

## KEPServerEX V6 中文入門操作範例手冊

## 版權聲明:

美商 KEPWARE 股份有限公司所研發之 OPC Server-KEPServerEX 軟體,入門操作簡易手冊中所使用之商標及軟體畫面均授權台灣研杰科技股份有限公司所使用,未經授權者不得任意轉載至商業用途。

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## -、 What is KEPServerEX?

### KEPServerEX 特徵說明:

KEPServerEX 是最新一代的 Kepware OPC 伺服器科技,它被設計成為能夠幫助使用者迅速 地設定通信協定連結到您的 PLC 操縱系統,經由大範圍的"Plug-in"設備驅動器與支援數百種以 上的 PLC 類型,能夠完整正確且迅速取得資料到系統之中。此外 KEPServerEX 也提供多種功 能設定介面以便您能夠依照實際使用上的需求來做變更與控制,獲得更高的效率,利用多執行 緒 (Multi-Threaded) 作業環境您能夠增加許多設備減少效能的浪費。在 OPC Server 的範圍中沒 有比 KEPServerEX 的使用者界面更令人感覺到親和力十足,您不需擔心關於學習新的通信協議 或操作軟體上所需花費的多餘時間,讓您可以專注於了解新的應用之中。

## 二、 應用程式連接與驅動程式支援

KEPServerEX 可對應的 OPC 應用程式範圍:

- OPC Unified Architecture (OPC UA)
- OPC Data Access (OPC DA)
- OPC Historical Data Access (OPC HDA)
- OPC Alarms and Events (OPC A&E)
- OPC XMLDA
- OPC Data eXchange (OPC DX)
- OPC Batch
- OPC Security

KEPServerEX 可支援的驅動程式:

通訊協定

- Ethernet、BACnet、Modbus…更多
- RS-232 RS-422 RS-485

### 控制器

- PLC
- DCS
- DDC
- 各種 I/O Driver 與 DDE Server

若想知道 KEPServerEX 所支援的更詳細 PLC 廠牌型號請上網查詢以下網站: www.youngtec.com.tw 或來電研杰科技 TEL: 07-3452268



# 三、 <u>KEPServer</u>EX 安裝說明

1. 首先請您將安裝光碟放入光碟機之中,光碟會啟動自動安裝,若是試用版請直接點選執行 安裝的 EXE 檔案(若光碟機無啟用自動安裝也請做相同動作)。 出現如下畫面:

Кери	vare Installation CD	×
🛑 kepware®		
Product Installation Click the product to launch the install. Product Manuals View product manuals for Kepware software products.	kepware <sup>,</sup> kepserverex <sup>,</sup> kepware <sup>,</sup> linkmaster kepware <sup>,</sup> redundancymaster <sup>,</sup> kepware <sup>,</sup> clientace <sup>,</sup>	
	NetLink Configuration Utility Manual Open PDF	~
Contact Information Connect with Technical Support for assistance with installation, configuration, troubleshooting, license management, and more.	Phone: +1 888-KEPWARE (537-9273) x211 Email: technical.support@kepware.com Web: www.kepware.com/support/technical-suppo	

2. 於 Installer Language 視窗,選擇您欲使用的語言,本範例選擇 English,點擊 OK 按鈕。

🕄 Installer Language 🗙	🕄 Installer Language 🗙
Please select your Language:          English <ul> <li>OK</li> <li>Cancel</li> </ul>	Please select your Language:  English  English  Deutsch (German) 日本語 (Japanese)  OK Cancel



3. 出現 KEPServerEX 6 Setup 視窗,點擊 Next 按鈕。



4. 閱讀完 License Agreement 後, 勾選 Accept 選項, 點擊 Next 按鈕。

ß	KEPServerEX 6 Setup 🛛 🗕 🗖 🗙
]	End-User License Agreement Please read the following license agreement carefully
	PTC CUSTOMER AGREEMENT         THIS PTC CUSTOMER AGREEMENT ("AGREEMENT") IS A LEGAL         AGREEMENT BETWEEN THE INDIVIDUAL, OR THE COMPANY OR OTHER         ORGANIZATION ON WHOSE BEHALF SUCH INDIVIDUAL ACCEPTS THIS         AGREEMENT, THAT EITHER (A) CLICKS THE "I ACCEPT" BUTTON BELOW         OR (B) INSTALLS, ACCESSES, OR USES ANY SOFTWARE OR         DOCUMENTATION FROM PTC ("CUSTOMER"), AND PTC INC. OR, IF THE         PURCHASE WAS MADE IN A COUNTRY SPECIFIED ON SCHEDULE A TO         THIS AGREEMENT, THE PTC AFFILIATE SPECIFIED ON SCHEDULE A (AS         APPLICABLE, "PTC").         PLEASE READ THE TERMS AND CONDITIONS OF THIS AGREEMENT
	Print Back Next Cancel

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5. 若您有安裝舊版 KEPServerEX,會出現提示訊息,KEPServerEX 6 會取代舊版 KEPServerEX 程式,但設定檔、記錄、資料會被保留下來,點擊 Next 按鈕。

ß	KEPServerEX 6 Setup 🛛 🗕 🔍 🗙
	KEPServerEX 5, V5.21.112.0 Detected
	Setup has detected a previous version (KEPServerEX 5) installed on this machine. If you choose to continue, this installation will attempt to remove the older version and automatically redirect clients to use KEPServerEX 6. No configuration, log or data files will be removed during this process.
	NOTE: If you have active licenses from KEPServerEX V5, you may need to update them to work with V6. If you choose not to upgrade your licenses after this installation completes, the product will run in a two hour Time Limited mode.
	Back Next Cancel

選擇安裝路徑,本範例使用系統預設路徑,點擊 Next 按鈕。 6.

