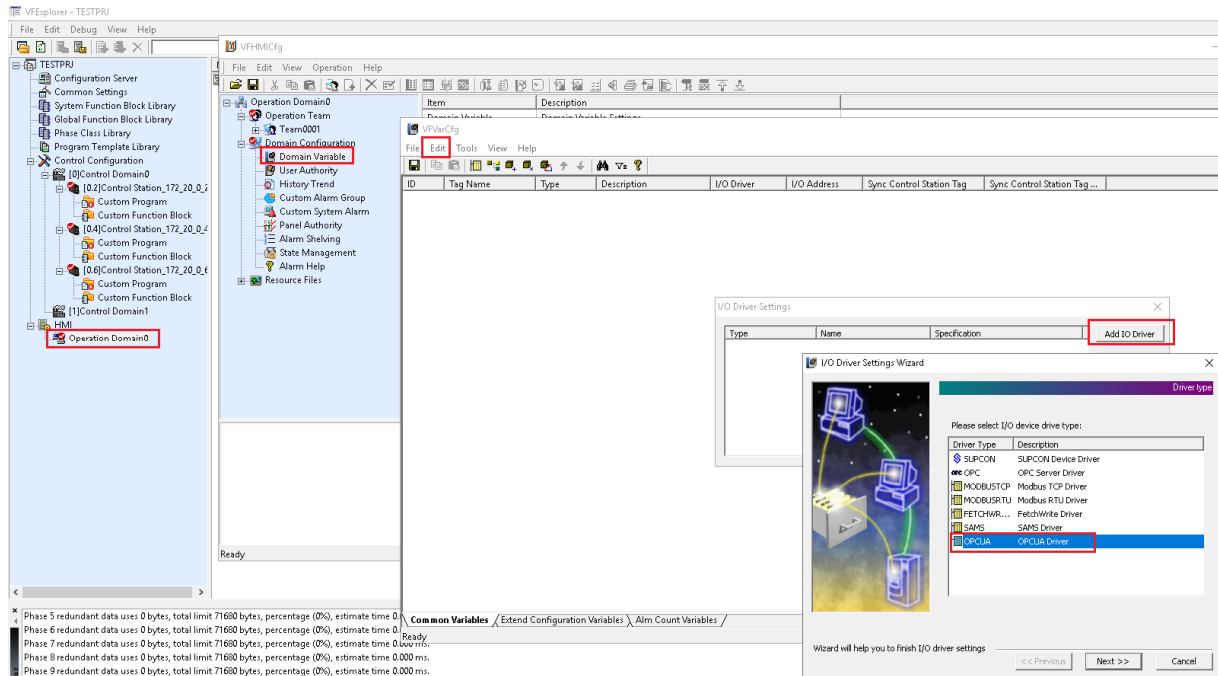


Figure 4-2 Add OPC UA driver

- 1) Open VFHMICfg software.

In the navigation tree, edit the operation domain to open VFHMICfg.

- 2) Open VFVarCfg software.

In the navigation tree, right-click **Domain Variable** and click **Edit**.

- 3) Open I/O Driver Settings window.

In VFVarCfg, click **Edit > Operation Domain Driver Settings** to open **I/O Driver Settings** window.

Click **Add IO Driver** to open **I/O Driver Settings Wizard**.

- 4) Adding OPC UA Driver

Select **OPCUA**. Click **Next** and finish adding.

