Oracle Linux 7

Installing and Configuring Oracle ASMLIB v2

G17045-03
December 2024

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G17045-03

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Preface

> **WARNING:**
>
> Oracle Linux 7 is now in Extended Support. See Oracle Linux Extended Support and Oracle Open Source Support Policies for more information.
>
> Migrate applications and data to Oracle Linux 8 or Oracle Linux 9 as soon as possible.

Oracle Linux 7: Installing and Configuring Oracle ASMLIB v2 describes how to install and configure ASMLIB version 2 on Oracle Linux systems including Oracle Linux 7.

Documentation License

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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About Oracle ASMLIB

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Oracle ASMLIB is an optional support library for the Automatic Storage Management feature of the Oracle Database. Automatic Storage Management (ASM) simplifies database administration and reduces kernel resource usage, such as the number of open file descriptors. ASM eliminates the need for the DBA to directly manage many Oracle database files, requiring only the management of groups of disks allocated to the Oracle Database. ASMLIB can make an Oracle Database using ASM more efficient and capable of accessing the disk groups it's using.

Further technical information about Oracle ASMLIB can be found at the following resources:

- Database 23ai Installation Guide for Linux: Installing and Configuring Oracle ASMLIB Software
- Database 19c Installation Guide for Linux: Installing and Configuring Oracle ASMLIB Software

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Installing and Upgrading Oracle ASMLIB

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ASMLIB is a support library for the Automatic Storage Management (ASM) feature of the Oracle Database. Oracle provides a Linux-specific implementation of this library. This document describes how to download, install, and upgrade the ASM library on Oracle Linux 7.

What do you need?

- A system with Oracle Linux 7 installed.
- Root administrator privileges on the host Linux system.

Updating ULN Subscriptions or Downloading Packages

The `oracleasmlib` and `oracleasm-support` packages are available on the Unbreakable Linux Network (ULN). You can also manually download the packages.

We recommend installing from ULN to keep the system updated.

- Subscribe to ULN Channels.

  If you're using ULN, subscribe to the "Oracle ASMLIB" and "Oracle Linux Addons" ULN channels.

  1. Sign in to https://linux.oracle.com with your ULN username and password.
  2. On the Systems tab, from the list of registered systems, select the link name for the specified system.
  3. On the System Details page, select Manage Subscriptions.
  4. On the System Summary page, select the required `"Oracle ASMLIB" and "Oracle Linux Addons"` channels from the Available Channels list, then click the right-arrow (→) to move selected channels to the Subscribed Channels list.
  5. Click Save Subscriptions.

- Download packages manually.

  If you don't use ULN you can download the driver packages from https://www.oracle.com/linux/downloads/linux-asmlib-v7-downloads.html, but you must keep them updated on the system when new patches are released.

Installing Required Packages

The following steps describe how install the ASM support tools, the ASM library, and the kernel driver (when applicable).

You must be subscribed to the ULN channels or have the packages downloaded before you proceed. See Updating ULN Subscriptions or Downloading Packages for more information.

1. Log into the system with an account that has administrator privileges.
2. Install the `oracleasm-support` and `oracleasmlib` packages.

   ```
   sudo yum install oracleasm-support oracleasmlib
   ```

3. Install the kernel driver if required.
   a. On systems running UEK R6 or earlier, the `oracleasm` kernel driver is already included and installed with the kernel.
   b. On Oracle Linux 7 systems using RHCK, you must install the `oracleasm` driver:

      ```
      sudo yum install kmod-redhat-oracleasm
      ```

Upgrading ASMLIB

Update ASMLIB by using the `yum update` command.

- Run the `yum update` command to fully update the system.

  ```
  sudo yum update -y
  ```

  We recommend that new ULN subscribers that have migrated from Red Hat update the `oracleasmlib` package from ULN.

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Configuring Oracle ASMLIB

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The following procedures are a guideline for the initial configuration of ASMLIB on Oracle Linux. See the following Oracle Database documentation for more information:

- Database 23ai Administering Oracle ASMLIB and Disks
- Database 19c Administering Oracle ASMLIB and Disks

> **Important:**
>
> Changes to ASMLIB configuration don't take immediate effect. Stop the database and all related processes when reconfiguring ASMLIB. Changes usually take effect after the next system reboot.

Initializing ASMLIB Configuration

After installation, configure the ASMLIB software and scan for disks on boot by using the management utility, `/usr/sbin/oracleasm`.

You can read the ASMLIB configuration file at `/etc/sysconfig/oracleasm`, however we recommend that you always use `oracleasm configure` to change configuration parameters, so that this file is always correctly configured. The interactive (`-i`) option is typically used to configure the library for the first time.

- Run the configuration utility in interactive mode to initialize the configuration.

  ```
  sudo oracleasm configure -i
  ```

  If run for the first time, the `oracleasm configure` utility asks a series of questions, including which user id and group id to assign permission to use ASMLIB.

