

DATA CONSISTENCY TOOLBOX - CUSTOMIZING

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Background

Data Consistency Toolbox:

The main goal of the Data Consistency Toolbox (DCT) is to provide a structured and context-specific guidance for customers for all activities related to Data Consistency. Depending on certain events that may impact the data consistency, and of course tailored to the specific SAP product and business object, the customer shall receive a list of proposed tasks and tools to check and improve data consistency. In other words, the Toolbox should provide a structured procedure for customers, which activities and tools can be used.

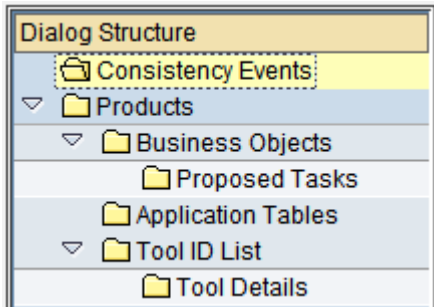
Example use-case:

- Customer has an integrated scenario with ERP and CRM
- There is a mass update of material masters in ERP
- Question: Were all material updates replicated correctly from ERP to CRM?
- Answer: Toolbox provides task list what to check and direct navigation into the corresponding transactions, check programs or best practice documents: Check outbound queues in ERP, Check inbound queues in CRM, check for BDoc messages in error state, run CRM DIMa (Data Integrity Manager) for materials.

General description of the customizing view cluster

All customizing activities are maintained in transaction **DSWP_DCT_CUST** "Data Consistency Toolbox Customizing". This is the maintenance of a view cluster, which combines all related DCT customizing tables in a hierarchical manner to enforce consistent maintenance and deletions. Be careful, when deleting entries in a higher hierarchy level, dependent entries in other tables will be deleted, too.

Hierarchical structure of the view cluster:



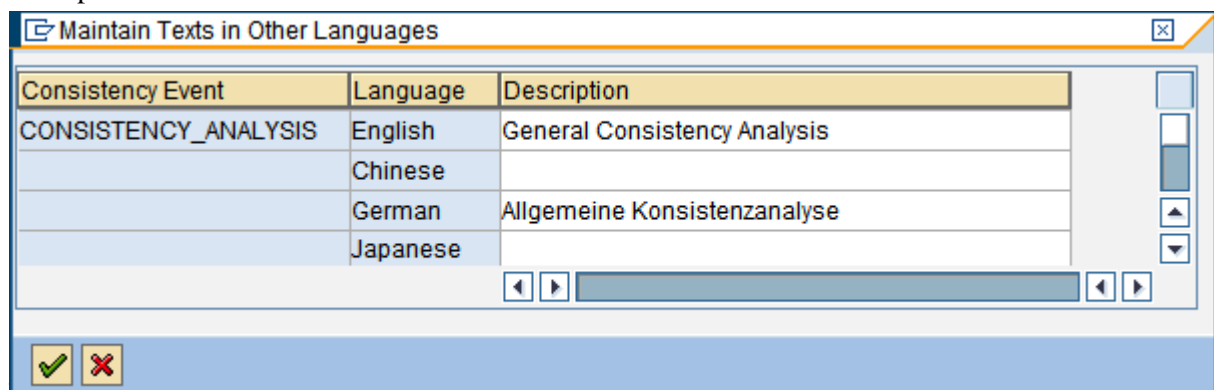
Customizing step	Description
Consistency Events	Definition of event keys for consistency-relevant events in a system
Products	Definition of DCT-specific high-level products (not SMSY products)
Business Objects	Definition of DCT-specific business objects (not BOR objects)
Proposed Tasks	Details of proposed tasks for combination of Event+Product+BusObj
Application Tables	Definition of application tables addressed by consistency tools
Tool ID List	List of proposed tools for combination of Product+BusObj+Table
Tool Details	Details of consistency tools

The Tasks and Tool details are the most complex maintenance activities with many attributes and therefore have a detail screen. You need to maintain a kind of maximum list with all available tasks and tools, and the other objects like Event, Product or Business Object rather serve as filter criteria to select appropriate tasks and tools based on user entries.

