SAP Change Control - One Integrated Process to Manage Software Solution Deployments

SAP AG
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Orchestrate Your Solution with SAP Solution Manager

Run SAP like a Factory

Application Lifecycle Management

Incident, Problem & Request Management

Portfolio & Project Management

Business Process Operations

Solution Documentation & Implementation

Change, Test & Release Management

Application Operations

Integration Validation

Maintenance Optimization & Security
Agenda

1. How to mitigate challenges of application change management?
2. Manage transports with one tool
3. Analyze change and transport execution
4. Control transports via SAP Solution Manager
5. Establish a single quality process across technology stacks
6. Integrate IT Service Management and Change Control processes
How to mitigate challenges of application change management?
Most typical challenges of software solution change management

- Distributed and unclear responsibilities
- Heterogeneous and non integrated change management procedures (e.g. by component & technology )
- Insufficient testing procedures and testing automation
- Insufficient signoff procedures and quality gate management
- Ability to control quality (e.g. concurrent maintenance and project activity)

How to bring all operational units across all organizations to one integrated and consistent quality process?
Changes happen constantly along the whole life-cycle from implementation to maintenance

<table>
<thead>
<tr>
<th>Year</th>
<th>Implementation and Enhancements</th>
<th>Maintenance</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Market Campaign</td>
<td>Improvements / Roll-outs</td>
<td>SAP System</td>
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<tr>
<td></td>
<td>Complaint Management</td>
<td>Incident</td>
<td>OS / DB</td>
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<td></td>
<td>Enterprise Warehouse</td>
<td>SP/EhP</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Corrections</td>
<td>Installation / Fix / Parameter</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td>Periodically</td>
<td></td>
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</table>
Change Control Management
The whole is more than the sum of its parts
Manage transports with one tool?
Change Control Management
Change and Transport system (SAP / Non SAP)
Enhanced CTS – One Transport Tool for Multiple Content Types

Multiple Development Workbenches

Multiple Types of Backends

- SAP NetWeaver AS ABAP
- ESR/PI/ XI System on SAP NetWeaver (Dual Stack)
- BOE content on SAP or Non-SAP Application Server
- HANA on SAP In-Memory database

One central Transport Tool

Enhanced CTS
Integrating your Application with CTS+ - where to do what

D-System

2. Export Tool

Q-System

5. Import / Deploy Tool

3. Attach to Transport Request

4. Automatic import

6. Provide Import Info (logs)

1. Transport Request

Transport

Start Import

Transport

One central transport tool

…

…

CTS+
Use CTS+ for all applications

Integration Options

- SAP provides a close coupling integration for several products
- Customers can use a file transport and profit from monitoring and tracking capabilities of CTS
- Additionally customers can integrate their own applications via script or API

Systems of Company XY

- Portal
- PI
- HANA
- BusinessObjects
- My own applications
Accelerated innovation via CTS Plug-In in SL Toolset

Why should I use it?

- To be up to date with the newest functionality of CTS+
  - Enhanced functionalities planned to be shipped quarterly
  - Consume new enhancements independent from other feature deliveries of SAP Solution Manager

Latest innovations

- CTS+ for SAP BusinessObjects Lifecycle management console
- CTS+ for SAP BusinessObjects Planning and Consolidation
- CTS+ for your own applications
  - Use ABAP Web Services for the Exports side and
  - Script or EJB for the import side
CTS Plug-In in SL Toolset

Availability

- SAP Solution Manager 7.1
- SAP Solution Manager 7.01 SP 25 (SL Toolset 1.0 SP 2)

How to do enable?

- Install CTS Plug-In from SL Toolset
- And update it regularly – always use the newest available SP
- http://service.sap.com/sltoolset
Analyze change and transport execution
Change Control Management
Transport Analytics / Configuration Validation

Change and Transport system (SAP / Non SAP)

Transport Analytics / Configuration Validation
Transport Analytics & Configuration Validation
From Analysis to Reporting & Optimization

Transport Execution Analysis
Analysis performed on SAP Business Suite and SAP BW

Indicators for

Transport Process Stabilization

Emergency Change
- Identify transports which were created directly in production
- Identify transports with short transition time

Failed Change
- Import Errors in production
- Transport sequence errors
- Frequently changed objects

Transport Process Improvement

Transport Statistics
- Change Volume per System
- Change Volume per Day
- Time Profiles for Imports into Production

Transport Backlog
- Unused open transport requests in the development system
- Parked transport requests in the productive import queues

Transport Process Reporting

Change Diagnostics
- Software Release, Transports and Parameter (SAP Application & Kernel, Database, Operating System, Security)

Configuration Validation
- Analyze and compare transports with existing systems or targets
### Typical questions answered by the SAP Transport Execution Analysis

- How many transport requests caused errors in the production environment?
- How many emergency changes have been executed?
- What are the transport backlogs in the development and production system?
- How consistent is my transport landscape?

