Standard Operating Procedure (SOP) for SAP HANA DB Installation

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Prerequisites:

1. **Check OS Requirements:**
   - Ensure the operating system is either SUSE Linux Enterprise Server (SLES)
   - Verify system resources: Minimum 64GB RAM and sufficient disk space.
   - Download the SAP HANA DB software from the SAP Marketplace.
   - Check the Product Availability Matrix (PAM) for compatibility.
2. **Install Required Packages:(When needed)**

   - Install libatomic1 if not already installed:

     ```
     zypper install libatomic1
     ```

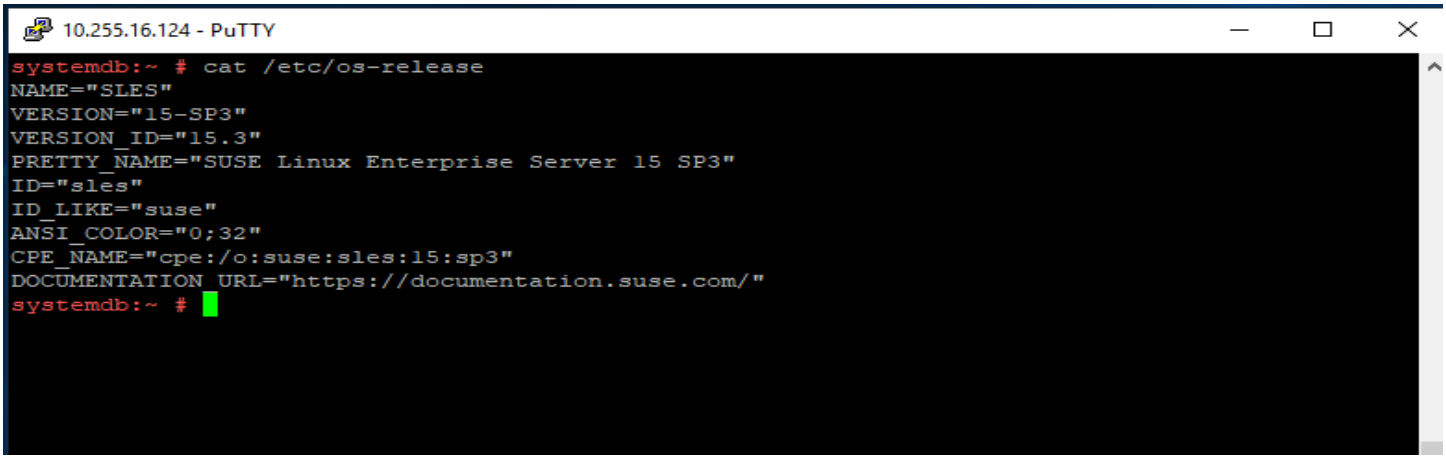
     - If installation fails, use:

       ```
       zypper install --force libatomic1
       ```

3. **Download SAP HANA DB Software:**

- Obtain the necessary SAR files from SAP Marketplace.
- Ensure the Product Availability Matrix (PAM) is checked for compatibility.

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Product Availability Matrix

LINUX SUSE SLES15/X86_64 64BIT Supported Until 31.07.2031: Details	SAP HANA DATABASE 2.0 [>= SP034]		01.08.2018	Display (4)

```
systemdb:~ # lsblk
NAME                  MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                     8:0    0   65G  0 disk
├─sda1                  8:1    0    1G  0 part
├─sda2                  8:2    0    1G  0 part
├─sda3                  8:3    0    8G  0 part [SWAP]
├─sda4                  8:4    0  512M  0 part /boot/efi
├─sda5                  8:5    0 34.7G  0 part /
└─sda6                  8:6    0 19.8G  0 part /home
sdb                     8:16   0  248G  0 disk
├─hana_vg-hana_data   254:0    0  100G  0 lvm  /hana/data
├─hana_vg-hana_log    254:1    0   50G  0 lvm  /hana/log
├─hana_vg-hana_shared 254:2    0   50G  0 lvm  /hana/shared
└─hana_vg-usr_sap     254:3    0    1G  0 lvm  /usr/sap
sr0                    11:0    1 1024M  0 rom
systemdb:~ # cd /hana/
systemdb:/hana # ll
total 0
drwxr-xr-x 2 root root 78 Feb 25 05:34 data
drwxr-xr-x 2 root root  6 Feb 25 03:31 log
drwxr-xr-x 2 root root  6 Feb 25 03:31 shared
systemdb:/hana # ll data/
total 3921016
-rw-r--r-- 1 hanadb users 4010521857 Feb  4 00:19 IMDB_SERVER20_067_4-80002031.SAR
-rw-r--r-- 1 hanadb users    4591872 Feb  3 23:49 SAPCAR_1324-80000935.EXE
systemdb:/hana #
```

