



Support for ASM databases without ASMLib

SnapManager Oracle

NetApp
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Support for ASM databases without ASMLib

SnapManager supports ASM without ASMLib, by default. The basic requirement is that the devices that are used for ASM disk groups must be partitioned.

When ASMLib is not installed, the device permissions related to ASM disk groups are changed to root:disk when you perform the following operations:

- Restart the host
- Restore a database from the primary storage by using volume-based SnapRestore (VBSR)
- Restore a database from the secondary storage

You can set the proper device permissions by assigning true to the `oracleasm.support.without.asmlib` configuration variable in `smo.conf`. The devices related to the ASM disk groups are added or removed from the `initasmdisks` file whenever new devices are added or removed from the host. The `initasmdisks` file is located at `/etc/initasmdisks`.

For example, if you set `oracleasm.support.without.asmlib=true` and then perform a backup mount, new devices are added to `initasmdisks`. When the host is restarted, the device permissions and ownership are maintained by the startup scripts.



The default value for `oracleasm.support.without.asmlib` is false.

Related information

[Supported partition devices](#)

Supported scripts

The `asmmain.sh` and `asmquerydisk.sh` scripts allow you to change the grid user, group, and the user, all of which are used to query the ASM disks. The scripts must always be executed from the root.

The `asmmain.sh` is the main script file called from any operation that adds or deletes devices. The `asmmain.sh` script calls another script internally, which needs to be executed from the root that has oracle grid credentials. This script queries the ASM disk group's devices, then adds those entries in the `initasmdisk` file with the permission and the ownership of the devices. You can change the permissions and ownership of this file based on your environment and the `regex` pattern that is used for matching only the `/dev/mapper/*p1`.

The `asmquerydisk.sh` script is used to query the disk list, which is used to create the ASM disk group. You must assign values to `ORACLE_BASE`, `ORACLE_HOME`, and `ORACLE_SID`, depending on your configuration.

The scripts are located at `/opt/NetApp/smo/plugins/examples/noasmlib`. However, these scripts must be moved to `/opt/NetApp/smo/plugins/noasmlib` before starting the SnapManager for Oracle server on the host.

Limitations of using scripts to support an ASM database without ASMLib

You must be aware of certain limitations to using scripts to support an ASM database without ASMLib.

- The scripts provide an alternative solution for any kernel version, but only if ASMLib is not installed.
- The permissions for the scripts must be set in such a way that the scripts can be accessed by root, grid, oracle, or equivalent users.
- The scripts do not support restoration from a secondary location.

Deploying and running the scripts

You can deploy and run the `asmmain.sh` and `asmquerydisk.sh` scripts to support ASM databases without ASMLib.

These scripts do not follow the pre-scripts or post-scripts syntax and workflow is called when `initasm disks` is enabled. You can change anything related to your configuration settings in the scripts. It is recommended to verify if everything in the scripts are working as expected by performing a quick dry run.



These scripts do not harm your system on failures nor will they impact your system. These scripts are executed to update the ASM-related disks to have proper permissions and ownership, so that the disks will always be under ASM instance control.

1. Create the ASM disk groups with the partitioned disks.
2. Create the Oracle database on the DISK GROUPS.
3. Stop the SnapManager for Oracle server.



In an RAC environment, you need perform this step on all the RAC nodes.

4. Modify the `smo.conf` to include the following parameters:

- a. `oracleasm.support.without.asmlib = true`
- b. `oracleasm.support.without.asmlib.ownership = true`
- c. `oracleasm.support.without.asmlib.username = user name of your ASM instance environment`
- d. `oracleasm.support.without.asmlib.groupname = group name of your ASM instance environment`

These modifications set the permissions for the absolute path only, which means instead of partition device, permissions will be set only for `dm-*` device.

5. Modify the plugins scripts available in `/opt/NetApp/smo/plugins/examples/noasmlib` to include your configuration settings in the scripts.
6. Copy the scripts to `/opt/NetApp/smo/plugins/noasmlib` before starting the SnapManager for Oracle server on the host.
7. Navigate to the `/opt/NetApp/smo` directory and perform a dry run by running the following script: `sh plugins/noasmlib/asmmain.sh`

The `etc/initasm disks` file is created, which is the main file that is used.

