

## Kepware ClientAce 操作說明

Kepware 的 ClientAce OPC .NET Toolkit 提供簡易使用的工具給想要建立一個 OPC client 應用 程式的開發者, ClientAce 是一個物件導向的程式設計工具,包含了兩個主要部分:DA Junction 與 ClientAce .NET API

1. 首先安裝 Kepware ClientAce 必需安裝有標準版本以上的 Microsoft Visual Studio.NET 目前支援的版本

Visual Studio 2003 with the .NET 2.0 Framework

Visual Studio 2005 with the .NET 2.0 Framework

Visual Studio 2008 SP1 with the .NET 3.5 Framework

Visual Studio 2010 with the .NET 4.0/4.5 Framework

Visual Studio 2012 with the .NET 4.0/4.5 Framework

Visual Studio 2013 with the .NET 4.0/4.5 Framework

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You might also be interested in these Kepware OPC Products:	ClientAce is updating your current software installation.
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multiple OPC Servers to be configured into redundant pairs. These redundant OPC Server pairs	
seamlessly appear as a single OPC Server to any OPC Client application.	
www.kepware.com	
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2. 安裝時,會把目前有安裝 Visual Studio 版本 Add 新增 ClientAce Compoents 在 Toolbox

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You might also be interested in these Kepware OPC Products: <b>KEPServerEX</b> is the latest generation of Kepware's OPC server technology. It allows you calida's etup communications to your control generative ange of railable "Thing in" advect leage of railable drivers and components.	InstallShield Wizard Complete The Installshield wizard has successfully installed the ClientAce installation. Click Finish to exit the wizard.  Add ClientAce Components to Visual Studio 2005 Toolbox.
RedundancyMaster increases the reliability and availability of OPC data by allowing	Add Clien/Ace Components to Visual Studio 2008/2010 Toolbox.
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3. 安裝 Kepware ClientAce 完成後,在「開始」→Kepware Products→ ClientAce →會有 ClientAce Example 範例可以參考,基本 ClientACE,主要開發程式語言以 VB.NET、C#為主



在 Visual Studio 新增一個專案(Visual Studio 版本,不能使用免費 Express 版本), ClientAce 適用於 Visual Studio2003、2005、2008 SP1、2010、2012、2013





5. 新增專案選擇 Visual C#的 Windows From 應用程式,選.NET Framework 4

🐱 超旗 - Microsoft Visual Studio (朱紫管理員)					
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 開啟專案後,在左手邊工具箱就能看到新增的 ClientAce ToolBox 會有 ClientAceItemBrowser、ClientAceServerBrowser、ClientAceDA\_Junciton ClientAceKEPServerEXServerState、ClientAceKEPServerEXServerSettings





 如何連接到 OPC Server Tag,有2個方法,第1個方法是用一般 OPC DA 連接方式,在工具 箱→所有 Windows From 新增一個「label1」→在工具箱,新增一個 ClientAce DA\_Junciton 點選 ClientAceDA\_Junciton1 屬性,在 ClientAceConfiguration,點選 Click here to open

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8. 進到 ClientAce DA Junciton Configuration 按 click to add a server 選擇 Kepware.KEPServerEX.V5





9. 在 Kepware.KEPServerEX.V5, 選擇 Tags, 如選: Tag1

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10. 下面 Connections 就會自動加入 Server 跟 Item

Direction 可以設定「Item =>」

ControlName 選擇加入的 WindowsFrom 元件「label1」

Property 屬性選「Text」

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11. 在 ClientAceDA Junciton Configuration 是可以新增多個 Connections,在 Settings 設定 Update Rate 設定是 1000ms 跟 Trigger 的 Event,設定完成後,先按「Apply」,再按「OK」

Se ClientAce DA Junction Configuration					
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12. 回到 Visual Studio 建置執行專案,可以看到 From1 裡面的 label1 在建置後,變成「5」跟 Kepware 的 Tag1 連接,這樣就是 ClientAce DA Junciton 用法