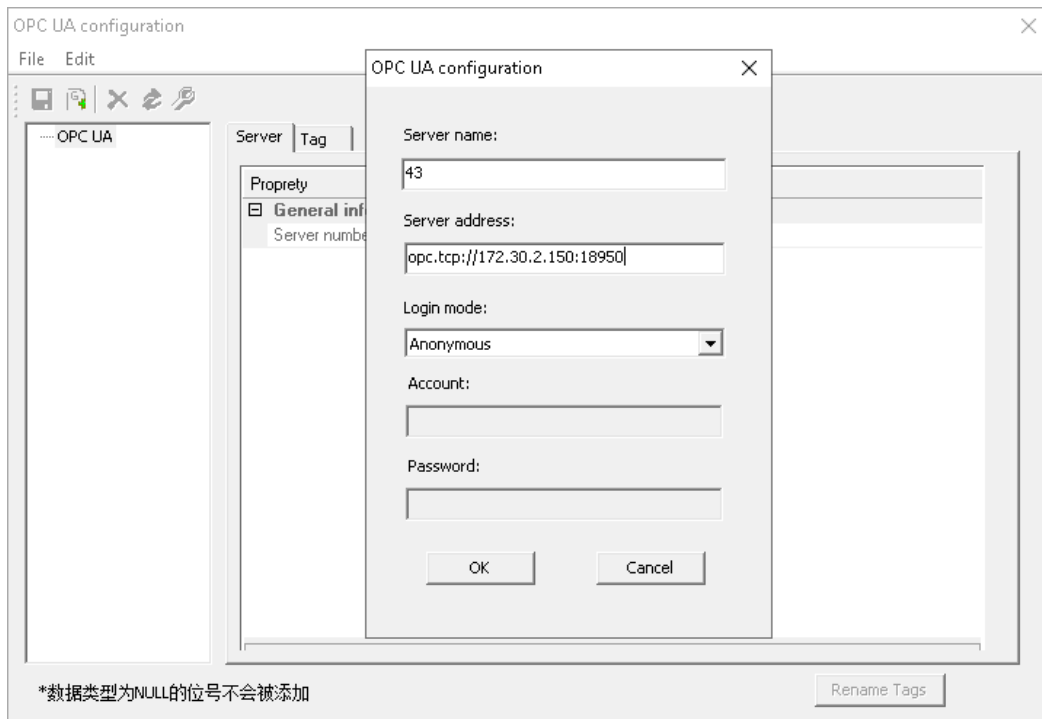
After adding, the OPC UA driver configuration window is displayed.

## 4.2.2 Subscribing for Tags

After adding the OPC UA driver, you need to specify the OPC UA server and select the tags.

### 1) Add OPC UA server

In **OPC UA configuration** window, select **Edit > Add server**. In the pop-up window, enter the server name and address.



**Figure 4-3 Add OPC UA server**

Configure the properties of the server based on the following table.

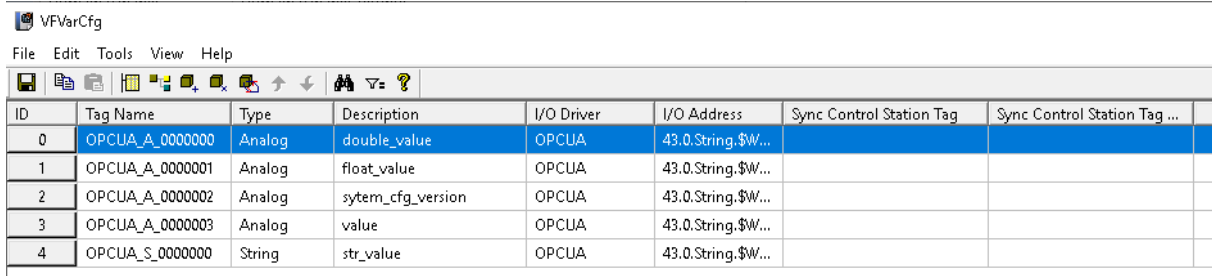
Item	Description
Server name	Enter the server name which will be the prefix of OPC UA tag address.
Server address	Follow the format of "opc.tcp://server IP:port number". The port number of OPC Server is 18950.
Login mode	Set the authentication mode for logging into the OPC UA server. Only Anonymous is supported for OPCUA server.

After adding, the server will be displayed in the **Server** tab.

