Release Notes

Dell EMC Avamar

19.1

Release Notes

Rev. 03
June 2020

Dell Inc.

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Revision history

The following table presents the revision history of this document:

Table 1. Revision history

Revision	Date	Description
03	June, 2020	Updated the Client enhancements section.
02	November, 2019	Removed an entry that described Avamar client, server, and storage node support for 64-bit SLES 12.
01	May, 2019	GA release of Avamar 19.1

Product description

Avamar is backup and recovery software with integrated data deduplication technology. Avamar solves the challenges that are associated with traditional data protection, enabling fast, reliable backup and recovery for remote offices, VMware environments, Data Domain and Cloud Tier, and data center LANs. Unlike traditional solutions, Avamar reduces the size of backup data at the source — before it transfers across the network and stores to disk. As a result, Avamar delivers fast, efficient daily full backups despite slow or congested infrastructure, and data encryption for added security. Avamar uses patented RAIN technology for high availability, and a scalable grid architecture enables you to upgrade capacity and performance when necessary.

New and changed features for Avamar 19.1

Learn about new and changed features in Avamar 19.1.

Avamar Web Management user interface enhancements

Avamar 19.1 introduces the following changes to the **Avamar Web Management user interface AUI**:

- The Download Page link in the **AUI** now provides access to the latest Avamar software and packages. The Download Page redirects you to the Support Zone page for Avamar Server or Avamar Virtual Edition (AVE), depending on whether this server is an Avamar Data Store or an instance of AVE. Additionally, the administrator can configure a custom target for the Download Page link.
- The **AUI** now supports backup and restore use cases for the following plug-ins:
  - Lotus Domino
  - Sybase
  - SAP Oracle
  - SharePoint
  - SQL

  NOTE: The AUI is supported for standalone configurations, and only for Windows and Linux machines.
- Cloud Tier configuration support in the **AUI**, which allows you to move Avamar backups from Data Domain to the cloud and perform seamless recovery of these backups. has been extended to include the Avamar plug-ins. The Avamar Data Domain System Configuration Guide provides more information.
- In addition to scheduled backups of a Cloud Tier policy in the AUI, you can now perform an on-demand backup of the policy.
- Support for GLR if the Cloud Unit configured on Data Domain is ECS. GLR is not supported in the **AUI** if the Cloud Unit is any other type. Note that if the backup is on Active Tier (a local Data Domain), this limitation does not apply.
- View and restore replicated backups on the destination or source server. Additionally, the **AUI** supports file-level restore of replicated backups on the source server.
- The **Asset Management** window in the **AUI** now allows you to expand a VMware container and select VMware entities (virtual machine, vApp, resource pool, folder) to add these entities as Avamar clients.
- Enhancements to the **Restore** wizard for virtual machine recovery.
- Cloud Tier replication for a backup that has Tier status of MARKED (ready for backup to Cloud Tier) or CLOUD (already backed up to Cloud Tier) in the Asset Management window.
- The **Activity Monitor** in the **AUI** now allows you to view and download a detailed log of a client session to perform analysis or troubleshooting.
- Calendar view added to the **Asset Management** window to select specific day or date range when searching for backups to restore.

- Introduction of the **Avamar Fitness Analyzer** reporting and analysis portal, which provides a visual representation of server health and functionality, and organizes information from disparate sources into cohesive reports. Administrators use this functionality to troubleshoot issues, optimize system performance, or plan future changes.
- From the **System** window, you can add or edit the **RSA Authentication Manager** to enable two-factor authentication (2FA) on virtual machines.

Workflow and configuration changes

The following changes related to Avamar workflows and configuration are new to Avamar 19.1:

- Removal of the whitespace in the virtual machine Front End Tera Bytes (FETB) calculation.
- To reduce total downtime, the upgrade workflow supports parallel upgrades to any attached physical and virtual Data Domain systems. Since the Data Domain system may be unavailable when the workflow takes an Avamar checkpoint, performing a parallel upgrade requires the administrator to manually create and validate checkpoints before and after the upgrade workflow. Administrators must also select an additional user input to skip the automatic checkpoint. The Avamar Virtual Edition Installation and Upgrade Guide provides more information.
- The **Avamar Administrator** installation now comes with the required Java Runtime Environment (JRE) software version. Avamar automatically installs an embedded version of JRE during installation of **Avamar Administrator**. Note that using Java Web Start for **Avamar Administrator** requires a local installation of JRE version 10 or earlier, since Java Web Start is not supported in JRE version 11.
- Avamar 19.1 includes procedures for deploying Avamar Virtual Edition on a pure Kernel-based Virtual Machine (KVM) hypervisor, in addition to the existing deployment procedures for the OpenStack KVM cloud environment.
- The DPS Deployer minimum deployment option of DDVE changes from 4 TB to 8 TB.

Orchestra REST API and web applications for multi-system management

Avamar Orchestra extends the native Avamar server REST API to facilitate the management of multiple Avamar servers. After you register each Avamar server with Orchestra, the API provides a single point of interface for management operations that you can perform on the registered servers, individually or as a group. These operations include the implementation of common backup policies, and monitoring of events, status, and activities from a centralized location.

Orchestra provides a REST API and two web applications:

- The Orchestra web user interface (web UI) provides a starting point for multiple-systems management and demonstrates the potential of the Orchestra REST API. This interface is closely modeled on the Avamar Web User Interface **AUI**.
- The Swagger user interface contains a complete listing and description of the available Orchestra REST API functions, including the applicable object models for constructing API calls.

The new *Avamar Orchestra Getting Started Guide* provides more information.

Security related enhancements

Avamar 19.1 features the following security related changes and enhancements:

- Support for RSA SecurID, which is a two-factor authentication technology used to protect network resources. You can use two-factor authentication (2FA) for file-level restore of guest virtual machine backups in the **AUI** and the **Dell EMC Data Protection Restore Client**, which previously could not take advantage of this technology due to the additional layer of user authentication required.
- Avamar 19.1 includes new security hardening procedures to meet additional US Department of Defense (DoD) Security Technical Implementation Guide (STIG) compliance requirements. These procedures describe protection against denial-of-service (DoS) attacks, mitigation of risk for temporary credentials, improved logging, and hardening procedures for the SLES operating system and PostgreSQL databases. The Avamar Product Security Guide provides more information.
- For improved connection and credential security, Avamar 19.1 provides the ability to disable SNMPv1 and SNMPv2c, and use SNMPv3 instead. The Product Security Guide contains instructions for enabling SNMPv3 traps and requests.
- Ability for an administrator to apply security patch updates to a proxy by using the Proxy Management window in the **AUI**.

Client enhancements

Avamar now supports connecting to Isilon cluster with Isilon SmartConnect configuration. The *Avamar NDMP Accelerator for NAS Systems User Guide* provides more information.

Compatibility updates

Avamar 19.1 features the following software compatibility updates.

- Avamar client support for 64-bit versions of Red Hat Enterprise Linux (RHEL) 7.6.
- Avamar client support for the 64-bit version of SuSE Linux Enterprise Server (SLES) 15.
- Avamar server and storage node support for the 64-bit version of SuSE Linux Enterprise Server (SLES) 11 SP4.
- Avamar client support for Fedora version 27.
- Avamar client support for MacOS-X versions 10.11 through 10.14.
- Avamar client support for all 64-bit editions of Windows Server 2019, including Windows Server 2019 MSCS.
- Avamar Virtual Edition (AVE) for VMware support for vSphere version 6.7 U2.
- AVE for Hyper-V support for Windows Server 2019.
- NDMP support for Isilon OneFS version 8.1.2.
- NDMP support for Unity version 4.5.
- Avamar support for Microsoft Exchange Server 2019 and SharePoint 2019.

Updated software and database compatibility information is provided in the *E-LAB Navigator* at https://elabnavigator.emc.com/eln/elnhome.

Avamar supports backup retention beyond 2038

The Avamar subsystem supports backup retention until February 2106. However, for older releases, the Avamar subsystem does not start after January 2038 due to the signed 32-bit integer time format of UNIX and Linux operating systems, and therefore cannot restore backup data after this date.

For Avamar 19.1 and later, the Avamar server subsystem uses an unsigned 32-bit integer and continues to start until 2106. However, the Avamar client and plug-ins subsystem uses the signed 32-bit integer. Backup retention after 2038 is successful after all the Avamar subsystems use the unsigned 32-bit integer.

For backups of Windows or Linux clients, do not assign a retention period for a date after February 7, 2106.

Documentation improvements

In addition to documentation of the features identified in the New features and changes section, the following section highlights major documentation changes and additions for this release.

Guide changes related to added AUI functionality

AUI functionality added in Avamar 19.1 is documented throughout the core documentation set, particularly the *Avamar Administration Guide*, *Avamar VMware User Guide* and *AUI Online Help*. This includes updates for replicated restores, added functionality in the **Asset Management** window (such as the ability to expand VMware containers and select VMware entities), changes to the **Activity Monitor** window, and **RSA Authentication Manager** configuration in the XXX window.

For any **Avamar Administrator** procedures that are now also available in the **AUI**, the **Avamar Administrator** procedure has been removed and replaced with the **AUI** procedure throughout the documentation set. For the full set of **Avamar Administrator** procedures, refer to the Avamar 18.1 documentation.

Avamar VMware User Guide

In addition to AUI-related changes, the *Avamar VMware User Guide* was updated with clarification on applicability of automatic upgrades through Proxy Deployment Manager (PDM) to proxies that were not deployed through PDM.

Avamar NDMP Accelerator for NAS Systems User Guide

The *Avamar NDMP Accelerator for NAS Systems User Guide* includes a new appendix that contains information about how to deploy virtualized NDMP accelerator nodes that mimic the Avamar Data Store Gen4S and Gen4T physical platforms to leverage existing VMware ESXi environments. These procedures include deploying a SLES virtual machine (VM), kickstarting the VM as an Avamar NDMP accelerator node, configuring network settings, and installing the accelerator software.

AVE Installation and Upgrade Guide

The *Avamar Virtual Edition Installation and Upgrade Guide* now includes:

- Instructions for increasing the CPU and memory allocations for AVE on most virtualization platforms.
- Procedures for deploying Avamar Virtual Edition on a pure Kernel-based Virtual Machine (KVM) hypervisor.

Avamar Product Security Guide

Updates to the *Avamar Product Security Guide* include:

- Recommendations to restrict the installation of third-party anti-virus software on Avamar servers to prevent data loss and performance degradation. Security hardening guidelines are recommended instead.
- Clarifying the impact of password rules on Avamar software user accounts, as compared to the SLES operating system user accounts.

Additional publications

Avamar 19.1 introduces the following new publications:

- *Avamar Fitness Analyzer User Guide*
- *Avamar Orchestra Getting Started Guide*

Fixed issues for the Avamar 19.1 release

The following table lists fixed issues for the Avamar 19.1 release.

