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SYSchange®
Deployment Strategy
at Rabobank

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Rabobank Contact:

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Rabobank Group is a full-range financial services provider comprised of 183 independent local Dutch Rabobanks, a central organization (Rabobank Nederland), and a large number of specialized international offices.

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SYSchange® Deployment Strategy at Rabobank

This document is prepared as a result of several email communications with Henny J. Hesse between the dates of November 20th and November 24th 2011. The purpose of this document is to share with others how Rabobank uses **SYSchange** in their maintenance and deployment strategy for the z/OS Operating System, Program Products and ISV Software.

Q: I was presenting SYSchange to a prospect this past Friday. A question was raised which I would like to ask your opinion on. They use IBM DFDSS to build a SYSRES and when it is ready with the new changes, they switch the new volume with their current SYSRES. This is how they build their systems and distribute changes to other systems.

I know that you have a similar process at Rabobank. Under this scenario, what are your compelling reasons for using SYSchange? How has SYSchange helped your team simplify the process, alleviate maintenance/installation pain, and reduce the risks?

A: We also use that same methodology at Rabobank. At the beginning of our maintenance cycle we create a new master catalog and a set of four new system volumes, the A set and the B set, in the test LPAR. To create this brand new SYSRES, A set and B set, we use DFDSS to back up the current distribution libraries. Then, we perform a full restore to build the initial SYSRES. This complete replacement takes place approximately once every 3 months.

Q: In essence, you make a copy of the current SYSRES to build the new ones?

A: No. We do not perform a "copy," instead we do a complete rebuild of the SYSRES volumes from the distribution environment on the test system. We take all the distribution libraries MVSESA.xxx2011A.ALL. SYS1.PARMLIB and place them on the SYSRES volumes. The first three qualifiers will be dropped off so the SYS1.PARMLIB will be created on the volumes. As you know, all new PTF changes from IBM will be placed in these distribution libraries using the IBM SMP/E processes.

We use SYSchange during the 3-month period between each replacement, and we use SYSchange Promotion packages to replace or update datasets in the inactive A set that has been created with the full restore. We always update the SET A, and the SET B always corresponds to the SMP/E distributions libraries.

So we have the flexibility to easily add the latest changes to the active (Production) or inactive (SET A) volume set when we need to.

Q: Why do you need to have the A set and the B set?

A: We do this so we can build a new SYSRES with all latest PTF's and our local updates and then do a normal IPL from this inactive A set. In case of any failure in our testing we use the B set which still has the unchanged software. In essence the B set is usually the vanilla set.

Q: So when there are new changes while you are building the new SYSRES, you will update BOTH the active set and the inactive set to ensure your inactive set does not fall behind or get out of synch?

A: For the most part. The majority of changes come out of the distribution library so the inactive volume will be overwritten anyway. But sometimes we may need to do an IPL from the other volume set B. In this case, this set will be updated by the change.

Q: Do you mean you update the SET a from your local changes, but not SET B, because SET B may be replaced by the distribution libraries? And, thus if for any reason during the 3-month-period, some libraries in the SET B are replaced again from the distribution set, you will need to synchronize this library with the one on SET A. So, there is a constant effort of keeping SET A in-sync with SET B. Am I right?

A: Yes, you are right. That is why we have dramatically simplified our work by using the SYSchange COPYDIFF function to clearly report what needs to be done to sync-up our data sets on different volumes. Based on this information we create the Promotion packages.

Q: What would be the difficulty of keeping your inactive volume up-to-date without SYSchange? How has SYSchange helped you in this area?

A: Without SYSchange, it was difficult to identify and report which components have changed between our current SYSRES and the inactive SET A. It was also difficult to identify the differences between SET A and SET B after some data sets on set B have been replaced from the distribution set. Therefore, without SYSchange, we may miss a customized change from being deployed to the inactive SET A and not know about it for months after the switch has occurred!

Using the SYSchange COPYDIFF function we have eliminated this possibility. By using the TESTRUN feature of the COPYDIFF operation, we clearly see what has changed between any two libraries on the current SYSRES and the inactive ones.

