EMC Avamar Data Migration Enabler

Version 19.72

User Guide

302-004-296

REV 08

Published April 2021

Revised April 11, 2023

Dell Corporation
Hopkinton, Massachusetts 01748-9103
1-508-435-1000 In North America 1-866-464-7381 www.dell.com

Table of Contents

TABLES

PREFACE

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

Contact the technical support professional when a product does not function correctly or does not function as described in this document.

Note

This document was accurate at publication time. To find the latest version of this document, go to Online Support (https://support.EMC.com).

Purpose

This guide describes how to use the Avamar Data Migration Enabler (ADMe).

Audience

The information in this guide is primarily intended for system administrators who are responsible for maintaining servers and clients on a network, as well as operators who monitor daily backups and storage devices.

Revision history

The following table presents the revision history of this document.

Table 1 Revision history

Revision	Date	Description
01	January 30, 2018	GA release of Avamar 7.5.1
02	April 9, 2021	Not tied to any Avamar release
03	June 23, 2021	Not tied to any Avamar release
04	June 15, 2022	Not tied to any Avamar release but is tied to ADMe version 19.64i and higher
05	October 18, 2022	Minor updates related to the use of -archive option.
06	February 24, 2023	Minor updates throughout
07	March 24, 2023	Added support for PPDM as an export target
08	April 11, 2023	Document the use of **adme -autocfg** for PPDM

Related documentation

The following publications provide additional information:

- Avamar Compatibility and Interoperability Matrix • Avamar Release

Notes

- All Avamar client and plug-in user guides

Special notice conventions used in this document These conventions are used for special notices.

DANGER

Indicates a hazardous situation which, if not avoided, results in death or serious injury.

WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Addresses practices that are not related to personal injury.

Note

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

Typographical conventions

These type style conventions are used in this document.

Table 2 Typographical conventions

Bold	Used for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)
Italic	Used for full titles of publications that are referenced in text
`Monospace`	Used for: • System code • System output, such as an error message or script • Pathnames, filenames, prompts, and syntax • Commands and options
Monospace italic	Used for variables
`Monospace bold`	Used for user input
[ ]	Square brackets enclose optional values
|	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information that is omitted from the example

---

Where to get help

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

To access the Avamar support page:

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

Documentation

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

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

Knowledgebase

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

To search the Knowledgebase:

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

Online communities

Go to Community Network at http://community.dell.com/community 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@dell.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

CHAPTER 1

ADMe Introduction

Avamar Data Migration Enabler overview

Avamar Data Migration Enabler (ADMe) is a software tool used to migrate Avamar backup data to a different storage medium, such as tape, cloud storage, a target Avamar with different storage type, a target PPDM system or standalone hard drives such as external USB or NAS units.

ADMe relies on simple concepts whereby selected backup data is rehydrated to a server, leveraging various disk storage types, then optionally exported automatically to the chosen target backup application such as NetWorker or to another Avamar system with DD or to Dell PPDM solution. Recovery of the migrated data files can be retrieved from the disk storage used or from the export solution used using the export application's native recovery tools.

The data migration process

ADMe facilitates automating the migration process by using user-defined migration policies that control the backup selection process followed by a redirected recovery of the backup(s) selected from Avamar into a structured directory tree on the defined staging server disk area.

Optionally, exports to a different backup application such as tape backup solution are automatically invoked relying on a predefined tape policy within the tape backup solution. Once the staged data is exported, the chosen export application is responsible for maintaining retention policies and providing the catalog mechanism to allow for browsable file-level recoveries. The export application can recover to the ADMe staging server or to any compatible client activated to it.

This same migration approach can also be used to export the staged Avamar backup data to another Avamar system and placing these backups into a Data Domain. This allows backups stored in Avamar GSAN storage nodes to be migrated to a target Avamar/Data Domain solution. The resulting migrations are browsable from the target Avamar recovery browser to perform file level recoveries. Dell PPDM solution can also be used as a target export application and functions very similar to using Avamar as the target application.

The staged backups can also be directed to cloud based or object storage using a suitable gateway product such as Geo-Drive, TNT Drive, and others. Data will be in a rehydrated format which is readily recoverable from the cloud storage using cloud storage provider's UI mechanisms or simply through a file browser. If the cloud storage was accessed through a gateway supporting data deduplication, the rehydrated data would be stored in deduplicated format in the cloud however recovery of that data would have a 100% dependency on the dedupe tools used.

Avamar system and client plug-in support with ADMe

ADMe supports all Avamar system types including single and multi-node systems, Avamar Virtual Edition, replication source and target systems, IDPA and Avamar systems with Data Domain.

ADMe migration software supports the following features:

- Avamar filesystem plug-in on all supported filesystems
- Avamar plug-ins for virtual machines in both VMware and Hyper-V environments
- NDMP plug-in
- Supported database application plug-ins such as the Microsoft Exchange, SQL, Lotus Notes and Oracle plug-ins

The Avamar PAX archival format is available allowing migrated data to be stored in a native Avamar format which must be re-imported to an Avamar GSAN storage afterwards to make it usable. There are limitations to the use of PAX archival format refer o Pg-17 below.

While various tape export applications can be used by the ADMe workflow, only Networker provides the full chain-of-custody details associated with an end-to-end migration.

Capabilities and limitations

The following capabilities and limitations apply to the ADMe migration tool:

Capabilities

- Enables exporting Avamar backup data to tape or cloud storage for long-term retention, lowering overall cost of the storage consumed within Avamar directly.
- Creates transportable media such as tape or standalone USB or NAS hard drives for offsite storage.
- Leverages existing tape backup application functionality and associated infrastructure.
- A variety of compatible servers and operating systems can be used as staging servers.
- Supports multiple export use cases at the same time, for example, to tape and cloud storage.
- Single point of management for Avamar data migration.
- No dependencies on Avamar or ADMe when recovering from tape or cloud, with the expectation of Oracle and PAX file archives where Avamar would be required.
- Tape backups can be cataloged and browsable for file-level recovery.
- Supports migrating backups to public or private cloud storage.
- Supports multiple staging servers concurrently, including more than one thread per staging server if configured.
- Supports all Avamar system types.
- Provides a web-based graphical interface, as well as a CLI based menu driven interface.
- Provides email notifications for significant migration activity.
- Event and job policy logs capture status of all significant migration activity.
- Provides non-incremental and incremental staging strategies.
- Supports most Avamar plug-in types.
- Provides a wide choice of backup selection filters for automatically selecting backups for migration.
- Provides an audit mechanism for tracking critical path components and chain-of-custody.
- Able to migrate GSAN/Hybrid/DD based backups from one Avamar system to another Avamar server using Data Domain ensuring migrated backups are stored on the Data Domain.

Limitations

Consider the following ADMe limitations:

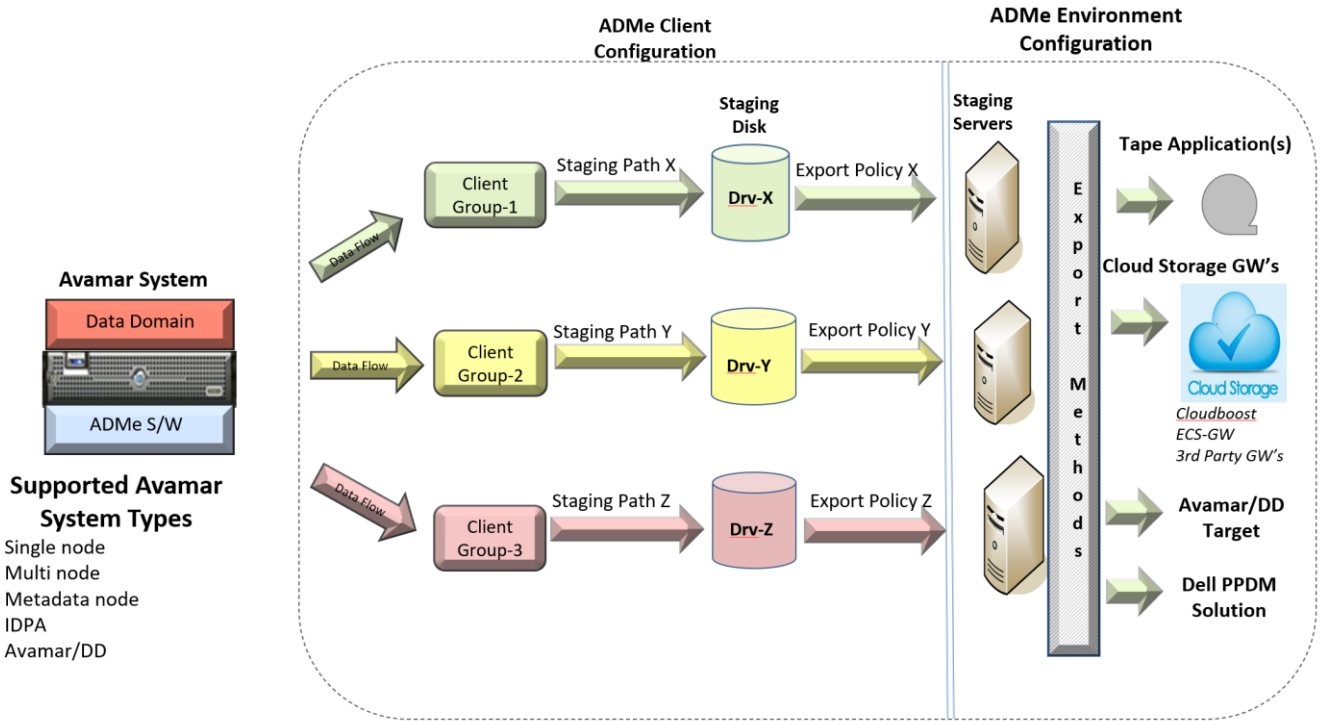
- Migrations can take a significant amount of time depending on the data size and file counts involved; therefore, while your Avamar backups may perform frequent backups (such as daily), it is not practical to migrate daily backups with ADMe.
- When exporting migrated backups to physical tape, a robotic tape library is required as part of the tape backup application infrastructure.
- When migrating backups to cloud storage, the upload bandwidth and latency to the cloud provider directly impacts the migration throughput.
- ADMe when used for Tapeout offers limited benefit in reducing Avamar capacity therefore should not be relied on or used for this purpose.

- The proprietary Avamar archive approach using PAX files should not be used when an Avamar metadata node is being used in conjunction with Data Domain backend systems. Importing of a PAX file consumes Avamar GSAN capacity not DD and the space used cannot be reclaimed for future metadata use, even after the imported PAX file is deleted.

Architectural Overview

ADMe architecture begins with the data flow from Avamar to the staging server disks, and from there an optional export application such as a backup-to-tape application.

Once a ADMe client group's backups have been staged, an export to tape can be invoked automatically by calling a predefined tape policy definition within the backup-to-tape application, to capture only the staging path destination. When multiple staging servers, staging threads and multiple export methods are available, each can be used concurrently, to improve the overall aggregate throughput.



Data migration methods

Avamar Data Migration Enabler provides two approaches to migrating backup data:

- Rehydration
- PAX Archive

Rehydration method

The rehydration method performs a directed recovery of Avamar backups to a defined staging server, where the hydrated data is available for upload to the cloud or captured using a tape or other type of backup application.

Using the rehydration method results in all migrated data files in the export application being in their original format with any cataloging and/or indexing being provided by the export backup application used. By using the export application's standard recovery UI, file browsing should be available where files can be marked for recovery directly from it to any available and compatible client using the mechanisms, and subject to the requirements of, the export application used. Similarly, migrated data can be recovered from cloud storage using appropriate cloud-based tools as would be use for any standard filesystem data retrieval.

With the hydration method, there are no dependencies on Avamar being present in the environment when recovering files from the export backup storage such as DD, tape or cloud making it an effective method to use for long-term data retention. There are two exceptions pertaining to the need for Avamar, Oracle plug-in and Windows VSS System State backups both of which must be imported back to Avamar and subsequently recovered from Avamar to be leveraged by an end user.

Staging server requirements vary based on the rehydration approach used. For compatible data rehydration, stage backups of Microsoft Windows data to a staging server on a Windows host to maintain Windows-specific file attributes. Avoid staging UNIX or Linux backups to a Windows-based staging server as this may result in name collisions due to incompatibility with case sensitivity between these OS's.

Note: Non-Windows based backups can typically be staged to any UNIX or Linux OS platform. However, when the backups involved are from a file system that supports an expanded set of file attributes that you want to preserve, use the specific operating system and file system involved for the staging server.

Full versus Incremental Staging

Rehydrated migrations can leverage a full or incremental staging strategy. Full migrations represent the recovery of a complete backup, which, after exporting, will be deleted from the staging server and the staging disk area reused.

Large file system or NDMP type backups can perform migrations more quickly when using incremental staging. With incremental staging the staged data is not automatically deleted from the staging disk resulting in a single baseline copy being retained on the staging disk. Subsequent migrations perform a file level time stamp comparison from the current backup being staged against the same file name if present in the baseline copy already on the staging disk. If the time stamps match, the file in question is effectively skipped and not recovered to the staging server each time significantly reducing the number of files to be recovered therefore a corresponding time savings.

Incremental staging requires dedicated staging disk capacity at least equal to and slightly larger than the backup data size being staged to it. After the first migration which by default is a full recovery, subsequent migrations will leverage an Avamar feature to do a time stamp comparison check against the previously staged files to determine whether the current file needs to be restaged or not. It should be noted; incremental staging does not result in partial migrations; the full content of the staged backup will always be available to the tape or backup application during export.

An additional benefit to using incremental staging is its corresponding tape backup can now leverage an effective incremental backup against the staged data increasing throughput of the tape phase as well as reduce the tape consumption. This enables the user to configure when a full tape export should be performed throughout the year such as Jan and/or July with incremental backups performed monthly in between.

Incrementally staged data is always available directly from the staging disk area being used as its files are never removed automatically by ADMe. Periodic erasure of this data should be manually performed periodically as its size will creep upwards over time the result of files now deleted in current Avamar backups still present on the staging disk.

When using full or incremental staging the staging disk involved must be large enough to hold the aggregate size of the ADMe client group backups involved.

Staging directory structure

As the backup data lands on the staging server, it's files are placed in a path that's partially user defined along with a predefined structured directory that's automatically appended to it. The automated portion includes the ADME client group name, a keyword of BYDATA or INCREMENTAL followed by folder named after the source client name and with non-incremental staging a folder referred to as the point-in-time folder representing the original Avamar backup date/time and its backup id#, formatted as `yyyy-mm-dd-buid#`. Incremental migrations do not have a point in time folder but provides an alternative for reference which is a file containing the backup dates of the backups being staged and this file is located on the staging disk.

Migrations of Microsoft backups

Staging server requirements vary based on the rehydration approach used. For true rehydration, it is a requirement to stage backups of Microsoft Windows data to a Windows-staging server to maintain Windows-specific file attributes. Avoid staging UNIX or Linux backups to a Windows-based staging server because of case sensitive incompatibility issues impacting both filenames and directories.

Note: When performing migrations to a Microsoft Windows-based operating system, a quick format command will be used to delete the staged data. Therefore, it is a prerequisite any staging drive letter is fully dedicated to ADMe use and they must not be Drv-C or Drv-D, staging drive letters need to start at Drv-E.

Software requirements for Windows-based staging servers

At a minimum, the staging server must have the Avamar File System plug-in installed. The following plug-ins have these additional requirements:

- **SharePoint VSS**

  The Windows staging server must have the SharePoint VSS plug-in installed.

- **Hyper-V VSS**

  Two options are available for migrating Hyper-V VSS backups.

  1. The Windows staging server must have the Hyper-V VSS plug-in and Microsoft Hyper-V server software installed.
  2. The staging server can also be a generic Windows server with only the Avamar FS agent installed. Refer to migration option -**hypervssavtar** to leverage this approach. You must verify with the end user whether the staged data in this case is suitable to be leveraged by them.

- **Exchange VSS**

  Two options are available for migrating Exchange VSS backups.

  1. The Windows staging server has the Exchange VSS plug-in and Microsoft Exchange software with Mailbox role enabled. With this approach, replay of the transaction logs will be performed at staging time leaving only the EDB files to be migrated to tape. A verification of the EDB Shutdown State will be performed and logged. Individual EDB files can be selected as needed, refer to migration option -**avexvss**
  2. The staging server can also be a generic Windows server. With this approach, the EDB, transaction logs and CHK files will be staged and exported to tape as flat files. Transaction logs will not be replayed at staging time but will be available on tape for a future replay on an as need basis. The procedure to replay the logs is documented in KB 000207859 Refer to migration option -**exchvssavtar** to enable this approach.

Migration of UNIX and Linux-based backup data

For Unix or Linux OS, typically they can be staged to either and Linux is often used. However, if the backups involved support an expanded set of file attributes which need to be preserved, use a matching OS and filesystem for the staging server. If exporting to tape, keep in mind the tape backup application will ultimately determine which OS should be used as it may not fully support cross platform restores.

A staging server must have the Avamar File System plug-in installed on it. No additional plug-ins are needed on UNIX or Linux-based staging servers.

Using cloud storage for long term retention

Object based storage including Dell EMC ECS, Dell EMC ATMOS or any S3 compatible storage from a cloud storage provider can be leveraged as a staging target via a suitable cloud gateway product providing a simple approach for migrating large amounts of Avamar backup data to Cloud storage and potentially eliminate the need for a tape backup application.

Cloud staging targets are enabled by using cloud gateway technologies such as Dell EMC Geo Drive or similar tools which provide the transition from legacy storage to object storage. As the data is being staged the cloud gateway being used acts on the data files by automatically uploading them to the cloud or object storage target. These same gateway tools or other methodologies are then used to access and browse the uploaded data files.

Typically, when using a cloud gateway, no local staging disk is required. However, some gateways rely on a local disk cache to act as a temporary buffer which helps speed up the overall process. Most of these tools do not offer deduplication therefore be cautious as to what size and type of data is involved and calculate in advance what the storage requirements will be. An advantage to it not being deduped is the files involved can be quickly retrieved on an as need basis directly without the need for Avamar or a export backup application.

When using the incremental staging with Dell EMC Geo Drive or similar tools, the process results in a single instance of a given file being maintained in the cloud, rather than requiring multiple instances of files being stored as would be the case with non-incremental staging method. Incremental staging improves throughput while reducing the cloud storage footprint consumed although the result may not be suitable in all situations.

PAX Archive Method

The method of data migration creates a single archive file containing the rehydrated backup contents streamed to an Avamar compatible PAX file. This process is common to all supported Avamar plug-ins, therefore, should be compatible to all supported plugins. The PAX file content contains both data files and their related Avamar metadata objects.

A PAX archive file is usually slightly larger in size than the rehydrated backup it contains. PAX files can optionally be compressed, resulting in a file size reduction of up to ~50%. Compression does increase the staging time as it is CPU intensive, but potentially this can be regained during the export phase to tape due to its reduced file size. This approach does not provide any file indexing of the PAX archive content therefore no browsable view of its contents from the tape application's recovery browser. The only option when recovering a PAX file from tape is to act on the entire archive file.

To help mitigate the impact of having no logical view of the PAX archive file content, you can configure ADMe to provide a corresponding metadata text file containing relative logical details of the PAX archive content. This file will include file and path names and file time stamps. The metadata file is much smaller and can be retrieved directly from tape or cloud storage prior to recovery of the full archive allowing its contents to be reviewed and verify whether the PAX archive contains the desired file names and appropriate timestamps prior to recovering the PAX archive itself is to be recovered.

Limitations of the PAX archive method

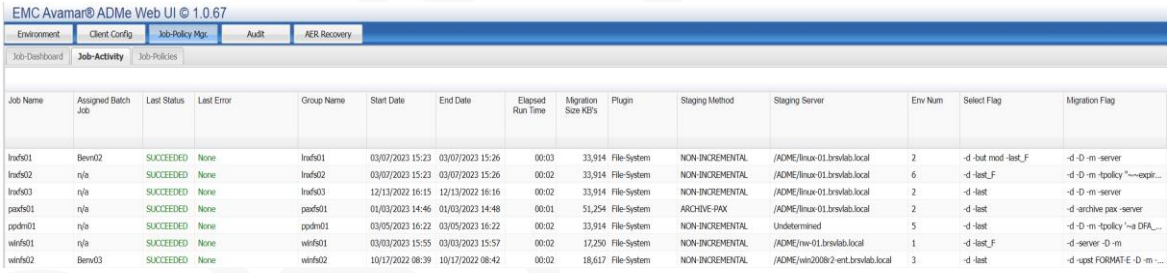
The following limitations of the archive method should be considered prior to choosing this as a migration method.

- PAX archives can only be staged to a Linux staging server regardless of the plugin type involved.
- There is no logical file view of its contents available from the tape or export application
- There is a 100% dependency on the need for Avamar GSAN storage availability when recovering the contents of a PAX archive file. Due to this dependency, the use of PAX files is discouraged and would not be a wise choice for long-term retention.
- In order to access the contents of a PAX file it must first be imported to Avamar into its GSAN storage (not DD storage) to recover its logical file contents.
- Potential operating system FS size limitations associated with large PAX archive files may come into play. Also, the practical implications when working with very large files.

ADMe Administration Web-UI

The ADMe web-based administration user interface is a graphical management console used to configure and monitor migration policies and administer an ADMe implementation.

The ADMe Job-Activity is displayed at initial log in to the UI, providing at-a-glance information about the current or most recent run status for each available job policy. When exporting to tape using NetWorker, the corresponding Networker metadata details are included for each job entry line.



Networker Meta Data Criteria ADMe captures

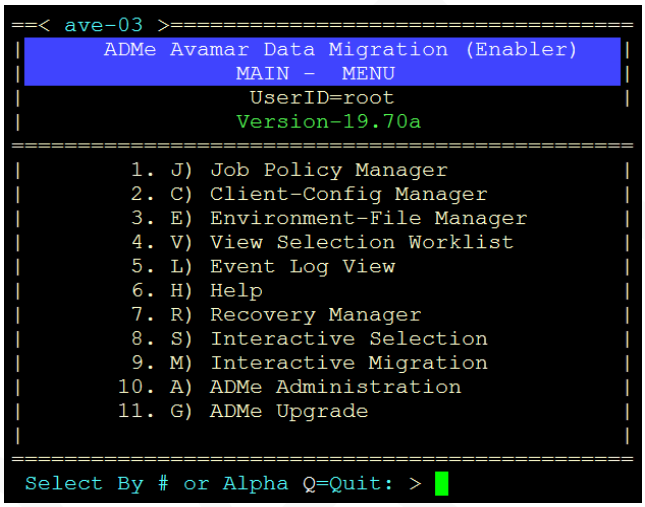
The other tabs are used to view and configure environment files, client groups, job policy definitions and to access the audit mechanism which tracks the chain of custody of all migration activities. The Job Dashboard tab contains links to the ADMe home page KB 000182609 along with access to latest PDF's for ADMe User Guide, Release Notes and ADMe related custom procedures. This KB should be viewed frequently to obtain and apply the latest ADMe upgrades.

ADMe CLI interactive menu UI

ADMe includes a CLI based interactive menu UI for configuration and administration of the ADMe implementation. You must be logged in as root user to use it. This interface contains several options for interacting with ADMe that is not available from the Web-UI and is usually more responsive when multiple interactions are necessary.

The CLI menu is an interactive user interface capable of the following:

- Define and Determine ADMe job policy status
- View and modify client and environment configuration files
- View event and job logs
- Schedule job policies
- Logged in as **root**, type **adme** to open the interactive menu shown here



CHAPTER 2

Installing and Getting Started with ADMe

Installing ADMe software

ADMe is distributed as a .ZIP file and is installed onto an Avamar utility node, single-node system, IDPA or an Avamar Virtual Edition.

Important: ADMe is a no charge utility intended for Dell authorized use cases only therefore all unauthorized use of ADMe is strictly forbidden.

Prerequisites required for ADMe are Korn Shell, mailx and the Avamar system must not be in read-only mode during the installation process.

The mentioned rpm files are available from the following **internal only** KB 000195585

Perform the following preinstallation steps:

1. Verify whether Korn shell is present on Avamar and if not, install the Korn shell.
   - Type **`which ksh`** command to verify whether the Korn shell is present on Avamar.

   The command will return the path to the **ksh** command when installed and if not, the Korn shell is not installed.
   - To install Korn shell, download the Korn shell rpm from the KB link above transferring the rpm to the ADMe install folder **/home/admin/admeadmin**. Once installed, leave the rpm file here for potential future use.

     Logged in as root, issue the following:

     ```
     rpm -ivh <KSH-package-file-name>.rpm
     ```

2. Verify whether **mailx** is present on Avamar and if not, install mailx.
   - Type **`which mailx`** command to verify mailx is present on Avamar.
     The command will return the path to the **mailx** command when installed and if not, the mailx utility is not installed.

     To install **mailx**, download the **mailx** rpm from the KB link above transferring it to the ADMe install folder **/home/admin/admeadmin**. Once installed, leave the rpm file here for potential future use.

     Logged in as root, issue the following:

     ```
     rpm -ivh <mailx-package-file-name>.rpm
     ```

     a. Ensure file **/etc/mail.rc** gets updated to contain the following content which is normally done when doing the ADMe upgrade procedure below:

     ```
     set smtp=customer-smtp-relay-host-name
     ```

3. Leave the **ksh** and **mailx** .rpm files in the ADMe home directory

ADMe Installation Procedure

Latest ADMe installation files are available from the Dell downloads link or to obtain the latest ADMe patch build use ADMe Supplemnatl Material

ADMe Downloads

The following ADMe files are required:

adme-*version*.zip	(contains the .tar file + a README)
or	
adme-*version*.tar	(ADMe core file)
adme-*version*.war	(ADMe Web-UI file)

Note: Only the latest ADMe build will be considered supported and is backwards compatible. It is the end user responsibility to keep their ADMe version updated.

IMPORTANT:

Historically the ADMe home directory was **/atoadmin** on the root filesystem however, going forward starting with ADMe version **19.52** the home path will now be in **/home/admin/admeadmin** located on the /**space** filesystem.

As user root,

Create the ADMe home directory on Avamar utility node and assign the permissions:

```
mkdir /home/admin/admeadmin
chmod 777 /home/admin/admeamin
```

1. Transfer **adme-*versioned*.tar** and **adme-*versioned*.war** files to

   /home/admin/admeadmin

2. Unpack the **adme-*version*.tar** file:

   ```
   tar -C/ -xf adme-version.tar
   ```

3. Open ADMe CLI interactive menu by typing:

   ```
   adme
   ```

   This performs initial setup steps ensuring the required directory structure and Env-1 file are established. Enter q to exit the menu and continue to next step. If this is a net new install of ADMe and **Install Code** will be required which is only available to properly trained Dell PS Delivery specialists.

4. Perform an ADMe upgrade sequence

   ```
   adme -upgrade
   ```

   This will establish key ADMe variables, directory structure and default configuration files

5. The upgrade procedure ensures the latest available versioned Web-UI file is copied to a generic name of **adme.war** and its service started automatically. When required, the following command can be used to start or stop the ADMe Web-UI service as required such as after an Avamar system reboot of the utility node.

   ```
   adme -gui status|start|stop|restart
   ```

IMPORTANT:
If using NetWorker to export migrated backups to tape, you must install the NetWorker 64-bit Linux client agent(s) on the Avamar utility node and should be NetWorker version 19.x or higher. Both basic and extended rpm's are required and the Networker service must be started. For convenience, the install sequence is shown here for NetWorker 9.x and 19.x. Refer to formal NetWorker documentation for any additional details as needed. It is suggested to use the latest supported Networker version.

rpm -ivh lgtoclnt-19.7.0.0-1.x86_64.rpm	(basic agent 19.x)
rpm -ivh lgtoxtdclnt-19.7.0.0-1.x86_64.rpm	(extended agent 9.x)
/etc/init.d/networker start	(start service if version 9.x)
service networker start	(start service for version 19.x)

Any time an export application is used to capture backup data from the staging server to it, the staging server(s) must be a registered file system client to the export application. One exception to this rule is when the export target is to another Avamar, the staging server does not need to be activated to it. Refer to your specific export product documentation for installation and registration steps.

Getting started with ADMe

This section describes information needed to deploy and configure ADMe.

Environment files

An environment file contains a series of variables including the staging server name, assigned staging server's operating system type, Avamar and export application binary paths, mail notification address list, defined temporary workspace details and other operational parameters. An environment file must be defined per unique staging server name or staging server thread name. Establishing additional MCS thread names on a staging server is documented in custom procedure **wthreads.pdf** located in the **/tools** folder or from the ADMe Web-UI Dashboard tab. A given Avamar staging server account name, or MCS thread account name must not be defined in more than one environment file. A staging server must be an activated client to Avamar to the /ADME domain, before being defined to an environment file.

Environment files are simple text files named and referred to using its numerical numbering scheme.

Client group definitions

After creating the environment files, establish client groups by adding individual client names to a user defined group name. Client groups are used to organize and segment the migration workload into manageable sizes and plug-in types.

The quantity of clients in a group is limited only by the practical limitations associated with its aggregate data size. When only one client is to be migrated, it must still be placed in a client group.

A given client name cannot be added more than once to a client group, but a client name can be added to more than one client group. Clients in a given group must share a common plug-in type for example, a group containing Exchange clients should only contain client names which have Exchange backups.

Job policy definitions

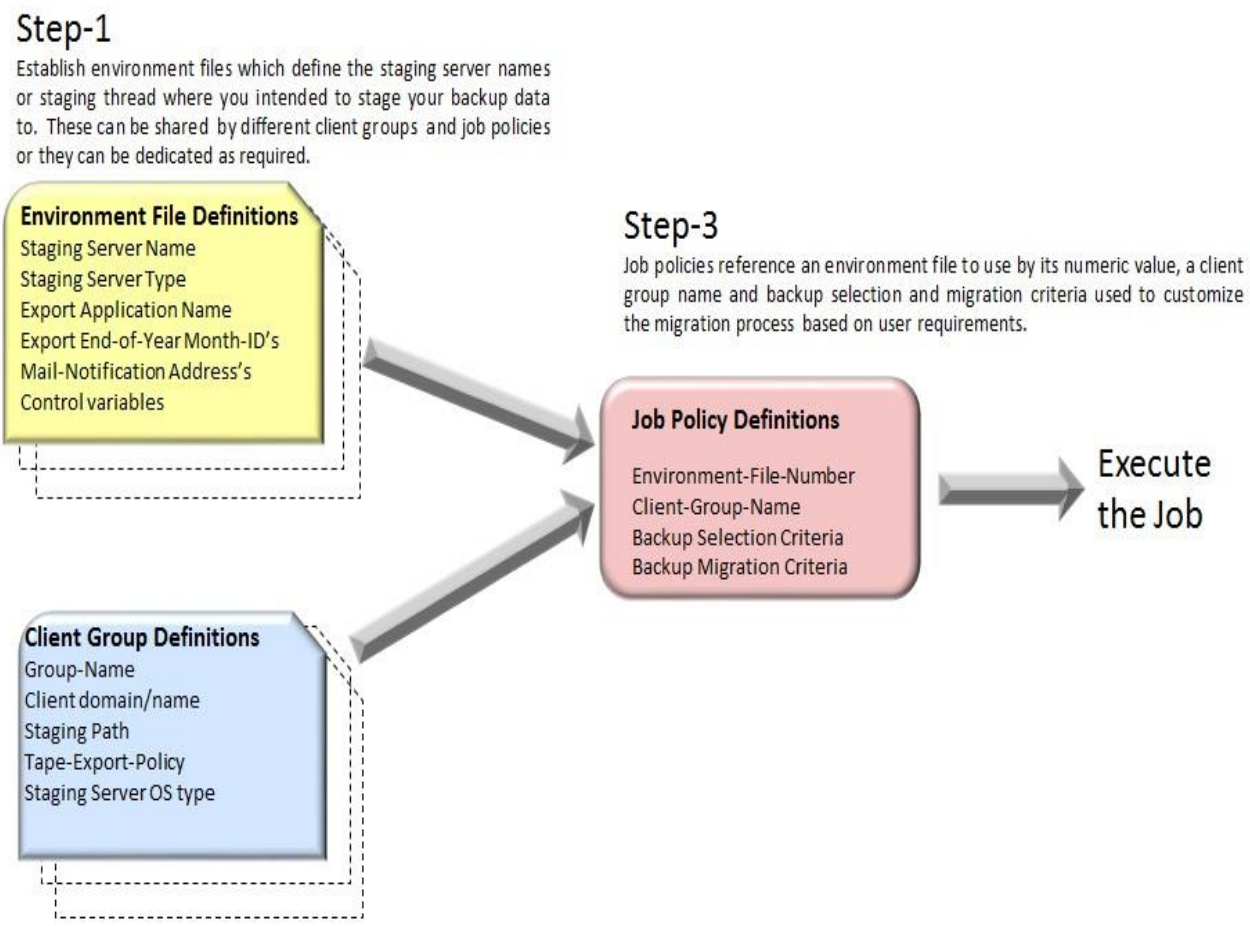
The last configuration step required is to define ADMe job policies which effectively connect the dots by associating a job to an environment file number to use, a client group name to act on along with various parameters used to influence an automate an end-to-end migration.

