VMS Software

VSI Availability Manager Installation Guide

Operating System and Version: VSI OpenVMS Alpha Version 8.4-2L1 or higher
VSI OpenVMS IA-64 Version 8.4-1H1 or higher
VSI OpenVMS x86-64 Version 9.2-3 or higher
Microsoft Windows 10 or higher

Software Version: VSI Availability Manager Version 4.0

VMS Software, Inc. (VSI)
Boston, Massachusetts, USA

VSI Availability Manager 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 guide is intended for system managers who install and use the VSI Availability Manager software. It is assumed that the system managers who use this product are familiar with Microsoft Windows terms and functions.

Note

The term **Windows**, as it is used in this manual, refers to Windows 10 or higher.

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3. Document Structure

This document is organized as follows:

- *Chapter 1, Introduction to VSI Availability Manager* provides information about the VSI Availability Manager components and how they are packaged into kits. It also provides a diagram that depicts the entire process of installing the VSI Availability Manager software from the preparations for installation through post-installation tasks.
- *Chapter 2, "Data Collector Installation on OpenVMS Systems"* explains how to install the Data Collector on one or more nodes in your OpenVMS system.
- *Chapter 3, "Data Analyzer and Data Server Installation on Windows Systems"* explains the installation procedure for the Data Analyzer and Data Server on Windows nodes.
- *Chapter 4, "Data Analyzer and Data Server Installation on OpenVMS Systems (Alpha and IA-64)"* explains the installation procedure for the Data Analyzer and Data Server on OpenVMS systems.
- *Chapter 5, "Operation Instructions"* explains how to use OpenVMS and Windows commands to start the Availability Manager and how to modify memory allocation pool values.

4. 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.

Chapter 1. Introduction to VSI Availability Manager

This chapter describes the VSI Availability Manager components and how they are packaged into kits. It also provides a diagram that depicts the entire process of installing the VSI Availability Manager software.

1.1. Availability Manager Components

You can use the Availability Manager to *collect* data on OpenVMS nodes. You can then *analyze* that data on Windows or OpenVMS systems. Based on the analysis of the data and problems you detect, you can also take a number of corrective actions.

The component of the Availability Manager that enables data collection is the **Data Collector**. The part that directs data collection and analyzes that data, performs corrective actions, is the **Data Analyzer**. When the Data Analyzer is running on an OpenVMS system, the Data Collector also allows the Data Analyzer to communicate over the extended local area network (LAN) to other Data Collectors.

When the Data Analyzer is on a node that is on the wide area network (WAN), it communicates with Data Collectors through a **Data Server**. The advantage of using a Data Server is that it allows the Data Analyzer to be anywhere on the WAN – for example, at a remote site or at home.

The Availability Manager software is packaged as follows:

- Windows

  All three components – the Data Collector, Data Analyzer, and Data Server – are included into the **Windows installer**.

- OpenVMS

  The Data Analyzer and Data Server are included in the **Combined kit**. The Data Collector is a packaged in a separate kit.

  Note

  All references to Data Analyzer for OpenVMS in this document refer to Data Analyzer version 3.2-1 or earlier.

The following list describes where you need to install each software component:

- **To enable data collection on OpenVMS x86-64, IA-64, or Alpha nodes:**

  Install the Data Collector kit on each node or on an entire cluster of nodes on which you want to collect data.

- **To collect and analyze data:**

  Install either of the following on one or more nodes:

  - For Windows, run the installer for Windows

- For OpenVMS, install kits in the following order:
  1. The Data Collector kit
  2. The Combined kit

- **To enable data collection over a WAN:**

  Install either of the following on one or more nodes:

  - For Windows, run the installer for Windows
  - For OpenVMS, install kits in the following order:
    1. The Data Collector kit
    2. The Combined kit

1.2. Kit Requirements

The following table outlines the kits that you need for each component and the operating systems and versions on which you can install the VSI Availability Manager Version 4.0[1] software.

Kit	OpenVMS x86-64	OpenVMS IA-64	OpenVMS Alpha	Microsoft Windows
Data Collector kit	V9.2-3 or higher[1]	V8.4-1H1 through V8.4-2L3	V8.4-2L1 through V8.4-2L2	—
Combined kit (Data Analyzer and Data Server)	—	V8.4-1H1 through V8.4-2L3	V8.4-2L1 through V8.4-2L2	—
Windows installer (Data Collector, Data Analyzer, and Data Server)	—	—	—	Windows 10 or higher

[1]Included with OpenVMS V9.2-3 or later. Requires Availability Manager Analyzer V4.0 (or later) for Windows for analysis.

[1]Note that Data Collector for OpenVMS x86-64 is Data Collector V9.2-3, not Data Collector V4.0.

1.3. Overview of the Installation Procedure

The following diagram depicts the entire process of installing the Availability Manager software, from the preparations for installation through post-installation tasks.

```
                   Preparations for Installation
                                |
                                |
                                V
                       Tasks in common:
                       - Download software
                       - Read release notes
                      /          |          \
                     /           |           \
                    |            |            |
                    V            V            V
1.On nodes to collect  2.On OpenVMS node (or) 2.On Windows node
  data, install Data     to analyze data:      to analyze data,
     Collector:         A) Install Data        install Data
    |          |           Collector           Analyzer or
    |          |        B) Install Data        Data Server
    |          |           Analyzer or
    |          |           Data Server
    V          V               |
On single   On cluster         |
  node         |               |
    |          |               |
    V          V               V
 Perform OpenVMS postinstallation tasks
```

Chapter 2. Data Collector Installation on OpenVMS Systems

You need to install the Data Collector software on every OpenVMS node – x86-64, IA-64, Alpha – on which you want to collect data.

Note

If you want to install the Data Collector, the Data Analyzer, and the Data Server on a node, you need to install the Data Collector kit first and then the Combined kit. Note that the Combined kit, which includes a Data Collector, Data Analyzer and Data Server, is not available for OpenVMS x86-64 nodes. The Combined Kit version 3.2-1 is available for IA-64 and Alpha systems.

The following sections explain what you need to do to install the Data Collector on one or more nodes in your system. They explain the tasks you need to perform before, during, and after the installation.

2.1. Preparing to Install Data Collector Software

The following sections explain tasks you need to perform before you install the Data Collector software.

2.1.1. Check Privileges

This section outlines the privileges required to perform various operations using the Availability Manager Data Collector.

