Dell Unity™ Family Service Commands Technical Notes

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Additional resources

As part of an improvement effort, 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 about product features. Contact your technical support professional if a product does not function properly or does not function as described in this document.

Where to get help

Support, product, and licensing information can be obtained as described below.

Product information

For product and feature documentation or release notes, go to Unity Technical Documentation at the Dell Unity Info Hub.

Troubleshooting

For information about products, software updates, licensing, and service, go to Dell Support (registration required). After logging in, locate the appropriate product page.

Executive summary

Business case

Systems in the Unity Family are designed to be serviced by the user. You can solve common system problems within the Unisphere Service Page. However, a problem can occur that is not diagnosable or solvable by the options found on the Service Page.

Solution overview

A set of problem diagnostic, system configuration, and system recovery commands are installed on the system's operating environment. These commands provide an in-depth level of information and a lower level of system control than is available through Unisphere. This document describes these commands and their common use cases.

Key results / recommendations

The Service (svc) Commands in this document are a subset of the operating environment's software tools for servicing a Unity system. You can use the UEMCLI scriptable system configuration for additional capability. However, you cannot use the UEMCLI scriptable system for monitoring systems. This document does not discuss UEMCLI.

Introduction

This document describes the set of operating environment commands that are used to diagnose and solve Unity system problems.

Purpose

This document describes the commands available for diagnosing and solving system problems not correctable through Unisphere. It also discusses common uses for the Service Commands.

Scope

This document provides a list of software tools available within the Unity's Secure Shell (SSH) that, when combined with the proper method, can troubleshoot Unity system problems.

The Service Commands listed are available on Unity systems running OE version 4.2.

Authorized technical support personnel may have installed additional service commands (not found in this document) on the system for troubleshooting purposes. Do not run additional commands without the approval of an authorized Service Representative.

The commands provide the following high-level problem solving functions:

- Configuration—Set or reset the state of individual Unity system hardware or software components.
- Diagnostic—Test or report the state of the system's hardware or software.
- Operations—Supports commands for advanced troubleshooting. These tools are for use by authorized Support Representatives only.
- Recovery—Restore the system hardware or software components to a known state.

Usage

Log in as the Service user account to a Unity Storage Processor (SP) or UnityVSA with the ESXi VM console to run commands. If SSH access has been enabled using Unisphere, the system console can be accessed using SSH. An individual SP can be accessed using a Serial-Over-LAN session, using the `IPMITool.exe` and connecting to the Service LAN port on the SP. Before using these commands,

1. Apply for the Service Account password.
2. Enable SSH.
3. Get any terminal hardware ready.
4. Install supporting software applications.

Unity SPs can run in one of two operational modes:

- Normal Mode—Some commands only run in standard operational mode.
- Service Mode—Some commands only run in maintenance and troubleshooting mode.
- Both—Some commands run in both modes.

Audience

Unity storage system administrators, Dell, Dell partners, field service personnel, and support personnel.

The Service Commands run on the Unity system's Linux operating environment. Successful use of these commands requires familiarity with the Linux shell, the Unity's installed hardware, and the Unity's operating environment.

In addition, the Target Audience is included in the Usage category for each script. These categories include:

- General Use—No special knowledge is needed to run or understand the results.
- Technical Service—Advanced training is required to run the command or understand the results. Do not run these commands without the approval of your authorized Service Representative.

Terminology

Table 1. Terminology used in this technical note

Term	Definition
Admin user	The *admin* account can manage and configure servers and provision the storage system. This account is the only default user able to log in to Unisphere in Normal Mode.
Backend Repository	A portion of the first four drives in the DPE is dedicated to Unity system space. A section of this space is the backend repository, which is reserved for maintaining known good images of Unity software.

Table 1. Terminology used in this technical note (continued)

Term	Definition
Boot Counters	Boot counters are a troubleshooting mechanism that is designed into the Unity architecture to help pinpoint the specific cause of software or hardware events during the boot sequence. If the Unity system detects a problem with software or hardware components, its corresponding Boot Counter is incremented. If a counter reaches a predefined threshold, the SP boots into Service Mode during its next boot cycle. See System diagnostics (svc_diag) for troubleshooting steps.
Disk Processor Enclosure (DPE)	A DPE is a physical, rack-mountable enclosure that includes one or two SPs, power supplies, and at least four drives.
EMC Secure Remote Support (ESRS)	ESRS VE Centralized (Gateway) and ESRS VE Integrated (Embedded) provide a secure, IP-based, distributed support solution for command, control, and visibility into a system by an authorized remote support representative.
Normal Mode	Standard operational mode for a Unity system. You can manage and configure servers, and provision storage. User data is accessible while the system is in Normal Mode.
Service Mode	The Unity system's reduced operational mode is for maintenance and troubleshooting. In this mode, a limited interface through Unisphere or a Command-Line Interface (CLI) enables problem resolution. An SP in Service Mode does not process data requests. User data is not accessible when all SPs are in Service Mode. You cannot manage or provision new servers. Certain operations performed in Service Mode - such as injecting a service tool - are not persistent across reboots and their effect is not present in Normal Mode.
Service User Account	The Service User Account has the right to perform maintenance and troubleshooting on the Unity system. This is the only account that can log in to the Unity CLI (with SSH or a serial connection) and the Service Page within Unisphere.
Storage Processor (SP)	A discrete, high-availability server that hosts both file and block level virtualized storage, and management for these services. SPs are physically located within the DPE and hold the CPU, memory, onboard SSD, and Battery Backup Unit (BBU).

Serviceability commands

Learn about the Service Commands available on Unity systems, including appropriate usage examples and use cases.

Note that many Service Commands support a help option. Run this option with either the "`--help`", "`-h`" or "`-?`" switch (no quotation marks). *Help* lists usage syntax, usage examples, and other information about the command's use. For example, to see the help option for `svc_ssh`, run: **`svc_ssh --help`**

Dump ACL database (svc_acldb_dump)

This service script dumps the ACL database entries of a file system to a designated directory for further investigation.

Function: Diagnostic
Mode: Normal
Usage: Technical Service

Description

Use this command to troubleshoot ACL database issues in an online file system. The command can dump ACL database to a specified directory for further investigation.

NOTE: This command must be run on the primary SP.

Use cases

Usage:

```
svc_acldb_dump
    [-h | --help]
    | <NAS_Server_Name>
        -dump -fs <file system name> -outpath <output directory name>
```

Options:

[-h | --help]

Display help and exit.

<NAS_Server_Name>

The name of the NAS server.

-dump

Dump the ACL database of specified file system to the specific directory.

-fs <file system name>	Specify the name of the file system on which the command is performed.
-outpath <output directory name>	Specify the absolute or relative path to the directory where the output of the command is saved.

Example usage

Dump ACL database entries for file system **FileSystem00** on NAS server **NASServer00** to the directory **acl1**:

svc_acldb_dump NASServer00 -dump -fs FileSystem00 -outpath ./acl1/

```
/nas/bin/.server_config NASServer00 -v "dumpAllAclRecords FileSystem00 /AclRecordsDB"
success
/nas/bin/.server_config NASServer00 -v "dumpAclDedupDir FileSystem00 /AclDedupDB" success
mount_vdm.sh NASServer00 success
Running on a single-SP system
Owning sysVDM=SVDM_A, vdmname: NASServer00, vdmid: 2

cp /mnt/NASServer00/AclRecordsDB ./acl1/ success
cp /mnt/NASServer00/AclDedupDB ./acl1/ success
Command done with success
```

Related commands

None.

Array configuration (svc_arrayconfig)

This service script captures a snapshot of the configurations on the storage system.

Function: Diagnostic
Mode: Normal
Usage: General Use

Description

This command captures the current system configuration and returns the location of the capture file.

NOTE: This command must be run on the primary SP.

Use cases

Usage:

```
svc_arrayconfig
    [-h | --help]
    | <no option>
    | [-s | --showPrivateData]
    | [-H | --HTML]
    | [-g | --group] <value>
    | [-v | --version]
```

Options:

[-h | --help]

Display help and exit.

no option

Capture the full configuration without sensitive information.

[-s | --showPrivateData]

By default, sensitive information is excluded from the capture. This includes items like IP addresses. When this option is set, all data is returned.

[-H | --HTML]

Data is returned in an HTML format that can be viewed in any web browser.

[-g | --group]

Specify which groups are captured in a comma-separated list. By default, all available groups are captured.

<value>

One of the following valid values:

- `system`—General system data
- `hardware`—Physical inventory data
- `storage`—Storage related data
- `network`—Network related data
- `host`—Host related data
- `service`—Remote support related data
- `application`—Application related data
- `protection`—Protection related data

[-v | --version]

Display the script version number.

Related commands

None.

Collect and Upload Support Materials (svc_autosendhome)

This command allows you to enable or disable the automatic log upload service.

Function:
Mode: Normal
Usage: General use

Description

This service collects and uploads support materials that are based on specific call home operations.

This feature is enabled by default.

When you disable this feature, an upload in progress continues until it is finished.

Use cases

Usage:

```
svc_autosendhome
[-h | --help]
[-d | --disable]
[-e | --enable]
[-l | --list]
[-s | --status]

optional arguments:
  -h, --help     show this help message and exit
  -d, --disable  disable Automatic Logs Upload service.
  -e, --enable   enable Automatic Logs Upload service.
  -l, --list     list supported alerts and items to upload.
  -s, --status   get Automatic Logs Upload service status.
```

Options:

[-h | --help]

Show the help message and exit.

[-d | --disable]

Disable the automatic logs upload service.

[-e | --enable]

Enable the automatic logs upload service.

[-l | --list]

List supported alerts and items to upload.

[-s | --status

Get the status of the automatic logs service.

Example usage

Show the automatic log status:

`svc_autosendhome -s`

```
Automatic Logs Upload service:
        enabled
```

Related commands

None.

Apply custom log-on banners (svc_banner)

This service script configures the login banner type for Linux and Unisphere.

Function: Configuration
Mode: Normal
Usage: General Use

Description

This command also allows the Normal user to specify what type of banner displays when logging into Linux using SSH or serial terminal connection. The `svc_banner` operations only need to run on one SP and the changes synchronize between all SPs.

Optionally, configure a custom banner to display when authenticating through Unisphere as the Service user.

The login banner can be one of three different types:

- Simple—Displays a message containing:
  - Unity system type
  - system hostname
  - system software version
- Complex—Displays the same information as a simple banner in addition to:
  - System serial number
  - Unisphere IP Address
- Custom—Contains any message, including support for localized banners
  - If the custom banner file is named `en_US.txt` the banner's contents also appears when authenticating with Linux.

Setting any of the banner types overwrites all current banner information present on the system. For example, setting a "complex" banner overwrites any custom banner files present.

Custom or localized banners can only be set in Service Mode. As the Service user, create plain-text files in `/home/service` whose names follow the convention of:

- Two-letter lower-case language code (ISO 639-2)
- Underscore (_)
- Two-letter upper-case country code (ISO 3166)
- "`.txt`"
  - Example: US English banner would be named: **`en_US.txt`**

After creating these banner files, run `svc_banner --put <list of files>` to apply them to the system.

Use cases

Usage:

```
svc_banner
    -q
    | -s
    | --set-simple
    | --set-complex
    | [-a | --activate]
    | [-p | --put] <list of files>
    | [-d | --delete]
    | --dump
```

Options:

[-h | --help]

Display help and exit.

-q

Run the script in quiet mode, which suppress all output. This must be the first parameter.

-s

Run the script in single SP mode. This must be specified after **`-q`** (if applicable) and before any other action.

--set-simple

Set system banner to default simple and destroy any custom banner installed on the system.

--set-complex

Set system banner to include more system information, like hostname, software version, IP address. Destroy any custom banner installed on the system.

[-a | --activate]

Activate the custom login banner if already in non-volatile memory.

[-p | --put]

Put files into OEM Customization directory & activates file as banner if it is named `en_US.txt`

<list of files> The banner files to apply. Each file name is separated by a space.

[-d | --delete]

Clear the login banner text from non-volatile memory and restores default system banner.

--dump

Dump the contents of the system banner as plain text to `stdout`.

Example usage

Activate banner files in US English, Belarusian, and Chinese:

1. Create files with localized content named:
   a. en_US.txt
   b. be_BY.txt
   c. zh_CN.txt
2. To apply these files, run the following command as the Service user:

`svc_banner --put en_US.txt be_BY.txt zh_CN.txt`

Revert to the default style banner (run as the Service user):

`svc_banner --set-simple`

Related commands

None.

Boot control (svc_boot_control)

This service script lists or sets up the boot control blocks.

Function: System Operations
Mode: Both
Usage: Technical Service

Description

This command sets, clears, or lists boot control block tallies and breakpoints before the Unity specific software is loaded. It enables you to boot directly into the Linux operating environment for troubleshooting.

If you use the `net` option with either the `set` or `clear` command, you change how the breakpoint is set. Without the `net` option, a breakpoint is set before the storage system software starts. With the `net` option, the breakpoint is set to enable the internal network interface and stop the system software.

You can also use `svc_boot_control -list` to display a list of all breakpoints that have been set.

NOTE: This utility is for trained service personnel only.

Use cases

Usage:

```
svc_boot_control
      [-h | --help]
        | [-s | --set] [net | cache]
        | [-c | --clear] [net | cache]
        | [--clear-all]
        | [-l | --list]
```

Options:

[-h | --help]

Display help and exit.

[-s | --set] [net | cache]

Request stop before the storage system software starts up.

If `net` option is used to either set or clear, instead of setting a breakpoint before the storage system software starts up, it sets a breakpoint to enable the internal network interface and stop the system software.

If `cache` option is used as an option to either set or clear, instead of setting a breakpoint before the storage system software starts up, it sets a breakpoint to when Cache Dirty or Cache Lost LUNs (CDCA) was last cleared.

[-c | --clear]

Clear request to stop before the storage system starts up.

--clear-all

Stop and clear all the requests before the system starts up.

[-l | --list]

List current settings.

Related commands

Mount storage (svc_mount)

Create management interface (svc_network)

Cache (svc_cache)

This service script finds and clears a dirty cache.

Function: System Operations
Mode: Both
Usage: Technical Service

Description

See Dell Knowledge Base article 500194 for the full Clear Cache Lost/Dirty description. Do not attempt to Clear Cache Dirty or Lost with these commands if you have not read the Dell Knowledge Base article.

NOTE: Improper use of this tool can result in data loss.

Use cases

Usage:

```
svc_cache
    [-h | --help]
    | [-r | --force-lost]
    | [-c | --clear-lost]
    | [-q | --query]
    | [-z | --clear-fc-dirty]
    | [-f | --fsck-list]
    | [-d | --done]
    | [-s | --show-all]
    | --boot-control-stop
    | --boot-control-continue
    | --cache-fix
```

Options:

[-h | --help]

Display help and exit.

[-r | --force-lost]

Force cache lost on all SPs.

[-c | --clear-lost]

Clear all the cache lost LUNs for the current SP, prepare system LUNs for auto fsck.

[-q | --query]

Search for all the LUNs disabled due to SP Cache Lost or Fast Cache Faulted.

[-z | --clear-fc-dirty]

Clear Fast cache dirty on all LUNs.

[-f | --fsck-list]

Re-do the auto fsck pre-processing, based on last `--clear` processing.

[-d | --done]

Clean up all crumbs related to CDCA script. Cannot use `--fsck-list` or `--user-fs-list` until next `--clear-lost`.

[-s | --show-all]

Show all LUN information for both SPs.

--boot-control-stop

Set system to halt boot when we can clear Cache Dirty or Cache Lost LUNs (CDCA).

--boot-control-continue

Continue the storage system software startup that is currently halted.

--cache-fix

Set the "cachefix" boot control flag.

Related commands

None.

Antivirus configuration (svc_cava)

This service script sets up and manages the Common Internet File System (CIFS) file system's antivirus protection using the Celerra AntiVirus Agent (CAVA).

Function: Configuration
Mode: Normal
Usage: General Use

Description

CAVA provides an antivirus solution to clients connected to a NAS server through CIFS/SMB protocols. CAVA uses a third-party antivirus software running on a remote host to identify and eliminate known viruses before they infect files on the storage system.

An administrator can perform a full scan of a file system using the `svc_cava -fsscan` command from the SP. To use this feature, CAVA must be enabled and running. The administrator can query the state of the scan while it is running, and can stop the scan if necessary. A file system cannot be scanned if the file system is mounted with the option noscan. As the scan proceeds through the file system, it touches each file and triggers a scan request for each file. This option could be useful after an update of the virus definition files on the CAVA servers, to make sure there is no existing infected file in the NAS server.

Another option to scan existing files is to enable scan-on-first-read feature. CAVA uses the access time of a file to determine if a file should be scanned when a SMB client opens it for a read. The access time is compared with a time reference stored in the CAVA service. If the file's access time is earlier than the reference time, the file is scanned on read before it is opened by the SMB client. Otherwise, no scan occurs. Disable or enable this feature with the `svc_cava -set accesstime` command. CAVA updates the scan-on-first-read time reference when it detects a virus definition file update on the AV engine. By default, the scan-on-first-read feature is disabled.

Use cases

Usage:

```
svc_cava { <NAS_Server_Name> | ALL }
    [-h | --help]
    | <no option>
    | -stats
    | [ -set accesstime={ now | none | [[[[yy]mm]dd]hh]mm[.ss] }]
    | [ -fsscan [<fs_mountpath> { -list | -create | -delete } ]
```

Options:

[-h | --help]

Display help and exit.

no option

Display the status of antivirus service of the NAS server, including the connection state to CAVA servers, the number of files checked and their progress.

-stats

Display statistics counters for the antivirus service.

-set accesstime={ now | none | [[[[yy]mm]dd]hh]mm[.ss] }

Enable scan-on-first-read and change the access time setting, where:

- `now`—Enable the scan-on-first-read feature and set the reference time to now.
- `none`—Disable the scan-on-first-read feature.
- *[[[[yy]mm]dd]hh]mm[.ss]*—Enable the scan-on-first-read feature and set the reference time according the specified value.

-fsscan [<fs_mountpath> { -list | -create | -delete }]

Start, stop, or view the status of a full file system scan, where:

- *<fs_mountpath>*—Specify the location of the file system to be scanned.
- `-list`—Display the scan status for the specified file system.
- `-create`—Start a full scan on the file system *<fs_name>* and the offline options allow the file system scan on all offline files. By default, offline file systems are not included.
- `-delete`—Stops the scan.

