SAP Solution Manager 7.2 – Test Suite
Business Process Change Analyzer (BPCA)

Solution Management, DBS, SAP SE
February 2018
Agenda

1. SAP Solution Manager 7.2 – Test Suite Overview

2. SAP Solution Manager 7.2 Test Suite – BPCA
   - BPCA Overview and Use Cases
   - BPCA selected customers
   - BPCA Analysis and Test Scope Optimization
   - BPCA Example
   - BPCA for SAP S/4HANA on-premise
   - BPCA handling of Process Variants
   - BPCA Prerequisites

3. More Information

4. Appendix
SAP Solution Manager 7.2 Test Suite
SAP Solution Manager - Test Suite
A full-blown application for manual / automated testing and change impact analysis

**Functional Scope**
- Manual and automated functional tests
- Automated change impact analysis of maintenance activities for test scope optimization of regression tests
- New requirements triggering semi-automated test planning for user acceptance tests and functional integration tests
- High degree of test automation possible
- Supports agile development approach within requirements-to-deploy process through Focused Build for SAP Solution Manager
- Seemlessly integrated with SAP Solution Manager Process Management, Solution Documentation, ChaRM, ITSM, …

**SAP and non-SAP Solutions**
- SAP Business Suite
- SAP S/4HANA (On-Premise, Cloud Edition)
- Non-SAP applications (On-Premise, Cloud)

**Integration**
- Test system refresh
- Partner: test data identification, validation and provisioning
- Partner: test automation tools

**Single Source of Truth**
- All related information in 1 central SAP Solution Manager system
- No complex data replications

The Test Suite of SAP Solution Manager 7.2 is a comprehensive test solution fitting the needs for the vast majority of SAP customers
SAP Solution Manager – Test Suite
Capabilities

Solution Documentation
- Executable Library
- Process Step Library
- Business Processes

Change Impact Analysis
- Scope and Effort Analyzer (SEA)

Test Planning
- Test Cases
  - Manual Tests
  - Automated Tests

Test Execution
- Manual Test Execution
- Automated Test Execution
- Defect Management

Test Suite Analytics
- Gap reports
- Status reports
- Progress reports
- Dashboard

Solution Documentation

Test scope estimation before upgrade

Test scope optimization during change events (fix, enhance, innovate, upgrade)

Test Execution and Analytics

Test Data
- SAP TDMS
  - Lean test system setup and refresh
- Test Data Container (TDC)
  - Test data storage for manual and automated tests
  - DeceSoft DTD (test data identification, validation and provisioning)

Test Automation Framework
- SAP Test Suite - CBTA (Component Based Test Automation)
  - MicroFocus UFT
  - WorkSoft Certify
  - Tricentis Tosca
  - other 3rd party

Supported UI technologies by CBTA: SAPGUI, WD-ABAP, CRM Web-Client, SAPUI5, Fiori, …
Partner test tools: SAP and non-SAP UI technologies

Scope and Effort Analyzer (SEA)
SAP Solution Manager - Test Suite

Test Suite for SAP S/4HANA

- SAP Solution Manager 7.2 – Process Management will be used to import SAP Best Practices and document business processes used in S/4HANA (On-premise or Cloud edition)
- SAP Solution Manager 7.2 – Test Suite will be used for manual and automated tests of implemented or changed business processes for all functional test types

Business Processes are acticated from SAP Best Practices and / or customer defined process implementation
Business Processes are based on SAP standard software and optional custom code, modifications and integrated partner apps

Business Processes are activated from SAP Best Practices plus limited extension options
Business Processes are based on SAP standard software and optional extensions using white-listed APIs and partner apps
## Most Common Vendors for SAP-Centric Test Management

<table>
<thead>
<tr>
<th></th>
<th>SAP Solution Manager</th>
<th>Micro Focus*</th>
<th>Other vendors</th>
</tr>
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<tbody>
<tr>
<td><strong>Functional Test Organization</strong></td>
<td>Test Suite</td>
<td>Application Lifecycle Management (ALM)</td>
<td>Tricentis Tosca Testsuite</td>
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<td>Component-based Test Automation (CBTA)</td>
<td>Unified Functional Testing (UFT)</td>
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<td><strong>Test Data Provisioning</strong></td>
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<td>DeceSoft Test Data (DTD)</td>
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<td><strong>Load and Performance Tests</strong></td>
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<td>LoadRunner</td>
<td>Worksoft Performance</td>
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<td><strong>Security Tests</strong></td>
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<td>Fortify</td>
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</tr>
</tbody>
</table>

### Legend
- **SAP Solution Manager and complementing tools**
- **Alternative products with overlapping functionality to SAP Solution Manager (requires additional integration and on-going data replication)**

* Former software division of Hewlett Packard Enterprise is now part of Micro Focus
SAP Solution Manager 7.2 – Test Suite
Delivers all you need

✓ **Tests for SAP and non-SAP**: covers SAP Business Suite, S/4HANA, Concur, Ariba, SuccessFactors, … and non-SAP solutions

✓ **On-premise, Cloud, Hybrid**: Supports functional tests for on premise, cloud and hybrid solutions

✓ **All under one Roof**: no integration setup and ongoing data replication required

✓ **Integration**: seamless integrates with project management, process management, change and release management, defect and incident management, custom code management

✓ **Requirements to Deploy**: Supports waterfall and agile development approaches, including Enterprise DevOps

✓ **Manual Tests**: Easy to use manual tests for business users

✓ **Automated Tests**: for all SAP and non-SAP processes – certified integration of market-leading partner test tools for test planning, execution and reporting

✓ **Test Data**: semi-automatically identify, validate and provide suitable test data for all tests

✓ **Change Impact Analysis**: reduce test scope based on software changes and smart calculations

✓ **Test Planning**: automatically proposes test plan fitting the needs of the upcoming test cycle

✓ **Analytics**: automatically provides full transparency of test status and test progress for all involved parties
BPCA Overview and Use Cases
Change Impact Analysis with SAP Solution Manager 7.2

Business Process Change Analyzer (BPCA)

- Change impact analysis for business processes resulting from software change events
- Use cases
  - Impact analysis for Customizing and Custom Code changes, planned SP and EHP deployments
  - Impact analysis for SAP S/4HANA OP release upgrade
  - Test Scope Optimization and automated Test Plan generation
- Benefits:
  - Precise impact analysis and significant test scope reduction

Identify your test scope and significantly reduce your test effort for regression tests with BPCA of SAP Solution Manager 7.2
Change Impact Analysis using BPCA by Change Pace

**Fix**
- **Change event:** Break-fix / Standard Change
- **Magnitude of change:** rather small
- **Typical change pace:** daily - months
- **Change example:** monthly maintenance activities including changes of custom code and customizing objects

**Enhance**
- **Change event:** enhancements using minor release
- **Magnitude of change:** moderate
- **Typical change pace:** weeks - months
- **Change example:** small functional enhancements requested by Business Users

**Innovate**
- **Change event:** innovation and transformation projects using major release
- **Magnitude of change:** large
- **Typical change pace:** months
- **Change example:** significantly changed or new business processes, EHP deployment

BPCA identifies impacted business processes and significantly reduces your test effort for regression tests
BPCA Customer Examples
BPCA – Customer Examples