Table 2. Fixed in Avamar 19.1

Issue number	Problem summary
309791	Command `avmaint session` does not return normal session information.
309443	CVE-2018-16395 on Avamar 18.2 with the latest 2019-R1 OS Security roll-up installed
308742	Unable to browse SQL server to get a list of databases from the AUI
308680	Only able to move 5 to 7 client in ACM, error displays indicating "The request timed out due to a huge data fetch..."
308678	Data Domain deletion from AUI should display warning message or password protection
308676	When proxy deployment fails in the Proxy Deployment Manager, you cannot review/collect logs from the AUI
308626	More instructions required in AUI for redirect user to view event in case of a Data Domain addition failure
308615	CP backup streams revert to 0 automatically
308513	Avagent startup causes Fatal Signal 11 and 6 messages for Debian Linux.
308462	Restore replicated backup fails
308182	Issue with attaching virtual machine/vApp to a scheduled backup policy on Avamar.
308180	vCP backups fail when backup group cannot connect to mcsdk due to "Exception :org.apache.axis2.AxisFault: Read timed out"
308164	Port of bug 294157 for 7.5.101 Red Hat Linux Enterprise server
308115	Redundant dataset,retention and schedule created on Avamar when global policy creation fails
308018	No policy members display in AUI when editing an existing policy
308003	When selecting virtual machines from multiple pages in the AUI Asset Management window, selections from the previous page get removed
307992	Policy window optimization required when clicking Refresh button
307991	Some clients in backup schedule not triggered
307948	Domino backup fails with "code 255: The extended attributes are inconsistent"
307898	Too much information displayed in one dialog in AUI
307813	Lotus notesini-path being ignored on avlotus.cmd on restore tasks
307791	PSO compliance defect of AVI: Null pointer dereferences

Table 2. Fixed in Avamar 19.1 (continued)

Issue number	Problem summary
307789	Proxy virtual machine file-level restore fails to mount disks if you do not validate that all disks on the virtual machine have valid/supported partitions
307735	Enable dynamic virtual machine import by rule gets unchecked from Avamar Administrator after editing the vCenter using the command line interface
307679	Avamar 'progress bytes' does not display properly when a VMware image-level job is running.
307672	Avamar virtual machine tagging issue observed after upgrade
307664	Unable to use command line interface with LDAP to retire a client after upgrading
307663	Command line interface backup-group-dataset does not work after upgrading
307658	mcserver.sh --status and mcserver.counter.log displays vCenter
307515	vCenter auth type login in AUI is disabled for AWS-VMC
307513	snapup_label and snapup_number in activities are empty for some vmimage hle backups, causing MCS to return "Database encountered an error"
307434	Virtual machine restore in AUI does not pass utilize_changed_block_list flag in workorder
307430	Filter Activity does not display the fields correctly
307429	Restore virtual machine from remote backup fails after deleting the source backup
307426	Virtual machine client backups assigned incorrect retention tags DWMY
307421	Utility Node Replacement - using ReinstallUtililtySoftware-7.5.0-183.avp issue -remove stunnel installation
307274	Sybase Plugin returns error "No such file or directory"
307245	After the latest OS Security Roll up (2018-R3-v5) cross-site scripting vulnerabilities on the MCS jetty server>
307238	Incorrect pop-up displays in Avamar Administrator when you delete/retire any client
307221	Dell N1124T Switch Monitoring on Avamar 18.2 and earlier
307171	Modify-snapups script does not work when there is a '(' in a client name
307011	Self explanatory details for options are missing in AUI
307005	Replication Policy summary does not list the clients selected
306954	"No proxy to perform" error returned in AUI when running VMware image-level backup policy
306945	Snapup History Refactor For Retention Tag Issue
306841	Creation of replication policy in AUI should be prevented if there is no replication destination
306799	AUI Asset Management window displays different results when filtering with the same keyword
306794	Fix behavior of Avamar Hard limit quota
306790	Avamar VMtagging issue observed after upgrade
306789	RCA MCS offering only concurrent job to image proxy
306769	SQL restore performance and patch required for Bug 303590 - esc 32763
306753	Cancel button should reset File Level Restore toggle setting from AUI
306716	VADP Hot Add mode fails then leaves behind VMDK on proxy
306650	Hfscheck fails with MSG_ERR_CGSAN_FAILED after applying gsan Hotfix 301593
306619	SharePoint content database restore to different client in AUI fails.
306593	MCS check for "running" has false positive. upgrade path from 7.2.1-32 to 7.4.1-58+HF 302283 fails mcs start

Table 2. Fixed in Avamar 19.1 (continued)

Issue number	Problem summary
306588	A stripe goes into OFFLINE_MEDIA_ERROR state without any visible file system issue on a new AVE
306478	Restore of virtual machine from remote backup fails after deleting source backup
306475	Lotus backups intermittently failing
306306	HyperV backup fails for only 1 VM "INTERNAL ERROR: <0001> assert error (!(stream_mode != rct_mode && target.renamed_files.size() == 0)), hypervvss_avtar_handler.cpp line 747"
306305	Avamar Administrator shows alert "Cannot commit when autoCommit is enabled" when making changes such as adding group, adding clients, moving a client
306283	Request to port Hotfix #296046 to avhypervvss
306107	Unable to move more than 5 clients using client manager
306077	WC - Win FS - SR<13290251> -Port HF 294680 to 7.5.0
306058	Avlotus plug-in returns [AvlotusMonitorCancel] messages matching Esc# 33362/ Bug# 305646
306057	Hotfix to install new asktime for ESC 33781
306045	Hotfix for Replication seeding performance of Exchange client
306009	ORACLE_HOME, SID and credentials must be copied by default from browse command options to backup options in AUI
305993	Should not regenerate AVI key store if key is SHA2-512 or customer's certificate
305987	Hotfix for support of vCD 9.5
305977	Some clients in schedule not being triggered
305931	SQL Backup fails with error message No targets after expansion
305903	WDS writer exclusion to avoid setting volume as Critical unnecessarily
305816	Proxy Deployment Manager Creating mc session fails due to org.apache.axis2.AxisFault: unknown
305778	Activity report does not show filter options
305718	VSR replication replicates previously successful PARTIAL backups.
305717	Proxy Deployment Manager Create Recommendation for the VCenter host/cluster tree is empty
305707	Avamar KMIP server implementation does not support clustered KMIP servers
305680	Image-level backup create directory by virtual machine name in vSAN datastore
305646	Issue with new binary on recently released Avlotus Hotfix/Bug 304830
305627	Summary/Remedy information in Event detail is not aligned with pre-defined value
305619	Avamar SQL backup is promoted to FULL with and without Hotfix 301313 applied
305532	Cannot delete virtual machines without a UUID.
305523	File-level restore from command line and vRA workflow does not fail when "Failed to change physical volume UUID" error message is returned by MountPoint command, with the job remaining in Running state
305518	Avamar Windows virtual machine image-level backup fails after upgrade
305514	AUI Proxy Deployment Manager does not delete old proxy virtual machine after proxy upgrade
305495	Backup fails on Windows 10 machine with ERROR=0x8007007b
305479	After restoring to a new virtual machine on Linx , some virtual machines configured with EFI in VMware are not bootable
305458	After MCS HF 298456 installation, all virtual machines in one vCenter are greyed out

Table 2. Fixed in Avamar 19.1 (continued)

Issue number	Problem summary
305441	Actions > Shutdown DPN Grid does not work from command line interface
305436	Unable to restore 0KB files with virtual machine file-level restore due to /usr/bin/touch not existing on various distributions of RHEL
305355	Exclude Proxy Client in the member of Backup/Replication/Cloud Tiering policy
305331	Cannot click on Avamar Dashboard pie chart
305323	Add support for SharePoint 2019 in Avamar Configuration Checker
305262	Cannot browse any backup in the Backup and Restore tab of Avamar Administrator after applying MCS HF#298457 on Linux
305261	avregister fails when registering after AvamarClient-linux-rhel4-x86_64-7.5.101-101.rpm is installed on CentOS 5.4
305241	User icon in top right of AUI not working as expected
305210	var and /backups skipped
305131	Windows FS Hard limit quota overridden when *.* is configured as an exclusion
305129	When initiating a backup, clicking Back button in AUI removes setting on previous page
305101	Unable to browse Remote backup when Local backup is no longer available
305077	Backups continuously failing with error code 10007, 10052, 10055
305072	Enhance the code logic of JRE upgrade to avoid downgrades and failures
305019	Fix for CPU vulnerabilities
304551	Some datastores do not get mapped to client when using command line interface
304513	Fix required for adem command generation issue
304469	File-level restore displays as successful in AUI but nothing is restored in target virtual machine
304461	AUI Add client wizard for virtual machine should display additional columns beside virtual machine name
304294	Support maintenance package with reboot parameter specified
304223	Avamar Oracle RAC configuration fails with the error "Could not open registry key:SOFTWARE\Oracle \KEY_OraCrs11g_home:0"
304186	Proxy Deployment Manager Creating mc session failed Caused by: org.apache.axis2.AxisFault: unknown
304091	flashupdt causes PS non-redundant issue and esc 27695:Dell block update in the IBU fails on mixed grid (Gen4s util and Gen4 storage node). Update Gen4s BMC to v1.25.
303479	Request to add support for multiple proxy upgrade
303362	Virtual machine backup timing out but backup exists
301733	In vSphere 6.7, proxy cannot login to vCenter web-based datastore when datacenter name contains a space
301530	Unable to perform file-level restore on CentOS virtual machine
300978	ldls hangs when checking for new package
284649	AVE operating system upgrade workflow required for SLES 11 SP4
278460	Upgrade workflow fails to copy the gsan binary and reload certs

Known problems and limitations

The following topics discuss known issues and limitations in this release of Avamar. Temporary solutions are provided when they are available.

Avamar server known problems and limitations

The following list describes known problems for this release of the Avamar server.

309554 — IPv4 traffic initiated by Avamar in a dual stack environment

In a dual stack environment where both Avamar and Data Protection Central (DPC) have IPv4 and IPv6 addresses configured, the communication should occur using IPv6 since this is the preferred network. However, IPv4 traffic is observed when Avamar is connecting to the DPC for the first time.

Workaround

To avoid any IPv4 traffic, remove Avamar from DPC, and then re-add Avamar.

309156 — Insufficient error message appears change-passwords SSH login after installing avpasswd-x.x.x-x.x86_64.rpm results in a password that does not match complexity requirements

Installing `avpasswd` sets the `enforce_for_root` option of `pam_pwcheck.so`, which can create an issue when **`change-passwords`** does an SSH login as root into another node to set a password with insufficient complexity requirements.

Workaround

Set a sufficiently complex password, or disable `enforce_for_root`.

309181 esc 34646 — mcserver.sh --init fails to execute mcrootca successfully and also fails to decrypt passwords for rmi_ssl_keystore_AP/rootAP and viewuserAP

If you run `mcserver.sh` with **`--init`** or **`--restore`** in the incorrect context, directories might be deleted. Note that the `mcserver.sh --init` command is designed only for internal execution from the workflow framework during a new installation. An error occurs if you execute the command manually.

46224 — Scheduled backups are missed during daylight savings time transitions

During days when Daylight Saving Time (DST) transitions occur, if you have backups that are scheduled to run during the following times, the backups do not occur:

- For the Spring DST transition, daily backups that are scheduled during the hour from 2:00 a.m. through 2:59 a.m. do not occur.
- For the Autumn DST transition, daily backups that are scheduled during the hour from 1:00 a.m. through 1:59 a.m. do not occur.

The interim solution to this problem is to avoid scheduling backups during these time ranges, or to perform an ad-hoc backup when the scheduled backup does not occur.

53895 — "diskinfo::update invalid disk space parameters" messages

In rare cases, the server will log errors similar to the following:

```
diskinfo::update invalid disk space parameters
```

Do not consider these messages as errors. There is no negative impact to server functions and the error can safely be ignored.

281847 — No email notification available for Data Domain Backend Capacity report

While the Avamar software supports configuring an email notification for the Backend Capacity report for native Avamar storage nodes (GSAN), no email notification is supported for the Backend Capacity report for Data Domain.

281846 — Monitoring

If you restart the Management Console server while a job (such as a backup or a recovery) has not completed, you cannot monitor the job after the Management Console server has restarted.

incomplete jobs after restarting the Management Console server is not supported

289964 — Port 7580 required by Avamar Installation Manager for Avamar Downloader Service connections is disabled by default

Older versions of the Avamar Downloader Service require connections on port 7580 between the Avamar Downloader Service computer and the Avamar Installation Manager. However, because this connection is not encrypted, the port is disabled by default and must be enabled manually. The section "Configuring the Avamar firewall" in the *Avamar Product Security Guide* contains instructions for updating the Avamar firewall. The version of the Avamar Downloader Service that ships with Avamar 18.1 and later resolves this limitation.

278042 — Avamar 7.4.1 accelerator node is not supported in Avamar 7.5.0 and later

Due to the TLS 1.2 upgrade in Avamar 7.5, an Avamar 7.4.1 NDMP accelerator node is not supported in Avamar 7.5.0 and later. When you input a registered Avamar server hostname/IP address in the **Accelerator Web UI** for an Avamar 7.4.1 or earlier NDMP accelerator node, validation fails and an error displays indicating that the Avamar server is invalid.

Avamar Virtual Edition known problems and limitations

The following list describes known problems for this release of the Avamar Virtual Edition (AVE).

269476 — Errors when upgrading from 7.2.x to 7.3 Service Pack 1 or later

When upgrading the AVE from release 7.1.x or 7.2.x to 7.3.1 or later, the following errors are logged:

```
psql:/usr/local/avamar/var/em/server_data/ems_data_dump.sql.restore:29:
ERROR: database "emdb" already exists
psql:/usr/local/avamar/var/em/server_data/ems_data_dump.sql.restore:52:
ERROR: language ""plpgsql"" already exists
```

These errors are expected and can be ignored.

Deploying Openstack KVM AVE image on Ubuntu Mitaka Mirantis that creates two disks devices

When deploying Openstack KVM AVE image on Ubuntu Mitaka Mirantis, the instance has two devices: `/dev/vda` and `dev/vdb`. The Avamar installer fails when partitioning the LUNs, because the instance has an extra LUN.

