

# VSI Archive Backup System for OpenVMS Installation Guide

**Operating System and Version:** VSI OpenVMS x86-64 Version V9.2-3 or higher  
VSI OpenVMS IA-64 Version 8.4-1H1 or higher  
VSI OpenVMS Alpha Version 8.4-2L1 or higher

**Software Version:** ABS/MDMS V4.x

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# VSI Archive Backup System for OpenVMS Installation Guide



VMS Software

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# Preface

## 1. About VSI

VMS Software, Inc. (VSI) is an independent software company licensed by Hewlett Packard Enterprise to develop and support the OpenVMS operating system.

## 2. Intended Audience

This document is intended for storage administrators who are experienced OpenVMS system managers. This document should be used in conjunction with the [VSI OpenVMS System Manager's Manual, Volume 1: Essentials](https://docs.vmssoftware.com/vsi-openvms-system-manager-s-manual-volume-1-essentials/) [<https://docs.vmssoftware.com/vsi-openvms-system-manager-s-manual-volume-1-essentials/>].

## 3. VSI Encourages Your Comments

You may send comments or suggestions regarding this manual or any VSI document by sending electronic mail to the following Internet address: `<docinfo@vmssoftware.com>`. Users who have VSI OpenVMS support contracts through VSI can contact `<support@vmssoftware.com>` for help with this product.

## 4. OpenVMS Documentation

The full VSI OpenVMS documentation set can be found on the VMS Software Documentation webpage at <https://docs.vmssoftware.com>.

## 5. Conventions

VMScluster systems are now referred to as OpenVMS cluster systems. Unless otherwise specified, references to OpenVMS cluster systems or clusters in this document are synonymous with VMScluster systems.

The contents of the display examples for some utility commands described in this manual may differ slightly from the actual output provided by these commands on your system. However, when the behavior of a command differs significantly between OpenVMS x86-64, IA-64, or Alpha systems, that behavior is described in text and rendered, as appropriate, in separate examples.

In this manual, every use of DECwindows and DECwindows Motif refers to DECwindows Motif for OpenVMS software.

The following conventions are also used in this manual:

| Convention    | Meaning                                                                                                                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ctrl/x</b> | A sequence such as <b>Ctrl/x</b> indicates that you must hold down the key labeled <b>Ctrl</b> while you press another key or a pointing device button.                                           |
| ...           | A horizontal ellipsis in examples indicates one of the following possibilities: <ul style="list-style-type: none"><li>• Additional optional arguments in a statement have been omitted.</li></ul> |

| Convention                 | Meaning                                                                                                                                                                                                                                                                                                                                           |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | <ul style="list-style-type: none"> <li>• The preceding item or items can be repeated one or more times.</li> <li>• Additional parameters, values, or other information can be entered.</li> </ul>                                                                                                                                                 |
| :                          | A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.                                                                                                                                                                     |
| ()                         | In command format descriptions, parentheses indicate that you must enclose the options in parentheses if you choose more than one.                                                                                                                                                                                                                |
| []                         | In command format descriptions, brackets indicate optional choices. You can choose one or more items or no items. Do not type the brackets on the command line. However, you must include the brackets in the syntax for OpenVMS directory specifications and for a substring specification in an assignment statement.                           |
|                            | In command format descriptions, vertical bars separate choices within brackets or braces. Within brackets, the choices are options; within braces, at least one choice is required. Do not type the vertical bars on the command line.                                                                                                            |
| <b>Bold Type</b>           | Bold type represents the name of an argument, an attribute, or a reason. It also represents the introduction of a new term.                                                                                                                                                                                                                       |
| <i>Italic Type</i>         | Italic type indicates important information, complete titles of manuals, or variables. Variables include information that varies in system output (Internal error <i>number</i> ), in command lines ( <b>/PRODUCER= name</b> ), and in command parameters in text (where <i>dd</i> represents the predefined code for the device type).           |
| UPPERCASE TYPE             | Uppercase type indicates the name of a routine, the name of a file, or the abbreviation for a system privilege.                                                                                                                                                                                                                                   |
| Monospace Type             | <p>Monospace type indicates code examples and interactive screen displays.</p> <p>In the C programming language, monospace type in text identifies the following elements: keywords, the names of independently compiled external functions and files, syntax summaries, and references to variables or identifiers introduced in an example.</p> |
| <b>Bold Monospace Type</b> | Bold monospace type indicates a command or command qualifier.                                                                                                                                                                                                                                                                                     |
| -                          | A hyphen at the end of a command format description, command line, or code line indicates that the command or statement continues on the following line.                                                                                                                                                                                          |
| Numbers                    | <p>All numbers in text are assumed to be decimal unless otherwise noted.</p> <p>Nondecimal radixes (binary, octal, or hexadecimal) are explicitly indicated.</p>                                                                                                                                                                                  |

# Chapter 1. Welcome To ABS

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## Warning

The tape functionality is not supported in ABS/MDMS V4.8. Disregard any mentions of tape throughout this document.

---

## 1.1. Installing ABS/MDMS

If you are installing Archive Backup System (ABS)/Media Device and Management System (MDMS) for the first time, VMS Software suggests that you read through this installation guide before installing the products. Also, refer to the [VSI Archive Backup System for OpenVMS User Guide \[https://docs.vmssoftware.com/vsi-abs-user-guide/\]](https://docs.vmssoftware.com/vsi-abs-user-guide/) for information on configuring ABS/MDMS.

## 1.2. Upgrading From E4.8

If the E4.8 field test version of ABS/MDMS is installed on your system, you must first uninstall it before installing ABS/MDMS V4.8. This must be done on all nodes you intend to use.

