



# **Snap Creator configuration file variables, parameters, and commands**

Snap Creator Framework

NetApp  
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# Snap Creator configuration file variables, parameters, and commands

You can define the variables, parameters, and commands within the Snap Creator configuration file.

The Snap Creator configuration file is dynamic, which means that you can create and set variables within the configuration file.

For example, when using SnapDrive for Windows instead of ONTAPI to create Snapshot copies. Because the Snapshot copy names need to be unique, you must set a dynamic variable. The following example is from a SnapDrive for Windows configuration:

```
NTAP_SNAPSHOT_CREATE_CMD1="c:/Program Files/NetApp/SnapDrive/sdcli.exe" snap create -m fx1b4 -s %SNAME-%SNAP_TYPE_%SNAP_TIME -D E:
```

or

```
NTAP_SNAPSHOT_CREATE_CMD1="c:/Program Files/NetApp/SnapDrive/sdcli.exe" snap create -m fx1b4 -s %SNAME-%SNAP_TYPE_recent -D E:
```

When using SnapDrive for Windows instead of Data ONTAP for Snapshot copy deletion, the `NTAP_SNAPSHOT_DELETE_CMD` parameter can be used. The `%SNAPNAME` parameter must be used in place of the Snapshot copy name in the SnapDrive for Windows command.

The following example is from a SnapDrive for Windows configuration:

```
NTAP_SNAPSHOT_DELETE_CMD01 = "C:\Program Files\NetApp\SnapDrive\sdcli" snap delete -s %SNAPNAME -D I:
```

## Snap Creator variable and parameter descriptions

Snap Creator includes built-in variables and parameters required in a basic configuration.

Variables	Description
%SNAP_TYPE	Used when you run Snap Creator and it is your retention policy (daily, weekly, monthly)
%SNAP_TIME	The timestamp (YYYYMMDDhhmmss) used in the naming of Snapshot copies to create a guaranteed unique name for every Snapshot copy. It is also used to name the backup reports and Sybase transaction logs.
%ACTION	The list of actions you can perform when you run Snap Creator: (backup
cloneVol	cloneLun
arch	restore

Variables	Description
backupDel	backupList
cloneList	pmsetup
ossv)	%MSG
Used to send an error message to another program such as email or Tivoli It can only be used with the SENDTRAP function.	%USER_DEFINED

The following table lists and describes the Snap Creator parameters used in a basic configuration:

Parameter	Setting	Description
SNAME		Specifies the Snapshot copy naming convention It should be unique. Snapshot copies are deleted according to the naming convention.
SNAP_TIMESTAMP_ONLY	(Y	N)
Sets the Snapshot naming conventionIf set to Y, Snapshot copies end with YYYYMMDDHHMMSS. Otherwise, new Snapshot copies are renamed to end with YYYYMMDDHHMMSS.	VOLUMES	
Lists the primary storage controllers and volumes of which you want to create a Snapshot copy For example:	VOLUME_GROUPS	vol_1,vol_2,vol_n
<pre> controller1:vol1,vol2 ,vol3; controller2:vol1; controller3:vol2,vol3 </pre>		

Defines multiple volumes into a single group. Multiple volumes are specified as a comma-separated list. For example:

```
VOLUMES_01=filer1:vol1,vol2,vol3;filer2:vol1  
VOLUMES_02=filer1:vol3,vol4  
VOLUMES_03=filer2:vol3,vol4  
VOLUME_GROUPS=VOLUMES_01,VOLUMES_02,VOLUMES_03
```



VOLUME\_GROUPS is only supported for backup operations. If this parameter is set, then the VOLUMES parameter will be ignored during the backup.

NTAP\_SNAPSHOT\_RETENTIONS

Determines the number of Snapshot copies to be retained for a given policy. For example:

```
daily:7,weekly:4,monthly:1
```

NTAP\_USERS

<p>Lists the storage systems and their corresponding user names and passwords For example:</p> <pre>controller1:joe/passw ord1; controller2:bob/passw ord2; controller3:ken/passw ord3</pre> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  Password must contain a minimum of two characters. </div>	<p>NTAP_PWD_PROTECTION</p>	<p>(Y)</p>
<p>N)</p>	<p>Enables or disables password protection You must encrypt all passwords (storage system and applications or plug-ins) and save encrypted passwords in configuration file.</p>	<p>TRANSPORT</p>
<p>HTTP</p>	<p>HTTPS</p>	<p>Enables you to use either HTTP or HTTPS to connect to the storage controller <b>Note:</b> HTTPS might require openssl-devel libraries.</p>
<p>PORT</p>		<p>Configures the port number the storage controllers use; normally: 80 and 443</p>
<p>LOG_NUM</p>		<p>Specifies the number of .debug and .out reports that Snap Creator has to retain</p>
<p>CONFIG_TYPE</p>	<p>PLUGIN</p>	<p>STANDARD</p>
<p>Specifies the configuration type There are two types of configurations: plug-in and standard. You can use multiple plug-in configurations to build complex quiesce and unquiesce backup workflows.</p>	<p>CMODE_CLUSTER_USERS</p>	