KEPServerEX 6 Setup	_ 🗆 🗙
<b>Destination Folder</b> Click Next to install to the default folder or click Browse to choose anothe	r. ex
Install KEPServerEX 6 to:	
C:\Program Files (x86)\Kepware\KEPServerEX 6\	Browse
Reset Back Next	Cancel



7. 選擇資料儲存路徑,本範例使用系統預設路徑,點擊 Next 按鈕。

KEPServerEX 6 Setup	_ 🗆 🗙
<b>Application Data Folder</b> Click Next to use default folder or click Browse to choose another.	ex
The Application Data folder used by KEPServerEX 6 must be accessible is recommended that you do not change this path.	e to all users. It
C:\ProgramData\	Browse
Reset Back Ne	xt Cancel

選擇是否於桌面建立捷徑,點擊 Next 按鈕。 8.

17	KEPServerEX 6 Setup	_ □	×
Sho: Se	<b>atcuts</b> elect shortcuts to create and click Next.		ex
Spe	cify the shortcuts to be created:		
•	Configuration Desktop Shortcut		
	Back	Can	cel
		Cuir	



9. 選擇 Driver 的套裝類型,本範例選擇 Typical,點擊 Next 按鈕。

1 <sup>6</sup>	KEPSe	rverEX 6 Setup	_ 🗆 🗙
Vertical Su Select Verti	i <b>te Selection</b> cal Suite.		ex
Select Vertica Drivers and F	l Suite, Typical or Custom. lug-Ins will be preselected f	If Vertical Suite is selected, associa or installation.	ted
Typical Typical Custom Building Aut EFM Suite IT and Infras Manufacturin Oil and Gas Power Distri	omation tructure Ig bution		
		Back Next	Cancel

10. 選擇欲安裝的項目。

16	KEPServerEX 6 Setup 🛛 🗖 🗙
	Select Features Select which features are to be installed.
	Full Installation Communications Server Communication Drivers Native Client Interfaces Plug-Ins X + Hardware Key OPC Quick Client X • Examples and Documentation This feature requires 1KB on your hard drive. It has 2 of 4 subfeatures selected. The subfeatures require 461MB on your hard drive.
	Reset Back Next Cancel



- 11. 在樹狀圖的最頂端選擇 Entire feature will be installed on local hard drive, 便可安裝所有項
  - 目,點擊 Next 按鈕。

Re<u>s</u>et



<u>B</u>ack

Next

Cancel



### 12. 出現安裝資訊,點擊 Next 按鈕。

16	KEPServerEX 6 Setup 🛛 🗕 🔍 🗙
E	xternal Dependencies Features selected for installation have external dependencies.
Th de de Ex fea Fa Fa Hill Wo Sa Ad	e features below that have been selected for installation are known to have external pendencies. Users can proceed with the installation but may need to verify that pendencies have been met before attempting to use the features during Runtime. amples of dependencies include Third-Party configuration tools, communication libraries, or mmunication cards installed in the target PC. For more information, refer to the individual ature's setures the features the features the individual ature's setures the features the features allowed by the seture of the individual ature's been met before attempting to use the features to the individual ature's setures the features the features the features the individual ature's been met before attempting to use the features to the individual ature's been met before attempting to use the features to the individual ature's been met before attempting to use the features to the individual ature's been met before attempting to use the features been met before attempting to use the features to the individual ature's been been been been been been been bee
	Back Next Cancel

13. 勾選 Allow client applications to request data through Dynamic Tag addressing, 點擊 Next 按鈕。





- 14. 設定 Administrator account 的輸入 Password 密碼跟再 Confirm Password 再次確認密
  - 碼,如不想設定密碼,可勾選 Skip Setting a password at this time 跳過。

KEPServerEX 6 Setup 🗕 🗆 🗙
User Manager Credentials Set password for the Administrator account
It is recommended that the password be at least 14 characters in length and include a mix of uppercase and lowercase letters, numbers, and special characters. Avoid well-known, easily guessed, or common passwords.
Skip setting a password at this time
Password:
Confirm Password:
Back Next Cancel

15. 點擊 Install 按鈕開始安裝。

1	🖟 KEPServerEX 6 Setup 🛛 🗕 🗖 🗙
	Ready to install KEPServerEX 6
	Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
	Back Install Cancel



16. 待安裝程序執行完畢後,點擊 Finish 按鈕,KEPServerEX 便安裝完成。





17. 雙擊 KEPServerEX 於桌面的捷徑,可開啟 KEPServerEX 的 Configuration 視窗。

KEPServerEX 6 Configuratio n	
😅 KEPServerEX 6 Configuration [Connected to F	Runtime   C:\Program Files (x86)\Kepware\KE 🗕 🗖 💌
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>R</u> untime <u>H</u> elp	
🗋 📂 🔜 🔛 🥙 🤟 👗 📭 隆 🗙 🔛	
Image: Connectivity       Image: Channel1         Image: Channel1       Image: Channel1	
Date Time / Source	Event ^
① 2018/6/21 04:47:10 下午 KEPServerEX\Runtime ③ 2018/6/21 04:47:10 下午 KEPServerEX\Runtime	Runtime project replaced.
③ 2018/6/21 04:47:10下午 KEPServerEX\Runtime	Scheduler Plug-in V6.5.829.0
① 2018/6/21 04:47:10下午 KEPServerEX\Runtime	IDF for Splunk V6.5.829.0
(i) 2018/6/21 04:47:10 下午 KEPServerEX\Runtime	Local Historian Plug-in V6.5.829.0
U 2018/6/21 04:47:10 下午 KEPServerEX\Runtime	Security Policies Plug-In V6.5.829.0
Pagety	Default Lear Cliente: 1 Active term: 0 = 60
кезиу	Default User Clients: I Active tags: 0 of 0