## 1.3. Upgrading From Earlier Versions

To upgrade to a version of ABS/MDMS prior to V4.8, use the following command (the **OPTIONS N** option additionally extracts the release notes):

```
$ @SYS$UPDATE:VMSINSTAL kit-name kit-location OPTIONS N
```

---

## Important

On Alpha and IA-64 systems, the upgrade from ABS/MDMS V3.x to V4.x requires a conversion of the ABS policy database. You can directly upgrade from ABS/MDMS V3.x to any ABS/MDMS V4.x version.

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# Chapter 2. Pre-Installation Tasks

To prepare your OpenVMS system for the ABS/MDMS server or client software installation procedure, you must perform the tasks outlined in the following sections.

## 2.1. Deciding Where to Install ABS/MDMS Software

### 2.1.1. ABS/MDMS Server Software

Install ABS/MDMS server software on a disk with sufficient space. This disk may be the system disk or another disk dedicated to ABS/MDMS. Disk space required for the installation is listed in *Section 2.2.3.1, "Required Hardware"*. You should also take into account the space required for log files, catalogs, and databases. Additional catalog disks may be added at a later time.

The ABS/MDMS server software should reside on a system that will be managing the policy and media databases for itself and any client nodes connected to it. The MDMS server provides access to the policy and media databases.

You must install ABS/MDMS server software on at least one standalone OpenVMS node or OpenVMS cluster system.

There is one kit for both ABS/MDMS servers and clients. The installation will provide the appropriate configuration based on what server names are entered during the installation. The configuration may be modified at a later time by updating the node and server information in the MDMS database.

### 2.1.2. ABS/MDMS Client Software

ABS/MDMS client software should be installed on any OpenVMS node that can communicate with the ABS/MDMS server and for which you want to create ABS save/restore requests. This communication may be done using either DECnet or TCP/IP.

---

#### Note

Given that you have the appropriate amount of licenses and adequate resources available, any number of ABS client nodes may be connected to a single ABS server node.

---

## 2.2. Verifying Requirements

### 2.2.1. Required Privileges

To install ABS, log into the SYSTEM account or into an account that has SETPRV or, at a minimum, has the following privileges enabled:

- CMKRNL
- WORLD
- SYSPRV

- TMPMBX
- NETMBX

Note that PCSI/VMSINSTAL turns off the BYPASS privilege at the start of the installation procedure.

## 2.2.2. Required OpenVMS Operating System Subclasses

The OpenVMS operating system comes with a variety of support options, or subclasses. Subclasses include such features as networking and RMS journaling. To use ABS, your system should have the following subclasses resident:

- Programming support
- Utilities
- System programming environment
- Secure user's environment
- Network support

## 2.2.3. Hardware, Software, and System Requirements

To make sure that your system is ready for the installation, verify that your system meets the requirements outlined in the following sections.

### 2.2.3.1. Required Hardware

To install software, you must meet the following minimum hardware requirements:

- OpenVMS x86-64, IA-64, or Alpha system.
- An adequate amount of RAM. Refer to the documentation for your OpenVMS system (available at [docs.vmssoftware.com](https://docs.vmssoftware.com/) [<https://docs.vmssoftware.com/>]) for minimum requirements of RAM for running OpenVMS.
- One disk.
- Adequate disk space. Verify that there are enough free blocks on the disk where you are installing the software.
- One or more tape drives if you plan to back up your data to removable media.

---

### Note

If you are providing remote drive support, you must answer **YES** to the remote drive question during the MDMS installation procedure. This requires additional free disk space.

RDF is supported on OpenVMS Alpha but not supported on OpenVMS IA-64 or x86-64.

---

Enter the following command to show the amount of used disk space on your disk:

```
$ SHOW DEVICE disk-name
```

Disk space required during a full installation on an Alpha system is 214,500 blocks, with 167,400 required after the installation. Disk space required on an IA-64 or x86-64 system is 345,000 blocks, with 170,000 required after the installation.

### 2.2.3.2. Required Software

One of the following network software options should be installed on your system before you install ABS:

- DECnet Phase IV
- DECnet-Plus for OpenVMS
- VSI TCP/IP Services for OpenVMS

Note that this software must be up and running before you start the installation procedure if you will be using a network with ABS/MDMS. It must be installed on all nodes.

---

#### Note

Network software is not required if you are on a standalone system and you will not be using the GUI.

---

### 2.2.3.3. Optional Software

- Media Robot Utility (MRU) is an optional utility that provides library and loader testing, diagnostics, and control functionality. It should be installed on the OpenVMS system where the robotic device is physically connected.
- VSI OpenJDK is optional software that provides the runtime environment for MDMSView GUI. It should be installed on the OpenVMS system where the GUI will be run.

### 2.2.3.4. Required System Parameters

To install ABS, the system parameters must be set to the minimum value or higher. *Table 2.1, "System Parameter Minimum Values"* lists the minimum system parameter values required for the installation procedure to run successfully. Depending on the kinds of programs and applications running at your site, you may need higher values.

**Table 2.1. System Parameter Minimum Values**

| System Parameter         | Minimum Value | Dynamic |
|--------------------------|---------------|---------|
| PQL_DENQLM               | 300           | Y       |
| GBLPAGES <sup>1</sup>    | 2000          | N       |
| GBLSECTIONS <sup>1</sup> | 4             | N       |
| LOCKIDTBL                | 45000         | N       |
| PQL_MENQLM               | 300           | Y       |
| PQL_MPGFLQUOTA           | 10000         | Y       |
| PROCSECTCNT              | 100           | N       |

| System Parameter | Minimum Value | Dynamic |
|------------------|---------------|---------|
| PQL_MTQELM       | 200           | Y       |

<sup>1</sup>The values listed for these system parameters represent the number of free global pages and global sections required to install and run ABS, not the total number you need to operate your system and other software.