Job policies contain the following key component references:

- The client group name to act on
- The staging server or MCS thread name to where the data will be staged as referenced using the appropriate environment file number
- Appropriate backup selection and migration criteria

Configuration workflow

The following illustration depicts the configuration components content and how they interact with a job policy to accomplish a migration.



CHAPTER 3

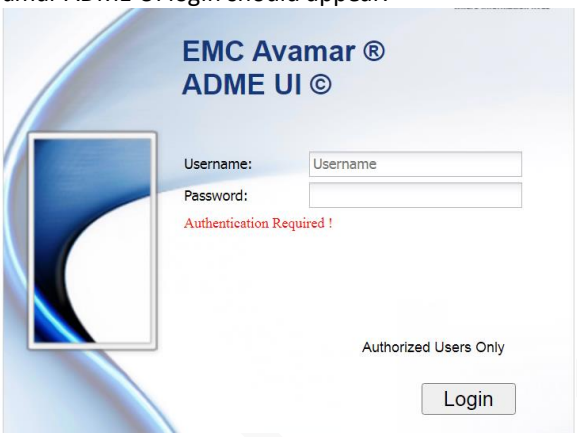
Configure and Use of the ADMe software

Launching the ADMe Web-UI

Launching ADMe Web-UI.

Procedure

1. Open a web browser and type the following URL: **`https://Avamar-server/8888`**
   The Avamar ADME UI login should appear.

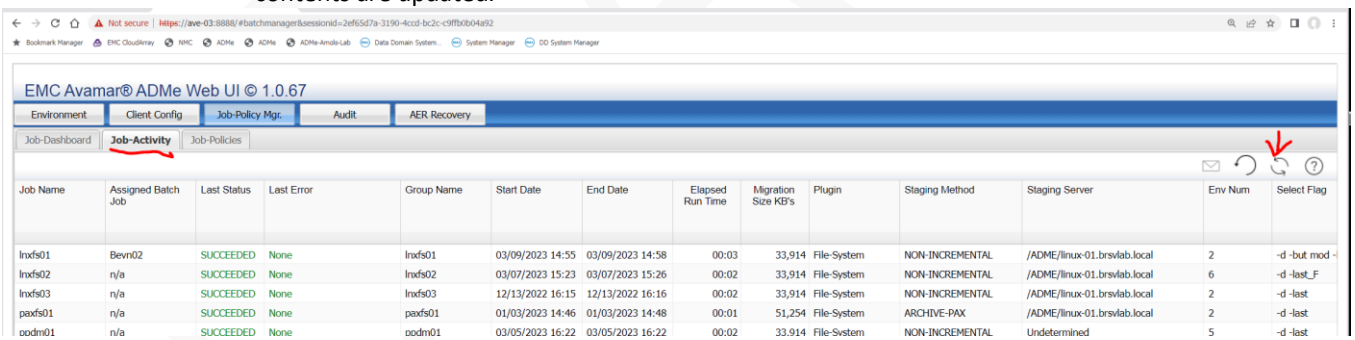


2. Type the username of a local Avamar administrator account in the **Username** field.
   Example: MCUser

- LDAP usernames are not supported
- Stay clear of special characters $@*<>

3. Type the password of a local Avamar administrator account in the **Password** field.
4. Click **Login**.

   Note: The Job-Activity tab will be displayed initially providing at-a-glance information about the current or most recent run status of each job policy. Click on the panel **Refresh** icon to ensure its contents are updated.



Web-UI Service Status

Starting ADMe Web-UI service

1. **`adme -gui status`**
2. **`adme -gui stop | start | restart`**

   Note: When an Avamar utility node is rebooted, this service must be started manually.

Configuring Environment Files

The first step to configuring ADMe is to plan, layout and establish your environment files and updating their key variables with appropriate values. Environment files define the staging server or MCS thread name to use, Avamar and Tape related agent binary paths, the export application and a dedicated temporary workspace which gets defined automatically.

Creating Environment Files

Before creating an environment file the staging server(s) or threads must be activated to the Avamar server, ideally to the /ADME domain.

Important: As part of the ADMe installation process described in Installing ADMe software, Env-1 already has been established but its key variable contents are empty including the staging server name therefore, these must be manually edited and should be done prior to establishing additional environment files. The reason being many values are common across all environment files at a given site and these will be propagated automatically to subsequent environment files to help save you time and promote accuracy.

The following variable names are those which must be manually updated and/or verified for suitability:

BUSERVER_NAME, BACKUPPRODUCTHOMEUNIX, BACKUPPRODUCTHOMEWIN, UNIXSS, or WINDOWSS. Refer to Editing Environment Files.

Environment-20 is also established automatically at installation time but is reserved solely for internal or interactive functions of ADMe. This environment number will not be visible in the Web-UI and should not be modified in any way.

---

1. From the ADMe Web-UI, click **Environment** tab.

   The **Environment** tab is displayed.

2. From the toolbar on the upper right, click the **+** tool.

   The **Add Environment** dialogue appears.

3. Complete the following information:

a. For **Export Server Hostname**, type the full DNS name of the tape application master server, or in the case of an Avamar GSAN to Data Domain migration use case, the target Avamar hostname.

b. For **Export Method**, select one of the following methods:

- For tape-based exports, select the appropriate tape application
- For cloud-based export staged to cloud storage, select **Cloud-GW**
- For Avamar GSAN to Data Domain migration, select **Avamar**
- For Avamar to PPDM, this must be entered from the interactive CLI UI. The Web-UI does not recognize **ppdm** as an available export application.

c. For **Staging Server**, click **Select Staging Server** and choose from the client tree the desired staging server or MCS thread name.

Staging Server OS Type will be detected automatically WINDOWS/UNIX

d. For **Mail To Address**, type a list of destination email addresses separated by a **+** character who are to receive both success and error messages, from jobs assigned to this environment file.

e. For **Error Mail To Address**, type a list of destination email addresses separated by a **+** character who are to receive only error email notifications from jobs assigned to this environment file.

Note: After configurating Environment-1, information from these key variables are automatically propagated when establishing additional environment files. If these default selections are not suitable, they can be manually adjusted after the environment file has been created. Variable name values automatically propagated are as follows:

- **Export Server Hostname**
- **Export Method**
- **Mail To Address**
- **Error Mail To Address**
- **Script Timeout value**
- **AVAMIGRATE variable if it exists**

---

4. Follow through and establish the new environment file, click **Add**.

   Note: Environment files are named and referred to using a numbering scheme. The first environment file is referenced as Environment file-1, the second as Environment file-2, and so on.

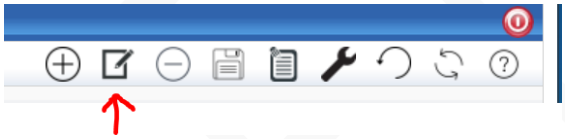
Editing Environment Files

1. From the ADMe Web-UI, click **Environment** tab showing one row for each environment file that exists.
2. Certain columns support a quick inline Edit capability accessed by clicking on a cell value then modifying directly or choosing from its drop-down menu when one exists. To make an inline edit change permanent, press enter then click on the Save tool icon in upper right.

   The following field names may be edited inline:

   - **Export Server Hostname**
   - **Export Method**
   - **Mail Address**
   - **Error-Mail Address**

3. To access all environment file variables, highlight the desired row then click on the Env File Update tool in upper right. A dialogue opens where all variables are visible and can be edited and saved as required.



Deleting Environment Files

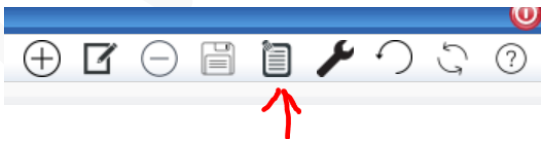
1. From the ADMe Web-UI, click **Environment** tab.
2. Highlight the environment file row to be deleted.

   An environment file will not delete while it is currently assigned to a job policy. The job policy must either be updated to use a different environment number or be deleted or retired.

3. Click the minus **-** tool to delete the highlighted environment file.

Viewing Environment Files Summary Report

An Environment file summary report provides a overview of all configured environment files including the job policy names and their associated metrics assigned to each environment file number.



1. From the ADMe Web-UI, click **Environment**.

   The **Environment** tab is displayed.

2. Click the **View Summary** tool.

   The **Environment Summary** window is displayed.

3. Once the **Summary Report Panel** opens, click (once) on the Mail icon in its upper right corner to receive an email with the report file attached
4. To close the **Environment Summary** window, click **Close**.

Client Group Configuration

Client groups are used to organize and act on selected multiple clients as a group rather than individually. A client group is synonymous to a bucket containing backups of a given plugin type and segments the migration workflow into manageable sizes to accommodate varying staging disk sizes.

Client Group Naming Convention

The use of a meaningful naming convention for client groups is an important and key concept to organizing an ADMe configuration. It is strongly suggested to use the short generic descriptive names below as this scheme scales for multiple groups of a given plugin type by sharing a common base name enabling new groups be added without the names becoming irrelevant. This generic naming approach simplifies ADMe administration considerably.

Client groups containing Windows file system backups

- **winfs01, winfs02, winfs03**

Client groups containing Linux or Unix file system backups.

- **lnxfs01, lnxfs02, lnxfs03**

Client groups containing Microsoft Exchange backups.

- **exch01, exch02, exch03**

Client groups containing Microsoft SQL backups.

- **sql01, sql02, sql03**

Client groups containing Oracle backups.

- **ora01, ora02, ora03**

Client groups containing VMware image backups.

- **vmimg01, vmimg02, vmimg03**

If additional descriptive text is required limit it to three or four characters prefixed to the above names separated using an underscore _ character. The underscore is a reserved delimiter character used by the auto configuration process and must be placed as shown in the examples here. No other non-alphanumeric characters should be used in naming a client group.

- **eng_winfs01**
- **aix_ora01**
- **hr_lnxfs01**
- **shp_vmimg01**

Client Group Limitations

Limitations and considerations to remember when creating and using client groups:

- There are no defined limits to the number of client groups permitted
- There are no defined limits to the number of clients placed in a group other than the practical impact of its resulting aggregate workload size
- A client can be added to any number of groups but defined only once within a given group.
- The staging path location can vary between clients in a group. However, it's not advised to do so when using a tape export application
- Several backup selection filters including **Label Name Filter** and **Retention Tag Value**, can be adjusted on a per client basis within a group intended to customize only when the requirement differs between clients within the same group
- The **Staging Server OS** field setting (UNIX or WINDOWS) must be consistent across all clients within a group.
- Tape/Export policy fields **Monthly Tape Policy**, **Yearly Tape Policy**, and **Server Tape Policy** fields must contain consistent values across all clients within a given group.

Creating Client Groups

1. From the ADMe Administration Web-UI, click **Client Config**.

   The **Client Config** tab is displayed.

2. From the toolbar at the top of the Client Groups panel on the left side of the screen, click the **+** tool.

   The **Create Client Group** window opens.

3. Complete the following:

   a. **Group Name**, type a group name which by default is limited to 10 characters. Do not use any special characters @\/?$&#*(){}|-+^%$!~.
   Refer to CLI Menu **A=Administration** > **A=ADMe-Customize** > **MAXJOBNAMELENGTH=??** to adjust the default max group & job name length variable if required.

   b. **Label Name Filter** optional embedded filter for limiting the backup selection on this client only in cases where more than one backup of a given plugin type is performed and you need to limit which one to select for migration. Enter a unique contiguous and case sensitive string value matching a unique string anywhere within the name field as viewed from the Avamar recovery interface. Refer to the equivalent job policy option -**gname** used to accomplish the same thing but against all clients in a group.

   c. **Retention Tag Value** optional embedded filter used to limit the backups selected on this client only, on a retention tag value. Valid values are **`none`**, **`daily`**, **`weekly`**, **`monthly`**, **`yearly`**, and **`n/a`**.
   Refer to the equivalent job policy option -**rtype** used to accomplish the same thing but against all clients in a group.

   d. **Exclude Files** optional embedded filter used to specify one or more folders or files to be excluded from the staging process on a per client basis. Ful & Partial path names and wild cards can be used. Multiple path names can be specified by separating each using a pipe character. Each individual path name must be encapsulated with + signs.
   Example: +*C:/Program Files/avs/*/var/clientlogs+|+var/update+*
   Refer to the equivalent job policy option -**xdata** used to accomplish the same thing but against all clients in a group.

   e. **Include Files** optional embedded filter used to specify one or more folders or files only to be included during the staging process on a per client basis. Full path names must be specified with includes, and wild cards are not permitted. Multiple path names can be specified by separating each using a pipe character. Each individual path name must be encapsulated with + signs.
   Example: +*C:/Program Files/avs/var/clientlogs+|+C:/Program Files/avs/var/update+*
   Refer to the equivalent job policy option -**data** used to accomplish the same thing but against all clients in a group.

   f. For **Staging Path**, specify the path on the staging server file system where data is to be written to. Each client within a group must share a common staging path when exporting to tape. Never stage data to the root directory of any mount point and accept the default top level folder /ADME.
   Note: Always use forward slashes regardless of whether the staging OS is Unix/Linux or Windows

   g. **Staging Server OS**, select the operating system, must be WINDOWS or UNIX determined automatically from the first two characters of the staging path.

   h. **Destination Path Suffix**, optional staging path suffix which is automatically inserted between the final staging path and the actual data files being staged.

   i. **Monthly Tape Policy** a tape policy name called automatically for **client-initiated** tape exports which can be on a basic tape client or the master tape server. For NetWorker, this field content will by default refer to a Networker Group Name connected to required staging client resource(s) where each contains appropriate save set path definitions and savefs command will be used. Alternatively, it can refer to a Networker pool name and the Networker **save** command

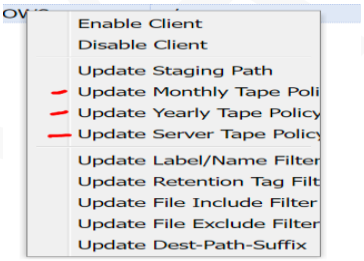
would be used rather than **savefs.** The command used is determined within a job policy migration field by specifying -**nwksave** option or not (refer to Server Tape Policy below). When using a pool name, it's not a requirement to define the specific save set values. The default value will contain the group name of **ADME_Full**.

j. **Yearly Tape Policy** an optional tape policy name called in place of the usual **Monthly Tape** or **Server Tape Policy** field values determined from the **End Of Year** variable value defined in the environment file being used. If the **End Of Year** variable contains 01,06, then the value in this field will be used in the months of January and June, while the value in **Monthly Tape** or **Server Policy** fields will be used all other months. This supports having an automated end-of-year backup whose retention value on tape differs from the other months of the year. A sample entry might be as follows representing the NetWorker group name **YADME_Full** or a workflow syntax call **–p ADME –w Ywinfs01** for **server-initiated** backups.
The default value will contain a workflow formatted syntax conforming to the recommended naming convention as shown above. The upper-case **Y** indicates it's a Yearly named workflow.

k. **Server Tape Policy** a tape policy name called automatically by **server-initiated** tape exports**.** It must contain syntax compatible with being initiated from the tape master server versus a basic tape system client. The trigger for using this field is the **-server** option being present within a job policy in its migration field which is the preferred and the default when using the ADMe Web-UI. A sample entry would be as shown here representing a NetWorker workflow call -**p ADM -w winfs01**. The default contain a Networker workflow formatted syntax conforming to the recommended naming convention as shown above.

l. Click **Add Group** to save.

Important: Items **i, j** & **k** above refer to the three available tape export fields which will be updated automatically when the client group is created. Their contents will contain default, but appropriate Networker syntax based of the ADMe client group name specified and should not be overridden.



Adding clients to an existing client group

Use this procedure to add clients to an existing client group.

Note: It is not supported for a given client name to be in the same group more than once however, a client name can be present in more than group.

When a client is added to a group, it automatically inherits various field contents from the previous client entry already present in the group. If a field such as an embedded filter has been customized, you must ensure these previous settings are appropriate for the newly added client(s). In particular, embedded filters are intended for a specific client only and you may need to adjust a fields content back to n/a if not applicable.

Procedure

1. From the ADMe Administration Web-UI, click **Client Config**.

   The **Client Config** tab is displayed.
2. Highlight an existing client group name in the left pane.

   The existing client entries for the selected client group are displayed in the right pane.
3. From the toolbar on the upper right, click the **+** tool.

   The **Add Clients** window opens.
4. In the **Add Clients** window, browse the client tree and select each client to be added to the group.
5. Click **Select** when complete to add the selected clients to the group.

Deleting clients from a client group

Procedure

1. From the ADMe Administration Web-UI, click **Client Config**.

   The **Client Config** tab is displayed.
2. Highlight an existing client group name in the left pane.

   The existing client entries for the selected client group are displayed in the right pane.
3. Select an existing client entry from the table in the right pane. Multiple clients can be selected by pressing and holding the Ctrl Key.
4. From the toolbar on the upper right, click the **-** tool.
5. To confirm deletion, click **Yes**.

Disabling clients in a client group

Disabling a client is intended as a temporary means to prevent a client name being included in the migration process while it remains defined to the client group.

Procedure

1. From the ADMe Administration Web-UI, click **Client Config**.

   The **Client Config** tab is displayed.

2. Highlight an existing client group name in the left pane.

   The existing client entries for the selected client group are displayed in the right pane.

3. Select an existing client entry from the table in the right pane.
4. Right click and from the context menu displayed, choose Disable Client and note the Status column will show it as being disabled in RED. To reenable, right click and choose Enable Client

Deleting a client group

Use this procedure to delete a client group

1. From the ADMe Administration Web-UI, click **Client Config**.

   The **Client Config** tab is displayed.

2. Select a client group from the list in the left pane.
3. From the toolbar at the top of the Client Groups panel on the left side of the screen, click the **-** tool.
4. To confirm the deletion, click **Yes**.

Calculating the aggregate size of a client group

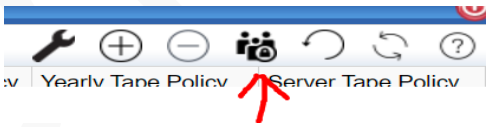
Calculate the aggregate size of a client group for purposes of confirming whether it will fit its assigned staging disk capacity.

1. From the ADMe Administration Web-UI, click **Client Config**.

   The **Client Config** tab is displayed.

2. Select a client group from the list in the left pane.
3. From the toolbar on the upper right, click the **Check Group size** tool.

   The **Group Size Check** window is displayed.



4. To close the **Group Size Check** window, click **Close**.

Configuring and using job policies

Job policies coordinate the end-to-end migration process controlling each phase of the workflow involved. They facilitate repeated migrations on a scheduled basis, or they can be initiated manually as required.

Job Policy Types

- **Standard** policies perform the actual migration workflow
- **Batch** policies are used to schedule a series of **Standard** policies in sequence to a common migration thread or environment number.

Creating Standard job policies

Standard job policies perform the actual migration process, while Batch policies are used to automate scheduling a series of Standard policies sequentially. Use this procedure to create a Standard job policy.

Procedure

1. From the ADMe Administration Web-UI, click **Job-Policy Mgr**.

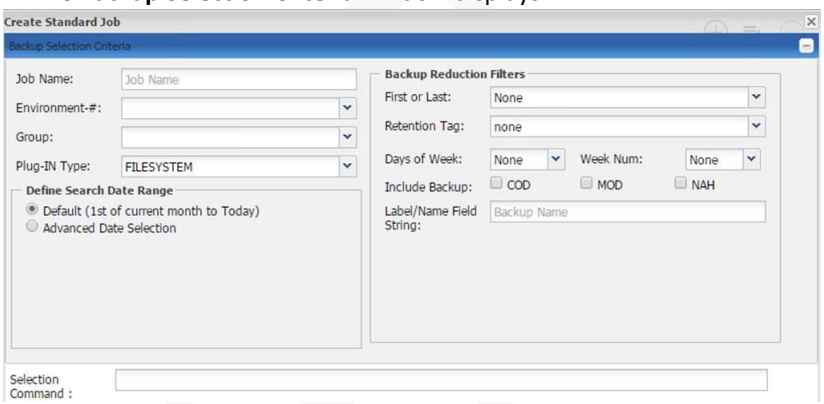
   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.

2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.

3. From the toolbar on the upper right, click the **+** tool.

   The **Backup Selection Criteria** window displays.



4. Complete the following mandatory field values as required.

   a. **Job Name**, type a job name, limited to 10 characters. Do not use special characters such as @^\$&#*(){}|<>. The convention is to name a job the same as the client group name it will act on.

   b. **Environment-#**, select the number of the environment file defining the staging server this policy will use. Environment numbers should be logically allocated based on a staging path for example, Drv-E to Env-1, Drv-F to Env-2

   c. **Group,** choose the client group name this policy will act on.

   d. **Plug-in Type**, choose the appropriate plug-in this policy will act on.

Note: When migrating a database application plug-in, ensure to migrate only full backups. Use the Label/Name Field String to refine the selection filter based on a unique contiguous case sensitive string value associated with the desired backup in its name field to ensure only full backups are selected. View the string from Avamar Recovery UI under the Name column field.

---

   e. **First or Last**, filter backup selection on either the first or last backup within the search date range. This is preferred versus filtering on a retention tag value.

   f. **Retention-Tag**, filter backup selection based on a retention tag value.

   g. **Days of the Week**, filter backup selection based on a specified day of the week.
   The **Week Num** field is used to limit the selection from a particular week during the month.

   h. **Include Backup**, adjust backup selection process to include on-demand backups as well as the default of scheduled backups

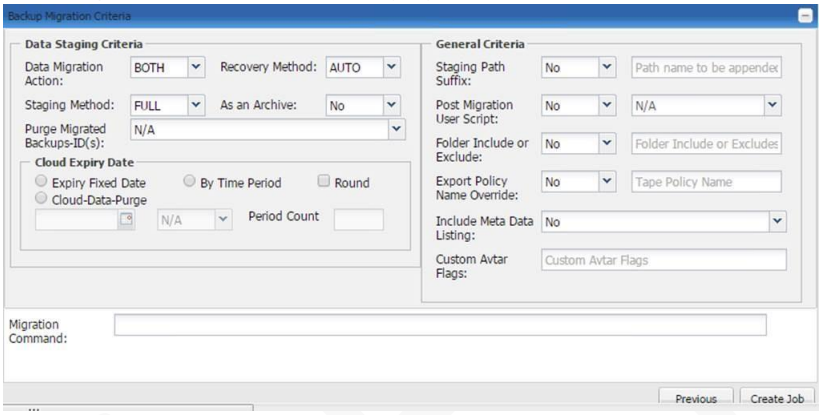
      - COD are on-demand backups that are initiated from the client

- MOD are on-demand backups that are initiated from the Avamar Administrator.
- NAH are naked Ad Hoc backups.

i. **Label/Name Field String**, used to limit the selection of backups to those whose label name field as viewed from the Avamar Admin Recovery GUI matches the case sensitive string value passed here and used as a filter. Normally the label (name) field contains the Avamar group and schedule name strings but can also contain a user-defined label value.

5. Click **Next** to open a new dialogue for the Data Migration criteria input.

Data Migration Criteria window display



6. Complete the following information:

a. **Data Migration Action**, select the migration actions the job is to perform.
The staging phase, Export phase or both. The default behavior is to perform BOTH phases. There are circumstances where it may be desirable to perform only the staging or tape export phase, but not both.

b. **Recovery Method** the value here is determined automatically and normally should not be modified.

c. **Staging Method**, determines whether the job should stage the data non-incrementally or incrementally. The default is to use FULL which is (non-incremental). Refer to the definition and behavior of how the `-inc` option behaves prior to using this option.

d. **As an Archive**, determines whether this job is to stage the backup data to an archive which can be either .**tar** or .**pax** file format. The use of archive files requires a Linux staging server be used. Tar archives are supported only for Unix/Linux file system backups.

e. **Purge Migrated Backups-ID(s)** determines whether to automatically purge the migrated backup IDs from Avamar. Lowercase **-purge** verifies an export or tape backup has completed successfully prior to purging a backup ID from Avamar. Uppercase **-PURGE** purges the backup ID once it has been successfully staged only. This option should be used with caution and only when old or historical data is being migrated.

f. **Cloud Expiry Date** provides a visual intended expiry date folder when migrating to cloud storage. The visual aspect enables you to view and manually delete folders according to their planned retention period without dependencies on ADMe or Avamar. This function relies on a keyword EXPIRE being present somewhere within the client group staging path definition. Then, based using the Cloud Expire option, the keyword will automatically be converted into a YYYY-MM-DD format corresponding to the time you specify. The keyword can be preceded with a comment such as Expire-Date-EXPIRE or Purge-Date-EXPIRE for clarity

The following control variables are used to define the desired retention period.

- **Expire Fixed Date** specifies a planned expiry date using the calendar.
- **By Time Period** calculate the planned expiry date based on the number of **days**, **weeks**, **months**, or **years** chosen.
- **Round** rounds of the date to the 1st of the last+1 month calculated
- **Could Data Purge** provide a semi-automated deletion process against an eligible expiry folder on a CIFS share. When using this option, you must assign a client group which must be one that stages to the staging server and environment number specified, the selection criteria must be left empty. There are conditions where Windows permissions prevent the deletion process from being 100% successful and manual intervention may still be required to complete the deletion process. If this condition arises it will be reported in the job log. This option was initially created for Cloud Boost MAGFS agent which has since been deprecated.

g. **Staging Path Suffix**, used to insert a user defined folder name immediately prior to where the backup data will be staged to

h. **Post Migration User Script**, a user-defined script name to be called immediately after an export or tape backup completes successfully. The script must reside on the staging server in the Avamar agent install folder **avs/etc/scripts**. On Windows, the script file name must conform to 8.3 name format. A common use case is to ensure the staged data is removed reliably from a Windows staging server and for this, predefined scripts are available to quick format a specified Windows staging drive letter with syntax **-upst FORMAT-?** Where **?=**the intended staging drive letter for which supported values are E through Z.

Note: If the drive letter chosen to be quick formatted does not match the staging drive l letter assigned to this job, a warning will be shown in the job log and no quick format will be issued.

With Unix and Linux staging servers, staged data deletion is accomplished using an **rm** command therefore no custom script is typically needed.

i. **Folder Include or Exclude**, used to include or exclude top level folders from a backup limiting the staged workload accordingly. Type the folder(s) case sensitive name to be included or excluded along with wild cards if needed. The Web-UI supports a single call of either however, multiple calls can manually be entered in the Migration Command area. This option when specified here, will pertain to all clients in the client group involved. Refer to embedded filters from the **Client Config** tab to limit the behavior to intended client names only.

j. **Export Policy Name Override**, the monthly or server-initiated tape policy syntax values by default are defined within a client group and normally used. This option is reserved to override the client group value in unique scenarios where a given client group requires multiple export or tape policy requirements.

Rather than establishing multiple client groups containing the same client names, it's usually simpler to establish a few additional job policies customizing each using this option. The primary use case for this is when ADMe is being used to migrate from an Avamar GRID to one with Avamar/DD and store the migrated backups on the DD. The need for the multiple job definitions is pass criteria such as the retention value of the data migrated to the target system DD.

k. **Include Meta Data Listing**, provides a catalog-like listing of the contents of an archive .**tar** or **pax** file. This much smaller file can easily be reviewed prior to retrieving the much larger archive from tape or cloud storage to verify its contents contain the needed files. This option is intended to be used with respect to archive

files only but if using with other migration types, you must override the jobs **Recovery Method** setting by choosing -**avtar**.

l. **Custom Avtar Flags**, pass any additional avtar flags to influence a recovery as opposed to placing them into an **avtar.cmd** file on the staging server. For example, by default a Windows file system restore does not include files with the Windows system attribute assigned. If these files are required, pass the required avtar flag `here restoresystem`. Do not include any preceding hyphens since they are inserted automatically.

m. **Migration Command** field echoes the required syntax of the various options you've chosen interactively. This field can be viewed, edited, and used to manually include ant ADMe options not available within the Web-UI wizard.

7. Click **Create Job**.

Editing standard job policies

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.

2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.

3. Field values of a Standard job policy definition can be edited directly from the table view by clicking on the cell to be edited.

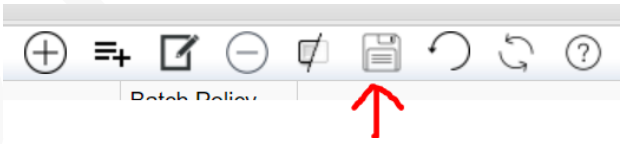
   The following fields are editable: • Backup

   Selection Criteria • Backup Migration

   Criteria • Client Group name

   • Thread Number

Note: To edit fields other than those listed, you can use the CLI interactive menu UI or delete the job and recreate it. Once a field is edited, a red triangle will appear in the upper left corner of the cell implying the update has been accepted but to make it permanent, you must click on the Save tool to save and clear the flag.



Creating Batch job policies

A Batch job act like a script file by calling a series of Standard policies sequentially until all have been processed. This simplifies scheduling since only the Batch is scheduled and it in turn initiates the Standard jobs it contains thereby eliminating conflicts resulting from environment file lock conditions. Given the assigned Standard polices are processed sequentially, it is mandatory for the Batch to contain only Standard policies which share a common environment file number.

Procedure

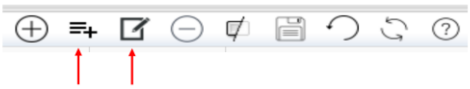
1. From the ADMe Administration Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.

2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.

3. From the toolbar on the upper right, click the **Add Batch Job** tool.



   The **Create Batch Job** dialogue displays.

4. Complete the following information:

   a. **Job Name**, type a name for the Batch job conforming to this naming convention. **Benv1, Benv2 Benv3**, and so on for each environment number involved.

   b. **Fail Action**, determines how a Batch job should react in the event a Standard job it calls fails during its export phase which by design will leave its staged data on the staging disk allowing the user to retry its export phase without having to restage the associated data. An action of STOP prevents the Batch job from initiating its remaining jobs as the assumption is they're all using a common staging area.

   A Fail Action of CONTINUE, is only used when all its Standard jobs are configured to use incremental staging based on the assumption these jobs would require their own dedicated staging space. Another possibility is when the data is being staged to cloud storage as it is effectively infinite space.

   c. **Standard Job Names** choose the standard jobs names to be assigned to the Batch job based on their assigned environment thread number shown in the square brackets. To include multiple Standards, press and hold the Ctrl key highlighting each job you wish to be assigned.

5. Click **Create Batch Job**.

Starting job policy on demand

Use to start job policies on an as need basis. Either standard or batch policies can be started using this procedure.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab displayed.

Note: Standard jobs can also be started from the Job Policy tab. Batch jobs can ONLY be started from the Job Policy tab.

---

2. Highlight the row of the job policy you want to start.

3. Right-click and choose **Start Job**
4. An interactive dialogue will open providing the following options against a Standard job. If starting a Batch job, you must choose Both.
   - staging and export phases (Both)
   - staging phase only
   - export phase only

Scheduling job policies

Use to schedule job policies to be run automatically at a scheduled date and time.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is opened with the **Job Activity** tab content displayed.
2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.
3. Highlight the row with the job policy you want to schedule
4. Right-click and select **Schedule-Enable.**

   The **Cron Parameters** dialog box appears.
5. Complete the following information:

   a. **Time**, type or select the time of the day the scheduled job is to start using an HH:MM format.

   b. **Date**, type the day of the month the job is to start, allowed values are 1 to 31. An asterisk can be used as a wild card implying a job can run on any day or month determined by the **Month** and **Day** combination used. Multiple dates can be included, using one of the following formats:
      - d1+d2...+dn. For example, a value of 1+15 runs the job on the first and fifteenth of the month.
      - d1-d2. For example 1-7 runs the job on each of the first seven days of the month.
      - A combination of both mechanisms. For example, 1-7,15 runs the job for each of the first seven days of the month then again on the 15th.

   c. **Month**, type the month of the year the job is to start, allowed values are 1-12. An asterisk can be used as a wild card implying the job is to be run every month assuming the **Date** value can be fulfilled. Multiple nonconsecutive months could be accommodated with the following formats:
      - m+m2...+mn. For example, a value of 1+4+8+12 runs the job in the months of January, April, August, and December only.
      - m1-m2. For example, `2-12` runs the schedule every month except January.
      - A combination of both mechanisms. For example, `1-3+10-12` runs the schedule for January, February, and March, and again on October, November, and December

   d. **Day**, type the day of the week the job is to start on, allowed values are 0-6, where a 0 corresponds to Sunday.

