THE INDUSTRIAL SOFTWARE REVOLUTION BEGINS NOW
WW TSS-15
WW TSS-16
InTouch Advanced Troubleshooting and 2014 New Features

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## Agenda

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*Slide 3*
New Features
ArchestrA Graphics
Standard Protection/Enforcement

Protect on Export

• Option available for Templates and Symbols ONLY
Standard Protection/Enforcement
Do not overwrite on Import
• Option available for Templates and Symbols ONLY
Element Styles

• Element Styles (Set Standards) Functionality in ArchestrA Graphics
• Element Styles Animation in ArchestrA Graphics
• InTouch Supports Element Styles Animation within embedded ArchestrA Graphics symbol.
• Element Styles Editor for IDE
• Import/Export of Element Styles from within IDE
• Implement Element Styles standards in SAL Symbols
Element Styles

- Defines Visual Properties
- Provide Consistency
- Applies to Text, Line, Fill, Outline
Animations

• New animation using Element Styles
  • Runtime behavior based on Boolean expression or Truth Table
• Point animation
• Alarm Border animation
• Polar Star animation
• Sweep angle animation: Start / Sweep Angle Animation of Arc, Chord and Pie graphic elements
SAL-Situation Awareness Library

- Highlight current process conditions
- Functional Properties
- Visual Properties
- Extensive custom properties and animations
SAL-Situation Awareness Library

- SAL Alarm Symbols
- SAL Equipment Symbols
- SAL Input Symbols
- SAL Instrumentation Symbols
- SAL Status Symbols
- SAL Unitizer Symbols
- Adv. Symbols –, Polar Star
- Other Symbols – Level Meter, Rotating Equipment, Meters, Hand Switch, Output Bar
Symbol Wizards

- Wizards represent multiple configurations of a symbol
- Layers group Custom Properties, Graphical Elements, and Scripts
- Element Styles, Options
- Polymorphic Graphics Support For Symbol Wizard
- Utilize Symbol Wizard Graphics Support in SAL Graphics (Graphics Elements Only)
- Design Time Validate Support for Symbol Wizard
- Script/Custom Property Support For Symbol Wizard
- Updates to GUI and workflow of the ArchestrA Graphics to support Symbol Wizard
InTouch Application Migration
InTouch Application Migration

You can migrate applications developed with the following earlier versions of InTouch HMI to version 11.0:

- Version 10.1 (All service packs and patches)
  - 10.1
  - 10.1 SP2
  - 10.1 SP2 P01
  - 10.1 SP3
  - 10.1 SP3 P01

- Version 10.6
Access Name – OPC
Access Name – OPC

New OPC Access Name in new InTouch 2014 application.
Alarm Sub-system
Alarm Sub-system: Severity / Category

Set Priority to Severity ranges and Events types in the Alarm Priority Mapping Configuration

Alarms by Severity
• Severities limited to Critical, High, Medium, Low

Events by Category
• Categories are System, Application, User
Alarm Sub-system : Alarm Priority Map

Alarm Priority Mapping

- The default mapping for Alarm Severity:

<table>
<thead>
<tr>
<th>Severity</th>
<th>Description</th>
<th>Historize</th>
<th>From Priority Range</th>
<th>To Priority Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Critical</td>
<td>✔️</td>
<td>1</td>
<td>250</td>
</tr>
<tr>
<td>2</td>
<td>High</td>
<td>✔️</td>
<td>251</td>
<td>500</td>
</tr>
<tr>
<td>3</td>
<td>Medium</td>
<td>✔️</td>
<td>501</td>
<td>750</td>
</tr>
<tr>
<td>4</td>
<td>Low</td>
<td>✔️</td>
<td>751</td>
<td>999</td>
</tr>
</tbody>
</table>

- The default mapping for Event Types:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Historize</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>System</td>
<td>✔️</td>
</tr>
<tr>
<td>2</td>
<td>Application</td>
<td>✔️</td>
</tr>
<tr>
<td>3</td>
<td>User</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Alarm Sub-system : Aggregation

• Alarm Aggregation is a way of summarizing multiple alarms on a complex object to make it easy to identify which of several objects has alarms that need attention.

