

UNDERSTANDING VARIOUS SYSTEM COPY METHODS

A Guide To Help You Understand The Various System Copy Methods Available in SAP Environment

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Table of Contents

1. Introduction	3
2. Homogeneous System Copy	3
2.1. Definition	3
2.2. Methods.....	3
2.2.1. Copy using Database Tools	3
2.2.2. Copy using tools provided by SAP.....	4
3. Heterogeneous System Copy	4
3.1. Definition	4
3.2. Methods.....	4
3.2.1. Copy using Database Tools	5
3.2.2. Copy using tools provided by SAP.....	5
4. Client Copy	5
4.1. Local Client Copy.....	6
4.2. Remote Client Copy	6
4.3. Client Export.....	7
5. Profiles Used in Client Copy	8
5.1. SAP_ALL.....	8
5.2. SAP_APPL	8
5.3. SAP_CUST.....	9
5.4. SAP_USER.....	9
5.5. SAP_PROF.....	9
6. Summary	10
7. Reference	10

A guide to help you understand various system copy methods available in SAP environment

1. Introduction

This document is designed to give detailed information on various options available to perform a system/client copy in an SAP environment. The primary focus of the document is revolved around the basic tools, options available, and suggestions to choose the appropriate method to perform a copy.

Below are the areas covered in the article:

- Homogeneous System Copy
- Heterogeneous System Copy
- Local Client Copy
- Remote Client Copy
- Client Export

2. Homogeneous System Copy

Homogeneous system copy is a term used by SAP for the system copies between the same platform (i.e. windows to windows).

2.1. Definition

Move / Copy an SAP system with the below conditions:

- Move / Copy between **same** Operating System and Database Platform (i.e. Windows/MSSQL to Windows/MSSQL (or) Windows/oracle to Windows/ORACLE)
- Hardware Architecture is same or is a certified successor (i.e. I386 to I386 (or) x64 to x64)

Homogeneous System Copy can be performed by an experienced SAP Basis Consultants and does not require a special certification to perform the same. There will not be any involvement from SAP to perform any checks/provide any services.

2.2. Methods

There are broadly two different methods available to perform a homogeneous system copy for an SAP system as listed below

- Copy using Database Tools (i.e. BACKUP and RESTORE)
- Copy using tools provided by SAP

2.2.1. Copy using Database Tools

Backup and Restore is the most preferred and recommended method when using database tools to perform the system copy, in this case, the complete setup of database related files will be backed up

A guide to help you understand various system copy methods available in SAP environment

from source and will be restored into target. The time taken to complete the system copy is generally based on the speed of Backup / Restore in a given environment

2.2.2. Copy using tools provided by SAP

SAPInst is the prime system copy tool (there are also other tools such as R3load, Jload, etc.,) used to copy the system from one to other, in this case, the whole database will be exported in the form of compressed files and will be imported into target. The time taken to perform a system copy in this method is based on the database size, downtime reduction techniques, hardware capacity (source and target), transfer method (i.e. ftp, DVD, Network, etc.,) and various other factors. The most important advantage of this type of system copy is that during the export, the complete database will be defragmented/reorganized which will result in reduced database size in the target environment (especially when you have regular archiving done in the source system).

3. Heterogeneous System Copy

Heterogeneous System Copy is a term used by SAP for the system copies between different platforms (i.e. Windows to Unix, etc.,).

3.1. Definition

Move / Copy an SAP system with the below conditions :

- Move / Copy between **different** Operating System and Database Platform (i.e. Windows to AIX (or) Oracle to MSSQL)
- Change in Hardware Architecture (i.e. X64 to SPARC)

It must only be performed by a SAP Basis Consultant with special certification from SAP (OS/DB Migrations), in addition to that, for every production system migration, customers must register the migration with SAP and seek their help in performing OS/DB Migration related services (OS/DB Migration Check, etc.,)

3.2. Methods

There are broadly two different methods available to perform a homogeneous system copy for an SAP system as listed below

- Copy using Database Tools (i.e. BACKUP and RESTORE)
- Copy using tools provided by SAP

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3.2.1. Copy using Database Tools

In case of heterogeneous system copy, Backup and Restore is only possible if the copy is performed between the same CPU architecture as indicated below.

Though the Copy Using Database Tools is also supported in heterogeneous system copy, it is available for only limited hardware architectures.

- Sun Solaris <-> AIX
- Windows <-> Linux
- HP-UX <-> Sun Solaris
- Windows <-> HP Tru64

However, this method is only supported if you have the same database and the above architectural change; this method cannot be used in below scenarios.

