

SAP HCM

Migration Solutions by NLS

Variants

Architecture

Mapping

XML transfer format

Verification

Process

SAP (remote) client copy

- free-of-charge Standard
- only full clients no separation based on applications

Transports & file down-/up-load

- proven SAP data transport methods
- not all HCM objects
- very technical

SAP LSMW / TDMS

- Only import

SAP Services (SLO: System Landscape Transformation)

- all HCM objects / costs ?

Third party

- your choice (Hayes, EPI USE, Centric, ...)

Our migration services

- all HCM objects
- all kinds of mappings / filters / splits / generators
- full service

A) ('level I') Transports & file down-/up-load

- customizing and data
- proven SAP data transport methods
- not all HCM objects
- very technical
- low cost

B) ('level II') NLS migration tools & services

- customizing and data based on XML formatted data in files
- all HCM objects
- all kinds of mappings / filters / splits / generators
- full service

Options

- Repository objects (Programs, ...) can be transferred on time&material basis

Customer involvement

- All migration activities are executed by NLS; the customer provides the necessary infrastructure and is responsible for the verification of the results.

Migration as a service

- All installations and runs are performed by us
- remotely (via standard SAP infrastructure) and on-site
- tests and production runs
- Assistance in critical issues (e.g. number areas)
- Customer input at verification ('only')

Restrictions

- No data modifications (mapping, filtering, slitting, deletion) possible

No Tools required

- based on standard SAP transport environment
- no additional costs

HCM know how

- 15 years in the SAP HCM industry
- HR/HCM Migrations since 1997

An analysis of **repository**, **customizing** and **data** objects to be migrated is made. The lists are maintained as Excel sheets.

Together with the customer the objects are classified.

Based on the list transport requests are generated in the source system(s).

The transports are released and transported into the target systems (development, customizing, production).

Additional small tools allow for (limited) post-processing and for verification (item counts, sums, ...).

The migration process may be repeated by rescheduling of transports.

Additional object types (e.g. HCM infotype attachments) may be migrated separately.

Excel-based object lists (sample) :

	A	B	C	D	E	F
1	Object	Original	Package	Layer	TransTarg.	Repaired
2	R3TR AQBZ ZHR_MBILHRD	RD1	ZHRPA	ZRD1	RQ1	
3	R3TR CLAS ZCL_CUSTOMIZING	RD1	ZHR_PF	ZRD1	RQ1	
4	R3TR CLAS ZCL_DATES_UTILITIES	RD1	ZHR_PF	ZRD1	RQ1	
5	R3TR CLAS ZCL_DEF_IM_HRPADUN_DS	RD1	ZHR	ZRD1	RQ1	
6	R3TR CLAS ZCL_GET_ACCOUNT_DATA	RD1	ZHR_PF	ZRD1	RQ1	
7	R3TR CLAS ZCL_GET_ALV_9278	RD1	ZHR_PF	ZRD1	RQ1	
8	R3TR CLAS ZCL_GET_T51RT	RD1	ZHR_PF	ZRD1	RQ1	
9	R3TR CLAS ZCL_GET_T9PF1	RD1	ZHR_PF	ZRD1	RQ1	
10	R3TR CLAS ZCL_GET_T9PF2	RD1	ZHR PF	ZRD1	RQ1	

Generated transport requests (samples) :

The image displays two screenshots of the SAP transport request management interface. The top screenshot shows a transport request with ID ECDK901088, categorized as a 'Customizing request'. It lists several objects under the 'Objects' tab, including 'Table Contents' for programs R3TR and objects TABU, THOC, THOCD, and THOCT. The bottom screenshot shows another transport request with ID RD1K907828, also a 'Customizing request', listing 'Table Contents' for programs R3TR and objects DSYS_LOHEAD_E_CD, DSYS_PHCONT_ECD2, and DSYS_PHCONT_E_CD.

Migration as a service

- All installations and runs are performed by us
- remotely (via standard SAP infrastructure) and on-site
- tests and production runs
- Assistance in critical issues (e.g. number areas)
- Customer input at mapping and verification ('only')