• It is also used to compare objects to see which set of alarms is more important than another.

• Alarms are only aggregated for the following states:
  • UNACK_ALM
  • ACK_ALM
  • UNACK_RTN

• Alarm Aggregation can be enable or disable at the Area level.
Alarm Sub-system : Aggregation

- On each Application Object, the statuses of all alarms are summarized on the Object and its descendants using five Attributes.
  - AlarmMostUrgentSeverity
  - AlarmMostUrgentMode
  - AlarmMostUrgentInAlarm
  - AlarmMostUrgentAcked
  - AlarmCntsBySeverity
Alarm DB Logger Replacement

Old Storage Flow

New Storage Flow

- New alarm database name
- Store-Forward
- Redundant Engines Support
- Redundant Historian Support
- Simplicity - no complicated configuration required
For more information

WW HMI SCADA-02

Discover the new Alarm improvements delivered in Wonderware System Platform 2014
Technology Updates
Technology Updates – UAC

**UAC FULLY SUPPORTED**

- In prior versions of InTouch (2012 R2 / 2012 / etc), UAC is required to be turned off in order to work.
- As of InTouch 2014, this User Account Control security feature is accommodated.
- InTouch is able to function properly with UAC turned on.
- This will lead to better IT compliance.
Technology Updates – MS SQL

FROM INTOUCH 2012 R2

• SQL Server 2008 R2 SP1 (32/64-bit)
• SQL Server Express 2008 R2 + SSME (32-bit)
• SQL Server 2012 (32/64-bit)
• SQL Server Express 2012 (32-bit)
Technology Updates – MS OS

FROM WAS 2014

• Windows 8 (64-bit)
• Windows Server 2012 (64-bit)
• .NET 4.5

Improved support for Image Installations:
• Manual instructions for renaming post-install
Troubleshooting
Tools – Wonderware / SMC

System Management Console – Log Viewer
Tools – Wonderware / TSInstallCheck

• Wonderware software products usually install a large number of files.

• These files could be COM or .NET components, Windows Services, DLL, Exe or other type of files.

• In the real world, if any of these files is different from when it was installed, the corresponding function(s) will be broken and it will be very difficult to find the problem.

• TSInstallCheck Utility provides a quick way to detect these kind of problems.
TSInstallCheck Demos

1. One of the Application Server COM components is registered in the wrong location.
   Demo

2. One of the Application Server services is not running.
   Demo

3. One of the WIS COM+ components does not exist.
   Demo

4. One of the WIS COM+ components is not registered.
   Demo
Function Walk Through

- Auto detect the installed Wonderware software packages.

Note: We only support the following packages in this version:
- WAS
- InTouch
- WIS
- Historian
- Historian Client
- Local deployed platform
Function Walk Through

- Exclude filters

Excluding filters can help you to only retrieve information on the important files.
Function Walk Through

- Include filters

![Function Walk Through Diagram]
Function Walk Through

- Show installed features of the products
Function Walk Through

- Show details based on the installation MSI file
Function Walk Through

- Show COM, Service or .NET files only
Function Walk Through

- Diagnostics functions
Function Walk Through

• Show Error, Warning or Difference
Function Walk Through

- Generate Report
Guideline – Review results

1. The results of comparison are for troubleshooting reference.

2. Sometimes, there might be Errors, Warnings or Differences from a selected diagnostic action. These check results may not always be related to the problem we are dealing with.
Tools – Wonderware

Change-Windows Script

- When debugging a customers Application and testing for some Window, ActiveX or other Object that could cause a corruption or leak, this script helps to avoid clicking through hundreds of Windows manually.

```vbs
DIM Entry AS MESSAGE;  {Name of the window from IndexFile}
DIM EntryLength AS INTEGER; {Length of the window name for calculation of offset}
DIM WindowName AS MESSAGE;  {Name of the opened window}

{Reading windowname from IndexFile and calculating next offset}
Counter = FileReadMessage( InfoInTouchAppDir() + "\ww_wdws.ndx", Counter, Entry, 0);
EntryLength = StringLen( Entry );
WindowName = StringRight( Entry, EntryLength - 6 );
LogMessage( "WindowOpened:" + WindowName);
Show StringRight( Entry, EntryLength - 6 );  {Opening Window}
```
Tools – Wonderware

