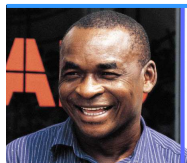


ABB AC800M 3.2与 Intellution iFIX3.0 组态指南



内容

- 介绍采用iFIX3.0作为ABB AC800M控制系统的SCADA/HMI软件的方案。
- 介绍ABB OPC Server的设置，关于CBM的详细组态，请参考CBM的培训课程。
- 介绍iFIX的OPC配置和组态及如何实现快速批量组态。
- 介绍iFIX数据库组态及如何实现快速批量组态。
- 介绍冗余服务器的设置。

AC800M/iFIX方案



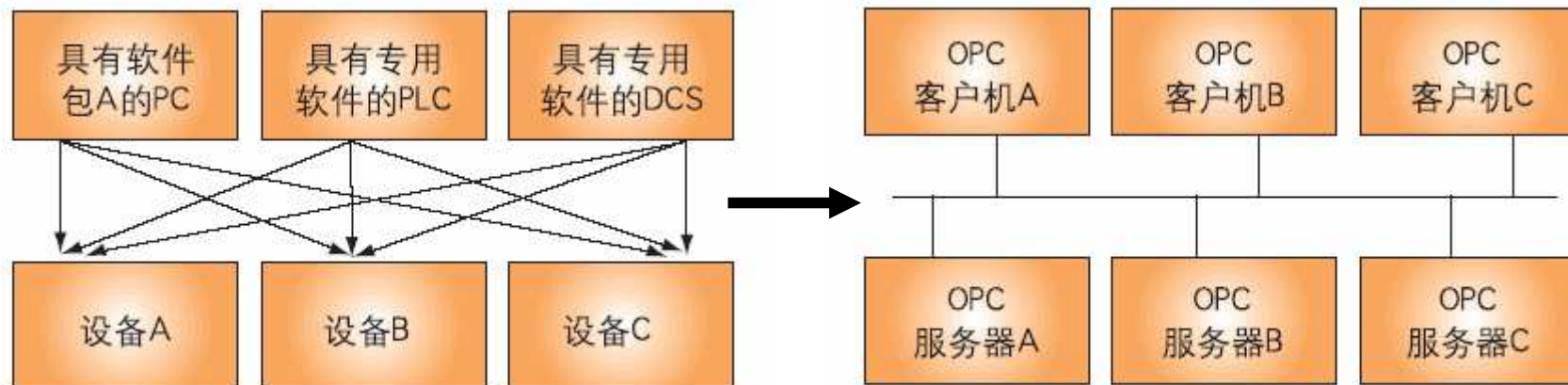
Industrial[®] Solutions from ABB





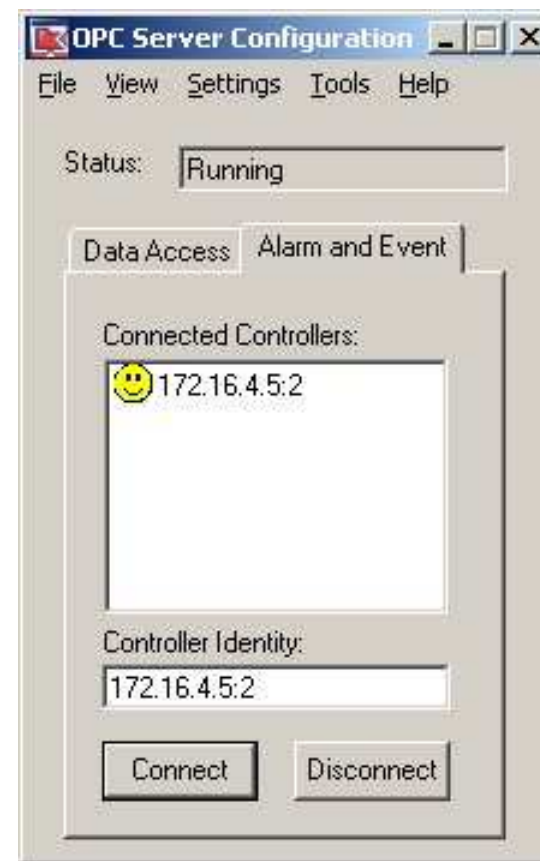
为什么选择**OPC**作为通讯接口

- 不再需要任何驱动，即插即用，真正解决了客户在使用多种不同厂家的产品时的兼容性和互操作性问题。
- 多个客户端可以同时和多个服务器通讯。
- 高速性能，Server和Client之间的通讯速度可达20000Tags/s。
- ABB AC800M控制系统提供完善的OPC通讯方案，跟多种HMI/SCADA软件有大量成功的案例，如iFIX, Intouch, Citect 等。



IndustrialIT AC800M OPC 解决方案

- ABB提供标准的2.0版本的OPC DA和AE服务器, 供各种OPC客户端访问。
- OPC Data Access Server
从AC800M/C控制器采集数据, 供OPC Client访问。
- OPC Alarm and Event Server
提供报警和事件的OPC Server, 供OPC Alarm&Event Client访问。对于大部分的HMI/SCADA软件的事件和报警均在上位软件中实现, 但在某些特殊情况下, 比如电厂的SOE, 事件必须控制器中产生, 然后通过OPC AE Server供Client访问。



IFIX OPC 解决方案

■ IFIX PDB OPC Client

软件名称OPC Power Tool, 又称为OPC Client Driver, 既作为OPC客户端连接第三方OPC Server, 又作为第三方OPC Client 连接PDB的中间OPC Server, 产品包含在I/O Driver & OPC Server CD 中。

■ IFIX Workspace OPC Client

是一个OPC客户端连接程序, iFix Client节点的数据可通过它直接取自任何OPC Server, 产品随 iFIX一同安装在硬盘中。

■ IFIX PDB OPC Server

即OPCEDA, 将iFIX过程数据库作为OPC Server供本地OPC客户端连接, 随同iFIX一起安装在硬盘中, 每一个客户端的连接都需要授权。

ABB AC800M / iFix 方案

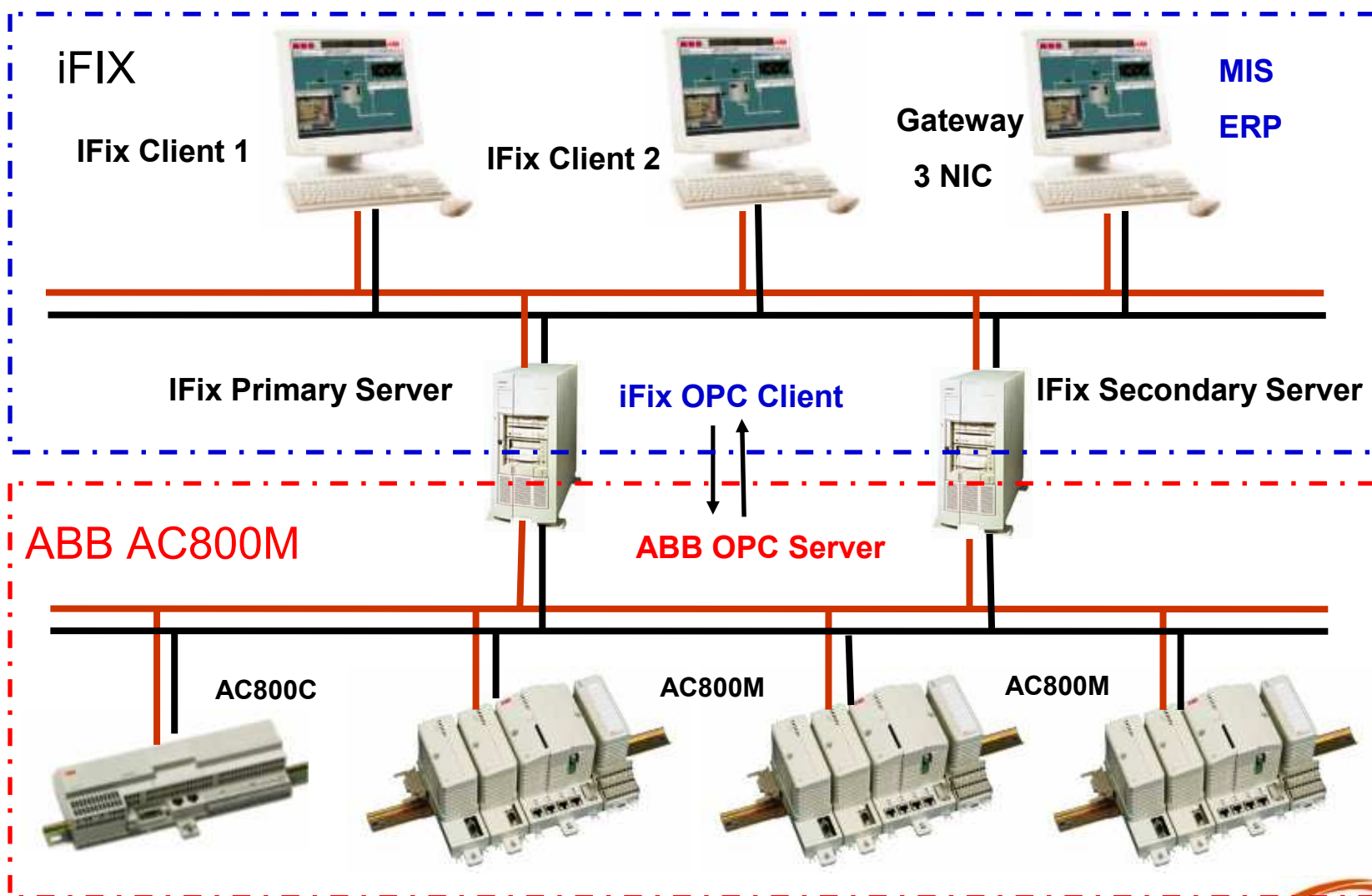
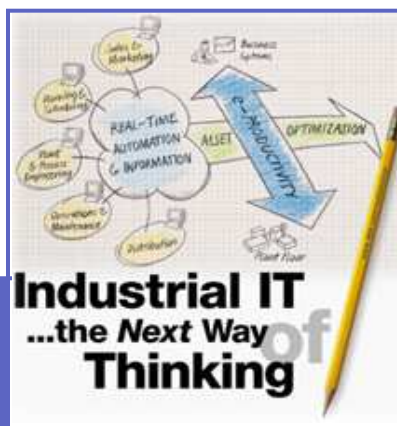


ABB CBM组态编程



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CBM编程

为了便于演示，做一个简单的程序。

1. 创建一个**Project**,使用软控制器进行仿真。
2. 设定软控制器的地址，即本机IP地址127.0.0.1:2
3. 编辑程序，创建10个变量C1~C10。
4. 运行**Soft Controller**。
5. 将程序下装到软控制器。
6. 在线观察程序运行状况，确认运行正常。

The screenshot displays the 'Program - Program2 - Application_1:Program2' window. It features a menu bar (Editor, Edit, View, Tools, Window, Help) and a toolbar. Below the toolbar is a table with three columns: Name, Current Value, and Data Type. The table lists variables C1 through C7 with their respective current values and data types (all are 'real'). Below the table are two tabs: 'Variables' and 'Function Blocks'. The 'Variables' tab is active, showing a ladder logic program with 10 rungs. Each rung consists of a variable name followed by its current value, an equals sign, the variable name again followed by its current value, and then '+ 1;'. The values shown are: C1 (83.0), C2 (92.0), C3 (116.0), C4 (84.0), C5 (316.0), C6 (106.0), C7 (128.0), C8 (105.0), C9 (149.0), and C10 (85.0).