Customer industry: Footwear
Customer industry: Consumer Products
Customer industry: Luxury watches
Customer industry: Government
Customer industry: Pharmaceuticals
Customer industry: Oil & Gas
Customer industry: Farming
Customer industry: Mining
Customer industry: Food
Customer industry: Transportation / Railway
Customer industry: Transportation / Railway
Customer industry: Food
Customer industry: Government
Customer industry: Pharmaceuticals
Customer industry: Oil & Gas
Customer industry: Farming
Customer industry: Mining
Customer industry: Food
Customer industry: Transportation / Railway
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Customer industry: Food
Customer industry: Government
Customer industry: Pharmaceuticals
Customer industry: Oil & Gas
Customer industry: Farming
Customer industry: Mining
Customer industry: Food
Customer industry: Transportation / Railway
Customer industry: Transportation / Railway
Customer industry: Food
Customer industry: Government
Customer industry: Pharmaceuticals
Customer industry: Oil & Gas
Customer industry: Farming
# BPCA Implementation at Landmark - Australia

## Overview
- Australia’s largest distributor of fertilizer and crop inputs with $15B revenue worldwide
- Upgrade the SAP landscape to current support pack and enhancement pack levels – timeline 4.5 months

## BPCA Preparation
- Used Reverse Business Process Documentation to document core business processes, related technical objects
- TBOM creation by 43 key users in 1 week

## Use Cases
- Analysis of EHP upgrade
- Risk based test scope optimization with 90% test object coverage
- Protected priority 1 business scenarios

## Benefits
- Project deployed on time and on budget
- A 30% reduction in testing time ~ approx 1 FTE saving of about A$100k per year
- Only 12 defects encountered in production, all severity 4
“By automating around 270 of our critical transactions (less than 10 per cent of our total transaction library) I have a tool that gives me a sanity check of our next release at the click of the button, and in just under an hour. When you pair that up with the Business Process Change Analyzer, you can then focus on only the elements of your system that need to be tested.”

Jamie Newman, Landmark’s SAP Services Manager
BPCA Implementation at Large Footwear Manufacturer in US

Overview
- Large footwear manufacturer in US
- Global operation across 150 countries
- HCM implementation in 50 countries with US payroll with Legal Packages upgrades every quarter

BPCA Preparation
- Blueprint creation based on HP Quality Center structure
- Automatic TBOM creation using SAP TAO

Use Cases
- HR Legal Support Package analysis
- Test scope optimization based on business experts feedback
- Quarterly execution of support package impact analysis

Benefits
- Reduction in test scope from 2,400 to 76 test scripts
- Significant less test preparation effort
- Greater visibility into the impact of Legal Change and Support Packages
Only Test what Matters
Test Scope Optimization with BPCA

Customer Case:
- Customer applies HCM Legal Change Packs quarterly
- Testing window is limited to 2 to 3 weeks
- Today 2500 scripts are used for regression testing

Strategy:
Use Business Process Change Analyzer to first focus testing on the changed business processes and then to reduce efforts by using risk-based test optimization approach.

Result of Test Scope Optimization
- 100% test scope - 1825 scripts “in scope”
- 99% test scope - 76 scripts “in scope”
- 90% test scope - 38 scripts “in scope”
- Customer chose 99% test coverage with no impact to production

AFS Customer Success: Down to 3% of regression tests with test scope optimization!
BPCA at BNSF / US

BNSF Railway

Subsidiary of Berkshire Hathaway Inc. (NYSE:BRK), BNSF Railway operates one of the largest railroad networks in North America, with over 32,000 route miles in 28 states and two Canadian provinces.

BNSF is one of the top transporters of consumer goods, grain, industrial goods, and low-sulfur coal that help feed, clothe, supply and power America.

BNSF has developed one of the most technologically advanced and efficient railroads in the industry.

We are working continuously to improve the value of the safety, service, energy, and environmental benefits we provide to our customers and the communities we serve.

Source: BNSF presentation at SAP TechEd 2015
BPCA at BNSF / US

Key Testing Statistics - BPCA

- Accurate identification of objects impacted due to planned releases
- Risk-based, optimized test scope coverage
- 90% TBOM coverage of BNSF Business processes
- Over 50% Reduction in Test planning and Test Execution effort.

Source: BNSF presentation at SAP TechEd 2015
BPCA - Benefits

Precise Insight
Identification of critical business processes affected by planned change events

Improved handling of change events
Change impact details to change management team to decide on SP’s, EhP’s or custom triggered changes for SAP production systems

Risk based test planning
Recommendation for regression tests with optimized scope
BPCA at BNSF / US

RETURN ON INVESTMENT

50% reduction in custom code modification effort

60% reduction in test execution effort

70% reduction in test scope

90% elimination of Manual analysis

95% reduction in transport analysis for test scope coverage (reduced from 4 hrs to 20 Mins)

99% test coverage for all the releases

Source: BNSF presentation at SAP TechEd 2015
BPCA Analysis and Test Scope Optimization
BPCA Create Analysis

BPCA Selection Screen

- Select type of software change
- Specify change details
- Select Solution, Branch and View / Scope
- Describe impact analysis
BPCA
Selection Screen: Analysis Impact Analysis Types (1)

Software changes due to SAP S/4HANA on-premise Release Upgrade, e.g. between your current Release SAP S/4HANA 1709 and new Release SAP S/4HANA 1809

- SAP S/4HANA Release Upgrade
- Support Packages and Support Package Stacks
- Enhancement Packages
- Planned Business Function Activation
- Transport Requests
- Object List
- Change Transaction

Software changes due to SP or EHP deployment

Calculate impact from planned Business Function deployment, before BF is switched on Business Processes, Process Steps and Executables
BPCA
Selection Screen: Analysis Impact Analysis Types (2)

Identification of software changes triggered by 1-n Transports

Simulation of potential impact on BP, PS, Executables caused by planned software, e.g. extension of an important table, changes to a class or method, ... This supports roles like PMO to assess change requests.

Software changes collected by ChaRM entities, such as Change Cycles, RFCs, ITRs and Change Documents. These ChaRM entities are used to collect the assigned Transports.

1. Select Impact Analysis Type
- SAP S/4HANA Release Upgrade
- Support Packages and Support Package Stacks
- Enhancement Packages
- Planned Business Function Activation
- Transport Requests
- Object List
- Change Transaction
### BPCA

**Analyze BPCA Analysis Results – list of impacted Business Transactions**

#### Available BPCA analyses

<table>
<thead>
<tr>
<th>Result</th>
<th>Description</th>
<th>Scope Type</th>
<th>Impact Details</th>
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<tbody>
<tr>
<td>257</td>
<td>Process Variants All</td>
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<tr>
<td>256</td>
<td>Process Variants All</td>
<td>Branch</td>
<td>Finished</td>
</tr>
<tr>
<td>229</td>
<td>RT for EHP4 deployment</td>
<td>Branch</td>
<td>Finished</td>
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<tr>
<td>191</td>
<td>EHP4 Branch Maintenance</td>
<td>Branch</td>
<td>Finished</td>
</tr>
<tr>
<td>190</td>
<td>EHP4 Branch Maintenance</td>
<td>Branch</td>
<td>Finished</td>
</tr>
<tr>
<td>185</td>
<td>EHP4 Branch Maintenance</td>
<td>Branch</td>
<td>Finished</td>
</tr>
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</table>

The user can perform various drilldowns to better understand the impact details.

#### Impacted Business Transactions

<table>
<thead>
<tr>
<th>Node Type</th>
<th>Executable Type</th>
<th>Referred Object</th>
<th>Logical Component Group</th>
<th>SAP TC Available</th>
<th>TBOAM Status</th>
<th>Norm - Al</th>
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<tbody>
<tr>
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<td>SAPFI11S</td>
<td>SAP ERP</td>
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<td>SAP ERP</td>
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<td>SAP ERP</td>
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<td>SAP ERP</td>
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<td>ZW26</td>
<td>SAP ERP</td>
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<td>S_PHO_4800560</td>
<td>SAP ERP</td>
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</table>
BPCA
Analyze BPCA Analysis Results – impacted Objects by Software Component and Object Type
BPCA
Analyze BPCA Analysis Results – impacted Objects by Software Component and Object Type

Example: customizing tables and their keys used during execution of business transaction

Drilldown
BPCA
Analyze BPCA Analysis Results – list of impacted Business Transactions

Available BPCA analyses

Impacted Business Transactions

Now the user can generate a Test Plan for Regression Tests – or perform a risk-based Test Scope Optimization.
BPCA
Analyze BPCA Analysis Results – Test Scope Optimization (TSO)

The BPCA optimization algorithms allow significant reduction of test efforts and test scope for the selected software changes. The risk-based approach is performed by test effort and number of impacted ABAP objects.