Tools on a loan base

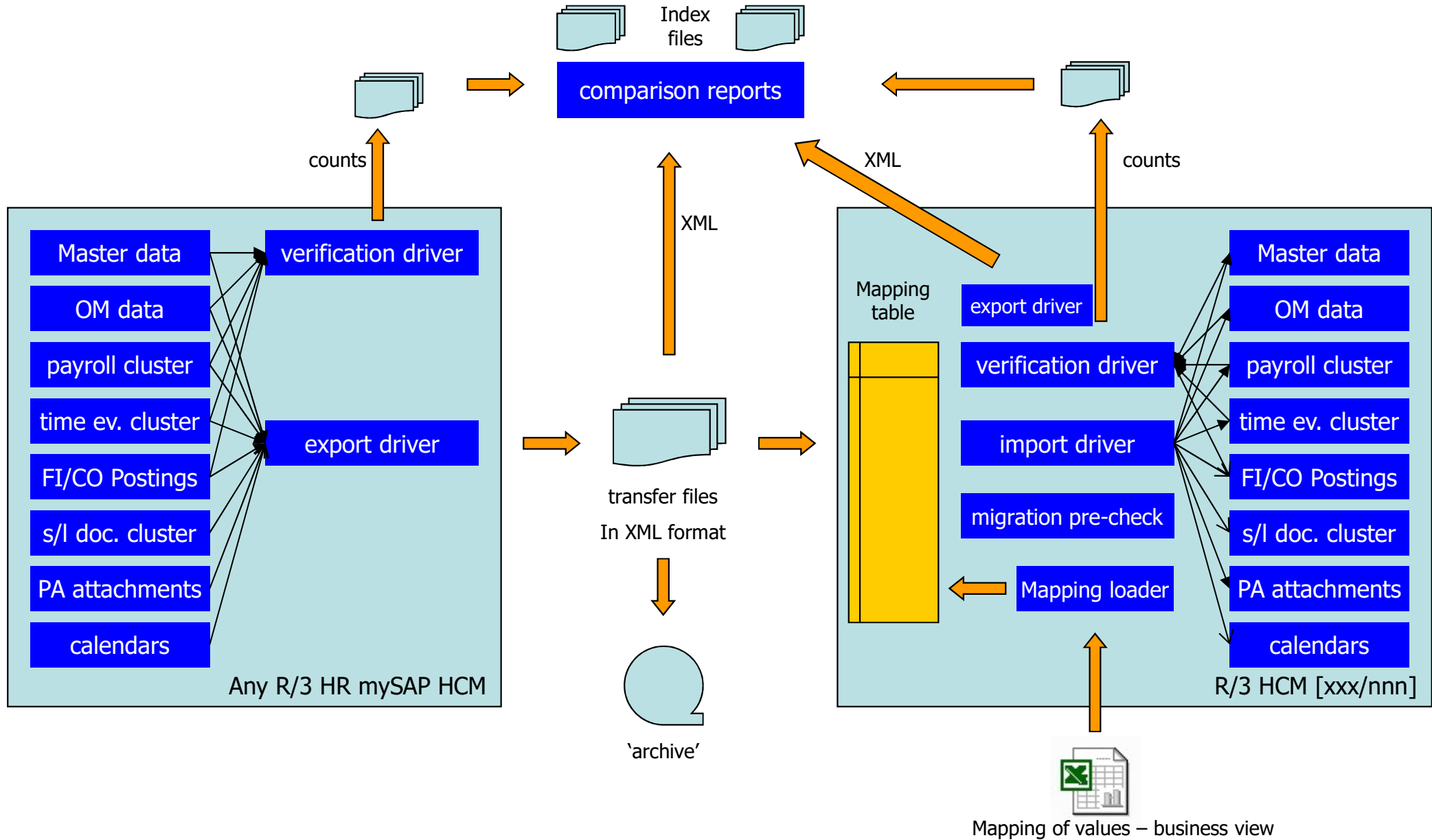
- proven toolset
- cost sensitive

Additional benefits

- Data archive in architecture independent format

HCM know how

- 15 years in the SAP HCM industry
- HR/HCM Migrations since 1997



Several tool assist in the common migration tasks

Data

- Export & Import of all HCM/customer objects, Transfer in XML format
- PreCheck
- Verifications
- Table copy & compare

Process

- Job scheduler
- Mapping loader

The migration and assistance tools are entirely SAP based (ABAP/4 coded)

Several tool assist in the migration verification phase

Verification Overview

- Generation and comparison of key figures (counts, sums, ...)
- Tolerates deletions and splits
- Fast (kind of...)

Verification on field level

- 100 % check
- Uses mapping rules

The migration verification tools are entirely SAP based (ABAP/4 coded)

Level II: Data Migration Mapping

The mapping is maintained in a Excel sheet optimized for business review purposes.

Any business object (e.g. actions) has a sheet by its own (violet frame).







Text insertion is possible everywhere (orange frame).

Actual technical mapping value pairs 'from' (blue frame) & 'to' (green frame) are automatically extracted and put into the migration mapping tables.









Hints, algorithms and Status can be given to the developers and are reported from the mapping loader (red frame).

