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

Topic#: 002573
Created: August 2011

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).

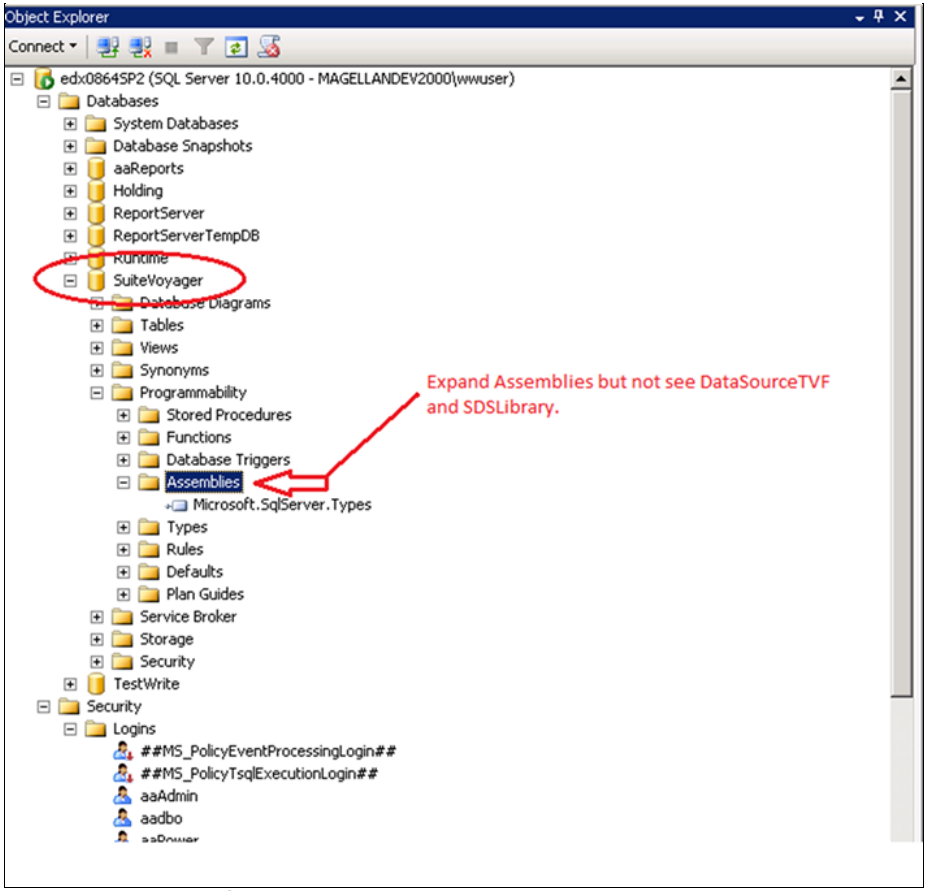

FIGURE 1: MISSING TWO WIS ASSEMBLIES

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\wwuser**) 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.

```
================================================================================
USE [SuiteVoyager]
GO
IF OBJECT_ID(N'AlarmDataSources') IS NOT NULL DROP FUNCTION AlarmDataSources
GO
IF OBJECT_ID(N'AlarmDataProvider') IS NOT NULL DROP FUNCTION AlarmDataProvider
GO
IF EXISTS(SELECT * FROM sys.assemblies WHERE NAME = 'DataSourceTVF') BEGIN DROP ASSEMBLY DataSourceTVF
END
GO
ALTER DATABASE SuiteVoyager SET TRUSTWORTHY ON
GO
SELECT owner_sid FROM sys.databases WHERE database_id=DB_ID()
SELECT sid FROM sys.database_principals WHERE name=N'dbo'
ALTER AUTHORIZATION ON Database::SuiteVoyager TO "magellandev2000\wwuser"

CREATE ASSEMBLY DataSourceTVF FROM 'c:\Program Files\Wonderware\SuiteVoyager\SDSManager\DataSourceTVF.dll'
WITH PERMISSION_SET = UNSAFE
GO
sp_configure 'xp_cmdshell', '1'
GO
RECONFIGURE
exec master..xp_cmdshell 'osql -E -i "c:\Program Files\Wonderware\SuiteVoyager\SDSManager\DataForNewProvider.sql"'
GO
exec master..xp_cmdshell 'osql -E -i "c:\Program Files\Wonderware\SuiteVoyager\SDSManager\CreateLinkedServer.sql"'
GO
```

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

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.

