

Introduce Cermate OPC UA

It is a more secure, open, and reliable mechanism for transferring information between servers and clients

人機解決方案 物聯網關服務

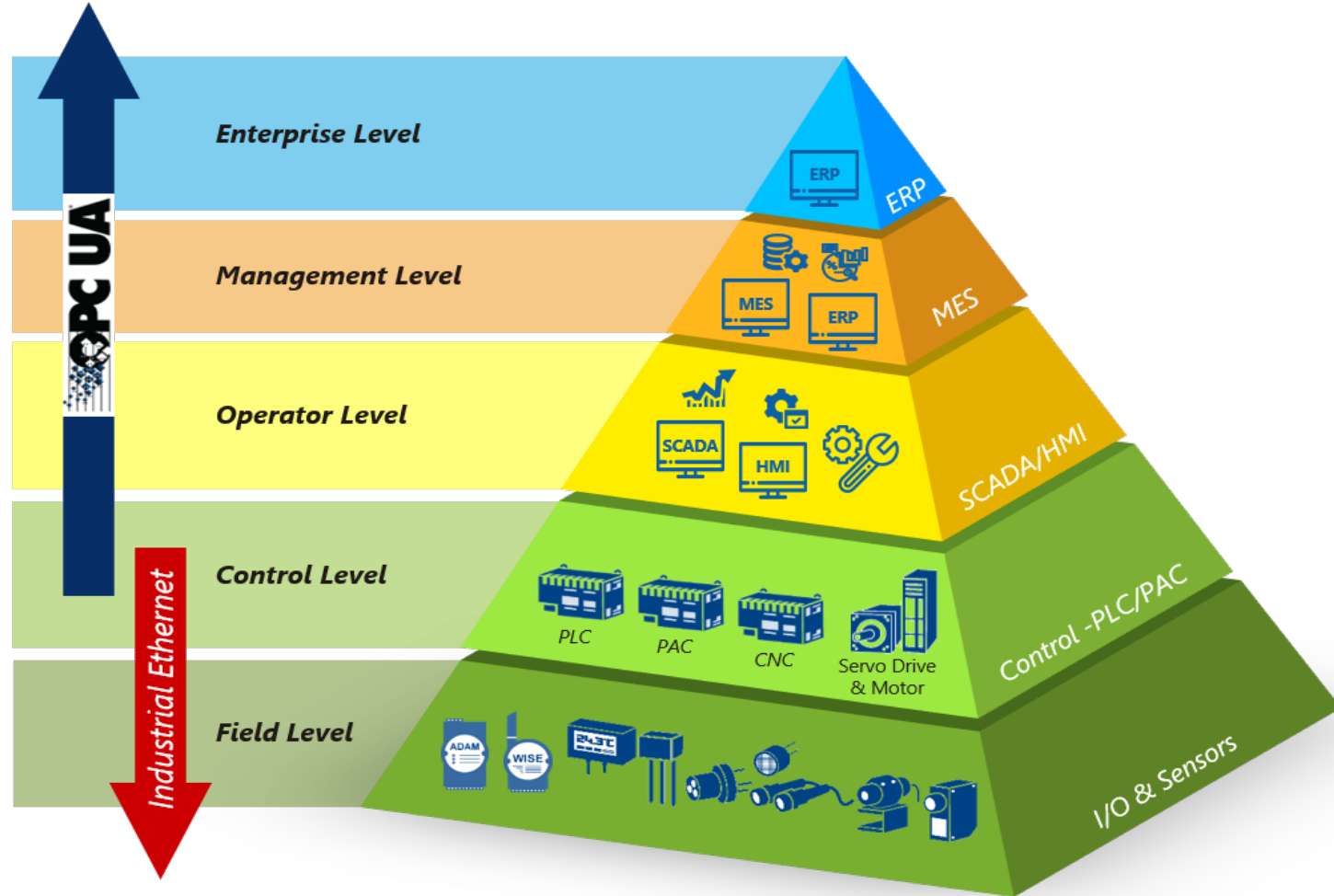
The HMI Solution and IoT Gateway Provider

屏通科技股份有限公司 Cermate Technologies Inc.

