



HANA System Copy Guide

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RESTRICTIONS

This document was used to copy a 7.30 SP9 BW on HANA rev69.1 distributed system to another distributed system having the same number of nodes. Evaluate if this copy process is appropriate for your environment.

POINTS TO NOTE FOR BACKING UP

- To recover a SAP HANA database, the database needs to be shut down. For this reason, during recovery, the database cannot be accessed by end users or applications
- A SAP HANA database cannot be recovered to a SAP HANA database with a lower software version. The SAP HANA database software version used for the recovery must always be the same version or higher than the SAP HANA database used to create the backup
- To recover the database, you need at least one data backup
- At the beginning of a recovery, all the data and log backups to be used must be either accessible in the file system or available through the third-party backup tool
- You cannot pause and resume a database recovery
- If a recovery fails, the complete recovery must be repeated
- During log recovery, no delta merge operation is performed
- The number of hosts in the target system does not matter, provided that the number and type of services is identical in both the source and the target system

POINTS TO NOTE FOR RECOVERY

- Data and logs can only be backed up when SAP HANA database is online (when all configured services are running)
- During data and log backups, the database is available as usual
- Data and log backups are performed independently of each other
- In a data backup, only the actual data is backed up; unused space in the database is not backed up
- The data backup includes all the data structures that are required to restore the database. This includes user data, information models, topology information, and the secure storage file system (SSFS). A data backup does not include customer-specific configuration. If you want to backup this customer-specific configuration please see section 4.2.7 in “SAP HANA Administration Guide for SPS 07”
- Until an initial data backup has been completed, the logs are written in overwrite mode. This means that no log backups are made
- Backup and recovery always apply to the whole database
- It is not possible to back up and recover individual database objects
- SAP HANA database can be backed up to the file system or using third-party backup tools

REFERENCE DOCUMENTS

Item	Document
1	SAP Note 1844468 - Homogeneous system copy on SAP HANA http://service.sap.com/sap/support/notes/1844468
2	SAP HANA Administration Guide for SPS 07 – Section 4.2 http://help.sap.com/hana/SAP_HANA_Administration_Guide_en.pdf

SOFTWARE TOOLS

Item	Document
1	SWPM 1.0 SP3 PL1 or higher
2	HANA Studio

BACKUP PREPARATION

Step	Action	Description
1	Check File System Size	<p>Make sure the File System size is sufficient for the backup of the source system.</p> <p>Note: you can use one of the two following methods. The size may differ between SELECT statement and DATA BACKUP execution. For this reason, it is advisable to include a reserve of free space.</p> <p>1) <code>select sum(allocated_page_size) from M_CONVERTER_STATISTICS</code> The result is a single value that gives the sum of the sizes of all services in bytes.</p> <p>2) <code>select volume_id, sum(allocated_page_size) from M_CONVERTER_STATISTICS group by volume_id</code> This displays a list of the volumes (name server, index server, script server, or XS engine), with the size of each volume in bytes.</p>
2	Splitting Data Backups into Files of Limited Size	<p>For file-based data backups, you may need to limit the maximum size of a single backup file, for example, due to file system limitations. If the size of a data backup file for a service exceeds the specified limit, then the SAP HANA database splits the file into multiple smaller files.</p> <p>You can set the maximum file size for file-based backup files on the <i>Configuration</i> tab of the Backup editor under <i>File-Based Data Backup Settings</i>. The maximum file size applies to the data backups of all services.</p> <p>The actual size of backup files may be smaller than the specified maximum size.</p>

CREATE BACKUP OF HANA SOURCE

Step	Action	Description
1	Start Backup	In HANA Studio, right click on the source HANA system and choose "Backup..."
2	Enter Backup Parameters	Select: 1) "Complete Data Backup" as the Backup Type 2) "FILE" as the Device Type 3) For "Backup Destination," , enter the directory in which backup files are to be stored Enter a prefix for the backup files for "Backup Prefix"
3	Kick Off Backup	Click "Finish" Note: Don't close this dialog box until the backup is created.

TRANSFER THE BACKUP TO THE TARGET SYSTEM

Step	Action	Description
1	Move the Backup Files	Copy all files of the backup to the directory that can be read from the target database system. The backup files are located in the directory of the source database system that is specified in the above section and begin with the prefix that you specified.

RECOVER THE BACKUP ON THE TARGET SYSTEM

Step	Action	Description
1	Start SWPM	Choose 1) <Your Product> 2) <Your Database> 3) System Copy 4) Target System 5) <System Variant> 6) Based on <Technical Stack> Standard System
2	Enter parameters as appropriate	
3	For "SAP System Database"	Choose "Homogeneous System Copy (SAP HANA-specific Backup/Recovery)"
4	For "Database Schema"	Enter the schema names and the passwords that match the data in the backup. For example, if you install a system DEV and use a backup of the system PRD for the installation, you must specify SAPPRD as the schema in the dialogs, not SAPDEV. The same applies to the DBA Cockpit schema.
5	For "Database Recovery"	First enter the password of the <SID>adm user of the target database and the related SAPControl URL. The system prefills the SAPControl URL; it usually does not have to be changed.
6	Next Step	Enter the directory and the name (prefix) of the backup. As the directory, enter the directory to which you copied the backup files. As a prefix enter the prefix of the backup that you chose. In addition, you can specify whether you want the system to check whether the backup exists. If this check is deactivated and the backup does not exist, the installation will terminate with an error at a later time.
7	Step "SAP HANA License"	Choose if you want to install a new SAP HANA license in the target database system. A new license is required because the backup that is to be implemented in the target database system derives from another source database, that is the hardware or the database SID has changed.
8	Complete remaining dialogs and begin recovery	

POST PROCESSING

Step	Action	Description
1	Adjust DB Connections	Using transaction DBCO, adjust DB connections as needed
2	Adjust RFCs	Using transaction SM59, adjust RFC connections as needed
3	Adjust Spools	Using transaction SPAD, adjust spools as needed
4	Adjust Logical Systems	If the SID has changed, use transaction BDLS to adjust logical system name. See SAP note 1406273 for details.
5	Adjust Calculation Views	Use report RS_BW_POST_MIGRATION with all options to adjust HANA calculation views

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