Multi-language descriptions:

Each level consists of a key table and a text table, holding the multi-lingual texts. It is recommended to logon in English language to maintain the English default descriptions. The description can then be translated into other installed languages using the menu path "Goto -> Translation". Mark the checkboxes for each required target language and you will get a dialog screen with entry fields in each selected language.

Example:



Description of view "Consistency Events"

Definition:

Consistency Events are special situations within the system landscape, that may have impact on data exchange and data consistency. These are kind of key words to pre-select a certain range of available tasks to analyze and correct inconsistencies.

Examples:

Initial setup, permanent delta exchange, mass data change, customizing data change, consistency analysis.

Consistency Events	
Consistency Event	Description
CONSISTENCY_ANALYSIS	General Consistency Analysis
CUSTOMIZING_CHANGE	Customizing change
INITIAL_DATA_LOAD	Initial Data Load
INITIAL_SETUP	Initial Setup
MASS_DATA_CHANGE	Mass Change
PERM_DELTA_CHANGE	Permanent delta changes

Maintenance:

Maintain the following attributes

- Consistency Event (key field)
- Description (translatable description of event)



Description of view "Products"

Definition:

A DCT Product is a reduced definition of SAP's product term, in order to provide simplified selection, independent from subcomponents or releases. In the Solution Manager's System Landscape Definition (transaction SMSY), the section "Product Definitions" contains often multiple individual SAP Products, that have the same "meaning" but are differentiated per release. These product terms are called PPMS products and have also an internal number as a key.

As an example, the SAP Products

- "SAP CRM" (for releases 2.0A, 2.0B, 2.0C, 3.0, 3.1, 4.0, 5.0, 2007) and
- "SAP CRM 2006S" (for releases 5.1 and 5.2)

have in DCT-terms just one higher-level product name "CRM", which includes both SAP Products with their contained releases. Within the tasks and tools of DCT, there can be additional filtering on the release, if certain tasks or tools are release-dependent.

The mapping from the SMSY's SAP Product to the DCT Product is done by assigning multiple SAP Products to one DCT Product, which have a common release-independent name then, e.g. "SAP Customer Relationship Management".

Examples:

- ERP = SAP Enterprise Resource Planning (including also R/3, ECC, ...)
- CRM = SAP Customer Relationship Management
- BI = SAP Business Information Warehouse
- EP = SAP Enterprise Portal
- MDM = SAP Master Data Management
- SEM = SAP Strategic Enterprise Management
- XI = SAP Exchange Infrastructure

(where each of it can have multiple SAP Product assignments)

Products				
	DCT Product	SAP Product	Product	Description
	ERP	01200245450800000002	SAP R/3	SAP Enterprise Resource Planning
	ERP	01200314690800000122	SAP ECC	SAP Enterprise Resource Planning
	ERP	01200615320800000579	SAP R/3 ENTERPRISE	SAP Enterprise Resource Planning
	ERP	01200615320800000659	SAP ERP	SAP Enterprise Resource Planning
	ERP	01200615320800000693	SAP ERP ENHANCE P..	SAP Enterprise Resource Planning

Maintenance:

Maintain the following attributes

- DCT Product (key field)
- SAP Product (key field with PPMS Product ID), use search help
- SAP Product Short Text (per PPSM Product text) , use search help
- Description for DCT Product (translatable description of product)

Description of view "Business Objects"

Definition:

A DCT Business Object is a high-level type of an application or business object. To be more flexible regarding common business objects in different applications, there is no fixed integration with the SAP Business Object Repository (BOR), which is also software component- and release-specific.

A DCT Business Object is always dependent from a DCT Product. So to maintain all Business Objects for a Product, select the Product first and then navigate into the Business Object view, using the dialog structure.

Examples:

ERP Sales Document, CRM Business Partner, SCM Location.

