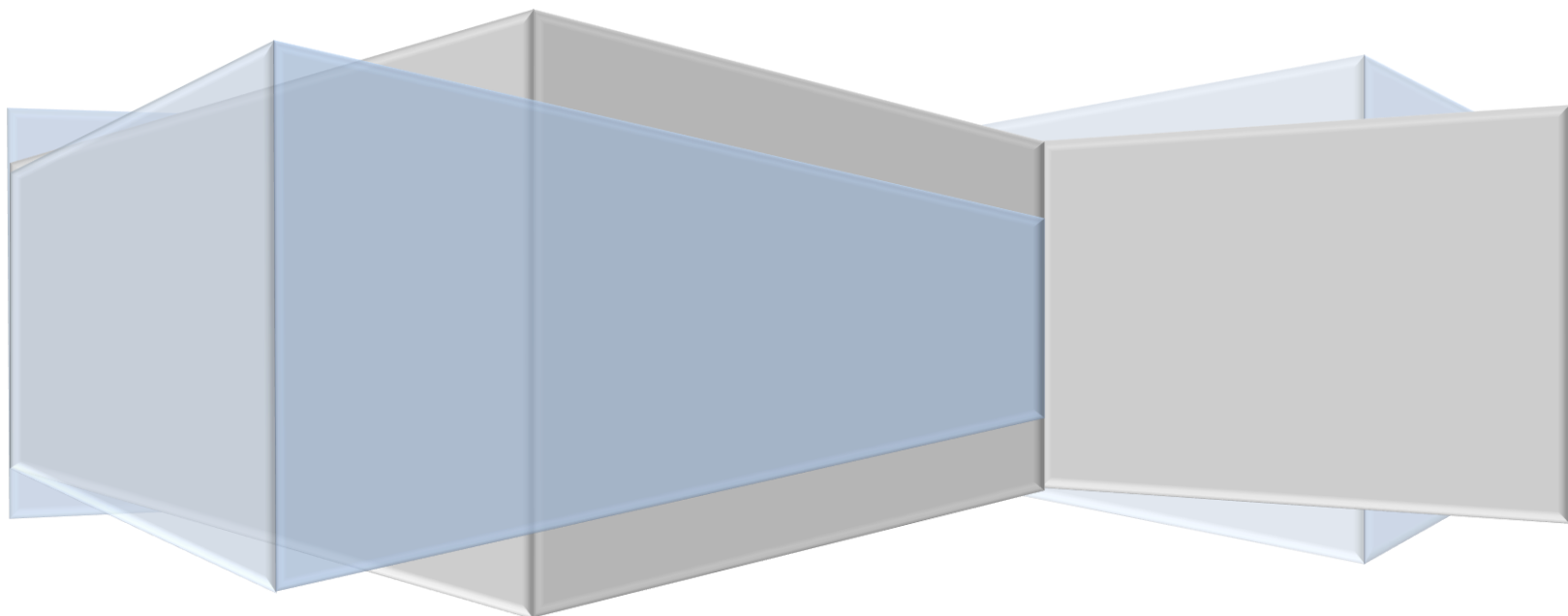


**DELL Technologies**

# **NetWorker Policy Setup Requirements with ADMe**

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## Networker Policy Setup Requirements with ADMe

The purpose of this document is to highlight the various possibilities available with how Networker can be configured specific to its use with ADMe. 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.

### Networker backup commands and their corresponding ADMe arguments

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

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 savefs

**savefs** requires a staging server client resource be defined and its corresponding save-set field updated to reflect each unique staging data path involved as defined within each ADMe client group. Explicitly assign a retention value, media pool and backup schedule (backup level) to be used by a given client resource definition as shown in the screen shot below. It must then be assigned to the appropriate Networker group name which will be the value that is referenced from the ADMe client group monthly or yearly tape policy field.

**Note:** To view all client resource properties within NMC, enable Networker **View -> Diagnostic Mode** in NMC. The save set field as shown below must contain an entry for each unique staging data path matching those defined within each ADMe client group involved. Ensure back slashes are used here for Windows paths versus the forward slashes used within ADMe.

**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.

The screenshot shows the 'Client Properties' window for 'nw-01.brsvlab.local'. The 'Backup' tab is selected. The 'Save set' field is highlighted with a yellow box and contains the following paths:  
F:\ADMe\caindir\BYDATE  
G:\ADMe\caindir\INCREMENTAL  
F:\ADMe\winfo3\BYDATE  
The 'Protection group list' also has 'Cloud\_Array' selected and highlighted with a yellow box. The 'Pool' is set to 'ADMe' and the 'Schedule' is 'ADMe\_Full'. The 'Save set MBT' field contains the following paths:  
C:\ADMe\carray02\BYDATE  
C:\ADMe\winfo3\BYDATE  
C:\ADMe\winfo3\court\BYDATE

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 **-I 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 everyday.