NOTE: If no file system is specified, the `-fsscan` option displays the file system scan status for all file systems.

Example usage

Display the status of the antivirus service for *myNas*:

`svc_cava myNas`

```
server_23 : commands processed: 1
command(s) succeeded
output is complete

1485519308: VC: 5: VDM myNas: Enabled and Started.
1485519308: VC: 5: 1 Checker IP Address(es):
1485519308: VC: 5: 192.168.1.200                                    ONLINE at Fri Jan 27
12:15:02 2017 (GMT-00:00)
1485519308: VC: 5:                                                  HTTP, CAVA version:
6.2.0.0
1485519308: VC: 5:                                                  AV Engine: Network
Associates
1485519308: VC: 5:                                                  Remediation Window: 0
seconds
1485519308: VC: 5:                                                  Server Name:
192.168.1.200
1485519308: VC: 5:                                                  Last time signature
updated: Thu Jan 26 23:00:00 2017 (GMT-00:00)
1485519308: VC: 5:
1485519308: VC: 5: 1 File Mask(s):
```

```
1485519308: VC: 5: *.*
1485519308: VC: 5: No file excluded.
1485519308: VC: 5: Share \\mynas.example.com\CHECK$.
1485519308: VC: 5: RPC request timeout=25000 milliseconds.
1485519308: VC: 5: RPC retry timeout=5000 milliseconds.
1485519308: VC: 5: High water mark=200.
1485519308: VC: 5: Low water mark=50.
1485519308: VC: 5: Scan all virus checkers every 10 seconds.
1485519308: VC: 5: When all virus checkers are offline:
1485519308: VC: 5: Continue to work with Virus Checking and CIFS.
1485519308: VC: 5: Scan on read disable.
1485519308: VC: 5: MS-RPC User: mynas$
1485519308: VC: 5: MS-RPC ClientName: mynas.example.com
1485519308: ADMIN: 6: Command succeeded:  viruschk
```

Related commands

CIFS support (svc_cifssupport)

Dynamic Access Control (svc_dac)

Event Publishing diagnostics (svc_event_publishing)

View locks (svc_lockd)

Advanced NAS settings (svc_nas)

NAS server backup and restore statistics (svc_pax)

Dump VHDX metadata (svc_vhdx)

Configure backup and recovery (svc_cbr)

This service script gathers metadata information to restore the system if needed.

Function: Recovery
Mode: Both
Usage: Technical Service

Description

The command automatically runs daily with the `[-b | --backup]` option and can run at any time. The command also lists the backups that are on the system, and can perform a restore from the backup files. The `[-r | --restore]` option must only be used by authorized service personnel.

NOTE: The `-b` option for this command is run in Normal Mode. The `-r` option for this command is run in Service Mode.

Use cases

Usage:

```
svc_cbr
    [-h | --help]
    | [-b | --backup]
    | -np
    | [-n | --name-prefix] <name prefix>
    | --cleanup
    | [-l | --list]
    | [-q | --query] <plugin name>
    | [-r | --restore] <config name>
    | --restore-complete
```

Options:

[-h | --help]

Display help and exit.

[-b | --backup]

Back up config data (default action).

-np

No partial configuration is allowed (default: partial configuration is allowed).

[-n | --name-prefix] <name prefix>

Rename the resulting config archive by appending the specified text string to the output.

--cleanup

Perform config archive cleanup

[-l | --list]

List configurations available for restore

[-q | --query] <plugin name>

Query if the restore is allowed for the specified plugin.

[-r | --restore] <config name>

Restore the specified config.

NOTE: Requires Service Mode; this operation is for qualified service personnel only.

--restore-complete

Clears flags that indicate the CBR process is in progress. You can use this command when the restore is complete or cancelled.

Related commands

None.

Change hardware configuration (svc_change_hw_config)

This service script changes hardware configuration information for the system.

Function: Configuration
Mode: Both
Usage: Technical Service

Description

See the system documentation for a complete description of upgrades and uses for this command.

NOTE: While the output for this command relates to eSLICs, this command is effective on any type of SLIC. Unity systems do not use eSLICs.

NOTE: Only trained service personnel should use the `[-c | --change_chassis]` and `[-u | --upgrade]` qualifiers for this command.

Use cases

Usage:

```
svc_change_hw_config
     [-h | --help]
     | [-e | --eSLIC]
        | [--cancel]
     | [-n | --net]
     | [-c | --change_chassis] [-update_wwn_seed | -update_wwn_seed_force |
-get_system_drive_status]
```

```
      | [-u | --upgrade]
         | [-b | --begin]
         | [-c | --commit]
         | [-a | --abort]
      | [-C | --CNA] [FC | iSCSI]
      | [-t | --convert
         --slot [XX]
         --type [YY:YY:YY:YY]
         --list_options
         --precheck
         --start
         --replaced_first_iom
         --replaced_second_iom
         --status]
      | [-f | --fc_interrupt_coalesce_mode --disable | --enable | --optimize | --status]
      | [-p | --fc_polling_mode --enable | --disable | --status]
      | [-O | --periodic_odfu | --enable | --disable | --status]
```

Options:

-slot [XX] I/O Module slot number

-update_wwn_seed	Update chassis wwn_seed automatically with the one read from system drive.
-update_wwn_seed_force	If there is one new drive in system slot (0_0_0 - 0_0_2), use the `-force` option to change the chassis configuration.
-get_system_drive_status	Get current Chassis wwn_seed and the system drive information.

If there is one new drive in system slot (0_0_0 - 0_0_2), use the `-force` option to change the chassis configuration.

-get_system_drive_status Get current Chassis wwn_seed and the system drive information.

[-h | --help]

Display help and exit.

[-e | --eSLIC]

Used to commit a new eSLIC / IO Module.

[--cancel] Cancel the commit process for the eSLIC / IO Module.

[-n | --net]

Remove network interfaces found on non-existent ports.

[-c | --change_chassis]

-update_wwn_seed	Update chassis wwn_seed automatically with the one read from system drive.
-update_wwn_seed_force	If there is one new drive in system slot (0_0_0 - 0_0_2), use the `-force` option to change the chassis configuration.
-get_system_drive_status	Get current Chassis wwn_seed and the system drive information.

[-u | --upgrade]

Perform a system upgrade. Used only as part of the approved, official process to upgrade system memory.

[-b | --begin]	Begin an upgrade; valid in Normal Mode.
[-c | --commit]	Commit an upgrade; valid in Service Mode.
[-a | --abort]	Abort an upgrade; valid in Service Mode.

NOTE: An upgrade involves running this script twice.

1. Run this script using the `[-b | --begin]` option to start the upgrade.
2. Perform whatever steps are necessary for the upgrade.

3. Rerun the script using the `[-c | --commit]` option to commit the upgrade.

[-C | --CNA]

Commit a new CNA Module. You run this command while installing a new CNA Module.

[FC]	Commit the new CNA module using Fibre Channel (FC).
[iSCSI]	Commit the new CNA module using iSCSI.

[-t | --convert

Convert committed IO Module to a new one.

--slot [XX]	IO Module slot number.
--type [YY:YY:YY:YY]	IO Module type which will be convert to.
--list_options	Lists all of the valid conversion options for the I/O module.
--precheck	Executes a precheck to ensure the I/O module is ready for upgrade.
--start	Start IO Module conversion
--replaced_first_iom	After first IO Module is replaced successfully, next step trigger.
--replaced_second_iom	After second IO Module is replaced successfully, next step trigger.
--status	Show the current process/status of IO Module conversion procedure.

[-f | --fc_interrupt_coalesce_mode --disable | --enable | --optimize | --status]

Used to toggle and query the FC interrupt coalesce mode setting. The FC interrupt coalesce setting features Zero Interrupt Operation (ZIO), which monitors whether the system driver is servicing the response queue. If the sysem driver has made progress before the interrupt delay time expires, the firmware restarts the interrupt delay time without interrupting the system driver.

--disable	Disable the FC interrupt coalesce mode.
--enable	Enable FC interrupt coalesce mode.
--optimize	Optimize the system for enhanced ZIO mode.
--status	Display the current FC interrupt coalesce mode.

NOTE: An SP reboot is required to apply changes to this setting.

[-p | --fc_polling_mode --enable | --disable | --status]

Used to toggle and query the polling mode setting.

--enable	Enable polling mode.
--disable	Disable polling mode
--status	Display the current FC polling mode.

[-O | --periodic_odfu | --enable | --disable | --status]

Enable or disable online disk firmware updates (ODFU).

NOTE: Both SPs must be in Normal Mode to run this script.

-enable	Enable the updates.
-disable	Disable the updates.
-status	Display the current state of the periodic ODFU feature (enabled or disabled).

Example usage

View the list of conversion options for the I/O module.

svc_change_hw_config --convert --slot [XX] --list_options

```
Type Port Count IOM Protocol Label

00:80:00:00 4 FC 4 Port FC 32G
```

Perform a precheck before starting the I/O module upgrade.

svc_change_hw_config --convert --slot [XX] --type [YY:YY:YY:YY] --precheck

```
I/O module conversion/upgrade pre-check passed. Please run "--start" subcommand to start
the procedure.
```

Initiate the I/O module upgrade.

svc_change_hw_config --convert --slot [XX] --type [YY:YY:YY:YY] --start

```
I/O module conversion/upgrade procedure starts. Please run "--status" subcommand to
check the progress.
```

Commit the new I/O module on the primary SP.

svc_change_hw_config --convert --slot [XX] --replaced_first_IOM

```
Continue to commit the first I/O module. Please run "--status" subcommand to check the
progress.
```

Commit the new I/O module on the secondary SP.

svc_change_hw_config --convert --slot [XX] --replaced_second_IOM

```
Continue to commit the second I/O module. Please run "--status" subcommand to check the
progress.
```

Check the status and progress of an I/O module upgrade.

svc_change_hw_config --convert --slot [XX] --status

```
New I/O modules on both SPs have been committed successfully. The conversion is finished.
```

Related commands

None.

Check hardware configuration (svc_check_hw_config)

This service script displays hardware configuration information for the system.

Function: Diagnostic
Mode: Both
Usage: Technical Service

Description

The command can be used to display a summary of information about the SP hardware (`--getall`), or verify the DIMM configuration of the system (`--dimms`). In the latter case, the expected correct DIMM configurations for the system are displayed. This can be used if the unit is in Service Mode because of an invalid DIMM configuration.

Use cases

Usage:

```
    [-h | --help]
    | [-d | --dimms]
    | [-a | --getall]
```

Options:

[-h | --help]

Display help and exit.

[-d | --dimms]

Check the DIMM configuration.

[-a | --getall]

Run `speclcli -getall`.

Related commands

None.

CIFS support (svc_cifssupport)

This service script provides information for troubleshooting CIFS-related issues.

Function: Configuration
Mode: Normal
Usage: General Use

Description

This command displays information about network connectivity to Domain Controllers, access rights, credentials, access logs, and other related items.

NOTE: This command must run on a primary SP.

Use cases

Usage:

```
svc_cifssupport
    [-h | -help | --help | <no option>]
    |{ <NAS_Server_Name> | ALL }
        {-accessright [-help]
        | -acl [-help]
         | -fs <filesystem_name>
                    | -printstats
                    | -resetAclDB {[-path <path>]| [-defaultRight]| [-abort]}
                    | -resetAclDBStatus
        | -audit [-help]
        | -builtinclient [-help]
        | -checkup [-help]
        | -cred [-help]
        | -gpo [-help]
        | -homedir
        | -Join [-help]
        | -logontrace [-help]
        | -lsarpc [-help]
        | -nltest [-help]
        | -pdcdump [-help]
```

```
        | -pingdc [-help]
        | -samr [-help]
        | -secmap [-help]
        | -setspn [-help]
        | -smbhash [-help]
        | -Unjoin [-help]}
```

Options:

[-h | -help | --help | <no option>]

Display help and exit. Use this option with `svc_cifssupport` to view the top-level options for the command. To view the options and parameters for a top-level option, use the `-help` option after the top-level option. For example, the output of `svc_cifssupport -setspn -help` provides detailed usage information about the `-setspn` option.

-accessright

Compute the effective access rights for a user on a file system resource.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -accessright
    {-user <user_name> [-domain <domain_name>] | -sid <SID>}
    {{-path <path_name> [-stop_on_symlink]} | -share <share_name>}
```

-user <user_name> [-domain <domain_name>] | -sid <SID>	Specify the user name and domain or the SID of the user.
{-path <path_name> [-stop_on_symlink]} | -share <share_name>	Specify the file system resource.

-acl

Dump or display the Access Control List (ACL) for the specified file system resource.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -acl
    {{-path <path_name> [-stop_on_symlink]} | -share <sharename>} [-
verbose] [-aclext]
```

-path <path_name>	Display the ACL of the pathname.
-stop_on_symlink	Display the ACL of the symbolic link, instead of the target of the link.
-share <share_name>	Display ACL of the CIFS share.
-verbose	Display more information about the ACL.
-aclext	Dump in addition details of conditional ACEs and resource attributes that are present.
-reset -path <file_pathname>	Reset ACL of the given file (set EVERYONE FULL CONTROL). Must provide full path to root file system.
-stop_on_symlink	Reset ACL of the symbolic link itself, instead of the target of the link.
-fs <filesystem_name>	Specify the file system for which you want to review or modify ACL details.

- `-printstats` Get ACL statistics on a file system. Command duration could take a few seconds to execute, depending on the ACL database and file system size.
- `| -resetAclDB`—Reset all ACLs on a given file system.
  - `{[-path <path>]` —Copy the ACL of the given path to all the other files of the file system.
  - `| [-defaultRight]`—Reset to default access right. Won't take effect when -path specified.
  - `| [-abort]}`—Abort the ongoing `-resetAclDB` process on the file system (if any).
- `| -resetAclDBStatus`—Get the `-resetAclDB` progress on the file system.

-audit

Audit the current CIFS (clients) connections on the SMB server.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -audit
    -user <user_name>
    | -client <client_name>
    | -full
```

-user <user_name>	Audit connections for the specified user.
-client <client_name>	Audit connections for the specified client or IP address.
-full	Display more details about the file opens per connection.

-builtinclient

Audit the current domain controller connections on the SMB server built-in client.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -builtinclient
```

-checkup

Perform internal configuration tests to discover the root cause of potential configuration or environmental errors.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -checkup [-full] [-info]
```

-full	Perform additional tests, which could take a significant amount of time.
-info	Display information about the test that is executed by the command.

-cred

Display or build a Windows user credential. Use this command to troubleshoot user access control issues.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -cred
        {-user <user_name> -domain <domain_name> | -sid <SID> | -uname
<unix_name>}
        [-build]
        [-credext]
```

-user <user_name>	The name of the user.
-domain <domain_name>	The domain of the user.
-sid <SID>	The SID of the user in decimal form.
-uname <unix_name>	The UNIX name of the user. **NOTE:** Setting the default UID to 0, or to a user which will be resolved at UID 0, will grant that user full root access. Ensure that this value is not set to 0 for users who should not have full access.
-build	Build the credential for a user that has not yet connected the SMB server. **NOTE:** This option requires a domain administrator ID/ password.
-credext	Include additional details of the claims that are present in the Kerberos ticket.

-gpo

List (`-info`) or force update (`-update`) the Windows global policy objects (GPOs) that are applied to the SMB server.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -gpo [-info] [-update]
```

-homedir

Enable or disable the SMB home directories. Once the feature is enabled, a homedir file containing the name of the SMB users and their related home dirctory must be uploaded to the NAS server using the `uemcli /net/nas/server` CLI command. Once this is done, SMB users can connect to the SMB HOME share.

[-enable]	Enables the home directories feature.
[-disable]	Disables the home directories feature.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -homedir [-enable] | [-
disable]
```

-Join

Usage:

Join the specified server to a Windows Active Directory (AD) domain, move it to another organizational unit (OU), or collect information about it from the Domain Controller (DC).

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -Join
    -compname <comp_name> -domain <full_domain_name> -admin <admin_name>
    [-ou <organizational_unit>]
    [-option {reuse | resetserverpasswd | addservice=nfs}]
```

-admin <admin_name>	Specify an account that has administrator privileges on the specified domain. The password must be provided when prompted.	
-ou <organizational_unit>	Specify the OU in which to place or move the specified computer.	
-option {reuse | resetserverpasswd | -addservice=nfs}	**reuse**	Allow the specified computer to join the server by taking ownership of an existing computer account in the Windows AD domain that matches the computer name that is specified in the command.
	resetserverpasswd	Reset the server password on the DC.
	-addservice=nfs	Add an NFS SPN for the specified server in Active Directory for secure NFS.

-logontrace

Log user or machine logon attempts for the specified IP address or for all clients when no IP address is specified.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -logontrace {-enable
<ip_address> | -disable | -list}
```

-lsarpc

Query the specified Windows user identify for an account specified by user name or SID (security identifier) and return the corresponding Unix uid.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -lsarpc
    -nb <comp_name>
    {-user <user_name>
```

```
    | -sid <SID> [hex=<0/1>]
    | -priv}
```

-nb <comp_name>	Specify the netbios name of the server.
-user <user_name> | -sid <SID>	Specify the username or the SID.
hex=<0/1>	Specify if the SID is given in decimal (`0`) or hexadecimal (`1`) format.
-priv	List all available privileges on the domain. This can be used to resolve foreign language issues.

-nltest

Simulate an NTLM user authentication on the server by specifying a domain user name and password pair. Use this command to troubleshoot connection issues or test DC connections. This command only applies to servers that are joined to a Windows domain.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -nltest
    -nb <comp_name>
    {-user <user_name> -dom <domain> -usrpwd <user_password>
    [-wkst <client_name>]}
```

-wkst <client_name>	Optionally set a workstation name in the NTLM request.

-pdcdump

Display information about every Domain Controller in use at NAS server level.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -pdcdump
```

-pingdc

Checks the network connectivity from the CIFS server, as specified by its computer name, to a domain controller. Once connectivity is established, it verifies that a CIFS server can access and use the domain controller services. Applies to compname only.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -pingdc -compname <comp_name>
[-dc <netbios_DC_name>] [-verbose]
```

-samr

Query the groups a user belongs to using either the user name or SID.