To resolve this issue, in the `/etc/nova/nova.conf` file on compute nodes, comment out the line

```
force_config_drive=True
```

and restart `nova-compute` service before deploying the instance.

Avamar Web Client (AUI) known problems and limitations

The following list describes known problems for this release of Avamar Web Client UI (AUI).

308683 — No option to add advanced flags in AUI when creating/editing a dataset

There is currently no option in the **AUI** similar to **Avamar Administrator** to add advanced flags, for example, **`[avvcbimage]quiesce_fs = false`**.

308442 — Global search functionality not available when adding a new VM in AUI

The search functionality in the **Add a VM** page of the **AUI** is currently limited to searching items within a folder instead of providing top-down searching from the vCenter server.

308745 — Proxy Deployment Manager removes

If **Proxy Deployment Manager** fails to deploy or register the proxy, instead of retaining the failed proxy for troubleshooting purposes, the proxy virtual machine gets removed.

the failed proxy virtual machine when a failure to deploy a proxy occurs	
309167 — Proxy details do not appear in AUI when moving cursor over proxy virtual machine	In the **AUI**, details for the proxy virtual machine do not appear when you move the curser over the entry.
309169 — Previous recommendation details not retained in AUI upon re-opening Proxy Deployment Manager	After a successful proxy deployment using the **Proxy Deployment Manager**, the recommendations previously listed for the proxy no longer appear in the **AUI** after re-opening the **Proxy Deployment Manager** window.
309432 — CANCEL button does not get disabled for completed or already cancelled jobs	In the **AUI**, when a backup job completes or has been cancelled, the **CANCEL** button does not get greyed-out.
304270 — AUI does not support virtual machine file-level restores from cloud tier backups.	For backups in the cloud, the **AUI** does not support virtual machine file-level restore operations. It is recommended to use **Avamar Administrator** for this operation. The *Avamar Data Domain Integration guide* provides more information about cloud-tiering limitations .
309346 — Cache is not cleared properly in AUI Asset Management window	If the network connection is very slow, the **Asset Management** window of the **AUI** continues to display the content from the previous backup operation. **Workaround** Refresh the browser.
303450 — AUI does not provide vCenter connection status	The vCenter connection status is currently not provided in the AUI. You can still view the connection status from **Avamar Administrator** by navigating to **Administration** > **Services Administration**.
302384 —The AUI Activity Monitor window is optimized for at least 1366 pixels-wide screens	The AUI **Activity Monitor** window is optimized for at least 1366 pixels-wide screens. Display issues might occur for smaller screens. To properly display the AUI, ensure that your display is at least 1366 pixels wide.
299261 —The AUI does not support expanding VM containers while adding clients (members) to a policy	In the AUI you can only add parent virtual machine containers to a policy. You cannot expand nested containers and add VM clients to a policy. **Workaround** Use the MCGUI to expand the parent containers and add the child virtual machines or containers to a policy.
297897 — Rules can only be used once in the Avamar Web Client	In the AUI, rules can only be used once. If a rule is used by an advanced policy or dynamic discovery clients, the rule does not display in rule list when you create an advanced policy.

Avamar Orchestra known problems and limitations

The following list describes known problems for the Avamar Orchestra UI and REST API.

307990 — Original task records removed if Orchestra REST API service restarted

Since there is currently no design for persistence of the internal tasks in the Orchestra REST API, the original task records gets removed upon restart of the REST API service.

Avamar Administrator known problems and limitations

The following list describes known problems for this release of Avamar Administrator.

263268 — Storage utilization capacity of Avamar server node reporting inaccurately

The storage utilization capacity of Avamar server node that you displayed in the Avamar Administrator is approximate and not an exact value, and has no impact capacity for additional backups.

290306 — Client registration fails when a Client hostname is longer than 63 characters

When installing the AVE Client package, a failure error occurs when a Client hostname is longer than 63 characters. The following error is logged:

```
"1" Client installation could not complete successfully because the hostname contains more than 63 characters
```

To workaround this issue, ensure that the hostname does not contain more than 63 characters.

52801 — Progress Bytes column in the Activity Monitor displays different values from one Level 0 backup to the next

The value that appears in the **Progress Bytes** column in the Activity Monitor for backups with the Windows File System plug-in is different from one Level 0 backup to the next for an unchanged backup set. The issue is a display issue only and does not affect the validity of the backup itself.

Avamar Client Manager known problems and limitations

There are no known problems or limitations for this release of the Avamar Client Manager.

Avamar Config Checker known problems and limitations

There are no known problems or limitations for this release of Avamar Config Checker.

Avamar Desktop/Laptop known problems and limitations

The following list describes known problems for this release of the Avamar Desktop/Laptop.

296558 (esc 31191) — Avamar does not support NIS authentication with Avamar Desktop/ Laptop

This release of Avamar Desktop/Laptop no longer supports users with NIS login feature.

Avamar Installation Manager known problems and limitations

The following list describes known problems for this release of Avamar Installation Manager.

207291 — Continue button does not work correctly

The **Continue** button is enabled although user input settings are not yet saved. The **Save** button saves current settings even when there are errors. Clicking **Continue** saves the current page and continues the workflow. When switching user input pages, save is done implicitly.

269474 — Error message when upgrading from release 7.1.x or 7.2.x to 7.3 Service Pack 1 or later

When upgrading from release 7.1.x or 7.2.x to 7.3 Service Pack 1 or later, the following error is logged:

```
ERROR: Failed to load RSA TLS certificate.
ERROR: Error message: stdin: C = US, ST = California, L = Irvine, O = EMC
Corp, OU = BRS Division, CN = <IP address>
```

The first occurrence of this error is expected and can be ignored. Subsequent occurrences, if any, causes the upgrade to fail.

276989 — Refresh of the Avamar Installation Manager web page that is required after upgrade to 7.4 Service Pack 1 or later

The Avamar Installation Manager authentication certificate is updated in during upgrade to 7.4 Service Pack 1 or later. As a result, the Avamar Installation Manager web page will redirect to a blank page while waiting for the software to restart after upgrading. To display the Avamar Installation Manager, refresh the web page manually.

"Configuring Website if required Failed" error appears occasionally during installation

When you are performing a new installation of the Avamar server software, a failure error sometimes occurs during the **Configuring Website if required** task in Avamar Installation Manager.

To work around this issue, click **Retry Current Task** to retry the installation. The task completes successfully on the retry.

File level restore client known problems and limitations

The following list describes file-level restore client known problems for this release of Avamar.

299814 — Cannot perform FLR operations on xfs and btrfs files systems and LVM volumes

The proxy runs the following file systems:

- Proxy LVM version: 2.02.120(2) (2015-05-15)
- Proxy XFS version: v3.2.1
- Proxy BTRFS program: v4.1.2+20151002x

FLR operations are not supported on xfs and btrfs file systems and LVM volumes that were created by file system utilities for later releases.

304444 — Files not cleaned up on target device when workorder failure occurs during file level restore on Linux

When a workorder failure occurs during a file level restore on Linux due to insufficient space on the target device, the partially copied files do not get cleaned up from the target device, which can result in disk space issues. For example, if restoring 5 GB of files and the target device has only 2 GB of free space, the file level restore fails when the device capacity is reached, but the 2 GB of already copied files remain on the target device.

Restore operations fail when deselecting a few files from a folder containing 20,000 files

To workaround this issue, complete the following:

1. Use Apache Tomcat to enable Port 8543 which has an unlimited post size. Port 443 has a post size limit and causes restore operations to fail from folders with 20,000 or more files.
2. Start the **Data Protection Backup and Recovery File-Level Restore UI**.
3. Browse to **`https://`*`VMware_Backup_Appliance_Host`*`:8543/flr`**.
4. Select the files that you are required to restore. Ensure that all of the files in the folder are not selected.

Avamar Web Restore known problems and limitations

The following list describes known problems for this release of Avamar Web Restore.

225311 — Windows Explorer unzip does not display restored files	After restoring multiple files with Web Restore in Microsoft Windows, unzipping the compressed files with Windows Explorer does not display the restored files. Install and use the WinZip application to unzip and view the files.
Unable to login using LDAP in Web Restore with "user-login-module=avamar"	If "user-login-module=avamar" is set in the ldap.properties file on the Avamar server, login to the Web Restore page using LDAP fails with the message, "Error initializing list of backups."

Data Domain system integration known problems and limitations

The following list describes known problems for this release of Avamar with Data Domain system integration.

309551 — Unable to add Data Domain in a pure IPv6 environment	In a pure IPv6 environment, if dual stack (IPv4 and IPv6) records exist on the Domain Name Server (DNS), Avamar cannot add the Data Domain system. **Workaround** Remove the IPv4 entry from the DNS.
309261 — Dual stack Data Domain system cannot be added when IPv4 address is inaccessible	You cannot add a Data Domain system if an inaccessible IPv4 address point to the Data Domain FQDN exists. **Workaround** Remove the inaccessible IPv4 address in the DNS server, or modify the IPv4 address to a correct address so that a successful connection can be established.
Data Domain bug 202755 — Avamar backups exceeding 10 hours require minimum DDOS version 6.1.1.5-581137	Any type of Avamar backup to Data Domain that exceeds 10 hours will fail if the DDOS version is earlier than 6.1.1.5-581137. Ensure that all Data Domain systems are updated to this version at a minimum.
Data Domain bug 175640 — Avamar cloud tiering does not support Data Domain Hardware HA in DDOS 6.0	Because of Data Domain bug 175640, the Avamar cloud tiering solution does not support Data Domain Hardware HA in DDOS 6.0. A patch is available from Data Domain to resolve this issue.
297904 — Replication of Data Domain backups to target device does not occur immediately when Avamar client is deleted from the target device	When you delete the Avamar client from the replication target device in the **Avamar Management Console UI**, the replicated Data Domain backups on the device are set to "expired." As a result, if you initiate another replication before garbage collection has completed on the target server, the Data Domain backups will not be immediately replicated to the target device. If you want to replicate the backups immediately, manually launch garbage collection on the target server, and then restart the replication.
51085 — New Bytes % displays 0% until backup is complete	When performing file system backups to a Data Domain system, the **New Bytes %** field displays `0%` until the backup completes.
53567 — `hfscheck` fails after clients are removed from the `/REPLICATE`	When you remove clients from the `/REPLICATE` domain and the client backups are on a Data Domain system, the garbage collection process removes the replicated backup files from the Data Domain system that is the replication destination. If the client is then replicated to the Data Domain system again, subsequent `hfschecks` fail with a `MSG_ERR_DDR_ERROR` error.

domain and then re-replicated	
287264 — Changing Data Domain system from FQDN to IP results in error	When you configure a Data Domain system using the FQDN of the Avamar server, and then update the system to use the IP address instead, the update fails with an error indicating "Failed to connect to Data Domain system." Knowledgebase article 503612 available on http://support.emc.com provides more information.
288864 — Avamar does not display the cloud unit name for a backup that is stored on the cloud tier	If a backup is stored on the cloud tier, the Avamar GUI displays **Cloud** as the storage location rather than the exact name of the cloud unit.
300657 — Trigger group backup takes up to 3 minutes in CDR Advanced Mode	With Data Domain Cloud Disaster Recovery (DD Cloud DR) enabled and operating in Advanced Mode, interactions between DD Cloud DR and the Avamar server cause group backups to start approximately 3 minutes after you trigger the backup.

Known problems and limitations for all backup clients and plug-ins

The following list describes known problems for this release of all backup clients and plug-ins.

32873 — Special ACLs are not supported	The `avtar` process does not support backup or restore of special UNIX and Linux ACLs such as `setuid` and `setgid` bits, or mandatory file lock bits in newer versions of Linux.
52496 — Cluster Configuration Tool fails to activate virtual cluster clients in dual stack environments	In a dual stack environment, when the Avamar server's IPv6 address is used during configuration with the Avamar Cluster Configuration Tool, the Cluster Configuration Tool fails to correctly activate virtual cluster clients. The interim solution to this problem is to use the Cluster Configuration Tool to create the cluster client, but clear the **Bring the cluster client online and activate it with the Avamar server** checkbox. Then manually create the virtual cluster client and with Avamar Administrator, and in **Policy Management**, edit the client and select the **Activated** checkbox in the **Edit Client** dialog box.
56606 — Level 1 backup to Data Domain with over 16 critical disks may default to level 0	After a level 0 backup has been performed for a client with more than 16 critical disks, cache file information for one or more of the disks may no longer be available. The subsequent level 1 backups are also performed as level 0.
297679 — Manage Dataset for Source Data option has discrepancies for MC AUI	When creating a Dataset, under **Source Data** the **File/Folder Path** can only be added manually.
302911 — Backup not supported for SharePoint farms configured with SQL clusterless AAG	Avamar requires a Windows cluster to function as designed. Configurations on clusterless architectures such as SQL clusterless AAG are therefore not supported by Avamar.