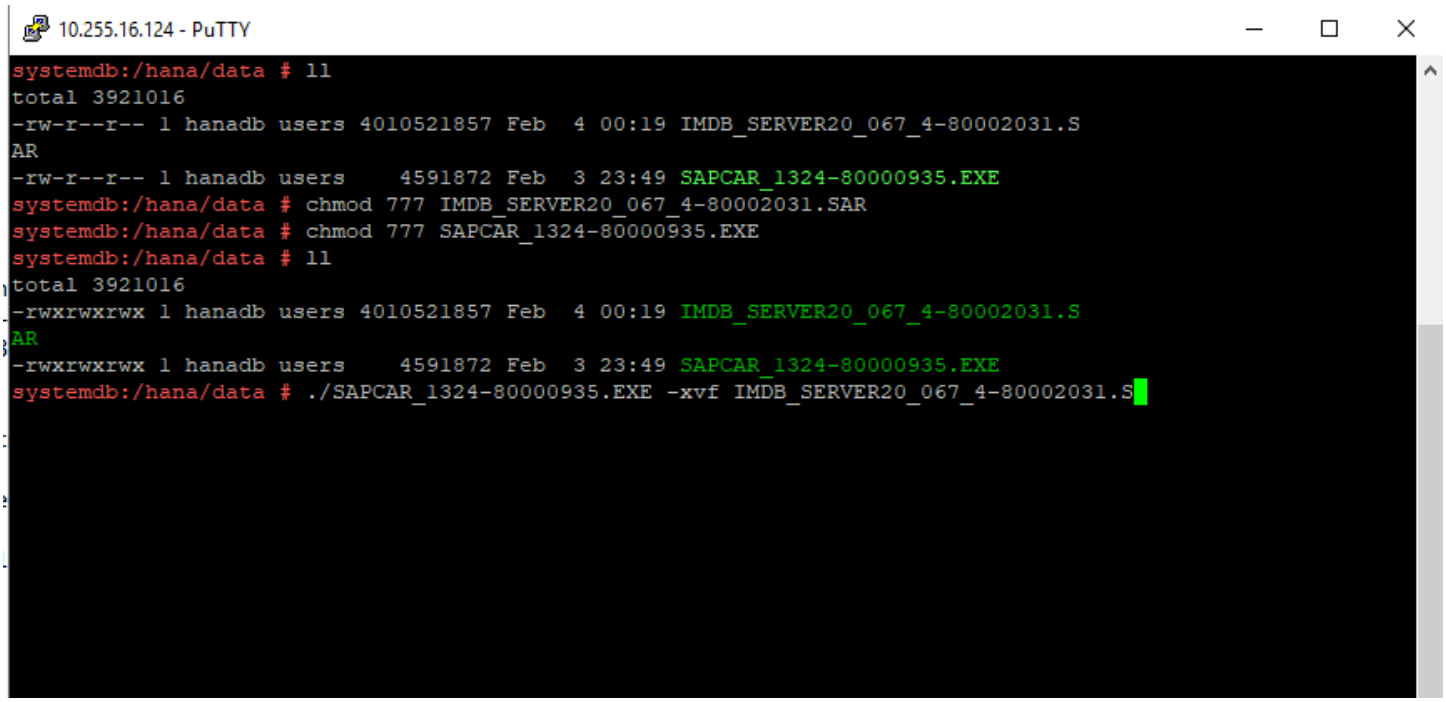
4. Prepare the Installation Files

    1. Copy the SAP HANA installation files to the server.
    2. Set appropriate permissions:

    ```