Test Coverage reduced from 100 to 99% to reduce test effort
Test Effort reduction through TSO

Test scope reduction through TSO
The BPCA Dashboard to shows the effects of BPCA Test Scope Optimization
BPCA
Analyze BPCA Analysis Results – Test Scope Optimization (TSO)

Legend
- X-axis: ranking of impacted business process / process steps. Left: impacted business process with highest number of transported / changed software objects and lowest effort for test execution
- Y-axis: Test Coverage from 0 – 100%
- Blue line: cumulative test effort from left to right
- Green area: optimized test scope. Here: 99% test coverage
## BPCA

Analyse BPCA Analysis Results – Test Scope Optimization (TSO)

### Tabular view of the impact ranking

<table>
<thead>
<tr>
<th>Rank</th>
<th>Path</th>
<th>Cumulated Test Coverage</th>
<th>Type</th>
<th>Number of Objects</th>
<th>Test Coverage</th>
<th>Single Test Effort (Minutes)</th>
<th>Cumulated Test Effort (Hours)</th>
<th>Number of Test Cases</th>
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<tbody>
<tr>
<td>1</td>
<td>Business Processes/Operational Processes/Procure to Pay</td>
<td>63.74 Process</td>
<td>68,774</td>
<td>48.72</td>
<td>150.0</td>
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<td>Business Processes/Operational Processes/Order to Cash</td>
<td>65.34 Process</td>
<td>2,068</td>
<td>31.63</td>
<td>30.00</td>
<td>0.75</td>
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<td>3</td>
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<td>89.29 Process Step</td>
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<td>14</td>
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BPCA
Analyze BPCA Analysis Results – Test Scope Optimization (TSO)

Tabular view of impacted Business Processes, Process Steps, ...

<table>
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<tr>
<th>Node Text</th>
<th>Type</th>
<th>Impacted</th>
<th>Cumulated Total Effort</th>
<th>Test Effort</th>
<th>Manual Effort</th>
<th>Automated Effort</th>
<th>SAP Test Cases Exist</th>
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<td>Order to Cash</td>
<td>Scenario</td>
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<td>Order to Cash V1 - Standard Order</td>
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<td>✓</td>
</tr>
</tbody>
</table>
BPCA Analysis
more details
BPCA Analysis
Handling of End-to-End Tests in BPCA Test Scope Optimization (TSO)

- Not all test cases assigned to the Business Process and Process Steps need to be tested (Attribute BP Test = 0)
- TBOMs are assigned to Executables plus virtual Test Case assignment through Test Case – Executable relation
- TSO approach: analysis of impacted Executables and assigned Test Cases to determine 1-n test cases to identify test scope
- TSO result: End-to-End Test Case assigned to Business Process included in test scope in case of change impact on one of the assigned Executables

<table>
<thead>
<tr>
<th>Solution Documentation</th>
<th>Attribute BP Test</th>
<th>Test Case</th>
<th>Executable</th>
<th>BPCA TBOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process: O2C</td>
<td>0</td>
<td>TC-E2E-1</td>
<td></td>
<td>Dynamic TBOM</td>
</tr>
<tr>
<td>Process Step: PS1</td>
<td></td>
<td></td>
<td>VA21 (Quotation)</td>
<td>Dynamic TBOM</td>
</tr>
<tr>
<td>Process Step: PS2</td>
<td></td>
<td></td>
<td>VA01 (Sales Order)</td>
<td>Dynamic TBOM</td>
</tr>
<tr>
<td>Process Step: PS3</td>
<td></td>
<td></td>
<td>VL01N (Delivery)</td>
<td>Semi-dynamic TBOM</td>
</tr>
</tbody>
</table>
BPCA Analysis
Flag to influence weight of Business Processes, PS Library and Executable Library

How to run BPCA Analysis

- Statements and Observations
  - Processes containing dynamic TBOMs shall be preferred (# of objects, precision)
  - Process oriented tests shall be preferred over generic tests of executables
  - Exe-Library contains semi-dyn. TBOMs
  - Exe-Library becomes too dominant due to TBOM types
  - Approach: BPCA analysis flag exclude used executables and process step originals
  - Define View that contains SAP Solution to be analyzed

- Test Scope Optimization (TSO) – use add.settings
  - Prefer nodes with dynamic TBOMS
  - Prefer automated tests, …

1. Business Processes
   - Change impact analysis of change event on Business Processes, Process Steps and Executables
   - impacted objects selected as test scope

2. Process Step Library
   - Remove all objects used in section 1
   - impacted objects selected as test scope

3. Executable Library
   - Remove all objects used in section 1 and 2
   - impacted objects selected as test scope

Semantic and effect of BPCA analysis flag: exclude used … originals
BPCA Analysis - Test Scope Optimization
BPCA features for Test Scope Optimization (TSO)

BPCA Optimization Approach
- Ability to store all optimization settings during the optimization analysis session

TSO with preference for automated tests
- Option: test scope optimization with priority for process steps with assigned automated tests
- Option: test scope optimization using only automated tests assigned to affected process steps

TSO with preference for test cases with specific attributes
- Option: including test cases with selected attributes such as priority or of type regression test
- Option: leveraging assignment of test cases to specific executables in Solution Documentation

Advanced expert settings
- Option: criticality settings and filters for SAP object types with weights
BPCA Example
small example created in SAP test system
High test effort for large change events like SP / EHP deployment

Challenge
- Most processes are identified to be impacted by Support Packages and Enhancement Packages (as they contain changes on central objects e.g. from SAP Basis or SAP APPL used by many application areas)

Test effort reduction approach
- changed objects might need to be tested just once
- prefer tests with lower effort and higher coverage of change objects

Risk mitigation approach
- Classification of processes
- Include critical processes into the scope using attribute filter
- Prefer tests with customer code using TBOM criticality

Remaining Risk: Coding Objects might behave different when used in a different context with different data

Test Scope Optimization approach
- Choose the right balance between Test effort reduction and Risk mitigation
BPCA - Test Scope Optimization for EHP deployment
SAP example setup

Solution Documentation

- 8 Business Processes covering Financials, Procurement, Sales, HR
- 46 Process Steps with multiple T-Codes per process step

Regression Tests

- 73 test cases assigned
- Total test execution time: 132 hours

<table>
<thead>
<tr>
<th>Business Process</th>
<th>Process Step</th>
<th>Financials</th>
<th>Procurement</th>
<th>Sales</th>
<th>Human Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>1 E2E test - automated</td>
<td>2 E2E tests - automated</td>
<td>1 E2E test - automated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9 manual tests</td>
<td>25 manual, 3 automated tests</td>
<td>8 manual tests</td>
</tr>
</tbody>
</table>

Change event: SAP Enhancement Package (EhP) deployment

- SAP ERP – EHP 7 with approximately 180,000 changed SAP standard objects
BPCA - Test Scope Optimization for EHP Deployment