18. 在系統開啟程式集 Kepware→KEPServerEX6 路徑 KEPServerEX 6 Administration,點擊

後可常駐在桌面右下角的系統閘,滑鼠雙擊<sup>藥</sup>,也能開啟 KEPServerEX 的 Configuration。





## 四、 KEPServerEX 註冊與 License 轉移說明

### Kepware 硬體 License 授權

KEPServerEX 6 加入新的工具來處理授權啟用作業。裡面的用語會與之前版本有一些不同。新的授權方式已不再需要使用到 KEPServerEX 主程式,而是使用另一個稱為 License Activation Utility 的程式。請按照下列的簡單步驟來啟用你的產品:

 從「開始」->「所有程式」->「Kepware」->「KEPServerEX 6」->「License」->「License Utility」來開啟 License Utility 程式視窗。或是在電腦桌面右下方的 System Tray 圖示 KEPServerEX 6 上按下滑鼠右鍵,並點選「License Utility」來開啟 License Utility 程式視窗。

🗼 Kepware	Configuration
🗼 KEPServerEX 6	Start Puntime Service
KEPServerEX 6 Administration	Start Runtime Service
KEPServerEX 6 Configuration	Reinitialize
🔐 KEPServerEX 6 Help	Deach Event Lan
OPC .NET Configuration	Reset Event Log
OPC Quick Client	↓ Settings
🔝 OPC UA Configuration	OPC UA Configuration
👮 Remote OPC DA - Quick Start Gu	OPC .NET Configuration
🐌 Example Source Code	Quick Client
🗼 License	License Utility
⊱ License Utility	Help
🛱 License Utility Help	Support Information
ル Utilities	Exit
👢 LinkMaster 3	🔺 💌 📐 🍾 🚾 🐂 📜 🔅
👢 Kepware Products	

KEPServerEX 安裝過程時,有設定 Administrator account,之後在選項管理時,都需要Authentication Required 驗證輸入 User name 帳號跟 Password 密碼,點選 《 !

ex	Authentication Required	×
<u>U</u> ser name:		ОК
Password:		Cancel



2. 在開啟的 License Utility – View Licenses 視窗中,點選在下面中間按鈕「Activate」。

ex	KEPServerEX License Utility - View Licenses				
	Product	Activation/Flex ID	Support End Date	Status	
	Additional License Information:			Transfer	
	Type: N/A Description: N/A				
	Deferm licensing exerctions online	uhan naasihla (raquiraa latamat aasaas	on this computer)		
	Penom icensing operations online	e when possible (requires internet access	on this computer)		
-					
	Print		Activate Renew	<u>C</u> lose Help	



3. 在開啟的License Utility – Activate Licenses視窗中,從How would you like to activate?的選項 中選取「I have a hardware key license file」,點選下面按鈕的「Next」。

ex	KEPServerEX License Utility - Activate Licenses	×
	How would you like to activate?	
	◯ I have one or more <u>s</u> oftware activation IDs	
	Ihave a <u>h</u> ardware key license file	
	Home Back Next Close H	Help



Import File ...

4. 在開啟的License Utility – Import Hardware Key Certificates視窗中,一旦取得正式授權的硬體 鑰和對配對的硬體鑰授權檔,在 Import a Hardware Key Certificate 中按下

**Import File...** 按鈕。

ex	KEPServerEX License Utility - Ir	mport Hardware Key	/ Certificates	×
	Import a Hardware Key Certificate Click 'Import File' to process the Hardware Key Certificate file that you when the hardware key license was purchased.	u received	Import File	
	Home	Back N	ext <u>C</u> lose	Help



5. 瀏覽並找到硬體鑰授權檔之後按下「**開啟**」按鈕。此硬體鑰授權檔擁有一個獨一無二的名稱, 例如 "MyHrdKeyCert.lic"。

6. Import File...後,就會直接跳到下一個License Utility – View Licenses視窗,在Product會有購買產品名稱。

**注意:Support End Date**的時間,會依購買Support時間,顯示Support結束有效時間,並不影響 KEPServerEX服務本身運作。

**注意:**此授權會被 License Utility 進行處理。如果成功,則在 View Page 中將會顯示出新匯入的授權。

ex	KEPServerEX License Utility - View Licenses				
	Product	Activation/Flex ID	Support End Date	Status	
	Youngtec Systems CoODBC Clie	FLEXID= <del>9 620F612E</del>		Certificate	
	Additional License Information:			Transfer	
	Type: Hardware			<u>_</u> ranster	
	Description: Youngtec Syste	ms CoODBC Client Driver_9 <del>-629F612E.l</del> ic			
	Perform licensing operations online	when possible (requires Internet access o	n this computer)		
	I enorm icensing operations on the	when possible (requires internet access o	in this computery		
-					
	Print	A	ctivate <u>R</u> enew	<u>C</u> lose Help	



7. 為了要將實體硬體鑰讓 Server Runtime 認得,此硬體鑰授權必須以License Utility 註冊。請 參考以下的說明進行:

重開 KEPServerEX Runtime Service,可以透過從桌面右下方的 System Tray 圖示中 KEPServerEX 小圖示按滑鼠右鍵,可以手動點選 Stop Runtime Service 停止,然後再手動點選 Start Runtime Service 重新啟動,這樣 KEPServerEX License 就會重新認證。



KEPServerEX 安裝過程時,有設定 Administrator account,之後在選項管理時,都需要Authentication Required 驗證輸入 User name 帳號跟 Password 密碼,點選 !

ex	Authentication Required	×
<u>U</u> ser name:		ОК
Password:		Cancel



### 複製硬體鑰授權檔給其它電腦使用

在硬體鑰可被其它電腦使用之前,一個硬體鑰授權檔複本必須先被匯入該部新電腦。如果 複本已取得,使用者應該遵照上方 註冊硬體鑰授權檔 的說明步驟進行。如果授權已被匯入但無複本可 用,使用者應該遵照下列的步驟從 License Utility – View Licenses 視窗取得複本。 注意:硬體鑰授權不必要返還即可將其移到其它電腦。