👓 WindowsFormsApplication8 [執行] - Microsoft Visual Studio (系統管理員)							J 23
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13. 目前新版本 ClientACE 4.0.2.2 以上版本,只要使用 Visual Studio 2010 的.NET Framework 4 環境就能使用 OPC UA 的 Toolkit 連接 OPC UA Server

第2個方法是用 OPC UA 連接方式,在工具箱→所有 Windows From 新增一個「label1」→ 在工具箱,新增一個 ClientAce DA\_Junciton

點選 ClientAceDA\_Junciton1 屬性,在 ClientAceConfiguration,點選 Click here to open

## configuration

🕶 WindowsFormsApplication1 - Microsoft Visual Studio (系統管理員)	
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ClientAce(WF4.0)	
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ClientAceServerBro	- System.Data
ClientAceItemBrowser	- System.Data.DataSetExtensions
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- BindingSource	
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14. 進到 ClientAce DA Junciton Configuration 按 click to add a server 選擇,可以看到 Add Server,

下一步

oo Wine	dowsFormsApplic	Se ClientAce DA Junction Configuration		
檔案(F)	編輯(E) 檢視(V)	OPC Items	Form1 Controls	
10-	🗄 • 🎽 🚽 🖉	Show access rights and data type	Apply property filter	
: 尊日	을 속 글 📅 🗸			
丁目符		- Click to change server		* 1 ×
▲ Clier	tAce(WF4.0)		🖳 Add Server	2
k	指標		Server Browser OPC DA OPC UA	Core
102	ClientAceServerE		Server Information	Data
-	ClientAceItemBro			Data.DataSetExtensions
Ga	ClientAceDA Jun		Application Name	Deployment
Ga	ClientAceKEPSer		Endnoint IIrl	Drawing
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k	指標		Saemity Policy	Designer.cs
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	DomainUpDowr			pn
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1	EventLog	Active Server	UK. Cancel Settings	
87	FileSystemWatch	•	Drop or type an item ID. Select direction Select a control. Select a property.	£
就緒				
	0 2	4 🥥 🧔 🙆 🚞	💁 Outlook Today 🤕 WindowsFormsA 📾 🔮 🛱 🗸	16:22 2015/2/11 🔞 🕼



15. 在 Add Server 點選 OPC UA 輸入要連接 OPC UA Server 的 Url

Application Name:可以自行定義輸入

Endpoint Url: 輸入要先確認連接的 OPC UA Server Address,詳細內容可以參考下一步驟

範例:opc.tcp://AcerWin7HomeNB:49320

Security Settings:安全性,建議使用 UA 時,用預設:None

Authentication Settings:預設:Anonymous,如果要加入權限管理,要在 Kepware Settings 設定帳號密碼,才能使用

🖳 Add Server	<b>—</b>
Server Browser OPC D.	A OPC UA
Server Information	
Application Name	Enter application name here
Endpoint Url	opc.tcp://AcerWin7HomeNB:49320
Security Settings	
Security Policy	None
Message Security Mo	de None 🔻
-Authentication Settings	
Anonymous	
Username	
Password	
	OK Cancel



16. 如果要看 UA OPC Server,從 Kepware 的 OPC UA Configuration Manager

有 OPC UA Server Endpoints URL Address 點擊進去

K	🕼 OPC UA Configuration Manager 🛛 💽								
	Server Endpoints	Trusted Clients	Discovery Servers	Trusted Servers	Instance Certificates				
	URL / Security								
	opc.tcp://AcerWin7HomeNB:49320 None								
	Add <u>E</u> dit <u>R</u> emove								
1	Note: Server Runtime reinitialization is required to utilize changes. Close 說明								