You can confirm that the `etc/initasmdisks` file contains all the devices related to configured the ASM database, such as:

```
chown -R grid:oinstall /dev/mapper/360a98000316b61396c3f394645776863p1
  chmod 777 /dev/mapper/360a98000316b61396c3f394645776863p1
  chown -R grid:oinstall
/dev/mapper/360a980003754322f7a2b433469714239p1
  chmod 777 /dev/mapper/360a980003754322f7a2b433469714239p1
  chown -R grid:oinstall
/dev/mapper/360a980003754322f7a2b433469714241p1
  chmod 777 /dev/mapper/360a980003754322f7a2b433469714241p1
  chown -R grid:oinstall
/dev/mapper/360a980003754322f7a2b433469714243p1
  chmod 777 /dev/mapper/360a980003754322f7a2b433469714243p1
```

8. Start the SnapManager for Oracle server.
9. Configure SnapDrive for UNIX by adding the following to `snapdrive.conf` file.`disconnect-luns-before-vbsr=on`
10. Restart the SnapDrive for UNIX server.



In an RAC environment, you need perform the Step 3 through Step 10 for all the RAC nodes.

The `/etc/initasmdisks` file created, must be executed from either one of the startup scripts or from a script that is newly defined in the `rc3.d`. The `/etc/initasmdisks` file should always be executed before the `oracleha` service starts.

Example

```
# ls -ltr *ohasd*
      lrwxrwxrwx 1 root root 17 Aug  7 02:34 S96ohasd ->
/etc/init.d/ohasd
      lrwxrwxrwx 1 root root 17 Aug  7 02:34 K15ohasd ->
/etc/init.d/ohasd
```

In the following example, `sh -x /etc/initasmdisks` will not be available by default, and you need to append it as the first line in the function `start_stack()` in an `ohasd` script:

```
start_stack()
{
sh -x /etc/initasmdisks
# see init.ohasd.sbs for a full rationale case $PLATFORM in Linux
}
```



```
# Set full full permission for this file to be called while rebooting and
restore
chmod 777 /etc/initasmdisks

# If the /etc/initasmdisks needs to be updated in all the RAC nodes
# or /etc/initasmdisks script has to be executed in the RAC nodes, then
the following
# section needs to be uncommented and used.
#
# Note: To do scp or running scripts in remote RAC node via ssh, it needs
password less login
# for root user with ssh keys shared between the two nodes.
#
# The following 2 lines are used for updating the file in the RAC nodes:
# scp /etc/initasmdisks root@racnode1:/etc/initasmdisks
# scp /etc/initasmdisks root@racnode2:/etc/initasmdisks
#
# In order to execute the /etc/initasmdisks in other RAC nodes
# The following must be added to the master RAC node /etc/initasmdisks
file
# from the asmmain.sh script itself. The above scp transfer will make sure
# the permissions and mode for the disk list contents are transferred to
the other RAC nodes
# so now appending any command in the /etc/initasmsdisks will be retained
only in the master RAC node.
# The following lines will add entries to the /etc/initasmsdisks file in
master RAC node only. When this script is executed
# master RAC node, /etc/initasmdisks in all the RAC nodes will be
executed.
# echo 'ssh racnode1 /etc/initasmdisks' >> /etc/initasmdisks
# echo 'ssh racnode2 /etc/initasmdisks' >> /etc/initasmdisks
```

asmquerydisk.sh

```
#!/bin/bash
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=/u01/app/grid/product/11.2.0.3/grid
export ORACLE_SID=+ASM
export PATH=$ORACLE_HOME/bin:$PATH

# Get the Disk List and save this in a file called dglist.
asmcmd lsdsk > /home/grid/disklist

# In oracle 10g the above used command 'asmcmd' is not available so use
SQL
# query can be used to take the disk list. Need to uncomment the following
# line and comment the above incase oracle 10g is being in use.
# The disk_list.sql script is availbe in this noasm lib examples folder
itself
# which can be modified as per customer needs.
# sqlplus "/as sysdba" @/home/grid/disk_list.sql > /home/grid/disklist
```

disk_list.sql

```
# su - oracle
-bash-4.1$ cat disk_list.sql
select path from v$asm_disk;
exit
-bash-4.1$
```


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