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 incremental's 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 month's 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.

**Schedule Properties - ADME\_Biyearly\_Full**

General System

**Identity**

Name: ADME\_Biyearly\_Full

Comment: January & July Full, all other months incremental

**Configuration**

Period: ☐ Week ☒ Month

Action: incr incr incr incr incr incr incr  
incr incr incr incr incr incr incr  
incr incr incr incr incr incr incr  
incr incr incr incr incr incr incr  
incr incr incr

**Overrides**

Override: full 1/5/2016  
full 1/4/2016  
full 1/3/2016  
full 1/2/2016  
full 1/1/2016  
full 7/7/2016  
full 7/6/2016  
full 7/5/2016  
full 7/4/2016

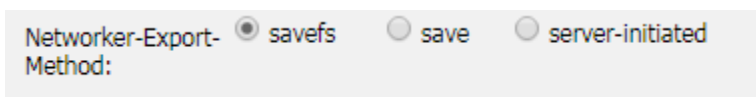
## Using save

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

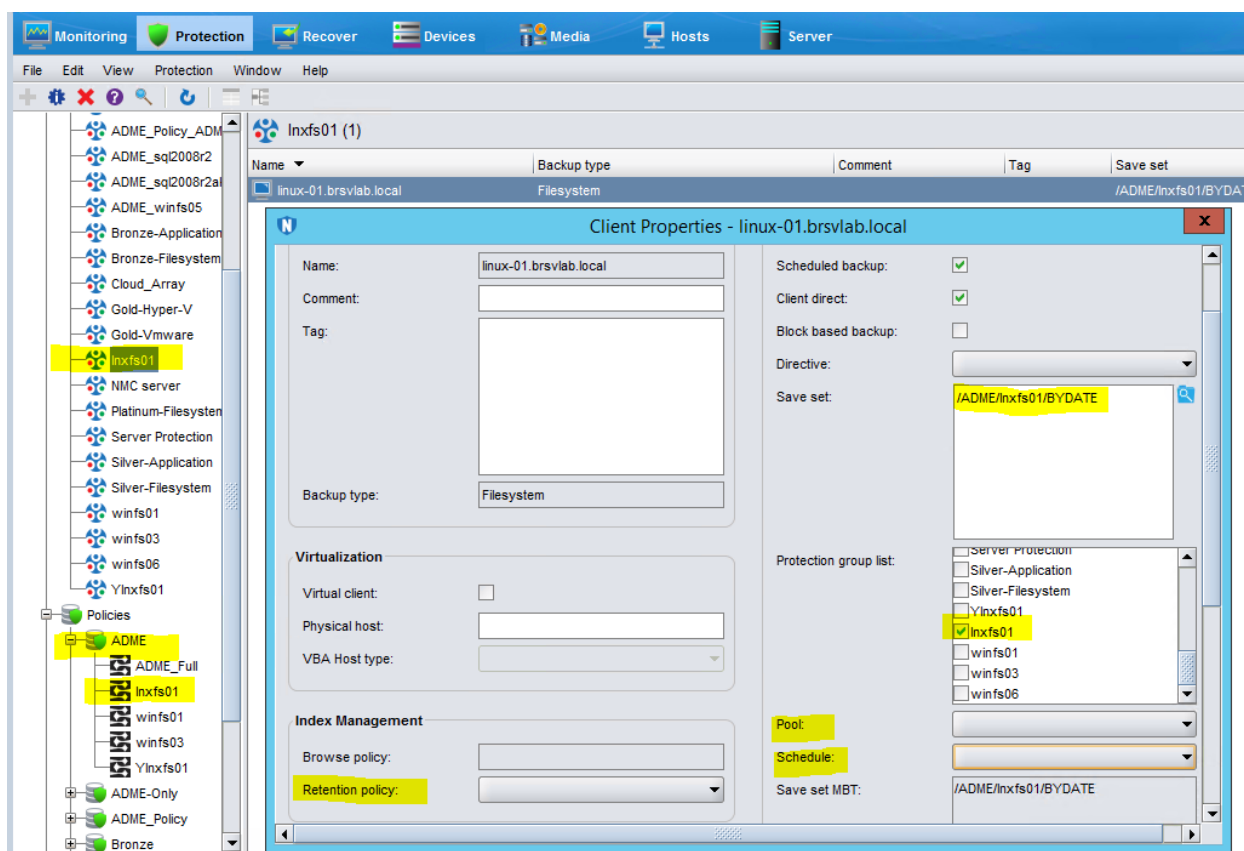
#	Manual Configuration Steps	Check
1	Establish Networker group names such as <b>winfs01</b> matching the ADMe client group names involved which would be <b>winfs01</b> . These Networker group names must match the corresponding ADMe client group names involved.	
2	Establish unique staging server client resources with its save set field updated to contain a single valid staging path definition. Remember to append the keyword <b>BYDATE</b> or <b>INCREMENTAL</b> to it. <ul style="list-style-type: none"><li>Establish dedicated staging client resources per ADMe job policy involved</li><li>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</li></ul>	