	A	B	C	D	E	F
1	#	#FMEMBER		#TMEMBER		
2			Wings1		WINGS2	
3		W1.P0001-PERSK	Description	W2.P0001-ABKRS	Description	
4	#	X0	DIR Director	01	Monthly	##todo if W1.PA0001-ABKRS = 'X1'
5	#	X0	DIR Director	99	Non-payroll-relevant	##todo if W1.PA0001-ABKRS = 'X0'
6	#	X1	PROF Professional	01	Monthly	##todo if W1.PA0001-ABKRS = 'X1'
7	#	X1	PROF Professional	99	Non-payroll-relevant	##todo if W1.PA0001-ABKRS = 'X0'
8	#	X2	GS General Serv	01	Monthly	
9	#	X3	GSINT GS Internat	01	Monthly	
10	#	X4	JPO Jn Prof Off	01	Monthly	
11	#	X6	SSA SSA Regular	01	Monthly	
12	#	X9	SSAW SSA WAEmployed	01	Monthly	
13	#	XB	CST Consultant Reg	01	Monthly	
14	#	XE	CSTW CST WAEmployed	01	Monthly	
15	#	XG	GSD Gen Serv Daily	01	Monthly	
16	#	XK	GSL GS Liaison Off	99	Non-payroll-relevant	##todo if ENDDA < Go-live date (segment IT0001 if necessary)
17	#	XK	GSL GS Liaison Off	01	Monthly	##todo if BEGDA >= Go-live date (segment IT0001 if necessary)
18	#	XW	Consultant without Compensation	99	Non-payroll-relevant	##todo if ENDDA < Go-live date (segment IT0001 if necessary)
19	#	XW	Consultant without Compensation	01	Monthly	##todo if BEGDA >= Go-live date (segment IT0001 if necessary)
20	#	X7	National Officer	99	Non-payroll-relevant	
21						

Construction of transport requests of selectable workbench (usually custom developments) objects.

<input checked="" type="checkbox"/> Create transport request ?				
Name of created repo. request	Migration Rep ToC Custom			
Type of request (don't change)	T			
User of created repo. request	R_KRAEMER			
<input checked="" type="checkbox"/> Config from TADIR				
Source System		to		
Development classes	ZBC400_01	to		
Object type		to		
<input checked="" type="checkbox"/> Remote source comparison ?				
Remote destination	D01MDT350			
<input type="checkbox"/> Config from existing requests				
Existing requests		to		
<input type="checkbox"/> Skip locked objects				
<input checked="" type="checkbox"/> Config from EXCEL sheet ?				
Filename of EXCE sheet (.xls)	\Client\CS\Users\rmk\Documents\			
<input type="checkbox"/> Config from CCAPPS file ?				
Name of CCAPPS file	C:\TEMP			
Filter for object names		to		
Filter for object types		to		
<input type="checkbox"/> Output to screen ?				
<input checked="" type="checkbox"/> Create output (.csv) file ?				
Name of output (.csv) file	\Custom migration2016\Repository\rep2_custom.csv			
Column separator	;			

Construction of transport requests of selectable customizing objects.

<input checked="" type="checkbox"/>	Create transport request ?	
<input checked="" type="checkbox"/>	Also WB request ?	
	Name of created cust. request	Cust By Mig. 50 objs
	Type of request (don't change)	W
	User of created cust. request	R_KRAEMER
	Status for incl. to transport	Copy 
<input type="checkbox"/>	Config from existing requests	
	Existing requests	<input type="text"/> to <input type="text"/> 
	Software component	SAP_HR to <input type="text"/> 
	Delivery class	C 
	Language (SPRAS)	EN 
	Molga	06 
	Filters for table names	<input checked="" type="checkbox"/> T5FPBS0* to <input type="text"/> 
<input checked="" type="checkbox"/>	Remote table comparison ?	
	Remote client	350
	Max size for remote comparison	10,000
	Remote destination	M01MDT350
<input checked="" type="checkbox"/>	Config from EXCEL sheet ?	
	Filename of EXCEL sheet (.xls)	\\Client\C\$\Users\vmk\Documents
<input checked="" type="checkbox"/>	Check existing transports	
<input type="checkbox"/>	Show only 'relevant' entries	
<input checked="" type="checkbox"/>	Output to screen ?	
<input checked="" type="checkbox"/>	Create output (.csv) file ?	
	Name of output (.csv) file	stomer: tion2016\Customizing\hcm_T5FPBSx.csv 
	Column separator	;

Export of organizational management (PD) data.

Objects

Plan version	<input type="text" value="01"/>	Current plan
Object type	<input type="text" value="0"/>	Organizational Unit
Object ID	<input type="text"/>	
Search Term	<input type="text"/>	
Object status	<input type="checkbox"/>	All existing

Reporting period

Today All Other period

Current month Past

Current Year Future

Object selection period: to

Data selection period: to

Export program for PD objects: _____

Export file configuration

Local file ?

Name of export file:

Maximum # of objects in file:

Types of data to be exported

Masterdata

P EX Status

PD B Status

Infotypes (empty = all): to

Control parameters

Show generated XML (debugging)

Import of organizational management (PD); including relationships and update of ASSHR, ASSO, PDSNR & PTQUODED tables.

Migration Import Utility for PD objects. Release 1.28.

