

OMC System Software

High-performanceHMI

System Builder

User Manual

IM41S54-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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System Builder User Manual

Section 1 Overview

VFSysBuilder is used to build system structure frame. It is usually installed in System Configuration Server (Chief Engineer Station), and used to build and maintain system structure frame by engineers with project management authority.

The network structure diagram of system is shown in Figure 1-1.

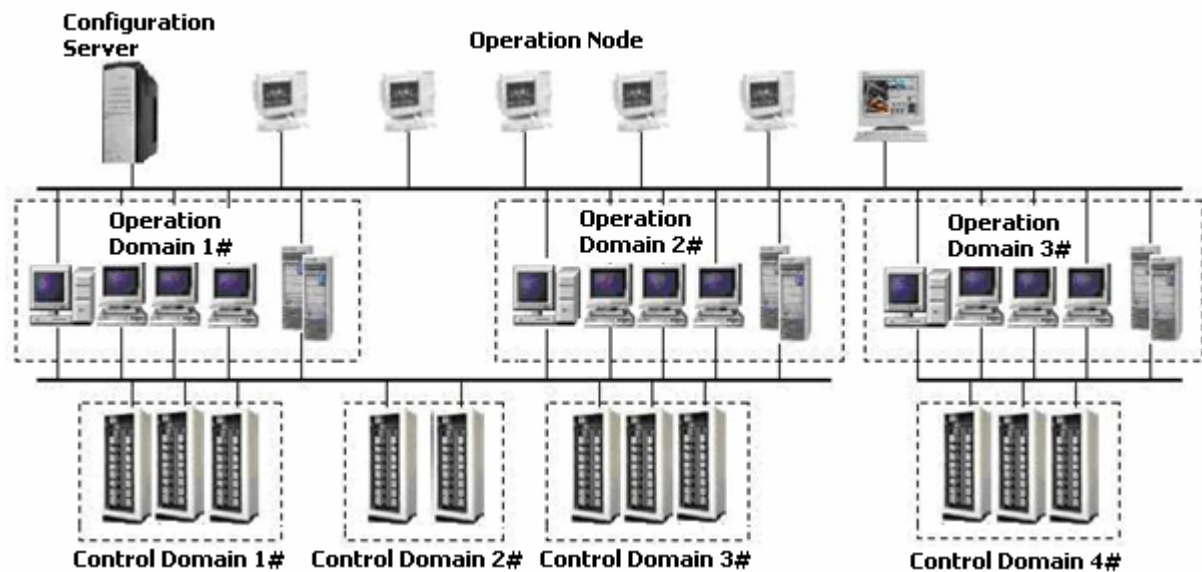


Figure 1-1 System structure

VFSysBuilder is used to build and maintain the real project system structure as shown in Figure 1-1. After building system structure frame, each engineer station can specifically configure each control station by opening the default project in VFExplorer when it is connected with Configuration Server.

1.1 Function Feature

New project

Users can build a new project, and then build a system in this project by configuring control domains, operation domains and engineers.

While creating project, amount alarm priority and project creator information should be configured.

Control domain configuration

- Create or delete control domains, and modify control domain settings.
- Create or delete control stations, and modify control station settings.

Operation domain configuration

- Create or delete operation domains, and modify operation domain settings.
- Create or delete operation stations, and modify operation station settings.
- Modify data server settings.

Engineer configuration

- Add engineer and modify password.
- Distribute system structure configuration authority to engineers.
- Distribute control station configuration authority to engineers.
- Distribute operation domain (Able/ Unable to configure HMI builder) configuration authority to engineers.
- Engineers who configure in System Builder only have configuration authority and do not have supervision operation authority which is configured in HMI builder.

Engineer group configuration

Users can configure an engineer group, and engineers in the same engineer group have the same configuration authority.

Default project settings

After building the system and relevant configurations, users can set the project as default project. Engineers can configure the default project in Configuration Explorer at the engineer station.

Backup project

Users can make a backup of the current project to the path chosen by the engineer (the default file format is zip).

Restore project

Users can open the existed configuration backup file (.zip format) directly and restore the backup configuration.

Global default settings

Users can set some global parameters to default, such as:

- Colors of ON/OFF
Corresponding ON/OFF on the tag panels for DI/DO, customized switch variables in the supervision.
- Decimal digit
- Colors of the alarm indicators on the panel
- Alarm settings included shelve alarm, manage state, alarm eclipsing, and so on.
- Time synchronization server configuration
To ensure the clock synchronization of network nodes in LAN, users can configure the time synchronization server of LAN,
- Engineering unit settings
Users can configure the units of all the tags in the project.
- Tag level which need confirm configuration
Users can set the level of Tag to pop up confirm dialog box when the tag is modified in supervision.
- Alarm priority configuration
Grade legend, color, and other properties of each alarm priority can be configured.

Configuration Server

Users can view the name and IP address of Configuration Server (the chief engineer station).

Import/export domain

Users can achieve import/export operation to a single control domain or operation domain.

Import/export

Users can achieve import/export operation to a single control station to configure conveniently.

Configuration Synchronization

Users can synchronize the configuration backup between the engineer station and the chief engineer station term.

Reference Project

The interaction of real-time data among projects from CCR to FAR can be achieved via referencing project.



Attention:

The directly operations of file-copy and modification to the configuration file database.ini in

Configuration Server is not allowed.

1.2 Technical Specification and Naming Criterion

System scale

- The system supports 250 nodes at the maximum. (number of control stations, operation nodes and servers. Control stations are viewed as redundancy by default, so each control station counts for two nodes);
- The system supports 16 control domains at the maximum and 16 operation domains at the maximum;
- The single control domain supporting control stations is maximum 60; the single operation domain supporting operation nodes is maximum 60 and the amount of server is one at the least and two at the most.

Network address

The node address is "172.Z.X.Y" on SOnet.

- X is the domain address of the network with an address range of 0~59.
- Y is the node address of network with an address range of 129~254.
- Z can be configured as 21, 30 or 31 according to the configuration of information network.

Naming criterion

- All names cannot include the following characters: \ / : * ? " < > | ! @ # \$ % ^ & = . ; ~ ` , and cannot be blank. In addition, project names cannot use windows reserved characters which are con, aux, com1, lpt1, prn and nul;
- Names of projects, control domains, operation domains, control stations, operation nodes, servers and engineer group cannot be blank, and the name length is maximum 64 English characters(32 Chinese characters);
- Names of engineers cannot be blank, the maximum name length is 32 English letters (16 Chinese characters);
- The name length of tag groups can be 1~64 English letters (1~32 Chinese characters);
- The maximum length of descriptions is 128 English letters (64 Chinese characters).
- Time synchronization server specification

The time synchronization server host ID must be 254.

Engineer group and engineer

Users can configure at most 31 engineer groups and at most 32 engineers for each engineer group. Users can configure at most 32 engineers with no engineer group.

Alarm priority

The default of alarm priorities is 6, and the maximum of alarm priority is 32.

1.3 Interface Introduction

1.3.1 Main Interface

The main interface of System Builder is shown in Figure 1-2.

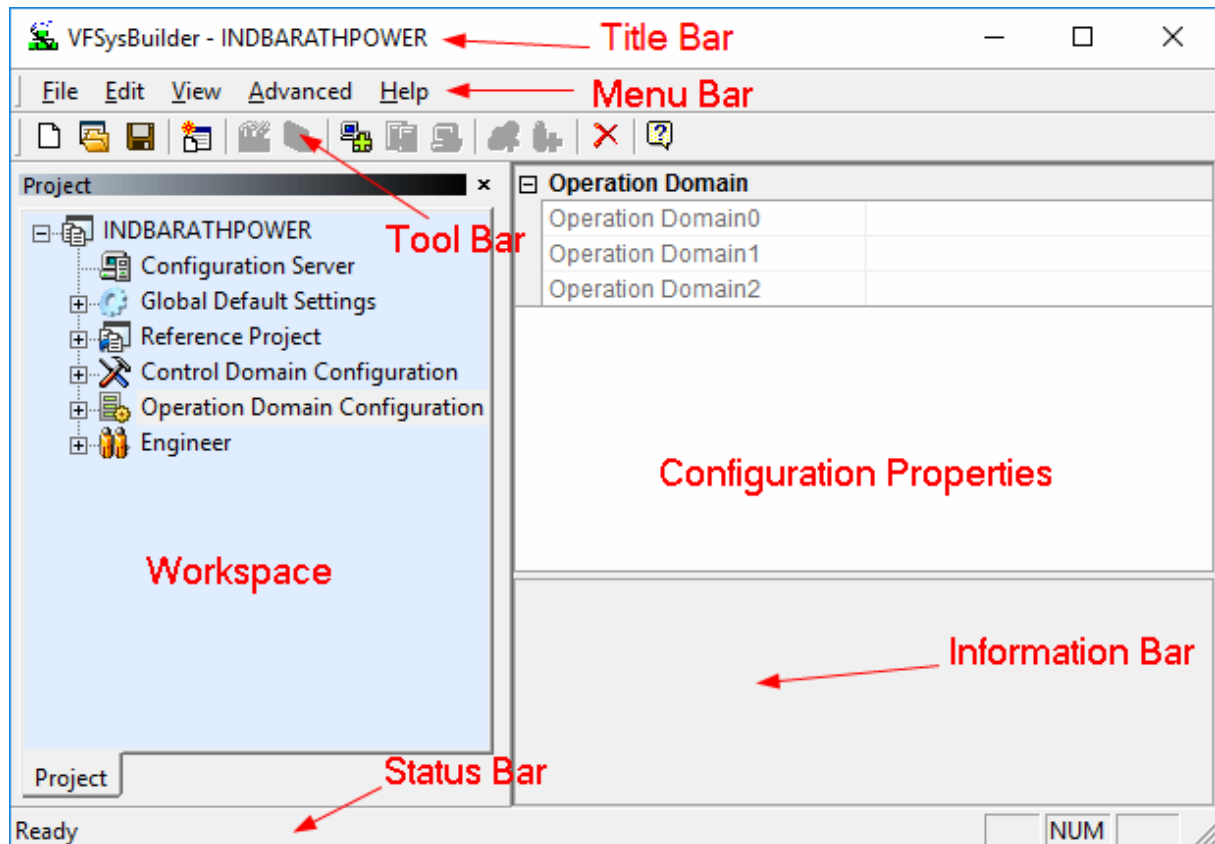


Figure 1-2 Main interface of System Builder

Title Bar-----display software name and project name.

Menu Bar-----include File, Edit, View and Help, each menu includes several submenus again.

Toolbar-----display common menu items of main menu in icons, making it convenient for engineers to operate. Whether to display toolbar can be selected in [View/ Toolbar].

Workspace-----locate at the left side of the interface and display the tree diagram of configuration information ("configuration tree").













Configuration Properties-----locate at the right side of the interface and display the basic property of selected object.


Information Bar-----locate under the Configuration Properties and display the definition of selected property.

Status Bar-----display information of the current operation and some prompts. Whether to display status bar can be selected in [View/ Status Bar].

1.3.2 Menu Bar/Toolbar Schedule

Table 1-1 Menu command

Menu	Submenu	Toolbar Icon	Function
File	New Ctrl+N		Build new project
	Open Ctrl+O		Open project(Login)
	Save Ctrl+S		Save project
	Close Project		Close the current project
	Backup Project		Make a backup of the opened project
	Exit		Exit project
Edit	Add reference project		Add reference project. In project.
	Add reference domain		Add reference domain in specified operation domain.
	Add Control Domain		Add a control domain to the selected item
	Add Control Station		Add a control station to the selected item
	Add Operation Domain		Add an operation domain to the selected item
	Add Server		Add a server to the selected item
	Add Operation Node		Add an operation node to the selected item
	Add Engineer Group		Add an engineer group
	Add Engineer		Add an engineer
	Delete		Delete the selected item
	Modify Password		Change the password of the selected engineer
	Save As Default Project		Make the current project to the default project
	Import Domain		Import a single control domain or operation domain
	Export Domain		Export a single control domain or operation domain
	Import Station		Import the configuration of a single control station.
	Export Station		Export the configuration of a single control station.
	Alarm level number		Configure the alarm level number in the current project

Menu	Submenu	Toolbar Icon	Function
	Import Device Information		Import information using a CSV file.
	Export Device Information		Export all device information
View	Toolbar		Display/ Hide the toolbar
	Status Bar		Display/ Hide the status bar
	Work Space		Display/ Hide the workspace
Advance	Manual Synchronization(D)		Synchronize the configuration backup between the chief engineer station and the engineer station termly.
	Restore Project		Restore the backup configuration file which has the zip format
	Force Unlock		Unlock the selected control station by force
	Fix Tag Table		Fix global tag table
	Statistics		View the statistics of tags and hardware modules of the control station.
Help	About		About VFSysBuilder

1.3.3 Right-click Menu

Select a node in Project Bar view, and it will pop up the shortcut menu after clicking the right mouse button, and the "Enable" menus are different for different objects.

Table 1-2 Functions of right-click menu

Menu item	Operation	Enable
Add Reference Project	Add referenced project in project.	Enable when selecting the reference project node, and disable when selecting other nodes.
Add Control Domain	Add a control domain to the selected item	Enable when the selected node is control domain configuration and disable when not
Add Control Station	Add a control station to the selected item	Enable when the selected node is control domain and disable when not
Add Operation Domain	Add an operation domain to the selected item	Enable when the selected node is operation domain configuration and disable when not
Add Server	Add a server to the selected item	Enable when the selected node is operation domain and disable when not
Add Operation Node	Add an operation node to the selected item	Enable when the selected node is operation domain and disable when not
Add Reference Domain	Add reference domain to specified item.	Enable when selecting the operation domain node, and disable when selecting other nodes.
Add Engineer Group	Add an engineer group	Enable when the selected node is engineer and disable when not
Add Engineer	Add an engineer	Enable when the selected node is engineer or some engineer group, and disable when not
Modify Password	Change the password of the selected engineer	Enable when the selected node is engineer and disable when not
Delete	Delete the selected item	Enable when the selected node is engineer group, engineer, operation domain or control domain, control station or operation node and disable when not

Menu item	Operation	Enable
Export Domain	Export the selected control domain or operation domain	Enable when the selected node is control domain or operation domain
Import Domain	Import the selected control domain or operation domain	Enable when the selected node is control domain or operation domain
Export Control Station	Export the configuration of a single control station	Enable when the selected node is control station
Import Control Station	Import the configuration of a single control station	Enable when the selected node is control station

Section 2 Configuration Flow

System configuration consists of control domain configuration, operation domain configuration and engineer group configuration.

Control domain configuration: users can set control domain name, description, domain address and group name of tags in the domain; set control station name, description, address, system, type, and authorized users.

Operation domain configuration: users can set operation domain name, description, control domain that can be supervised and authored users; set server name, description, address; set operation node name, description, address, operation node type and connection type of SCNet.

Engineer group configuration: users can set the distribution of project management authority of engineers, maintainable control stations and operation domains.

In addition, users can also set some global parameters, such as decimal digits, alarm indicator colors on the panel, time synchronization server, panel which need confirmed, alarm priority, information network connection, etc.

Before configuring the project, users must build the system structure frame in System Builder, and then configure hardware, tags and control schemes of each control station in the project by Configuration Explorer and configure operation domains by HMI builder. The whole configuration flow is shown in *Figure 2-1*

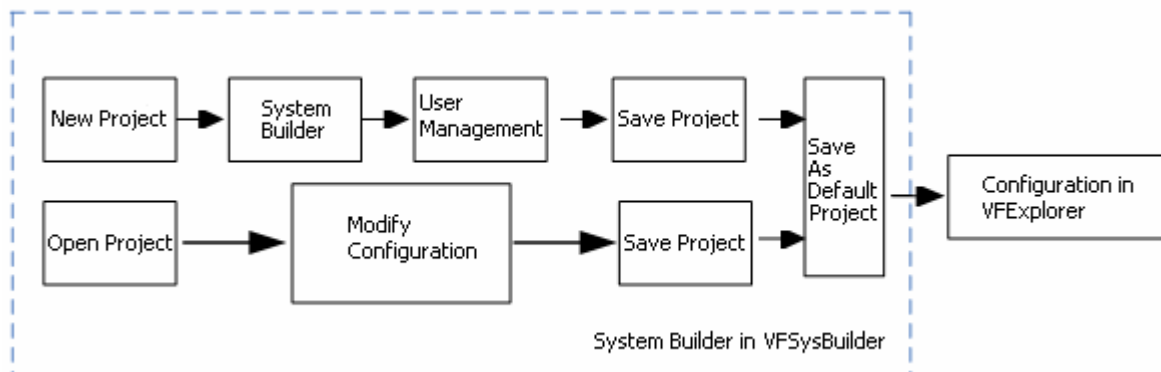


Figure 2-1 Configuration flow

Section 3 Project Operation

3.1 New Project

Select "Start > OMC > VFSysBuilder" to open the software, and create a new project by following steps.

1. Click "New" in the toolbar to pop up dialog box of New Project shown as follows.

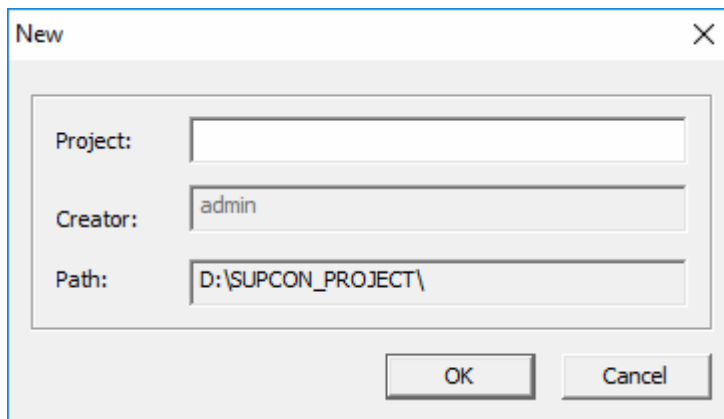


Figure 3-1 New Project

- Project: project name
 - Creator: name of the project creator.
 - Path: the new project path. The path is input or selected by users when installing the High-performanceHMI system software. (We recommend using the default path.)
2. Input the project name and project creator name, click "OK", pop up dialog below.

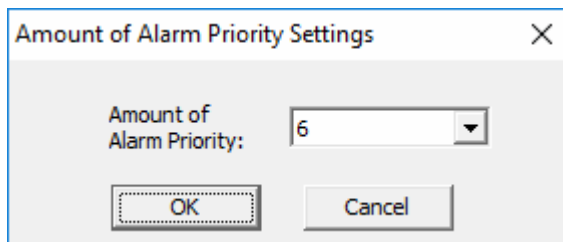


Figure 3-2 Amount of Alarm Priority Settings

Alarm priority can show the severity of different alarms in different tags. User can set the alarm priority account in the dialog above. System supports 6 alarm priorities in default. High-performanceHMI project can support minimum 6 and maximum 32 alarm priorities. After configuring the alarm priorities, user can set the information such as color and icon for them. Please refer to 6.10 Alarm Priorities for details.

3. Select a number from the drop-down menu of "Amount of Alarm Priority" and click "OK" to pop up the dialog below.

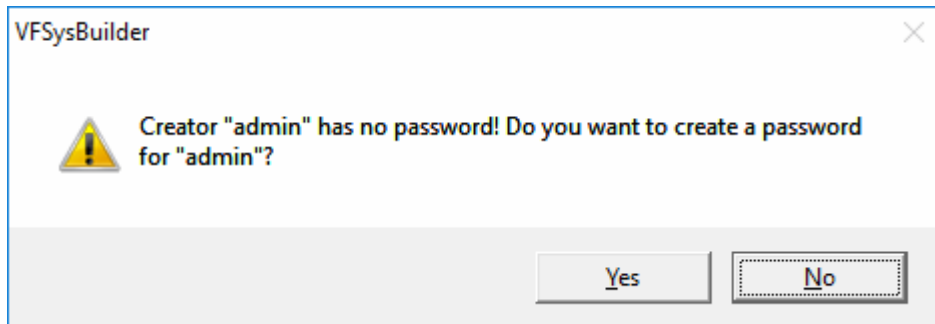


Figure 3-3 Dialog box "add password"

4. Set creator password as required.
 - Select "No", then the creator password is blank;
 - Select "Yes" to set the creator password in the dialog box shown in *Figure 3-4*

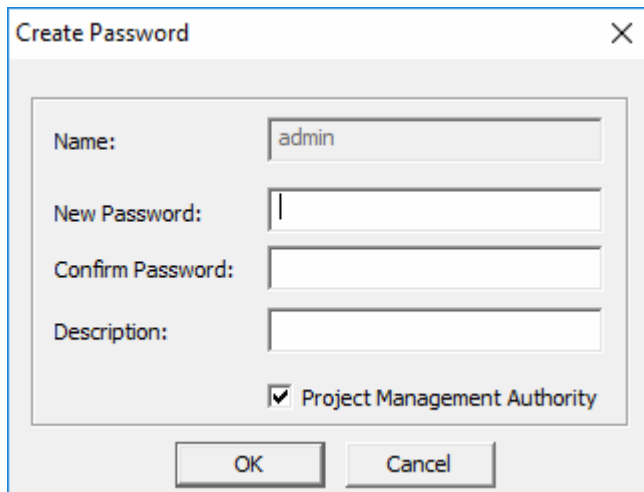


Figure 3-4 Password setting

Project management authorization includes open/close project, control station configuration authorization and operational domain configuration authorization.

3.2 Open Project

Click "Open" in the toolbar, pop up dialog box of open project shown in Figure 3-5.

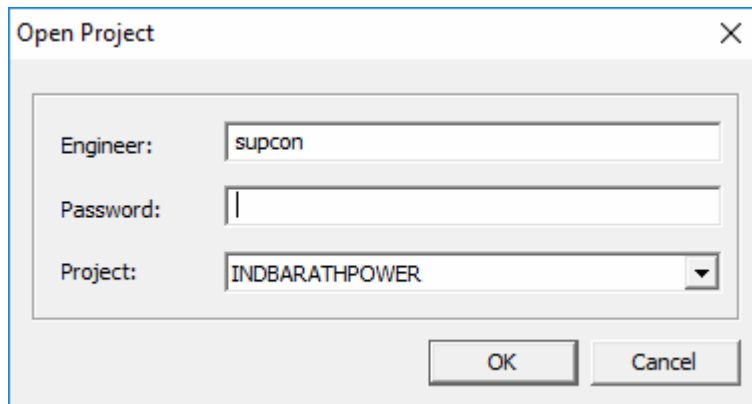


Figure 3-5 Dialog box "Login"

Select a project, enter the engineer name and password, click "OK" to open a project.

When users enter a wrong engineer name, it will prompt "Engineer does not exist!"; when the enter password does not match the engineer, it will prompt "Invalid password!"

3.3 Modify and Save

Modify

Select the project node in configuration tree, and users can modify project information in Configuration Properties.

Properties	
Name	INDBARATHPOWER
Path	D:\SUPCON_PROJECT\INDBARATHPOWER
Description	172.20.
Project Version	
Creator	admin

Figure 3-6 Modify project information

As shown in Figure 3-6, the information of project name, description and project version can be modified. Input the information into corresponding column and press key "Enter" to complete the modification.

Save

Click "Save" in the toolbar to save the current project.

After modifying any information of the project, it will pop up a prompt confirmation window of saving the project when closing the project.

Click "Yes" to save and exit the project, and click "No" to exit directly, or click "Cancel". In addition,

if some information modifications are mistaken, which cannot be restored and haven't been saved, users can close the project and select "No", then restart the project and the project is restored to the last configuration.

**Tip:**

After modifying project information, "Save Project" is not allowed when the current project is releasing, until the release is over, then the modification can be saved.