- HP-UX <-> Windows NT
- HP Tru64 <-> Sun Solar

3.2.2. Copy using tools provided by SAP

As we have seen in the homogeneous system copy, SAPInst is the prime system copy tool (there are also other tools such as R3load, Jload, etc.,) used to copy the system from one to other, in this case, the whole database will be exported in the form of compressed files and will be imported into target. The time taken to perform a system copy is based on the database size, downtime reduction techniques, hardware capacity (source and target), transfer method (i.e. ftp, DVD, Network, etc.,) and various other factors. The most important advantage of this type of system copy is that during the export, the complete database will be defragmented / reorganized which will result in reduced database size in the target environment (especially when you have regular archiving/housekeeping done in the source system).

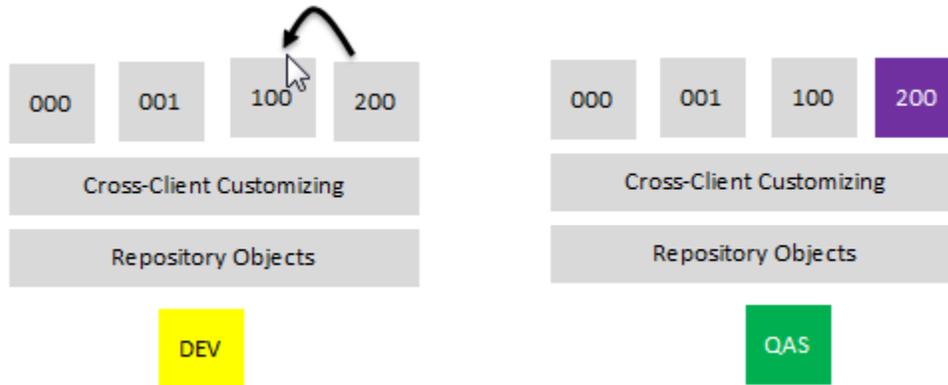
4. Client Copy

Client copy is the term / technique used in SAP to create a new client / overwrite an existing client either in the same system or in a different system. Below are the client copy options available in an SAP environment.

- Local Client Copy
- Remote Client Copy
- Client Export

4.1. Local Client Copy

Below diagram depicts the local client copy, basically local copy is needed when you need to create a new client in the same system or overwrite an existing client in the same system.

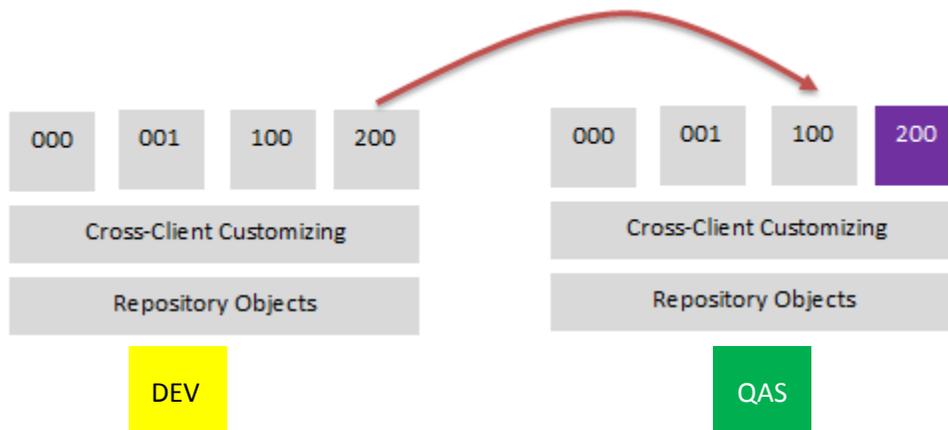


4.2. Remote Client Copy

This is needed when you want to copy a client to a different SAP system, this type of copies require a robust and consistent network between the systems involved in the system copy.

Remote client copy has following advantages over the client export method.