AIX, HP-UX, Linux, CentOS, and Solaris client known problems and limitations

The following list describes known problems for this release of the Avamar clients for AIX, HP-UX, Linux, and Solaris.

307231 — Limitations to avagent services on SLES 12 SP3 or later	The following limitations apply to the avagent service for Avamar on SuSE Enterprise Linux (SLES) version 12 SP3 or later: • You can only perform a manual stop and restart the avagent service after running avregister. • The avagent service does not start automatically after a system restart. A manual restart of avagent is required
26077 — Push upgrade on Linux fails for non-default installation location	Using Avamar upgrade to push an Avamar client upgrade to a Red Hat Enterprise Linux or SuSE Linux Enterprise Server client fails when the Avamar client software is installed in a non-default location. The use of the `rpm` option `--relocate` to install the Avamar client in a non-default location causes subsequent push upgrades to fail.
249425 — Unable to configure Linux Fast Incremental at runlevel 5 in SUSE12	Linux Fast Incremental cannot be configured on SUSE 12 filesystems that are protected at runlevel 5. The interim solution to this problem is to configure the filesystems to be protected in runlevel 3.

Microsoft Exchange VSS plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for Exchange VSS.

Data Domain token authentication issue with clients earlier than Avamar release 7.5

Avamar release 7.5 introduced Data Domain token authentication for the Microsoft application plug-ins. Data Domain token-based authentication is not supported for clients before release 7.5. The interim solution to this problem is to upgrade the clients to release 7.5, or to disable token-based authentication on the Avamar server.

54465 — Restore of an incremental backup fails after restore a full backup

If you restore a full backup of an Exchange database and then you restore a subsequent incremental backup of the database, the restore fails.

To work around this issue, rerun the restore and use the **Move logs path** plug-in option to move the existing log files to a different directory.

Microsoft Hyper-V VSS plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for Hyper-V VSS.

274173 — Command line interface restores from backups on Cloud fail for Microsoft application plug-ins

Restore operations from the command line interface do not work for Microsoft application plug-ins (SQL, SharePoint, Exchange, Hyper-V) when the backup resides in the Cloud.

For these restore operations, use the Avamar Management Console's **Avamar Administrator** window.

290914 — Logfile option cannot be used for Hyper-V, SharePoint, and Exchange backups to specify an alternate path for log file generation

When performing backups for Microsoft application plug-ins including Hyper-V, SharePoint and Exchange, you cannot use the `logfile` option to specify an alternate file path location for the generated log files. Logs can only be generated in the default path, `C:\Program Files\avs\var\`.

Data Domain token authentication issue with clients earlier than Avamar release 7.5

Avamar release 7.5 introduced Data Domain token authentication for the Microsoft application plug-ins. Data Domain token-based authentication is not supported for clients before release 7.5. The interim solution to this problem is to upgrade the clients to release 7.5, or to disable token-based authentication on the Avamar server.

Microsoft SharePoint VSS plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for SharePoint VSS.

246462 — Granular Level Recovery on SharePoint 2007 with Windows 2008 R2 fails when most recent Windows update is not installed

SharePoint GLR may fail with the following error:

```
Invalid mount letter, most likely caused by AvFS mount failure.
```

To workaround this issue, ensure that the latest updates for Windows 2008 R2 have been installed.

Data Domain token authentication issue with clients earlier than Avamar release 7.5

Avamar release 7.5 introduced Data Domain token authentication for the Microsoft application plug-ins. Data Domain token-based authentication is not supported for clients before release 7.5. The interim solution to this problem is to upgrade the clients to release 7.5, or to disable token-based authentication on the Avamar server.

Microsoft SQL Server plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for SQL Server.

49416 — Restore of differential backup after database is removed from availability group may fail

After a database is removed from an availability group, restores from differential backups of the database might fail.

Redirected restores fail when location is set in Restore Options dialog box

Redirected restore using the **Restore to different SQL server instance or location** option fails when the location is set using the **Set Destination** field in **Restore Options** dialog box. To work around this issue, set path on the **Restore Command Line** options page.

54465 — Restore of an incremental backup fails after restore a full backup

If you restore a full backup of a SQL database and then you restore a subsequent incremental backup of the database, the restore fails.

To work around this issue, rerun the restore and use the **Move logs path** plug-in option to move the existing log files to a different directory.

Data Domain token authentication issue with clients earlier than Avamar release 7.5

Avamar release 7.5 introduced Data Domain token authentication for the Microsoft application plug-ins. Data Domain token-based authentication is not supported for clients before release 7.5. The interim solution to this problem is to upgrade the clients to release 7.5, or to disable token-based authentication on the Avamar server.

Microsoft Windows client known problems and limitations

The following list describes known problems for this release of the Avamar Client for Windows.

273212 — Cluster Shared Volume that is not a part of any role cannot be backed up

If a Cluster Shared Volume (CSV) is not part of any role, the Avamar system cannot back up the volume. It is not available to be selected in the Avamar Administrator under Windows Cluster File server nor under Windows File System.

273991 — Issue with restore of a Windows 2016 volume that does not support short names

Because of an issue with Windows 2016, during restore of a Windows 2016 volume that does not support short (8.3) names, folders and files are restored using the short name and no warning is specified.

52801 — File size discrepancy for NTFS backups

For Windows NTFS file system backups, the displayed file size of an L0 backup is different than the size displayed for subsequent backups. This problem is a statistical error that is displayed in both the Avamar Administrator and log files, and does not reflect any actual difference between the size of the files in the backups.

NDMP accelerator node known problems and limitations

The following list describes known problems for this release of the Avamar NDMP Accelerator node.

60389 — Capacity issues occur when Isilon fails to delete snapshots for incremental backups

When you enable snapshot-based incremental backups for one or more directories on an Isilon system, OneFS does not delete the snapshots after incremental backups occur. Snapshot-based incremental backups are also known as the Faster Incrementals feature. The accumulation of snapshots can result in capacity issues on the Isilon system. This issue is known in OneFS that is fixed in OneFS release 7.1.1.3 or higher and 7.2.0.2 and higher.

To work around this issue, upgrade OneFS to a release that contains the fix, or perform the steps in the *EMC Isilon OneFS Backup and Recovery Guide* to view and delete snapshots for snapshot-based incremental backups.

Push upgrade to Avamar release 7.3 Service Pack 1 or newer is not supported

Push upgrade of the NDMP accelerator node from Avamar release 7.3 or earlier to Avamar release 7.3 Service Pack 1 or newer is not supported.

To work around this issue, perform a manual upgrade of the NDMP accelerator node.

Oracle database plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for Oracle.

293174 — In Windows, backup might fail if Oracle is installed with the New Windows User and the Avamar Plug-in for Oracle software is installed in the default path

Ensure that the Avamar Plug-in for Oracle software is installed outside of the default path `C:\Program Files\avs`.

Workaround

If the Avamar Plug-in for Oracle software was installed in the default path, `C:\Program Files\avs`, perform either of the following steps to prevent authentication issues which might cause backups to fail:

- Manually change the privilege of `C:\Program Files\avs\etc\.tmp` to give the Oracle user full control.
- Disable the authentication.

48182 — RMAN CLI backups with Oracle RAC configuration do not reflect the scan name in Activity window

RMAN CLI backups with Oracle RAC configuration do not reflect the scan name in the Activity window. The interim solution for this problem is to copy `$ORACLE_RAC_VAR/avoracle.cmd` to `$ORACLE_RAC_VAR/clientlogs/avoracle.cmd`.

273929 — Best practices for Oracle and Lotus plug-ins to avoid issues with incremental backup when using a cloud tier

When a cloud tiering policy is configured for Avamar plug-ins for Oracle and Lotus, an earlier Full/L0 backup that is performed through the plug-in may already have been moved to the cloud tier. If this problem is the case, subsequent incremental/L1 backups do not complete, because no parent full/L0 backup is found on the active tier.

For the Oracle plug-in, if this issue is encountered, the following error message is written to the plug-in log and the incremental backup fails:

```
An incremental backup was requested but there is no previous full backup.
Please perform a full backup before any subsequent full backups.
```

For the Lotus plug-in, the following error message is written to the plug-in log and the incremental backup fails:

```
No Full backup found, Incremental backups cannot be taken without a full
backup
```

The best practice to avoid this issue is to select a Full/L0 backup interval that is smaller than the age threshold configured for moving backups to cloud tier. This step guarantees that the last Full/L0 backup is always available in the Active tier. For Oracle and Lotus plugins, after the incremental backup failure, you can either recall the last Full/L0 backup from the cloud tier, or perform a new Full/L0 backup instead of the incremental. Then subsequent incremental backups complete successfully.

277013 — Data Domain authentication problem when Avamar Plug-in for Oracle installation has insufficient rights

On Windows systems, when the Avamar Plug-in for Oracle does not have sufficient rights to the `<install-dir>\avs\etc\.tmp` directory, the Data Domain is unable to write its authentication certificate to the directory, and backups fail. Interim solutions to this problem are:

- To allow full file access to the oracle user, manually change the privilege of the `.tmp` directory.
- Install the Avamar Plug-in for Oracle in a location that the Oracle user has full file access.
- Disable user authentication on the Windows host.

281689 — Known problem in Oracle, DB2, and Sybase plug-in for snapview failures

When a backup is initiated from the Avamar Administrator and fails in the late stages of the backup operation, it is possible that the plug-in application considers the backup to be successful. You cannot perform a restore operation on this backup from Avamar Administrator. Restoring such a backup might still be possible by using a command line restore. This step is documented as a supported operation in the Oracle Plug-in user guide.

How to identify the issue:

1. The database reports the backup as successful, although the Avamar Administrator reports it as failed.
2. Failed backup log messages include an error message that is generated during the late stages of the backup.

   For the Avamar Plug-in for Oracle, DB2, and Sybase ASE, the failure is logged with the error message `Failed to create the snapview. However, the database data has been successfully backed up and is marked as a hidden backup. Restore is available through CLI only. See the plug-in documentation for information about restoring hidden backups.`

> **NOTE: Best practice is to monitor all backup failures and ensure that such cases are followed with a successful full backup. This step requires that you create a successful full backup after any failed backup event.**

283392 — Running two RMAN backups on same database results in unexpected results

When two concurrent backup sessions are initiated on the same database by using Oracle RMAN CLI via a taskfile (for monitoring through the Avamar Administrator), one of the backups may fail. The following error message displays on the CLI:

```
RMAN-03009: failure of backup command on
c2 channel at 06/06/2017 11:32:25 ORA-19506: failed to create
sequential file, name="ORCL_7us64227_1_1", parms="" ORA-27028:
```

```
skgfqcre: sbtbackup returned error ORA-19511: Error received from
media manager layer, error text: (UTF-8) sbtbackup: aborted!!
```

Concurrent Oracle RMAN backups using a taskfile on the same database are currently not supported. Instead, run RMAN database backups using a taskfile, but archivelogs or any other backup for the same database without using a taskfile.

IBM DB2 plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for DB2.

289136 — For consecutive Avamar DB2 restores, the second restore within the new connection timeout period might fail

When two consecutive Avamar DB2 (avdb2) restores are initiated and the second database restore starts before the previous restore is complete, the second database restore within the new connection timeout period might fail, with the following error displayed in the CLI and the DB2 diagnostic log file `db2diag`:

```
SQL2062N An error occurred while accessing media "VENDOR".
```

As a best practice, do not start the second database restore until the first restore has completed successfully. Also, before issuing the second DB2 database restore command, ensure that there are no avdb2 processes currently running on the system. If the previous database restore operation is taking longer than expected, ensure that a sufficiently high value has been set for the flag **--timeout-new-connection**.

286466 — Known problem in Oracle, DB2, and Sybase plug-in for snapview failures

When a backup is initiated from the Avamar Administrator and fails in the late stages of the backup operation, it is possible that the plug-in application considers the backup to be successful. You cannot perform a restore operation on this backup from Avamar Administrator. Restoring such a backup might still be possible by using a command line restore. This step is documented as a supported operation in the DB2 Plug-in user guide.