3.4 Reference Project

The monitoring of CCR for several FAR can be achieved by reference project via mutual reference of real-time data among projects. A project can reference 1~32 projects.

3.4.1 Configure Property of Reference Project

Configuration of reference project can be achieved by following steps:

1. Select "Referenced Project" in work space.
2. Right-click and select "Add Reference Project" to add a sub-node to "Referenced Project" automatically.
3. Modify the address of reference project in "Configuration Properties Bar" (below is 172.30.1.156). After setting successfully and the address is valid, the information of the referenced project is shown in properties bar, such as the contained operation domain and its properties.

Properties	
Name	INDBARATHPOWER
Address	172.30.1.156
Operation Domain	
Operation Domain0	
ServerAddress	172.30.1.156

Figure 3-7 Information of referenced project

After adding successfully, the operation domain can be referenced in the operation domain configuration.

**Tip:**

If the operation domain in a project is referenced, the project cannot be deleted until the referenced operation domain is referenced.

3.4.2 Modify Reference Domain Alias

After modifying the address of reference domain or the alias is saved, a prompt pops up when reopening the configuration added the reference domain.

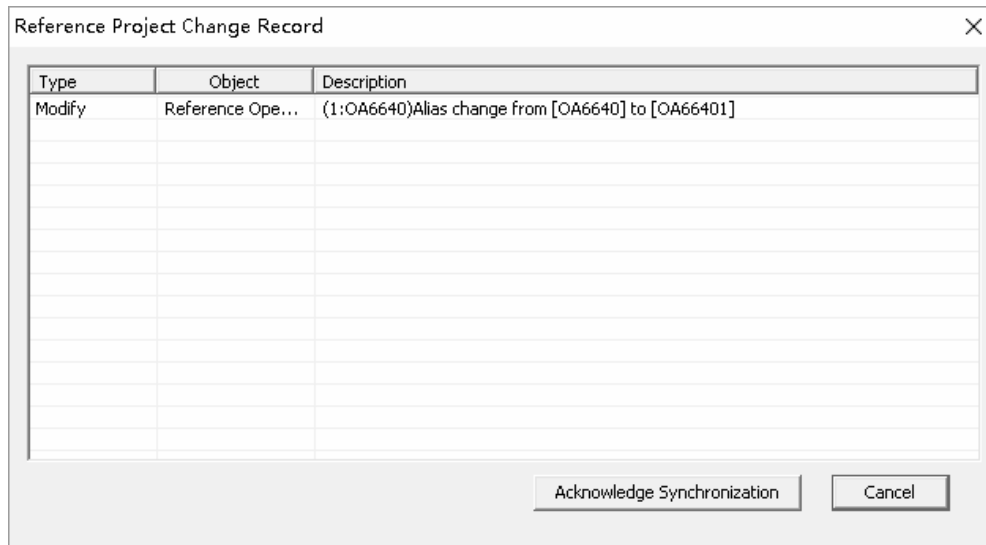




Figure 3-8 Change reference project

After confirming the modification, user can click “Confirm Sync” to synchronize the information of reference domain to the current configuration.

3.5 Default Project

The software System Builder must be installed in Configuration Server (chief engineer station). It can manage configurations of several projects. What the Configuration Explorer software and Real-time Supervision software read in is the configuration of the default project. If users want to run the configuration of the current project in Configuration Explorer and Real-time Supervision software, the current project must be set as the default project. In the whole system, there is only one default project which can be configured by any engineer station currently. At the same time, only one project can be in configuring status, and modifying the default project is a safe operation.

- If there is only one project under the path of the current Configuration Server, this project will be set as the default project automatically.
- If there is no default project under the path of the current Configuration Server, users can open the project to be set as the default project, and click "Save As Default Project" button  on the toolbar to set the project as the default project.
- If the default project is existed, users must pass the authority check before modifying the default project. For example, the existed default project is “Project 1”, to replace

it with "Project 2" users must confirm the engineer authority of Project 1, here pops up a dialog box for authorization shown in Figure 3-9. Then open the Project 2, and click "Save As Default Project" button  on the toolbar.

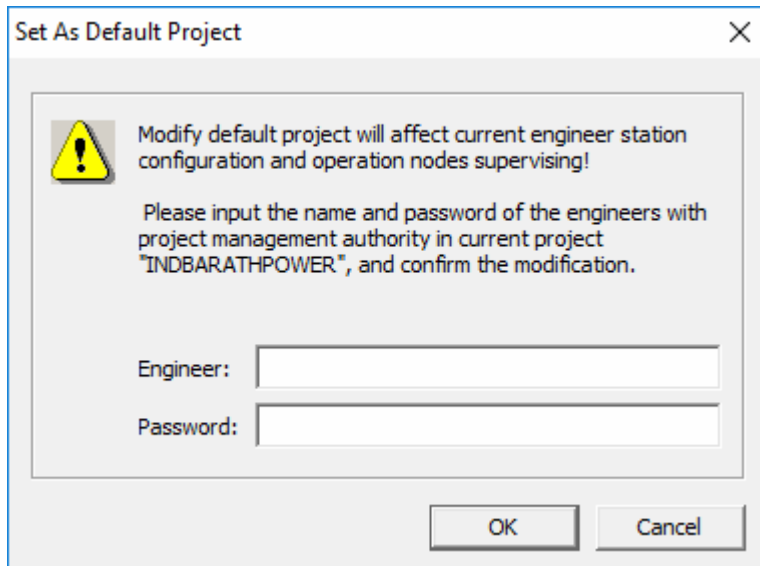


Figure 3-9 Confirm the engineer authority

Currently opened project can be set as the default project only when users pass the authority check. In addition, the project that VFExplorer enters is the default project when each engineer station is configuring projects.

3.6 Backup Project

Select the menu command [File/ Backup Project] and a dialog box will pop up for users to choose the path to save the Backup Project shown as follows.

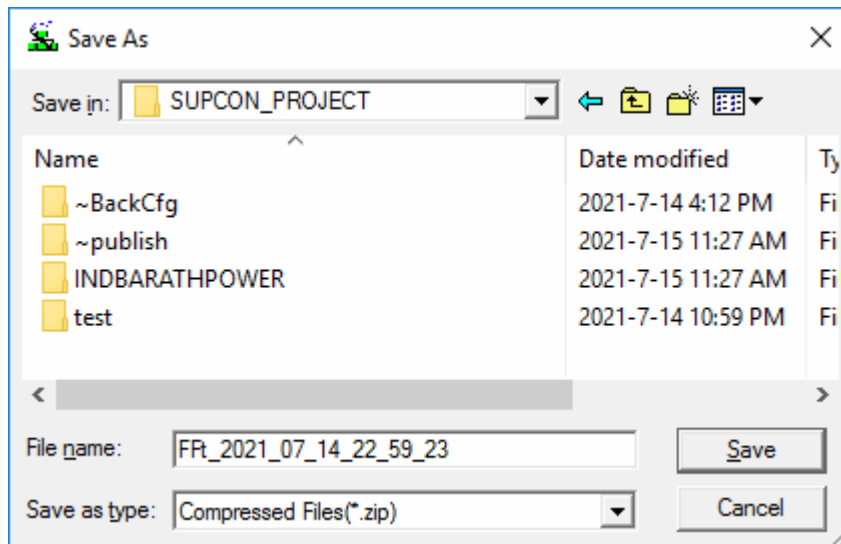


Figure 3-10 Backup Project

The Backup Project will be saved in .zip format, and the default file name consists of project name and date. Users can modify the path and the file name to save the backup. If any control station, operation domain or global function block is opened in VFExplorer, pop up a prompt dialog box.

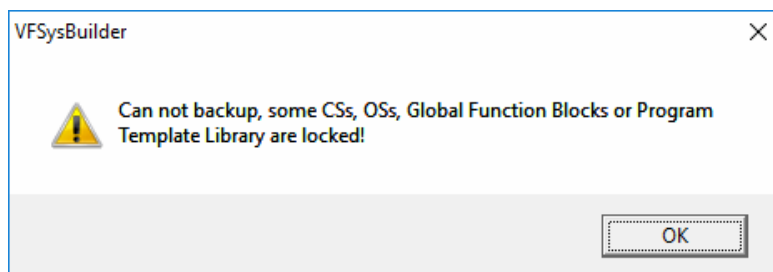


Figure 3-11 Prompt dialog box of project backup fails

Click “OK”, save the open control station (operation domain or global function block) to configuration server, and then backup the project again.

If the control station (operation domain or global function block) has been saved to configuration server and locked, then a prompt of “Some CSs, OSs or Global Function Block are locked, cannot backup!”, Click “OK” and to backup the project again.

3.7 Restore Project

Select the menu command [Advance/Restore Project], and window of confirmation shown as follows pops up.

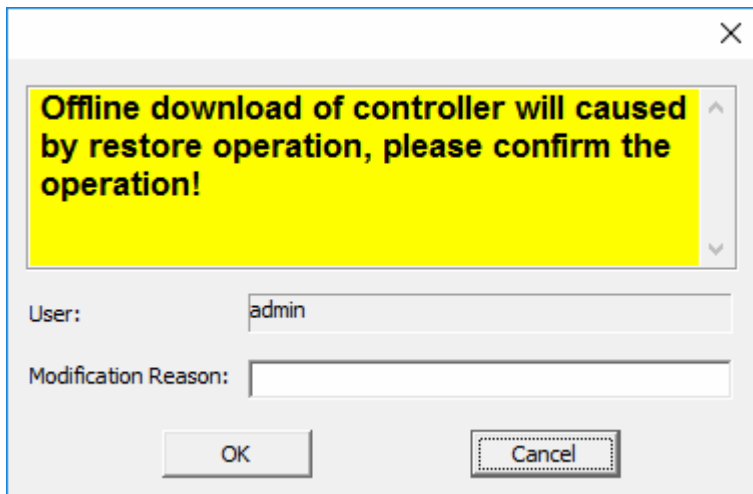


Figure 3-12 Window of Restore Confirmation

Input the operation cause, and click the “OK” button, pop up window of restore project selection shown as follows.

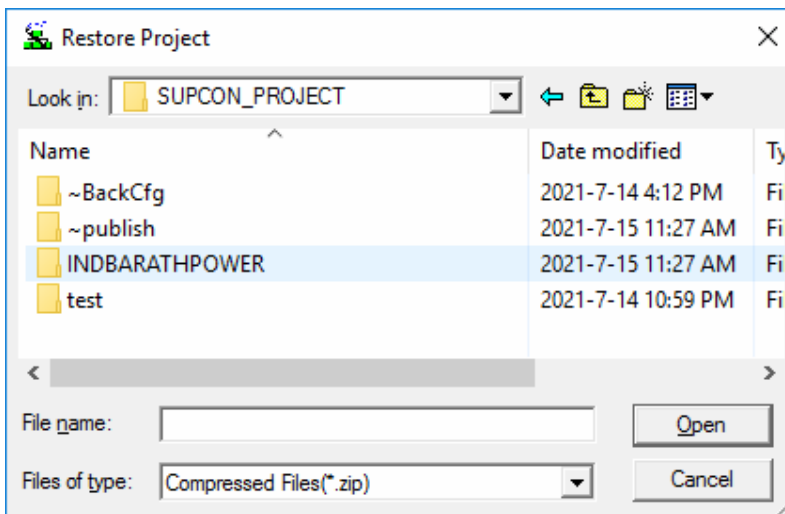


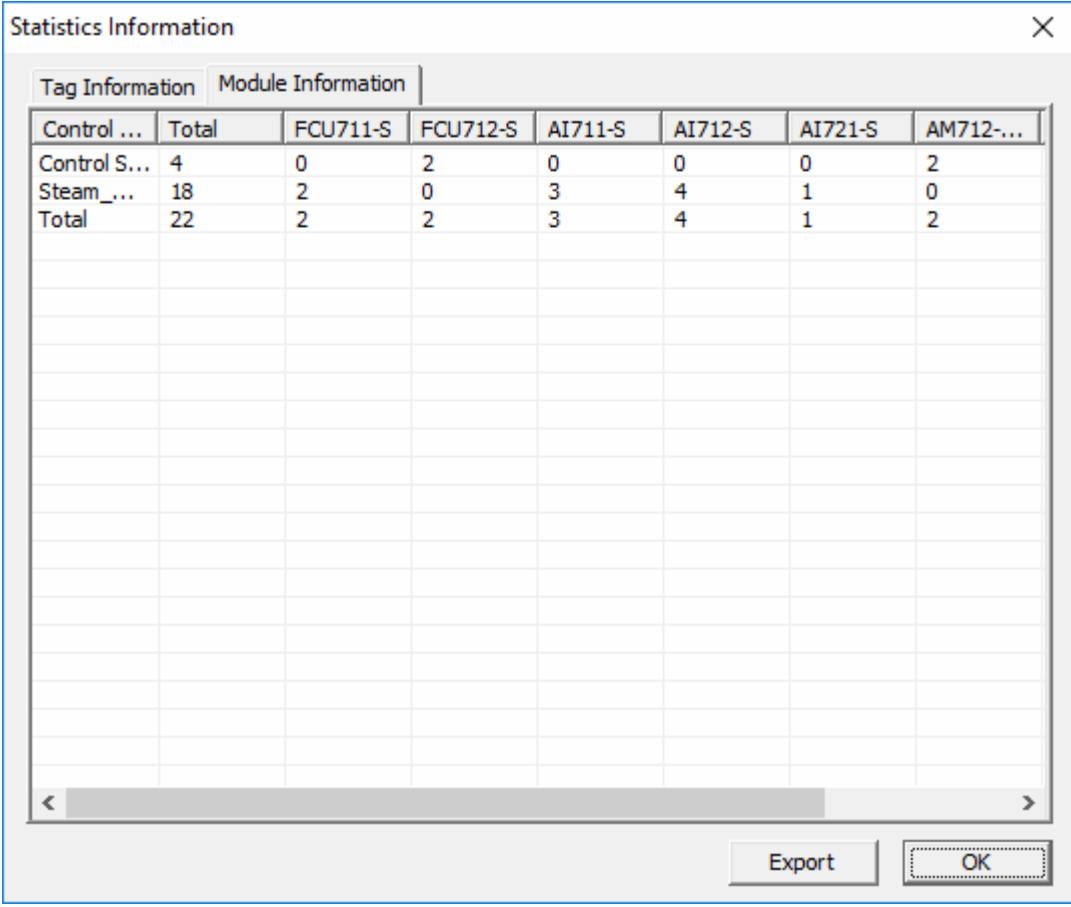
Figure 3-13 Restore Project

Select the backup configuration file(.zip format), and click "Open" to restore the configuration backup file, and then users can accomplish operations of reuse, modification, etc.



Attention:

Restoration will cause the offline download of the controller, which will initialize parameters of controllers. Please double check the premises before restoration.



The dialog box titled "Statistics Information" contains two tabs: "Tag Information" and "Module Information". The "Tag Information" tab is active, displaying a table with the following data:

Control ...	Total	FCU711-S	FCU712-S	AI711-S	AI712-S	AI721-S	AM712-...
Control S...	4	0	2	0	0	0	2
Steam_...	18	2	0	3	4	1	0
Total	22	2	2	3	4	1	2

The table has a scrollbar at the bottom. At the bottom right of the dialog box are "Export" and "OK" buttons.

Figure 3-15 Statistics Example



Tips:

- The statistics does not include the information of COM701-S, and sub-module information of COM721-S, COM722-S, COM723-S, COM725-S, COM741-S, COM742-S, COM761-S, COM763-S, COM764-S.
- The tag's statistics and module's statistics can be exported as csv file by clicking "Export".
- When TCS-900 system is added into the control station, the module statistic result doesn't include modules in TCS-900.

3.9 Close Project

Select the menu command [File/Close Project] to close the opened project.

Section 4 Structure Configuration

Project structure configuration consists of control domain configuration and operation domain configuration.

Control domain configuration includes control domain structure configuration and control station structure configuration in each control domain. It provides settings of name, description, address and tag group of control station and the distribution of engineer authority. and the control station is divided by domains whose address is the third digit of the control station IP.

Operation domain configuration includes operation domain structure configuration and data server configuration in operation domain and operation node configuration. It provides settings of name, description, address of server and operation node, and the distribution of control domains that can be supervised and engineer authority.

4.1 Control Domain configuration

Up to 16 control domains can be added to one High-performanceHMI project.

4.1.1 Add Control Domain

If the number of existing control domains is less than 16, add control domain by following steps.

- 1) Right-click "Control Domain Configuration" and select "Add Control Domain" command.
- 2) Select the system and click "OK". A new control domain node will be added to "Control Domain Configuration".
- 3) Select the new added control domain, and the right area will display the configuration of control domain.
- 4) Configure the properties and tag group of control domain by following table.

Control		Instruction	Configuration
Properties	Name	Name of control domain.	For OMC system: The name of control domain is "Control DomainN" and N is an integer and starts from 0 by default.
	Description	Description of control domain.	The description is a string in a range of 1 to 128 characters.
	Domain Address	Address of control domain.	Domain address of OMC is "172.20.X.*", X is the domain address and it is an integer in the range of 0-59.
Tag Group		Tag groups in the control domain.	There are two columns in the configure area: Column 1, the number of tag group, can not be modified. Column 2, the name of tag group, can be modified. The name is a string in a range of 1 to 64 characters and does not support \ / : * ? " < > ! @ # \$ % ^ & = . ; ~ The name cannot be empty or repeated.

4.1.2 Delete Control Domain

Right-click the control domain node with no locked control station in configuration tree, and select "Delete" in the right-click menu to execute the operation, pop up delete confirmation prompt: select "No" to not delete selected control domain; select "Yes" to delete the control domain and information of all the control stations in this control domain, and it cannot be restored (unless it is not saved).

If there are any locked controllers in the control domain node, it will pop up prompt dialog box correspondingly when executing "Delete".

4.1.3 Modify Control Domain

If there is no locked control station in the control domain, users can modify the name, description, address of control domain and group information of tags. As shown in *Figure 4-1*, users can modify the property and tag group after selecting "Combustion" Control Domain.

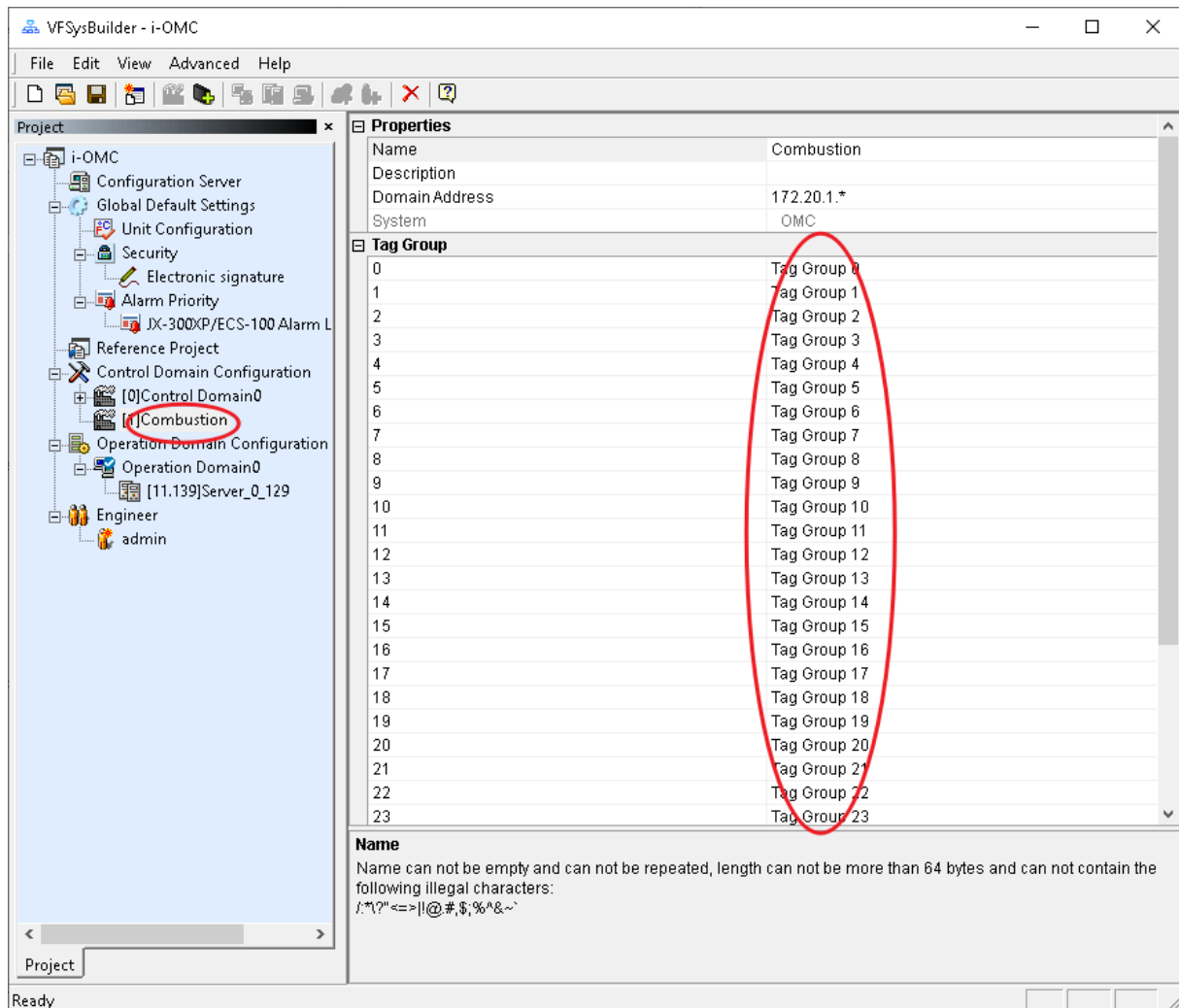


Figure 4-1 Modify control domain



Tip:

If there exists any locked control stations in selected control domain, information of the control domain such as property and tag group will be in grey, which means can not be modified.

4.1.4 Import/Export Control Domain

VFSysBuilder provides the function of import/export for a single control domain. The exported file is saved as .zip format.

Export

Select a control domain which is not locked by control station, and select the “Export Domain” in the Right-click Menu, then select a location to save it.

Import

Select an unlocked control domain, and select the "Import Domain" in the Right-click menu, then select the control domain file(.zip) which needs importing. Operate as prompting to import configuration.



Attention:

- If the control station has been locked, then the import/export operation cannot be achieved.
 - The importing control domain should have the same address with the imported control domain.
 - If the importing control domain has a tag which has the same name with the tag in the other existed control domains (not the imported control domain) or operation domains in the current project, then the import operation cannot be achieved.
 - If the importing control domain has the same name with the other existed control domains (not the imported control domain) or operation domains in the current project, then the import operation cannot be achieved.
 - If the importing control domain has the same name with the other existed control domains (not the imported control domain) or operation domains in the current project, then the import operation cannot be achieved.
 - If the total amount of the nodes is more than 250 after importing, then the import operation cannot be achieved.
-

4.2 Control Station Configuration

4.2.1 Add Control Station

When the number of existing Control Stations in the control domain is less than 60, new control domain can be added to the control station:

- 1) Right-click the control domain node to add control station, and select "Add Control Station" in the pop-up right-click menu to add a control station in this control domain. Its name is "[X.Y]control station_X_Y" by default. (X.Y in [] means the control station address; "control station_X_Y" behind [] is the control station name which can be modified in Configuration Properties), the address increases from 2 and uses only the even numbers by default, and repeated address is not allowed.
- 2) Select the new add control station in the project area, and the right area will be show as following.