Import file	\hq-sap-sqlP01\SAPMerge\hcm_pd_ou_0000...		local
Maximum XML size :	1,000,000,000		Iter: 13
Objects :		to	
Infotypes (empty is all) :		to	
Object types for source :		to	
Object types for target :		to	

Data Import BegDa	
Going life date	
Data Import Action	01

<input checked="" type="checkbox"/> Import Objects	
<input checked="" type="checkbox"/> Import Relationships	
<input checked="" type="checkbox"/> Import PD Infotypes	
<input type="checkbox"/> Create IT 1018	
<input type="checkbox"/> Map field values	

Version of Mapping Set: 0001

<input type="checkbox"/> Delete Objects before Import	<input checked="" type="checkbox"/> Create & Import Objects
<input type="checkbox"/> Test complete Object in the database HRPnnn tables	
<input type="checkbox"/> Activate Debugging msgs	Code page
Call Transaction display mode	E Format 'P' E

Export of master data, payroll results (cluster) and time events (cluster).

The screenshot displays the SAP HCM Data Migration tool interface, organized into several sections:

- Further selections**: Includes buttons for "Search helps" and "Sort order".
- Period**: Contains radio buttons for "Today", "Current month", "Current year", "Up to today", and "From today". The "Other period" option is selected, and its configuration is highlighted with a green box:

Data Selection Period	01.01.1800	To	31.12.9999
Person selection period	01.01.1800	To	31.12.9999
- Payroll period**: A button located below the period selection options.
- Selection**: A list of selection criteria with input fields and search icons:
 - Personnel Number
 - Employment status
 - Company Code
 - Payroll area
 - Pers.area/subarea/cost center
 - Employee group/subgroup
- Export program for employees release 1.03**: A section header.
- Export file configuration**: Includes a checkbox for "File is local", a text field for "Name of file" (containing "Whq-sap-sqlP01\SAPMerge\hcm_pa"), a text field for "Employees per file" (containing "10"), and a text field for "Number of first block" (containing "1").
- Types of data to be exported**: Includes checkboxes for "Export Master Data" (checked), "Infotypes", "Payroll clusters", and "Time cluster". The "Only TX" option is also checked.
- Control parameters**: Includes checkboxes for "Show export statistics" (checked), "Show database statistics", and "Show XML sources".

Import of master data, payroll results (cluster) and time events (cluster).

Migration Import Utility for Employees. Release 1.24.

Selection

Import file: local

Maximum XML size: Iter:

Personal numbers: to

Infotypes (empty is all): to

Details

Data Import BegDa: Do 'In place'

Data Import Action:

Limit for tech. Import: Use as AEDTM (where set)

Going life date: Split at GLD

Limit to Period from: to

Import

Import Master data Offset to orig. Pernr

Import Payroll cluster Offset to orig. Pernr

Import Time cluster Offset to orig. Pernr

Map field values Version of Mapping Set

Target

Employees Applicants

Processing

Delete Person before Import Create & Import Persons

Create BI-files for errors Codepage

Test complete Person in the database infotype tables

Activate Debugging msgs Activate Technical msgs

Infotypes to force BI

Call Transaction display mode Format 'P' Commit

Export and Import of cluster PCL1 with selectable 'RELID's

Migration Export Utility for Tables. Release 0.71

Selection

Export file (w/o table/type) local

Format is XML (vs. Tab/Ret) Large file mode (Server only)

Tables to

WHERE condition

Export

Include header line Max lines (0=ign.)

Map field values Version of mapping set

Migration Import Utility for Data. Release 0.90

Selection

Import file

File is local (workstation) Directory part separator

Parse as XML (vs. tab/ret) Direct write (Server only)

Maximum XML size

Tables to

Import

Import Content File in short Format File in Export Format

Commit database changes After #rows (0 = never)

of lines to skip at begin maximum # of lines

Map field values Version of mapping set

Format 'P' code page

Processing

Delete content before Import Import Tables Database mode

Test complete content in the database tables

Show debugging messages Show field assignments

Export and Import of PBC

Migration Export Utility for PBC masterdata. Release 0.55

Selection

Export file (w/o table/type) local

Format is XML (vs. Tab/Ret) Large file mode (Server only)

Tables to

Export

Include header line Max lines (0=ign.)

Map field values Version of mapping set

Processing

Activate debugging msgs

Migration Import Utility for PBC. Release 1.23

Selection

Import file local

Single table (override)

Parse as XML (vs. tab/ret)