How to identify the issue:

1. The database reports the backup as successful, although the Avamar Administrator reports it as failed.
2. Failed backup log messages include an error message that is generated during the late stages of the backup.

   For the Avamar Plug-in for Oracle, DB2, and Sybase ASE, the failure is logged with the error message `Failed to create the snapview. However, the database data has been successfully backed up and is marked as a hidden backup. Restore is available through CLI only. See the plug-in documentation for information about restoring hidden backups.`

NOTE: Best practice is to monitor all backup failures and ensure that such cases are followed with a successful full backup. This step requires that you create a successful full backup after any failed backup event.

SAP with Oracle plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for SAP with Oracle.

51870 — Oracle Optimized Deduplication option that is not supported with Data Domain

When backing up a SAP with Oracle database to a Data Domain system, the `Oracle Optimized Deduplication` option is not supported.

Sybase ASE plug-in known problems and limitations

286467— Known problem in Oracle, DB2, and Sybase plug-in for snapview failures

When a backup is initiated from the Avamar Administrator and fails in the late stages of the backup operation, it is possible that the plug-in application considers the backup to be successful. You cannot perform a restore operation on this backup from Avamar Administrator. Restoring such a backup, though not possible through the Avamar Administrator, may still be possible by using a command line restore. This step is documented as a supported operation in the Sybase Plug-in user guides.

How to identify the issue:

1. The database reports the backup as successful, although the Avamar Administrator reports it as failed.

2. Failed backup log messages include an error message that is generated during the late stages of the backup.
   - For the Avamar Plug-in for Oracle, DB2, and Sybase ASE, the failure is logged with the error message: `Failed to create the snapview. However, the database data has been successfully backed up and is marked as a hidden backup. Restore is available through CLI only. See the plug-in documentation for information about restoring hidden backups.`
   - In the case of an incremental backup, the failure is logged with the error message: `If a transaction log truncation was performed during an incremental backup of a Sybase database with the data and log on separate devices, the transaction log is now at risk of being lost. Perform an immediate full backup of the impacted database to protect the data. Consult the Avamar Plug-in for Sybase documentation for more information.`

NOTE: Best practice is to monitor all backup failures and ensure that such cases are followed with a successful full backup. This step requires that you create a successful full backup after any failed backup event.

IBM Lotus Domino plug-in known problems and limitations

The following list describes known problems for this release of the Avamar Plug-in for Lotus Domino.

305687 — Avlotus backups complete successfully but report "[AvlotusMonitorCancel] INTERNAL ERROR: <0001> assert error"

On the Lotus plug-in for some AIX systems, a backup is displayed as completed with errors, even when the backup is successful and available for recovery, due to an assertion failure that occurs while unlocking a mutex at the end of the backup. This error can be ignored.

239003 — Server field in Activity window is blank for the CLI restore operation

The Server field in the Activity windows is blank for restore operations that are performed on the command line.

273929 — Best practices for Oracle and Lotus plug-ins to avoid issues with incremental backup when using a cloud tier

When a cloud tiering policy is configured for Avamar plug-ins for Oracle and Lotus, an earlier Full/L0 backup that is performed through the plug-in may already have been moved to the cloud tier. If this problem is the case, subsequent incremental/L1 backups do not complete, because no parent full/L0 backup is found on the active tier.

For the Oracle plug-in, if this issue is encountered, the following error message is written to the plug-in log and the incremental backup fails:

```
An incremental backup was requested but there is no previous full backup.
Please perform a full backup before any subsequent full backups.
```

For the Lotus plug-in, the following error message is written to the plug-in log and the incremental backup fails:

```
No Full backup found, Incremental backups cannot be taken without a full
backup
```

The best practice to avoid this issue is to select a Full/L0 backup interval that is smaller than the age threshold configured for moving backups to cloud tier. This step guarantees that the last Full/L0 backup is always available in the Active tier. For Oracle and Lotus plugins, after the incremental backup failure, you can either recall the last Full/L0 backup from the cloud tier, or perform a new Full/L0 backup instead of the incremental. Then subsequent incremental backups complete successfully.

Replication known problems and limitations

The following list describes known problems and limitations with replication for this Avamar release.

309113 — Replication job that is cancelled after partial creation or completes with an exception displays as VALID in the AUI

If a replication job is cancelled after being partially created on the destination system, or completes with an exception, the status of the job displays as **VALID** in the **Asset Management** window of the **AUI**, with no warning to indicate that any issue occurred.

309388 — Restore of replicated backups fails when source and destination Avamar system attached to the same Data Domain

You cannot perform a restore of a replicated backup when the system with the Avamar source backup and the destination system for the restore are attached to the same Data Domain.

309624 — Replication fails if both IPV4 and IPv6 records exist in the DNS server for the Avamar destination

Replication to the Avamar destination in a pure IPv6 environment (where both IPv4 and IPv6 records exist in the DNS server but IPv4 is not configured) fails, with an error message in the Activity logs of **Avamar Administrator** indicating "Unable to connect to the IPv4 address of the Destination Avamar."

Workaround

Remove the IPv4 entry from the DNS.

309501 — Replication status was failed at Avamar destination but replication was actually successful

Due to a timeout that occurs when there are 5000 or more clients in a domain, the destination system for a replication displays the replication job as "Failed" even though the job was actually completed successfully, as indicated on the source.

192169 — Incorrect statistics appear for replication of Avamar backup data on a Data Domain system

When you replicate Avamar backup data from one Data Domain system to another Data Domain system, incorrect statistics appear for:

- The file total in the `avtar` log file.
- The progress bytes in the Activity Monitor in Avamar Administrator.

262220 — Invalid certificate after upgrading and reconfiguring a replication destination server

Reconfiguring the destination server for replication fails with the following an error message under the following conditions:

```
Could not log in to remote destination. Check credentials and hostname or IP.
Authentication failed.
```

- After a replication is performed from a source Avamar server to a destination Avamar server that uses certification-based authentication.
- Upgrading the destination server to a new version of Avamar.
- Deleting the replication configuration.

The interim solution for this problem is to issue the following commands at the source server:

```
rm -rf /usr/local/avamar/etc/<destination server IP>
rm -rf /usr/local/avamar/etc/client/<destination server IP>
```

277208 — Check for Remote backups before deletion not working

During replication, when the **Check for Remote backups before deletion** option is selected, the server deletes the replication destination record even if remote backups exist on the replication destination system.

Avamar Data Migration Enabler known problems and limitations

The following list describes known problems for this release of the Avamar Data Migration Enabler (ADMe).

253574 — Staging and tape out of Sybase backups not supported

Due to a known limitation with the ADMe software, staging and tape out of backups that are created with the Sybase plug-in is not supported in this release.

Upgrade known problems and limitations

The following list describes known problems and limitations for upgrading to this release of Avamar.

58586 — NDMP accelerator backup fails to complete when a push upgrade starts while the backup is in progress

If an NDMP accelerator node backup is in progress when a push upgrade starts, then the upgrade may complete with errors but are retried. However, the backup fails to complete. If this issue occurs, retry the backup after the upgrade completes.

To work around this issue, perform a push upgrade to an NDMP accelerator node only when backups are not in progress.

298965 — Upgrading to Avamar 18.1 and later from a release previous to 7.5.1 fails if EBR is initiated before the upgrade

When upgrading to Avamar 18.1 and later from a release previous to 7.5.1, if you initiate EBR before the upgrade, the upgrade fails during shutdown of the DTLT service.

To complete the upgrade successfully, stop the Tomcat process manually.

202146 — `snmpwalk` command for the Avamar SNMP sub-agent fails to display results after upgrade

If you issue an `snmpwalk` command for the Avamar SNMP sub-agent (AVAMAR-MCS-MIB) after you upgrade the Avamar server software, the command returns no results.

To resolve this issue:

1. Rerun the `avsetup_snmp` command line utility to configure the Net-SNMP agent to communicate with the Avamar server by using the Avamar SNMP sub-agent. The *Avamar Administration Guide* provides instructions.
2. Start the Avamar SNMP sub-agent by typing **`mcsnmp start`**.

VMware known problems and limitations

The following list describes known problems for this release of Avamar Plug-ins for VMware.

309934 — Jetty service continues to run in proxy virtual machine after stop command

When you run the `service jetty stop` command to stop the jetty service in the proxy virtual machine, the back-end process continues to run.

Workaround

Stop the back-end jetty process manually.

309541 — Limitations to vCenter High Availability

Note the following limitations related to support for vCenter High Availability (VCHA):

- If the proxy is not available after the VCHA event, a restart order gets issues for all failed/restarted jobs, which will not complete because the proxy is not available.
- If **Hot Add** transport mode is used for the virtual disks and the proxy fails, all the associated clients with **Hot Add** disks in the proxy will fail, and a new backup cannot be performed.

Workaround

1. Bring the proxy back online, and then perform an on-demand backup with the same proxy. Disks will be consolidated and the backups will proceed.
2. Manually remove all **Hot Add** disks from the proxy.

309337 — Image-level virtual machine restore in AUI fails when ESXi server is added as a vCenter client in Avamar

When you add the ESXi server as a vCenter client in Avamar, an image-level restore to a new virtual machine in the **AUI** cannot be completed, with the **Next** button on the **Location** page of the **Restore** wizard becoming disabled.

Workaround

When performing the restore, if you added the ESXi server as a vCenter client in Avamar, use **Avamar Administrator** for this procedure.

307561 — Image-level virtual machine restore for a very large (1400+) number of virtual machines at the same time is not supported

Performance issues are observed when performing 1400 or more image-level virtual machine restores at the same time.

305777 — Image-level virtual machine restore in AUI fails when cluster is selected

When performing an image-level restore to a new virtual machine in the **AUI**, the restore fails with the error "ESXi server doesn't exist in vCenter" if you select the cluster as the restore destination.

Workaround

For the destination, select the host instead. If you want to select the cluster as the destination, use **Avamar Administrator** for this procedure.

ESC 34477 — Domain user not supported for file-level restore of virtual machine backup

For non-Windows platforms, you cannot perform file-level restore of a virtual machine backup as a Domain user. The user can be part of the Standard or Administrators group.

Exclude the proxy from the virtual machine backup if performing the backup with other VMware software

Including the Avamar proxy in a backup consumes a large amount of space. When using other VMware software instead of the Avamar software to perform the virtual machine backup, it is recommended that you exclude the proxy virtual machine from the backup.

Adding vCenter as IPv6 address is not supported, use FQDN instead

When you register or add a VMware vCenter client to Avamar, ensure that you specify the fully qualified domain name (FQDN) of the vCenter. Using the IPv6 address is not supported

300223 — If a rule is not created to exclude proxy VMs when rule based protection is used, PDM registration fails

PDM registration fails and the following error message appears if a rule is not created to exclude proxy VMs when rule based protection is used: `Could not register proxy: invalid domain`

Workaround

When using rule based protection, create a rule to exclude proxy VMs.

293950 — Virtual machine client jobs in waiting, failed or cancelled state might not get restarted after fail-over

After a vCenter high availability fail-over, virtual machine client jobs that were in a waiting, failed or cancelled state before the fail-over might not be restarted by the **Avamar Management Console**.

Workaround

If this issue occurs, restart the **Avamar Management Console** services.

292446 — During a restore, the virtual machine Generation ID might not increment which might cause data loss

If a virtual machine with the Active Directory role is restored by using the Avamar backup data loss might occur as a result of a USN rollback. In this scenario, the restored virtual machine retains the same virtual GenerationID as the source virtual machine.

Workaround

1. Restore the virtual machine from the backup.
2. Do not start the virtual machine.
3. Take a snapshot of the virtual machine by using VMware.

4. Revert the virtual machine to the snapshot.
5. Start the virtual machine.

291803 — When logged in as Local user with administrator role, Advanced Policy Builder fails to install/upgrade/ register client agents on SQL Virtual machines

Due to the introduction of User Account Control (UAC) in Microsoft Windows 7 and later versions, when logged in as a Local user with the administrator role, the **Advanced Policy Builder** fails to install/upgrade/register client agents on SQL virtual machines.

Workaround

On the guest operating system, turn off **Admin Approval Mode** in the UAC settings for the admin group.

