

How to Create a System Shell using TDMS 3.0 (TDMS 2006)



Applies to:

TDMS 3.0. For more information, visit the [Application Management homepage](#).

Summary

This document describes how you can create a system shell using TDMS to use as a base for a reduced system.

Author: Markus Doehr

Company: SIEGENIA-AUBI KG

Created on: April 20th 2011

Author Bio

I work as SAP basis system administrator since 16 years.

Prerequisites

This guide describes the process of creating a system shell. Assumed are the following support packages levels on your central (TDMS) and sender system (it may/will work with lower SP levels too).

- DMIS_2006 SP16
- DMIS_CNT SP16

You also need

- a working network connection between central and source system
- operating system access with administrator/root permissions on source and target system

This articles screenshot and assumptions are for Windows + Oracle, the process on other platforms/databases is likewise, it can be used for other platforms too with slight adoptions.

Preparation

Since a shell creation makes use of the system copy tools, it is highly advised to update the tools to their latest available version for your system before you start.

The tools to be updated are

- R3load (R3load export tool - check version with `R3load -v`)
- R3ldctl (Control tool, creates control files - check version with `R3ldctl -v`)
- R3szchk (Sizecheck tool, determines tables sizes - check version with `R3szchk -v`)
- db<database>slib.dll (or db<database>slib.(s)o on Unix platforms) - check version with transaction SM51 and note [Note 400818 - Information about the R/3 database library](#). Note: updating that library requires a stopped system.

Download the newest tools and libraries using [Note 19466 - Downloading SAP kernel patches](#)

Download the latest CD/DVD master installation media and extract it to the source system (database server).

Process of Creating a Shell - Step-by-Step

Export

1. Logon to the source system as <sid>adm (database server) and create two directories:
 - a. an INSTALLATION directory for the files created by R3ldctl (I use e:\shell_install in this example)
 - b. an EXPORT directory for the exported data (I use e:\shell_export in this example). You will need about 20 GB of space for the shell.

Make sure the directories do **not** contain spaces in their path.

2. Adapt the permissions for these two directories: Add <sid>adm and SAPService<SID> with full permissions.

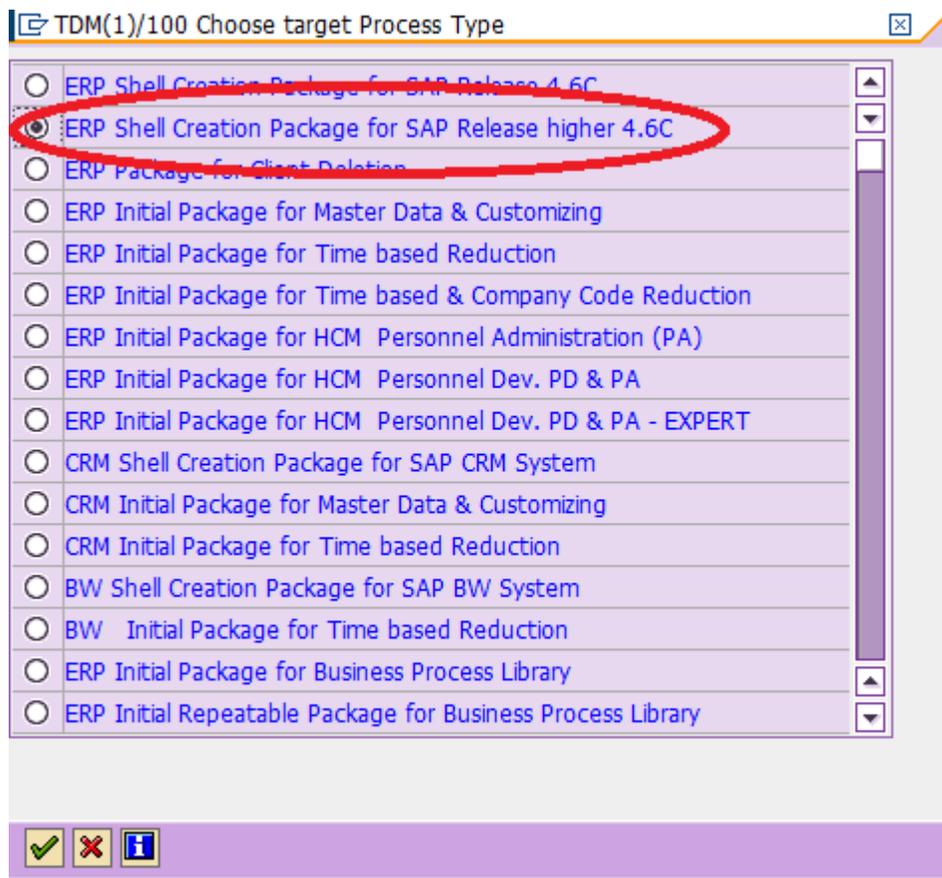
3. Start a command prompt (cmd.exe), step to the INSTALLATION directory and execute

```
R3ldctl -l R3ldctl.log -p <installation directory>
```