Operation	Privileges Needed
Stop, start, reload, or restart Data Collector nodes. Includes changing security or group name.	OPER, CMKRNL, LOG_IO, SYSNAM, SYSPRV

2.1.2. Evaluate Disk Space Requirements

The following table shows the minimum disk space requirements for installing and running the Availability Manager software.

Table 2.1. Disk Space Requirements

OpenVMS IA-64	OpenVMS x86-64 (Data Collector kit only)	OpenVMS Alpha	Microsoft Windows
450,000 blocks	450,000 blocks	160,000 blocks	122 MB

2.1.3. Back Up the System Disk

VSI recommends that you perform a system disk backup on OpenVMS systems before installing any software. Use the backup procedures that are established at your site. For details about performing a system disk backup, see the OpenVMS Backup utility documentation in the *VSI OpenVMS System Manager's Manual* and the *VSI OpenVMS System Management Utilities Reference Manual*.

2.2. Reading the Release Notes

VSI strongly recommends that you read the release notes before proceeding with the installation.

In the software kit on OpenVMS systems, you can obtain a text version of the Release Notes by setting the default to the directory where the kit resides. Then, enter the following command at the DCL prompt:

```
$ PRODUCT EXTRACT RELEASE_NOTES AVAIL_MAN_COL
```

If you have not set the default to that directory, enter the following command:

```
$ PRODUCT EXTRACT RELEASE_NOTES AVAIL_MAN_COL/SOURCE=disk:[directory]
```

where:

disk:[*directory*] refers to the disk and directory where the kit resides.

The default file name is DEFAULT.PCSI$RELEASE_NOTES.

2.3. Installing Data Collector Software

If you want to install both the Data Collector and the Data Analyzer on a node, you need to install the Data Collector first and then the Data Analyzer.

The following sections describe how to install the Data Collector on a single node and on a cluster.

2.3.1. Installation Considerations

Before installing the Data Collector software, there are things to consider.

2.3.1.1. Is the Data Collector installed with the OpenVMS installation sufficient for your needs?

An OpenVMS installation includes installation of the AVAIL_MAN_BASE kit. This kit installs the Data Collector and related files onto the system. These files are collected into the AVAIL_MAN_BASE kit at the same time the OpenVMS files are collected into the OpenVMS kit.

If the Data Collector kit is released at the same time as the latest version of OpenVMS, then installing the Data Collector kit on the latest version of OpenVMS is usually unnecessary.

If the Data Collector kit is released after an OpenVMS release, it has new features or bug fixes that are not in the AVAIL_MAN_BASE kit. Review the Release Notes to see if installing the Data Collector kit onto your system is beneficial.

Note that the Data Analyzer can collect data from data collectors released with all OpenVMS versions that are currently supported by VSI. This allows you some flexibility on when to install a particular Data Collector kit.

2.3.1.2. Is a System Reboot Required After Installing the Data Collector Kit?

If the data collector is loaded into memory with the **`@SYS$STARTUP:AMDS$STARTUP START`** command, then a system reboot is required after installing the Data Collector kit. To be sure, enter the

SHOW DEVICE RMA0 command on the system. If the command displays that RMA0 is online, then a system reboot is required. If the system displays `%SYSTEM-W-NOSUCHDEV, no such device available`, then a system reboot is not necessary.

2.3.2. Stopping Data Collectors

Stop any Data Collector currently running on a node by entering the following command:

```
$ @SYS$STARTUP:AMDS$STARTUP STOP
```

If you have a cluster, you can stop all the Data Collectors in the cluster by entering the following commands:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT /CLUSTER
SYSMAN> DO @SYS$STARTUP:AMDS$STARTUP STOP
SYSMAN> EXIT
```

2.3.3. Installing Data Collector on a Single Node

To install the Data Collector software on a single node, enter the DCL command **PRODUCT INSTALL**, followed by the name of one or more products. For example, to install the V3.2-1 Data Collector, enter the following command:

```
$ PRODUCT INSTALL AVAIL_MAN_COL/SOURCE=disk:[directory]
```

where *disk* and *directory* refer to the disk and the directory where the kit is located.

Note

Currently, you must install Availability Manager files in the PCSI default directory root. Use of the **/DESTINATION** qualifier is not supported.

For a description of the features you can request with the **PRODUCT INSTALL** command when starting an installation such as purging files and configuring the installation, see the *POLYCENTER Software Installation Utility User's Guide*.

As the installation procedure progresses, the system displays a percentage message to indicate how much of the installation is done. For example:

```
Percent Done: 0%...40%...60%...70%...80%...90%...100%
```

If you start the installation using the **/LOG** qualifier to the **PRODUCT INSTALL** command, the system displays details of the installation.

A sample log file of this entire installation procedure follows.

```
The following product has been selected:
    VSI VMS AVAIL_MAN_COL V3.2-1 Layered Product

Do you want to continue? [YES] Return

Performing product kit validation ...
%PCSI-I-VALPASSED, validation of
 CLU$COMMON:[KITS.AM_DC]VSI-VMS-AVAIL_MAN_COL-V0302-1.PCSI$COMPRESSED;2
 succeeded
```

```
Configuration phase starting …

You will be asked to choose options, if any, for each selected product and
for any products that may be installed to satisfy software dependency
requirements.

Configuring VSI VMS AVAIL_MAN_COL V3.2-1:
    VSI Availability Manager Data Collector Version 3.2-1
    COPYRIGHT (c) 2021 VMS Software, Inc.

    VMS Software, Inc. - Burlington, Massachusetts

    License and Product Authorization Key (PAK) Information

* This product does not have any configuration options.

Execution phase starting ...
The following product will be installed to destination:
    VSI VMS AVAIL_MAN_COL V3.2-1 DISK$I64_V842:[VMS$COMMON.]
The following product will be removed from destination:
    VSI VMS AVAIL_MAN_COL V3.2 DISK$I64_V842:[VMS$COMMON.]

The following product has been installed:
    VSI VMS AVAIL_MAN_COL V3.2-1 Layered Product
The following product has been removed:
    VSI VMS AVAIL_MAN_COL V3.2 Layered Product

VSI VMS AVAIL_MAN_COL V3.2-1: VSI Availability Manager Data Collector
Version 3.2-1

    VSI Availability Manager Startup File has been placed in SYS$STARTUP.

    VSI Availability Manager Logicals Customization File has been
    installed.

