Tech Note 790 Troubleshooting Wonderware Information Server (WIS) Part Two: Factory Alarms

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Introduction

WIS Factory Alarms, include both current and historical, rely on the correct SQL Server, NT Service and IIS settings.

In this Tech Note, we will present real-world cases to discuss each of the settings in detail.

Application Versions

- · WIS 4.0 and later
- Windows 2003 Server SP2
- Windows 2008 Server

Real-World Examples and Scenarios

Let's start by discussing the common issues we have with real-world cases. Click on the following links to read details.

- Expanding the Factory Alarms node in WIS Launch Pad Displays a popup message box with "URL cannot be resolved..."
- · Can expand the Factory Alarms node but no History, Current or Both Alarms are Visible

Expanding the Factory Alarms node in WIS Launch Pad Displays a Popup Message Box with "URL cannot be resolved..."

Since WIS 3.0, SuiteVoyager Database contains two .NET assemblies: DataSourceTVF and SDSLibrary.

These two assemblies allow for consistent configuration of Data Source for use by all WIS applications databases:

- Alarm
- Historian
- Production
- Reporting
- OLEDB
- Others

Wonderware Tech Support Engineers have seen a number of cases where the WIS Configurator *did not* configure these two assemblies for the SuiteVoyager database in both SQL Server 2005 and 2008. You can verify this configuration defect from the Object Explorer panel (Figure 1 below). Troubleshooting Wonderware Information Server (WIS)



FIGURE 1: MISSING TWO WIS ASSEMBLIES

As a workaround, use the following procedure to configure the two assemblies manually.

1. Open Regedit and take note of the value of the PortalRootFolder under the registry key

HKEY_LOCAL_MACHINE\SOFTWARE\Wonderware\SuiteVoyager\PortalInfo

The default installation value is C:\inetpub\wwwroot\Wonderware\.

2. Open the DOS Command Prompt and record the output (ex. magellandev2000\wwwser) of the following DOS command:

whoami

- 3. Open a SQL Server Query window on the machine where the SuiteVoyager database is installed.
- 4. Copy the following SQL script into the Query window.



exec master..xp_cmdshell 'osql -E -i "c:\Program Files\Wonderware\SuiteVoyager\SDSManager\CreateFunction.sql"'

Note: The strings in black + bold font are from items 1 and 2 above.

After running the SQL script, you should see the following result and the Factory Alarms node in the Launch Pad should be also expandable for list of configured Factory Alarms.

Please contact Wonderware Technical Support if you still cannot see the Factory Alarms for any reason.



FIGURE 2: SQL QUERY RETURN

Can Expand the Factory Alarms Node but No History, Current (or either type) Alarms are Visible

The WIS Factory Alarms subsystem includes two individual sections.

- History Alarm: Contains a Web Service mechanism which has SvSQLProvider (IIS virtual directory) and DHFramework (directory that holds a bunch of COM components).
- Current Alarm: Contains a Windows service (wwsvalmsvc, Wonderware SuiteVoyager Alarm Consumer) and a COM+ component (Wonderware.SvAlarmFilter).

We'll analyze each section.

History Alarm Check Points

Web Service Definition file - WSDL file

You should see a list of the predefined Web methods.

• Test this by using the following URL in any WIS client IE's Address Bar:

http://[WIS_Server]/SvSQLProvider/sqlprovider.wsdl

This URL should return a relatively large XML content file, which lists the Web methods. Figure 3 (below) shows an XML snippet from the file.

<pre><?xml version="1.0" encoding="UTF-8"?> - <definitions "="" http:="" name="sqlprovider" schemas.xmlsoap.org="" soap="" targetnamespace="http://wonderware.com/wsdl/" wsdl="" xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:stk="http://schemas.microsoft.com/soap-toolkit/wsdl-extension" xmlns:typens="http://wonderware.com/type" xmlns:wsdlns="http://wonderware.com/wsdl/" xmlns:xsd="http://www.w3.org/2001/XMLSch xmlns:soap="> - < ?xml version="1.0" encoding="UTF-8"?></definitions></pre>
<pre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre><stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></stpre></pre>
<pre>constant = "CSQLProvider.pDelete"></pre>
<message name="CSQLProvider.pDeleteResponse"> </message> <message name="CSQLProvider.pEirstRecordSet"></message>
<pre><part name="ConnID" type="xsd:int"></part> <part name="MaxRecord" type="xsd:int"></part> </pre>

FIGURE 3: XML SNIPPET RETURNED FROM SQLPROVIDER.WSDL

Web Service Authentication

Because Web Service should allow various people to access it, the WIS Configurator enables the **Anonymous Authentication** to both SvSQLProvider and DHFramework. You can verify this by reviewing the following graphics (Figure 4 and 5 below).