<p>(Required for clustered Data ONTAP) Lists the primary and secondary clustered Data ONTAP clusters and their corresponding user names and passwords. For example:</p> <pre>cluster1:joe/password 1; cluster2:bob/password 2</pre> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  Password must contain a minimum of two characters. </div>	<p>CMODE_CLUSTER_NAME</p>	
<p>(Required for clustered Data ONTAP) Specifies the name of the primary clustered Data ONTAP cluster</p>	<p>CMODE_SNAPSHOT_FORCE_DELETE</p>	<p>(Y</p>
<p>N)</p>	<p>Ensures deletion of Snapshot copies that should be deleted based on the Snapshot copy policy. In clustered Data ONTAP, Snapshot copies are not deleted if they have any dependencies, such as a clone.</p>	<p>LOG_TRACE_ENABLE</p>
<p>(Y</p>	<p>N)</p>	<p>Enables or disables logging of all events. If disabled, the Manage ONTAP Solution result objects are not logged.</p>
<p>NTAP_TIMEOUT</p>	<p>Seconds</p>	<p>Sets the timeout value for all storage controller Manage ONTAP Solution calls; default is 60 seconds</p>
<p>USE_GLOBAL_CONFIG</p>	<p>(Y</p>	<p>N)</p>
<p>Enables you to use global configuration to store values</p>	<p>FEDERATED_APPLICATIONS</p>	


Lists the configuration and profile names for the federated applications under the configuration For example:  <pre>databases@db2;databases@oracle</pre>	CMODE_SET	(Y
N)	Defines whether the configuration is for clustered Data ONTAP or Data ONTAP operating in 7-Mode	ALLOW_DUPLICATE_SNAME
(Y	N)	(Optional) Enables or disables the ability to create a configuration file with a duplicate Snapshot name This parameter will not work with global (Super Global or Profile Global) configuration files.
SNAPCREATOR_MISSEDJOB_RUN	(Y	N)

## Parameters for configuring the Snap Creator Agent host client and Snap Creator Server

You must be aware of the parameters for configuring the Snap Creator Agent host client and Snap Creator Server.



Parameter	Setting	Description
SC_AGENT_##	host name or IP_address:port	<p>Runs commands or tasks on multiple remote hosts simultaneously using a single configuration. A task is either a defined plug-in (parameter APP_NAME) or a command specified with the _CMD command (for example, NTAP_SNAPSHOT_CREATE_CMD01).</p> <p>To specify a remote host, you should enter its name or IP address followed by a colon, and the port on which Snap Creator Agent is listening.</p> <p>For example: SC_AGENT_number = IP address:Port</p> <p>SC_AGENT_01=Agent IP:Agent port</p> <p>SC_AGENT_02=Agent IP:Agent port</p> <p>On the remote host, you can start Snap Creator Agent by running the &lt;path to scAgent_v&lt;#&gt;/bin/scAgent start command.</p>
SC_CLONE_TARGET	host name or IP_address of the clone target:port	Enables clone operations.Using the parameter <b>cloneVol</b> with the {PRE
<p>POST}_CLONE_CREATE_CMDxx parameter, you can manage the remote storage objects on the remote side (for example, mounting or unmounting file systems).</p> <p>To specify a clone target, you should enter its name or IP address followed by a colon, and the port on which Snap Creator Agent is listening.</p>	SC_AGENT_TIMEOUT	Time (in seconds)

Parameter	Setting	Description
<p>Specifies the timeout in seconds of the Agent service. The implemented client/server architecture uses a timeout mechanism. This means that if the client does not respond in the specified interval, the server fails with a timeout message. However, the task on the client is not aborted and requires further investigation.</p> <p>The timeout is set to 300 seconds by default. On a server with a high load or known long-running tasks (such as, user-created scripts or complex SnapDrive operations), you should extend the timeout and modify this value according to your requirements.</p> <p>You should set this parameter to the maximum time that an operation can take (for example, if quiesce takes 1,800 minutes, this parameter must be set to 1800).</p> <div data-bbox="183 1104 245 1167" style="float: left; margin-right: 10px;">  </div> <div data-bbox="321 1052 545 1220" style="border-left: 1px solid #ccc; padding-left: 10px;"> <p>Some plug-ins have specific SC_AGENT_TIMEOUT value requirements.</p> </div>	<p>SC_AGENT_WATCHDOG_ENABLE</p>	<p>“Y” or “N”</p>

