SAP Exchange Infrastructure: Monitoring in XI30

Prasad Illapani
SAP Netweaver RIG-XI

SAP Labs LLC., USA
Topics

- Message Monitoring in Integration Server
- Message Monitoring in RWB (Runtime Workbench)
- Summary
XI connects various application systems via XML messaging.

XI uses an SAP-specific implementation of the SOAP protocol.

Messages received at the Integration Server are processed through a defined series of steps called *Pipeline Services*.

When a message is received at the Integration Server, the message is examined and all valid configurations (as maintained in the Integration Directory) for that message are executed.
### Monitor for Processed XML Messages

**Two selection screens**
(Standard/Advanced)

**Selection on:**
- Status Group
- Status
- Execution From
- Execution To
- Party/Scheme/Agency/Service (S/R)
- Interface Name/Namespace (S/R)
- Pipeline
- Technical Inbound Channel
- Outbound Status
- Error
- Client

<table>
<thead>
<tr>
<th>Select Messages By</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Group</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Selection Criteria</th>
<th>Advanced Selection Criteria</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>End of Execution From</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>End of Execution Until</td>
<td>/</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sender</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Party</td>
<td></td>
</tr>
<tr>
<td>Scheme</td>
<td></td>
</tr>
<tr>
<td>Agency</td>
<td></td>
</tr>
<tr>
<td>Service</td>
<td></td>
</tr>
<tr>
<td>Interface Name</td>
<td></td>
</tr>
<tr>
<td>Interface Namespace</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Receiver</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Party</td>
<td></td>
</tr>
<tr>
<td>Scheme</td>
<td></td>
</tr>
<tr>
<td>Agency</td>
<td></td>
</tr>
<tr>
<td>Service</td>
<td></td>
</tr>
<tr>
<td>Interface Name</td>
<td></td>
</tr>
<tr>
<td>Interface Namespace</td>
<td></td>
</tr>
</tbody>
</table>
XML Message List

Monitor for Processed XML Messages

Number of XML Messages Found: 158

XML Messages

Legend

Flexible ALV Views
Display Message Contents

Steps in Pipeline

Display and download of the content

Compare versions
Central point of access: XI Runtime Workbench

Smooth integration with CCMS

Easy Configuration
  - Exploiting System Landscape Directory
  - Consistent look-and-feel in UI

Improved Error Handling
  - Errors classified by error cause
Monitoring – Message Monitoring

Based on SAP standard monitoring solutions

Used by End-to-End monitoring to construct instance view

Available for XI component with persistence
Monitoring – Component Monitoring

Central Monitoring

Runtime Workbench (RWB)

Component Monitoring

- Performance Analysis
- Message Alerting

- PMI
- CCMS

Alerting Framework

System Landscape Directory

Integration Server (SAP Web AS ≥ 6.40)

- Business Process Engine
- Integration Engine
- Adapter Engine

SAP Application

SAP Web AS ≥ 6.40, using XI proxies

(central) Adapter Engine

J2SE Adapter Engine

Smooth integration with CCMS (easier, leaner)

Monitoring of ABAP and Java components

Improved error handling
Monitoring – Performance Analysis

Central Monitoring

Runtime Workbench (RWB)

Performance Analysis

Message Monitoring

PMI

CCMS

Alerting Framework

System Landscape Directory

Integration Server (SAP Web AS ≥ 6.40)

Business Process Engine

Integration Engine

Adapter Engine

SAP Application

SAP Web AS ≥ 6.40, using XI proxies

(decentral) Adapter Engine

J2SE Adapter Engine

Enhanced performance statistics

Measuring of throughput and latency (‘processing time’)

Selection and aggregation of performance data by
- XI component
- Time range
- Message attributes
Monitoring - Alerting

Based on Central Alerting Framework

Active Monitoring (alerts being sent by e-Mail, SMS,...)
XI 3.0 RWB – Component Monitoring

Component Monitoring:
Monitoring of ABAP and Java components

Central viewing of component’s connection status in a specific domain.