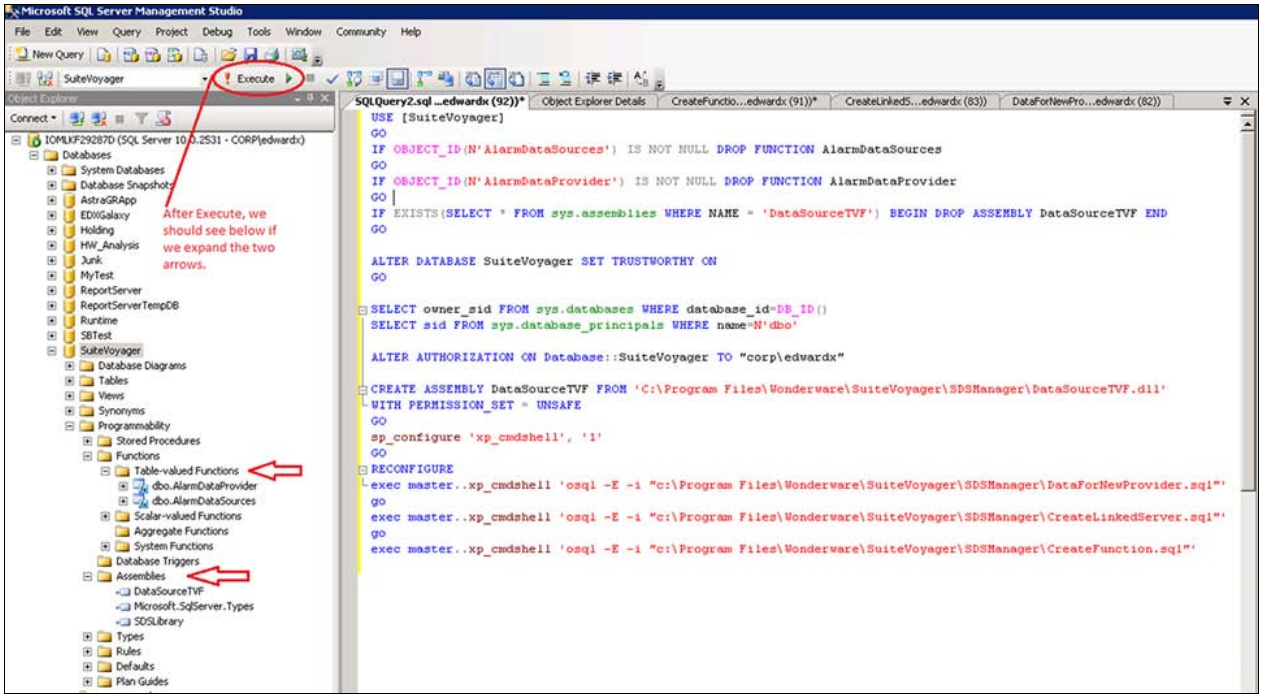

Figure 2: SQL Query Return

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.

```
<?xml version="1.0" encoding="UTF-8"?>
- <definitions xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:stk="http://schemas.microsoft.com/soap-toolkit/wsdl-extension" xmlns:xsd="http://www.w3.org/2001/XMLSch
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:typens="http://wonderware.com/type" xmlns:wsdlns="http://wonderware.com/wsdl/"
targetNamespace="http://wonderware.com/wsdl/" name="sqlprovider">
  - <types>
      <schema xmlns="http://www.w3.org/2001/XMLSchema" targetNamespace="http://wonderware.com/type" elementFormDefault="qualified"
        xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"> </schema>
    </types>
  - <message name="CSQLProvider.pDelete">
      <part name="ConnID" type="xsd:int"/>
      <part name="xmlCondition" type="xsd:string"/>
    </message>
    <message name="CSQLProvider.pDeleteResponse"> </message>
  - <message name="CSQLProvider.pFirstRecordSet">
      <part name="ConnID" type="xsd:int"/>
      <part name="MaxRecord" type="xsd:int"/>
    </message>
```

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).