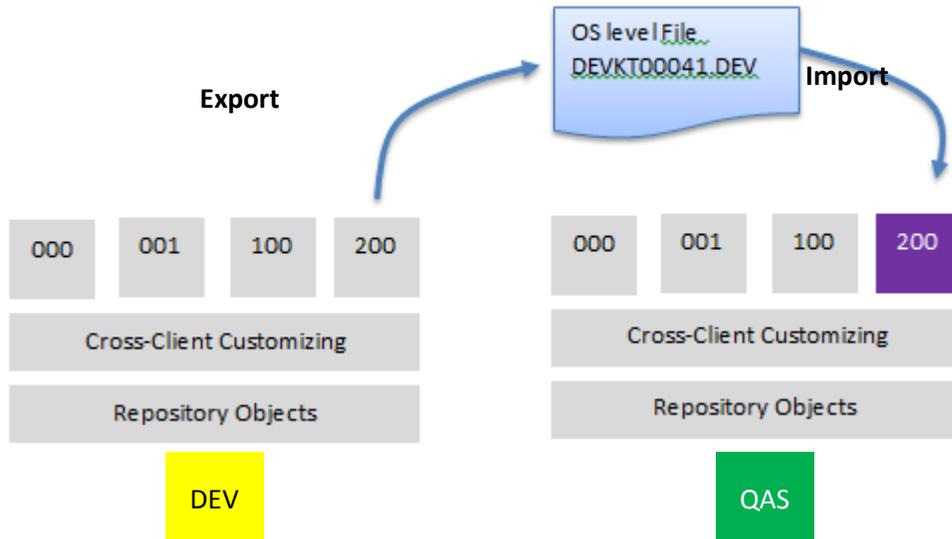
- It helps in preventing data loss, during a remote copy, a consistency check is performed on the repository objects (i.e. Table Structure). If any inconsistencies found during the check, the remote client copy process will stop with an appropriate log messages. Such type of checks is not performed when you perform client transport.
- It is faster the client transport, because parallelism cannot be achieved in client transport method, but remote copy is capable of writing the data in parallel in target.
- The number of steps involved in the process is fairly simple when compared to transports (client transport engages export, import, etc.,)
- It does not generate any file at the OS Level, hence the overhead cost in keeping the additional disk space can be reduced.



A guide to help you understand various system copy methods available in SAP environment

4.3. Client Export

Client Export can be used in both the cases, you can use it either to create a client in the same system or to create a client in a different system, this is something similar to SAP Transports. The whole client will be exported in the form a transport request and will be imported into the target. Unlike Local/Remote Client copy, you can use the exported file as many times as you need to create a new client.