    chmod 777 <SAPCAR> <HANA_INSTALLER.SAR>
    ```

    3. Extract the SAR file:

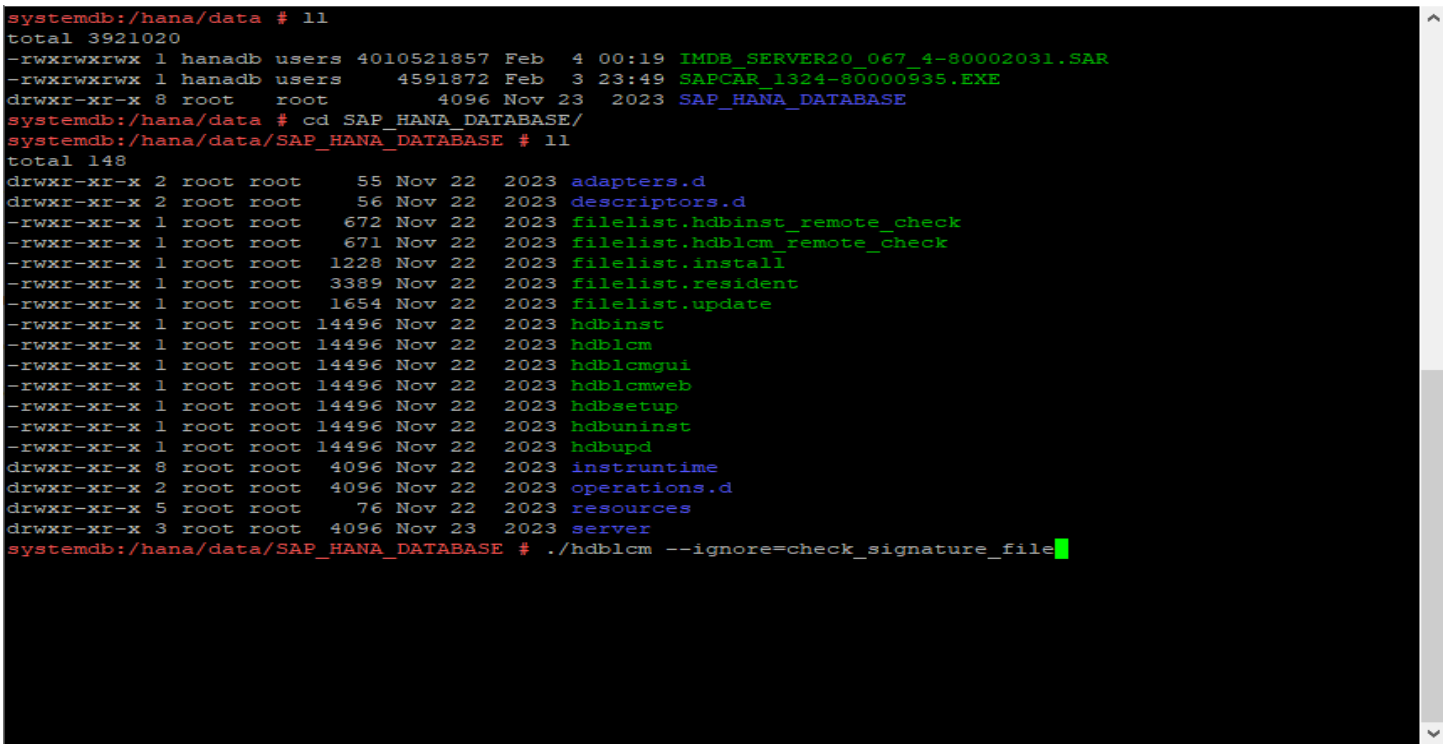
    ```
    ./SAPCAR -xvf <HANA_INSTALLER.SAR>
    ```