Properties	
Name	Control Station_172_20_0_2
Description	
Address	2
SCnet A Address	172.20.0.2
SCnet B Address	172.21.0.2
Type	FCU711-S
Engineer	
admin	<input checked="" type="checkbox"/>
Status	
Last Configuration Updated Time	2021-07-14 23:04:46
Locked	No

Figure 4-2 Modify the Options of Control Station

3) Configure the options of the new control station by following table.

Control Name		Instruction	Configuration
Properties	Name	Name of control station.	Input in the textbox.
	Description	Description of control station.	Input in the textbox.
	Address	Address of control station.	Only when the related system is " OMC" and "TCS-900", this option can be configured. The address is an integer in the range of 2 to 127 and can not be repeated.
	SCNet A Address	SCNet A address of control station.	The option is only used to display without modification.
	SCNet B Address	SCNet B address of control station.	The option is only used to display without modification.
	System	Related system of control station.	The option is only used to display without modification.
	Type	Type of control station.	<ul style="list-style-type: none"> ● OMC: FCU*** (Controller), GW711-S (Gateway) ● TCS-900: SCU9010, SCU9020
Engineer		Engineer controlled the control station.	All engineers of the project are shown In the combo box, The selected engineer has the privilege of editing control station.
Status		Status of control station.	The option is only used to display without modification.
IDM Server		Related IDM server address	By default, it displays the IDM server address configured in the global default settings. If the current station uses an independent IDM server, enter "IDM server IP:port number" for this field, such as "192.168.11.200:8012"



Tips:

- For functions and usage of GW711-S, refer to *GW711-S User Manual*.
- The controller configuration of FCU711-S can be applied to FCU712-S, while the

controller configuration of FCU712-S cannot be applied to FCU711-S. Therefore, when changing controller types, don't change FCU712-S to FCU711-S.

- If the TCS-900 system address in High-performanceHMI configuration is different with the address in SafeContrix, you can modify TCS-900 address with the address in High-performanceHMI configuration after opening SafeContrix.
-


4.2.2 Delete Control Station

Unlocked control station

Select the control station, if it is shown as "No" in Locked Status in the right pane, means the control station is not locked by any operation node or engineer station.

Select [Edit/Delete] in menu or right-click the control station node and select "Delete" in the right-click menu to delete the control station, it will pop up prompt dialog box delete confirmation: select "No" to not delete selected control station; select "Yes" to delete the control station and all the configuration information of the control station.

Locked control station

When the Control Station is locked by certain operation node or engineer station, the status icon of the locked control station node in configuration tree is , as shown in *Figure 4-3*.

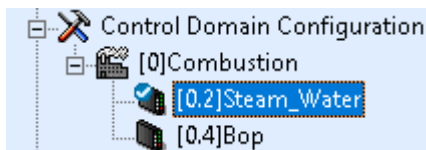


Figure 4-3 Status display of locked control station



Tips:

- After deleting the control station, only its configuration is deleted, and the address is still valid. That is, other control stations can use the address of deleted control station, and so can the newly-added control stations.
 - If there are any locked control stations in the control domain, this control domain cannot be deleted.
-

4.2.3 Modify or Unlock Control Station

Unlocked control station

After selecting the unlocked control station node in project configuration tree, the corresponding configuration information will be displayed in Configuration Properties on the right.

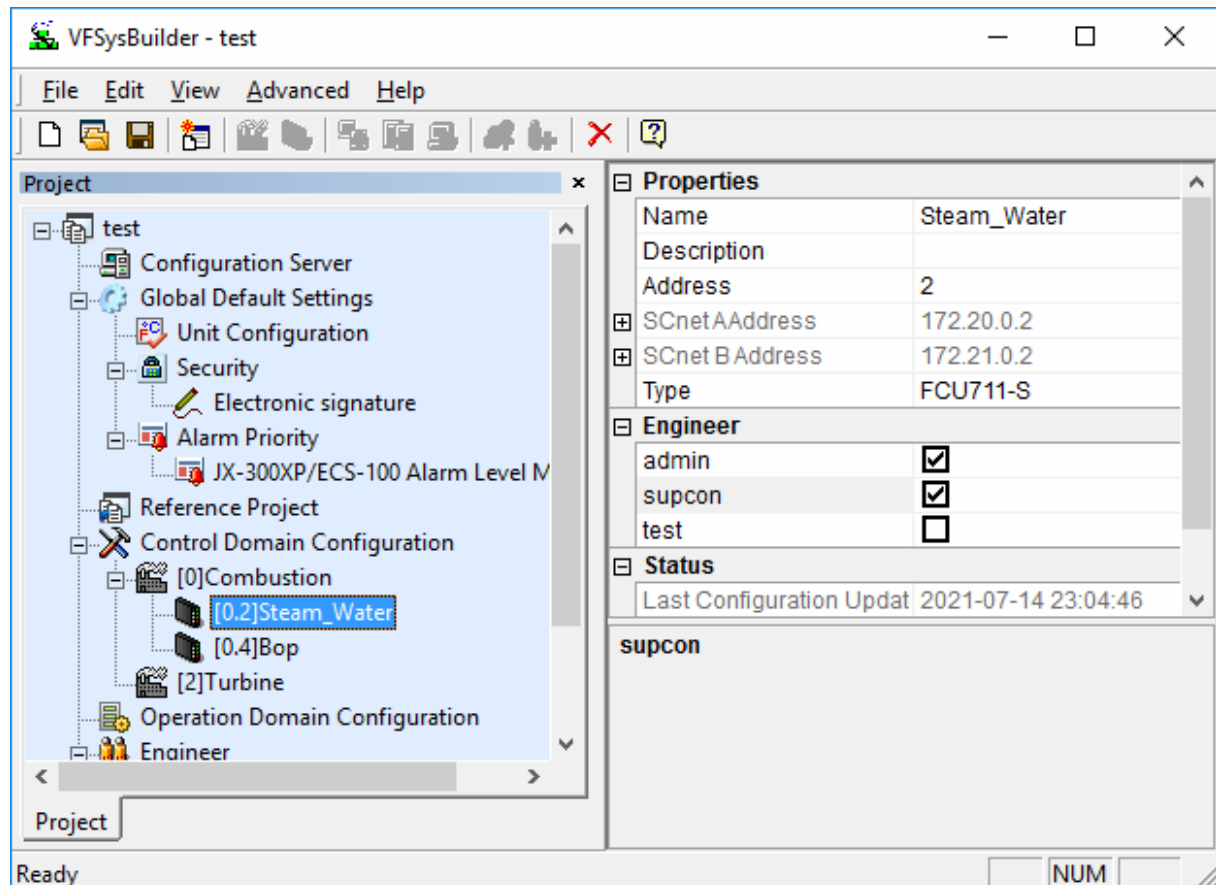


Figure 4-4Information of unlocked control station

The network address in property bar is automatically created and displayed according to

And:

1. The network address in property bar is automatically created and displayed according to control station address, so it cannot be modified.
2. Information in status bar displays the real-time information of the control station, so it cannot be modified.
3. Other property information and the configuration authority of engineers to the control station can be modified:
 - Modifications of name and description must meet the criterion and any repeated control station name in the same project is not allowed.

- The address of control station cannot be odd numbers, and cannot exceed the range of 2~127.
- If the control station has never been locked, then its type can be modified according to the existed type list; if the control station has been locked before, then its type and system item will be in grey and cannot be modified.
- Users can set the configuration authority of the current and other engineer to the control station.

Locked control station

- Main configuration information of locked control stations cannot be modified, but the authority of non-locked engineer to the control station can be modified. As shown in Figure 4-5, select the locked control station, and the configuration information cannot be modified except for the authority of non-locked engineer to the control station.

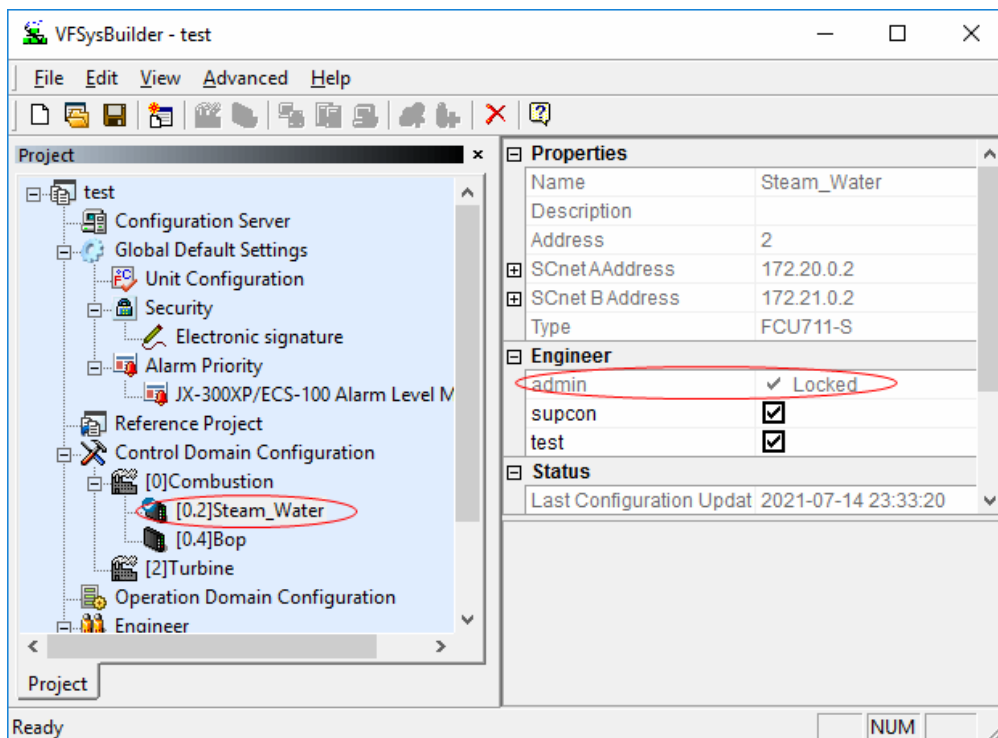


Figure 4-5 Information of the locked control station

- To avoid the failure of unlocking the locked control station, the locked control station can be unlocked forcibly by means of System Builder in Configuration Server.

Force Unlock

The “Force Unlock” function is specially set for the locked control stations. If one control station is locked by certain engineer, but for some reasons users fail to unlock the control station by this operation node or engineer station, in this case, users can forcibly unlock the control station by System Builder.

Select the locked control station node in project configuration tree, and click menu command [Advance/ Force Unlock], to execute the operation, pop up dialog box shown in *Figure 4-6*.

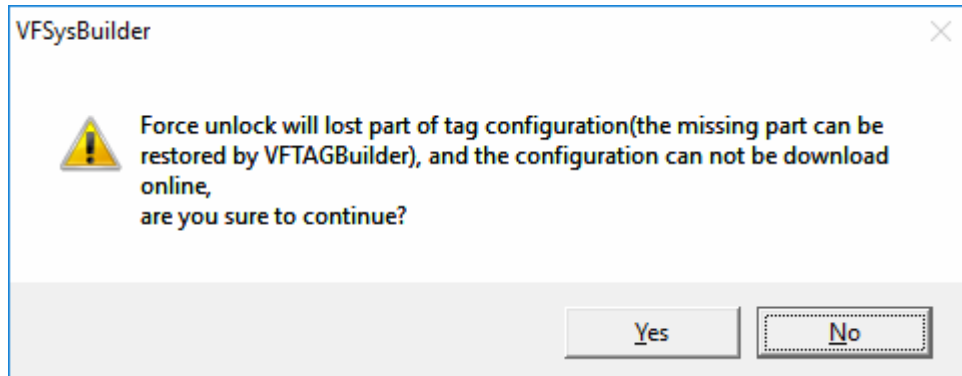


Figure 4-6Prompt “force unlock”



Attention:

The execution of “Force Unlock” may cause damage to some tag configuration information of the control station, and users need to restore it by Tag Builder. In addition, if the latest configuration of the engineer station has not been saved to Configuration Server, the execution of “Force Unlock” will make system abandon the latest configuration of the control station and base on the current version in Configuration Server.

4.2.4 Import/Export Control Station

VFSysBuilder provides the function of import and export for a single control station. The exported file is saved as .zip format.

- Export

Select an unlocked control station and select “Export Station” in the right-click menu, then select a location to save the exported control station file.

- Import

Select an unlocked control station, and select “Import Station” in the right-click menu, then select the control station file(.zip). Import configuration according to the prompt.

TCS-900 system supports two different importing ways, respectively zip file exported from SafeContrix in TCS-900 system and zip file exported from High-performanceHMI software.

**Attention:**

- The formats of TCS-900 and OMC are different. Don't import configuration files of belonging to different systems.
- If the control station is locked, this control station cannot be imported or exported.
- If the control station to be imported has a tag which has the same name with the tag in the other existed control station in the current project, then the import control station cannot be achieved.
- If the control station to be imported has the same name with the other existed control stations, operation domains or operation stations in the current project, then the import operation cannot be achieved.
- The format of the import/export file should be .zip.

4.2.5 Other Instruction

Control station will be locked by SERVER after being modified but not being saved, system will create a temporary.LCK file in the configuration path of the server to prevent the control station be opened by other engineers from the configuration server. When the modification is over and system executes the save operation or when System Builder is closed, the .LCK file will be deleted and the control station be unlocked. Until this moment can users configure the control station in engineer station by VFExplorer.

If the control station is locked by SERVER, Configuration Explorer will be unable to operate the control station, and the operation item of the control station will in grey (unable to operate). Select the control domain, and information shown as follows can be viewed in configuration property list region on the right of Configuration Explorer.

Name	Description	System	Type	SCnet A Address	SCnet B Address	Last Modified Time	Status
Control Station_1...		i-OMC	FCU714-S	172.20.0.2	172.21.0.2	2023-06-26 08:54:35	Local Loc...
Control Station_1...		i-OMC	FCU713-S	172.20.0.4	172.21.0.4	2023-06-25 09:11:08	Local Loc...

Figure 4-7 Check the locked status

If information of the control station is modified and has not been saved, when the program or system exits abnormally, the control station will remain being locked by SERVER. In this case, users need to restart System Builder to save or close the project, and then unlock the control station.

4.3 Operation Domain Configuration

4.3.1 Add Operation Domain

When the number of existing operation domains is less than 16, users can select "Operation Domain" node in configuration tree, and select the menu command [Edit/ Add Operation Domain] or right-click the node and select "Add Operation Domain" in the pop-up right-click menu to add an operation domain in operation domain configuration.

When the number of existing control domains reaches 16, if users continue to add operation domains and it will prompt that it has reached the maximum limit and the operation cannot continue.

4.3.2 Add Reference Domain

After adding reference project, user can add "Reference Domain" in operation domain. An operation domain can reference 1~128 operation domains.

User can perform following operations via reference domain:

- View and edit the graphics of the referenced domain.
- Perform HMI configuration for tag in reference domain.
- Search the history trend, history alarm and operation record of reference domain.

If the operation domain is not locked, add reference domain by following steps:

1. Right-click the specified operation domain in work space, and select "Add Reference Domain".
2. pop up the "Reference Operation Domain" dialog, the domain inside is operation domain of reference project.

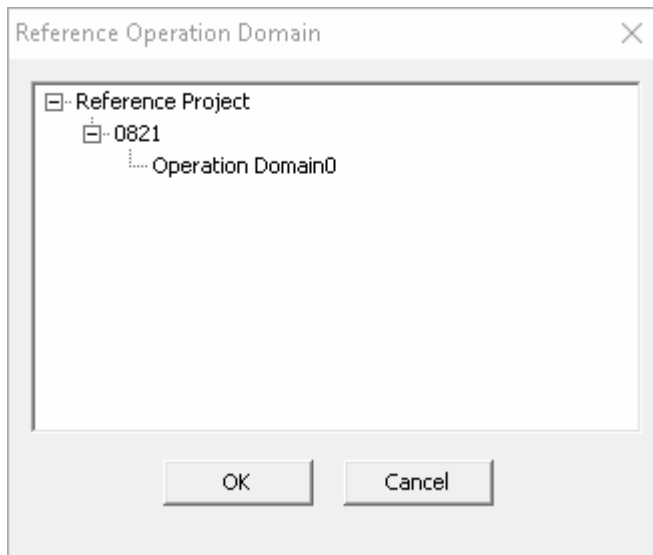




Figure 4-8 Reference Operation Domain

3. Select operation domain to be referenced and click "OK".

After adding reference domain successfully, a node with icon  will be added to operation domain. The name format of reference domain is "Reference Project Name. Reference Domain Alias", such as  0821:OA2760, "0821" is the referenced project name, and "OA2760" is the referenced domain alias.

Tips:



- The locked reference domain can only be deleted after being unlocked.
 - Reference domain must be default project in configuration server of the specified address.
-

4.3.3 Delete Operation Domain

Select any existed "Operation Domain X" node in project configuration tree, and then select the menu command [Edit/ Delete] or directly right-click any existed "Operation Domain X" node in project configuration tree and select "Delete" in the right-click menu to execute the operation. Then it will pop up a prompt of delete confirmation: select "No" to not delete the selected operation domain; select "Yes" to delete the operation domain and information of all the operation nodes and server of the operation domain.

4.3.4 Modify Operation Domain

Select the operation domain node in project configuration tree, and the corresponding configuration information will be displayed in the configuration property list window. Users can modify items such as property, control domains that can be supervised and engineer authority in

corresponding lists.

4.3.5 Import and Export Operation Domain

VFSysBuilder provides the function of import and export for a single operation domain. The exported file is saved as .zip format.

Export

Select an unlocked operation domain and select “Export Domain” in the right-click menu, then select a location to save the exported operation domain file.

Import

Select an unlocked operation domain, and select “Import Domain” in the right-click menu, then select the operation domain file(.zip). Import configuration according to the prompt.



Attention:

- If the operation domain has been locked, then the import/export operation cannot be achieved.
 - If the operation domain to be imported has a tag which has the same name with the tag in the other existed operation domains or control domains in the current project, then the import operation cannot be achieved.
 - If the operation domain to be imported has the same name with the other existed operation domains or control domains in the current project, then the import operation cannot be achieved.
 - If the operation node (including server) of the operation domain to be imported has the same name with the operation node (including server) of the other existed operation domains in the current project, then the import operation cannot be achieved.
 - If the total amount of the nodes is more than 250, then the import operation cannot be achieved.
 - The format of the import/export file should be .zip.
-

4.4 Server Configuration

Data Server is used to receive, process the real-time data, alarm data, process global alarms, save alarm historical records, operating historical records and save parameters in operation domain, and provide real-time and historical data to other operation nodes.

4.4.1 Add Server

When building a new operation domain, system will add a data server to each operation domain by default. Right-click "Operation Domain" and select "Add Server "in the right-click menu, then users can add a server to the operation domain, each operation domain can only have one pair of redundant servers at most.

4.4.2 Set/Modify Server Information



Select the added server and users can set the server information in configuration property list on the right, as shown in Figure 4-9 .

Properties	
Name	Server_0_157
Description	
Address	0.157
SCnetAAddress	172.20.0.157
SCnet B Address	172.21.0.157
Operation Node System Alarm Check	✓
SCnet Connection	Redundancy Network
SOnet	
SOnetAAddress	172.30.0.157
Role Config	
Smart Control Center Server	<input checked="" type="checkbox"/>
Smart Control Center Server attribute	Master Server
Batch Server	<input type="checkbox"/>
Name	
Monitor Config	
Run Management	<input checked="" type="checkbox"/>
SmartApplications	
Order Management	<input checked="" type="checkbox"/>
Schedule Management	<input checked="" type="checkbox"/>
Batch Management	<input checked="" type="checkbox"/>
Predictive Control	<input checked="" type="checkbox"/>
Pilot	<input checked="" type="checkbox"/>
IDM	<input checked="" type="checkbox"/>
System integrity	<input checked="" type="checkbox"/>
VisualAI	<input checked="" type="checkbox"/>

Figure 4-9 Interface "Server setting"

Follow the descriptions in this table to configure the settings.

Item	Description
------	-------------

Item	Description
Properties	The name, description and address of the server. The name and description must meet the naming specification; the address must meet the IP specification, and system will automatically display the IPs of server on SCnet and SOnet.
Role Config	Specify the role of the current server. <ul style="list-style-type: none"> Smart Control Center Sever: the node can be designated as the master server or the sub server. Batch Server: the name of the batch control server can be customized.
Monitor Config	Set if to run "Run Management", "Smart Applications", and "Visual AI". <ul style="list-style-type: none"> Enable "Run Management", the run management button  will be displayed in the monitoring header. Click this button to enter Run Management. Enable Smart Applications, the smart control button  will be displayed in the header of the monitoring. Click it to enter the smart applications where you can perform operations such as order management, schedule management, batch management, loop optimization, and predictive control. Enable "Visual AI" to display a "Visual AI" window in the monitoring header.

**Tip:**

The server node can also be an engineer station node.

4.5 Operation Node Configuration

Engineers can manually send configuration synchronous information to every server and operation node of the operation domain by Configuration Explorer, and if the IP information of operation node is configured incorrectly, each operation node will be unable to receive the configuration updating synchronous information.

4.5.1 Add Operation Node

- If the number of existed server and operation nodes is less than 60, users can select the operation domain node to be added operation nodes , and then select "Add Operation Node" in the right-click menu to add an operation node in the operation domain. The added operation node name is "[X.Y]Operation Node_X_Y " by default, which is similar to that of control station, X.Y in [] means the last two fields of the control network IP of this operation node; X means the domain address, and Y means the node address; "Operation Node_X_Y" behind [] is the name of the operation node and can be modified in property column.
- When the number of all the servers and operation nodes in the operation domain reaches 60, continue to add operation nodes and it will prompt that it has reached the maximum limit and the operation cannot continue.

4.5.2 Delete Operation Node

Select any existed operation node in project configuration tree and click the menu commend [Edit/Delete] or directly right-click the operation node and select "Delete" in the right-click menu, pop up the delete confirmation prompt: select "No" to keep the selected operation node; select "Yes" to delete the operation node and all the configuration information of this node.



Tips:

- When there is only one server in the operation domain, this server cannot be deleted. When executing the delete operation, it will pop up a prompt: "Operation domain needs at least one server! ".
- The locked operation domain and its node cannot be deleted.

4.5.3 Modify Operation Node

Select any existing unlocked operation node in project configuration tree, and users can operate corresponding property modifications in configuration property list on the right.

Properties	
Name	Operation Node_0_129
Description	
Address	0.129
SCnetAAddress	172.20.0.129
SCnetBAddress	172.21.0.129
Operation Node Type	Engineer Station
Operation Node System Alarm Check	<input checked="" type="checkbox"/>
SCnet Connection	Redundancy Network
SONet	
SONetAAddress	172.30.0.129
Role Config	
Smart Control Center Server	<input checked="" type="checkbox"/>
Smart Control Center Server attribute	Sub-Server
Batch Server	<input checked="" type="checkbox"/>
Name	
Monitor Config	
Run Management	<input checked="" type="checkbox"/>
SmartApplications	
Order Management	<input checked="" type="checkbox"/>
Schedule Management	<input checked="" type="checkbox"/>
Batch Management	<input checked="" type="checkbox"/>
Predictive Control	<input checked="" type="checkbox"/>
Pilot	<input checked="" type="checkbox"/>
IDM	<input checked="" type="checkbox"/>
System integrity	<input checked="" type="checkbox"/>
Visual AI	<input checked="" type="checkbox"/>

Figure 4-10 Modify properties of operation node

Configure the operation node by following instruction:

Item	Descriptions
Name, Description	The name, description and address of the operation node. The name and description must meet the naming specification; the address must meet the IP specification, and system will automatically display the IPs of server on SCnet and SOnet.
Operation Node Type	Whether it works as the engineer station, operator station, supervisor station, observer station, or global operator station.
Operation Node System Alarm Check	Specify whether the operation node can display system alarm information of other operation nodes. It should be noted that this does not include ECSAESVR within the networks, i.e., OPC A&E server.
SCnet Connection	Specify whether the control network is connected using redundant networks, Network A, or Network B.
Role Config	Specify whether the current server serves as a smart application center server or batch control server.
Monitor Config	Specify whether to start web applications, smart applications, and visual AI when starting HMI on the current server. <ul style="list-style-type: none"> ● If "Visual AI" is checked, the "Visual AI" window will be displayed in the monitor header after starting monitoring. ● If "Run Management" is checked, the web application button (🌐) will be displayed in the monitor header after starting monitoring. ● If item under "Smart Applications" is checked, the smart application button (📧) will be displayed in the monitor header after starting monitoring.