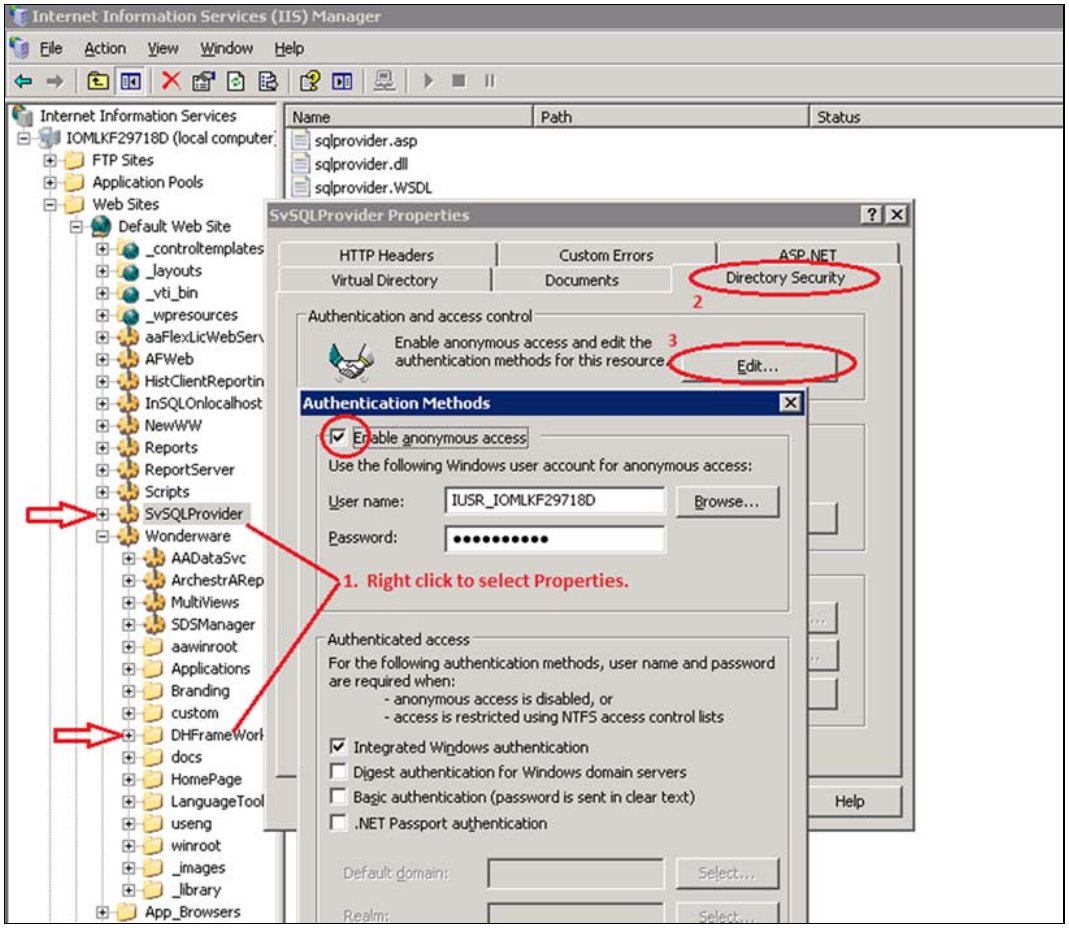

Figure 4: Windows 2003 IIS Checking

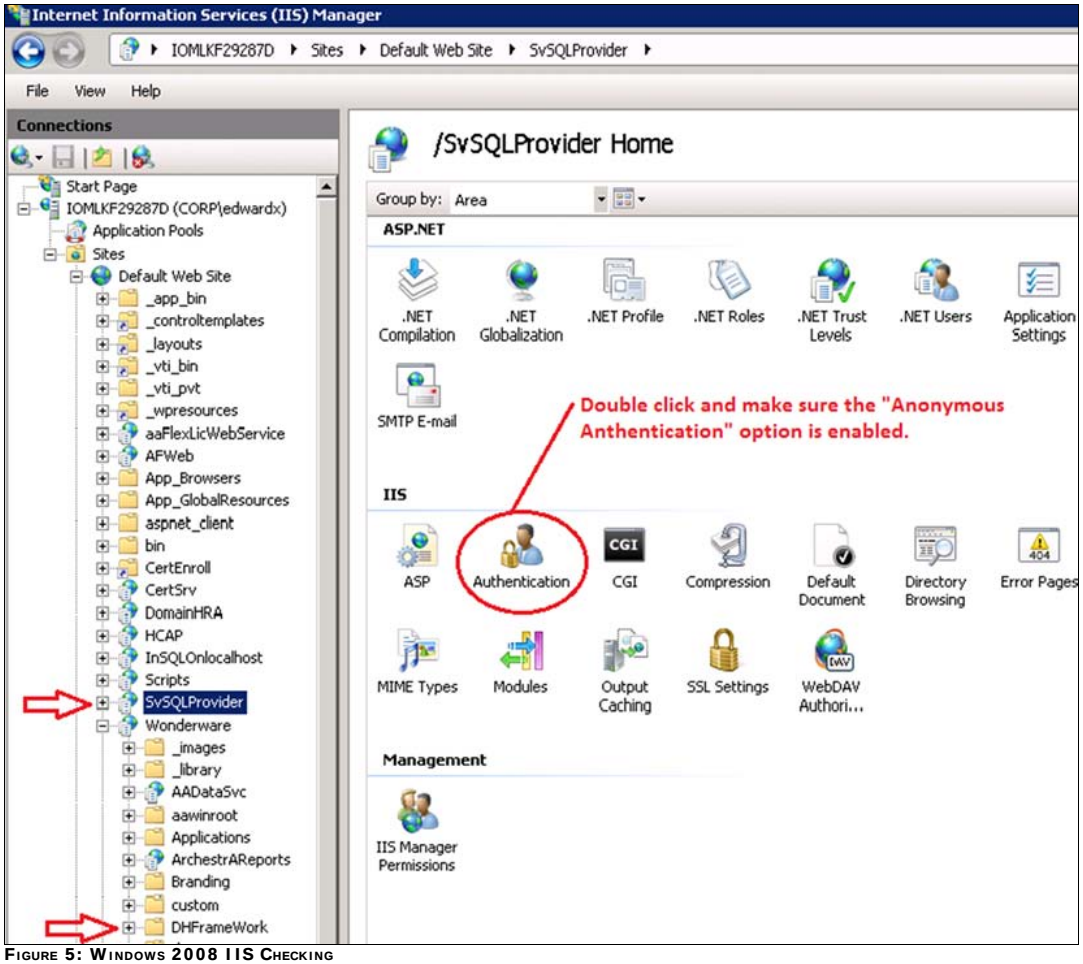

Figure 5: Windows 2008 IIS Checking

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.