Parameter	Setting	Description
<p>The SC_AGENT_WATCHDOG_ENABLE parameter applies only when the Snap Creator Agent version is earlier than 4.1. This parameter enables or disables the Watchdog process. For Snap Creator Agent 4.1 or later, this parameter is ignored because the Watchdog process is always enabled. If the parameter is enabled (that is, set to Y) and the Snap Creator Agent version is 4.1 or later, the Watchdog process starts when the Snap Creator Agent receives a quiesce request.</p> <p>The Watchdog process uses the SC_AGENT_UNQUIESCE_TIMEOUT parameter as timeout to unquiesce the application. If the parameter is disabled (that is, set to N) and the Snap Creator Agent version is earlier than 4.1, the Watchdog process unquiesces the application, but it uses the OPERATION_TIMEOUT_IN_SECONDS parameter (default: 1 hour) from scAgent/etc/agent.properties path.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 20px;">  <p>The SC_AGENT_WATCHDOG_ENABLE parameter is deprecated for Snap Creator Agent 4.1, and applicable only for use with Snap Creator Agent 4.0. Beginning with Snap Creator Agent 4.1, the Watchdog process is enabled (as it is hard coded), regardless of the value set for this parameter.</p> </div>	<p>SC_AGENT_UNQUIESCE_TIMEOUT</p>	<p>Time (in seconds)</p>

Parameter	Setting	Description
<p>Specifies the unquiesce timeout in seconds. With Snap Creator Agent versions earlier than 4.1, this parameter is only used when SC_AGENT_WATCHDOG_ENABLE is set to Y. With Snap Creator Agent 4.1 or later, the parameter is always applicable, because the Snap Creator Agent Watchdog process is always on. If communication with Snap Creator Agent is not possible and an application is in the quiesce state, the Snap Creator Agent automatically returns the application to its normal mode of operation without communication from the server. By default, the unquiesce timeout is set to whatever the SC_AGENT_TIMEOUT parameter value is, plus five seconds.</p>	SC_TMP_DIR	“Y” or “N”
<p>Enables the use of a user-defined, alternate temporary directory to store Snap Creator-related files. The user creates the directory and manages user access. The plug-ins use temporary files to interact with the database. The temporary files are created in the host’s default temp directory, which has write access for all users. If the temp directory is full, Snap Creator displays an error while creating the temporary files.</p>	SC_AGENT_LOG_ENABLE	“Y” or “N”

## Parameters to connect to vFiler units and interfaces

Several parameters are required to connect Snap Creator Server to vFiler units and interfaces.

Parameter	Setting	Description
VFILERS		List the vFiler units and their hosting storage systems or volumes. For example: vFiler1@controller1:vol1,vol2,vol3;vFiler2@controller2:vol1;vFiler3@controller3:vol2,vol3 <b>Note:</b> HTTPS is not supported with vFiler units.
MANAGEMENT_INTERFACES		Lists the primary storage controllers and their management interfaces used for communications. For example: MANAGEMENT_INTERFACES=controller1:controller1-mgmt;controller2:controller2-mgmt
SECONDARY_INTERFACES		List the primary storage controllers or vFiler units and their secondary interfaces' source or destination for SnapVault and SnapMirror relationships. For example: controller1:controller1-source/controller2-destination  <div style="display: flex; align-items: center;">  <p>The SnapVault and SnapMirror relationships must be configured to use this secondary interface. Snap Creator does not manage SnapMirror and SnapVault relationships.</p> </div>
USE_PROXY	(Y	N)
Allows API calls to go through Active IQ Unified Manager server proxy instead of the storage controller directly. If this option is used, NTAP_USERS is not required.	ALLOW_IP_ADDR	(Y

# Parameters to set up cloning operations

Several parameters are required to set up Snap Creator Server cloning operations.