Section 5 Engineer Authority Management

The authority of engineer in System Builder is classified into 3 types:

- Project management authority: it includes the authority to open/close the project, and set the authority of control station configuration and operation domain configuration.
- Control station configuration authority: it includes the authority to specify the control station that can be configured.
- Operation domain configuration authority: it includes the authority to specify the operation domain that can be configured.

These 3 authorities are independent of each other: engineer who has project management authority does not necessarily have control station configuration authority or operation domain configuration authority; engineer who has control station configuration authority does not necessarily have project management authority or operation domain configuration authority; engineer who has operation domain configuration authority does not necessarily have project management authority or control station configuration authority. However, engineer with project management authority can set its own control station authority and operation domain authority by System Builder, while the other two authorities can't. In a project, there must be at least one user who has the project management authority.

5.1 Project Creator

When creating a project, admin user is the default creator and has the authority to manage this project.

The creator can modify user description, project management authority, control station and operation station configuration authority. You cannot modify the name and description of the creator. In the figure below, you can select to cancel the project management authority of admin user and select the stations that admin has access to.

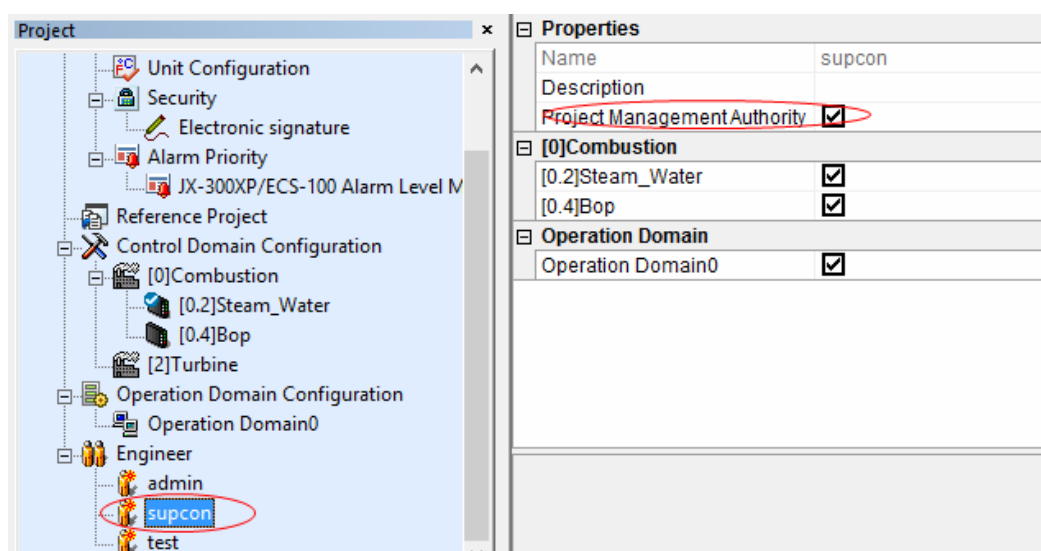


Figure 5-1 Modification of project management authority



Attention:

In each project, there must be at least one engineer who has the project management authority.

5.2 Add Engineer

Select the "Engineer" node, and click the menu command [Edit/Add Engineer] or click "Add Engineer" in the right-click menu, pop up the dialog box of Add Engineer, as shown in *Figure 5-2*.

The 'Add Engineer' dialog box has a title bar with a close button. It contains four text input fields: 'Name:', 'New Password:', 'Confirm Password:', and 'Description:'. Below these fields is a checkbox labeled 'Project Management Authority'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

Figure 5-2 Window "Add Engineer"

Input name, password and description into corresponding columns, and select whether to authorize the project management authority, then click "OK" to execute the operation.

Notes for application:

- "Confirm Password" must be consistent with "New Password", otherwise it will prompt "The two passwords are not matched!";
- If the engineer is already existed, it will prompt "X exists!" and users need to input a new engineer name;
- Project management authority is a management authority for engineers, engineer can log in the project and modify settings of the project if authorized. Engineer with the project management authority can set authorities of all the engineers, including the configuration authority of control station and operation domain; Engineers can have the configuration authority without project management authority (the configuration authority can be authorized by engineer with project management authority).
- In each project, there must be at least one engineer who has the project management authority. Otherwise, a prompt will pop up when saving the project, as shown in Figure 5-3.

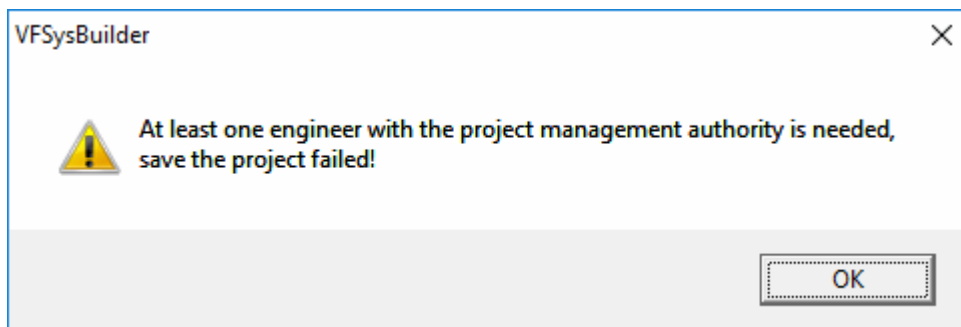




Figure 5-3 Prompt "Project management engineer setting"

- The number of engineer groups and independent engineers is 32 at the maximum;
- Engineer with  holds project manager authority but the engineers with  do not.

5.3 Delete Engineer

Select the engineer node (which is not the project creator) to be deleted in project configuration tree, click "Delete" in the right-click menu, pop up the window of delete confirmation: Select "Yes" to delete the engineer; select "No" to keep the engineer.



Attention:

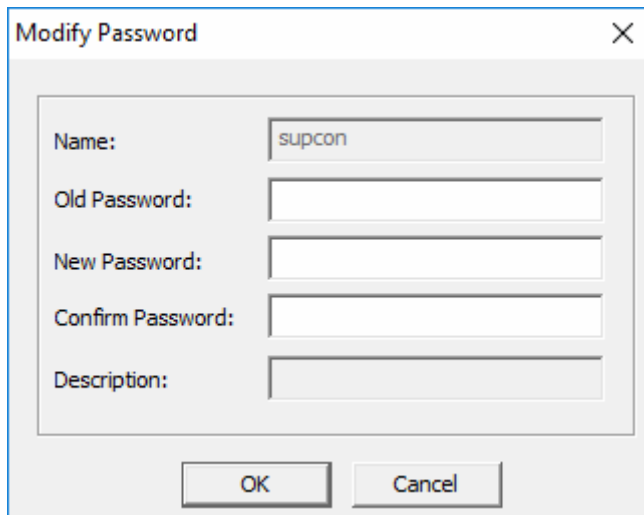
The project creator cannot be deleted; the current engineer cannot be deleted; engineers who have locked certain control station cannot be deleted.

5.4 Modify Engineer Information

Modify Password

Suppose there is one engineer "supcon", users can modify password by following steps:

Select "supcon" in project configuration tree and click the menu command [Edit/ Modify Password] or directly right-click "supcon" and select "Modify Password" in the right-click menu, pop up the window of "Modify Password", as shown in Figure 5-4 .



The image shows a 'Modify Password' dialog box. It contains the following fields and controls:

- Name:** A text box containing the value 'supcon'.
- Old Password:** An empty text box.
- New Password:** An empty text box.
- Confirm Password:** An empty text box.
- Description:** An empty text box.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom.

Figure 5-4 Modify Password

Input Old Password, New Password, Confirm Password and click "OK" to finish the "Modify Password" operation.

Modify information and authority

Select an engineer in project configuration trees, and the information of property, the configuration authority of control domain and operation domain of the engineer will be listed in configuration property list window on the right, users can modify the settings of description and each authority.

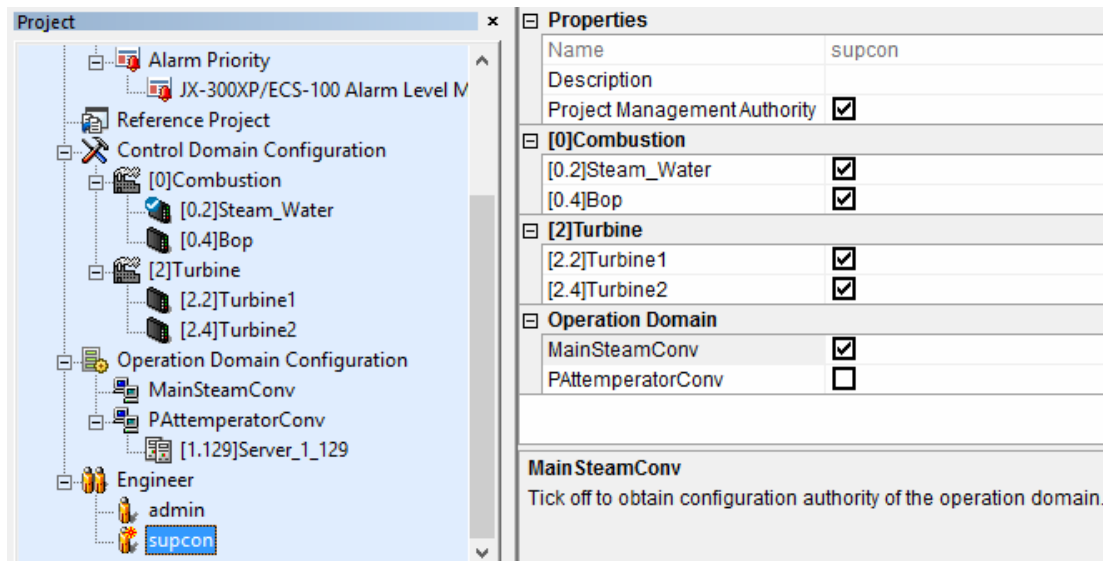


Figure 5-5 Authority modification

In addition, the authority settings of control station and operation domain in engineer property bar should be consistent with the engineers selected in corresponding control station and operation domain.

5.5 Engineer Group Configuration

Engineer group configuration makes it easy to configure engineers with the same authority together. It has the following features:

- Authorities of engineers in the same group are the same.
- The configuration management of engineers inside the group and outside the group are the same.
- There can be at most 31 engineer groups in one project, and at most 32 engineers in one group.

Add Engineer Group

Select the "Engineer" node and select the menu command or select "Add Engineer Group" in the right-click menu to add an engineer group under the "Engineer" node, and its name is "Engineer Group0" by default.

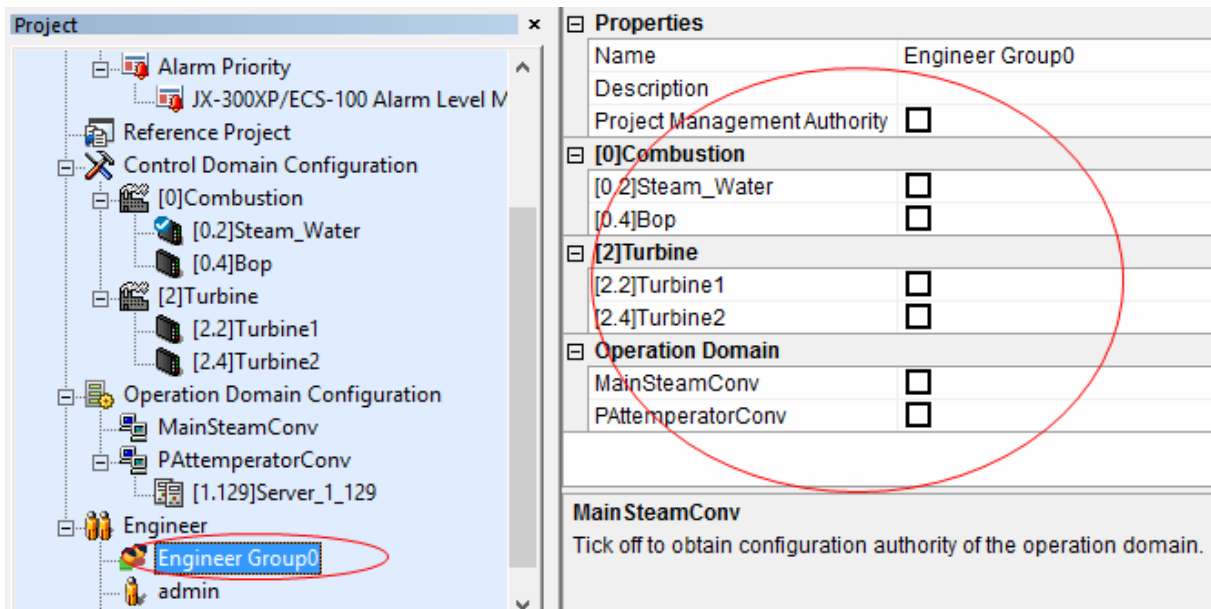


Figure 5-6 Add new engineer group

Users can set the properties of the engineer group and the configuration authorities of project management, control station and operation domain in configuration property bar on the right.

Add engineer to engineer group

After setting the properties of the engineer group and the configuration authorities of project management, control station and operation domain, users can add engineers to this engineer group by selecting the engineer group, and clicking the menu command [Edit/ Add Engineer], or selecting "Add Engineer" in the right-click menu. The operation is the same with that of adding engineers outside the group, but users need not set (and can't set, as shown in Figure 5-7) the authorities of project management, control station, operation domain. The configuration authorities of all the engineers in the group would be consistent with those of the engineer group.

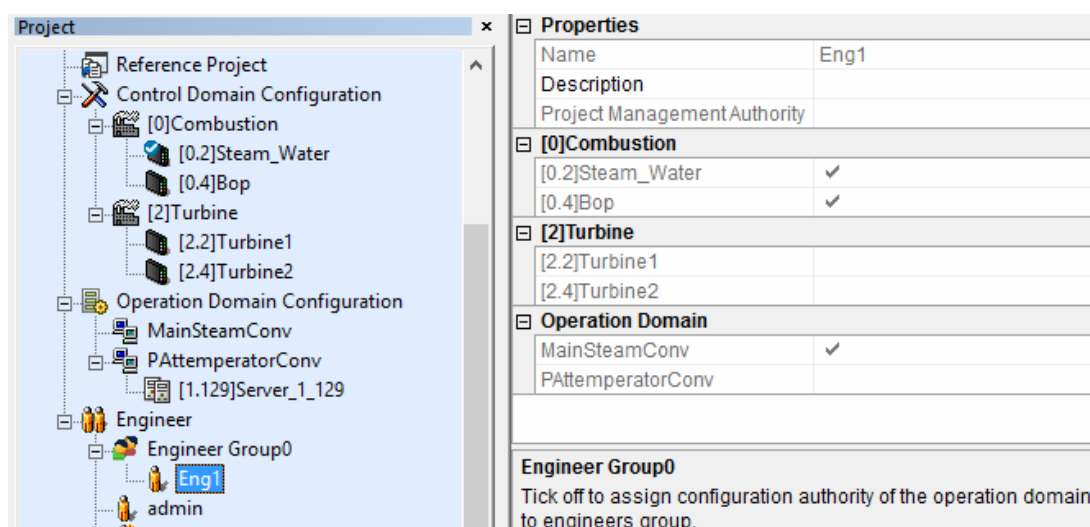


Figure 5-7 Engineers in one engineer group

Delete engineer group and engineers in the group

The operation of deleting one engineer group and its engineers is similar to that of deleting one engineer outside the group, please refer to relevant instructions in section 6.3.

Modify information of one engineer group and its engineers

The operation of modifying the password of engineers in one engineer group is similar to the description in "Modify Password" part in 5.4. The operation of modifying the properties and authorities of one engineer group is similar to the description in "Modify information and authority" part in section 5.4.

Section 6 Global Default Settings

Select "Common Default Settings" in configuration tree, and some global parameters of the project can be configured in configuration property bar, such as the color of ON/OFF indicators, decimal digits displayed on the tag panel and the color of panel alarm indicators, time synchronization server configuration, enable/disable latching alarm and alarm sort as shown in *Figure 6-1*.






Global Default Settings	
ON Color	
OFF Color	
Decimal Digits of Tag Template	2
Monitoring Theme	Default
QRcode	Disable
Reserved Area In Monitoring	Disable
Trend Draw Mode	General Mode
Show trend line tag info	<input type="checkbox"/>
Reference Domain Tag Info Mode	Online
Area	China
Panel Alarm Color	
Normal Color	
User Server	
User ServerAddress	
Time Synchronization Server	
Time Synchronization Server Count	0
Alarm Setting	
Latching Alarm Color	
Latching Alarm Sound	Disable
Enable Latching System Alarm	Disable
Re-arming Time (min)	10
Alarm Eclipsing	Enable
Alarm Shelving	Disable
State Management	Disable
Record Suppressed Alarm in History Alarm	Enable
Function Of Shielding Alarm Group And Alarm Re	Disable
Alarm Status Display Rules	Default
Alarm Sort Rule	By Alarm Priority (Default)
SOnet	
SOnet Configuration	Information Network Single(172.30)
SOnetAAddress	172.30.*.*
IDM Server	
ServerAddress	

Figure 6-1 Global Default Settings

6.1 Global Default Key

Items in Global Default Settings applies to all control and operation stations. For example, if "ON Color" is configured as green, then the "ON" in the corresponding tag panel will display green when the value of the tags of all control domains are ON.

6.1.1 ON/OFF Color Settings

User can configure colors of ON/OFF indicators of corresponding DI/DO in monitoring. Select the row and click  and the "Color" configuration window below will pop up, in which can set the default colors.

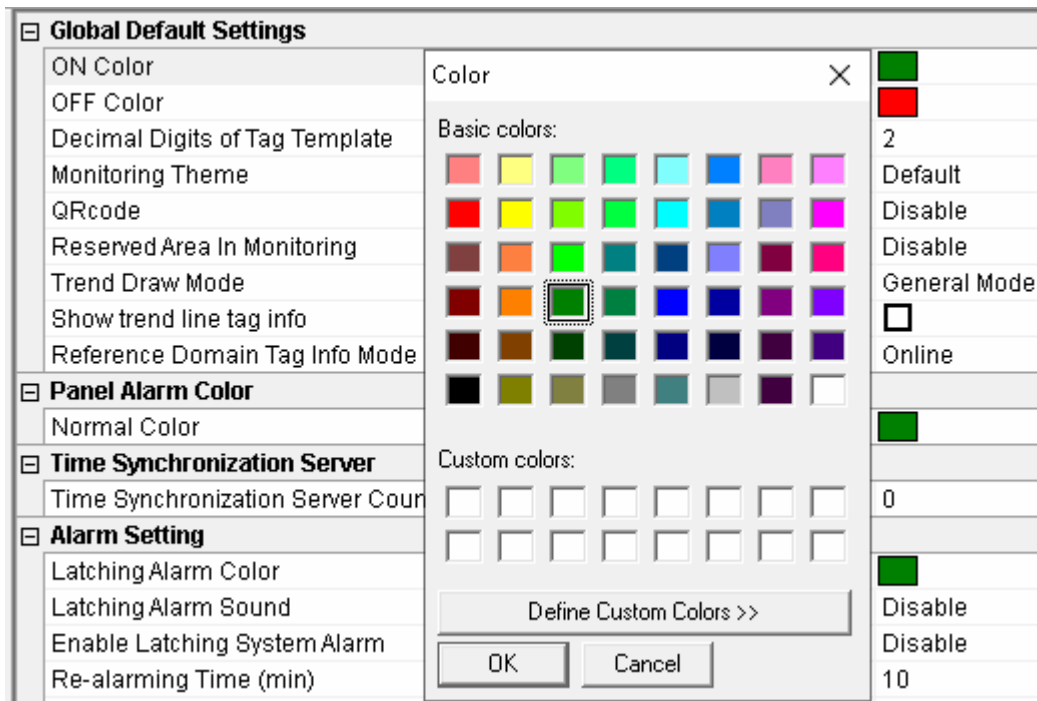


Figure 6-2 Set the color of ON/OFF

6.1.2 Decimal Digits of Tag Template Settings

When adding tags in Tag Builder, the default decimal digits is the same with the template. (Unselect "Automatically Set As Tag Template" and select "Restore to Original Settings" in the Tag Builder, then the default decimal digits is the same with the template.)

6.1.3 Configure Monitoring Theme

In VFSysBuilder software, the real-time monitoring theme can be configured as:

- Select "Classical" in the dropdown list of "Monitoring Theme" to set gray as the background color of the real-time monitor.
- Select "Default" in the dropdown list of "Monitoring Theme" to set blue as the background color of the real-time monitor.

6.1.4 Enable/Disable Tag's QRcode

High-performanceHMI software supports configured QRCode for AI, AO, PID, PIDEX, FFAI, FFAO, FFDI, FFDO, and FFPID, and the configured QRcode can be scanned in real-time monitoring for detail information.

- Enable
Select "Enable" in the dropdown list of "QRcode" to enable QRcode configuration, and the QRcode can be configured in Tag Builder software.
After configured QRCode, tag's information can be got by scanning QRcode while

real-time monitoring.

- Disable

Select "Disable" in the dropdown list of "QRcode", and tag can not be configured with QRcode and the QCcode information will not be shown in the real-time monitoring.



Tips:

For detail of QRcode configuration in Tag Builder software, refer to Tag Builder User Manual.

6.1.5 Enable/Disable Monitoring Reserve Area

The monitoring reserved area refers to the rightmost area in the real-time monitoring screen.

- Select "Prohibit" in the drop-down list of "Monitoring Reserved Area" to display the ordinary real-time monitoring interface.
- Select "Enable" in the "Monitoring Reserved Area" drop-down list, the far right side of the real-time monitoring screen will become the reserved area, and the content of the instrument panel, global panel, pop-up trend, pop-up alarm and alarm help will be displayed in the reserve area.

After the monitoring reserved area is enabled, the reserve area on the real-time monitoring screen will be divided into three areas from top to bottom. The description of each area is as follows.

Area	Display	Illustration
Top	System panel, global panel and alarm help	When displaying the panel, two panels can be displayed side by side. When there are more than two open panels, the subsequent open panels cover the area in order from right to left.
Middle	Pop-up trend	A pop-up trend can be displayed. When there is a pop-up trend in this area, the pop-up trend that is subsequently opened will overwrite the existing pop-up trend.
Bottom	Pop-up alarm	A pop-up alarm can be displayed. When there is a pop-up alarm in this area, the subsequent pop-up alarm will overwrite the existing pop-up alarm.

6.1.6 Configure Trend Draw Mode

Draw mode for trends refers to the mode of drawing trend curves in the real-time monitoring software. Two modes are available: General Mode and Left to Right Mode. Select a mode under "Global Default Settings".

- General Mode: the trend curves are drawn by real-time values from left to right.
- Left to Right Mode: the historical trend curves are displayed on the left of the image, while the real-time trend curves are on the right of the image.

