

OMC System Software

Integration of OMC and Third-Party DCS

Configuration Guide

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

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Integration of OMC and Third-Party DCS



Tip:

This article mainly introduces the basic configurations required for different roles during the integration of OMC and third-party systems. For detailed driver and service configurations, please refer to the user manuals of respective components.

Section 1 Overview

Data from third-party DCS can be accessed by using the InPlant Collector and components of OMC system software, enabling the OMC system to monitor field alarms and control loop operations of third-party DCS. It can promptly generate optimization data for the third-party system's loops and achieve autonomous collaborative operation throughout the entire production process.

The OMC system supports accessing the PID control loops, pilot data, APC data, tag and alarm data of third-party DCS.

1.1 Typical Network Structure

As shown in the figure below, a third-party DCS is connected to the OMC Intelligent Application Center (IAC) via a firewall. The IAC collects data from the third-party DCS and shares it with other IACs or intelligent engineering stations (IES).

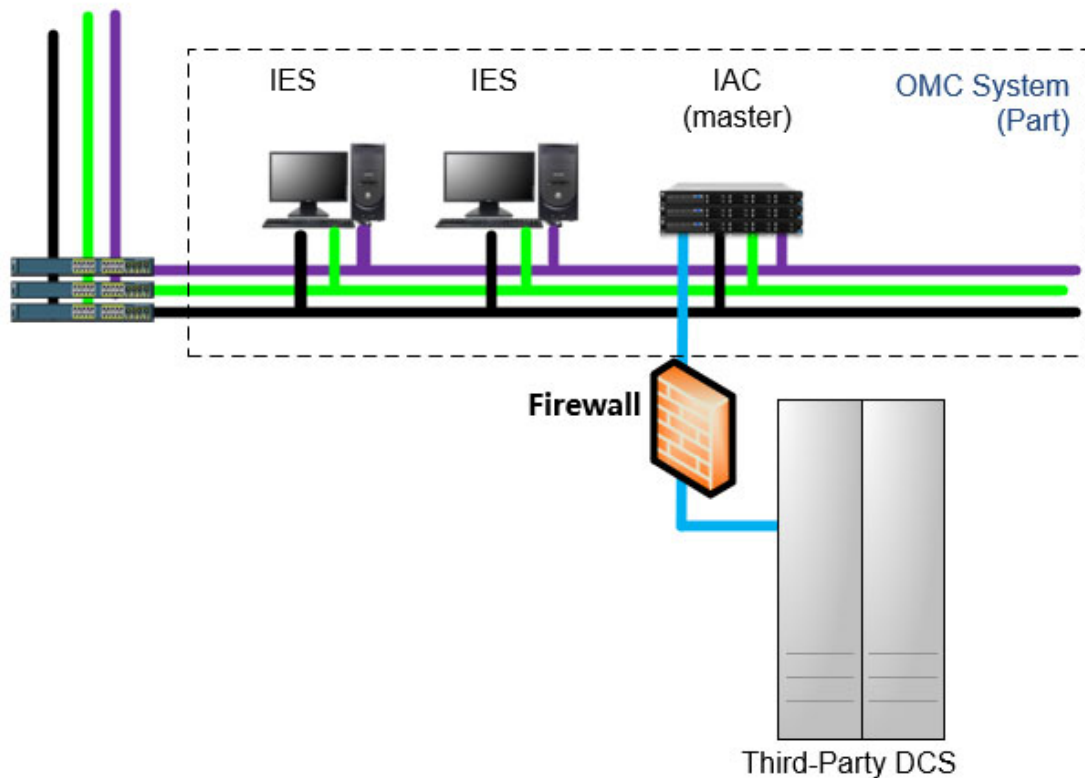


Figure 1-1 Typical network structure

1.2 Configurations for Each Role


In the typical network structure shown in the figure above, the main functions of each role and the applications running on them are explained in the table below.

Table 1-1 Explanation of typical network structure

Role	Applications	Functions
IAC	During the installation of OMC: <ul style="list-style-type: none"> ● Select Intelligent application center and Accessing third-party systems. ● For features, you can select PredictiveControl (I), PredictiveControl (II), LoopOptimization, Pilot, and AlarmManagement based on the actual situation. 	<ul style="list-style-type: none"> ● Use the InPlant Collector to acquire data from third-party DCS via OPC UA/DA driver. ● IAC shares the data with other IESs.
IES	During the installation of OMC: <ul style="list-style-type: none"> ● Select Intelligent engineering station. ● For features, you can select PredictiveControl (I), PredictiveControl (II), LoopOptimization, Pilot, and AlarmManagement based on the actual situation. 	<ul style="list-style-type: none"> ● Get third-party DCS data provided by the IAC. ● Monitor the third-party system using the Autonomous Operation Client.

