



# HP OpenVMS Operations Manager Agent installation using LD disk

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## Introduction

### HP Operations Manager Agent for OpenVMS installation requirements

HP Operations Manager Agent (OMA) for HP OpenVMS allows integrating OpenVMS systems into the HP Operations Manager environment. To establish a comprehensive end-to-end management solution HP Open View Operations (OVO), are installed on managed OpenVMS systems and provide remote intelligence for collecting, aggregating, and monitoring information from a variety of information sources.

HP OMA Versions 8.0-1, 8.0-2, and 8.6-1 are supported on OpenVMS Alpha Version 8.3, and 8.4 and on OpenVMS Integrity Servers Version 8.3, 8.3-1H1, and 8.4. The important prerequisite for installing HP OMA is that the installation disk should be in ODS-5 structure.

ODS-2 is the standard OpenVMS file system, and remains the most common file system for system disks. ODS-5 is the extended version of ODS-2, which adds support for case-preserving filenames. The ODS-2 file system is widely used in most of the legacy OpenVMS system owned by the customers systems.

ODS-5 is being introduced primarily to provide enhanced file sharing capabilities for users of Advanced Server (PATHWORKS for OpenVMS), as well as DCOM and JAVA applications. Once ODS-5 volumes are enabled, some of the new capabilities can potentially impact certain applications or layered products, as well as some areas of system management. The new syntax for file names that is allowed on ODS-5 volumes cannot be fully utilized on ODS-2 volumes. The system manager must be careful where and how you enable ODS-5 volumes in mixed-version and mixed-architecture OpenVMS Clusters.

To create an ODS-5 volume on an OpenVMS Alpha and Integrity system, the system manager must do either of the following:

- Initialize a new volume as ODS-5
- Convert an existing volume from ODS-2 to ODS-5

In certain environments, customer cannot exercise either of the options described above. In such circumstances, the following solution addresses the issue of OVO installation on OpenVMS managed nodes.

- Create a logical driver (LD) disk on an existing ODS-2 disk.
- Initialize the LD disk as ODS-5.
- Mount it as ODS-5 disk for OVO installation.

### Disk partitioning on OpenVMS using LD driver

LD driver is a device driver that runs under the OpenVMS operating system to allow creation of virtual disks.

LD driver was developed a long time ago (around 1985) and has been improved and extended many times since then. It started as freeware and was integrated into OpenVMS in V7.3-1 onwards.

The next sections illustrate how to create LD device followed by the OMA installation.

## LD driver concept on OpenVMS

### What is LD driver?

As its name implies, LD driver is a logical disk driver that allows using a file on any type of hard disk as a virtual disk.

For example, a file called DISK:[LD]DISK1.DAT can be used as a disk by entering the command, LD CONNECT DISK:[LD]DISK1.DAT LDA1:. Once the command is executed device LDA1: created on the system which can be used as a disk.

The LD system startup procedure is SYS\$STARTUP:LD\$STARTUP. This file can be added to the VMS startup file SYS\$SYSTEM:SYSTARTUP\_VMS.COM. An optional startup parameter allows increasing the number of LD devices by specifying the controller letter to use for LD. If the controller letter is not specified, then LDA will be used.

## Different modes of LD driver

LD driver operates in three different modes:

**File mode:** allows any arbitrary file to be used as disk

**LBN mode:** allows you to specify blocks on a disk

**REPLCE mode:** allows access to the disk

## How to create LD disk?

LBN mode is the best-suited method for creating LD disk for OVO installation as it allows creating device by specifying required blocks.

In LBN (Logical Block Number) mode, a physical disk can be accessed in several parts, as specified by a LBN range. For example:

```
$ ld connect $1$dka100: lda1:/lbn=(start=0,count=100000) /log
```

```
%LD-I-CONNECTED, connected $1$LDA1: to _$1$DKA100: (LBN Mapping: Start=0 End=99999)
```

This procedure uses device \$1\$DKA100 for device LDA1. The range of LBNs can be specified in either of the following ways:

- A starting LBN with a block count
- A starting LBN and an ending LBN

The driver will check for an overlap of LBNs, so any attempt to use a range already in use will result in the following error:

```
$ld connect $1$dka100: lda1:/lbn=(start=500,end=2000)/log
```

```
LD-F-DEVICEINUSE, Device incompatible connected to other LD disk in cluster
```

```
-LD-F-RANGEINUSE, LBN range already in use
```

This way of portioning a disk is the most efficient way to use the physical device, since the overhead of unused blocks is zero. The physical device can be divided in as many parts as you need, as long as the system's resources will allow them.

These LD devices can be shared in a cluster:

```
$ld connect $1$dka100: lda1:/lbn=(start=5000,count=5000)/log/share
```

```
LD-I-CONNECTED, connected $1$LDA1: to $1$DKA100: (LBN Mapping: Start=5000 End=9999) (shared)
```

The restrictions involve the device number, unit number, controller letter, and allocation class must match the remote node. The range and physical device have to match as well, of course. Notice that the range of LBNs in use is checked on all the nodes in the cluster that have an interest in the physical device, so if any block in the specified range is already in use, an error will be generated.

To be able to use LBN connect, the physical device must not be in use anywhere in the cluster. The driver will enforce a check on this, and if the check fails, an error will follow. After the first LD device is connected with LBN, the physical device will not be available for any other use in the cluster; that is, a mount on any node will fail until the last LD device disconnects. For example:

```
$ mount/over=id $1$dka100:
```

```
%MOUNT-I-OPRQST, device already allocated to another user
```

```
%MOUNT-I-OPRQST, device _$1$DKA100: (LDDVR) is not available for mounting.
```

If any failure to use the physical device occurs on any node, make sure that all LD devices are disconnected from this device.