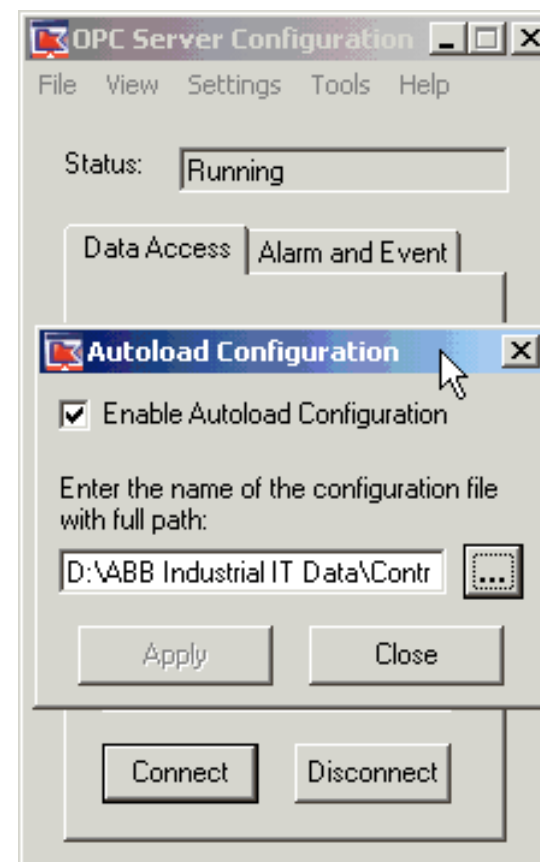
Name	Current Value	Data Type
C1	83.0	real
C2	92.0	real
C3	116.0	real
C4	84.0	real
C5	316.0	real
C6	106.0	real
C7	128.0	real

Variables Function Blocks

```
C1 83.0 := C1 83.0 + 1 ;  
C2 92.0 := C2 92.0 + 1 ;  
C3 116.0 := C3 116.0 + 1 ;  
C4 84.0 := C4 84.0 + 1 ;  
C5 316.0 := C5 316.0 + 1 ;  
C6 106.0 := C6 106.0 + 1 ;  
C7 128.0 := C7 128.0 + 1 ;  
C8 105.0 := C8 105.0 + 1 ;  
C9 149.0 := C9 149.0 + 1 ;  
C10 85.0 := C10 85.0 + 1 ;
```

ABB OPC Server设置

1. 运行ABB OPC Server
2. 在Data Access 栏中输入软控制器的IP地址：
127.0.0.1:2
3. 保存配置文件为：Auto.cfg
4. 设置自动加载配置功能。



iFIX组态

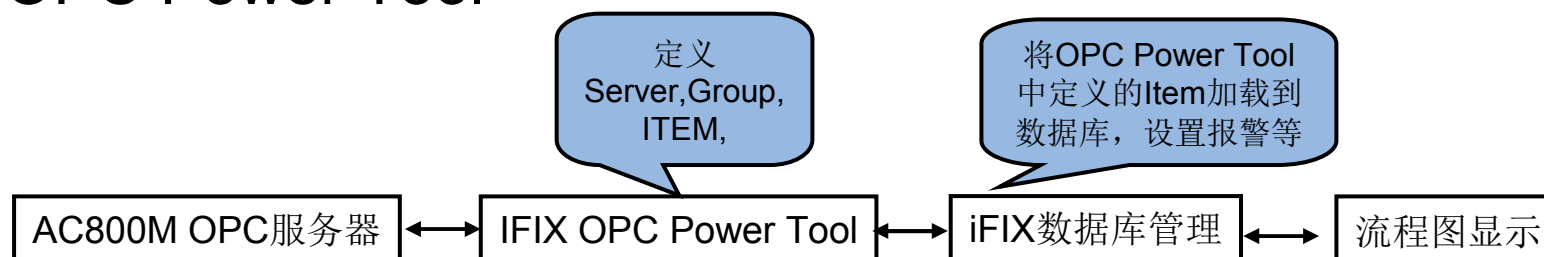


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iFIX OPC Client的两种方式

■ OPC Power Tool

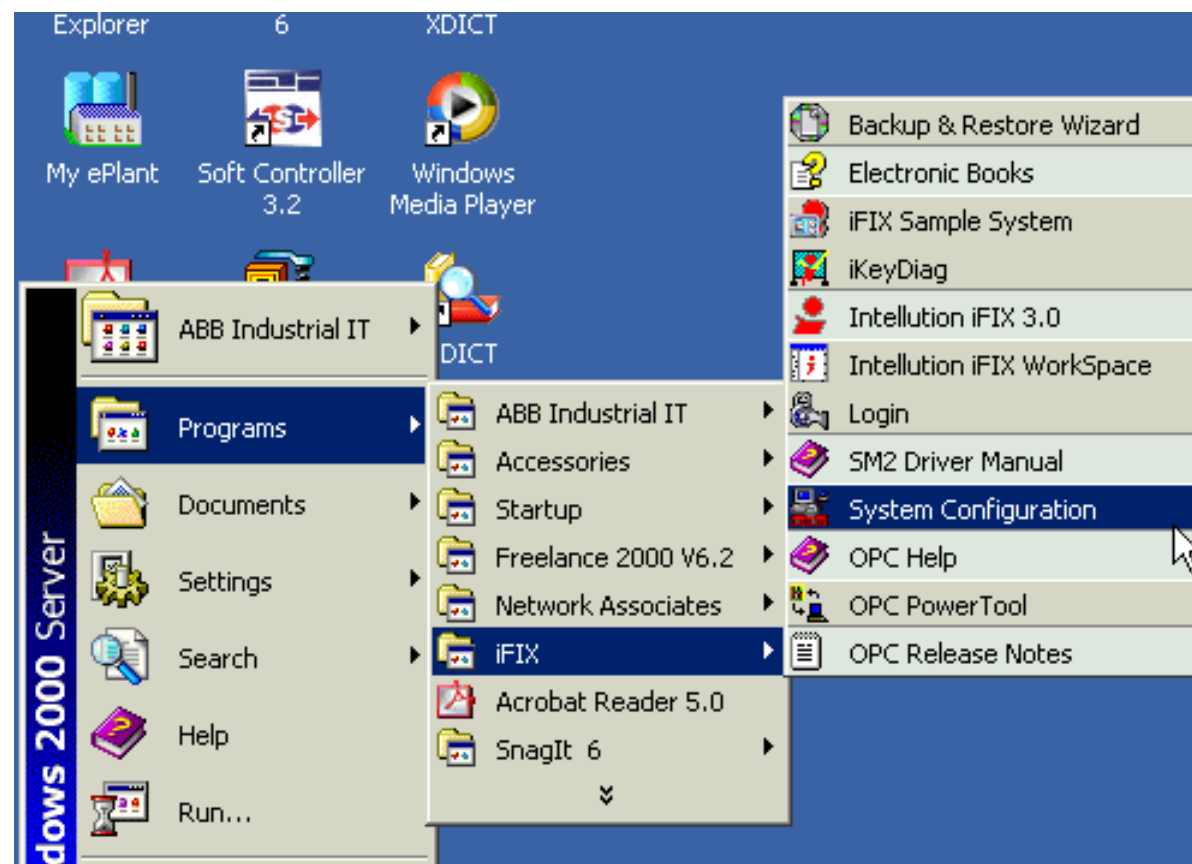


■ OPC Client



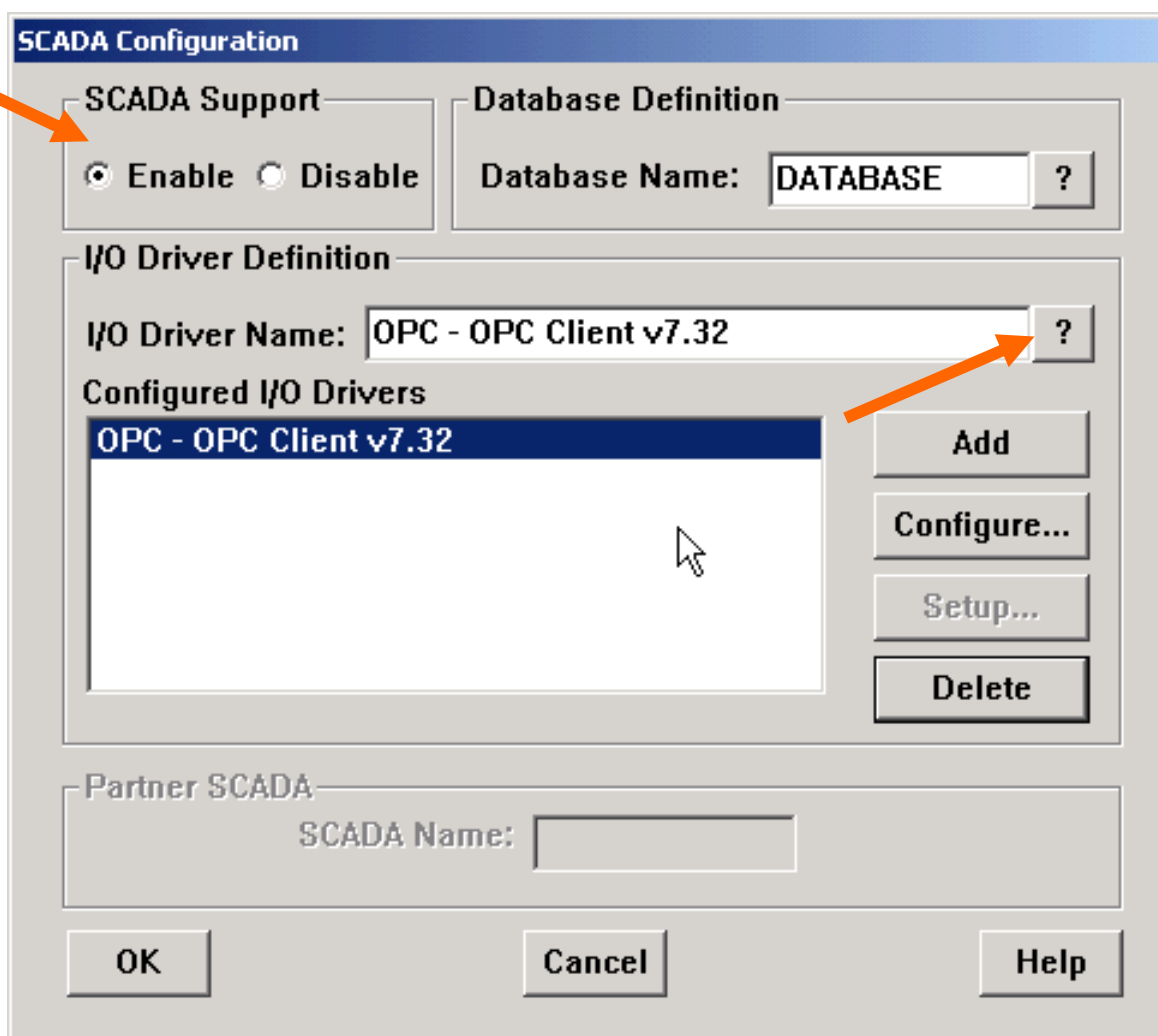
需要报警趋势的点采用第一种方式,
纯显示点采用第二种方式!