  If the Oracle Database is configured to run as the `oracle` user and the `dba` group, the output looks similar to the following:

  ```
  Configuring the Oracle ASM library driver.

  This will configure the on-boot properties of the Oracle ASM library
  ```

```
driver.  The following questions will determine whether the driver is
loaded on boot and what permissions it will have.  The current values
will be shown in brackets ('[]').  Hitting  without typing an
answer will keep that current value.  Ctrl-C will abort.

Default user to own the driver interface []: oracle
Default group to own the driver interface []: dba
Start Oracle ASM library driver on boot (y/n) [y]: y
Scan for Oracle ASM disks on boot (y/n) [y]: y
Writing Oracle ASM library driver configuration: done
```

- Enable and start the `oracleasm` service.

  After you have finished configuring ASMLIB, enable and start the `oracleasm` service.

  ```
  sudo systemctl enable --now oracleasm
  ```

Making Disks Available to ASMLIB

Every disk that the Oracle Database accesses using ASMLIB must be labeled. This topic describes how to create an ASM disk label, verify it, and how to remove a label.

The following commands show how to scan disks, and create ASM disk labels. Instructions are also provided for viewing and querying disk labels and also for removing them.

1. Use the `oracleasm scandisks` command to scan all block devices attached to the system for ASM disk labels and make any ASM disks found available to ASM.

   ```
   sudo oracleasm scandisks
   ```

   Output might appear similar to the following:

   ```
   Reloading disk partitions: done
   Cleaning any stale ASM disks...
   Scanning system for ASM disks...
   ```

2. Use the `oracleasm createdisk` command to label a disk.

   ```
   sudo oracleasm createdisk VOL1 /dev/sdg1
   ```

   The following output might be displayed:

   ```
   Writing disk header: done
   Instantiating disk: done
   ```

3. Use the `oracleasm listdisks` command to view existing disk labels.

   ```
   sudo oracleasm listdisks
   ```

Output might appear similar to the following:

```
VOL1
VOL2
VOL3
```

4. Use the `oracleasm querydisk` command to check whether a disk device has a label.

   ```
   sudo oracleasm querydisk /dev/sdg1
   ```

   If the device isn't labeled as an ASM disk, the following output is displayed:

   ```
   Device "/dev/sdg1" is not marked as an ASM disk
   ```

   If the device is labeled as an ASM disk, output appears as follows:

   ```
   Device "/dev/sdg1" is marked an ASM disk with the label "VOL1"
   ```

   You can also query an ASM disk label to see whether the label is valid, for example:

   ```
   sudo oracleasm querydisk VOL1
   ```

5. Use the `oracleasm deletedisk` command to remove an ASM label from a disk.

   ```
   sudo oracleasm deletedisk VOL1
   ```

   The following output might be displayed:

   ```
   Clearing disk header: done
   Dropping disk: done
   ```

When you have finished configuring disk availability, you can check that the disks are visible in ASM. See Validating ASM Disk Visibility Using a Discovery String.

Checking ASMLIB Configuration Status

Use the `oracleasm status` command to show the status of ASMLIB configuration. This command can help identify issues and can show which features are enabled.

- Run `oracleasm status` to view the current configuration status.

  ```
  sudo oracleasm status
  ```

  The following example output is taken from a system running UEK R6:

  ```
  Checking if the oracleasm kernel module is loaded: yes
  Checking if /dev/oracleasm is mounted: yes
  ```

  The following checks are performed:

  – Check if the `oracleasm` kernel module is loaded.

– Check if the `/dev/oracleasm` is mounted.

Validating ASM Disk Visibility Using a Discovery String

ASM uses discovery strings to describe which of the labeled ASM disks attached to a system are available to the Oracle Database instance.

Use the `oracleasm-discover` command to validate ASM discovery strings and view characteristics of the associated ASM disks.

- List all ASM disks on the system.

  ```
  sudo oracleasm-discover
  ```

  The following output might be displayed:

  ```
  Using ASMLib from /opt/oracle/extapi/64/asm/orcl/1/libasm.so
  [ASM Library - Generic Linux, version 2.0.16 (KABI_V2)]
  Discovered disk: ORCL:DB1 [1044162 blocks (534610944 bytes), blksz
  512/512, maxio 524288 bytes, integrity none]
  Discovered disk: ORCL:DB2 [1044162 blocks (534610944 bytes), blksz
  512/512, maxio 524288 bytes, integrity none]
  Discovered disk: ORCL:VOL1 [1044162 blocks (534610944 bytes), blksz
  512/512, maxio 524288 bytes, integrity none]
  Discovered disk: ORCL:VOL2 [1044162 blocks (534610944 bytes), blksz
  512/512, maxio 524288 bytes, integrity none]
  ```

- List all ASM disks whose labels begin with "VOL".

  ```
  sudo oracleasm-discover ORCL:VOL\*
  ```

  The following output might be displayed:

  ```
  Using ASMLib from /opt/oracle/extapi/64/asm/orcl/1/libasm.so
  [ASM Library - Generic Linux, version 2.0.16 (KABI_V2)]
  Discovered disk: ORCL:VOL1 [1044162 blocks (534610944 bytes), blksz
  512/512, maxio 524288 bytes, integrity none]
  Discovered disk: ORCL:VOL2 [1044162 blocks (534610944 bytes), blksz
  512/512, maxio 524288 bytes, integrity none]
  ```