FIGURE 4: WINDOWS 2003 IIS CHECKING



FIGURE 5: WINDOWS 2008 IIS CHECKING

Current Alarm Check Points

Wonderware SuiteVoyager Alarm Consumer Service

The Wonderware SuiteVoyager Alarm Consumer service communicates with the Alarm Providers, such as InTouch or Application Server. The service must be started.

Services							
File Action View	Help						
	🗟 😹 🖬 👘 🕨 🗰 💷 🕪						
Services (Local)	Q Services (Local)						
	Wonderware SuiteVoyager Alarm	Name -	Description	Status	Startup Type	Log On As	
	Consumer	Wonderware Historian SystemDriver	Generates	Started	Manual	Local System	
		🖏 Wonderware License Manager		Started	Automatic	Local System	
	Stop the service	Wonderware NetDDE Helper			Manual	Local System	
	Kestart the service	Wonderware RunTime DB Handler		Started	Automatic	Local System	
		Wonderware SuiteLink		Started	Automatic	Local System	
		Wonderware SuiteVoyager Alarm Consumer	C	Started	Automatic	Local System	
		Workstation	Creates an	Started	Automatic	Local Service	
		🖏 World Wide Web Publishing Service	Provides W	Started	Automatic	Local System	-
	Extended Standard						

FIGURE 6 ALARM CONSUMER SERVICE

Wonderware SuiteVoyager COM+ Application

Wonderware.SvAlarmFilter, one of the components in the COM+ Application, must be configured correctly. This component is a bridge that connects the ASP page to the Alarm Consumer Service.



If You Still Do Not See History and Current Alarms

Troubleshooting Wonderware Information Server (WIS)

There are still some reasons that cause the Alarms to not show up. However, detailed troubleshooting procedures are beyond the scope of this Tech Note.

This section lists steps that will help to collect runtime information for analysis by Wonderware Technical Support. One History Alarms troubleshooting example is provided as case study.

Backup the SuiteVoyager and WWALMDB databases

Note: If these two databases are not in the same nodes, make sure that your Distributed Alarm Query uses the node name where the WWALMDB database is.

Use the SQL Server Profiler on the corresponding node

- 1. Add the two items below in the SQL Profiler's Column Filters and following the steps listed in the Figure 8.
- Net SqlClient Data Provider
- Internet Information Services

EventClass 7. Eras	e all TextData							_		
Trace Start										
ExistingConnection	network protocol: LPC	set quoted i	dentifier on s	set arithabo	rt off se	t nume	ric rou	Indabor	t off s	set ansi wa
ExistingConnection	Trace Properties								-	
ExistingConnection										
Audit Login	General Events Selection									
SQL:BatchStarting	Beview selected events and event column	- 1- h T	a annalata list salaa	the Polesus all a	united and the la	مين ما م	hanna ⁰ ar	diana		
SQL:BatchCompleted	neview selected events and event column	is to trace. To see	a complete list, selec	citie show all e	venus anu sn	ow all cu	numns of	Juons.		
Audit Logout	Evente	TextData	ApplicationName	NTILserName	LoginName	CPU	Beads	Writes	Duration	ClientProcess
RPC:Completed	Security Audit	Textorata	-sphiodori (dile	1. Coontaine	Loginitane	1010	Tibdus	- mikes	Durbuott	Cherra Tooless
Audit Login	Audit agin									
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Audit Login	- Sessions	Edit Filter					×			-
SQL:BatchStarting	I ExistingLonnection		- ApplicationName							M
SQL:BatchStarting	- Stored Procedures	dures ApplicationName Name of the client application that create				created		_		
SQL:BatchCompleted	RPC:Completed	BinaryData	BinaryDaca 2 the connection to SQL Server. This column				is [
SQL:BatchStarting	- TSQL	ClientProce	essiD pop	populated with the values passed application rather than the display						
SQL:BatchCompleted	SQL:BatchCompleted	CPU	Duration Contraction Contracti					V	V	2
Trace Pause	SQL:BatchStarting	EndTime								2
		LoginName								
	4	NTUserNar	me 🗔	ike	_					
	- SOL-BatchStarting	Reads		- Internet Infor	mation Service	~	- 1			<u></u>
	Occurs when a Transact-SQL batch is	SPID		.Net SalClient	Data Provider		- [Show	all events	
		StartTime		Not like		-	-	- Chau		
		TextData	•			•		Show	all columns	
	ApplicationName (4 filter(s) applied)	Writes	E E	clude rows that	do not contain	values	1.			
	Name of the client application that created by the application rates than the displa		<u> </u>			raidos.	_ _		Column Fill	ters
	by the applied of harder that the displa		4		OV II	Cancal		02		