To see the current system parameter values on your system, enter the following commands:

```
$ MCR SYSGEN
SYSGEN> SHOW/GEN
```

If you need to modify one or more of the system parameters, see the following example:

```
$ MCR SYSGEN
SYSGEN> SET GLBPAGES 2000
SYSGEN> WRITE CURRENT
SYSGEN> EXIT
```

The changed parameters should be added to SYS\$SYSTEM:MODPARAMS.DAT for future changes made with AUTOGEN. This is done by running AUTOGEN from the GENPARAMS to REBOOT phase. AUTOGEN will automatically shut down and reboot the system, installing the new parameter values.

### 2.2.3.5. Required Process Account Quotas

The account you use to install ABS (typically the SYSTEM account) must have sufficient quotas to enable you to perform the installation. If your SYSTEM account quotas are the same as, or higher than, the default values provided with the OpenVMS operating system, then these values should be sufficient to install the software.

*Table 2.2, "Required Installing Account Process Quotas"* summarizes the process quotas and the quotas that the installation procedure requires to perform the installation.

**Table 2.2. Required Installing Account Process Quotas**

| Account Quota | Minimum Value |
|---------------|---------------|
| ASTLM         | 200           |
| BIOLM         | 10000         |
| BYTLM         | 18000         |
| DIOLM         | 200           |
| ENQLM         | 2048          |
| FILLM         | 300           |
| PGFLQUO       | 10000         |
| TQELM         | 200           |

To view your current process quotas, see the following example:

```
$ MCR AUTHORIZE
UAF> SHOW SMITH
```

If you need to increase your process account quotas, see the following example:

```
$ SET DEFAULT SYS$SYSTEM
```

```
$ MCR AUTHORIZE
UAF> MODIFY SMITH/ENQLM=2048
UAF> EXIT
```

For detailed instructions about modifying account quotas, see the description of the Authorize utility in the *VSI OpenVMS System Manager's Manual, Volume 1: Essentials* [[https://docs.vmssoftware.com/vsi-openvms-system-manager-s-manual-volume-1-essentials/#\\_6017ACCOUNTS](https://docs.vmssoftware.com/vsi-openvms-system-manager-s-manual-volume-1-essentials/#_6017ACCOUNTS)].

### 2.2.3.6. Required Processes

Before beginning the installation procedure, check to see that DECnet Phase IV, DECnet-Plus, or VSI TCP/IP Services and the OpenVMS queue manager are running. Network software is not required if you are on a standalone system and you will not be using the GUI. To see if these processes are active on your system, enter the following command:

```
$ SHOW SYSTEM
```

The following information is displayed for DECnet Phase IV:

|          |               |     |    |    |               |     |     |
|----------|---------------|-----|----|----|---------------|-----|-----|
| 20800452 | NETACP        | HIB | 10 | 38 | 0 00:00:00.02 | 182 | 262 |
| .        |               |     |    |    |               |     |     |
| .        |               |     |    |    |               |     |     |
| .        |               |     |    |    |               |     |     |
| 20800455 | QUEUE_MANAGER | HIB | 9  | 66 | 0 00:00:00.03 | 229 | 304 |

The following information is displayed for DECnet-Plus:

|          |               |     |   |    |               |     |     |
|----------|---------------|-----|---|----|---------------|-----|-----|
| 2100041D | NET\$ACP      | HIB | 4 | 79 | 0 00:00:00.04 | 237 | 292 |
| .        |               |     |   |    |               |     |     |
| .        |               |     |   |    |               |     |     |
| .        |               |     |   |    |               |     |     |
| 21000438 | QUEUE_MANAGER | HIB | 9 | 66 | 0 00:00:00.02 | 227 | 304 |

The following information is displayed for TCP/IP:

|          |           |     |   |       |               |       |     |
|----------|-----------|-----|---|-------|---------------|-------|-----|
| 21000421 | TP_SERVER | HIB | 8 | 42268 | 0 00:01:10.92 | 42430 | 220 |
|----------|-----------|-----|---|-------|---------------|-------|-----|

If these processes are not active, follow the instructions below.

### How to Start the Required Processes

- Start the DECnet software.

For DECnet Phase IV, enter the following command at the DCL prompt:

```
$ START/NETWORK DECNET
```

For DECnet-Plus, enter the following command at the DCL prompt:

```
$ @SYS$STARTUP:NET$STARTUP.COM
```

- Start the VSI TCP/IP Services software.

Enter the following command at the DCL prompt:

```
$ @SYS$MANAGER:TCPIP$STARTUP.COM
```

- Start the OpenVMS queue manager.

Enter the following command at the DCL prompt:

```
$ START/QUEUE/MANAGER
```

### 2.2.3.7. Required Virtual Memory Space

The default virtual memory space that the **SET COMMAND/OBJECT** command allocates is 384 KB. The following error is displayed during installation if the CLD files have exhausted this available space limit:

```
%CDU-F-INTNODESPACE, Internal error: node space exhausted
```

Adding any new qualifier to the MDMS command is possible only if the table space is increased (the recommended table space is 2048 KB). Increase the table space to the suggested value with the following command:

```
$ DEFINE CDU$TABLE_SPACE 2048
```

### 2.2.3.8. Verify the Node is in the MDMS Database

If this installation is not the initial installation of MDMS, you need to verify that the node you are installing MDMS on is in the MDMS database. Enter the following command on a node that has MDMS already installed on it and verify that the node you are installing MDMS on is in the database:

```
$ MDMS SHOW NODE node-name-you-are-installing-on
%MDMS-E-NOSUCHOBJECT, specified object does not exist
```

If the node is not in the database, you will receive the %MDMS-E-NOSUCHOBJECT error message. You should create the node using the following command:

```
$ MDMS CREATE NODE node-name-you-are-installing-on
```

Refer to the [VSI Archive Backup System for OpenVMS MDMS Reference Guide \[https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/\]](https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/) for information on using the qualifiers.

