

EMC[®] Avamar[®] Virtual Edition 7.2 for Azure

Installation Guide

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PREFACE

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your EMC technical support professional if a product does not function properly or does not function as described in this document.

Note

This document was accurate at publication time. Go to EMC Online Support (<https://support.emc.com>) to ensure that you are using the latest version of this document.

Purpose

This guide describes how to install the Avamar Virtual Edition solution, a single-node, non-RAIN Avamar server that runs as a virtual machine in a Microsoft Azure environment.

Audience

This document is intended for EMC Professional Services employees, EMC authorized channel partners, and customers who install AVE on Azure.

Revision history

The following table presents the revision history of this document.

Revision	Date	Description
01	June 2015	Release of Avamar 7.2.

Related documentation

The following EMC publications provide additional information:

- *EMC Avamar Release Notes*
- *EMC Avamar Administration Guide*
- *EMC Avamar Operational Best Practices*
- *EMC Avamar Product Security Guide*
- *EMC Avamar Backup Clients User Guide*

Special notice conventions used in this document

EMC uses the following conventions for special notices:

NOTICE

Addresses practices not related to personal injury.

Note

Presents information that is important, but not hazard-related.

Typographical conventions

EMC uses the following type style conventions in this document:

Bold	Use for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)
<i>Italic</i>	Use for full titles of publications referenced in text
Monospace	Use for: <ul style="list-style-type: none"> • System code • System output, such as an error message or script • Pathnames, file names, prompts, and syntax • Commands and options
<i>Monospace italic</i>	Use for variables
Monospace bold	Use for user input
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information omitted from the example

Where to get help

The Avamar support page provides access to licensing information, product documentation, advisories, and downloads, as well as how-to and troubleshooting information. This information may enable you to resolve a product issue before you contact EMC Customer Support.

To access the Avamar support page:

1. Go to <https://support.EMC.com/products>.
2. Type a product name in the **Find a Product** box.
3. Select the product from the list that appears.
4. Click the arrow next to the **Find a Product** box.
5. (Optional) Add the product to the **My Products** list by clicking **Add to my products** in the top right corner of the **Support by Product** page.

Documentation

The Avamar product documentation provides a comprehensive set of feature overview, operational task, and technical reference information. Review the following documents in addition to product administration and user guides:

- Release notes provide an overview of new features and known limitations for a release.
- Technical notes provide technical details about specific product features, including step-by-step tasks, where necessary.
- White papers provide an in-depth technical perspective of a product or products as applied to critical business issues or requirements.

Knowledgebase

The EMC Knowledgebase contains applicable solutions that you can search for either by solution number (for example, esgxxxxx) or by keyword.

To search the EMC Knowledgebase:

1. Click the **Search** link at the top of the page.
2. Type either the solution number or keywords in the search box.
3. (Optional) Limit the search to specific products by typing a product name in the **Scope by product** box and then selecting the product from the list that appears.
4. Select **Knowledgebase** from the **Scope by resource** list.
5. (Optional) Specify advanced options by clicking **Advanced options** and specifying values in the available fields.
6. Click the search button.

Online communities

Visit EMC Community Network at <http://community.EMC.com> for peer contacts, conversations, and content on product support and solutions. Interactively engage online with customers, partners and certified professionals for all EMC products.

Live chat

To engage EMC Customer Support by using live interactive chat, click **Join Live Chat** on the **Service Center** panel of the Avamar support page.

Service Requests

For in-depth help from EMC Customer Support, submit a service request by clicking **Create Service Requests** on the **Service Center** panel of the Avamar support page.

Note

To open a service request, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.

To review an open service request, click the **Service Center** link on the **Service Center** panel, and then click **View and manage service requests**.

Facilitating support

EMC recommends that you enable ConnectEMC and Email Home on all Avamar systems:

- ConnectEMC automatically generates service requests for high priority events.
- Email Home emails configuration, capacity, and general system information to EMC Customer Support.

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to DPAD.Doc.Feedback@emc.com.