    VSI Availability Manager Security Access File has been installed.
Portion done: 0%...10%...20%...30%...40%...60%...90%...100%
$
```

2.3.4. Installing Data Collector on a Cluster

To install the Data Collector on a cluster, follow these steps:

1. Put the kit on a cluster-common disk volume. For this example, the disk volume and directory are CLU$COMMON:[KITS.AM_DC].

2. Create a command procedure in the kit directory that installs the Data Collector kit. For this example, the file CLU$COMMON:[KITS.AM_DC]INSTALL_AM_DC.COM command procedure is created and contains the following DCL commands:

   ```
   $ DEFINE/JOB SYS$LOGIN SYS$COMMON:[SYSMGR]
   $ PRODUCT INSTALL AVAIL_MAN_COL /SOURCE=CLU$COMMON:[KITS.AM_DC]
   ```

   The first line in this procedure defines SYS$LOGIN for the account that is used for the installation. In this case, the logical is defined for the SYSTEM account. This line is required for the signed kit validation phase to execute correctly in the **SYSMAN> DO** command environment.

Note

The **PRODUCT** command in the example command procedure assumes that there is only one version of the Data Collector kit in the source directory. If the directory contains multiple versions of the Data Collector kit, you must add the **/VERSION** qualifier to specify which version of the Data Collector you want to install.

3. Perform a cluster install; for example:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT /CLUSTER

%SYSMAN-I-ENV, current command environment:
        Clusterwide on local cluster
        Username SYSTEM will be used on nonlocal nodes

SYSMAN> DO/CONFIRM @CLU$COMMON:[KITS.AM_DC]INSTALL_AM_DC
Execute command for node AFFS51? [N]: Y

%SYSMAN-I-OUTPUT, command execution on node AFFS51
   .
   .
   .
Portion done: 0%...10%...20%...30%...40%...50%...60%...70%...100%

SYSMAN> exit
$
```

An example of the complete log file produced when you install Data Collector kits clusterwide follows.

Automated Clusterwide Installation of Data Collector

In the following example, 5DKA1 was mounted clusterwide.

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> SET ENVIRONMENT /CLUSTER
%SYSMAN-I-ENV, current command environment:
        Clusterwide on local cluster
        Username SYSTEM will be used on nonlocal nodes

SYSMAN> DO/CONFIRM @CLU$COMMON:[KITS.AM_DC]INSTALL_AM_DC

Execute command for node AFFS1? [N]: Y

%SYSMAN-I-OUTPUT, command execution on node AFFS1

Performing product kit validation ...
%PCSI-I-VALPASSED, validation of
 CLU$COMMON:[KITS.AM_DC]VSI-VMS-AVAIL_MAN_COL-V0302-1.PCSI$COMPRESSED;2
 succeeded

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product
and for any products that may be installed to satisfy software
```

```
dependency requirements.

VSI VMS AVAIL_MAN_COL V3.2-1: VSI Availability Manager Data Collector
Version 3.2-1

    COPYRIGHT (c) 2021 VMS Software, Inc.

    VMS Software, Inc. - Burlington, Massachusetts

    License and Product Authorization Key (PAK) Information

* This product does not have any configuration options.

Execution phase starting ...
The following product will be installed to destination:
    VSI VMS AVAIL_MAN_COL V3.2-1 DISK$S1-V842:[VMS$COMMON.]
The following product will be removed from destination:
    VSI VMS AVAIL_MAN_COL V3.2 DISK$S1-V842:[VMS$COMMON.]
The following product has been installed:
    VSI VMS AVAIL_MAN_COL V3.2-1 Layered Product
The following product has been removed:
    VSI VMS AVAIL_MAN_COL V3.2 Layered Product

VSI VMS AVAIL_MAN_COL V3.2-1:
    VSI Availability Manager Data Collector Version 0310

    VSI Availability Manager Startup File has been placed in SYS$STARTUP.

    VSI Availability Manager Logicals Customization File has been
 installed.

    VSI Availability Manager Security Access File has been installed.
Portion done: 0%...10%...20%...30%...40%...60%...90%...100%

Execute command for node AFFS21? [N]: Y

%SYSMAN-I-OUTPUT, command execution on node AFFS21

Performing product kit validation ...
%PCSI-I-VALPASSED, validation of
 CLU$COMMON:[KITS.AM_DC]VSI-VMS-AVAIL_MAN_COL-V0302-1.PCSI$COMPRESSED;2
 succeeded

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and
for any products that may be installed to satisfy software dependency
requirements.

VSI VMS AVAIL_MAN_COL V3.2-1: VSI Availability Manager Data Collector
Version 3.2-1

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```

```
* This product does not have any configuration options.

Execution phase starting ...
The following product will be installed to destination:
    VSI VMS AVAIL_MAN_COL V3.2-1 DISK$S21-V842:[VMS$COMMON.]

The following product has been installed:
    VSI VMS AVAIL_MAN_COL V3.2-1 Layered Product

VSI VMS AVAIL_MAN_COL V3.2-1: VSI Availability Manager Data Collector
Version 4.0

    VSI Availability Manager Startup File has been placed in SYS$STARTUP.

    VSI Availability Manager Logicals Customization File has been
    installed.

    VSI Availability Manager Security Access File has been installed.
Portion done: 0%...10%...20%...30%...40%...60%...90%...100%
SYSMAN> EXIT
$
```

2.4. Interrupting and Restarting an Installation

Use the following procedure to stop and restart an installation:

1. To stop the procedure at any time, press **Ctrl/Y**.
2. Enter the DCL command **`PRODUCT REMOVE`** to reverse any changes to the system that occurred during the partial installation. This deletes all files created up to that point and causes the installation procedure to exit.
3. Reenter the **`PRODUCT INSTALL`** command to begin the installation again.

2.5. Recovering from Errors

If the installation procedure fails for any reason, the following set of messages is displayed:

```
%POLYCENTER Software Installation utility
%INSTAL-E-INSFAIL, The installation of AVAIL_MAN_COL has failed.
```

An error during the installation can occur if one or more of the following conditions exist:

- The operating system version is incorrect.
- The prerequisite software version is incorrect.
- Quotas necessary for successful installation are inadequate.
- Process quotas required by the POLYCENTER Software Installation utility are inadequate.

If you receive an error message beginning with `%PCSI-E-INSTAL`, see the DCL **`HELP/MESSAGE`** utility for POLYCENTER Software Installation information and a possible solution to the problem.

If the installation fails, you must restart the installation procedure.