#### 1. 欲匯出硬體鑰授權,從License Utility – View Licenses下拉式清單中選取欲匯出的授權,點選

<u>T</u>ransfer

,此舉將會顯示Manage Hardware Key Certificates該授權支援的所有產品名稱。

ex	KEPServerEX License Utility - View Licenses					
	Product	Activation/Flex ID	Support End Date	Status		
	Youngtec Systems CoOPC Connectivity Suite_9-26C02C0F.lic	FLEXID=9-26C02C0F	01/2016	Certificate		
	Youngtec Systems CoODBC Client Driver_9-629F612E.lic	FLEXID <del>-9-629F612E</del>	11/2015	Certificate		
	Additional License Information:     Iransfer       Type:     Hardware       Description:     Youngtec Systems CoOPC Connectivity Suite_9-26C02C0F.lic					
	✓ Perform licensing operations <u>o</u> nline when possible (requires Internet access on this computer)					
	Print	Activate	Renew <u>C</u> lose	Help		



2. 接下來,按下 <u>C</u>opy File ...

Copy File... 並選擇儲存硬體鑰授權檔的路徑。建議使用者將其備份到

另外的一個安全和容易取得的位置。

ex	KEPServerEX L	cense Utility - Manage Hardware K	ey Certificates	х
	Hardware key certificate file 'Youngtec Systems Co	_OPC Connectivity Suite_9-26C02C0F.lic' contains th	e following features:	
	Product	FlexID	Support End Date	
	OPC UA Client	FLEXID <del>=9 26C02C0F</del>	01/2016	
	OPC DA Client	FLEXID=9-26C02C0F	01/2016	
	OPC XML-DA Client	FLEXID=9-26C02C0F	01/2016	
	Click 'Copy File' to make a copy of the Har the hardware key on a new Host Machine	dware Key Certificate file, which can be used to enab	le <u>C</u> opy File	
	Click 'Export File' to remove the Hardware	Key Certificate file from the License Utility and then		
	save it to a user defined location.	,	Export File	
				_
	<u>H</u> ome	Back	Next <u>C</u> lose Help	

3. 此時,此複本將可用來被匯入其它部電腦。

### 刪除內部硬體鑰授權檔複本

如果計劃使用其它的硬體鑰授權,為避免混淆起見,使用者可能想要移除既存的硬體鑰

授權。欲達到此目的,請在 Manage Hardware Key Certificates 對話視窗中選擇	Export File	Export
File •		



# 五、 CSV檔案輸出/輸入

KEPServerEX中有提供大量Tag點快速建立的機制,可以利用CSV檔案匯出/匯入,首先請先將KEPServerEX 開啟一個已製作完成的Project,在此以Simdemo中的檔案作為範例:

開啟專案後在欲轉出的Device中點選右鍵選擇Export CSV...

🔯 KEPServerEX 6 Configuration [Connected to Runtime   D:\oneyear\kepware_opf_xml\simdemo.opf]						
File Edit View Tools Runtime Help						
🗅 📸 🗟 🛃 🏶 🛅 🖄 🔄 🥥 🚰 🚰 🖉 4 🗼 📬 🖎 🗙 📖						
Project / Address Data Typ						
	💶 Ramp1	RAMP (120, 35, 100, 4)	Long			
	🛛 🖅 Ramp2	RAMP (300, 150.750000, 200.5	Float			
	🛛 🖅 Ramp3	RAMP (250, 0, 1000, 1)	Long			
	📃 🐖 Ramp4	RAMP (250, 0, 1000, -5)	Long			
Aliases 🙀 New Tag Group	📃 💶 Random1	RANDOM (30, -20, 75)	Long			
Advanced Tag CT	🗧 💶 Random2	RANDOM (100, 0, 1000)	Long			
Alarms & Even	💶 💶 Random3	RANDOM (100, -1000, 0)	Long			
Add Area Import CSV	💶 Random4	RANDOM (1000, -999, 999)	Long			
🖻 📲 Data Logger	💶 Sine1	SINE (10, -40.000000, 40.00000	Float			
Add Log ( Export CSV	🔽 Sine2	SINE (10, -40.000000, 40.00000	Float			
EFM Exporter	💶 Sine3	SINE (10, -40.000000, 40.00000	Float			
	💶 Sine4	SINE (10, -40.000000, 40.00000	Float			
	💶 User1	USER (1000,Hello,world!,This,is,	String			
Add Splun X Delete Del	💶 User2	USER (250,1.25,100.56,200.11,	Float			
	💶 User3	USER (200,1,0,1,0,1,0,0,1,1,1,0	Boolean			
	💶 User4	USER (1500,To display a comm	String			
Add Datastore						
T T 🛤 Add Cohodula						

在選擇好CSV檔的存放路徑之後,可開啟文書工具進行編輯

	А	В	С	D	E	F	G
1	Tag Name	Address	Data Type	Respect Da	Client Acce	Scan Rate	Scalin
2	Ramp1	RAMP (120	Long	1	RO	100	
3	Ramp2	RAMP (300	Float	1	RO	100	
4	Ramp3	RAMP (25)	Long	1	RO	100	
5	Ramp4	RAMP (25)	Long	1	RO	100	
6	Random1	RANDOM	Long	1	RO	100	
-7	Random2	RANDOM	Long	1	RO	100	
8	Random3	RANDOM	Long	1	RO	100	
9	Random4	RANDOM	Long	1	RO	100	
10	Sine1	SINE (10, -	Float	1	RO	100	
11	Sine2	SINE (10, -	Float	1	RO	100	
12	Sine3	SINE (10, -	Float	1	RO	100	
13	Sine4	SINE (10, -	Float	1	RO	100	
14	User1	USER (100	String	1	RO	100	
15	User2	USER (250	Float	1	RO	100	
16	User3	USER (200	Boolean	1	RO	100	
17	User4	USER (150	String	1	RO	100	
10							