   An asterisk indicates that the job is run on any day of the week as determined by the **Date** and **Month** settings before. Multiple nonconsecutive days can be accommodated, using one of the following formats:
      - d1+d2...+dn. For example, a value of `5+6+0` runs the schedule on Friday, Saturday, and Sunday.

- m1-m2. For example, `1-3` runs the schedule on Monday through Wednesday.
- A combination of both mechanisms. For example, `1-3+6` runs the schedule on Monday through Wednesday, and on Saturday.

6. Click **Save**.

Note: Not all scheduling scenarios can be accommodated using CRON syntax. For example, if the need was for a job to be scheduled the first Friday of each month in an automated fashion, CRON will not suffice. The **admesched.sh** tool available under the /tools folder along with a corresponding pdf document explaining its use, which can be used to overcome this scenario. The /tools folder contents and related pdf's can be accessed directly from the Web-UI Dashboard subtab.

Disabling job schedules

Used to disable an already scheduled job policy, both Standard and batch policies can be disabled using this procedure.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.
   Job Policy Manager tab is displayed with the **Job Activity** tab content displayed.
2. Click **Job-Policies** subtab.
   The **Job Policies** subtab content is displayed.
3. Right-click and select **Schedule-Disable**.
4. To confirm the job scheduled should be disabled, click **Yes**.
   The job schedule can be re-enabled using **Schedule-Enable** and it will retain its scheduling parameters as they were prior to it being disabled.

Removing job schedules

Used to remove a job entry from the scheduler. Once a job has been removed from the scheduler, to reschedule you will need to re-add it using appropriate date and time parameters. Both Standard or Batch job types can be disabled using this procedure.

Procedure

1. From the ADMe Administration Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.
2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.
3. Right-click and select **Schedule-Remove.**

   The scheduled policy is subsequently removed from the schedule

Modifying job schedules

Use this procedure to modify the existing schedule time for job a policy. Both Standard and Batch job types can be adjusted using this procedure.

Procedure

1. From the ADMe Administration Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.
2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.
3. Right-click and select **Schedule-Modify**

   The **Cron Parameters** window displays.
4. Modify settings in the **Cron Parameters** window and click **Save**.

Canceling an active Standard job

This procedure pertains to canceling an active Standard job.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** tab is displayed with the **Job Activity** tab content displayed.
2. Highlight the row of the running job name that you want to cancel.
3. Right-click and select **Cancel Job**.

   The **Cancel Confirmation** window appears. This window explains the implications of canceling an ADMe job and it should be read, understood and abided by prior to continuing.
4. In the **Cancel Confirmation** window, type a reason for the cancellation and click **Yes**.

   It may take several minutes for the job to cancel.

Canceling an active Batch job

This procedure pertains to canceling an active Standard or Batch job and is the preferred approach to cancel ADMe job as it provides more detail on the cancel operation progress versus when done from the Web-UI.

Procedure

1. You must use the CLI interactive menu UI to cancel a Batch job
2. Login via with an SSH session (Putty) to Avamar utility node and elevate your user-id to root
3. Type adme to open the interactive CLI menu UI
4. Enter option **J** to open the Batch Manager which is similar in functionality to the Web-UI Job Activity panel.
5. Identify the active **job#** you wish to cancel
6. Enter **C** to display the cancel dialogue
7. Enter the **job#** you wish to cancel
8. Answer **Y** to the prompt

Viewing a job log summary

Use this procedure to view an abbreviated overall view of a job's completion status.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.
2. Highlight the row of the job name for which you want to view its log summary,
3. Right-click and select **View Summary**.

   The **Log** window appears the job summary only.

Viewing full job log contents

Use this procedure to view a complete job log.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.
2. Highlight the row of the job name for which you want to view the log.
3. Right-click and select **View Log**.

   The **Log** window appears with the job log content displayed.

Viewing a job's history

Use this procedure to view the history of a job policy.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.
2. Highlight the row of the job name for which you want to view its history.
3. Right-click and select **View History**.

   The **Job History** window appears. The history of all past executions for the job policy are displayed.

Deleting a job policy

Use to delete a job policy.

Procedure

1. From the ADMe Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.

2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.

3. Highlight the row of the job policy name you want to be deleted.
4. Click the **-** tool to delete the job policy.

Note: Deleting a job policy will remove the policy definition, its associated runtime log, its historical logs, and remove the job from the scheduler if enabled there.

Retiring a job policy

Use to retire a job policy which is like deleting however, all relevant files pertaining to it will be saved to the /retire folder for future reference or reinstatement.

Procedure

1. From the ADMe Administration Web-UI, click **Job-Policy Mgr**.

   The **Job Policy Manager** window is displayed with the **Job Activity** tab content displayed.

2. Click **Job-Policies** subtab.

   The **Job Policies** subtab content is displayed.

3. Highlight the row of the job policy name to be retired.
4. Right-click and select **Retire Job**.

Note: Retiring a job will remove the policy definition from the UI, its associated runtime log, its historical logs, and will remove the job from the scheduler if configured. A retired job can be reinstated by manually moving their associated files from the /retire folder back to their appropriate folder locations.

Audit details of all migrations

An auditing mechanism is available to track each migration session including each staging and export phase.

Procedure

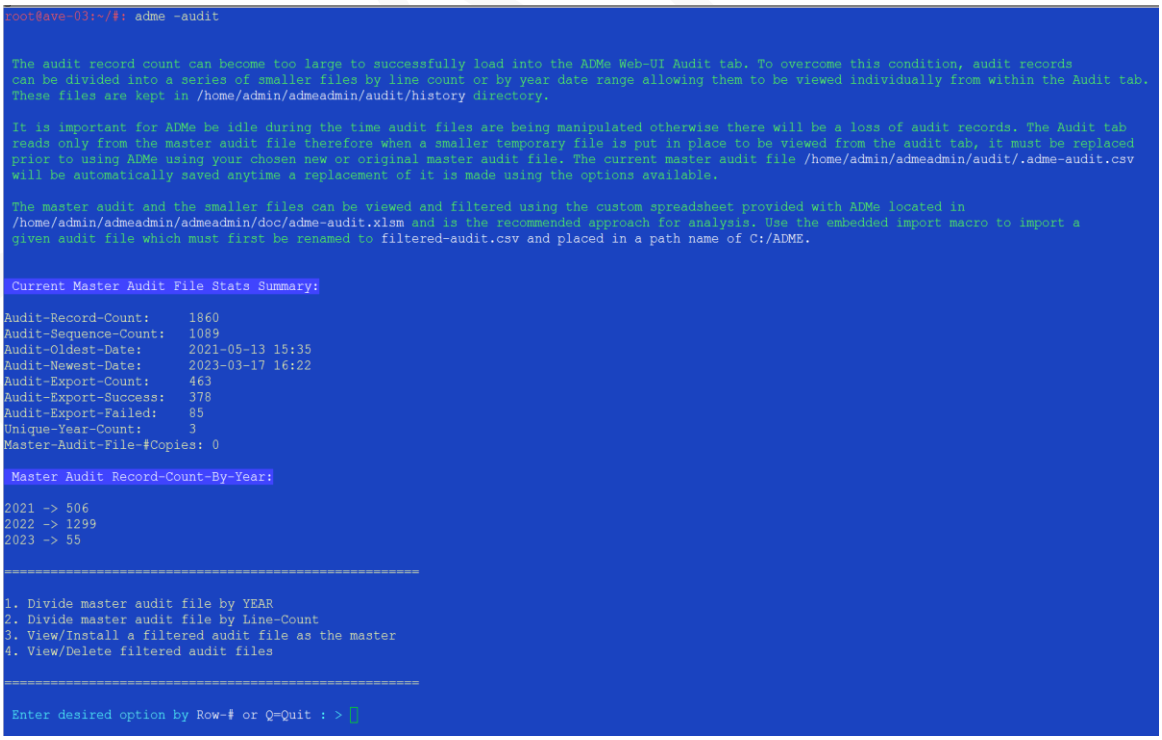
1. From the ADMe Administration Web-UI, click **Audit**.
   The **Audit** tab is displayed, and audit records content are displayed.

2. For information about each column in the Audit tab, click and review the online **Audit Help** tool available from the Audit tab in the Web-UI.

   Note: Audit records are retained in a .csv file which can grow excessively large over time. The Audit tab in the Web-UI does not currently support paging when viewing its contents and will display all available lines which can result in a sluggish display and in some cases, it may not load at all.

   To manage the master Audit file size, the **adme -audit** command is available at the CLI enabling you to break up the master audit file contents into series of smaller files based on user input of date range and/or line count. The resulting smaller files can then be pre-loaded individually to the master audit file and subsequently viewed in the Audit tab normally. Once you are done viewing, the most current smaller file must then be copied to the master audit file to be used and appended to going forward.

   The -**audit** command performs all the above-mentioned actions; you do not need to manipulate individual files. This command must only be used while ADMe is idle, otherwise there is a risk of losing audit records.



Recovery Procedures

All recoveries from a migrated backup, whether from tape or cloud storage regardless of their plug-in type, are performed at the file/folder level using the tape applications recovery UI or copy/past from a cloud staging target.

If using a tape export application, file level recoveries can be directed to the original staging server or to a compatible target client registered as such to the export application.

Database application plug-in migrations may require additional processing after their files have been recovered from tape or cloud storage to make the data files usable to the database application.

The following section outlines requirements and processes involved.

- File system data can be browsed and recovered at the file level directly to the desired location or moved to a location from a staging server via operating system tools such as CIFS, NFS, or other file transfer protocols.
- NDMP data can be recovered at the file level directly to its staging server and from their moved to the desired NAS location via using operating system tools such as CIFS, NFS, or other file transfer protocols.

  ADMe leverages an Avamar feature for NDMP backups which allows it to be recovered to foreign file system such as Windows, Unix or Linux. A limitation when using this process with Windows files dependent on an extended file attribute, the file is recovered but its extended attributes is not. This impacts files compressed or encrypted using Windows OS features and they cannot be successfully recovered. This limitation doesn't pertain to third party compression or encryption tools such as gz, tar, WinZIP etc.
- Lotus Notes data is recovered at the file level directly to their desired location or moved to a location from a staging server via operating system tools such as CIFS, NFS, or other file transfer protocols.
- SQL data is migrated and recovered from tape as flat file named **`f-0`** for each database involved in the migration. The file is formatted the same as a regular SQL dump file and to use it, must be imported as a SQL database. Follow the same procedures used to import any SQL dump file.
- Hyper-V VSS backups are recovered as a collection of client image level files containing the Hyper-V server backup. The recovered files can be copied into their desired location.
- SharePoint VSS backups are recovered as a collection of flat files including the SQL databases. These recovered files can be copied into their desired location but are not ideal in performing a complete disaster recovery of a SharePoint farm.

Recovery from Microsoft Exchange VSS migrated backups

Depending on the approach used to stage the backup, using avexvss CLI (the default) or optionally avtar the recovery approach will vary. With the avexvss CLI the backups must be staged to an Exchange Server and the transaction logs will be replayed at the time of staging with only the EDB files being migrated to tape. In this case the EDB file should be in a clean shutdown state and ready to use.

When using the avtar approach by adding migration option -**avexvssavtar,** the transaction logs are not replayed at the time of staging the backup however, the transaction logs are included with the EDB's and migrated to tape to be manually replayed as required.

During the staging phase to a properly configured staging server, all associated transaction logs contained within the backup are applied to the EDB files thereby, bringing the EDB file up to date to the point-in-time of the original Avamar backup. If the process of applying the transaction logs fails, the migration will be considered failed.

To recover and use a database, place the EDB file in a temp folder of recovery RDB or to the original production database (not recommended) and mount it. Properly dismount the existing database and move it and its related files to a safe location as needed.

To recover individual mailboxes/items, establish an RDB pointing it to the temporary location of the recovered EDB file and mount it to be used by Microsoft RestoreMailbox powershell cmdlet to restore items.

Refer to the following links for more detail:

- http://technet.microsoft.com/en-us/library/ee332321.aspx
- http://technet.microsoft.com/en-us/library/bb125218.aspx

You can also use tools such as Dell EMC ItemPoint for Exchange to mount the EDB file and perform granular recovery of individual mailboxes/items, as described in the Avamar for Exchange VSS User Guide. 3rd party tools such as Kroll also have similar products. These tools do not require a working and compatible Exchange instance in order to extract from an EDB file.

Recovering from VMware image migrated backups

WMware image backups are migrated as a series of flat files including the VMDK files. These files can be imported back to vCenter to reestablish them as a VM client or the VMDK content can be accessed directly in order to browse and recover their file and folder contents from them directly. These processes are discussed in further detail below:

Procedure

1. To extract from a VMDK file directly, first recover the desired VMDK from the export application or cloud storage to a local staging area. Use third-party tools such as WinZip, 7-Zip or Power ISO http:// www.poweriso.com/tutorials/open-vmdk-file.htm. to access the VMDK file involved to browse files and folders within the VMDK and extract them as needed.
2. To recreate a complete VM client in ESXi, recover the VMimage backup files from your export application or cloud storage to a local staging area and perform the file rename & update steps 3-6 below. Then choose one of the file transfer approaches to transfer your files to a VMware datastore.
   - Mount a datastore to the staging server via NFS and direct the tape recovery to a datastore file system. This method will eliminate the subsequent transfer times to move the files from local storage to a datastore.
   - Enable SSH on the ESX server and use **scp** to upload the folder/files from the staging area you used.
   - In vpshere client: Identify the datastore you want to place your recovered vm on then use vpshere datastore file browser, to upload the files from your folder.
   - Use VMconverter tool to import the image data back to ESXi pointing it to the directory where the renamed and adjusted files are located
3. Move the recovered files to a common folder on the same disk you recovered them to. Use a MOVE not a COPY as vmdk's can be large.
4. Rename vm.vmx, virtdisk-flat.vmdk, virtdisk-descriptor.vmdk to match the proper name of the VM client.

   Example: *restoredvm*.vmx, *restoredvm*-flat.vmdk, *restoredvm-descriptor*.vmdk

   Note: When a VM contains more than one disk, you must follow the VMware naming convention for hard disks where the 2nd disk *_1, 3rd* disk _2 etc.

   Example*: restoredvm*-flat.vmdk, *restoredvm*_1-flat.vmdk, *restoredvm*_2-flat.vmdk for the 3rd disk etc.

5. Review file *restoredvm.vmx* file contents in a text editor and ensure the hard disk path definitions match those to your renamed files updating as necessary.

   For example,
   - Before editing the file reads:

   ```
   scsi0:0.fileName = "vmname.vmdk"
   ```

a After editing:

   ```
   scsi0:0.fileName = "restoredvm.vmdk"
   ```

6. Review file *restoredvm.vmdk* file contents in a text editor and ensure the hard disk path locations match those of your renamed files and edit accordingly. For example,
   - Before editing the file reads:

   ```
   # Extent description
   RW 32768 VMFS "vmname-flat.vmdk"
   ```

a After editing:

   ```
   # Extent description
   RW 32768 VMFS "restoredvm-flat.vmdk"
   ```

   where *restoredvm* is the client name of the recovered VMware client.

7. Once the files have been updated and successfully transferred to the datastore, register the VM within the **Datastore Browser** by right-clicking on the recovered `.vmx` file then choose **Add to Inventory**.

Recovering from Oracle RMAN migrated backups

The migration of scheduled RMAN backups result in the backup pieces including the control file being staged as flat files and exported to tape or cloud. When recovering from tape, place these backup file pieces and control file into a common folder on the staging server. The files are not usable to ORACLE directly, they must be re-ingested back to Avamar using a custom flag file to reestablish it as a new ORACLE backup.

RMAN relies on the Oracle SBT library which third-party backup tools including Avamar must adhere to. Recoveries of RMAN backup also relies on the SBT library hence the challenges of using the migrated flat files directly and the need to re-ingest them into Avamar.

Once the custom re-ingest process completes, documented RMAN recovery procedures can be used to perform the Oracle DB recovery from it.

Procedure

1. Ensure that a compatible version of the Oracle software is available to establish a test database named DBTS1.
2. To receive the recovered files, create an appropriate subfolder, for example **D:\ADME_restore\11g\DBTS1**
3. Recover the migrated backup files to the subfolder. For example, **D:\ADME_restore\11g\DBTS1**
4. Create a custom flag file named **myflags.txt** in **D:\ADME_restore**.
   The file must conform to the following example:

```
--freezemethod=none
--pidname=Oracle
--pidnum=pidnum
--logfile=C:\Progra~1\avs\var\admeoracle.log
--vardir=C:\Progra~1\avs\var
--id=username
--ap=password
--path=/DEV/DB (domain/server)
```

```
--server=avamar-server-name
--expires=5
--ddr
--ddr-index=1
```

where:

- pidnum is 3002 for the Avamar Plug-in for Oracle on Microsoft Windows, or 1002 for the Avamar Plug-in for Oracle on Linux etc.
- username is the username that is used to log in to the Management Console.
  - password is the password that is used to log in to the Management Console. • DB server.domain is the Avamar account path to the Oracle client. • avamar server is the Avamar HFS name.

Note: Options --ddr and --ddr-index=1 is required when Data Domain is the intended backup destination. If more than one DD exists, the index number value to use may be greater than 1.

---

5. Re-ingest the RMAN backup pieces to Avamar as a single backup using this **avtar** syntax, for example:

```
cd D:\ADME_restore
avtar -c --label=adme_test --flagfile=myflags.txt "11g/DBTS1"
```

Results

An Avamar backup will be created for the defined domain/client name with the defined label name value in this example adme_test. The database should appear in Avamar as an Oracle BU and be recoverable as per the Avamar for Oracle User Guide.

APPENDIX-A

Configuring tape applications

Supported export applications

ADMe treats all tape backup applications in a similar manner by relying on a predefined backup tape policy definition being established within the tape backup software. ADMe will call the appropriate syntax relative to the backup application involved to initiate a backup using the predefined tape backup policy. In all cases, the correct backup application command line syntax is defined and called from an ADMe client group Fld-12 (Monthly Tape Policy) or Fld-13 (EOY Tape Policy) or Fld-14 (Master Server Initiated Tape Policy) to initiate the predefined tape backup policy. The mandatory CLI options are included by ADMe based on the application involved while the custom options must be defined in the appropriate tape policy field of the client configuration file which will be appended to those included to complete the CLI call.

Export application	Supported CLI command
NetWorker	`save`, `savefs` or `nsrworkflow`
Cloud Gateway TNT Drive, GeoDrive, CloudBerry Drive, Expand Drive	n/a
Arcserv	`ca_backup`
Avamar DD-Migrate	`Avtar`
Backup Exec	`bemcmd` (available on Windows only)
Backup Exec 2012	`bemcmd` (available on Windows only)
CommVault (no automated export from Windows staging server)	`qlogin` and `qoperation` backup (CV requires authentication)
Dell NetVault	`nvtrigger` and `nvjobstart`
HP Data Protector	`Omnib`
NetBackup	`Bpbackup`
TSM	`dsmc archive`
Avamar	`avtar`
PPDM	`ddfssv & ddfsadmin`

ADMe relies on the return code value of the tape application command used and reports on any messages sent to STDOUT by the tape application command. For all tape applications, a return RC=0 is considered a successful operation with the exception for Backup Exec, which returns RC=1 to indicate success.

Additional notes

- The ADMe job log echoes the tape command syntax used whether it was executed on the staging client or the tape master server in the Export-Details section. A copy/paste of this command on to the correct server may be used to run it manually outside of ADMe for diagnostic or confirmation purposes.
- The complete tape script generated by ADMe can be viewed on the utility node under the temp environment folder being used

  /home/admin/admeadmin/tmp/atocfg or atocfg2, atocfg3 and so on

  The tape script file is named autotapeout.tab or autotapeout.sh and is moved to a hidden file once a job has run to completion. This hidden file remains until another tape session is started

using the same environment file number. The environment number will be appended to the autotapeout file name to differentiate which environment number used it. When no numeri is present it represents Env-1 awhile all others will be represented by its appropriate numeric value.

- The file autotapeout.stat captures the above tape script output located on the staging server under its Avamar agent install folder in etc/scripts or it can be found on the Avamar utility node as a hidden file in the environment number temp folder. The environment number is appended to this file name to differentiate which environment number used it.
- By default, the tape script will be deleted from the staging server upon its completion. To retain a copy of the script on the staging server for troubleshooting purposes add four -d lowercase debug flags to the Migration Criteria in the job policy. Only use when necessary as these same debug flags result in many additional details being logged.
- If ADMe is unable to retrieve the contents from the **autotapeout.stat** file, it will be unable to confirm a tape export completion status. The most common causes of this are:
  - Staging server has DNS issues and/or required ports are blocked preventing an avtar backup from the staging server back to Avamar to succeed. Verify name resolution short & long names in both directions succeeds.
  - Verify the utility node name defined in the environment file is valid. Check whether the Avamar long or short hostname is required and update variable name AVAMAR_UTILNODE_NAME in each environment file to suite.
  - The tape script executing on the staging server has prematurely ended, preventing the backup of the stat file. The most likely cause is the tape backup script runtime exceeded the avtar script timeout value assigned to it. Check and adjust as necessary environment file variable name **SCRIPT_TIMEOUT** to a value in seconds longer than the longest tape backup runtime where 3600 seconds = 1Hr. Usually if the timer was exceeded, the tape export involved will have actually run to completion as the initial avtar call involved only reports the error after the command itself ends not while it is in progress. From the tape BU application check to see if the BU completed or not prior to rerunning the job.
  - The tape script logic is invalid or incomplete. This can occur when an environment file contains incorrect binary path definitions, Windows short names are absent on a Windows staging server or tape master server, wrong tape policy defined in the client group.

    If Windows short names are not present the following syntax can be used to create a link or junction to the required Avamar or tape application binaries, the example here pertains to using Drv-D for the path to NetWorker binaries. Drv-C where Avamar agent is installed is usually will typically have short names enabled.

    ```
    mklink /J "D:\PROGRA~1" "D:\Program Files"
    mklink /J "D:\PROGRA~1\EMCNET~1" "D:\Program Files\EMC NetWorker"
    ```

- It's a user responsibility to ensure the tape policy setup in the tape application are defined, valid and functional. These can be executed and verified from the tape application directly as a first step if problem diagnosis is required.

  IMPORTANT - the predefined tape policy definitions within the tape application are responsible for assigning the data retention period to the migrated backups on tape. ADMe has no knowledge of the retention period on tape although with some tape apps it can be specified to be included as part of the backup syntax ADMe will use.
- When using non-incremental staging, ensure the predefined tape policy is configured to always perform full backups regardless of what day of the month a migration takes place. In NetWorker, this is assigned in a schedule resource or within the workflow definition for server-initiated tape backups. When using incremental staging, you have a choice whether to perform full or incremental backups to tape based on the tape policy configuration.

Auto-scheduling directly from NetWorker

ADMe job policies can be initiated from NetWorker using its **pnpc** call. With this method, the NetWorker Management Console displays its related group workflow as active for the duration of the migration session and will reflect its final completion status of success or failure upon completion. However, any failures cannot be diagnosed from the NetWorker Management Console, you would need to review the corresponding ADMe job log to determine the cause of the failure. A NetWorker **pnpc** call reports on a script's return code only, therefore no details are available to determine why a return code was non-zero.

PNPC Prerequisites

- NetWorker Linux file system agents RH-64 bit must be installed on the Avamar utility node and the NetWorker service must be started:

  /etc/init.d/ networker start (for Networker 9.x)

  service networker start (for Networker 19.x)

- A NetWorker client resource must be defined in the NetWorker Management Console for the utility node with its save set field set to **/etc/hosts** and its backup command field set to **savepnpc**. Ensure that its browser and retention value is set very low, such as 1 day or 1 week.
- This one client resource can be leveraged by any number of NetWorker groups being used to initiate an ADMe job policy. To do so, once it has been assigned to the first NetWorker group, you can use the NetWorker Management Console to copy the group using the "copy with clients" option, renaming the new group as required. This eliminates the need to reestablish resource definitions each time with the required properties. Suggested naming convention for this group is as follows:

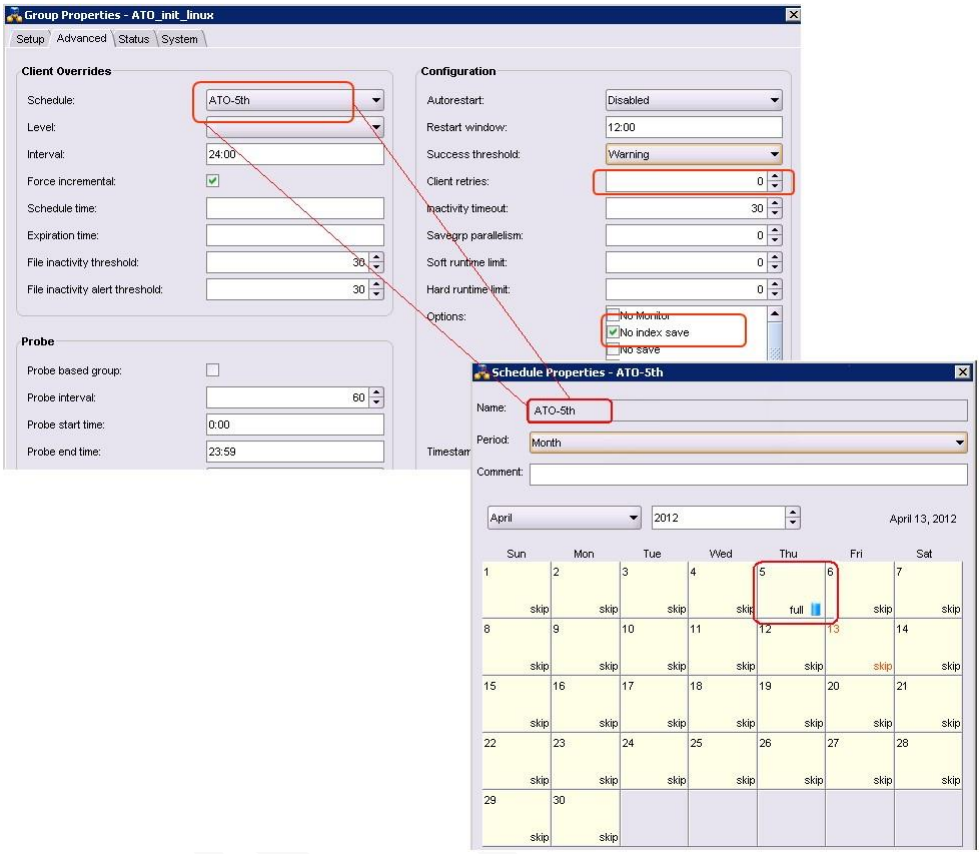
  ADME_init_<adme-job-policy-name>.

From Job Manager Policy view, use the Scheduler option to automatically establish the required NetWorker **.res** files which will be saved in /**nsr/res/<ntwk-group-name>.res.** Its contents are like the example shown here, with the only difference being the ADMe policy name.

```
  type: savepnpc;
         precmd: "/usr/local/avamar/bin/ADMEpnpc admbatch-yourpolicy-
name.cfg";            pstcmd: "";
         abort precmd with group: Yes;
```

The name of the NetWorker group must match the name of its associated NetWorker **.res** file being used which resides on Avamar utility node. When using the ADMe menu user interface to create the **.res** file, it will conform to the naming convention **ADME_init_*job-policy-name***. Using a different naming convention will result in it not displaying correctly within the ADMe user interface.

If more than one ADMe instance sharing NetWorker server, the corresponding Avamar hostnames can be included in the group name to allow distinguishing what groups in NetWorker pertains to a given Avamar host. This is also useful when common ADMe client groups and jobs exist on different Avamar systems.



The NetWorker Schedule resource that is shown on the image is assigned to the ADMe_init_linux group and effectively determines which days and time the tape out process is to take place. The schedule defines the days tape out is to run, and all other days that must be set to skip. Once the first schedule is established it can be copied to a different name and updated as required. It is helpful to name these schedules ADME_1st, ADME_2nd, and so on, to easily identify and assign the schedules to the ADME init group as required.

APPENDIX-B

Structured Staging Paths

Structured staging paths

ADMe will stage backup data to a structured directory a portion of which is user defined and the rest automatically inserted. The user-specified portion is at the beginning of the path structure and defined in the **staging path** field of the ADMe client group. A user defined path suffix is also available positioned at the point immediately prior to where the staged data files are placed defined within a client group or from a job policy definition.

Non-incremental staging path

Default

```
user-specified-path/BYDATE/client-name/date-time-buid#/backup-data
```

Extended path definition

```
User-specified-path/BYDATE/client-name/date-time-buid_#-retention-tag-expiration-date/backup-data
```

Note: The extended path folder is enabled by setting the environment file variable named BYDATEPATHXTN=Y. Valid retention-tag values are: `N` (None), `D` (Daily), `W` (Weekly), `M` (Monthly), and `Y` (Yearly). The option was initially offered to accommodate a use case where a stage-only operation was being performed to a file share on Data Domain or to cloud storage.

Custom user path suffix

```
User-specified-path/BYDATE/client-name/date-time-buid_#/userspecified-path-suffix/user-backup-data
```

Note: The custom user path suffix is enabled using the `-path` option in a job definition or can be specified in a client group on a per client basis. The value used will be appended to the final predefined path as shown above and immediately prior to where data files are staged to.

Incremental staging paths

Default

```
user-specified-path/INCREMENTAL/client-name/user-backup-data
```

Custom user path suffix

```
user-specified-path/INCREMENTAL/client-name/user-specified-pathsuffix/user-backup-data
```

Note: The custom user path suffix is enabled using the `-path` option in a job definition or specified in a client group on a per client basis. The value used will be appended to the final predefined path as shown above immediately prior to where data files are staged to.

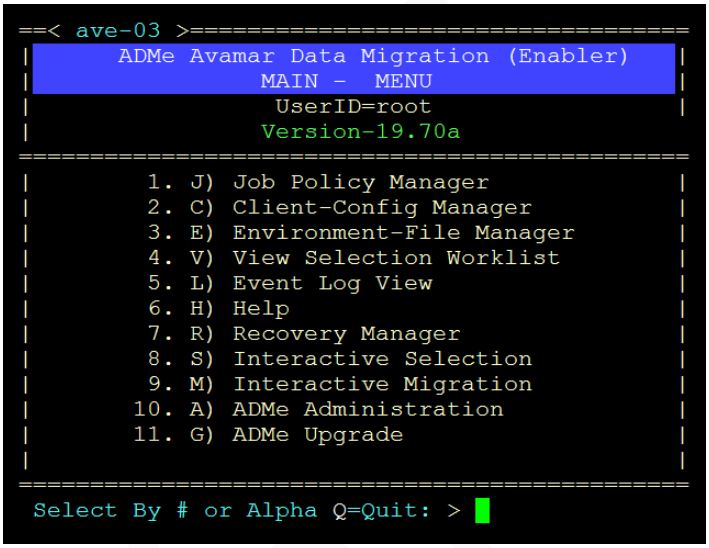
APPENDIX-C

ADMe Command Line Interactive Menu System

ADMe CLI interactive menu system

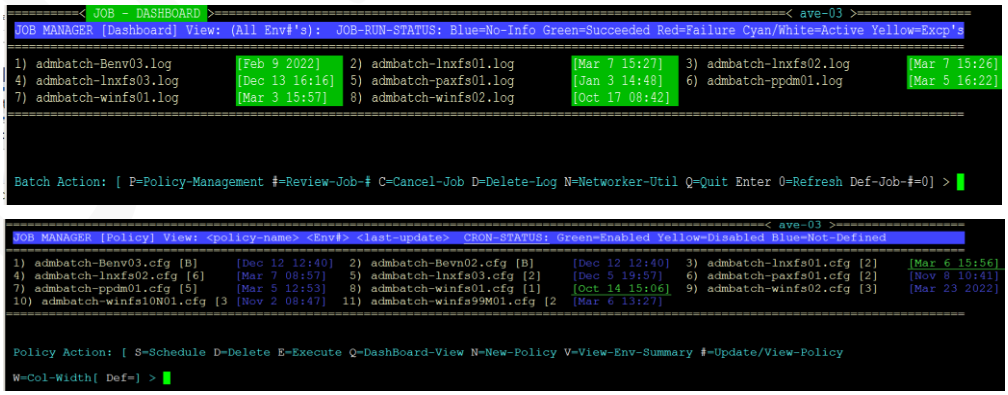
The ADMe CLI interactive menu system is a comprehensive UI. It can be used to configure, initiate, and determine job policy status, view and modify configuration files, view event and job logs. To open the CLI menu, you must be logged in as root and type **adme** at the command prompt. The first CLI menu session opened will own write privilege to the various ADMe configuration files while any additional menu sessions opened, will be in a read-only mode.