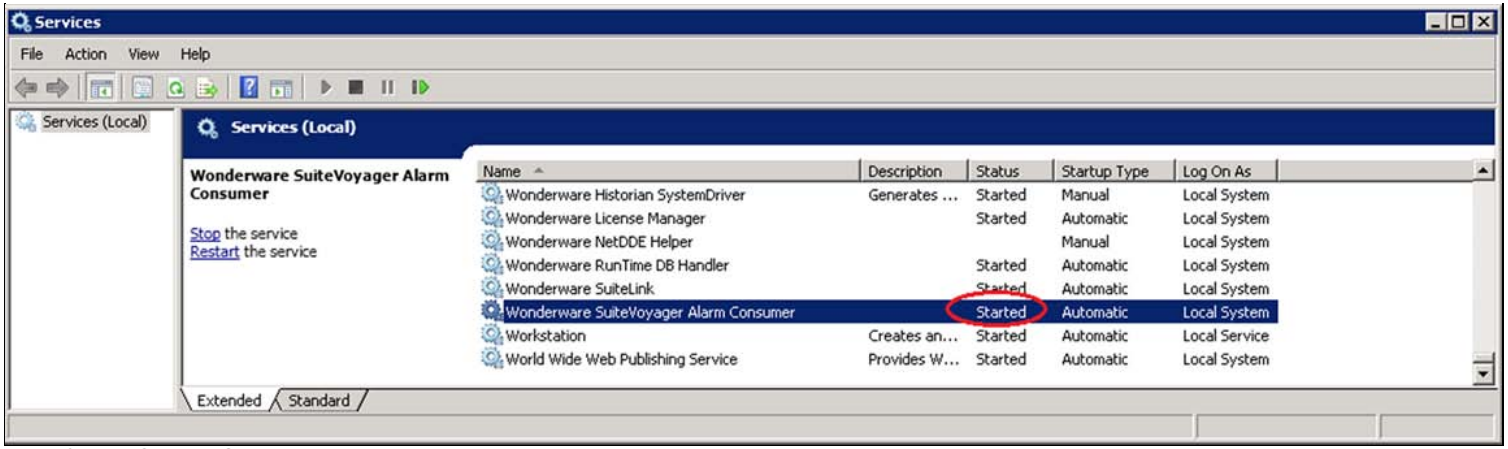

Figure 6 Alarm Consumer Service

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.