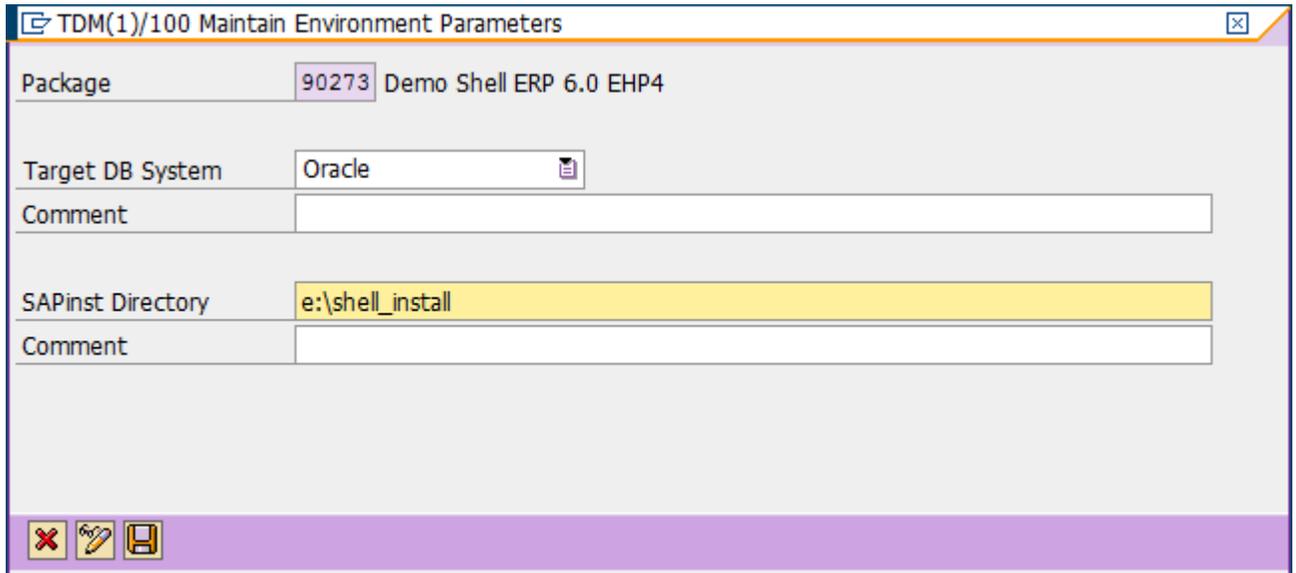
This will run for some minutes and create control and template files that will be adapted/modified in the shell package by TDMS.

4. At the same time logon to the source system in client 000 and create a client export using transaction SCC8 with profile SAP_ALL. In the last dialog you get a list with three transports, write them down or print the page.

5. Login to your TDMS central system; create a project, a sub project and a package of type "ERP package for shell creation":



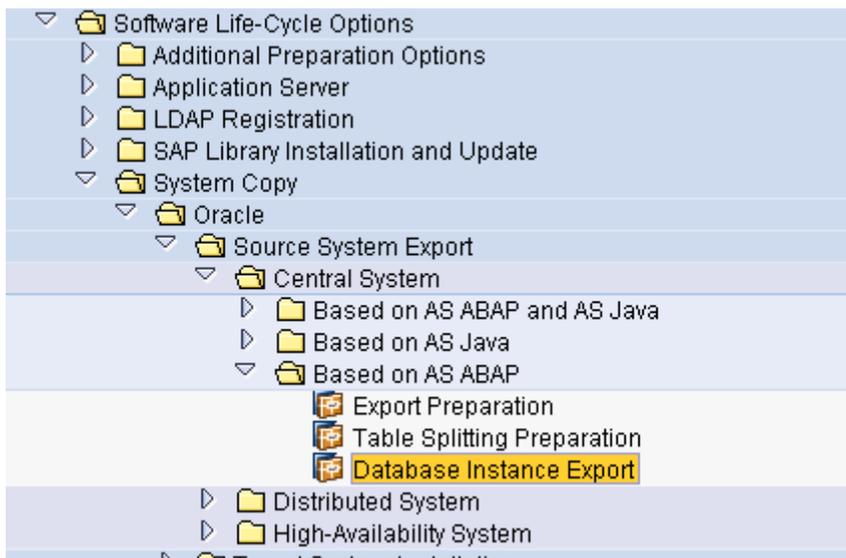
6. Create the RFC connections using the phase "Define RFC Destinations" in the package. You will only define two systems here, the source system where the shell is created from and the TDMS system.
7. Execute TDMS step "Maintain Target Database and Installation Directory". Enter the installation directory you have created in step 1. Make sure R3ldctl is finished before you start that:



Execute "Determine Tables to be excluded from the Export" and "Modify Control Files with Exclude Table Information". These phases do an RFC to your source system, open the file DDL<database>.TPL (in the example here: e:\shell_install\DDLORA.TPL) and add a lot of entries to the negdat: section in that file. Those entries will tell R3load later to not export the content of those tables but just the structure:

Process Tree	State	Progress
TDMS package 90273 Demo Shell ERP 6.0 EHP4		
TDMS Shell Creation (Active Phase)		
Prepare System Copy		0
Create Control File		0
Define RFC Destinations		100
Define Environment Parameters and Excluded Ta		0
Maintain Target Database and Installation Dire		100
Determine Tables to be Excluded from the E		100
Check size of large tables (Optional)		0
Modify Control Files with Exclude Table Infor		100
Export the Database		0
Determine Initial Table and DB Size		0
Proceed with the Copy Process		0
Create Reference Client and TDMS installation		0
Clean up User and Address Data in Shell System		0
Complete Package		0

8. Now the system must be exported. Go back at OS level and start sapinst from the DVD you extracted in the preparation section. Choose the path *Software Life-Cycle Options --> System Copy --> <yourdatabase> --> Source System Export --> Database Instance Export*



9. Enter your profile directory - press Next:



SAP System > General Parameters

Enter the profile directory of the SAP system

SAP System Parameters

Profile Directory

Additional Information

SAPinst retrieves existing parameters from the SAP system profile directory. Location of your E

- Windows: \\<SAPGLOBALHOST>\sapmnt\<SAPSID>\SYS\profile
- UNIX: /<SAP System Mount Directory>/<SAPSID>/profile
- i5/OS: \\<SAPGLOBALHOST>\sapmnt\<SAPSID>\SYS\profile

10. Enter the password of <sid>adm user - press Next
11. As export location enter the EXPORT directory you created in step 1 (in the example here e:\shell_export)

Enter the directory for the export location

Database Export

Export Location*

Stop running system

Additional Information

You will be prompted again for the *Export Location* during the installation of the target system.
If you select *Stop running system* and your system is running, you will be prompted to manually stop the sy

12. Sapinst requests to run SMIGR_CREATE_DDL. Logon to your production client, start SE38 and run that program. Select your database (depending on which use you, you also need to choose the correct version) and enter as output directory the INSTALLATION directory created in step 1 (in this example I use e:\shell_install). If SMIGR_CREATE_DDL is finished, press on OK.

Confirm the Execution of Report

SMIGR_CREATE_DDL Yes, use the generated SQL files for the system copy.
 No, run the import on the target system without SQL files.

SQL File Directory*

Attention: Only choose *No* in the following cases:
* Your source system is a standard ABAP system without customer-modified objects and without BW
* SMIGR_CREATE_DDL ended successfully but didn't generate SQL files or SQLFiles.LST
Otherwise, this option could lead to import errors or harm your target system.

13. In the next screen **deselect** "Split STR files" (this doesn't work with shell creation) and **select** "Start migration monitor manually". Also select your database. Press Next

Source System

Database ID (DBSID) Source DB

Database Host Source OS

Target System

Target Database Type

Export Settings

Split STR files

Start Migration Monitor manually

14. In the summary screen check the data and press next.
15. Depending on the size and speed of the system it can take up to an hour until sapinst comes back with a popup requesting you to start the migration monitor.

16. Open an explorer and step to the temporary sapinst installation directory. Usually, if not changed explicitly, this is

```
C:\Program Files\sapinst_instdir\NW701\LM\COPY\<DB>\EXP\CENTRAL\AS-ABAP\EXP
```

17. Open the file "export_monitor_cmd.properties" using wordpad (or sappad) and adapt it. You have to uncomment
 - a. server
 - b. exportDirs=<your EXPORT directory>\ABAP (in example case e:\shell_export\ABAP) - **Don't forget to add "ABAP" after the directory!**
 - c. installDir=<your INSTALLATION directory> (in example e:\shell_install)
 - d. orderBy=name
 - e. ddlFile=<your INSTALLATION directory>\DDL<yourdatabase>.TPL (in example e:\shell_install\DDLORA.TPL)
 - f. tskFiles=yes
 - g. dataCodepage=<yourcodepage> (in standard Non-Unicode systems this is **1100**, for Unicode systems this is dependent on your platform:
 - i. AIX, HP-UX, Solaris SPARC, Linux on PPC, Linux on zSeries: **4102**
 - ii. Windows, Linux (all others), Solaris x64, Tru64/DEC OSF: **4103**
 - h. jobNum=<number-of-CPU*1,5> (in example I use 6)
 - i. loadArgs=-loadprocedure fast -merge_bck (note: those are Oracle specific)
18. Open a cmd.exe, step to the "normal installation" directory (see point 16), make sure the environment JAVA_HOME is set correctly. Then execute export_monitor.bat.
19. The script starts the migration monitor and runs the export. Depending of the speed and load of the source system this can several hours. Note: If you do the export on a running system make sure no TMS imports are being imported that contain DDIC changes. Otherwise you may have trouble later when running a TDTIM package because of different DDIC structures. At best don't do any imports at all as long as the export is running or even better stop the system.