Menu selections are made by entering its associated numeric value or its corresponding alpha character (non-case sensitive). A summary of each menu item is provided here while more detailed information is available the menu's own built-in help feature.



Job Policy Manager

Has two modes of operation, **Policy** and **Dashboard**. **Policy** mode is where you create, execute and/or schedule job policies while the **Dashboard** is used for monitoring and/or diagnosing a jobs execution status providing access to the ADMe job logs and history reports on a per job basis. It's also where you can initiate a cancel operation against an active job. Each mode is color-coded reflecting appropriate jobs status and the color codes are documented in each panels title bar.



Client Configuration Manager

Used to create, view, and adjust all aspects of client groups configuration. Is color-coded to reflect whether a client is enabled or not to ADMe. Refer to its title line for basic layout definitions and color code assignments.

Environment File Manager

Used to create, display, update, and verify the contents of an environment file. You are prompted for the environment number to act on. Refer to title line for basic layout definitions and color code assignments.

View

Used to display the last selected backup work list and associated metrics against a given environment number. Viewing contents are relative to an environment number therefore you must enter when prompted, the environment number to view.

Event Log

Provides a complete history of events in a structured event log containing summarized information for every **-select** and **-migrate** action taken by ADMe against a given environment file number.

Events are displayed one at a time, displaying the details of each operation. The number of lowercase `-d` options used in a job definition determines the amount of information logged. You will be prompted for the environment number to use as each has a dedicated event log. Event logs are no longer used for troubleshooting purposes as a job log is more effective for diagnosing failures.

Help

Provides a means to display and search detailed online help information.

Checkpoint Recovery Manager [***function is deprecated***]
Provides the ability to identify and re-execute failed sessions containing only the failed portion. The number of checkpoints it maintains is determined from variable `MAX_RECOVERY_SESSIONS` in each environment file. Contents of a checkpoint are displayed like that of a normal view.
Two checkpoint types exist: **retry** and **rerun** and are relative to a specific environment number which you will be prompted for.

Interactive Backup Selection
Used to interactively perform backup selection process where prompts for user input are made and the information displayed based on user responses. A -select statement is created interactively which can be executed and its results displayed. This selection process will default to using Env-20 as a scratch area, do not modify this default. This function is useful to confirm whether backup selection filters behave as expected without the need to move backup data prior to using them within a job policy.

Interactive Data Migration [***function is deprecated***]
Used to perform an interactive -migrate session, where prompts and information provided are used to create a migration statement and optionally executed as a specialized batch job. This process is relative to a selected environment number for which you are prompted to use. This function is intended for lab or test environment only and should never be used in a production scenario in place of dedicated job policies.

Administration

Provides several ADMe administration related functions as shown:

- Backing up the ADMe environment to protect its various configuration and log files
- Create an ADMe grab file containing all relevant files for problem diagnosis
- Perform a basic health check against contents of environment files, client configuration file and report on the last completion status of each job policy
- Function to identify locations of key ADMe related files

- Function to refresh ADMe credentials often required after a staging server has been rebooted or when its plug-ins are updated
- Function to adjust customizable variables to control various aspects of ADMe core and Web-UI functionality
- Function to check, start, stop, or restart the ADMe Web-UI service.

ADMe Upgrade

Provides an interactive method to perform an ADMe upgrade to a new version. Initiating an upgrade automatically invokes a backup of the current ADMe files and configuration which can be used to roll back from if necessary. This backup is stored in the home directory /backups as well as saved to Avamar in account /ADME/ADMEBackups.

To perform an upgrade, transfer the new ADMe .tar file and Web-UI .war file when applicable into **/home/admin/admeadmin** folder prior to initiating the upgrade process. Latest ADMe tar file can be obtained from the following KB link 000182609 The upgrade can be initiated from the menu ro from the command prompt directly using **adme -upgrade**

APPENDIX-D

Environment File & Client Configuration & File Definitions

Environment File Contents

The following is a sample Environment file showing its complete contents which can be updated as needed from either the Web-UI or CLI menu UI. The Web-UI displays under the Environment tab a subset of the variables contained in an environment file and to view or modify all variables, you must use the Env file update tool or update it using the CLI menu UI.

```
========< Environment Configuration >===============
 Environment Filename: /home/admin/admeadmin/etc/admeenv.cfg
============================================

AVAMAR_UTILNODE_NAME=lablnx01
HOMEPATH==/usr/local/avamar/bin

# >>> TAPE BACKUP PARAMETERS
BUSERVER_NAME=n/a
BACKUPPRODUCT=networker
BACKUPPRODUCTHOMEUNIX=/usr/sbin
BACKUPPRODUCTHOMEWIN= C:/progra~1/EMCNET~1/nsr/bin
TAVAINSTALLPATH:= C:/progra~1/avs
TAVADOMAINNAME:=/ADME
ENDOFYEAR=0

# >>> STAGING SERVER PARAMETERS
UNIXSS=/ADME/lablnx02.mexlab.emc
UNIXINSTALLPATH=/usr/local/avamar
TUNIXSS=LINUX
WINDOWSS=n/a
WININSTALLPATH=C:/progra~1/avs
LINUXSS=n/a

# >>> CONTROL FILES
CFG=/atoadmin/etc/admeclient.cfg
LOG=/atoadmin/log/atoevent.log
TMP_PATH=/atoadmin/tmp/atocfg
PSEUDOCLIENT=/ADME/admepseudo

# >>> OPERATIONAL PARAMETERS
CMD_mail=/usr/bin/mailx
MAIL_TO=
MAIL_TO_ERROR:
MAIL_FROM=ADMe-Admin@server.com
USER_COMMENT:
LOG_SIZE=30000
TIMEDELAYSTAGE=300
TIMEDELAYTAPE=600
USE_ALLNODES=Y
MAX_RECOVERY_SESSIONS=5
COLORSCHEME=5
MYEDITOR=/bin/vi
BYDATEPATHXTN=N
BULOCATION:=/home/admin/admeadmin
DEFSTAGELOC:=F:/ADME
SCRIPT_TIMEOUT:=360000
ARCHIVEUTIL:=gzip
USE_DATADOMAIN:=Y
```

Table 3 Environment file attributes and descriptions

Attribute	Description
AVAMAR_UTILNODE_NAME	Avamar utility node name. Depending on site requirements, this field may need manual editing to use either short or fully qualified name
HOMEPATH	Avamar home path where its binaries are located.
BUSERVER_NAME	Tape/Export master server name
BACKUPPRODUCT	One of the following: arcserv brightstore backupexec commvault networker netbackup netvault tsm • Cloud-GW • avamar ppdm
BACKUPPRODUCTHOMEUNIX	Tape/Export backup software path to its binaries on a UNIX/Linux staging server.
BACKUPPRODUCTHOMEWIN	Tape/Export backup software path to its binaries on a Windows staging server.
TAVAINSTALLPATH:	Avamar agent install path on Tape/Export backup server (required with `-server` option).
TAVADOMAINNAME:	Unique Avamar domain/client name instance where tape backup master server is activated to (required only with `-server` option or with Avamar ADS).
ENDOFYEAR	Used to define which months EOY export backups take place. **0** = not used **01–12** = the desired month or the year, works in conjunction with client group Fld-13. Multiple value can be used for example: 01,06
UNIXSS	UNIX staging server hostname, must include Avamar domain path or `/VDP` for a VDP appliance.
UNIXINSTALLPATH	UNIX staging server Avamar client installation base home path.
TUNIXSS	UNIX staging server Type use one of the following: AIX, FREEBSD, HP-UX, **LINUX**, MAC, SCO, SOLARIS

WINDOWSS	Windows staging server hostname must include its Avamar domain path.
WININSTALLPATH	Windows staging server Avamar client installation home path.
LINUXSS (Deprecated)	This variable is no longer used. Set to DO-NOT-USE
CFG	Name and location of client configuration file (do not modify).
LOG	Name and location of event log file# (do not modify).
TMP_PATH	Name and location of a temp workspace used by this environment# (do not modify).
PSEUDOCLIENT	Unique pseudo client used for communication between Avamar and the staging server(s) (do not modify).
CMD_mail	Path and name of the email program to be used for mail notifications, supported programs are `mail` or `mailx`.
MAIL_TO	Email address. Coma separated string when multiple addresses are involved. All mail notification types will be sent to the address(s) specified here
MAIL_TO_ERROR	Email address to direct failed notifications only to. This is intended for a dedicated help desk use case only and should only be used for this purpose.
MAIL_FROM	From or sender address email that notifications are sent from.
USER_COMMENT:	User comment describing this staging server's use or disk size. Usually used to describe the staging disk size such as Drv-e-5TB (comment must be a contiguous string)
LOG_SIZE	Event log file max size based on number of lines.
TIMEDELAYSTAGE	Delay between staging progress messages written to job logs.
TIMEDELAYTAPE	Delay between tape backup progress messages written job logs.
USE_ALLNODES	Set to Y to optimize staging performance in a GRID environment.
MAX_RECOVERY_SESSIONS	Used by Checkpoint Recovery Manager defining the quantity to maintain.
COLORSCHEME	Screen color: 1=black/multi-color, 2=white/ some color, 3=no color 4 or 5, 5 is the preferred value. Only read from Env-1
MYEDITOR	Available editors: `/bin/vi`, `/usr/bin/emacs`, or `/usr/bin/nano`. Only read from Env-1

BULOCATION:	Defines the ADMe home path (do not modify). Only read from Env-1
DEFSTAGELOC:	Used as a default staging path in Config Manager when adding a client, this value by itself does not determine the destination staging area. Only read from Env-1
SCRIPT_TIMEOUT:	Max timeout in seconds permitted for a given `avtar` or non-mccli based recoveries.
ARCHIVEUTIL:	Additional utility that is used to further compress an ADMe archive file on Linux.
USE_DATADOMAIN	Used to inform ADMe where to backup the small files it creates during use which can be to DD or to internal GSAN
BYDATEPATHXTN	Destination path for non-incremental normally includes date/time and backup- id#. Setting this variable to **Y** includes in addition the backup retention tag type and its expiration date within Avamar.

Note:

- Staging server name definitions must include their Avamar domain path.
- Use parse check function against an environment file after updating it to check for common errors
- Windows pathname definitions must be in entered using the DOS 8.3 short name format and you must use forward slashes / for the standard Windows backward slash \.
- When using multiple environment files, the staging server names that are defined to each must be unique.
- Never modify the ADMe Control file section.

Client Configuration File Layout

Fld-1 Client Group Name	Text string used to name and define a client group. The group name is limited to 8 characters and should not contain hyphens or special characters, underscore is supported.
Fld-2 (Deprecated) Start Date	Starting date used to begin backup search from. Keyword value of **AUTO** defaults the starting search date to first of the current month or you can enter a specific value using format **yyyy-mm-dd.** Normal usage is to set to AUTO as various options are now available on the call line to manipulate the date search range. **Note**: This field has been deprecated in favor of using –**sdate** option within a job policy.
Fld-3 (Deprecated) End-Date	Ending date to limit backup search to. Keyword value of **AUTO** defaults the ending search date to the current date of the current month. You can type a specific value using format ***yyyy-mm-dd***. Normal usage is to use **AUTO**, because various options are now available on the call line to operate the search range. **Note** This field has been deprecated in favor of using the –**edate** option within a job policy.
Fld-4 Domain	Avamar domain pathname the client is activated to. When Avamar is used as a Networker storage node, it must be named `/NetWorker`.
Fld-5 Client Name	Source client name to migrate. The name must exactly match how it is named in Avamar.
Fld-6 Avamar Policy Group Name	Embedded filter that is used to limit selected backups which are based on a unique string value present in its **Name** field, as viewed from the Avamar recovery GUI. Normally **Name** will contain the Avamar group name. For best results, ensure that the group name or label values are kept as a contiguous string with no spaces. Multiple strings can be specified if required, which must be separated using a **|** pipe character. Using this embedded filter field permits values to vary between clients within a particular client group. Set to **n/a** when not being used. The –`gname` option is also available for this purpose, and when used, takes precedence and be applied to all clients defined to the group being used.

Fld-7 Retention Type (tag value)	Embedded filter that is used to limit selected backups to a specific retention tag value only. Valid values are **none**, **daily**, **weekly**, **monthly**, **yearly**, or **n/a** if not used. Value can vary between clients within a particular client group. The `-rtype` is also available for this purpose, and when used, takes precedence and be applied to all clients defined to the group being used.
Fld-8 Exclude Folder or file name	Limits s staged data by excluding the specified folders from the staging process. Set to **n/a** when not in use. Multiple path names may be specified by separating each using with a **|** pipe character. Each path name specified must be encapsulated in + signs. Full and Complete paths are supported and also wild cards *. The **-xdata** option is also available for this purpose and when used, within a job policy takes precedence, and it will pertain to all clients in the group. Multiple **-xdata** arguments are permitted but with only a single path name for each. **Note** When using the command line, any names containing spaces must be enclosed in single quotes. Refer to online help for information. For Avamar native mode, this filter is applied during the **-migration** phase. For the NetWorker deduplication node, this filter is applied during the **-select** process, where the defined names are limited to a maximum of 6, and they represent a NetWorker save set name.
Fld-9 O/P File	Set to keyword of **DEFAULT** which is the only supported value. The o/p file name that it will use is **snapup2tape.txt**.
Fld-10 Staging Destination-Dir	Destination path where the migrated backup data is staged to. Each client within the group must point to the same destination filesystem directory path. Never stage data directly to the root directory of any mount point, always specify at least one folder such as */mountpoint*/ADME or *drive letter*: /ADME etc.
Fld-11 Tape-backup-Script	The keyword of **AUTO** informs ADMe to generate a suitable tape script automatically. If providing your own tape script, it must reside on the Utility node under `/home/admin/admeadmin/scripts and` its complete path and name must be specified here. It is a prerequisite for all clients within a group to share a common tape/export script name.

Fld-12 Monthly or Daily Tape Reference	Used to pass a predefined tape or export policy details to be called automatically. Contents of this field vary between tape/export applications but conceptually are used in the same manner. The tape policy details must be predefined within the tape application with and appropriate save set or path definition defined to capture the staged data. When Avamar or ppdm are used as the export application the details placed here will vary.

For details pertaining to the command syntax used, refer to the vendors documentation.

For NetWorker, the value here represents either a NetWorker group name or pool names based on whether you choose to use the Networker **save** or **savefs** command which is specified within a Job Policy definition.

–**nwksave** (specified within a job policy)

Specify a NetWorker media pool name here or is using **savefs** specify a Networker group name here.

For NetBackup the value(s) leveraged here are applied to **bpbackup** command**.**

For Backup Exec, the value(s) leveraged here are applied to a defined jobid name, or it can be the values that are required to establish a manual user job without the need for a predefined jobid. The BackupExec command leveraged is **`bemcmd -o1`** for predefined, or **`bemcmd -o90`** for user defined backups.

Backup Exec 2012 eliminated the **bemcmd** command and CLI initiated backups now require the use of PowerShell, which is supported, but for predefined jobid's only. Contact adam.kirkpatrick@dell.com for details related with BackupExec 2012 setup.

For TSM the value(s) leveraged here are applied to **dsmc archive** command**.**

For HPDP, the values leveraged here are applied to **omnib** command**.**

For ArcServ, the command leveraged is **ca_backup**

For CommVault, the value here represents a series of values associated with their corresponding options. A sample is shown here:

```
a Q_LINUX_FS -b
defaultBackupSet -s TapeOut -t
Q_FULL
```

The CV command leveraged is **operation backup**

For Avamar as the export app, refer to KB 000195667

For PPDM as the export app, refer to Appendix-H

Server or Client initiated Yearly Tape Reference Fld-13	Same usage as Fld-12 or Fld-14 however is used in conjunction with the value present in the **ENDOFYEAR** variable defined in each environment file being used. During execution, if the current month matches the value defined in the ENDOFYEAR variable, this policy field is used in place of Fld-12 or Fld-14. If the current month equals the value defined in the above environment file variable, this policy will be called of Fld-12. For example, if the variable is set to 01,06 (representing January and June), this field value will be called in January and June facilitating an automated end-of-year backup where the retention value on tape can differ from other months of the year.
Fld-14 Server Initiated Tape Reference	Tape script will be created and initiated on the tape master server as a server-initiated tape backup during the `–migration phase`. A server-initiated backup is performed when the job policy contains -**server** as a migration option. Initiating a tape backup directly on a Networker server will invoke a **savgrp** call (Networker 8.x or **nsrworkflow** (Networker 9.x and 19.x), rather than basic **save** or **savefs** call. Server initiated backups can be monitored from the NetWorker Management Console in the same manner as other Networker backups. In addition, with Networker it can leverage parallel save set streams and automated cloning. with Networker. Two additional variables present in the environment files `TAVAINSTALLPATH` and `TAVADOMAINNAME` must be updated to support the use of **–server** option. The `TAVADOMAINNAME` must contain a domain/ client name of the tape master server and when multiple threads are used concurrently, unique MCS names must be present and defined to each environment file.
Fld-15 Staging Server OS Type	Used to determine the staging server OS type to use, valid values can be **UNIX** or **WINDOWS**. All clients within a particular group must share a common destination server OS type.

Destination Path Suffix Fld-16	When specified, its value is appended to the destination path immediately prior to the staged backup data. Set to **n/a** when not used. When used on a per client basis its value can vary between clients in a group. A job policy option –**path** is available for this purpose too and when specified there will take precedence and it will pertain to all clients in the group. Only one –**path** statement can be specified as a migration option. Specify any Windows path such as C:\Program Files as **/C/Program Files**. Also, when passed on the command line or in a job policy, the entire string must be in single quotes if spaces are present within the name.
Include Folder or File Name Fld-17	Limits s staged data by including only the specified folders during the staging process. Set to **n/a** when not in use. Multiple path names may be specified by separating each using with a **|** pipe character. Each path name specified must be encapsulated in + signs. Only Full path names are supported and no wild cards. In a job policy, the **-data** option is available for this purpose and will take precedence over this embedded value. Multiple –**data** arguments are allowed. Refer to online help for more information. Usage with the NetWorker deduplication node is applied during the –**select** process. The name represents a save set name.
Incremental – Delete (Deprecated) Fld-18	Flag is applicable to incremental mode only and when set to **INCDEL** will delete the specified clients staging data after exporting it to tape. The next incremental tape-out operation should restage 100% of the data and reestablish a new incremental baseline. Set this field to **n/a** if not used. Within a job policy option `-incdel` is also available for this purpose. When the option is specified, it takes precedence but pertains to all clients in the group. Use this option with care. Its intended use case is to use periodically to resynchronize an incremental baseline with the current backup. The baseline is present on the staging server up to the most recent backup from Avamar that was staged. **Note** NetWorker does not perform an incremental backup if configured after deletion on Windows but it does on Red Hat and possibly other UNIX platforms. Modify path as required to point to the staging destination. For example, on UNIX, use: <</>> + mtimeasm: *.* and on Windows: << "F:\" >> +mtimeasm: *.*

APPENDIX-E

Command Line Interface Syntax

ADMe command line options

All contents in this section were taken from the online help available using the CLI Interactive Menu UI. Refer to it to ensure the most up to date content.

ADMe CLI Syntax

environment#	Identify the environment file by number to use. By default, up to 20 files can be defined and 19 used concurrently. When not specified, it will default to use environment #1. To access environments 2–20, this option must be specified as the first argument to adme command.
-**select**	Used to initiate the selection process to identify the backups to act on. All available -**select** related options can be used as required within a job policy definition. All select related options below will be identified by (action-select)
-**migrate**	Used to initiate the backup recovery or staging process and to trigger an export to tape. All available -**migrate** related options can be used as required within a job policy definition. All migrate related options below will be identified by (action-migrate)
adme	Entering **adme** at the Linux prompt without any additional options will open the interactive CLI menu UI. All setup and administration can be performed from this CLI based interactive UI.
-**archive pax | paxcomp** (action-migrate)	Rehydrates a backup but streams it to a single Avamar compatible PAX file for which the tape system catalogs the PAX file name only. A Linux staging server must be used for this option. Recovering the contents from a PAX file requires it first be recovered to disk then ingested back to an Avamar GSAN storage only (not DD) using the client account of your choice which can be activated or non-activated (refer to online help text for the required avtar import syntax). Once imported, the Avamar MCS GUI can then be used to recover its contents in the normal manner. Option paxcomp, will compress the PAX file, reducing its size typically by 50% or more. However, the compression process can be CPU intensive. All ADMe supported Avamar plug-ins should be compatible with the use of PAX files.
-**avtar** (action-migrate)	Override auto-detected recovery method, forcing the use of **avtar**. Normally, ADMe automatically determines the preferred recovery CLI to use. In most cases, there is no reason to override the default. Not applicable with the NetWorker deduplication node.

-avflags *avtar-flag-value* (action-migrate)	Used to pass custom **avtar** flag values during the recovery process. Do not include any leading hyphens as these options are inserted automatically. If multiple flags are needed, they must be passed in a quoted space separated string.
-backup	Backup the complete ADMe environment to protect the various configurations and log files. The backup tar file can be used to transfer a complete ADMe environment from one grid to another such as a migration to new h/w and performing a rollback.
-batch policy-name **-BATCH policy-name**	Open Job Manager same as menu option-1, `batch` provides an interactive UI used to manage all aspects of batch job sessions including creation and initiation of job policies. From the Dashboard view, monitor active jobs, job progress, and completion status for all environments. Displays are color-coded reflecting a policies completion ending status. Syntax for initiating a batch session remains consistent whether it be from the command line, the CRON or when using a scheduler. By using uppercase -BATCH it prevents the return to the command line prompt until the job runs to completion.
-buid buid#... (action-select)	Select a backup by its backup-id number. The value that is specified must be valid within the other selection criteria used. If more than one buid is desired, type them together as a single space separated quoted string. If you are not certain of the buid, run the `-select` without this option and review the backups that are selected. If multiple clients are selected and happen to share a common buid number, use the `-client` filter limiting the result to a single client. This option is used with the `select` option.
-butype | -but mod cod nah (action-select)	By default, only scheduled backups are acted on during the selection process. Using this option, you can include backup types `mod=on demand`, `cod=client initiated` or `nah`. If more than one type is specified, they must all be enclosed within a single quoted space separated string. Not applicable with the NetWorker deduplication node.

-cfg, -cfg hide, -cfg group-name, -cfg parse, -cfg add or add_v, -cfg update, -cfg manager	Use **-cfg** when no group-id is specified. The entire client configuration is displayed including comment fields. Comments are highlighted in green and line entries in the base color. To inhibit comment fields from being displayed, use **-cfg hide**. Significant fields are also highlighted in color to ensure their accuracy. When a specific group-id is specified only that group is displayed. `-cfg parse` performs a validation check to help confirm correct file contents. It does not check Avamar domain and client names. However, if you use the `add` or `manager` function below domain & client names are accurate when used to add clients. `-cfg add` is used to add new lines to the client configuration file. `-add_v` provides more verbose information displaying client names that exist in the file. `-cfg update` opens a vi session of the client configuration file for editing. `-cfg manager` provides an interactive menu interface which includes all the previous functionality. Clients can be viewed from domain, group or all together. Clients are also color-coded to reflect their status relative to ADMe. It provides the ability to enable or disable a client to ADMe as required.
-client client-name (action-select)	Used with **-select** to limit the selected backups to the single client name specified. The client must exist within the client group.

-data file-folder name **-data nwksaveset-name** **(deprecated)** (action-migrate)	**-data <name>... | -data <networker-saveset-name>...** Used to specify a specific folder only to be staged from the selected backup(s), multiple -**data** options are allowed. A complete folder path name must be provided as shown in the examples below and any path names containing spaces must be enclosed within single quotes ' '. **Examples**: **-data /etc/bluetooth** **-data 'C:/Program Files/avs/var/clientlogs'** The -**data** option will apply to all clients within the ADMe client group being used. If the need is to act on only one or more client(s) within a group, an embedded filter can be used defined in **Fld-17** of each client entry in the ADMe client configuration file. **Fld-17** syntax is shown in the examples below and multiple folders can be specified each separated using a pipe | character. Note, any paths containing spaces do not require the single quotes here but a plus sign + must be used as a delimiter for all path entries with or without spaces. **Example Syntax for Fld-17** **+/etc/bluetooth+** (single folder entry) **+/etc/bluetooth+|+/etc/X11+** (two folder entry) **+C:/Program Files/avs/var/clientlogs+** (single folder entry) **+C:/Program Files/avs/var/clientlogs+|+C:/Program Files/avs/var/update+** (two folder entry) The -**data** option will override any embedded filter if present within the client config file. BU sizes displayed will remain that of the complete buid# involved.
-d -D (action-select) (action-migrate)	-d and/or -D flags are intended for troubleshoot purposes. Lowercase flags direct additional o/p primarily to ADMe event log while uppercase flags direct their o/p to stdout only which is what is seen in a job policy log. Any combination of the two is allowed up to a max of 6 of each. Uppercase is especially useful

	when used in job policies as their o/p is captured to the corresponding job log.

-delete (action-migrate)	Force the deletion of staged data regardless of the tape backup completion status. When specified with the -upst option, the user post script is also called. Default behavior is to leave staged data on the staging disk when an export backup fails, allowing you to correct the issue without the need to restage the data.
-env # parse **-env # update**	-env option is used to display the environment file contents. -env parse performs a validation check to help confirm correct environment file contents. -env update opens a vi session of the environment file for editing.
-exchdb | -exchvss (**action-select**) **-avexvss** 'custom options ' All custom options must be enclosed within single quotes. Preceding hyphens required with a given option must be entered as ~~ to prevent the hyphens being interpreted by ADMe syntax checker. Refer to **avexvss.exe –help** or the Avamar Exch Plug-IN guide for details on available options. (**action – migration**) **-exchvssavtar** Use to stage an exchange backup with avtar as flat files including the transaction logs. Staging server can be a generic Windows staging server without Exchange S/W on it. (**action – migration**)	Limit backup selection to the specified Exchange backup type only. Any other compatible filters can also be used as required but these filters are mutually exclusive. For legacy Exchange BU's use -exchdb and for Exchange VSS use -exchvss, refer to online help text for pre-requisites required for staging server requirements. Exchange VSS support by default, requires the staging server and has MSFT Exchange S/W with Mail Box Role enabled on it and the Avamar Exchange VSS plug-in. In this scenario the transaction logs are replayed and only the EDB files are sent to tape. Refer to -**avexvss** option to pass any customer options to the avexvss CLI call. Refer to -exchvssavtar option to override the above behavior by staging the EDB and transaction logs as flat files to a standard generic Windows OS. The transaction log replay would be a manual step performed on an as need basis.
-full (action-migrate)	Used to force the overwriting of any files that are previously staged

-lotus | -ndmp | | -sap | shptvss | -sql | -vmimage | -vss | -hypervvss | -oracle (**action-select**) **-hypervssavtar** Use to stage an Hyper-V backup with avtar as flat files. Staging server can be a generic Windows staging server without Hyper-V Server S/W on it. (**action – migration**)	Limit backup selection to the specified backup type only. All other compatible filters can be used as required. These filters are mutually exclusive. When using the filters, it is the user's responsibility to determine whether the staged data is in a suitable format by their associated application. During the staging phase, the most appropriate recovery method `avtar` or `mccli` are determined automatically. For SharePoint VSS and Hyper-V VSS plug-ins, refer to the ADMe online help text for pre-requisites that are related to staging server requirements. Each requires their associated Avamar plug-in to be installed on the staging server and Hyper-V requires the staging server to have the HyperV Application S/W installed on it as well. `-vss` (System State) must be staged using the `archive` option to a Linux staging server. This option is not applicable for the NetWorker deduplication node.
-first | -last (action-select)	Used to filter selected backups to either the first or last day backups are available within the defined search date range on a per client basis. By default scheduled backups only are considered. If multiple scheduled backups exist for a particular client name sharing date, each backup is selected. When used with a NetWorker client the selection is based on save set name.
-first_F | -last_F (action-select)	Same as `-first` or `-last`. However, it forces the selected backups to the absolute first or last in cases where multiple scheduled backups exist on the same day. It may be required in a replication environment as it is possible for more than one client to have multiple backups that are replicated within a day. Be careful when using this flag as it may be legitimate for a client to have multiple backups that are running per day. The one that is selected may not be the intended one. Refer to `-gname` option for additional granular control.
-gid group-name (action-select)	Used to specify the client group name to use. The group or site name must follow this step. This parameter is mandADMEry for -select and `-migrate` actions.

-gname name-field-string-value (action-select)	* Limit selected backups to the clients who are in an Avamar policy group name or any unique string value present within its backup label field. This method is useful when a client has multiple scheduled backups per day. If a label is defined in the dataset its value completely replaces the default name field which normally includes the Avamar group name. This option can also be leveraged with Oracle when multiple backup pieces or databases are being selected from a particular source client. For best results, ensure that the group or label value contains a contiguous unique string value with no spaces. This option can be defined at the command prompt or by using Fld-6 in the client configuration file. When used at command line it pertains to all selected clients in the group. When embedded in client config file it pertains only to that specific client entry. This option is not applicable for the NetWorker deduplication node.
-grab	Collect all ADMe related files for diagnostic purposes.
-gui start | stop | restart | status	Used to start and stop the Web-UI service
-health	Perform a health check for the client configuration file and all available environment files that save the results to a Zip file. The last completion status is also included from each available batch log.

-inc (action-migrate)	Perform an incremental recovery which can increase effective staging throughput by a factor several times. A prerequisite for this feature is a copy of the staged data to remain on the staging server between staging sessions. Sufficient staging disk must be maintained to hold one copy of the clients backup size. Incremental staging facilitates the ability to perform incremental tape backups from the staged data. The staged data can further improve tapeout run times and conserving tape media. When –inc is not specified non incremental staging is performed and its data is removed from the staging server after each TO session. It is not possible to leverage an incremental tape backup when using non-incremental staging. This option can be used with a NetWorker dedup node. However, the benefits can only be leveraged on the tape backup phase. When the –m option is present with –inc a status file, it is staged to the same top level INCREMENTAL folder that the data was staged to. A file that is named ADMe– Incinfo_<date & timestamp> contains similar contents of an ADMe mail alert. The file provides a point-in-time reference of what takes place and when it is useful to stage to Cloud based storage when no tape application is being used.
-incdel This option is DEPRECATED (action-migrate)	Modifies the normal - –inc behavior by deleting the staged data once it has successfully backed up to tape. This option is intended to resynchronize the staging server file content with the current client backup that possibly reclaims some staging disk space. When specified at the command prompt it pertains to all selected clients. If specified within the client configuration file Fld-18, it pertains only to that client. When viewing selected backups or during staging, a red highlight flag is displayed to show that this function is enabled. Note: This flag is used to ensure proper understanding of its behavior before using it. It is intended for periodic use only.
-locate	Identify and display location of all ADMe related files.