Parameter	Setting	Description
NTAP_VOL_CLONE_RESERVE	none	file
volume	This is the space guarantee for a cloned volume.	NTAP_LUN_CLONE_RESERVATION
true	false	If set to true, space is reserved for the cloned LUNs if the cloneLun action is selected. Otherwise, space is not reserved.
NTAP_CLONE_IGROUP_MAP		<p>Specifies the storage system, source volume, and an IGROUP. The IGROUP is then mapped to cloned LUNs that reside in the source volume or cloned LUNs that reside in the volume clone (for example,</p> <pre>controller1:src_volume1/igroup1,src_volume2/igroup1,src_volume3/igroup1;controller2:src_volume1/igroup2,src_volume2/igroup2,src_volume3/igroup2).</pre> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• LUN clones assume the same name as their parent volume or LUN and end with <code>_CLONE</code>; that is, if the volume is called <code>myvol</code>, the clone would be <code>myvol_CLONE</code>.</li> <li>• Volume clones start with <code>cl_</code> and end with <code>-YYYYMMDDHHMMSS</code>.</li> </ul>
NTAP_CLONE_FOR_BACKUP	(Y	N)

Parameter	Setting	Description
If enabled, clones (volume and LUN) are created and then deleted after the other operations are complete. Otherwise, clones are deleted before the operations are complete. <b>Note:</b> If you are backing up clones to tape, this should be set to Y. If you are doing database refreshes, then you should set it to N.	NTAP_CLONE_SECONDARY	(Y
N)	If enabled, clones are created on the SnapMirror destination after the SnapMirror update is complete. <b>Note:</b> This setting should be used with NTAP_SNAPMIRROR_USE_SNAPSHOT, NTAP_SNAPMIRROR_WAIT, and NTAP_CLONE_SECONDARY_VOLUMES, and the cloneVol action.	NTAP_CLONE_SECONDARY_VOLUMES
	This is a mapping of primary or secondary storage systems and the secondary volumes. This is required so that Snap Creator can find the secondary volumes (for example, controller1:controller1-sec/vol1;controller1:controller1-sec/vol2).	NTAP_NUM_VOL_CLONES
	This is the number of volume clones you want to retain. This works similarly to the Snapshot copy retention policy. <b>Note:</b> This only works for volume clones that require a FlexClone license on the storage controller.	NTAP_NFS_EXPORT_HOST
Host IP	The host name or IP address where the clone should be exported. This is the host where you mount the clone volume by using NFS.	NTAP_NFS_EXPORT_ACCESS
root	read-write	read-only

Parameter	Setting	Description
The host specified in NTAP_NFS_EXPORT_HOST receives access or permission to the clone volume.	NTAP_NFS_EXPORT_PERSISTENT	true
<ul style="list-style-type: none"> <li>• root Root access is granted.</li> <li>• read-only Read-only access is granted.</li> <li>• read-write Read/Write access is granted.</li> </ul>		
false	Determines whether NFS export is persistent. If true is selected, the clone volume is exported and the /etc/exports file on the storage controller is updated.	NTAP_CIFS_EXPORT_ENABLE
(Y	N)	Setting to share a cloned volume using CIFS.

## Parameters for setting up event management

Several parameters are required to set up event management for Snap Creator Server.

Parameter	Setting	Description
NTAP_ASUP_ERROR_ENABLE	“Y” or “N”	Enables Snap Creator error messages to also log an AutoSupport message on the storage controller. Snap Creator always creates an info AutoSupport message when the backup has started and when the backup is complete.
FAILURE_MSG		Logs the failure message that is defined in case of a Snap Creator failure. This failure message can also be sent to SENDTRAP if SENDTRAP is defined.



Parameter	Setting	Description
SENDTRAP		<p>Interfaces with your monitoring software or email, enabling you to pass the alerts that are generated from Snap Creator into your own monitoring infrastructure. The %MSG variable is the message sent from Snap Creator. The following is an example of how you can send an email on a UNIX system: SENDTRAP=/usr/bin/mailx -s %MSG myaddress@mydomain.com &lt;/dev/null</p> <p>To send an email on a Windows system, you must add <code>cmd.exe /c</code> before any command. For example: SENDTRAP= cmd.exe /c echo %how</p>
SUCCESS_TRAP		<p>Interfaces with your monitoring software or email, enabling you to pass the success message generated from Snap Creator into your own monitoring infrastructure. The %SUCCESS_MSG variable is the success message for Snap Creator. The following is an example of how you can send an email on a UNIX system: SUCCESS_TRAP=/usr/bin/mailx -s %SUCCESS_MSG myaddress@mydomain.com &lt;/dev/null</p> <p>To send an email on a Windows system, you must add <code>cmd.exe /c</code> before any command. For example: SUCCESS_TRAP= cmd.exe /c echo %Hello</p>
SUCCESS_MSG		<p>After a successful Snap Creator backup, this setting logs the message that is defined. The message is also sent to SUCCESS_TRAP, if SUCCESS_TRAP is defined, or to SENDTRAP, if SENDTRAP is defined.</p>

## Parameters to set up Operations Manager console


Several parameters are required to set up Operations Manager console.