### 1.2 Action Plan

<table>
<thead>
<tr>
<th>Number</th>
<th>Priority</th>
<th>Issue</th>
<th>Recommended action</th>
<th>When to do</th>
<th>See section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very High</td>
<td>There are SAP notes with an inconsistent implementation status in your DEV, QAS, and PRD system.</td>
<td>Check the SAP notes with an inconsistent implementation status. Download and implement the latest versions in DEV and transport them to all systems in the landscape.</td>
<td>Immediately</td>
<td>3.4</td>
</tr>
<tr>
<td>2</td>
<td>High</td>
<td>Many transport errors have been detected during imports into production.</td>
<td>Transport errors should be detected when data is imported to the test systems and fixed using a correction transport. Make sure that your test systems are in a good state and that all transport requests are imported in the correct order.</td>
<td>Next few weeks</td>
<td>5.7</td>
</tr>
<tr>
<td>3</td>
<td>High</td>
<td>We have detected several transport sequence errors in the analysis period.</td>
<td>Analyze the transport sequence errors and try to avoid them in the future. All transport requests should be imported in the same sequence as they were exported from the development system. Make sure by organizational means that the transports are released and transported in the right sequence. Transports should only be released by lead developers and after a stringent approval process.</td>
<td>Next few weeks</td>
<td>7.4</td>
</tr>
<tr>
<td>4</td>
<td>Medium</td>
<td>Many transport requests spend less than one day in the quality assurance system.</td>
<td>Introduce mandatory testing procedures. Make sure that changes are tested sufficiently before they are moved into production.</td>
<td>Next few weeks</td>
<td>6.1</td>
</tr>
</tbody>
</table>

**Proactive guidelines are given to reduce the transport related errors in the future**
Guided Self Service

Wizard based service execution by yourself

- Easy to Use
- No configuration needed
- No impact on the managed systems
- Can be used repetitively

**Customer Quote:**
“During the transport-execution analysis service, a continuous quality check through SAP Enterprise Support, we were provided with a complete detailed analysis of all modifications, custom objects, software maintenance, and transport landscape settings, which were checked against SAP Best Practices. Through this service, we were able to gain an overview of our current practices, and improve the processes where necessary, to ensure software change management can be done effectively, and with minimum disruption of normal operations.

*Brent Steensma, SAP Regional and Global Systems Manager, **Anglo American**
Change Diagnostics Capabilities

Questions answered by E2E Change Analysis

- Which changes happened recently?
- Helpful in root cause analysis

Questions answered by Configuration Validation

- How consistent is my transport landscape?
- Is a template configuration applied in all production systems?

BW based queries allow a regular reporting of transport execution KPIs
For certain KPIs predefined queries exist in the report directory
Change Diagnostics is more than Transport Reporting

Content Overview (for ABAP stacks)

ABAP Instance Parameter
Database Configuration
Operating System Configuration
Business Warehouse Configuration
RFC Destinations Configuration
System Change Option Configuration
Security Configuration
Critical user authorizations
Software Configuration
The Idea behind Configuration Validation

What is Configuration Validation?

Configuration validation is a reporting to understand how homogeneous the configuration of systems is. It uses centrally stored configuration data in Solution Manager to do a validation of a large number of systems using a sub set of the collected configuration data.