-l | -log	View ADMe's event log which results from every `-select` and `-tapeout` action. Each action is treated as an event. The Event Viewer interface enables browsing forward, backward or jumping to a specific event number. The interface is also a useful tool for confirming or troubleshooting the status of a TO session with ADMe batch logs available from Job Manager.
-m (action-select not normally used for a -select) (action-migrate)	Mail the event that is associated with a particular `-select` or `-migrate` session. The mailing address list is defined within each environment file. The mail subject line contains ERROR when an error has been detected or STATUS when no errors along with other relative details. The email body contains the details of the tapeout session. For a batch session, only apply the `-m` to the Migrate-Flag line which captures both the selection and export information in a single email.
-nwbrowse (action-migrate)	For NetWorker deduplication node, override the default recover method by save set id and a browse recovery.
-nwinc (action-select)	For NetWorker deduplication node, include incremental backups during the `-select` phase.
-nwksave (action-migrate)	When NetWorker is defined as the tape application by default the `savefs` command is used to initiate the tape backup. The backup requires a NetWorker group name in the ADMe client config file fields 12, 13 or 14. Option `-nwksave` forces the use of the NetWorker save command. This approach requires the NetWorker pool name be passed as opposed to a group name. When using the save command, it is recommended to specify the tape retention value where `-w <browsetime>`, `-y <retention-time>` or `-e <browse & retention-time>`. Example FLd-12 content: 'Pool Name' -w '1 year' -y '5 year'
-purge (action-migrate)	Delete staged backups from Avamar only after a tape backup has been confirmed. If a staging item fails regardless of the tape backup status the BU item is not deleted. Delete results to both event and batch logs if applicable. The delete command results are logged to a historical file name

	(.ADME_purge_list.dat) located in the environment temp file location. To emulate the delete process without actually deleting the backup, touch file /atoadmin/ customize/nopurge.txt.
-path path-name (action-migrate)	Permits a user-defined suffix to be appended to the predefined ADMe destination path. A value of -path /mypath stages all selected backups to the destination path on a per client basis. Only one -path statement is permitted. When used on command line it pertains to all selected clients. When defined within the client configuration file Fld-16 it pertains only to the specific client entry. If spaces exist in the path the complete path must be enclosed in quotes when used at the command prompt. However, quotes are not required when specified in the client file Fld-16.
-rmonth 1 – 12 (action-select)	Adjusts the current auto selection date range by moving back the number of months specified. For example, -rdate 1 sets the start and end date range to 1 month before the current month. When used with the last filter it provides a convenient method to select the last backups of the month without the need to adjust the date range in a job policy. This option is used with the -select option.
-rday #[-#] (action-select)	Select a relative day or day range of the month within the specified search range. This option is used with the -select option.
-recover retry **-recover rerun** **-retry # -rerun #**	-recover or Recovery Manager RM provides a failure checkpoint mechanism in tracking individual staging failures or a premature end to a ADMe session. Individual staging failures are referred to as a Retry while an unexpected session failure is referred to as a Rerun. RM tracks a user which defines the number of sessions for each failure type. RM failed sessions can be viewed similar to a normal view. However, it contains only the failed items that should be retried. If there is a Rerun, only the outstanding items are not processed during the original session. Reexecuting a failed session is similar to initiating a normal TO session. However, an added parameter defines the type of checkpoint and its associated number. When viewing existing checkpoints RM displays the syntax that is required to re-execute. All failed sessions are color-coded to reflect whether they have been re-executed or not and whether they have been successful or failed.

-rtype none|daily|weekly|monthly|yearly (action-select)	Limit selected backups to those with a specified retention tag value. It can be defined at the command prompt or embedded in Fld-7 of the client configuration file. When used at the command prompt it pertains to all selected clients and if embedded pertains only to that client entry. This option is not applicable for the NetWorker deduplication node.
-sdate -sdate -edate (action-select)	Overrides the auto generated selection date range which by default starts the first of the current month to the current date. For example, if you wanted to select a specific date range use the following: -sdate yyyymm-dd -edate yyyy-mm-dd.
-sdelay #secs -tdelay #secs (action-migrate)	Used to set the time delay between progress messages during the staging and tape backup phases. By default these delay values are taken from the environment file. However, if specified the command prompt overrides the defaults. -sdelay = staging delay -tdelay = tape backup delay
-server (action-migrate)	Proceed the tape backup script from the tape backup server. It can provide additional functionality with respect to performing a tape backup such as making it easier to leverage multiplexing, cloning, and improved monitoring from the tape application. --- **Note** When using -server option the automated tape script is executed on the tape backup server. When a user-defined pre or post script is being called via options -upre or -upst, ensure that they do not do anything destructive such as a format command against a drive. If the tape backup server itself is being used as a staging server, it would be appropriate to format the staging disk. However, if a separate staging server is being used with -server it becomes the user's responsibility to remove the staged data. ---
-s | -stageonly (action-migrate)	For staging only. The tape backup of the staging area is not being initiated.
-t | -tapeonly -export (action-migrate)	Perform tape or export backup only of the staging area. No additional data is staged.

-tpolicy policy-name (action-migrate)	Substitute a new export policy to be used by the auto generated export script overriding the value defined in the client configuration file Fld-12,13 & 14. When more than one argument is required they must be enclosed in a quoted string. For arguments beginning with a leading hyphen - character, the hyphen must be substituted with a tilda ~ character. When ppdm is being used as the export application, some conflicting syntax challenges exist between ADMe and ppdm CLI which need to be overcome. Example ppdm syntax\'s are shown and differ slightly between staging platforms. This is an example RAW syntax that would ultimately be passed to ppdm: RAW: -a DFA_SI_DD_HOST=10.241.216.48 -a DFA_SI_DD_USER=adamk-sky8-1878f -a DFA_SI_DEVICE_PATH=/adamk-sky8-1878f/PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445bda Linux: ~a DFA_SI_DD_HOST=10.241.216.48 ~a DFA_SI_DD_USER=adamk-sky8-1878f ~a DFA_SI_DEVICE_PATH=/adamk-sky8-1878f/PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445bda Windows: ~a DFA_SI_DD_HOST=10.241.216.48 ~a DFA_SI_DD_USER=adamk-sky8-1878f ~a DFA_SI_DEVICE_PATH=+adamk-sky8-1878f+PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445 bda Note the -a must be passed as ~a on both platforms and the forward slashes present within the DFA_SI_DEVICE_PATH= option must be passed as a forward slashes for Linux but for Windows these two forward slashes must be passed as a + sign.
-upgrade	Performs an upgrade of the ADMe utility. It requires the new ADMe tar file be present in either `/atoadmin`, `/usr/local/Avamar/src`, or `/tmp` directory. No ADMe sessions can be active. The upgrade process automatically performs a backup of the ADMe setup that enables to roll back from it to the previous version. It also runs a predefined upgrade script that is contained within the ADMe tar file. The file is used to adjust environment or client configuration file when required to support the new version.

–upre script-name (action-migrate)	Provides a user hook into the auto generated tape script to call a user-defined `prescript` run immediately before starting the tape backup. The script must be an executable file or .bat on Windows that is on the staging server in the *`Avamar install path`*`/etc/scripts` folder. It is not necessary to specify the path or the .bat extension, if applicable.
-upst script-name (action-migrate)	Provides a user hook into the auto generated tape script to call a user-defined post-script run immediately after a successful tape back is complete. The script must be an executable file .bat on Windows that is on the staging server in the *`Avamar install path`*`/etc/scripts` folder. It is not necessary to specify the path or the .bat extension if applicable. Predefined scripts for deleting Windows staged data is to use FORMAT-? where the ? mark = the drive letter involved.
-v | -view	View the backups that are selected for TO based on the last `–select` process. Various metrics are displayed relative to the selected backups including the BU size, date/time, type and a summary line that indicates the combined data size and the destination FS's. Adding a single `–d` option prevents the screen clear and spinning wheel from being invoked to support it being called from a script.
–week day -week day_# (action-select)	Limit selected backups to a day of the week or a day instance within the defined search date range. To select backups from Saturday, use `–week sat`. To select the last Saturday of the month, use `–week sat –last`. To select the first Saturday use `–week sat_1`, `–week sat_2` for the second, and so on. Day names are `sun`, `mon`, `tue`, `wed`, `thu`, `fri`, and `sat`. Day numbers start with Sunday at `1` and `0` means all days.

-xdata file-folder name **-xdata nwk-saveset-name** **(deprecated)** (action-migrate)	-**xdata** <***path/folder name***>... | -**xdata** <**networker-saveset-name**>... Used to specify a specific path/folder name to be excluded from the staging process, multiple -**xdata** options are allowed. Partial path names and wild cards * are supported and preferred over using complete path names. Path names containing spaces must be enclosed within single quotes ' '. **Examples**: **-xdata /etc/Bluetooth** (single complet pathe folder) **-xdata bluetooth** (partial path name) -**xdata 'C:/Program Files/avs/*/clientlogs'** (single complete path using a wild card *) **-xdata 'avs/*/clientlogs'** (single partial path using a wild card *) The -**xdata** option will apply to all clients within the ADMe client group being used. If the need is to act on only one or more client(s) within a group, an embedded filter can be used defined in **Fld-08** of each client entry in the ADMe client configuration file. **Fld-08** syntax is shown in the examples below and multiple folders can be specified each separated using a pipe | character. Note, any paths containing spaces do not require the single quotes here but a plus sign + must be used as a delimiter for all path entries with or without spaces. **Example Syntax for Fld-08** **+/etc/bluetooth+** (single folder entry) **+/etc/bluetooth+|+/etc/X11+** (two folder entry) **+C:/Program Files/avs/var/clientlogs+** (single folder entry) **+avs/var/clientlogs+|+var/update+** (two folder entry using partial path names and wild card)

-data file-folder name **-data nwksaveset-name** **(deprecated)** (action-migrate)	**-data <name>... | -data <networker-saveset-name>...** Used to specify a specific folder only to be staged from the selected backup(s), multiple -**data** options are allowed. A complete folder path name must be provided as shown in the examples below and any path names containing spaces must be enclosed within single quotes ' '. **Examples**: **-data /etc/bluetooth** **-data 'C:/Program Files/avs/var/clientlogs'** The -**data** option will apply to all clients within the ADMe client group being used. If the need is to act on only one or more client(s) within a group, an embedded filter can be used defined in **Fld-17** of each client entry in the ADMe client configuration file. **Fld-17** syntax is shown in the examples below and multiple folders can be specified each separated using a pipe | character. Note, any paths containing spaces do not require the single quotes here but a plus sign + must be used as a delimiter for all path entries with or without spaces. **Example Syntax for Fld-17** **+/etc/bluetooth+** (single folder entry) **+/etc/bluetooth+|+/etc/X11+** (two folder entry) **+C:/Program Files/avs/var/clientlogs+** (single folder entry) **+C:/Program Files/avs/var/clientlogs+|+C:/Program Files/avs/var/update+** (two folder entry) The -**data** option will override any embedded filter if present within the client config file. BU sizes displayed will remain that of the complete buid# involved.

APPENDIX-F

NetWorker Policy Setup with ADMe

NetWorker backup commands

Note: This section is documented in KB 000195604 and should be used to ensure the most up to date content.

Networker offers several commands for initiating a backup each providing unique capabilities and convenience relative to their use with ADMe. All tape export backups initiated by ADMe rely on predefined configuration definitions within Networker which ADMe then calls automatically. Export backup characteristics including backup level, retention period, media pool(s) used and relevant save-set definitions must be defined within Networker therefore, it's important these be established and properly understood to ensure intended tape backups are performed.

Networker Backup Commands:

- **save**
- **savefs**
- **nsrworkflow** (Networker 9.x and higher)
- **savegrp** (Networker 8.x and prior) support now deprecated with ADMe

The tape backup call is referenced from each ADMe client group monthly, yearly or server tape policy fields. The syntax placed in these fields varies based on the Networker backup command used and will vary between client groups. The tape syntax may also be passed from within an ADMe Job Policy by using the **–tpolicy** option which overrides existing value(s) present within the Monthly or Server Tape policy fields of the group itself.

Note: the **–tpolicy** approach is intended for unique situations only and is not normally used for the Tapeout use case with ADMe.

Table 4 NetWorker backup commands and their corresponding ADMe arguments

Networker Backup Command (option)	Initiated From	Monthly Tape Policy	Yearly Tape Policy	Server Tape Policy (-server)
savefs (default)	Staging|Networker server	*Networker Group Name*	*Networker Group Name*	*n/a*
save (-nwksave)	Staging|Networker server	*Networker Pool Name*	*Networker Pool Name*	*n/a*
nsrworkflow (-server) (Nwk 9.x & 19.x)	Networker Server Only	n/a	**-p** *Policy-Name* **–w** *Workflow-name*	**-p** *Policy-Name* **–w** *Workflow-name*
savegrp (-server) (Nwk 7-8.x)	Networker Server Only	n/a	*Networker Group Name*	*Networker Group Name*

Using the save command

In the past ADMe used the Networker **savefs** call to initiate and perform tape exports because it was flexible in terms of where it is initiated from meaning a staging client or the Networker server and it supported both full and incremental tape backups. However, the preferred approach now is to use the **nsrworkflow** call to leverage capabilities available only to Networker server-initiated backups. As of Networker 9.x regardless of the command used it must be associated with a Networker policy resource and workflow name. Only one Networker policy resource is required for ADMe and it should be named ADME. All required workflow's must be defined under the ADMe policy and their names must match that of their corresponding Networker group name which in

turn must match the client group names and job names defined within ADMe. By maintaining this naming hierarchy, the management of both ADMe and Networker is far more straightforward and easier to relate to.

When using **save** or **savefs** commands the workflow does not actually get called by ADMe, therefore its contents related to defining backup level and retention period of the backup do not apply.

Using the savefs command

To use the `savefs` command, you must define a staging server client resource and update its corresponding save set field to reflect each unique staging data path value as defined within each ADMe client group. As shown in the following figure, you must explicitly assign a retention value, media pool, and backup schedule (backup level) for a client resource definition to use. Then assign the client resource to the correct NetWorker group name which is the value that is referenced from Monthly or Yearly Tape Policy field of an ADMe client group.

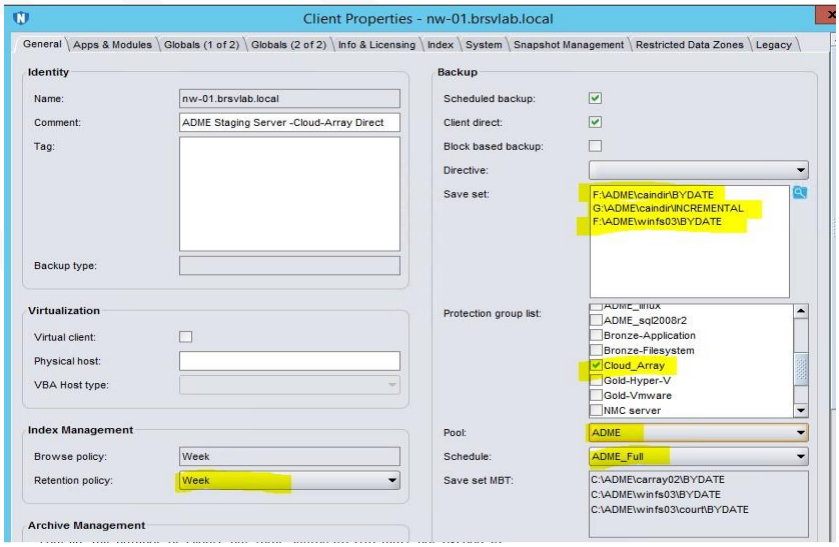
Note

To view all client resource properties, you must enable NetWorker View > Diagnostic Mode in the NetWorker Management Console (NMC). The save set field, as shown in the figure, must contain an entry for each unique staging data path matching the data path that is defined in each ADMe client group. Ensure that back slashes are used for Windows paths within NetWorker.

For non-incremental staged exports, you must append the value BYDATE, and for incremental staged exports, you must append the value INCREMENTAL in the saveset field data path. If the backup schedules (backup level) differ, then non-incremental and incremental use cases cannot share the same staging client resource definitions.

IMPORTANT: For non-incrementally staged exports you must append the value BYDATE to the staging data path and with incremental staging the value INCREMENTAL as shown. Non incremental and incremental use cases cannot share the same staging client resource definitions if their backup schedules (i.e. backup level) differ and are not configured as Full backups.

Multiple staging paths can be included in the save set field from which only the appropriate one will be referenced by the **savefs** command call made by a ADMe job policy to ensure only the applicable data path is captured to tape.



For non-incremental exports you must ensure the assigned schedule (backup level) is configured to perform a **Full** on any day of the month. Alternatively you can pass the option **–l full** after the group name within the ADMe client group tape policy field to ensure a **Full** backup will be

performed. Explicitly assigning an appropriate schedule here would be considered a good practice as it makes it more visible when viewing the configuration using the Networker NMC UI.

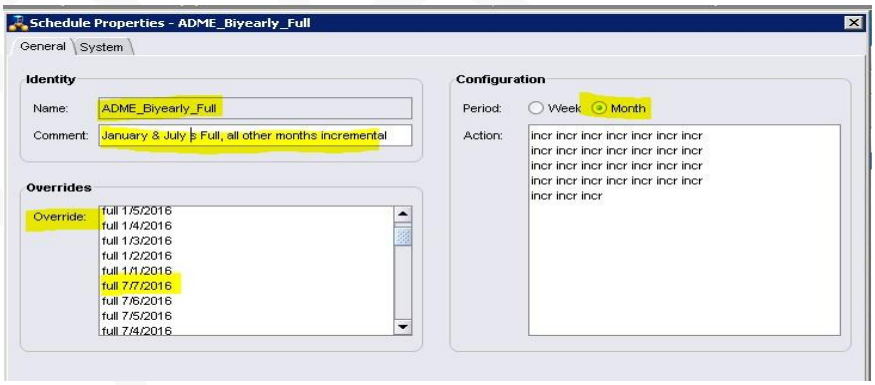
Note: To leverage an effective incremental tape export with **savefs** you must stage the data incrementally with ADMe by including the –**inc** option in the ADMe job policy. Incremental tape exports require the assigned schedule (backup level) be configured to perform Incremental every day.

However, since Networker cannot support incremental forever, you must occasionally perform a **Full** at least once per year assuming exports are being performed on a monthly basis resulting in 11 incrementals associated with a given **Full** making it similar to a traditional two week backup cycle or they can be more frequent if desired.

To configure an incremental scenario a customization of the Networker schedule is required ensuring automated periodic full's be performed based on your chosen month(s) and day(s) of the year. More than one full per year can be configured as required.

When viewing the properties of a Networker schedule resource by default it's usually displayed as a calendar from where it's possible to navigate to each year and month to adjust accordingly but this approach is very tedious. A simpler approach is to disable the display as a calendar and view its properties directly. To do this, right click on the schedule name and uncheck the option to display as a calendar then right click again and it now displays as a property view as shown below.

The following screen shot shows an example of a customized schedule. Note the highlights showing all days as being configured for incremental in the Configuration area but in the Overrides area note how specific dates have been explicitly defined and formatted as **mm/dd/yyyy** preceded by the word full indicating when a Full is to be performed. In this example full's have been configured in both January and July for each year required into the future covering the first 7 days of each month. The easiest way to create these is to use two Notepad sessions to establish one or more months' worth then copy/paste and global edits in Notepad to change the year and redo for as many years going forward as needed. Then copy/paste your entire final result directly into the overrides panel.



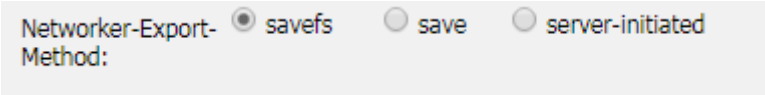
Using save

Use of the **save** command requires at least one staging server client resource be defined in Networker and assigned to any appropriate Networker group name but unlike **savefs** the reference value passed from an ADMe client group must now be the Networker media **Pool** name to use versus a Networker **Group** name as used with **savefs**.

The **save** command uses the same staging client resource definition as above but the save set paths if present are not used therefore do not have to be explicitly defined as they do with **savefs**. Backup schedule (level) will also be ignored as **save** command performs only full backups. Retention values can be specified in the client resource or at the **Pool** level. If for example you establish a **Pool** named ***ADME5Year*** and assign it a retention value then this will be the retention value applied otherwise Networker looks for the first client resource definition and uses what is defined there.

Save can be used for all migrations being performed non-incrementally and can simplify setup by not requiring the explicit save set definitions be present however, given it supports Full backups only it cannot be used to perform incremental tape exports.

To tell ADMe to use **save,** you must add the –**nwksave** option to the job policy migration criteria or from ADMe Web-UI job policy wizard click appropriate radio button as shown in Backup Migration Criteria panel.



Using savegrp or nsrworkflow

These two commands can only be executed from a Networker server versus simply from a Networker client. Their use conforms to standard Networker configuration processes and is the most preferred approach to use. A significant advantage to using server-initiated is its ability to leverage Networker's Parallel Save Set PSS feature available with Networker 9.x and higher which can improve tape throughput often by a factor of two or three times versus not using it. The Networker setup steps are more involved than with client initiated and are documented in the table below. The naming convention shown is mandatory with ADMe to ensure proper reporting by ADMe. ADMe client group name, Networker group name, workflow names ALL must match each other and by doing so, makes the configuration more readable and easier to troubleshoot.

The following pages document the manual configuration steps required to support server-initiated tape backups followed by the automated process to perform the same configuration steps much quicker.

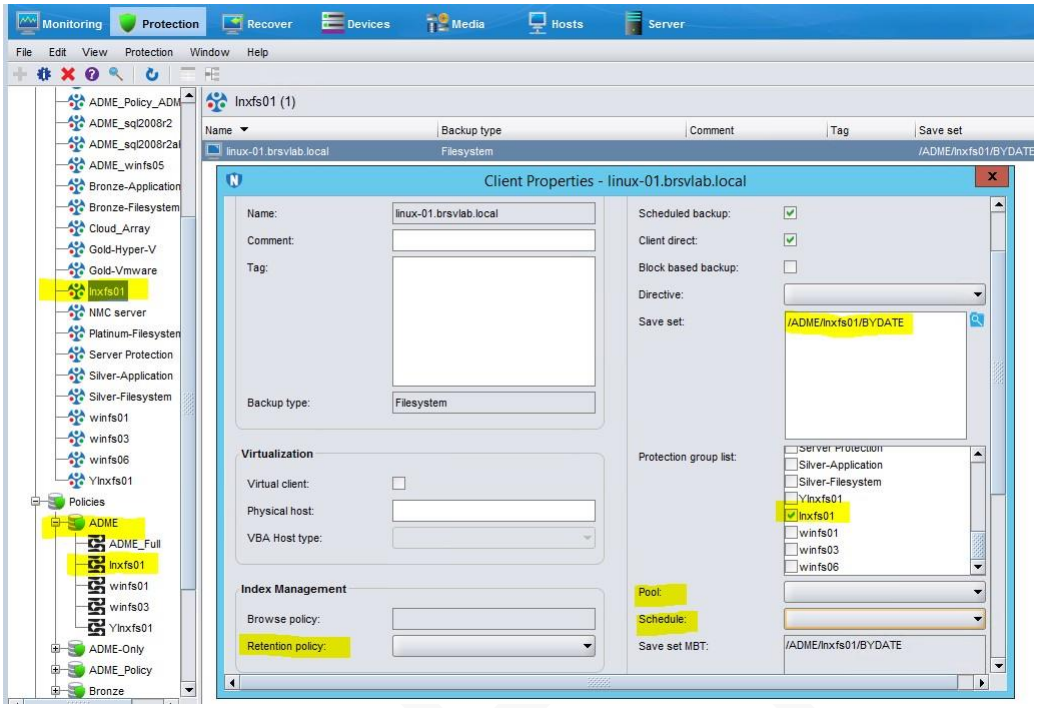
Server-Initiated Manual Configuration Steps

#	Manual Configuration Steps	Check
1	Establish Networker group names such as ***winfs01*** matching the ADMe client group names involved which would be ***winfs01***. These Networker group names must match the corresponding ADMe client group names involved.	
2	Establish unique staging server client resources with its save set field updated to contain a single valid staging path definition. Remember to append the keyword ***BYDATE*** or ***INCREMENTAL*** to it. • Establish dedicated staging client resources per ADMe job policy involved • If multiple incremental jobs are being staged to a common Drive letter or mount point you still must establish a dedicated client resource for each • Save-Set staging path definitions cannot be abbreviated	
3	Update the client resource properties as follows a. Assign the client resource to its appropriate Networker group name(s) only defined in Step-1 b. Leave the backup schedule blank (is defined in backup action – ensure full for every day of the month) c. Leave retention value blank (is defined in backup action) d. Leave the Media Pool blank (is defined in backup action) e. Click on **Globals (1 of 2) tab** - Check the **Parallel save streams per saveset** checkbox - Adjust the **Parallelism counter**; this value is usually set to 12 by default but will need to be increased in multiples of 4 to accommodate each staging drive letter local to the Networker server. For example, if you have x6 staging drive letters set this value to 28 or 32	
4	Establish a single Networker Policy named **ADME** to which all ADMe related workflows will be assigned to	
5	Establish a separate **workflow** for each Networker group name involved ensuring the workflow name matches that of the Networker group name being assigned to it.	
6	Ensure the ADMe Job policy contains the –**server** option in its migration criteria. This is what informs ADME to leverage Networker server initiated backup approach making a call to **nsrworkflow**.	

7	In ADMe ensure the client group name involved has its Server Initiated Backup field updated to include the following sample syntax -p <policy-name> – w <workflow-name>: Example **-p ADME –w winfs01** When using the suggested naming convention this value will be consistent except for the workflow name.	
8	IMPORTANT: Each ADMe Environment file being used to support **server**-initiated tape backups requires its TAVADOMAINNAME variable be updated to contain a valid MCS account name representing the Networker server thread name it will use to communicate with and transfer the tape script to the Networker server. When the Networker server is being used as the staging server, simply update this variable to match the staging server account name assigned within the same environment file. If the staging server is a different server than the Networker server, this variable must be updated with a unique account name to the Networker server which is not already assigned to any other environment file. If an account is shared between environment files, it can result in a conflict when both environments are performing the tape backup phase at the same time. **Note**: The procedure for establishing multiple Avamar MCS names against a given client is documented in **wthreads2.pdf** included with the ADMe tar file and located under the **/home/admin/admeamin/tools** folder or can be accessed from the ADMe Web-UI via its **Dashboard** tab found under **Jog-Policy-Mgr** tab. It is implied the additional Avamar MCS names have already been established and validated and their names conform to the examples shown below. The unique secondary MCS names associated with the Networker server must follow a naming convention by appending **_a, _b etc**. to it to its base name ensuring uniqueness while maintaining a visible association with the true Networker client name as it's defined to Avamar. **For example**: This example shows the primary Networker server name as activated to Avamar and used as a staging server defined in Env-X **TAVADOMAINNAME=/ADME/nw-01.brsvlab.local** **WINDOWSS=/ADME/nw-01.brsvlab.local** This example shows a secondary thread identified by the **_a** to the primary Networker server as activated to Avamar and used as a staging server defined in Env-X **TAVADOMAINNAME=/ADME/nw-01.brsvlab.local_a** **WINDOWSS=/ADME/nw-01.brsvlab.local_a** This example shows a separate staging server name NOT the Networker server which now requires a unique thread to the Networker server to support **server**-initiated tape BU's Env-X **TAVADOMAINNAME=/ADME/nw-01.brsvlab.local_b** **WINDOWSS=/ADME/windows-staging-server2** This step enables ADMe to manage multiple migrations to run concurrently using the same Networker server regardless of the number of separate staging servers involved.	

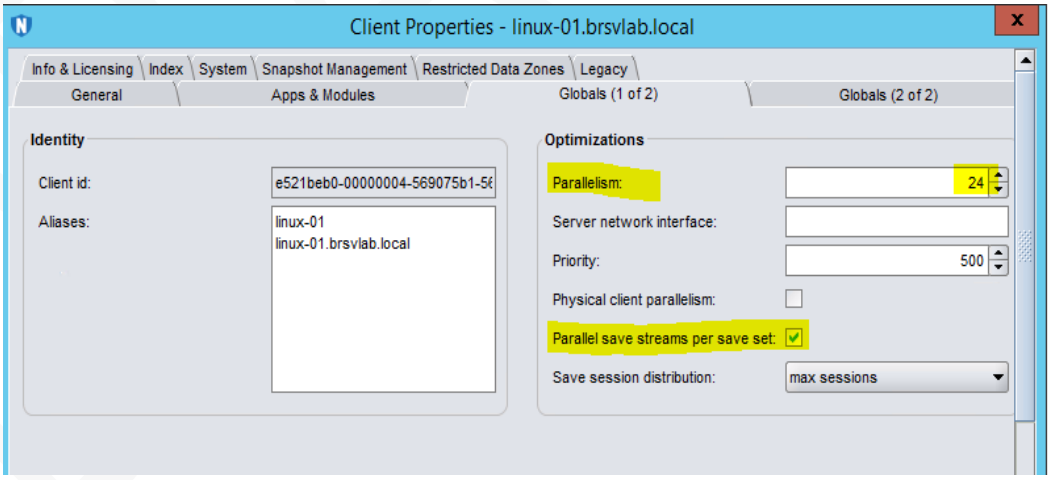
A functional characteristic to using a server-initiated tape backup, is the backups are treated as regular Networker file system backups where their corresponding workflow names will reflect their active state in the Networker NMC monitoring window in the normal manner.

Sample Group/Staging Client/Save-Set/Schedule/Pool/Retention

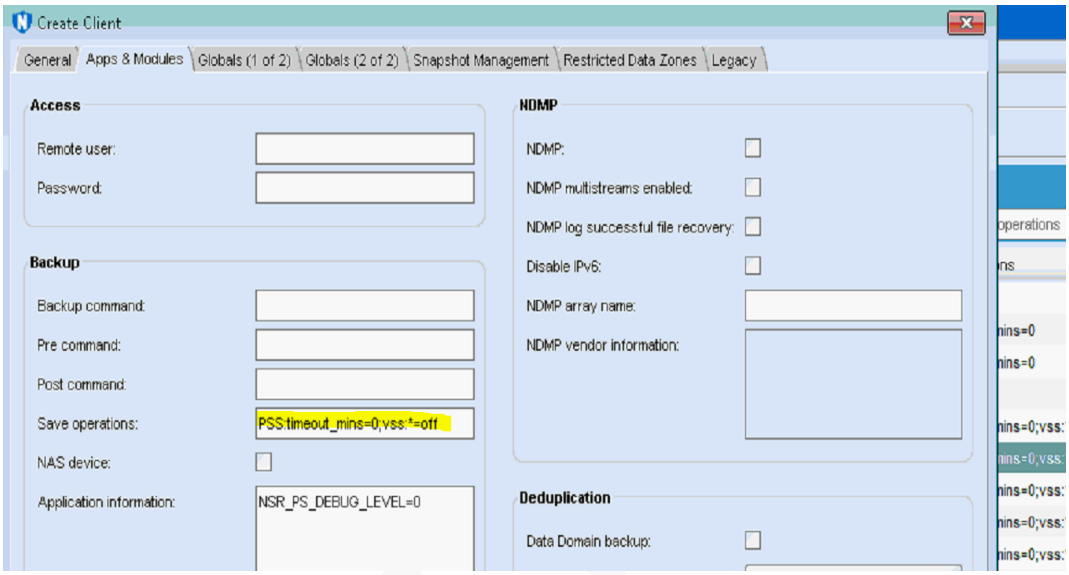


Sample Setup of Parallel Save Set Streams PSS

Set Parallelism to a value in increments of 4 such as 24 or 32. Each PSS session will consume up to 4 save streams. Setting it to a value higher than what's needed for ADMe, is not an issue.



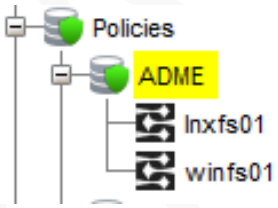
Each client resource involved must have its Save Operations updated as shown to prevent premature timeouts from the PSS feature. On Windows the VSS:*=off should also be present preventing the need for a VSS snap being issued against a large staging disk. The timeout may be adjusted to a greater value if you encounter a workflow that runs forever and never ends, usually an indication of tape related errors.