Example results

<table>
<thead>
<tr>
<th>Test Scope without BPCA</th>
<th>Test Scope with BPCA – Test Scope Optimization – 100% test coverage</th>
<th>Test Scope with BPCA – Test Scope Optimization – 99% test coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td># of tests</td>
<td>Test effort</td>
<td>Gain</td>
</tr>
<tr>
<td>73 tests</td>
<td>132 hours</td>
<td>n.a.</td>
</tr>
<tr>
<td>44 tests</td>
<td>76 hours</td>
<td>42 %</td>
</tr>
<tr>
<td>32 tests</td>
<td>52 hours</td>
<td>61 %</td>
</tr>
</tbody>
</table>

BPCA – optimization settings

1. Use of Test Scope Optimization
2. 100% change coverage
3. No attributes used for process priorities
4. Higher ranking for process steps with automated tests
5. Use only automated tests if manual and automated are available
### BPCA - Test Scope Optimization for EHP Deployment

#### Example results

<table>
<thead>
<tr>
<th></th>
<th># of tests</th>
<th>Test effort</th>
<th>Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Scope without BPCA</td>
<td>73</td>
<td>132 hours</td>
<td>n.a.</td>
</tr>
<tr>
<td>Test Scope with BPCA - Test Scope Optimization – 100% test coverage</td>
<td>44</td>
<td>76 hours</td>
<td>42%</td>
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<tr>
<td>Test Scope with BPCA - Test Scope Optimization – 99% test coverage</td>
<td>32</td>
<td>52 hours</td>
<td>61%</td>
</tr>
</tbody>
</table>

#### BPCA – optimization settings

1. Use of Test Scope Optimization
2. 99% test coverage
3. Process Steps with BP attribute `Prio = 1` forced into test scope
4. Higher ranking for process steps with automated tests
5. Use only automated tests if manual and automated are available

![Graphical View](chart.png)

`must include area`
BPCA for SAP S/4HANA on-premise
BPCA and SAP S/4HANA Release Upgrade

BPCA
• Change impact analysis for S/4 systems to identify business processes impacted by S/4 upgrade

Feature details
• Additional change impact information beside normal BPCA analysis:
  • List of new simplification items of new S/4 release with impacts on existing business processes
  • List and links to SAP Notes for each simplification item

Benefits
• SAP customers get detailed information about impacts of new S/4HANA release on business processes
• Ability to define a specific test scope for S/4HANA upgrades
• Risk-based test scope optimization to limit test scope to impact from S4 simplification items
**BPCA and SAP S/4HANA Release Upgrade**

List of S/4HANA Simplification Items impacting existing business processes / process steps

<table>
<thead>
<tr>
<th>Simplification Item</th>
<th>Simplification Item Description</th>
<th>Simplification Category</th>
<th>Application Area</th>
<th>Application Component</th>
<th>Business Impact Note</th>
<th>Executable Type</th>
<th>Referred Object</th>
<th>☑ Node Type</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>S21: SD_VBFA_ST...</td>
<td>S4TWL - VBFA - Indirect Docflow Relationships</td>
<td>Change of existing functionality</td>
<td>Sales &amp; Distribution</td>
<td>SD-BF, SD-B...</td>
<td>2469315</td>
<td>Transaction &lt; Exec.R...</td>
<td>VA01</td>
<td>Process Step &lt; Orig.</td>
<td>Libraries/Process Step Library/Test Scope Optimization within one node/Sales Order</td>
</tr>
<tr>
<td>S11: FIN_SLL_CLS</td>
<td>S4TWL - Material classification with commodity codes</td>
<td>Change of existing functionality</td>
<td>Financiats - Interna...</td>
<td>SLL-LEG-FU...</td>
<td>2376556</td>
<td>Transaction &lt; Exec.R...</td>
<td></td>
<td>Process Step &lt; Orig.</td>
<td>Libraries/Process Step Library/Test Scope Optimization within one node/Sales Order</td>
</tr>
<tr>
<td>S21: SD_VBFA_ST...</td>
<td>S4TWL - VBFA - Indirect Docflow Relationships</td>
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<td>SD-BF, SD-B...</td>
<td>2469315</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Simplification Category:**
- Change of existing functionality
- Non-strategic function – functional equivalent available
- …

**Symptom**
You have performed a system conversion to SAP S/4HANA, on-premise edition, with one of the following target releases:
1011 SP00/SP01/SP02/SP03
1610 SP00/SP01
BPCA and SAP S/4HANA Release Upgrade

Recommended sequence

1. Test Scope Optimization – **limited** to impacts on processes caused by S/4HANA Simplification Items, i.e. not all changes of the S/4HANA upgrade
   - Test coverage between 99% to 100%
   - Optimization approach – Tab: General Options: consider Test Multiplicity with value > 1

2. Test Scope Optimization – for **all changes** from deployed changes including S/4HANA Simplification Items
BPCA and SAP S/4HANA Release Upgrade

Test Scope Optimization – ability to limit to S/4HANA Simplification Items

- Optimization Settings for BPCA Result "1506 - F4s: All May Installations"
  - Test Plan Generation Options
  - Optimization Options
    - General Options
    - Solution Documentation Options
    - Test Case Options
    - Criticity Options
    - Simplification Item Options
    - Test Case Recommendations

- Objects to be considered in Test Scope Optimization
  - All changed objects including simplification item relevant objects
  - Only simplification item relevant objects

<table>
<thead>
<tr>
<th>Simplification Category</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality unavailable (no equivalent)</td>
<td>Optimization Area</td>
</tr>
<tr>
<td>Functionality unavailable (equivalent on roadmap)</td>
<td>Optimization Area</td>
</tr>
<tr>
<td>Functionality unavailable (equivalent exists)</td>
<td>Optimization Area</td>
</tr>
<tr>
<td>Non-strategic-function (no equivalent yet)</td>
<td>Optimization Area</td>
</tr>
<tr>
<td>Non-strategic-function (equivalent exists)</td>
<td>Optimization Area</td>
</tr>
<tr>
<td>Change of existing functionality</td>
<td>Optimization Area</td>
</tr>
<tr>
<td>Functionality not downported</td>
<td>Optimization Area</td>
</tr>
</tbody>
</table>
BPCA and SAP S/4HANA Release Upgrade

Test Scope Optimization – ability to limit BPCA Analysis and TSO to S/4HANA Simplification Items

Optimization Options

- General Options
- Solution Documentation Options
- Test Case Options

- Prefer nodes with dynamic TBOMs in optimization ranking
- Prefer nodes with test cases in optimization ranking
- Prefer nodes with automated test cases in optimization ranking

Test Multiplicity of Objects

<table>
<thead>
<tr>
<th>Classification Type</th>
<th>Test Multiplicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programs / Code Objects</td>
<td>1</td>
</tr>
<tr>
<td>Table Content</td>
<td>1</td>
</tr>
<tr>
<td>User Interface</td>
<td>1</td>
</tr>
<tr>
<td>Data Dictionary Objects</td>
<td>3</td>
</tr>
<tr>
<td>Authorization Objects</td>
<td>1</td>
</tr>
</tbody>
</table>
BPCA and SAP S/4HANA Release Upgrade

Test Scope Optimization – ability to limit to S/4HANA Simplification Items
BPCA and SAP S/4HANA Release Upgrade

Test Scope Optimization for all changes from deployed changes including SAP S/4HANA Simplification Items
BPCA and SAP S/4HANA Release Upgrade

Test Scope Optimization – automatic Test Plan Generation
BPCA handling of Process Variants
BPCA handling of Process Variants
Use Case 1

BPCA and SEA Analysis
- Process Management and Test Suite including BPCA / SEA support the new concept of Process Variants

Feature details
- Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process
- Executable assigned represents „start of process“
- End to End test case assigned to Process Variant
- TBOM contains all objects of the Process Variant and might be created by automated test