Preface (Why OPC UA Server)

Benefit in the Data & Management Level

- ✓ Platform independent
- ✓ Semantic services
- ✓ Direct device connection over all levels
- ✓ Authentication and encryption

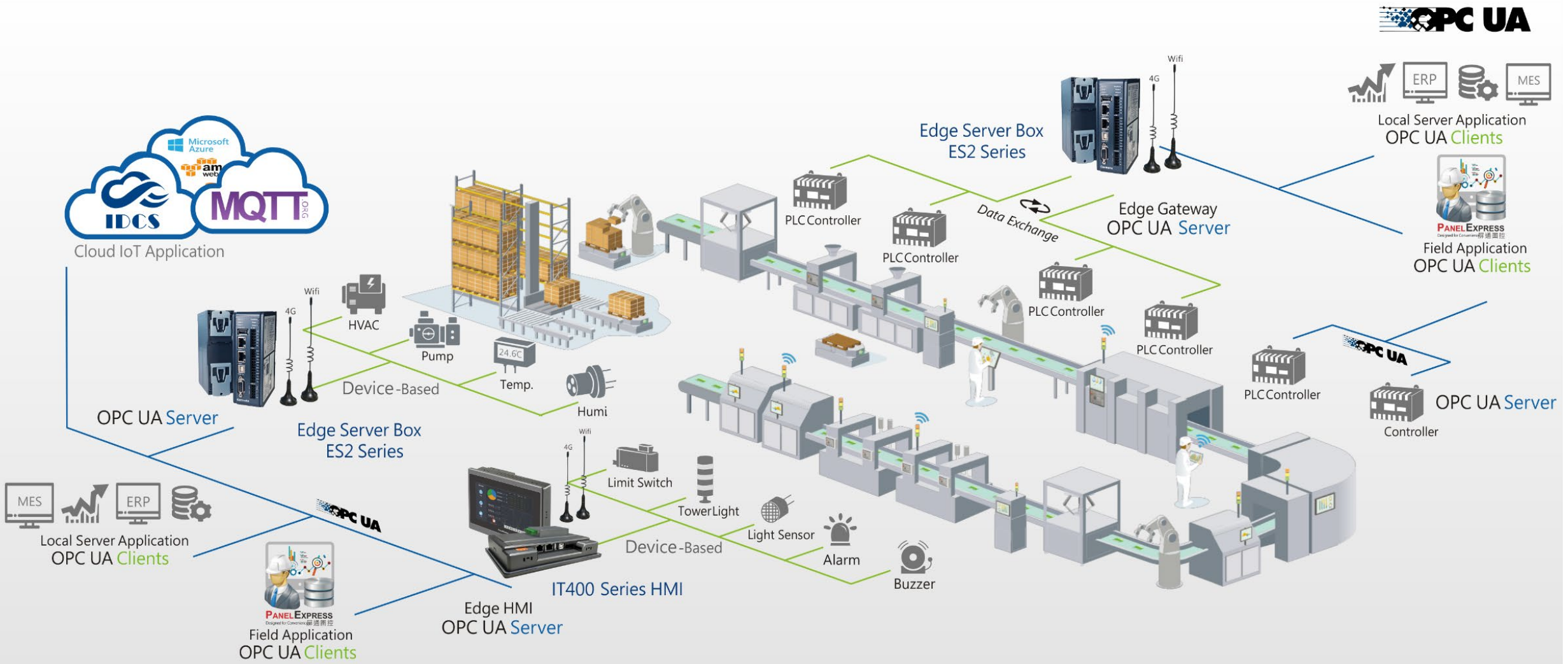


Benefit in the Controller & Field Level

- ✓ Deterministic
- ✓ Real-time capable
- ✓ Real-time C2C-communication
- ✓ Standardized profiles

(Source: Siemens & OPC Foundation)

OPC Server architecture with Cermate products



Support more than 500+ PLC device



Features

Cermate OPC UA is about reliably, securely, and most of all, easily modeling "objects" from the shop floor to the entire company.



Development

Skip a significant secondary developing process.
Ready to use protocol with simple settings.



Reduce costs

100% built-in, zero extra hardware and software.



Protocol conversion

Supports various protocol conversions with the real-time operating system for best the network security.