248775 — Proxy running on non PDL datastore is getting powered off during a PDL of virtual machine datastore

The virtual machine proxy can get abruptly powered off if the proxy is engaged in a hotadd backup of a VMCP-enabled virtual machine, in the event of a permanent device loss of the virtual machine datastore. This problem might occur due to HA attempting to restart the proxy virtual machine, as it would have mounted the VMDK of the virtual machine.

The interim solution to this problem is to ensure that the next schedule starts correctly, which manually removes all the hotadd disks from the Avamar proxy, and power it back on. A snapshot consolidation may also be required for the virtual machine.

248502 — Support for validation of VMware image backup in MCCLI is limited

When using the `mccli backup validate`, validation is scheduled but the activity is in waiting-client state. The `--dest-client-name` and `--dest-client-domain` options are not currently supported when validating a non /REPLICATE client backup.

HotAdd mode does not work with a VSAN disk

Due to a known limitation with VMware, documented in the VDDK 6.0.1 release notes regarding vSAN 6.1, ESXi hosts do not allow HotAdd of a vSAN disk on a proxy virtual machine with datastore types other than vSAN. As a result, in a vSAN 6.1 environment, attempts to hotadd a VMDK vSAN datastore by a proxy residing outside vSAN fails. If hotadd mode is desired, host the proxy on the vSAN datastore.

263450 — File-level restore not supported for GPT/EFI drives on Windows 2012 when drive has been edited by third party disk tool

Avamar does not support the use of GPT/EFI drives on Windows 2012 for file-level restore operations when the drive has been edited by a disk tool from a third party software vendor. Before mounting the drive for file-level restore, verify that all the disks on the virtual machine have valid/supported partitions.

278280 — Instant Access that is not supported with cloud tiering

Instant Access restores are not supported for data that is migrated to the cloud using the cloud tiering feature.

282640 — Restoring a remote backup fails when the restore is to a specific ESXi that is different from the original ESXi server

Restoring a remote backup fails when the restore is to a specific ESXi that is different from the original ESXi server. The interim solutions to this problem are:

- If a local backup exists, restore the local backup to the specific ESXi.
- If a local backup does not exist, and the original ESXi is running, restore the remote backup to original ESXi and then restore the remote backup to the specific ESXi.

Use the `avrepl` command to replicate the remote backup to the source Avamar when the following occurs:

- A local backup does not exist.
- The original ESXi is not running.

Restore the local backup to the specific ESXi:

```
avrepl --[replscript]restore=true --operation=replicate --
[replscript]dstaddr=SRC_ADDR
--[replscript]dstid=repluser --dstpassword=Chang3M3Now. --ap=Chang3M3Now. --
[replscript]dpnname=SRC_ADDR
 --[replscript]dstencrypt=tls /REPLICATE/CLIENTPATH
```

where *SRC_ADDR* is the IP address of the source Avamar server and *CLIENTPATH* is the client path. If *CLIENTPATH* is a domain, instead of a path, it moves all the clients' backups under the domain.

File Level Restore Client known problems and limitations

The following list describes known problems for this release of the File Level Restore Client.

280373 — Issue when browsing a large number of files with Internet Explorer

When browsing a folder with large number of files (more than 40,000), Internet Explorer may take more than 2 minutes to complete loading the page, and is not responsive during the loading process. The interim solution to this problem is to use another browser, such as Chrome or FireFox.

Supportability package known problems and limitations

The following list describes known problems for the release of Avamar supportability packages.

33892 — Unnecessary Upgrade Client Downloads package option	The Upgrade Client Downloads package presents a **Show advanced settings** option on the installation page called **skip upgrading client download rpms**. If you select the **Values** checkbox and click **Continue**, then client downloads are not upgraded on the system and the package no longer appears in Avamar Installation Manager. If you clear the **Values** checkbox and click **Continue**, then the client downloads upgrade works as designed. To avoid the problem, do not select **Show advanced settings** on the installation page.

Avamar Plug-in for vSphere Web Client configuration application known problems and limitations

There are no known problems or limitations for this release of the Avamar vSphere Client configuration application.

Environment and system requirements

This following topics describe specific environment and system requirements.

Client, server, and platform compatibility

Updated, detailed client, sever, and platform compatibility information is available in the *E-LAB Navigator* at https://elabnavigator.emc.com/eln/modernHomeDataProtection.

Client hardware requirements

Client hardware requirements are listed in each client user guide, such as the *Avamar for Oracle User Guide*, *Avamar for Windows Server User Guide*, or *Avamar for SQL Server User Guide*. A full list of Avamar documentation is available in Documentation on page 36.

Avamar Downloader Service operating system requirements

Beginning with release 7.3, the Avamar Downloader Service is now available on the Avamar utility node or single-server node. The Windows-based legacy Avamar Downloader Service is also supported and is available on Windows 10, Windows Server 2012 (64-bit), Windows Server 2008, Windows 8, Windows 7, and Windows Vista.

The *Avamar Administration Guide* provides a list of supported operating systems for the Avamar Downloader Service.

Data Domain system requirements

Updated, detailed, supported DD OS and DD Boost version information is available in the *E-LAB Navigator* at https://elabnavigator.emc.com/eln/modernHomeDataProtection.

International language support

These sections provide important information about international language support in Avamar 19.1.

International language support in Windows environments

Supported languages for Windows environments include:

- Arabic
- Bulgarian
- Chinese (Simplified and Traditional)
- Croatian
- Czech
- Danish
- Dutch
- Estonian
- Finnish
- French
- German
- Greek
- Hebrew
- Hungarian
- Italian
- Japanese
- Korean
- Latvian
- Lithuanian
- Norwegian
- Polish
- Portuguese (Brazilian)
- Romanian
- Russian
- Slovak
- Slovenian
- Spanish (Iberian and Latin American)
- Swedish
- Turkish

The following table describes additional international language support details in Windows environments.

Table 3. Windows environment international language support

Windows data type	International language support details
Windows files and folders	You can back up and restore individual files and folders with file and folder names in local languages. File and folders names appear in the local language in Avamar Administrator and Avamar Web Restore.
Microsoft Exchange databases	You can back up and restore databases with the database name in supported local languages.
Microsoft Exchange folders and messages	You can back up and restore individual folders and messages with the folder or message name in supported local languages.
Microsoft SQL Server databases	You can back up and restore databases with the database name in supported local languages.

International language support in UNIX/Linux environments

Supported languages for UNIX and Linux environments include:

- Arabic
- Bulgarian
- Chinese (Simplified and Traditional)
- Japanese
- Korean
- Latvian

- Croatian
- Czech
- Danish
- Dutch
- Estonian
- Finnish
- French
- German
- Greek
- Hebrew
- Hungarian
- Italian
- Lithuanian
- Norwegian
- Polish
- Portuguese (Brazilian)
- Romanian
- Russian
- Slovak
- Slovenian
- Spanish (Iberian and Latin American)
- Swedish
- Turkish

The following table describes additional international language support details in UNIX and Linux environments.

Table 4. Windows environment international language support

Encoding	International language support details
EUC-JP	You can back up and recover EUC-JP encoded files and directories with names in the Japanese language on Solaris. **NOTE: EUC-JP encoded file and directory names do not render correctly in either Avamar Administrator or Avamar Web Restore. This issue does not apply to the client web UI available through Avamar Desktop/Laptop.**
UTF	You can back up and restore individual UTF-encoded files and directories with file and directory names in supported local languages. File and directory names appear in the local language in Avamar Administrator and Avamar Web Restore.

Known limitations of local language support

Keep in mind the following known limitations of local language support:

- Cross-platform redirected restore of files and directories with international character set names is not supported.
- Client machine hostnames must consist entirely of ASCII characters.
- The client software installation path must consist entirely of ASCII characters.
- Policy objects (such as, users, groups, datasets, schedules, retention policies, notification profiles) must consist entirely of ASCII characters.
- Log files do not correctly render non-ASCII characters.
- Error, warning, and informational messages incorrectly render non-ASCII characters, both to the screen and to log files.
- Log files which are based on user-defined names (for example, database names) do not work correctly.
- You cannot use non-ASCII characters in options and flags. If a flag or option takes a file, folder, or identifier (for example, a database name) then that option is only assured to work for ASCII names.
- Sorting is not localized. Sorting is strictly by byte-ordinal value.
- You cannot type local language characters in the Avamar user interface using a keyboard.
- The Avamar Management Console Command Line Interface (MCCLI) and `avtar` support only ASCII arguments on the command line.

Restore of international characters with Avamar Web Restore

The Avamar Web Restore feature restores directories or multiple files in the form of a Zip file. When you unzip the Zip file, file and directory names with international characters might not restore correctly due to inherent limitations in some Zip utilities.

To correctly restore files with international characters by using the Avamar Web Restore feature, use a Zip utility that supports international characters. Examples are:

- Winrar 3.80 or later
- Winzip 12.0 or later
- 7zip 4.65 or later

Do not use Microsoft Windows compressed folders with the Avamar Web Restore feature. These compressed folders do not reliably handle international characters.

Support for non-UTF8 locales in the Management Console

Avamar includes support for browsing non-UTF8 file systems from the Management Console. The following Java character sets are supported:

Big5	Big5-HKSCS	COMPOUND_TEXT
EUC-JP	EUC-KR	GB18030
GB2312	GBK	IBM-Thai
IBM00858	IBM01140	IBM01141
IBM01142	IBM01143	IBM01144
IBM01145	IBM01146	IBM01147
IBM01148	IBM01149	IBM037
IBM1026	IBM1047	IBM273
IBM277	IBM278	IBM280
IBM284	IBM285	IBM297
IBM420	IBM424	IBM437
IBM500	IBM775	IBM850
IBM852	IBM855	IBM857
IBM860	IBM861	IBM862
IBM863	IBM864	IBM865
IBM866	IBM868	IBM869
IBM870	IBM871	IBM918
ISO-2022-CN	ISO-2022-JP	ISO-2022-JP-2
ISO-2022-KR	ISO-8859-1	ISO-8859-13
ISO-8859-15	ISO-8859-2	ISO-8859-3
ISO-8859-4	ISO-8859-5	ISO-8859-6
ISO-8859-7	ISO-8859-8	ISO-8859-9
JIS_X0201	JIS_X0212-1990	KOI8-R
KOI8-U	Shift_JIS	TIS-620
US-ASCII	UTF-16	UTF-16BE
UTF-16LE	UTF-32	UTF-32BE
UTF-32LE	UTF-8	windows-1250
windows-1251	windows-1252	windows-1253
windows-1254	windows-1255	windows-1256
windows-1257	windows-1258	windows-31j
x-Big5-Solaris	x-euc-jp-linux	x-EUC-TW
x-eucJP-Open	x-IBM1006	x-IBM1025
x-IBM1046	x-IBM1097	x-IBM1098

x-IBM1112	x-IBM1122	x-IBM1123
x-IBM1124	x-IBM1381	x-IBM1383
x-IBM33722	x-IBM737	x-IBM834
x-IBM856	x-IBM874	x-IBM875
x-IBM921	x-IBM922	x-IBM930
x-IBM933	x-IBM935	x-IBM937
x-IBM939	x-IBM942	x-IBM942C
x-IBM943	x-IBM943C	x-IBM948
x-IBM949	x-IBM949C	x-IBM950
x-IBM964	x-IBM970	x-ISCII91
x-ISO-2022-CN-CNS	x-ISO-2022-CN-GB	x-iso-8859-11
x-JIS0208	x-JISAutoDetect	x-Johab
x-MacArabic	x-MacCentralEurope	x-MacCroatian
x-MacCyrillic	x-MacDingbat	x-MacGreek
x-MacHebrew	x-MacIceland	x-MacRoman
x-MacRomania	x-MacSymbol	x-MacThai
x-MacTurkish	x-MacUkraine	x-MS932_0213
x-MS950-HKSCS	x-mswin-936	x-PCK
x-SJIS_0213	x-UTF-16LE-BOM	X-UTF-32BE-BOM
X-UTF-32LE-BOM	x-windows-50220	x-windows-50221
x-windows-874	x-windows-949	x-windows-950
x-windows-iso2022jp		

Technical notes

This section describes important notes and tips for using Avamar 19.1.

Avamar server technical notes

The following technical notes apply to the Avamar server.

Common Vulnerabilities and Exposures (CVE) list

Avamar engineering addresses Common Vulnerabilities and Exposures (CVE) in operating system patch releases (also known as OS Rollup releases). A list of all CVEs addressed is provided in the Security Advisory for each OS Rollup release. On the Avamar Online Support web page (https://support.emc.com/products/759_Avamar-Server), you can search for a specific CVE. If the CVE is addressed in an OS Rollup release, the search returns a link to the corresponding ESA.