Benefits
- Change Impact Analysis, manual and automated tests and Test Plan Management for Process Variants
- Very easy to setup
Process Variants and BPCA

Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process
Process Variants and BPCA
Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process

Use Case 1 - Process Variant: PV 1: Standard Order

- Assigned Executable: Create Quotation (= start transaction) with dyn.TBOM
- functional Test for this Process Variant: O2C E2E Process Variant: Standard Order
Process Variants and BPCA

Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process

Use Case 1 - Process Variant: PV2 Rush Order

- Assigned Executable: Create Sales Order (= start transaction of this Process Variant) with dyn.TBOM
- functional Test for this Process Variant: O2C E2E process Variant: Rush Order
Process Variants and BPCA

Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process

Transport: XUQK900185 WEFERSM VA21 (+ ME21, ME21N, ME51N)
Process Variants and BPCA
Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process

Transport: XUQK900185 including objects VA21 + ME21, ME21N, ME51N
Process Variants and BPCA

Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process

Transport: XUQK900185 including objects VA21 + ME21, ME21N, ME51N
Process Variants and BPCA

Use Case 1: Process Variant with assigned E2E Test Case, but without Process Diagram and no Process Steps assigned to Business Process

Transport: XUQK900185 including objects VA21 + ME21, ME21N, ME51N
BPCA generated Test Plan: TP PV ALT 1 FOR CHANGE VA21 + P2P
BPCA handling of Process Variants
Use Case 2a

BPCA and SEA Analysis
• Process Management and Test Suite including BPCA / SEA support the new concept of Process Variants

Feature details
• Use Case 2a: Process Variant with assigned E2E Test Case and Process Diagram
• End to End test case assigned to Process Variant
• Process Diagram used to derive those Process Steps (and Executable, TBOM) relevant for this Process Variant
• Note: Process diagrams supported, Collaboration Diagram supported via SAP Note in SP05

Benefits
• Change Impact Analysis, manual and automated tests and Test Plan Management for Process Variants
• Easy to setup
Process Variants and BPCA
Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process
Process Variants and BPCA

Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process

Note:
- only a subset of Process Steps of the BP has been selected for the Process Diagram
- BPCA will identify from the Process Diagram the selected PS and related Executables and TBOMs

Note:
- Process Variant with no assigned Executable (= Alt 2)
Process Variants and BPCA

Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process

Note:
- only a subset of Process Steps of the BP has been selected for the Process Diagram
- BPCA will identify from the Process Diagram the selected PS and related Executables and TBOMs

Note:
- Process Variant with no assigned Executable (= Alt 2)
Process Variants and BPCA

Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process

System: XUQ / 800
Transport: XUQK900185 VA21 + ME21, ME21N, ME51N
Process Variants and BPCA
Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process

System: XUQ / 800
Transport: XUQK900185 VA21 + ME21, ME21N, ME51N
Process Variants and BPCA

Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process

System: XUQ / 800
Transport: XUQK900185 VA21 + ME21, ME21N, ME51N
Process Variants and BPCA
Use Case 2a: Process Variant with assigned E2E Test Case, with Process Diagram and Process Steps assigned to Business Process

System: XUQ / 800
Transport: XUQK900185 VA21 + ME21, ME21N, ME51N
BPCA generated Test Plan: TP PV ALT 2 FOR CHANGE VA21 + P2P
BPCA handling of Process Variants
Use Case 2b

BPCA and SEA Analysis

- Process Management and Test Suite including BPCA / SEA support the new concept of Process Variants

Feature details

- Use Case 2b: Process Variant with assigned E2E Test Case and Process Diagram
- Test Cases assigned to Process Steps
- Process Diagram used to derive those Process Steps (and Executable, TBOM) relevant for this Process Variant
- Note: Process diagrams supported, Collaboration Diagram supported via SAP Note in SP05

Benefits

- Change Impact Analysis, manual and automated tests and Test Plan Management for Process Variants
- Easy to setup
Prerequisites for **BPCA** and **SEA**
BPCA and SEA: Prerequisites

Solution Documentation

- Test Suite Attribute: BP Test
- Custom Attribute: BP Prio

SAP Solutions – usage data

- Usage and Procedure Logging (UPL)
- ABAP Call Monitor (SCMON)

Usage data transfer

- SAP Solution Manager - Configuration
- Section: Custom Code Management

BPCA Self Check

- Checks BPCA prerequisites in SAP Solution Manager and managed systems
- Availability of statistical data and data flows

Semi-dynamic TBOM

- Where: Exe Library
- How: Background Job to generate semi dyn.TBOMs using UPL or SCMON data

Dynamic TBOM

Test Automation

- Where: high-priority process steps

Completeness Reports

- Check: Process Steps without (dynamic) TBOMs
Prerequisites for BPCA and SEA
Some important Attributes in Solution Documentation
Executable Library, Process Step Library, Business Processes and Test Cases

Business Processes
- ERP Scenarios
  - Sales Scenarios
    - Order to Cash V1
      - Quotation
      - Sales Order STD
      - Delivery
      - Goods Issue
      - Billing
    - Order to Cash V2
      - Quotation
      - Sales Order Special
      - Delivery
      - Goods Issue
      - Billing
  - Alt 1: E2E manual test
  - Alt 2: multiple single tests at Process Step level

Library
- Executables
  - LE
    - LE-SHP
    - Delivery (VL01N)
    - Goods Issue (VL02N)
  - SD
    - SD-BIL
    - Billing (VF01)
    - SD-SLS
    - Quotation (VA21)
    - Sales Order (VA01)
  - Customer Exe
    - Dev Class 1
      - ZVA01
      - VA01
      - ZVA01

Generic Sales Order test at executable level
Process Step specific Sales Order tests

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Attribute in Solution Documentation: Business Process Test

**Challenges:**
- Many Process Steps that are impacted by change event can’t be tested without E2E tests
- BPCA identifies only impacted process steps

**Goal:** enable BPCA Test Scope Optimization (TSO) to identify the best possible test scope

**Solution:** attribute to flag Business Processes that can only be tested completely

<table>
<thead>
<tr>
<th>Business Processes</th>
<th>Attribute Business Process Test</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Process A</strong></td>
<td>0</td>
<td>Single tests possible to test impacted Process Steps</td>
</tr>
<tr>
<td>Process Step 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Step 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Step 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business Process B</strong></td>
<td>1</td>
<td>E2E test required to test impacted Process Steps</td>
</tr>
<tr>
<td>Process Step 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Step 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Step 12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Attribute in Solution Documentation: Business Process Test


Attribute **Business Process Test** with value E2E test required
Alternatives to identify Business Processes, Process Steps and Executables with high business criticality*

**System-based Usage Analytics**

Goal: business transactions with high usage or variations

- ST03N
- Usage and Procedure Logging (UPL)
- ABAP Call Monitor (SCMON)
- SAP SolMan partner products (Celonis, DeceSoft DBP,…)

**Expert knowledge**

Goal: mission critical business transactions

- Input from experts: Business Process Experts, Solution Architects

**Best Practice Recommendation**

Flag mission critical processes and process step with Custom Attribute

**Process Prio in Solution Documentation**

* SAP Best Practices and SAP Model Companies should be considered as first choice to speed up the solution documentation before custom specific process identification
Custom Attribute “Process Priority” and BPCA / SEA

BPCA and SEA Preparation
• Custom attribute to flag mission critical business processes / process steps

Feature details
• SAP Best Practice highly recommend to flag mission critical BP / PS
• BPCA Test Scope Optimization allows to define an optimization approach to force impacted critical nodes into the test scope, especially when Test Scope < 100%
• SP05 delta: Definition of Custom Attribute can be accelerated by using SAP delivered DOMAIN and Data Element AGS_BPCA_PROCESS_PRIORITY

