Technical

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MEGAsys – OPC Server for Remote OPC Client Setup Technical Notes

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2011/01/01 Evertech Electronics Ltd.

OPC - OLE for Process Control 工業標準

OPC 全稱是 OLE for Process Control,它的出現為基於 Windows 的應用程式和現場程序 控制應用建立了橋樑。在過去,為了存取現場設備的資料資訊,每一個應用軟體開發 商都需要編寫專用的介面函數。由於現場設備的種類繁多,且產品的不斷升級,往往 給用戶和軟體發展商帶來了巨大的工作負擔。通常這樣也不能滿足工作的實際需要, 系統集成商和開發商急切需要一種具有高效性、可靠性、開放性、可互操作性的即插 即用的設備驅動程式。在這種情況下,OPC 標準應運而生。OPC 標準以微軟公司的 OLE 技術為基礎,它的制定是通過提供一套標準的 OLE/COM 介面完成的,在 OPC 技 術中使用的是 OLE 2 技術,OLE 標準允許多台微機之間交換文檔、圖形等物件。

COM 是 Component Object Model 的縮寫,是所有 OLE 機制的基礎。COM 是一種 為了實現與編程語言無關的物件而制定的標準,該標準將 Windows 下的物件定義為獨 立單元,可 不受程式限制地訪問這些單元。這種標準可以使兩個應用程式通過物件化 介面通訊,而不需要知道對方是如何創建的。例如,用戶可以使用 C++語言創建一個 Windows 物件,它支援一個介面,通過該介面,用戶可以訪問該物件提供的各種功 能,用戶可以使用 Visual Basic,C,Pascal,Smalltalk或其他語言編寫物件訪問程式。 在 Windows NT4.0 作業系統下,COM 規範擴展到可訪問本機以外的其他物件,一個應 用程式所使用的物件可分佈在網路上,COM 的這個擴展被稱為 DCOM (Distributed COM)。

通過 DCOM 技術和 OPC 標準,完全可以創建一個開放的、可互操作的控制系統 軟體。OPC 採用 客戶/伺服器模式,把開發訪問介面的任務放在硬體生產廠家或第三方 廠家,以 OPC 伺服器的形式提供給用戶,解決了軟、硬體廠商的矛盾,完成了系統的 集成,提高了系統的開放性和可互操作性。

OPC 伺服器通常支援兩種類型的訪問介面,它們分別為不同的編程語言環境提供訪問機制。這兩種介面是:自動化介面(Automation interface);自定義介面(Custom interface)。自動化介面通常是為基於腳本編 程語言而定義的標準介面,可以使用 VisualBasic、Delphi、PowerBuilder等編程語言開發 OPC 伺服器的客戶應用。而自定義介面 是專門為 C++等高級編程語言而制定的標準介面。OPC 現已成為工業界系統互聯的缺省方案,為工業監控編程帶來了便利,用戶不用為通訊協定的難題而苦惱。 任何一家自動化軟體解決方案的提供者,如果它不能全方位地支援 OPC,則必將被歷史所淘汰。

- 在控制領域中,系統往往由分散的各子系統構成;並且各子系統往往採用不同廠家 的設備和方案。用戶需要,將這些子系統集成,並架構統一的即時監控系統。
- 2、這樣的即時監控系統需要解決分散子系統間的資料共用,各子系統需要統一協調相應控制指令。
- 3、再考慮到即時監控系統往往需要升級和調整。
- 4、就需要各子系統具備統一的開放介面。
- 5、OPC(OLE for Process Control) 規範正是這一思維的產物。
- 6、OPC 基於 Microsoft 公司的 Distributed interNet Application (DNA) 構架和 Component Object Model (COM) 技術的,根據易於擴展性而設計的。OPC 規範定義了一個工業 標準介面。

- 7、OPC 是以 OLE/COM 機制作為應用程式的通訊標準。OLE/COM 是一種客戶/伺服器 模式,具有語言無關性、代碼重用性、易於集成性等優點。OPC 規範了介面函數, 不管現場設備以何種形式存在,客戶都以統一的方式去訪問,從而保證軟體對客戶 的透明性,使得用戶完全從低層的開發中脫離出來。
- 8、OPC 定義了一個開放的介面,在這個介面上,基於 PC 的軟體元件能 交換資料。它 是基於 Windows 的 OLE——物件鏈結和嵌入、COM——部件物件模型(Component Object Model)和 DCOM——分散式 COM(Distributed COM)技術。因而,OPC 為自 動化層的典型現場設備連接工業應用程式和辦公室程式提供了一個理想的方法。

編輯本段 OPC 應用領域

- 1、工控解決方案用戶
- 2、樓控解決方案用戶
- 3、工控解決方案廠商
- 4、樓控解決方案廠商
- 5、工控解決方案集成商
- 6、樓控解決方案集成商
- 7 · All Automation Fields

OPC 是為了連接資料源(OPC 伺服器)和資料的使用者(OPC 應用程式)之間的軟體介面標準。資料源可以是 PLC, DCS, 條碼讀取器等控制設備。隨控制系統構成的不同,作為資料源的 OPC 伺服器即可以是和 OPC 應用程式在同一台電腦上運行的本地 OPC 伺服器,也可以是在另外的電腦上運行的遠端 OPC 伺服器。

OPC 介面既可以適用於通過網路把最下層的控制設備的原始資料提供給作為資料的使用者(OPC 應用程式)的 HMI(硬體監督介面)/SCADA(監督控制與資料獲取),批次處理等自動化程式,以至更上層的歷史資料庫等應用程式,也可以適用于應用程式和物理設備的直接連接。所以 OPC 介面是適用於很多系統的具有高厚度柔軟性的介面標準。

OPC 解決了什麼

OPC 誕生以前,硬體的驅動器和與其連接的應用程式之間的介面並沒有統一的標準。例如,在 FA(FactoryAutomation)——工廠自動化領域,連接 PLC(Programmable Logic Controller)等控制設備和 SCADA/HMI 軟體,需要不同的 FA 網路系統構成。根據某調查結果,在控制系統軟體發展的所需費用中,各種各樣機 器的應用程式設計占費用的 7 成,而開發機器設備間的連接介面則占了 3 成。此外,在 PA(Process Automation)——過程自動化領域,當希望把分散式控制系統(DCS——Distributed Control System)中所有的過程資料傳送到生產管理系統時,必須按照各個供應廠商的各個機種開發特定的介面,例如,利用 C 語言 DLL(動態鏈路資料庫)連接的 DDE(動態資料交換)伺服器或者利用 FTP(檔傳送協定)的文本等設計應用程式。如由 4 種控制設備和與其連接的監視、趨勢圖以及表報 3 種應用程式所構成的系統時,必須花費大量時間去開發分別對應設備 A,B,C,D 的監視,趨勢圖以及表報應用程式的介面軟體共計要用 12 種驅動器。同時由於系統中共存各種各樣的驅動器,也使維護運轉環境的穩定性和信賴性更加困難。

而 OPC 是為了不同供應廠商的設備和應用程式之間的軟體介面標準化,使其間的 資料交換更加簡單化的目的而提出的。作為結果,從而可以向用戶提供不依靠于特定 開發語言和開發環境的可以自由組合使用的程序控制軟體元件產品。

利用 OPC 的系統,是由按照應用程式(客戶程式)的要求提供資料獲取服務的 OPC 伺服器,使用 OPC 伺服器所必需的 OPC 介面,以及接受服務的 OPC 應用程式所構成。OPC 伺服器是按照各個供應廠商的硬體所開發的,使之可以吸收各個供應廠商硬體和 系統的差異,從而實現不依存於硬體的系統構成。同時利用一種叫做 Variant 的資料類型,可以不依存於硬體中固有資料類型,按照應用程式的要求提供資料 格式。

利用 OPC 使介面標準化可以不依存於各設備的內部結構及它的供應廠商來選用監視,趨勢圖以及表報應用程式。

為什麼開發自主 OPC Server 和 OPC Gateway?