Q: After you use the COPYDIFF function to identify the changed members, what do you do next? Do you manually copy the changed members? Why don't you let the COPYDIFF function actually copy the changed members? Am I missing something?

A: No, you are not missing anything. Yes, we can let the COPYDIFF do the updates, but the normal TSO user is NOT authorized to make the updates to the datasets on the acceptance and production systems. So the change has to always be brought forward from the test system where the distribution libraries reside. Once we have identified the changed components, we then use SYSchange to package all the identified changes into a Promotion package. Then, we use the SYSchange Promote function to update the target data sets on the A set.

On the test system we use SYSchange Promote function, with the options "SECURITYADD=YES," to update the data sets on inactive volume (SET A). As you know, this option does a switch to a special user-id specified in the SYSchange PARM member, who has the appropriate authorization to do the updates. So all updates are collected in one package and the package is promoted once under the proper authority.

Building Alternate SYSRES for Volume Switching

- Set A and B are initially built from SMP/E Environment
- Set A is compared with SYSRES via SYSchange COPYDIFF
- Set A is updated via SYSchange packaging and promotion
- When Set A is ready the current SYSRES will be switched

SMP/E environment

Change

DFDSS dump — **Set A** ← COPYDIFF ← **SYSRES**

COPYDIFF

Set B ← **Package**
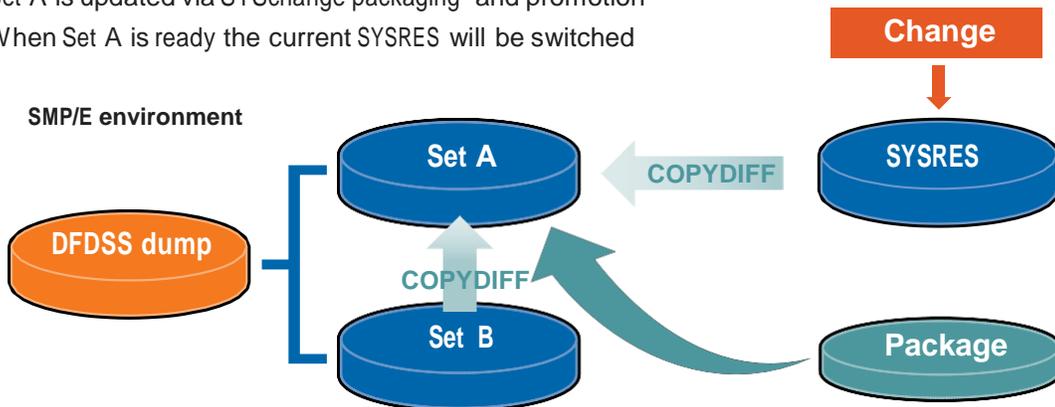
Below, I have shown a panel that displays all SYSchange packages currently on our system. This panel shows the package number, creation date and time, and brief information on who has created the package and for what purpose. This is our in-house developed ISPF to show the summary. When a package is selected, on the next screen I have shown more details of the content of the package using the standard SYSchange reports.

Reporting samples:

Row 1 to 20 of 1,819

Packages Overzicht

Command ===> SCROLL===> CSR

Sort fields -> PCK Sort velden (PCK-DAT-TIM-USR-DSN)
A/Decending -> D A / D As/Decending.