Benefits
• SAP customers can follow SAP Best Practice to flag mission critical processes in a much faster way
Custom Attribute
Define Custom Attribute via SAP Solman Configuration – Scenario: Process Management

### SAP Solution Manager Configuration: Process Management

1. **Scenario: Process Management**
   - Technical System: FQ7_SM-ABAP-200
   - Scenarios:
     - Cross Scenario Configuration
     - Requirements Management
     - Project Management
     - Process Management
     - Custom Code Management
     - Test Suite
     - Test Automation Preparation
     - Component-Based Test Automation
     - Scope and Effort Analyzer
     - Business Process Change Analysis
     - SAP Test Acceleration and Optimization
     - Partner Test Management
     - Change Control Management
     - Application Operations
     - Business Process Operations
     - IT Service Management
     - Enforcement and Service Delivery

2. **Manual Activities**
   - **Status Updates Needed**
   - **Activity**
     - Define Custom Attributes
     - Define Visibility of Related Documents in Reports
     - Define Related Documents Visible at Attribute Pane
     - Define subtype for executable type ‘Custom URL’
     - Define how navigation URL should be generated
     - Create cloud service for new sub type
     - Hide 7.1 Custom Object Types
     - Replace Variables in Web Addresses (URLs)
     - Assignment of End User Roles
   - **Type**
     - Optional
   - **Comment**
     - URL to T-Code SMUD_MODEL_WIZARD
     - URL to START Report AL_SMUD_SETUP_BADI_REL_DOCS
     - URL to START Report AL_SMUD_SETUP_BADI_LCO_INTR
     - URL to T-Code SM30 SMUD_BADI_SUBTYPE
     - URL to START Report AL_SMUD_SETUP_BADI_EXEC_CUSTLOG
     - No description
     - URL to START Report AL_SMUD_SETUP_BADI_OBU_TYP_ACT
     - URL to T-Code SM30 SM3_VAR
     - URL to T-Code SM30 V_SARLACUST
   - **Navigation**
     - Not Performed
   - **Execution Status**
     - Display
   - **Documentation**

3. **Log with 3 messages for Step Configure Solution Documentation Model**
   - **View**
     - [Standard View]
   - **Type**
     - Define Related Documents... Transaction SA30 was called.
     - Define Custom Attributes... Transaction SMUD_MODEL_WIZARD was called.
     - Define Custom Attributes...
   - **Message**
     - Transaction SA30 was called.
     - Transaction SMUD_MODEL_WIZARD was called.
     - Transaction SMUD_MODEL_WIZARD was called.
   - **Date**
     - 16.05.2017
     - 26.01.2017
     - 09.24.59
   - **Time**
     - 12:18:32
     - 10:00:22
     - 5:15:23
   - **Object in Scope**
     - FQ7_SM-ABAP-200
     - FQ7_SM-ABAP-200
     - FQ7_SM-ABAP-200
   - **User**
     - 5KBAM
     - WEFERSM
     - WEFERSM
   - **Add Comment**
     - Show

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Custom Attribute
Define Custom Attribute via SAP Solman Configuration – Scenario: Process Management

SAP delivered Data Element and Domain including values: AGS_BPCA_PROCESS_PRIORITY
Custom Attribute
Use of Custom Attributes “Process Priority” within Solution Documentation

Example:
Executable Library
Custom Attribute
Use of Custom Attributes “Process Priority” within BPCA Test Scope Optimization

Test Scope Optimization

- **Purpose:** optimization of identified test scope especially for large change events

- **Benefit:** significant reduction of test efforts

- **Risk-based approach:**
  - Test each software change only once to reduce number of required test cases
  - Identification of test cases with highest efficiency regarding changed objects
  - User defined test coverage below 100%, e.g. 99% to filter out less efficient test cases

TSO with 99% test coverage → risk mitigation: force Executables of BP and PS into the test scope which are mission critical and impacted by the change event using custom attribute “Process Priority”
Prerequisites for **BPCA** and **SEA**
Technical Bill of Material (TBOM)
BPCA and SEA – TBOM Types

**Technical Bill of Material (TBOM):** is a list of technical objects, which are used when business processes are executed.

**Static TBOM Generation Approach**
- **Advantage:** background job to generate all TBOMs without manual effort
- **Disadvantage:** less precision compared to dynamic or semi-dynamic TBOMs → not recommended by SAP

**Dynamic TBOM Generation Approach**
- **Advantage:** exact list of objects that are used when executing a transaction in the context of a specific business process
- **Disadvantage:** high manual effort, if not combined with test execution (manual or automated)

**Semi-dynamic TBOM generation approach**

**BPCA TBOM generation job**

**UPL (Usage Procedure Logging) Data in PRD system**

**ABAP Call Monitor (SCMON) usage statistics from Call Graph and Data Browser**

**UPL Filter for TBOM Generation**

**Where-used Index to identify DDIC objects like tables, etc.**

**Semi-dynamic TBOM**
- **Advantage:** Background job to generate all TBOMs without manual effort
- **Disadvantage:** Table keys and variants of the same executable are not supported
BPCA and SEA: TBOM Types and Best Practice

<table>
<thead>
<tr>
<th>TBOM type</th>
<th>Precision</th>
<th>New with SAP Solution Manager 7.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic TBOM</td>
<td>Very precise</td>
<td></td>
</tr>
<tr>
<td>Semi-dynamic TBOM</td>
<td>Moderate to good</td>
<td>TBOM generation based on usage data provided by ABAP Call Monitor (SCMON)</td>
</tr>
<tr>
<td>Static TBOM</td>
<td>Not recommended to use</td>
<td></td>
</tr>
</tbody>
</table>

**Best Practice**

- **Mission critical business processes, process steps and assigned executables**
  - Make use of *dynamic* TBOMs
  - Flag processes with custom attribute „Business Process Priority“ with value „Prio 1“
- **All other non-mission critical business processes and process steps**
  - Whenever possible make use of dynamic TBOMs
  - Generate *semi-dynamic* TBOMS using SCMON data
Prerequisites for **BPCA** and **SEA**

Semi-dynamic **TBOMs**
BPCA and SEA – Data Flow for semi-dynamic TBOM Generation

SAP Solutions
- SAP ERP, SAP CRM, ...
- SAP S/4HANA

Transfer of usage data (UPL or SCMON) to SAP Solution Manager

Identify DDIC objects like tables via where-used index in QAS system

SAP SolMan BW CCLM Cubes

Usage data analysis

List of all Executables of Executable Library

Solution Documentation (Executable Library)

Assign semi-dyn.TBOM to Executable of Exe-Lib

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BPCA and SEA: Generation of semi-dynamic TBOM
Usage Procedure Logging (UPL) versus ABAP Call Monitor (SCMON) usage data

**Usage and Procedure Logging (UPL)**

Objects in usage statistics w/o relationship

**Semi-dynamic TBOM generation**

- Programmatic code analysis of each executable
- exclude code branches for TBOM not verified via UPL usage data

**ABAP Call Monitor (SCMON)**

Executable 1
Executable 2
Executable ...