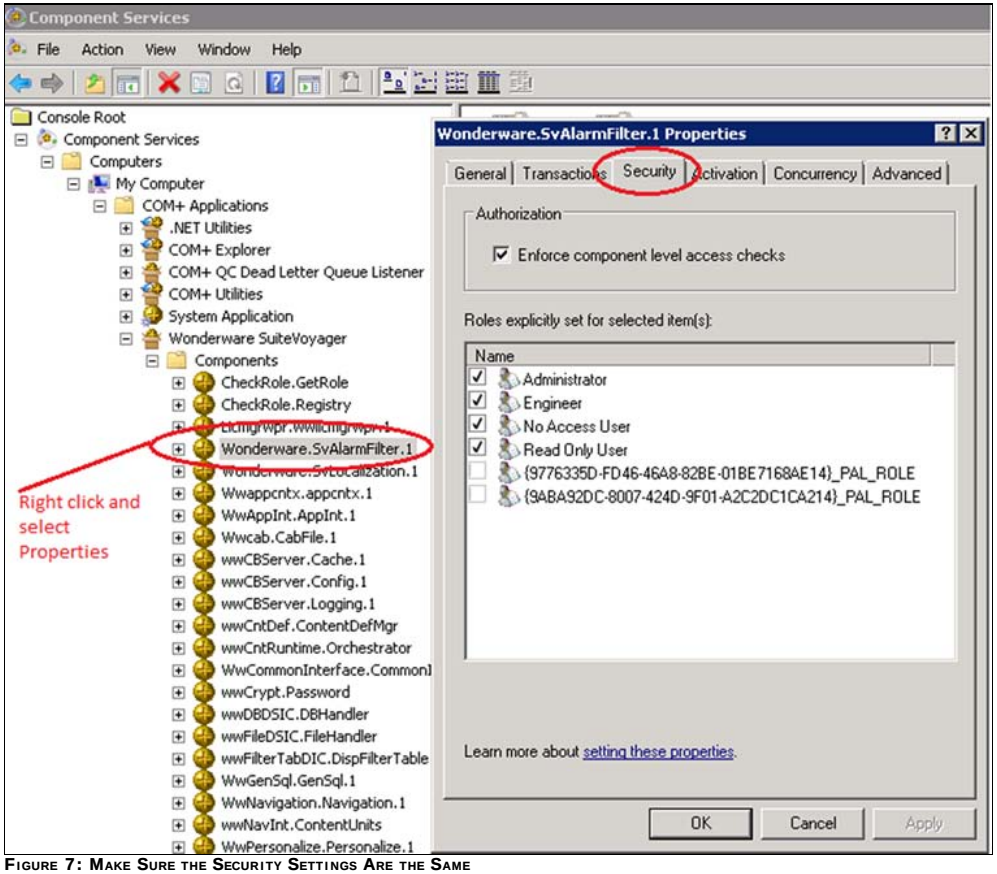

Figure 7: Make Sure the Security Settings Are the Same

If You Still Do Not See History and Current Alarms

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**