|__> S=Select, R=Not Selected, z=Selected
v Package Datum/Tijd Gebruiker Dataset

S 001541 2011/11/23 08:48   Hesse SYS2.SYSCHG.SRBOREX
_ 001540 2011/11/23 08:14   Hesse HESSEHJ.SKL.SOURCE
_ 001539 2011/11/23 07:20   Hesse SYS2.ISPCLIB
_ 001538 2011/11/22 12:39   Bosker MVSESA.PRD2011A.ALL.SYS2.MAINT.SASLIB
_ 001537 2011/11/22 12:28   Dijkerman WMQ.PRD2010B.ALL.SYS3.UCSQAUTH
_ 001536 2011/11/22 10:52   Hesse HESSEHJ.JCL.REXX
_ 001535 2011/11/22 10:31   Hesse HESSEHJ.JCL.REXX
_ 001534 2011/11/22 09:15   Brummelman MVSESA.PRD2011A.ALL.SYS1.TCPPARMS
_ 001533 2011/11/22 08:44   Dijkerman CICSESA.PRD2009D.ALL.SYS3.STCPROC
_ 001532 2011/11/22 08:22   Dijkerman CICSESA.PRD2009D.ALL.SYS3.STCPROC
_ 001535 2011/11/22 10:31   Hesse HESSEHJ.JCL.REXX
_ 001534 2011/11/22 09:15   Brummelman MVSESA.PRD2011A.ALL.SYS1.TCPPARMS
_ 001533 2011/11/22 08:44   Dijkerman CICSESA.PRD2009D.ALL.SYS3.STCPROC
_ 001532 2011/11/22 08:22   Dijkerman CICSESA.PRD2009D.ALL.SYS3.STCPROC

Below, the selected Package Information on what has changed, when and by who....

```
************************** Top of Data **************************
Change Request NR: 001541 Created: 2011/11/23 08:48 Approver TSOid:
Description : Normal Change.
Reference Doc : P0000588 - P34
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
Systems Affected : SYST
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
Status           : request has been completed
Package Name     : SYCPKG.XAT.P0001541
Install Date     : 2011/11/23
IPL required     : no
Name             : Hesse, Henny
Dept             : z/OS Ontwikkeling
Email            : H.J.HESSE@RN.RABOBANK.NL
Phone            : +313021515
TSOid            : HESSEHJ
Notify List      : (NONE)


**Component      : Member to be added
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
Dsname           : SYS2.SYSCHG.SRBOREX
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
Volser           : SX00A1
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
Member           : STRTPROM
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=
Checker ID       : NONE
Checkout         : N.A.
Checkin          : N.A.
```

Q: For which environments do you use the packaging and the Promote operations?
Do you also use this during the BUILD of the SET A?

A: *Yes, most of the time we use the SYSchange packaging and Promote functions
for the active SYSRES. However, after we have done a complete distribution of the
inactive set (by switching the SYSRES), and we still need to do some other changes
to the inactive set, we use the packaging and Promotion functions to do some
additional updates.*

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SOFTWARE

Q: Can you please show me a sample COPYDIFF job you are using?

A: Yes, the following is a sample job depending on which libraries you need to work with. With the TESTRUN=YES we get a report of which members are different from two data sets on two DASD volumes.

```
//job
TESTRUN=YES
COMPRESS=NO
DELETEMEM=NO
*
VOL1=SS00A1        /* Active volume
VOL2=SS00B1        /* Inactive volume
DSN1=SYS1.PARMLIB
DSN2=SYS1.PARMLIB
COPYDIFF
//*
```

SYCMAIN (200I) COMMANDS PROCESSED: 8

SYCMAIN (213I) Processed: Vol=SS00A1 Dsn=SYS1.PARMLIB
SYCMAIN (213I) Processed: Vol=SS00B1 Dsn=SYS1.PARMLIB

Action	Member
REP	APFLIST
REP	BPXPRM00
ADD	BPXPRM01
REP	IEASYS00
REP	IRROPT00
REP	JES2PSM1
REP	JES2PSM1
REP	JES2PS1
ADD	PROGKK
REP	PROG00
REP	PROG01

SYCMAIN (822I) Reconcile statistics follow:

104	SAME
9	REP
2	ADD
0	DEL

SOURCE: SYS1.PARMLIB
TARGET: SYS1.PARMLIB
No Action taken. TEST RUN ONLY
SYCMAIN (803I) WARNINGS: 0
ERRORS   : 0

As you can see from the report, the differences between pairs of data set on the two volumes are easily identified making our reconciliation process very efficient.