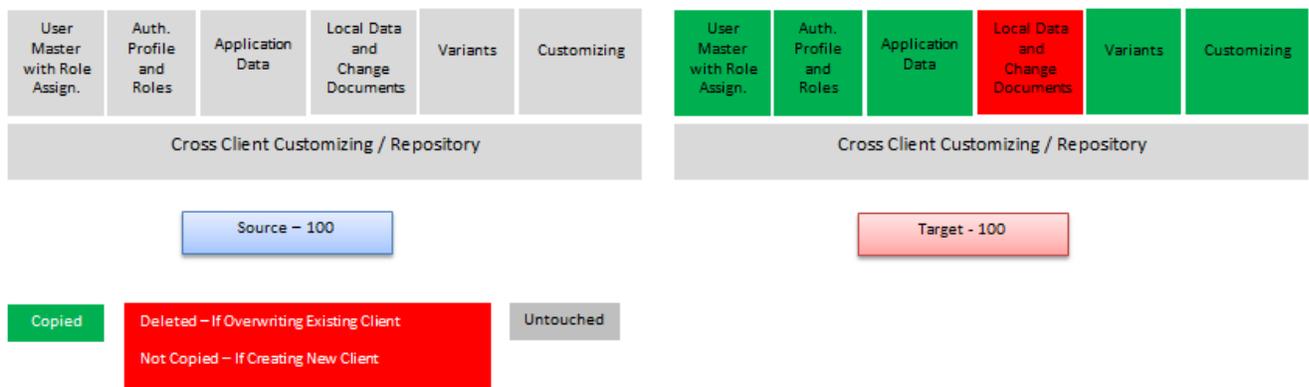


5. Profiles Used in Client Copy

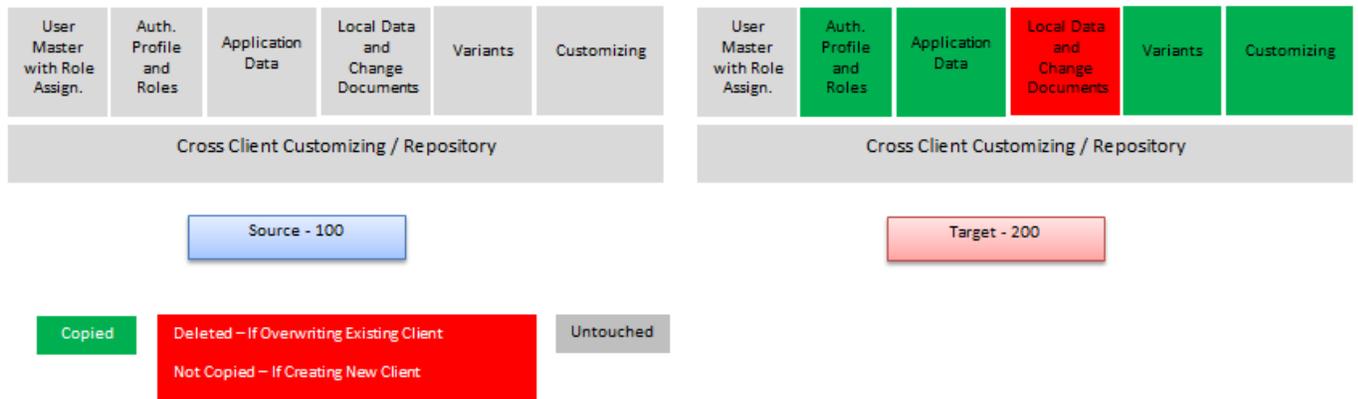
Regardless of client copy tool that is used, you must determine the type of data you wish to copy from one system to the other. This is identified by a term called “Client Copy Profile”, there are various client copy profiles available from SAP, profiles are used to instruct client copies to choose only the relevant data, for example, if the requirement is only to copy the users and profiles to a different system/client, then SAP_USER profile must be chosen. Below are few frequently used profiles in any given SAP environment, you may refer OSS Note : 24853 for the comprehensive list of profiles and the data selection.

5.1. SAP_ALL

This profile is used to copy entire client, but as indicated in the below diagram, local data and change documents will not be copied in case of a new client. If the copy is made to overwrite an existing client, then the local data and change documents in the target will be deleted. Please note that cross-client customizing and repository data are untouched.