NOTE: The SID must be provided in hexadecimal format. This command only applies to servers that are joined to a Windows domain.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -samr -nb <comp_name> {-sid
<SID> | -user <user_name>}
```

-secmap

Access the Secure Mapping database that acts as a cache mechanism to relate Windows SIDs to UNIX UIDs.

NOTE: Modifying a SID to UID mapping can impact security. Use with caution.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -secmap
    -list
        [ -user <user_name> -domain <domain_name>
        | -domain <domain_name>
        | -sid <SID>
        | -uid <user_id>
```

```
        | -gid <group_id> ]
    | -create {-name <name> -domain <domain_name> | -sid <SID> }
    | -update {-name <name> -domain <domain_name> | -sid <SID> }
    | -delete {-name <name> -domain <domain_name> | -sid <SID> }
    | -export [-file <filename>]
    | -import -file <filename>
    | -report
```

-list [-user <user_name> -domain <domain_name> | -domain <domain_name> | -sid <SID> | -uid <user_id> | -gid <group_id>]	List the Secure Mapping entries, filtered by the specified options.
-create {-name <name> -domain <domain_name> | -sid <SID> }	Add a new mapping entry in the Secure Mapping database.
-update {-name <name> -domain <domain_name> | -sid <SID> }	Update a mapping entry from the Secure Mapping database.
-delete {-name <name> -domain <domain_name> | -sid <SID> }	Delete a mapping entry from the Secure Mapping database.
-export [-file <filename>]	Export Secure Mapping database to the specified file.
-import -file <filename>	Import Secure Mapping database from the specified file.
-report	Display Secure Mapping database health and content.

NOTE: Modifying SID/UID mapping can potentially affect security. Use these options with caution.

-setspn

Manage Windows security principals (SPNs) of the specified computer that is joined to AD.

NOTE: SPNs are required for domain configurations in which the DNS domain is different than authentication domain (Kerberos realm). For example, if the DNS server zone includes a DNS CNAME record that maps `compname.<domain1 FQDN>` to `compname.<server's domain FQDN>`, then the SPN host `compname.<domain1 FQDN>` must be added for the compname.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL}  -setspn
    -list compname=<comp_name>
    | -add <SPN>
compname=<comp_name>,domain=<full_domain_name>,admin=<admin_name>
    | -delete <SPN>
```

-list compname=<comp_name>	Display all SPNs for the specified FQDN server, both for the SMB server and for the KDC Windows AD entry.
-add <SPN> compname=<comp_name>,domain=<full_domain_name>,admin=<admin_name>	Add the specified SPN to both the NAS server and AD.

-delete <SPN>	Delete the specified SPN for both the NAS server and AD.

-smbhash

Troubleshoot issues with the Microsoft Windows Branch caching mechanism. BranchCache V1 and BranchCache V2 are supported.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -smbhash
    -hashgen <path> [-recursive] [-minsize <size>]
    | -hashdel <path> [-recursive]
    | -abort <id>
    | -info
    | -fsusage <fs_name>
    | -exclusionfilter <filter>
    | -audit {enable | disable} [-task] [-service] [-access]
    | -cleanup <fs_name> [-all | -unusedfor <days> | -unusedsince
<date>]
```

-hashgen <path> [-recursive] [-minsize <size>]	Generate all SMB hash files for the specified path. If `-recursive` is used, the SMB hash is recursively generated for the subdirectories.
-hashdel <path> [-recursive]	Delete all SMB hash files for the specified path.
-abort <id>	Cancel the specified pending or ongoing request (hash file generation or deletion). The ID for the request is in the output of `-info`.
-info	Show detailed information for the hash generation service.
-fsusage <fs_name>	Display the SMB hash file disk usage for the specified file system.
-exclusionfilter <filter>	Do not generate an SMB hash file for files that match the exclusion filter.
-audit {enable | disable} [-task] [-service] [-access]	Enable the generation of audits in the smbhash event log.
-cleanup <fs_name> [-all | -unusedfor <days> | -unusedsince <date>	Clean up the SMB hash files for the specified file system.

-Unjoin

Unjoin a SMB server from its active directory domain. The password for the specified account with domain administrator privileges must be provided when prompted.

Usage:

```
svc_cifssupport {<NAS_server_name> | ALL} -Unjoin
    -compname <comp_name> -domain <full_domain_name> -admin <admin_name>
```

Example usage

Audit (list) the CIFS connections of the CIFS server of a NAS server "*mynas*":

`svc_cifssupport mynas -audit`

```
vdm1 :
|||| AUDIT Ctx=0x00110f1288, ref=2, W2K8 Client(MYWORKSTATION) Port=57416/445
||| SERVER_119[DOMAINB] on if=4_FCNCH0972C3275
||| CurrentDC 0x00110c8688=FRA165202
||| Proto=NT1, Arch=Win2K, OS 6.1 Build 7601, RemBufsz=0xffff, LocBufsz=0xffff,
popupMsg=1
||| 0 FNN in FNNlist NbUsr=1 NbCnx=2
||| Uid=0x3f NTcred(0x0005e9b468 RC=4 NTLMSSP Capa=0x2001) 'DOMAINB\eric1'
|| Cnxp(0x0010f5aa88), Name=IPC$, cUid=0x3f Tid=0x3f, Ref=1, Aborted=0
```

```
| readOnly=0, umask=22, opened files/dirs=0
| types=Global System - - - - - - -
| Absolute path of the share=\.etc
|| Cnxp(0x00098c81c8), Name=share1, cUid=0x3f Tid=0x40, Ref=1, Aborted=0
| readOnly=0, umask=22, opened files/dirs=0
| types=Global - - - - - - - OCNone
| Absolute path of the share=\fs1
total smb_streamCtx: 1
```

Display the current state of SMB home directory of the NAS server named "*vdm1*":

svc_cifssupport vdm1 -homedir

```
vdm1 : done

SMB home directories enabled : False
```

Enable explicitly the SMB home directory of the NAS server named "*vdm1*":

svc_cifssupport vdm1 -homedir -enable

```
vdm1 : done
```

Display the Access Control List (ACL) for the directory `/fs1` on the NAS server "*mynas*":

svc_cifssupport mynas -acl -path /fs1

```
vdm1 :done

ACL DUMP REPORT

Path : /fs1
UID : 0
GID : 0
Rights : rwxr-xr-x
owner SID : S-1-5-12-1-0
group SID : S-1-5-12-2-0

DACL

ALL S-1-1-0
ALLOWED 0x3 0x1f01ff RWXPDO
```

Related commands

Antivirus configuration (svc_cava)

Dynamic Access Control (svc_dac)

Event Publishing diagnostics (svc_event_publishing)

View locks (svc_lockd)

Advanced NAS settings (svc_nas)

NAS server backup and restore statistics (svc_pax)

Dump VHDX metadata (svc_vhdx)

Configure ConnectEMC (svc_connectemc)

This service script allows the user to enable and configure ConnectEMC.

Function: Configuration
Mode: Normal
Usage: General Use

Description

In addition to enabling or disabling ConnectEMC, this script is used to show the status and configuration of ConnectEMC, change email settings, and test the connection. The command runs on either SP when both SPs are in Normal Mode and is supported on both physical and virtual deployments, excluding UnityVSA Community Edition.

Use cases

Usage:

```
svc_connectemc
    [-h | --help]
    | [-g | --getconfig]
    | [-s | --status]
    | [-e | --enable] <SMTP address>
    | [-m | --sendermail] <sender email address>
    | [-c | --changeserver] <SMTP address>
    | [-t | --testsendalert]
    | [-d | --disable]
```

Options:

[-h | --help]

Display help and exit.

[-g | --getconfig]

Display the current ConnectEMC configuration.

[-s | --status]

Display the status of ConnectEMC.

[-e | --enable] <SMTP address>

Enable ConnectEMC.

[-m | --sendermail] <sender email address>

Set (with `--enable`) or modify the email address ConnectEMC uses to send alerts.

[-c | --changeserver] <SMTP address>

Change the SMTP server configuration after ConnectEMC is enabled.

[-t | --testsendalert]

Send a test dialhome to Dell.

[-d | --disable]

Disable ConnectEMC.

Example usage

Display ConnectEMC status:

`svc_connectemc -s`

```
ConnectEMC: NOTRUNNING DISABLED
```

Enable ConnectEMC:

`svc_connectemc -e smtp.server.com`

```
INFO [spa]: Enabling ConnectEMC
INFO [spa]: Persisting SMTP server configuration
INFO [spa]: Persisting sender email address configuration
INFO [spa]: ConnectEMC has been enabled successfully.
```

Display ConnectEMC configuration details:

svc_connectemc -g

```
INFO [spa]: SMTP Host: smtp.server.com
INFO [spa]: SENDER EMAIL: bs-d3092@emc.com
INFO [spa]: EMC Destination Email: emailalertesg@emc.com
```

Set the email address ConnectEMC uses to send alerts:

svc_connectemc -m testaccount@company.com

NOTE: Starting with Unity OE 5.3, Connect Home connectivity notifications using <serialNumber>@emc.com are no longer the default. When configuring Connect Home connectivity, you must include an email address from your system's domain name or an applicable email address that can pass authentication from your own SMTP server.

```
INFO [spa]: Setting sender email address to testaccount@company.com
```

Change the email server while ConnectEMC is enabled:

svc_connectemc -c sample.company.com

```
INFO [spa]: Setting SMTP Host to sample.company.com
```

Test the capability of ConnectEMC to send a message to support:

svc_connectemc -t

```
INFO [spa]: Test Dialhome request sent
```

Disable ConnectEMC:

svc_connectemc -d

```
INFO [spa]: Disabling ConnectEMC
INFO [spa]: ConnectEMC has been disabled successfully.
```

Related commands

None.

Use Dell Technologies Connectivity Services (svc_connectivityservices)

This service script is used to diagnose and recover Dell Technologies Connectivity Services.

Function: Recovery
Mode: Normal
Usage: General Use

Description

This command allows the service user to perform basic tasks on Dell Technologies Connectivity Services. These tasks include checking the status of the service and network or cleaning up the configuration.

NOTE: This command must be run on the primary SP when the system is in normal mode.

Use cases

Usage:

```
svc_connectivityservices
    [-h | --help]
```

```
    | [-n {direct,gateway} --remoteaccess {yes,no} [--useproxy {yes,no}] [--addr <addr>
--port <port>]]
 | [-s | --status]
    | [-c | --cleanup]
    | [-r | --restart]
    | --backup <directory>
    | --restore <backup>
    | --sendhome <file>
```

Options:

[-h | --help]

Display help and exit.

[-n {direct,gateway} --remoteaccess {yes,no} [--useproxy {yes,no}] [--addr <addr> --port <port>], --networkcheck {direct,gateway} --remoteaccess {yes,no} [--useproxy {yes,no}] [--addr <addr> --port <port>]]

Check network connectivity when:

- Connecting to a remote service directly or through the gateway.
- Remote access is enabled or not enabled.
- Connecting by using a proxy or when not connected by using a proxy.

If the connection mode is a gateway, the network address and port should be provided. Also, you cannot use the option **`--userproxy yes`** if the connection mode is gateway.

[-s | --status]

Get Dell Technologies Connectivity Services connectivity status.

[-c | --cleanup]

Clean up the Dell Technologies Connectivity Services configuration.

[-r | --restart]

Restart Dell Technologies Connectivity Services.

--backup <directory>

Backup the Dell Technologies Connectivity Services configuration to the specified directory.

--restore <backup>

Restore the Dell Technologies Connectivity Services configuration using the specified backup bundle.

--sendhome <file>

Send the specified file back to Dell Support through configured the Dell Technologies Connectivity Services endpoint.

Example usage

Check Dell Technologies Connectivity Services status:

`svc_connectivityservices -s`

```
State: Running
Type: Connect directly
Connectivity: Reachable
Backend endpoint: https://esrs3-core.emc.com(Reachable)
Remote Access: Yes
RSC Enabled: Yes
Version: 4.7.7.21
Initialized: Yes
Proxy mode: none
```

Clean up the Dell Technologies Connectivity Services configuration:

`svc_connectivityservices -c`

```
Dell Technologies Connectivity Services has been initialized. You will need to
initialize it again after cleaning up. Are you sure you want to proceed? (Y/N)Y
Disable Dell Technologies Connectivity Services connectivity......Completed!
Clean up in progress..............Completed!
```

Restart Dell Technologies Connectivity Services:

svc_connectivityservices -r

```
Restart in progress.....Completed!
```

Related commands

None.

Copy data in vault drives (svc_copyto)

This service script is used to copy user data from one drive to another. It can only be used for system (vault) drives (slots 0-3) in traditional pools.

Function: Recovery
Mode: Normal
Usage: Technical Service

Description

This service script is used to copy user data from one drive to another. It can only be used for system (vault) drives (slots 0-3) in traditional pools. When a drive fails, a hot spare is permanently swapped in. The user can use this script to move the data back to the original location when the faulted drive has been replaced.

Permissible destination drive values:

- Unity 480(F), 680(F), 880(F) models: 99_0_0, 99_0_1, 99_0_2, and 99_0_3
- All other Unity models: 0_0_0, 0_0_1, 0_0_2, and 0_0_3

Use cases

Usage:

```
svc_copyto
[-h|--help]
| [-sd <source drive>]
| [-dd <destination drive>]
```

Options:

[-h | --help]

Display help and exit.

[-sd <source drive>]

Source drive, in bus_enclosure_slot format.

[-dd <destination drive>] Destination drive, in bus_enclosure_slot format.

Example usage

To copy user data from one drive to another:

svc_copyto -sd 0_1_2 -dd 0_0_3

```
Successfully initiate copyTo command from source object 0x10a to dest object 0x4.
# of Regressions Caused   : 0
```

Related commands

None.

Upload SSL certificates (svc_custom_cert)

This service script installs SSL certificates.

Function: Configuration
Mode: Normal
Usage: General Use

Description

This command installs custom SSL certificates for use by the GUI web server in both Normal and Service Mode. It looks for *<cert file base path>*.pk and *<cert file base path>*.crt files that contain the private key and certificate respectively.

The private key must have a strength of at least 2048 bits.

Use cases

Usage:

```
svc_custom_cert
    [-h | --help]
    | <cert file base path>
```

Options:

[-h | --help]

Display help and exit.

<cert file base path>

Install an SSL certificate, where *<cert file base path>* is the file path of the directory containing the certificate files.

Related commands

None.

Dynamic Access Control (svc_dac)

This service script provides Dynamic Access Control configuration and diagnostic options.

Function: Configuration, Diagnostic
Mode: Normal
Usage: General Use

Description

This command provides the following Dynamic Access Control configuration options:

- Enable (default) or disable the feature.
- Enable or disable (default) the logging of differences between proposed and effective permissions. Changes to this configuration are not persistent and it returns to its default value when the SP is restarted.
- Add and delete custom recovery rules.

This command also provides the following Dynamic Access Control diagnostic options:

- Show whether the feature is enabled or disabled. This command also verifies that the state is consistent in both SPs.
- Show details of all Central Access Policies associated with a compname (that is, a CIFS server).
- Show details of a specific Central Access Policy associated with a CIFS server, either by distinguished name or by CAPID.
- Change the verbosity of logging produced by the Dynamic Access Control feature. Changes to verbosity are not persistent and it returns to its default value when the SP is restarted.

Use cases

Usage:

```
svc_dac
    [-h | --help]
    | <svdm>
        {[-e | --enable]
        | [-d | --disable]
        | [-s | --state]
        | --cap-staging-enable
        | --cap-staging-disable
        | [-v | --verbosity] <level>}
    | <vdm>
        {[-i | --info] <compname>
            {--dn <policy_distinguished_name>
            | --id <policy_id>}
        | [-p | --preload] <compname> --dn <policy_dn>
        | [-r | --refresh] <compname>
        | --delete <compname> --id <policy_id>
        | --add-recovery-rule <compname> --rule-name <rule_name> --resource-condition
<resource_condition>  --effective-security <effective_security>
        | --delete-recovery-rule <compname> --rule-name <rule_name>}
```

Options:

[-h | --help]

Display help and exit.

<svdm>

Perform an action on <svdm>, where <svdm> is one of:

- SVDM_A
- SVDM_B
- ALL

[-e | --enable] Enable DAC on <svdm>. Only valid if <svdm> is ALL.

[-d | --disable] Disable DAC on <svdm>. Only valid if <svdm> is ALL.

[-s | --state] Show current state of DAC on <svdm>. Only valid if <svdm> is ALL.

--cap-staging-enable Enable the evaluation of proposed permissions on <svdm> where <svdm> is one of:

- SVDM_A
- SVDM_B
- ALL

Differences between the current and proposed permissions are logged.

--cap-staging-disable Disable the evaluation of proposed permissions on <svdm> (this is the default), where <svdm> is one of:

- SVDM_A
- SVDM_B
- ALL

[-v | --verbosity] <level> Set the verbosity of log messages associated with DAC on <svdm>, where <svdm> is one of:

- SVDM_A
- SVDM_B
- ALL

And `<level>` is one of:

- `ad_dbg`
- `ad_dbg2`
- `ad_dbg3`
- `all_dbg`
- `all_dbg2`
- `all_dbg3`
- `compile_dbg`
- `default`
- `eval_dbg`
- `eval_dbg2`
- `eval_dbg3`
- `gpo_dbg`
- `policy_dbg`
- `recovery_dbg`
- `thrd_dbg`

NOTE: Specifying a level of `dbg2` or `dbg3` significantly reduces the performance of the system.

<vdm>

Perform an action on *<vdm>*, where *<vdm>* is the NAS Server Name.

[-i | --info] <compname>

Show details of all the policies in the policy manager associated with *<compname>*, where *<compname>* is the Active Directory Computer Name.

--dn <policy_distinguished_name>

Show details of the policy with the specified distinguished name in the policy manager associated with *<compname>*, where *<policy_distinguished_name>* is of the form "**CN=Finance Policy, CN=Central Access Policies,CN=Claims Configuration,CN=Configuration, DC=test,DC=prv**".

--id <policy_id>

Show details of the policy with the specified policy id in the policy manager associated with *<compname>*, where *<policy_id>* is of the form **S-1-17-n-n-n-n**.

[-p | --preload] <compname> --dn <policy_distinguished_name>

Load the policy with the specified distinguished name into the policy manager associated with *<compname>*.

[-r | --refresh] <compname>

Refresh all the policies currently in the policy manager associated with *<compname>*. Policies that no longer exist in the Active Directory will be deleted.

--delete <compname> --id <policy_id>

Delete the policy with the specified policy id from the policy manager associated with *<compname>*.