#### 编輯好之後再回到KEPServerEX之中在要匯入的Device中點選右鍵選擇Import CSV...

KEPServerEX 6 Configuration [     File Edit View Tools Puret	Connected to Runtime   D:	\oneyear\kepware_opf_xm	l∖simdemo.opf]
	🔁 🤬 🔂 🚰   9 🎖	6 🗈 🛍 🗙   🛄	
Project Channell Data Type Examples Simulation Examples Simulation Examples Functions Aliases Advanced Tac Advanced Tac Add Area. Data Logger Add Log G EFM Exporter Add Log G EFM Exporter Add Log G Cut Cut Data Logger Add Poll G Cut Cop IDF for Splunk IDF for Splunk IoT Gateway Add Agent Prop Local Historian Add Scheduler	v Tag Group v Tag ort CSV ort CSV ctrl+X oy Ctrl+C ete Del perties	Tag Name Ramp1 Ramp2 Ramp3 Ramp4 Random1 Random2 Random3 Random4 Sine1 Sine2 Sine3 User1 User2 User3 User4	Address RAMP (120, 35, 100, 4) RAMP (300, 150, 750000, 200,5 RAMP (250, 0, 1000, 1) RAMP (250, 0, 1000, -5) RANDOM (30, -20, 75) RANDOM (100, -0, 1000) RANDOM (100, -1000, 0) RANDOM (100, -999, 999) SINE (10, -40,000000, 40,00000 SINE (10, -40,000000, 40,00000 SINE (10, -40,000000, 40,00000 USER (100,Hello,worldl,This,is, USER (250,1,25,100,56,200,11, USER (1500,To display a comm)

### 選擇要匯入的檔案便可以將設定好的Tag值匯入

KEPServerEX 6 Configuration [Conne File Edit View Tools Runtime	ected to Runtime   D:\one Help	year\kepware_opf_xml\simde	mo.opf]	
) 💕 🗟 🛃 🤽 🛅 🖄 🖢	🤪 🔂 🔐   🗠 🔏 🖬	a 🛍 🗙 🛛 🛄		
Project     Connectivity     Channel1     Data Type Examples     Simulation Examples     Aliases     Advanced Tags     Alarms & Events     Add Area     Data Logger     Add Log Group	S Import from CSV 搜尋位置(): 重点面 受家用群	Tag Name Ramp1 Ramp2 Ramp3 Ramp4	Address RAMP (120, 35, 100, 4) RAMP (300, 150, 750000, 2 RAMP (250, 0, 1000, 1) RAMP (250, 0, 1000, -5)	Data Type Long 00.5 Float Long Long
EFM Exporter     Add Poll Group     IDF for Splunk     Add Splunk Connection.     Add Splunk Connection.     Add Agent     Local Historian     Add Datastore     Scheduler     Scheduler     Style S	最近的位置	ns.csv		
Date         \backstrippi Time           i) 2016/11/24         15:59:23	電腦 (調路 構築名稱(M) 構業名稱(M) 構業有類型(T)	III Functions.csv CSV Files (*.csv)	<ul> <li>▼</li> <li>↓</li> </ul>	▶ 鼎啟舊檔(0) 取消



# 六、 Mitsubishi Ethernet Q系列PLC連結操作範例

本章節將實際操作一次KEPServerEX如何與前端PLC做連結,選用的PLC為Mitsubishi Q系列的通訊模組 (QJ71E71-100),選擇KEPServerEX Driver為Mitsubishi Ethernet。

### PLC Device Configuration部分

●首先,新建或開啟已建立的Q Series專案,設定Network Param。





#### ●在 Network Parameter視窗中,點選MELSECNET/Ethernet。



●輸入Ethernet模組所要求的設定,Network type必須是Ethernet,其他設定值取決於實際的需求。本範例 Network No.為1,Starting I/O No.為0,因Ethernet模組QJ71E71安裝在CPU插槽附近,如有其他Ethernet模組 安裝在CPU及Ethernet模組之間,需確定總I/O有確實對應到,並設置相對應的Starting I/O。設定完畢後, 點擊Operational Settings按鈕。

	Module 1	Γ
Network type	Ethernet 👻	Γ
Starting I/O No.	0000	Î
Network No.	1	Γ
Total stations		Γ
Group No.	0	Γ
Station No.	1	Γ
Mode	On line 💌	Γ
	Operational settings	Γ
	Initial settings	Γ
	Open settings	Γ
	Routing information	Γ
	MNET/10 routing information	Γ
	FTP Parameters	Γ
	E-mail settings	
	Interrupt settings	Γ
•		



●Ethernet Operations視窗,用於設定Device的IP位址,除IP位址外,請依如下所示,設定完成後點擊End按鈕。

除非安全需求,否則"Enable Write at RUN time"選項需保持勾選,若未勾選,於PLC運作時寫入動作會失敗。

Ethernet operations		×			
Communication data code	_ Initial timing				
Binary code	Do not wait for OPEN ( C	Communications			
C ASCII code	<ul> <li>Always wait for OPEN ( Communication possible at STOP time )</li> </ul>				
- IP address		Send frame setting			
Input format DEC.	•	Ethernet(V2.0)			
IP address 10	10 110 55	C IEEE802.3			
Enable Write at RUN tim					
	End Cancel				

●回到basic network parameters視窗後,點擊Open settings按鈕。

	Module 1	
Network type	Ethernet 👻	N
Starting I/O No.	0000	Γ
Network No.	1	
Total stations		
Group No.	0	
Station No.	1	
Mode	On line 👻	
	Operational settings	
	Initial settings	
	Open settings	
	Routing information	
	MNET/10 routing information	
	FTP Parameters	
	E-mail settings	
	Interrupt settings	
•		