2.6. Rebooting the System

After the installation has finished successfully, the system may need to be rebooted. Rebooting is necessary if the Data Collector has been loaded into system memory, and needs to be reloaded.

To determine if a reboot is necessary, enter the command **`$ SHOW DEVICE RMA0`**. If the system displays device RMA0 with an online status, the system must be rebooted. If the system displays `%SYSTEM-W-NOSUCHDEV, no such device available`, then a system reboot is not necessary.

2.7. Performing Post-Installation Tasks

After you install the Data Collector on one or more OpenVMS systems, you need to perform several post-installation steps, which are divided into tasks you perform for the following:

- Previous installations
- New installations

2.7.1. For Previous Installations: Merge Customizations Files

In the course of an installation, the Availability Manager renames *.TEMPLATE files to *.TEMPLATE_OLD. It then installs new *.TEMPLATE files and lets you know if differences exist between the *.TEMPLATE and the *.TEMPLATE_OLD files.

Template files have the names shown in the following table:

Configuration File	Configuration File Template
AMDS$LOGICALS.COM	AMDS$LOGICALS.TEMPLATE
AMDS$DRIVER_ACCESS.DAT	AMDS$DRIVER_ACCESS.TEMPLATE

If you have existing logicals and access files, the installation kit leaves them on the system as is. Any changes to these files because of new or changed features are included in the *.TEMPLATE files. You can then merge these changes into your logicals and access files with a text editor, as necessary.

Use the DIFFERENCE utility on the *.TEMPLATE and *.TEMPLATE_OLD files to highlight the updates to the template.

2.7.2. For New Installations: Edit Additional Files

Following installation of Data Collector software, you need to edit one file; you can optionally edit two additional files on each Data Collector node.

The following list indicates the steps to take on OpenVMS x86-64, OpenVMS IA-64, or OpenVMS Alpha Data Collector nodes. The files in steps 1, 2 and 3, which are optional steps, contain default values that are used if you do not supply values. Step 4 is mandatory for the Data Collector to start when the system boots.

1. Optionally, edit the following file to change passwords that allow the node to be monitored by another node:

```
SYS$MANAGER:AMDS$DRIVER_ACCESS.DAT
```

Instructions for adding and updating the password entries are contained in AMDS$DRIVER_ACCESS.DAT.

2. Define logical names

   OpenVMS kits for the Availability Manager provide a template file and an initial command procedure that system managers can modify to define the logical names the Data Collector uses. The files are SYS$MANAGER:AMDS$LOGICALS.TEMPLATE and SYS$MANAGER:AMDS$LOGICALS.COM. Edit the .COM file to change the default logicals that are used to start the Data Collector and to locate its configuration files.

   The most common logicals, especially in a mixed-environment cluster configuration, are the following:

Logical	**Description**
AMDS$GROUP_NAME	Specifies the group that this node will be associated with when it is monitored.
AMDS$DEVICE	For nodes with more than one network adapter, allows you to specify which adapter the Availability Manager should use.
AMDS$RM_DEFAULT_INTERVAL	The number of seconds between multicast “Hello” messages from the Data Collector to the Data Analyzer node when the Data Collector is inactive or is only minimally active. The minimum value is 5. The maximum value is 300.
AMDS$RM_SECONDARY_INTERVAL	The number of seconds between multicast “Hello” messages from the Data Collector to the Data Analyzer node when the Data Collector is active. The minimum value is 5. The maximum value is 600.

3. For node-specific settings, create the following file:

   ```
   SYS$MANAGER:AMDS$LOGICALS_<node-name>.COM
   ```

   Edit the file to include node-specific customization entries.

4. To start the Data Collector when the system boots, you must add the following line to the SYS$MANAGER:SYSTARTUP_VMS.COM file:

   ```
   $ @SYS$STARTUP:AMDS$STARTUP START
   ```

2.7.3. Turn on Managed Objects on OpenVMS

The OpenVMS **managed objects** are introduced and described in detail in the *VSI OpenVMS Availability Manager User's Guide [https://docs.vmssoftware.com/vsi-availability-manager-user-s-guide/#CLUSTER_CH]*. Before a Data Collector node can make the managed object data available to Data Analyzers, the system manager must take steps to ensure that the RMDRIVER data collector driver is loaded early in the boot process.

The managed objects functionality can be enabled or disabled by editing the SYS$AMCONFIG.DAT data file, which is included in all OpenVMS kits for the Availability Manager. By default, the managed objects functionality is enabled.

At boot time on OpenVMS x86-64 and IA64, the operating system searches for the SYS$AMCONFIG.DAT file in the SYS$SYSROOT:[SYSEXE] directory. If the file is found, the boot code reads the file to determine whether RMDRIVER should be loaded, thus allowing or not allowing the managed objects to start using this driver at boot time.

In the kit, the BOOTLOAD flag in the SYS$AMCONFIG.DAT file is set to TRUE (the default) so that RMDRIVER is loaded at boot time. RMDRIVER will be loaded at boot time, allowing managed objects to register with RMDRIVER and allowing users to see additional switched LAN data on their systems.

2.7.4. Take Advantage of Logical LAN Setup Considerations for Homogeneous Clusters

If you have a homogeneous cluster, the configuration files AMDS$LOGICALS.COM and AMDS$DRIVER_ACCESS.DAT are in common by default. If there are any logical name settings in AMDS$LOGICALS.COM that are node-specific, you can include them in the file AMDS$LOGICALS_<*node-name*>.COM. A common logical name to define in this file is AMDS$DEVICE.

2.7.5. Take Advantage of Per-User Customization and Log File Storage

The Availability Manager V3.2-1 Data Analyzer and Data Server allow for the storage of customization and log files in a user-specific directory instead of the installation directory. This is especially useful if there is more than one person that runs the Data Analyzer on a system.

If the logicals AMDS$AM_CONFIG and AMDS$AM_LOG are not defined, then the Data Analyzer and Data Server store log files and read configuration files from subdirectories in the AMDS$AM directory by default. The AMDS$AM directory resides in the user's default directory (SYS$LOGIN). This directory contains a [CONFIG] directory for configuration files, and a [LOG] directory for log files.

If either of the AMDS$AM_CONFIG and AMDS$AM_LOG logicals are defined, then the Availability Manager will use those locations instead.