OPC UA Server Function Setting in Cermate Edge Devices



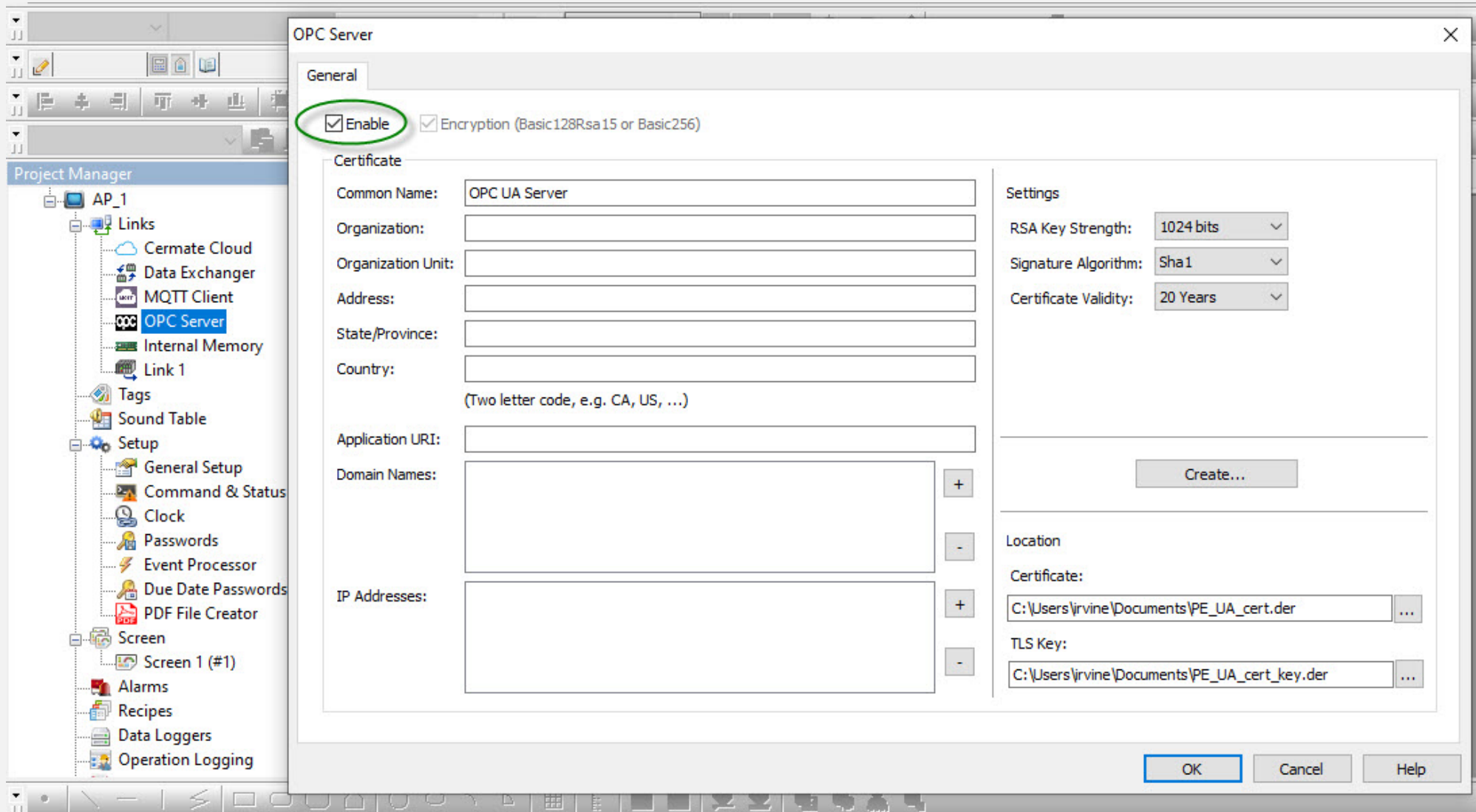
Windows OS : Win7(64Bit) 、 Win10

Software version: [PM Designer 4.0.3.66](#) or higher

Panel model: [PX Series](#) , [IT400 Series](#) , [ES Box Series](#), [PanelExpress](#)

OPC mode: UA Server

1st step: enable OPC Server in projects,



How to generate certification files

Encryption (Basic128Rsa15 or Basic256)

OPC UA Server

(Two letter code, e.g. CA, US, ...)