- 1、國外原廠商的高價格
- 2、國外原廠商面對項目的不靈活性
- 3、國內項目中子系統的多樣性難以提供 DRIVER
- 4、自主 OPC 伺服器追求的是穩定、即時、迅速。
- 5、眾多子系統的不規範性
- 6、總包項目在投標前後可能出現的不一致性
- 7、價格昂貴的原廠平臺伺服器軟體
- 8、總包商集成是否投入大量的人力開發
- 9、平臺和子系統的相容性
- 10、建立了 OPC 平臺和子系統的互通
- 11、解決廠商和集成商在專案集成的煩惱
- 12、解決廠商和集成商分散資源進行二次開發
- 13、解決專案中子系統廠商的困擾
- 14、為上下位的資料通訊提供透明的通道



設定和啓動 OPC 功能

- i. System Parameter Setup > System Parameter Setup •
- ii. 點選 'System Setup' 的第四頁 Watchdog。
- iii. 提取 OPC License, 點按 "Request OPC License" 鍵。
- iv. 30 分鐘後, 用戶可以收到一個 free License, 請把 License code 貼在下方的 text bar。 MEGAYS - Security Management System- Ver 4.00 v32 (fmg) - STAVIT

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System Setup	
System #1 System #2 System Variable Link WatchDog	
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Access Control Satur	
Watchdog Function Enabled	
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4 VIDEO MATDIX SET ID	
a Master Live Setting	
B EMAIL SETTID	
Controller IP Delay (Second)	
3 SYSTEM SOLUDI CONTROL 192.168.0.1 10 - 232.817 - Server	
MACRO EDITOR	
MASTER 1/0 SETTIP [2300 [230]	
Request OPC Licence	
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Copy to Dipboard Mini Active	
Time Date Status Description	
22:29:57 2011/02/28 Offline DDC11KL No:001 - IP: 192 188:42:33 Loc:Door 1 23:40:51 2011/02/20 Offline DDC11KL No:001 - IP: 192 188:42:33 Loc:Door 1	
22-41-3 2017/02/28 Offine DDC11K No.001 1F 132 168-42.3 Loc:Door 1*	
22:42:35 2011/02/28 Offline DDC11KL No:001 - IP: 192.168.42.33 Loc:Door 1*	
22:43:28 2011/02/28 0ffine DDC11KL No:001 - IP: 192.188.42.33 Loc:Door 1*	
22:45:12 2011/02/28 Offline DDC11KL No:001 - IP: 192.168.42.33 Loc:Door 1*	
22:46:04 2011/02/28 Offline DDC11KL No:001 - IP: 192 168:42:33 Loc: Door 1*	
22:46:36 2011/02/28 Uffline UDULTIKL No.001 - 1P: 152.168.42.33 LOC:0001 1*	
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<Setup-01>

開啓 Remote OPC Quick Client 軟件, 出現以下視窗。

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OPC Quick Client	: - Untitled	and the second second							
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Ready									Item Count: 0 //
					<setup-02></setup-02>				
					Ē	又映和	顧示每個操作	的視窗.	

用戶可因應系統需要,加入多個不同的 Server。以下會以加入 MEGAsys OPC Server 為例子作說明。

- 1. 加入 New Server 資料。
 - i. 點按"New Server"鍵。
 - ii. 出現 'Server Properties' 視窗。因爲現時 MEGAsys OPC Server 是安裝在本機 中,所以選擇路徑時點選 Local Machine > MEGAsys OPC Server。
 - iii. 然後,點按OK 鍵,把資料加入。如下圖<Setup-03>。

💑 OPC Quick Client - Untitled	Server Properties	x	
File Edit Varia Tools Help D 26 L 12 de de 26 λ № 6 >	General		
Date Time E	Cool Machine Evar KEPServeEx.V4 Edays DPC Saver Remote Machine	Timestamp Quality Update Count	
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MEGAsys OPC Server 建立了。同時, 在視窗下方會顯示 "Connected to server …" 的資料。

OPC Quick Clie	nt - Untitled *								
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MEGAsys	OPC Server	Item ID	Data Type	Value	Timestamp			Quality	Update Count
Date	Time	Event							
0 2011/2/28	10:53:36 下午	Connected to se	erver 'MEGAsys OPC Server						
l Ready									Item Count: 0
					4 0.4				

<Setup-04>

- 2. 加入 New Group 資料。
 - i. 為 MEGAsys OPC Server 加入 "New Group"。在 MEGAsys OPC Server 上按 一下滑鼠右鍵, 選擇 "New Group..."。

OPC Quick Client -	Untitled *						
File Edit View Tool	; Help						
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MEGAsys OPC	New Group	l	Data Type	Value	Timestamp	Quality	Update Count
	Connect Disconnect Reconnect		_				
	Get Error Strin	g					
Date 2011/2/28	Enumerate Groups Get Group By Name		server 'MEGAsys OPC Server	2			
	Cut Copy Paste Delete	Ctrl+X Ctrl+C Ctrl+V Del					
	Properties						
Create a new group							Item Count: 0 //

<Setup-05>

- ii. 在 Group Properties 視窗中, 塡上 New Group 資料。
- iii. 為 Group 加入 Name 資料。例如: Group Name Alarm。
- iv. 設定 Update Rate、Update Notification 等資料。例如: Update Rate 500、 Update Notification – OPC 3.0。

- v. 剔選"Active State"。
- vi. 完成後按 OK 鍵便可。Alarm group 便會加在 MEGAsys OPC Server 之下, 如 下圖 <Setup-07>。

CPC Quick Clien	it - Untitled *		Group Properties			×			<u>_0×</u>
File Edit View T	ools Help	e ×	General			1			
Date Date 2011/2/28	PC Server Time 10:53:36 下午	Event Connected to server 'ME	Name: Update Rate (ms.): Time Bias (min.): Percent Deadband: Language ID:	Alarm 500 0 0			Timestamp	Quality	Update Count
Ready			Update Notification: Keep Alive Rate (mr):	0 FC 30	Active State Cancel He	=lp			Item Count: 0 🏾 🥢



在視窗下方會顯示"Added group ..."的資料。

- OPC Quick Clie	ent - Untitled *		الواطر المستقلي الم				
File Edit View	Tools Help						
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E : MEGAsys C	PC Server	Item ID	Data Type Value	Value	Timestamp	Quality	Update Count
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Ready							Item Count: 0 🥢

<Setup-07>

- 3. 加入 New Item 資料。
 - i. 加入屬於 Alarm group 的 Item 資料。點按 Add Item 鍵, 出現 'Add Items' 視 窗。
 - ii. 在 Alarm 上按一下滑鼠右鍵, 選擇 "New Items..."。

& OPC Quick Client - Untitled *	Add Items	×	x
File Edit View Tool: Help B B S C C F & HEGAsys OPC Gener Alarm	Item Properties Access Path Item ID: Data Type: Native:	Image: Window Concel Image: Window Concel	Timestamp Quality Update Count
Date Time ① 2011/2/28 10:53:36 F ⁴ ③ 2011/2/28 10:57:16 F ⁴ ④ 2011/2/28 10:57:16 F ⁴	Browsing F Branch Filer. MEGAsys OPC Server Browse flat address space on selected branch	Leaf Filter Type: Access: Native V Ary V Alamlog Camera D:0001 D:0002 D:0003 D:0003 D:0003 Add Leaves	[Item Count: 0]
	☐ Validate item before adding it to the list	Item Count: 0	
	- Fac	<setup-08></setup-08>	

- iii. 在 Add Items 視窗中, Browsing 方框內選擇合適的 Point。例如: DI0001、 DI0002 和 DI0003。
- iv. 點按 Add Leaves 鍵。
- v. 再點按 OK 鍵, 把選擇的資料加入 Item List 中, 如 <Setup-10>。

🍓 OPC Quick Client – Untitled *	Add Items	×		<u>_0×</u>
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		<setup-09></setup-09>		

在視窗下方會顯示"Added items ..."的資料。

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E		Item ID	Data Type	Value	Timestamp	Quality	Update Count
- 🚔 Alarm		@DI:0001	String	Off	22:34:07:486	Good	1
		@DI:0001	String	Off	22:34:07:486	Good	1
		@DI:0002	String	Off	22:34:07:486	Good	1
Date 2011/2/28 2011/2/28 2011/2/28 2011/2/28	Time 10:53:36 下午 10:57:16 下午 11:01:35 下午	Event Connected to ser Added group 'Ala Added 3 items to	ver 'MEGAsys OPC Serve rm' to 'MEGAsys OPC Serv group 'Alarm'.	, er.			
Ready							Item Count: 3 🍃

<Setup-10>

完成第一組 Group 和 Item 的資料後, 如有其他 Group 需要加入, 可重覆以上的設定步驟。

- ▶ 加入另一個 Group 資料。例如: Control group。
 - Name Control 、 Update Rate 100、 Update Notification OPC 3.0。

An OPC Quick Clie	ont - Untitled *		Froun Pronerties			×			
File Edit View	Tools Help	ê x	General						
E MEGAsys	OPC Server	Item ID	Name: Update Rate (ms.) Time Bias (min.):	Control 100 0			Timestamp	Quality	Update Count
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Ready			1	0)	Cancel Help				Item Count: 3 🏼 🥢

<Setup-11>

•

在視窗下方會顯示"Added group ..."的資料。

Contraction of the second s					
C Server	Item ID Data Type	Value	Timestamp	Quality	Update Count
Time	Event				
10:53:36 下午	Connected to server 'MEGAsys OPC Ser-	er'.			
10:57:16 下午	Added group 'Alarm' to 'MEGAsys OPC S	rver".			
11:01:35 下午	Added 3 items to group 'Alarm'.				
11:03:30 下午	Added group 'Control' to 'MEGAsys OPC	ierver'.			
	C Server 1 10:53:36 下午 10:53:36 下午 10:57:16 下午 11:01:35 下午 11:03:30 下午	C Server Item ID Data Type Time Event 10:53:36 주부 Connected to server 'MEGAsys OPC Serv 10:57:16 주부 Added group 'Alarm' to 'MEGAsys OPC Serv 11:01:35 주부 Added group 'Alarm' to 'MEGAsys OPC Serv 11:03:30 주부 Added group 'Control' to 'MEGAsys OPC Serv	C Server: Item ID Data Type Value Time Event 10:53:36 下午 Connected to server MEGAsys OPC Server': 10:57:16 下午 Added group /Alam' to MEGAsys OPC Server': 11:01:35 下千 Added 3 Rems to group /Alam'. 11:03:30 下千 Added 3 Rems to group /Alam'.	Rem ID Data Type Value Timestamp Ime Event Event Imestamp 10:53:36 T4 Connected to server 'MEGAsys OPC Server', 1057:16 T4 Added group Valum', 1056:Asys OPC Server', 1101:35 T4 11:01:35 T4 Added group Valum', 2000 Server', 1101:35 T4 Added group Control to MEGAsys OPC Server', 1103:30 T4	Rem ID Data Type Value Timestamp Quality Ime Event 10:53:36 T+ Connected to server MEGAcys OPC Server'. 10:57:16 T+ Added group Valem' to MEGAcys OPC Server'. 11:01:35 T+ Added group Valem'. 11:03:30 T+ Added group 'Control' to MEGAcys OPC Server'.

