

DATRAN OPC Server Interface

User Manual 1.6137.005

Revision 1.07 January 2013

CONFIDENTIAL

Prepared by QTech Data Systems Limited

Table of Contents

1.	DOCUMENT REVISION HISTORY	2
1.1 1.2	CHANGE CONTROL	2
2.	OVERVIEW	3
2.1 2.2 2.3	AUDIENCE Circulation List Acronyms	3 3 3
3.	INSTALLATION	4
3.1 3.2 3.3 3.4 3.5	INSTALLING XDI – XML SERVICE INSTALLING THE SERVER Registering the Server with iFIX Un-registering the Server with iFIX Uninstalling the Server	
4.	MIGRATING FROM DDE SERVER TO OPC SERVER	15
5.	TROUBLESHOOTING	17
5.1 5.2 5.3 5.4 5.5	THERE IS NO RESPONSE FROM THE XDI – XML SERVICE CHECKING THE XDI – XML SERVICE DIAGNOSTICS OPENING THE DVI POWER TOOL APPLICATION TO TROUBLESHOOT OPC I/O DRIVER SERVER NOT COMMUNICATING WITH XDI – XML SERVICE CANNOT VIEW VALUE IN IFIX DATABASE MANAGER	17 17 17 18 18
6.	THINGS TO TAKE NOTE	20

1. DOCUMENT REVISION HISTORY

Rev	Description	Date	Author
1.00	Original	08/09/2003	Soo Yoong Ng
1.01	Note regarding OPC Power Tool	19/09/03	Régis Savry
1.02	Added section on migrating from DDE Server to OPC Server and also installing XDI – XML Service.	25/09/2003	Soo Yoong Ng
1.03	Improved wording on the installation of XDI – XML Service.	26/09/2003	Soo Yoong Ng
1.04	Added tip on C:\Dynamics folder.	5/11/2003	Soo Yoong Ng
	Added new troubleshooting topic – Cannot View Value in iFIX Database Manager		
1.05	Updated last screen shot in the "Installing XDI – XML Service" section.	30/11/2006	Soo Yoong Ng
1.06	Added section: Registering the Server with InTouch	18/08/2010	Soo Yoong Ng
1.07	Updated contact details	14/1/2013	Antony Morris

1.1 Change Control

This document is maintained under change control. Any requests for change should go to:

QTech Data Systems Limited 12 Midas Place Middleton Christchurch 8024 New Zealand Ph +64 3 366 3713 Fax +64 3 365 2815 Email techsupport@qtech.co.nz

1.2 Confidentiality and Copyright

© Copyright QTech Data Systems Limited 2013. All rights reserved.

This document is the property of QTech Data Systems Limited. It may not be copied, distributed or recorded on any electronic or other medium without the express written permission of QTech Data Systems Limited.

All material contained in this document which is not readily available in the public domain is regarded as confidential to QTech Data Systems Limited and may not be divulged to any third party without the express written permission of QTech Data Systems Limited.

2. OVERVIEW

This document will describe the installation and use of the DATRAN VI I/O Driver Server.

2.1 Audience

This includes users of the server.

2.2 Circulation List

A list of all the people/parties for whom the document is to be distributed to

DISTRIBUTION SHEET				
Document Status Released				
Document Distribution Date	14 January 2013			
Name	Organisation	Country		
Steve Champ	QTech Data Systems Limited	New Zealand		
Ivan Mackintosh	QTech Data Systems Limited	New Zealand		

2.3 Acronyms

DLL – Dynamic Link Library DVI – DATRAN VI OPC – OLE for Process Control XDI – XML Data Interface

3. INSTALLATION

3.1 Installing XDI – XML Service

This section describes the installation steps of the XML Service from the standard installation package for DATRAN 6.48.