Parameter	Setting	Description
OM_HOST		The name or IP address of the Operations Manager console host.
OM_USER		The user name of an Operations Manager console user who has permission to create events.
OM_PWD		The password for the Operations Manager console user. <b>Note:</b> The password must contain a minimum of two characters.
OM_PORT		The port to use for communications with Operations Manager console; 8088 is the default HTTP port and 8488 is the default HTTPS port that the Operations Manager console uses.
OM_EVENT_GENERATE	(Y	N)

## Parameters to set up OSSV

Several parameters are required to set up Open Systems SnapVault (OSSV).



Parameter	Setting	Description
NTAP_OSSV_ENABLE	(Y	N)


Parameter	Setting	Description
<p>Enables OSSV integration. This parameter must be used in combination with the NTAP_OSSV_HOMEDIR parameter. OSSV is also required on the host running Snap Creator. In OSSV, the policy retention logic handles the policies based on the predefined Snap Creator policies only. It does not support any policy object.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;">  <p>When this OSSV parameter is enabled, the path is specified as volumes. When specifying paths in Windows for OSSV, the colon (:) should not be used. For example, if the path is E:\DB, then it should be used as E\DB.</p> </div>	NTAP_OSSV_HOMEDIR	/usr/snapvault
<p>Sets the path to the OSSV home directory (/usr/snapvault).</p>	NTAP_OSSV_FS_SNAPSHOT	(Y
N)	<p>Required to set the NTAP_OSSV_FS_SNAPSHOT_CREATE_CMD parameter. Enables you to create a file system Snapshot copy using the Open System or file system command. The file system Snapshot copy is then transferred to the storage system using SnapVault.</p>	NTAP_OSSV_FS_SNAPSHOT_CREATE_CMD

## Parameters for setting up SnapMirror

Several parameters are required to set up SnapMirror for Snap Creator Server.

Parameter	Setting	Description
NTAP_SNAPMIRROR_UPDATE	“Y” or “N”	Enables you to turn on and turn off the SnapMirror update function.

Parameter	Setting	Description
NTAP_SNAPMIRROR_CASCADING_UPDATE	"Y" or "N"	<p>Enables you to turn on and turn off the cascading SnapMirror update function. This is a SnapMirror update using a SnapVault destination volume.</p> <div style="display: flex; align-items: center; margin-top: 20px;">  <p>This is not supported for clustered Data ONTAP.</p> </div>
SNAPMIRROR_VOLUMES		<p>Specifies the list of source storage systems and volumes on which you want to perform a SnapMirror update (for example, controller1:vol1,vol2,vol3;controller 2:vol1;controller3:vol2,vol3). <b>Note:</b> For the VMware plug-ins (vSphere and vCloud), the value should be set to auto:detect.</p>
SNAPMIRROR_CASCADING_VOLUMES		<p>Specifies the list of SnapVault destination storage systems and volumes where, after a SnapVault update, you want to perform a SnapMirror update (for example, sec-controller1:vol1-sec,vol2-sec). This is not supported with cascade replication if a source volume has multiple destinations.</p> <div style="display: flex; align-items: center; margin-top: 20px;">  <p>This is not supported for clustered Data ONTAP.</p> </div>

Parameter	Setting	Description
NTAP_SNAPMIRROR_WAIT		<p>Specifies the wait time (in minutes) for the SnapMirror update process to finish before creating a clone on the SnapMirror destination. If NTAP_CLONE_SECONDARY is set to Y, Snap Creator waits until the SnapMirror update is finished before proceeding.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;">  <p>This can be used only with NTAP_CLONE_SECONDARY and the cloneVol action (only volume clones are currently supported).</p> </div>
NTAP_SNAPMIRROR_USE_SNAPSHOT	"Y" or "N"	<p>If this parameter is enabled, the SnapMirror update uses the newly created Snapshot copy, thus creating a Snapshot copy on the SnapMirror destination. <b>Note:</b> This is required for NTAP_CLONE_SECONDARY because a Snapshot copy is required to create a clone on the SnapMirror destination.</p>
NTAP_SNAPMIRROR_MAX_TRANSFER		<p>Specifies the maximum bandwidth (in kbps) that SnapMirror is allowed to use. If this parameter is not set, SnapMirror uses the maximum available bandwidth.</p>
SNAPMIRROR_QTREE_INCLUDE		<p>Specifies the list of primary storage controllers and qtree paths to be included in the SnapMirror update (for example, controller1:/vol/qtree/qtree1,/vol/volume/qtree2;controller2:/vol/volume/qtree1). If this option is not used, then all the qtrees under a volume will be backed up. By specifying a list using this option, only the qtrees that are listed will be backed up; the remaining qtrees will be ignored.</p>