Maximum XML size

Import

Import Content File in short Format File in Export Format

Commit database changes

Map field values Version of mapping set

Format 'P' code page

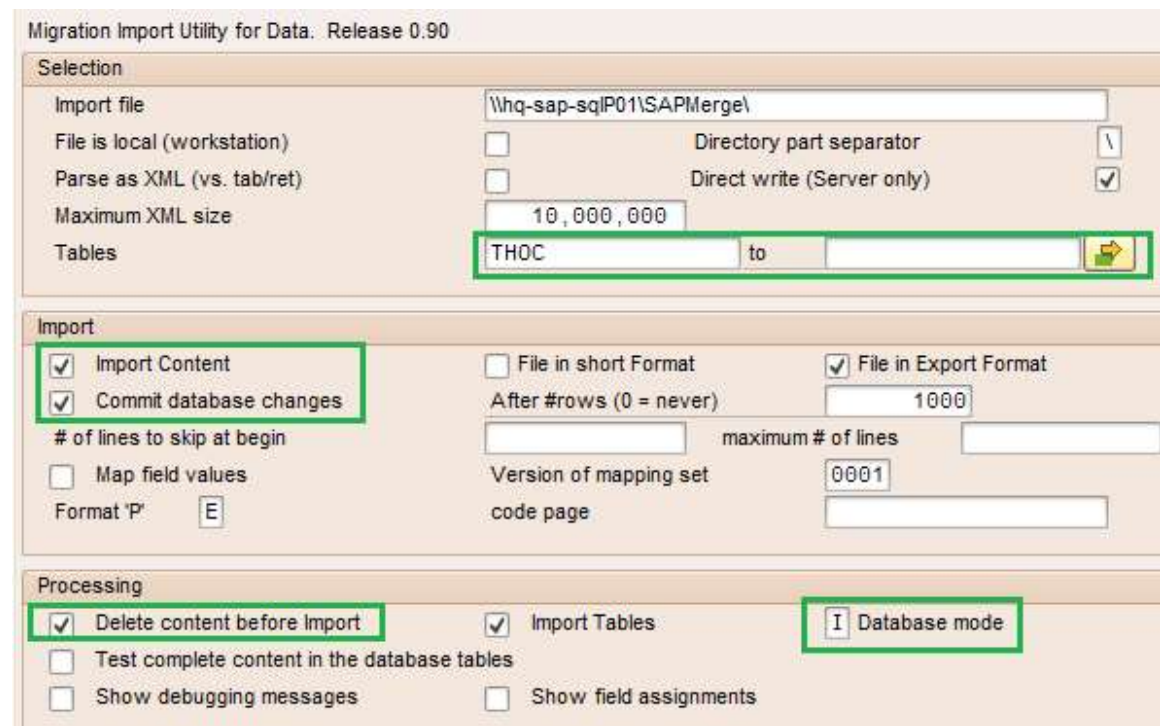
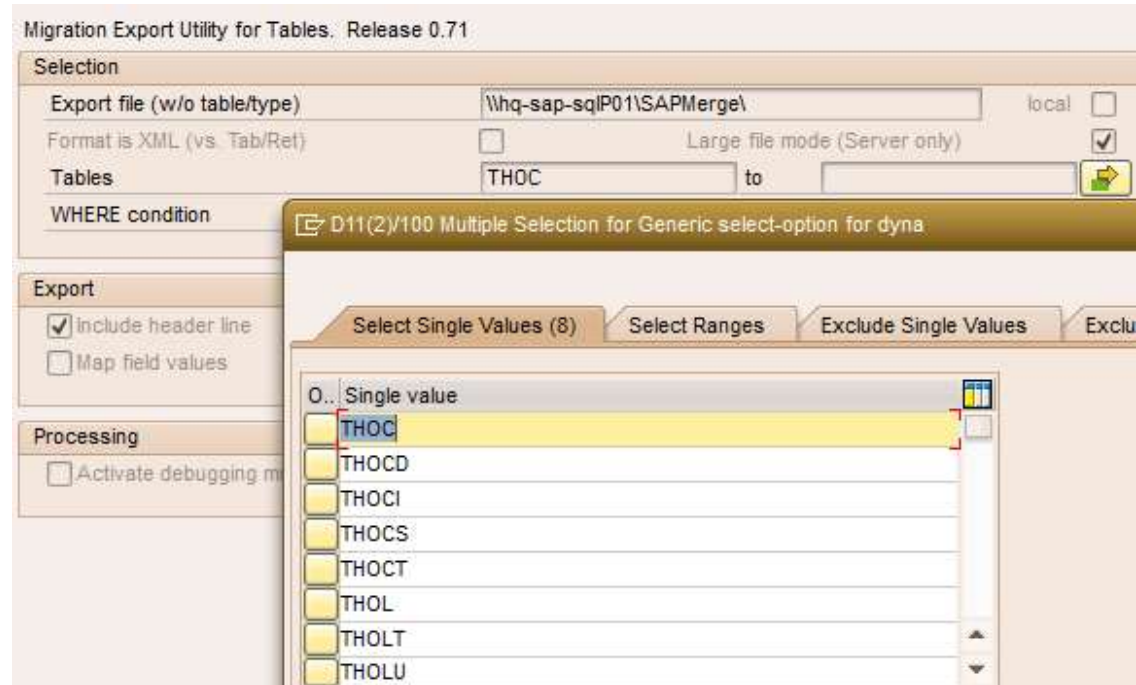
Processing

Delete content before Import Import Tables

Test complete content in the database tables

Activate debugging msgs

Export and Import of calendars
(public, holiday, factory, ...)