FIGURE 8: PREPARE CATCHING RUNTIME INFORMATION

- 2. Erase the current Profiler Trace.
- 3. Start catching the History Alarms Trace



FIGURE 9: READY TO COLLECT PROFILER TRACE FOR HISTORY LINK

4. Save the History Alarms Trace to a file (Figure 10 below).

📸 SQL Server Profiler - [Untitled - 1 (ION	1LKF29287D)]			
🚼 File Edit View Replay Tools Windo	w Help			
New Trace Ctrl+N	🔁 📰 💷 🔍 🐹 🎐			
Close Ctrl+F4	extData	ApplicationName NTUserNa	me LoginName CPU Rea	ids V
	network protocol: TCP/IP set qu	Internet Inf	svSuper	
Save Ctrl+S	FLECT TECODE LCTD LangID FROM LOCL	Internet Inf	svSuper	
Save As	Trace File FROM LocL	Internet Inf	s∨Super 0	2
Properties	Trace Template	Internet Inf	svSuper 0	2
Templates	Trace Table	Internet Inf	svSuper 0	0
Due Trace	Trace XML File for Deplay IP set qu	Internet Inf	s∨Super	
Run Irace	FROM LOCL	Internet Inf	s∨Super	
Stop Trace	ELECT IECode,LCID,LangID FROM LocL	Internet Inf	s∨Super 0	2
	network protocol: TCP/IP set qu	Internet Inf	svUser	
Export	SELECT * FROM AlarmDataSources() WH	Internet Inf	s∨User	
Import Performance Data	elect * from alarms	.Net SqlClie	s∨Super	
Exit	elect * from alarms	.Net SqlClie	svSuper 0	7
SQL:Battinstanting	SELECT DS.DataSourceID, DS.DataSour	.Net SqlClie	svSuper	
SQL:BatchCompleted	SELECT DS.DataSourceID, DS.DataSour	.Net SqlClie	s∨Super 15	8
SQL:BatchStarting	Select E.* From (Select A.*, B.Defa	.Net SqlClie	s∨Super	
SQL:BatchCompleted	Select E.* From (Select A.*, B.Defa	.Net SqlClie	s∨Super 0	40
SQL:BatchCompleted	SELECT * FROM AlarmDataSources() WH	Internet Inf	svUser 0	2

FIGURE 10: SAVE THE HISTORY ALARM TRACE TO A FILE

5. Repeat the above steps but Trace the Current Alarm.

6. Send SuiteVoyager and WWALMDB database backup files and the above Profiler Trace files to Wonderware Technical Support.

Troubleshooting Case Study – No History Alarms

In this case, we cannot find anything obviously wrong in our regular diagnostic checklist, such as IIS and COM+ settings.

We know that History Alarms are retrieved by getting Alarm data from the **WWALMDB** database and presenting that data in an ASP page. The error message in Figure 11 (below) tells us that there is something wrong during data retrieval.



FIGURE 11: NO HISTORY ALARMS

From the SQL Profiler output, we notice that the following SQL query does not return any rows if we run it from the SQL Query Tool.

```
SELECT * FROM v_AlarmBventHistoryInternal

WHERE Type <> 'NONE'

AND (llower(Provider)=lower('localhost\intouch')))

AND BventStampUTC <= CONVERT(DATETIME,'2011-8-22 4:8:11',120)

AND BventStampUTC <= CONVERT(DATETIME,'2011-8-23 4:8:11',120)

ORDER 8V EventStampUTC DESC
```

However, if we just run the basic Query without any conditions (below), rows are returned (Figure 12 below).

SELECT * FROM v_AlarmEventHistoryInternal

Further, we found that the value of the Provider in the returned rows is IOMLKF29287D\InTouch (Figure 12 below).

	Area	Туре	Value	CheckValue	Priority	Category	Provider	Operator	DomainName	UserFullNar -
1	Reactor	HI	101	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
2	Reactor	HI	1850	1800	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
3	Reactor	LO	200	200	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
4	Reactor	HI	99.4	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
5	Reactor	LO	155	200	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
6	Reactor	HI	179.9	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
7	Reactor	HI	1775	1800	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
8	Reactor	HIHI	181	180	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
9	Reactor	HI	101	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
10	Reactor	HI	1850	1800	1	VALUE	IOMLKF29287D \In Touch	None	InTouch	None
11	Reactor	LO	200	200	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
12	Reactor	HI	99.4	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
13	Reactor	LO	155	200	1	VALUE	IOMLKF29287D\In Touch	None	InTouch	None
14 /	el Reactor	HI	7007	7000	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
15	Reactor	HI	179.9	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
16	Reactor	HI	1775	1800	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None
17	Reactor	HIHI	181	180	1	VALUE	IOMLKF29287D\In Touch	None	InTouch	None
18	Reactor	HI	101	100	1	VALUE	IOMLKF29287D\InTouch	None	InTouch	None

FIGURE 12: NON-CONDITION SQL QUERY RESULTS

Why there is no any single row returned if we run the above full SQL Query?