Settings

RSA Key Strength: 1024 bits

Signature Algorithm: Sha1

Certificate Validity: 20 Years

Create...

Location

Certificate: C:\Users\irvine\Documents\PE_UA_cert.der

TLS Key: C:\Users\irvine\Documents\PE_UA_cert_key.der

OK Cancel Help

Set the Key strength, Signature Algorithm, and Certificate Validity, then click "Create" to save certification files in the folders.

Tips: Please import the certification files required by the PC OPC software first because the OPC software only allows connecting with a verified OPC server. If the OPC client is PANEL EXPRESS which our OPC server has verified, the certification files are unnecessary.

2nd step: Create tags for the OPC connection.

Tag Table (AP_1)

Link 1	Data Type	Name	Alias For	Data Type	Address	Scan Rate	Exposed
1		bb1		32-Bit Unsigned Integer	W0	Normal	Yes
2		ba2		32-Bit Unsigned Integer	W2	Normal	Yes

Exposed Tag Attributes

Tag: OK

Data Type: Cancel

Exposed to CloudExpress

Exposed to OPC UA server

For CloudExpress

Read Only

For OPC Server

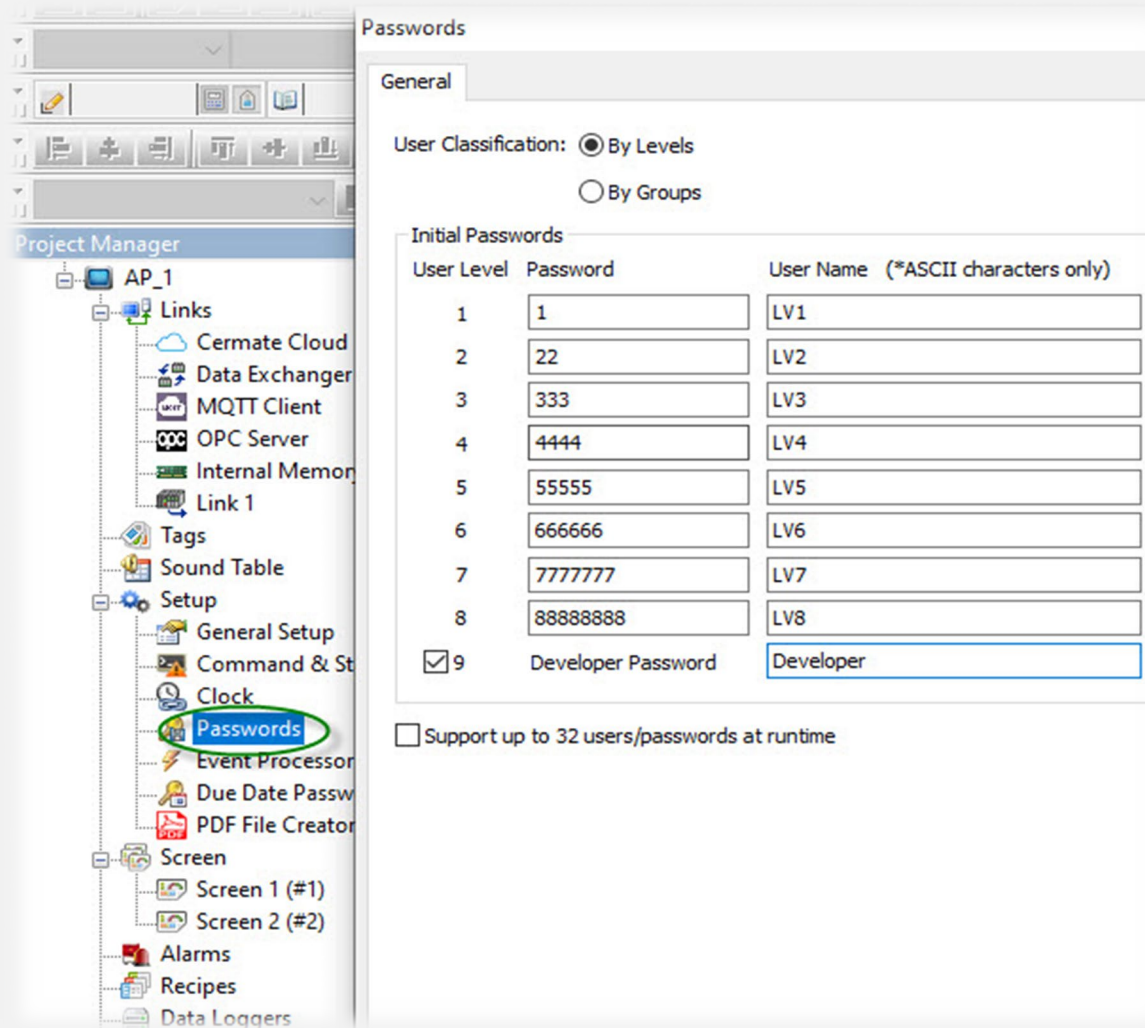
Engineer Unit:

Auto Scan Scan Interval: second(s)

You can create tags in "internal memory" or "link". Then, click the "Exposed to OPC UA server" option for these tags for OPC connections. User names and passwords for signing in to the OPC server: The Panel acts as an OPC server, so "user names" and passwords are also the same as the panel settings.

User names and password for sign in to OPC server:

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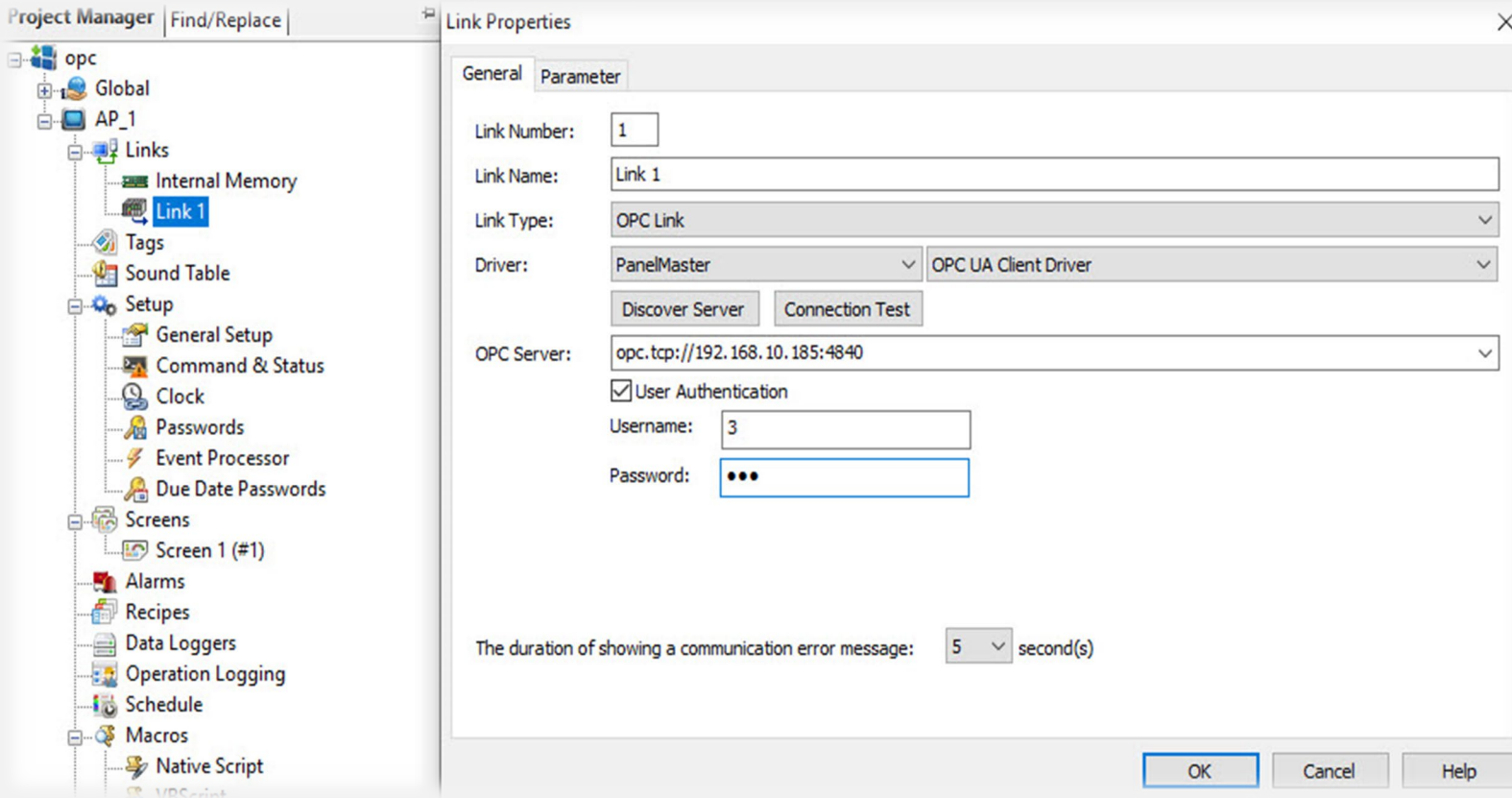
The screenshot displays the 'Passwords' configuration window in the Cermate software. The 'Project Manager' on the left shows a tree view with 'AP_1' expanded, and 'Passwords' highlighted. The 'Passwords' window has a 'General' tab and two radio buttons for 'User Classification': 'By Levels' (selected) and 'By Groups'. Below is a table of 'Initial Passwords' with columns for 'User Level', 'Password', and 'User Name (*ASCII characters only)'. The table contains 9 rows, with the 9th row checked and highlighted. At the bottom, there is a checkbox for 'Support up to 32 users/passwords at runtime'.