Business Objects		
DCT Product	Business Object	Description
ERP	COND	ERP Condition Record
ERP	CONFIG	ERP Configuration Documents
ERP	CONT	ERP Contact Person
ERP	CUST	ERP Customer Master
ERP	MATE	ERP Material Master
ERP	SALESDOC	ERP Sales Document

Maintenance:

Maintain the following attributes

- DCT Product (key field)
- DCT Business Object (key field)
- Description (translatable description of Business Object)

Description of view "Proposed Tasks"

Definition:

Tasks are kind of activities for an user, which need to be carried out to analyze and correct data consistencies. A task can have several possible types, like a remote transaction call of a monitoring transaction, a remote program execution for a correction report, or just display a long text, or a link to documentation or a best practice or a SAP Note.

The list of defined tasks will be used by the DCT Service Session. The user enters the filter criteria (event, source and destination product, business object), defines the affected logical components within the selected solution, the system reads the corresponding release information, and finally selects the appropriate tasks. This task list will be visualized as a tree inside the service session, where the user can execute the tasks and set a rating indicating the success.

Tasks always are related to a consistency event and have a source and a destination product. For example, if there was a mass change of material masters in ERP, you could have multiple tasks describing necessary actions in the source ERP system and in all affected destinations system, e.g. CRM and SCM, which are affected by such a mass update. In addition, each task is related to a business object of the source system.

In addition to the combination of source and destination product, which describes the general flow of data, each task has a task target that describes in which of those products the actual activity must be executed. This can be either in the source or in the destination product, to distinguish outbound and inbound flow of data. If in a system landscape there are several destination products of same type (like several CRM systems connected to one ERP system), the task can be multiplied to execute it in each individual target system, identified by its logical component.

Examples:

- Call transaction SMQ1 in ERP system
- Execute comparison report Z_XYZ in CRM system
- Display troubleshooting guide ABC.doc

Consistency Event	MASS_DATA_CHANGE
Source Product	ERP
Destination Product	CRM
Business Object	MATE
Sort order field	40
Parent sort field	10
Custom Task	SAP standard entry

Proposed Tasks	
Task Attributes	
Task Target Product	ERP
Task Description	Check qRFC outbound queues for pending or erroneous entries
Task in source product only	<input checked="" type="checkbox"/> Task relevant in selected source logical component
Task in destination product only	<input type="checkbox"/> Task relevant for all logical components of same proc
Task dependent from parent status	<input type="checkbox"/> No dependency to parent task (always shown)
Task Execution	
Task Type	RTC Remote Transaction Call
Task Code	SMQ1
Task Parameter	QNAME=R3AD_MATERIA*=1000;OKCODE=ONLI
Longtext Key	0101
Release Filter (optional)	
Software Component	
Release from	
Release to	

Maintenance:

The task maintenance has many attributes. Therefore please double-click on a table line to navigate into a detail screen.

Maintain the following attributes

- Consistency Event (key field)
- Source Product (key field)
 - product where the event "happened"
- Destination Product (key field)
 - product that is "affected" by this event
- DCT Business Object (key field)
 - concerned business object in the source product
- Sort order field
 - for sorting the list of task
 - use numbers like 10, 20, 30,... to have gaps for later insertions
- Parent sort field
 - enter sorting number of an existing parent task to create a sub-task
 - this will create a new hierarchy level in the session's tree view
 - can be used to group related tasks, or to make sub-tasks dependent from a parent
 - Example:
Task1 Sort=10 + Parent=0
Task2 Sort=20 + Parent=10
Task3 Sort=30 + Parent=10
will create Task2 and Task3 as sub-tasks of Task1
- Custom Task (key field)
 - <blank> = SAP standard entry (delivered by SAP)
 - 'X' = Custom-defined additional entry (created by customer for own tasks)
- Task Target Product
 - actual target product where the task is executed
 - task will get multiplied if several logical components of same product are affected
- Task Description (translatable description of a task)
- Task in source product only
 - <blank> = Task relevant for all logical components of same product (e.g. if source logical component was an ERP system and there are other ERP systems in the landscape, they would be relevant for the same task as well)
 - 'X' = Task relevant in selected source logical component only (e.g. the task would be relevant only for the ERP system where the event happened, not the other ERP systems in the landscape)
- Task in destination product only
 - <blank> = Task relevant for all logical components of same product (e.g. if source logical component was an ERP and there are other ERP systems in the landscape, they would be relevant for the same task as well)
 - 'X' = Task relevant for all logical components of same product except the source logical component (e.g. the task would not be relevant for the logical component of the ERP system where the event happened, but would be relevant for any other ERP systems in the landscape)
- Task dependent from parent status
 - to be used for sub-tasks (which have a value in field "Parent Sort Field"), whether they should be always shown, or only depending from a certain parent task rating
 - <blank> = No dependency to parent task (always shown)