- 1. Get security key for the XML Service. The hard disk drive (HDD) serial number must be provided to QTech Data Systems Limited to obtain this.
- 2. Run the DATRAN VI installation program via Start menu → Settings → Control Panel → Add/Remove Programs → DATRAN VI.
- 3. Select the XML Data Interface option in the DATRAN VI installation program.
- 4. Double click on the XML Data Interface application node to open the XDI dialog box and go to the License tab.
- 5. Enter the security key of the XML Service into the XML Service: Security Key text box.
- 6. Change the value in the XML Service: Active combo box to True.

🛕 Datran Browser - [Xml	Data Interface]	_ <u>8</u> ×
A File Edit Commands	Tune View Server Ronkmarks Window Heln	니 _ 티즈 ×
		1
👘 Operato	Version State Mission-Critical Checking General Information Chris SMS Mobile Info Services (Misc) Network Info License	
Developer3 Applications		
ActiveX Alarm Se	☑ 13 XML Service: Security Key 12333154884	
E Datran E		
Olagilos Olagilos	Image: Weight of the second secon	
E 💭 Xml Data	🔽 📄 SMS Service : Security Key	
⊞- <mark>√</mark> HTTI ⊞- <mark>⊡</mark> Min I	R AB SMS Service: Expiry	
<u>`</u> Nam ⊞ <u></u> Prop	Image: Weight of the second	
E-1 Prop E-1 Repl	🔽 📄 Replication: Security Key	
E SMS E SMS	Replication: Expiry	Indicates the expire date
		for this license key
AB Bro		
_Browse		
Properties Windows		
Browser_O		
Engineering1		
Hoth		
Properties		
🗄 🚞 Replication Serv		
E Scada PC		
sp_coningure system Scripts	Restart OK Cancel Help	
🗄 🗐 WDC1005		
🕀 🔜 Wdcast04		
Wideois007		v
For Help, press F1		NUM 2003-09-25 11:15:56
🏽 🛃 Start 🛛 🚮 🍮 😂	🖸 🔕 🔰 🚺 🙆 Datra 🙆 M503 💽 Inbox 📰 Datra 🔮 iFIX S 🔃 Intellu 👼 XML D 🐼 XmlDa	🕀 🌮 💷 🚅 🚝 🛛 11:16 a.m.

- 7. Go to the Network info tab.
- 8. Change the value in the Named Pipe combo box to True. Leave the other parameters unchanged.

							×	1
Version Sta	ate Mission-Critical Checking	General Information	SMS	SMS Mobile Info	Services (Misc)	Network info	License	
AB C	SSL Certificate Path	c:\cert\						
	HTTPS Port Number	12121						
12 3	HTTPS Pool Size							
	Retry	2						
	Client Authentication	False					*	
	Authorised DNS Client						<u></u>	
							-	
	Authorised IP Number						4	
							-	
	Wininet Time out	15 sec						
□ () AB	Named Pipe Name	DatranPipe	;					
✓ ¹² 3	Named Pipe	True	•				•	
Restart					<u>_</u>	IK <u>C</u> ancel	Help	

- 9. Restart the XML Data Interface application.
- 10. Check that the XML Service is not displaying any errors. This can be verified via DATRAN Diagnostics. See the "Checking the XDI XML Service diagnostics" section.
- 11. Refresh (press F2) the node "Named Pipe Server" under the application node (XML Data Interface\Server\Named Pipes). It should display the success string "The Named pipe server is running".
- 12. Under the XML Service node (XML Data Interface\XML Service), check that the Active node has a value of 1 and that the Security Expiry time value is after now.



3.2 Installing the Server

- 1. Double click on the Setup.exe file.
- 2. Click the Next button at the initial welcome screen.
- 3. Click the Next button at the License Agreement screen if you agree with the license. If not, click Cancel.
- 4. Click the Next button at the installation directory screen if you are satisfied with the default directory. If not, click the Browse button to choose another directory. It is recommended that the server be installed in C:\Dynamics so that the FIX can see the server as one of its drivers in the SCADA Configuration Dialog Box.