Remove test data

Before starting the server or starting a new node for the first time, ensure that all test data is removed from `/data*/partitions`. In particular, if you ran disk tests before startup, you might need to delete directories that are named `QA`.

Do not use the avmgr command

Improper use of the `avmgr` command line utility can destroy all access to data in the Avamar system. Use this command only at the explicit direction of Customer Service.

Vulnerability scanning

As part of every Avamar release, the product is scanned for vulnerabilities using at least two common vulnerability assessments tools. This release was scanned with Foundstone and Nessus. Various customers scan the Avamar solution by using tools such as eEye Retina without issue. However, it is possible that the usage of other port/vulnerability scanners might cause disruption to normal operation of the Avamar server. Therefore, it might be necessary to disable scanning of the Avamar server when problems occur.

Avamar 7.2 and later scalability limits for virtualization support

The scalability limits of each Avamar 7.2 and greater with Data Domain integrated solution are approximately:

- 5000 virtual machine clients
- 180TB provisioned virtual machine storage
- 72 concurrent backup proxy client stream instances (not proxy virtual machines)

These limits are applicable only when the backup data is sent to the Data Domain system and assume that the Data Domain is correctly specified to support the backup, restore, and, if applicable, replication activities. These limits may be impacted if additional client types are backed up to the Avamar/Data Domain solution. These limits may be further limited by the overall performance of the VMware environment, including the performance of the Avamar Virtual Edition server, if applicable.

Customers who plan to operate near these limits should validate their deployments with their account representative.

VMware image proxies are not available for backups when they are in sleep mode and you restart the MCS

If you stop the MCS and do not restart the MCS within 5 minutes, then VMware image proxies go into a sleep mode for 40 minutes. When you restart the MCS, it might take some time until all proxies reconnect to the MCS and are available for backups. This issue can occur when performing backups after a rollback.

To ensure that all proxies are available, open the `avagent.log` file on each proxy, and ensure that the following messages appear at the bottom of the log:

```
yyyy-mm-dd hh:mm:ss avagent Info <5964>: Requesting work from 10.2.345.678
yyyy-mm-dd hh:mm:ss avagent Info <5264>: Workorder received: sleep
yyyy-mm-dd hh:mm:ss avagent Info <5996>: Sleeping 15 seconds
```

The messages indicate that the proxy can connect to the MCS. The `avagent.log` file is available in the `/usr/local/avamarclient/var` directory.

AMS replication after an IP address change

If you change the IP address that you use for replication with Avamar and one or more Data Domain systems, then the first replication after the change uses Automated Multistreaming (AMS) replication. Subsequent replications use Virtual Synthetic Replication (VSR).

Original Bytes are displayed as twice the original size

The **Original Bytes** value appears as twice the original size when you run the Data Domain `filesys show` compression command in the Avamar namespace on the Data Domain system.

Token based authentication notes

Data Domain version 5.7.1.x or later supports token based authentication. Previous versions fall back to traditional connection. Clients must use a resolvable Fully Qualified Domain Name to use token based authentication.

Avamar Administrator technical notes

The following technical notes apply to Avamar Administrator.

Avamar Administrator directory browsing limitation

When browsing a client file system with Avamar Administrator, large numbers of files in the directories can cause Avamar Administrator to run out of memory. Avamar Administrator is configured by default to only retrieve the first 50,000 files in each directory. Change this limitation by editing the `max_browse_entries` settings in `mcserver.xml` and `mcclient.xml`. However, this step could cause unpredictable application behavior.

Jobs do not appear in the Activity Monitor after server restart

If the administrator server is stopped and restarted, the jobs that started before the administrator server stop do not appear in the Activity Monitor.

Schedule start times and end times

If a different start time is selected in the schedule, reselect the desired end time.

Client name change impacts license quota

If a client is renamed, the old name of the client remains for activities reporting data for the client. Avamar treats new activities for the same client as if they were for a new client, leading to double counting the number of bytes protected for licensing purposes. If a client name change is required, consult EMC Customer Service to ensure that the database is correctly updated.

Additional “cold start” messages from netsnmp

To resolve an issue where SNMP stops responding, Avamar must frequently restart the `netsnmp` agent. The `netsnmp` agent generates a “cold start” message on each restart, in which additional “cold start” messages that are unrelated to actual restart of the Avamar system or incorrect operation of the system appear. However, there are some difficulties to distinguish between a real “cold start” message from the restart of Avamar system and a “cold start” message that is generated as the result of `netsnmp` agent restarts.

Software conflicts with Black Ice and Timbuktu

The Avamar Administrator software is known to have conflicts with software packages such as Black Ice and Timbuktu.

Avamar Desktop/Laptop technical notes

The following technical notes apply to Avamar Desktop/Laptop.

Client-level Avamar accounts cannot log in to Avamar Desktop/Laptop

To provide the same level of security that exists in Avamar Administrator, Avamar Desktop/Laptop blocks Avamar's default client-level accounts. The issue shows that Avamar Desktop/Laptop does not accept the credentials for the following default accounts:

- backuponly
- restoreonly
- backuprestore
- replonly

Back up System State option not recommended

For datasets with the Windows file system plug-in, do not enable the **Back up System State** option when using Avamar Desktop/Laptop.

Entourage support requires default installation location

The Avamar Client for Mac OS X supports Microsoft Entourage by using scripts that shut down the Microsoft Database daemon before starting a backup. Restart the database after the backup completes. These scripts do not work when the Avamar Client for Mac OS X is installed in a non-default location. To support clients for Entourage, use the default location when installing the Avamar Client for Mac OS X.

Viewing logs from the Mac console requires default installation

When the Avamar Client for Mac OS X is installed in a non-default location, work order logs cannot be viewed from the Avamar client console. To view a work order log, open the text editor from the clientlogs folder.

Default limit for process data segments is too low

On Mac OS X, the default limit for process data segments (6 MB) is lower than the limit of 96 MB that EMC recommends. Any value below 96 MB affects the backup and restore performance.

During installation of the Avamar for Mac OS X Client, the installer looks at the value of this setting. If the value is less than 96 MB, the installer should change to 96 MB. The new value takes effect after the computer restarts.

The installer then launches a restart reminder. To ensure optimal performance, restart the computer as soon as possible after completing the installation.

Extended drives are visible on some operating systems

On some operating systems, extended or mapped network drives can be seen in the **Restore Location** dialog box. While a restore to the drive may work, depending on permissions and domain settings, it is not supported.

Avamar Web Restore technical notes

The following technical notes apply to Avamar Web Restore.

Enabling the full display on the Avamar login screen

Avamar Web Restore displays an empty **Domain** field and an empty **Client** field on the Avamar login screen. This step prevents the display of domain information during a non-domain login. When using Avamar Web Restore only in a secure domain, change the default setting to enable the full display on the screen.

When the full display is enabled, a list of Avamar domains appears in the **Domain** field and a list of clients appears in the **Client** field.

NOTE: This change does not affect the Avamar Web Restore LDAP login screen.

To enable the full display on the Avamar log in screen:

1. Open a command shell and log in:
   - For a single-node server, log in to the server as root.
   - For a multi-node server, log in to the utility node as root.
2. Switch user to root by typing the following command:

   ```
   su -
   ```
3. Change the current working directory by typing the following command:

   ```
   cd /usr/local/avamar/etc
   ```
4. Open the Avamar Desktop/Laptop properties file, `dtlt.properties`, in a plain text editor.
5. Add the `showWRClientList` key with the value of `true`:

   ```
   showWRClientList=true
   ```

   If the key exists, set the value to `true`.
6. Save and close the file.

Special characters in file name replaced during restore

Restoring a file with special characters in the file name results in replacement of the characters in the restored file name. This step occurs when the LANG variable on the Avamar server is set to a locale that does not support the characters. To work around this issue, either rename the file after being restored or change the LANG variable on the Avamar server to the correct locale.

Restore of files with special characters in file name when Avamar server LANG variable is not set

When the *LANG* variable is not set on an Avamar server, using Avamar Web Restore to restore a file with special characters in the file name fails. To fix this issue, set the *LANG* variable in `/etc/locale.conf` and reboot the Avamar server.

Proper UI rendering on Internet Explorer 11 browser

High Security setting in Internet Explorer 11 prevents rendering of JavaScript commands in the Avamar Web Restore pages. To work around this issue, add the Avamar Web Restore server to the trusted sites list in Internet Explorer.

Restore of large number of files

Users cannot restore a large number of files through Avamar Web Restore. Limit each restore task to fewer than 200 files.

Backup client technical notes

The following technical notes apply to backup clients.

Linux client installation binaries

Because of many compatible Linux operating systems, not all supported Linux operating systems have natively built installation binaries. The names of installation binaries do not always match the name of the operating system. For example, client installation binaries for Red Hat Enterprise Linux 6 are built on SUSE Enterprise Server 11. Refer to SLES 11 in the name of the installation binaries. However, these installation binaries are appropriate for installation on Red Hat Enterprise Linux 6.

IPv6 not supported on HP-UX PA-RISC

Avamar support for IPv6 is not available for the HP-UX PA-RISC platform.

Log files are time/date stamped in UTC time

Some client log and other files that are created in the VARDIR are time/date stamped in Universal Time Code (UTC) time (Greenwich Mean Time) and not the local time. This step can cause confusion when looking for a particular log file.

Firewall software must be configured to allow communication with the Avamar server

Firewall software inherently interferes with communication between the Avamar server and Avamar clients by disabling inward connections to most data ports. Configure the firewall application to allow bi-directional communication between the Avamar client and the Avamar server when the following occurs:

- If firewall software is used on a client computer (for example, ZoneAlarm, Norton, McAfee).
- If the integrated firewall is used with Windows clients.

This step is accomplished by adding the EMC Client Agent to an “allowed” or “exceptions” list, which also depends on the firewall application. The documentation for the firewall should provide additional information.

Avamar icon disappears from Mac system menu bar

On rare occasions, the Avamar icon disappears from the Mac system menu bar. To restore the icon, restart the Avamar client using the Avamar Client application launcher in the Applications folder.

Standby, sleep, and hibernate states interfere with backups

Issues may occur when computers go into standby/sleep (ACPI state G1-S3), hibernate (ACPI state G1-S4), or hybrid sleep (Windows Vista) modes during a backup.

On returning to a working state (ACPI state G0-S0), the network connection between the client and the Avamar server may be lost and yet appear from the server. Canceling the backup from the client side has no effect.

To drop the backup connection, cancel the backup from the server side. This step occurs automatically when the connection is inactive for more than 1 hour.

To help minimize this problem, ensure that the BIOS and drivers on all supported computers are up-to-date.

Browse of shared storage fails after failover in dual-stacked cluster environments

Shared storage cannot be browsed in a cluster by using the Avamar cluster client after a failover in a dual-stacked cluster environment. To enable browsing, rerun the Cluster Configuration Tool on the active node to remove and then reconfigure the Avamar cluster client.

Backup cannot proceed when mandatory locks are encountered

Avamar client software honors all mandatory locks in the target file system on Solaris and HP-UX operating systems. However, this can cause backup operations to hang indefinitely when a mandatory lock is held by another application on files that Avamar is backing up.

To work around this issue, exclude all specified files and directories with mandatory locks from the backup dataset, and perform another backup.

Solaris path length limitation

Solaris imposes a maximum path length limit of 1,023 characters. Therefore, paths cannot be specified for greater than 1,023 characters.

Retention must expire before February 7, 2106 for 32-bit Windows and Linux clients

For backups of 32-bit Windows or 32-bit Linux client computers, do not assign a retention period for a date after February 7, 2106. If an extended retention period is assigned to a 32-bit Windows client, the backup completes with exceptions. For 32-bit Linux clients, the backups complete but do not appear in Avamar Administrator.

Issues when running multiple CLI backup or restore operations at a time for a client

Stability issues occur when multiple command line interface (CLI) backup or restore operations are run at a time for a client. To work around this issue, perform only one CLI operation at a time for each client.

Password best practices

The following technical notes provide best practices for creating and protecting passwords.

Best practices for creating passwords

The following table provides best practices for creating passwords.