- "0" = Show if parent task is grey (unrated) or higher
- "1" = Show if parent task is rated green or higher
- "2" = Show if parent task is rated yellow or higher
- "3" = Show if parent task is rated red
- Task Type
 - defines the type of activity that is to be executed
 - "RTC" = Remote Transaction Call (call a transaction code in a remote system)
 - "RPC" = Remote Program Call (call an ABAP program in a remote system)
 - "URL" = Display URL (open a Browser to display a web page)
 - "TXT" = Display Text (just display a descriptive long text)
- Task Code
 - defines which object is called according the above Task Type
 - for task type RTC, the code is a transaction code
 - for task type RPC, the code is a program name
 - for task types URL and TXT this field is not used
- Task Parameter
 - additional parameters for a task
 - for task type RTC, the parameter field can be used to store parameters for the entry screen of the called transaction code, in a special format to create a batch input session, using field+value+screen information (see appendix for more details)
 - for task type RPC, the parameter field can be used to store parameters for the selection screen of the called ABAP program (see appendix for more details)
 - for task type URL, this field contains the actual link to the URL (e.g. http://...)
- Longtext Key
 - each task can have a descriptive long text, which is displayed as instruction in the service session
 - texts for SAP standard tasks are maintained in the Service Development Workbench (transaction DSADEV in system CTD for session group "DCToolbox" in check group DCT_ROOT) and are identified with a 4-digit numerical key
 - texts for custom tasks are maintained with transaction SO10 and are identified with their text name key
- Software Component
 - used as filter for the validity of a task
 - e.g. software component BBPCRM makes a task valid in CRM systems only
 - use exact software component names as shown in table CVERS (or "System->Status") of the target product type
 - please note that the search help shows the values of the local Solution Manager only, but the actual target system obviously might have other software components
- Release from
 - used in conjunction with Software Component as a minimum release
 - if empty, no check for minimum release is performed
 - use exact release numbers as shown in table CVERS (or "System->Status") of the target product type, e.g. typically without a dot between the numbers
- Release to
 - used in conjunction with Software Component as a maximum release
 - if empty, no check for maximum release is performed
 - example: BBPCRM 300 400 makes a task valid for CRM 3.0 to CRM 4.0; with an empty maximum release it would read the task is valid as from CRM 3.0 and all newer releases

Description of view "Application Tables"

Definition:

The Application Tables are just a list of actual database table names, used as a search index for Consistency Tools. They are always dependent from a DCT Product. So to maintain all Application Tables for a Product, select the Product first and then navigate into the Application Tables view, using the dialog structure.

Create all database table names that you need to link to a tool later on. Use the exact names as shown in the Data Dictionary (transaction SE11) of the target system for the corresponding product.

Examples:

ERP table VBAK = Sales Document: Header Data

ERP table VBAP = Sales Document: Item Data

Application Tables		
DCT Product	Table Name	Short Description
ERP	VBAK	Sales Document: Header Data
ERP	VBAP	Sales Document: Item Data
ERP	VBBE	Sales Requirements: Individual Records
ERP	VBBS	Sales Requirement Totals Record

Maintenance:

Maintain the following attributes

- DCT Product (key field)
- Table Name (key field)
- Description (translatable description of Table Name)

Description of view "Tool ID List"

Definition:

The Tool ID List is a link table, which assigns the combinations of DCT Products, Business Objects and Table Names to the available Consistency Tools. This is to build a kind of search index to query with those filters for suitable tools. Different combinations of those key fields can link to the same tool, or the same combination of keys can link to several tools, e.g. depending on release filters. The Tool ID itself points to the Tool Details where all the attributes for a tool have to be maintained only once.