The above sample staging client resource configuration:

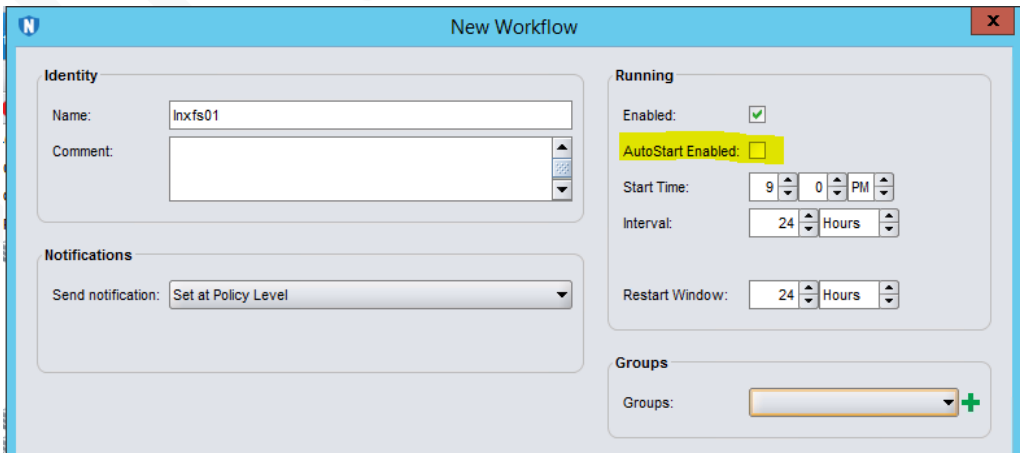
- A consistent simple naming convention throughout matching that of the ADMe client group
- A single save set path entry matching that of the staging path involved
- Retention, Pool and Schedule values blanked out as they are determined from the backup action definition

Sample Policy Definition



- All ADMe related workflow names are defined under a common policy name of ADME

Creating a Workflow

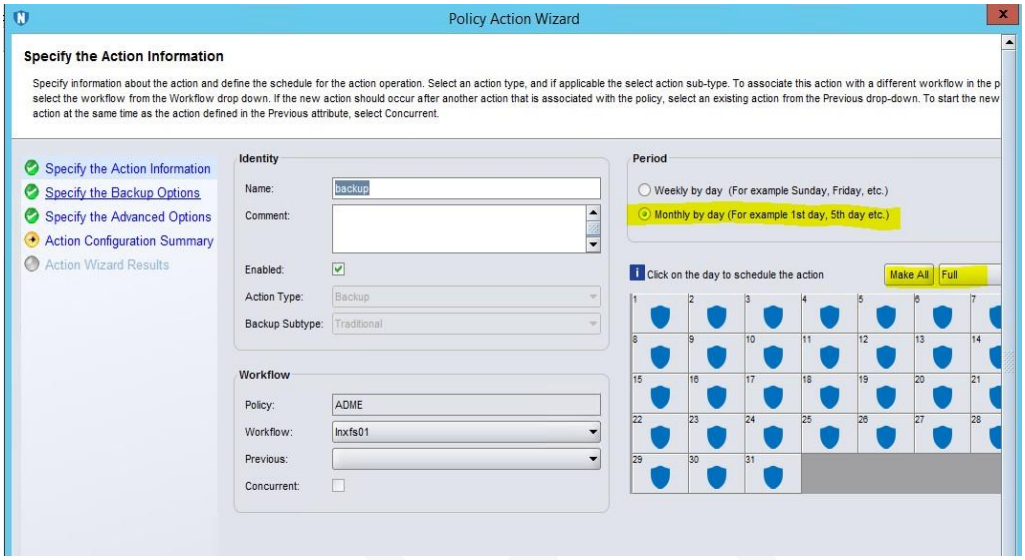


- Ensure Workflow AutoStart Enabled box is Unchecked
- Ensure WorkFlow name used matches the Networker group name attached to it

Configuring the Backup Action

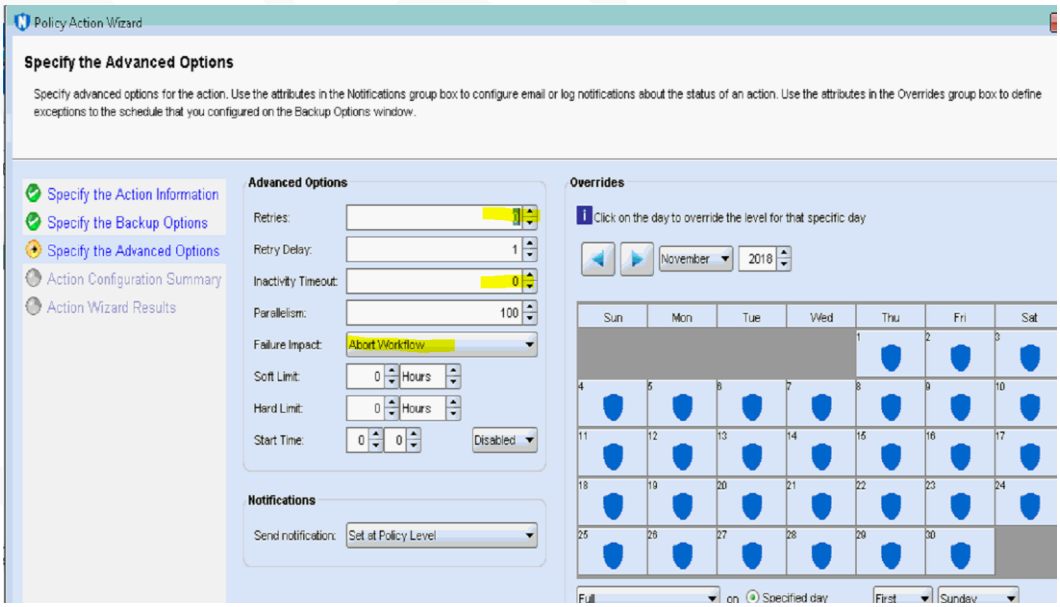
Schedule Backup Level

Ensure all days of the month are configured to perform a Full backup



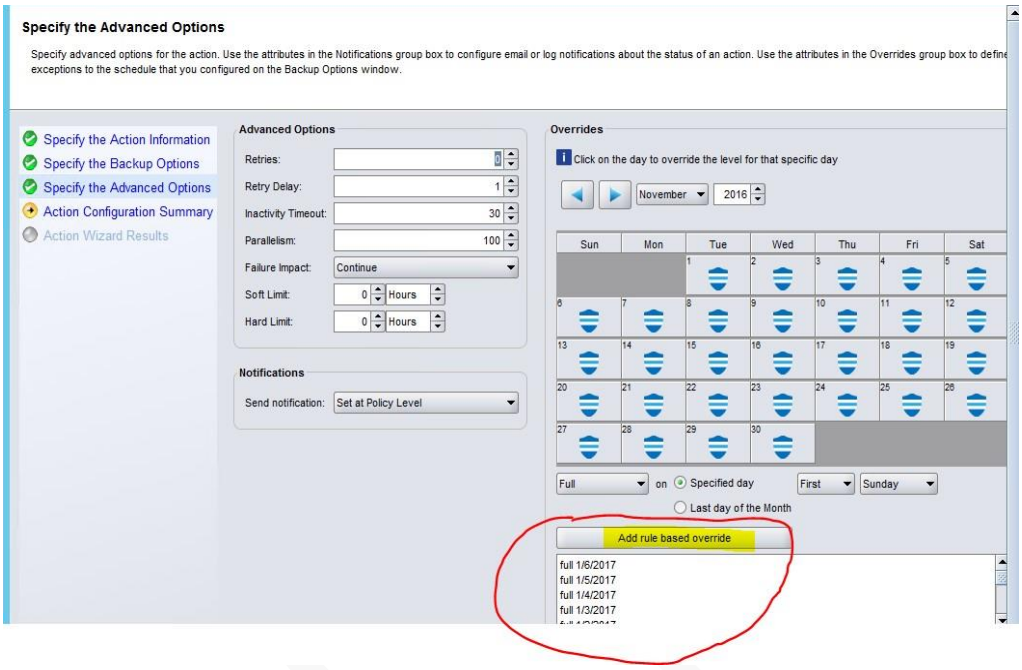
The following three parameters defined in the Action properties need to be set as shown to prevent PSS premature aborting of the workflow related with timers. Retries=0, Inactivity Timeout=0, Failure Impact=Abort Workflow

Note: When using Parallel Save Set PSS, the Inactivity Timeout value may need to be set to something other than 0 especially when one of the PSS streams has failed for some reason which can result in the nsrworkflow to run forever and not provide a RC to ADMe. A suitable value in this situation would be ~300 mins = 5Hrs.

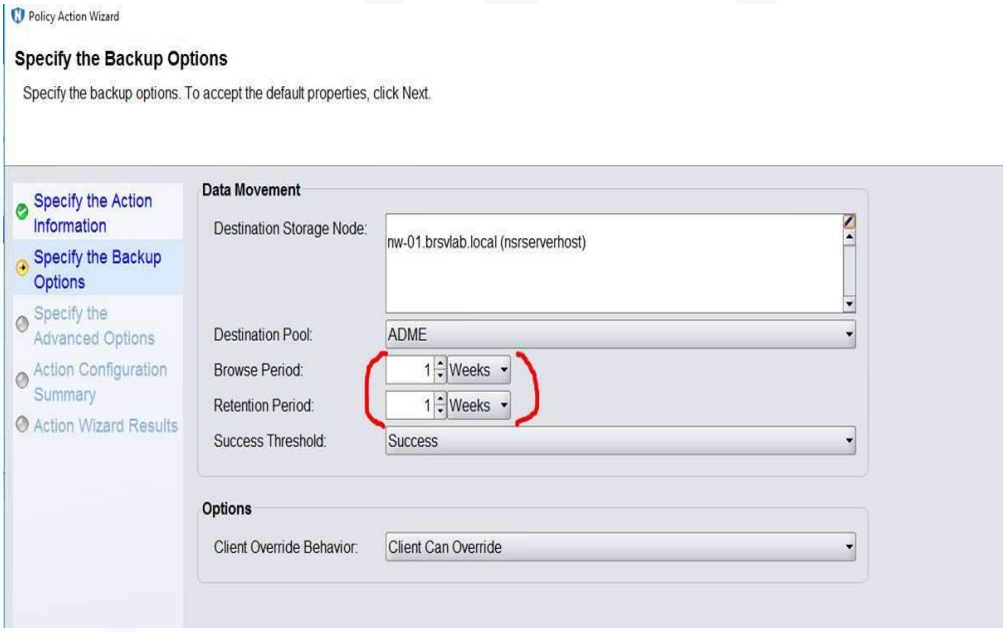


Schedule Override if incremental tape exports are to be performed

Copy/Paste into the Override area the days/months you want to perform a periodic Full as described above on Pg-3



Set Backup Retention and Choose Media Pool



Server-Initiated Auto Configuration Steps

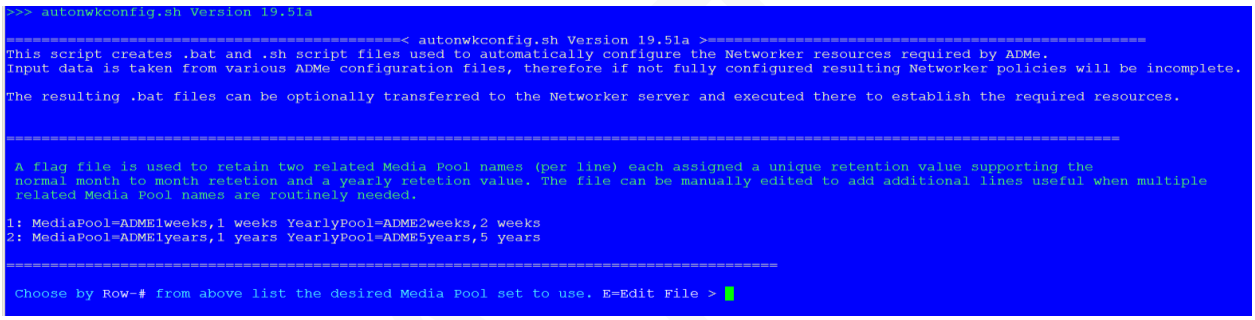
The configuration requirements within Networker for server-initiated tape backups with ADMe can be tedious to configure although the steps involved are simple and repetitive. The automated configuration process described below minimizes the effort required and helps ensure accuracy especially at initial install time. It relies on your current ADMe configuration including environment files, client groups, and job polices all of which must be configured first. When additional configuration is added in the future the automation can be rerun against the newly created client groups and jobs as needed or you can just manually create them using the NMC GUI directly.

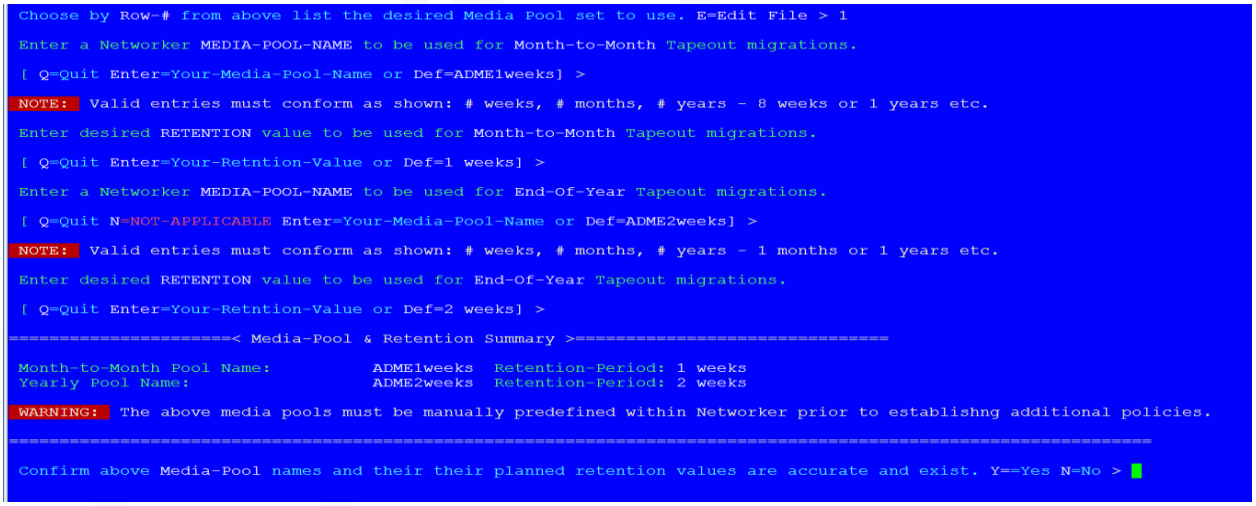
The auto configuration process is initiated using the following command from a putty session on Avamar:

adme -nwkcfg

A dialogue opens to which you interactively respond to series of questions needed to build the resulting .**bat** and .**dat** files used on the Networker server to configure the appropriate resources. Given the generated files must be executed on the Networker server, you will be asked whether you want to transfer them automatically to a folder named **C:\ADME-NWKpolicies** on the Networker master server. From a CMD prompt on the Networker server with Admin privilege, execute the mentioned files from the above folder. As of this writing, this scripted process only supports a Windows Networker server.

The initial prompts pertain to the media pool name(s) required which you must manually pre-define within Networker as the automation process currently does not define them. ADMe can leverage up to two media pools per ADMe job, one for month-to-month Tapeouts and a second used for an end-of-year tape export which would normally have a different retention value defined. The media pool names you enter here are saved so subsequent executions of the automation process will recall these and used as needed, use E=Edit option to add additional media pool names when required.





- The next couple of prompts ask whether you are reestablishing existing Networker resource definitions now using revised values.
- The Networker policy name prompt defaults to ADME and there's no reason to modify this name.

- The following shows a list of available staging server names as taken from your existing environment files.
- If more than one staging server exists, you must run the automation process against each one individually acting only on the applicable ADMe group names which use it. It is critical the correct and intended staging server is chosen here.
- If none of your environment files contain the Networker server as a staging server, the default value shown will be the Networker server as that is where the generated .bat files must be transferred to and executed from.

```
1.      UNIXSS=/ADME/linux-01.brsvlab.local
2.      WINDOWSS=/ADME/win2008r2-ent.brsvlab.local

 NOTE:  When more than one staging server exists within your setup,
        this process must be executed against each as required.

=============================================================================================================

 Enter a Staging Server name to configure by Row-#? [Def=nw-01.brsvlab.local]: >
```

- The next prompt will display a numbered list representing the available client group names currently defined within ADMe and ideally, this should be complete a list.
- You can act on all groups or a chosen list by its number space separated
- You will need to know what ADMe groups use the staging server chosen above. A proper naming convention will indicate the plugin it pertains to.

```
1:      lnxfs01
2:      winfs01
3:      winfs02

=============================================================================================

 Enter by Row-Number(s) a space separated list of ADMe group names to be configured in Networker. Example: 1 3 5 etc. or A=ALL
 >>> 2 3
 Created Networker syntax for ADMe Group=winfs01
 Created Networker syntax for ADMe Group=winfs02

>>> TRANSFER generated files to the NetWworker Server? Y or N  :>
```

- You'll be prompted as to whether to transfer the newly created .**bat** and .**dat** files to the Networker server to path name C:/ADME-NWKpolicies from where they can be executed.
- Enter **Y** to transfer the files
- You'll be prompted as to which MCS thread# to use to perform the transfer. If no ADMe jobs are active it makes no difference which one you choose but if an ADMe job is active, chose a thread that you know is idle and not being used by ADMe
- The restore activity entry will be shown and should indicate Completed if the transfer succeeded
- Once the files are transferred. Refer to the displayed instructions on how to execute them.

```
>>> TRANSFER generated files to the NetWworker Server? Y or N  :> y

 The NetWorker server is activated to Avamar with the following threads:

1: nw-01.brsvlab.local /ADME
2: nw-01.brsvlab.local_a /ADME
3: nw-01.brsvlab.local_b /ADME
4: nw-01.brsvlab.local_c /clients

 Current Environment File Status

Env-1:   IDLE    /ADME/linux-01.brsvlab.local
Env-2:   IDLE    /ADME/win2008r2-ent.brsvlab.local
Env-3:   IDLE    n/a
Env-20:  RESERVED

 Active-Count: 0 Idle-Count: 3


 Pick an idle MCS Recovery Thread by Row-# to use for the transfer? [Def=1] :>

Transferring files Please wait ....

9158343997830209 Waiting-Client 0          2020-03-05 15:26 EST 00h:00m:06s 2020-03-06 15:26 EST Restore          0 bytes        0%        nw-01.brsvlab.local        /ADME
Transfer in Progress...9158343997830209 Completed 0          2020-03-05 15:26 EST 00h:00m:02s 2020-03-05 15:26 EST Restore          9.4 KB         23.2%     nw-01.brsvlab.lo

Transfer Completed...
```

The NWKpolicies.bat file contains the necessary syntax to define ALL the client groups chosen.

The individual group-name.bat file contains syntax pertaining to the named group only.

The NWKclients.dat file contains the client resource definitions for all groups chosen.

The sequence of execution is important, the .bat file must be executed first followed by the call shown to establish the client resources.

```
 NOTE: The generated .bat & .dat files have been transferred to C:\ADME-NWKpolicies on the Networker server [nw-01.brsvlab.local]
       from where they must be executed from a CMD prompt

          1. The generated .bat & .dat files are used to establish workflows, actions, groups and client resources as required.
          2. Each <group-name>.bat file(s) can be run individually or NWKpolicies.bat can be run containing all chosen group names.
          3. Use the following call to establish staging client resource definitions after the .bat files have been run.

                    C:\ADME-NWKpolicies nsradmin -i NWKclients.dat
```

Server initiated limitations

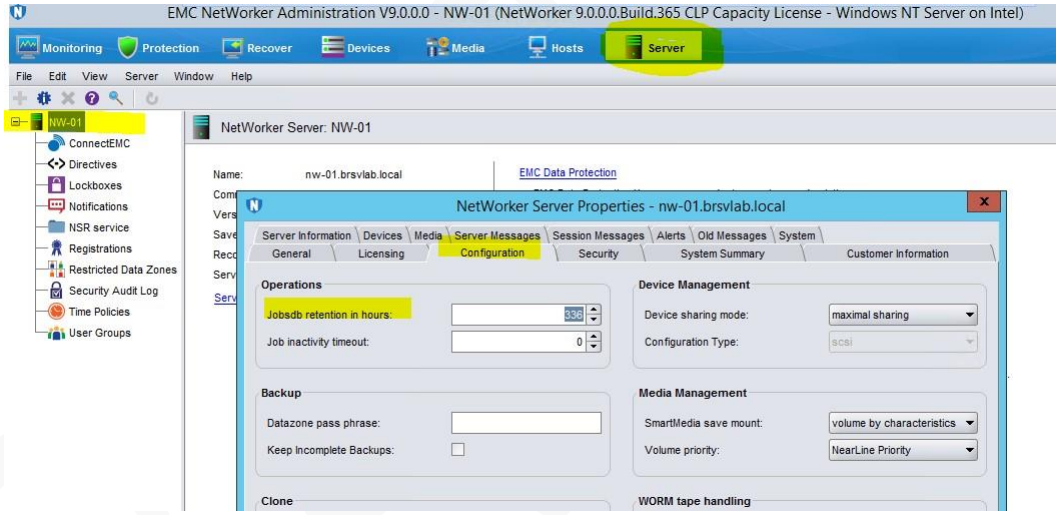
Server Initiated Workflow Limitations

When using Networker –**server** initiated backups the Networker Jobs-DB showing job completion status is only retained by default for 72 hours. This value is too short in the ADMe use case given each job is only called once per month resulting in related job policy logs potentially being purged prior to them being reviewed in the event of a failure. This value should be adjusted to something more suitable such as a 2-4 week retention as shown.

From NMC do the following (see highlights)

1. Click on Server option in top menu
2. Click on Server name upper right, right click and choose Properties
3. Click on Configuration Tab
4. Adjust the Jobs-DB retention in hours parameter to a more suitable value, 336 Hrs= 14 days

---



Server Initiated Limitations	Explanation
The Networker Jobs-DB contents is retained by default only 72 Hrs.	It is advised to increase the retention as described above.

Conclusion

The use of the various Networker backup commands is left up to the user. However, the recommendation would be to use server initiated which is now the default in ADMe. The command **savefs** is considered client initiated requiring the less setup effort but may not provide the best performance. **Save** command can also be used and requires the least amount of setup effort within Networker. Networker **server**-initiated tape exports call the standard NetWorker **nsrworkflow** command which can leverage parallel save set streams (PSS) therefore the best possible performance results. Increase in throughput can be 2-3 times that of using a single tape thread and it can support incremental and non-incremental use cases. Server-initiated also leverages the standard Networker workflow and action process which can be monitored with NMC and diagnosed in the same as any regular Networker file system backups.

It is very important when configuring Networker for ADMe to use short, meaningful generic names and to ensure a one-to-one relationship between Networker names and those used within ADMe. The automated/scripted process helps to ensure appropriate naming convention is adhered to.

Random names, long names or names which do not match those in ADMe, result in unnecessary complexity and they may not report correctly within ADMe.

APPENDIX-G

Troubleshooting and Best Practices

Troubleshooting & Best Practice

This section contains information about troubleshooting and best practices for ADMe software.

Determining the Avamar plug-in type to use

To determine the plug-in type involved, confirm using the Avamar Recovery UI. Only one plug-in type can be acted on within a job policy definition. The file system plug-in is the default and does not require any specified plug-in option regardless of OS type.

Account definitions (domain and client names as defined within a client group)

- If the client is moved to a different Avamar domain or is deleted from Avamar, ADMe clients become invalid and produce account related errors or no backups selected.
- If using the ADMe CLI Interactive Menu System, the **Client Configuration Manager** offers two functions useful for determining and highlighting invalid client names:
  - **C=Cfg-View** acts against a group or all groups
  - **P=Parse-Chk** acts against the entire client configuration file.

  Both functions provide different verifications to highlight invalid client names and incorrect field entries which will be displayed in red.

  If a client is moved to a different domain within Avamar, the **Cfg-View** function highlights the affected client entry if it's defined. To correct, either remove the entry from the group and re-add it which will pick up its current domain or interactively edit the Fld-4 domain value of the impacted client name, first approach is easiest and most accurate.
- VMimage client names are comprised of the user-defined name and a multicharacter hash value that is appended to it. If the same client short name has been defined more than once, its associated hash portion will always be different. In this unusual scenario make sure the appropriate complete client name is defined.

Backup date range validation

The default date search range used during the backup selection phase starts from the first of the current month up to today's current date. Plan to start migrations on at least the second day of the month if using the default search date range to ensure Avamar has a completed and eligible backup.

Retention Tag values

When a monthly tag filter is being used and the Avamar backup began prior to midnight but completed on the first of the month, `avtar` will assign the tag to the backup start date. However, the Avamar GUI shows it as being on the first day of the month. Since ADMe relies on `avtar` output to search for backups, it will not select this backup by default due to it now being outside the default search range which starts from the first day of the current month.

To overcome this condition, remove the monthly tag filter and use the `-first` or `-first_F` option within a job policy selection criteria configuration.

Errors 04A and 04B

When one or more clients within a client group results in no backups being selected for it, an `ERROR-04B` message is displayed which will result in a staging exception condition flagged against the affected client name(s). This error can be masked as it's primarily a user condition while retaining the error message for logging purposes. Use the CLI UI option **A=Administration->A= ADMe-Customize** and choose option **Y** to edit the file setting the ERROR-04B message to **true**.

When in doubt of the results from the backup selection phase, check the client account names involved have eligible backups matching the backup select filtering criteria used from the Avamar GUI Recovery UI.

When all clients within a group result in no backups being selected, an `ERROR-04A` message is generated resulting in the ADMe job ending in error as its work list is empty. Affected clients should be investigated to determine whether they should be removed or disabled from the

Embedded filters

Filters defined in a job policy or specified on the `-select` command, are applied against all clients within the associated client group being used. A filter defined within the client configuration file entry is referred to as an "embedded filter" and pertains only to its associated client entry. If a client unexpectedly fails to select a backup, check whether a hidden “embedded filter" is the cause of the problem. Embedded filter fields of a client entry are defined in Fld-6, Fld-7, Fld-8, and Fld-17 of a client definition csv entry or can be viewed and adjusted from either the CLI menu UI or the Web-UI under Client Config tab.

While viewing a job policy log or displaying the selected backup view using the Menu, a red flag on the right side is used to highlight a client which has an embedded filter along with a short descriptive text name describing the embedded filter name.

Recovery session failures

Each recovery session performed is displayed in a job policy log showing the following:

- client name
- build-#
- associated avtar client log name
- backup size
- staging server name
- staging path
- avtar completion status code

Client avtar logs for file system plug-in restores are available directly from the Avamar activity monitor. Use a case sensitive search when searching avtar logs, look for "avtar Error" or "avtar FATAL" messages. Refer to related details in the ADMe job policy log where most errors are displayed in red. For non-filesystem plug-in restores, refer to the details shown in red within a job policy log which also includes the name of the associated avtar log available on the staging server involved. In some cases, the associated complete avtar log needs to be reviewed on the staging server involved in its appropriate `/var` folder which varies based on the MCS thread being used. The avtar log file name is always displayed in the job policy log.

If a staging recovery fails, ADMe automatically backs up the Avamar `var` folder from the staging server. The client logs are available from Avamar when required for further analysis. These client log backups are retained for 30 days.

Common recovery failures are associated with corrupt Microsoft Office compressed files as documented in KB article esg118761, or other causes such as communication related issues between Avamar and the staging server resulting in time outs or dropped sessions etc. Check for staging server reboots possibly due to the Windows OS auto update process when timeouts or dropped sessions are encountered.

Other causes may be due to name resolution and/or ports, or basic avtar failures.

Recovery failures for non-file-system plugins is accomplished using a generated avtar script which is executed on the staging server. Occasionally the credentials it uses become invalid especially after a staging server reboot and will need to be refreshed. The refresh can be accomplished from the CLI direct, CLI UI or the Web-UI

CLI: adme -securityrefresh
CLI-UI: Administration > Security > Refresh
Web-UI: Environment-Tab->WrenchTool

Staging performance

Throughput of a recovery from Avamar is governed primarily by Avamar/DD system involved and the physical resources of the staging server. There's nothing ADMe can do to influence this phase.

Staging infrastructure also plays a part in performance and can often be modified to improve it.

- CPU capacity on the staging server: typically, at least four cores are required to achieve reasonable results. Faster CPUs are more effective than multiple slower CPUs.
- Network connectivity to the staging server: ensure there's no mismatch of duplex settings, and that GigE or higher is being used. If multiple staging MCS threads are being used to a given server, 10GigE or multiple Teamed GigE'S are required.
- Unrelated processes on the staging server should be stopped and should not be using the staging disks. The staging disks must be dedicated to ADMe especially on Windows.
- High file counts in the backups being staged will negatively impact recovery times often significantly. Larger file system or NDMP backups can benefit from using the incremental staging option -**inc** to improve effective throughput usually by a factor of 3 or 4 times. However, incremental staging requires dedicated staging disk. A suggested size threshold would be BU's greater than 3 TB.
- Large files recover quicker than an equal size collection of smaller files.
- If anti-virus software is installed on a staging server, ensure all staging drive letters and/or filesystems are excluded from the scanning process, especially file-on-access scanning. Antivirus S/W can slow the performance to unacceptable levels.
- A staging server can be an existing media or storage node of the tape backup application. In general. they typically have good CPU and memory capacity and have direct access to the SAN-based tape drives improving the tape backup phase by eliminating the need for an additional network hop to reach the tape drive devices.
- ADMe relies on Avamar MCS service, which by default is limited to a single thread per staging server. However, for both Windows and Unix/Linux staging servers, procedures exist for establishing multiple Avamar client MCS sessions to a staging server enabling them to be used concurrently improving ADMe aggregate throughput considerably.
- There is no hard limit to the number of concurrent threads or staging servers. However, too many concurrent threads will result in performance and complexity issues.

Considerations with non-incremental staging

Disk space is reclaimed after each migration job session. However, it is only once a successful tape export that ADMe can confirm with. If the tape export status cannot be confirmed, staged data is not removed, which allows the correction of the tape export and the rerun of job telling using the tapeonly option. ADMe logs a red highlighted message to alert when the staged data is not deleted. If the data is not deleted and another ADMe job is running, there is the risk of running out of staging disk space and compounded failures.

If there is sufficient disk space to support another ADMe job, its tape backup may now include the previously staged data from the last job. This method would depend on how the tape policy definition is defined and whether it contains specific paths or a more generic top level path which would be less restrictive in terms of what it captures.

For deletion of staged data on a Windows staging server, ADMe relies on a quick format command against the drive letter. The `-upst` option is assigned to the Migration_Flags line in a job profile that is used to call a pre-defined bat file. The file is on the staging server in the Avamar `var/etc/scripts` folder. The use of quick format mandates the drive letter which should be dedicated to ADMe use only. ADMe now provides a keyword in place of a used defined bat file FORMAT-? where the question mark represents the formatted drive letter.

Note

Drives C: and D: are not accepted as a formatted drive letter.

Userid/Passwords used by MCCLI and avtar calls

By default, ADMe uses a consistent user ID with an encrypted password to communicate with MCCLI and `avtar`. Occasionally these credentials become invalid or stale and must be refreshed, which can be done from the ADMe Command Line Interactive Menu System under **Administration > Security > Refresh**. To change the behavior when using an unencrypted password, select **Administration > Security > Basic**

This process should not be run while ADMe jobs are active. To limit the security refresh process to a specific environment it can be issued directly from the Linux command prompt using: **`adme Env-# -securityrefresh`**

Auto-generated tape export scripts

To review tape export script contents without executing the script, run the following at the command line from the directory where the ADMe CLI interactive menu system is launched:

```
touch stoptape
```

During a `-migration` session, the process stops and allows the viewing of the script `autotapeout.sh` or `autotapeout.bat` content that is located under the environment numbers's temp folder. The most recent `tapeout` script that an environment uses is named `.autotapeout.tab` or `.autotapeout.sh` (note that the files are saved as hidden files). These files are saved in the environment's temp folder.

Recovery scripts for non file system plug-ins

ADMe uses `avtar` to recover non file system plug-ins which mccli does not support directly. ADMe generates an `avtar` script then transfers to the staging server for execution. To view the `avtar` script content without actually executing it, issue the following touch command from the current directory which halts the migration process immediately once the script is created:

```
touch stopavtar
```

An `avtar` script is named `avtarres(env-#).bat` or `avtarres(env-#).sh`, where env-# is the environment number. The most recent `avtar` restore script that is created and used by an environment is named `.avtarres(env-#).tab` or `.avtarres(env-#).sh` (note that the files are saved as hidden files). These files are saved in the environment's temp folder and are overwritten once the next migration is initiated.

Debugging

Debugging in ADMe is done using one or more `-d` or `-D` flags at the command prompt. The uppercase `-D` primarily displays information to stdout only, while the lowercase `d` logs primarily to the ADMe event log, and includes additional informational and error messages. By default, job policy definitions contain one `-d` on the `-select` command line and one `-d` and one `-D` on the `-migration` command line. These can be increased. However, do not remove the default ones.

Additional troubleshoot flags function as follows: • `-d -`

`d` or `-D -D` echo avtar and mccli cmd syntax

- `-D -D` used with the `-select` command echoes a trace message in the job log of the `avtar` syntax being called.