FAX:+886-7-3455817

●設定所需要的配置,此部分取決於所選的IP協定,可以是TCP或UDP。

### **Open Settings for TCP**部分

●選擇TCP協定,為方便起見,Open system建議選擇Unpassive,使用者不需設定IP及port號,本範例中local port號為5001 (1389 Hex)。

有關QJ71E71-100 Ethernet Module 的TCP通訊詳細資訊,請查閱三菱科技公司的技術文件。

	Proto	cal	Open system	n	Fixed b	ulter	Fixed buffer communication		Pairing	9	Existence		Local station Port No.	Destination IP address	Dest. Port No.
. 1	TCP		Unpassive	٠	Send	٠	Procedure exist	٠	No pairs	٠	No confirm	•	1389	Colores - Steday	C. Marshill
2		+		-	19.20	*		•		-		•		the second se	
3		*		+	1	٠	5	٠	10.2010/7	٠	1110100103016	•	1100011022016		Sec. (9772).00
4		+		+	2	٠		٠		٠		•			
5		+		٠		٠		٠		٠		•			
6		+	- DUIDUOUUU	+	Roman	*		*	Difference		and the second second			Seattless and the	E. Hound

### Open Settings for UDP 部分

●選擇UDP協定,無Open system選項,本範例中local port號為5000 (1388 Hex)。

●指定PLC通訊所使用的IP及port號,為防止port號衝突,Mitsubishi Ethernet Driver允許Windows將任何未使用的UDP port號分配給每個Device,因此,Driver所使用的port號是無法預測的,使用者需在PLC設定為"未指定",在此輸入FFFF即可。設定完成後點擊Destination IP address按鈕。

in the	Protocol	Open system	Fixed buffer	Fixed buffer communication	Pairing open	Existence	Local station Port No.	Destination IP address	Dest. Port No.
1	UDP 🔻	-	Receive 💌	Procedure exist 💌	No pairs 💌	No confirm 💌	1388	No Settings	FFFF
2		*	-	*	+	*		an a	5
3	*		-	•	-				
4		-	-	<b>T</b>		*			
5					-	*	1		3
6			*	¥		*			

●指定Driver所使用的IP或保持預設值255.255.255.255即可。

IP Address				×
Input format	DEC.	•		
IP address	255	255	255	255
	OK		Cancel	



●設定完畢後,必須確定已將設定值寫入PLC,並將PLC關閉,將電源切換至關閉狀態,再將電源切換 至開啟狀態,再將PLC開機。

Write to PLC		×
Connecting interface COM1 PLC Connection Network No.  Station No. Host PLC Target memory Program memory/Device memory Title	<> PLC module type Q02(H)	
File selection     Device data     Program     Common     Local       Param+Prog     Select all     Cancel all selections       Program		Close
MAIN     Device comment     COMMENT     Parameter     PLC/Network/Remote password		Related functions Transfer setup Keyword setup Remote operation Clear PLC memory
File register C Whole range C Range specification ZR	32767	Format PLC memory Arrange PLC memory Create title
Free space volume	Total free space volume	Bytes



### 開啟KEPServerEX 6 Configuration選擇一個新的專案:

建立一個新的Channel,在Connectivity,點擊<sup>錄Click to add a channel.</sup> Click to add a channel。

8	KEPServe	erEX 6 Configu	ration [Untitled	d]		– 🗆 🗙
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>R</u> untime	e <u>H</u> elp					
🗋 🗁 🗟 🛃 🎇 📅 🔊 🕺 🗈						
Project Connectivity Cick to add a channel. Alarses Advanced Tags Alarses Advanced Tags Alarses Advanced Tags Alarses Add Area Data Logger Add Log Group EFM Exporter I Add Log Group EFM Exporter I Add Add Poll Group I For Splunk I For Splunk I Gateway I Cocal Historian I Add Datastore Scheduler I Scheduler I Add Spent. Add Schedule Add Schedule Add Schedule Add Schedule Add Agent	Channel Name	/ Driver	Connection	Sharing	Virtual Network	Description
	· -					
Date Lime V Source	e E	vent				
<						>
Ready						Offline

### 下圖選擇Mitsubishi Ethernet之後進行下一步。

e Add Channel Wizard	
Select the type of channel to be created:	
Mitsubishi Ethernet 🗸 🍥	
下一步(N) 取消	



#### Channel名稱可自訂,決定名稱後,都下一步。

See Add Channel Wizard	×
Specify the identity of this object. Name: <mark>Channel1</mark>	] @
下一步(N)	取消

### 建立好一個Channel完成,接著建立一個Device。

Channel1
Channel1
Channel1
Channel1
Channel1
Mitsubishi Ethernet
Disable
Default
Write Only Latest Value for All Tags
10
Replace with Zero



接著請選擇本機中與PLC設備連結的網路卡位址,然後我們就建立好一個Channel,接著建立一個Device, Device名稱可自取,來到下圖,請選擇Device型號,這邊以Q Series為範例。

建立一個Device,點擊<sup>圖Click to add a device.</sup>Click to add a device.。



### Device名稱可自取。

€	Add Device Wizard
S	pecify the identity of this object.
N	Jame:
	Device1

#### 選擇Q Series,然後下一步。

Add Device Wizard	
Select the specific type of device associated with this ID. Options depend on the type of communications in use	
Model:	
O Series V	
下一步(N) 取消	



x

請輸入欲連結之PLC的IP位址及PC Number,如範例:192.168.0.205:255,PC Number建議設定為255,如此 0~255範圍的PC Number皆可抓到。

	×
Specify the device's driver-specific station or node.	
192.168.0.205:255	
下一步(Ŋ) 甩	2消