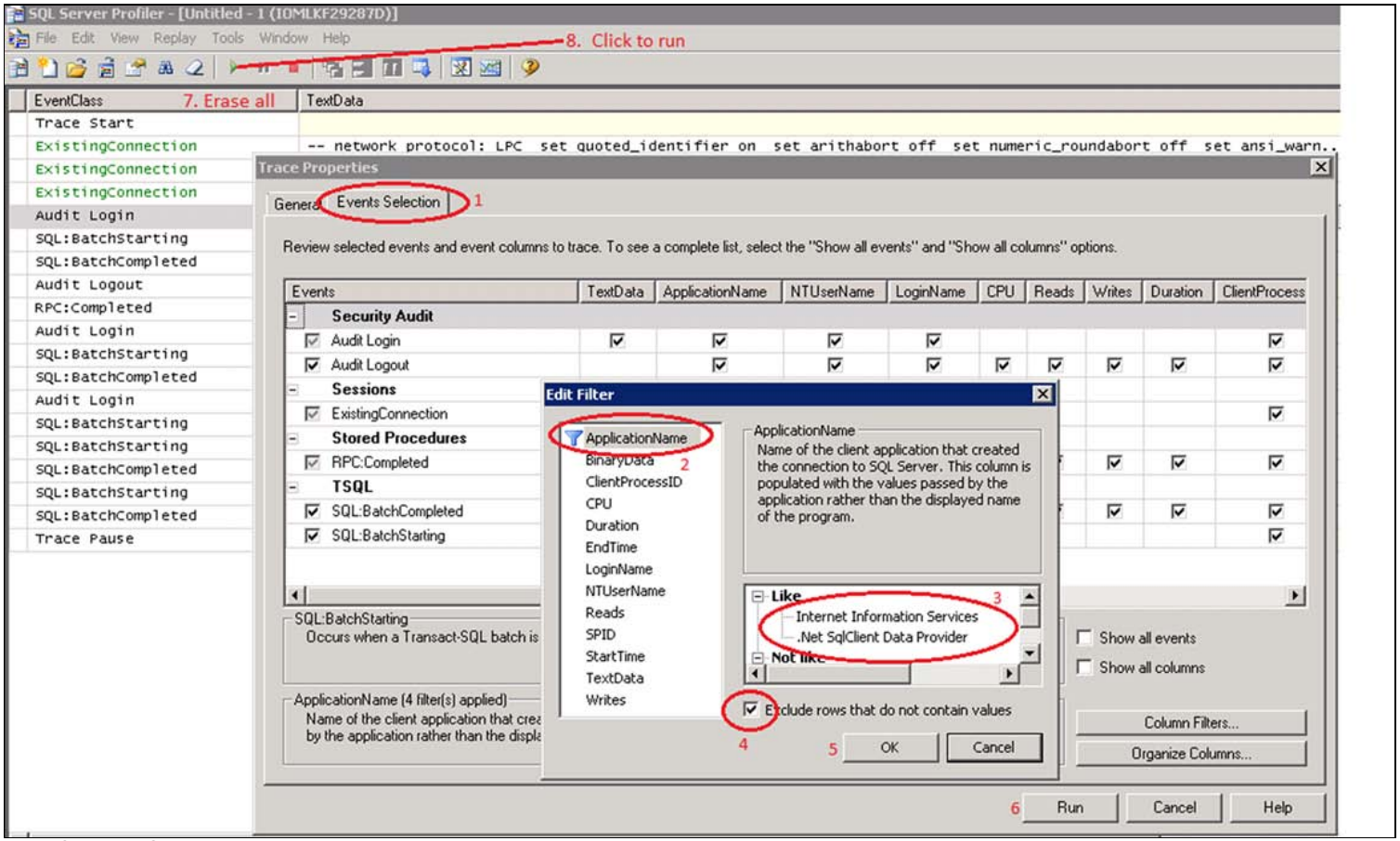

Figure 8: Prepare Catching Runtime Information

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

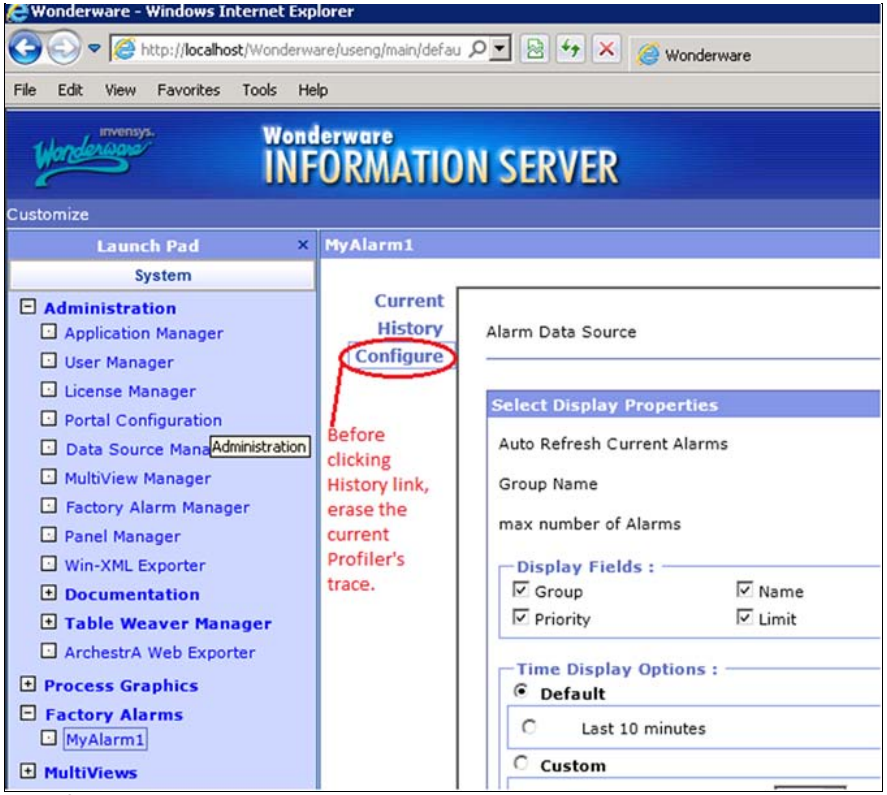

Figure 9: Ready to collect Profiler Trace for History Link