Section 2 Configuring Server Address

In IES or IAC, you can use the Autonomous Operation Client to configure the IAC server and user server to acquire monitoring data and user permissions.

- 1) Double-click Autonomous Operation Client on the desktop.
- 2) Click  in the upper right corner to open the **Settings** window, as shown in the figure below.

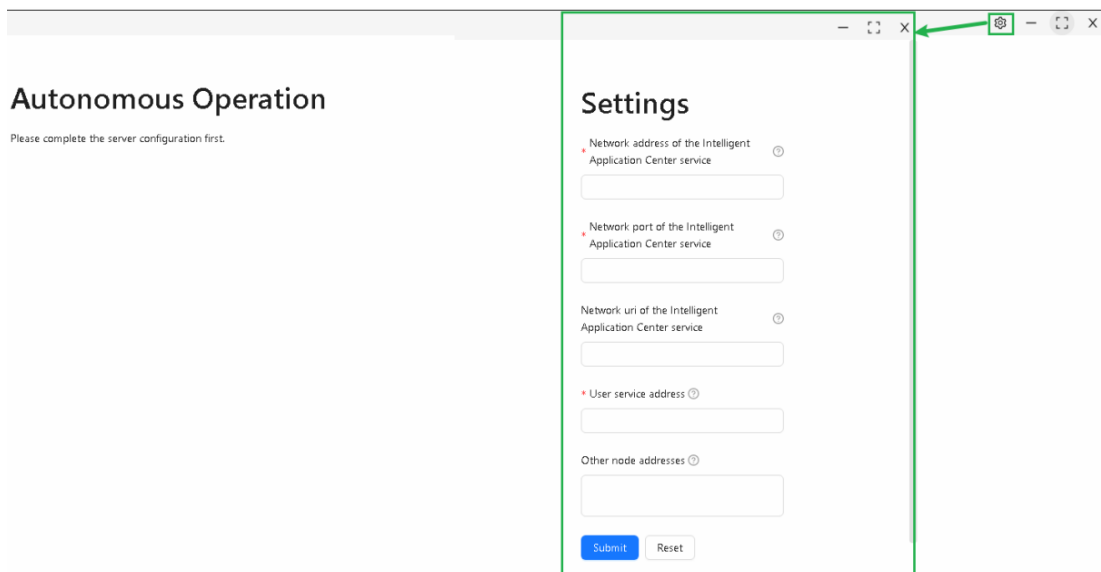


Figure 2-1 Example configuration of the Autonomous Operation Client

- 3) According to the table below, configure the information for the server connected with the Autonomous Operation Client.

Items	Descriptions
Network address of the Intelligent Application Center service	Specify the IP address of the IAC.
Network port of the Intelligent Application Center service	Specify the port number used for communication between the local computer and the IAC. The default port is 17080.
User service address	Specify the address of the user server that the local computer can connect to. The user server is used to centrally manage user accounts for OMC applications.

- 4) After configuring, click **Submit** to refresh the client.

Section 3 Configuring Intelligent Application Center

After installing the specified OMC components on the IAC, complete the following configurations to monitor the third-party DCS system in the IAC or IES.

3.1 Configuring Third-Party Driver and Driver Data

When accessing the third-party DCS, the IAC retrieves real-time data and configurations from the third-party DCS through the InPlant Collector. According to the Configurations for Each Role, after installing OMC on the IAC, the InPlant Collector will be displayed on the desktop by default.

- 1) Double-click "CollectorCfg" on the desktop to open the "InPlant Collector" software.
- 2) Create a project in the software and configure OPC UA and OPC DA drivers, as well as driver data.

For detailed instructions for the InPlant Collector software, please refer to the online help of the software.

3.2 Enabling Basic Services

Enable the required services in the IAC, such as user services, data services, and run management services.

- 1) Double-click the desktop icon of "Intelligent Application Management" to open the software. Click **Platform**.
- 2) In **Platform** tab, enable the services.