If the node you are adding is an MDMS server node, the installation procedure will create the node using the **/DATABASE** qualifier. In addition, you need to edit all SYS\$STARTUP:MDMS\$SYSTARTUP.COM files in your domain and add this node to the definition of MDMS\$DATABASE\_SERVERS.

## 2.3. Configuring Hardware

For your storage application to work, the hardware it depends on must be installed, connected, and configured to function with the operating system. To configure your hardware, see the hardware manuals provided with the hardware device. Also, refer to the [VSI Archive Backup System for OpenVMS User Guide \[https://docs.vmssoftware.com/vsi-abs-user-guide/\]](https://docs.vmssoftware.com/vsi-abs-user-guide/) for troubleshooting suggestions.

If you are installing tape jukeboxes for use with ABS/MDMS, you should verify that the hardware is working correctly before installing ABS/MDMS. You can use MRU to verify that the hardware is installed.

### 2.3.1. RDF Configuration (Alpha Only)

MDMS provides RDF software to facilitate operations that require access to remote, network-connected tape drives. This allows you to copy data from a local site to a remote site or to copy data from a remote site to a local site. RDF requires that DECnet is installed and running.

During the installation, you will be asked questions on whether you want to install on this node the software that will allow it to act as a server and/or client for the RDF software. You need to decide if you want the server and/or client installed on the node.

- Install the **RDF Server software** on all nodes that are connected to the tape drives used for remote operations.
- Install the **RDF Client software** on all nodes that initiate remote operations to tape drives on the RDF Server node.

## 2.4. Performing a System Backup

VMS Software recommends that you perform a backup operation on the system disk before installing any software. For details about performing a backup operation on a system disk, refer to the relevant section in the *VSI OpenVMS System Manager's Manual, Volume 1: Essentials* [[https://docs.vmssoftware.com/vsi-openvms-system-manager-s-manual-volume-1-essentials/#\\_6017BACKUP](https://docs.vmssoftware.com/vsi-openvms-system-manager-s-manual-volume-1-essentials/#_6017BACKUP)].

## 2.5. Registering ABS Licenses

To use ABS software, you must register and load the relevant license Product Authorization Key (PAK) before you begin the installation procedure.

To register a license under OpenVMS, log into the system where you will be installing the software. Log into the SYSTEM account, or enable your account with the privileges described in *Section 2.2.1, "Required Privileges"*.

VMS Software recommends that you register your PAK by renaming the PAK file that VMS Software provided with a .COM extension and then executing that file; this will register your license automatically. Thereafter, you must either issue the **LICENSE LOAD** command or reboot OpenVMS to make it active.

Alternatively, you may choose to register your PAK using the **LICENSE REGISTER** command, by either typing the values of each requested field, or copying-and-pasting the values into the console line by line (assuming your console connection supports this action, such as using a terminal emulator).

If you plan to use ABS on more than one node in an OpenVMS cluster, you must load the licenses on other nodes after you install ABS.

Below is an example of what a PAK might look like:

```
$ LICENSE REGISTER ABS-SERVER-X86 -  
/ISSUER=VSI -  
/AUTHORIZATION=VSI-SAMPLEAUTH-X-10JAN2025 -  
/PRODUCER=VSI -  
/UNITS=0 -  
/TERMINATION_DATE=31-DEC-2025 -  
/OPTIONS=(PCL,X86_64) -  
/TOKEN="*** VSI INTERNAL USE ONLY ***" -  
/CHECKSUM=2-XXXX-XXXX-XXXX-XXXX
```



# Chapter 3. Installing ABS Software

This chapter contains instructions for installing Archive Backup System for OpenVMS software. Before proceeding with the installation, ensure that you have completed the pre-installation tasks described in *Chapter 2, "Pre-Installation Tasks"*.

The ABS/MDMS installation procedure consists of a series of questions and informational messages. The procedure will give you the option of doing a **standard installation** or a **non-standard installation**.

A standard installation is an installation with default settings that installs **server software** on the current node.

A non-standard installation installs **client software** on the current node. If you are working with two or more nodes, you would have to start with standard installation on your server node and then run the non-standard installation on other nodes that would be used as client nodes.

## 3.1. Installing ABS/MDMS Server Software

Install the ABS/MDMS server software on the node that you want to be the database server node using a standard installation.

---

### Important

If the E4.8 field test version of ABS/MDMS is installed on your system, you must first uninstall it before installing ABS/MDMS V4.8. This must be done on all nodes you intend to use.

---

The following steps outline the installation procedure:

1. Starting from V4.8, ABS is provided as an OpenVMS PCSI kit that can be installed by a suitably privileged user (such as the SYSTEM account) using the following command:

```
$ PRODUCT INSTALL ABS
```

For versions of ABS prior to V4.8, install ABS by invoking the VMSINSTAL command procedure from a privileged account (such as the SYSTEM account) using the following command:

```
$ @SYS$UPDATE:VMSINSTAL kit-name kit-location OPTIONS N
```

If you do not supply either the *kit-name* or the *kit-location*, VMSINSTAL prompts you for this information later in the installation procedure.

2. You will be prompted with the message `Do you want a standard installation?`. Answer **YES** to install the server software on this node.