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

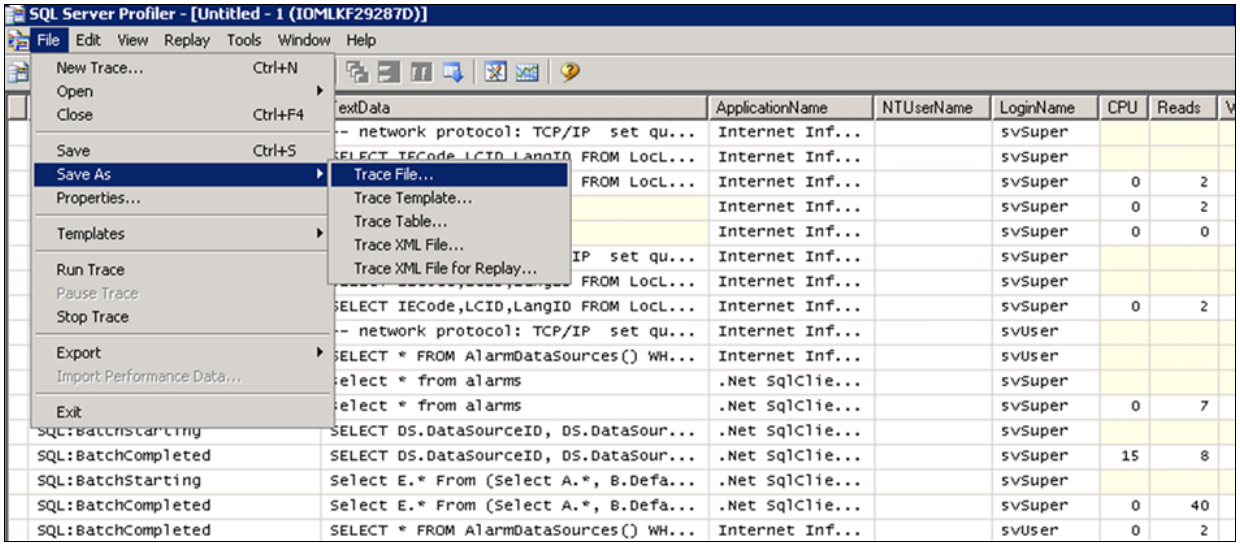

Figure 10: Save the History Alarm Trace to a File

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.