After the right side are drawn full screen, the entire picture moves to the left by 1/2 and starts drawing again.

6.1.7 Display of Tag Information in the Configuration Trend Curve

The trend window in the real-time monitoring trend window may contain many curves. Users can decide whether to acquire the corresponding tag information of the curve while checking the curve.

Select in the check box of the "Show trend line tag info" as shown in Figure 6-1:

- After selecting, in the trend window of the real-time monitoring software:
When the cursor hovers on the curve, the corresponding tag information including the tag name, real-time value and unit will be displayed.
When the cursor hovers on the vertical line, the corresponding tag information including the tag name, real-time value and unit will be displayed.
- Not be selected, in the trend window of the real-time monitoring:
Tag information will not be displayed on the curve, but below the trend window.

6.1.8 Acquire Tag Information from the Reference Domain

When using multi-project reference function, it can be divided into reference domain (short for CCR) and referenced domain (short for FAR). Add FAR to the CCR, CCR users can acquire the tag configuration from FAR domain server in real time or acquire from its own domain server.

Select from the pull-down list of the "Show trend line tag info" as is shown in Figure 6-1:

- Online: CCR acquires the tag configuration of the referenced domain from FAR domain server.
- Offline: CCR acquires the tag configuration of the referenced domain from local domain server.

Selecting the online mode may reduce the read speed of the subscribed data in the real-time monitoring. "Offline" option is recommended.

6.1.9 Configure Country/Region of Project

Select the country/region where the current project is located by selecting the "Area" drop-down list on the configuration page shown in Figure 6-1.

When the region is a non-China country, the component will periodically detect the version of the actual field modules. If a module is detected as Chinese version, a system alarm will be generated, indicating that "this product cannot be used in your area and the warranty terms do not apply. Please contact our customer service."


6.2 Configure User Server

The User Server can centrally manage the accounts of OMC software, including users in this component.

Enter the address of the user server in the "User Server Address" field. After configuring this address, all service users need to be verified and managed through this server.

For detailed information about the user services, please refer to the "User Service" section in the *Config Explorer User Manual*.

6.3 Configure Colors of the Alarm Light on the Panel

The configuration method is similar to 6.1.1 ON/OFF Color Settings. Select the row you want to modify and click the  on the right. Then the color setting window will pop up, where the default color can be modified.

Alarm light color on the panel: the color configuration of the light indicator and the bar slider when each type of tags in the monitor is normal.

6.4 Time Synchronization Server Settings

Time synchronization server can synchronize each node in the LAN, and one project must be configured with one time synchronization server. Users can configure several time synchronization servers in one project, and set one as the chief, the others as the standby at one time. The standby time synchronization servers synchronize with the chief via "SONet" while the clients synchronize with the chief via "SCnet" or "SONet".

When multiple time synchronization server configured, the domain address and node address of the chief server should all be the minimum of the addressed of the servers.

By following steps, the time synchronization server can be configured.

- 1) Select "Global Default Settings" in the configure tree and the configure options of time synchronization server will be shown as figure below.

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	Software Time Synchronization Server
Third Byte Address	1
IP Address of Time Synchronization Server	1.254

Figure 6-3 Configure Example of Time Synchronization Server

2) Configure the time synchronization server by following table.

- When the control domains include OMC system:

Item	Function	Configuration
Time Synchronization Server Count	The count of time synchronization server in the current project can be set. As shown as above figure, 2 servers will be shown in below area after select 2 in "Time Synchronization Server Count".	Select from 0 to 16 in the dropdown list box.
Type	The type can set as <ul style="list-style-type: none"> Hardware GPS The hardware should be connected to SCnet or SOnet. Software Time Synchronization Server Software Time Synchronization Server (web) 	Select from the dropdown list.
Third Byte Address	That is also can called as domain address. Only when the Type is set as "Hardware GPS" or "Software Time Synchronization Server", it can be configured.	Input the integer between 0 and 15 in the text box.

- When the WebSight server and client is connected, software time synchronization server (web) should be set, with the IP that can be accessed by the WebSight server.

Principle of Time Synchronization

- The IP priority of software time synchronization servers is: .20 > .21 > .30 > .31
- If the project includes TCS-900 system, the address of synchronization server configured in TCS-900 is different with the address in the current project. Users need to open the configuration software in TCS-900 system to update the address of the synchronization clock server, which is in accordance with the two servers with smallest "third-bit addresses" of "software clock synchronization server (OMC)" and "hardware GPS (OMC)" in the current project.

6.5 Alarm Settings

User can configure the alarms in system together via alarm settings, which including latching alarm sound, realarm time, alarm eclipsing, shelve alarm, manage state, alarm sort rule and so on.

Global alarm settings can be completed in combo box shown below.


Alarm Setting	
Latching Alarm Color	
Latching Alarm Sound	Disable
Enable Latching System Alarm	Disable
Re-alarms Time (min)	10
Alarm Eclipsing	Enable
Alarm Shelving	Disable
State Management	Disable
Record Suppressed Alarm in History Alarm	Enable
Function Of Shielding Alarm Group And Alarm Region	Disable
Alarm Status Display Rules	Default
Alarm Sort Rule	By Alarm Priority (Default)

Figure 6-4 Alarm Setting

6.5.1 Configure Latching Alarm Color and Sound

When an alarm is eliminated due to a fault's automatic restoration without any acknowledgement it's called a latching alarm. Latching alarm will be in unacknowledged status in the alarm bar, alarm list, graphic, panel, and alarm panel. Also, unacknowledged alarm in supervision lights green. Latching alarm will turn off after being acknowledged.

Latching Alarm Color

High-performanceHMI System Software supports to configure the displayed color of a latching alarm.

- 1) Click the color box on the right of the "Latching Alarm Color" as shown in Figure 6-4.
- 2) On the pop-up "Color" window, select a color and click "OK".

Latching Alarm Sound

You can configure if a latching alarm sounds on the real-time monitoring screen. On the drop-down list of "Latching Alarm Sound":

- Select "Disable" to disable the latching alarm sound.
- Select "Enable" to enable the latching alarm sound.

The latching function of the systematic alarms

High-performanceHMI software supports the latching function of the system alarms

- Select "Enable", then the system alarm supports the latching function which means the system alarm will not disappear until the operator acknowledges this alarm.

- Select “Disable”, then the system alarm doesn’t support the latching function which means the system alarm will automatically disappear even it hasn’t been acknowledged.

6.5.2 Re-alarm Time

Support realarm, system will check the alarm status in period by realarm time. If the alarm status is checked out as generated and acknowledged, the alarm will become unacknowledged and generate sound and optical alarm.

Complete the realarm time settings in its drop-down list in Figure 6-4:

- Select “0” to disable realarm function.
- Select other options, the system will recheck the alarm by settings enabled realarm.



Tip:

- After modifying the re-alarm status from disabled to enabled and then published, the re-alarm function only can take effect after alarm generated again. After realarm happened, alarm’s generated time will be updated to the time the alarm is re-triggered, alarm’s status will be unacknowledged, and one alarm generated record will be added to history alarm.
- Please refer to 6.10 Alarm Priorities for details of re-alarm enable settings.

6.5.3 Alarm Eclipsing

Alarm eclipsing refers to sort the same type alarms in same tag (for example, H alarm and HH alarm are generated at the same time, only HH alarm will be displayed), and show in alarm list and alarm bar after eclipsed. Alarm number in alarm list and bar will be reduced via alarm eclipsing.

Complete the alarm eclipsing settings in its drop-down list in Figure 6-4:

- Select “Disable” to disable the alarm eclipsing.
- Select “Enable” to enable the alarm eclipsing.



Tip:

The feature will influence all operation domain monitoring software, but not the alarm view of reference domain.

6.5.4 Shelve Alarm

Shelve alarm means to shield alarm temporarily, and redisplay it when reaching the shelve time. User can enable/ disable alarm shelve function in VFSysBuilder.

In the drop-down menu of “Alarm Shelve” in Figure 6-4, select:

- Select “Disable” to disable the alarm shelve function, and cannot shelve alarm neither in configuration nor monitoring.
- Select “Enable” to enable the alarm shelve function, and can configure alarm shelve in configuration and shelve alarm in monitoring.



Tip:

Alarm shelve can be configured in VFHMICfg, please refer to 5.7 “Shelve Alarm” in *HMI Config Software User Manual*.

6.5.5 Manage State

Manage state can set the running state of device when producing, and achieve the function of managing device by state.

In the drop-down menu of “State Management” in Figure 6-4, select:

- Select “Disable” to disable the state management function, and cannot manage state neither in configuration nor monitoring.
- Select “Enable” to enable the state management function, and can configure state management in configuration and manage state in monitoring.



Tip:

State management can be configured in VFHMICfg, please refer to 5.8 “Manage State” in *HMI Config Software User Manual*.

6.5.6 Enable/Disable Historical Record of Suppressed Alarm

High-performance HMI system support alarm suppression. The suppressed alarms can select to be recorded into historical data or not. This function can be set in the dropdown list box of the “History record of suppressed alarm” in Figure 6-4:

- Select “Disable”, and the suppressed alarms will not be recorded into historical data.
- Select “Enable”, and the suppressed alarms will be recorded into historical data

6.5.7 Enable/Disable the Shield Function of Alarms in Team or Area in Operational Domain

The High-performanceHMI software supports the alarm group partition to shield the operation domain alarm. Choose from the “Operation domain alarm group partition shielding” drop-down list shown in Figure 6-4:

- Select “Prohibit”, the current High-performanceHMI project doesn’t support the shield function for alarms in team or area in the operation domain.
- Select “Enable”, the current High-performanceHMI project supports the shield function for alarms in team or area in the operation domain. At this time, the alarm can be shielded according to the alarm groups or areas. For detailed operations, please refer to *Monitoring Configuration Software*.

6.5.8 Alarm Status Display Rule

By this display rule related to alarm status, you can set whether the alarm is displayed or not in the alarm icon, information in graphics and panel as it is shelved or suppressed.

You can set the alarm status display rule in “alarm status display rule” as shown in Figure 6-4:

- Select “Default”, when alarms are shelved, suppressed, AOF, shielded by groups or areas, the alarm will be still displayed in the alarm icon, information in graphics and panel as they are shelved or suppressed.
- Select “HP HMI”, when alarms are shelved, suppressed, AOF, shielded by groups or areas, the alarm will be not displayed in the alarm icon, information in graphics and panel.

6.5.9 Alarm Sort Rule

User can set the alarm sequence in alarm list via settings of alarm sort rule.

Complete the alarm sort rule in its drop-down list in Figure 6-4:

- Select “By Alarm priority (Default)” to display the alarms from high alarm priority to low from top to down in alarm list.
- Select “By Alarm Time” to display the alarms by generated time from top to down in alarm list, the latest is shown at the top.

6.6 Configure SOnet

Configure the SOnet connection in “SOnet” of “Global Default Settings” interface.

<div> <div>SONet</div> <div> <div>SONet Configuration</div> <div>SONetAAddress</div> </div> <div> <div>Information Network Single(172.30)</div> <div>172.30.*.*</div> </div> </div>	
<div> <div>IDM Server</div> <div>ServerAddress</div> </div>	

SONet Configuration

When operation domain is locked, the network type cannot be changed

Information Network Single(172.30): information network uses dedicated network segment of 172.30

Information Network Redundant(172.30/172.31): information network uses dedicated redundant network segments of 172.30 and 172.31

Control Network Single(only using Net B): information network and control net use 172.21 network segment together

Figure 6-5 Configure SONet connection

SONet can apply the independent network, or share the same one with SCnet. Network of SONet can be configured in below types:

- SONet applies the special 172.30.X.Y network segment, settings as below:

Select “Information Network Single(172.30)” from the drop-down menu of “SONet Configuration”.

View the SONet address by selecting operation domain node in configuration tree after settings, as shown below.

<div> <div>SONet</div> <div>SONetAAddress</div> </div>		172.30.0.130
--	--	--------------

Figure 6-6 Single network settings of SONet

- SONet applies the special redundant network, 172.30.X.Y and 172.31.X.Y network segments, settings as below:

Select “Information Network Double(172.30/172.31)” from the drop-down menu of “SONet Configuration”. When applying dual-net connection, the SONet data is transmitted from SONet A (172.30.X.Y network segment) in default. If SONetA information is transmitted failed, data transmission switches from SONetA to SONetB (172.31.X.Y network segment). After SONetA is restored, switch from SONetB back to SONetA.

View the SONet address by selecting operation domain node in configuration tree after settings, as shown below.

SONet	
SONetAAddress	172.30.0.130
SONetBAddress	172.31.0.130

Figure 6-7 Dual-net redundant settings of SONet



Attention:

Publish all to monitoring to ensure the modification takes into effect after modifying dual-net settings.

- SONet and SCnet apply 172.21 network segment together, settings as below:
Select "Control Network Single (only using Net B)" from the drop-down menu of "SONet Configuration".
View the SONet address by selecting operation domain node in configuration tree after settings, as shown below.

SONet	
SONetAAddress	172.21.0.130

Figure 6-8 Control Network Single (only using Net B)

- SONet and SCnet apply 172.20 and 172.21 network segments, settings as below:
Select "OMC Control Network Double(using Net B first)" from the drop-down menu of "SONet Configuration".
View the SONet address by selecting operation domain node in configuration tree after settings, as shown below.

SONet	
SONetAAddress	172.21.0.130
SONetBAddress	172.20.0.130

Figure 6-9 Control Network Double(using Net B first)



Attention:

If SONet and SCnet share the same network (including single network and redundant network), system will start flow control function automatically, which will limit the SONet data flow to ensure the normal communication of SCNet.

6.7 Configure IDM Server

With IDM (Intelligent Device Management), you can easily manage HART devices, FF devices, APL instruments, wireless instruments and other field intelligent devices.

When you use both IDM and DCS, configuration of DCS can be loaded via driver, so as to manage the intelligent devices inside the DCS system. High-performanceHMI software can specify the IDM server connected to the current project in the High-performanceHMI software. IDM Server will automatically synchronize the change of DCM configuration when it is opened again.

Select "Global Default Settings" on the navigation tree. Configure the server address in the combination box shown in the following figure "IDM Server".

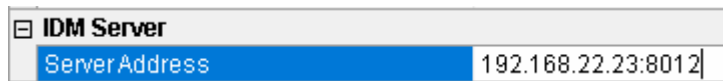


Figure 6-1 IDM server configuration description

The address of IDM server should be like: "server address:8012", in which 8012 means the software communication port number between IDM and High-performanceHMI.



Tip:

- After completing the IDM server address configuration in the System Builder software, user can directly log in to the IDM web client in the High-performanceHMI configuration software. Please refer to *Config Explorer User Manual* for details.
 - After configuring IDM server, tag device information monitoring function can be enabled in High-performanceHMI tag builder software. Then user can check the corresponding IDM device information in the real-time monitoring software. For details of tag configuration instructions of device information supervision and its display effects, please refer to *Tag Builder User Manual*.
-

6.8 Unit Setting

Unit configuration can implement the configuration of units of all the OMC tags in the project. The software can support a maximum of 255 units.

Click "Engineering Unit" in "Common Default Settings", and all the configured units will be displayed in Configuration Properties on the right, as shown in *Figure 6-10*

ID	Unit	ID	Unit	ID	Unit	ID	Unit
0	%	1	milli	2	°C	3	F
4	s	5	M	6	min	7	hour
8	bar	9	mmH2O	10	mmHg	11	Pa
12	kPa	13	MPa	14	kgf/cm2	15	t/s
16	t/min	17	t/h	18	L/s	19	L/min
20	L/h	21	kg/s	22	kg/min	23	kg/h
24	m3/s	25	m3/min	26	m3/h	27	Nm3/h
28	kW.h	29	MW	30	W	31	kW
32	WH	33	MHz	34	kHz	35	Hz
36	NTu	37	ug/L	38	m3	39	ug/Kg
40	L	41	mL	42	t	43	g
44	mV	45	mA	46	rpm	47	atm
48	kg	49	km	50	m	51	cm
52	mm	53	um	54	mbar	55	N.m
56	uS/cm	57	A	58	kA	59	VA
60	V	61	kV	62	r/min	63	PH
64	ppm	65	Nm3	66	KpaG	67	mg
68	Var	69	VarH	70*			

Figure 6-10 Unit settings

Add a unit

In the "Engineering Unit", click the cell lattice next to a number with "*", input the new unit and press Enter button or switch the cursor to another cell then a new unit is added. (in order to add a unit successfully users need to save the operation in System Builder)



Tips:

- Units in grey cells of the interface cannot be modified.
- Existing units cannot be added again.
- Sequence number cannot be input by users and is created automatically by system

Units configured here can be used in Tag Builder, as shown in Figure 6-11, configured units can be listed by clicking the pull-down button in the unit property configuration of one tag.

Output Range Settings	
Span Maximum	100.0000
Span Minimum	0.0000
High Overage Limit(%)	10.0000
Low Overage Limit(%)	10.0000
Overrange Maximum Alarm	Enable
Overrange Minimum Alarm	Enable
Unit	%
Input Original Code Settings	
Alarm Settings	
HHH Limit Alarm	milli
HHH Limit Alarm Priority	°C
HHH Limit Alarm Value	F
HH Limit Alarm	s
HH Limit Alarm Priority	M
HH Limit Alarm Value	min
	hour
	bar
	mmH2O

Figure 6-11 Where to use the configured units

Modify a unit

Units which can be modified in the “Engineering Unit” are those added by users, and users can directly modify those units after selecting them.

Delete a unit

Units which can be deleted in the “Engineering Unit” are those added by users, and users can directly delete those units (press the BACKSPACE button) after selecting them.

6.9 Security

By security configuration, reconfirmation of tag's written and electronic signature can be set.



Tips:

- Publish all to monitoring after modifying dual-net settings.
- When running High-performanceHMI software with software dog had electronic signature, the " Electronic Signature" can be shown in the "Global Default Settings > Security". By electronic signature configuration, the operation including written to tag and acknowledged alarm can be limited by electronic signature.

6.9.1 Configure Reconfirmation for Tag

Set the tag level to pop up reconfirmation dialog box when the tag value is modified in supervision.

Click "Security" in “Common Default Settings”, and interface on the right will be shown as follows.

Need Confirm	
Tag Level	Need Confirm
0	<input type="checkbox"/>
1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>
6	<input type="checkbox"/>
7	<input type="checkbox"/>
8	<input type="checkbox"/>
9	<input type="checkbox"/>

Figure 6-12Interface "Need Confirm"

Whether to pop up reconfirmation dialog box in supervision when the tag value is modified can be set by selecting in the interface of "Need Confirm".

The tag level can be configured in the tag list, as shown in *Figure 6-13*.

Supervision Settings	
Tag Group	Tag Group 0
Tag Level	Level 0
Decimal Digits	Level 0
Panel	Level 1
Related Tag	Level 2
	Level 3
	Level 4
Tag Level	Level 5
Tag Level	Level 6
	Level 7
	Level 8
	Level 9

Figure 6-13Configuration of tag level

6.9.2 Electronic Signature

Attention:



When the software dog has the privilege of electronic signature, the "Electronic Signature" node can be shown and configured as the sub-node of "Security". Otherwise, the node will not be shown.

By the configuration of electronic signature, operations privilege to tag and alarms will be defined. The privileges include electronic signature by tag level, alarm confirmation and batch processing.

Click "Global Default Settings > Security > Electronic Signature", the right area will display the electronic signature configuration as shown as figure below. In the electronic signature configuration, there are three tabs including "Global Setting", "Tag Operation", "Other Operation" and "Predefined Comments" pages.

Globe Settings	Tag Operation	Other operation	Predefined comments
Function			
Check Operation Signature with Login user of Monitor		<input type="checkbox"/>	

Figure 6-14 Electronic Signature Configure Example

Global Setting

Select "Global Setting" page, where you can decide whether or not to make the operational signature keep consistent with the current login user.

- If ticked, the operational signature shall be consistent with the login user.
- If not ticked, the operational signature doesn't have to be consistent with the login user.

Tag Operation

In the "Tag Operation" tab as shown in the figure below, the operation privilege to tag and alarm confirmation can be configured by tag level. By following table, electronic signature of tag operation can be configured.

Globe Settings	Tag Operation	Other operation	Predefined comments
Tag Level	Type	re of alarm confir	
0	Unsigned	<input type="checkbox"/>	
1	Unsigned	<input type="checkbox"/>	
2	Unsigned	<input type="checkbox"/>	
3	Unsigned	<input type="checkbox"/>	
4	Unsigned	<input type="checkbox"/>	
5	Unsigned	<input type="checkbox"/>	
6	Unsigned	<input type="checkbox"/>	
7	Unsigned	<input type="checkbox"/>	
8	Unsigned	<input type="checkbox"/>	
9	Unsigned	<input type="checkbox"/>	

Figure 6-15 The configuration of tag electronic signature

As per the table below, you can configure the electronic signature authority of the tag operations.

Item	Function	Configuration
Tag Level	List the tag's level.	Need not configure.

Item	Function	Configuration
Type	It is used to define operation privilege by tag's level, which can be set as "Operation Signature", "Operation verification signature" and "Unsigned".	After selected "Operation Signature", the tag's operation requires electronic signature of operator.
		After selected "Operation and verification signatures", the tag's operation requires electronic signature of operator and verification user.
		After selected "Unsigned", the tag's operation do not require electronic signature.
Signature of alarm confirmation	It is used to electronic signature of alarm confirmation.	Check, the alarm operation requires the same electronic signature configured as "Type".
		Not check, the alarm operation do not require electronic signature.

Other Operation

The operation privilege of "Confirm current list of process alarm" and "Batch processing of status table" is limited by electronic signature.

In the "Other Operation" tab, the above operation privilege can be configured.

Globe Settings	Tag Operation	Other operation	Predefined comments
Function		Type	
Confirm current list of process alarm		Unsigned	
Batch processing of status table		Unsigned	

Figure 6-16 "Other Operation" Tab of Electronic Signature

Operations can be configured are listed in "Function" row, and the requirement of electronic signature is listed in the "Type" row.

- Select "Unsigned", operations in the "Function" row do not require electronic signature.
- Select "Operation signature", operations in the "Function" row require electronic signature.
- Select "Operation and verification signatures", operations in the "Function" row require electronic signature of operator and verification user.

Predefined Comments

In the real-time monitoring, tag operation and other operations can be written to the operation log. Predefined comment is used to write to the operation log while using electronic and verification signature.

By following steps, predefined comments can be configured.

- 1) In the "Predefined Comments" tab shown as figure below, predefined comments for electronic signature can be configured.

Globe Settings Tag Operation Other operation Predefined comments	
No.	Predefined comments
1	Parameter modification
2	

Figure 6-17 "Predefined Comments" tab

- 2) Input the comments in the "Predefined Comments", such as "Parameter modification".
- 3) Select commands from the right menu to add, delete, move the comments.

After configured predefined comments, the predefined comments can be selected while executing operations required electronic signature in the real-time monitoring.