Fie Configure Configuration File for Node	Help FIX FIX	020729 5935 wa QT Dra
NODE: FIX Version: 3.5 (Build 5717		030509 6371 syn QTech 030925 6550 030925 6550 syn QTech
	SCADA Support Database Definition	101 6619 THCC
	Enable C Disable Database Name: DATABASE ?	
	VO Driver Definition VO Driver Name: ?	031101 6620 ksb THCC M
	Configured VO Drivers Add Configure	
Historical OPC TO Trending Help DO.doc	Setup	Soo Yoong.xls
Hittorical TEMP OPC.tot	Delete Drivers available	
Trending Data Server Intellition Installer iGlobal Care	SCADA Name: DDE - 32-bit DDI SCADA Name: DDE - 32-bit DDI DVI - Datran VIO OPC - Resident P31 - Paradym-3	Driver Rev 6.0
ASSET Archive Viewing Intellution IFDX 3.5	Cancel SIM - Simulation	Driver 💌

- 5. Leave the selection as Server in the Node Type screen and click the Next button.
- 6. Click the Next button at the FIX node name screen if you are satisfied with the default node name. If not, change the node name.
- 7. Click the Next Button at the program folder screen if you are satisfied with the default program folder. If not, specify which other program folder you want your short cuts to be.
- 8. When you are done, click the Finish button.
- 9. A progress bar will be displayed showing the progress of the installation.
- 10. Once the installation is complete, the Installation Successful screen will display.
- 11. Click on the Done button.

3.3 Registering the Server with iFIX

💑 Data Server Installer	<u>?</u> ×
OPC Servers	
Data Servers	
Fix32 (Default)	Add
	Remove
	Modify
OPC Server: Intellution OPC EDA Server Machine Name: QTECH-DEVELOP2	
OK Cancel Apply	Help

- 1. Use the Intellution iFIX Data Server Installer to register the server with iFIX.
- 2. This application (DataServerInstaller.exe) can be found in the directory where iFIX is usually installed by default e.g. C:\Dynamics.



3. Click the Add button.

Add Server		<u>? x</u>
Data Server: OPC Server: Machine Name:	DVIOPC Intellution.DVIOPC QTECH-DEVELOP2 Set As Default Server	OK Cancel Help

- 4. Provide a name for the data server in the Data Server text box e.g. DVIOPC. This is equivalent to giving a name an ODBC connection.
- 5. In the OPC Server combo box, choose Intellution.DVIOPC.
- 6. Ensure that the name of the computer in Machine Name text box is where the server is installed.
- 7. Click OK.
- 8. The server is now ready to be used.

9. Start the OPC client and it should start up the server, as it is set for auto run by default.

3.4 Un-registering the Server with iFIX

- 1. Using the Data Server Installer, choose the server from the Data Servers list and click the Remove button.
- 2. Click the OK button.
- 3. The server is now unregistered from iFIX.

3.5 Registering the Server with InTouch

- 1. Start the DATRAN OPC I/O Driver Server and connect it to a DATRAN system that has been started.
- 2. Use the Wonderware System Management Console to register the server with InTouch.
- 3. This application can be usually started by selecting Start -> Programs -> Wonderware -> System Management Console

🖉 SMC - [ArchestrA System Manager	nent Console (QTECH07)\DAServe	er Manager Default 🔳 🗖 🔀
File Action View Help		
← → 🗈 🖬 🗙 🚱 😫		
💋 ArchestrA System Management Console (Default Group	
🖻 📲 DAServer Manager	Name	
Default Group Log Viewer Default Group Opened Log Files	There are no items	to show in this view.
]	

4. Right click on the ...\DAServer Manager\Default Group node and select New -> Node...



- 5. Click on the Browse... button and select the computer where the DATRAN OPC I/O Driver Server is installed.
- 6. Expand the computer's node.
- 7. Right click on the ArchestrA.FSGateway.1 node and select Activate Server.
- 8. Expand the ArchestrA.FSGateway.1 node.
- 9. Right click on the Configuration node.