	<ul style="list-style-type: none"> <li>Save-Set staging path definitions cannot be abbreviated</li> </ul>	
3	<p>Update the client resource properties as follows</p> <ol style="list-style-type: none"> <li>Assign the client resource to its appropriate Networker group name(s) only defined in Step-1</li> <li>Leave the backup schedule blank (is defined in backup action – ensure full for every day of the month)</li> <li>Leave retention value blank (is defined in backup action)</li> <li>Leave the Media Pool blank (is defined in backup action)</li> <li>Click on <b>Globals (1 of 2) tab</b> <ul style="list-style-type: none"> <li>Check the <b>Parallel save streams per saveset</b> checkbox</li> <li>Adjust the <b>Parallelism counter</b>; 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</li> </ul> </li> </ol>	
4	Establish a single Networker Policy named <b>ADME</b> to which all ADMe related workflows will be assigned to	
5	Establish a separate <b>workflow</b> 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 <b>–server</b> option in its migration criteria. This is what informs ADME to leverage Networker server initiated backup approach making a call to nsrworkflow.	
7	<p>In ADMe ensure the client group name involved has its Server Initiated Backup field updated to include the following sample syntax <b>-p &lt;policy-name&gt; –w &lt;workflow-name&gt;</b>:</p> <p>Example <b>-p ADME –w winfs01</b></p> <p>When using the suggested naming convention this value will be consistent except for the workflow name.</p>	
8	<p><b>IMPORTANT:</b></p> <p>Each ADMe Environment file being used to support <b>server</b>-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.</p> <p>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.</p> <p>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.</p> <p><b>Note:</b> The procedure for establishing multiple Avamar MCS names against a given client is documented in <b>wthreads2.pdf</b> included with the ADMe tar file and located under the <b>/home/admin/admeadmin/tools</b> folder or can be accessed from the ADMe Web-UI via its <b>Dashboard</b> tab found under <b>Jog-Policy-Mgr</b> tab. It is implied the additional Avamar MCS names have already been established and validated and their names conform to the examples shown below.</p> <p>The unique secondary MCS names associated with the Networker server must follow a naming convention by appending <b>_a, _b</b> etc. to it to its base name ensuring uniqueness while maintaining a visible association with the true Networker client name.</p> <p><b>For example:</b></p> <p>This example shows the primary Networker server name as activated to Avamar and used as a staging server</p> <p>Env-1  <b>TAVADOMAINNAME=/ADME/nw-01.brsvlab.local</b>  <b>WINDOWSS=/ADME/nw-01.brsvlab.local</b></p> <p>This example shows a secondary thread identified by the <b>_a</b> to the primary Networker server as activated to Avamar and used as a staging server</p> <p>Env-3  <b>TAVADOMAINNAME=/ADME/nw-01.brsvlab.local_a</b></p>	

	<p><b>WINDOWSS=/ADME/nw-01.brsvlab.local_a</b></p> <p>This example shows a separate staging server name NOT the Networker server which now requires a unique thread to the Networker server to support <b>server</b>-initiated tape BU's.</p> <p>Env-5  <b>TAVADOMAINNAME=/ADME/nw-01.brsvlab.local_b</b>  <b>WINDOWSS=/ADME/windows-staging-server2</b></p> <p>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.</p>	
--	---	--

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 be reflect their active state in the Networker NMC monitoring window in the normal manner.