After some analysis, we found that one of the full SQL Query conditions is

((lower(Provider)=lower('localhost\intouch)))

Obviously, localhost is root cause of this non-History Alarms issue.

We re-visit the WIS Factory Alarm Manager on MyAlarm1, the value of Distributed Alarm Query is \\localhost\intouch!\$system.

Modify localhost to IOMLKF29287D and save the update. You should see the History Alarms right away.

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D	Date 🗸	Time	Group	Name	State	Туре	Value	Priority	Limit	Operator	Comments	UnAckDur	atior
8	/23/2011	7:02:36 AM	Reactor	ReactTemp	UNACK_ALM	HI	101	1	100	None	Reactor temp		
8	/23/2011	7:02:25 AM	Reactor	ReactLevel	UNACK_ALM	HI	1850	1	1800	None	Reactor level		
8	/23/2011	7:02:07 AM	Reactor	ReactLevel	UNACK_RTN	LO	200	1	200	None	Reactor level		
8	/23/2011	7:02:02 AM	Reactor	ReactTemp	UNACK_RTN	HI	99.4	1	100	None	Reactor temp		
8	/23/2011	7:02:02 AM	Reactor	ReactLevel	UNACK_ALM	LO	155	1	200	None	Reactor level		
8	/23/2011	7:01:42 AM	Reactor	ReactTemp	UNACK_ALM	HI	179.9	1	100	None	Reactor temp		
8	/23/2011	7:01:39 AM	Reactor	ReactLevel	UNACK_RTN	HI	1775	1	1800	None	Reactor level		
8	/23/2011	7:01:35 AM	Reactor	ReactTemp	UNACK_ALM	HIHI	181	1	180	None	Reactor temp		
8	/23/2011	7:01:26 AM	Reactor	ReactTemp	UNACK_ALM	HI	101	1	100	None	Reactor temp		
8	/23/2011	7:01:16 AM	Reactor	ReactLevel	UNACK_ALM	HI	1850	1	1800	None	Reactor level		
8	/23/2011	7:00:57 AM	Reactor	ReactLevel	UNACK_RTN	LO	200	1	200	None	Reactor level		
8	/23/2011	7:00:53 AM	Reactor	ReactTemp	UNACK_RTN	HI	99.4	1	100	None	Reactor temp		
8	/23/2011	7:00:52 AM	Reactor	ReactLevel	UNACK_ALM	LO	155	1	200	None	Reactor level		
8	/23/2011	7:00:44 AM	Reactor	ProdLevel	UNACK_ALM	HI	7007	1	7000	None	Product storage level	Q	
8	/23/2011	7:00:34 AM	Reactor	ReactTemp	UNACK_ALM	HI	179.9	1	100	None	Reactor temp		
8	/23/2011	7:00:32 AM	Reactor	ReactLevel	UNACK_RTN	HI	1775	1	1800	None	Reactor level		
8	/23/2011	7:00:28 AM	Reactor	ReactTemp	UNACK_ALM	HIHI	181	1	180	None	Reactor temp		
8	/23/2011	7:00:19 AM	Reactor	ReactTemp	UNACK_ALM	HI	101	1	100	None	Reactortemp		
8	/23/2011	7:00:09 AM	Reactor	ReactLevel	UNACK_ALM	HI	1850	1	1800	None	Reactor level	1	
8	/23/2011	7:00:09 AM	\$System	\$NewAlarm		SVST	ON	999	OFF	None	NewAlarm		

FIGURE 13: ALARM DATA IS VISIBLE WITH CORRECTED QUERY PARAMETERS

Known Issue for the Current Factory Alarms

If WIS and InTouch View are running on the same machine that runs Windows 2008 (Vista and Windows 2007 are same), the current factory alarms may no longer work. This issue is currently in testing and will be documented in Part 3 of this series.

Conclusion

The Wonderware Factory Alarms Subsystem is a complex area in WIS 4.x because it uses many Microsoft Technologies. This *Tech Note* provides some technical explanation, and basic troubleshooting procedures for the most common issues.

References

- Tech Note 786 Troubleshooting Wonderware Information Server (WIS) Part One: HTTP Error 500
- Tech Note 794 Troubleshooting Wonderware Information Server (WIS) Part Three: Workarounds for Factory Alarms Issues in Windows Server 2008

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