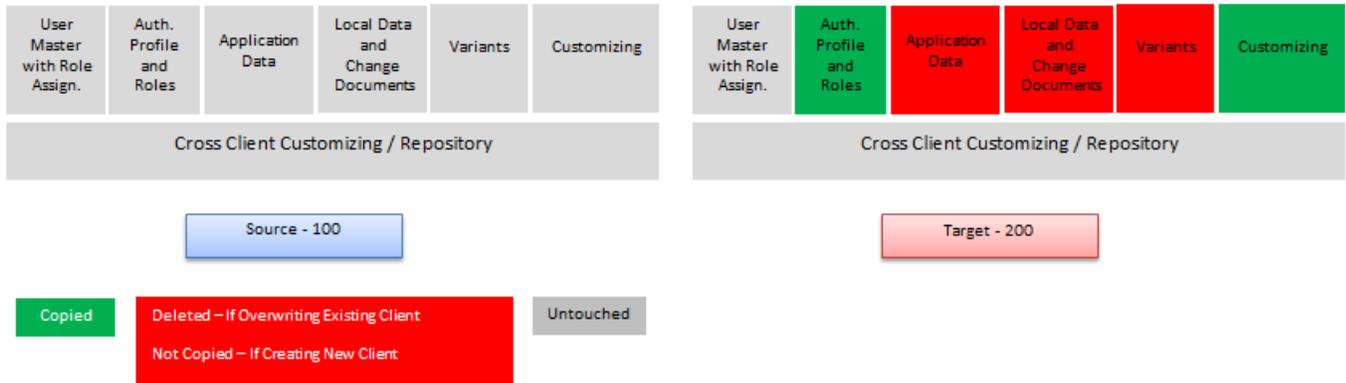


5.2. SAP_APPL

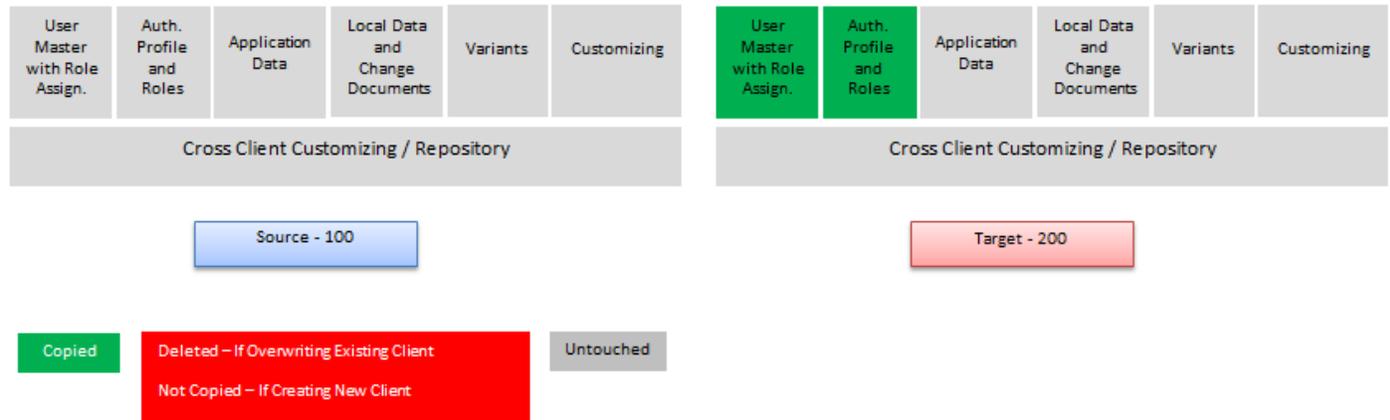


A guide to help you understand various system copy methods available in SAP environment

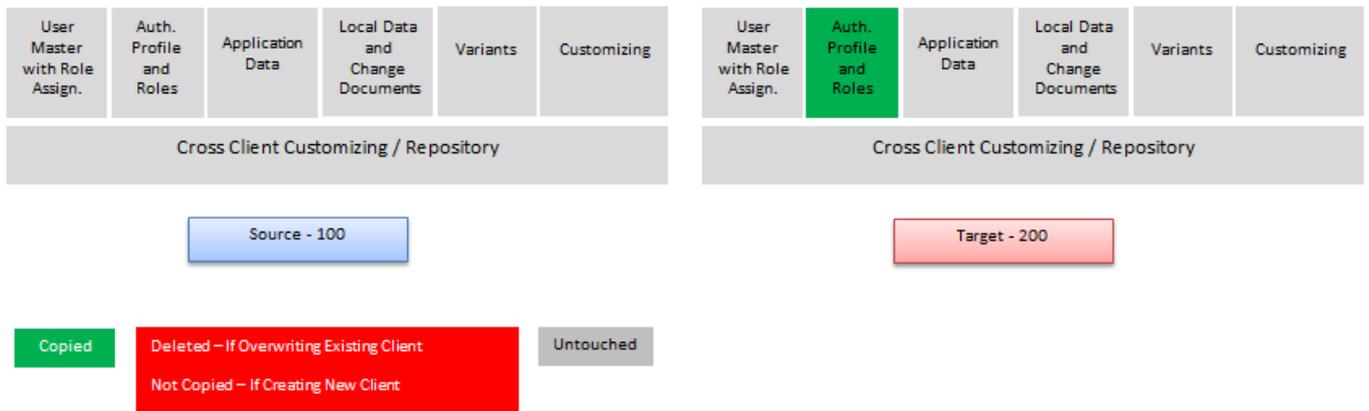
5.3. SAP_CUST



5.4. SAP_USER



5.5. SAP_PROF



A guide to help you understand various system copy methods available in SAP environment

6. Summary

As mentioned in the above sections, there are many options available to copy a system from one to another; the option is completely dependent on the business / technical requirements. Below is the quick view of the areas discussed in this article

Type of Activity	Homogeneous Copy	Heterogeneous Copy	Local Copy	Remote Copy	Export
Copy Complete SAP System to a same platform	X				
Copy Complete SAP System to a different platform		X			
Copy / Overwrite Client in the Same System			X		X
Copy / Overwrite Client in a different system				X	X

Major differences between System Copy and Client Copy

Below are few prominent differences between client copy and system copy.

System Copy	Client Copy
Used to Copy the Whole System	Used to copy only a specific client
Copied using Database / SAP System Copy tools	Copied using Client Copy Tools
Time needed for a copy is based on Database Size, Hardware Capacity, Downtime Reduction Techniques, etc.,	Time needed for a copy is based on client size, hardware capacity, etc.,
Extensive Parallel Processing Techniques available	Very limited parallel processing techniques available
Cannot be used to copy only a specific set of data (i.e. customized, user master, etc.,)	Can be used to copy only a specific set of data (i.e. Customizing, user master, etc.,)
Need special certification from SAP in case of heterogeneous system copy,	Can be performed by experienced technology consultants

7. Reference

[Note 24853 - CC-INFO: Client copy, functionality](#)