On x86-64 systems, you will see output similar to the following:

```
ABS will be installed with the following options:
```

```
UIC for the ABS account          - [311,311]
Nodes for the database servers   - <current_node>
What scheduling option do you want - INTERNAL
Are you using backup-via-shelving - YES (if HSM is present)
```

MDMS will be installed if it is not already installed, or if it is an older version, with the following options:

```
UIC for the MDMS account          - [312,312] (or will be constructed from
                                     the ABS UIC)
Node for the database servers      - <current_node>
                                     (or will use the ABS values)
Do you want to replace MRD$RTL.EXE - YES
```

Do you want a standard installation? [Y]

ABS requires MDMS to be installed.  
MDMS will be installed.

**On Alpha or IA-64 systems, you will see output similar to the following:**

ABS will be installed with the following options:

```
Device for ABS/MDMS              - SYS$COMMON (will use current values
                                     if either MDMS or ABS is installed)
                                     You will be asked for the device name.
UIC for the ABS account          - [311,311]
Nodes for the database servers    - <current_node>
What scheduling option do you want - INTERNAL
Are you using backup-via-shelving - YES (if HSM is present)
```

MDMS will be installed if it is not already installed, or if it is an older version, with the following options:

```
Device for ABS/MDMS              - SYS$COMMON (will use current values
                                     if either MDMS or ABS is installed)
                                     You will be asked for the device name.
UIC for the MDMS account          - [312,312] (or will be constructed from
                                     the ABS UIC)
Node for the database servers      - <current_node>
                                     (or will use the ABS values)
Do you want to replace MRD$RTL.EXE - YES
```

MDMS GUI files will be installed with the following options:

```
Do you want the MDMS GUI installed on Alpha OpenVMS - YES (if on an Alpha)
Do you want files extracted for Microsoft Windows on Intel - YES
```

Remote Device Facility (RDF) will be installed with the following options:

```
Do you want MDMS support for RDF Server - YES
Do you want MDMS support for RDF Client - YES
Note: RDF will not be installed
      1. With an ABS-OMT installation
      2. On X86_64 platform
```

Questions always asked:

```
Do you want to purge files        - YES
Do you want to run the IVP        - YES (except if ABS-OMT installation)
```

---

## Important

Remote Device Facility (RDF) will not be installed on VSI OpenVMS IA-64 or x86-64 systems.

---

3. A node definition will automatically be defined for this database server node. Before installing ABS/MDMS on any other database servers or client nodes, you must add them to the MDMS database

with the **MDMS CREATE NODE** command. See *Section 3.2, "Creating a Node Object"* for more information.

Should you need to abort the installation procedure for any reason, press **Ctrl/Y** at any point. The installation procedure will delete all files it has created up to that point and then exit. From this point, you can start the installation procedure again.

## 3.2. Creating a Node Object

Before installing MDMS on any other database servers, you will have to add them to the MDMS database using the following command:

```
$ MDMS CREATE NODE nodename/DATABASE
```

Before installing MDMS on client nodes, you will have to add them to the MDMS database. Use the following command:

```
$ MDMS CREATE NODE nodename/NODATABASE
```

---

### Important

Create nodes for all database servers and client nodes you intend to use.

---

The following example command creates the MDMS server node MM2501:

```
$ MDMS CREATE NODE MM2501/DATABASE -  
_ $ /TCPIP=MM2501.ENG.VMSSOFTWARE.COM:2501-2510 /DECNET=MM2501
```

The following example command creates the MDMS client node MM2500:

```
$ MDMS CREATE NODE MM2500/NODATABASE -  
_ $ /TCPIP=MM2500.ENG.VMSSOFTWARE.COM:2501-2510 /DECNET=MM2500
```

Refer to the **MDMS CREATE NODE** command in the [VSI Archive Backup System for OpenVMS MDMS Reference Guide](https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/#d0e3259) [https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/#d0e3259] for specific information about command qualifiers.

## 3.3. Installing ABS/MDMS Client Software

To install ABS/MDMS client software on a client node, perform a non-standard installation. Note that you must first install server software on a server node (see *Section 3.1, "Installing ABS/MDMS Server Software"*) and configure the nodes (see *Section 3.2, "Creating a Node Object"*).

Install ABS software on the OpenVMS client node as on the server node, with the following exceptions:

- When the installation procedure prompts with the message *Do you want a standard installation?*, answer **NO**. This will install the client software on this system.
- When the installation procedure prompts with the message *Will this node be a MDMS database server node?*, answer **NO**.

Later on, you will be prompted to define the node for the database server (Node name list for Database Servers). You should then enter the server node you created previously (see *Section 3.1, "Installing ABS/MDMS Server Software"*).

For example, you did a standard installation on the node called MM2501, and that is your database server node. Now you are doing a non-standard installation on node MM2500, which you want to use as a client node. When prompted to provide a name for the database server, you should give system node MM2501 as a server node (it would look something like MM2501::,MM2501.ENG.VMSSOFTWARE.COM, depending on your settings).

Complete the following steps to set up your client nodes:

- Create save and restore requests for OpenVMS clients as described in the *VSI Archive Backup System for OpenVMS User Guide* [<https://docs.vmssoftware.com/vsi-abs-user-guide/>].
- Create (or modify) storage and environment policies. The *VSI Archive Backup System for OpenVMS User Guide* [<https://docs.vmssoftware.com/vsi-abs-user-guide/>] describes how to create those policies.
- Create system and user backup operations using the correct storage and environment policies. The *VSI Archive Backup System for OpenVMS User Guide* [<https://docs.vmssoftware.com/vsi-abs-user-guide/>] provides instructions for these tasks.

## 3.4. ABS/MDMS Example Installation

We have nodes MM2500 and MM2501 in a cluster. We want to install ABS/MDMS on both of them, using MM2501 as a server node and MM2500 as a client node. The suggested order of installation and configuration would be as follows:

1. Perform a standard installation on MM2501 (see *Section 3.1, "Installing ABS/MDMS Server Software"*). This is your database server node.
2. Configure nodes MM2501 and MM2500 (see *Section 3.2, "Creating a Node Object"*).
3. Perform a non-standard installation on MM2500, pointing to MM2501 as the database server (see *Section 3.3, "Installing ABS/MDMS Client Software"*).