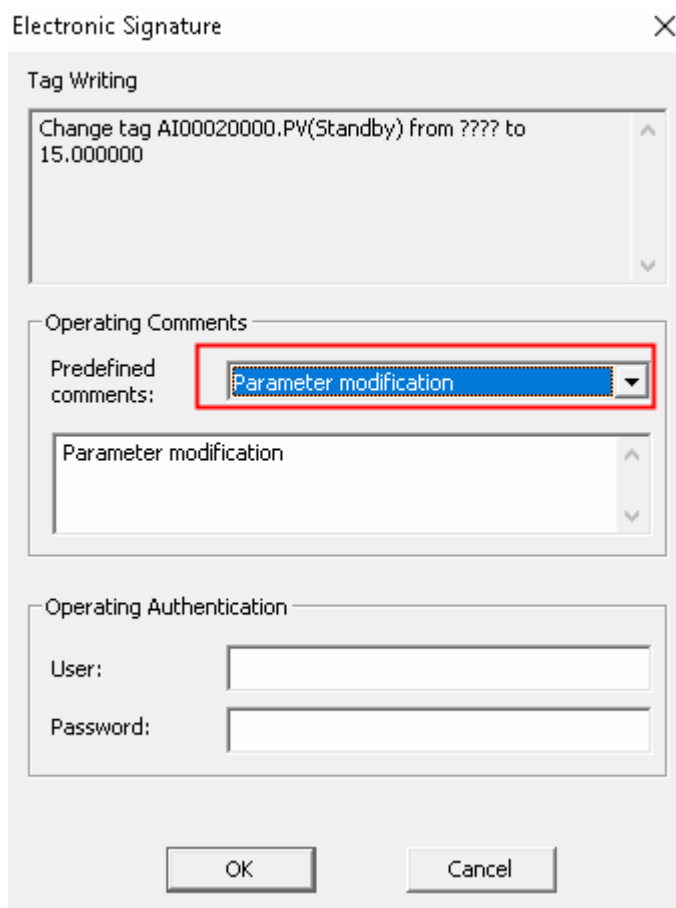


Figure 6-18 "Predefined Comments" in real-time monitoring

6.9.3 Relationship between Electronic Signature and Reconfirmation

While reconfirmation and electronic signature configured at the same time, system will enable the functions by following rules to:

- Reconfirmation and electronic signature configured at the same time, the reconfirmation will be invalid.

- Reconfirmation configured and the electronic signature configured as "Unsigned", the reconfirmation will be valid.

6.10 Alarm Priorities

User can set alarm color, alarm shelf, alarm sleep and re-alarm for alarms in different levels.

6.10.1 Set alarm priorities

After set the amount of alarm properties, the alarm priorities can be configured by following steps. Here takes system default 6 alarm priorities as an example to introduce the configuration of alarm priority.

1. Select [Global Default Settings/ Alarm priority] in project bar, following interface will be shown in the right configuration properties pane.

Alarm Prio...	Alarm Icon	Alarm Description	Alarm Color	Alarm Icon Font C...	Data Logging Only	Alarm Shelving	Latch (v.)	Re-alarm (v.)
0	Nonshape	Log			Yes	Disable	Disable	Disable
1	Rectangle	Low			No	Disable	Disable	Disable
2	Rectangle	Medium			No	Disable	Disable	Disable
3	Rectangle	High			No	Disable	Disable	Disable
4	Rectangle	Urgency			No	Disable	Disable	Disable
5	Rectangle	Safe Related			No	Disable	Disable	Disable

Figure 6-19 Set alarm priorities

2. Set the alarms as properties 0~5 by following table.

Table 6-1 Alarm properties configuration

Items	Function	Configuration
Grade Legend	Show legend in the left of alarm list.	Select from drop-down menu, support 4 legends in default.
Alarm Description	Default alarm description.	Input in text box.
Alarm Color	Color of the alarm n this level in monitoring.	Select the color and select from the pop up "Color" dialog.
Shape Font Color	Show legend color in the left of alarm list.	Click the item and select a color from "Color" window popped up.
Log	Whether only record log when alarm in this level generated.	Cannot be configured.
Alarm Shelve	Whether alarm in this level supports alarm shelve, only that supported can be shelved in real-time monitoring.	Select from the drop-down menu: Disable, alarm in this level does not support shelve. Enable, alarm in this level supports shelve.
Latching Alarm	Whether alarm in this level supports alarm sleep, only that supported can be latching alarm.	Select from the drop-down menu: Disable, alarm in this level does not support sleep. Enable, alarm in this level supports sleep.
Re-triggering Alarm	Support realarm. System will detect the alarm status in period by realarm time. If the alarm status is detected out as generated and acknowledged, it will become unacknowledged and generate sound and optical alarm.	Select from the drop-down menu: Disable, alarm in this level does not support realarm. Enable, alarm in this level supports realarm.

Note1: hide the words in the legend

By default, the alarm level is displayed on the alarm legend. If you want to hide the text on the legend, create a configuration file named as "Global.ini" in the project folder (default folder is D:\ECSRun\Project Name) on the configuration server. And add the following two lines in the ini file:

[Settings]

AlmIconDisplayLevel=0

AlmIconDisplayLevel=0 means the text is hided. After creating the file, offline publish the configuration on the configuration server to make sure all the control stations display the correct legends.

After creating the configuration file, offline publish the configuration on the configuration server to make sure all the control stations display the correct legends.



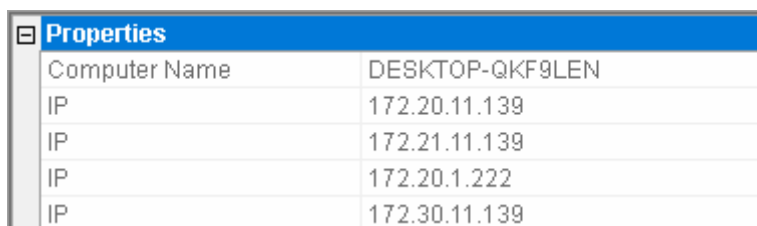
Tips:

- **When the amount of the alarm priority need to be modified, select the "Alarm Priority" on the navigation and select "Amount of Alarm Priority Settings" in its right menu.**
 - **Alarm priority 0 means log level, not support to customize alarm properties.**
 - **After cutting alarm levels, if the alarm level associated with tag alarms, alarm sound, alarm print, pop-up alarms and device working condition is deleted, please modify the corresponding configuration accordingly.**
-

Section 7 Configuration Server Information View and Path to Save Configuration

7.1 Configuration Server Information View

Click the "Configuration Server" node in project configuration tree to view the specific information of configuration server in the system, as shown in *Figure 7-1*



Properties	
Computer Name	DESKTOP-QKF9LEN
IP	172.20.11.139
IP	172.21.11.139
IP	172.20.1.222
IP	172.30.11.139

Figure 7-1 Configuration Server information view

The information includes computer name, IP address in redundant control network and IP address in information network.

7.2 Path to Save Configuration

According to rules of project configuration, the path to save configuration of system structure is D:\SUPCON_PROJECT\projectname. For example, if the project name is "INDBARATHPOWER", the path to save configuration is D:\SUPCON_PROJECT\ INDBARATHPOWER.

Section 8 Synchronization Configuration Backup

Users can backup the configuration in the chief engineer station (configuration server) to each engineer station via menu command, Synchronization configuration backup can be achieved in two modes, i.e. manual and auto.

8.1 Manual Synchronization

Select menu bar [Advance/Manual Synchronization], pop up window as follows.

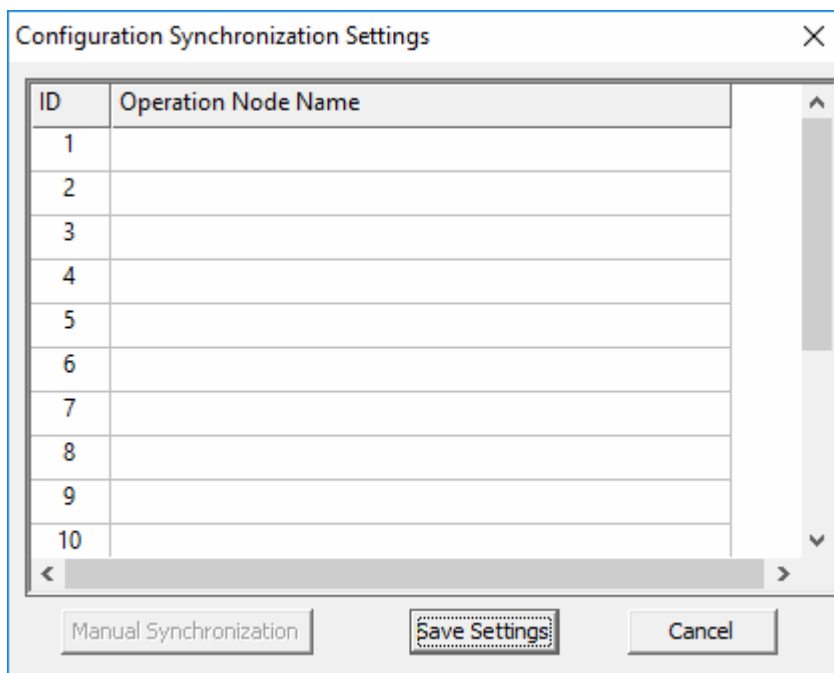


Figure 8-1 Synchronization setting interface

Select the engineer station which needs synchronizing in the pull-down list which has listed all configured operation nodes(including data server), shown as follows

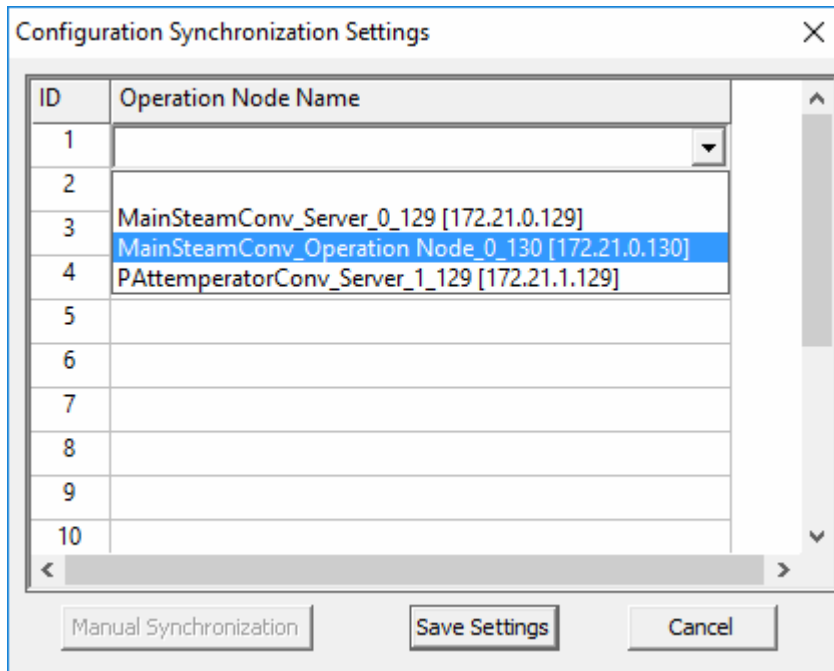


Figure 8-2 Select node needs synchronizing

Click "save settings" to save all the node settings, and exit the dialog box. Then click the button "Manual Synchronization" via menu command, in which way software will backup and transmit configuration automatically.

All the configurations will be settled in SUPCON_PROJECT file.



Attention:

- Manual synchronization cannot be operated before setting any node.
- Suggestion: Save settings before synchronization.
- Manual synchronization cannot be operated if the net doesn't work, SUPCON_PROJECT file doesn't exist or it is not written.
- The configuration shall be the .zip format while backup or transmission. Engineer station can attain the same configuration with the configuration server via system configuration software.
- The destination address chosen should have smooth network, and the configuration server of destination address should be original address to make sure the synchronization success.

8.2 Auto-synchronization

Auto-synchronization is realized through setting scheduled task, and different systems have different setting method for scheduled task. This chapter takes Windows 10 as examples, other systems can set scheduled task like it.

Scheduled Task Settings in Windows7 system

Select [Start/ Control Panel/ System and Security/ Administrative Tools/ Task Scheduler], or click the Task Schedule of Administrative Tools directly, pop up the interface shown below.

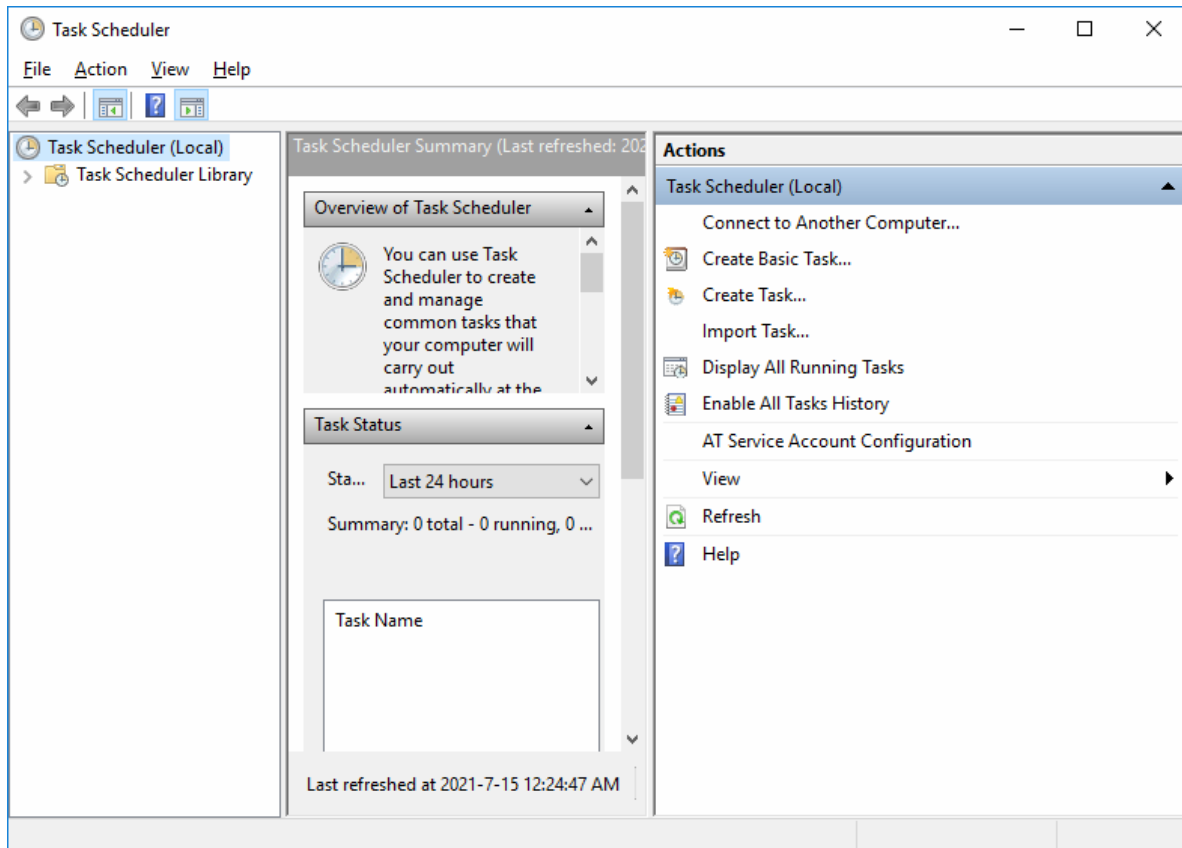
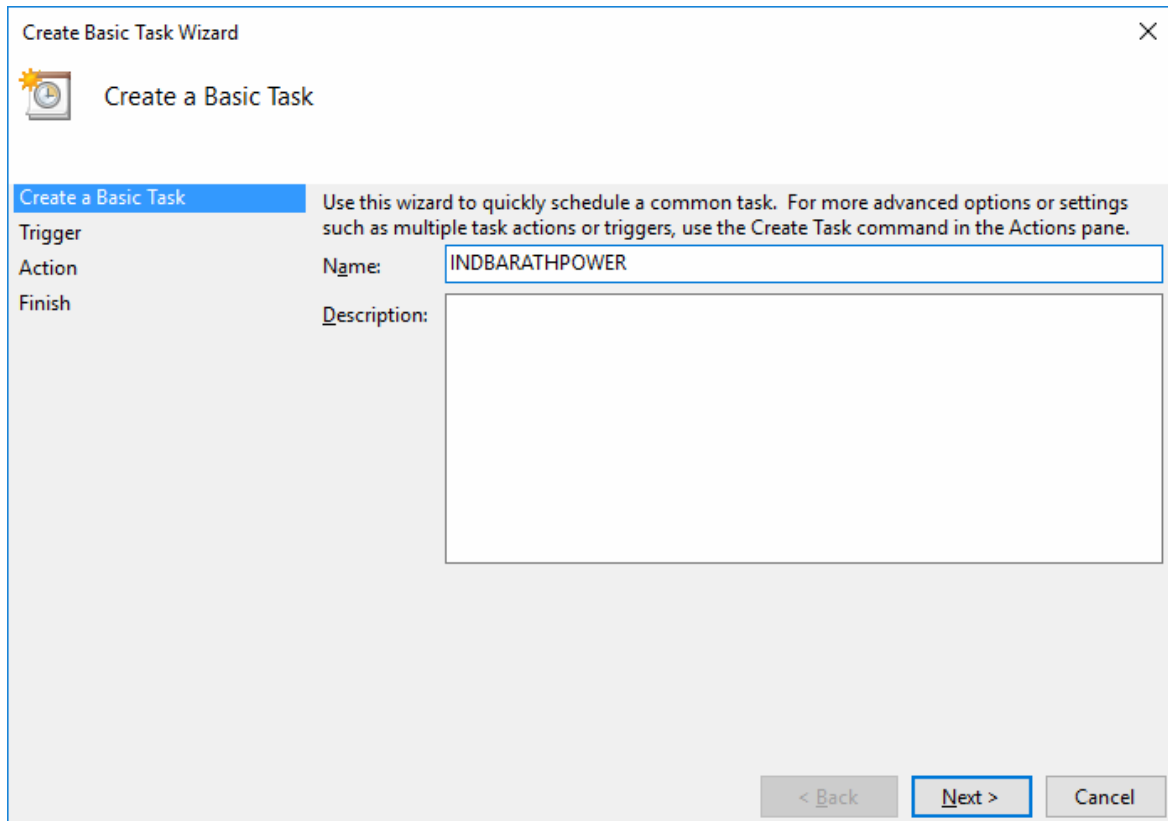


Figure 8-3 Task Schedule Dialog Box

Click "Create Basic Task" or "Create Task". The properties dialog boxes are very similar, while the direction of "Create Task" is different from "Create Basic Task". It needs to set many items of the scheduled task and sees more complex than "Create Basic Task". This chapter takes "Create Basic Task" as an example to introduce the setting of auto-synchronization.

Click "Create Basic Task" and pop up the dialog box as below.



The image shows a 'Create Basic Task Wizard' dialog box. It has a title bar with the text 'Create Basic Task Wizard' and a close button (X). Below the title bar is a section with a clock icon and the text 'Create a Basic Task'. The main area of the dialog is divided into two parts. On the left is a vertical list of steps: 'Create a Basic Task', 'Trigger', 'Action', and 'Finish'. The 'Create a Basic Task' step is currently selected and highlighted in blue. To the right of this list is a text area that says: 'Use this wizard to quickly schedule a common task. For more advanced options or settings such as multiple task actions or triggers, use the Create Task command in the Actions pane.' Below this text are two input fields. The first is labeled 'Name:' and contains the text 'INDBARATHPOWER'. The second is labeled 'Description:' and is an empty text box. At the bottom right of the dialog are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

Step	Description
Create a Basic Task	Use this wizard to quickly schedule a common task. For more advanced options or settings such as multiple task actions or triggers, use the Create Task command in the Actions pane.
Trigger	
Action	
Finish	

Name: INDBARATHPOWER

Description:

< Back Next > Cancel

Figure 8-4 Create Basic Task Wizard

Enter Name (must be filled) and Description, and click Next, as shown below.

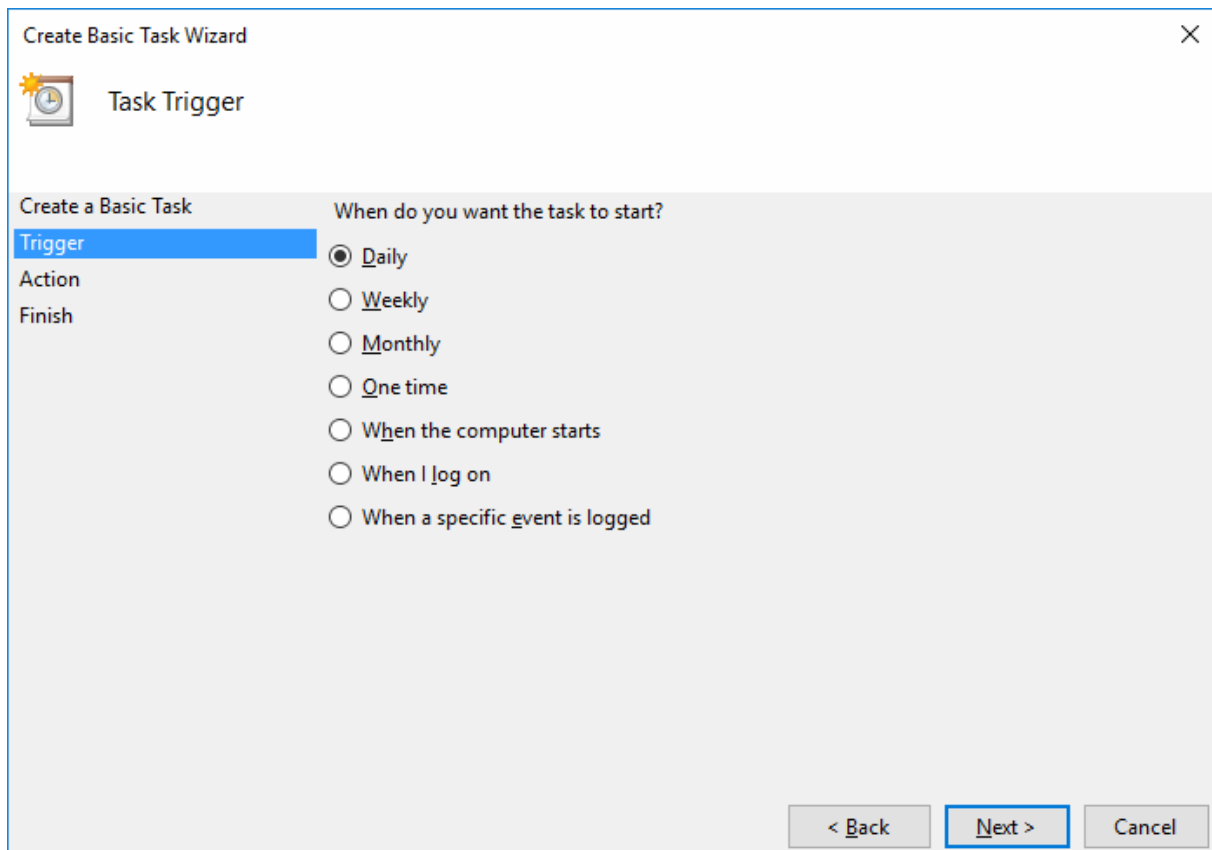


Figure 8-5 Select the Start Time

Click Next to set the time, date and recurrence of start, as shown below.