--add-recovery-rule <compname> --rule-name <rule_name> --resource-condition <resource_condition> --effective-security <effective_security>

Add a recovery rule with the specified name to the policy manager associated with *<compname>*, where:

- *<rule_name>* is the name of the new rule. If a recovery rule already exists with the specified name it will be replaced by the new rule.
- *<resource_condition>* is an expression that is used to determine the resources the new recovery rule applies to. Omitting this option (or specifying the empty string) means the new rule is applicable to all resources.
- *<effective_security>* SDDL ACL that specifies the effective security for the new recovery rule.

--delete-recovery-rule <compname> --rule-name <rule_name>	Delete the specified recovery rule from the policy manager associated with *<compname>*. *<rule_name>* is the name of the recovery rule to delete.

Example usage

Query Dynamic Access Control state:

svc_dac ALL --state

```
DAC is enabled
```

Enable Dynamic Access Control (only needed if `--disable` was used earlier):

svc_dac ALL --enable

svc_dac ALL --state

```
DAC is enabled
```

Disable Dynamic Access Control:

svc_dac ALL --disable

svc_dac ALL --state

```
DAC is disabled
```

Enable the logging of differences between proposed and effective permissions:

svc_dac SVDM_A --cap-staging-enable

The following server log excerpt shows a difference between proposed and effective permissions (the prefix that is displayed here varies and is only an example). The hexadecimal numbers allow the exact reason for the difference to be established:

```
nt_cred={user=mreid domain=dac.prv} File={fsid=15 ino=77} policy="Finance Policy"
rule="Finance Documents Rule" expr=acl: Effective Access != Proposed Access:
effective=0x0 (0x3/0x7) proposed=0x1 (0x2/0x7)
```

Disable the logging of differences between proposed and effective permissions (only needed if --cap-staging-enable was used earlier):

svc_dac SVDM_A --cap-staging-disable

Set the verbosity of the logging produced by the Dynamic Access Control feature ("`eval_dbg`" will output a single line in the server log whenever a Central Access Policy is evaluated):

svc_dac SVDM_A --verbosity eval_dbg

Set the verbosity of logging to its default level (no logging unless there is a problem):

svc_dac SVDM_A --verbosity default

Dump all the Central Access Policies that are associated with compname *dacjb3* on VDM *NASServer00*:

svc_dac NASServer00 --info dacjb3

NOTE: In Unity, by default the compname is same as VDM name, use the following command:

svc_dac NASServer00 --info NASServer00

```
dumpPolicies: thrd=0x0006a78fe0 mgr=0x00044b3488 - Central Access Policies in order of
use:
CAP_SUMMARY - <Default Recovery CompName>: Added Rule "Default Recovery Rule" to Policy
"Recovery Policy"
    Policy CN=Finance Policy
        DN=CN=Finance Policy,CN=Central Access Policies,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
        spid=S-1-17-4139820701-1097067024-1431851945-3663950443
        compName=dacjb3
```

```
        domainName=eft2k12r2.fra.loc.room.company.com
        configDomain=eft2k12r2.fra.loc.room.company.com
        whenCreated=20150507092525.0Z
        whenChanged=20150507092525.0Z
        uSNCreated=2763040
        uSNChanged=2763042
        state=Uncompiled
        source=Preload
        preloadGenerationNumber=1
        isRecoveryPolicy=false
        refreshTime=20150616140213.0Z - Tue Jun 16 14:02:13 2015
        Rule CN=Finance Documents Rule
            DN=CN=Finance Documents Rule,CN=Central Access Rules,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
            Effective Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)
(A;;0x1200a9;;;S-1-5-21-2304111109-38630077-404395154-2264)
(A;;0x1301bf;;;S-1-5-21-2304111109-38630077-404395154-2265)(A;;FA;;;SY)
(XA;;0x1301bf;;;AU;((@USER.ad://ext/country:88d256bee1a3d518 Any_of
@RESOURCE.Country_88d256bee1e69721) && (@USER.ad://ext/department:88d256bee1d3841c
Any_of @RESOURCE.Department_MS)))
            Proposed Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)(A;;FA;;;SY)
(A;;FA;;;WD)
            Resource Condition=(@RESOURCE.Department_MS Contains {"Finance"})
            whenCreated=20150507092525.0Z
            whenChanged=20150601145251.0Z
            uSNCreated=2763039
            uSNChanged=2918983
            isCompiled=false
            isCompilationSuccessful=false
dumpPolicies: thrd=0x0006a78fe0 mgr=0x00044b3488 - Central Access Recovery Policy:
    Policy CN=Recovery Policy
        DN=Internal Recovery Policy
        spid=S-1-1-0
        compName=<Default Recovery CompName>
        domainName=NA
        configDomain=NA
        whenCreated=NA
        whenChanged=NA
        uSNCreated=NA
        uSNChanged=NA
        state=Uncompiled
        source=Unknown
        preloadGenerationNumber=0
        isRecoveryPolicy=true
        refreshTime=19700101000000.0Z - Thu Jan  1 00:00:00 1970
        Rule CN=Default Recovery Rule
            DN=Default Recovery Rule
            Effective Security=O:SYG:SYD:(A;;FA;;;OW)(A;;FA;;;BA)(A;;FA;;;SY)
            Proposed Security=
            Resource Condition=
            whenCreated=NA
            whenChanged=NA
            uSNCreated=NA
            uSNChanged=NA
            isCompiled=false
            isCompilationSuccessful=false
dumpPolicies: thrd=0x0006a78fe0 mgr=0x00044b3488 - Central Access Policy Refresh
Information:
    Preload Generation Number=1
    Update Interval=10000 (milliseconds)
    Next Update=19700101000000.0Z - Thu Jan  1 00:00:00 1970
```

Dump a specific Central Access Policy by distinguished name:

svc_dac NASServer00 --info dacjb3 --dn "CN=Finance Policy,CN=Central Access Policies,CN=Claims Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=company,DC=com"

```
CAP_SUMMARY - dacjb3: Rule Compilation "Finance Documents Rule" Succeeded
    Policy CN=Finance Policy
        DN=CN=Finance Policy,CN=Central Access Policies,CN=Claims
```

```
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
        spid=S-1-17-4139820701-1097067024-1431851945-3663950443
        compName=dacjb3
        domainName=eft2k12r2.fra.loc.room.company.com
        configDomain=eft2k12r2.fra.loc.room.company.com
        whenCreated=20150507092525.0Z
        whenChanged=20150507092525.0Z
        uSNCreated=2763040
        uSNChanged=2763042
        state=Compiled
        source=Preload
        preloadGenerationNumber=1
        isRecoveryPolicy=false
        refreshTime=20150616140213.0Z - Tue Jun 16 14:02:13 2015
        Rule CN=Finance Documents Rule
            DN=CN=Finance Documents Rule,CN=Central Access Rules,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
            Effective Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)
(A;;0x1200a9;;;S-1-5-21-2304111109-38630077-404395154-2264)
(A;;0x1301bf;;;S-1-5-21-2304111109-38630077-404395154-2265)(A;;FA;;;SY)
(XA;;0x1301bf;;;AU;((@USER.ad://ext/country:88d256bee1a3d518 Any_of
@RESOURCE.Country_88d256bee1e69721) && (@USER.ad://ext/department:88d256bee1d3841c
Any_of @RESOURCE.Department_MS)))
            Proposed Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)(A;;FA;;;SY)
(A;;FA;;;WD)
            Resource Condition=(@RESOURCE.Department_MS Contains {"Finance"})
            whenCreated=20150507092525.0Z
            whenChanged=20150601145251.0Z
            uSNCreated=2763039
            uSNChanged=2918983
            isCompiled=true
            isCompilationSuccessful=true
```

Dump a specific Central Access Policy by CAPID (a.k.a. scoped policy ID):

svc_dac NASServer00 --info dacjb3 --id S-1-17-4139820701-1097067024-1431851945-3663950443

```
    Policy CN=Finance Policy
        DN=CN=Finance Policy,CN=Central Access Policies,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
        spid=S-1-17-4139820701-1097067024-1431851945-3663950443
        compName=dacjb3
        domainName=eft2k12r2.fra.loc.room.company.com
        configDomain=eft2k12r2.fra.loc.room.company.com
        whenCreated=20150507092525.0Z
        whenChanged=20150507092525.0Z
        uSNCreated=2763040
        uSNChanged=2763042
        state=Compiled
        source=Preload
        preloadGenerationNumber=1
        isRecoveryPolicy=false
        refreshTime=20150616140213.0Z - Tue Jun 16 14:02:13 2015
        Rule CN=Finance Documents Rule
            DN=CN=Finance Documents Rule,CN=Central Access Rules,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
            Effective Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)
(A;;0x1200a9;;;S-1-5-21-2304111109-38630077-404395154-2264)
(A;;0x1301bf;;;S-1-5-21-2304111109-38630077-404395154-2265)(A;;FA;;;SY)
(XA;;0x1301bf;;;AU;((@USER.ad://ext/country:88d256bee1a3d518 Any_of
@RESOURCE.Country_88d256bee1e69721) && (@USER.ad://ext/department:88d256bee1d3841c
Any_of @RESOURCE.Department_MS)))
            Proposed Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)(A;;FA;;;SY)
(A;;FA;;;WD)
            Resource Condition=(@RESOURCE.Department_MS Contains {"Finance"})
            whenCreated=20150507092525.0Z
            whenChanged=20150601145251.0Z
            uSNCreated=2763039
            uSNChanged=2918983
```

```
            isCompiled=true
            isCompilationSuccessful=true
```

Load a specific Central Access Policy into the GPO cache (by distinguished name):

svc_dac NASServer00 --preload dacjb3 --dn "CN=Finance Policy,CN=Central Access Policies,CN=Claims Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=company,DC=com"

NOTE: The "`--preload`" option is provided for diagnostic purposes only—it would be more normal to use "**svc_cifssupport NASServer00 -gpo -update server=dacjb3 domain=eft2k12r2**" to update the whole GPO cache rather than just load a single Central Access Policy.

Refresh all the Central Access Policies that are in the GPO cache (defunct policies are removed):

svc_dac NASServer00 --refresh dacjb3

Delete a specific Central Access Policy from the GPO cache (by CAPID):

svc_dac NASServer00 --delete dacjb3 --id S-1-17-4139820701-1097067024-1431851945-3663950443

```
    Policy CN=Finance Policy
        DN=CN=Finance Policy,CN=Central Access Policies,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
        spid=S-1-17-4139820701-1097067024-1431851945-3663950443
        compName=dacjb3
        domainName=eft2k12r2.fra.loc.room.company.com
        configDomain=eft2k12r2.fra.loc.room.company.com
        whenCreated=20150507092525.0Z
        whenChanged=20150507092525.0Z
        uSNCreated=2763040
        uSNChanged=2763042
        state=Compiled
        source=Unknown
        preloadGenerationNumber=0
        isRecoveryPolicy=false
        refreshTime=20150616144241.0Z - Tue Jun 16 14:42:41 2015
        Rule CN=Finance Documents Rule
            DN=CN=Finance Documents Rule,CN=Central Access Rules,CN=Claims
Configuration,CN=Services,CN=Configuration,DC=eft2k12r2,DC=fra,DC=location,DC=room,DC=com
pany,DC=com
            Effective Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)
(A;;0x1200a9;;;S-1-5-21-2304111109-38630077-404395154-2264)
(A;;0x1301bf;;;S-1-5-21-2304111109-38630077-404395154-2265)(A;;FA;;;SY)
(XA;;0x1301bf;;;AU;((@USER.ad://ext/country:88d256bee1a3d518 Any_of
@RESOURCE.Country_88d256bee1e69721) && (@USER.ad://ext/department:88d256bee1d3841c
Any_of @RESOURCE.Department_MS)))
            Proposed Security=O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)(A;;FA;;;SY)
(A;;FA;;;WD)
            Resource Condition=(@RESOURCE.Department_MS Contains {"Finance"})
            whenCreated=20150507092525.0Z
            whenChanged=20150601145251.0Z
            uSNCreated=2763039
            uSNChanged=2918983
            isCompiled=true
            isCompilationSuccessful=true
```

NOTE: The "`--delete`" option is provided for diagnostic purposes only. Although it appears to be a dangerous option it is not, because Central Access Policies are retrieved from the Active Directory on-demand. Therefore this option is only dangerous if the domain controller is not currently reachable.

Add a custom recovery rule—in this case for directories/files classified as belonging to the "Engineering" department:

svc_dac NASServer00 --add-recovery-rule dacjb3 --rule-name "Engineering Recovery Rule" --resource-condition '(@RESOURCE.Department_MS == "Engineering")' --effective-security 'O:SYG:SYD:AR(A;;FA;;;OW)(A;;FA;;;BA)(A;;FA;;;SY)(XA;;FA;;;AU;(Member_of {SID(BA)}))'

```
GPO: Writing gpo cache for vdm SVDM_A
GPO Cache file written
```

```
GPO: Writing gpo cache for vdm NASServer00
GPO Cache file written
```

NOTE:

- Recovery rules are only used when GPO cache does not contain the Central Access Policy with the CAPID associated with the resource being accessed AND it is not possible to fetch the Central Access Policy from the domain controller (either because it is not reachable or the CAPID is in some way invalid).
- Adding a recovery rule with the same `--rule-name` as an existing recovery rule will cause the existing recovery rule to be replaced.
- See the Microsoft Windows Protocols reference document [MS-DTYP]: Windows Data Types for details on SDDL syntax. `--resource-condition` expects a *cond-expr* and `--effective-security` expects an *sddl*.

Delete a custom recovery rule:

`svc_dac NASServer00 --delete-recovery-rule dacjb3 --rule-name "Engineering Recovery Rule"`

```
GPO: Writing gpo cache for vdm SVDM_A
GPO Cache file written
GPO: Writing gpo cache for vdm NASServer00
GPO Cache file written
```

NOTE: The "Default Recovery Rule" cannot be deleted.

Related commands

Antivirus configuration (svc_cava)

CIFS support (svc_cifssupport)

Event Publishing diagnostics (svc_event_publishing)

View locks (svc_lockd)

Advanced NAS settings (svc_nas)

NAS server backup and restore statistics (svc_pax)

Dump VHDX metadata (svc_vhdx)

Data protection operations (svc_dataprotection)

This service script allows the user to set the replication synchronization rate and clean up any replication session that the UEMCLI cannot delete.

Function: Configuration, Recovery
Mode: Both
Usage: General Use

Description

This command performs a specified action on data protection resources, such as a snapshot or replication session. When a replication session cannot be recovered, follow this procedure as far as required to resolve the issue:

1. Use this command on both the source and destination systems with the option `-r repsess -a deletetaskonly`.
2. If the issue persists, use the UEMCLI command `uemcli /prot/rep/session delete` on both systems.
3. If the session still exists, use this command with the option `-r repsess -a delete` on both systems.

The synchronization rate must be changed on source side, and it is persistent after restarting. However, if a failover occurs on the destination side, it is reset to medium and must be changed again after resume or failback.

Use cases

Usage:

```
svc_dataprotection
    [-h | --help]
    | [-r | --resource] repsess | snap
        {[-a | --action] {check | delete | deletetaskonly | syncrate={high | med | low}
| showsyncrate | recover | deletebloonly | showRep | clearRep}
        | [-s | --sessionid]
        | [-n | --resname]
        | [-o | --resoid]
  | [-i | --remotesysid]
        | [-t | --restype] {LU | LG | FS | VDM}
        | [-u | --username]
        | [-p | --password]
  | [-allowAsyncSnapReplication] {yes | no }}
```

Options:

[-h | --help]

Display help and exit.

[-r | --resource] repsess | snap

Specify the resource type. For a snapshot, specify the name of the backup snapshot or snapset.

[-a | --action]

Specify the action to be performed on the resource, where valid values are:

- `check`—Checks the related replication sessions or replication resource object state. As a best practice, use this option before using the related cleanup options.
- `delete`—Remove non-recoverable replication sessions or snaps which cannot be removed with UEMCLI.
- `deletetaskonly`—Delete only the replication task, not the session. This action can delete any running task, even if it has become unresponsive.
- `syncrate=` {`high`|`med`|`low`}—Specify the synchronization rate between the replication source and destination for synchronous replication sessions. The rate can be set at the consistency group level as well as the member level. Default is medium.
  - `high`—Complete the operation as quickly as possible.
  - `low`—Minimize the host I/O impact.
  - When used with `-s ALL`—Set the synchronization rate for all sessions to the specified rate.
- `showsyncrate`—Display the current synchronization rate.
- `recover`—Reset objects of a snapshot operation.
- `deletebloonly`—Delete only the replication Business Logic Object (BLO). The BLO is a component that can still remain in memory after a replication session fails. This is used to completely clean up the session.
- `showRep`—Display all replication information according to the snap name.
- `clearRep`—Clear replication information for a specified snap according to the remote system ID.

NOTE: For snapshots, only the `delete` and `recover` actions apply.

[-s | --sessionid]

Specify the replication session ID upon which the action is taken. The `ALL` option can be used with `syncrate` and `showsyncrate`.

[-n | --resname]

Specify the source or destination resource name of the replication session upon which the action is taken.

[-o | --resoid]

Specify the source or destination resource OID of the replication session upon which the action is taken. For snaps, specify the IOD of the backup snap/ snapset where the action will occur.

[-i | --remotesysid]

The source remote system ID, the option was used when the restore action is specified.

[-t | --restype]	Optional. If "-n" specified, and duplicated names found. Where valid values for `<type>` are: • `LU` • `LG` • `FS` • `VDM` For VMFS, use `LG`.
[-u | --username]	Specify the UEMCLI username for the command (optional). The default value is **`admin`**.
[-p | --password]	Specify the UEMCLI password for the command (optional).
[-allowAsyncSnapReplication]	Optional. Enables or disables snapshot replication functionality on asynchronous file system replication session. Where valid values are: • `yes` – Enables snapshot replication functionality. • `no` – Disables snapshot replication functionality.