Beginning in V8.2, LD is fully integrated, and the lower version LD kit can be downloaded from freeware.

[hp.com/go/openvms/freeware](http://hp.com/go/openvms/freeware).

## Installation of HP OpenVMS Operations Manager Agent

This section provides details on how to install HP OpenVMS OMA using a LD disk.

### Verifying the prerequisites on an OpenVMS system

Refer to the HP OpenVMS OMA installation guide for prerequisites.

[http://h71000.www7.hp.com/openvms/products/openvms\\_ovo\\_agent/index.html](http://h71000.www7.hp.com/openvms/products/openvms_ovo_agent/index.html)

Also make sure PAGEFILE quota for SYSTEM account is at least 300,000 pages. Otherwise you may see statement like "pthread\_create() failed" in system.txt. It is noticed that it affects the template distribution process.

The other noticeable prerequisite is that ODS-5 disk is required for HP OpenVMS OMA installation.

### Creating LD device for installation

As mentioned in the previous section, the main prerequisites for ODS-5 disk, in most of the environment doesn't have ODS-5 and so just to make the disk with the available resource we can create LD disk and use it for OVO installation.

The best suited mode for creating LD disk for OVO installation is LBN mode; we can specify blocks in this mode. The minimum disk space required for product is 100000 blocks.

Follow these steps to create disk:

1. Identify the physical disk, which has sufficient free space for using it for LD.
2. Start the LD system using startup procedure SYS\$STARTUP:LD\$STARTUP.COM.
3. Create the LD disk from the selected physical disk.

Using LBN Mode:

```
$ LD CONNECT $1$DKA100: $1$LDA1:/LBN=(START=0,COUNT=100000)/LOG
```

Using File Mode

```
$ LD CREATE I64084.DSK/SIZE=100000
```

```
$ LD CONNECT I64084.DSK
```

```
$ INIT/STR=5 $1$LDA1:
```

4. Mount the disk using mount command,  
Mount/system \$1\$LDA1: OVO8DISK OVO8DISK
5. Add the commands executed in step 2 to 4 in system startup, so that disk is mounted automatically whenever system boots.

### OVO installation

This section describes steps involved in installation of HP OpenVMS OMA.

**Step 1:** Enter the host name of the OM server to the OpenVMS local hosts database.

```
$ TCPIP SET HOST 'ovo primary server' /ADDRESS=10.1.0.10
```

**Step 2:** Move the respective kit to OpenVMS agent node, unpack, and install using the following command using SYSTEM account.

```
$ @OA-setup -i -srv ovo.server.com -cert_srv ovo.server.com
```

```
Package Size = 100000
```

```
package_path = $1$DKA0:[KITS.OM86.KITS.OVO.OVMS8-60.Package.VMS-ALPHA]
```

```
PREREQ matched OS = V7.3-2OS Version Matched = V8.3
```

```
PREREQ matched OS = V8.2OS Version Matched = V8.3
```

```
PREREQ matched OS = V8.3OS Version Matched = V8.3
```

```
Supported OS, Ver = V8.3
```

```
=====  
System disks and cluster disks discovered are:
```

```
-----
```

```
$1$DKA0 ODS-2 50800928
```

```
$1$LDA1 ODS-5 19999424
```

```
=====
```

```
Select the disk to install HTTPS agents: $1$LDA1
```

```
Free disk space found in sys$update = 35424600
```

```
Free disk space found in $1$LDA1 = 149999
```

```
Disk space required is = 100000
```

After successful installation on the virtual disk, follow the configuration steps as outlined in the [HP OpenVMS Operations Manager HTTPS Agents Version 8.6 Administrator's Guide](#) and check that messages reach the management server from the OpenVMS managed node. This would confirm the successful installation of HP OpenVMS OMA on an ODS-5 LD disk.

## Conclusion

Using HP OpenVMS OMA and SPI software to integrate OpenVMS systems into Open View framework, it is required to have an ODS-5 disk attached to the OpenVMS system.

The solution described in this article addresses this requirement without having a physical ODS-5 disk attached to the OpenVMS Managed node.

The solution is also applicable wherever we need to install OpenVMS application that require ODS-5 disk.

## Resources

The information present in this white paper is from the following documents:

**HP OpenVMS OMA:**

[http://h71000.www7.hp.com/openvms/products/openvms\\_ovo\\_agent/index.html](http://h71000.www7.hp.com/openvms/products/openvms_ovo_agent/index.html)

[http://h71000.www7.hp.com/openvms/products/openvms\\_ovo\\_agent/index\\_https.html](http://h71000.www7.hp.com/openvms/products/openvms_ovo_agent/index_https.html)

**OpenVMS Smart Plug-In User's Guide:**

[http://h71000.www7.hp.com/openvms/products/openvms\\_ovo\\_agent/vmsspi\\_user\\_gd.pdf](http://h71000.www7.hp.com/openvms/products/openvms_ovo_agent/vmsspi_user_gd.pdf)

**LD Disks:**

[http://h71000.www7.hp.com/openvms/journal/v6/disk\\_partitioning\\_with\\_lddriver.html](http://h71000.www7.hp.com/openvms/journal/v6/disk_partitioning_with_lddriver.html)

[http://h71000.www7.hp.com/doc/83final/6679/6679pro\\_007.html](http://h71000.www7.hp.com/doc/83final/6679/6679pro_007.html)

## Learn more

**Install HP OpenVMS Operations Manager Agent. For more information, visit**

**[http://h71000.www7.hp.com/openvms/products/openvms\\_ovo\\_agent/index.html](http://h71000.www7.hp.com/openvms/products/openvms_ovo_agent/index.html).**

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