IFIX System Configuration



SCADA设置

1. 选择SCADA支持
2. 选择添加OPC Client
3. 删除SIM的驱动，使OPC成为默认的驱动。

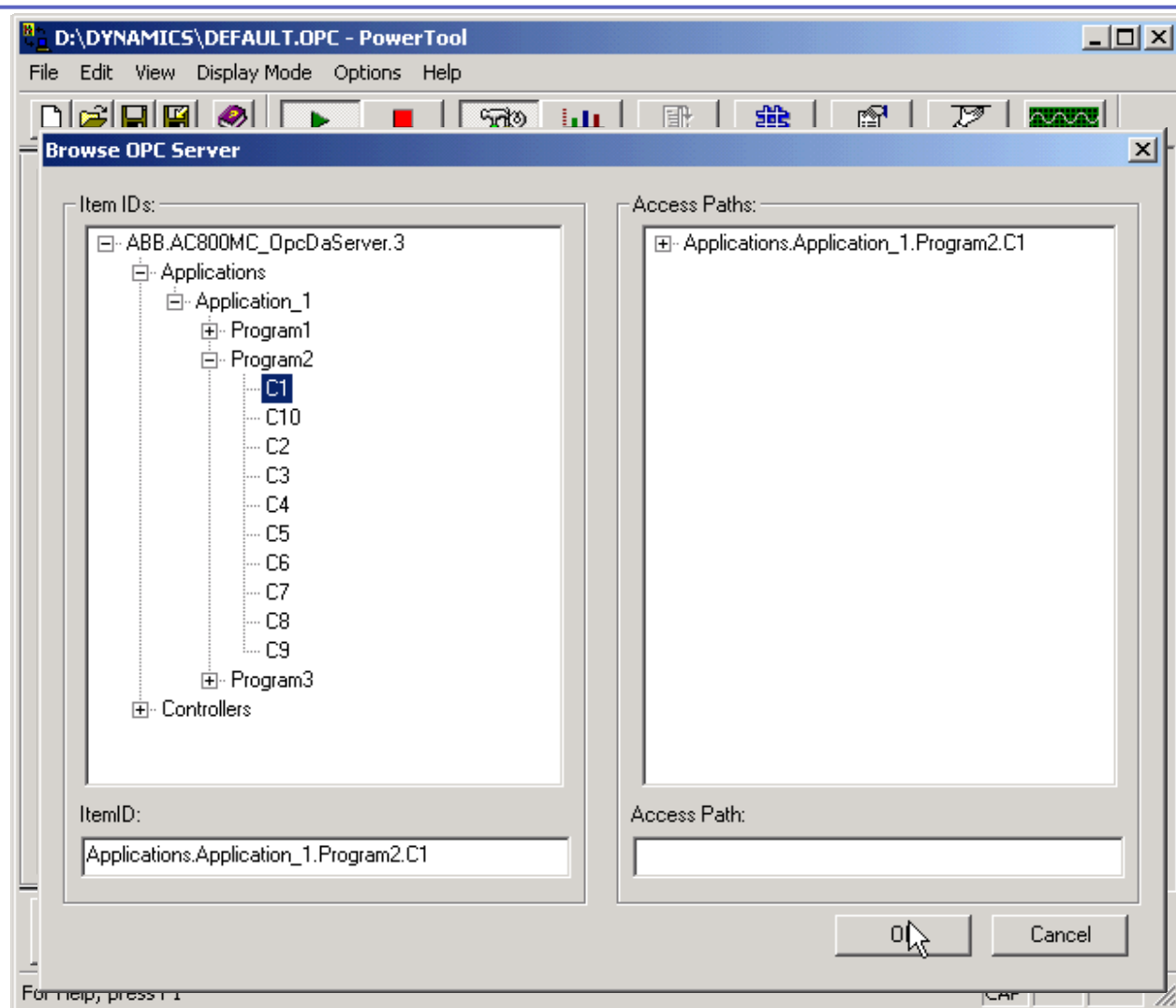


OPC Power Tool 设置



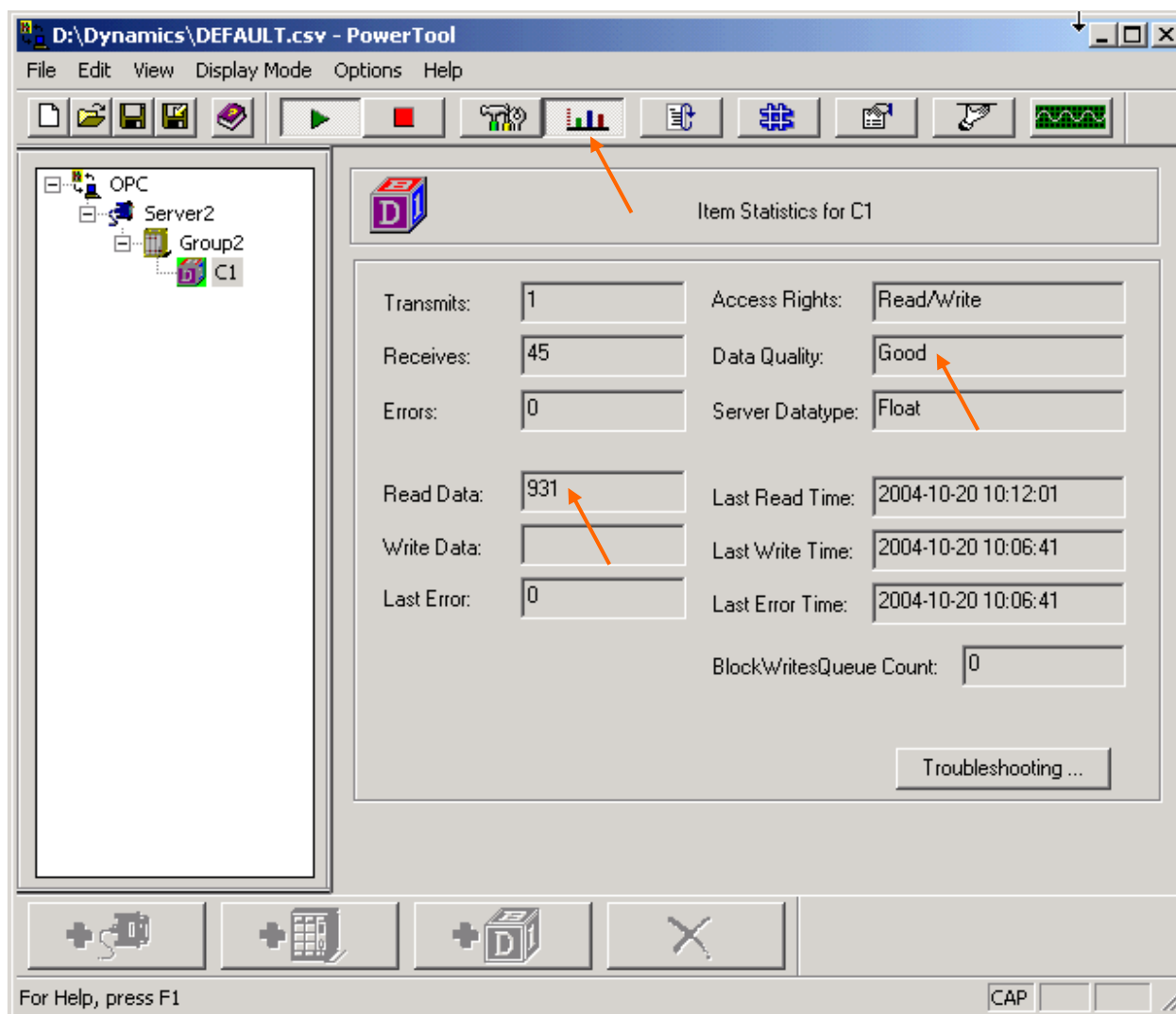
运行OPC Power Tool

1. 连接OPC Server,选择
ABB.AC800MC_OP
CDaServer
2. 创建一个Group, 并
命名。
3. 创建一个Item,浏览
OPC服务器, 选择一个
Item。



确认OPC通讯正常

1. 切换到运行浏览状态，确认OPC的Data Quality是Good。
2. 可以观察到当前的实时数据
3. 创建一个ITEM工作已经完成。



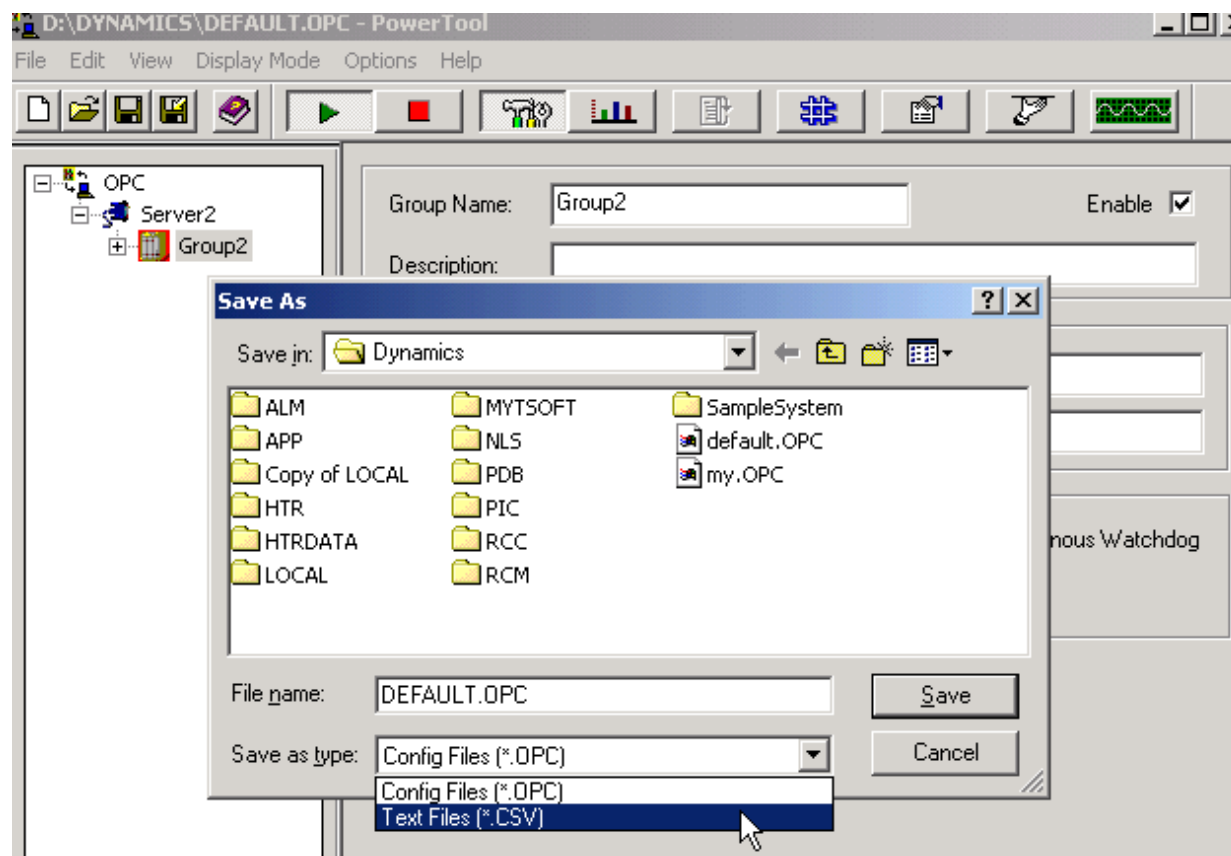
如何实现批量创建？

问题：操作过于复杂，如何实现批量操作？

回答：通过**EXCEL**进行批量编辑。

实现方法：

1. 保存当前配置
2. 保存类型选择**CSV**
3. 打开**CSV**格式文件，按照固定格式编辑



在Excel 中批量编辑

Microsoft Excel - DEFAULT.CSV

File Edit View Insert Format Tools Data Window XLReporter Help

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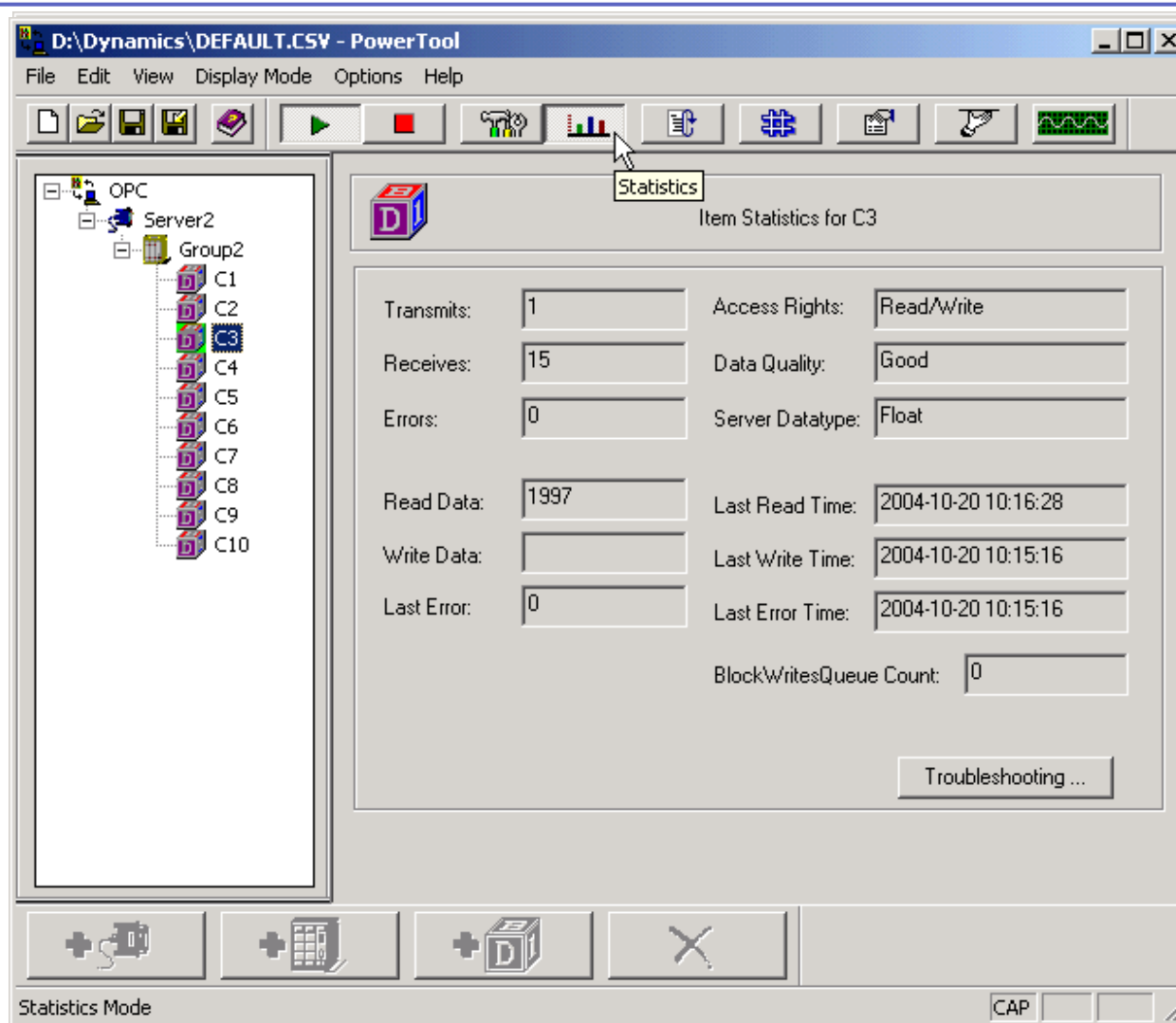
SnagIt Window