User Level	Password	User Name (*ASCII characters only)
1	1	LV1
2	22	LV2
3	333	LV3
4	4444	LV4
5	55555	LV5
6	666666	LV6
7	7777777	LV7
8	88888888	LV8
<input checked="" type="checkbox"/> 9	Developer Password	Developer

When you finish all the OPC server settings, you can run OPC Server on the Panel or the PanelExpress.

For OPC client connection:

The PanelExpress not only supports the OPC client but also supports the OPC server connection. Here are the settings below.



Link type: OPC link

Driver: Panel Master, OPC UA Client driver

OPC Server field: the format of OPC link such below,

opc.tcp://192.168.10.185:4840

The "192.168.10.185" is panel IP, the default port for access to the OPC server is 4840.

User Authentication: the "user names" and password must be the same as what you set in the Panel.

Connect successfully with the "Test Connection" button

The image shows two overlapping dialog boxes from a software application. The top dialog, titled 'Link Properties', has two tabs: 'General' and 'Parameter'. The 'Parameter' tab is active, showing fields for 'Link Number' (1), 'Link Name' (Link 1), 'Link Type' (OPC Link), 'Driver' (PanelMaster and OPC UA Client Driver), and 'OPC Server' (opc.tcp://192.168.10.185:4840). There are buttons for 'Discover Server' and 'Test Connection', and a checked 'User Authentication' checkbox.

The bottom dialog, titled 'Connect Server', shows the 'Server' dropdown set to 'opc.tcp://192.168.10.185:4840'. It includes a 'Use Security' checkbox and a 'Connect' button. Below this is a tree view with 'Internal Memory', 'Link 1', and 'Server' expanded. To the right is a table of properties:

Name	Value	Data Type
NodeId	i=85	NodeId
NodeClass	1	Int32
BrowseName	Objects	QualifiedName
DisplayName	Objects	Localized Text
Description		Localized Text
WriteMask	0	UInt32
UserWriteMask	0	UInt32
EventNotifier	0	Byte

At the bottom of the 'Connect Server' dialog, it says 'Connected [opc.tcp://192.168.10.185:4840/] 02:46:39'.

3rd step: Load tags from OPC server(in Panel Express)

Click "tag" item and choose "load tags from the OPC server."

The screenshot illustrates the process of loading tags from an OPC server in Panel Express. It shows the Project Manager on the left, the Tag Table (AP_1) in the center, and the Connect Server dialog box on the right. The 'Load Tags From OPC Server...' option is highlighted in the Tag Table context menu. The Connect Server dialog shows the server address 'opc.tcp://192.168.10.185:4840' and a list of tags. A 'Loading OPC Tags' progress dialog is also visible, indicating the progress of the tag loading process.