# Parameters for setting up Snapshot copies

Several configuration file parameters are required to set up Snapshot copies for Snap Creator Server.

Parameter	Setting	Description
NTAP_SNAPSHOT_RETENTION_AGE		Enables you to define the retention age (in days) for Snapshot copies. If configured, Snapshot copies are deleted only if they exceed the number defined in the NTAP_SNAPSHOT_RETENTIONS parameter, and if they are older than the retention age (in days).
SNAPDRIVE	“Y” or “N”	Enables you to use SnapDrive instead of the Data ONTAP API to create a Snapshot copy.
SNAPDRIVE_DISCOVERY	“Y” or “N”	Enables you to use SnapDrive for storage discovery. This is required in a SAN or an iSAN environment when using the VALIDATE_VOLUMES parameter.
NTAP_SNAPSHOT_DISABLE	“Y” or “N”	Disables Snap Creator from creating a Snapshot copy so that Snap Creator can handle SnapVault or SnapMirror for SnapManager. For this setting to work, the SnapManager Snapshot copies must follow this naming convention: snapshot_copy_name-policy_recent.
NTAP_SNAPSHOT_NODELETE	“Y” or “N”	Overrides the NTAP_SNAPSHOT_RETENTIONS parameter, and prevents Snapshot copies from being deleted. Enabling this variable can make the volume full.

Parameter	Setting	Description
NTAP_SNAPSHOT_DELETE_CMD		Deletes snapshots through SnapDrive instead of Snap Creator based on snapshot retention. <b>Note:</b> All the volumes (mount drives) used in this Snapdrive command for snapshot deletion should be included the configuration file as well.
NTAP_SNAPSHOT_DELETE_BY_AGE_ONLY	(PRIMARY	SECONDARY
BOTH	N)	Enables the deletion of old Snapshot copies. This parameter requires the NTAP_SNAPSHOT_RETENTION_AGE parameter, and forces deletion based on Snapshot copy age rather than the number of Snapshot copies.
NTAP_SNAPSHOT_DEPENDENCY_IGNORE	“Y” or “N”	Applies only to Snapshot copy deletion using the backupDel action. Manually deletion of Snapshot copies with a dependency is not permitted.
NTAP_SNAPSHOT_CREATE_CMD ##		Creates a Snapshot copy and flushes the file system buffers; ## is a number from 1 to 99. <b>Note:</b> This setting is required if you enable the SNAPDRIVE parameter. The Data ONTAP API is still used to perform everything else, but the SNAPDRIVE option creates Snapshot copies.
NTAP_METADATA_SNAPSHOT_CREATE_CMD ##		Creates the metadata volume Snapshot copy, and flushes the file system buffers; ## is a number from 1 to 99.
NTAP_CONSISTENCY_GROUP_SNAPSHOT	“Y” or “N”	Enables the use of consistency groups for creating consistent Snapshot copy across multiple volumes.

Parameter	Setting	Description
NTAP_CONSISTENCY_GROUP_SNAPSHOT_RETRY_COUNT		Specifies the number of times a consistency group Snapshot should be retried in case of failure.
NTAP_CONSISTENCY_GROUP_SNAPSHOT_RETRY_WAIT	Time (in seconds)	Specifies the time to wait between each retry of a consistency group Snapshot.
NTAP_CONSISTENCY_GROUP_TIMEOUT	(URGENT	MEDIUM
RELAXED)	Specifies the wait time for the storage controller to consistently group Snapshot copies.	NTAP_CONSISTENCY_GROUP_WAFL_SYNC
“Y” or “N”	Improves the performance of a consistency group Snapshot copy by forcing a consistency point (CP) through a wafI-sync before the cg-start. <b>Note:</b> If you are performing consistency group backup with the DB2 plug-in, you must set this parameter to “N”.	NTAP_SNAPSHOT_RESTORE_AUTO_DETECT
“Y” or “N”	If disabled, this setting always forces a Single File SnapRestore (SFSR) when performing a single file restore.	NTAP_SNAPSHOT_CLEANUP
“Y” or “N”	Removes any Snapshot copies that were created in the event of backup failure.	NTAP_USE_EXTERNAL_SNAPSHOT
“Y” or “N”	Enables the import of a non-Snap Creator Snapshot copy. The most recent Snapshot copy is matched.	NTAP_EXTERNAL_SNAPSHOT_REGEX

## Parameters to set up SnapVault

Several parameters are required to set up SnapVault.