Export and Import of postings to FI

Migration export utility for postings. Release 0.90

Selection

Export file (w/o table/type) local

Format is XML (vs. Tab/Ret)

Export

Include header line

Processing

Activate debugging msgs

Migration Import Utility for Posting Documents. Release 1.22

Selection

Import file local

Single table (override)

Parse as XML (vs. tab/ret)

Maximum XML size

Import

Import Content File in short Format File in Export Format

Commit database changes

Map field values

Format 'P'

Version of mapping set

code page

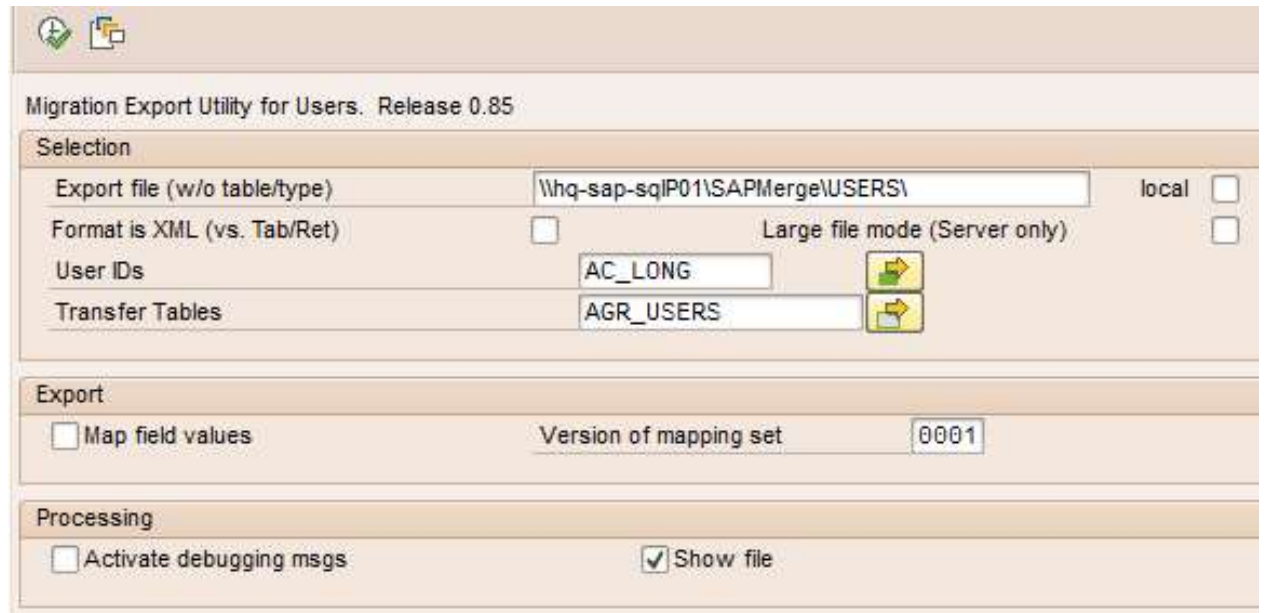
Processing

Delete content before Import Import Tables

Test complete content in the database tables

Activate debugging msgs

Export and Import of users



Migration Export Utility for Users. Release 0.85

Selection

Export file (w/o table/type)	<input type="text" value="\\hq-sap-sqIP01\SAPMerge\USERS\"/>	local	<input type="checkbox"/>
Format is XML (vs. Tab/Ret)	<input type="checkbox"/>	Large file mode (Server only)	<input type="checkbox"/>
User IDs	<input type="text" value="AC_LONG"/>		
Transfer Tables	<input type="text" value="AGR_USERS"/>		

Export

<input type="checkbox"/> Map field values	Version of mapping set	<input type="text" value="0001"/>
---	------------------------	-----------------------------------

Processing

<input type="checkbox"/> Activate debugging msgs	<input checked="" type="checkbox"/> Show file
--	---



Universal Call Transaction rel. 1.1

Selection

PFILE	<input type="text" value="\\hq-sap-sqIP01\SAPMerge\USERS\"/>
File is local	<input type="checkbox"/>
Users	<input type="text"/>
PCTDMODE	<input type="text" value="A"/>
PCTUMODE	<input type="text" value="S"/>

DO_SHOW

The XML format for transfer of employee data from a legacy system into a SAP HCM system is closely related to the structures and field names of the SAP HCM data model.