<Setup-12>

- 加入屬於 Control group 的 Item 資料。
- 在 Control 上按一下滑鼠右鍵, 選擇 "New Items..."。
- 選擇合適的 Point。例如: DO0001、DO0002 和 DO0003。

OPC Quick Clier	nt - Untitled *						<u>_ ×</u>
File Edit View 1	ools Help						
🗅 📽 🖬 🛫	🍏 💣 🔂 👗 🖻	n 🖻 🗙					
🖃 📹 MEGAsys OP	MEGAsys OPC Server		Data Type	Value	Timestamp	Quality	Update Count
Alarm	New Item		1				
	Clone Group						
Date	Asynchronous 2.0 Cache Refresh Asynchronous 2.0 Device Refresh						
2011/2/28 2011/2/28 2011/2/28 2011/2/28	Export CSV Import CSV		' 'MEGAsys OPC Server'. to 'MEGAsys OPC Server'.				
0 2011/2/28	Cut Copy	Ctrl+X Ctrl+C	of to 'MEGAsys OPC Server'.				
	Paste Delete	Ctrl+V Del					
Create a new item .	Properties						Item Count: 3

<Setup-13>

ac OPC Quick Clie	nt - Untitled *	1	Add Items		<u>></u>	4		<u>_0×</u>
Hie Edit View	Fools Help	Ttem ID	Item Properties Access Path Item ID: Data Type: Native		OK Cancel Help	Timestamp	Quality	Update Count
Date 1 2011/2/28 1 2011/2/28 1 2011/2/28 2 2011/2/28 1 2011/2/28	10:53:36 下午 10:57:16 下午 11:01:35 下午 11:03:30 下午	Event Connected I Added grou Added 3 iter Added grou	Browsing Branch Filter MEGAsys OPC Server	Leal Filter Type: Accel D1:2047 D1:2047 D0:0001 D0:0002 D0:0002 D0:0002	35			
Ready			Browse flat address space on selected branch Validate item before addres it to the list		Id Leaves			Item Count: 3 🥢

<Setup-14>

🔅 OPC Quick Clie	nt - Untitled *						
File Edit View	Tools Help						
🗅 🚅 🔒 🛫	🍏 💣 😭 👗 🖻	R X					
MEGAsys OPC Server		Item ID	Data Type	Value	Timestamp	Quality	Update Count
		@DO:0001	String	Off	22:34:07:486	Good	1
Control		@DO:0002	String	Off	22:34:07:486	Good	1
		@DO:0003	String	Off	22:34:07:486	Good	1
Date	Time	Event					
0 2011/2/28	10:53:36 下午	Connected to serv	ver 'MEGAsys OPC Serve	4			
0 2011/2/28	10:57:16 下午	Added group 'Alar	m' to 'MEGAsys OPC Ser	ver'.			
1 2011/2/28	11:01:35 下午	Added 3 items to	group 'Alarm'.				
0 2011/2/28	11:03:30 下午	Added group 'Con	trol' to 'MEGAsys OPC Se	rver'.			
1 2011/2/28	11:06:31 下午	Added 1 items to	group 'Control'.				
1 2011/2/28	11:07:01 下午	Added 1 items to	group 'Control'.				
1 2011/2/28	11:07:27 下午	Added 1 items to	group 'Control'.				
2010-1 1-12 2011							

<Setup-15>

- ▶ 加入下一個 Group 資料。例如: LOG group。
 - Name LOG 、 Update Rate 250 、 Update Notification OPC 3.0 。

or e galek ene	ine officience							
file Edit View	Tools Help							
) 🖼 🖬 ե	🗳 💣 🗳	X ₽a 🖻	×					
🖃 📹 MEGAsys I	OPC Server	1	Them ID	_, Data Type	Value	Timestamp	Quality	Update Count
- 🛄 Alarm		New Group					A A A A A A A A A A A A A A A A A A A	
i- 🧰 Control		Connect		-				
		Disconnect						
		Reconnect						
		Get Error Strin	a					
Date	Time			-				
1 2011/2/28	10:53	Enumerate Gro	oups	'MEGAsys OPC Server'.				
1 2011/2/28	10:57	Get Group By I	Name	to 'MEGAsys OPC Server'.				
0 2011/2/28	11:01	Cut	Ctrl+X	pup 'Alarm'.				
0 2011/2/28	11:03	Copy	Chrl+C	of to 'MEGAsys OPC Server'	<u></u>			
0 2011/2/28	11:06	Paste	Chd+V	pup 'Control'.				
1 2011/2/28	11:07	Delete	Del	pup 'Control'.				
0 2011/2/28	11:07		00	- pup 'Control'.				
		Properties		. 22				
reate a new group				-				Item Count:

<Setup-16>

ao OPC Quick Clie	nt - Untitled *		Group Properties				×			
File Edit View	Tools Help		General							
	〕☞⊌¦⊴≅ë뤦≱®ë <mark>×</mark>			1						
HEGAsys	OPC Server	Item ID	Name: Update Rate (ms.): Time Bias (min.):	LOG 250 0				Timestamp	Quality	Update Count
Date	Time	Event	Percent Deadband:	0	j					•
 2011/2/28 2011/2/28 2011/2/28 2011/2/28 	10:57:16 下午 11:01:35 下午 11:03:30 下午	Added group 'Alarm' to 'N Added 3 items to group ' Added group 'Control' to	Language ID: Update Notification	1033 OPC 3.0	•	🔽 Active State				
2011/2/28 2011/2/28 2011/2/28 2011/2/28	11:06:31 下午 11:07:01 下午 11:07:27 下午 11:09:28 下午	Added 1 items to group ' Added 1 items to group ' Added 1 items to group ' Added group 'I OC' to 'MP	Keep Alive Flate (ms).	0						
Ready	11109/20 [STIS	Hadda graup Lois to Hit			OK	Cancel	Help			Item Count: 6

<Setup-17>

- 加入屬於 Control group 的 Item 資料。
- 點按 Add Item 鍵, 出現 'Add Item' 視窗。
- 選擇合適的 Point。例如: Alarmlog、Eventlog。

	teres and have a		Í Í		1		1
MEGAsys O	PC Server	Item ID	Data Type	Value	Timestamp	Quality	Update Count
Alarm							
	New Item						
	Clone Group						
te	Asynchronous 2.0 Ca	che Refresh					
2011/2/28	Asynchronous 2.0 De	vice Refresh	proup 'Alarm'.				
2011/2/28	Export CSV		trol' to 'MEGAsys OPC Server'.				
2011/2/28	Import CSV		roup 'Control'.				
100000000000000000000000000000000000000			roup 'Control'.				
2011/2/28	C	1 PPIete 7	group Control.				
2011/2/28	Cut	Culture	he MECANIN ODC Country				
2011/2/28 2011/2/28 2011/2/28 2011/2/28	Cut Copy	Ctrl+C	to 'MEGAsys OPC Server'.	2/40 -			



COPCQuick Cite File Edit Wew E Control Alarm Control	nt - Untitled * Tools Help 🐨 💣 🐨 👗 📭 PC Server	Rem ID	Add Items Item Properties Access Path Item ID: Alamilog Data Type: Native		DK Cancel Help	tamp Quality	Update Count
Date © 2011/2/28 © 2011/2/28 © 2011/2/28 © 2011/2/28 © 2011/2/28 © 2011/2/28 © 2011/2/28 © 2011/2/28 Ready	Time 11:01:35 下午 11:03:30 下午 11:06:31 下午 11:07:27 下午 11:07:27 下午 11:09:28 下午 11:10:22 下午	Event Added 3 items to Added qroup 'Co Added 1 items to Added 1 items to Added 1 items to Added 1 items to Added group 'LO Failed to add gro	Browsing Brench File: 	Leal Filter: Type: Alamico Camera D1:0002 D1:0002 D1:0003 P1:0003 P1:0003	Access.		Titem Count: 6
			Browse flat address space on selected branch Validate item before adding it to the list		Add Leaves		