Parameter	Setting	Description
NTAP_SNAPVAULT_UPDATE	(Y	N)



Parameter	Setting	Description
Enables you to turn on and off the SnapVault update function.	SNAPVAULT_VOLUMES	
<p>Lists the source storage systems and volumes on which you want to perform a SnapVault update (for example, controller1:vol1,vol2,vol3;controller 2:vol1;controller3:vol2,vol3). <b>Note:</b></p> <ul style="list-style-type: none"> <li>• For SnapVault and SnapMirror updates to work, the relationships must exist.</li> </ul> <p>Snap Creator does not create the relationships.</p> <ul style="list-style-type: none"> <li>• The host names in the SnapMirror or SnapVault relationship must be the same as specified in the VOLUMES, SNAPMIRROR_VOLUMES, and SNAPVAULT_VOLUMES options. Also, the host where Snap Creator runs must be able to resolve the host names.</li> <li>• For vSphere or vCloud, the value should be set to auto:detect.</li> <li>• Host names should be the short host name (name that appears on storage controller command prompt), not the FQDN.</li> </ul>	SNAPVAULT_QTREE_INCLUDE	
Lists the source storage systems and qtree paths that should be included in the SnapVault update. Without this option, all qtrees under a volume are vaulted by SnapVault if a relationship exists. Qtrees listed in the following example are vaulted by SnapVault and the rest are ignored by SnapVault: controller1:/vol/qtree/qtree1,/vol/volume/qtree2;controller2:/vol/volume/qtree1.	NTAP_SNAPVAULT_RETENTION S	

Parameter	Setting	Description
Determines the number of Snapshot copies on the SnapVault secondary that you want to retain for a given policy (for example, daily:21, weekly:12, monthly:3).	NTAP_SNAPVAULT_RETENTION_AGE	
Enables you to define a retention age (in days) for SnapVault Snapshot copies. If configured, SnapVault Snapshot copies are deleted only if they exceed the number defined in NTAP_SNAPVAULT_RETENTION_S and if they are older than the retention age (in days).	NTAP_SNAPVAULT_SNAPSHOT	(Y
N)	Enables use of SnapVault Snapshot copies; that is, Snapshot copies that are compatible with the storage controller SnapVault scheduler. When using this option, Snapshot copy delete is handled by the storage controller and not by Snap Creator. Additionally, Snapshot copies are named as follows: sv_<POLICY>.<##>. The policy name comes from the NTAP_SNAPSHOT_RETENTIONS parameter and the retention set is also applied to the storage controller SnapVault schedule.	NTAP_SNAPVAULT_NODELETE
(Y	N)	Overrides NTAP_SNAPVAULT_RETENTION_S and prevents Snapshot copies from being deleted. Leaving this on can cause your volume to fill up.
NTAP_SNAPVAULT_RESTORE_WAIT	(Y	N)

Parameter	Setting	Description
In the case of SnapVault restore, it forces Snap Creator to wait for the operation to finish. This is recommended because after the SnapVault restore is complete, Snap Creator prompts the user to delete the restore Snapshot copies that get created on primary storage and are no longer needed.	NTAP_SNAPVAULT_WAIT	
The wait time (in minutes) for the SnapVault update process to finish before creating a Snapshot copy on the SnapVault secondary.	NTAP_SNAPVAULT_MAX_TRANSFER	

## Parameters to set up the NetApp Management Console data protection capability

Several parameters are required to set up the NetApp Management Console data protection capability.

Parameter	Setting	Description
NTAP_PM_UPDATE	(Y	N)
Enables you to turn on and off the NetApp Management Console data protection capability update that registers Snap Creator Snapshot copies in the NetApp Management Console data protection capability. <b>Note:</b> If NTAP_PM_UPDATE is enabled, you must configure NTAP_DFM_DATA_SET.	NTAP_DFM_DATA_SET	
Lists the storage systems and the NetApp Management Console data protection capability data sets to volume correlations; that is, controller1:dataset1/vol1,vol2;controller1:dataset2/vol3.	NTAP_PM_RUN_BACKUP	(Y
N)	Starts the NetApp Management Console data protection capability backup, checks the progress and status, and waits for it to finish.	NTAP_DFM_SNAPSHOT_FORMAT

# APP commands

The following table lists the application (APP) commands.