Ping of system and sending of messages to components via a self-test area.
Component Monitoring features

Two different views: XI components can be displayed either in Table or Tree format.

Selecting associated information: For ABAP components, specific configuration parameters are displayed as defined in TC SXMB_ADM. For Java components, system settings as well as Aii-Properties are displayed as defined in the exchange profile.
Sending Test Messages

XI Runtime Workbench


Komponenten-Monitoring

Components from Domain: domain.06.i00060

With Status: All

Display as Table

XI Components

- domain.06.i00060
  - Integration Engine
  - Adapter Engine
  - Further Components

Status | Settings | Test Message

Save Message... | Open Message... | Send Message

Message sent

Send Message To: Http://id0060:50006/zap/kd/engine?type=entry

Header Information

- Communication Party
- Sender: "EBP"
- Interface: "Supplier Portal TradingPartner"
- Namespace: "http://sap.com/idEBP"

User: "SCHAERGES"
Password: "**********"
Quality of Service: "Exactly Once In Order"

Payload

```xml
<?xml version="1.0" encoding="utf-8" ?>
<nrt test xmlns="nrt("schaerges")">TEST1<nrt:test>
```
XI 3.0 RWB – Message Monitoring

Message Monitoring

Harmonization of different message monitors
- Integration Engine
- Adapter Framework (J2EE)

All message monitoring centrally accessible through RWB

Monitoring locally available as well
- at least for partner connectivity kit
## Message Monitoring – Message Details

**Message Display Tool (Detail Display)**

<table>
<thead>
<tr>
<th>Message Data</th>
<th>Message Content</th>
<th>End-To-End Monitoring</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Status</th>
<th>Successful</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>26.07.2004 16:36:33</td>
<td></td>
</tr>
<tr>
<td>Exit</td>
<td>26.07.2004 16:36:34</td>
<td></td>
</tr>
<tr>
<td>Sender Party</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sender Service</td>
<td>FileSendService</td>
<td></td>
</tr>
<tr>
<td>Sender Interface</td>
<td><a href="http://sap.com/xt/admin/MI_contacts_OUT">http://sap.com/xt/admin/MI_contacts_OUT</a></td>
<td></td>
</tr>
<tr>
<td>Receiver Party</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receiver Service</td>
<td><a href="http://sap.com/xt/admin/MI_contacts_IN">http://sap.com/xt/admin/MI_contacts_IN</a></td>
<td></td>
</tr>
<tr>
<td>Receiver Interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Service</td>
<td>Exactly Once</td>
<td></td>
</tr>
<tr>
<td>Message</td>
<td>3CD9C36C7DF111D8AEF100000073C687A</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inbound Channel</td>
<td>XIRA</td>
<td></td>
</tr>
<tr>
<td>Outbound Channel</td>
<td>AENGINE</td>
<td></td>
</tr>
<tr>
<td>Queue</td>
<td>XBTON_0000</td>
<td></td>
</tr>
<tr>
<td>Pipeline</td>
<td>CENTRAL</td>
<td></td>
</tr>
<tr>
<td>Acknowledgment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>000</td>
<td></td>
</tr>
<tr>
<td>Parent Message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error Category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error Code</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Message Type</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Outbound Status</td>
<td>000</td>
<td></td>
</tr>
<tr>
<td>Number of Children</td>
<td>000</td>
<td></td>
</tr>
<tr>
<td>Client</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>User</td>
<td>XIAFUSER</td>
<td></td>
</tr>
<tr>
<td>Number of Retries</td>
<td>000</td>
<td></td>
</tr>
<tr>
<td>Restart Version</td>
<td>000</td>
<td></td>
</tr>
</tbody>
</table>

- To see the detailed information about a message, select the radio button for the message and choose **Details**.
- To view the individual versions of the message (as in transaction SXI_MONITOR), choose **Message Content**.
- You can also view referencing and referenced messages.
XI 3.0 RWB – End-to-End Monitoring/Configuration

XI Runtime Workbench

Configure

Monitor

Component Monitoring | Message Monitoring | End-to-End Monitoring | Performance Monitoring | Configuration
End-To-End Monitoring at a glance

X1 Runtime Workbench

Component Monitoring | Message Monitoring | End-to-End Monitoring | Performance Monitoring | Configuration

End-to-End Monitoring

Domain Monitoring: domain.00.iwdf9221.vm02

Graphical representation of process or instance flow

Overall process status

Errors Occurred

Statistics

Settings

Messages exist concerning process monitoring
Monitoring Activated Since: 30.01.2

Further Settings...