Objects in usage statistics with entry point

**Semi-dynamic TBOM generation**

- Compilation of 1) used objects for each executable identified by SCMON usage data plus
  2) Data Dictionary objects (tables, …)
- SCMON includes dynamic calls to other execution objects (not included in UPL approach)

Executable 1
Executable 2
Executable 3

X = exclude code branches containing objects not included in UPL (grey boxes)
## BPCA and SEA: Supported TBOM Types

**Status: SP05**

<table>
<thead>
<tr>
<th>Executable Type</th>
<th>Dyn TBOM</th>
<th>Semi-dyn.TBOM</th>
<th>Info</th>
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<tbody>
<tr>
<td>Transaction, Report</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>WD-ABAP</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>CRM Web-Client</td>
<td>yes</td>
<td>yes</td>
<td>SAP Note for SCMON for SP03 and higher for SAP CRM system</td>
</tr>
<tr>
<td>Web-Link for SAP applications</td>
<td>yes</td>
<td>no</td>
<td>Workaround for SAPUI5 / Fiori for SP03 – SP04</td>
</tr>
<tr>
<td>SAPUI5 and Fiori</td>
<td>yes (SP05)</td>
<td>no</td>
<td>Semi-dyn TBOM generation planned for future SAP Solution Manager 7.2 Support Pack</td>
</tr>
</tbody>
</table>
Prerequisites for **BPCA** and **SEA**

Information about ABAP Call Monitor (SCMON)
The **ABAP Call Monitor** allows you to monitor the execution of ABAP procedures (function modules, method calls, forms) and their leading requests (business processes) in the live ABAP system in parallel to productive use. Using this tool, you can focus on usages of a business process that is initiated by a request entry point - such as a specific transaction, RFC call, URL request, or ABAP report.

As a result of this monitoring, you get a list of executed request entry points along with all ABAP procedures that have been executed under the umbrella of these entry points. The ABAP Call Monitor not only indicates that the procedure was called in the first place, but also provides an execution counter for each procedure.

1. **Display Data**
   - Requestor, like transaction VA01 and called objects, like Methods

2. **Display Call Graph**
   - Shows additional requests of the calling transaction
     - Update Task (German: Verbucher)
     - Remote Function Calls (RFC) within the same system
     - Batch jobs
ABAP Call Monitor

Function 1: Display Data

Use Case 1: Selection: Type “T” Transaction and Name “VA01”
ABAP Call Monitor
Function 1: Display Data
Use Case 1: Selection: Type “T” Transaction and Name “VA01”

<table>
<thead>
<tr>
<th>Req. Type</th>
<th>Request Name</th>
<th>Called Program Name</th>
<th>Obj. Ty.</th>
<th>Called Object Name</th>
<th>Proc. T.</th>
<th>Called Processing Block Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction VA01</td>
<td>CL_ABAP_TABLEDESCR=============CP</td>
<td>CLAS</td>
<td>CL_ABAP_TABLEDESCR</td>
<td>METH</td>
<td>GET_XTYP_FROM_ITAB_DESC</td>
<td></td>
</tr>
<tr>
<td>Transaction VA01</td>
<td>CL_ABAP_TSTMP-------------------CP</td>
<td>CLAS</td>
<td>CL_ABAP_TSTMP</td>
<td></td>
<td>SYSTEMTSTMP_SYST2LOC</td>
<td></td>
</tr>
<tr>
<td>Transaction VA01</td>
<td>CL_ABAP_TSTMP-------------------CP</td>
<td>CLAS</td>
<td>CL_ABAP_TSTMP</td>
<td></td>
<td>SYSTEMTSTMP_SYST2UTC</td>
<td></td>
</tr>
<tr>
<td>Transaction VA01</td>
<td>CL_ABAP_TSTMP-------------------CP</td>
<td>CLAS</td>
<td>CL_ABAP_TSTMP</td>
<td></td>
<td>ADD</td>
<td></td>
</tr>
<tr>
<td>Transaction VA01</td>
<td>CL_ABAP_TSTMP-------------------CP</td>
<td>CLAS</td>
<td>CL_ABAP_TSTMP</td>
<td></td>
<td>CLAS_CONSTRUCTOR</td>
<td></td>
</tr>
</tbody>
</table>
ABAP Call Monitor
Function 2: Display Call Graph

Shows additional calls of the calling transaction

1. Update Task (German: Verbucher)
2. Remote Function Calls (RFC) within the same system
3. Batch Jobs

<table>
<thead>
<tr>
<th>ABAP Call Monitor: Call Graph</th>
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<tbody>
<tr>
<td><strong>Time Interval</strong></td>
</tr>
<tr>
<td>Date</td>
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<tr>
<td>17.03.2016 to 18.03.2016</td>
</tr>
<tr>
<td><strong>Calling Request Entry Points</strong></td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td>T</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>VR.01</td>
</tr>
<tr>
<td><strong>Called Request Entry Points</strong></td>
</tr>
<tr>
<td>Type</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
ABAP Call Monitor - Function: Display Call Graph
Selection: Type “T” Transaction and Name “VA01”
BPCA - ABAP Call Monitor for semi-dynamic TBOM Generation
SAP Solution Manager 7.2 SP03 and SP05

**Scope**
The ABAP Call Monitor (transaction code SCMON) is a new SAP Basis monitoring tool which logs - during the running productive ABAP system - the execution of ABAP procedures plus the leading business process (transaction, report, URL, RFC). The result of this monitoring is a list of executed business processes plus the possibility to drill down and see all ABAP procedures which have been executed under the umbrella of this process.

**Prerequisites on managed System in combination with SAP Solution Manager 7.2**

<table>
<thead>
<tr>
<th>SAP Solution Manager</th>
<th>Managed System</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSM 7.2 SP03</td>
<td>SAP_BASIS 750 or SAP_BASIS 740 SP14</td>
</tr>
<tr>
<td></td>
<td>SAP_KERNEL 742 Patch Level 310 or SAP_KERNEL 745+</td>
</tr>
<tr>
<td></td>
<td>ST-PI 2008_1 SP14 or ST-PI 740 SP04</td>
</tr>
<tr>
<td>SSM 7.2 SP05</td>
<td>SAP_KERNEL 7.22 Patch Level 123 or SAP_KERNEL 742 Patch Level 310 or</td>
</tr>
<tr>
<td></td>
<td>SAP_KERNEL 7.45+</td>
</tr>
<tr>
<td></td>
<td>ST-PI 2008_1 SP14 or ST-PI 740 SP04</td>
</tr>
<tr>
<td></td>
<td>SAP Basis 7.0 (used by SAP ERP 6.0 EHP 0). Kernel and ST-PI are sufficient</td>
</tr>
<tr>
<td></td>
<td>Details: SAP Note 2244217</td>
</tr>
<tr>
<td></td>
<td><a href="https://launchpad.support.sap.com/#/notes/2244217">https://launchpad.support.sap.com/#/notes/2244217</a></td>
</tr>
</tbody>
</table>
Check SAP Basis and Kernel level in managed system
Prerequisites for **BPCA** and **SEA**

BPCA Self Check
BPCA Self Check

Administration - Business Process Change Analyzer

- **TBOM Utilities**
  - Execute TBOM utilities, such as:
    - Self check
    - Semi-dynamic TBOM generation
    - TBOM checks
    - TBOM mass deletion
    - Generate TBOM
    - Perform Oracle/Quality Check
    - Delete TBOMs

- **Maintain TBOM Filter**
  - Manage TBOM filter rules of Business Process Change Analyzer
  - Maintain TBOM Filter Table

- **Maintain TBOM Criticality**
  - Manage TBOM criticality rules of Business Process Change Analyzer
  - Maintain TBOM Criticality Table
BPCA Self Check – Selection Screen

BPCA Self Check

Solution Documentation

- Solution: Business Solution

Managed System for TBOM Generation

- System: xuq
- Client: 800
- Branch: Maintenance

System with UPL/SCMON Data

- System: xuq
- Client: 800
- Branch: Production
BPCA Self Check

1. Check Options
- Short date and time: 15.06.2018 16:45:23
- SAP S/4HANA user: WEFFERSM
- SAP S/4HANA system: FGZ 200
- TIBCO system: XUQ / 800
- SCOMON System: XUQ / 800
- TIBCO generation solution and branch: Business Solution / Maintenance
- UPL/SCOMON Solution and Branch: Business Solution / Production