Typical Questions are:

- All systems on a certain OS level or DB level?
- Template configuration (SAP or DB parameter) applied on all systems?
- No kernel older than 6 month on all systems?
- Security policy settings applied? Security defaults in place?
- Have certain transports arrived in the systems?
Control transports via SAP Solution Manager
Change Control Management
Transport Management / Retrofit
Transport Management with SAP Solution Manager

Manage your transports with a central infrastructure

Manage your landscape and all transport activities via Solution Manager

- Create, Release and Import Transport Requests
- Access to all systems of project landscape (also multiple tracks are supported, such as ERP and BW)
- Synchronize your transport activities
- Manage the phases of your project
Transport Management with SAP Solution Manager
Central access to Transport Information

Logging
- All activities are logged
- Access detailed information
- Full Traceability on Transport Activities

Transport Analysis
- TMS Alert Viewer
- Import Monitor
- Easy in depth analysis and error resolution

Infrastructure for further Change Control Tools
- Change Request Management Workflows
- Quality Gate Management
Dual Landscape Synchronization with Retrofit
A 3-Step Approach

- Work List of all transports to be synchronized (down to object level)
- Tool based
- Minimized risk through integration in the maintenance project and changes
- Logging of the changes
- Less manual effort for double maintenance (conflict and sequence visibility)

1. Select Transport
2. Choose Method (based on conflict detection)
3. Retrofit
   - Automatic
   - Tool Supported (Conflict Case)
   - Manual (Conflict Case)
Establish a single quality process across technology stacks
Change Control Management
Quality Gate Management

- Quality Gate Management
- Transport Management
- Change and Transport system (SAP / Non SAP)
- Transport Analytics / Configuration Validation
- Retrofit
Introducing Quality Gate Management

- Provides an integrated and consistent quality process for all operational units across all organizations
- 100% transparency of all changes
- A central transport mechanism and change control system to manage changes across technology stacks and application components
- Quality Gate Maintenance with SoD (Segregation of Duties)
- One central build, test, and deployment plan for all projects including their Quality Gates
- Build in SAP Transport Best Practices
- One source of truth to avoid and manage risks of application changes in a project
- Integration of every development workbench into the central transport and change control system
Release and Deployment Management
One central build, test, and deployment plan

<table>
<thead>
<tr>
<th>Major Release</th>
<th>Minor Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport Cycle every</td>
<td>3-6 months</td>
</tr>
<tr>
<td>Change Categories</td>
<td>All types of changes including invasive changes</td>
</tr>
<tr>
<td>Priorities</td>
<td>Normal</td>
</tr>
<tr>
<td>Test focus</td>
<td>Complete test scope</td>
</tr>
<tr>
<td>Examples</td>
<td>New (major) functions, Support / Enhancement Packages, Upgrades</td>
</tr>
</tbody>
</table>
Quality Gate Management – How it looks

- One central build, test, and deployment plan for all projects including their Quality Gates
- Quality Gate Maintenance with SoD (Segregation of Duties)
- Guided Self Services to assess the risk and document the Quality Gate Criteria
- Central transport mechanism and change control
- Manage changes across the technology framework and application
- Every development workbench is integrated
One source of truth
Avoid and manage risks of application changes in a project

- Identify the relationships and dependencies between different changes and associating changes with business requirements.
- Replace any spreadsheets used to track the application of changes to individual SAP systems within a central location.
- Risk avoidance and Risk reduction
- Tracking location of changes and the changes for your project which are affected by these errors.
- The quality manager can react to critical situations appropriately, and assess the project risk.
## Being Flexible with Changes
Automatic Reassignment of Changes in Maintenance Projects

Unfinished Changes are automatically taken over to the next maintenance cycle

- Leverage automatic reassignment
- QGM features reassignment on demand between projects

### Diagram

![Diagram of Maintenance Project with cycles 1, 2, and 3]
Integrate IT Service Management and Change Control processes
Change Control Management
Change Request Management

- Change Request Management
- Quality Gate Management
- Transport Management
- Retrofit
- Change and Transport system (SAP / Non SAP)
- Transport Analytics / Configuration Validation
Introducing Change Request Management

- Provides full control & transparency over change execution
- Delivers predefined change management processes & workflows
- Supports all types of changes (SAP, non SAP, technical & non-technical)
- Incorporates SAP’s best practices regarding transport management
- Provides the link between business requirements and the underlying technical implementation
- Fully integrated transport mechanism and change control system to manage changes across technology stacks and application components
- Is highly integrated in other SAP Solution Manager areas and processes
Integrated IT Service Management and Application Lifecycle Management processes with SAP Solution Manager 7.1
Change Request Management embedded in Application Lifecycle Management