Project Manager

- opc
- Global
- AP_1
 - Links
 - Internal Memory
 - Link 1
 - Tags**
 - Sound Table
 - Setup
 - General Setu
 - Command
 - Clock
 - Passwords
 - Event Proce
 - Due Date Pa
 - Screens
 - Screen 1 (#1
 - Alarms
 - Recipes

Tag Table (AP_1)

Link 1	Data Type	Name

Connect Server

Server: opc.tcp://192.168.10.185:4840

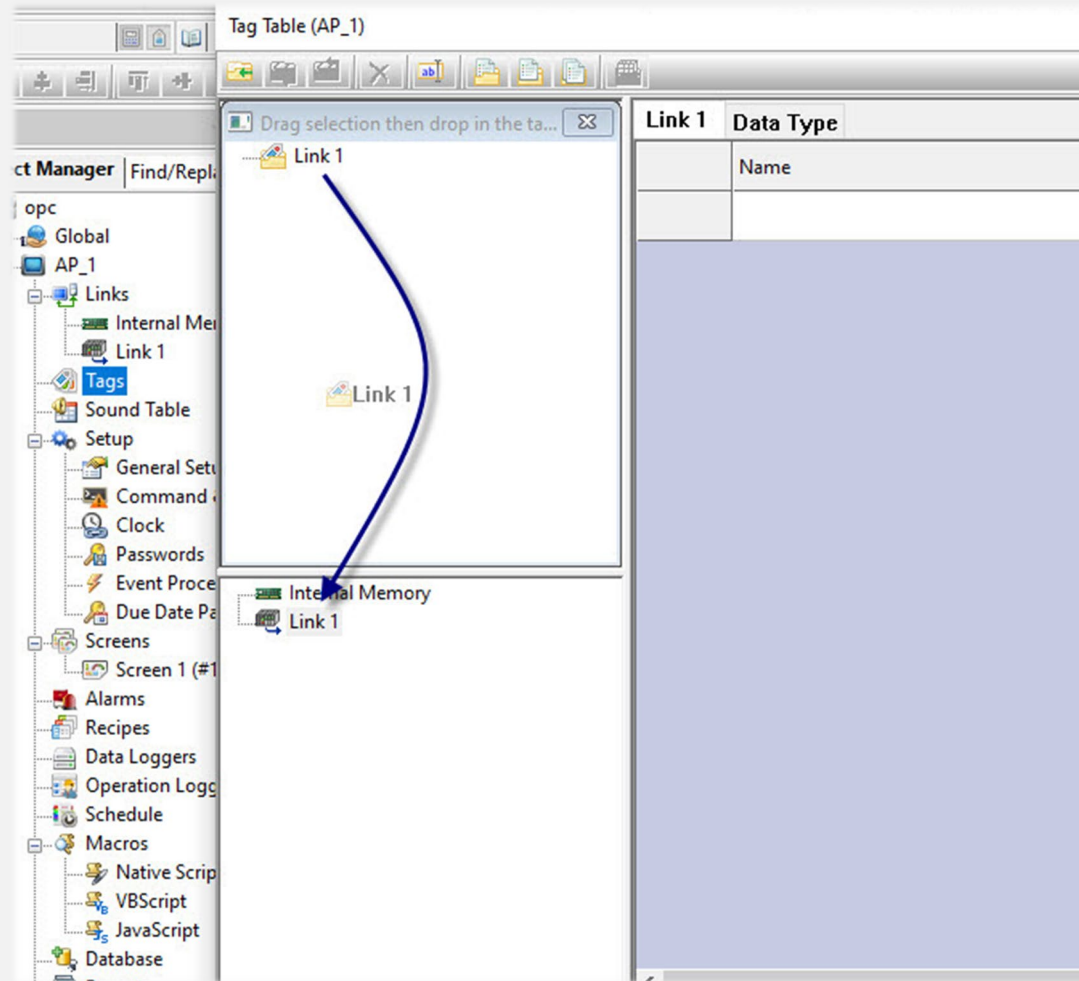
Internal Memory	Name	Value	Data Type
+	NodeId	i=30001	NodeId
+	NodeClass	1	Int32
+	BrowseName	Link 1	QualifiedName
+	DisplayName	Link 1	Local
+	Description		Local
+	WriteMask	0	UInt32
+	UserWriteMask	0	UInt32
+	EventNotifier	1	Byte