Example usage

Check the replication session or replication resource status before executing any other cleanup actions.

svc_dataprotection -r repsess -a check -s 81604378625_FCNCH097039364_0000_81604378625_FCNCH097435285_0000

```
root line:935 WARNING GenericStorage01 is not in ready state
root line:1541 INFO ========1. Check on the version left for the replication========
root line:1547 WARNING versionset left 81604378625
root line:1550 INFO ========2. Check on the snap left for the replication========
root line:1567 WARNING Snap left
81604378625_FCNCH097039364_0000.ckpt000_64519397754657220.2_433
root line:1567 WARNING Snap left
81604378625_FCNCH097039364_0000.ckpt000_64519397754605549.1_433
root line:1572 INFO ========3. Check on the private volume left for the
replication========
root line:1579 WARNING Private vu left 81604378625_433-RepV2Priv-0
root line:1579 WARNING Private vu left 81604378625_433-RepV2Priv-1
root line:1582 INFO ========4. Check on the auxiliary volume left for the
replication========
root line:1585 WARNING Auxvolume left ['81604378625_433-RepV2Aux-0']
root line:1588 INFO ========5. Check on the role/state(1/0) for the replication
resource========
root line:1602 WARNING Async-Role:2 Async-State:2 Sync-Role:1 Sync-State:0
root line:1606 INFO ========6. Check on the left on name DB for the replication========
```

Delete a replication session by session ID:

svc_dataprotection -r repsess -a delete -s 42949673102_FCNCH0972C30C3_0000_42949673096_FCNCH0972C30C3_0000

Delete only an unresponsive task on the replication session by session ID:

svc_dataprotection -r repsess -a deletetaskonly -s 42949673102_FCNCH0972C30C3_0000_42949673096_FCNCH0972C30C3_0000

Delete a replication session of LU by LU name:

svc_dataprotection -r repsess -a delete -n srcLun1 -t LU

Delete a replication session leftover on the file system by FS OID:

svc_dataprotection -r repsess -a delete -o 0x2800000003

Delete the BLO (Business Logic Object) for a replication session.

svc_dataprotection -r repsess -a deletebloonly -s 103079215109_FCNCH097447776_0000_103079215111_FCNCH097507593_0000

Set the synchronization rate for a session by session ID:

svc_dataprotection -r repsess -a syncrate=high -s 81604378625_FNM00151702100_0000_81604378625_FNM00151702099_0000

Set the synchronization rate for all synchronous replication sessions:

svc_dataprotection -r repsess -a syncrate=low -s ALL

Display the synchronization rate for a session by session ID:

svc_dataprotection -r repsess -a showsyncrate -s 42949673102_FCNCH0972C30C3_0000_42949673096_FCNCH0972C30C3_0000

List the synchronization rate for all synchronous replication sessions:

svc_dataprotection -r repsess -a showsyncrate -s ALL

Display consistency group replication sessions with the synchronization rate for each member:

svc_dataprotection -r repsess -a showsyncrate -s 81604378625_FNM00151702100_0000_81604378625_FNM00151702099_0000

Delete objects of a snapshot operation by specifying the snap name:

svc_dataprotection -r snap -a delete -n UTC_2017-11-24_07:19:46

```
Snap UTC_2017-11-24_07:19:46 is found
PO 0x110000000f for snap UTC_2017-11-24_07:19:46 is found
delete PO(0x110000000f) succuessfully
delete snap(0x2800000006) succuessfully
Operation successfully
```

Reset objects of snap operation by snapshot OID:

svc_dataprotection -r snap -a recover -n UTC_2017-11-24_06:05:53

```
PO for snap UTC_2017-11-24_06:05:53 is found
recover snap(0x90000000E) successfully
recover PO(0x1100000003) successfully
PO for snap UTC_2017-11-24_06:05:53 is found
recover snap(0x90000000F) successfully
recover PO(0x1100000004) successfully
Operation successfully
```

Allow snapshot replication for an asynchronous replication session by session ID:

svc_dataprotection -r repsess -a modify -s 171798691861_FCNCH197574263_0000_171798691882_FCNCH197574263_0000 --allowAsyncSnapReplication yes

Delete the BLO for a failed replication session. This command will not remove any other replication session objects.

svc_dataprotection -r repsess -a deletebloonly -s 103079215109_FCNCH097447776_0000_103079215111_FCNCH097507593_0000

```
root line:423 INFO find vdmoid via in-memory version set, vdmoid 2
root line:1089 INFO ['Nway:False', 'bloDeleteFlag:true',
'coexist:False', 'delcfgsnap:True', 'delsession:[]',
'isSyncDelSession:False', 'keepsession:[]', 'name:srcNaserver3',
'priVuTagClean:[]', 'privateVuTagNumList:None', 'resoid:0X1800000005',
'session:103079215109_FCNCH097447776_0000_103079215111_FCNCH097507593_0000', 'slot:3',
'taskDeleteFlag:false', "taskid:['FCNCH0974477760000_0_1635:8589936227']", 'type:VDM',
'vdmid:5']
root line:1717 INFO starting to clean replication for srcNaserver3
root line:1721 INFO 1. clear in-memory structures of replication
root line:1756 INFO vdm may need be clean: [{'OID': '5', 'IsSystem': 'false', 'SP': '1',
'Name': 'srcNaserver3'}]
root line:1792 INFO Current step could not be break
root line:1811 INFO Clearing blo only of the session
103079215109_FCNCH097447776_0000_103079215111_FCNCH097507593_0000 on vdm 2 of sp 3
root line:1816 INFO Command '/nas/sbin/t2tty -c 3 'dpdelsession
SysVdm=2 repSessionId=103079215109_FCNCH097447776_0000_103079215111_FCNCH097507593_0000
taskId=FCNCH0974477760000_0_1635:8589936227 onlyblo=1'' successfully
FCNCH0974477760000_0_1635:8589936227
root line:1649 INFO Cleaning up CmdDB on vdm 5 for replication
```

```
103079215109_FCNCH097447776_0000_103079215111_FCNCH097507593_0000
root line:1906 INFO This only delete session BLO, for other object, it will not remove.
```

Display all replication information according to the snap name.

svc_dataprotection -r snap -a showRep -n UTC_2017-11-16_03:38:31

Clear replication information for a specified snap according to the remote system ID.

svc_dataprotection -r snap -a clearRep -n UTC_2017-11-16_03:38:31 -i FNM00151702100

Related commands

None.

Data collection (svc_dc)

This service script generates a Data Collection (DC) bundle for technical analysis.

Function: Diagnostic
Mode: Both
Usage: General Use

Description

This command collects system information to triage and resolve customer problems. The data collected includes system configurations, logs, run-time data, and so on. Running this command without any options runs the full DC.

NOTE: The `svc_dc` command does not work during a hardware DIP (Data-in-place) conversion (online or offline) upgrade. Collect support materials before starting the upgrade.

Use cases

Usage:

```
svc_dc
    [-h | --help | -?]
    | [-v | --version]
    | [-l | --lifetime] <seconds>
    | [-csp | --current-sp]
    | [-n | --name-prefix] <prefix> <number to keep>
    | [-p | --priority] [HIGH | NORMAL]
    | [-lp | --list-profile]
 | [-s | --status]
    | [-pbc | --profile-based-collection] <profile>
    | --exclusive
    | --skip-upgrade-check
    | [-lcd | --list-cdumps]
    | [-dc | --download-core] [<username>@<destination IP>] <destination folder> <core
name> [<SUP/COLLECT-SUPPLEMENT>]
    | [-dcn | --download-core-nobins] [<username>@<destination IP>] <destination folder>
<core name> [<SUP/COLLECT-SUPPLEMENT>]
    | [-dca | --download-core-abstract] [<username>@<destination IP>] <destination
folder> <core name>
    | [-dcp | --download-core-processed] [<username>@<destination IP>] <destination
folder> <core name> [<SUP/COLLECT-SUPPLEMENT>]
    | [-dpp | --download-pre-processed] [<username>@<destination IP>] <destination
folder> <core name> [<SUP/COLLECT-SUPPLEMENT>]
    | [-dcs | --download-core-supplemental [<username>@<destination IP>] <destination
folder> <core name>
 | [-uc | --upload-core <core name>]
 | [-pc | --process-core] <core name>
```

Options:

[-h | --help | -?]

Display help and exit.

[-v | --version]

Display version information.

[-l | --lifetime] <seconds>

Set the maximum time in seconds allowed for DC execution. The script is terminated after this time elapses. The default time limit is 7200 seconds.

[-csp | --current-sp]

Only perform DC on the current SP (DC occurs on both SPs by default).

[-n | --name-prefix] <prefix> <number to keep>

Append the specified text string to the file name of the command output.

<number to keep> Preserve only the specified number of files with the specified prefix. Valid values are [*1-9*].

[-p | --priority] [HIGH | NORMAL]

Set the I/O priority for DC.

[-lp | --list-profile]

List profiles.

[-s | --status]

Display ongoing data collection status.

[-pbc | --profile-based-collection] <profile>

Specify the profile which defines the specific subset data to be collected, where `<profile>` is the profile name.

--exclusive

Request an exclusive DC instance and return if a proceeding instance is already running.

--skip-upgrade-check

Run this script even when the software upgrade is in progress.

[-lcd | --list-cdumps]

List available known core dumps.

[-dc | --download-core] [<username>@<destination IP>] <destination folder> <core name> [<SUP/COLLECT-SUPPLEMENT>]

Packs the available core-dump related information and transmits it to specified location. When the second option is ignored, the information is saved to a local directory. If the SUP or COLLECT-SUPPLEMENT option is given, it will also download the supplemental part (.sp file) for the safe dump, but it will not collect this by default. The resulting files are named:

- `<core name>_no_gdb.tar`
- `<core name>_nogdb_nodc.tar`
- `<core name>.tar`

The suffix is omitted if the full processing was previously performed.

[-dcn | --download-core-nobins] [<username>@<destination IP>] <destination folder> <core name> [<SUP/COLLECT-SUPPLEMENT>]

Download core file without adding binaries to archive. When the second option is ignored, it is transmitted to a local folder. If the SUP or COLLECT-SUPPLEMENT option is given, it will also download the supplemental part (.sp file) for the safe dump, but it will not collect this by default. The resulting file is named `<core name>_nobins.tar`

[-dca | --download-core-abstract] [<username>@<destination IP>] <destination folder> <core name>

Perform unpacking and GDB/crash info extraction (if not yet performed) and transmission only abstract info download core abstract and supplementary info. When the second option is ignored, it is transmitted to a local folder. The resulting file is named `<core name>_abstract_only.tar`

[-dcp | --download-core-processed] [<username>@<destination IP>] <destination folder> <core name> [<SUP/COLLECT-SUPPLEMENT>]

Perform full core dump analysis if it was not performed before and transmit all available data. When the second option is ignored, it is transmitted to a local folder. If the SUP or COLLECT-SUPPLEMENT

option is given, it will also download the supplemental part (.sp file) for the safe dump, but it will not collect this by default. The resulting file is named `<core name>.tar`

[-dpp | --download-pre-processed] [<username>@<destination IP>] <destination folder> <core name> [<SUP/COLLECT-SUPPLEMENT>]

Perform pre-processing (logs gathering) and download all available data if full analysis was performed before, core abstracts also added to the resulting archive. When the second option is ignored, it is transmitted to a local folder. If the SUP or COLLECT-SUPPLEMENT option is given, it will also download the supplemental part (.sp file) for the safe dump, but it will not collect this by default. The resulting file is named `<core name>.tar`

-dcs | --download-core-supplemental [<username>@<destination IP>] <destination folder> <core name>

Download only the supplemental file (.sp). When the second option is ignored, it is transmitted to local folder. The resulting file is named: `<core name>_sponly.tar`

[-uc | --upload-core] <core name>

If ESRS is enabled, this uploads a core dump in the backend partition to Dell.

[-pc | --process-core] <core name>

Perform full core dump analysis but do not download.

Example usage

Perform DC with default settings:

svc_dc

```
[DC spb]: invoked from 26555 26554 26555 -bash
[DC spb]: Arguments:
[DC spb]: DCPID 26612
[DC spb]: Spawned group 26687
[DC spb]: Destination folder is: /EMC/backend/service/data_collection
[DC spb]: SP status:
        spb  -- Normal Mode
        Peer -- Normal Mode
[DC spb]: Gathering DC information on peer
[DC spb]: Gathering DC information on spb
<INFO> Running 16 DC plugins in parallel
[DC spb]: Archiving collected data from spb
[DC spb]: Waiting for peer to finish Data Collection and files transfer...
[DC spb]: Peer finished...
[DC spb]: moving
System_service_data_FCNCH095103208_2011-05-26_20_21_31.tar to /EMC/backend/service/
data_collection/System_service_data_FCNCH095103208_2011-05-26_20_21_31.tar
[DC spb]: moving done...
DC data collected at /EMC/backend/service/data_collection/
System_service_data_FCNCH095103208_2011-05-26_20_21_31.tar
[DC spb]: Elapsed time: 2 minutes 19 seconds
```

Retrieve the list of available core dumps on the system.

svc_dc -lcd

```
========================
[DC copier]: Available on backend:
kdump_spb_FCNCH123456789_2021-04-26_01_51_16
========================
[DC copier]: No known cores at SSD in processed
========================
[DC copier]: No not processed core dumps at SSD
========================
```

When ESRS is enabled, upload a specific core dump to Dell. You can retrieve the names of the core dumps available on the system by using the `-lcd` option as shown in the previous example.

svc_dc -uc C4Core_dump_FCNCH123456789_2021-04-26_01_51_16

Related commands

None.

System diagnostics (svc_diag)

This service script gathers information about the system to diagnose and triage issues.

Function: Diagnostic
Mode: Both
Usage: General Use

Description

This command gathers information about certain system states. For example, it can retrieve high-level information about the `basic` system state, or it can obtain detailed information about a specific system component's state.

If invoked with no options, this command defaults to `--state basic` and runs the basic diagnostic state. If an invalid state is given in the list, it is skipped, you are notified of the error, and processing of subsequent states continues.

Use cases

Usage:

```
svc_diag
    [-h | --help]
  | [-s | --state] <all | st0 | "st0,...,stN">
  | [-l | --list]
  | [-t | --service-tree]
  | [-b | --boot-blocking]
  | [-u | --update-sp-state]
```

Options:

[-h | --help]

Display help and exit.

[-s | --state]

Execute a state or list of states.

<all | st0 | "st0,...,stN">

Specify the state or states, where:

- `all`—Run all valid states. Cannot be used with any other parameters.
- `st0`—Run specified state.
- `"st0,...,stN"`—Run list of states. List items must be enclosed in quotations, without spaces, and comma-delimited.

and valid states are:

- `basic`—Basic, displays a general diagnostic.
- `bootcontrol`—Boot control, displays the system boot or reboot status.
- `cru`—CRU extended, displays the current state of the hardware.
- `dmilog`—Dmilog, dumps the low-level firmware log. This log contains information from the BMC, BIOS, and POST, and can be helpful when trying to diagnose low-level hardware issues that can prevent the system from booting.
- `extended`—Extended, extends the basic output with additional information such as the status from a peer SP, boot counter information, and so on.
- `network`—Network, displays the front-end port configuration information including MTU size.

- `pmp`—Permanent memory persistence (PMP). This feature saves the data cache to the local SSD drive when power is lost, and restores it when power is restored. The PMP logs contain details about the recent history of the power losses and reboots, and which memory extents were saved and restored.
- `resume`—Resume, provides Midplane Part and Serial Numbers.
- `sas`—SAS, displays advanced diagnosis of the backend SAS ports.
- `software`—Software, displays the state of the system software stack.
- `spinfo`—Spinfo, displays a detailed output of SP hardware and software information.
- `systemstate`—Systemcheck, runs a quick test across the system to show the status of hardware and software.

[-l | --list]
: Display all valid states.

[-t | --service-tree]
: Runs the service tree command.

[-b | --boot-blocking]
: Shows detail about boot-blocking causes.

[-u | --update-sp-state]
: Update storage processor states.

Example usage

Run all states:

```
svc_diag --state all
```

Run specific states:

```
svc_diag --state "basic,extended,cru"
```

Run the service tree command:

```
svc_diag --service-tree
```

Related commands

Service Mode information (svc_rescue_state)

ELMS usage information (svc_elms)

This service script allows the user to view and manage information generated by the Electronic Licensing Management System (ELMS) feature.

Function: Configuration
Mode: Normal
Usage: Technical Service

Description

This command enables or disables the automatic weekly ELMS usage information transfer. The command also allows the user to view the generated XML output of the ELMS feature usage information.

Use cases

Usage:

```
svc_elms
    [-h | --help]
    | [-e | --enable]
    | [-d | --disable]
    | [-s | --status]
    | [-v | --view]
```

Options:

[-h | --help]

Display help and exit.

[-e | --enable]

Enable automatic ELMS transfer.

[-d | --disable]

Disable automatic ELMS transfer.

[-s | --status]

Display whether automatic ELMS transfer is enabled or disabled.

[-v | --view]

Display ELMS feature usage information.

Related commands

None.

ESRS Virtual Edition (svc_esrs_ve)

This service script is used to maintain ESRS Virtual Edition services, configuration, and connection.

Function: Recovery
Mode: Normal
Usage: General Use

Description

NOTE: This command is only supported on UnityVSA from Operating Environment (OE) version 5.3 or later. It is not supported on Unity hardware. For Unity hardware, use the `svc_connectivityservices` command instead.

This command allows the service user to perform basic tasks on ESRS VE, such as checking the status of the service and network or cleaning up the configuration.

NOTE: This command must be run on the primary SP when the system is in normal mode. The following options for integrated ESRS only are not supported on UnityVSA:

- `cleanup`
- `restartesrsclient`

Use cases

Usage:

```
svc_esrs_ve
    [-h | --help]
    | [-s | --status] [detail]
    | [-r | --restart]
```

```
    | --reenable
    | --forcedisable
    | --syncmgmt
    | --networkcheck [detail] [IP] [port]
    | --cleanup
    | --restartesrsclient
    | --sendhome <file>
```

Options:

[-h | --help]

Display help and exit.

[-s | --status] [detail]

Displays current ESRS configuration and status. Specifying the "detail" option shows detailed status.

[-r | --restart]

Restart the integrated ESRS services.

--reenable

Re-enable integrated or centralized ESRS if current enabled ESRS does not work normally.

--forcedisable

Force disable centralized ESRS.

--syncmgmt

Synchronize management IP address to ESRS servers in case management IP address change.

--networkcheck [detail] [IP] [port]

Check network connectivity for either integrated or centralized ESRS implementations. Specifying the "detail" option performs additional detailed network check commands, and the check takes more time to complete.

- Integrated ESRS connectivity is checked if no IP address or port is specified.
- Centralized ESRS connectivity is checked only when the IP address is specified for the Centralized ESRS gateway, Dell Technology Connectivity Services Enterprise or Secure Connect Gateway.

--cleanup

The default centralized ESRS server port 9443 is used if the port not specified. Clean up the integrated ESRS configuration.

--restartesrsclient

Restart the ESRS client to re-establish the connection between the gateway and the Unity system.