<Setup-19>

In xI

			Add Items		×	1		
COPC Quick Clie	ent - Untitled * Tools Help	R X	Item Properties Access Path: Item ID:		OK Cancel Help			
HEGAsys O Alarm Control	PC Server	Item ID Alarmiog	Data Type: Native Active Browsing Branch Filter:	Leaf Filter. Type: Ac	cess:	amp 38:000	Quality Good	Update Count1
Date 1 2011/2/28 1 2011/2/28 1 2011/2/28 1 2011/2/28 2 2011/2/28 2 2011/2/28 2 2011/2/28 2 2011/2/28	Time 11:03:30 下午 11:06:31 下午 11:07:01 下午 11:07:27 下午 11:09:28 下午 11:10:22 下午	Event Added group 'Con Added 1 items to Added 1 items to Added 1 items to Added group 'LOG Faled to add grou Added 1 items to	- Cal MEGAsys OPC Server	Native Arry Notive Arry Notice Notice Notice Notice Notice Notice				
Ready	11.13.72 +	Added 1 items to	Browse flat address space on selected brane	* [Add Leaves			Item Count: 7 🥢
			Validate item before adding it to the list		Item Count: 0			

<Setup-20>

■ 在 Alarmlog 的 value 位置上點按一下, 修改需要執行的參數。如下圖。



<Setup-21>

在 Eventlog 的 value 位置上點按一下,修改需要執行的參數。如下圖。

MEGAsys - Security Management System - Ver 4.00 v32 (Eng) - SERVER	- 8
Î 🌲 🧈 🕏 🕵 🖏 💁 Ga 🍫 🚔 🖳 🖪 💌 🖉 🥌 📥	🤣 🔯 📃 🧕
System Setup System Setup X If Camera Setup System 11 System 12 System 14 WatchDog Image: Setup Signed Setup System 11 System 12 System 12 WatchDog Image: Setup Setup <th></th>	
SYSTEM PARAMETER SETUP SPIC OF CONTRACTOR OF CONT	
Image: Constraint of the second se	Tmestanp Quality Update Count 07/03.38/00 Good 1 06:39:15:000 Good 1
Date Time Event Total 2011/2/8 11:06:01 T+F Added 1 Rens to group 'Control'. W HA 1 Con11/2/8 11:07:01 T+F Added 1 Rens to group 'Control'. If Con1 Con11/2/8 11:07:02 T+F Added 1 Rens to group 'Control'. If Con1 Con11/2/8 11:07:02 T+F Added 1 Rens to group 'Control'. If Con1 Con11/2/8 11:07:02 T+F Added 1 Rens to group 'Control'. If Con1 Con11/2/8 11:07:02 T+F Added 1 Rens to group 'Control'. If Con1 Con11/2/8 11:07:02 T+F Added 1 Rens to group 'Control'. If Con1 Con12/28 11:13:42 T+F Added 1 Rens to group 'Control'. If Con1 Con12/28 11:13:42 T+F Added 1 Rens to group 'LOC'. Sull Tree Con11/28 11:13:42 T+F Added 1 Rens to group LOC'.	
Total Optimize Active 22-34-42 2011/02/28 UCP- Init DDC11KL IP-192-158.42.33 Remote Port: - Local Port: 24001 Index: 1 Address: 1 22-34-44 2011/02/28 VEALABOR DDC11KL IP-192-158.42.33 Remote Port: - Local Port: 24001 Index: 1 Address: 1 22-34-44 2011/02/28 VEALABOR DDC11KL IP-192-158.42.33 Remote Port: - Local Port: 24001 Index: 1 Address: 1 22-34-45 2011/02/28 TCPIP LAM Socket initialize, 4001 22-38-58 2011/02/28 TCPIP Remote Event Horssog XML Enable - Port: 1900 22-38-58 2011/02/28 TCPIP Server Listen Port: 4001 22-38-51 2011/02/28 TCPIP Server Listen Port: 4001 22-38-51 2011/02/28 TCPIP Server Listen Port: 4001 22-38-15 2011/02/28 TCPIP VEGAys System 22-38-15 2011/02/28 TCPIP VEGAys System 22-38-15 2011/02/28 TCPIP VEGAys System 22-38-14 2011/02/28 TCPIP VEGAys System 22-38-14 2011/02/28 TCPIP VEGAys System	
System Alarm Log System Events DVR Online Satur Tree Access Dipertification Image: System Alarm Log Image: System Events Image: System Events Image: System Alarm Log ObjectVideo Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Alarm Log Image: System Events Image: System Events Image: System Events Image: System Events Image: System Events Image: System Events Image: System Events Image: System Events Image: System Events Im	

<Setup-22>

點選 Control group 內的某個 item, 如 DO0002。按右鍵選擇 'Synchronous Write'。

MEGAsys - Security Management System Ver 4.00 v32 (Eng) - SERVER			_ 문 ×
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System Setup System Setup Image: Setup System 81 Image: Setup Setup Image: Setup Setup Image: Setup Setup Image: Setup Setup	X System Vailable Link WatchDog		
SYSTEM PARAMETER SETUP			
W File Edit View Tools Help			
an De la state a contra a cont			
Kel ::::::::::::::::::::::::::::::::::::	Value Off	Timestamp Quality 22:34:07:486 Good	Update Count
- 2 S' Control Do:0002 String	Off.	22:34:07:486 Good	in a second design of the
	Set Active	22:34:07:486 Good	1
Print Date Time Event	Set Inactive		
Tasl 2011/2/28 11:10:22 TF Failed to add group LOG to MEGAsys OPC Serve 20 HA S 0 2011/2/28 11:13:42 TF Added I Remot group LOG. 40 Study 0 2011/2/28 11:13:42 TF Added I Remot group LOG.	(HF Synchronous Cache Read Synchronous Device Read Synchronous Write		
Cont ① 2011/2/28 11:19:27 下午 Asynchronous 2:0 write transaction 0034EB99 inil Com ① 2011/2/28 11:19:27 下午 Asynchronous 2:0 write transaction 0034EB99 co	latec Asynchronous 2.0 Read Asynchronous 2.0 Write		
Contraction Con	Cut Cb/HX Co Copy Cb/HC		
Perform a synchronous write on the selected items	Delete Del		Item Count: 8 //
System Events	Properties	그미즈	
Time Date Ture	Description		
22342.0 2011/02/28 UDP_Init DDC11KL1P132.168.42.33 Remote Pott: - Loc 22344.4 2011/02/28 WSchobog 1258.01.69 (memotePott: 500.00.62.201 - Init 22345.4 2011/02/28 TCPIP LAN Socket initiätze, 4001 22345.3 2011/02/28 TCPIP LAN Socket initiätze, 4001 22345.3 2011/02/28 TCPIP Remote F von Message XML Enable - Port: 1300 223451.3 2011/02/28 Statup MEGAsys DPC Same: Network - Port: 1300 223451.4 2011/02/28 Statup MEGAsys DPC Same: MEGAsys MEGAsys DPC Same: MEGAsys DPC Same: MEGAsys MPC Same	al Port: 24001 Index: 1 Address: 1 or - 0 Jn Jn Jn		
System Alarm Log System Events DVR Online Satur 📴 Tree Access	🖆 ObjectVideo		
23:20:18 2011/02/28 Offline DDC11KL No:001 - IP: 192.	168.42.33 Loc:Door 1* DER. Administration		

<Setup-23>

在 Synchronous Write 視窗內修改參數。修改完畢後, 按 Apply 鍵便可。同時, 在 System Events 視窗中會看到相關訊息, 如下圖。



<Setup-24>

依照之前的設定步驟,繼續加入其他 Group,如: DVR。

💑 OPE Quick Clier	e OPC Quick Client - Untitled *			Group Properties						
File Edit View 1	fools Help		General							
🗅 🖨 🖬 🛫	💣 💣 😭 👗 🛍	® ×				<u> </u>				
HEGAsys C	IPC Server	Rem ID	Name: Update Rate (ms.) Time Bias (min.):	DVR 1000			Timestamp	Quality	Update Count	
Date	Time	Event	Percent Deadband:	0						
2011/2/28 1 2011/2/28	11:10:22 下午 11:13:42 下午	Failed to add group 'LOG' Added 1 items to group 'L	Language ID:	1033						
1 2011/2/28	11:15:11 下午	Added 1 items to group 'l	Update Notification:	OPC 3.0	▼ Active State					
2011/2/28 2011/2/28 2011/2/28 2011/2/28	11:19:27下午 11:19:27下午 11:19:41下午 11:20:01下午	Asynchronous 2.0 write t Asynchronous 2.0 write t Synchronous write succe	Keep Alive Plate (ms)	0						
Ready	1120101 111	Synchronous white succe	1		OK Cancel	Help			Item Count: 8	