20. Once the export is finished, make sure all .EXT files from the sapinst temporary installation directory are in the database subdirectory of your EXPORT directory. In the example the .EXT files are on C:\Program Files\sapinst_inst\dir\NW701\LM\COPY\<DB>\EXP\CENTRAL\AS-ABAP\EXP and they need be copied to e:\shell_export\ABAP\DB\ORA (MSS for SQL Server etc.). Depending on which database and installation master DVD you use this may have been done automatically.
21. Execute the phase "Maintain Export Directory". Enter your export directory and add ABAP. In the example: e:\shell_export\ABAP:

The screenshot shows a dialog box titled "TDM(1)/100 Maintain Environment Parameters". It contains the following fields:

- Package: 90273 Demo Shell ERP 6.0 EHP4
- Target DB System: Oracle
- Comment: (empty)
- SAPinst Directory: e:\shell_install
- Comment: (empty)
- Export directory: e:\shell_export\ABAP (highlighted in yellow)
- Comment: (empty)

At the bottom, there are icons for Cancel, Help, and Save.

22. Execute the phase "Load Table Size".
23. Execute the phase "Determine and Modify Size of Tables". Here you need to define the avg. size of the tables for the target system. Depending on how much data you have in your source system and the to-be-selected from-date you will choose select an avg. amount and save it (10 – 20 % is fine for most cases):

Pack ID	Table	Size SND	Size REC	Method
90273	AABLG	131072	13107	RATIO10
90273	AABLG~0	9437184	943718	RATIO10
90273	ACCTCR	747634688	74763469	RATIO10
90273	ACCTCR~0	1782579200	178257920	RATIO10
90273	ACCTHD	92274688	9227469	RATIO10
90273	ACCTHD~0	142606336	14260634	RATIO10
90273	ACCTHD~1	67108864	6710886	RATIO10
90273	ACCTIT	1782579200	178257920	RATIO10

24. Execute the phase " Calculate Size of Database". On the window popping up you can change the calculated size based on the previous phase:

TabSPACE	Reduc.Size	DBsize snd	Estim.Size
PSAPT10	91572	272980	171977
PSAPT10700		57560	57560
PSAPT10FACT		50	50
PSAPT10ODS		50	50
PSAPT10USR		30	30

Here you will see how big the new tablespaces on the target system are going to be.

25. Execute the phase " Export Size of Tables and Database". This will write your database size into the DBSIZE.XML in the DB\<DATABASE> directory of your EXPORT directory. Now everything is set up to install the target shell.
26. Prepare the target system as described in the system copy guide (database installation when necessary etc.)
27. Install the system using the export from e:\shell_export according to the system copy guide.
28. Once the system is installed logon to client 000 and do the following:
- Execute transaction STMS once and create a domain. It is necessary to do that in order to be able to import the client 000 export you did in step 4
 - Execute transaction SA38 and run report BTCTRS1. This will suspend all jobs in the system so you don't get inadvertent connections to other production systems.
29. If that is done logon on operating system level with use <sid>adm, open an cmd and import the client export of 000 by stepping to your \usr\sap\trans directory and executing for <SID>T<NUMBER> and <SID>X<NUMBER>
- `tp addtobuffer <transport> <SID> pf=<transport-profile> u18`
 - `tp import <transport> <SID> pf=<transport-profile> u18`
30. Login to your production client and do a client copy with profile SAP_UCSV to clean up user addresses etc.
31. After that is done adapt the profile parameter (RZ10) according to your needs. The system is now ready for a TDMS package (e. g. TDTIM).

Related Content

[Note 400818 - Information about the R/3 database library.](#)

[Note 19466 - Downloading SAP kernel patches](#)

For more information, visit the [Application Management homepage](#)

Disclaimer and Liability Notice

This document may discuss sample coding or other information that does not include SAP official interfaces and therefore is not supported by SAP. Changes made based on this information are not supported and can be overwritten during an upgrade.

SAP will not be held liable for any damages caused by using or misusing the information, code or methods suggested in this document, and anyone using these methods does so at his/her own risk.

SAP offers no guarantees and assumes no responsibility or liability of any type with respect to the content of this technical article or code sample, including any liability resulting from incompatibility between the content within this document and the materials and services offered by SAP. You agree that you will not hold, or seek to hold, SAP responsible or liable with respect to the content of this document.