near-Zero Downtime Maintenance for SAP Process Integration SP 07 (nZDM PI)

Martin Herrmann, Product Management   Cloud & Lifecycle Management

Customer
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Solution Characteristics

near-Zero Downtime Maintenance tool for SAP Process Integration dual-stack SP07 (nZDM PI)

Downtime minimization capabilities in Software Update Manager 1.0 SP 13 (SUM) for SAP Process Integration dual-stack
Downtime minimization for SAP Process Integration

nZDM tool for PI and capabilities in Software Update Manager (SUM)

**nZDM tool for PI:**
Apply support package on top of
- PI 7.10 dual-stack
- PI 7.11 dual-stack
- PI 7.30 dual-stack
- PI 7.31 dual-stack

**nZDM capabilities in SUM:**
- Upgrade from SAP PI 7.10, PI 7.11 to SAP PI 7.31
- Apply EhP1 on top of PI 7.30 DS

**Downtime Minimization in SUM**
- PI 7.0 dual-stack
- PI 7.10 dual-stack
- PI 7.11 dual-stack
- PI 7.30 dual-stack
- PI 7.31 dual-stack
Quick facts: near-Zero Downtime Maintenance tool for SAP PI

nZDM PI is a downtime optimized tool which is based on a copy of repository tables:

- Setup of update system (copy of non-transactional data)
- SP (hot fixes, patches) implementation on update system
- Copy updated tables to production system and switch production system

nZDM PI

- Is a specific tool for SP updates of PI dual stack systems (integration server)
- Is available for all SAP PI 7.10, 7.11, 7.30 and 7.31
- Availability of business critical functions during most time of the maintenance
- Business downtime is reduced to switch (app. 30 minutes)

SCN: DOC-33260
nZDM for SAP PI – Value & Benefit

- Business criticality:
  - All standard PI scenarios are fully available during business only mode
  - Impact for user minimized, downtime reduced to app. 30 minutes

- SP implementation project:
  - Potential Issues during SP implementation without affect to business downtime
  - Point in time for switching can be chosen freely
  - The overall business downtime is independent of number and size of the SPs and other content to be applied to the system
Example of productive usage of nZDM PI

<table>
<thead>
<tr>
<th>System</th>
<th>Duration</th>
<th>Minimization Method</th>
<th>Business Downtime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>3 days</td>
<td>nZDM PI</td>
<td>nZDM PI: 26 minutes net.</td>
</tr>
<tr>
<td>Development</td>
<td>2 days</td>
<td>-</td>
<td>Regular Patching: 10 hours (traditional SP procedure, plus 3 hours caused by problem solving)</td>
</tr>
<tr>
<td>Preproduction</td>
<td>3 days</td>
<td>nZDM PI</td>
<td>nZDM/PI: 34 minutes (incl. Clean up)</td>
</tr>
<tr>
<td>Production</td>
<td>3 days</td>
<td>nZDM PI</td>
<td>30 minutes (incl. Clean up)</td>
</tr>
</tbody>
</table>

SP Update was applied to the productive system with ~ 30 min downtime without any issues (95% less downtime)

- nZDM PI procedure worked on customer environment without any issues.
- nZDM/PI on de-central adapter engines (advanced adapter engine was switched before)
- Procedure could be executed mainly by customer’s basis administrators with SAP onsite support
- Procedure could be improved by customer input.
- Errors during traditional SP deployment process increased downtime by 3 hours. With nZDM/PI procedure any potential error resolution activities during SP deployment have no impact on business downtime.
- Normal PI housekeeping was executed on production system.
Process flow of the nZDM tool for PI in 6 steps

1- Export of Production System (non-transactional data)
2- Installation
3- SP Update
4- Export of Update System
5a-Uptime
5b-Downtime Switch (non-transactional data)
6- Clean Up
Benefits to use nZDM PI

nZDM/PI reduces the planned downtime for implementing SP stacks on a SAP NetWeaver Process Integration system to basically one system restart (~ 30 - 60 minutes)

Advantages for process and downtime:

- Availability of business critical functions during most of maintenance process duration
- Flexibility in downtime, the SP implementation is prepared in a separate system
- The overall business downtime is independent of number and size of the SPs
- The SP implementation procedure is nearly de-coupled from the system availability, potential issues during actual SP application do not affect the business downtime
Downtime minimization capabilities of SUM for SAP PI

Starting with SUM 1.0 SP12 or higher downtime minimization capabilities of SUM are available for upgrades of SAP NetWeaver PI

Downtime minimization capabilities for PI in SUM

- No change of existing upgrade scenario for PI in SUM
- Parallel operation of production system and shadow system
- Import of the substitution set into the shadow tables during production operation (extended shadow) enables the near-Zero Downtime Maintenance capabilities in uptime
How to get the downtime minimization capabilities for SAP NetWeaver PI in SUM?

How to activate the capabilities in SUM?
See note 1825209

Availability for PI
- Upgrade from SAP PI 7.10, PI 7.11 to SAP PI 7.31 / SAP PI 7.40
- Apply EhP1 on top of PI 7.30 dual stack

Supports DB
- Oracle
- IBM DB2 LUW
- Microsoft SQL
- SAP MaxDB
- SAP ASE

Downtime minimization capabilities of SUM are available in the advanced pre-configuration mode.
References

Link to the Upgrade Master Guide of SAP NetWeaver Process Integration 7.31:
- Upgrade Master Guide - SAP Enhancement Package 1 for NetWeaver 7.3

Link to the Upgrade Guide of Software Update Manager (SUM) for SAP PI upgrade (dual stack)
- Update of SAP Systems Using Software Update Manager 1.0 SP12 Link update required
A tool-guided maintenance process

near-Zero Downtime Maintenance tool for SAP NetWeaver Process Integration (nZDM/PI)

See also SCN for further news: http://scn.sap.com/docs/DOC-33260
High level flow of nZDM for PI

<table>
<thead>
<tr>
<th>time</th>
<th>Production System</th>
<th>Update System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal production</td>
<td>• No restrictions</td>
<td>Copied Production System</td>
</tr>
<tr>
<td>Business Only Mode</td>
<td>• Only allow PI processing (all scenarios)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No non-PI change operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No config changes/design time changes</td>
<td></td>
</tr>
<tr>
<td>Import + prepare switch</td>
<td>• Check consistency</td>
<td></td>
</tr>
<tr>
<td>System downtime (technical)</td>
<td>• Manual system shutdown</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Switch system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Manual system startup</td>
<td></td>
</tr>
<tr>
<td>Cleanup</td>
<td>• Unrestricted production</td>
<td></td>
</tr>
</tbody>
</table>

- Copy non-transactional data (DB tables not containing PI processing data) of productive system
- Copy back updated non-transactional data (in shadow tables)

- Installation
- Applying Support Package
  • Apply SP with JSPM/SPAM*
  • PI processing data is not affected
- Export of the Update System

* Will be changed to SUM in future
nZDM/PI tool: a guided maintenance process (1/5)
General principle of user guidance

Utilized in an automated way controlled by SAPinst

Procedure is organized by steps

Each nZDM/PI step contains:

- Choose option screen
- Define parameters section
- Summary screen to check/correct parameter settings
- Execution phase
- Completion status screen

Manual user interactions are triggered and monitored by the nZDM PI tool
nZDM/PI tool: a guided maintenance process (2/5)
General principle of user guidance

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nZDM for PI tool: a guided maintenance process (4/5)
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nZDM for PI tool: a guided maintenance process (5/5)
General Principle of User Guidance

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Each nZDM/PI step contains:
- Choose option screen
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- Completion status screen

Manual user interactions are triggered and monitored by the nZDM for PI tool
Technical Details

Near-Zero Downtime Maintenance tool for SAP Process Integration (nZDM/PI)
nZDM PI tool: availability and system requirements

### Availability
- General availability since for SL Toolset SP6
- Supported DB-/OS-Platforms according to PAM: 1)
  - SAP MaxDB on Windows, Unix
  - MS SQL on Windows
  - Oracle on Windows, Unix
  - IBM DB2 on LUW on Windows, Unix
  - SAP ASE