- For file system backups, `-D -D` used with the `-migrate` command displays a trace message of the MCCLI syntax. (Non-filesystem plug-in backups can be viewed in a job

log file or in their generated script that is located in their environment-# tmp folder `/atoadmin/tmp/ADMEcfg#`.)

• `-d -d -d` or `-D -D -D` removes quiet mode from `avtar` and `mccli` commands. • `-d -d -d -d` retains ADMe session temp files for problem analysis including the auto generated tape scripts. • `-d -d -d -d -d` provides a full trace of the ADMe session that is intended to be captured to a trace file for in depth analysis.

Generating an ADMe grab file for diagnostic purposes

Generate a "grab file" to provide for services requests with Customer Support.

1. Run the following at the command line: `adme -grab`
2. Attached the displayed information and appropriate grab file to the support request.

Not Receiving Mail Notifications

ADMe relies on mailx to forward email notifications. Mailx gets the name of the SMTP relay host from a file that is called /etc/mail.rc where the following syntax must be present. **`set smtp=my-smtp-relaye-hostname`**

Tape Related Failures

Tape export related failures are reported to ADMe and presented by it based on the information the tappe application provided. The details or suggestions that are given must be reviewed to determine the cause of a tape related failure. Failures can be divided into two basic catgoroies, user-error or application related failure. In all cases of tape related errors, the tape applications logs must be reviewed.

Common user related errors are:

- Incorrect tape workflow or policy name that is defined within the ADMe client group being used.
- The specified workflow or policy name does not exist within the tape application or it is misconfigured. A common error is for its save set value to be incorrect and not match that where ADMe has staged the data.
- Misconfiguration of tape application pointing to wrong staging server name • Tape application agent has not been installed on the staging server or its services are not running

Common Tape Application related errors are:

- Tape hardware related failures such tape cartridges, tape drives, tape library issues.
- Tape application related bugs or misconfiguration • Unable to communicate with staging server due to possible services not being started or required ports not being open.

Appendix-H

PPDM Configuration Details

PPDM is supported as a backup migration target application and handled comparable to other export applications. User parameters are passed to PPDM's **ddfssv** CLI called by ADMe to initiate the backup of the staged data into the appropriate PPDM asset.

ADMe PPDM Setup Requirements

Using the **ADMe CLI menu**, update applicable environment file(s) variable named **BACKUPPRODUCT** to contain **ppdm.** Normally this value would be reflected into the ADMe Web-UI Env-Tab Export Method column however the Web-UI is not currently aware of **ppdm** as being an export application**,** therefore will display **n/a.**

Using Multiple Migration Threads

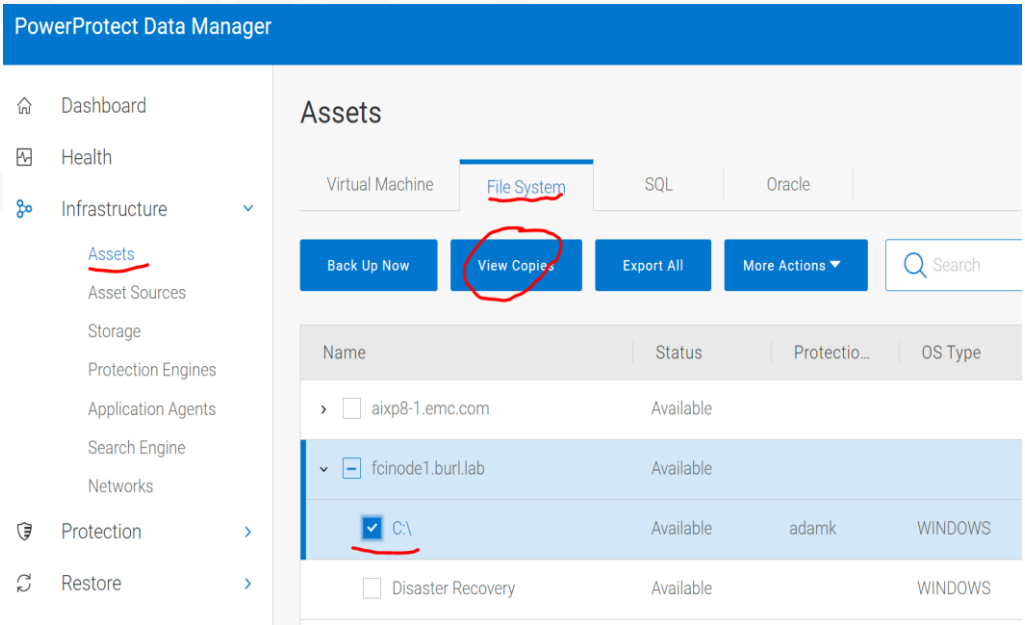
Staging server(s) must be activated to both the source Avamar in the normal way and multiple MCS threads to it can be utilized to Avamar per staging server. Each stagging server must also have the PPDM FS agent installed and be registered as an asset to PPDM. The PPDM CLI does supports being called more than once from a given staging server thereby accommodating the use of multiple migration threads in parallel.

Retention Behavior

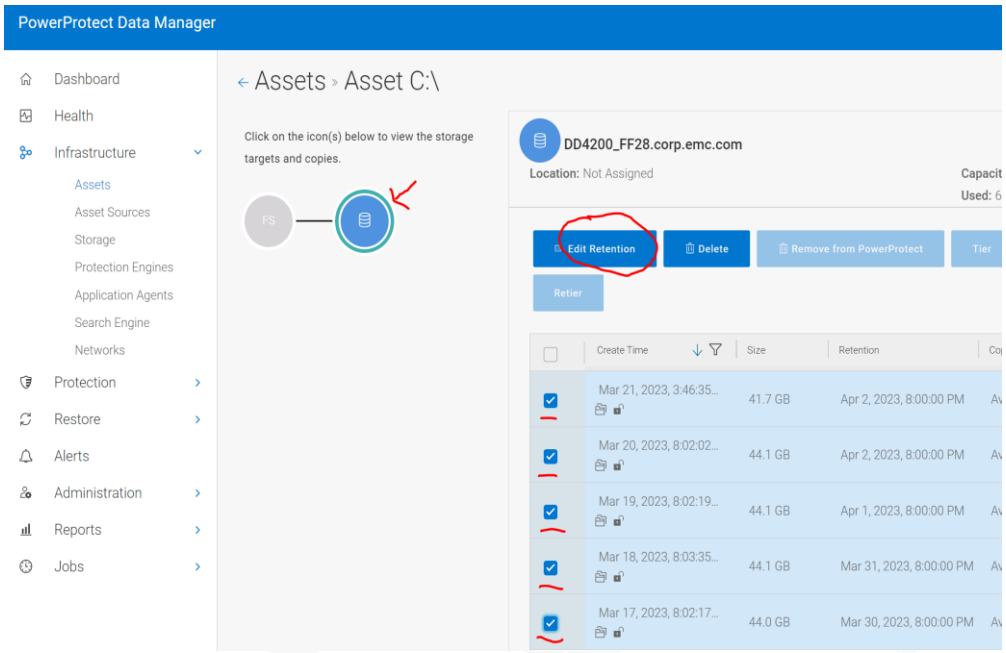
With PPDM a migrated backup retention period will be hard assigned based on the PPDM Protection Policy definition associated with the staging server asset involved i.e. asset = <staging-server-name & staging-path-volume>. When more than one retention period is to be used, the appropriate staging server asset combination must be assigned to its own unique Protection Policy which can have a unique retention value defined there.

PPDM backup retentions can be manually overridden, and multiple BU's can be acted on at a time. For example, if the Protection Policy retention value was set to 2 years and you now require backups with that retention value be adjusted to 5 years, multiple migrated BU's can be selected, and their retention times adjusted to 5 years. This behavior differs from migrating to a target Avamar system where the retention value is passed to the **avtar** backup call made by ADMe allowing dynamic assignment of an appropriate remaining retention value to be assigned to the newly migrated backups.

Navigate as shown then click on View Copies.



In View Copies panel click on the icon by the red arrow to display available BU's. Check each individual to be modified then click on Edit Retention button enabling you to modify the retention period of the selected group of backups.



PPDM File System CLI Usage & Setup

1. The PPDM CLI call to be used is **ddfssv** and its default install path shown here must be defined in each ADMe environment file(s) variable as shown. Default values are shown here but this may differ at customer site.

BACKUPPRODUCTHOMEWIN: *C:/progra~1/DPSAPPS/fsagent/bin*
BACKUPPRODUCTHOMEUNIX: */usr/bin*

2. The FS client agent for PPDM provides the following **CLI** to initiate a FS backup from a client such as an ADMe staging server. The command called is **ddfssv** and supports the following syntax.

ddfssv --help

2023-03-01T23:25:16.431Z Usage: ddfssv [OPTION]... STRING [backup_target]
STRING can be a file path string, key=value string, or a flag string.
2023-03-01T23:25:36.434Z -a [key=value]
2023-03-01T23:25:36.434Z **DFA_SI_DD_HOST=hostname** Data target hostname is mandatory – must specify using an IP address
2023-03-01T23:25:36.434Z **DFA_SI_DD_USER=username** Data target username is mandatory.
2023-03-01T23:25:36.434Z **DFA_SI_DEVICE_PATH=device_path** A device path is mandatory.
DFA_SI_DD_PASSWORD=
The password option is not displayed in help o/p and is not mandatory for ADMe use case but if specified, enclose the password in single quotes to ensure any special characters it may contain don't result in complaints from ADMe.
2023-03-01T23:25:36.434Z DFA_SI_DD_LOCKBOX_PATH=lockbox_path
If credentials were not added in the default lockbox path, a lockbox path is mandatory. Default lockbox path is /opt/dpsapps/fsagent/lockbox.
2023-03-01T23:25:36.434Z DFA_SI_CATALOG=Local|Remote|None
Specifies the catalog to which transactions are written, whether local, remote, or neither. By default, transactions are written to both local and remote catalogs.
2023-03-01T23:25:36.434Z -l INCR|FULL Specifies the backup level. A full backup is performed by default.
2023-03-01T23:25:36.434Z -LL Specifies to output the backup savetime to stdout.
2023-03-01T23:25:36.434Z [backup_target] Specifies the backup target, such as local disk C:\\ or D:\\

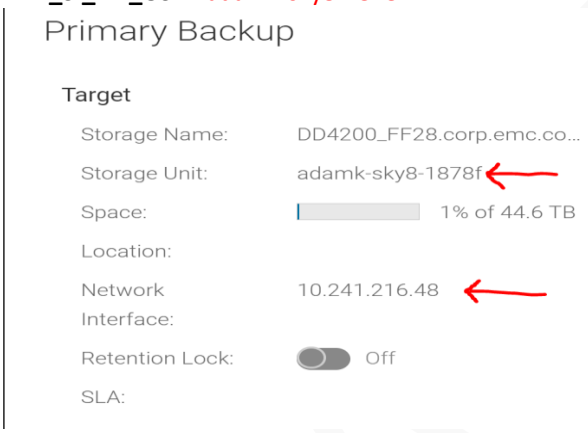
Multiple steps are needed to determine the various parameter values documented below which ultimately are passed to ADMe by pasting the syntax into Fld-12 / Monthly-Tape backup field of the client group entry in ADMe or optionally passed from an ADMe Job policy definition using its -**tpolicy** option, refer to specifics below on how best to utilize these approaches.

Determining the specific values passed to each **ddfssv** parameters is somewhat convoluted so be careful to ensure they are defined exactly as per the documented example below.

>>> Step-1

Using PPDM Admin Web UI, click on **Protection Policies** -> **Policy-Name** -> **View** (click view link) refer to screen shot below to obtain the first two required vaues.

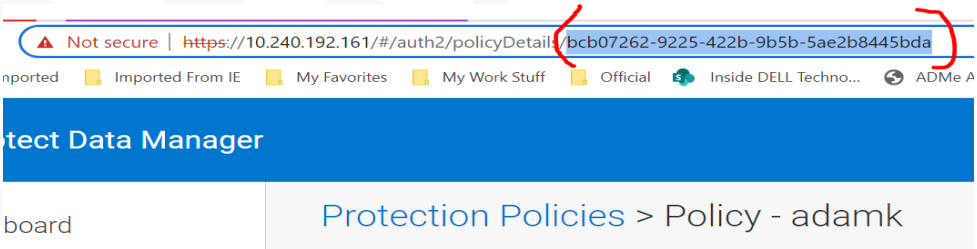
DFA_SI_DD_HOST=10.241.216.48 (must be defined using its IP address)
DFA_SI_DD_USER adamk-sky8-1878f



>>> Step-2

For this parameter **DFA_SI_DEVICE_PATH=/*<device-path>*/*<PLCTLP->*** the values passed here is comprised of two parts.

While the Protection Policy is displayed in PPDM Admin UI **Step-1** above, go to its URL bar and copy/paste the last field from the URL link as shown in this screen shot which will be used later.



>>> Step-3

Login to PDM server using SSH/Putty as admin and run the following command passing the storage unit name observed from **Step-1** as its first argument, o/p should look like the example shown here.

/usr/local/brs/puppet/scripts/get_dd_mtree_credntial.py adamk-sky8-1878f

```
==============PowerProtect DD MTree credential==============
Full MTree path: /data/col1/adamk-sky8-1878f
User name      : adamk-sky8-1878f
Password       : (8y:j=*$W4R,-Nr;
============================================================
```

From the above cmd. o/p, the **Username** value will be required adamk-sky8-1878f along with the **MTree path** name value adamk-sky8-1878f. The PLCTLP- value copied from the URL entry in Step-1 will also be passed completing the parameter input.

DFA_SI_DEVICE_PATH=/adamk-sky8-1878f/PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445bda

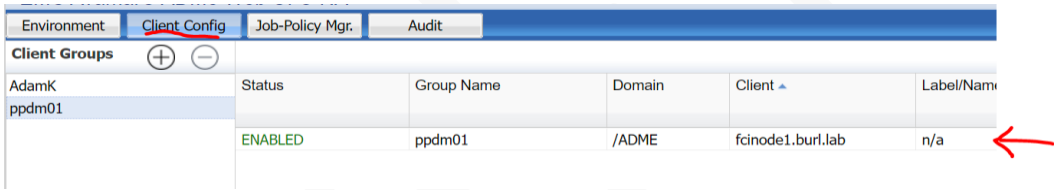
Using the above options, build a call to the **ddfssv** command as shown here to verify its execution is successful from a command prompt on the staging server. The F:\\ refers to the top-level volume to be backed up and must always be the last argument. Do not specify any subfolders as PPDM FS agent acts only on the entire volume. The yellow shaded syntax will be inserted automatically by ADMe but to use it manually as a test, you must include it.

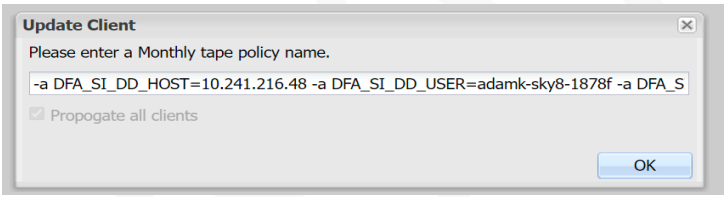
/usr/bin/ddfssv -l FULL **-a DFA_SI_DD_HOST=**10.241.216.48 **-a DFA_SI_DD_USER=**adamk-sky8-1878f **-a DFA_SI_DEVICE_PATH=/**adamk-sky8-1878f**/PLCTLP**-bcb07262-9225-422b-9b5b-5ae2b8445bda **F:**

>>> Step-4

This is the syntax portion to be entered into Fld-12/Monthly Tape policy filed of an ADMe client group.
a DFA_SI_DD_HOST=10.241.216.48 **-a DFA_SI_DD_USER=**adamk-sky8-1878f **-a DFA_SI_DEVICE_PATH=/**adamk-sky8-1878f**/PLCTLP**-bcb07262-9225-422b-9b5b-5ae2b8445bda

Login to the ADMe Web-UI, click on Client Config tab then highlight the client entry on the right pane, right-click and choose Update Monthly Tape Policy. Paste your final syntax into the field provided ensuring to click check box to propagate to all clients in the group. When the client group is initially created you can enter this as well. Refer to note below prior to pasting this value.





Note: Minor changes are needed when using a Windows staging server to overcome conflicts with ADMe handling of forward and backward slashes.

An ADMe prerequisite requires all slashes be specified as forward slashes even for Windows related syntax. These will automatically be converted by ADMe to backward slashes when needed as ADMe builds out the final **ddfssv** syntax call. However, **ddfssv** syntax itself has requirements for forward slashes as part of its parameter syntax which need to be preserved. To accomplish this, modify any forward slash that's part of the **ddfssv** parameter syntax to a **+** sign as shown in the examples which ADMe will handle accordingly. For a Linux staging server, no forward slash substitutions are necessary.

Original Valid String:
-a DFA_SI_DD_HOST=10.241.216.48 **-a DFA_SI_DD_USER=**adamk-sky8-1878f
-a DFA_SI_DEVICE_PATH=/adamk-sky8-1878f**/PLCTLP**-bcb07262-9225-422b-9b5b-5ae2b8445bda

Modified String for Windows Staging Server:
-a DFA_SI_DD_HOST=10.241.216.48 **-a DFA_SI_DD_USER=**adamk-sky8-1878f **-a** DFA_SI_DEVICE_PATH=**+**adamk-sky8-1878f**+PLCTLP**-bcb07262-9225-422b-9b5b-5ae2b8445bda

Modified String for Windows when using -tpolicy option:
The **-tpolicy** option is specified in a ADMe job policy definition and its purpose is to replace the current content in Fld-12/Monthly Tape policy field of the client group being used. In some use cases it may be easier to define here versus within an ADMe client group.

However, when -**tpolicy** is used, its arguments must be enclosed within single quotes and any arguments being passed which start with a hyphen, must have the hyphen modified to a tilde **~** character. With PPDM, this means the -**a** separating the various **ddfssv** parameters must be modified to ~a as shown in the example below. For a Windows staging server, the forward slashes which need to be retained as forward slashes must be modified to a **+** sign as described above.

Migration_Flags:: -d -D -m -tpolicy '~a DFA_SI_DD_HOST=10.241.216.48 ~a DFA_SI_DD_USER=adamk-sky8-1878f ~a DFA_SI_DEVICE_PATH=+adamk-sky8-1878f+PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445bda'

NOTE: Refer to troubleshooting section Auto-generated tape export scripts for ways to view the generated PPDM script and verify correct syntax has been generated prior to executing an ADMe job policy.

Automated Configuration

When using **adme -autocfg** command as documented in pdf attached to KB 000195667 (internal access only) as it is intended for Dell PS only, there are requirements to facilitate passing the verbose PPDM parameters described above to ADMe in an automated fashion versus doing so manually or interactively. After determining by manually verifying your **ddfsss** parameters described above function as intended by manually running a small backup, place the validated syntax into a flag file named **/home/admin/admeadmin/customize/ppdm.cfg**. This file is only access when you are configuring ADMe, it is not referenced by the migration process.

Sample file contents are shown below where up to two entries one for a Windows staging server prefixed with **WIN**: and one for a Linux staging server prefixed with **LNX**: can be defined. Modifications to the PPDM parameter content to satisfy ADMe must be included here as described above and shown in the example file contents. If more than one staging server of a given OS type is needed, additional line entries can be added but only one can be in an uncommented state, all others must be commented out using a **#** character in Col-1 when running the **adme -autocfg** process.

WIN: **~a** DFA_SI_DD_HOST=10.241.216.48 **~a** DFA_SI_DD_USER=adamk-sky8-1878f **~a** DFA_SI_DEVICE_PATH=**+**adamk-sky8-1878f**+**PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445bda

LNX: **~a** DFA_SI_DD_HOST=10.241.216.48 **~a** DFA_SI_DD_USER=adamk-sky8-1878f **~a** DFA_SI_DEVICE_PATH=/adamk-sky8-1878f/PLCTLP-bcb07262-9225-422b-9b5b-5ae2b8445bda

The mentioned KB above documents an Excel template used to preconfigure ADMe in advance allowing you to choose whether to embed the PPDM parameters into the ADMe client group Fld-12 or to pass them from a ADMe Job policy definition via its -**tpolicy** option. **Col-J** of the Excel Template titled **Custom Migrate Criteria** when left blank with PPDM, informs the auto config process to embed the PPDM parameters into a ADMe client group taken from the **ppdm.cfg** file. If **Col-J** contains the value -**tpolicy**. it will inform the auto config process to place the parameters into the job policy definition using the -**tpolicy** option. If unsure which approach to use, the recommendation would be to use the -**tpolicy** option as it helps facilitate manual changes to their content if required.

Appendix-I

ADMe Error/Warning/Info Messages

The following ADMe messages are broken down by Informational, Warning and Errors. You'll notice there are some overlapping of the numeric portions of these messages so ensure you also consider the complete text message.

The context of these is relative to what ADMe is doing therefore for them to make sense, you'll need to understand what phase ADMe is in Selection, Staging or Export at the time the message is logged or what task you are trying to accomplish through the UI's.

ADMe Informational Messages

INFO-01A: **Active-Auto Date Range – *start-date* to *end-date***
Reported during the backup selection phase identifying the date range in effective during the search for eligible backups.
INFO-01B or C: **[#] BU-ID's selected for -> *client-name***
Show the number of backups selected for the mentioned client name.
INFO-01F: **Selected Group-ID have a UNC destination path specified**
Based on the client group name involved, there's a Windows staging path containing a UNC path \\

INFO-02A: **Limiting selected Snap-up count to first only per client/date [-first]**
Backups are being selected based on the **first** available within the specified search date range. Refer to INFO-01A
INFO-02B: **Limiting selected Snap-up count to last only per client/date [-last]**
Backups are being selected based on the **last** available within the specified search date range. Refer to INFO-01A
INFO-02C: **Limiting selected Snap-up count to specified day of the week [*week-day*]**
Backups are being selected but will be limited to those on the specified day-of-week only.

INFO-03A or B: **Client [*client-name*] Removing [#] Save Sets from worklist [Filter=*filters*]**
Backups are being selected but will be filtered to exclude those not eligible as per the filters being applied.

INFO-05B: **The total Save Set reduction count this session is [#]**
Backups are being selected and the total number not eligible as per the filters used is reported

INFO-06: **Exiting script, Non-Zero return code, config check failed**
During the selection phase, basic configuration checks are performed validating each client's defined field contents and selection filters used for errors. This message will always have an accompanying error message(s) explaining the reason for a given failure.
INFO-06: Config verification checks have failed
Refer to above error definition.

INFO-07: **Configuration check succeeded**
INFO-07A: **Selected Group-ID's have valid destination staging directories specified in Fld-10 - Ok**
INFO-07C: **Selected Group-ID shares a common Export-BU script in Fld-11 - Ok**
INFO-07D: Selected Group-ID's shares a common export policy specified in FLd-14 - Ok
INFO-07E: Selected Group-ID shares a common Staging Server type in FLd-15 - Ok
INFO-07E: Selected Group-ID shares a common export policy Fld-12 – Ok
INFO-07F: Selected Group-ID shares a common EOY export policy specified in Fld-13 – Ok
All the above INFO-07 messages pertain to the basic configuration checks performed during the backup selection phase indicating success. If an error was detected an corresponding error message would be displayed showing the reason for the failure.

INFO-09A: **Migration backup completed – Ok**
Pertains to the use of the original Pearl scripts for Tapeout, (deprecated)
INFO-09B: **Staging only has been selected**
INFO-09B: **Staging only completed – Ok**
Pertains to the use of the original Pearl scripts for Tapeout, (this feature has been deprecated)
INFO-09C: **Export backup only will be performed**
Export or Tapeout phase only was specified implying the related backup data has already been staged.

INFO-09D: **Migration export process Completed Ok RC=#**
Confirmation the Export or Tapeout phase completed with a clean RC=0

INFO-09E: **Initiating Post-Export-Deletion process on remote staging server ...**
If using server-initiated Tape exports, the tape backup must be initiated from the tape applications master server which may not be the same server where the data was staged to. In this scenario, ADMe will establish a tape initiation script pushed to the master tape server and a deletion script which it pushes to the staging server and executed to clean up the related staged data if the tape backup phase succeeded.

INFO-09F: **Staging path aligns with -upst call *staging-disk* upst-call, staged data will be deleted via Post-Export Deletion script"**
The staging path drive letter and the drive letter called for in the **-upst** call match therefore. it will be quick formatted.

INFO-09G: **Current Post-Export-Deletion-Status:[*status*] on Staging-Server:[*staging-server-name*] Elapsed-Retry-Time:[#]**
When deleting staged data especially on Unix/Linux, it can take time to complete. This message is used to acknowledge the process is in progress

INFO-12A: **Using AUTO generated export script for [*backup-product*]**
Tape scripts are generated in real time to accommodate a given job policy configuration. These scripts will be executed on the appropriate staging or tape master server as required.

INFO-12B: **Skipping AUTO generated export script for [*backup-product*]**
A stage only operation has been initiated therefore the generated tape script will not be used.

INFO-14: **Total backup count selected [#]**
Displayed during the backup selection phase indicating the total number of eligible backups which have been selected for migration.

INFO-15A: **Staging Results: Success-Cnt=# Skipped-Cnt=# Err-Cnt=# Total-Cnt=#**
Provides a staging summary in terms of backup counts and their status involved with a given job.

INFO-16A: **Using incremental staging recovery**
User has specified -inc option in the job policy informing ADMe to stage the backup incrementally

INFO-16B: **Using incremental-delete staging recovery**
ADMe no longer supports the **-incdel** option for incrementally staged data. This option is effectively deprecated therefore this message should not be seen.

INFO-18A: **Enabling Overtime on staging server [*server-name*]**
A given recovery by default will timeout after 24 hours, ADMe disables this timer allowing it to take as long as necessary.

INFO-18B: **Removing Overtime from staging server [*server-name*]**
Remove Overtime status from the staging server named

INFO-18C: **Enabling VDP mode**
Since VDP is no longer a product, the ability of ADMe supporting a VDP is no longer supported

INFO-18D: **Staging ADME-Incinfo file to [*staging-path*]**
When staging data incrementally no point-in-time folder is provided in the staging path used to identify the original Avamar backup date/time and label number of the backups involved. An informational file is maintained in its place on the staging disc in the named path.

INFO-30A: **RETRY session [*file-name*] for [*group-name*] completed okay**
INFO-30B: RERUN session for [group-name] completed okay
These messages will only appear when using the ADMe Recovery Manager from the CLI interactive menu. The concept was a means to track failures within a given job policy and be able to manually rerun them. The feature is now deprecated and no longer supported.

INFO-50A: **Purge Succeeded: Domain-Name=*domain-name* Client-Name=*client-name* Label-Num=# BU-Date=*date***
Seen when the -**purge** option is specified to the migration criteria to purge the backup(s) from Avamar. A purge will only be executed if a given backup successfully stages and the related export phase succeeded.

INFO-60C: **AVAmigrate using target account: *account-name***
Pertains to performing an Avamar-to-Avamar migration to the original target client account

INFO-XX: **Preparing for Cloud-Data-Purge, skipping backup view report phase**
Pertains to walking a cloud based CIFS share looking for eligible staged backups to be removed. This feature was added for MagFS file share from a CloudBoost appliance. MagFS has since been discontinued.

ADMe Warning Messages

WARNING: The Networker Linux-64 bit file system agent does not appear to be installed on this system
When Networker has been specified as your export tape backup application, you must have the Networker client agents installed on Avamar and its service started.

WARNING: HyperV file list is empty [path-name/customize/hyperv-grp-name.txt]
You have established a customer Hypr-V file list used to act on chosen VM's only but it is empty. Update the file as documented or delete it if not required.

WARNING: No backups were selected
When using the -**clouddatapurge** option, no backups were selected to be purged. This was used with CLOUDBOOST appliance when using its MAGFS feature which is no longer available.

WARNING: You must be root to perform an ADMe upgrade
Currently all ADMe CLI functions must be executed as root

WARNING: It appears there are active ADMe sessions, if you know there are none then continue
When performing an ADMe upgrade a check is made to verify if there are active ADMe jobs. The check detected an activity or possible an open edit session against an ADMe file.

WARNING: No ADMe upgrade files located in *path-name* …
To perform an upgrade you must place the latest ADMe .tar file and .war files in the ADMe home path /home/admin/admeadmin. The upgrade process looks in this folder for the latest files.

WARNING: The configured drive letter to be formatted [Drv-?] is not supported
ADMe does not support staging to Windows drive letters C or D due to the need to issue quick formats against a staging drive letter. It considers these two as commonly used to store user application files.

WARNING: The configured drive letter to be formatted [Drv-?] does not match this jobs staging path [Drv?]
The -upst FORMAT-? option present in your job policy does not match the staging drive letter defined within your client group. It is mandatory for them to match before a quick format can be automatically performed.

WARNING: After performing a rollbackup you must exit ADMe and restart it
A rollback has been performed from an ADMe backup file, exit the CLI menu and restart it for the changes to take effect.

WARNING: It appears there may be active ADMe sessions
When refreshing the ADMe credentials a precheck determined there may be active job sessions. If you proceed, it may impact the running jobs.

WARNING: Vmimage client name discovery is currently DISABLED
The discovery process of a vmimage client domain can be skipped if not needed. To do so you must manually edit flag file customize/vmimage_domains.txt by adding a line containing SKIP. This is no longer used.

WARNING: The selected client [*client-name*] is no longer present in Avamar, verify selected line is accurate before proceeding
A client name is present in a client group but it no longer exists in Avamar.

WARNING: You are about to initiate job policy [*policy-name*] confirm by entering Y/N? [Def=N]:
From the CLI menu you are interactively starting an ADMe job, confirm it's okay to continue.

WARNING: You are about to initiate a CloudDataPurge job policy [*policy-name*] to confirm enter Y/N? [Def=N]: >
The CloudDataPurge function is valid only with a Cloudboost setup using MAGFS. Since MAGFS was discontinued this feature has been deprecated.

WARNING: Limited syntax checking is performed here with respect to the select and tapeout flag values entered, these will be verified at job execution time.
Using the CLI menu and interactively creating a job policy, when choosing your select and migration options there is no syntax verification done at the time. Use a copy/paste to use the possible options displayed to minimize errors. A more extensive syntax check is performed when you execute the job.

WARNING: The [*atd*] daemon required for ADMe batch job initiation is not currently running.
Starting it now using CMD=[*service atd start*]
If the mentioned service is not running ADMe jobs will not start and go active. When starting the CLI menu a check is performed on this service and automatically started using the command sequence show.

WARNING-11J: Unable to parse postexport#.stat file, manually confirm if data was deleted from staging disk LoopCnt=[#]
When using a -**server** initiated tape export and you're data is staged to a server other than the tape master server, a separate script is invoked to automatically delete the staged data after a successful tape export. The mentioned .**stat** file contains results of the deletion script execution and is expected to be available to ADMe in order to determine the results.

WARNING: Backup purge process skipped due to a failed or unconfirmed export backup status.
By design, ADMe does not delete staged data when its corresponding export phase to tape has failed, allowing the user the option to resolve the tape related issue and rerun the ADMe job as export only without the need to restage the data involved.

WARNING: Staged data has NOT been deleted due to failed or unconfirmed export backup status
Refer to previous warning message for details.

WARNING: Staged data was forcibly deleted [-delete] despite a failed or unconfirmed export backup status
When using the -**delete** migration option, staged data will be deleted regardless of the completion status of its related export phase.

WARNING: Client [*client-name*] config file entry has both exclude and include folders specified, staging recovery results in this case are undefined and may not be as expected.
The specified client entry in the client group has both include and exclude embedded filters configured to it. This may or may not work as the user intends therefore is considered to be undefined. If the data stages as desired, then it is okay to continue to use it.

WARNING: >>> Unable to connect with MCCLI syntax shown, retrying [count=#]
In rare cases, an ADMe MCCLI recovery call will fail to connect to MCS. This is typically a transient condition and ADMe will retry the call.

WARNING: Suspect avtar recovery script ended prematurely.
When an **avtar** recovery call exceeds its assigned timeout value defined in variable SCRIPT_TIMEOUT in each environment file, the expected execution log details will be missing resulting in ADMe interpreting this as prematurely aborted recovery script. Ensure the defined SCRIPT_TIMEOUT value is long enough to accommodate the longest avtar recovery call.