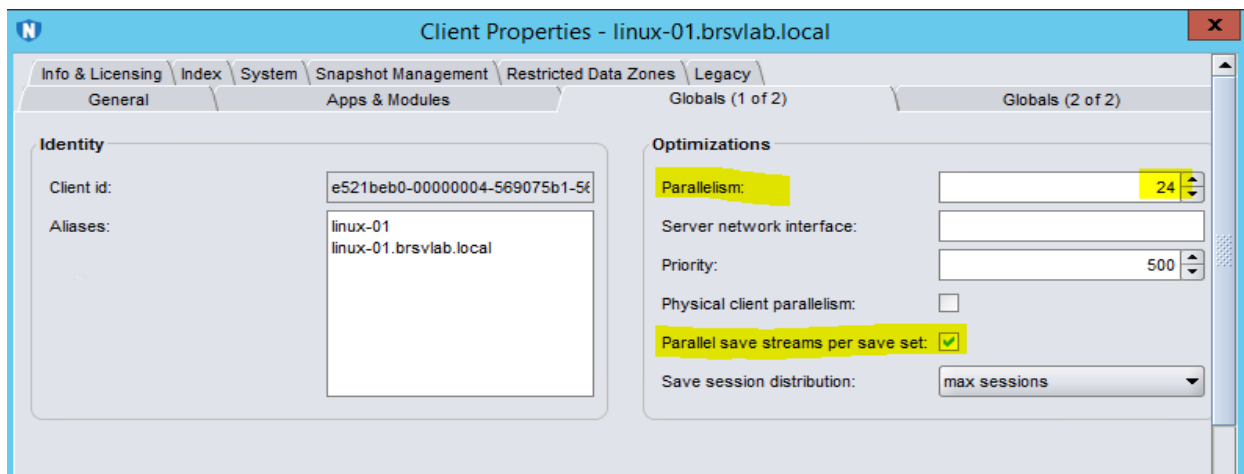
### Sample Group/Staging Client/Save-Set/Schedule/Pool/Retention



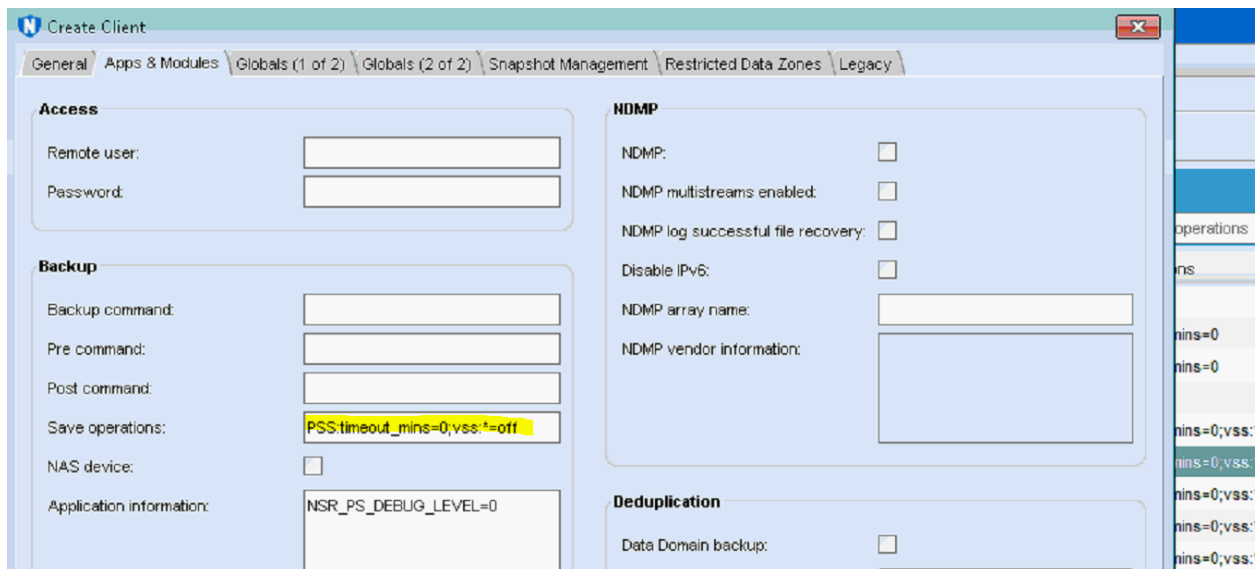
### Sample Setup of Parallel Save Set Streams PSS

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.