ALM Capabilities

- IT Service Management
- Quality Gate Management
- System Recommendations
- Project & Solution Directories
- Test Management
- Job Scheduling Management

Change Request Management

Technical Infrastructure

- Transport Management System
- Enhanced Change & Transport System

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One central process to control change execution

Request for Change
- Requester
- Change Manager
- Approver
- Change Manager
- Request for Change
- Process Request
- Approve / Reject Request
- Handover to Execution
- Notification via Workflow

Change Transaction
- Developer & IT Staff
- Tester
- Requester
- Change Transaction
- Execute & document Change
- Test Change
- Confirm Change

Change Request Management supports all types of changes
- SAP and non-SAP Changes
- Technical & non Technical Changes
- System Landscapes
- IT Assets
- Admin Tasks
Change Request Management Features

Search & Monitoring

- Huge set of search criteria to create personalized queries
- Export and graphical display of search results
- Common search infrastructure for all transaction types

Change Documentation

- Separate change request and change execution process
- Delivered with predefined workflows and processes for easy adaption
- Integrated in technical infrastructure

Manage Project Phases

- Central management of project phases via SAP Solution Manager
- Control transport activities via change request management
Change Request Management Functionalities

Request for Change Scope
- Free scope definition of requests for change: multiple change transactions

Enhanced Approval Process
- Support of multiple approval procedures
- Easy customizable and adaptable

Transport Management
- Access to all relevant transport management activities
- Fully integrated in change transaction process

Test Management
- Assign Testplan and Testpackages
Supporting all types of changes

**Normal Change**
- Daily maintenance
- Implementation Projects
- Depending on project release-cycle
- Integrated with SAP Transport Management

**Urgent Change**
- Emergency Changes
- Optimized for fast processing
- Independent from project release cycle
- Integrated with SAP Transport Management

**Admin Change**
- Documentation only
- Administrative activities
- Related to system landscape of change project
- Not integrated in SAP Transport Management

**General Change**
- Changes on IT Assets
  - Mobile Devices
  - Printer
  - …
- Not mandatory related to any change project

**Defect Correction**
- Used during test-phase of implementation or maintenance projects
- Document test defects and their correction
- Integrated in SAP Transport Management
Summary
Change Control Management
The whole is more than the sum of its parts
### Change Control Management

#### Key takeaways

<table>
<thead>
<tr>
<th></th>
<th><strong>Transport Analytics / Configuration Validation</strong></th>
<th><strong>Change Request Management</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Guided Self Service analysis the transport process to improve quality, reliability and throughput</td>
<td>• Integrated IT Service Management and Application Lifecycle Management</td>
</tr>
<tr>
<td></td>
<td>• Change Diagnostics and Configuration Validation reduce the manual work of regular Transport Execution Reporting</td>
<td>• Change Request supports multiple Change Transactions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provides full control &amp; transparency over change execution</td>
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<td>• Delivers predefined change management processes &amp; workflows</td>
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</tbody>
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<tr>
<th></th>
<th><strong>Change and Transport Management</strong></th>
<th><strong>Quality Gate Management</strong></th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>• One Transport Tool for Multiple Content Types</td>
<td>• One central build, test, and deployment plan</td>
</tr>
<tr>
<td></td>
<td>• Integration of several development environments</td>
<td>• Build in central Change and Transport Best Practices</td>
</tr>
<tr>
<td></td>
<td>• Open API's to integrate customer specific applications</td>
<td>• Guided Self Services to assess the risk and document the Quality Gate Criteria</td>
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<thead>
<tr>
<th></th>
<th><strong>Transport Management / Retrofit</strong></th>
<th><strong>Change and Transport Management</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>• Create, Release and Import Transport Requests within Solution Manager</td>
<td>• Integrated IT Service Management and Application Lifecycle Management</td>
</tr>
<tr>
<td></td>
<td>• Transport Management based on project and phases</td>
<td>• Change Request supports multiple Change Transactions</td>
</tr>
<tr>
<td></td>
<td>• Retrofit improves quality in running phased Transport Landscape</td>
<td>• Provides full control &amp; transparency over change execution</td>
</tr>
<tr>
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<td>• Less manual effort for double maintenance</td>
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Thank You!