--sendhome <file>

Send the specified file back to Dell Support through configured ESRS channel.

Example usage

Check ESRS VE status:

`svc_esrs_ve -s`

```
ESRS type:       Integrated
ESRS State:      Managed and Offline
ESRS Version:    3.36.00.05
EULA accepted:   Yes
Initializaiton:  Completed
Gatway SN:       ELMESR10161QZS

++++++ Detailed ESRS VE internal services: ++++++
-------------------------
ContainerInit Flag [ 1 ]
ConfigServices Flag [ idle ]
Provisioned [ yes ]
========================
eVE STATUS CODE [ 2 ]
========================
--------------------------------------
Expected Status: 'running'...
```

```
Service [ esrshttpd ] .. running
Service [ esrshttpdR ] .. running
Service [ esrsclient ] .. running
Service [ esrswatchdog ] .. running
Service [ esrsclientproxy ] .. running
Service [ cron ] .. running
-------------------------------------
-------------------------------------
Expected Status: 'stopped'...

Service [ esrsmultirunner ] .. stopped
Service [ postgresql ] .. stopped
-------------------------------------
==================
Health Check.. OK
==================
++++++  End of ESRS VE internal services   ++++++
```

Clean up the integrated ESRS configuration:

svc_esrs_ve --cleanup

```
Are you sure you want to clean up the integrated ESRS configuration? (Y/N)Y
Integrated ESRS is already initialized on your system. It is recommended to try other
fix options before using this cleanup option. Have you attempted all possible other fix
options? (Y/N)Y
Cleaning integrated ESRS configuration files: 100%
Cleaned up integrated ESRS configuration files.
Cleaned up integrated ESRS configuration data.
Local ESRS configuration is already cleaned successfully. Please wait for about 16
minutes until server side synchronization completes before re-enabling ESRS.
```

Related commands

None.

Event Publishing diagnostics (svc_event_publishing)

This service script displays the settings and server connection status for the file events publishing service (also known as the Common Event Publishing Agent) for a specified NAS server.

Function: Diagnostic
Mode: Normal
Usage: Technical Service

Description

Use this service command to diagnose of the Common Event Publishing Agent (CEPA) on a NAS server. The command displays the current settings, including connection status to each CEPA server and CEPA server version.

NOTE: This service requires connecting to remote third-party servers, which could cause issues.

Use cases

Usage:

```
svc_event_publishing
    <NAS server name>
    | [-h | --help]
```

Options:

[-h | --help]

Display help and exit.

Example usage

Display event publishing service information for a NAS server called "vdm1":

svc_event_publishing vdm1

```
1471443354: CEPP: 6: NAS server vdm1: File Event service: Enabled,      Status: Started,
Health state:OK
```

[output continues]

```
1471443354: CEPP: 5: 192.0.2.2     ONLINE at Wed Aug 17 14:15:49 2016 (GMT-00:00)
1471443354: CEPP: 5:     HTTP, CAVA version: 192.0.2.8
1471443354: CEPP: 5:     Server Name: 192.0.2.2
1471443354: CEPP: 5:
1471443354: ADMIN: 6: Command succeeded:  cepp info
```

Related commands

Antivirus configuration (svc_cava)

CIFS support (svc_cifssupport)

Dynamic Access Control (svc_dac)

View locks (svc_lockd)

Advanced NAS settings (svc_nas)

NAS server backup and restore statistics (svc_pax)

Dump VHDX metadata (svc_vhdx)

Firewall (svc_firewall)

This service script resolves communication issues with Solaris-based NIS servers that use unexpected UDP port numbers.

Function: Configuration
Mode: Normal
Usage: Technical Service

Description

When a NIS server sends a response to the array using an unexpected UDP port number, it is blocked by the stateful firewall. This script allows the user to resolve the issue by opening the firewall for a specified hardware port and remote (NIS) server address. The data port name is in the output of `ip addr` and corresponds to the IP address used for the NAS server.

Use cases

Usage:

```
svc_firewall
    [<protocol>]
    { [-h | --help]
    | [-a | --add] <eth_port> <remote_IP>
    | [-c | --clear]
    | [-s | --show]}
```

Options:

protocol

Specify the protocol to use. Only UDP is supported, specified with the `-udp` option.

[-h | --help]

Display help and exit.

[-a | --add] <eth_port> <remote_IP>

Add new rule to the list.

eth_port	The Ethernet port on which to open the firewall connection.
remote_IP	The IP address of the remote NIS server.

[-c | --clear]

Remove all the rules that are submitted by the user.

[-s | --show]

Show all submitted rules.

Example usage

Open the firewall for the port **eth10** on a server with the IP address **1.2.3.4**:

```
svc_firewall -udp -a eth10 1.2.3.4
```

Related commands

None.

Help (svc_help)

This service script lists the Unity Service Commands.

Function: System Operations
Mode: Both
Usage: General Use

Description

Use this command to list the Service Commands available to the Service user on the Unity system.

Use the Inject Troubleshoots Software Tool command to add more commands. In the example usage below, the list includes the additional commands.

Use cases

Usage:

```
svc_help
    <no option>
```

Options:

no option

Display list of service commands and exit.

Example usage

Display list of service commands:

svc_help

```
The following Unity serviceability commands are available to the service user:
svc_acldb_dump
svc_arrayconfig
svc_banner
svc_boot_control
svc_cache
svc_cava
svc_cbr
svc_change_hw_config
svc_check_hw_config
svc_cifssupport
svc_connectemc
svc_copyto
svc_custom_cert
svc_dac
svc_dataprotection
svc_dc
svc_diag
svc_elms
svc_esrs_ve
svc_event_publishing
svc_firewall
svc_help
svc_imt
svc_initial_config
svc_inject
svc_ipmi
svc_kmip
svc_lockd
svc_mapped_raid
svc_mount
svc_nas
svc_network
svc_network_bond
svc_networkcheck
svc_nfssupport
svc_ntp
svc_oscheck
svc_param
svc_pax
svc_perfcheck
svc_purge_logs
svc_reimage
svc_reinit
svc_rescue_state
svc_restart_service
svc_scsi_id
svc_service_password
svc_service_shell
svc_shutdown
svc_ssh
svc_stig
svc_storage_integritycheck
svc_storagecheck
svc_tcpdump
svc_topstats
svc_udoctor
svc_vhdx
svc_view_services
svc_vp_hostcheck
For detailed information on the available service commands, refer to the "Unity Service
Commands Technical Notes" document
on the Dell Online Support Site (https://www.dell.com/support).

Each Unity serviceability command supports a "--help" option which displays a
description for the script use and usage syntax.

For general Linux or Bash help, run the "linux_help" command.
```

Related commands

Inject troubleshooting software tool (svc_inject)

Modify data import sessions (svc_imt)

This service script allows you to modify nodes of an import session, such as if the sessions are out-of-sync.

Function: Recovery
Mode: Normal
Usage: General Use

Description

This service script performs an action on a data import session.

Use cases

For example, you can use this script to forcibly clear failed nodes for an import that is stalled due to persistent failures, which allows the import session to complete.

Usage:

```
svc_imt
            [-h | --help]
            | <NAS_server_name>
               -i |    --show-imports {--all | --failed}
               -n | --show-failed-nodes --all | <id>
               -s | --show-nodes <id> --node <ino>
               -r | --resync-nodes <id> --node <ino>
               -c | --clear-failed-nodes --all [--yes] | <id> [--yes] --node <ino>
               -d | --drop-failed-nodes <id> [--yes] --node <ino>
               -l | --list-dhsm-conns <id>
               -t | --set-dhsm-conn <id> --cid <cid>
               -b | --show-dhsm-backup <FS_name>
               -m | --modify-dhsm-backup <FS_name> --mode {offline | passthrough}
```

Options:

[-h | --help]

Display help and exit.

-i | --show-imports {--all | --failed}

Show the identity (*<ino>*) and state of all file system imports for the specified NAS server, or show the identity (*<ino>*) and state of all file system imports that have persistently failed nodes for the specified NAS server. For `--show-imports --all`, the import state will be one of the following:

- `MIS_EXECUTING: the import is actively processing nodes.`
- `MIS_PAUSED: the import is paused either by the user or due to a fault.`
- `MIS_WAITING_FOR_RESYNC: the import is idle but with one or more persistently failed nodes. Use <command> --show-failed-nodes for more information.`
- `MIS_SYNCING:the import is idle and has no persistently failed nodes; it is pending completion.`
- `MIS_COMPLETE: the import completed successfully.`
- `MIS_CANCELLED: the import has been cancelled.`
- `MIS_FAILED: the import failed due to an unrecoverable error.`

NOTE: The *<ino>* is the decimal inode number of a directory or file on the target file system.

-n | --show-failed-nodes {--all | *<id>*}

Show the identity and path of the persistently failed nodes for all the file system imports for the specified NAS server, or for only the specified file system import session <id>.

-s | --show-nodes *<id>* --node *<ino>*

Show the import details of the specified node (or nodes if more than one --node option is present). The reported node state will be one of the following:

- `MNS_NONE: the node is not part of the import or it has not yet been discovered by the import.`
- `MNS_PENDING: the node has been discovered and is part of the import but it has not yet been processed.`
- `MNS_FAILED: the node is part of the import but an error was encountered during processing or when attempting to apply a subsequent client modification to the node.`
- `MNS_MOVING: the node is being processed now.`
- `MNS_MOVED: the node has been successfully processed.`
- `MNS_STREAM: the node is a named stream that is part of the import.`

-r | --resync-nodes *<id>* --node *<ino>*

Trigger a resyncronization of the specified node or nodes (if more than one *<ino>* is specifed). An asynchronous task will be executed to re-import each of the specified nodes, if they do not match their counterpart on the source file system.

-c | --clear-failed-nodes --all [--yes] | *<id>* [--yes] --node *<ino>*

Forcibly clear errors on the specified persistently failed node or nodes (if more than one *<ino>* is specifed) associated with the specified file system import. When an error is forcibly cleared on a node (such as a directory or file), the contents may not be the same on the source and target. These differences should be resolved manually after import completion. You must confirm this action using either the interactive prompt, or by specifying the --yes option.

-d | --drop-failed-nodes *<id>* [--yes] --node *<ino>*

Drop the specified node or nodes (if more than one *<ino>* is specifed) from the specified file system import. The import will not continue any more processing on a dropped node (including any attempted writes); differences should be expected and will need to be resolved manually after import completion. Confirmation of this action is necessary either using the interactive prompt, or by specifying the --yes option.

NOTE: Use this command with caution as a last resort. Unlike the `--clear-failed-nodes` command, this command applies client modifications to only one side of the import.

-l | --list-dhsm-conns *<id>*

Lists the HTTP and HTTPS connections which have been migrated to the destination of the specified file system import.

-t | --set-dhsm-conn *<id>* --cid *<cid>*

Set which HTTP or HTTPS connection should be made the active DHSM connection on the destination of the specified file system import. <cid> is the connection ID.

-b | --show-dhsm-backup *<FS_name>*

Show the DHSM backup policy of the file system.

-m | --modify-dhsm-backup *<FS_name>* --mode {offline | passthrough}

Modify the DHSM backup policy of the file system. The default value of backup policy is `passthrough`.

Example usage

Show all imports for NAS server "NAS_server1".

```
svc_imt "NAS_server1" --show-imports --all
```

```
id    fs_name         state                   failed_nodes fault
==    =======         =====                   ============ =====
11    fs2             MIS_WAITING_FOR_RESYNC             5 0x3000001
12    fs1             MIS_SYNCING                        0 0x0
```

Show all imports for NAS server "NAS_server1" that have failures.

svc_imt "NAS_server1" --show-imports --failed

```
id    fs_name          state                  failed_nodes fault
==    =======          =====                  ============ =====
11    fs2              MIS_WAITING_FOR_RESYNC            5 0x3000001
```

Show all the failed nodes for file system import 11 on NAS server NAS_server1.

svc_imt "NAS_server1" --show-failed-nodes 11

```
id    fs_name                  inode    path
==    =======                  =====    ====
11    fs2                      9444     dir4
11    fs2                      9449     dir2
11    fs2                      9451     dir1
11    fs2                      9457     dir3
11    fs2                      9445     dir5
```

Clear the errors for inodes 9444 and 9449 on NAS server "NAS_server1". Any inconsistencies must be resolved manually after the import has completed.

svc_imt "NAS_server1" --clear-failed-nodes 11 --node 9444 --node 9449

```
id    fs_name                  inode    path
==    =======                  =====    ====
11    fs2                      9444     dir4
11    fs2                      9449     dir2

About to clear the specified inos.

Type "yes" to confirm: yes

Original node[9444]={pri_fh=9444/1510927359 sec_fh=9438/0 state=MNS_FAILED
flags={IS_DIR}}
Modified node[9444]={updateMask=0x5 pri_fh=9444/1510927359 sec_fh=9438/0 state=MNS_MOVED
flags={IS_DIR, RESYNC}}
Original node[9449]={pri_fh=9449/1510927364 sec_fh=9498/0 state=MNS_FAILED
flags={IS_DIR}}
Modified node[9449]={updateMask=0x5 pri_fh=9449/1510927364 sec_fh=9498/0 state=MNS_MOVED
flags={IS_DIR, RESYNC}}
```

Flag the node for resync on which you cleared the errors (node 9449 of file import session 11).

svc_imt "NAS_server1" --resync-nodes 11 --node 9449

```
Original node[9449]={pri_fh=9449/1510927364 sec_fh=9498/0 state=MNS_MOVED flags={IS_DIR,
RESYNC}}
Modified node[9449]={updateMask=0x1 pri_fh=9449/1510927364 sec_fh=9498/0
state=MNS_FAILED flags={IS_DIR, RESYNC}}
```

Drop inodes 9451 and 9457 from file system import session 13 on NAS server "NAS_server1". Any inconsistencies must be resolved manually after the import has completed.

svc_imt "NAS_server1" --drop-failed-nodes 13 --node 9451 --node 9457

```
id    fs_name                  inode    path
==    =======                  =====    ====
13    fs2                      9451     dir1
13    fs2                      9457     dir3

About to drop the specified inos. Type "yes" to confirm: yes

Original node[9451]={pri_fh=9451/1510927366 sec_fh=9478/0 state=MNS_FAILED
flags={IS_DIR}}
Modified node[9451]={updateMask=0x1d pri_fh=9451/0 state=MNS_NONE flags={IS_DIR, RESYNC}}
Original node[9457]={pri_fh=9457/1510927372 sec_fh=9518/0 state=MNS_FAILED
```

```
flags={IS_DIR}}
Modified node[9457]={updateMask=0x1d pri_fh=9457/0 state=MNS_NONE flags={IS_DIR, RESYNC}}
```

Related commands

None.

Initial configuration (svc_initial_config)

This service script sets up initial system configuration.

Function: Configuration
Mode: Normal
Usage: Technical Service

Description

This command configures a management IP address when the Connection Utility (CU) is not available on the network. If an address is set, this command can also change the management IPv4 and IPv6 configuration mode. It attempts to configure the system with the given friendly name and/or network parameters.

Network parameters are for IPv4 and/or IPv6.

Use cases

Usage:

```
svc_initial_config
    [-h | --help]
    | [-4 | --network] ["<IPv4 address> <IPv4 netmask> <IPv4 default gateway>" | auto |
disable]
    | [-6 | --networkv6] ["<IPv6 address> <prefix length> <IPv6 default gateway>" | auto
| disable]
    | [-f | --friendly-name] <hostname>
```

Options:

[-h | --help]

Display help and exit.

[-4 | --network]

Set the IPv4 address, netmask, and default gateway for management interface.

"<IPv4 address> <IPv4 netmask> <IPv4 default gateway>"	Specify the IPv4 address, netmask, and default gateway manually. The items in the string must appear in the given order and be enclosed by quotes.
auto	Allow DHCP to configure the IPv4 networking details.
disable	Disable the IPv4 configuration.

[-6 | --networkv6]

Set the IPv6 address, prefix length, and default gateway for management interface.

"<IPv6 address> <prefix length> <IPv6 default gateway>"	Specify the IPv6 address, prefix length, and default gateway manually. The items in the string must appear in the given order and be enclosed by quotes.
auto	Allow DHCP to configure the IPv6 networking details.
disable	Disable the IPv6 configuration.

[-f | --friendly-name] <hostname>

Set a friendly name for the system. Valid values for *hostname*:

- Must contain only letters, numbers, or hyphen (-)
- Cannot begin or end with a hyphen (-)
- Must be 32 characters or fewer

Example usage

Configure a system "NewSystem" with IPv4 settings:

svc_initial_config -a -f NewSystem -n "10.2.2.42 255.255.255.0 10.2.2.1"

View the configuration:

ifconfig mgmt:0

```
mgmt:0    Link encap:Ethernet  HWaddr 00:60:16:36:XX:XX
          inet addr:10.2.2.42  Bcast:10.2.2.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          Interrupt:16
```

Attempt to configure the same system with a different address and gateway:

svc_initial_config -a -f Host_Name -n "10.244.X.X 255.255.255.0 10.244.X.1"

```
Error: this system has initialized with the following configuration:
ip=10.2.2.42 255.255.255.0 10.2.2.1
friendly_name=NewSystem
```

Related commands

None.

Inject troubleshooting software tool (svc_inject)

This service script installs an encrypted, validated diagnostic tool.

Function: System Operations
Mode: Both
Usage: Technical Service

Description

This command injects additional troubleshooting tools on a Unity system. The Unity system hotfix procedure also uses this functionality to inject changes to the system OS as deemed necessary by Engineering.

Injectable tools are packaged in one of the following ways:

- Encrypted and securely designed challenge key (key-based injection)
- Encrypted and securely packaged file (file-based injection)

The key-based option allows you to provide authorized support representatives with a unique string to enable root access. Upload discrete, securely signed files to the Unity SP directly using file-based injection.

Inject software tools in Normal Mode. Tools injected while an SP is in Service Mode do not persist and are not available when the system returns to Normal Mode. However, in some cases, the key-based injection mechanism can allow injected service tools to persist between Normal and Service operational modes.

When performing a service tool injection on a Dual-SP, Unity attempts to inject the service tool on both SPs, regardless of their operational mode.

NOTE: The Unity system removes a service tool package file after injection use. Injected tools have an expiration date. Re-inject the tool to re-enable it after its expiration date.