E10 = Applications.Application_1.Program2.C1

	A	B	C	D	E	F	G	H	I
1	[OPC I/O D	Wednesda	10:09 AM]						
2									
3	!Name	Descripti	Enabled	ProgID	PrimaryConnectionType	PrimaryRe	BackupCor	BackupRen	Pers:
4	Server2	OPC DA Se	1	ABB.AC800	Local		None		
5									
6	@Channel	Name	Descrip	Enabled	Deadband	IoType	DataSourc	ClientUpc	Serve
7	Server2	Group2		1		0 Asynchr	Cache	5:00	
8									
9	#Device	Name	Descrip	Enabled	ItemID	AccessPat	DeadBand	Requested	Latch
10	Group2	C1		1	Applications.Application_1.Program2.C1	No Access	0	Server	
11	Group2	C2		1	Applications.Application_1.Program2.C2				
12	Group2	C3		1	Applications.Application_1.Program2.C3				
13	Group2	C4		1	Applications.Application_1.Program2.C4				
14	Group2	C5		1	Applications.Application_1.Program2.C5				
15	Group2	C6		1	Applications.Application_1.Program2.C6				
16	Group2	C7		1	Applications.Application_1.Program2.C7				
17	Group2	C8		1	Applications.Application_1.Program2.C8				
18	Group2	C9		1	Applications.Application_1.Program2.C9				
19	Group2	C10		1					
20									
21									

导入批量生成的配置文件

1. 打开编辑完的CSV格式文件
2. 检查配置是否正常
3. 运行查看运行状态
4. 将CSV格式配置文件另存为.OPC格式文件。

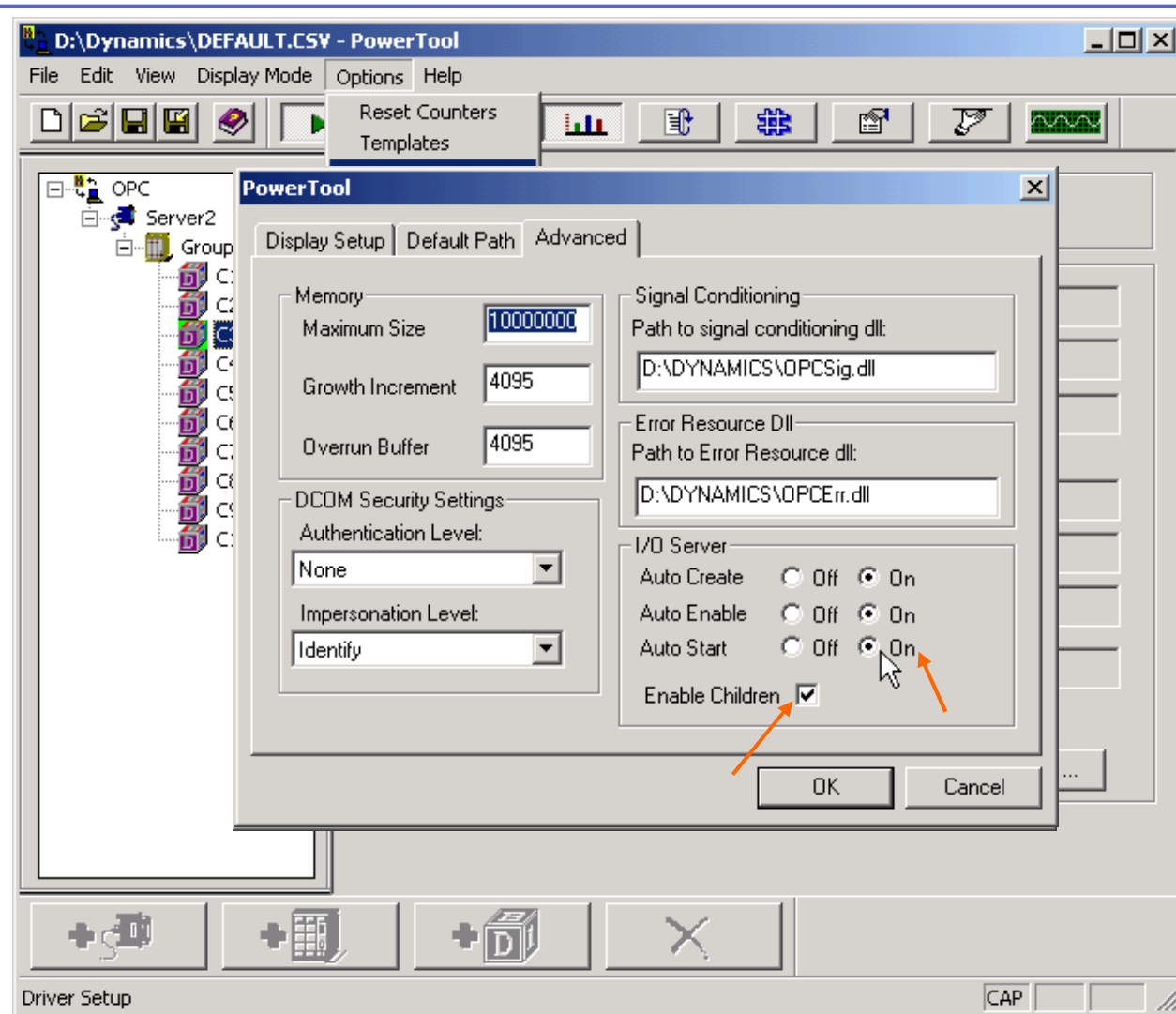


设置OPC Client自动启动

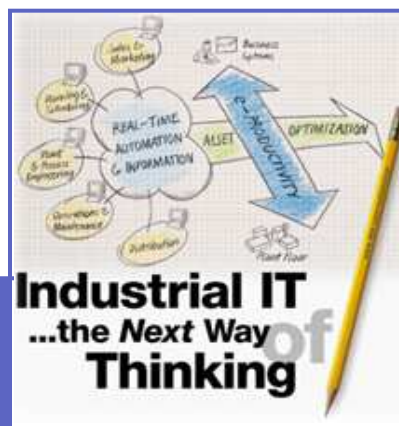
目的:

IFIX运行后, 自动启动OPC Client, 而且以Service的方式在后台运行。

如果不设置自动启动, 关闭OPC Power Tool, 通讯就中断。



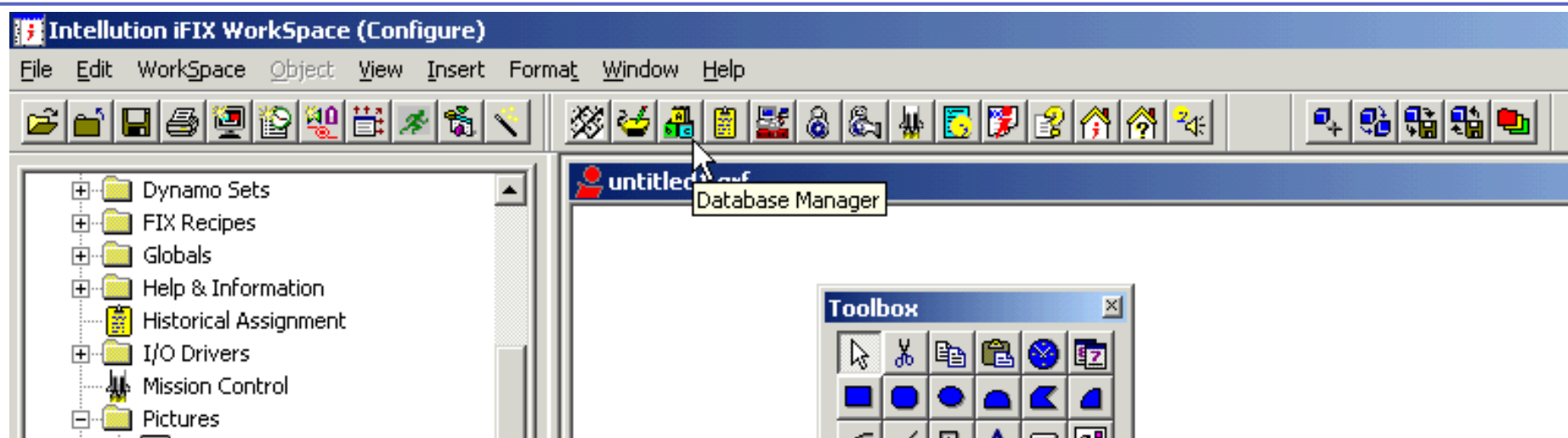
iFIX Database Manager 设置



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运行iFIX Database Manager



iFIX Database Manager - [FIX : 0 rows]

Database Edit View Blocks Drivers Tools Help

	Tag Name	Type	Descripti	Scan	I/O Dev	I/O Addr	Curr Value
1							
2							
3							
4							
5							
6							
7							
8							
9							