Below is an example of a working setup, where two nodes are capable of saves and restores between each other:

```
MM2501> MDMS SHOW NODES
```

| Node Name | Database | Transports    |
|-----------|----------|---------------|
| MM2500    | NO       | TCPIP, DECNET |
| MM2501    | YES      | TCPIP, DECNET |

```
MM2501> MDMS SHOW NODE MM2501
```

```
      Node: MM2501
    Description:
  Access Control: NONE
        Owner: MM2501::SYSTEM
DECnet-Plus Name: MM2501
TCP/IP Fullname: MM2501.ENG.VMSSOFTWARE.COM:2501-2510
      Disabled: NO
Database Server: YES
        Location:
    Opcom Classes: TAPES
      Transports: TCPIP, DECNET
```

```
MM2501> MDMS SHOW NODE MM2500
```

```
      Node: MM2500
    Description:
  Access Control: NONE
      Owner: MM2501::SYSTEM
DECnet-Plus Name: MM2500
  TCP/IP Fullname: MM2500.ENG.VMSSOFTWARE.COM:2501-2510
      Disabled: NO
Database Server: NO
      Location:
  Opcom Classes: TAPES
    Transports: TCPIP,DECNET
```



# Chapter 4. Post-Installation Tasks

After you have successfully installed ABS/MDMS OpenVMS server and/or client software on your system(s), complete the post-installation tasks described in the following sections.

## 4.1. Installing ABS for the First Time

If you have installed ABS as a new installation, database initialization programs may fail to run. To initialize the database with the default storage policies and execution policies, run the following executable:

```
$ RUN SYS$SYSTEM:ABS$DB_INIT.EXE
```

## 4.2. Verifying ABS Installation

If you did not execute the IVP during the installation procedure, you can execute it immediately after installing ABS/MDMS software. Enter the following command at the DCL system prompt:

```
$ @SYS$TEST:ABS$IVP.COM  
$ @SYS$TEST:MDMS$IVP.COM
```

If an error occurs during the IVP, the following message is displayed:

```
The IVP for Archive/Backup V4.8 has failed.
```

On versions of ABS/MDMS prior to V4.8, an error message similar to the following is displayed instead:

```
ABS Version E4.8 Installation Verification Procedure failed.  
%VMSINSTAL-E-IVPFAIL, The IVP for ABS Version E4.8 has failed.
```

Errors can occur during the installation if any of the following conditions exist:

- ABS is currently running.
- The operating system version is incorrect.
- A prerequisite software version is incorrect.
- Quotas necessary for successful installation are insufficient.
- System parameter values for successful installation are insufficient.
- The OpenVMS HELP library is currently in use.
- The product license has not been registered and loaded.

## 4.3. Providing Automatic Startup and Shutdown

To enable automatic startup and shutdown of ABS/MDMS software, you must edit the startup and shutdown files as described below.

- Add the following command line to the system startup file named `SYS$MANAGER:SYSTARTUP_VMS.COM`:

```
$ @SYS$STARTUP:ABS$STARTUP.COM
```

- Add the following command lines to the system shutdown file named `SYS$MANAGER:SYSHUTDOWN.COM`:

```
$ @SYS$STARTUP:ABS$SHUTDOWN.COM  
$ @SYS$STARTUP:MDMS$SHUTDOWN.COM
```

---

## Note

When using MDMS with ABS, the MDMS startup is executed automatically. A logical name needed by ABS is defined by the MDMS startup.

---

## 4.4. ABS and MDMS Startup Queues

`ABS$STARTUP` uses the `ABS$node` queue to start the ABS processes. This queue will always exist after an ABS installation.

`MDMS$STARTUP` uses one of several queues to startup the `MDMS$SERVER` process. There is a logical name, `MDMS$STARTUP_QUEUE`, which may be defined in `MDMS$SYSTARTUP.COM`. This logical points to the queue that `MDMS$STARTUP.COM` will use.

If you do not have this defined, it will attempt to use the `MDMS$node` queue, then the `ABS$STARTUP_node` queue, then `SYS$BATCH`. If the logical is not defined and `MDMS$node`, `ABS$STARTUP_node`, and `SYS$BATCH` do not exist, then the MDMS startup will fail.

## 4.5. Modifying ABS and MDMS Command Procedures

If you are updating ABS/MDMS and you have made customizations to any of the ABS/MDMS command procedures, you may need to modify those procedures to work with ABS/MDMS V4.8. The following four command procedures have an associated `.TEMPLATE` file provided:

- `SYS$STARTUP:ABS$SYSTARTUP.COM`
- `SYS$STARTUP:MDMS$SYSTARTUP.COM`
- `MDMS$SYSTEM:MDMS$EXT_QUEUE_MANAGER.COM`
- `MDMS$SYSTEM:MDMS$EXT_SCHEDULER.COM`

If the template files have changed, you should include your customizations in the new template files and then rename them to the command procedure name.

## 4.6. Meeting OpenVMS Cluster Requirements

If you installed ABS server software on an OpenVMS cluster system, perform the steps in *Section 4.6.1, "Updating the DCL Tables"* on each node in the OpenVMS cluster (excluding the installing node) where you want to use ABS.