Status of monitoring tool itself
End-To-End Monitoring – Prerequisites

Activate the *Process Monitoring Infrastructure* Monitoring by setting respective configuration parameter in TC SXMB_ADM

**Integration Engine Configuration Data**

- **Global Configuration Data**
  - Role of Business System: Integration Server
  - Corresponding Integ. Server: http://wdf9221vm01:8000/sap/xi/engine/?type=entry
  - F1 Help available for corresponding Integration Server

- **Specific Configuration Data**
  - Category: MONITOR

**New Entries: Overview of Created Entries**

<table>
<thead>
<tr>
<th>Category</th>
<th>Parameters</th>
<th>Subparameter</th>
<th>Prefix</th>
<th>Current Value</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONITOR</td>
<td>PMI_MONITORING</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
End-To-End Monitoring - Configuration

After configuration, choose button “Save Configuration” to activate the End-To-End Monitoring

Select business system to be involved
Select level of monitoring
Configure as sending or receiving system
End-To-End Monitoring – Monitoring Status

Displays internal error messages derived from self-monitoring in CCMS

Frequency of updating process monitoring data

Deletes error messages; corresponding alerts in CCMS are completed

Starts update immediately
End-To-End Monitoring – Process Overview

Choose status symbol or attributes (e.g. warning, error, success) to display corresponding process instances

Error Group:
- Warning: 0
- Error: 0
- Success: 0

Process Instances:
- 1 instance is (still) available
- Process Instances: All

Status: BookingOrderRequest_Out
- Start: 02.02.2004 08:17:01
- Interface Name of the Sender: BookingOrderRequest_Out
- Message ID: B263DF3255B2
Choose message to switch to instance view providing tracking information
Performance Monitoring

Performance measurement during operation

Measured data:
- Throughput
- Latency ("processing time")

Selection and Aggregation by:
- XI component (Integration Server, Adapter Engine)
- Time range
- Message attributes: Sender, receiver, message type
### Performance Data