### Required additional Hardware
- A separate update host for the nZDM PI Procedure with same OS version as the CI host of the concerned system
- Memory & local disk space requirements for the update host:
  - Memory as required for a small SAP NetWeaver AS ABAP & Java system (8 GB)
  - 20 GB disc space for swap files
  - 10 GB disc space for SAP & DB software
  - 50 GB disc space for the database
- Additional local disc space on the DB host of the production system:
  - ca. 40 GB space in the Database for the shadow tables of the nZDM PI procedure

1) Combinations in detail can be found in note 1435235
Data classification for nZDM PI procedure

**Production System - data access**

- **Permanent read/write**
  - Non-TD tables:
    - Temporary data:
      - Buffered/generated data, updated automatically
      - Temp. data, obsolete after syst. restart
  - Default category:
    - Configuration/design time data
    - Repository data
    - Unused tables
  - Typically read only:
    - Write accesses from on-the-fly generations in some cases

- **Temporary data**:
  - PI messages, Workflow, IDOC
  - ARFC
  - Monitoring, Alerting
  - Spool, Batch

**Update System - data access**

- **Typically no access**:
  - Read/write access in some neglectable cases (e.g. spool/batch)

- **Permanent read/write**
  - Upgrade exchange data:
    - Central ABAP repository data
    - Switch technology

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nZDM PI tool: constraints

Solution is designed for dual stack PI only

During runtime of nZDM PI, the production system must be set to

- ‘business-only’ mode

Production restrictions during update (business only mode)

- No configuration and design time changes
- No transports/deployments
- No changes of user master data, authorizations and user roles
  - Password changes and locking/unlocking users is possible
- Recommended: Lock dialog users, which are not needed for running PI scenarios
- De-Schedule background jobs and other activities, which are not essential
- Deactivate Process Monitoring Infrastructure (PMI)
Note 1435235: additional info for nZDM PI

Additional info related to

- **nZDM procedure**
  - Solutions/Explanation of potential issues especially DB related

- **Critical changes**
  - At the end of uptime part of Step 5 (shadow import into the production system) nZDM-PI checks the database tables to ensure consistency. Check the already known events

- **Follow up**
  - Important notes for central configuration wizard (PI-CTC)

- **Restrictions**
  - See restrictions related to NW 7.31
Procedure reset

A procedure reset is possible as long as step 5b (downtime and switch) of the nZDM PI procedure has not yet started

- **Terminate procedure**
  - In case of critical changes
  - In other cases

- **Reset of the procedure**

- **Starting SAPinst for undoing nZDM PI changes on the SAP system**
  - Including some manual actions
Links
Near-Zero Downtime Maintenance tool for SAP Process Integration (nZDM PI)
Key links for more information

Key links SCN

- Software Logistics
  http://scn.sap.com/community/it-management/alm/software-logistics/

- Business Continuity Community
  http://scn.sap.com/community/business-continuity

- Road maps on SAP Service Marketplace
  http://service.sap.com/roadmap

SCN Articles

- Minimizing planned downtime during maintenance
  http://scn.sap.com/docs/DOC-62584

- Near-Zero Downtime Management for SAP Process Integration (nZDM PI) available on Service Marketplace
  http://scn.sap.com/docs/DOC-33260

- SAP Process Integration and Near Zero Downtime Tool - An How-to Guide
  http://scn.sap.com/docs/DOC-47561

Service Marketplace

- Software Logistics Toolset (User Guide nZDM PI)
  http://service.sap.com/sltoolset
SAP Idea Place
Influence the Future of the Software Update Manager

• SAP Idea Place is your public channel to participate in innovation at SAP
• Enables you to submit ideas, collaborate on and vote for ideas how to improve the Software Update Manager, and connect you with the team that builds the SUM.
• Complements traditional channels of interaction and feedback at SAP

• Contribute under http://ideas.sap.com → Browse Active Idea Sessions → Stand-alone Idea Session → Software Logistics → Category Maintenance and upgrade management
Thank You!

Contact information:

Martin Herrmann
email: martin.herrmann@sap.com