### 2) Subscribe for tags.

Click **Tag** tab. Select the tags to be subscribed for. Click **Save**.

The selected tags will be added to the tag list in VFVarCfg.



The screenshot shows the VFVarCfg application window. It has a menu bar (File, Edit, Tools, View, Help) and a toolbar with various icons. Below the toolbar is a table with the following data:

ID	Tag Name	Type	Description	I/O Driver	I/O Address	Sync Control Station Tag	Sync Control Station Tag ...
0	OPCUA_A_00000000	Analog	double_value	OPCUA	43.0.String.\$W...		
1	OPCUA_A_00000001	Analog	float_value	OPCUA	43.0.String.\$W...		
2	OPCUA_A_00000002	Analog	sytem_cfg_version	OPCUA	43.0.String.\$W...		
3	OPCUA_A_00000003	Analog	value	OPCUA	43.0.String.\$W...		
4	OPCUA_S_00000000	String	str_value	OPCUA	43.0.String.\$W...		

Figure 4-4 Example of subscribing for OPC UA tag



**Tip:**

- After adding the OPC UA driver, "OPCUA Driver" will be added to "I/O Driver settings". Click the driver and click "View Edit" to modify its configuration.
- The method of configuring OPC UA tags is the same with other domain variables. For details, refer to Domain Variable Config Software User Manual.

### 4.2.3 Configuring Driver Tags

After adding an OPC UA server, you can acquire the OPC UA driver tags through subscription, or manually configure the driver tags. Here takes OPC UA analog value as an example to detail how to configure OPC UA driver tags.

- 1) Manually add a driver tag.

In VFVarCfg software, select **Edit > Add**. In the pop-up window, select **Analog**, and click **OK**.

- 2) Configure properties of the driver tag.

In **Analog Settings** window, set the tag name, description, address, and alarm limits. For **Driver** field, select the OPC UA server to be read.

The format of the I/O address field is "OPCUA server name.namespace.data type.domain alias.tag name".



**Attention:**

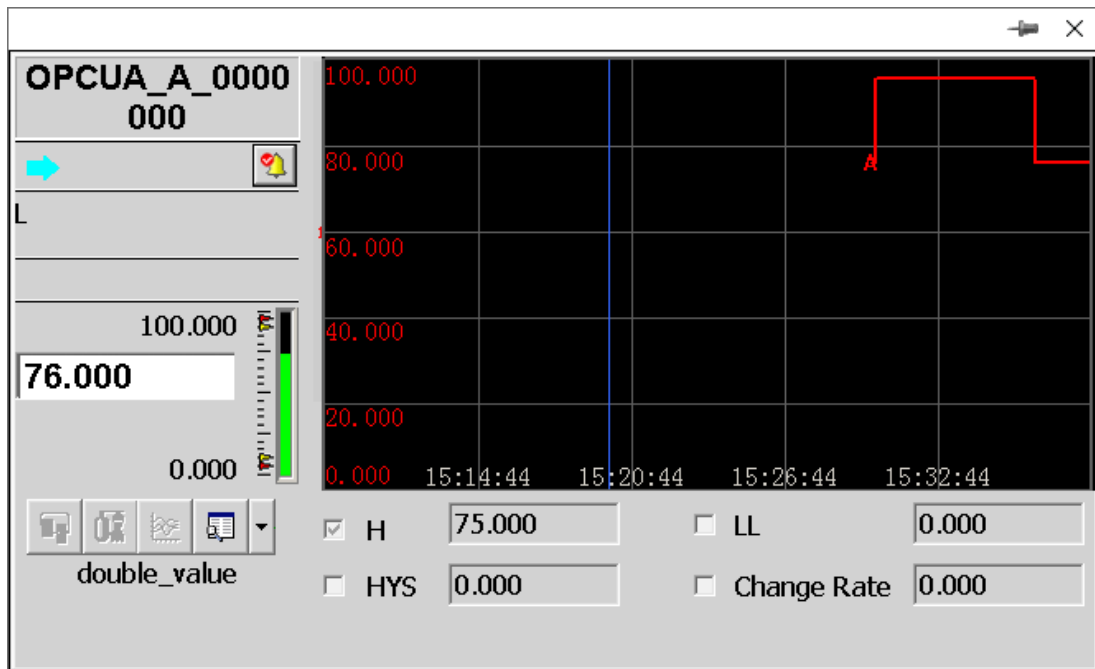
The I/O address field is case-sensitive. Please make sure its consistent with the actual field in OPC UA server.