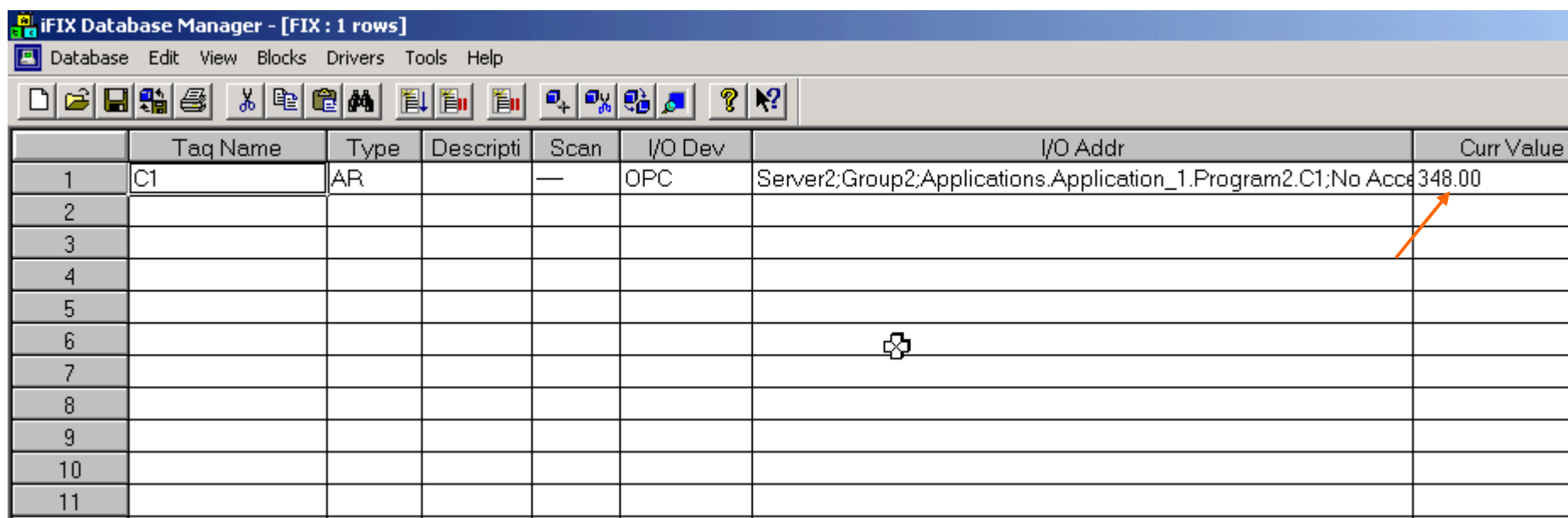
创建一个TAG

1. 创建一个TAG
2. Tag 的类型为 Analog Register, IFIX支持的块类型很多, 根据需要进行选择。
3. 块类型选择必须匹配。

The screenshot shows the 'Analog Register - [C1]*' dialog box with the 'Basic' tab active. The 'Tag Name' is 'C1'. The 'Description' field is empty. The 'Previous' and 'Next' fields are empty with navigation buttons. The 'Addressing' section shows 'Driver' as 'OPC OPC Client v7.32' and 'I/O Address' as 'Server2;Group2;C1'. The 'Signal Conditioning' dropdown is set to 'None', and an orange arrow points to it. The 'Hardware Options' dropdown is empty. The 'Engineering Units' section shows 'Low Limit' as '0.00', 'High Limit' as '100.00', and 'Units' as empty. At the bottom are 'Save', 'Cancel', and 'Help' buttons.

确认创建的Tag通讯正常

- 确认TAG的当前值正常，通过右键刷新。

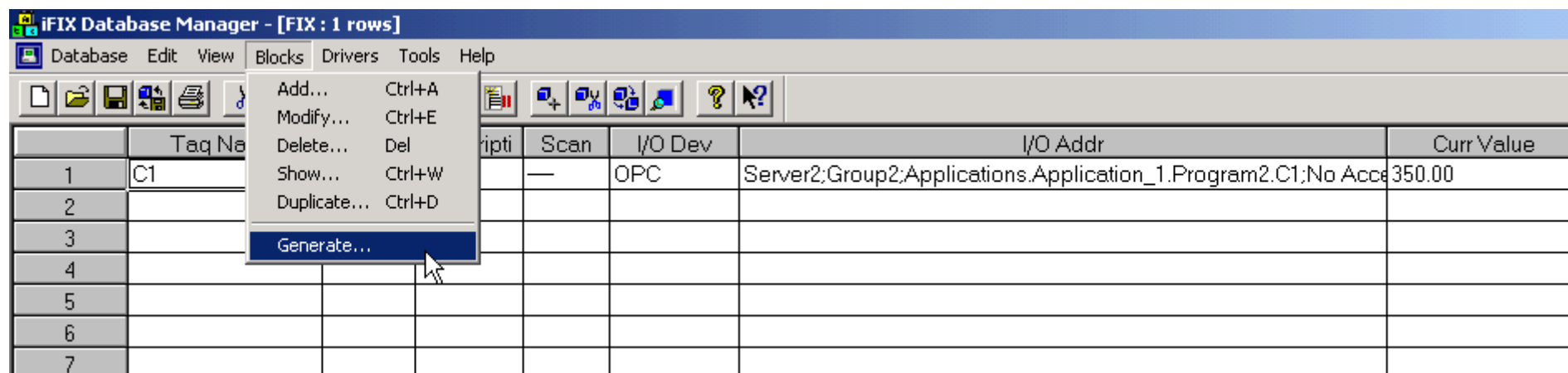


iFIX Database Manager - [FIX : 1 rows]

Database Edit View Blocks Drivers Tools Help

	Tag Name	Type	Descripti	Scan	I/O Dev	I/O Addr	Curr Value
1	C1	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C1;No Access	348.00
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

批量生成TAG方法1



利用 生成向导

Generate Wizard - Page 3 of 3 ? X

Wizard will generate 9 block(s) based on the tag pattern you entered.
Wizard can also generate patterns for up to 5 fields in the block. If you do not need to generate patterns for fields, select the Finish button to start generating the blocks.

☐ Use custom format

Field Name	Prefix	Start	End	Inc	Suffix	
I/O Addr	...	rver2;Group2;C	2	10	1	
	...					
	...					
	...					
	...					

< Back Finish Cancel

检查批量生成的块

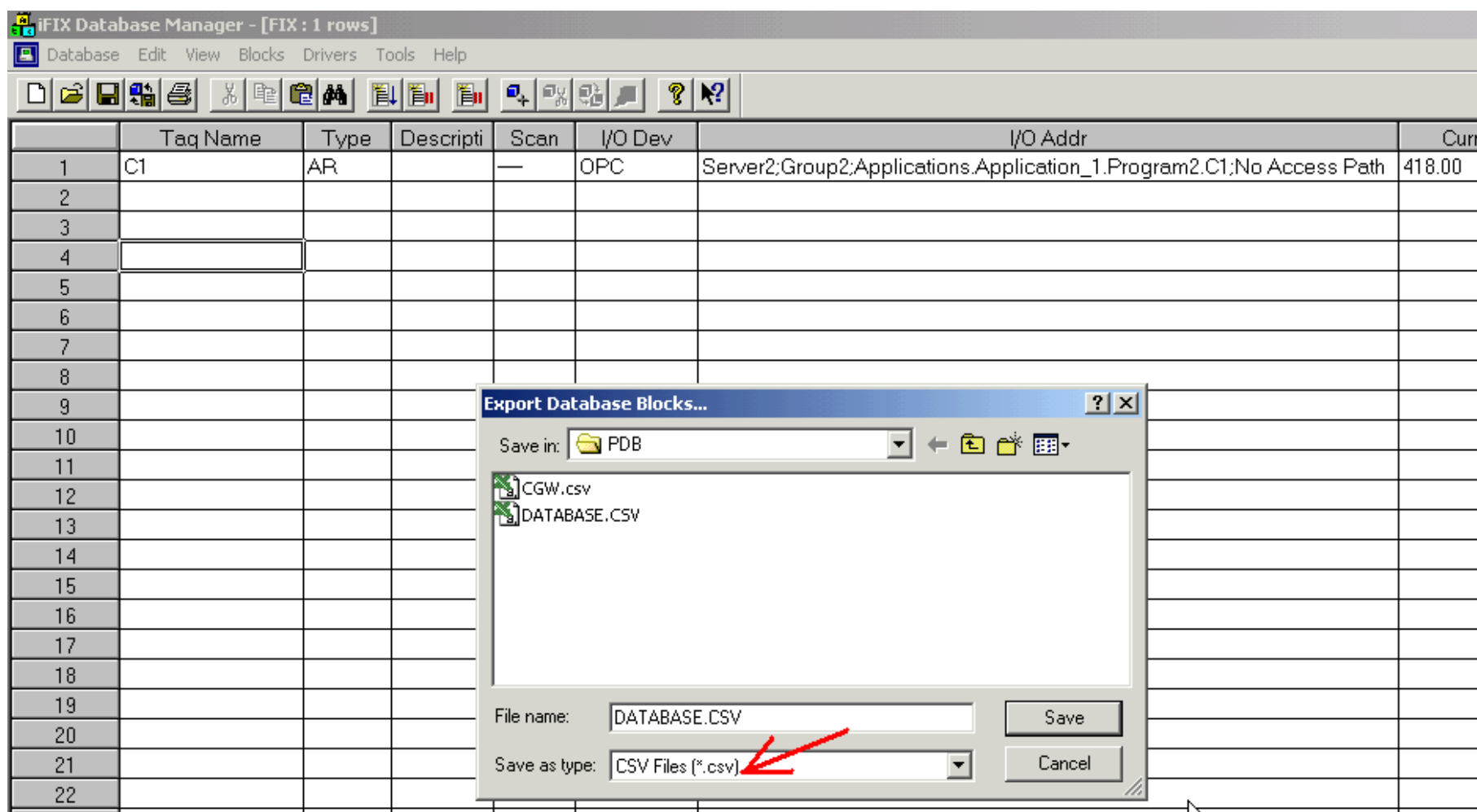
iFIX Database Manager - [FIX : 10 rows]

Database Edit View Blocks Drivers Tools Help

	Taq Name	Type	Descripti	Scan	I/O Dev	I/O Addr	Curr Value
1	C1	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C1;No Access Path	383.00
2	C2	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C2;No Access Path	184.00
3	C3	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C3;No Access Path	122.00
4	C4	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C4;No Access Path	156.00
5	C5	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C5;No Access Path	6,581.00
6	C6	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C6;No Access Path	845.00
7	C7	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C7;No Access Path	302.00
8	C8	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C8;No Access Path	754.00
9	C9	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C9;No Access Path	21,391.00
10	C10	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C10;No Access Path	72.00
11							
12							

批量生成TAG方法2

- 将当前Database配置文件EXPORT出来，保存类型为CSV格式。



EXCEL批量编辑

1. 用Excel打开数据库文件。
2. 根据数据库格式批量生成。

Microsoft Excel - DATABASE.CSV

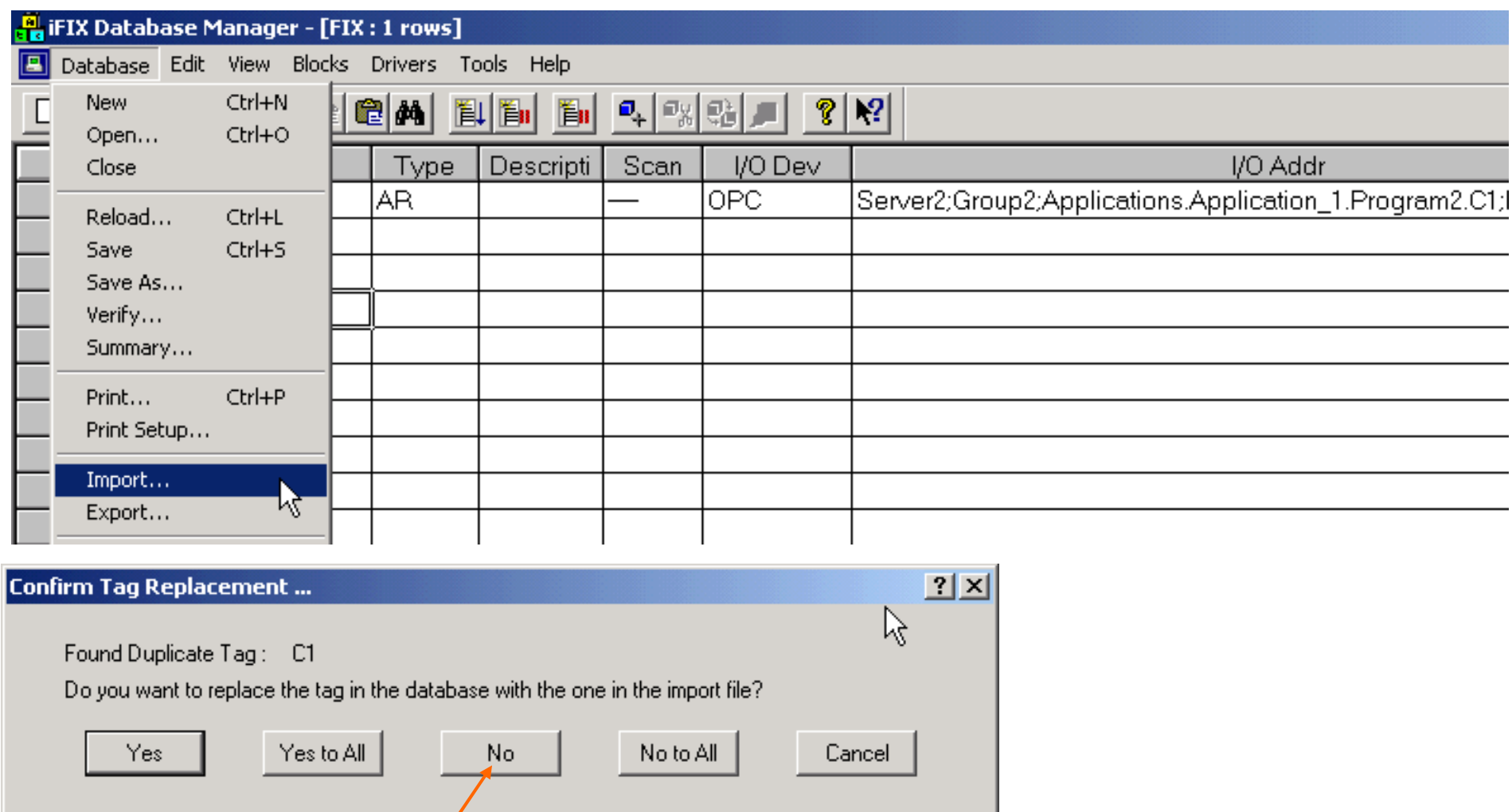
File Edit View Insert Format Tools Data Window XLReporter Help