Loading OPC Tags

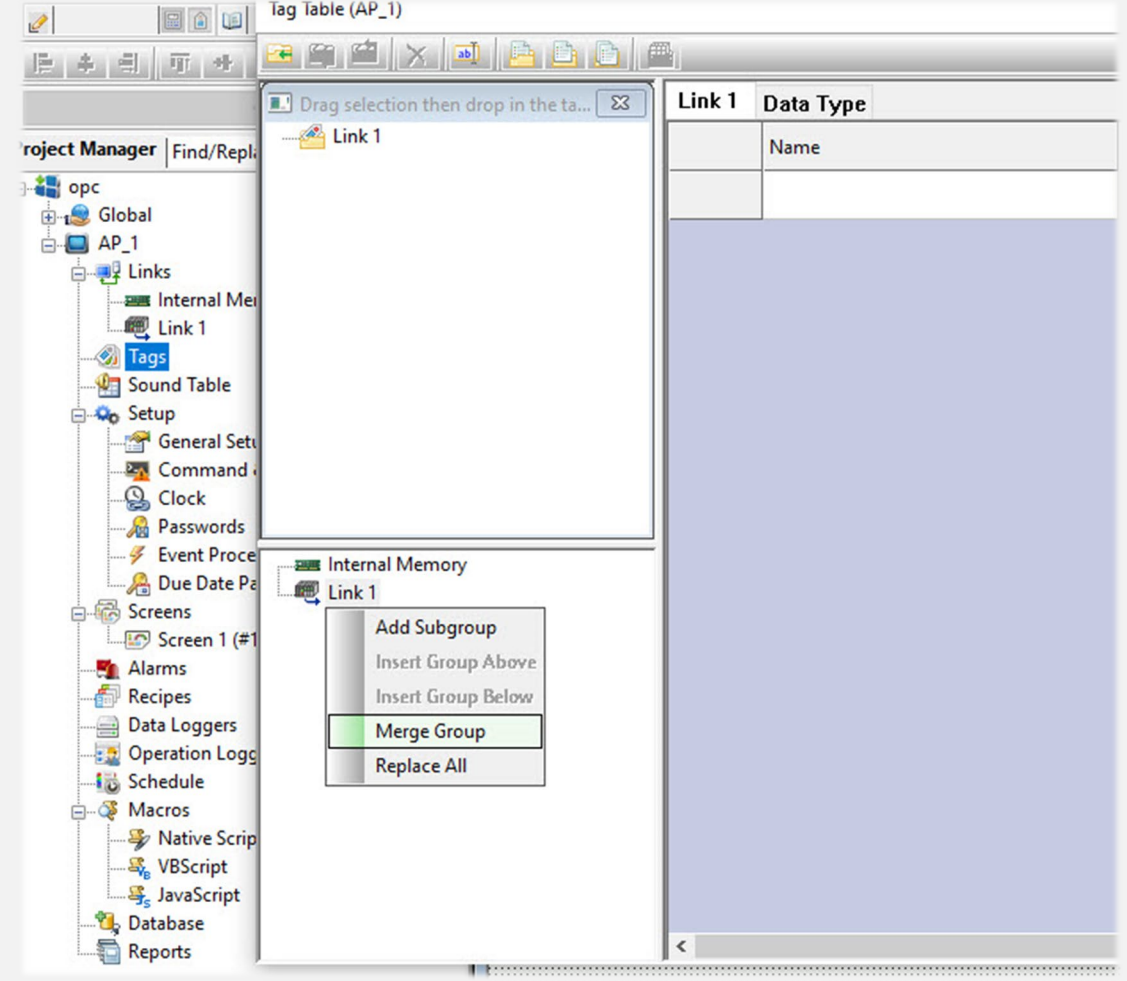
Loading Tags...

Cancel

Next, drag down the tags to the internal memory blocks shown as below.



Choose "add" or "marge" according to your project.



Congratulations on your completion

tag Table (AP_1)

Drag selection then drop in the ta...

Link 1		Data Type					
	Name	Alias For	Data Type	Address	Scan Rate	Exposed	Description
1	bb1		32-Bit Unsigned Integer	ns= 1;i=1	Normal	No	R W
2	ba2		32-Bit Unsigned Integer	ns= 1;i=2	Normal	No	R W

Internal Memory
Link 1

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Than you for your patience.