3.3 Enabling Other Services

To enable the services of other components installed in the IAC, select the component from the left navigation bar in the window shown above and enable the services in the configuration pane.

Section 4 Accessing Monitoring Data of Third-Party DCS

The monitoring data of the third-party DCS system can be viewed through the Autonomous Operation Client in the IAC or IES.

Logging in

- 1) Double-click the desktop icon of Autonomous Operation Client to open its login interface.

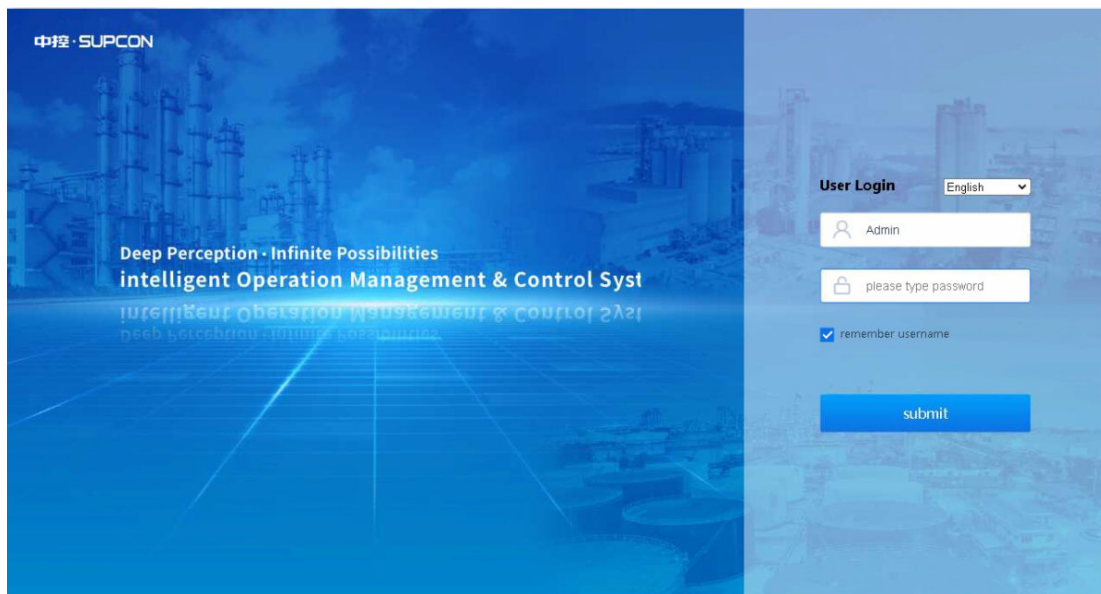


Figure 4-1 Login interface

- 2) Enter the login credentials configured in the user server. Click **Log in**.
 - In the nodes such as Pilot, AlarmManagement, and Loop Optimization, you can utilize the respective functions. For detailed instructions, please refer to the user manuals of each component.
 - In the **User Security** node, you can access and manage OMC users and their permissions. The main functionalities are as follows:
 - Role Management: View all roles configured in the High-performanceHMI component and the respective users.
 - Permission Query: Access users' permissions, role permissions, and permission change logs.
 - User Management: Add users and configure operational permissions for OMC software (excluding IDM).
 - By clicking **Config**, you can adjust the parameters displayed on the homepage.

Configuring User Permissions

- 1) Go to **User Security > User Permission Manage**, and select a user or multiple users with the same permissions.
- 2) Hover the cursor to the last column labeled **Operate**.
- 3) Click **authority** to open the permission assignment.
- 4) In the left navigation tree, select a functional module and configure the permissions for it in the right operation pane.

The functional modules include Pilot, Alarm Management, Loop Optimization, etc.

Configuring Parameters Displayed in Homepage

- 1) Click **Config** in the top right corner of the homepage, and configure the following parameters in the opened page.
 - Data Service IP: The IP address of the PredictiveControl server
 - Data Service Port: 5150 by default
 - Data Service Username: administrator
 - Data Service Password: supcon
- 2) Test the connection to ensure successful connectivity.
- 3) Add data from the server.

The formula supports basic arithmetic operations, logical operations. Tag names should be separated by "#". For example, you can input "#Tag_Name#".

- 4) After adding the data, it will be displayed on the homepage.

Section 5 Revision History

Table 5-1 Revision history

Version	Applicable Product Version	Remarks
V1.1 (20231011)	OMC V1.20.00.00-M	First release.