#### 4.2.4 Viewing Subscribed Tags

In VFVarCfg, after you configure the OPC UA driver and configure the tags, you can view the real-time tag values and write values in the High-performanceHMI monitoring software.

- 1) View real-time value.

Start High-performanceHMI monitoring software, find the domain tag and open its panel.



*Figure 4-5 OPC UA tag panel*

- 2) Write tag value.

You can write the OPC UA tag value in the monitoring software if the following conditions are met.

- The operator has permission to write the tag.
- The tag is in FORCE status.
- Writing permission is configured in OPC UA server.

#### 4.3 Data Type Conversion

OPCUA driver supports data types including BOOL, INT16, INT32, STRING, and more.

High-performanceHMI domain variable tag supports analog, digital, and string. After the OPCUA driver subscribed for tags, the VFVarCfg software converts the driver tag data types to supported types of High-performanceHMI domain variable tags.

Data Type of Domain Variables	Data Type of OPC UA Server
Analog	INT16, INT32, INT64, UINT16, UINT32, UINT64, DOUBLE, FLOAT
Digital	BOOL
String*	STRING, 512 bytes

\*When the String-type tag subscribed by the High-performanceHMI domain variable software exceeds 512 bytes, the High-performanceHMI domain variable software only truncates the first 512 bytes.

## Section 5 Revision History

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*Table 5-1 Revision history*

Version	Applicable product model	Remarks
V1.0 (20230418)	OMC High-performanceHMI V4.70.00.00	First release.
V1.1 (20230830)	OMC High-performanceHMI V5.10.00.00-M	Updated screenshots.

## Section 6 Appendix-VFOPCUaSvr Commands

"VFOPCUaSvr" icon is displayed in the system tray when OPCUA server is started. The table below shows the descriptions of the commands in its context menu.

**Table 6-1 Commands of OPC UA Server Context Menu**

Command	Sub Command	Description
Writing Tag Settings	—	Specify the tags that can be written by OPC UA clients. For details, please refer to "Configuring R/W Properties of Tags".
Automatic Start	—	Set whether to run VFOPCUaSvr at startup. For details, please refer to "Configuring Run at Startup Function".
Server Status	—	View the status of the OPC UA server.
Alarm & Event	Start	If there is a "√" before "Start", it indicates that the OPC UA server pushes alarms and events to the OPC UA client. For details, please refer to "Configuring Alarms and Events".
	Data Source	Specify the data source of SOE records in the OPC UA server. Please refer to "Configuring Alarms and Events".
	Reload Config	When the configuration in OPCUA is inconsistent with that in High-performanceHMI, the configuration can be reloaded manually. Please refer to "Reloading the Configuration".
	Display SUP ALM	If there is a "√" before "Display SUP ALM", it indicates that the OPC UA server pushes alarms and events to the OPC UA client. For details, please refer to "Configuring Alarms and Events".
	Operation Domain Alias	If there is a "√" before "Operation Domain Alias", it indicates that the domain alias of the event source will be displayed in Source node. For details, please refer to "Configuring Alarms and Events".
Tag Export Setting	—	Modify the configuration file OPCUAConfig.ini to enable this function. Please refer to "Configuring Tag Exporting".
Field Filter Setting	—	Specify the tag pins that are open to the client. Please refer to "Configuring Pin Filtering".
Exit	—	Exit the OPC UA server.