必須確認PLC上面的UDP的設定Port號是多少?!範例是用:UDP 的5000,請對照此手冊步驟第26頁,若 對於Port Number設定不清楚,可點擊<sup>®</sup>說明按鈕查看詳細說明。

Add Device Wizard	
Indicate the correct protocol to use when communicating with the device.	
Specify the port number to use when communicating with the device. Port Number: 5000 © Select the target CDU (central processing unit). For a single CDU, choose Local CDU	
CPU: Local CPU v	
Specify the block size in bits to use when reading tags from bit memory. Bit Memory (Word units): 959 @	
下一步(N) 取消	



### 再來就是建立Tag, Tag Name可自訂。

y Groups	🖂 Identification							
	Name	D00001						
	Description							
	🖃 Data Properties							
	Address	D0000001						
	Data Type	Short						
	Client Access	Read/Write						
	Scan Rate (ms) 100							

### 如果不知道Address跟Data type的定義可至Help中查詢。

😵 Mitsubishi Ethernet Driver Help				
12 1 ○ □ □ ● 1 ● 1 ● 1 ● 1 ● 1 ● 1 ● 1 ● 1 ● 1				
內容(□ 索引(10) 搜尋(3) 我拍 ↓ ▶	Mitsubishi Q Series	Address Descriptions		
⊡10 Mitsubishi Ethernet Driver ≟10 Getting Started	The default data types	for dynamically defined tags	are shown in <b>bold</b> .	
🕐 Help Contents	Device Type	Range	Data Type	Access
Overview     Setup     Optimizing Mitsubishi Etherne     Deta Turac Description	Inputs*	X0000-X3FFF (Hex) X0000-X3FF0 (Hex) X0000-X3FE0 (Hex)	Boolean, Short, Word, BCD, Long, DWord, LBCD	Read/Write
Data Types Description     On Address Descriptions     On Address Descriptions     On Mitsubishi A Series Addres     On Mitsubishi A Series Addres	Direct Inputs*	DX0000-DX3FFF (Hex) DX0000-DX3FF0 (Hex) DX0000-DX3FE0 (Hex)	Boolean, Short, Word, BCD, Long, DWord, LBCD	Read/Write
Mitsubishi FX3U Series Ac     Event Log Messages     Appendix: PLC Setup	Outputs*	Y0000-Y3FFF (Hex) Y0000-Y3FF0 (Hex) Y0000-Y3FE0 (Hex)	Boolean, Short, Word, BCD, Long, DWord, LBCD	Read/Write
🛓 🔷 Server Help	Direct Outputs*	DY0000-DY3FFF (Hex) DY0000-DY3FF0 (Hex) DY0000-DY3FE0 (Hex)	Boolean, Short, Word, BCD, Long, DWord, LBCD	Read/Write



最後要確認PLC與Server是否有連接上,這時我們以Quick Client程式來做確認,請點選下圖(紅線圈起) 位置。



開啟Quick Client主畫面後,系統會自動將目前Server中所連結的PLC狀態直接載入,此時我們只需察看 Quality(紅線圈起)若為Good代表目前Server與PLC通訊正常。

◎ OPC Ouick Client - 未命名 *						
File Edit View Tools Help						
D 🗳 🔒 🛫 💣 💕 👗 🖿 💼	×					
⊟::: Kepware.KEPServerEX.V6	🔺 Item ID 🦯	Data Type	Value	Timestamp	Quality	Up
DataLogger	Channel1.Device1.Tag1	Word	12	16:29:32.688	Good	11
	Channel1.Device1.Tag2	Word	0	16:29:22.544	Good	1
Channell, System						
Channel1.Device1	E					
Channel1.Device1System						

注意事項:

- 在進入KEPServerEX與PLC連線之前最好先做一次網路連結的確認,確定要與設備連結的網路裝置IP
   位址與PLC設備處於同一網路區段之中,並可先以PING指令測試通信狀況。
- 在建立Channel與Device的時候除了PLC的型號與連結方式、IP位置等重要設定之外,其他的設定可以先以系統預設值帶過,若有需要可於建立好之後在Channel與Device的位置上按右鍵,進入Properties項目中,再依需要進行相關細部的屬性設定。

連接PLC設定都完成後,可以點選圖儲存或圖另存KEPServerEX設定檔。

😅 KEPSer	KEPServerEX 6 Configuration [Untitled *] — 🗖 🗙					×
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>R</u> untime <u>H</u> e	elp					
🗋 📂 🗃 🛃 🍀 🛅 🖏 🥪 🥽		🍤 🍰 🗈 🔀 🗙	Q.C.			
	^	Tag Name	Address			
⊡ (ໝ Connectivity ☐ ∰ Channel1 — ∰ Device1 — Aliases		🥶 D1000	D0001000			
⊶ 🥂 Advanced Tags ⊟ 😩 Alarms & Events						



選擇存檔路徑資料夾,輸入檔案名稱,名稱可以自行定義,選擇存檔類型,預設為:Project

Files(\*.opf,\*.json),點選 存檔。

ex	另存新檔	x
🔄 🏵 – 🕇 👢	≪ KEPServerEX 6 ▶ Projects ∨ C 搜尋 Projects	Q
檔案名稱( <u>N</u> ): 存檔類型( <u>I</u> ):	mitsubishi_Q Project Files (*.opf;*.json)	<b>&gt;</b> ] <b>&gt;</b>
瀏覽資料夾( <u>B</u> )	存檔( <u>S</u> ) 取消	

#### 在KEPServerEX6.5版之後,儲存opf設定檔,可以選擇輸入密碼,加密設定檔!

Save Project ×
Select project encryption settings.
● New password:
It is recommended that the password be at least 14 characters and include a mix of uppercase and lowercase letters, numbers, and special characters. Avoid well-known, easily guessed, or common passwords.
Password:
Con <u>f</u> irm Password:
Use current password
○ No encryption (NOT RECOMMENDED)
Save Cancel Help