Use cases

Usage:

```
svc_inject [-s] [-q]
    [-? | --help]
    | -k [serial]
    | -h [-i | -e] [PACKAGE]
    | -t [-i | -e] [PACKAGE]
    | -l [-h | -t | -a]
    | -r [-a | -d | l | p]
    | -p [PACKAGE]
```

Options:

[-? | --help]

Display help and exit.

-s

Run only on the local SP, do not attempt to injection on the peer SP.

-q

Suppress extraneous output, useful for scripts.

-k [serial]

Perform key-based injection. If a serial number is specified, the system serial number based module starts. If no serial number is specified, the challenge-based module starts.

-h

Install or remove a hotfix.

-i	Install the hotfix.
-e	Erase the hotfix.
[PACKAGE]	Specify the name of the hotfix.

-t

Install or remove a service tool.

-i	Install the service tool.
-e	Erase the service tool.
[PACKAGE]	Specify the name of the service tool.

-l [-h | -t | -a]

List currently installed hotfixes (`-h`), service tools (`-t`), or both (`-a`).

-r [-a | -d | l | p]

Add (`-a`), delete (`-d`), and list repositories (`l`), or list package (`p`).

-p [PACKAGE]

Display detailed info about the specified package.

Example usage

Inject a tool called "svc_foo":

`svc_inject -t -i /path/to/svc_foo`

Erase a hotfix called "hotfix_tracker123_artf456":

`svc_inject -h -e hotfix_tracker123_artf456`

List all injected service tools and hotfixes:

`svc_inject -l -a`

Related commands

Help (svc_help)

Base Management Controller interface (svc_ipmi)

This service script provides information about the Base Management Controller (BMC), including firmware revision, authentication suite, IP address source, IP address, network mask, and gateway.

Function: Configuration
Mode: Normal
Usage: General Use

Description

This command lists the active SOL (Serial Over LAN) sessions and displays the sensor information of the BMC Hardware modules. The command can also perform a BMC cold reset. This cold reset power cycles only the BMC and troubleshoots BMC issues such as console inaccessibility. This command can also retrieve the above-mentioned information from the peer BMC.

Use cases

Usage:

```
svc_ipmi
    [-h | --help]
    | --bmc-info
    | --sensor
    | --sol-session-info
    | --bmc-reset
    | --bmc-opmode
    | --peer
```

Options:

[-h | --help]
Display help and exit.

--bmc-info
Display the Base Management Controller (BMC) firmware information and LAN configuration.

--sensor
List the BMC sensor information.

--sol-session-info
Display the information about the BMC console session.

--bmc-reset
Reset just the BMC.

--bmc-opmode
State the BMC operation mode.

--peer
Retrieve the information from the peer BMC. This option is used with the above options.

Related commands

None.

Restore KMIP Server configuration (svc_kmip)

This service script restores the correct KMIP server configuration and, if necessary, the Unity certificates so that the array can return to Normal Mode.

Function: Recovery
Mode: Service
Usage: Technical Service

Description

If there is a problem with or unexpected change to the KMIP configuration or status, the array cannot confirm the correct configuration or status and starts in Service Mode. The array cannot return to Normal Mode until the issue is resolved.

NOTE: This utility is intended for trained service personnel only.

To restore the correct KMIP server configuration, follow this procedure:

1. To restore the KMIP server configuration, type the following command:

   `svc_kmip -s -u <username> -w <password> -a <server IP> -t <seconds> -p <port number>`

   NOTE: The KMIP server configuration may not include a username or password, or both. If these values are not required, the `svc_kmip` command must still include the *username* and *password* parameters but with the parameter values as an empty field; that is, with two double quotes ("") when a value should not be specified for it.

2. To restore the CA and Client certificates, use the following command to upload the CA and Client certificates separately:

   `svc_kmip -u -f <file path> -t {CA | [Client -p <passphrase>]}`

3. To restart both SPs and commit the KMIP configuration on the system, type the following command:

   `svc_kmip -c`

NOTE: This service script is only for recovery and cannot be used to set up the KMIP configuration and enable it on a new system.

Use cases

Usage:

```
svc_kmip
    [-h | --help]
    | [-s | --setkmip]
        {[-h | --help]
        | [-u | --username] <username>
        | [-w | --password] <password>
        | [-a | --address] <server IP>
        | [-t | --timeout] <seconds>
        | [-p | --port] <port number>}
    | [-u | --uploadcert]
        {[-h | --help]
        | [-f | --certfilepath] <file path>
        | [-t | --type]
            {CA
            | [Client [-p | --passphrase] <passphrase>]}}
    | [-c | --commit]
    | [-r | --localrecover]
```

Options:

[-h | --help]

Display help and exit.

[-s | --setkmip]

Set up the KMIP configuration.

[-h | --help]	Display help and exit.
[-u | --username] <username>	Specify the username for the KMIP server.
[-w | --password] <password>	Specify the password for the KMIP server.
[-a | --address] <server IP>	Specify the IP address of the KMIP server.
[-t | --timeout] <seconds>	Specify the timeout for communication with the KMIP server in seconds. The default value is 30.
[-p | --port] <port number>	Specify the network port for the KMIP server. The default value is 5696. **NOTE:** If there is a firewall between the KMIP server and the Unity array, this port must be open.

[-u | --uploadcert]

Upload the certificates for the KMIP server.

[-h | --help]	Display help and exit.
[-f | --certfilepath] <file path>	Specify the file path to the certificate on the system.
[-t | --type] [CA | Client]	Specify the type of certificate file.
[-p | --passphrase] <passphrase>	Specify the passphrase for the Client certificate. The passphrase is created when the KMIP client, server certificates, and private key are set up. **NOTE:** CA certificates do not require a passphrase.

[-c | --commit]

Commit the KMIP configuration on the system and restart.

[-r | --localrecover]

Recover the local SP from KMIP corruption by clearing the rescue reason and restarting. Use this option if the peer is running normally but the local SP fails to connect to the KMIP server and enters Service Mode.

Related commands

None.

View locks (svc_lockd)

This service script shows information about the file locking that is used by File access protocols such as SMB, NFSv4, and NLM for NFSv3 clients.

Function: Diagnostic
Mode: Normal
Usage: General Use

Description

This command allows the Service user to view information about locks currently held for provisioned Unity storage. It can be used for range locks, which control access to specific parts of a file, open files to allow concurrent access where access is denied, and special locks such as SMB1 opportunistic locks, file or directory leases used by SMB2 and SMB3, and file delegations used by NFSv4.

You can specify which storage server to work with on the command line. The tool can list all active locks using the `list` command. List statistics using the `stat` command. Issue a stat reset by specifying `reset` after the `stat` command on the

command line. To view more information about a particular lock, use the `info` command. To remove a known stale NFSv3 lock, use the `remove` command. The commands, `remove` and `info`, specify a lock on the command line.

The `svc_lockd` command only runs in Normal Mode when the system storage software is active.

The `svc_lockd` command only runs in Normal Mode when the system storage software is active.

Use cases

Usage:

```
svc_lockd
   [-h | --help]
   | <NAS server name>
      | list
      | info fldp=<address>
      | remove fldp=<address> credp=<address>
            | stat [reset]
```

Options:

[-h | --help]

Display help and exit.

<NAS server name>

Specify the NAS server name.

list

List the locked files on the specified NAS server with their count of locks. The files are ordered per the file system. Each file is identified by its inode number, and also by a `fldp=<address>` token for use with `svc_lockd info`.

info fldp=<address>

Show detailed information about the specified file. For each file lock this command also displays the `credp=<address>` token for use with `svc_lockd remove`.

remove fldp=<address> credp=<address>

On the file identified by the fldp value, remove any range lock that matches the specified lock credential.

stat [reset]

Show statistics about file locks. The statistics counters are global to the storage processor, and may be related to other NAS servers of the same SP as well.

reset Reset the file lock statistics.

Example usage

List locked files for the NAS server "vdm0":

`svc_lockd vdm0 list`

Get detailed lock information for a specific file:

`svc_lockd vdm0 info fldp=0x06243f6218`

Remove locks from faulty lock owner on a specific file:

`svc_lockd vdm0 remove fldp=0x06243f6218 credp=0x00108ac938`

Reset lock statistics for the SP "SVDM_A":

`svc_lockd SVDM_A stat reset`

Related commands

Antivirus configuration (svc_cava)

CIFS support (svc_cifssupport)
Dynamic Access Control (svc_dac)
Event Publishing diagnostics (svc_event_publishing)
Advanced NAS settings (svc_nas)
NAS server backup and restore statistics (svc_pax)
Dump VHDX metadata (svc_vhdx)

Mapped RAID (svc_mapped_raid)

This service script is used to configure mapped RAID parameters.

Function: Configuration
Mode: Normal
Usage: Technical Service

Description

Configure mapped RAID rebuild parameters.

The `-rb` option only runs in Normal Mode.

Use cases

Usage:

```
svc_mapped_raid
    [-h | --help]
    | [-rb slow | medium | high | show]
```

Options:

[-h | --help]

Display help and exit.

[-rb slow | medium | high | show]

Configure mapped RAID rebuild parameters.

slow	Set rebuild speed to lowest speed. Provides the same rebuild behavior as traditional RAID.
medium	Set rebuild speed to a value between slow and high.
high (default)	Rebuild using 30% of resources. Impacts I/O.
show	Show current configuration.

Related commands

None.

Mount storage (svc_mount)

This service script attempts to mount system partitions in Service Mode.

Function: System Operations
Mode: Service
Usage: Technical Service

Description

This command attempts to mount the following as read-only unless specified with the `-w` qualifier:

- The SSD at `/mnt/ssdroot`
- The backend mirror at `/mnt/backend`
- The cores partition at `/mnt/cores`

Only run this command in Service Mode.

If a kernel-level failure occurs while trying to run this command, the kernel can panic and cause a reboot.

Use cases

Usage:

```
svc_mount
    [-h | --help]
    | [-w | --write-mode]
    | [-s | --ssd-only]
    | [-c | --cores-only]
    | [-b | --backend-only]
    | --c4lx-cfg-backend
    | --c4lx-cfg-msata
    | --c4lx-cfg
 | [-m | --check]
    | [-u | --unmount]
```

Options:

[-h | --help]

Display help and exit.

[-w | --write-mode]

Mount with read/write permissions.

[-s | --ssd-only]

Only mount SSD.

[-c | --cores-only]

Only mount cores.

[-b | --backend-only]

Only mount the backend.

--c4lx-cfg-backend

Only mount the backend c4lx-cfg partition.

--c4lx-cfg-msata

Only mount the mSATA c4lx-cfg partition.

--c4lx-cfg

Only mount both c4lx-cfg partitions.

[-m | --check]

Check if the device is currently mounted.

[-u | --unmount]

Unmount SSD, cores, and backend partitions.

Related commands

Boot control (svc_boot_control)

Create management interface (svc_network)

Advanced NAS settings (svc_nas)

This service script allows NAS server advanced management, including NAS server parameters, databases maintenance, and network troubleshooting.

Function: Configuration, Diagnostic
Mode: Normal
Usage: General Use

Description

Use this script to display and customize the parameters of various NAS components. The default values of the NAS server parameters satisfy most use cases, but this script allows the user to adjust parameter values as needed.

The `svc_nas` script also allows the user to backup and to restore the NAS server internal databases (DBMS).

The parameters list is initially composed of approximately 40 commonly used parameters. If a user specifies additional valid parameters as the target of an action, these parameters are added to the list for user convenience. This extended customer parameter list is preserved when upgrading the array.

Users can use `svc_nas <NAS_server_name> -restart` when a parameter modification requires restarting a NAS server to take effect.

NAS server parameters includes additional information about parameters and lists all the valid parameters for this command.

Use cases

Usage:

```
svc_nas {<NAS_server_name> | <proxy_NAS_server_name> | ALL}
    [-h | -help | --help | <no option>]
    | -dbms
        {-list [<dbName>]
        | -compact [<dbName>]
        | -stats [-reset]
        | -backup -target <pathname>
        | -restore -source <pathname> [-silent]}
 | -devconfig
  | -create -scsi [<chain_number>] {-nondisks|-all}
  | -probe -scsi [<chain_number>] {-disks|-nondisks|-all}
  | -list -scsi [<chain_number>] {-disks|-nondisks|-all}
  | -show_fc_port -scsi [<chain_number>]
  | -show_scsi_chain -scsi [<chain_number>]
 | -dns
        [-dump
        | -lookup {-host <host name> | -addr <ipv4_or_ipv6_address>}]
    | -ds
        | -dump
    | -kerberos
        | -listrealms
        | -listspn
        | -keytab [-v]
        | -conf
        | -log [-all]
    | -ldap
        | -refresh
        | -lookup
          {-user <username>
          | -group <groupname>
          | -uid <uid>
          | -gid <gid>
          | -hostbyname <hostname>
          | -netgroup <groupname>}
 | -nfs
  | -displaysecinfo -path <path> [-stop_on_symlink]
  | -removeseclabel {-path <path> | -fs <fsname>}]
    | -nis
        [-lookup
```

```
          {-user {-name <user_name> | -uid <unix_user_id>}
          | -group {-name <group_name> | -gid <group_unix_id>}
          | -host {-name <host_name> | -addr <host_ip_address>}
          | -netgroup {-name <group_name> | -member <host_name>}]
    | -param
        {-info
        | -facility {<facility> | -all } -list
        | -facility {<facility> | -all } -info {<paramname> [-verbose]} | -all
        | -facility <facility> -modify <paramname> -value <newvalue>
        | -facility <facility> mount -modify port -value <new_port>}
              | -facility <facility> nfsv4 -modify maxMinorversion -value (newvalue)
        | -facility nfsv4 -modify secLabelSupport -value <newvalue>
  | -facility <facility> cifs -info smb2.smb3only -verbose
    | -proxy
        | -show
        | -add <target_NAS_server_name> [-NFSRoot <allowed_NFS_nodes>]
        | -remove <target_NAS_server_name>
    | -proxy_share
        | -show
        | -add <target_NAS_server_name> -share <share> -path <absolute_path> [-ca] [-pe]
[-abe]
        | -remove -share <proxy_share_name>
 | -restart [-silent]
 | -panic <vdm_name>
 | -threads
  | -list {<service_name> | <pool_name>}
  | -report {<service_name> | <pool_name>}
  | -stats
 | -ssl
  | -status [-detail]
  | -renew [-silent] [-verbose] [return_on_failure]
```

Options:

[-h | -help | --help | <no option>]

Display help and exit.

-dbms

Manage NAS server databases.

-list [<dbName>]	Display NAS server databases.
-compact [<dbName>]	Compact NAS server databases.
-stats [-reset]	Display statistics about NAS server databases.
-backup -target <pathname>	Perform an online backup of the NAS server database environment.
-restore -source <pathname> [-silent]	Restore the NAS server database environment from backup files.

-devconfig

Queries the available storage system devices and tape devices and their configurations, and saves the device configuration into the database of the NAS server.

-create -scsi [<chain number>] {-nondisks | -all}	Queries SCSI devices and saves them into the device table database on the NAS server. The *<chain_number>* specifies a SCSI chain number. The `-nondisks` option limits operations to non-disks such as tapes, and juke boxes. The `-all` option permits all SCSI devices (disks and non-disks).
-probe -scsi [<chain_number>] {-disks|-nondisks|-all}	Queries and displays the SCSI devices without saving them into the database. The *<chain_number>* specifies a SCSI chain number. The `-disks` option limits operations to disks. The `-nondisks` option limits operations to non-disks such as tapes, and juke boxes. The `-all` option permits all SCSI devices (disks and non-disks).
-list -scsi [<chain_number>] {-disks|-nondisks|-all}	Lists the SCSI device table database that has been saved on the NAS server. The *<chain_number>* specifies a SCSI chain number. The `-disks` option limits operations to disks. The `-nondisks` option limits operations to non-disks

	such as tapes, and juke boxes. The `-all` option permits all SCSI devices (disks and non-disks).
-show_fc_port -scsi [<chain_number>]	Show the FC frontend ports that can be bound by SCSI chain. The *<chain_number>* specifies a SCSI chain number.
-show_scsi_chain -scsi [<chain_number>]	Show the SCSI chain binding information. The *<chain_number>* specifies a SCSI chain number.

-dns

Display current DNS settings of the NAS server.

-dump	Display the current DNS cache content.
-lookup {-host <host_name> | -addr <ipv4_or_ipv6_address>}	Provides lookup information about the specified resource.

-ds

Display the Windows Directory Service information.

-dump	Display the Windows Directory Service cache.

-kerberos

Display the current Kerberos settings of the NAS server.

-listrealms	List the Kerberos realms that are configured on the NAS server.
-listspn	List the Kerberos service principles defined in Active Directory (AD) and keytab (joined CIFS server).
-keytab	Dump the Kerberos key table of the NAS server.
-conf	Dump the Kerberos configuration file for this NAS server.
-log [-all]	Extract Kerberos logs from the NAS server recent log. **NOTE:** The `-all` option scans the full server log.

-ldap

Display current LDAP settings of the NAS server.

-refresh	If LDAP is configured with no static IP, refresh the IPs of the LDAP servers of the domain from DNS.
-lookup {-user <username> | -group <groupname> | -uid <uid> | -gid <gid> | -hostbyname <hostname> | -netgroup <groupname>}	Provides lookup information about the specified resource for troubleshooting purposes.

-nfs

Display or remove security label for file/directory or file system on NFS 4.2.

-displaysecinfo -path <path> [-stop_on_symlink]	Display the ACL and security label for a given file system resource. The `-path` option refers to the path to the file system resource relative to the NAS Server. For example: **`/fsname/path_to_filesystem_resource`**. The `-stop_on_symlink` option displays the ACL and NFS security label of the link instead of the link target.
-removeseclabel {-path <path> | -fs <fsname>}]	Remove the NFSv4 security label for one or all objects of a specified file system.

-nis

Display current NIS settings of the NAS server.

-lookup {-user {-name <user_name> | -uid <unix_user_id>} | -group {-name <group_name> | -gid <group_unix_id>} | -host {-name <host_name> | -addr <host_ip_address>} | -netgroup {-name <group_name> | -member <host_name>}}	Provides lookup information about the specified resource for troubleshooting purposes.