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Window

	A	B	C	D	E	F	G	H	I	J
1	[NodeName	Datab	File	Date :	Time :	10:44:43]				
2										
3	[BLOCK TY	TAG	DES	I/O DE	H/W OPT	I/O ADDR	I/O ADDRESS	SIGNAL	LOW E	HIGH F
4	!A_NAME	A_TAG	A_DA	IODV	A_IOHT	A_NUMS	A_IOAD	A_IOS	A_ELO	A_EHI
5	AR	C1		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C1;	None	0	10C
6	AR	C2		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C2;	None	0	10C
7	AR	C3		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C3;	None	0	10C
8	AR	C4		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C4;	None	0	10C
9	AR	C5		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C5;	None	0	10C
10	AR	C6		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C6;	None	0	10C
11	AR	C7		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C7;	None	0	10C
12	AR	C8		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C8;	None	0	10C
13	AR	C9		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C9;	None	0	10C
14	AR	C10		OPC	Server	DECIMAL	Server2;Group2;Applications.Application_1.Program2.C10	None	0	10C
15	[-----End of Block List-----]									

导入批量修改过的数据库文件



确认批量编辑成功

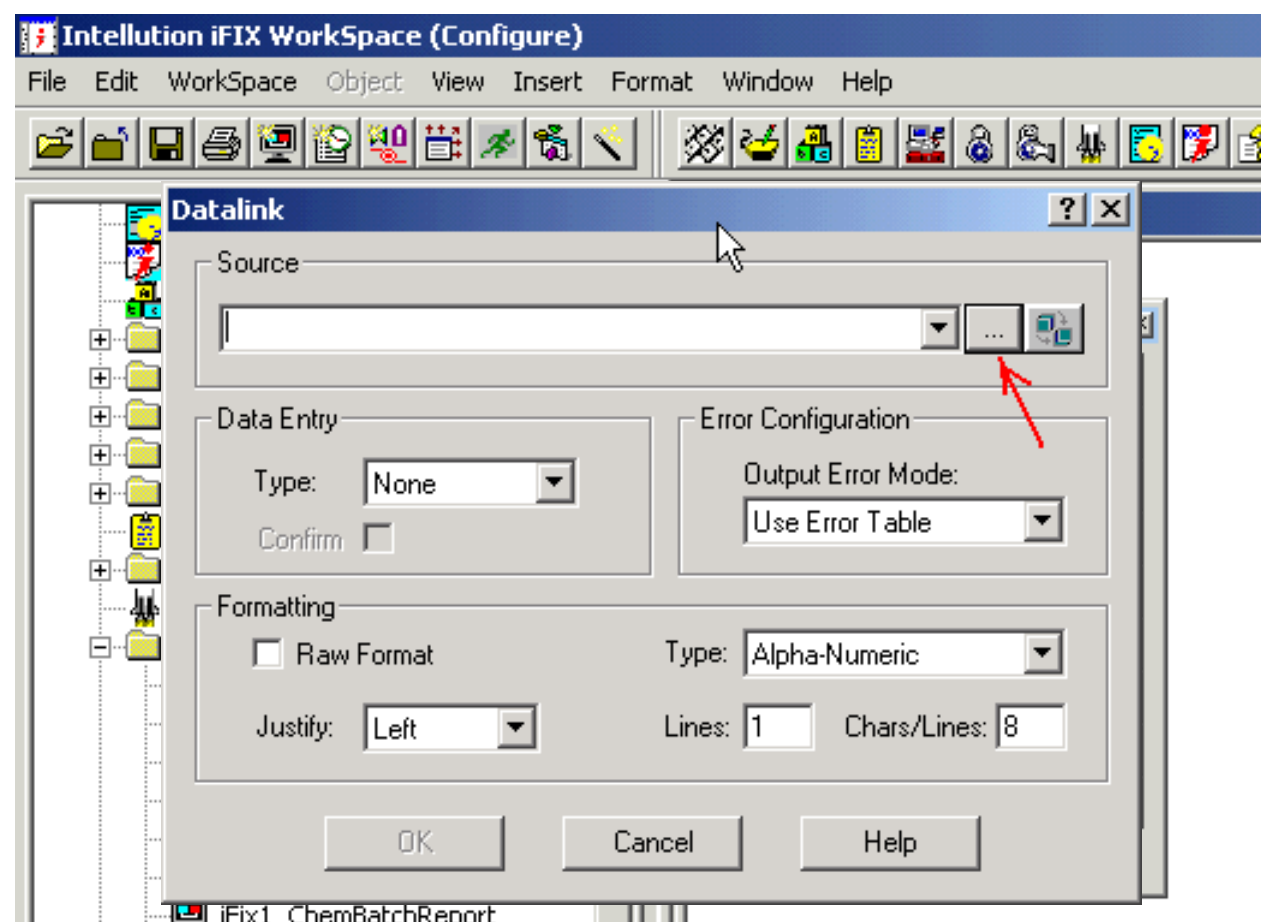
iFIX Database Manager - [FIX : 10 rows]

Database Edit View Blocks Drivers Tools Help

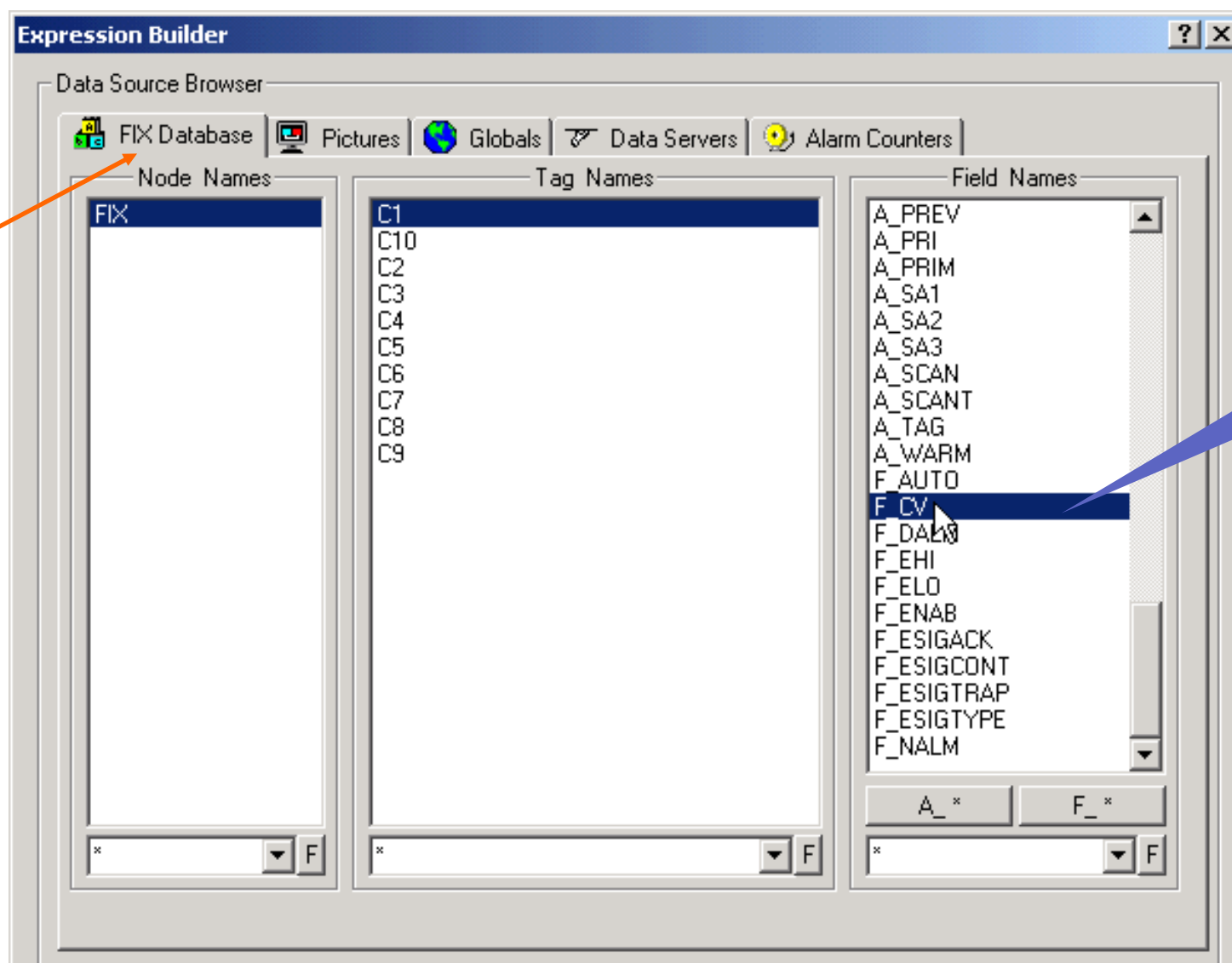
	Taq Name	Type	Descripti	Scan	I/O Dev	I/O Addr	Curr
1	C10	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C10;No Access Path	166
2	C9	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C9;No Access Path	21,485
3	C8	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C8;No Access Path	848
4	C7	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C7;No Access Path	396
5	C6	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C6;No Access Path	939
6	C5	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C5;No Access Path	6,675
7	C4	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C4;No Access Path	250
8	C3	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C3;No Access Path	216
9	C2	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C2;No Access Path	278
10	C1	AR		—	OPC	Server2;Group2;Applications.Application_1.Program2.C1;No Access Path	477
11					✕		
12							
13							
14							
15							
16							
17							
18							