4. Step 2: Run the HANA Installation

1. Navigate to the extracted directory. cd /hana/data/SAP_HANA_DATABASE
2. Start the installation:

   ```
   ./hdblcm
   ```



5. Follow the On-Screen Prompts

- Follow the on-screen prompts to complete the installation. When asked,

```
systemdb:/hana/data/SAP_HANA_DATABASE # ./hdblcm --ignore=check_signature_file


SAP HANA Lifecycle Management - SAP HANA Database 2.00.067.04.1700654562
************************************************************************


Scanning software locations...
Detected components:
    SAP HANA Database (2.00.067.04.1700654562) in /hana/data/SAP_HANA_DATABASE/server


Do you want to specify additional components location? (y/n) [n]:

Choose an action

  Index | Action                  | Description
  -------------------------------------------------------------
  1     | install                 | Install new system
  2     | extract_components      | Extract components
  3     | print_detected_components | Print detected components
  4     | Exit (do nothing)       |

Enter selected action index [4]: 1

Enter Installation Path [/hana/shared]:
Enter Local Host Name [systemdb]:
Do you want to add hosts to the system? (y/n) [n]:
Enter SAP HANA System ID: KE5
Enter Instance Number [00]:
Enter Local Host Worker Group [default]:

  Index | System Usage | Description
  -------------------------------------------------------------------------------
  1     | production   | System is used in a production environment
  2     | test         | System is used for testing, not production
  3     | development  | System is used for development, not production
  4     | custom       | System usage is neither production, test nor development

Select System Usage / Enter Index [4]: 2
Do you want to enable data and log volume encryption? [n]:
Enter Location of Data Volumes [/hana/data/KE5]:
Enter Location of Log Volumes [/hana/log/KE5]:
Restrict maximum memory allocation? [n]:
Apply System Size Dependent Resource Limits? (SAP Note 3014176) [y]:
Enter SAP Host Agent User (sapadm) Password:
Confirm SAP Host Agent User (sapadm) Password:
Enter System Administrator (ke5adm) Password:
Confirm System Administrator (ke5adm) Password:
Enter System Administrator Home Directory [/usr/sap/KE5/home]:
Enter System Administrator Login Shell [/bin/sh]:
Enter System Administrator User ID [1002]:
Enter ID of User Group (sapsys) [79]:
Enter System Database User (SYSTEM) Password:
Confirm System Database User (SYSTEM) Password:
Restart system after machine reboot? [n]:
```

6. Verify Installation

- Once the installation is complete, verify the installation by starting and stopping the HANA database:

```
      Trace location: /var/tmp/hdblcm_2025-02-27_01.40.32_7306.trc

Do you want to continue? (y/n): y

Installing components...
Installing SAP HANA Database...
  Resuming broken installation at step 'Importing Content'.
  Creating System...
  Starting SAP HANA Database system...
  Importing delivery units...
  Importing delivery unit HCO_INA_SERVICE
  Importing delivery unit HANA_DT_BASE
  Importing delivery unit HANA_IDE_CORE
  Importing delivery unit HANA_TA_CONFIG
  Importing delivery unit HANA_UI_INTEGRATION_SVC
  Importing delivery unit HANA_UI_INTEGRATION_CONTENT
  Importing delivery unit HANA_XS_BASE
  Importing delivery unit HANA_XS_DBUTILS
  Importing delivery unit HANA_XS_EDITOR
  Importing delivery unit HANA_XS_IDE
  Importing delivery unit HANA_XS_LM
  Importing delivery unit HDC_ADMIN
  Importing delivery unit HDC_BACKUP
  Importing delivery unit HDC_IDE_CORE
  Importing delivery unit HDC_SEC_CP
  Importing delivery unit HDC_SYS_ADMIN
  Importing delivery unit HDC_XS_BASE
  Importing delivery unit HDC_XS_LM
  Importing delivery unit SAPUI5_1
  Importing delivery unit SAPUI5_1NEW
  Importing delivery unit SAP_WATT
  Importing delivery unit HANA_SEC_CP
  Importing delivery unit HANA_BACKUP
  Importing delivery unit HANA_HDBLCM
  Importing delivery unit HANA_SEC_BASE
  Importing delivery unit HANA_SYS_ADMIN
  Importing delivery unit HANA_ADMIN
  Importing delivery unit HANA_WKLD_ANLZ
Installing Resident hdblcm...
Updating SAP HANA Database Instance Integration on Local Host...
Updating Component List...
SAP HANA Database System installed
Log file written to '/var/tmp/hdb_KE5_hdblcm_install_2025-02-27_01.40.32/hdblcm.log' on host 'systemdb'.
```