2.7.6. Take Advantage of Logical LAN Device Support

The Availability Manager is compatible with this feature. You can specify a logical LAN device in the logical AMDS$DEVICE in the file AMDS$LOGICALS.COM. However, if the current device name that the logical AMDS$DEVICE specifies is part of a logical LAN failover set, the device name needs to be changed. This is because specifying a physical device in a failover set is illegal and results in an error when executing **`@SYS$STARTUP:AMDS$STARTUP START`**. For a device name, you can specify either the logical LAN device name of the failover set or another network device.

The following figure shows a possible OpenVMS configuration. The AMDS$DEVICE logical points to EIB0:.

```
                    AMDS$DEVICE
                         |
```

```
                    V
EIA0:          EIB0:           EWA0:
```

If you create a logical LAN failover set with EIA0: and EIB0:, the AMDS$DEVICE logical can no longer specify EIB0:, because EIB0: is now in a failover set. In this case, you must set the AMDS$DEVICE logical to either LLA0:, which is the logical LAN device, or to EWA0:

```
EIA0:          EIB0:           EWA0:
\                    /
 ---------+----------
          |
          V
        LLA0:
```

For further information on setting up logical LANs, see the section called "Understanding LAN Failover" in the *VSI OpenVMS System Manager's Manual*.

2.8. Starting Data Collector on Data Collection Nodes

To manage the Data Collector, start by invoking the command procedure SYS$STARTUP:AMDS$STARTUP.COM. To list the functions that this procedure performs, enter the following:

```
$ @SYS$STARTUP:AMDS$STARTUP HELP
```

For the Data Collector to access requests to collect data and to support the Data Analyzer, you must start the Data Collector by entering the **START** command:

```
$ @SYS$STARTUP:AMDS$STARTUP START
```

To start the Data Collector when the system boots, add the following line to the SYS$MANAGER:SYSTARTUP_VMS.COM file:

```
$ @SYS$STARTUP:AMDS$STARTUP START
```

Chapter 3. Data Analyzer and Data Server Installation on Windows Systems

This chapter explains the installation procedure for the Data Analyzer and Data Server on Windows nodes. Because both components are in the same Windows installer, they are both installed at the same time.

This installation procedure assumes that you want to install the application files on a local drive. You might, however, want to install the application files on a network drive for a number of reasons – for example, if the network is backed up regularly, or if your local drive is low on available space. For better performance, VSI recommends that you install on a local drive.

The following sections contain instructions for preparing to install VSI Availability Manager software on Windows systems. The installation and modification of the Availability Manager requires that you use the local Administrator account.

Before you start installing VSI Availability Manager Version 4.0, close all other applications.

3.1. Uninstalling Old Software

If you have previously installed an Availability Manager kit, you must uninstall your old kit and reboot the system before installing the Version 4.0 kit. (The VSI Availability Manager InstallShield script causes the installation to terminate if you do not uninstall old kits and reboot.)

Note

Before uninstalling, copy all `*.INI`, `*.XML`, `*.JKS` and log files to a different folder so that it can be restored after the installation.

To uninstall the old software, follow these steps:

1. Go to the **Control Panel** on your system.
2. Click **Uninstall a program** to open the Uninstall and change the program window.
3. Select **Availability Manager** from the list and then click **Uninstall**.
4. Click **Yes** to confirm that you want to remove Availability Manager and all of its components.
5. Run **Command Prompt** as Administrator and execute the following command:

   ```
   pnputil /enum-drivers /class "NetTrans"
   ```

6. Find the driver that has "VMS Software, Inc." in the "Provider Name:" field. Note the name of the driver specified in the "Published name" field. You will need it in your next step.
7. To delete the VMS network driver, execute the following command:

   ```
   pnputil /delete-driver driver-name /force
   ```

where the *driver-name* is the value of the "Published name" field that you noted in the previous step.

Below is an example of how you can find the right driver and delete it.

```
C:\Windows\System32> pnputil /enum-drivers /class "NetTrans"
Microsoft PnP Utility

Published Name:     oem54.inf
Original Name:      amndis60.inf
Provider Name:      VMS Software, Inc.
Class Name:         NetTrans
Class GUID:         {4d36e975-e325-11ce-bfc1-08002be10318}
Driver Version:     09/09/2021 21.0.13.692
Signer Name:        Microsoft Windows Hardware Compatibility Publisher


C:\Windows\System32> pnputil /delete-driver oem54.inf /force
```

8. Reboot the system before installing the new kit.

When you uninstall the old kit, you might be asked if you want to delete a number of files, including some, if not all, of the following:

C:\WINNT\System32\declog.exe
C:\WINNT\System32\pwel32.dll
C:\WINNT\System32\pwiocb32.dll
C:\WINNT\System32\pwlogsvc.exe
C:\WINNT\System32\spawn32.exe
C:\WINNT\System32\drivers\deccore.sys
C:\WINNT\System32\drivers\decndis.sys
C:\WINNT\System32\drivers\damdrvr.sys

If you have Pathworks installed, delete *only* the last file, `damdrvr.sys`. If you *do not* have Pathworks installed, you can safely delete all the files you are prompted for; the new kit does not need these files.

3.2. Installing New Software

This section explains tasks associated with installing the Availability Manager software on Windows systems.

Warning

VSI Availability Manager requires Oracle Java 8 to be installed on your system.

Note

The Availability Manager Windows installer has the option to install or not install the Availability Manager Windows driver. If you only need to connect to a Data Server, the driver installation is not necessary. If you want the Availability Manager to communicate directly to the network, you must install the driver. The driver installation requires that you log in to the Administrator account on the Windows system, or an account in the Administrator group.

To install the VSI Availability Manager, follow these steps:

1. Open the folder containing the downloaded kit and run `AvailMan64_Vn.msi` to start the installation. This is a standard Windows product installation.
2. The installation displays the VSI Availability Manager splash screen. Click **Next** to continue.
3. The setup wizard will open a window with the installation process description. Click **Next** to continue.
4. The installation displays the License Agreement between you and VMS Software, Inc. Select **I Agree**, then click **Next**.
5. You can choose whether or not to install the Windows driver. If you want to install the driver, select the appropriate checkbox. Click **Next** to continue.
6. You are prompted to choose the installation folder location and the option to make the installation available to everyone or your Windows account only. Select the options according to your requirements. Click **Next** to continue.
7. The installation is ready to begin. Click **Next** to continue.
8. The installation displays a window informing you that the VSI Availability Manager NDIS Protocol Driver will be installed. Click **OK** to confirm and continue the installation.
9. When the installation is completed, you will see a welcome message and a list of important post-installation steps. Click **Next**, then **Close**.
10. Restart your system.