Examples:

ERP object "Sales Document" with table VBAK => can be analyzed with program SDSTATU1
ERP object "Sales Document" with table VBAK => can also be analyzed with prg. SDSTATU2
ERP object "Sales Document" with table VBAP => can be analyzed with program SDSTATU1
ERP object "Sales Document" with table VBAP => can also be analyzed with prg. SDSTATU2

So there are two relations

- For ERP Sales Doc Headers (VBAK) there are two different tools SDSTATU1 and SDSTATU2
- Both tools support ERP Sales Doc Headers (VBAK) and ERP Sales Doc Items (VBAP)

Tool ID List					
	DCT Product	Business Object	Table Name	Counter	Consistency Tool ID
	ERP	SALESDOC	VBAK	10	ERP_SDSTATU1
	ERP	SALESDOC	VBAK	20	ERP_SDSTATU2
	ERP	SALESDOC	VBAK	30	ERP_SDVBUK00
	ERP	SALESDOC	VBAK	40	ERP_RVKRED88
	ERP	SALESDOC	VBAP	10	ERP_SDSTATU1
	ERP	SALESDOC	VBAP	20	ERP_SDSTATU2
	ERP	SALESDOC	VBBE	10	ERP_SDRQCR21

Maintenance:

Maintain the following attributes

- DCT Product (key field)
- DCT Business Object (key field)
- Table Name (key field)
- Counter (key field)
 - anonymous additional key used to distinguish several tool assignments to identical key combinations of Product, Business Object and Table Name
- Consistency Tool ID (key field)
 - Tool name as defined in Tool Details
 - Naming convention suggestion: Product + underline + name of report or transaction + version or release

Description of view "Tool Details"

Definition:

The Tool Details are used to define all attributes for a certain consistency tool. A Tool ID can be used for an assignment to multiple combinations of Product, Business Objects and Table Names, as defined in the link table "Tool ID List".

Tools are the collection of available transactions, programs, SAP Notes or best practices, that are designed to help users, administrators or support staff to analyze and correct inconsistencies.

The list of defined tools will be used by the tool search functionality inside the DCT Service Session or inside the Workcenter UI. The user enters the filter criteria (product, business object, table name), defines the affected logical component within the selected solution, the system reads the corresponding release information, and finally selects the appropriate tools. This tool list can be used inside the service session to generate single activities, so that the user can execute the tools and set a rating indicating the success.

Example:

Tool ERP_SDSTATU1 is an ERP-internal consistency check for Sales Documents and Status Management, available as program SDSTATU1 and described in SAP note 52546.

Tool ID	ERP_SDSTATU1
Tool Details	
Program Name	SDSTATU1
Transaction	
Description	Finds inconsist. between sales doc. and status management
Source Product	ERP
Desti. Product	ERP
Bus. Object	SALESDOC
Tool Purpose	CHECK Tool can be used for inconsistency detection
Tool Useclass	EXPERT Only to be used by Experts
SAP Note number	52546
Applicat. Compon.	SD-SLS
Text Key	0057
Software Compon.	SAP_APPL
Release from	
Release to	

Maintenance:

The tool maintenance has many attributes. Therefore please double-click on a table line to navigate into a detail screen.