<Setup-25> 🐵 OPC Quick Client - Untitled * Tools D 🛩 🖬 🛫 💣 🗗 👗 🖻 🖷 🗙 MEGAsys OPC Ser Data Type Quality Update Count Item ID Timestamp DVD LOC New Item... Clone Group 1
 Date

 1 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28

 2 2011/2/28
 Asynchronous 2.0 Cache Refresh -Asynchronous 2.0 Device Refresh group 'LOG'. o group 1203. 2.0 write transaction 0034EBB9 initiated for.. 2.0 write transaction 0034EBB9 completed f... 18 succeeded for 1 items on group 'Control'. Export CSV.. Import CSV.. Cut Ctrl+X rite succeeded for 1 items on group 'Control'. Сору Ctrl+C WR' to 'MEGAsys OPC Server' Delete Del ٠ Create a new it: Item Count: 8

<Setup-26>

a OPC Quick Clie	ent - Untitled *		Add Items		×	
File Edit View	Tools Help					
🗅 🖨 🔒 🔬	🐨 💣 😭 👗 🛍 I	8 × 5	Item Properties		OK	
🖃 🧰 MEGAsys C	OPC Server	Item ID	Access Path:	4 1	Cancel	Timestamp Quality Update Count
Control	4		Item ID: DVR:001		Help	
DVR			Data Turnet Mating			
			Ashua M			TN
Date	Time	Event	Active			
0 2011/2/28	11:13:42 下午	Added 1 items to	Browsing Preside Either	Laul Citar Turar Assaul		
1 2011/2/28	11:15:11 下午	Added 1 items to	Tx	Learnier. Type. Access		
1 2011/2/28	11:19:27 下午	Asynchronous 2				
1 2011/2/28	11:19:27 下午	Asynchronous 2	MEGAsys OPC Server	Coor:480		
0 2011/2/28	11:19:41 下午	Synchronous wr		CVR:001		
1 2011/2/28	11:20:01 下午	Synchronous wr		DVR:002		
0 2011/2/28	11:23:46 下午	Added group 'D\		@ DVR:003		
				CVR:004	-	
Ready				DVB:005		Item Count: 8 //
vents			1			
nize 🕕	Active		Browse flat address space on selected	branch Add	Leaves	
Date	Туре					
			Validate item before adding it to the list	lb	em Count 1	



OPC Quick Clie	nt - Untitled *			The second s			
File Edit View	Tools Help						
🗅 😂 🔒 🛫	💣 💣 😭 👗 🗞	R X					
🖃 🃹 MEGAsys O	PC Server	Item ID	Data Type	Value	Timestamp	Quality	Update Count
- Alarm		OVR:001	String	Normal	22:34:13:625	Good	1
							>
Date	Time	Event					<u> </u>
0 2011/2/28	11:15:11 下午	Added 1 items to	group 'LOG'.				
0 2011/2/28	11:19:27 下午	Asynchronous 2.0	write transaction 0034E	B9 initiated for			
0 2011/2/28	11:19:27 下午	Asynchronous 2.0	write transaction 0034E	389 completed f			
0 2011/2/28	11:19:41 下午	Synchronous write	e succeeded for 1 items o	n group 'Control'.			
1 2011/2/28	11:20:01 下午	Synchronous write	e succeeded for 1 items o	n group 'Control'.			1
1 2011/2/28	11:23:46 下午	Added group 'DVR	to 'MEGAsys OPC Serve	ł.			
0 2011/2/28	11:27:35 下午	Added 1 items to	group 'DVR'.				_
100 803							×
Ready							Item Count: 9 //

<Setup-28>

依照之前的設定步驟,繼續加入其他 Group, 如: AccessControl。

🐍 OPC Quick Clier	nt - Untitled *		Group Properties			×			_ 🗆 🗙
File Edit View 1	Tools Help		General			_			
E C MEGAsys C	DPC Server	Item ID	Name:	AccessControl			Timestamp	Quality	Update Count
Control			Update Rate (ms.)	100					
LOG		4	Time Bias (min.);	0					1.
Date	Time	Event	Percent Deadband:	0		IE			
1 2011/2/28 2011/2/28	11:15:11 下午 11:19:27 下午	Added 1 items to group 1 Asynchronous 2.0 write	Language ID:	1033					
2011/2/28 2011/2/28	11:19:27 下午 11:19:41 下午	Asynchronous 2.0 write Synchronous write succe	Update Notification:	OPC 3.0	▼ ✓ Active State				
2011/2/28 2011/2/28	11:20:01 下午 11:23:46 下午	Synchronous write succe Added group 'DVR' to 'MB	Keep Alive Rate (ms).	0					
0 2011/2/28	11:27:35 下午	Added 1 items to group 1			OK Cancel	Help			-
Ready									Item Count: 9 //

<Setup-29>

OPC Quick Clie	nt - Unti	tled *			A REAL PROPERTY OF A READ REAL PROPERTY OF A REAL P			<u>_ 0 × </u>
File Edit View	Tools He	elp						
🗅 📽 🔛 🔬	ď 💣	1 × 10	r ×					
🖃 🧃 MEGAsys O	PC Server	<u> </u>	Item ID	Data Type	Value	Timestamp	Quality	Update Count
Access	Contro	New Item						
		Clone Group	l.					
- DVR		ña inchrona in	- 2.0 Carba Dafrach					
🛅 LOG		Asynchronous	s 2.0 Device Refresh					
Date	Tir	Export CSV						•
1 2011/2/28	11	Import CSV		saction 0034EBB	9 initiated for			
0 2011/2/28	11-	Cut.	CMA	isaction 0034EBB	9 completed f			
2011/2/28	11	Сору	Ctrl+C	d for 1 items on g	roup Control.			
0 2011/2/28	11	Paste	Ctr[+)	sys OPC Server'.	poop control.			
0 2011/2/28	11	Delete	Del					
1 2011/2/28	11	Properties		to 'MEGAsys OP	C Server'.			-
Create a new item								Item Coupt: 9

<Setup-30>



<Setup-31>

A-OPC Quick Clie	ent - Untitled *									×
File Edit View	Tools Help									
D 🗳 🖬 🔬	💣 💣 😭 👗 🖻	₿ ×								
E MEGAsys O	PC Server	Item ID	Data Type	Value			Timestamp	Quality	Update Count	
Acces	sControl	Door:001	String	Normal	New Item		22:34:12:273	Good	1	
- Control					Set Active Set Inactive					
LOG]+[Synchronous Cac	he Read				•
Date	Time	Event			Synchronous Dev	rice Read				
1 2011/2/28	11:19:27 下午	Asynchronous 2.0) write transaction 00348	EBB9 completed f	Synchronous Wri	te				
2011/2/28 2011/2/28 2011/2/28	11:19:41 下午 11:20:01 下午 11:23:46 下午	Synchronous wrib Synchronous wrib Added aroup 'DVF	e succeeded for 1 items e succeeded for 1 items R to 'MEGAsys OPC Serv	on group 'Control'. on group 'Control'. er'.	Asynchronous 2. Asynchronous 2.	0 Read 0 Write				
0 2011/2/28 0 2011/2/28 0 2011/2/28	11:27:35 下午 11:29:47 下午 11:32:15 下午	Added 1 items to Added group 'Acc Added 1 items to	group 'DVR'. essControl' to 'MEGAsys group 'AccessControl'.	OPC Server'.	Cut Copy Paste Delete	Ctrl+X Ctrl+C Ctrl+V Del				
Perform a synchron	ous write on the selected	items							Item Count: 10	11.

<Setup-32>

🙅 OPC Quick Clie	nt - Untitled *				Synchronous Write				×
File Edit View	Tools Help						Lat.		
🗅 😂 🔚 🔬	💣 💣 😭 👗 🖻	R ×			Item ID	Current Value	Write Value		OK
🖃 📹 MEGAsys O	PC Server	Item ID	Data Type	Value	Coor:001	Normal	Open		Apply
- Control - Control - DVR - LOG	Control	Door:001	String	Normal				_	Cancel
Date	Time	Event			-				
1 2011/2/28	11:20:01 下午	Synchronous wrib	e succeeded for 1 items	on group 'Control'.					
1 2011/2/28	11:23:46 下午	Added group 'DVR	to 'MEGAsys OPC Serv	er'.					
1 2011/2/28	11:27:35 下午	Added 1 items to	group 'DVR'.						
1 2011/2/28	11:29:47 下午	Added group 'Acc	essControl' to 'MEGAsys	OPC Server'.					
1 2011/2/28	11:32:15 下午	Added 1 items to	group 'AccessControl'.						
1 2011/2/28	11:33:34 下午	Synchronous writ	e succeeded for 1 items	on group 'Access					
1 2011/2/28	11:34:15 下午	Synchronous wrib	e succeeded for 1 items	on group 'Access					
l Ready									

<Setup-33>



<Setup-34>

MEGAsys OPC Client 參數設定 APPENDIX A. DCOM Configure for Remote Client

DCOM Configuration Setup

This section is intended to provide general guidance on configuring DCOM settings for newer Operating Systems, which do differ slightly from Windows NT and 2000 Operating Systems.