### 4.6.1. Updating the DCL Tables

1. Run the command procedure ABS\$STARTUP from each node that you want to use ABS. This ensures that ABS\$ and MDMS\$ logical names are defined the same across all nodes in the OpenVMS cluster:

```
$ @SYS$STARTUP:ABS$STARTUP.COM
```

2. Update the DCL table on each node in the OpenVMS cluster (excluding the installing node). Enter the following command on each node:

```
$ INSTALL REPLACE SYSLIBRARY:DCLTABLES.EXE
```

3. Have all system users log off and log on again to enable them to use the DCL ABS/MDMS commands (unless performing an upgrade).

## 4.7. Configuring MDMS

Now that you have installed MDMS, you must configure the MDMS database. MDMS provides a command procedure that you can use to configure the MDMS database on a new installation. The procedure is completely self-documenting with a help facility, and all key object attributes are defined. The procedure guides you through the following configuration objects:

- The domain (defining default values for other objects)
- Locations
- Nodes and groups
- Jukeboxes and associated drives
- Standalone drives and stackers
- Volumes, media types, and pools

The procedure is activated using the following command:

```
$ @MDMS$SYSTEM:MDMS$CONFIGURE.COM
```

Refer to the [VSI Archive Backup System for OpenVMS User Guide \[https://docs.vmssoftware.com/vsi-abs-user-guide/\]](https://docs.vmssoftware.com/vsi-abs-user-guide/) for an example of using this procedure.

Once MDMS is installed and any conversions are performed, you may wish to adjust your configuration prior to performing MDMS operations.

### 4.7.1. Configuring Robots

In addition to configuring MDMS, you might also have to configure robots for jukeboxes you are planning to use. For MRD-controlled jukeboxes, the robot name is the OpenVMS device name of the robot device. They normally fall into one of the following formats:

- GKx0 or GKxn01 for direct-connect SCSI

- \$n\$DUAnnn for access via an HSJ-type controller
- \$2\$GGmx for Fibre Channel access

If the jukebox is controlled by direct-connect SCSI, the robot device must first be loaded on the system with one of the following DCL commands:

```
Alpha - $ MCR SYSMAN IO CONNECT GKxxx/NOADAPTER/DRIVER=SYS$GKDRIVER.EXE
IA-64 - $ MCR SYSMAN IO CONNECT GKxxx/NOADAPTER/DRIVER=SYS$GKDRIVER.EXE
```

Note that the device name must begin with GK. It is suggested that these commands be included in a system startup file so that they are automatically configured at boot time.

## 4.8. Configuring Remote Tape Drives

If you installed the RDF software, you must configure the remote tape drives.

---

### Note

RDF is supported on OpenVMS Alpha but not supported on OpenVMS IA-64 or x86-64.

---

For each tape drive served with RDF Server software, make sure there is a drive object record in the MDMS database that describes it. Refer to the chapters on MDMS configuration in the [VSI Archive Backup System for OpenVMS User Guide](https://docs.vmssoftware.com/vsi-abs-user-guide/) [https://docs.vmssoftware.com/vsi-abs-user-guide/] and the **MDMS CREATE DRIVE** command in the [VSI Archive Backup System for OpenVMS MDMS Reference Guide](https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/) [https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/].

For each node connected to the tape drive, edit the file TTI\_RDEV:CONFIG\_node.DAT and make sure that all tape drives are represented in the file. Refer to the [VSI Archive Backup System for OpenVMS User Guide](https://docs.vmssoftware.com/vsi-abs-user-guide/) [https://docs.vmssoftware.com/vsi-abs-user-guide/] for more information on remote drive setup.

## 4.9. Granting the Appropriate ABS/MDMS Access Right Identifiers

When the ABS Server installation procedure is complete, the user account that performed the installation (typically the SYSTEM account) is granted the following ABS access rights identifiers. These identifiers are only needed if you use ABS DCL commands or if you have the ABS\_RIGHTS option turned on in the MDMS domain. For details on MDMS rights identifiers, refer to the [VSI Archive Backup System for OpenVMS User Guide](https://docs.vmssoftware.com/vsi-abs-user-guide/) [https://docs.vmssoftware.com/vsi-abs-user-guide/].

- ABS\_CREATE\_STORAGE\_CLASS – Users who are granted this access right identifier can create a storage class (applicable only on an ABS server system).
- ABS\_CREATE\_EXECUTION\_ENV – Users who are granted this access right identifier can create an execution environment (applicable only on an ABS server system).
- ABS\_SHOW\_ALL – Users who are granted this access right identifier can show all ABS policy objects (applicable only on an ABS server system).
- ABS\_LOOKUP\_ALL – Users who are granted this access right identifier can look up all ABS saved data from any catalog (applicable on any ABS node).

- **ABS\_CREATE\_REMOTE\_JOBS** – Users who are granted this access right identifier can submit a save or restore request that will be executed on a remote client node (applicable only on an ABS server system).

## Requirement:

- **ABS\_BACKUP\_JOB** – Users who are granted this access right identifier can submit a save or restore request that runs under their user name (a user backup). The user must also have read and write access control to the storage policy and environment policy intended for user backups.
- **ABS\_BYPASS** – Users who are granted this access right identifier can perform any ABS function (applicable only on ABS server system). This includes creating, deleting, modifying, or showing any ABS policy objects.

---

## Note

Before any user can use MDMS commands or the MDMSView GUI, you must grant MDMS rights to those users. Refer to the [VSI Archive Backup System for OpenVMS User Guide \[https://docs.vmssoftware.com/vsi-abs-user-guide/\]](https://docs.vmssoftware.com/vsi-abs-user-guide/) for more information on the use of identifiers.

---

To grant an access rights identifier to a user's account, run the AUTHORIZE utility.