画面数据显示

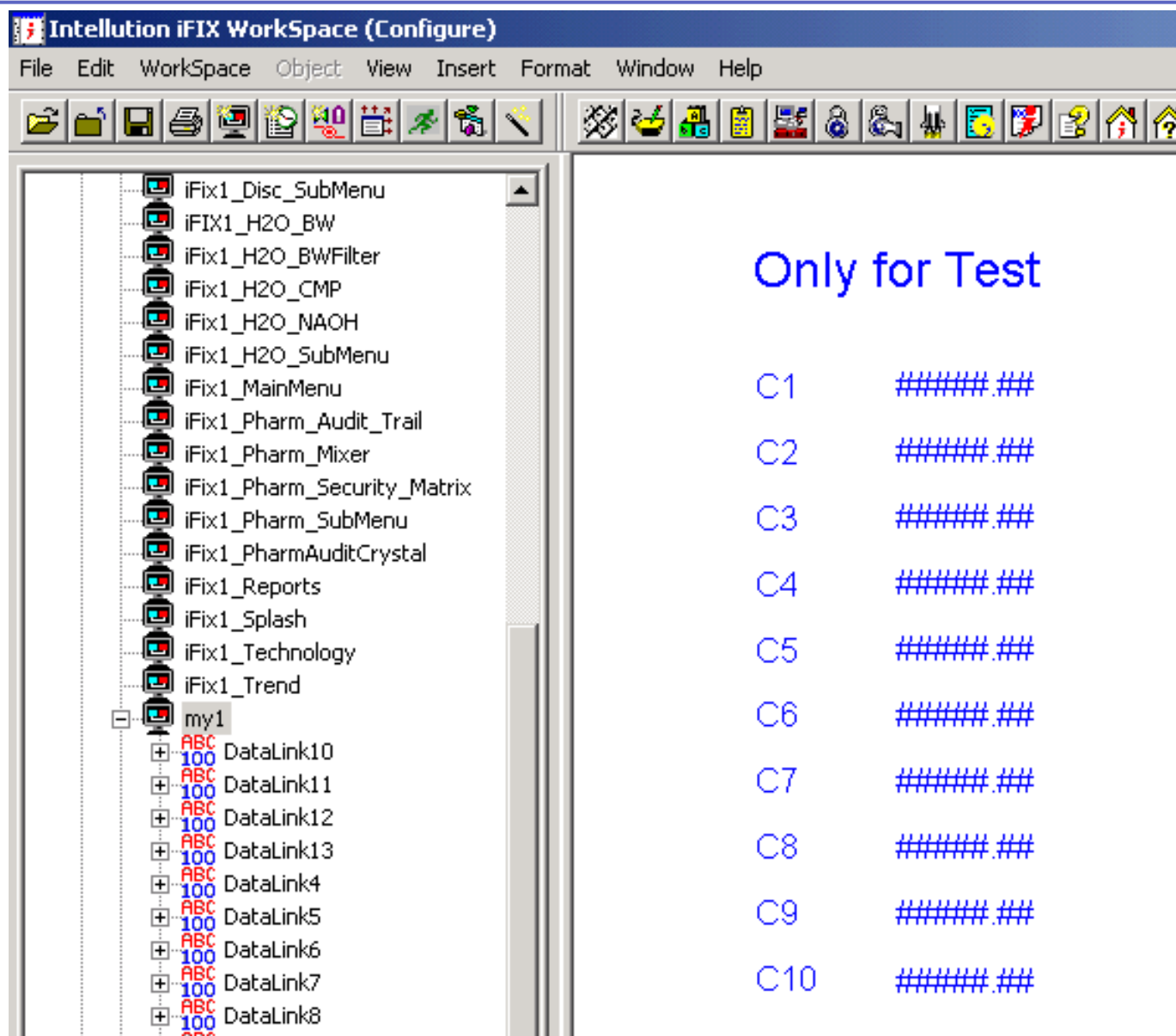
1. 运行iFIX Workspace
2. 调出工具箱
3. 点击DataLink Stamper



Expression Builder



DataLink 编辑完成

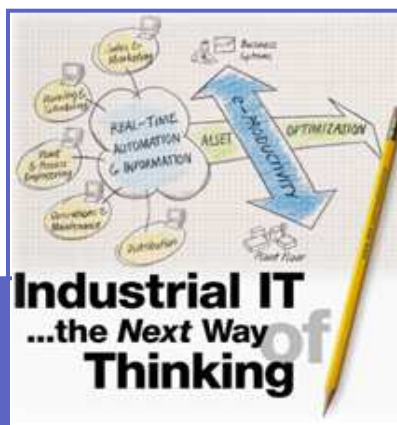


切换到运行状态

1. 切换到运行状态
2. 观察所有的数据连接显示正常。

Intellution iFIX WorkSpace (Run)	
File WorkSpace Window Help	
Only for Test	
C1	364.00
C2	40.00
C3	574.00
C4	10.00
C5	682.00
C6	28.00
C7	1237.00
C8	13.00
C9	27.00
C10	48.00

iFIX Workspace OPC Client的使用

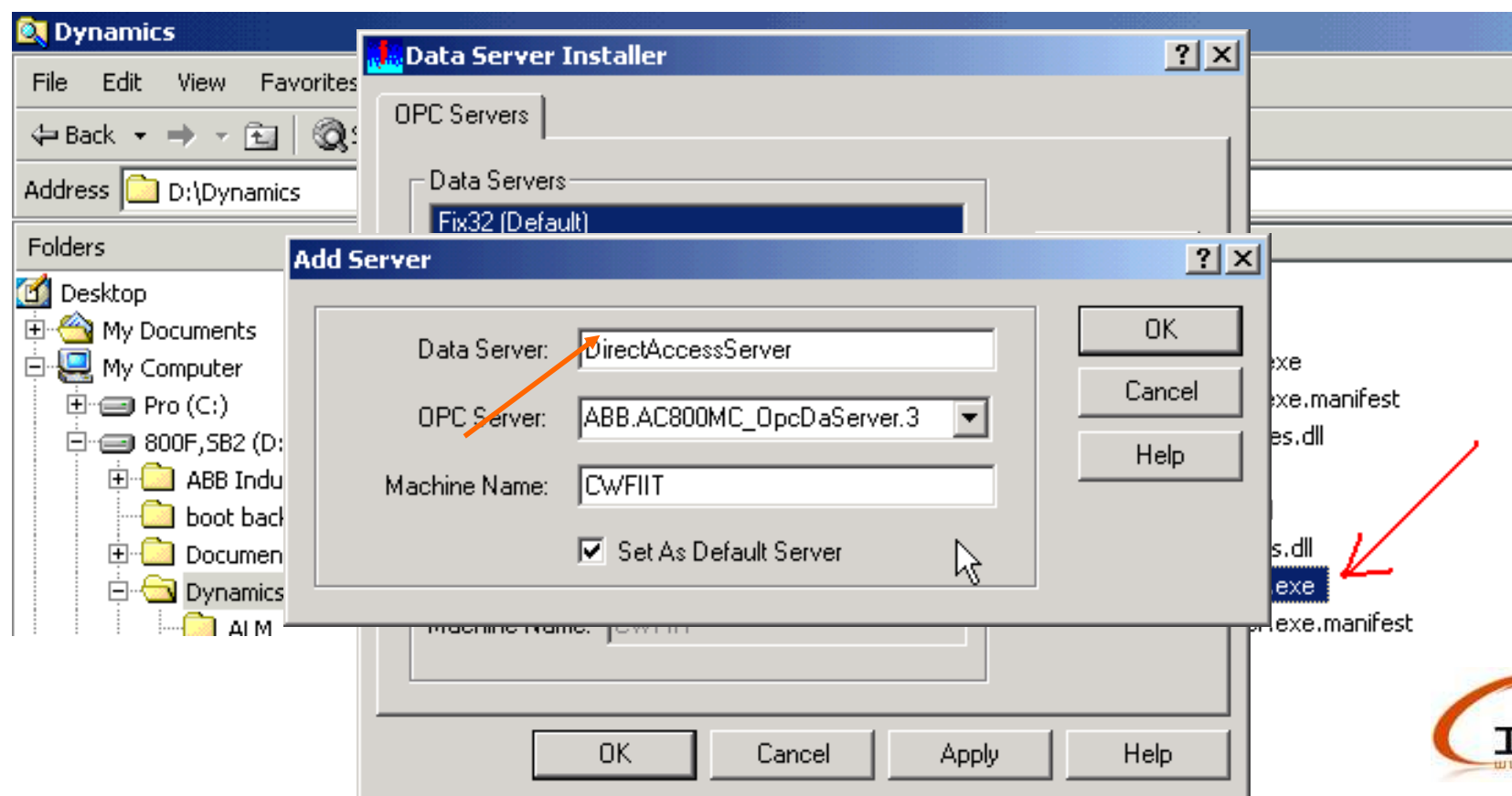


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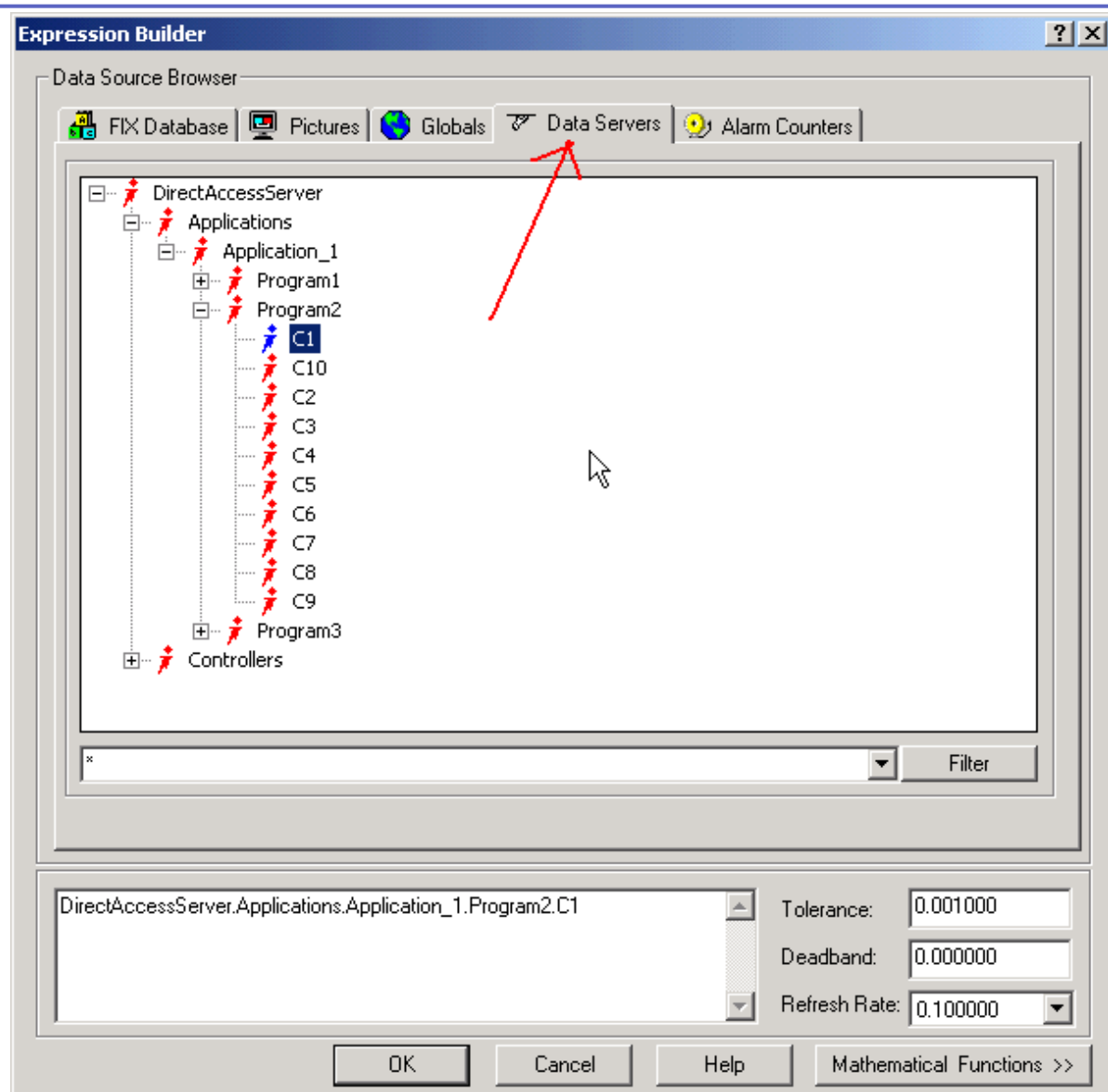
运行Data Server Installer

1. 在iFIX安装目录下运行DataServerInstaller.exe
2. 默认的是“FIX32”的Data Server,该Server为IFIX的数据库服务器。
3. 添加一个新的Server,即ABB.AC800MC_OpcDaServer.3