Please include the following information:

- Product name and version
- Document name, part number, and revision (for example, 01)
- Page numbers

- Other details that will help us address the documentation issue

CHAPTER 1

Introduction

This chapter includes the following topics:

- [Overview of Avamar Virtual Edition for Azure](#) 12
- [Appropriate environments for AVE](#) 12

Overview of Avamar Virtual Edition for Azure

EMC® Avamar® Virtual Edition (AVE) is a single-node non-RAIN (Redundant Array of Independent Nodes) Avamar server that runs as a virtual machine in a Microsoft Azure environment. AVE integrates the latest version of Avamar software with SUSE Linux as a Hyper-V virtual machine.

AVE is similar to single-node Avamar servers in the following ways:

- Runs autonomously as a target for all Avamar client backups
- Performs replication to a physical Avamar system or another AVE

AVE supports four configurations: 0.5 TB, 1 TB, 2 TB, and 4 TB licensed capacity. AVE is not scalable to a multi-node Avamar server and resizing the virtual machine is not supported. You can increase storage capacity by deploying additional AVE virtual machines, and then divide backups among them. Or you can replicate the data to another Avamar server, delete the smaller virtual machine, create a larger virtual machine, and replicate the data back to the larger virtual machine.

Appropriate environments for AVE

The following factors have the most direct impact on the long-term reliability, availability, and supportability of the AVE virtual machine:

- I/O performance capability of the AVE storage subsystem
- Amount of data added daily to the AVE virtual machine (change rate)
- Capacity utilized within the AVE virtual machine

Specifications in this section and [AVE virtual disk requirements on page 14](#) describe minimum or maximum requirements for these factors. AVE generally performs better when I/O performance is higher, and change rate and utilized capacity are lower. To maximize the capacity the AVE virtual machine can use, the daily change rate of the data AVE protects must be balanced with adequate I/O performance.

The first step in determining the proper implementation of AVE is to establish which kind of customer environment AVE will be used to protect, file server or mixed environment. File server environments include file system data and mixed environments include file system data and structured data (for example, database data).

The following table describes the maximum change rates that AVE supports for file server and mixed environments.

Table 1 Maximum change rates AVE supports for file server and mixed environments

Configuration	File server data	Mixed data
0.5 TB AVE	Less than 2 GB per day	Less than 5 GB per day
1 TB AVE	Less than 4 GB per day	Less than 10 GB per day
2 TB AVE	Less than 8 GB per day	Less than 20 GB per day
4 TB AVE	Less than 20 GB per day	Less than 20 GB per day

Actual results depend on the retention policy and the actual data change rate. When the daily change rate exceeds the limits specified in the previous table, deploy a single or multi-node Avamar server.

CHAPTER 2

Installation

This chapter include the following topics:

- [Preinstallation requirements and best practices](#)..... 14
- [Installation](#)..... 15

Preinstallation requirements and best practices

Before you install an AVE virtual machine, follow the preinstallation requirements and review the best practices in the following sections.

Note

Using third party tools to create clones or exact copies of deployed Avamar Virtual Edition systems is known to cause issues. Cloning of Avamar Virtual Edition systems is not supported.

System requirements

Avamar Virtual Edition (AVE) is supported on Microsoft Azure.

The following table defines the minimum system requirements for each size of AVE.

Table 2 Minimum requirements for AVE

	0.5 TB AVE	1 TB AVE	2TB AVE	4 TB AVE
Processors	Minimum two 2 GHz processors	Minimum two 2 GHz processors	Minimum two 2 GHz processors	Minimum four 2 GHz processors
Memory	6 GB	6 GB	14 GB	28 GB
Disk space	850 GB	1,600 GB	3,100 GB	6,100 GB
Network connection	1 GbE connection	1 GbE connection	1 GbE connection	1 GbE connection
Azure Standard Tier	A5	A5	A5	A6

AVE virtual disk requirements

The AVE disk layout comprises one operating system disk (126 GB) and several storage partitions (250 GB or 1000 GB depending on the AVE configuration).

The OS disk stores the operating system, Avamar application and log files.