This article will simply outline the steps to configure DCOM. If you would like to know and understand the reasons WHY some of these settings are so, then please read:

- <u>NT/2000 User Security Permissions/Considerations</u>
- Special considerations in multiple domain settings.

We will configure DCOM in 4 steps:

- 1. Configuring the general/default settings
- 2. Configuring the settings for OPCENUM
- 3. Configuring the settings for your OPC Server
- 4. Configuring the Local Security Policies

Starting DCOM Configuration

The DCOM Configuration utility can be accessed either in the Windows Control Panel -> Administrative Tools, or the Windows START button. To start it manually:

- 1. Click on the Windows START button
- 2. Click on the RUN option
- 3. Type "DCOMCNFG" (without the quotes) and press ENTER. (case does not matter)

This will load the Windows "Component Services", which is shown below:

Scomponent Services					
🚱 Elle Action Yew Window Help					_8×
◆ → È 🖩 × 🗗 🖉 😤 '	2 Pa 3-	E 🖩 🖻 🛢	3		
Console Root	My Computer	4 object(s)			
E Computers					
My Computer OM+ Applications	COM+ Applications	DCOM Config	Distributed	Running	
DCOM Config Distributed Transaction C	Photocolio			Processos	
E - Running Processes					
Event Viewer (Local) Event Viewer (Local) Event Viewer (Local)					
<u><</u> 0					

Step 1 - Configuring Default DCOM Security Options

The following screen is opened by:

- Right-clicking on the "My Computer" node in the "Component Services" screen.
- Choosing "**Properties**" from the menu. Then click the "**Default Properties**" Tab.

	MSDTC	COM Security
General	Options	Default Properties
Enable Distributed Enable COM Intern Default Distributed CI The Authentication I	COM on this computer et Services on this comp DM Communication Prop evel specifies security a	uuter ierties
Default Authentica	evel specifies security a tion Level:	стпе раскестечет.
None		+
The impersonation le who is calling them, a	vel specifies whether ap and whether the applicat	plications can determine
The impersonation le who is calling them, a using the client's ider Default Impersonat	vel specifies whether ap and whether the applicat tity. ion Level:	plications can determine ion can do operations
The impersonation le who is calling them, a using the client's ider Default Impersonat Identify	vel specifies whether ap and whether the applicat tity. ion Level:	plications can determine ion can do operations

- The options available in this screen should be configured as:
 - The Enable Distributed COM on this computer MUST be checked.
 - The Default Authentication Level should be set to None.
 - The Default Impersonation Level should be set to Identity
- The next step is to click on the "COM Security" tab, which is shown below: As of XP SP2 there are four buttons in this screen. You MUST configure all four buttons.

General	Options	Default Properties
Default Protocols	MSDTC	COM Security
Access Permission:	,	
You may edit wh	o is allowed default acces	s to applications. You ma
also set limits on	applications that determin	e their own permissions.
	Edit Limits	Edit Default.
		<u> </u>
مريبية والمريبية والمريبية	ing Density ing	
aunch and Activa	tion Permissions	
aunch and Activa. You may edit wh	tion Permissions o is allowed by default to k	aunch applications or
aunch and Activa. You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to l You may also set limits on wn permissions.	aunch applications or applications that
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to k You may also set limits on wn permissions.	aunch applications or applications that
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I. You may also set limits on wn permissions. Edit Limits	aunch applications or applications that Edit <u>D</u> efault
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I. You may also set limits on wn permissions. Edit Limits	aunch applications or applications that Edit <u>D</u> efault
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I. You may also set limits on wn permissions. Edit Limits	aunch applications or applications that Edit <u>D</u> efault
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I. You may also set limits on wn permissions. Edit Limits	aunch applications or applications that Edit <u>D</u> efault
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I You may also set limits on wn permissions. Edit Limits	aunch applications or applications that <u>Edit D</u> efault
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I You may also set limits on wn permissions. Edit Limits	aunch applications or applications that
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I. You may also set limits on wn permissions. Edit Limits	aunch applications or applications that <u>Edit D</u> efault
Launch and Activa You may edit wh activate objects. determine their o	tion Permissions o is allowed by default to I. You may also set limits on wn permissions. Edit L <u>i</u> mits	aunch applications or applications that

- Click on the "Edit Default" button within the "Access Permissions " area and make sure that the following accounts exist with the "Allow Access" permissions:
 - Everyone
 - Interactive
 - System

•

Network

- IWAM_<computer-name> *
- IUSR_<computer-name> *
- Guests
- Anonymous
- Once that is complete, do the same with the "Edit Default" button in the " Launch Permissions" section and give the right "Allow Launch" to the same accounts as mentioned in the bullet-points above.
- Make the same settings under **both** "Edit Limits" buttons. If you do not set up these limits your DCOM will be limited based on these settings.
- Now click the OK button to save and close the window.

If you plan to use IIS (Internet Information Services) as an OPC Client, then its login context should be added to the list of trusted accounts as shown above.

Step 2 - Configuring DCOM Security Options for OPCENUM

The next step is to locate OPCEnum in the list of COM components. Simply click on, or expand the "DCOM Config" section to show the objects available to configure:



Locate OPCEnum, and then open its properties by simply right-clicking on it, and choosing "Properties" from the menu.

General Tab

The General Tab has only one option, and that is the "Authentication level".

OpcEnum Properties	? 🔀
General Location Secu	rity Endpoints Identity
General properties of th	is DCOM application
Application Name:	OpcEnum
Application ID:	{13486D44-4821-11D2-A494-3CB306C10000}
Application Type:	Local Service
Authentication Level:	None
Service Name:	OpcEnum
-	
	OK Cancel Apply

For each of use, you can select "None" as your option.

Location Tab

OPCEnum is a program that scans your registry for a list of OPC Servers on your computer.

OpcEnun	n Propert	ies			? 🛛
General The foll applicat	Location owing settin ion. If you r ole one. Clie	Security gs allow D nake more ent applica	Endpoints COM to loc than one so tions may or	Identity ate the cor election, th veride your	rect computer for this en DCOM uses the first selections.
□ Rur I Rur □ Rur	application application application	i on the co i on <u>t</u> his co i on the <u>f</u> ol	omputer whe omputer. llowing com	ere the <u>d</u> ata	a is located
					Browse
L		(OK		ancel Apply

OPCEnum needs to run on the computer where it resides.. therefore the option of choice here is to check "**Run application on this computer**".

Security Tab

There are 3 options in the Security tab that need to be set.

Launch Permissions: Select the option "Use Default".

Access Permissions:

Select the option "Use Default".

Configuration Permissions:

Select the option "Customize ", and then click the "Edit" button.

OpcEnum Properties	? 🔀
General Location Security Endpoints Ider	ntity
Launch Permissions	
Use Default	
C Cu <u>s</u> tomize	<u>E</u> dit
Access Permissions	
Use Default	
C Custo <u>m</u> ize	Edit
Configuration Permissions	
C Use Default	
Customize	Edit
ОК	Cancel Apply

A window will open allowing to specify the accounts that do/don't have configuration permissions, simply add the same:

- Network
- Interactive
- System
- Everyone
- Guests
- Anonymous
- IUSR_<computer-name> *
- IWAM_<computer-name> *

Ensure that all of the accounts above receive "Full Control" rights.

* If you are using IIS (Internet Information Services) as an OPC Client.

Identity Tab

Use either the Interactive or System account. Click OK to save and close the OPCENUM options window.

Step 4 - Configuring DCOM Security Options for the OPC Server

This step should only be followed if your computer has an OPC Server on it that you wish to allow OPC Clients to connect to.

At the "Component Services" window, click on or expand the "DCOM Config" node and locate your OPC Server from the list.



When you have found your OPC Server in this list, simply right-click on it and open its properties. Then follow the same steps as those listed for configuring OPCENUM.

Configuring Local Security Policy Settings

Overview

When making remote OPC connections there are some additional settings that should be checked. This is important when the two computers are not under the same domain when logged in.

Updates to newer operating systems have made changes to the local Policy settings and it is entirely possible that these updates have restricted systems that were otherwise once working.

This document assumes that all <u>DCOM security settings</u> are configured in accordance with our recommendations.

Local Security Settings

The settings outlined in this document must be checked on both the OPC Server and OPC Client computer(s).

The Local Security Settings can be found:

START > Control Panel > Administrative Tools > Local Security Settings

The Local Security Settings window is shown below:



Expand the Local Policies folder and go the Security Options (shown in gray).

DCOM Policies

Locate the following options:

- DCOM: Machine Access Restrictions in Security Descriptor Definition Language (SDDL) syntax
- DCOM: Machine Launch Restrictions in Security Descriptor Definition Language (SDDL) syntax

Both of these options should be set to "NOT DEFINED".

If either of these are defined, then you will need to work with an IT professional or network administrator who has the necessary rights to be able to access and modify these policies.