3.3. Configuring and Starting New Software

This section describes the post-installation steps that you must perform to make sure that VSI Availability Manager runs correctly.

Perform the following steps to allow the Windows driver to use the network adapter(s) on your system:

1. To display the network adapters on your system, access the Windows Control Panel, click **Network and Internet**, click **Network and Sharing Center**, and then click **Change Adapter Settings**.
2. For each network adapter that you want the Windows driver to use, perform the following steps:
   a. Right-click the adapter and select **Properties** from the menu.
   b. In the Ethernet Properties window, find and select the checkbox corresponding to the **VSI Availability Manager NDIS 6.0 Protocol Driver** entry. Click **Uninstall** to uninstall the protocol. Click **Yes** in the pop-up window to continue.
   c. Click **Install** to install the Windows network protocol driver on the network adapter.
   d. You will see a window that prompts you to select a driver. Click on the **Protocol** option to select it and then click **Add...**.
   e. In the **Select Network Protocol** window, select **VMS Software, Inc.** in the left panel and **VSI Availability Manager NDIS 6.0 Protocol Driver** in the right panel. Click **OK** to continue.
   f. Click **Close** to close the **Properties** window.

3. Once all network adapters have been configured, restart the system for the changes to take effect.

When the Availability Manager is started on a system with the Windows network protocol driver installed, the Availability Manager requires elevated privileges to start the driver. The following steps set up the Data Analyzer and Data Server Startup applications so that they can start the Availability Manager correctly:

1. On your system, locate the **Data Analyzer Startup** executable, right-click it, and select **Properties** from the menu.

2. In the Properties window, switch to the **Compatibility** tab. Select the **Run the program as an administrator** checkbox. Click **OK** to save the updated settings and close the window.

3. Perform Step 1 and Step 2 for the **Data Server Startup** icon.

When you run the Data Analyzer Startup application, it will prompt you to choose the network adapters and/or Data Server for your session. You have two options:

- If you are running the VSI Availability Manager in your local network, make sure that the checkbox corresponding to the network adapter that you configured in Step 11b is selected and click **OK**.

- If you need the VSI Availability Manager to connect to a remote server, you must select the checkbox next to **Server** and then specify the port and server address. It is possible to connect to more than one server. Click the button with the plus sign to add servers. Click **OK** to proceed.

The green background for your adapter(s) signifies that the connection to the adapter has been successful.

3.3.1. Restoring Previous Configuration File

You can copy the saved AvailMan.ini file (see *Section 3.1, "Uninstalling Old Software"*) to the new Availability Manager user-specific configuration directory.

When you run the Data Analyzer, by the time the **Network Connections** window is displayed, the Availability Manager creates the AMDS$AM directory as well as the Config and Log subdirectories (if they do not already exist).

For Version 4.0, most files generated by the Availability Manager (configuration files, log files, etc.) are created in the AMDS$AM subdirectory of your user home directory by default. For Windows, this is usually C:\Users*username*\, where *username* is your Windows username. For OpenVMS, this is your SYS$LOGIN: directory.

Copy the AvailMan.ini file to the configuration directory, renaming it to AM$DA_Config_Settings.ini. On Windows, this is C:\Users*username*\AMDS$AM\Config. On OpenVMS, this is the [.AMDS$AM.CONFIG] subdirectory in the SYS$LOGIN: directory.

For further information about the configuration and log file locations and file names, see Appendix A of the *VSI Availability Manager User's Guide*.

3.4. Re-installing Version 4.0 Software

If, for any reason, you need to remove and reinstall Version 4.0 software, the software detects whether the Availability Manager has already been installed and displays a Welcome window with the following options:

Option	Description
Modify	To add new components and replace existing the latest versions.
Repair	To reinstall the product completely.
Remove	To uninstall the product.

3.5. Take Advantage of Per-User Customization and Log File Storage

The Availability Manager V4.0 Data Analyzer and Data Server allow for the storage of customization and log files in a user-specific directory instead of the installation directory. This is especially useful if there is more than one person that runs the Data Analyzer on a system.

By default, the Data Analyzer and Data Server store log files and read configuration files from subdirectories in the AMDS$AM directory. The AMDS$AM directory resides in the user's default directory, which on Windows is usually C:\Users*username*. This directory contains a Config directory for configuration files, and a Log directory for log files.

The configuration and log locations can be overridden by creating the AMDS$AM_CONFIG and AMDS$AM_LOG environment variables before starting the Data Analyzer or Data Server.

Chapter 4. Data Analyzer and Data Server Installation on OpenVMS Systems (Alpha and IA-64)

This chapter explains how to install the Data Analyzer and Data Server software on OpenVMS systems. Because both components are in the same kit, they are both installed at the same time.

Note

If you want to install both the Data Collector and the Data Analyzer on a node, you need to install the Data Collector first and then the Data Analyzer.

4.1. Preparing to Install Data Analyzer and Data Server Software

The following sections explain tasks you need to perform before you install the Data Analyzer and Data Server software.

4.1.1. Check Privileges

The following table outlines the privileges required to perform various operations using the Availability Manager Data Analyzer and Data Server.

Operation	Privileges Needed
Use the Data Analyzer only to monitor nodes (read-only access)	OPER, SYSPRV
Implement fixes from the Data Analyzer (write access)	OPER, SYSPRV
Use the Data Server	OPER

4.1.2. Evaluate Disk Space Requirements

The following table shows the minimum disk space requirements for installing and running the Availability Manager software:

Requirement	OpenVMS IA-64	OpenVMS Alpha
Disk space required for the Availability Manager software installation and use	450,000 blocks	160,000 blocks

In addition, the disk where you install the Combined kit must be an ODS-5 formatted disk (the installation disk). You can choose the installation disk with the **`/DESTINATION`** qualifier of the **`PRODUCT`** command.

Note

If an ODS-5 disk is not available for the installation, an option is to create a Logical Disk. For information on how to create, initialize and mount Logical Disks, enter the DCL command **`HELP/LIBRARY=SYS$HELP:LD$HELP`** for accessing the Logical Disk help library.

4.1.3. Back Up the System Disk

VSI recommends that you perform a system disk backup on OpenVMS systems before installing any software. Use the backup procedures that are established at your site. For details about performing a system disk backup, see the OpenVMS Backup utility documentation in the *VSI OpenVMS System Manager's Manual* and the *VSI OpenVMS System Management Utilities Reference Manual*.