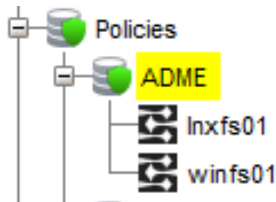
Each client resource involved must have its Save Operations updated as shown to prevent premature timeouts from the PSS feature. On Windows the VSS:\*=off should also be present preventing the need for a VSS snap being issued against a large staging disk



### The 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 and 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

**New Workflow**

**Identity**

Name: lnxfs01

Comment:

**Notifications**

Send notification: Set at Policy Level

**Running**

Enabled: ☒

AutoStart Enabled: ☐

Start Time: 9:00 PM

Interval: 24 Hours

Restart Window: 24 Hours

**Groups**

Groups:

- Ensure Work-Flow AutoStart Enabled box is Unchecked
- Ensure Work-Flow 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 screenshot shows the 'Policy Action Wizard' window, specifically the 'Specify the Action Information' step. The window has a blue header bar with the title 'Policy Action Wizard' and a close button. Below the header, there's a sub-header 'Specify the Action Information' and a paragraph of instructions. On the left, there's a sidebar with four items: 'Specify the Action Information' (checked), 'Specify the Backup Options', 'Specify the Advanced Options', and 'Action Configuration Summary'. Below these is 'Action Wizard Results'. The main area is divided into three sections: 'Identity', 'Workflow', and 'Period'. The 'Identity' section has fields for 'Name' (set to 'backup'), 'Comment', 'Enabled' (checked), 'Action Type' (set to 'Backup'), and 'Backup Subtype' (set to 'Traditional'). The 'Workflow' section has fields for 'Policy' (set to 'ADME'), 'Workflow' (set to 'Inxfs01'), 'Previous' (empty), and 'Concurrent' (unchecked). The 'Period' section has two radio buttons: 'Weekly by day' and 'Monthly by day' (selected). Below the radio buttons is a calendar grid showing days 1 through 31. A tooltip says 'Click on the day to schedule the action'. There are 'Make All' and 'Full' buttons. The calendar grid shows days 1 through 31, with days 1-31 all having a blue shield icon.

**Policy Action Wizard**

**Specify the Action Information**

Specify information about the action and define the schedule for the action operation. Select an action type, and if applicable the select action sub-type. To associate this action with a different workflow in the p select the workflow from the Workflow drop down. If the new action should occur after another action that is associated with the policy, select an existing action from the Previous drop-down. To start the new action at the same time as the action defined in the Previous attribute, select Concurrent.

**Identity**

Name:

Comment:

Enabled: ☒

Action Type:

Backup Subtype:

**Workflow**

Policy:

Workflow:

Previous:

Concurrent: ☐

**Period**

☐ Weekly by day (For example Sunday, Friday, etc.)

☒ Monthly by day (For example 1st day, 5th day etc.)

Click on the day to schedule the action

Make All Full

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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.

**Policy Action Wizard**

**Specify the Advanced Options**

Specify advanced options for the action. Use the attributes in the Notifications group box to configure email or log notifications about the status of an action. Use the attributes in the Overrides group box to define exceptions to the schedule that you configured on the Backup Options window.

**Advanced Options**

Retries: 0

Retry Delay: 1

Inactivity Timeout: 0

Parallelism: 100

Failure Impact: **Abort Workflow**

Soft Limit: 0 Hours

Hard Limit: 0 Hours

Start Time: 0:00 Disabled

**Notifications**

Send notification: Set at Policy Level

**Overrides**

Click on the day to override the level for that specific day

November 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Full on Specified day First Sunday

### 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

### Specify the Advanced Options

Specify advanced options for the action. Use the attributes in the Notifications group box to configure email or log notifications about the status of an action. Use the attributes in the Overrides group box to define exceptions to the schedule that you configured on the Backup Options window.

- Specify the Action Information
- Specify the Backup Options
- Specify the Advanced Options**
- Action Configuration Summary
- Action Wizard Results

#### Advanced Options

Retries:

Retry Delay:  Hours

Inactivity Timeout:  Hours

Parallelism:

Failure Impact:

Soft Limit:  Hours

Hard Limit:  Hours

#### Notifications

Send notification:

#### Overrides

1 Click on the day to override the level for that specific day

November 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Full on ☒ Specified day ☐ Last day of the Month

First Sunday

**Add rule based override**

- full 1/6/2017
- full 1/5/2017
- full 1/4/2017
- full 1/3/2017

## Set Backup Retention and Choose Media Pool

### Policy Action Wizard

#### Specify the Backup Options

Specify the backup options. To accept the default properties, click Next.