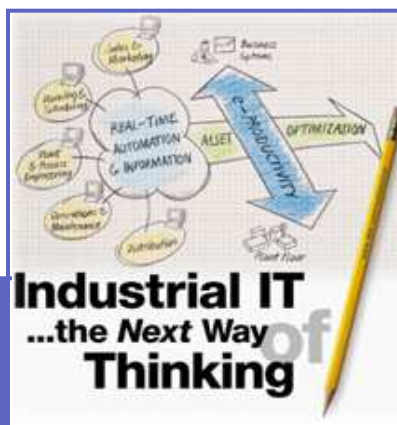


通过定义的**Data Server**读取数据

1. 在画面上插入一个 DataLink
2. 通过Data Server 连接。



IFIX系统配置工具 SCU

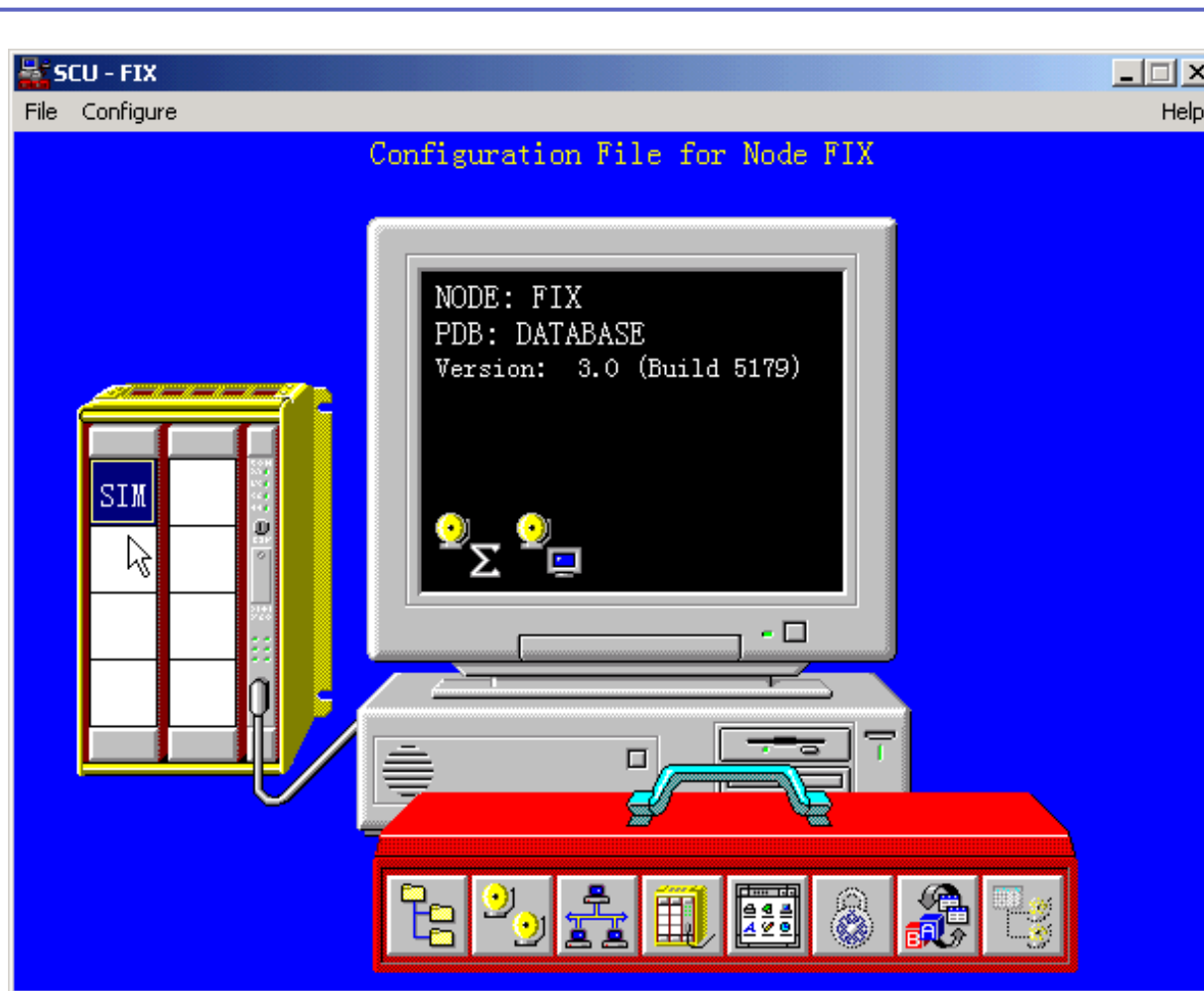


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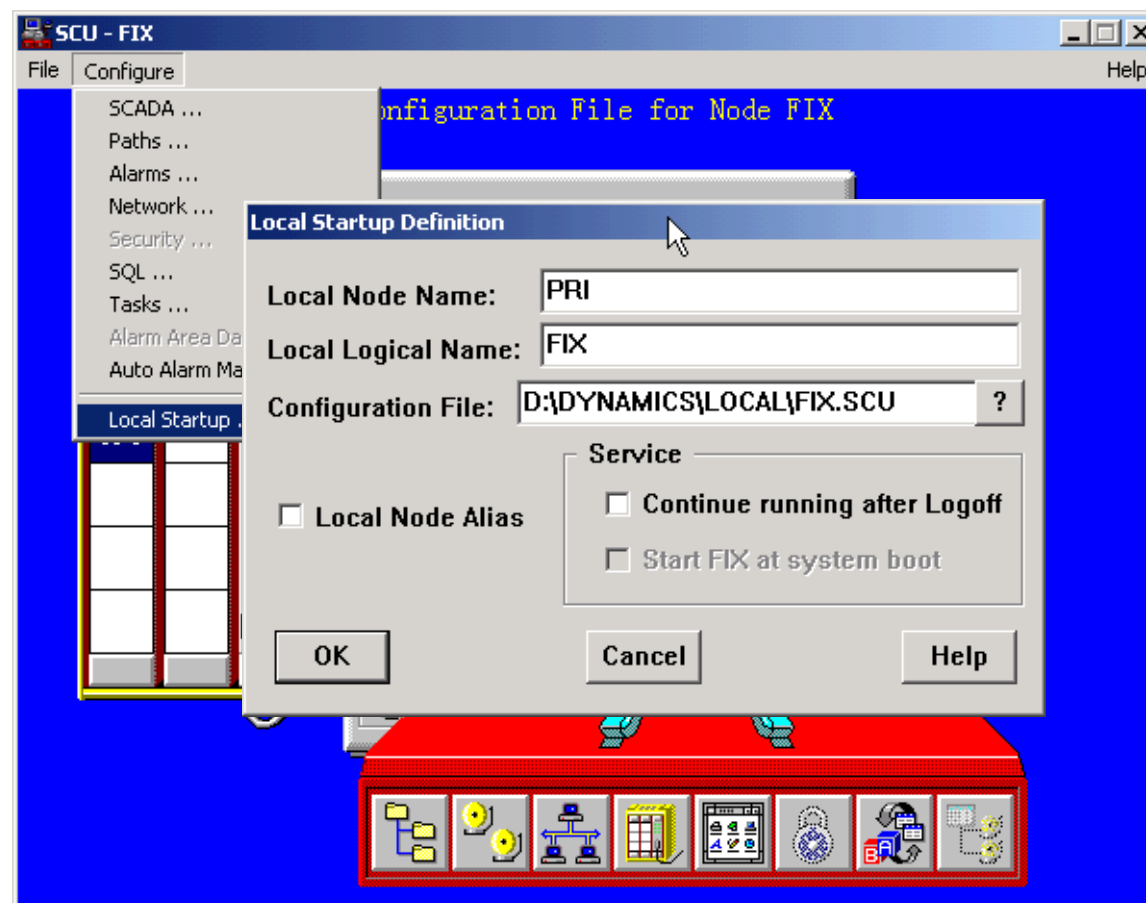
SCU配置

- 为了确保系统可靠性，推荐采用冗余服务器。
- 下面介绍如何配置冗余服务器和客户端
- SCU的配置在每台计算机上都需要运行。



本地启动设置

- 设置本地启动
- 设置本地节点名：如在主服务器上设置为为PRI，在辅服务器上设置为SEC,在客户端上设置为Client1等
- 设置本地逻辑节点名为FIX，本地逻辑节点名是主辅冗余服务器的统称。系统中所有节点都去访问FIX这个逻辑节点，然后由系统决定是访问Pri还是Sec。



网络设置

- 打开网络设置
- 网络设置选择TCP/IP
- 远程节点名即为逻辑节点名FIX
- 配置FIX逻辑节点，主节点为PRI，辅节点为SEC
- 每台计算机都做同样设置。

Network Configuration

Network

- ☐ No Network Support
- ☐ NetBIOS
- ☒ TCP/IP

Options

- ☐ Dynamic Connections

Advanced...

Remote Nodes

Remote Node Name:

Configured Remote Nodes:

Node Name	Primary	Backup
FIX	PRI	SEC

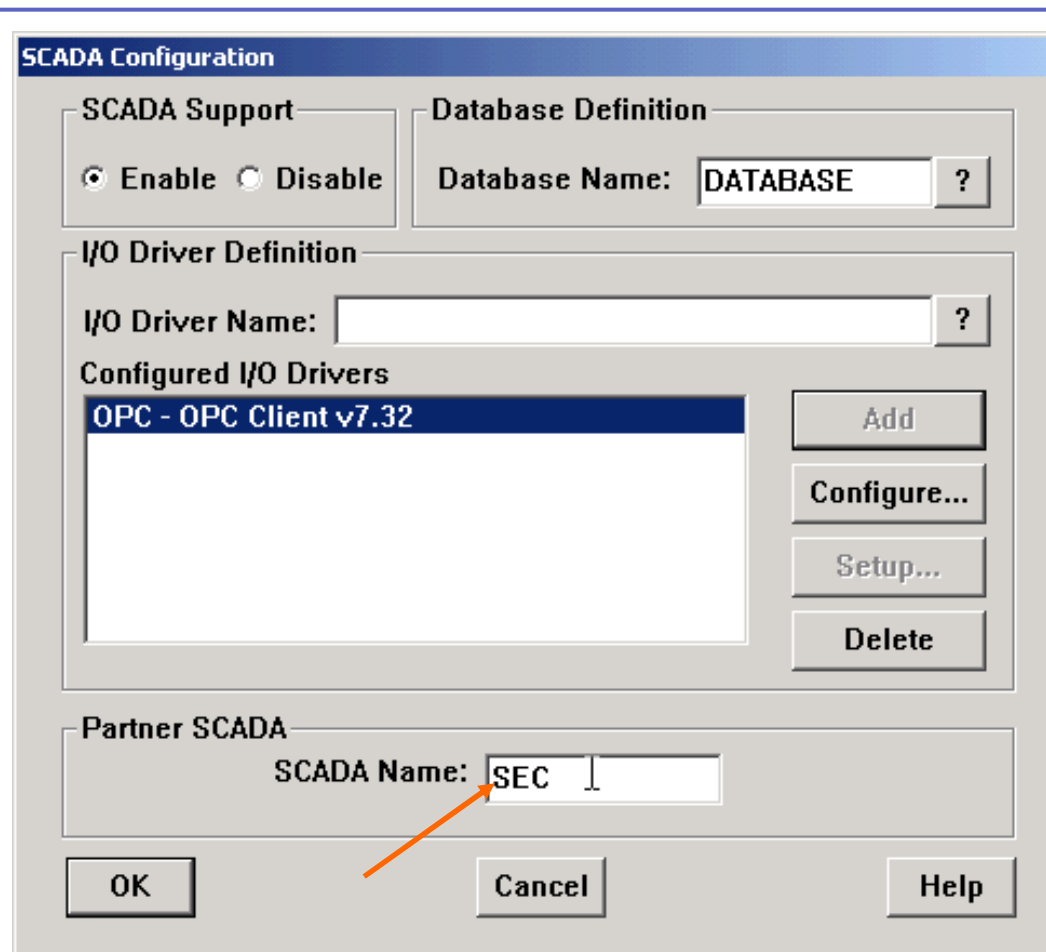
Add **Modify** **Delete** **Configure ...**

☒ Show All Names

OK **Cancel** **Help**

SCADA设置

- 运行SCADA设置
- SCADA Support设置:
对于服务器Enable,对于
客户端Disable。
- Partner SCADA设置:
在主服务器上设置其
Partner为SEC,在辅服务
器上设置为PRI



The image shows a 'SCADA Configuration' dialog box with the following sections:

- SCADA Support:** Radio buttons for 'Enable' (selected) and 'Disable'.
- Database Definition:** A text field for 'Database Name' containing 'DATABASE' and a question mark icon.
- I/O Driver Definition:**
 - A text field for 'I/O Driver Name' with a question mark icon.
 - A list box titled 'Configured I/O Drivers' containing 'OPC - OPC Client v7.32'.
 - Buttons: 'Add', 'Configure...', 'Setup...', and 'Delete'.
- Partner SCADA:** A text field for 'SCADA Name' containing 'SEC', with an orange arrow pointing to it.

At the bottom are 'OK', 'Cancel', and 'Help' buttons.



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