🖉 SMC - [ArchestrA System Manager	nent Console (QTECH07)\DAServer Mana	ger\Default Group\QTE	CH07\ArchestrA.FSGateway	
Eile <u>A</u> ction <u>V</u> iew <u>H</u> elp				
← → 🗈 📧 😫				
 ArchestrA System Management Console (DAServer Manager Default Group QTECH07 Hello World.1 Hello World.1 ArchestrA.FSGateway.1 	Configuration Image: Second system Definition Image: Second system Definition Global Parameters Definition	limiter:		. •
Log Viewer Log Viewer Log Default Group Gopend Log Files	Device Group Update Interval (msec):	1000	Enable/Disable	
	Slow Poll Interval (msec):	10000		
	Transaction to Subscription Ratio:	2	Device Group Cache	
	Transaction Message Timeout (msec):	60000	C Simulation Mode	
	Server Protocol Timer (msec):	50	System Items	
	Diagnostic Backlog Size:	0	Virique Device Groups	
	Poke Mode:	Optimization Mode 💌		
< >>				

10. Select Add OPC Object.

11. Rename the OPC object to "DATRANOverOPC".

🖉 SMC - [ArchestrA System Managem	ent Console (QTECH07)\DAServer Manager\Default Group\QTECH07\ArchestrA	
<u>File Action View H</u> elp		
⇔ ⇒ 🗈 💀 🗙 😫		
🂋 ArchestrA System Management Console (DATRANOverOPC	
DAServer Manager Default Group	💞 Node Type: OPC Delimiter: .	
Hello World.1	DATRANOverOPC Parameters	
DATRANOverOPC Diagnostics Log Viewer	Server Node: localhost	
Default Group	Server Name: Intellution.DVIOPC	
Opened Log Files	Reconnect Attempts: 3	
	Reconnect Period: 30000 ms	
	I Activate Server Out of Proc	
<		

- 12. In the Server Name combo box. Click on the "..." button. Select "Intellution.DVIOPC".
- 13. Right click on the "DATRANOverOPC" node and select Add OPCGroup Object.
- 14. Rename the OPCGroup object to "Group1".

🖉 SMC - [ArchestrA System Managen	nent Console (QTECH07)'DAServer Manager'Default Group\QTECH07\ArchestrA 🔳 🗐	×
Eile Action Yiew Help		
⇔ → 🗈 📧 🗙 😫		
🌽 ArchestrA System Management Console (Group1	
🕞 🚘 DAServer Manager	🛐 Node Type: OPCGroup Delimiter: . 🔐 📱	
E - 🔜 QTECH07 È - 🛃 Hello World.1	Ground Personalers During Hannel	
🖃 🥫 ArchestrA.FSGateway.1		
🖻 🖳 🔀 Configuration	Device Group Name: DATRANOverOPC_Group1	
Group1	Update Rate: 1000 ms	
Default Group QTECH07	OPC Item ID Prefix:	
Opened Log Files	☐ Use Group Name as Access Path	
	☐ Read Only	
	Browse OPC Items	

15. Click on the Browse OPC Items button.

🖼 OPC Item Browser (Server	: Intellution.DVIOPC on localhost)	×
Branches	Available Items : 21	Ð
Root Rack Beach Rack Beach	Comms Fail ("hint: Item\Subitem) Cow Battery ("hint: Item\Subitem) Paging Enabled ("hint: Item\Subitem) Power Failure ("hint: Item\Subitem) Power Failure ("hint: Item\Subitem) Pump 1 ("hint: Item\Subitem) Pump 1\Amps ("hint: Item\Subitem) Pump 1\Fault ("hint: Item\Subitem) Pump 1\Gut ("hint: Item\Subitem) Pump 1\Over Temperature ("hint: Item\Subitem)	NARABARABA
Basket (Selected Items) : 1		×
Eack Beach:Comms Fail		
	OK <u>F</u> ilter Cancel	
Browsing items of Intellution.DVIOPC a	n node localhost	

- 16. Click and drag the Comms Fail item into the Basket. Click the OK button.
- 17. Save your configuration by clicking on the save button.
- 18. Start InTouch WindowMaker
- 19. In the main menu select Special -> Access Names...
- 20. Click the Add... button
- 21. Fill in the controls as shown in the following screen shot