Table 5. Best practices for creating passwords

Best practice	Details
Do not use Personal Identifiable Information (PII).	Do not use PII in the password, such as: • Your name • Your username • Your birthday • Names of pets • Names of your children • Name of your alma mater • Keywords that are associated with your hobbies
Do not use words from the dictionary.	Do not use any word that can be found in the dictionary as your full password.
Use strong passwords.	Always use strong passwords when creating passwords. Strong passwords include: • At least eight characters • Special characters such as a percent sign (%) or ampersand (&) • Non-alphabetic characters • Both uppercase and lowercase characters
Use different passwords for user accounts	Always use a different password for each user account.
Change your password regularly	• Change your most critical passwords on a regular basis. • Change your passwords at least every 6 months. • When you change your password, avoid using variations of a previous password. • Immediately change your password if you expect another person has access to your account, or knows your password.

Table 5. Best practices for creating passwords (continued)

Best practice	Details
	• Always change your password as soon as you receive an account.

Password protection best practices

Create a password that you can remember without needing to store it. However, if the password must be stored, follow these recommendations:

- Use a password vault application to protect and help manage your passwords.
- If passwords must be written down on a piece of paper, store the paper in a secure place and destroy it when it is no longer needed.
- Do not put your username and password on a post-it note under your keyboard.
- Do not write down your username and password in the same place.
- Use caution regarding where passwords are saved on computers. Some dialog boxes, such as those for remote access and other telephone connections, present an option to save or remember a password. Selecting this option poses a potential security threat.
- Never share your passwords with anyone and do not give your password to anyone over the phone.

Documentation

This section describes the documentation and information products that are available with this release of Avamar.

Avamar product documentation

This section describes the product documentation that is available with Avamar 19.1.

Avamar Administration Guide

This document describes how to configure, administer, monitor, and maintain the Avamar system.

Avamar Virtual Edition Installation and Upgrade Guide

This document describes how to install the Avamar Virtual Edition solution, a single-node, non-RAIN Avamar server that runs as a virtual machine in a variety of environments.

Avamar Operational Best Practices

This document provides best practices for designing, configuring, managing, and tuning the performance of the Avamar system.

Avamar and Data Domain System Integration Guide

This document provides best practices for designing, configuring, and managing Data Domain integration with the Avamar system.

Avamar Product Security Guide

This document discusses Avamar security considerations, including user authentication and authorization, client/server access and authentication, data security and integrity, system monitoring, server hardening, port usage, and firewall requirements.

Avamar Reports Guide

This document describes how to create, manage, and interpret the information in Avamar reports.

Avamar Management Console Command Line Interface (MCCLI) Programmer Guide

This document describes how to install, configure, and use the Avamar Management Console Command Line Interface (MCCLI), which is a Java software application that provides command line access to Avamar Administrator features.

Avamar Release Notes

This document contains information on new features and changes, fixed problems, known limitations, and environment and system requirements for the latest Avamar release.

Avamar Backup Clients User Guide

This document describes how to install and activate Avamar backup clients on all platforms. It also describes how to use the Avamar backup client to back up and restore data.

Avamar for VMware User Guide

This document describes how to install, configure, and use Avamar to back up and restore virtual machines in a VMware environment.

Avamar for Windows Server User Guide

This document describes how to install the Avamar client for Microsoft Windows, and how to back up and restore data on a Windows server.

Avamar for Hyper-V VSS Guide

This document describes how to install Avamar in a Microsoft Hyper-V environment, and how to back up and restore virtual machines using Avamar with Microsoft Volume Shadow Copy Service (VSS) technology.

Avamar for Exchange VSS User Guide

This document describes how to install Avamar in a Microsoft Exchange Server environment, and how to back up and restore data using Avamar with Microsoft Volume Shadow Copy Service (VSS) technology.

Avamar for SharePoint VSS User Guide

This document describes how to install Avamar in a SharePoint environment, and how to back up and restore data using Avamar with Microsoft Volume Shadow Copy Service (VSS) technology.

Avamar for SQL Server User Guide

This document describes how to install Avamar in a Microsoft SQL Server environment, and how to back up and restore SQL Server databases.

Avamar for Lotus Domino User Guide

This document describes how to install Avamar in a Lotus Domino environment, and how to back up and restore data.

Avamar for Oracle User Guide

This document describes how to install Avamar in an Oracle database environment, and how to back up and restore Oracle databases.

Avamar NDMP Accelerator for NAS Systems User Guide

This document describes how to install and configure the Avamar NDMP Accelerator, and how to back up and restore data on supported Dell EMC storage systems (Unity,VNX,Isilon), NetApp filers, and Oracle ZFS.

Avamar for SAP with Oracle User Guide

This document describes how to install Avamar in an SAP environment with Oracle, and how to back up and restore SAP servers with Oracle databases.

Avamar for Sybase ASE User Guide

This document describes how to install Avamar in a Sybase environment, and how to back up and restore Sybase Adaptive Server Enterprise (ASE) databases.

Avamar for IBM DB2 User Guide

This document describes how to install Avamar in an IBM DB2 environment and how to back up and restore DB2 databases.

Avamar Plug-in for vCenter Administration Guide

This document describes how to install, configure, administer, and use the Dell EMC Backup and Recovery plug-in for vCenter to back up and restore VMware image backups on an Avamar server.

Avamar Orchestra Getting Started Guide

This document provides an introduction to the Avamar Orchestra REST API for multisystems management, including the Orchestra web UI and the Swagger interface.

Avamar Fitness Analyzer User Guide

This document describes how to use the reporting and analysis software for Avamar servers .

Avamar related documentation

In addition to the product documentation, the following related links and documentation provide more information about Avamar 19.1.

E-lab Navigator

E-LAB Navigator

Provides server, client, and platform compatibility and interoperability information. The *E-LAB Navigator* at https://elabnavigator.emc.com/eln/elnhome.

Technical notes and white papers

Avamar technical notes provide technical details on 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. Both technical notes and white papers are available on Online Support at https://support.EMC.com.

Your comments

Comments and suggestions help to continue to improve the accuracy, organization, and overall quality of the user publications. Send comments and suggestions about 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 to help address documentation issues

Installation

The following sections provide information about installation and upgrade in an Avamar 19.1 environment.

Avamar server and Avamar Virtual Edition installation and upgrade

For a physical Avamar server, a technical representative must perform the installation or upgrade. Downgrading the Avamar server software to an earlier version is not supported under any circumstances.

Installation and upgrade of the Avamar Virtual Edition (AVE) is enabled for customers without requiring technical representative involvement. The following upgrade scenarios to Avamar 19.1 are supported for AVE:

- Avamar 18.2 to Avamar 19.1
- Avamar 18.1 to Avamar 19.1
- Avamar 7.5.0 or Avamar 7.5.1 to Avamar 19.1
- Avamar 7.4.1 to Avamar 19.1 (server only)

The client downloads, which provide the ability to download the current client versions from the server's **Documents and Downloads** web interface, are installed along with the server upgrade. The upgrade is provided by the Avamar Server Upgrade team unless a request is specifically made that the team refrains from installing. However, the upgrade team does not install the Avamar Upgrade installers, which provide the client kits for the Avamar Client Manager's automated update feature. This option is a customer-upgradeable kit which can be obtained from the upgrade information. For instructions on application of the client installers, refer to the *Avamar Client-Only System Upgrades Technical Note* available on the online support website at https://dell.com/support/.

Avamar client installation and upgrade

Client installation and upgrade procedures are provided in each client or plug-in user guide, such as the *Avamar for Oracle User Guide*, *Avamar for Windows Server User Guide*, or *Avamar for SQL Server User Guide*. A full list of Avamar documentation is available in Documentation on page 36.

Installation and upgrade of other Avamar components

The following table provides the location for installation and upgrade procedures for additional Avamar components.

Table 6. Installation and upgrade of other Avamar components

Component	Location for installation and upgrade procedures
Avamar Management Web user interface (AUI)	*Avamar Administration Guide*
Avamar Administrator	*Avamar Administration Guide*
Avamar Management Console Command Line Interface (MCCLI)	*Avamar Management Console Command Line Interface (MCCLI) Programmer Guide*

Upgrade requirements for Avamar

Review the requirements in the following sections before you upgrade to Avamar 19.1.

Upgrade requirements in a VMware environment

Ensure that the VMware environment meets the following requirements when you upgrade to Avamar 19.1:

- To use version 7.4 or later functionality, deploy Avamar 7.4 or later proxies.
- You must reboot proxy virtual machines after you upgrade the Avamar server.
- You must ensure that the Avamar server time is synchronized with ESXi host before upgrade. If the Avamar server is a configured NTP server, also ensure that the ESXi host time is synchronized with the same NTP server.

Upgrade requirements for Avamar with a Data Domain system

You must use DD OS 6.0 or later on a Data Domain system with an Avamar 19.1 server. Before you upgrade to Avamar 19.1, you must upgrade any clients that back up to a Data Domain system to Avamar 7.4 or later.

The upgrade path for Avamar and Data Domain is very specific. Failure to upgrade software in the proper order can cause Avamar maintenance functions and/or backups to fail. If this happens and the Avamar server fails, a rollback operation will fail. The *Avamar and Data Domain System Integration Guide* provides details.

The following table lists the steps to upgrade Avamar with a Data Domain system.

Table 7. Upgrade Avamar with a Data Domain system

Upgrade path	Steps
Avamar 18.2 to Avamar 19.1	1. Ensure that all Avamar clients are running Avamar 18.2 client software.

Table 7. Upgrade Avamar with a Data Domain system (continued)

Upgrade path	Steps
	2. Upgrade the Data Domain systems to DD OS 6.0 or later. 3. Upgrade the Avamar server to release 19.1. 4. (Optional) Upgrade the Avamar clients to release 19.1.
Avamar 18.1 to Avamar 19.1	1. Ensure that all Avamar clients are running Avamar 18.1 client software. 2. Upgrade the Data Domain systems to DD OS 6.0 or later. 3. Upgrade the Avamar server to release 19.1. 4. (Optional) Upgrade the Avamar clients to release 19.1.
Avamar 7.5.1 to Avamar 19.1	1. Ensure that all Avamar clients are running Avamar 7.5.1 client software. 2. Upgrade the Data Domain systems to DD OS 6.0 or later. 3. Upgrade the Avamar server to release 19.1. 4. (Optional) Upgrade the Avamar clients to release 19.1.
Avamar 7.4.x to Avamar 19.1 (supported for Avamar server only)	1. Upgrade the Data Domain systems to DD OS 6.0 or later. 2. Upgrade the Avamar server to release 19.1.

NOTE: If you fail to perform the upgrade steps or you perform the steps out of sequence, then backup failures and data corruption on the backup device can occur. All Avamar and Data Domain upgrades should be planned ahead of time with the assistance of the Remote Proactive Avamar Upgrade team. Do not attempt to proceed without their assistance and planning.

Upgrade requirements for Avamar with NetWorker

If you use Avamar with NetWorker, review the minimum NetWorker software version requirements before you upgrade the Avamar server to release 19.1. The *NetWorker Software Compatibility Guide* at https://elabnavigator.emc.com/eln/modernHomeDataProtection provides information on the NetWorker version requirement for specific clients.

Microsoft update requirements for Avamar with Hyper-V on CSV

Backups fail in a Hyper-V environment with CSV unless you follow best practices and apply Microsoft hotfixes in the correct order. The *Best Practices for Hyper-V over CSV Cluster Data Protection Using Avamar and Networker Technical Note* on Online Support provides details.

Troubleshooting and getting 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 resolve a product issue before contacting Customer Support.

To access the Avamar support page:

1. Go to https://www.dell.com/support/home/us/en/19.
2. Type a product name in the **Enter a Service Tag, Serial Number, Service Request, Model, or Keyword** search box.
3. Select the product from the list that appears. When you select a product, the **Product Support** page loads automatically.
4. (Optional) Add the product to the **My Products** list by clicking **Add to My Saved Products** in the upper right corner of the **Product Support** page.

Knowledgebase

The Knowledgebase contains applicable solutions that you can search for either by solution number (for example, KB000xxxxxx) or by keyword.

To search the Knowledgebase:

1. Go to https://www.dell.com/support/home/us/en/19.
2. Under the **Support** tab, click **Knowledge Base**.

3. Type either the solution number or keywords in the search box. Optionally, you can limit the search to specific products by typing a product name in the search box and then selecting the product from the list that appears.

Online communities

Go to 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 products.

Live chat

To engage 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 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 a sales representative for details about obtaining a valid support agreement or with questions about an 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**.

Enhancing support

It is recommended to enable ConnectEMC and Email Home on all Avamar systems:

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

Comments and suggestions

Comments and suggestions help to continue to improve the accuracy, organization, and overall quality of the user publications. Send comments and suggestions about 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 to help address documentation issues

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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