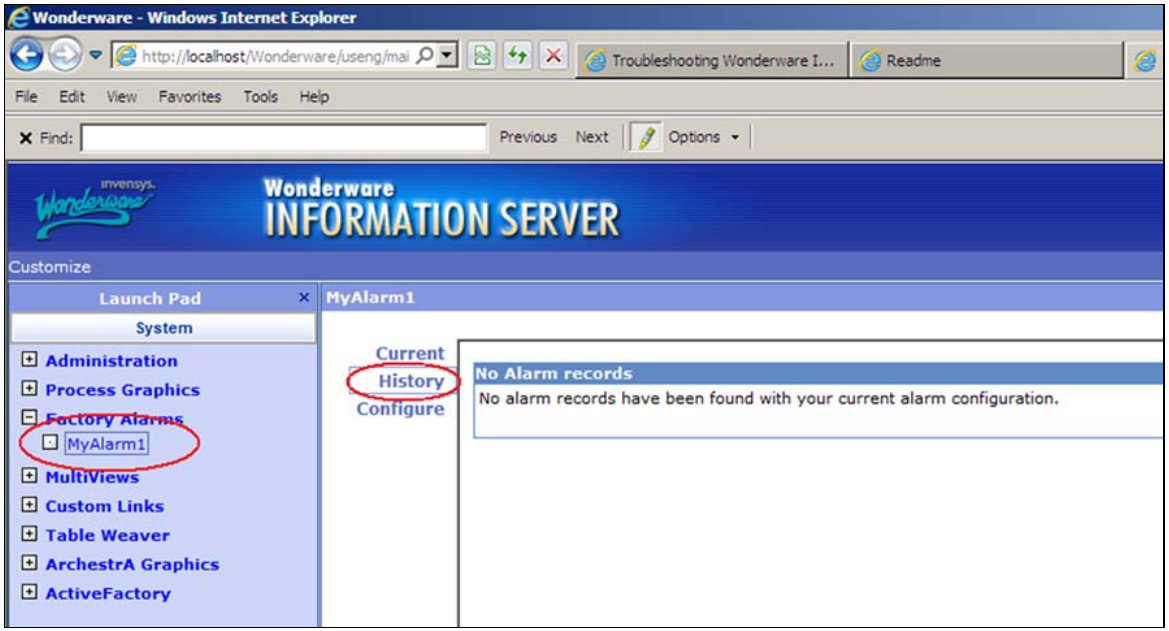

Figure 11: No History Alarms

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_AlarmEventHistoryInternal
WHERE Type <> 'NONE'
AND ((lower(Provider)=lower('localhost\intouch')))
AND EventStampUTC >= CONVERT(DATETIME,'2011-8-22 4:8:11',120)
AND EventStampUTC <= CONVERT(DATETIME,'2011-8-23 4:8:11',120)
ORDER BY 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).

Results | Messages

	Area	Type	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\InTouch	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\InTouch	None	InTouch	None
14	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\InTouch	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.

MyAlarm1

Current
History
Configure

Default View

Color Legend Acknowledged Unacknowledged Returned to Normal

Date	Time	Group	Name	State	Type	Value	Priority	Limit	Operator	Comments	UnAckDuration
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	
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	Reactor temp	
8/23/2011	7:00:09 AM	Reactor	ReactLevel	UNACK_ALM	HI	1850	1	1800	None	Reactor level	
8/23/2011	7:00:09 AM	$System	$NewAlarm		SYST	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**

E. Xu and K. Nourbakhsh

Tech Notes are published occasionally by Wonderware Technical Support. Publisher: Invensys Systems, Inc., 26561 Rancho Parkway South, Lake Forest, CA 92630. There is also technical information on our software products at **Wonderware Technical Support.**

For technical support questions, send an e-mail to **wwsupport@invensys.com**.

Back to top