- Specify the Action Information
- Specify the Backup Options**
- Specify the Advanced Options
- Action Configuration Summary
- Action Wizard Results

#### Data Movement

Destination Storage Node:

Destination Pool:

Browse Period:  Weeks

Retention Period:  Weeks

Success Threshold:

#### Options

Client Override Behavior:

## 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 policies 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.

```
>>> autonwconfig.sh Version 19.51a
=====
This script creates .bat and .sh script files used to automatically configure the Networker resources required by ADMe.
Input data is taken from various ADMe configuration files, therefore if not fully configured resulting Networker policies will be incomplete.
The resulting .bat files can be optionally transferred to the Networker server and executed there to establish the required resources.

=====
A flag file is used to retain two related Media Pool names (per line) each assigned a unique retention value supporting the
normal month to month retention and a yearly retention value. The file can be manually edited to add additional lines useful when multiple
related Media Pool names are routinely needed.

1: MediaPool=ADME1weeks,1 weeks YearlyPool=ADME2weeks,2 weeks
2: MediaPool=ADME1years,1 years YearlyPool=ADME5years,5 years

=====
Choose by Row-# from above list the desired Media Pool set to use. E=Edit File > █
```

```

Choose by Row-# from above list the desired Media Pool set to use. E-Edit File > 1
Enter a Networker MEDIA-POOL-NAME to be used for Month-to-Month Tapeout migrations.
[ Q=Quit Enter=Your-Media-Pool-Name or Def=ADME1weeks] >
NOTE: Valid entries must conform as shown: # weeks, # months, # years - 8 weeks or 1 years etc.
Enter desired RETENTION value to be used for Month-to-Month Tapeout migrations.
[ Q=Quit Enter=Your-Retntion-Value or Def=1 weeks] >
Enter a Networker MEDIA-POOL-NAME to be used for End-Of-Year Tapeout migrations.
[ Q=Quit N=NOT-APPLICABLE Enter=Your-Media-Pool-Name or Def=ADME2weeks] >
NOTE: Valid entries must conform as shown: # weeks, # months, # years - 1 months or 1 years etc.
Enter desired RETENTION value to be used for End-Of-Year Tapeout migrations.
[ Q=Quit Enter=Your-Retntion-Value or Def=2 weeks] >
=====< Media-Pool & Retention Summary >=====
Month-to-Month Pool Name:      ADME1weeks  Retention-Period: 1 weeks
Yearly Pool Name:             ADME2weeks  Retention-Period: 2 weeks
WARNING: The above media pools must be manually predefined within Networker prior to establishng additional policies.
=====
Confirm above Media-Pool names and their their planned retention values are accurate and exist. Y=Yes N=No > █

```

- 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.

```

When Re-Establishing existing NWK policy definitions, delete the existing definitions? [Y or N Def=Y] :>
Enter the NetWorker Policy Name to use. Def=ADME :> █

```

- 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:      lnxf01
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 NetWorker 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 NetWorker 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.local
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

```

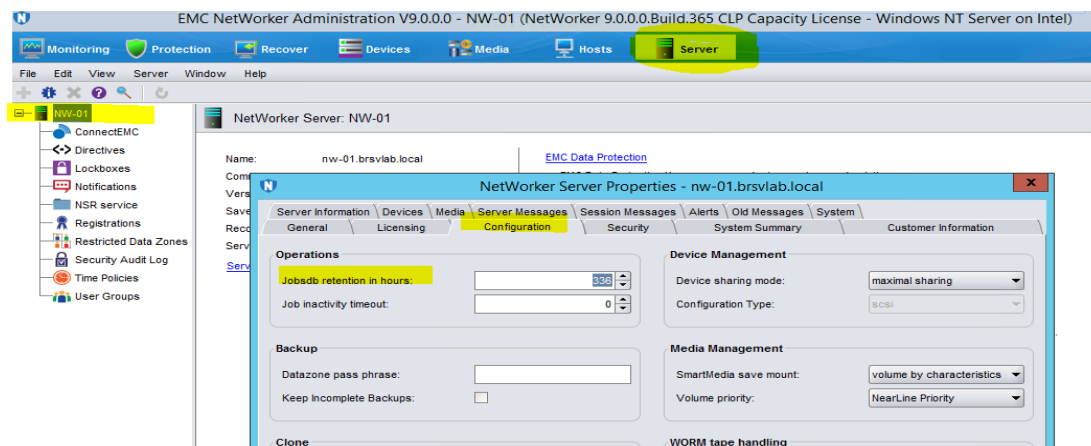


## Server Initiated Workflow Limitations

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.

## Conclusions

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.

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