Maintain the following attributes

- Tool ID (key field)
- Program Name
 - ABAP program name for the tool (if available)
- Transaction
 - Transaction code for the tool (if available)
- Description (translatable description of tool)
- Source Product
 - typically the product where the tool itself is running
- Destination Product
 - can be another product as data source for cross-system checks
 - is identical to source product for system-internal checks
- Business Object
 - Affected business object which needs to be analyzed or corrected
- Tool Purpose
 - describes how this tool works
 - "CHECK" = Tool can be used for inconsistency detection
 - "CORRECT" = Tool can be used for inconsistency correction
 - "CHECK_CORR" = Tool can be used for detection and correction
 - "RCA" = Tool can be used for Root Cause Analysis
- Tool Useclass
 - describes which user class should execute this tool
 - "ENDUSER" = Can be used by End Users
 - "EXPERT" = Only to be used by Experts
 - "SAP" = Only to be used by SAP
- SAP Note number
 - Number of a SAP Note, will be accessible by a generated link in the session
- Application Component
 - ID of a SAP application component to identify the responsible application area
- Text Key
 - each tool can have a descriptive long text, which is displayed as instruction in the service session
 - texts for SAP standard tools are maintained in the Service Development Workbench (transaction DSADEV in system CTD for session group "DCToolbox" in check group DC_REPORTS) and are identified with a 4-digit numerical key
 - texts for custom tasks are maintained with transaction SO10 and are identified with their text name key
- Software Component
 - used as filter for the validity of a tool
 - e.g. software component BBPCRM makes a tool valid in CRM systems only
 - use exact software component names as shown in table CVERS (or "System->Status") of the target product type
 - please note that the search help shows the values of the local Solution Manager only, but the actual target system obviously might have other software components
- Release from
 - used in conjunction with Software Component as a minimum release

- if empty, no check for minimum release is performed
- use exact release numbers as shown in table CVERS (or "System->Status") of the target product type, e.g. typically without a dot between the numbers
- Release to
 - used in conjunction with Software Component as a maximum release
 - if empty, no check for maximum release is performed
 - example: BBPCRM 300 400 makes a tool valid for CRM 3.0 to CRM 4.0; with an empty maximum release it would read the tool is valid as from CRM 3.0 and all newer releases

Appendix

Parameter format for Remote Transaction and Program Calls

String format for the task parameter:

- fieldname1=value1=screen1;fieldname2=value2=screen2;...;OKCODE=functioncode
- always three parts for the fieldname, the fieldvalue and the screen number (dynpro), without spaces, separated by equal sign ("=")
- multiple occurrences of these combinations, separated by semi-colon (";")
- last entry should be the keyword OKCODE followed by equal sign and the required function code to start the transaction/program

Example for SMQ2:

- CLIENT=001=1000;QNAME=R3AD_CUSTOMER=1000;OKCODE=ONLI

Maintenance of texts

Long texts for custom-specific tasks and tools are maintained in transaction SO10

- Call transaction SO10
- Create a new standard text with a text name in customer namespace (e.g. with prefix Z), using text ID 'ST' (Standard text)
- Afterwards you can enter the text name as the text key in the task or tool details. In case of custom tasks or tools, the text key refers to a SO10 standard text.

Use a template of the following structure

- PURPOSE (describe why a task should be executed)
- PROCEDURE (describe how a task should be executed)
- RATING (describe how to set the task result rating)
- BACKGROUND (describe additional information)

Example text

Task-ERP-CRM-ERP-SMQ1

PURPOSE
Check the qRFC outbound queue from the ERP system to the connected CRM system.

PROCEDURE
Call transaction SMQ1 in the ERP system. As Queue Name, enter the prefix R3AD*, which is the common prefix for delta downloads from the ERP's R/3 adapter towards a connected CRM system. If possible, try to restrict the prefix also with the used business object name part, for example R3AD_MATERIA* for material master deltas or R3AD_CUSTOME* for customer masters. The exact name depends on the used object and is also subject to configuration.

RATING
Please execute the transaction in the target system and set the rating manually.
- Unrated: SMQ1 was never executed so far
- Green: SMQ1 was executed but no problems were found
- Yellow: SMQ1 showed problems but they could be solved
- Red: SMQ1 shows problems which could not be solved yet

BACKGROUND
The integration between SAP ERP and SAP CRM is build using the qRFC (queued remote function call) technique. In case of messaging from ERP to CRM, normally the ERP outbound queue is not used, only in case of connection problems queue entries may appear. Normally the queue entries are directly transported into the CRM inbound queue, and are waiting there for processing. Transaction SMQ1 is the standard monitoring tool for the outbound qRFC. You can see the backlog of unprocessed queue entries per queue name and RFC destination, as well as queue entries in an error state, which prevents further processing of the rest of entries in the same queue. Use the shown error information as starting point for the root cause analysis, resolve the problem and restart the blocked queues.