Network Access - Everyone Permissions

We need to to let Everyone permissions also apply to anonymous users. Locate the following options:

· Network access: Let Everyone permissions apply to anonymous users

These settings default to "disabled". We recommend enabling these options by right-clicking on them and changing the setting as shown below:

Local Se	unty Setting	
5	Network access: Let Everyone permissions apply to anonymo users	ous
G		
0		
	Jisabled	

Click the OK button to save the setting and close the window.

Network Access - Sharing and Security Model

We need to configure the sharing and security model for local accounts. Locate the following options:

• Network access: Sharing and security model for local accounts

This setting now has a default value of "Guest only" which can prevent OPC connections. Right click on this policy and open its Properties:

ocal Security Setting			
Network acce	ss: Sharing and secu	rity model for local	accounts
Charles Investment	a ali anti anti an ali		
Classic - local users	authenticate as then	nselves	
Guest only - local us	ers authenticate as (Guest	

Change the setting to "Classic" as shown above, then click OK to save and close the window.

Important Concepts and Examples Regarding Workgroups and Windows Domains

When configuring an OPC client and server to run on separate PCs, it is very important that you know whether the computers are running in a workgroup or in a domain. If you don't know how your PC's are setup, you will need to ask someone with Administrative rights and experience to look and see for you.

After reading this you should have a clear understanding of the **user account requirements** for your usage scenario. Setting up those user accounts is a function of your Windows administration and you or your system administrator will need to setup the user accounts.

Workgroups

If you will be using BOTH the OPC Client PC and the OPC Server PC in the SAME WORKGROUP, you will need to have the **same user account** setup on BOTH PCs with the **same password**.

Ideally you'd run the OPC Server and the OPC Client using the same user account, but if you cannot do that, then you'll have to make sure **both accounts are on each PC.**

Workgroups example:

OPC Client runs as local account "OPCClientUser" on Computer #1

OPC Server runs as local account "OPCServerUser" on Computer #2

Evertech Electronics Ltd.

The accounts "OPCClientUser" and "OPCServerUser" will have to exist on **both** computers as local accounts. Account "OPCClientUser" must have the same password on both PCs. Account "OPCServerUser" must have the same password on both PCs. The passwords for the two accounts "OPCServerUser" and "OPCClientUser" do not have to match.

Domains

Ideally if you are using computers that are in a Windows Domain, both computers will be in the same domain. If they are not in the same domain, you must setup a "trust relationship" between the two domains, which is outside the scope of this documentation.

If you are using domains, it is recommended that you **use domain user accounts** instead of local user accounts to run the OPC Server and the OPC Client. Some people don't realize that if they log into their PC as "JoeSmith" that is different from "MyDomain\JoeSmith". When logging into the PC or choosing user accounts in DCOM setup, be VERY CLEAR whether you are picking a domain account or local user account. If you do choose to use local user accounts, you have to be consistent and do that everywhere in all your DCOM settings.

The big difference in domains is that the Domain Controller will determine whether a user account name + password combination are valid or not. For that reason when using domain user accounts you **will not** go set user names and passwords on each PC in the domain. You will setup the accounts ONE TIME on the Domain Controller and then reference those domain accounts in your DCOM setup.

Workgroup to Domain Connections

Connecting workgroups to domains either client to server or server to client can be much more difficult to accomplish. For that reason we strongly recommend you do not try to do this unless your network and IT security setup constrains you.

The big thing to realize when trying to make workgroups interoperate with domains is that the workgroup has **no way to authenticate a domain user account!**

So to make workgroups and domains interoperate, you basically have to "fall back" to the workgroup to workgroup scenario and setup local user accounts on each PC. A couple of examples will help to illustrate this:

Example: OPC Client in Workgroup, OPC Server in Domain

Where this can get hard is if your OPC Server is setup to run as the interactive user, and the person logged in on the OPC server computer is using a domain account, and your OPC Client is in a workgroup, then the OPC Server will be running as a domain account user.

When subscription callbacks for data reads from the OPC server come back to the OPC client, the OPC Client PC will see the domain user account and say "I don't know you" and you won't get data.

The symptom of this will be that you can connect to the OPC Server, browse it, configure tags, but fail to get any data back from the OPC Server when it subscribes to tags.

The solution in this case would be to setup the OPC Server to run as a specific named local user on it's PC, instead of as the "interactive" user that is logged into the desktop which is a domain account. That specific named local user, if setup on the OPC Server PC in it's workgroup with the same password, would then be able to access the PC where the OPC Client is running.

Summary of requirements for this example to work:

- OPC Server must run as a local user account and that local user account must exist on the client and server PCs with the same username and password. This can be the same or a different local user account from the one used by the OPC Client.
- The OPC Client must run as a local user account on the client PC and that same local user account must exist on the OPC Server PC with the same username and password

• Example: The OPC Client in Domain, OPC Server in Workgroup

The same concept applies if your OPC client is in a domain and the OPC Server is in a workgroup. The failure mode here though if you run the OPC Client under a domain account, is that the OPC Client won't connect to your OPC server PC, won't browse for servers, so you won't even be able to configure.

The requirements for this example to work are identical to the prior Workgroup/Domain example above.

User Permissions Considerations when setting up a DCOM Connection between An OPC Client and OPC Server DCOM Tutorial Home

A key foundation for setting up a DCOM connection between two computers is to have the machines setup so that they have permission to access each other. This is a two way street. The client must have permissions to access the machine with the OPC server and vice versa. If you don't have permissions set both ways, then you will not have success. This article is not intended to be a substitute for good knowledge of the Microsoft Windows NT and Windows 2000 user accounts and security model. There are plenty of good books on the subject available at any local bookstore. This article is intended to point out some key things you need to have setup before you even try to configure a DCOM connection between an OPC client and an OPC server.

Types of Permissions:

There are some common types of permissions we discuss in our DCOM tutorial

- Access -- these permissions allow a client machine to connect to a server computer, retrieve a list of OPC servers and connect to a server. They also allow the OPC server to make what is known as a "callback" to your client. A callback occurs when you ask the OPC server to notify your client only when data changes. If you use these types of reads, sometimes called "subscription" or "exception" reads, then it is important that Access permissions be set right on the client machine.
- Launch these permissions are what allows an OPC client application to start or "launch" an EXE running on the machine where the OPC server is located. There are 2 common EXEs that get launched: (1) OPCEnum.exe, a standard OPC common component that lists the available OPC servers on a machine and returns that list to a client and (2) the actual EXE that corresponds to the OPC server. For example, our <u>TOP Server</u> OPC server EXE is "servermain.exe", the <u>INGEAR AB Server</u> is "IGOPCAB.exe"
- **Configuration** these permissions allow a remote client to change the configuration of the OPC servers setup in the registry you should rarely have to touch these permissions and in fact should not unless you know what you are doing.

So, the most common permissions you will see us discuss are Access and Launch permissions.

Users and Groups:

This document is not meant to replace common books on NT/2000 security, but there are some key concepts we want to emphasize.

Users: A user is a particular login name+password combination used to gain access to a machine running Windows NT/2000.

Groups: A group contains one to many *users*. Groups are a useful way to combine a set of user accounts and grant them certain rights for access and launch. If the actual user names that you wish to have access to your OPC servers will change with any frequency, we recommend you use Groups when granting all rights. Then all you have to do is add/remove users from the Groups in the NT/2000 user manager and their rights to access OPC servers will carry along. Proper use of Groups, whether they be ones you create on your own or any of the NT/2000 default groups, is a great way to reduce your long term maintenance cost of the system

Local Users/Groups: A Local user is an account that is known ONLY to the machine on which the account was setup. Likewise for a Local Group. If you need an account to have access to another machine, and the account is a Local User, you will need to create a Local user with the identical username+password on the remote machine. For this reason, we recommend running OPC Client - Server setups in a Domain if you can - the maintenance and setup is easier.

Domain Users/Groups: A Domain User account is one that can be used anywhere within an NT/2000 domain so long as the computer is a member of the domain. Authentication of the user is handled by a primary domain controller machine, thus allowing you to centralize your security management on the user/group level. A Domain Group is a group that is available to any computer that is a member of the domain. We recommend using Domain user accounts and Groups to setup your DCOM Config permissions when setting up OPC client/server connections-- the risk of problems is lower and the long term maintenance is much easier.

What's a Domain ?