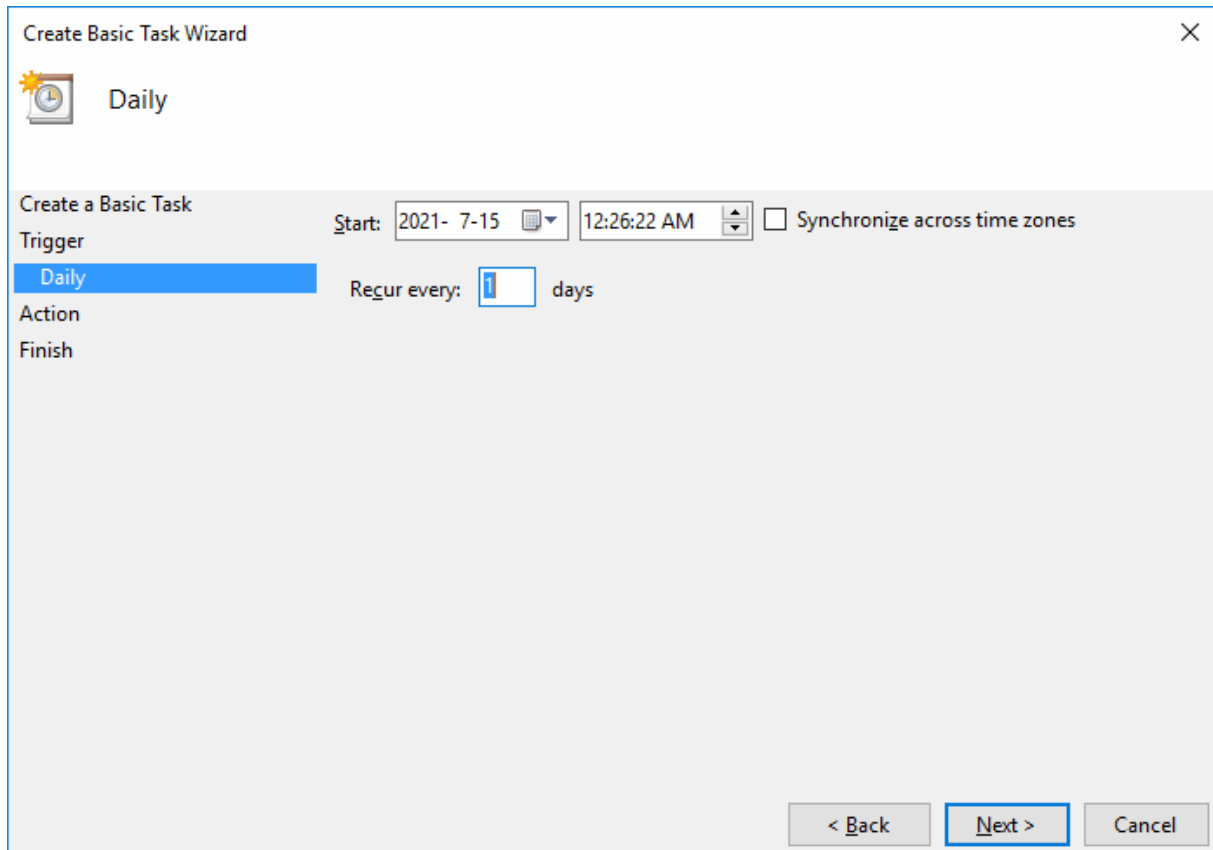


Figure 8-6 Task Implement Settings Dialog Box

Click Next and pop up the task implement operation dialog box, and select Start a program, as shown below.

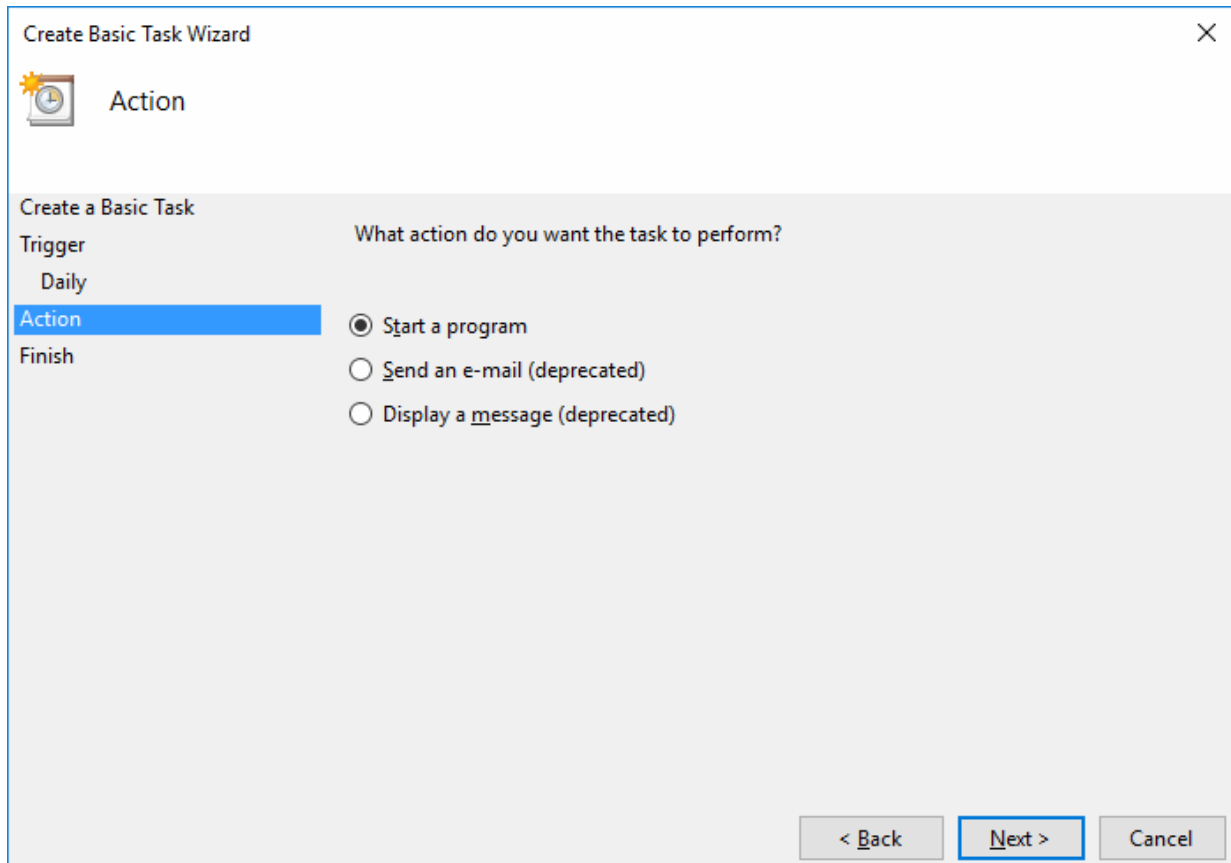


Figure 8-7 Selection of Task Implement Program Dialog Box

Click Next and the selection of program file dialog box will pop up, as shown below.

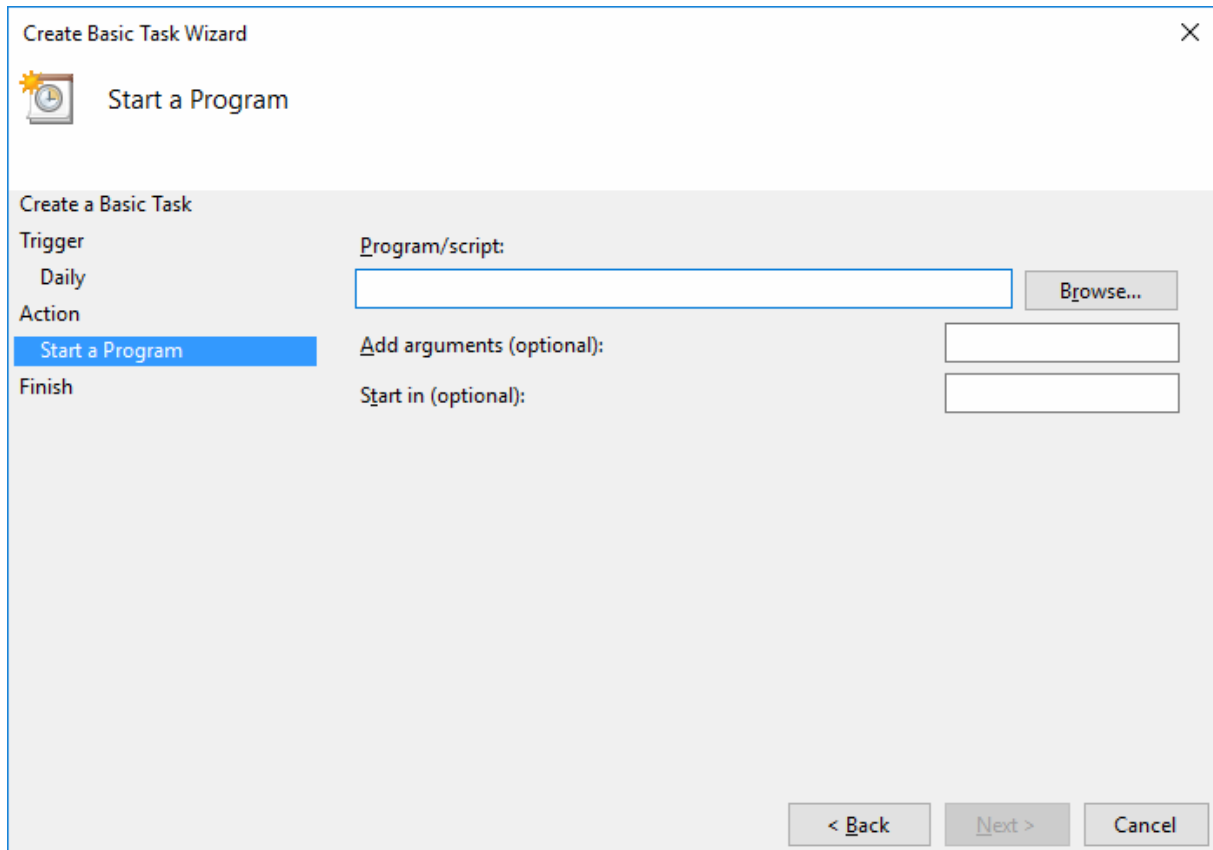


Figure 8-8 Selection of Program File Dialog Box

Click Browse and select a program file, as shown below.

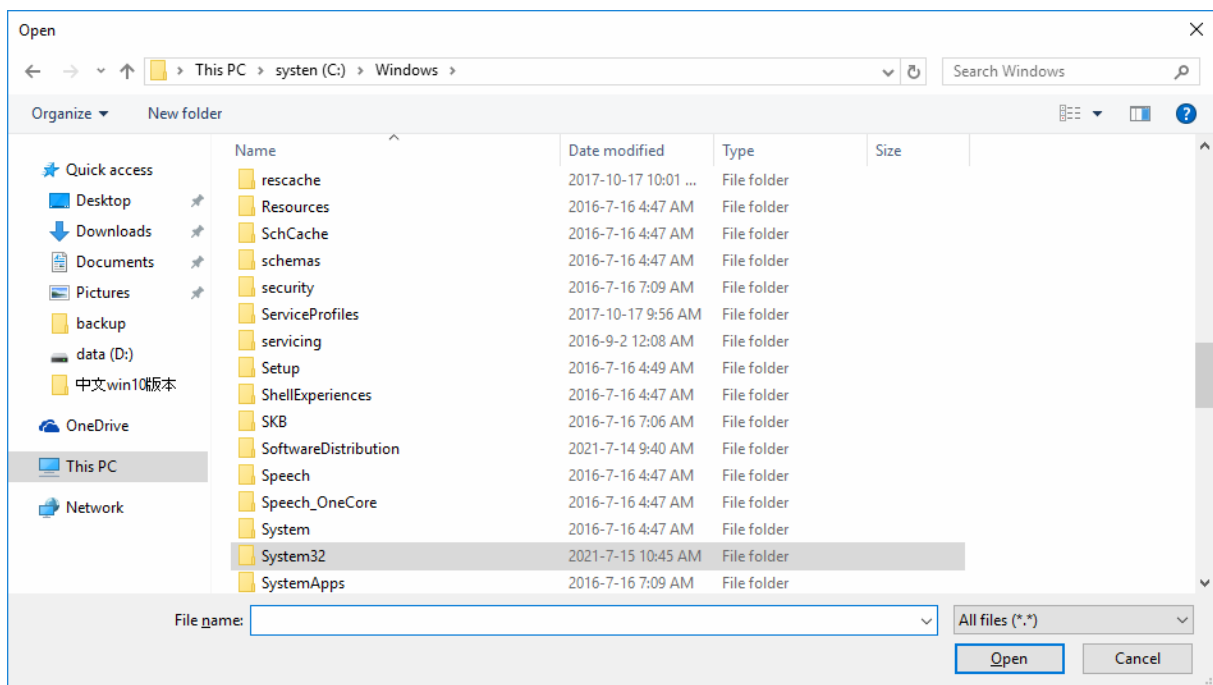


Figure 8-9 Selection of Program File

Select program file, as shown below.

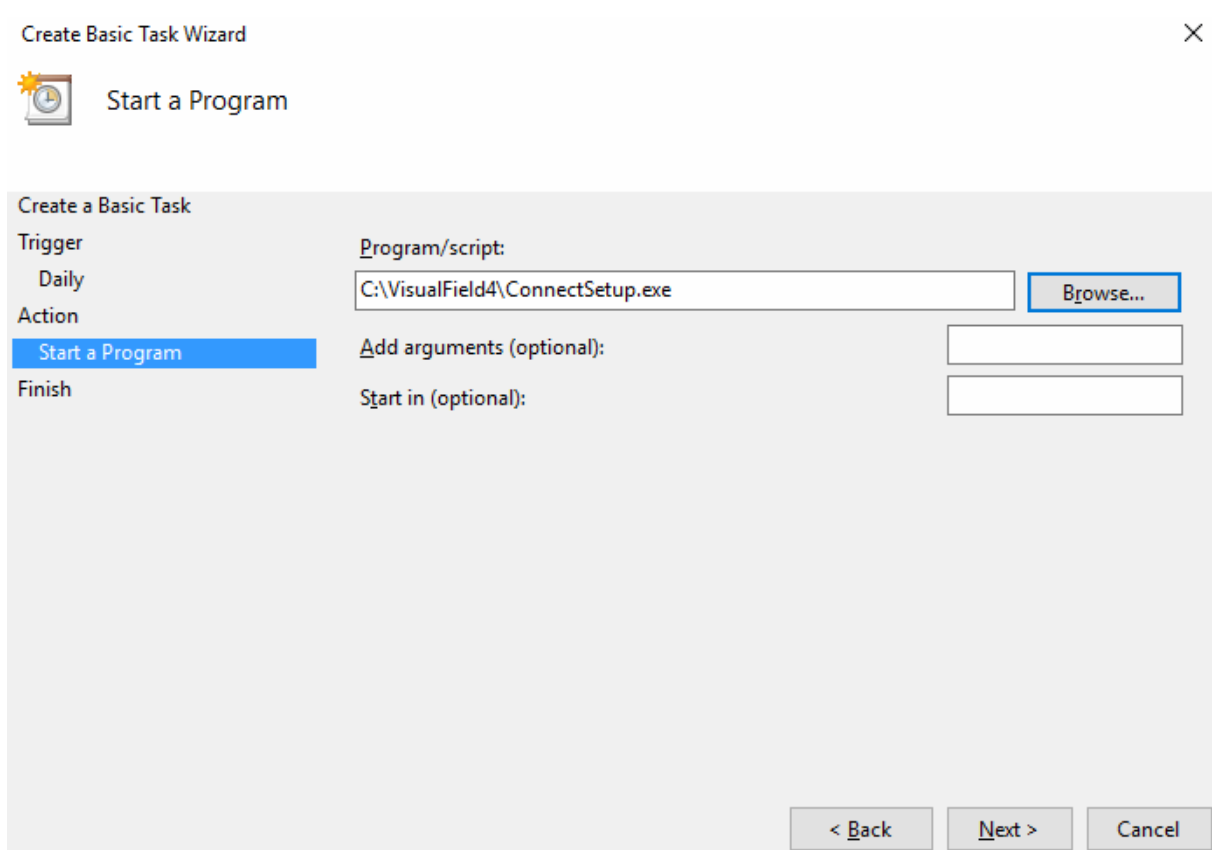


Figure 8-10 Selection of Program Completed

Users can backup the project configuration "INDBARATHPOWER" by inputting "D:\SUPCON_PROJECT\INDBARATHPOWER" /S in the "Add arguments (optional)" box. There should be an empty space before "/S". "/S" means a synchronous result will be displayed, and "/N" means it will not be displayed. As shown in below.

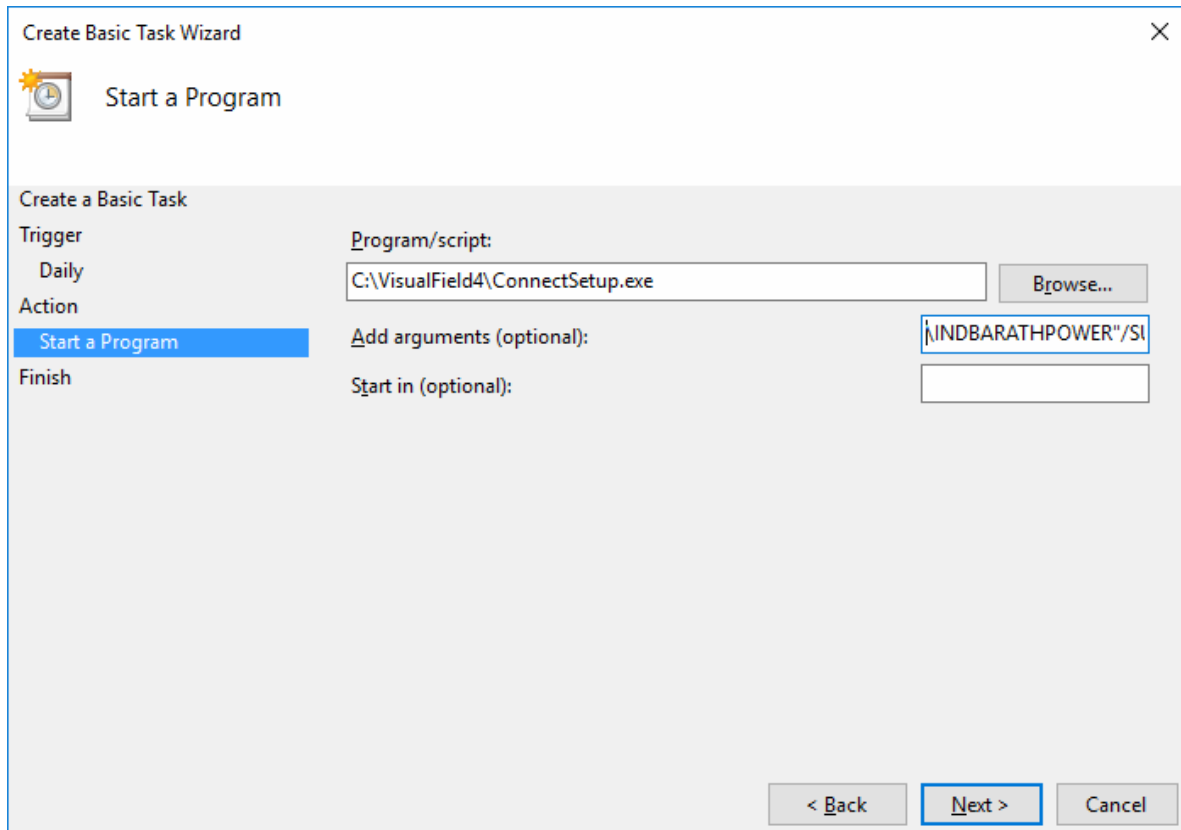
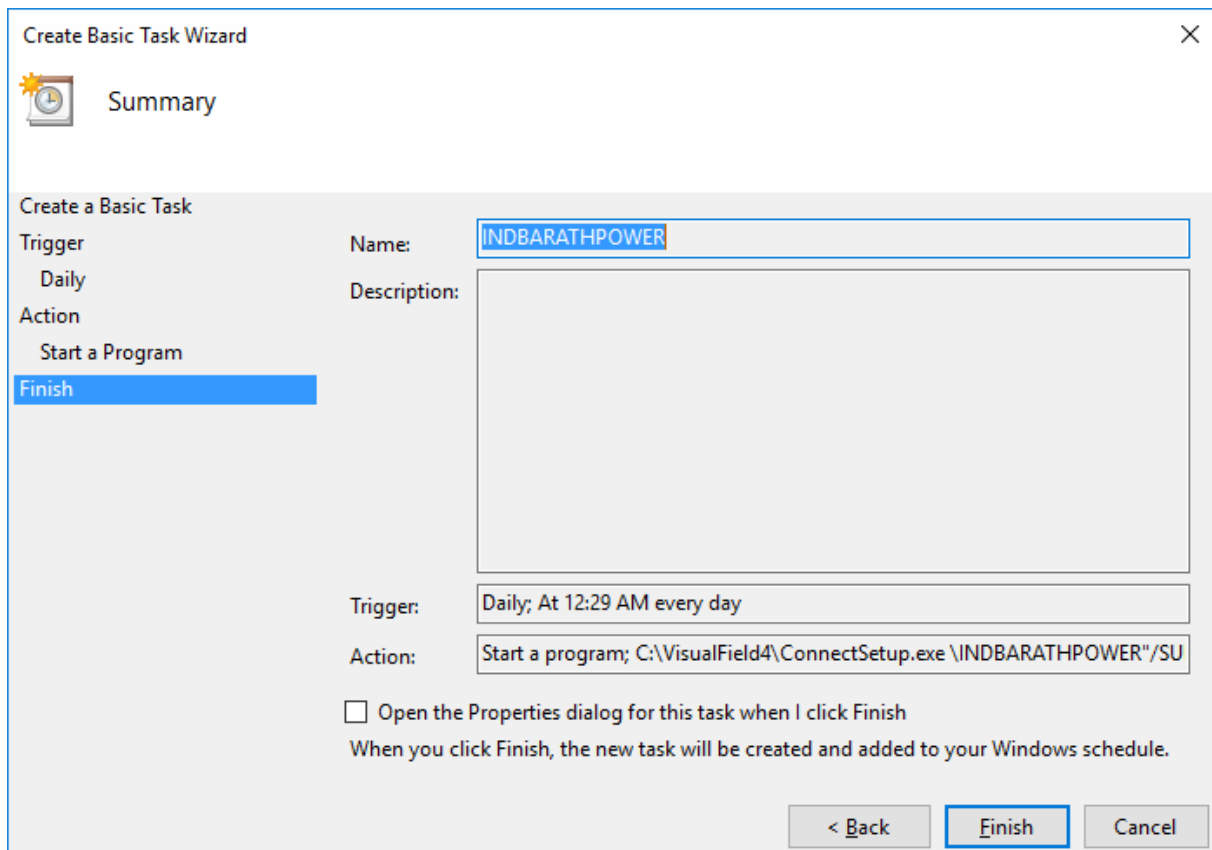


Figure 8-11 Add Arguments

Click Next and finish the configuration synchronized backup, as shown below.



The image shows a Windows-style dialog box titled "Create Basic Task Wizard" with a close button (X) in the top right corner. Below the title bar is a "Summary" section with a clock icon. The main area is titled "Create a Basic Task" and contains a left-hand navigation pane with four options: "Trigger", "Daily", "Action", and "Finish". The "Finish" option is highlighted in blue. To the right of the navigation pane, there are several fields: "Name:" with the value "INDBARATHPOWER", "Description:" with a large empty text box, "Trigger:" with the value "Daily; At 12:29 AM every day", and "Action:" with the value "Start a program; C:\VisualField4\ConnectSetup.exe \INDBARATHPOWER\"/SU". Below these fields is a checkbox labeled "Open the Properties dialog for this task when I click Finish" which is currently unchecked. A line of text below the checkbox reads: "When you click Finish, the new task will be created and added to your Windows schedule." At the bottom right, there are three buttons: "< Back", "Finish" (which is highlighted with a blue border), and "Cancel".