Historical Log Reader

- Internal Tool for checking on Historical Log files (lgh & idx)
- Easy access to data in Historical Log file
- Allows export of historical data to CSV file
Tools – Microsoft / PSR

- Problem Steps Recorder
  - This built-in utility works in Windows 7, Windows 2008, Windows 2012
  - Helps to record the exact step-by-step procedure to reproduce the problem.
  - Send the captured information via email.
Third-Party Tools

Microsoft

• Task Manager
• Performance Monitor
• Event Viewer


Others:

• Comms Diagnostics, Network, OPC
Performance Monitor
Process Explorer
Process Explorer – Process Counters
Process Explorer – Trends up to 50min
Debug Diagnostic Tool - Memdump

- Free download from Microsoft
- Generating crashdump at configured condition
Techniques
Techniques – Ignore It

• This would be the last thing to do

• It is like sweeping the issue under the carpet and it might come back to haunt you

• Small problems accumulate over time and may cause a big explosion eventually

• Easier to deal with small issues individually rather than one huge accumulated issue
Techniques – Avoid It

Backup

- Perform **regular** backup of the application
- If possible, use 3rd party utility to do this
- Copy the backup copy to another computer / disk

Rebuild

- When **corruption** issues are seen, immediately try to schedule a rebuild of the application
- Make sure to perform a backup after the rebuild
Techniques – Avoid It / Rebuild

In many cases, when there are sudden crashes or corruption, rebuilding the InTouch app is the easiest, quickest and safest solution.

• Pre IT 9.5: [TN 112 Recovering a Corrupted InTouch Application](#)
• IT9.5+: [TN 774 Restoring a Corrupt InTouch Application](#)
• Managed Pre 10.0 SP2: [TN 546 Rebuilding a Corrupted InTouch Managed Application (for versions prior to InTouch 10.0 SP2)](#)
• Managed 10.0 SP2+: [TN 570 Rebuilding a Corrupted InTouch Managed Application for InTouch versions 10.0 SP2 (for versions later than InTouch 10.0 SP2)](#)
Techniques – Face It

Analyze

• Find out what is causing the problem. Follow the What / Where / When / Why / How method.

Simplify

• In a complicated project with multiple integrated products, when a problem occurs, try to simplify it to just the product where the problem is seen.

Isolate

• Once which product is determined to be at fault, isolate it to the particular functionality related to that problem.
Techniques – Face It / Analyze

- System Resources
  - TSInstallCheck Tool
  - Performance Monitor
  - Process Explorer
  - Debug Diagnostic Tool

- Connections
  - Slsping
  - Pathping
  - Tracert

- The Application
  - Change-Windows Script
  - History Log Reader
  - Debug Diagnostic Tool
Techniques – Final words

“If you’re going to do something, do it right the first time.” – Mike Holmes

Get things done right the first time and you would not have to deal with a big mess later on.
Common Challenges
#1 – Application Hang/Freeze/Crash

- Debug Diagnostic Tool (DebugDiag) – Tech Notes 726 (32-bit), 793 (64-bit)
- WWHeap and Memory Settings – Tech Notes 732, 768
- Corrupt App – Tech Note 546
#2 – Performance

- Graphics: Tech Note 644 ( WW TSS 17 / 18 )
- Remote Desktop Services: Tech Notes 347, 538, Deployment Guide
- Application Server: Tech Note 719
- NAD: Tech Notes 380, 390, 452
- OS: Perf Mon KPIs – Tech Note 868
#3 – Communications

- SMC Logger
- WWClient
- Ping, SLSPing
- FSGateway, 3rd Party OPC Client
- Network Monitoring Tools (WireShark)
The Industrial Software Revolution Begins Now