Structures

- Infotypes OM and PA
- Tables of Clusters PCL1 & PCL2
- Postings to FI
- 'frontend' Attachments

Field Names

- Short Names as defined in the SAP data dictionary

The technical and business description of the XML tag names can therefore be retrieved directly from the R/3 system.

```
- <hcm_pa date="0" >
- <head>
  <client>099</client>
  <system_id>DEV</system_id>
  <sap_release>45B</sap_release>
  <datestamp>20070806</datestamp>
  <timestamp>162001</timestamp>
  <username>VOMHOFE</username>
  <driver>Export program for employees release 0.87</driver>
  <driver_prog>Y_MIGHR_EXP_PA</driver_prog>
- <base>
  <db_system>ORACLE</db_system>
  <o_system>Windows NT</o_system>
  <host>wfpsap01</host>
</base>
- <selection>
  <startdate>20020101</startdate>
  <enddate>20020331</enddate>
</selection>
</head> head
- <body>
+ <employee pernr="00012070">
- <employee pernr="00012468">
  + <masterdata> master data
  + <cluster_py> payroll cluster
  + <cluster_pt> time cluster
</employee>
+ <employee pernr="00012682"> Body: employees
</body>
</hcm_pa>
```

- <masterdata>

```
+ <infotypes id="0000">  
+ <infotypes id="0001">  
+ <infotypes id="0002">  
+ <infotypes id="0003">  
+ <infotypes id="0006">  
+ <infotypes id="0007">  
+ <infotypes id="0008">  
+ <infotypes id="0009">  
+ <infotypes id="0014">  
+ <infotypes id="0015">  
+ <infotypes id="0016">  
+ <infotypes id="0017">  
+ <infotypes id="0019">  
+ <infotypes id="0021">  
+ <infotypes id="0028">  
+ <infotypes id="0041">  
+ <infotypes id="0045">  
+ <infotypes id="0078">  
+ <infotypes id="0105">  
+ <infotypes id="0167">  
+ <infotypes id="0168">  
+ <infotypes id="0171">  
+ <infotypes id="0302">  
+ <infotypes id="0378">  
+ <infotypes id="0439">  
+ <infotypes id="2001">  
+ <infotypes id="2006">  
+ <infotypes id="2007">  
+ <infotypes id="2010">  
+ <infotypes id="2013">  
+ <infotypes id="9009">  
+ <infotypes id="9011">  
+ <infotypes id="9300">  
+ <infotypes id="9312">  
+ <infotypes id="9322">
```

Infotypes grouped by type

</masterdata>


```
- <infotypes id="0021">
- <infotype id="0021">
  <freetext />
  <subty>1</subty>
  <objps>01</objps>
  <endda>31.12.9999</endda>
  <begda>01.01.2002</begda>
  <aedtm>09.03.2002</aedtm>
  <uname>PROIETTI</uname>
  <famsa>1</famsa>
  <fgbdt>07.03.1954</fgbdt>
  <fasex>2</fasex>
  <favor>Margrethe</favor>
  <fanam>Juncker</fanam>
  <zz_dob_cert>X</zz_dob_cert>
  <zz_family_at>X</zz_family_at>
</infotype>
+ <infotype id="0021">
  <freetext />
  <subty>2</subty>
  <objps>01</objps>
  <endda>31.10.2004</endda>
  <begda>01.01.2002</begda>
  <aedtm>29.11.2004</aedtm>
  <uname>BALDUCCI</uname>
  <famsa>2</famsa>
  <fgbdt>02.05.1988</fgbdt>
  <fanat>US</fanat>
  <fasex>1</fasex>
  <favor>Benjamin</favor>
  <fanam>Davies</fanam>
  <kdart>CH</kdart>
  <zz_dob_cert>X</zz_dob_cert>
  <zz_family_at>X</zz_family_at>
</infotype>
+ <infotype id="0021">
+ <infotype id="0021">
+ <infotype id="0021">
+ <infotype id="0021">
</infotypes>
```

Single Infotypes with fields

```
- <cluster_py>  
  - <period period="200201">  
    + <line seqnr="00001">  
      </period>  
  - <period period="200202">  
    + <line seqnr="00001">  
      - <line seqnr="00006">  
        + <wpbp_list>  
        + <rt_list>  
        + <rt_list>  
        + <bt_list>  
        + <c1_list>  
        + <v0_list>  
      </line>  
    + <line seqnr="00007">  
      </period>  
</cluster_py>
```

a line consists of tables

Cluster structured in periods & lines

```
- <wpbp_list>
  <wpbp>
    <apznr>01</apznr>
    <begda>20020101</begda>
    <endda>20020131</endda>
    <massn>TM</massn>
    <massg>01</massg>
    <stat1>1</stat1>
    <stat2>3</stat2>
    <stat3>1</stat3>
    <aktivjn>X</aktivjn>
    <bukrs>WFP1</bukrs>
    <werks>0490</werks>
    <btrtl>01F</btrtl>
    <kostl>UGA</kostl>
    <persg>1</persg>
    <persk>X1</persk>
    <abart>3</abart>
    <plans>20945528</plans>
    <gsber>GPSA</gsber>
    <ansvh>Z2</ansvh>
    <orgeh>50002558</orgeh>
    <stell>30000042</stell>
    <zterf>9</zterf>
    <schkz>NORM</schkz>
    <empct>100.0000</empct>
    <ksoll>31.0000</ksoll>
    <asoll>23.0000</asoll>
    <ssoll>173.0000</ssoll>
    <kdivi>31.0000</kdivi>
    <adivi>23.0000</adivi>
    <sdivi>173.0000</sdivi>
    <divgv>163.0000</divgv>
    <bsgrd>100.0000</bsgrd>
    <trfar>01</trfar>
    <trfgb>01</trfgb>
    <trfgr>P-5</trfgr>
    <trfst>07</trfst>
    <arbst>8.0000</arbst>
    <wkwdy>5.0000</wkwdy>
  </wpbp>
</wpbp_list>
```