WARNING: Suspect avexvss recovery script ended prematurely.
Refer to above warning message for **avtar**

WARNING: Suspect avlotus recovery script ended prematurely.
Refer to above warning message for **avtar**

WARNING: Suspect hypervvss recovery script ended prematurely.
Refer to above warning message for **avtar**

WARNING: Suspect avsql recovery script ended prematurely.
Refer to above warning message for **avtar**

Warning: It's advised to run a parse check after modifying an Environment file
You have modified an environment file and parse check should be run against it.

Warning: audit file [*file-name*] already exists, no action taken...
>>> Manually move, delete or rename the above file-names as needed... Press Enter to continue...
You are using the -audit option to modify the historical content of the ADMe audit trail file but the chosen file name already exists and is not to be overwritten.

ADMe Error Messages

ERROR-00: **Selected upgrade file [*file-name*] not found**
When attempting an ADMe upgrade, the upgrade file that was chosen is now not available or possibly misspelt

ERROR-00: Environment File Name: [*file-name*] failed to parse correctly
A parse check was run against the mentioned Environment file, but an error was detected with its content. It could be the result of a spelling error, invalid value, a critical value which cannot be duplicated has been detected in another existing Environment file. The displayed errors should provide clues to the root cause.

ERROR-00: Client Configuration File Name: [*file-name*] to parse correctly
A parse check was run against the Client configuration file, but an error was detected with its content. It could be the result of a spelling error, invalid field value, a critical value which cannot be duplicated, invalid domain or client name defined possibly due to it being moved within Avamar. The displayed errors should provide clues to the root cause.

ERROR-00: **Non zero RC=# during rollback using file [*file-name*]**
A recovery from an ADMe backup file is being attempted but the unzip/untar of the backup file has resulted in a non- zero RC. This would be an unexpected condition and will probably require analysis as to the cause.

ERROR-00: **Selected rollback file [*file-name*] not found**
The ADMe backup chosen to rollback from is either mis-spelt or no longer available. Check the backup folder under /home/admin/admeadmin to see what backup files exist.

ERROR-00: Plugin selection out of range
An invalid, unsupported or misspelt plugin option has been specified within a jobs Selection criteria.

ERROR-00: **Recovery [*action*] session# [*recovery-file*] not available**
While in Recovery Manager which is a deprecated feature, a previously failed Recovery session encountered this error

ERROR-00: **A previous cancel session is already in progress for job name: [*job-name*], skipping cancel operation**
A previously canceled job which has not completed the cancel process has been cancelled again. Patience is required when cancelling a running job and is much better handled when done through the CLI menu versus the Web-UI as the CLI displays the current state of the cancel process.

ERROR-01A: Selected Group-ID's have different destination directories specified in Fld-10 - Not-Ok
ERROR-01C: Selected Group-ID's have different Export-BU scripts specified in Fld-11 - Not-Ok
ERROR-01D: Clients in selected Group-id-ID have different export policies specified in Fld-14 - Not-Ok
ERROR-01E: Selected Group-ID's have different Staging Server types specified in Fld-15 - Not-Ok
ERROR-01E: Clients in selected Group-ID have different export policies specified in Fld-12 - Not-Ok
ERROR-01F: Selected Group-ID has an incompatible destination directory specified in Fld-10 - Not-Ok
ERROR-01F: Clients in selected Group-ID have different EOY export policies specified in Fld-13 - Not-Ok
Rudimentary checks performed against a client group at the start of a job policy execution ensuring basic requirements are met.

ERROR-03: Unexpected date values or staging path name in config file, run parse check against the client configuration file
Ensure FLd-2 and Fld-3 in the client config file contain the string AUTO versus a specific date. These fields were used early on in ADMe to pass a start and end date range used when searching for backups during the Selection phase. This functionality was converted to job policy options **-sdate** and **-edate** passed as a Selection criteria option.

ERROR-04A: Backup selection list is empty due to no eligible backups found [RC=1], this prevents the migration process from proceeding
No eligible backups have been detected for the client group name and the Selection criteria past. Check you have the intended client group assigned, correct plugin specified and correct date search range. Use the Avamar Recovery GUI to verify whether BU's exist for the client names and date range being used.

ERROR-04B: No backups have been selected for client [$domainx/$client]
No eligible backups have been detected for the mentioned client name and the Selection criteria past. Check you have the correct plugin specified and using the correct date search range. Use the Avamar Recovery GUI to verify whether BU's exist for the client name(s) and date range being used. This is considered a User error as you have it defined within the client group; therefore, the expectation is for it to have a selectable backup. If not, the client can be removed or disabled from the client group to eliminate error which by default results in the job policy completing with expectations. This error can be masked to prevent the job ending status being completed with exceptions. Use the CLI UI to update the mentioned parameter to true, however the message will still be logged.
adme->a->adme-Customize->y-> edit MASK_ERROR_04B=true

ERROR-04C: System State backups were selected using -vss option, must be staged to a Linux staging server as an archive using the -archive option
Windows System State backups are unique and require special handling by ADMe. Plugin type **-vss** must be staged to a Linux staging server and the jobs migration criteria must contain option **-archive pax**. To use a PAX archive, it must be re-ingested back to an Avamar system to its GSAN storage not to DD storage. Migrating System State backups with ADMe is discouraged as their usage afterwards has a 100% dependency on Avamar/GSAN storage which in the future may not be available. Also, due to the nature to a System State backup it is not practical to retain them for more than 2-3 months.

ERROR-05: An error was detected by tapeout.pl, verify tapeout.log file for details
Historical message detected during Tapeout phase when using original Pearl scripts. This is an obsolete message as the Pearl scripts are no longer used.

ERRORX-05A: Skipping export to tape due to no successfully staged recoveries
All selected backups have failed to stage or recover cleanly to the staging disk. When this occurs ADMe by design, does not invoke the Tape/Export phase of the suspect staged data. At least one backup must successfully stage in order to initiate a Tape/Export phase.

This scenario may imply a communication error between Avamar and the staging server involved, or ADMe encrypted credentials have become stale and need to be refreshed or with an Avamar-to-Avamar migration multiple backups from a given client have encountered a common error between them all such as corrupt Office files resulting in 10007 errors reported by MCS.

With an Avamar-to-Avamar migration, this error message can be masked to allow the Export phase to be initiated even when all selected BU's result in staging errors. Using the CLI Interactive UI, update the mentioned parameter to true, however the message will still be logged.
adme->a->adme-Customize->y-> edit MASK_ERROR_05A=true

ERROR-06A: GroupID not found, [*group-name*]
During the selection phase, the Group-ID name passed does not exist. Check the group name defined within your job policy name involved and adjust as required.

ERROR-06B: Client not found, [*client-name*]
During the selection phase, the Client-ID name passed does not exist. Check client name(s) present within your client group for validity and run a parse check against the ADMe client config file from the wrench tool in the Web-UI Environment tab. Correct or adjust client name(s) as required.

ERROR-06C: GroupID [*group-name*] is configured for a LINUX SS, must execute from a LINUX SS
Obsolete and deprecated message pertaining to using the Pearl Tapeout script from a Linux server directly. The client group name is configured to stage to a Unix/Linux server and the Pearl script must be executed on the Linux staging server. Ensure the staging path field begins with a forward slash / and the Environment file assigned to the job policy defines a Unix/Linux staging server name.

ERROR-06D: GroupID [*group-name*] is configured for a UNIX or WINDOWS SS, must run script from the Utility node
Obsolete and deprecated message pertaining to using the Pearl Tapeout script. The client group name is configured to stage to either a Unix/Linux or Windows path and ADMe must be executed from the Utility node.

ERROR-06E: GroupID [*group-name*] not found
During the selection phase, the Group-ID name passed does not exist. Check the group name present within your job policy name involved and adjust as required.

ERRORX-06F: GroupID specified [*group-name*] does not match group-name used during last -select for [*group-name*]
The current backup selection worklist does not pertain the client group name specified. This implies a new selection phase is needed or you have specified an incorrect group name for this migration session.

ERROR-06G: The -server option is specified used to support server-initiated tape exports
The migration criteria within a job policy definition contains the **-server** option indicating the Tape phase will be initiated from the Tape master server which may or may not be the same server where the data is staged to. **-server** initiated Tape backups is now the default especially when Networker is used for the Tape BU application.

ERROR-06H: An invalid -nday argument was specified [#], max is 30 days
The **-nday** option is being used in your selection criteria to alter the number of days to search against but the number of days specified is incorrect, must be between 1-30

ERROR-06J: Failed to retrieve list of selected backups, rerun the [-select process]
A previously selected worklist no longer exists for the client group name and/or Environment # specified. You will need to run a new selection process to create a new selection worklist or verify you are using the correct client group name and/or Environment #.

ERRORX-06W: Group [*group-name*] is configured to stage to WINDOWS but no compatible staging server [WINDOWSS=*staging-server-name*] exists in Env-#
The client group name specified is configured to stage to a Windows staging server determined by its staging path starting with ?:/ but the corresponding Environment number used does not contain a defined Windows SS resulting in an incompatible combination. Adjust either the Environment file or the staging path accordingly.

ERROR-06U: Group [*group=name*] is configured to stage to UNIX but no compatible staging server [UNIXSS=*staging-server-name*] exists in Env-#
The client group name specified is configured to stage to a Unix/Linux staging server determined by its staging path starting with / but the corresponding Environment number used does not contain a defined Unix/Linux SS resulting in an incompatible combination. Adjust either the Environment file or the staging path accordingly.

ERROR-08A: User tape script not found [*script-name*]
A user defined tape/export script is specified as defined in **Fld-11** of the ADMe client file but the script name cannot be found in the expected location **/home/admin/admeadmin/scripts**.
ERROR-08B: Backup of tape script failed [*tape-script* RC=#]
The tape/export script failed to back-up to the appropriate Environment file pseudo client in preparation for being pushed out to the appropriate staging or tape master tape server for execution. It would be unexpected to encounter this condition as it implies there's a possible Avamar issue such as read-only state or GSAN problem, ADMe credential issues or a misconfiguration of Environment file(s) involved.

ERROR-08C: Backup of tape script failed, trying again [Loop-Cnt=# of #][RC=#]
ADMe will retry the backup of the Tape/Export script several times with a sleep period in between each attempt. If it continues to fail the process is aborted and the job policy will fail. A manual deletion of the staged data will be required. It would be unexpected to encounter this condition

ERROR-08D: Backup of Post-Export script failed [*script-name RC=#*]
The post export script is used to delete staged data from the staging server when it is a different server than the Tape master server. The script must be backed up to the appropriate environment file pseudo client then subsequently pushed out to the appropriate staging server for execution. If the script cannot be backed up successfully, the staged data will on the staging disk and the job policy will result in a failed status. It would be unexpected to encounter this condition as it implies there's a possible Avamar issue such as read-only state or GSAN problem, ADMe credential issues or a misconfiguration of Environment file involved control file section or pseudo client has been deleted in Avamar.

ERROR-08E: Backup of Post-Export script failed, trying again [Loop-Cnt=# of [#] [RC=#]
ADMe will retry the backup of the Post Export script several times with a sleep period in between each attempt. If it continues to fail the process is aborted and the job policy will fail. A manual deletion of the staged data will be required. It would be unexpected to encounter this condition

ERROR-09: A *plugin-type* staging session has failed, Status: Success-Cnt=# Skipped-Cnt=# Err-Cnt=# Total-Cnt=#
A summarized account of the staging sessions associated with a given job policy. Total Count represents the total number of BU's selected while Success Count represents the total number of BU's which successfully staged which in the ideal scenario equals the Total Count. Failed or non zero RC recovery sessions will be shown in under Err-Cnt.

ERROR-09I: Windows reported a non-zero RC against the quick format call used to erase the staged data, manually verify the drive letter involved
On a Windows staging server ADMe invokes via migration option **-upst**, a quick format call against the staging drive letter involved. Occasionally this call may fail to complete usually the result of usually an OS related condition. When this condition is reported, you must manually verify the staging disk status and whether it has been erased. If not, you must manually resolve the execution of a quick format call to erase the drive letter priort using it again with ADMe.

ERROR-10A: Unable to stage data for [*client-name* BU-id-#], selected but either no longer exists or it is older than 1 year.
A backup has been selected against the named client but when it was time to stage it, it no longer exists in Avamar. This can occur when short retention periods are being used within Avamar and the selected backup is purged via garbage collection.

ERROR-10B: Staging process Failed or Canceled [*client-name BU-ID=# Log Name*] Status=
A staging recovery session has reported a non-zero RC indicating some type of recovery error reported by Avamar. Review the associated avtar log for details as to what the issue is. In many cases it is the result of corrupt office compressed files contained within the backup. The avtar log will log the specific file name involved which is often corrupt on the original source client observed by trying to open the file. Other causes could be network timeout between Avamar and the staging server possibly due to a reboot of the SS, check for a reboot. Also, permission related issues whereby the staging server Avamar service does not have authority to access a path or file name, try starting the service using a domain/admin level account rather than the default local account. In cases of corrupt office files the impact is minimal impacting select file(s) only.

ERROR-10B: Staging process Failed or Canceled [nw-01.brsvlab.local BU-ID=375 Log=MOD-1651610561087 Status=Completed Error-Code=Exceptions
During the staging phase, if it completes with ***Completed with Exceptions*** status the condition is detected and flagged as a failure to ADMe. The 10020-status condition can be masked to prevent it from resulting in a failure. Refer to menu option A=Admin->A->ADMe-Customize-> Y and adjust MASK_AVA_ERROR_10020=false to true, this should be done with caution. Refer to release notes associated with ADMe build 19.f for details on how to potentially avoid this error.

ERROR-10C: Unexpected error with plug-in [*plugin-name*] recovery [group-ID client-name] exiting ...
This condition occurs when ADMe has lost contact with an MCS session it initiated to perform a restore which could be a recovery of a backup or a script file it uses to handle plugins and tape export sessions. If this condition arises ADMe is unable to determine the status of the recovery session it started, and the job policy will end in error. It is important to understand if a tape backup was initiated by the script it may very well still be active and/or succeeded but ADMe will be unaware of it. Always verify in the export application to confirm whether it is still in progress or has completed prior to rerunning the tape/export phase from ADMe.

Possibly cause is MCS service has stopped or the MCS session unexpectedly ended.
Some possibilities included with the error message are shown below.

- Unable to determine activity-id associated with the last mccli restore command.
- Ensure the MCS service is running.
- Ensure a valid staging server definition exists for the environment number being used
- Ensure the staging server is communicating properly with Avamar, try GUI based backup/restore to it
- Ensure the staging server if Unix or Linux based has Korn shell installed on it, type ksh
- If your staging server is configured for more than one MCS thread, ensure their assigned ports are open 28030-28050$DEF

ERROR-10D: Failed to backup recovery script to pseudo client: [Retry-Cnt=# *script-name*]
The ADMe created plugin recovery script has failed to back up to its pseudo client defined within the environment file being used. This condition would be unexpected implying something fundamental is wrong with the pseudo client or Avamar itself. A retry loop will attempt to back it up again for up to three attempts before it results in a job failure.

ERROR-10P: Authentication failure - The Recovery credential for Env-# expired and has been refreshed
ADMe has detected the staging or tape master server MCS credential has expired or gone stale. It will be refreshed automatically for the next restore script so subsequent backups currently selected will be performed using the refreshed credential.

ERROR-10P. Job can be rerun by adding [-*client client-name*] to its Selection-Flags field to retry this one BU
Job can be rerun by adding [-*client failed-client-name*] to its Selection-Flags field to retry this one BU
For non-File System plugin recoveries, ADMe relies on a script file it creates which must be executed on the staging server not on Avamar. These scripts rely on encrypted credentials which are valid only from the staging sever involved. This password can become stale and no longer work usually the result of staging server reboot. After the first encounter of bad credentials within a job ADMe will automatically refresh them however, in some cases a manual refresh may be required.

A password refresh can be accomplished as follows:
ADMe CLI UI **adme->A->S=Credentials** follow the prompts or from the **Web-UI Env-Tab wrench tool** after selecting the appropriate environment file. A job retry can then be invoked using the -client switch to limit the rerun to the impacted client only. If multiple clients were impacted the entire job will need to be rerun.

ERROR-11A: Export backup initiation process has Failed or was Canceled
A tape export script has been created, backed up to the pseudo client defined within the environment file being used but when pushing the script out to the staging or master tape server for execution, an unexpected MCS error was encountered with the process or the script has failed to initiate the tape backup due to a fatal type error. Ensure the environment file used contains appropriate binary paths defined in it to the tape backup application binaries on the staging or tape master server.

ERROR-11B: Export Backup Process Incomplete RC=#, Check Job and Tape application Logs for more detail
The tape script was successfully pushed to the staging or tape master server for execution but the tape or export application encountered an error for which basic information will be reported in the ADMe job log. ADMe can report only minimal error details from the external tape or export application therefore, it would not be uncommon to have to review the export applications relevant job logs to diagnose the cause of a given tape or export failure.

ERROR-11C: Unexpected error, failed to capture [*autotapeout#.stat*] file
ADMe initiates the tape script from either the staging or tape master server and its execution results are captured in its corresponding **.stat** file of the same name located in the Avamar install folder on the staging or tape master server typically **C:\Program Files\avs\etc\scripts** on Windows or on Linux **/usr/local/avamar/etc/scripts**. The **.stat** file normally gets backed up to the appropriate Avamar pseudo client from where ADMe can access to its contents and parse accordingly to determine the completion status of the tape/export backup. However, in this case the **.stat** file could not successfully be captured back to Avamar therefore ADMe is blind to the results of the tape/export backup. There are multiple possible causes as to why it could not successfully be captured:

1. The Utility node name defined in Env file-1 is incorrect check long/short name requirements.
2. Name resolution issue between staging server and Avamar, confirm using nslookup and a Avamar backup of the staging server succeeds
3. Port issue 28001 or 28002 between Avamar & staging server, try an Avamar GUI on-demand backup of a file from staging area
4. Tape script timeout value was exceeded defined in the Env file# used, increase its value if needed
5. An incorrect or logic error in the tape script being used, ensure Korn shell is available on Unix/Linux staging server
6. Review recapture of autotapeout#.stat file contents below if they exist
7. The recapture of autotapeout#.stat file succeeded however its contents are out of date suggesting the newly created autotapeout.bat or .sh script was never executed.

ERROR-11D: Export Process Incomplete RC=1, Check Event Log
The tape/export phase execution has resulted in a non-zero RC interpreted by ADMe as a failed tape backup. In this scenario by design, ADMe leaves the staged data on the staging disk allowing you to correct the issue then rerun only the export phase which if successful, the staged data will be deleted.

ERROR-11E Unexpected error, cannot retrieve export status file [*autotapeout#.stat*] file
The mentioned **.stat** file contains the results from the tape backup application CLI call made by ADMe to initiate the tape/export backup phase but was not successfully retrieved as expected. In this scenario ADMe is blind as to the results of the tape/export

backup which may have succeeded or failed. A manual verification will be required to investigate the tape backup application directly to determine the backup status.

ERROR-11F: Abnormal/Unexpected export message has been detected, manually verify the export BU is Ok – SUSPECT_TAPE_ERROR_TAPE_BACKUP_NOTOK=RC#
Some type of tape backup related error occurred but the RC code of the CLI used was zero. This was added to accommodate Networker which can report a clean RC on the backup itself but the wrap-up process has failed resulting on the BU being non-recoverable. A scan of several known error string values is performed and if any are detected, this error will be presented suggesting a manual verification of the BU involved be done.

ERROR-11G: FORMAT COMMAND WAS SKIPPED as drive letters C or D are not supported [Drv-*drive*]
After a successful tapeout session using a Windows staging server, a quick format is typically issued by ADMe to erase the staged data contents. A staging drive letter must be dedicated to ADMe use and by design if Drv-C or Drv-D are excluded from being quick formatted even when the job policy is configured to do so. Supported staging drive letters start at Drv-E to Drv-Z.

ERROR-11H: FORMAT COMMAND WAS SKIPPED drive letter Drv-*drive* does not match staging drive Drv-*drive*"
The quick format call was skipped as the staging drive letter and the -upst FORMAT-? call do not match. Both the staging drive letter and the -upst call in the job policy must be equal.

ERRORX-11I: FORMAT COMMAND WAS SKIPPED as drive letter Drv-*drive* is out of range or invalid for this client group
The quick format call was skipped due to the -upst FORMAT-? definition in the job policy is out of range. Valid drive letter must be between Drv-E and Drv-Z.

ERROR-12X - Lost communication with MCS, suspect MCS service may be down. [Log=*file-name* ReturnCode=# EventSummary=*eventsummary*]
ADMe relies on the MCS service for all aspects of the migration process but it appears the MCS service is not running as expected.

ERROR-12C: An invalid or NULL plug-in value detected for server being used for tape export initiation [*server-name*] in this *Environment#*

1. Ensure tape export server is activated and a functional client to Avamar
2. Ensure environment variable [TAVAINSTALLPATH=tape-app-install path] is defined correctly for the OS platform involved.
3. Ensure environment variable [TAVADOMAINAME=domain-name] is defined correctly for using -server option, usually /ADME/Tape-Server-MCS-Name.

Possible user error where the environment file referenced from a job policy does not compatible staging server or its defined binary path is not valid for the OS involved. Refer to Env-Tab help for reference and run an env file parse check.

ERROR-12E: An invalid or NULL plug-in value detected for server being used for tape export backup initiation [*plugin-type*] in this Environment#
Refer to ERROR-12C above for more detail.

ERROR-12F: Unable to detect a valid tape MCS session [Run-Cnt=# of 2 Activity-ID#=#]
ADMe has issued the MCS call to push the tape backup script to the staging server or master server involved but it cannot detect the expected MCS session. The search will be performed up to 3 times before it aborts the job. Possible cause may be MCS service is down or hung or some other functional issue with Avamar.

ERROR-12: Invalid staging server type for [*group-name*], check admeclient.cfg file
The staging server OS indicated in the client configuration file FLd-15 is not compatible with the staging path defined. It's value can be either WINDOWS or UNIX and it must match the staging path syntax used.

ERROR-12A or B: Invalid staging server name [*staging-server*] for this Environment#/Group combination
Based on your defined staging path within the client group being used and the assigned Environment file, the staging path is not compatible with the staging server defined within the Environment file referenced.

ERROR-17: An on-demand checkpoint session is already active preventing this session from starting
All on-demand related functions are no longer supported. Use a standard job definition instead.

ERROR-20A: Use of the -server option is not supported in conjunction with either -upre or -upst options unless the export backup server is being used as the staging server
ERROR-20B: Input parameters [*parameter*] are mutually exclusive, for help use -h
ERROR-20C: Input parameter of [*parameter*] is reserved try [option or option] if appropriate, for help use -h
ERROR-20D: Input parameter [*parameter*] is invalid, for help use -h
ERROR-20D: Invalid or insufficient parameters specified, for help use -h
ERROR-20E: You must specify either *[-siteid|-sid|-gid*] when using the [-select] option
ERROR-20E: Incremental staging not supported with traditional Avamar-TO
ERROR-20E: Input parameter [*parameter*] is invalid, for help use -h
ERROR-20F: You must specify either [*-siteid|-sid|-gid*] when using the [-tapeout|-migrate] options
ERROR-20S: Input parameters [*parameters*] are mutually exclusive, for help use -h
ERROR-20T: Input parameters [*parameters*] are mutually exclusive, for help use -h

All above error conditions 20? are detected by the ADMe syntax checker. Review the message and compare it against what options you are trying to use and whether they make send based on what you're trying to accomplish.

ERROR-30A: RETRY session [*recovery-file*] for [*group-name*] has failed
ERROR-30B: RERUN session [*rerun-file*] for [*group-name*] has failed
The above two errors would be encountered while performing either a ADMe Retry or Rerun session, this feature of ADMe is no longer supported and replaced by using a standard job policy.

ERROR-40A: A CRON syntax or access error has been detected, no changes made
ERROR-40A: A CRON syntax error has been detected; no changes made
While modifying the auto scheduling of a job policy something went wrong implying there is an invalid argument being passed. Ensure supported characters only are being used when updating the scheduler. Review the root crontab directly at the Linux command prompt.

ERROR-40E: Job policy [*cron-entry*] must be in an Enabled state to modify
You are attempting to modify the scheduling of a job which is currently in a disabled state. You must place it in an enabled state or remove it from the scheduler and reenter the desired start time.

ERROR-40F: A policy type of [input] is invalid
When establishing a job policy from the CLI interactive menu, the chosen policy type can be Standard or Batch, all other values are considered invalid.

ERROR-40F: A policy name cannot contain spaces
When establishing a new job policy from the CLI interactive menu, a space was detected in the job name specified which is considered invalid.

ERROR-40F: Policy name [*job-name*] already exists
The job name you are trying to establish already exists, reenter or correct the name being used.

ERROR-40G: Environment file-# specified [#] is out of range, valid range must be within [*1-#]/ERR*
The environment number being assigned to the job policy you are creating is out of range or invalid. Enter a valid env-File-#.

ERROR-40G: Environment file-# specified [#] is within range but doesn't currently exist
The environment number being assigned to the job policy you are creating is within range but doesn't currently exist. Enter a valid env-File-#.

ERROR-40H: A valid base group name must be specified

The client group name being assigned to the job policy you are creating is invalid or does not exist.

ERROR-40I: The group name specified [*group-name*] is invalid
The client group name being assigned to the job policy you are creating is invalid or does not exist

ERROR-40J: The batch policy-id specified [#] doesn't exist
When updating a batch policy from the interactive CLI menu, the policy name specified does not exist.

ERROR-40K: A previous on demand batch session is locked preventing this session from starting
All on-demand related functions are no longer supported. Use a standard job definition instead.

ERROR-40L: A policy name length cannot exceed # characters
When creating job policy name you have exceeded the default defined length of 10 characters

ERROR-40M: A group name cannot contain spaces
When creating a client group name, you have inserted a space(s) which are not supported

ERROR-40M: Group name entered exceeds the max length permitted of 10 characters
Job names are limited to 10 character by default to curb the use to excessively lengthy names. ADMe documentation describes a generic naming convention which should be adhered to. The 10-character limit can be overridden from the CLI interactive menu by entering adme->a->Administration->a=ADMe-Customize->Y to open a vi session to open a config file where variable name MAXJOBNAMELENGTH can be adjusted.

ERROR-50B: Purge Failed: Domain-Name=*domain-name* Client-Name=*client-name* Label-Num=# BU-Date=*date*
When using the **-purge** option to remove successfully migrated backups from Avamar, the deletion process failed resulting in the migrated backup still existing within Avamar. Review the job log to determine the cause.

ERROR-50C: Purged Skipped: Domain-Name=*domain-name* Client-Name=*client-name* Label-Num=# Date=*date*
When using the **-purge** option to remove successfully migrated backups from Avamar, the deletion process was skipped due to the backup not successfully being migrated.

ERROR-60A: Environment file [*file-name*] missing AVAMIGRATE variable required to hold target Avamar credentials
An Avamar GSAN migration is being performed which requires the AVAMIGRATE variable be manually added to each Env-File involved with appropriate target Avamar credentials assigned to it, for example MCUser/MCUser1

ERROR-60B: No retention value [--expires=*num-days*] defined in the client groups Monthly Export policy field
An Avamar GSAN migration (ADS) is being performed which requires a default expiry value be entered into the Fld-12 (monthly migration filed), use a default value of **–expires=365** (two hyphens). The true expiry date for these migrated backups will be determined from the **-tpolicy** option present within the ADMe job policy involved.

ERROR-60C: Use of the TAGGED argument with -avamigrate is incompatible with group [*group-name*]. Only one client per *group-name* allowed
ADS migrations allow for migrated backups be assigned to their original client name defined under the /ADME domain with an appended string value of -ADME to eliminate the possibility of duplicate client names. This is to make it easier to locate and navigate to access the migrated data on the target system when needed. To use this approach, you must specify **-avamigrate TAGGED** option in the job policy. A prerequisite to using this approach is for the ADMe client group to contain a single client name only which is practical when the overall client count is relatively small.

ERROR-60C: Use of the ORIGINAL argument with -avamigrate is incompatible with group [*group-name*]. Only one client per *group-name*
ADS migrations allow for migrated backups be assigned to their true original client name under their original domain name. To use this approach, you must specify **-avamigrate ORIGINAL** option in the job policy. A prerequisite to using this approach is for the ADMe client group to contain a single client name only which is practical when the overall client count is relatively small.

ERROR-60D: The Windows staging server name [*server-name*] is currently assigned to another Env-File.
Skipping CREATE of new Env-File [*file-name*]
When attempting to create a new environment file and assign to it a Windows or MCS staging server name, the process failed as you cannot assign the same server or MCS thread name to more than one environment file.

ERROR-60E: The Windows staging server name [*server-name*] is currently assigned to another Env-File(s).
Refer to error message ERROR-60D above.

ERROR-60F: The Unix/Linux staging server name [*server-name*] is currently assigned to another Env-File(s).
Skipping CREATE of new Env-File [file-name]
When attempting to create a new environment file and assign to it a Windows or MCS staging server name, the process failed as you cannot assign the same server or MCS thread name to more than one environment file.

ERROR-60G: The Unix/Linux staging server name [server-name] is currently assigned to another Env-File(s)
A staging server or MCS thread name should not be defined to more than one Environment file.

ERROR-60G: The TAVADOMAINNAME thread value [*thread-name*] is already assigned to another Env-File [*file-name*]
ERROR-60H: The TAVADOMAINNAME thread value [*thread-name*] is currently assigned to another Env-File(s)
The thread name assigned to the TAVADOMAINNAME variable is used primarily with Networker. It is used to provide a unique MCS thread for initiating Networker **-server** initiated tape backups. It must not be shared between environment files to prevent queuing if the environment files involved were being used concurrently.

ERROR-60I: Env-File-1 is incomplete and must be manually updated prior to establishing any additional environment files
Environment file-1 gets established automatically when ADMe is installed. However, its export backup server and staging server names field must be updated manually prior to establishing additional environment files. This ensures Env-1 is properly updated and used as intended.

ERROR-80E: An unsupported Backupexec parameter has been specified [*parameter*]
This pertains to a BackupExec (pre BackupExec 2012) client initiated backup script generated automatically using customized parameters present in the monthly tape Fld-12 or 13 of an ADMe client group. Support of this approach has been deprecated and no longer applicable.
/
ERROR-80F: The BackupExec user script specified in Fld-12 or 13 [*file-name*] does not exist
Similar to the above ERROR-80E except the BackupExec script is predefined by the user versus being auto generated by ADMe. The script name must exist on Avamar, and its name passed in the monthly tape field Fld-12 or 13 of an ADMe client group.

ERROR-80G Unable to detect proper Commvault authentication syntax [syntax] maintained in file
[/home/admin/admeadmin/customize/commvault.pwd
The mentioned file must contain valid CV authentication credentials used to run a CV CLI script. Refer to CV documentation on how to establish these credentials then copy/paste them into the filename mentioned.

ERROR-80H: An attempt was made to use Env=# but it is already in use
Another ADME process has Env-# locked, Lock-File:<path-name>/adm.lck, exiting....
When a job policy is started, a lock is applied to its environment file and temporary workspace to prevent it being overwritten by another job assigned to use the same environment file number. This error indicates the environment file in question was already locked (assigned) when your current unrelated job was started.

ERROR-90: The previous ADMe session ended prematurely, event log has been truncated
Related to using Recovery Manager from CLI menu, support for this has been deprecated.

ERROR-99: Unable to confirm creation of ADME pseudo client[*client-name*], possible causes are as follows.

1. Verify pseudo client name [*client-name*] is not defined in another domain
2. GSAN may be in read-only state, verify the system is not offline or in Read-Only mode

The pseudo clients are used by ADMe for communication interaction and are dedicated to a given environment file. /ADME/admepseudo is assigned to Env-1 while the number ones admepseudo2 for example is assigned to Env-2. Do not delete or modify these entries.

ERROR-GUI: Check contents of /home/admin/admeadmin/customize/webui.txt for valid contents in variables WEBUI_PATH, WEBUI_LOG, WEBUI_BINARY

The mentioned flag file and variable names are used to define parameters needed to support the WEB-UI. Their values are defaulted and should never need adjusting. However, if this error is displayed the **webui.txt** file may have become corrupt or overwritten.

ERROR-XX SHPT farm credentials unavailable to ADMe

Generic values are defaulted and stored in /home/admin/admeadmin/customize/.shpt.txt, if not present this error will be displayed.

ERROR-XX: Job log name past is invalid, [*log-name*]

Pertains to Checkpoint or OnDemand logs in ADMe CLI menu when deleting their log file. Due to the color formatting you may need to enter the file name manually to delete it.