<table>
<thead>
<tr>
<th>Interval Start</th>
<th>End of Interval</th>
<th>Number</th>
<th>Size (Bytes)</th>
<th>Processing Time [s]</th>
<th>Rate [msg/h]</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>05.07.04 00:00:00</td>
<td>06.07.04 00:00:00</td>
<td>81</td>
<td>1,505</td>
<td>0.000</td>
<td>3.4</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>06.07.04 00:00:00</td>
<td>07.07.04 00:00:00</td>
<td>71</td>
<td>1,556</td>
<td>0.000</td>
<td>3.0</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>07.07.04 00:00:00</td>
<td>08.07.04 00:00:00</td>
<td>282</td>
<td>1,197</td>
<td>0.000</td>
<td>11.8</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>08.07.04 00:00:00</td>
<td>09.07.04 00:00:00</td>
<td>130</td>
<td>1,377</td>
<td>0.000</td>
<td>5.4</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>09.07.04 00:00:00</td>
<td>10.07.04 00:00:00</td>
<td>64</td>
<td>1,556</td>
<td>0.000</td>
<td>2.7</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>10.07.04 00:00:00</td>
<td>11.07.04 00:00:00</td>
<td>472</td>
<td>1,278</td>
<td>0.000</td>
<td>19.7</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>11.07.04 00:00:00</td>
<td>12.07.04 00:00:00</td>
<td>942</td>
<td>1,186</td>
<td>0.000</td>
<td>39.2</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>12.07.04 00:00:00</td>
<td>13.07.04 00:00:00</td>
<td>75</td>
<td>1,557</td>
<td>0.000</td>
<td>3.1</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>13.07.04 00:00:00</td>
<td>14.07.04 00:00:00</td>
<td>478</td>
<td>1,062</td>
<td>0.000</td>
<td>19.9</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>14.07.04 00:00:00</td>
<td>15.07.04 00:00:00</td>
<td>61</td>
<td>1,166</td>
<td>0.000</td>
<td>2.5</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>15.07.04 00:00:00</td>
<td>16.07.04 00:00:00</td>
<td>5</td>
<td>5,430</td>
<td>0.000</td>
<td>0.2</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>17.07.04 00:00:00</td>
<td>18.07.04 00:00:00</td>
<td>34</td>
<td>1,199</td>
<td>0.000</td>
<td>1.4</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>18.07.04 00:00:00</td>
<td>19.07.04 00:00:00</td>
<td>69</td>
<td>741</td>
<td>0.000</td>
<td>2.9</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>19.07.04 00:00:00</td>
<td>20.07.04 00:00:00</td>
<td>2</td>
<td>1,556</td>
<td>0.000</td>
<td>0.1</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>20.07.04 00:00:00</td>
<td>21.07.04 00:00:00</td>
<td>5</td>
<td>416</td>
<td>0.000</td>
<td>0.2</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
<tr>
<td>26.07.04 00:00:00</td>
<td>27.07.04 00:00:00</td>
<td>6</td>
<td>1,562</td>
<td>0.000</td>
<td>0.2</td>
<td>XlIntegrationServer/a0.iwdf5238/B</td>
</tr>
</tbody>
</table>
Alert-Configuration

Objective: Active Monitoring

CCMS Alerts + message-oriented alerts

Based on SAP’s Basis Alert Framework

Alerts propagated through E-Mail, SMS, …
Creating A New Alert Rule
Cache Monitoring enables you to display representations that are currently located in the runtime cache of the Integration Engine or Adapter Engine.

The are various cache types in Cache Monitoring:
- Value Mapping Groups
- Mapping Programs
- Software Component Versions
Monitoring in XI 3.0 - Summary

Monitoring via Tr: SXMB_MONITOR
Central access to monitoring using RWB
Component Monitoring
End-to-end Message Monitoring
Performance Measurement across distributed XI landscape
Integration with Basis Monitoring solutions:
  • CCMS
  • PMI
  • Alert Framework
Unified User Interface (UI)
Easy monitor configuration
XI 3.0 Resources

Service Marketplace  http://service.sap.com
- NetWeaver information: alias /netweaver
- XI general information: alias /xi
- XI Roadmap: alias /xi -> XI in Detail -> XI 3.0
- Ramp-Up: alias /rampup

SAP Developer Network  http://sdn.sap.com

- Follow SAP NetWeaver > SAP Exchange Infrastructure
No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft®, WINDOWS®, NT®, EXCEL®, Word®, PowerPoint® and SQL Server® are registered trademarks of Microsoft Corporation.

IBM®, DB2®, DB2 Universal Database, OS/2®, Parallel Sysplex®, MVS/ESA, AIX®, S/390®, AS/400®, OS/390®, OS/400®, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere®, Netfinity®, Tivoli®, Informix and Informix® Dynamic ServerTM are trademarks of IBM Corporation in USA and/or other countries.

ORACLE® is a registered trademark of ORACLE Corporation.

UNIX®, X/Open®, OSF/1®, and Motif® are registered trademarks of the Open Group.

Citrix®, the Citrix logo, ICA®, Program Neighborhood®, MetaFrame®, WinFrame®, VideoFrame®, MultiWin® and other Citrix product names referenced herein are trademarks of Citrix Systems, Inc.

HTML, DHTML, XML, XHTML are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

JAVA® is a registered trademark of Sun Microsystems, Inc.

JAVASCRIPT® is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MarketSet and Enterprise Buyer are jointly owned trademarks of SAP AG and Commerce One.

SAP, SAP Logo, R/2, R/3, mySAP, mySAP.com and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are trademarks of their respective companies.