Create Basic Task Wizard

Summary

Create a Basic Task

Trigger

Daily

Action

Start a Program

Finish

Name: INDBARATHPOWER

Description:

Trigger: Daily; At 12:29 AM every day

Action: Start a program; C:\VisualField4\ConnectSetup.exe \INDBARATHPOWER\"/SU

☐ Open the Properties dialog for this task when I click Finish

When you click Finish, the new task will be created and added to your Windows schedule.

< Back Finish Cancel

Figure 8-12 Finish the Configuration Synchronized Backup

Section 9 Configuration Example

9.1 Description

For example, new a project named "INDBARATHPOWER" which is created by user Admin.


- No.0 control domain is named "Combustion", and No.2 control domain is named "Turbine".
- Add one control station whose IP address is 172.20.0.2 and name is "Steam_Water", and another control station whose IP address is 172.20.0.4 and name is "BOP" to the "Combustion" control domain, Both are type of FCU711-S.
- Add one control station whose IP address is 172.20.2.2 and name is "Turbine1", and another control station whose IP address is 172.20.2.4 and name is "Turbine2", to the "Turbine" control domain, All are type of FCU711-S.
- Add two operation domains named "MainSteamConV" and "PAttemperatorConV".
 - The "MainSteamConV" operation domain consists of a server station whose IP address is 172.30.0.129, an engineer station whose IP address is 172.30.0.160, and an operator station whose IP is 172.30.0.161.
 - The "PAttemperatorConV" operation domain has a server station whose IP address is 172.30.1.129.
- User Admin has the configuration authority of all the control stations and operation stations.
- Set the "MainSteamConV" operation domain has the supervision authority of "Combustion" control domain. Set the "PAttemperatorConV" operation domain has the supervision authority of "Turbine" control domain.
- Save the project and set it as the default one.

9.2 Configuration Steps

The configuration steps are as follows:

9.2.1 New Project



Click the icon  on the Configuration Server desktop to open System Builder, and then click "New" in the toolbar to pop up dialog box of New Project shown as follows.

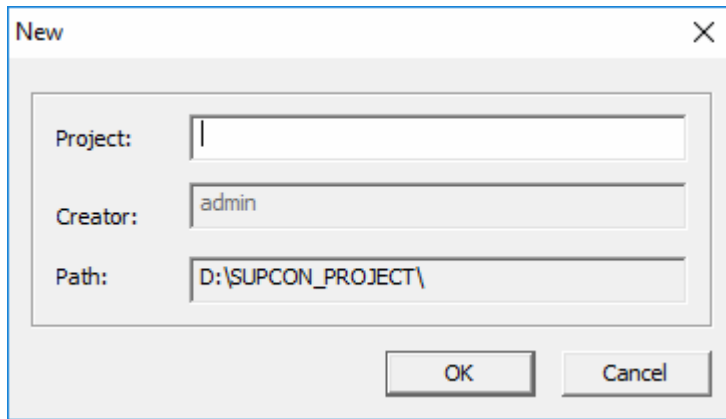


Figure 9-1 New project

Input the project name “INDBARATHPOWER” and project creator name “Admin”, click "OK", pop up dialog box of whether to create a password for the creator. Select "No", then the creator password is blank; Select "Yes" to set the creator password in the dialog box shown in *Figure 9-2*

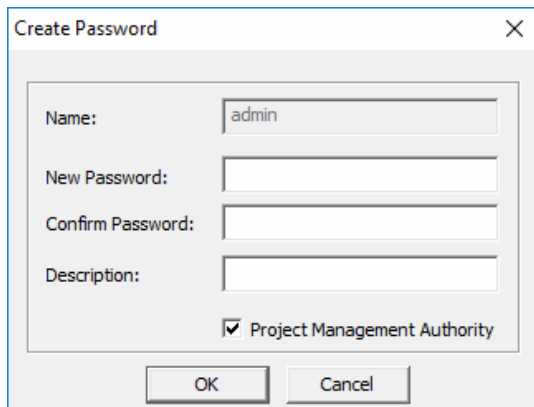


Figure 9-2 Password setting

Input the creator password and confirm the password, click “OK”, then continue to the structure configuration operation.

9.2.2 Control Domain Configuration

Users can select "Control Domain" in configuration tree, and then click "Add Control Domain" in the right-click menu to add a control domain whose address is 0 in control domain configuration shown in *Figure 9-3*

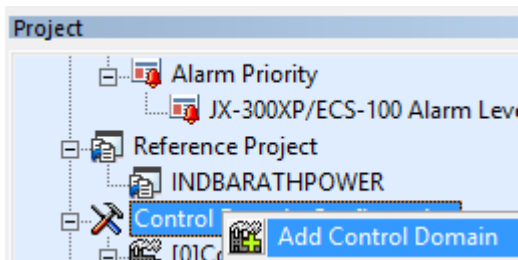


Figure 9-3 Add a control domain

Pop up the dialog box shown as below to select type of control domain.

Select "OMC" in "System" list and click "OK". After adding the control domain, rename it to "Combustion" and modify the domain address to 0 shown in *Figure 9-4*.

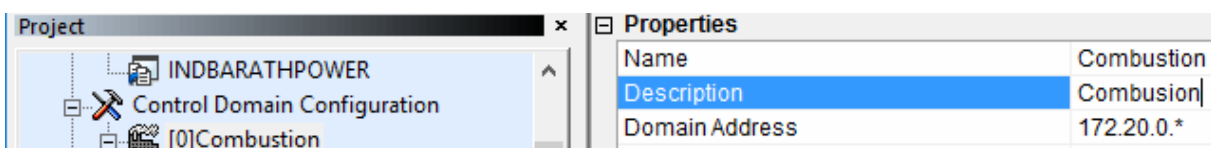


Figure 9-4 Modify the control domain

Users can right-click the control domain node in the configuration tree, and select "Add Control Station" in the pop-up right-click menu to add a control station in this control domain shown in *Figure 9-5*

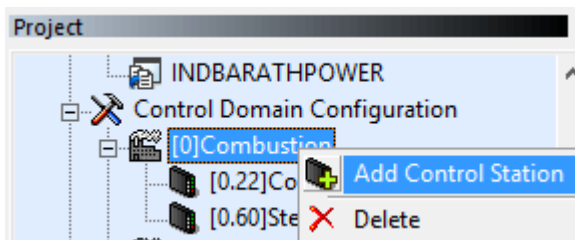


Figure 9-5 Add a control station

Add a control station whose address is 0.2 and name is "Steam_Water", then modify the address to 2 shown in *Figure 9-6*.

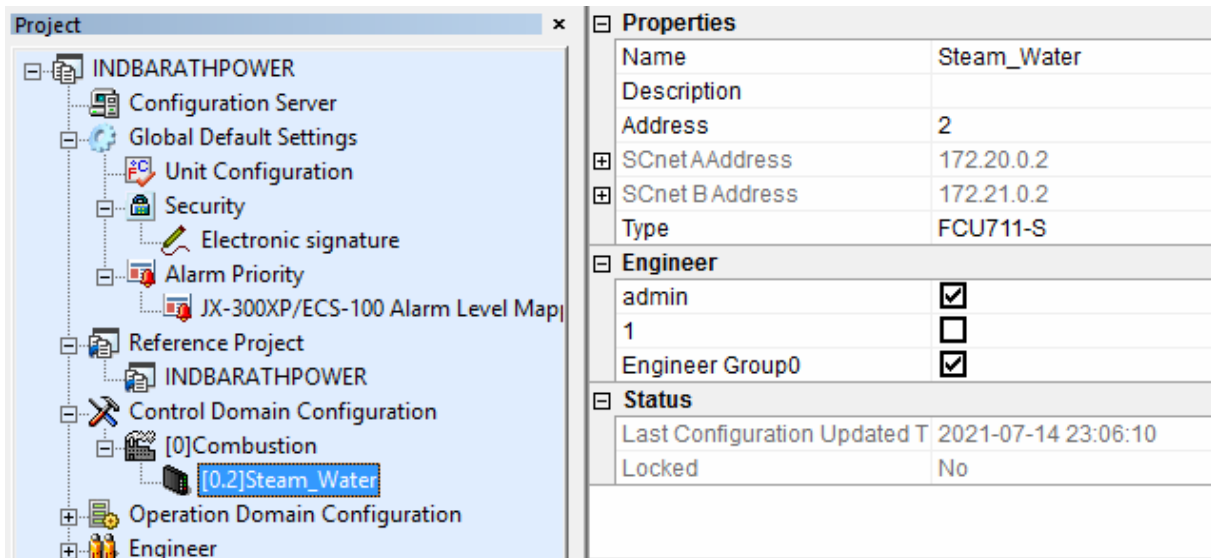


Figure 9-6 Information of the added control station

Modify the control station according to request. Users can select Control station node in the configuration tree, and then modify in Configuration Properties on the right as follows:

Rename it to “Steam_Water”, address it to 2, set the type to FCU711-S, select the item “supcon” to make it have the configuration authority of this control station (Users could save this operation at first). The configured status is shown in Figure 9-6.

Add another control station named “BOP”, then modify it. Users can select Control station node in the configuration tree, and then modify in Configuration Properties on the right as follows: rename it to “BOP”, address it to 4, set the type as FCU711-S, select the item “supcon” to make it have the authority of configure this control station (Users could save this operation).

Add another control domain named “Turbine” in the same way. The status after adding is shown in Figure 9-7.

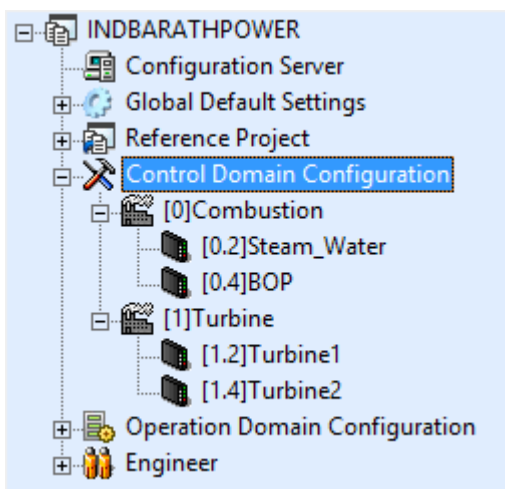


Figure 9-7The status of the added control domain and control station

9.2.3 Operation Domain Configuration

Users can right-click the "Operation Domain" node in configuration tree, and select "Add Operation Domain" in the pop-up right-click menu to add an operation domain in operation domain configuration shown in *Figure 9-8*

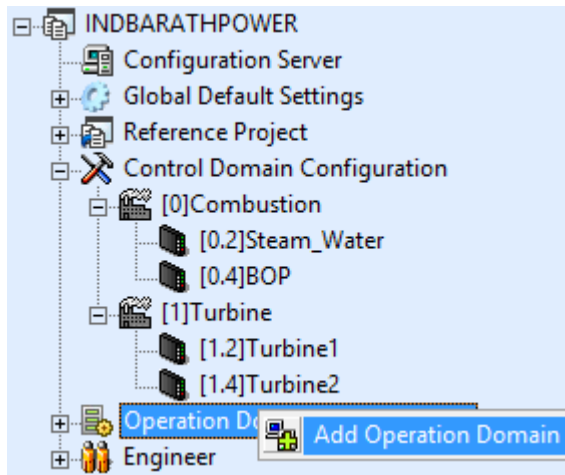


Figure 9-8Add an operation domain

After adding the operation domain, users can select the operation domain node in project configuration tree, and the corresponding configuration information will be displayed in the configuration properties window. Users can modify items as follows: name it as "MainSteamConV", set the configuration authority of each control domain, and give engineer supcon the authority of this operation domain shown in *Figure 9-9*.

Properties	
Name	Operation Domain0
Description	
Alias	OA00120
Control Domain	
[0]Combustion	<input checked="" type="checkbox"/>
[1]Turbine	<input checked="" type="checkbox"/>
Engineer	
admin	<input type="checkbox"/>
test	<input type="checkbox"/>
supcon	<input checked="" type="checkbox"/>
Engineer Group0	<input type="checkbox"/>
Status	
Last Configuration Updated T	2021-07-14 23:06:13
Properties	No
Resource File Locked	No

Figure 9-9Operation domain setting

Select the "MainSteamConV" node, then select "add server" in the right-click menu to add a servers whose IP are 0.129.

Select the “MainSteamConV” node, then select “add operation node” in the right-click menu and set the name as “ES_0_160”, address as 0.160, type as engineer station, SCNet connection as Redundant Network.

Select the “MainSteamConV” node, then select “add operation node” in the right-click menu to add another operation node named “OS_0_161”. Modify it in Configuration Properties on the right: name as OS_0_161, address as 0.161, operation node type as operator station, SCNet connection as Redundant Network.

Add an operation domain named “PAttemperatorConV” in the same way. The status after adding is shown in *Figure 9-10*.

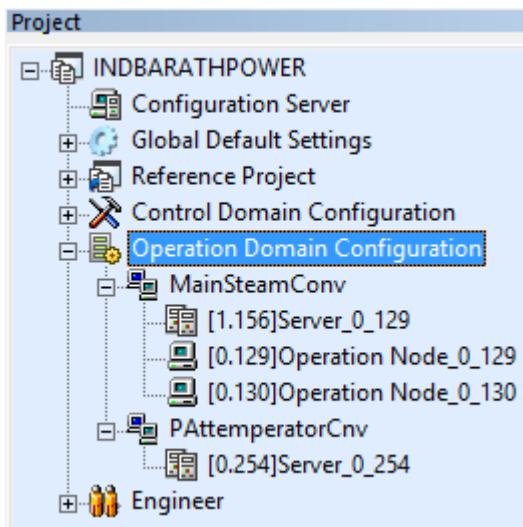


Figure 9-10 The status of the added operation domain

9.2.4 Engineer Configuration

Right-click the "Engineer" node, click "Add Engineer" in the right-click menu, pop up the dialog box of "Add Engineer", as shown in *Figure 9-11*

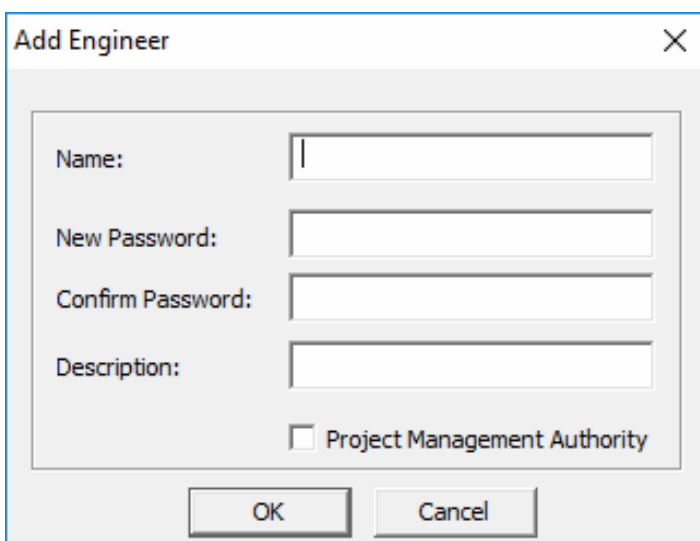


Figure 9-11 Add engineer

Input the engineer information, click “OK” to execute the operation. Select the user node, and set the authority in the properties window shown in below.

Properties	
Name	User1
Description	
Project Management Authority	<input checked="" type="checkbox"/>
[0]Combustion	
[0.2]Steam_Water	<input checked="" type="checkbox"/>
[0.4]BOP	<input checked="" type="checkbox"/>
[1]Turbine	
[1.2]Turbine1	<input checked="" type="checkbox"/>
[1.4]Turbine2	<input checked="" type="checkbox"/>
Operation Domain	
MainSteamConv	<input checked="" type="checkbox"/>
PAttemperatorCnv	<input checked="" type="checkbox"/>

Figure 9-12 Set the engineer authority

Add user Egn1 in the same way.

Right-click the engineer node, select “add engineer group” in the right-click menu. Then under the engineer node, there will be an engineer group named “Engineer Group 0” by default. Select this engineer group, input the name “Engineer Group1” into the property list on the right, and set it with the configuration authority of “Steam_Water”, “BOP” control station and “MainSteamConv” operation domain shown in *Figure 9-13*

Project INDBARATHPOWER Configuration Server Global Default Settings Reference Project Control Domain Configuration Operation Domain Configuration Engineer Engineer Group1 admin test supcon User1	<table border="1"> <tr> <td colspan="2">Properties</td> </tr> <tr> <td>Name</td> <td>Engineer Group1</td> </tr> <tr> <td>Description</td> <td></td> </tr> <tr> <td>Project Management Authority</td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="2">[0]Combustion</td> </tr> <tr> <td>[0.2]Steam_Water</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>[0.4]BOP</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td colspan="2">[1]Turbine</td> </tr> <tr> <td>[1.2]Turbine1</td> <td><input type="checkbox"/></td> </tr> <tr> <td>[1.4]Turbine2</td> <td><input type="checkbox"/></td> </tr> <tr> <td colspan="2">Operation Domain</td> </tr> <tr> <td>MainSteamConv</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>PAttemperatorCnv</td> <td><input type="checkbox"/></td> </tr> </table>	Properties		Name	Engineer Group1	Description		Project Management Authority	<input type="checkbox"/>	[0]Combustion		[0.2]Steam_Water	<input checked="" type="checkbox"/>	[0.4]BOP	<input checked="" type="checkbox"/>	[1]Turbine		[1.2]Turbine1	<input type="checkbox"/>	[1.4]Turbine2	<input type="checkbox"/>	Operation Domain		MainSteamConv	<input checked="" type="checkbox"/>	PAttemperatorCnv	<input type="checkbox"/>
Properties																											
Name	Engineer Group1																										
Description																											
Project Management Authority	<input type="checkbox"/>																										
[0]Combustion																											
[0.2]Steam_Water	<input checked="" type="checkbox"/>																										
[0.4]BOP	<input checked="" type="checkbox"/>																										
[1]Turbine																											
[1.2]Turbine1	<input type="checkbox"/>																										
[1.4]Turbine2	<input type="checkbox"/>																										
Operation Domain																											
MainSteamConv	<input checked="" type="checkbox"/>																										
PAttemperatorCnv	<input type="checkbox"/>																										

Figure 9-13 Engineer group properties setting

Right-click the “Engineer Group1” engineer group, and select “Add Engineer” in the right-click menu, pop up the dialog box of “Add Engineer”, input name Eng1_c and password, as shown in *Figure 9-14*.

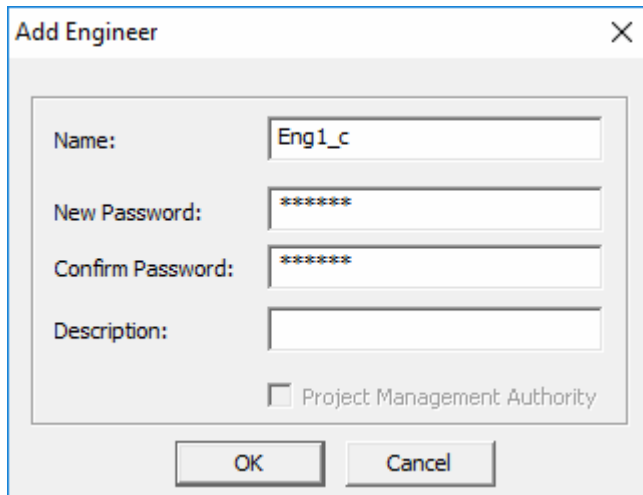


Figure 9-14 Add engineer

Add engineer Eng2_c in the same way.

Add engineer group named “Engineer Group 2”, add engineer Eng1_1 and Eng2_1 in this group.

All accomplished is shown as follows:

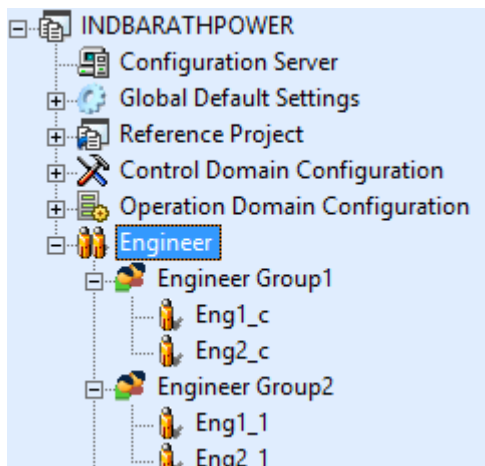


Figure 9-15 All users added

9.2.5 Global Default Setting

Global default setting is shown in Figure 9-16





Global Default Settings		
ON Color		
OFF Color		
Decimal Digits of Tag Template		2
Monitoring Theme		Default
QRcode		Disable
Reserved Area In Monitoring		Disable
Trend Draw Mode		General Mode
Show trend line tag info		<input type="checkbox"/>
Reference Domain Tag Info Mode		Online
Panel Alarm Color		
Normal Color		
Time Synchronization Server		
Time Synchronization Server Count		0
Alarm Setting		
Latching Alarm Color		
Latching Alarm Sound		Disable
Enable Latching System Alarm		Disable
Re-alarms Time (min)		10
Alarm Eclipsing		Enable
Alarm Shelving		Disable
State Management		Disable
Record Suppressed Alarm in History Alarm		Enable
Function Of Shielding Alarm Group And Alarm Region In Operation Domain		Disable
Alarm Status Display Rules		Default
Alarm Sort Rule		By Alarm Priority (Default)
SOnet		
SOnet Configuration		Information Network Single(172.30)
SOnetAAddress		172.30.*.*
IDM Server		
Server Address		

Figure 9-16 Global default setting

- The color of ON/OFF is red/green;
- The decimal digits of tag module is 2;
- The normal color of panel alarm indicators is light green;
- The amount of time synchronization servers is 1;
- The type of time synchronization is software time synchronization servers;
- The domain address is 0.
- Other configuration remains its default setting.

9.2.6 Save and Set Default Configuration

After configuration, click “save” on toolbar to save the configuration and click “default project” on toolbar to set the project as the default one. If there exist a default project, users must input user name and password of the existed default project to replace.

Section 10 Notes

1. New project
 - The user who creates the project has the project management authority by default;
 - If the project name is the same with one existed project name in the configuration path, it will prompt that the project already exists, and users need to input another project name;
 - If the name of project or engineer is illegal or exceeds the length limit, it will pop up a corresponding prompt, and users need to input another one.
2. If one control station has been locked by engineer station, its type cannot be modified.
3. For locked control station:
 - All the information of the control station cannot be modified except the authority of unlocked engineers.
 - When deleting the control domain which the control station belongs to, it will prompt that "Controllers are locked in this domain and can't be deleted! " In addition, users cannot modify the information of this control domain, all the information is displayed in grey---a status that information cannot be modified, but information of other control stations under the same control domain can be modified.
4. Repeated name in the same control domain is not allowed; repeated address is not allowed and address cannot exceed the range of 0~15.
5. The authority configuration of control stations and operation domains in engineer property bar is consistent with the configuration of engineers under corresponding control station and operation domain. Users can choose one of the following ways to configure according to the requirements and convenience: if there are many control stations, users can select the control stations for engineers in engineer list; if there are many engineers, users can select engineers for control stations in control station list.
6. After modifying the information of operation domains, users need to release the latest configuration by Configuration Explorer to the operator stations. For details of how to publish configuration, refer to VFExplorer User Manual.

Section 11 Revision

Table 11-1*Retrofit list of the version*

Document Version	Applicable model	Remarks
V1.0 (20230301)	OMC High-performanceHMI V4.70.00.00	First release
V1.1 (20230830)	OMC High-performanceHMI V5.10.00.00-M	Added the following descriptions of: Configuration of Trend Drawing Mode, Display of Trend Line Tag Info, Acquiring Way of Tag Information from the Reference Domain, Configuration of Latching Alarm Color and IDM Server. Configuration of project country/region and user server. Updated screenshots.