In Windows NT there is the concept of a Domain (in in Win 2000 domains still applies, though the concept has been evolved to talk about Forests/Trees, something beyond the scope of this article). A domain is a group of machines that have reasons to need to be able to work together. For example, you might have the paint shop domain, the body shop domain, the accounting domain, the marketing domain, and sales domain in a large company. For the majority of their day to day work, the users in each domain need only to access the machines in their group but not others. The Windows NT concept of a Domain allows you to setup a Domain Server in the group and setup security in the Domain so that the users within the domain have common access to the Domain server and to some degree, to each other's machines. So for example, in the Paint Shop, you might have a Domain Server (also called a Primary Domain Controller or PDC in Microsoft-speak) and 10 Windows NT machines. When users login to their boxes, they log in to the Paint_Shop domain, which then gives them access to any shared resources (drives, printers, etc) in the Paint Shop domain. Their user name and passwords are authenticated (validated, checked - pick your term) against a database of users stored on the Domain Server. Unless a special relationship called a "Domain Trust Relationship" has been setup, users in the Marketing domain would not have access to shared resources in the Paint Shop domain. In a Domain Trust Relationship, the PDC (Primary Domain Controller) for the Paint Shop domain agrees to trust the Marketing domain's users as if they were their own. Domain Trust relationships and their setup and maintenance is an advanced topic beyond this discussion - just be aware that if you have multiple domains, you have to be more careful with your access rights setup.

In Windows 2000, machines can still be a member of a Domain, but you can optionally also setup Windows 2000 machines to support the new Active Directory security model, a subject which is beyond the scope of this particular document.

Get in the Domain - if you can

Now that you have the idea of a domain, why does it matter to OPC? The primary benefit of both the OPC client computer and the OPC server computer being a member of a domain is that security is centralized. Both machines will trust accounts that are members of the domain, meaning their username/password combinations are found in the security database of the PDC machine. The downside is that if the PDC goes down, you might not be able to validate security after reboot of a machine in the domain until the PDC comes back. Fortunately you can have BDCs or "Backup Domain Controllers" in a Domain to decrease this risk.

When you run an OPC client application on an NT/2000 machine, that application, even if it is running as a service, has to run under some user name -- you'll hear this sometimes called "running in the context of user name JoeSmith" -- it means you are running the application as if it were launched after a user JoeSmith logged into that machine. The same applies to an OPC server -- it too runs under some user name or "context".

So if we have OPC client on machine A, running under username JoeSmith, and it wants to talk to an OPC server on machine B, that is running under the name BillJones, then DCOM security defaults require that JoeSmith have access to Machine B, and BillJones have access to MachineA. Without BOTH of those requirements met, you'll never get your DCOM connection to work, at least not without some major trickery that just isn't worth the hassle.

OK - so what -- how does a Domain help this situation ? Simple -- if Machine A and B are members of the Paint_Shop domain, and users JoeSmith and BillJones are both accounts in the domain Paint_Shop, then unless you have done something to abnormally restrict those user's rights (i.e. taken them out of the Domain Users group or other manual editing of rights), the permissions are already setup, you're done. This is because Machine A trusts the PDC of the Paint_Shop domain to advise it

that BillJones has access, and Machine B trusts the PDC of the Paint_Shop domain to advise it that JoeSmith has access.

Because of these relationships, getting an OPC client and OPC server on machines in the same domain is probably the easiest scenario.

No Domain - What do you do ?

If you don't have a domain, it's OK. The risk of the PDC or having to have a BDC to decrease that risk may be something your network design said doesn't work for you. If your NT/2000 machines are not members of a domain, then they are running as standalone machines. Every NT/2000 machine (even those in a domain) has it's own "local" database of trusted users. When a machine is not a member of the domain, the ONLY user accounts it will trust are those it finds in it's own "local" security database.

Here is how this can get you into trouble on setting up and OPC client to server connection. If machine A has an account JoeSmith and Machine B has an account BillJones, and that is all, then how can an OPC client running as JoeSmith on Machine A, gain access to an OPC server running as BlllJones on Machine B ? It can't -- when Machine B receives a request from the OPC client, embedded inside that request is the notation "this is from user JoeSmith on Machine A". Machine B says "I don't know any JoeSmith" and refuses the connection. The typical error message thrown is "Access Denied". A sure sign you have this issue is when you try to connect to a remote machine with an OPC client to browse available servers and you can't even connect to the machine through the browse dialog without getting and "Access Denied" error. That's a sure sign you have a permissions issue between your two boxes.

So what is the solution ? Well fortunately you can trick the boxes. All you need to do is create the EXACT SAME user account names AND passwords on BOTH BOXES. So on Machine A, you need to have an account JoeSmith AND BIIIJones. On Machine B, you also need an account JoeSmith and BIIIJones. The passwords for BOTH JoeSmith accounts MUST match. The passwords for the BiIIJones accounts must match on both boxes. JoeSmith and BiIIJones CAN have different passwords between the two account names, and should for good security measure. You should also make sure those accounts have identical access rights if you can.

Once you have that setup, when Machine A comes calling on Machine B with an OPC request and identifies himself as JoeSmith with some password (it's encrypted), Machine B will look in it's database, see the same accountname, the same password, and same "come on in request from Machine A". When Machine B goes to return it's data from the OPC server to the OPC client on machine B, the OPC server will go call Machine A as BillJones with a password -- Machine A will look in it's database, see that it has that account, and accept the call.

A good way to see if you have these permissions set right is to go to Network Neighborhood, browse from Machine A to Machine B and try to connect to Machine B. You may not have any shared folders or printers, but so what - if you can connect to the machine without error, even if no shared resources are available, you likely have solved the first phase of the Access permissions challenge, gaining access to the machine. Your next step would be to make sure that the users you've setup are granted the proper rights in the DCOM Config utility on the client side and server side.

We know this may sound like a lot but if you read over this a few times, think about the simple concept of Machine's A and B allowing people access to the machines, you can see why this permissions issue is so crucial to proper DCOM configurations and setup.

If you have your basic access permissions working (i.e. you can at least see the machine and see shared folders/shared printers), you can go on to DCOM Client setups or DCOM Server setups.

Configuring DCOM (Distributed COM) to Connect an OPC client to an OPC Server in multiple Domains.

Domain Trust Relationship Considerations

When you're going from one domain to another and browsing OPC servers, probably the biggest issue to be concerned with is domain trust relationships. When you have multiple domains, there are setups in BOTH domains that must be made so that Domain A trusts users from Domain B and vice versa. For DCOM to work properly you'd have to have the trust going both ways because there are DCOM calls going both ways and the security model will try and validate the security credentials of the user going both ways. It is beyond the scope of our free support to show users how to setup Domain Trusts, but the good news is any decent network administration book will address the issue.

Having said that, with Domain trusts setup properly, then you still have to have the Dcom permissions setup properly as we discuss in our Dcom Configuration appnote.

Software Toolbox Recommendations for Configuring DCOM

New DCOM Configuration Videos Available!!!

Having problems with "**Access Denied**" when trying to get your OPC Client/Server software communicating?

We have over 10 years of DCOM configuration and troubleshooting experience that we have tried to put within our DCOM tutorial.

Configuring DCOM

Windows 98, NT and 2000 DCOM Configuration	Windows XP, 2003, Vista, 2008 and Windows 7 - DCOM Configuration
Client side settings	Introduction to DCOMCnfg
 Server side settings General settings OPC Server Specific OPCEnum settings 	 Default DCOM options OPCEnum OPC Server PC only Local Security Policies Workgroups vs. Domains

MEGAsys OPC Client 參數設定 Appendix B. OPC ITEM (Tag) name for MEGAsys

1) Alarm Input point

Name:

Size: Points start from 0001 to 2048 (Max/Server)

DI:0001

DI:0002

DI:2048

Direction: From OPC MEGAsys Server and to MEGAsys OPC server Data: Normal/ACK/Alarm/Reset

2) Control Output Point

Size: Points start from 0001 to 2048 zones for server Name: DO:0001

DO:0002

DO:2048

Direction: Form OPC server and to OPC Server (Input/Output) Data: On/Off

3) System Log

Event log: All MEGAsys system event log Name: Eventlog Alarm log:All MEGAsys system alarm log Name: Alarmlog Direction:Form OPC Server (Input) Data: Refer MEGAsys Event/Alarm Log Data

4) System Macro Control

Direct Macro control to MEGAsys Server Name: MACRO Direction: To MEGAsys OPC Server (Output)

Name:MacroCtrlDirection:To MEGAsys OPC ServerControl:On/Off switch the macro executeData:Refer MEGAsys Macro Manual (All Macro Support)

5) CCTV Control

Camera:	Switch Camera for Matrix CCTV Control
Name:	Camera
Size:	1 to 640 (Max/Server)
Direction:	To OPC Server (Output)
Data:	1,2,3640
Monitor:	Switch Control for Monitor Matrix CCTV C

Switch Control for Monitor Matrix CCTV Control
Monitor
1 to 160 (Max/Server)
To OPC Server (Output)
1,2,3160

DVR:	DVR status message
Name:	DVR
Size:	1 – 100 (Max/Server)
Direction:	From MEGAsys OPC Server (Input)
Data:	HD Fault/Cam n Fault/Cam Resume/HD Full/HD Resume/Cam
	Motion Alarm

6) Access Control System door control

Name: Door:0001

Door:0002

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Door:0480 (Max/Server)

Size: 1-480 (Max/Server)

Direction: Form MEGAsys OPC Server and to MEGAsys OPC server Command:On/Off (Door Open/Door Close)

Data: Unlock/Lock/Open/Close/Open Too Long Alarm/Unlock all Card/Resume All card