The storage partitions store the backup data. Backup data is evenly distributed across the storage partitions. The primary amount of the disk read, write, and seek usage occurs on the storage partitions.

In addition to the OS partition, the following table defines the number and size of virtual disks required for each AVE configuration.

Table 3 AVE virtual disk requirements

AVE configuration	Number of virtual disks
0.5 TB	3 storage partitions (250 GB each)
1 TB	6 storage partitions (250 GB each)
2 TB	3 storage partitions (1000 GB each)

Table 3 AVE virtual disk requirements (continued)

AVE configuration	Number of virtual disks
4 TB	6 storage partitions (1000 GB each)

Software requirements

Before you install AVE, ensure you have the software listed in the following table.

Table 4 Additional AVE software installation requirements

Requirement	Description	URL
Applications	Azure Cloud subscription 7zip to decompress virtual hard drive file (.vhd) from EMC Azure Powershell to execute Azure specific Powershell commands	http://azure.microsoft.com/ http://www.7-zip.org/ http://azure.microsoft.com/en-us/downloads/
Files	AVE Package, operating system security patches (if applicable)	

Installation

The following sections describe how to install an AVE virtual machine.

Preparing the virtual machine

The following instructions use Microsoft Azure.

Procedure

1. Download and decompress the AVE virtual appliance file.
2. Open an **Azure Powershell** window.
3. From Powershell, execute the following command:

```
Get-AzurePublishSettingsFile
```

A web browser window opens allowing you to login to the Azure account and download a publishing settings file.

4. Run the following command:

```
Import-AzurePublishSettingsFile -PublishSettingsFile "path-to-publishing-settings-file"
```

5. Open a web browser and go to <https://manage.windowsazure.com/>.
6. Login to your Azure account.
7. In Azure, create a container to upload virtual machine hard drive.
8. Open an Azure Powershell window.
9. Run the following command:

```
Set-AzureSubscription -SubscriptionName "subscription" -
CurrentStorageAccountName "avestorage"
```

10. Run the following command:

```
Select-AzureSubscription -SubscriptionName "subscription"
```

11. Upload the VHD to the Azure storage account and container through the following command:

```
Add-AzureVhd -LocalFilePath pathtovhdf -Destination uploadpathtoazure
```

For example:

```
C:\> Add-AzureVHD -destination " https://avestorage.blob.core.windows.net/
v7-1-1-129/AAVE-7.1.1.129-OS.vhd" -localfilepath "O:
\AAVE-7.1.1.129-2012R2\AAVE-7.1.1.129\Virtual Hard Disks
\AAVE-7.1.1.129-disk1.vhd"
```

12. Register the uploaded disk as a bootable disk through the following steps:

- Open the **Azure Management Console**.
- From **Virtual Machines** select **Disks** and click **Create**.
- From **Create a disk from a VHD** specify a **Name**, select the **VHD URL** and browse to the VHD URL, check the box **The VHD contains an operating system** and for **Operating System Family** select **Linux**.
- Click the checkmark option.

13. Create a virtual machine through the following steps:

- Open the **Azure Management Console**.
- Under **Virtual Machines** select **New**.
- Click **From Gallery**.
- Click **My Disks**.
- Click **Choose an Image** and select the Linux disk with the AVE image.
- Click the next arrow.

14. Customize the virtual machine through the following steps:

- From **Virtual machine configuration**, type in the **Virtual Machine Name**, for **Tier** select **Standard**.
- For **Size** select one of the following and click the next arrow.
 - For 0.5 TB AVE use Azure A5.
 - For 1 TB AVE use Azure A5.
 - For 2 TB AVE use Azure A5.
 - For 4 TB AVE use Azure A6.

15. From **Virtual machine configuration** select a **Virtual Network Subnet**.

16. Create the following **Endpoints** and click the next arrow.

Name	Protocol	Public port	Private port
SSH	TCP	22	22
HTTP	TCP	80	80

Name	Protocol	Public port	Private port
HTTPS	TCP	443	443
AvInstaller	TCP	8580	8580
AvInstaller	TCP	8543	8543
AvMCGUI	TCP	27000-27001	27000-27001
AvMCGUI	TCP	7778-7781	7778-7781

17. From **Virtual machine configuration**, **VM Agent** check **The VM agent that supports extensions is already installed**. Click the check mark.