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HDB stop

HDB start

```
systemdb:~ # su - ke5adm
ke5adm@systemdb:/usr/sap/KE5/HDB00> HDB -version
HDB version info:
  version:             2.00.067.04.1700654562
  branch:              fa/hana2sp06
  machine config:      linuxx86_64
  git hash:            4ed48623f7eb3a9b8b26929978df11565c5aef2f
  git merge time:      2023-11-22 13:02:42
  weekstone:           0000.00.0
  cloud edition:       0000.00.00
  compile date:        2023-11-22 13:11:53
  compile host:        ld5145
  compile type:        rel

ke5adm@systemdb:/usr/sap/KE5/HDB00> HDB info
USER          PID     PPID  %CPU        VSZ        RSS COMMAND
ke5adm       9761     9760   0.0      19064       7600 -sh
ke5adm      10188     9761   9.0      15432       3860  \_ /bin/sh /usr/sap/KE5/HDB00/HDB info
ke5adm      10221    10188  33.3      39048       3904      \_ ps fx -U ke5adm -o user:8,pid:8,ppid:8,pcpu:5,vsz:10,rss:10,args
ke5adm       2994        1   0.0     570948      34044 hdbrsutil  --start --port 30003 --volume 2 --volumesuffix mnt00001/hdb00002.00003 --identifier 1740599767
ke5adm       2523        1   0.0     570868      34496 hdbrsutil  --start --port 30001 --volume 1 --volumesuffix mnt00001/hdb00001 --identifier 1740599709
ke5adm       2436        1   0.0      23472       3260 sapstart pf=/hana/shared/KE5/profile/KE5_HDB00_systemdb
ke5adm       2442     2436   0.0     460412      89156  \_ /usr/sap/KE5/HDB00/systemdb/trace/hdb.sapKE5_HDB00 -d -nw -f /usr/sap/KE5/HDB00/systemdb/daemon.ini pf=/usr/sap/KE5/SYS/profile/KE5_HDB00_systemdb
ke5adm       2831     2442   0.7     422656     158108      \_ hdbcompileserver
ke5adm       2834     2442  77.9     871892     354136      \_ hdbpreprocessor
ke5adm       2869     2442  24.7    6002576    3122568      \_ hdbindexserver -port 30003
ke5adm       3531     2442   1.1    2614500     633064      \_ hdbwebdispatcher
ke5adm       6848     2442  55.1   10606700    7078860      \_ hdbnameserver
ke5adm       6875     2442   2.6    3949844    1210432      \_ hdbxsengine -port 30007
ke5adm       2173        1   0.2     525592      37972 /usr/sap/KE5/HDB00/exe/sapstartsrv pf=/hana/shared/KE5/profile/KE5_HDB00_systemdb -D -u ke5adm
ke5adm@systemdb:/usr/sap/KE5/HDB00> HDB stop
hdbdaemon will wait maximal 300 seconds for NewDB services finishing.
Stopping instance using: /usr/sap/KE5/SYS/exe/hdb/sapcontrol -prot NI_HTTP -nr 00 -function Stop 400

27.02.2025 01:57:37
Stop
OK
Waiting for stopped instance using: /usr/sap/KE5/SYS/exe/hdb/sapcontrol -prot NI_HTTP -nr 00 -function WaitforStopped 600 2
```

SAP HANA Database installation is successful.

Post-Installation:

- Verify that the SAP HANA Database is running correctly.
- Perform any necessary post-installation configurations.
- Document the installation process and any custom configurations for future reference.

Troubleshooting Tips:

- **If the installation fails:**
  - Verify that all prerequisites are met.
  - Check the installation logs for any errors.
  - Ensure that the correct version of the operating system and required packages are installed.