2. Checks for SAP Solution Manager System
- Existence check for branch: Maintenance: OK
- Check the TIBCO system XUQ / 800 included in system landscape of branch: Maintenance: OK
- Logical components found for XUQ and 800: 3
- SAP ERP Development System
- SAP ERP Quality Assurance System
- SAP ERP Production System
- Number of Systems per Logical Component: SAP ERP: 3
  - System: SAP ERP: 3
  - System: SAP ERP: 3
- Best matching logical component for XUQ and 800 is SAP ERP
- Authorization to read Process Documentation in branch: OK
- Authorization for TIBCO Generation: OK
- Authorization to create BPCA Analysis: OK
- Authorization for BPCA Test Scope Optimization: OK
- Information:
  - Composite role SAP_BPCA_EXE_COMP includes authorizations for BPCA TIBCO creation and BPCA analysis deployment
  - Composite role SAP_BPCA_ALL_COMP includes all required authorizations for BPCA TIBCO creation and BPCA analysis creation

3. Check availability of data from Usage Procedure Log and ABAP Call Monitor (SCOMON)
- SCOMON System: XUQ / 800
  - Check Read RFC against SCOMON system: Destination SM_XUQCLNT990_READ_OK
  - Check SCOMON Status:
    - SCOMON active
    - SCOMON Info No. 1: Status = X
    - SCOMON Info No. 2: Fetching root transaction = X
    - SCOMON Info No. 3: Job SCOMON Control = X
- Status check: SCOMON data extraction from SCOMON system to SAP SolMan InfoCube
  - SCOMON extractor is active
  - Last Status: OK
  - Status of last 20 extractions: OK: 20; Failed: 0
- Check MDX parser configured on SolMan System (required to read SCOMON data):
  - MDX Parser OK
- Check Reading of SCOMON data for SCOMON System in SAP SolMan IW InfoCube
  - SCOMON data available in SAP SolMan InfoCube
  - First month with SCOMON data: March 2016
  - Last month with SCOMON data: June 2016
  - Total available months of SCOMON data: 4
- Check available memory on IW system for reading of SCOMON data
  - Reading profile parameter z/IBAext_Extension_data via RFC destination NONE
    - Value of profile parameter: 2.009.000.000
  - Reading profile parameter abap/heap_area_data via RFC destination NONE
    - Value of profile parameter: 8.009.000.000
  - See SAP Note 2054368 for recommendations on memory settings for IW system
- Check SCOMON system XUQ / 800 included in system landscape of branch: Production: OK
- SAP ERP Development System
- SAP ERP Quality Assurance System
- SAP ERP Production System

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BPCA Self Check

4

Checks for TBOM System

TBOM system: XUQ / 800

RFC destinations:
- Read RFC: SM_XUQCLNT800_READ
- Trusted RFC: SM_XUQCLNT800_TRUSTED

Check of ST-PI Release/SP: Failed
- Version: 740 0000000003
- ST-PI Version not sufficient for future SCION TBOMs: Minimum required Version: '2006.1_700 with SP14' or '740 with SP04'

Authorization checks for function modules to create TBOM:
- Authorization check for function module E2E_TESTING_AGENT_PFA: Destination: SM_XUQCLNT800_TRUSTED: OK
- Authorization check for function module E2E_TESTING_AGENT_EXECHECK: Destination: SM_XUQCLNT800_READ: OK
- Authorization check for function module E2E_TESTING_AGENT_UPL_CONVSAVE: Destination: SM_XUQCLNT800_TRUSTED: OK

Function Modules to read Transport Requests:
- Authorization check for function module E2E_TESTING_AGENT_TRCONV_STR: Destination: SM_XUQCLNT800_READ: OK

Function module to get information about Web applications:
- Authorization check for function module E2E_TEST_GET_BSP_APP_CRMFRAME: Destination: SM_XUQCLNT800_READ: OK

Information:
- Composite role SAP_SM_BPCA_TBOM includes authorizations for BPCA TBOM creation in managed system

5

Available User Parameters

- No BPCA parameter found for user WEFERSM
SAP Solution Manager – Test Suite
More Information for Customers and Partners
Test Suite – more information for customers and partners

SAP Solution Manager WIKI – Test Suite

- Audience: customers and partners
- Positioning presentations
- How to configure and administration
- Tips and tricks
- Offline demos

SAP Solution Manager Learning Resources Overview

Build up your knowledge and skills

Available Learning Resources
From Interest to Expert Knowledge

Management Competence (Introduction)
- Overview Videos
  - Virtual Roadshow
- Overview Publication
  - SAP Solution Manager for SAP S/4HANA

Core Competence (Key Value Chains)
- SAP Solution Manager Homepage
  - (support.sap.com/solutionmanager)
  - Processes, Product, Release, and Support Info
  - Focused Solutions
  - Ready-to-run solutions for SAP Solution Manager
- SAP Solution Manager Media Center
  - Product Videos, System Demos, Tutorials

Expert Competence (Functional Areas)
- Expert WIKIs
  - Functional Areas Expert Content
- Technical Documentation
  - Supported languages, browsers, and databases

SAP Solution Manager Community
- Blogs & Questions

System Landscapes
- Private Cloud System (CAL), Public Demo System, Internet Demo System

Live Expert Sessions & e-Learnings
- Get empowered by the SAP Enterprise Support Academy

Classroom Trainings
- Setup, configuration, and functional overview

Product Documentation
- Application Help, Release Notes, Installation, Upgrade, and Security Guides
Thank you.
Prerequisites for **BPCA** and **SEA**

Configuration activities to enable data transfer of usage data created by ABAP Call Monitor (SCMON)
Configuration Activities in SAP Solution Manager 7.2 for SCMON

SAP Solution Manager 7.2 Launchpad

- Tile: Configuration

Note:

- Activation of ABAP Call Monitor (SCMON) can be activated from SAP Solution Manager as described in the next steps
Configuration Activities in SAP Solution Manager 7.2 for SCMON

Scenario: Custom Code Management
Configuration Activities in SAP Solution Manager 7.2 for SCMON
Configuration Activities in SAP Solution Manager 7.2 for SCMON
Configuration Activities in SAP Solution Manager 7.2 for SCMON
First activate Analysis Job „ABAP Call Monitor: COLLECT“ for the managed system for SCMON
### Configuration Activities in SAP Solution Manager 7.2 for SCMON

#### Second: Set SCMON Settings

![Extractor Activation Table]

<table>
<thead>
<tr>
<th>System ID</th>
<th>Custom Code Object</th>
<th>Custom Code Reference</th>
<th>Usage Monitoring (UPL/SCMON)</th>
<th>Custom Code Similarity</th>
<th>Code Check Results (ATC)</th>
<th>SQL Monitoring</th>
<th>CCLM Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>XUQ</td>
<td></td>
<td></td>
<td></td>
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</table>
### Configuration Activities in SAP Solution Manager 7.2 for SCMON

<table>
<thead>
<tr>
<th>Application</th>
<th>Extended System ID</th>
<th>Environment</th>
<th>Root</th>
<th>Status</th>
<th>Day</th>
<th>Week</th>
<th>Month</th>
<th>Year</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

- Environment Not Determined
- UPL based on ST-PI
- UPL based on SCMON

**Important:** Flag set = on for column ”Root” and “Month”  
- Note: without Root, this will be used for UPL data
## Configuration Activities in SAP Solution Manager 7.2 for SCMON

<table>
<thead>
<tr>
<th>System ID</th>
<th>Objects</th>
<th>References</th>
<th>Similarity</th>
<th>Last Usage</th>
<th>Quality</th>
<th>Version</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>XUQ</td>
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