18. Click the checkmark to complete the virtual machine creation.

Wait until the virtual is created.

19. Add empty hard disks through the Azure Management Console through the following steps:

- Select the Avamar Appliance Virtual Machine.
- Select **Attach**
- Select **Attach Empty Disk**.
- Create the following disks based on the AVE size (set **Host Cache Preference** to **None**):

AVE size	Number of disks	Size of disks
0.5 TB	three	250 GB
1 TB	six	250 GB
2 TB	three	1000 GB
4 TB	six	1000 GB

20. Connect to AVE through SSH.

- Connect through SSH as `root@nameofave.cloudapp.net`
- When prompted for a password, type **changeme** and press **Enter**.
- Run the `/usr/local/avamar/bin/makeprobexml` script which prompts you for the hostname and domain name. It also generates the `probe.xml` file (which is used to determine the IP address assigned). It also updates `/etc/hosts` and `/etc/HOSTNAME`.
- Reboot the virtual machine.

Installing and configuring Avamar software

To install Avamar software on a new AVE virtual machine, complete the following procedure:

Procedure

- Log in to the **Avamar Installation Manager** user interface as root.
- Open a web browser and type the following URL:

`https://Avamar-Server:7543/avi/avigui.html`

where *Avamar-Server* is the internal IP address of the Avamar virtual machine.

The **EMC Avamar Installation Manager** login page appears.

3. If any security messages appear, click **Continue**.

The **EMC Avamar Installation Manager** dialog box appears.

4. In the **User** field type `root`.
5. In the Password field type `changeme`.
6. Click **Login**.
7. Click the **SW Updates** tab and click the **Unlock** icon in the upper right corner of the dialog page.

The **Passcode** dialog box appears.

8. Type in the support password `SupportHarv1` for the password (use zero instead of o) and click **OK**.

The **EMC Avamar Installation Manager** dialog box appears. This screen can take a few minutes to populate.

9. After a few minutes, click the **Refresh** icon on your web browser to see the installation package.
10. Click the **Install** button.

The installation initialization begins. The initialization extracts files from the package and prepares the environment for the installation. The process can take a few minutes.

11. Once the initialization completes, the **Installation Setup** page appears. Note that the tabs with a red exclamation mark (!) are required for the installation.

By default, the **Network Config** tab is open.

12. Enter a value of 0 and click **Save**.

13. Click the **ConnectEMC** tab and specify the following:

- a. For **Email sender address** type *sender email address for email notification*
- b. For **Email server** type *Hostname of email server for notification emails to EMC*
- c. For **Site name** type *Description of Avamar server location*
- d. For **Email Server IP Protocol** type *IP Protocol used by the email server*
- e. Click **Save**

14. Click the **Install Patches** tab. Install available patches, and then click **Save**.

15. Click the **Passwords** tab, and then specify and confirm passwords. Make sure you note these for the customer. Click **Save**.

16. Click the **Customer Contact Info** tab, and then specify the customer contact information and click **Save**.

17. (Optional) To set Security Settings, click the **Security Settings** tab and the configure required security settings. Click **Save**.

18. Click the **Server Settings** tab. Use the internal IP address for the Avamar Server Address field. Select the applicable System timezone name and click **Save**. Click **Continue**.

19. In the **User** field, type `root`.

20. In the **Password** field, if you have not changed the default settings, the password is `changeme`. Otherwise type the edited root password.

21. Click **Login**.

22. Click the **SW Updates** tab and click the **Unlock** icon in the upper right corner of the page.

The **Passcode** dialog box appears.

23. Type in **Supp0rtHarV1** for the password and click **OK**.

Once AVE is installed, see the *EMC Avamar Administration Guide* for additional information on setting up and configuring Avamar.