Modify Access	Name		
Access	Group1]	ОК
Node Name:			
			Lancel
Application Nar	me:		Failover
FSGateway			
<u>T</u> opic Name:			
DATRANOver	OPC_Group1		
Which protoc	ol to use		
💿 DDE	🔘 SuiteLink	. O Message Excha	ange
_ <u>_</u> When to adv	ise server		
🔘 Advise a	all items	 Advise only active items 	
🔲 Enable Sec	ondary Source		

- 22. Click OK and click the Access Names dialog box Close button.
- 23. In the main menu select Special -> Tagname Dictionary...
- 24. Click New
- 25. Fill in the controls as shown in the following screen shot

agname Dictionary 🛛 🔀
Main 💿 Detailis 🔿 Alarms 🔿 Details & Alarms 🔿 Members
New Restore Delete Save << Select >> Cancel Close
agname: Group1BackBeachCommsFail Iype: I/O Real
Group: \$System
omment: AccessLevel
Log Data Log Events Retentive Value Retentive Parameters
itial Value: 0 Min EU: -32768 Max EU: 32767
eadband: 0 Min Raw: -32768 Max Raw: 32767
ng Units: Log Deadband: 0 Conversion
Access Name: Group1
em: Back Beach:Comms Fail Use Tagname as Item Name

- 26. Click Save and then click Close
- 27. Click Wizards... button 🤷
- 28. Select Value Displays and select Analog Tagname Display. Click OK.
- 29. Click on the window.
- 30. Double click on the Analog Tagname Display and specify Tagname as "Group1BackBeachCommsFail". Tick the Allow Input checkbox. Click OK.

Analog Tagname \	Nizard	
Tagname: Grou Value Display Forr	p1BackBeachCommsFail	OK Cancel
Number Format:	0.00	
Data Integrity Checking:	None Qptions	
Eng Units:		
✓ Allow Input Key equivalent Use 3-D Text	Minimum: 0 Maximum 1000	

- 31. Click on the Runtime! button.
- 32. Change the value of the ...\Back Beach\Comms Fail node inside the TBD file. Ensure that the value changes accordingly inside InTouch.
- 33. Try to change the value in the TBD file via InTouch. If this does not work, check that you have entered the Write Username and Write Password inside the DATRAN OPC I/O Driver Server.



3.6 Uninstalling the Server

- 1. Open the Windows Add/Remove Programs window from the Control Panel.
- 2. Click on the Change/Remove button.
- 3. Click the Yes button at the prompt.
- 4. The DVI I/O Server Uninstall screen will display showing the progress.
- 5. Once it is complete, the screen will display "Uninstall was successful".

- 6. Click the OK button.
- 7. The server is now uninstalled from the computer.

4. MIGRATING FROM DDE SERVER TO OPC SERVER

The XDI application should be installed before proceeding.

1. Select the node in the TBD file, which is the parent node for most of the _DDE_Server_Topic_ nodes.



2. Right click on the node selected and select Replace Key or press Ctrl + K.

🗄 🕛 Current	Time = 2003-09-25 09:43:00.1	009	
□ □ □ □ □ □ 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Edit Edit Type Change Type	Enter	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	+Add Node ×Delete Node ™Rename Node	Ins Del \	
	{Cut ≧⊆opy ≟Paste	Ctrl+X Ctrl+C Ctrl+V	ь
⊡	BPaste As	Ctrl+Shift+V Ctrl+F Ctrl+G	
±	a Replace Key A Add to Search Results	Ctrl+K Ctrl+A	
	≧Export ⊃Import ≩Print		
•	_Documentation_ = Datran II,	□□Radio Model - 2010	D,

- 3. In the Search for Key text box, type in this string "_DDE_Server_Topic_".
- 4. In the Replace with Key text box, type in this string "_XMLData_Topic_".
- 5. Click on the OK button.