# 七、 KEPServerEX 內建之 OPC Client 程式-Quick Client 操

## 作範例

本章節將實際操作一次Quick Client程式如何建立並取得OPC Server的值,首先從程式集中開啟OPC Quick Client程式:

開啟之後點選如下圖指示建立一個新的 Server 位置。





這邊系統會帶出目前本機中所有的OPC Server如果是遠端的Server則從網路上去點選,這邊我們選擇 KEPServerEX,確定之後就會開啟Server。

	Server Pro	perties	×				
General Local Machine KEPware.KEPServerEx.V4 Kepware.LinkMaster.V3 Intellution.iFixOPCClient Cogent.DataHub.1 Cogent.DataHub.1							
Cogent.DataHubAE.1							
<u>P</u> rog ID:	Kepware.KEPS	erverEX.V6					
Remote <u>M</u> achine Name:							
Connection Type: O InProc O Local O Any							
	確定	取消					



### 接下來需要先建立一個Group直接在指定的Server上面按右鍵選擇New Group...。

ac		OPC	Quick Clie	ent - 未命名 *			_	×
File Edit View Tools Help								
🗅 🛎 🖬 😹 💣 💣 🕼 🖪	e ×							
Kepware.KEPServerE	Now Crown	/ Dat	Туре	Value	Timestamp	Quality	Update Count	
	New Group							
	Connect							
	Disconnect							
	Reconnect							
	Get Error String							
	Enumerate Groups							
	Get Group By Name							
	Auto Create Tags							
	Cut	Ctrl+X						
	Сору	Ctrl+C						
	Paste	Ctrl+V						
	Delete	Del						
	Properties							
Date Time	Event							
❹ 2016/12/1 03:46:36下午	Connected to server 'Kep	ware.KEPServ						
Create a new group							ltem C	Count: 0 🏼 🍂

### 輸入Group的名稱直接按確定。

	Group Properties	s ×
General		
<u>N</u> ame:		
Update <u>R</u> ate (ms.):	1000	
Time <u>B</u> ias (min.):	0	
Percent <u>D</u> eadband:	0	
<u>L</u> anguage ID:	1033	
Update Notification:	OPC 2.0/3.0	Active State
Keep Alive Rate (ms):	0	
	確定	E 取消 說明



建立完Group後便可以我們就可以來建立Item,直接在Group上面按右鍵選New Item...。

ac				OPC Quick				
File Edit View T	ools Help							
🗅 🛎 🖬 🛛 🗯 💣	😭   🐰 🖻 💼	×						
E Kepware.KEPSe	rverEX.V6	Item ID	Δ	Data Type				
Group	New Item							
	Set Group Inactive Clone Group							
	Asynchronous 2.0 Cache Refresh Asynchronous 2.0 Device Refresh							
	Export CSV Import CSV							
	Cut			Ctrl+X				
	Сору			Ctrl+C				
	Paste			Ctrl+V				
	Delete			Del				
	Properties							

首先如下圖中選擇好OPC Server的路徑與Tag決定之後點選Add Leaves(紅色圈起部分)會自動加到Item ID 之中,按OK便完成了。

Add Items	×
Item Properties	ОК
Access Path:	Cancel
Item ID: Channel1.Device1.Tag1	<u>H</u> elp
Data <u>Type:</u> Native 💌	
Acti <u>v</u> e 🔽	
Browsing Branch Filter: Type: A * Native An * Native An * Native An * Native An Tag10 這裡選擇要加入 * Tag100 Tag10 Tag100 Tag100 Tag100 Tag1	i <u>c</u> cess: y ▼ 的
本視窗中可以選擇OPC Server中對應的Tag路徑 □ Browse <u>f</u> lat address space on selected branch	Add Leaves
□ Valigate item before adding it to the list	Item Count: 1



#### 完成之後便增加了Item。

See OPC Quick Client - 未命名 *						_ □		
<u>File Edit View Tools H</u> elp	<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp							
🗅 🛎 📕 🗾 💣 💣 😭 👗 🖻 🖻	×							
⊡;i Kepware.KEPServerEX.V6	Item ID /	Data Type	Value	Timestamp	Quality	Updat		
Group0	Channel1.Device1.Tag1	Word	19	15:57:04.269	Good	18		
	Channel1.Device1.Tag10	Word	19	15:57:04.269	Good	18		
	Channel1.Device1.Tag100	Word	19	15:57:04.269	Good	18		
	Channel1.Device1.Tag101	Word	19	15:57:04.269	Good	18		

接著我們可以來測試利用Quick Client來改變Item中的值,如下圖在要更改數值的Item上面按右鍵選擇 Synchronous Write...。

Item ID 🗸	Data Type	Value	Timestamp	Quality	Upda
Channel1.Device1.Tag1	۰۱۸۲	Λ	00.01.01 000	Good	1
Channel1.Device1.Tag10	New Ite	New Item			10
Channel1.Device1.Tag100	Set Acti	ve	Good	10	
Channel1.Device1.Tag101	Set Inac	tive	Good	10	
	Synchro	onous Cache	e Read		
	Synchro				
	Synchro	onous Write			
	Asynchi	ronous 2.0 F			
	Asynchi	ronous 2.0 V	Vrite		
	Cut		Ctrl+X		
	Сору		Ctrl+C		
	Paste		Ctrl+V		
	Delete		Del		
	Propert	ies			

在下圖視窗中於Write Value欄位可更改你想要的值,之後按Apply,OK之後回到主畫面便可看到數值已被變更。

Syn	Synchronous Write							
					or			
	Item ID	Current Value	Write Value					
	Tem ID Channel1.Device1.Tag1	23	23	J	Cancel			