Command	Description
APP_CLONE_FOLLOW_UP_CMD ##	These are scripts or commands to be executed after the database is cloned, where ## is a number between 01 and 99, inclusive. This can be used to perform application-specific followup activities on SAP systems, such as installing a SAP license, adjusting database tables, deleting or updating content, and starting up the application.
APP_QUIESCE_CMD ##	These are scripts or commands that put your application into backup mode, where ## is a number between 01 and 99, inclusive. <b>Note:</b> This is ignored if you use APP_NAME, because it is in that case handled internally in Snap Creator.
APP_UNQUIESCE_CMD ##	These are scripts or commands that take your application out of backup mode, where ## is a number from 01 to 99, inclusive. <b>Note:</b> This is ignored if you use APP_NAME because it is in that case handled internally in Snap Creator.
ARCHIVE_CMD ##	This command handles database archiving; it can also be used as a wrapper to run other scripts, where ## is a number from 01 through 99.

# Mount and unmount commands

When cloning, you should use the MOUNT\_CMD and UMOUNT\_CMD commands instead of the Snap Creator PRE or POST commands.

Command	Description
MOUNT_CMD ##	Mount commands are used to mount the file system for cloning or mount actions, where ## is a number starting from 01-99.
UMOUNT_CMD ##	Unmount commands are used to unmount the file system for cloning or mount actions, where ## is a number starting from 01-99.

# PRE commands

Snap Creator Server includes several configuration file PRE commands.



For Windows, `cmd.exe /c` must be included before any PRE command.

Command	Description
<code>PRE_APP_QUIESCE_CMD ##</code>	This is the pre-application backup start command, where <code>##</code> is a number from 01-99.
<code>PRE_NTAP_CMD ##</code>	This is the pre-Snapshot command, where <code>##</code> is a number from 01-99; it runs before all operations.
<code>PRE_APP_UNQUIESCE_CMD ##</code>	This is the pre-application backup stop command, where <code>##</code> is a number from 01-99.
<code>PRE_NTAP_CLONE_DELETE_CMD ##</code>	This is the pre-clone delete command, where <code>##</code> is a number from 01-99. <b>Note:</b> The purpose of the clone delete command is to call a mount script or commands so that cloned LUNs can be mounted for the purpose of backing up (probably to tape).
<code>PRE_EXIT_CMD ##</code>	This is an optional command that is run after a fatal error occurs but before Snap Creator exits. This is useful to revert to the state it was before Snap Creator ran. <b>Note:</b> <ul style="list-style-type: none"><li>• This command returns an application into normal operation mode before Snap Creator exits due to an error.</li><li>• This is ignored if you use <code>APP_NAME</code> because it is handled internally in Snap Creator.</li></ul>
<code>PRE_RESTORE_CMD ##</code>	This is an optional command that can be run before you enter an interactive restore. This enables you to interact with the application being restored. For example, you might want to shut down the application before performing a restore. <b>Note:</b> This is not supported with the MySQL plug-in.
<code>PRE_CLONE_CREATE_CMD ##</code>	This is an optional command that can be run before ONTAPI cloning operations occur, where <code>##</code> is a number from 01-99.

## POST commands

Snap Creator Server includes several configuration file POST commands.

Command	Description
POST_APP_QUIESCECMD ##	This is a post-application backup start command, where ## is a number from 01-99.
POST_NTAP_CMD ##	This is a post command, where ## is a number from 01-99. This runs after all operations are complete.
POST_APP_UNQUIESCE_CMD ##	This is a post-application backup stop command, where ## is a number from 01-99.
POST_NTAP_DATA_TRANSFER_CMD ##	This is a post-data transfer command that runs after a SnapVault or SnapMirror transfer, where ## is a number from 01-99.
POST_RESTORE_CMD ##	This is an optional command that can be run after you complete an interactive restore. It enables you to interact with the application being restored. After your restore is complete, you might want to start the application. <b>Note:</b> This is not supported with the MySQL plug-in.
POST_CLONE_CREATE_CMD ##	This is an optional command that can be run after ONTAPI cloning operations occur, where ## is a number from 01-99. The commands are used to perform operations such as mounting cloned file systems.

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