## Example:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF>GRANT/IDENTIFIER ABS_LOOKUP_ALL USER1
%UAF-I-GRANTMSG, identifier ABS_LOOKUP_All granted to USER1
UAF>EXIT
```

---

## Note

Do NOT enable the access rights identifier by performing a **SET RIGHTS\_LIST** at the DCL prompt.

---

### 4.9.1. Revoking an Access Rights Identifier

To remove an access right identifier, run the Authorize utility and revoke the identifier from the user's account, as follows:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF>REVOKE/IDENTIFIER ABS_BYPASS USER1
%UAF-I-REVOKEMSG, identifier ABS_BYPASS revoked from USER1
```

You can modify the other policy objects provided by ABS in the same manner. Refer to [VSI Archive Backup System for OpenVMS User Guide \[https://docs.vmssoftware.com/vsi-abs-user-guide/\]](https://docs.vmssoftware.com/vsi-abs-user-guide/) for instructions about adding users and enabling access controls.

Before using your storage policy, you may need to modify the MDMS-related information in the policy. For example, you may wish to use a different media type than the default media type from your MDMS domain. When ABS is installed, the storage policies are initialized with the defaults from the domain. Issue an **MDMS SHOW DOMAIN** command to see the defaults. Make sure that your storage policy contains the desired settings before executing a save request.

## 4.10. ABS/MDMS Graphical User Interface (GUI)

---

### Warning

In ABS/MDMS V4.8, the Graphical User Interface functionality is still in development and may not function properly.

---

This section describes how to install and run the Graphical User Interface (GUI).

As the GUI is based on Java, you must have VSI OpenJDK installed on the system where you are running the GUI.

The ABS/MDMS installation procedure extracts files from the kit and places them in MDMS\$ROOT:[GUI...].

---

### Note

For the GUI to communicate with the MDMS server, you must have VSI TCP/IP Services installed and running on the node where you have the MDMS server running.

---

### 4.10.1. Installing the GUI

During the ABS/MDMS installation, the following question will be asked:

Do you want the MDMS GUI installed on OpenVMS Alpha/I64 [YES]?

Reply **YES** to the question if you want to install the GUI on OpenVMS. Files will be moved to MDMS\$ROOT:[GUI.VMS], and the GUI installation will be complete. If you have not already installed VSI OpenJDK, you should install it by following the instructions in the latest version of the release notes (available at [docs.vmssoftware.com \[https://docs.vmssoftware.com/\]](https://docs.vmssoftware.com/)). The version-specific setup command procedure provided by the Java installation will establish defaults for the logical names and symbols on the system.

You should add a command line to the SYS\$COMMON:[SYSMGR]SYLOGIN.COM command procedure to run this Java setup command procedure at login.

The JAVA\$CLASSPATH is defined for the GUI in the MDMS\$SYSTEM:MDMS\$START\_GUI.COM command procedure provided during the installation. This command procedure also invokes the entire GUI service.

---

### Note

Make sure that the logical JAVA\$USER\_DCL is not defined, or the GUI will not work.

---

### 4.10.2. Running the GUI

Now that you have installed the GUI, you must make sure that the server node is configured to accept communications from the GUI. The server node for the GUI must have:

- VSI TCP/IP Services enabled.

- The MDMS rights enabled on the SYSUAF record for the user.

To enable TCP/IP communications on the server, you must set the TCP/IP full name attribute and enable the TCP/IP transport. See the *VSI Archive Backup System for OpenVMS MDMS Reference Guide* [<https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/>] for information about setting these attributes on a node.

MDMS rights for the user must be enabled in the SYSUAF record so that the user may log into the server using the GUI. Refer to the *VSI Archive Backup System for OpenVMS MDMS Reference Guide* [<https://docs.vmssoftware.com/vsi-abs-for-mdms-reference-guide/>] for information on MDMS rights.

The OpenVMS account that will be used to run the GUI should have the PGFLQUO account quota set to 200,000. Correspondingly, the system page file should contain enough space to handle the large PGFLQUO value. The account should also have a WSQUOTA value of at least 10,000. The SYSGEN parameter WSMAX should be 10,000 or higher. The system should also have a minimum of 128 MB of RAM, with a higher amount recommended.

To use the MDMS GUI, enter the following commands:

```
$ SET DISPLAY/CREATE/NODE=node-name/TRANSPORT=transport
$ MDMS/INTERFACE=GUI
```

For the **SET DISPLAY** command, the *node-name* is the name of the node on which the monitor screen exists. This allows you to use the GUI on systems other than those running OpenVMS. The transport must be a keyword of:

- LOCAL if you are running the GUI on the same node as the monitor.
- DECNET if you are running the GUI on a monitor connected to another node and you wish to use DECnet protocol between the monitor node and the GUI Java node.
- TCPIP if you are running the GUI on a monitor connected to another node and you wish to use TCP/IP protocol between the monitor node and the GUI Java node.



# Appendix A. Uninstall ABS/MDMS From Your System

- To uninstall ABS software from your system, you need to first log in using the SYSTEM account or an account that has the SETPRV privilege. For ABS V4.8 and later, shut down ABS and delete it from the system using the following commands:

```
$ @SYS$STARTUP:ABS$SHUTDOWN.COM  
$ PRODUCT REMOVE ABS
```

---

## Note

On x86-64 systems, both ABS and MDMS are uninstalled together via the **PRODUCT REMOVE ABS** command.

---

For versions of ABS prior to V4.8, shut down ABS and delete it from the system using the following commands:

```
$ @SYS$STARTUP:ABS$SHUTDOWN.COM  
$ @ABS$SYSTEM:ABS$DELETE_ABS.COM
```

- To uninstall MDMS software from your system, you need to first log in using the SYSTEM account or an account that has the SETPRV privilege. Shut down MDMS and uninstall it from your system using the following commands:

```
$ @SYS$STARTUP:MDMS$SHUTDOWN.COM  
$ @SYS$STARTUP:MDMS$UNINSTALL.COM
```