Table consists of multiple entries,
Every entry has fields

```
- <rt_list>
  <rt>* /101 12,681.0000</rt>
  <rt>* /109 2,073.0000</rt>
  <rt>* /110 3,887.0000-</rt>
  <rt>* /190 11,520.0000</rt>
  <rt>* /192 11,520 10,065.0000</rt>
  <rt>* /550 8,794.0000</rt>
  <rt>* /559 8,794 5,794.0000</rt>
  <rt>* /560 8,794.0000</rt>
  <rt>* /700 10,867.0000</rt>
  <rt>* /840 10,867 10.0000</rt>
  <rt>* /844 10 8.0000</rt>
  <rt>* /845 8 8.0000</rt>
  <rt>* 5100 8 B 8 910.0000-</rt>
  <rt>* 5320 910- B 910- 23.0000-</rt>
  <rt>* 5390 23- B 23- 23.0000-</rt>
  <rt>* 7600 23- 31.0000</rt>
  <rt>* 9515 31 10,065.0000</rt>
  <rt>* 9557 U 10,065 3,000.0000</rt>
  <rt>3 /001 3,000 56.0000</rt>
  <rt>3 /002 56 40.0000</rt>
  <rt>3 /093 40 338.0000</rt>
  <rt>3 /BER 338 2,073.0000</rt>
  <rt>3 1100 2,073 9,123.0000</rt>
  <rt>3 110X 9,123 6,506.0000</rt>
  <rt>3 2000 6,506 030 13.0000 813.0000</rt>
  <rt>3 2160 813 2,617.0000-</rt>
  <rt>3 2220 2,617- 060 5.0000 807.0000</rt>
  <rt>3 2350 807 030 34.0000 1,861.0000</rt>
  <rt>3 2780 1,861 78.0000</rt>
  <rt>3 5110 78 012 11,520.0000</rt>
  <rt>3 5115 11,520 138,237.0000</rt>
  <rt>3 5400 138,237 B 138,237 253.0000-</rt>
  <rt>3 5500 253- B 253- 36.0000-</rt>
  <rt>3 5810 36- 26.0000-</rt>
  <rt>3 7100 26- B 26- 1,820.0000</rt>
  <rt>3 7400 1,820 B 1,820 253.0000</rt>
  <rt>3 9500 253 253 S 253 13,167.0000</rt>
</rt_list>
```

```
- <cluster_pt>
  - <period period="200201">
    + <wpbp_list>
    + <saldo_list>
    + <zes_list>
    + <zko_list>
    + <abwkonti_list>
    + <psp_list>
    + <anwkonti_list>
    + <pt_list>
    + <qtacc_list>
    + <qtbase_list>
  </period>
  - <period period="200202">
    + <wpbp_list>
    + <saldo_list>
    + <zes_list>
    + <zko_list>
    + <abwkonti_list>
    + <psp_list>
    + <anwkonti_list>
    + <pt_list>
    + <qtacc_list>
    + <qtbase_list>
  </period>
</cluster_pt>
```

Time cluster is structured into periods,
Periods consist of tables

```
- <period period="200202">
+ <wppb_list>
- <saldo_list>
+ <saldo>
+ <saldo>
- <saldo>
  <ztart>0050</ztart>
  <anzhl>1,270.0000</anzhl>
  </saldo>
+ <saldo>
+ <saldo>
+ <saldo>
+ <saldo>
+ <saldo>
  </saldo_list>
+ <zes_list>
+ <zko_list>
```

```
- <abwkonti_list>
+ <abwkonti>
- <abwkonti>
  <infty>2006</infty>
  <subty>11</subty>
  <endda>20030228</endda>
  <begda>20020301</begda>
  <ktart>11</ktart>
  <zeinh>010</zeinh>
  <kverb>28.0000</kverb>
  <rewri>1</rewri>
  <desta>20020301</desta>
  <deend>20030228</deend>
  </abwkonti>
</abwkonti_list>
```

Every entry consists of fields

Tables have multiple entries

```
+ <psp_list>
+ <anwkonti_list>
+ <pt_list>
+ <qtacc_list>
+ <qtbase_list>
</period>
```