17. 可以在 Endpoint Definition, 選擇 Network Adapter 網卡跟修改 Port Number

Endpoint Definition								
TCP Connection								
Network Adapter: Default								
Port Number: 49320								
opc.tcp://AcerWin7HomeNB:49320								
Security Policies								
√ None								
Basic 128Rsa 15	Sign 💌							
Basic256	Sign 💌							
	OK Cancel Help							



## 18. 然後輸入完成後,按OK

🖳 Add Server								
Server Browser OPC DA OPC UA								
Server Information—								
Application Name	OPCUA							
Endpoint Url	opc.tcp://AcerWin7HomeNB:49320							
Security Settings								
Security Policy	None							
Message Security Mo	ode None 👻							
-Authentication Setting	S							
Anonymous								
Usemame								
Password								
	OK Cancel							



19. 點開 System Tree 後,選擇 Tags,如選: Tag1

😔 ClientAd	e DA Junction Configuration						
OPC Items		Form1 Contro	ols				
Show:	access rights and data time	Annly r	monerty filter	•			
	k to change server top //AcerWin/HomeNB:49320 - OPCUA - Nom Server _Advanced Tags _CustomAlarms _DataLogger _DFME.Poorter _OracleConnector _Red undancy _SecurityPolicies _SNMP Agent _System Channell Statistics System System System System System System System System System System System 	>- None	1				
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	opc.up.//Acerwin/HomeWE:49520 - OPCUA	ns=2,s=⊂nannen .Device1.1	Control	Ruberr	lext	▼	
		Drop or type an nem 1D.	Select direction	Select a control.	select a property.		· ·
							•
Help						OK Apply	/ Cancel

20. 下面 Connections 就會自動加入 Server 跟 Item

Direction 可以設定「Item =>」

```
ControlName 選擇加入的 WindowsFrom 元件「label1」
```

Property 屬性選「Text」

Connections										
	Active	Server	Item	Direction	ControlName	Property	Setting	s		*
▶ 🗸	~	opc.tcp://AcerWin7HomeNB:49320 - OPCUA	ns=2;=Channel1.Device1.T	Item => Control	label1	Text	•			
			Drop or type an item ID.	Select direction	Select a control.	Select a property.				Ŧ
۲ III							۲			
Help							Cancel			



21. 回到 Visual Studio 建置執行專案,可以看到 From1 裡面的 label1 在建置後,變成 5 跟 Kepware 的 Tag1 連接,這樣就是 ClientAce DA Junciton 連接 OPC UA Server Tag 用法





22. ClientAce .NET API 簡介

ClientAce .NET Application Programming Interface(API) 提供給,如 C#與 Visual Basic .NET 這些語言的使用者一個簡易的、直覺的且最佳化的類別庫來快速開發 OPC client 應用程式以存取 OPC servers

23. ClientAce .NET API 特性:

- 一個簡易、直覺性的.NET 介面
- OPC Data Access 介面已經被簡化到只剩主要的函式
- 沒有不同的 OPC Data Access 介面的高深知識之必要
- API 涵蓋了 OPC 不一樣的基礎技術,例如 COM 與 DCOM
- API 完整的包含了連接到 OPC server 的所有機制
- 採用 ClientAce 使得以 C#或是 Visual Basic 來開發 OPC Client 應用程式變得非常簡單
- 轉換 OPC 資料從不同的 OPC Data Access 介面到.NET 型態資料
- 快速且簡單的搜尋本機或是遠端的 OPC COM Servers
- 藉由使用以 C++製作的核心功能來得到高效性能與最佳化的 Client-Server 通訊

24. 更完整的 ClientAce .NET API 特性,可參閱 ClientAce 的 Help 文件

Help 文件內容有:

Overview of ClientAce .NET API

Kepware.ClientAce.OPCCmn ServerIdentifier Class

Kepware.ClientAce.OPCCmn ServerCategory Enumeration

Kepware.ClientAce.OpcDaClient Data Model Classes

Kepware.ClientAce.OpcDaClient Interface of DaServerMgt

Kepware.ClientAce.OPCCmn Interface of OpcServerEnum Object