4.1.4. Convert the Installation Disk to ODS-5 Format

If you need to convert the installation disk to ODS-5 format, follow these steps:

1. If you are converting the system disk, boot the system from another disk or the OpenVMS update media DVD or CD.
2. Mount the ODS-2 disk:

   ```
   $ MOUNT/OVERRIDE_ID ddvn:
   ```

3. Convert the disk:

   ```
   $ SET VOLUME/STRUCTURE_LEVEL=5 ddcn:
   ```

4. If you are converting the system disk, reboot the system, else mount the disk as it is usually mounted.

4.1.5. Steps to Take If You Have a Version Prior to Version 3.2-1

If you have a version of the Availability Manager prior to Version 3.2-1 on your system, perform the steps below.

1. Copy the AVAILMAN.INI file

   Before you remove old kits on the Data Analyzer, as described in the next step, copy the AMDS$AM_CONFIG:AVAILMAN.INI file and any log files that you may need to a different directory so that they can be accessed after the installation.

2. Remove old kits

   On OpenVMS systems, before installing the Availability Manager Version 3.2-1 software, you must remove old kits. The following command displays the currently installed Availability Manager software:

   ```
   $ PRODUCT SHOW PRODUCT AVAIL_MAN*
   ```

   If you see either the "AVAIL_MAN" product or "AVAIL_MAN_ANA" product, remove them from your system. For instance, to remove the "AVAIL_MAN" product, enter the following command at the DCL prompt:

   ```
   $ PRODUCT REMOVE AVAIL_MAN
   ```

4.1.6. Installing Data Collector

The Data Collector must be installed for the Data Analyzer or Data Server to function correctly. For details, see *Chapter 2, "Data Collector Installation on OpenVMS Systems"*.

4.2. Combined Kit Version 3.2-1

To download the software, follow the steps in the *Availability Manager Download Instructions* sent to you by VSI. If you have not received this document, please send email to `<support@vmssoftware.com>` to request it.

Note

The Combined kit, which includes a Data Collector, Data Analyzer and Data Server, is not available for OpenVMS x86-64 nodes. The Combined Kit version 3.2-1 is available for IA-64 and Alpha systems.

Read the Release Notes

VSI strongly recommends that you read the release notes before proceeding with the installation.

In the software kit on OpenVMS systems, you can obtain a text version of the *VSI Availability Manager Version 3.2-1 Release Notes* by setting the default to the directory where the kit resides. Then enter the following command at the DCL prompt:

```
$ PRODUCT EXTRACT RELEASE_NOTES AVAIL_MAN_ANA_SRVR
```

If you have not set the default to that directory, enter the following command:

```
$ PRODUCT EXTRACT RELEASE_NOTES AVAIL_MAN_ANA_SRVR /SOURCE=disk:[directory]
```

where:

disk:[*directory*] refer to the disk and directory where the kit resides.

The default file name is DEFAULT.PCSI$RELEASE_NOTES.

4.3. Installing the Data Analyzer Software

To install the Data Analyzer on an OpenVMS system, enter a command similar to the following:

```
$ PRODUCT INSTALL AVAIL_MAN_ANA_SRVR/SOURCE=disk1:[dir1] /DESTINATION=disk2:[dir2]
```

where:

disk1:[*dir1*] refer to the disk and directory where the Combined kit resides. If you omit this qualifier, the command uses the default directory.

disk2:[*dir2*] refer to the disk and directory where the kit installs the Availability Manager Data Analyzer or Data Server software. If you omit this qualifier, the command uses the [VMS$COMMON] directory on the system disk.

An example of a log file produced when you enter this command follows:

```
The following product has been selected:
```

```
    VSI AXPVMS AVAIL_MAN_ANA_SRVR V3.2-1         Layered Product

Do you want to continue? [YES] Return

Configuration phase starting ...
```

You will be asked to choose options, if any, for each selected product and for any products that may be installed to satisfy software dependency requirements.

```
Configuring VSI AXPVMS AVAIL_MAN_ANA_SRVR V3.2-1:
    VSI Availability Manager Data Analyzer Version 3.2-1

    COPYRIGHT (c) 2021 VMS Software, Inc.

    VMS Software, Inc. - Burlington, Massachusetts

    License and Product Authorization Key (PAK) Information

* This product does not have any configuration options.

    Found Data Collector kit on system

    Found Data Collector kit at or above version V3.2-1

Execution phase starting ...

The following product will be installed to destination:
    VSI AXPVMS AVAIL_MAN_ANA_SRVR V3.2-1   DISK$KINGS_SYS:[VMS$COMMON.]

Portion done: 0%...40%...50%...90%

%AMDS-I-ROOTLOG, defining AMDS$AM_ROOT to be DISK$KINGS_SYS:[VMS$COMMON.]

%AMDS-I-EXLOGFILE, Executing AMDS$AM_SYSTEM:AMDS$LOGICALS.COM
...100%

The following product has been installed:
    VSI AXPVMS AVAIL_MAN_ANA_SRVR V3.2-1   Layered Product

VSI AXPVMS AVAIL_MAN_ANA_SRVR V3.2-1:
    VSI Availability Manager Data Analyzer Version 3.2-1

    VSI Availability Manager PDF documentation files have been placed in
 AMDS$AM_ROOT:[AMDS$AM.PDF_DOC].
```

You will be asked to choose options, if any, for each selected product and for any products that may be installed to satisfy software dependency requirements.

4.4. Interrupting and Restarting an Installation

Use the following procedure to stop and restart an installation:

1. To stop the procedure at any time, press **Ctrl/Y**.
2. Enter the DCL command **PRODUCT REMOVE** to reverse any changes to the system that occurred during the partial installation. This deletes all files created up to that point and causes the installation procedure to exit.

3. Reenter the **PRODUCT INSTALL** command to begin the installation again.

4.5. Recovering from Errors

If the installation procedure fails for any reason, the following set of messages is displayed:

```
%POLYCENTER Software Installation utility
%INSTAL-E-INSFAIL, The installation of AVAIL_MAN_ANA_SRVR has failed.
```

An error during the installation can occur if one or more of the following conditions exist:

- The operating system version is incorrect.
- The prerequisite software version is incorrect.
- Quotas necessary for successful installation are inadequate.
- Process quotas required by the POLYCENTER Software Installation utility are inadequate.
- The OpenVMS Help library is currently in use.

If you receive an error message beginning with `%PCSI-E-INSTAL`, see the DCL **HELP/MESSAGE** utility for POLYCENTER Software Installation information and a possible solution to the problem.