6. A message box should appear stating how many nodes have been renamed.



7. Repeat steps 1 to 6 to rename other _DDE_Server_Topic_ nodes located elsewhere.

5. TROUBLESHOOTING

5.1 There is no response from the XDI – XML Service

Check that the Active node is set to 1 for the XDI – XML Service. Also ensure that the computer has the license to enable the XML Service.



5.2 Checking the XDI – XML Service diagnostics

In DATRAN Diagnostics press F2 and select the XML Module & XML Service diagnostics. In the example shown below, the name of the computer is Qtech-Develop2.

🖁 Diagnostics Logged to Qtech-Develop2	X
📄 : Qtech-Develop2 : RTU Console : Alarm List	
🗌 : Qtech-Develop2 : RTU Console : Alarms	
🗌 : Qtech-Develop2 : RTU Console : Diagnostic	
🗌 : Qtech-Develop2 : RTU Console : Events	
🗌 : Qtech-Develop2 : Server Manager : Diagnostic	
🗌 : Qtech-Develop2 : Server Manager : Error	
🗹 : Qtech-Develop2 : Xml Data Interface : Diagnostic	
🔲 : Qtech-Develop2 : Xml Data Interface : Item Error	
🗌 : Qtech-Develop2 : Xml Data Interface : Item Success	
🗌 : Qtech-Develop2 : Xml Data Interface : Topic Error	
🗌 : Qtech-Develop2 : Xml Data Interface : Topic Success	
✓ : Qtech-Develop2 : Xml Data Interface : XML Module Error	
✓ : Qtech-Develop2 : Xml Data Interface : XML Module Success	
🗌 : Qtech-Develop2 : Xml Data Interface : XML Replication Error	
🗌 : Qtech-Develop2 : Xml Data Interface : XML Replication Success	
✓: Qtech-Develop2: Xml Data Interface: XML Service Error	
✓ : Qtech-Develop2 : Xml Data Interface : XML Service Success	
: Qtech-Develop2 : Xml Data Interface : XML TCP Module Error	
: Qtech-Develop2 : Xml Data Interface : XML TCP Module Success	-
,— ·	_

5.3 Opening the DVI Power Tool application to troubleshoot

1. Open the application via Start menu \rightarrow Program \rightarrow iFIX \rightarrow DVI Power Tool. Note that the DVI Power Tool short cut could have been installed in another program folder e.g. DATRAN VI.

2. The DVI Power Tool application makes the OPC I/O Driver Server visible.

🎏 C:\Program Files\QTech Data Systems\OPC Server\L	Intitled.dv	i - D 💶 🗙
File View Server Help		
□≊₽ ▶■ ₽ ?₩		
Message	Date	Time
New configuration created	25/09/	11:29:07
Server initialized	25/09/	11:29:07
For Help, press F1		

3. In the OPC I/O Driver Server window, go to View on the main menu and check all the diagnostics message types i.e. Information, Debug1, Debug2 and Debug3.



5.4 OPC I/O Driver Server not communicating with XDI – XML Service

- 1. Open the DVI Power Tool application
- 2. Double click the DVI node to expand the tree
- 3. Then select the DATRAN XML Data Interface channel. Ensure that these parameters are correct

Server:	(local)
Username:	QTech (must be identical to XDI General Information setup)
Password:	Cannon (must be identical to XDI General Information setup)
Max Items:	20 (lower this value if exception messages appear in the OPC I/O Driver Server window)

- 4. Enable the Channel (check the Enable box on the top right hand side)
- 5. Start the server if not already started.

5.5 Cannot View Value in iFIX Database Manager

This can happen when the wrong block type has been used. For example, using a digital input block type for a data block of data type double. Using the correct block type will resolve this problem e.g. using an analogue input block type for a data block of data type double.

This can also happen if the data block has been deleted via Power Tool. If this happened, restart the server.

6. THINGS TO TAKE NOTE

- □ Any item with a string value of more than 256 characters will be truncated after the 256th character.
- □ Because each item is automatically allocated a 256-byte data block regardless of its data type, the maximum number of items per topic is limited to 524287. When new items are added in the TBD file after this limit has been exceeded, these items will not be added into the server.