If the installation fails, you must restart the installation procedure.

4.6. Starting the Data Collector on a Data Analyzer or a Data Server Node

To run the Data Analyzer or Data Server on a system, you must start the Data Collector on that node. For instructions, see *Section 2.8, "Starting Data Collector on Data Collection Nodes"*.

Chapter 5. Operation Instructions

This chapter explains how to use OpenVMS and Windows commands to start the Availability Manager and how to modify memory allocation pool values.

5.1. OpenVMS Commands and Qualifiers

After you make post-installation file edits, use the DCL commands described in *Section 5.1.2, "Starting the Data Analyzer and Data Server on OpenVMS Systems"* to start the Availability Manager.

Note

If a user with inadequate page file quota (PGFLQUOTA) tries to run the Availability Manager Data Analyzer on OpenVMS, an error message is displayed and the application stops. Inadequate PGFLQUOTA causes unusual behavior in the OpenVMS Java Virtual Machine, preventing the Availability Manager from starting and running normally.

For the appropriate PGFLQUOTA settings, see *Section 5.4, "Availability Manager Performance Considerations"*.

5.1.1. Configuration Considerations

Before starting the Data Analyzer or Data Server, there are a couple of items to consider:

1. The location of the configuration and log files. With this version, the Availability Manager defaults this location in the user's directory. See *Section 2.7.5, "Take Advantage of Per-User Customization and Log File Storage"* for details.

2. If you want to display the OpenVMS Data Analyzer windows on a Microsoft Windows system, you need to install an X-windows server software package on the Windows system. OpenVMS uses the X-windows software to generate all the window displays from the Data Analyzer.

5.1.2. Starting the Data Analyzer and Data Server on OpenVMS Systems

To start the Data Analyzer, enter the following DCL command:

```
$ AVAIL/ANALYZER
```

To start the Data Server, enter the following DCL command:

```
$ AVAIL/SERVER
```

Note

To use the Data Server with a Data Analyzer, you must create public and private keys. This is explained in Chapter 2 of the *VSI OpenVMS Availability Manager User's Guide*.

You can also use either of the following qualifiers with the **`AVAIL`** command:

Qualifier	Description	Default Value of *i*
/IHEAP=*i*	Initial heap size	16M
/MHEAP=*i*	Maximum heap size	40M

You can also use the following qualifier with the **AVAIL/SERVER** command:

Qualifier	Description	Default Value of *n*
/PORT_NUMBER=*n*	IP port number	9810

where:

i is the amount of memory to allocate to the heap.

n is the IP port number used when the Data Analyzer is initiating a connection with the Data Server.

Use *i*K or *i*M on the command line to specify kilobytes or megabytes, respectively. The default values are in megabytes. The following example specifies **/IHEAP** and **/MHEAP** values in megabytes:

```
$ AVAIL/ANALYZER/IHEAP=64M/MHEAP=128M
```

For large memory configurations or if a process running the Availability Manager is page faulting excessively or running sluggishly, you might want to increase the heap sizes of the application for better performance. Note that the value of PGFLQUOTA must be a minimum of:

```
140,000 + (2,000 * MHEAP)
```

5.2. Windows Commands and Options

The following sections explain how to start the Data Analyzer and Data Server on Windows systems and how to use multiple network adapters on the Windows Data Server.

5.2.1. Starting the Data Analyzer and Data Server on Windows Systems

To start the Data Analyzer or Data Server, follow these steps:

1. Click the Windows **Start** button and type "Data" in the search box to display the components of the Availability Manager.

2. Follow either step a or b:

   a. Click **Data Analyzer Startup**.

      The Availability Manager displays the application window. For more information, see Chapter 2 in the *VSI Availability Manager User's Guide*.

   b. Click **Data Server Startup**.

      The Availability Manager starts the Data Server. On Windows, the output is displayed in a Command Prompt window.

5.2.2. Using Multiple Network Adapters for the Windows Data Server

If your Windows Data Server system has more than one network adapter, you can have the Data Server listen for Data Analyzer connections from multiple network adapters. For more information, see the *VSI Availability Manager User's Guide*.

When you start the Data Server, it will print out the port number assignments in the server log file and to the Windows console for the Data Server. The port numbers are assigned in the order that the Windows operating system presents the network adapters to the Data Server. If there is an error in assigning a port number, such as the port number is already used by another application, the error is printed in the server log file and the Windows console for the Data Server.

5.3. Modifying Memory Allocation Pool (Heap) Values

For large-memory configurations, you might want to increase the heap sizes of the application for better performance. However, the default values are adequate for most installations.

If you need to modify the default heap sizes for the Data Analyzer or Data Server, you can use the following logical names on OpenVMS and environment variables on Windows to specify the heap sizes.

Logical Name/Environment Variable	Application	Default value
AMDS$AM_DA_JAVA_INITIAL_HEAP_SIZE	Data Analyzer	-Xms60m
AMDS$AM_DA_JAVA_MAX_HEAP_SIZE	Data Analyzer	-Xmx120m
AMDS$AM_DS_JAVA_INITIAL_HEAP_SIZE	Data Server	-Xms60m
AMDS$AM_DS_JAVA_MAX_HEAP_SIZE	Data Server	-Xmx120m

Define these logical names or environment variables before starting the Data Analyzer or Data Server.

5.4. Availability Manager Performance Considerations

To run Availability Manager applications most efficiently, you need to check a number of settings. For example, before running the application from a particular account, verify that the following account settings are at least the minimum quotas:

Account	Quota
PGFLQUO	2,100,000 pagelets if you use the default for MHEAP. Add 2,000 pagelets for each MB you increase MHEAP above the default (see *Section 5.1.2, "Starting the Data Analyzer and Data Server on OpenVMS Systems"*).
BYTLM	2,000,000 bytes or greater
WSEXTENT	16,384

Also, verify that the following SYSGEN parameter setting is at least the minimum quota:

Parameter	Quota
WSMAX	16,384

The Java Runtime Environment provides a tool to help you set the necessary account and system parameters correctly. You can access and run this tool from the following location:

```
$ @SYS$COMMON:[AMDS$AM.JRE.LIB]JAVA$CHECK_ENVIRONMENT
```

Note, that the values that this tool generates are only recommendations.

For a detailed discussion of setting system parameters for improved performance, see the section "Setting Process Quotas for Better Performance" in the *HPE User Guide: JDK 5.0x for OpenVMS*.