-param

-info	Display all NAS parameter facilities.
-facility {<facility> | -all } -list	Display all NAS parameter values of the specified facility for the specified NAS server.
-facility {<facility> | -all } -info { <paramname> [-verbose]} | -all	Display the details of the specified NAS parameter of the specified facility for the specified NAS server.
-facility <facility> -modify <paramname> -value <newvalue>	Modify the value of the specified NAS parameter of the specified facility for the specified NAS server.
-facility <facility> cifs -info smb2.smb3only -verbose	Disable SMB2 dialects (SMB 2.0, SMB 2.0.2, SMB 2.1, and SMB 2.2). The default value is 0, meaning SMB 2 is not disabled. **NOTE:** After you modify this parameter, the SMB clients must disconnect all SMB server shares to employ the appropriate dialect.
-facility <facility> mount -modify port -value <new_port>	Change which port that the NFS mountd daemon uses for mount requests. **NOTE:** Verify that the new port you select is not already in use.
-facility <facility> nfsv4 -modify maxMinorversion -value (newvalue)	Change the NFS version for individual NAS servers. Select 0 (NFS 4.0), 1 (NFS 4.1), or 2 (NFS 4.2) for the NAS server. **NOTE:** You must restart the NAS server using the **`svc_nas nas_server (value) -restart`** for the change to take effect. The following example shows the command to change the maxMinorversion to NFS 4.0 on NAS server 3: **`svc_nas nas_server3 -param -facility nfsv4 -m maxMinorVersion -v 0`**
-facility <facility> nfsv4 -i secLabelSupport -value (newvalue)	Enable or disable the NFS security label for individual NAS servers. 1 is enable, 0 is disable. **NOTE:** You must restart the NAS server using the **`svc_nas nas_server (value) -restart`** for the change to take effect. The following example shows how the NFS security label would be enabled for NAS server 3: **`svc_nas nas_server3 -param -facility nfsv4 -m secLabelSupport -v 1`**

-proxy

Set up the NAS server as a proxy for other NAS servers. Manage the NAS server configuration, which allows SMB and NFS clients read-only access to other target NAS servers, file systems, and snapshots content.

-show	Display the current NAS server proxy configuration.

-add <target_NAS_server_name> [-NFSRoot <allowed_NFS_nodes>]

Add a target NAS server. Creates an SMB share and an NFS export named "<target_NAS_server_name>". Only SMB clients using a user-credential member account of the SMB proxy server local administrators group are allowed to connect. Only NFS clients specified with the -NFSRoot option are allowed to connect to the NFS proxy server. The -NFSRoot option supports these <allowed_NFS_nodes> values:

```
[minSecurity=<security_mode>]
[host=<host_name>]...
[ip=<ipv4|ipv6>]...
[subnet=<ip_mask>]...
[netgroup=<netgroup_name>]...
```

The minimum security level default is `SYS`. It can contain one of the following values: `SYS`, `KRB5`, `KRB5I`, or `KRB5P`. Multiple `host`, `ip`, `subnet`, and `netgroup` entries can be specified.

-remove <target_NAS_server_name>

Remove a target NAS server from the proxy NAS server configuration.

-proxy_share

Set up an SMB share for proxy access to a file system on another NAS server.

-show

Display the current NAS server proxy shares.

-add <target_NAS_server_name> -share <share> -path <absolute_path> [-ca] [-pe] [-abe]

Create an SMB share that provides proxy access to any SMB client on the given file system (typically a read/write snapshot) of the target NAS server. The path option defines the target file system, for example: /a/b/c. The following SMB share options are available:

- -ca (Continuous Availability)
- -pe (Protocol Encryption)
- -abe (Access-Based Enumeration)

Several file systems from the same or different target NAS servers can be related to the same proxy NAS server, using different proxy share names. The specified proxy share name must be unique.

-remove -share <proxy_share_name>

Remove the specified proxy share from the proxy NAS server configuration. A failure occurs if the share either does not exist or is not a proxy share.

-restart [-silent]

Restart the specified NAS server. The output from the `-info` or `-modify` command informs the user if this is required for the specified parameter.

NOTE: This option cannot be used with the `ALL` target.

-silent

Do not request user confirmation before restarting the NAS server.

-panic <vdm_name>

Panic the NAS server.

-threads

Display running and blocked threads.

-list {service=<service_name> | pool=<pool_name>}

Query and list running and blocked threads for the system, or for a specific service or pool.

-report {service=<service_name> | pool=<pool_name>}

Query and show a report of running and blocked threads. Service and pool options filter for specified service or pool. The available service names are:

```
CBFS_SVC
FlushData
NFSD
NFSMOUNT
ONCRPC
```

```
LOCKD
PAX
NDMP
VBB
VSB
XATTRP
CIFS
ANTIVIRUS
SMB2Fdh
MAC
HTTPD
STATMON
VDM_CHECKER
DBMS
VDMINDICATION
VDM_REFRESH_CONF0
SSL
ReplicationV2
REPV2RECOVERY
REPV2ASYNCTHR
REPV2CMDTIMER
```

-stats Dump the statistics table of running/blocked threads.

-ssl

Check or renew the SSL certificates of a specified NAs server for replication interconnect connections. The SSL certificates are used for replication DART interconnect connections. The NAS server must be a system VDM, which can be SVDM_A or SVDM_B.

-status [-detail] Check the status of the SSL certificates. Use [-detail] to display all the SSL certificates.

-renew [-silent] [-verbose] [return_on_failure] Renew the SSL certificates. The following options are available:

- -silent: Do not request user confirmation before renewing the NAS server.
- -verbose: Print detailed logs of the renew operation.
- -return_on_failure: Return if the renew operation fails to renew the interconnect certificates. Otherwise, the operation continues to renew certificates for other interconnect connections.

Example usage

Display the description of the parameter cifs.windowsTimeUpdate for the specified NAS server:

svc_nas mynas -param -facility cifs -info windowsTimeUpdate

Display the detailed description of the parameter cifs.windowsTimeUpdate:

svc_nas mynas -param -facility cifs -info windowsTimeUpdate -verbose

Display the DNS settings of the specified NAS server:

svc_nas nas_t -dns

```
nas_t : commands processed: 1
command(s) succeeded
output is complete

1591840272: LIB: 6: DNS is running.
1591840272: LIB: 6: DNS active config: override
1591840272: LIB: 6: * VDM Config: global
1591840272: LIB: 6: cetft3.com
1591840272: LIB: 6:   proto:udp server(s): 10.0.0.2 status: Unknown, 10.0.0.1 status:
Unknown
1591840272: LIB: 6: * VDM Config: local
1591840272: LIB: 6: cetft3.com
1591840272: LIB: 6:   proto:udp server(s): 10.0.0.2 status: Unknown, 10.0.0.1 status:
Unknown
1591840272: LIB: 6: * VDM Config: override
1591840272: LIB: 6: cetft3.com
```

```
1591840272: LIB: 6:   proto:udp server(s): 10.0.0.2 status: Online, 10.0.0.1 status:
Online
1591840272: LIB: 6: Dynamic DNS update exclude subnets:
1591840272: LIB: 6:   No subnet

Command succeeded
```

Display the description of all CIFS parameters:

svc_nas mynas -param -facility cifs -info -all

Display the description of the all parameters of all facilities:

svc_nas mynas -param -facility -all -info -all

Restart the NAS server "*NASServer*":

svc_nas NASServer -restart

```
WARNING: Restart a NAS server will cause a network disconnection of all the SMB and NFS
clients.
Are you sure (Y/N) [N] ? Y
Restarting NAS server NASServer ...
NASServer : commands processed: 1
command(s) succeeded
```

Restart the NAS server "*NASServer*" without user confirmation:

svc_nas NASServer -restart -silent

```
14:43:44 service@none spb:~>
Restarting NAS server NASServer ...
NASServer : commands processed: 1
command(s) succeeded
```

Return a full list of all running and blocked NAS server threads on the system.

svc_nas ALL -threads

```
SVDM_A : commands processed: 1
command(s) succeeded
output is complete

1619797344: KERNEL: 6: SERVICE NAME POOL NAME THREADS TIME TO PANIC OPTIONS CRITICALS
1619797344: KERNEL: 6: STATMON StatmonExec 4 1800 1 0
1619797344: KERNEL: 6: THREAD NAME STATE TIME (s) LAST ACTION
1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5031450
statmonDatafeed at 0x247cd4b0: Waiting_for_Condition at 0x7ef545ca9a38

1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5031449
statmonDatafeed at 0x25e84150: Waiting_for_Condition at 0x7ef585761a38

1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5031024
statmonDatafeed at 0x273d7c60: Waiting_for_Condition at 0x7ef545c87a38

1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5029524
statmonDatafeed at 0x274aeb90: Waiting_for_Condition at 0x7ef5436faa38

1619797344: KERNEL: 6:
General Report:
1619797344: KERNEL: 6: Status : BLOCKED
1619797344: KERNEL: 6: Blocking threshold : 112s
1619797344: KERNEL: 6: Blocked count : 4
1619797344: KERNEL: 6: Total count : 8738

Command succeeded

SVDM_B : commands processed: 1
command(s) succeeded
output is complete

1619797344: KERNEL: 6: SERVICE NAME POOL NAME THREADS TIME TO PANIC OPTIONS CRITICALS
1619797344: KERNEL: 6: STATMON StatmonExec 4 1800 1 0
1619797344: KERNEL: 6: THREAD NAME STATE TIME (s) LAST ACTION
```

```
1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5031438
statmonDatafeed at 0x2442a610: Waiting_for_Condition at 0x7f44dc134a38

1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5031437
statmonDatafeed at 0x257c2570: Waiting_for_Condition at 0x7f44dc177a38

1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5031012
statmonDatafeed at 0x265f3f10: Waiting_for_Condition at 0x7f44dc29aa38

1619797344: KERNEL: 6: statmonDatafeed BLOCKED 5029512
statmonDatafeed at 0x266f64d0: Waiting_for_Condition at 0x7f44d654ba38

1619797344: KERNEL: 6:
General Report:
1619797344: KERNEL: 6: Status : BLOCKED
1619797344: KERNEL: 6: Blocking threshold : 112s
1619797344: KERNEL: 6: Blocked count : 4
1619797344: KERNEL: 6: Total count : 8737

Command succeeded
```

Return a list of blocked and running threads that a specific service (NDMP) filters.

svc_nas ALL -threads -list service=NDMP

```
SVDM_A : commands processed: 1
command(s) succeeded
output is complete

1619807971: KERNEL: 6:
General Report:
1619807971: KERNEL: 6: Status : OK
1619807971: KERNEL: 6: Blocking threshold : 112s
1619807971: KERNEL: 6: Blocked count : 0
1619807971: KERNEL: 6: Total count : 1

Command succeeded

SVDM_B : commands processed: 1
command(s) succeeded
output is complete

1619807971: KERNEL: 6:
General Report:
1619807971: KERNEL: 6: Status : OK
1619807971: KERNEL: 6: Blocking threshold : 112s
1619807971: KERNEL: 6: Blocked count : 0
1619807971: KERNEL: 6: Total count : 1

Command succeeded
```

Check the SSL certificate status.

svc_nas SVDM_A -ssl -status

```
SVDM_A : commands processed: 1
command(s) succeeded
```

Renew the SSL certificate silently.

svc_nas SVDM_A -ssl -renew -silent

```
Renewing "SVDM_A" ...

SVDM_A : commands processed: 1
command(s) succeeded
```

Related commands

- Antivirus configuration (svc_cava)

- CIFS support (svc_cifssupport)
- Dynamic Access Control (svc_dac)
- Event Publishing diagnostics (svc_event_publishing)
- View locks (svc_lockd)
- NAS server backup and restore statistics (svc_pax)
- Dump VHDX metadata (svc_vhdx)

Create management interface (svc_network)

This service script sets the IP address, netmask, and gateway address for a particular system interface.

Function: Diagnostic
Mode: Both
Usage: Technical Service

Description

This command can be run in Normal Mode if no management IP is currently active on the SP, or in Service Mode.

NOTE: These parameters are required and must appear in this order: `-i`, `-a`, `-n`, `-g`.

Use cases

Usage:

```
svc_network
    [-h | --help]
    | [-d | --debug]
 -o | --down
    -i <interface>
    -a <IP address>
    -n <netmask>
    -g <gateway>
 -m | --mtu <mtu_value>
 -s | --adv_speed <adv_speed_value> {10 | 100 | 1000 | auto}
 -x | --adv_duplex <adv_duplex_mode> {full | half | auto}
```

Options:

[-h | --help]
Display help and exit.

[-d | --debug]
Enable extra debugging output.

-o | --down
Sets the management interface down.

-i <interface>
Specify the ethernet interface to set up.

-a <IP address>
Assign either an IPv4 or IPv6 address to the interface.

-n <netmask>
Set the network mask for the connection.

-g <gateway>
Set the default route (gateway) for the connection and the optional operators.

-m | --mtu <mtu_value>
Sets the management port MTU. The minimum value is 1280, and maximum value is 9000.

-s | --adv_speed <adv_speed_value> {10 | 100 | 1000 | auto}

Sets the management port advertised speed (in Mbps). Values are:

- 10
- 100
- 1000
- auto

-x | --adv_duplex <adv_duplex_mode> {full | half | auto}

Sets the management port advertised duplex mode. Values are:

- full
- half
- auto

Example usage

Change the MTU value to 1300.

```
svc_network -m 1300
```

Change the management port advertised speed to 100 Mbps with half duplex mode.

```
svc_network -s 100 -x half
```

Change the management port advertised speed to 100 Mbps with full duplex mode.

```
svc_network -s 100 -x full
```

Change the management port advertised speed to automatic with an automatically-selected duplex mode.

```
svc_network -s auto -x auto
```

Related commands

Boot control (svc_boot_control)

Mount storage (svc_mount)

Network configuration information (svc_networkcheck)

This service script collects network information and performs diagnostics using Storage Server and Linux network interfaces.

Function: Diagnostic
Mode: Both
Usage: General Use

Description

This command collects network information about one or all SPs. It allows the Service user to run common network troubleshooting utilities. These utilities include `netstat`, `tracert`, `ping`, and `ethtool`. It provides information relating to the management IP connectivity. It also performs specialized network checks using the storage server network interfaces, and the Linux management interface.

Except for the `-m, --management` command, which can be run from Service Mode, this command can only be run in Normal Mode on the primary SP. The output of the command is logged to `/home/service/svc_networkcheck.log`.

Some commands require certain conditions:

- Require Normal Mode: `-i`, `-r`, `-v, -tpc`
- Require primary SP: `-i`, `-r`, `-m`
- Run anytime: `-h`, `-e`, `-n`, `-p`, `-p6`, `-t` , `-a, -fn`

Use cases

Usage:

```
svc_networkcheck
    [-h | --help]
    | [-i | --info]
    | [-r | --replication]
    | [-t | --tracert] <ip>
    | [-p | --ping] {<ip> | <hostname>} [--mtu <1500 | 9000>] [-I <sip>] | (--mark
<mark>)]
    | [-p6 | --ping6] {<ip> | <hostname>} [--mtu <1500 | 9000>] [-I <sip>]
    | [-e | --ethtool] [<port> | all]
    | [-m | --management] [--routing | --dhcpclient | --dns | --all]
    | [-n | --netstat]
    | [-a | --arp] set {<ipv4 | ipv6> <gc_thresh1 | gc_thresh2 | gc_thresh3> <value>}
                | get {<ipv4 | ipv6> <gc_thresh1 | gc_thresh2 | gc_thresh3>}
 | [-v  | --vhbd]
 | [-fn | --friendly_name]

    | [-tpc | --tcp_port_check] {<ip> | <hostname> <port>} {-I | <interfaceip>}
    | [-I | --I
```

Options:

[-h | --help]

Display help and exit.

[-i | --info]

Perform network checks.

[-r | --replication]

Perform replication checks.

[-t | --tracert] <ip>

Perform a `tracert` to the specified IPv4 or IPv6 address.

[-p | --ping] {<ip> | <hostname>}

Ping the specified *<ip>* or *<hostname>* IPv4 target from the default port.

--mtu <1500 | 9000>	Ping with the specified MTU value.
-I <sip>	Specify the ping source IP or interface name.
--mark <mark>	Specify the NAS connection mark used to find the source IP.

[-p6 | --ping6] {<ip> | <hostname>}

Ping the specified *<ip>* or *<hostname>* IPv6 target from the default port.

[-e | --ethtool]

Display information about the management port (default) using `ethtool`.

[<port> | all]	Request information about the specified port or all ports.

[-m | --management]

Display the system's management IP (v4 and v6) information.

--routing	Display additional information about management routing.
--dhcpclient	Display additional information for DHCPv4 or DHCPv6.
--dns	Display additional DNS query information for the management IP.
--all	Display all options.

[-n | --netstat]

Perform `netstat` on this SP.

[-a | --arp set {<ipv4 | ipv6> <gc_thresh1> | <gc_thresh2> | <gc_thresh3>} | get {<ipv4 | ipv6> <gc_thresh1>| <gc_thresh2>|<gc_thresh3> <value>}]

Show or modify the Address Resolution Protocol (ARP) cache settings for the specified IP version.

NOTE: The default ARP settings are as follows:

- `net.ipvX.neigh.default.gc_thresh1 = 1024` -- The minimum number of ARP caches. The kernel bootup process will not delete entries from the ARP cache as long as this number is below the default number.
- `net.ipvX.neigh.default.gc_thresh2 = 4096` -- The "soft" maximum number of ARP cache entries. The kernel bootup process allows for 5 seconds of ARP cache entries, then starts removing the oldest entries.
- `net.ipvX.neigh.default.gc_thresh3 = 16384` -- The "hard" maximum number of entries in the ARP cache. The boot process runs continuously if there are more than enough entries in the ARP cache.

  NOTE: It is strongly recommended that you do not exceed the default value of 16384 for this parameter from different IP addresses per Storage Processor (SP). This command should be executed on each SP, and these modified settings will not persist after an SP reboot.

[-tpc | --tcp_port_check] {<ip> | <hostname> <port>} {-I | <interfaceip>}

Perform tcp port check of either <ip> or <hostname> <port> <interfaceip>, for either IPv4 or IPv6. **-I <interfaceip>** specifies the interface to be used for the port check.

[-v | --vhbd]

Dump `VHBD` information on this SP.

[-fn | --friendly_name]

Show network friendly name if it is specified.

Example usage

Display information about the management port. This example output is truncated:

svc_networkcheck -e all

```
======================== [spa][Thu May 19 22:50:38 UTC 2011] Beginning Run
========================

Settings for eth2:
        Supported ports: [ TP ]
        Supported link modes:   10baseT/Half 10baseT/Full
                                100baseT/Half 100baseT/Full
                                1000baseT/Full
        Supports auto-negotiation: Yes
        Advertised link modes:  10baseT/Half 10baseT/Full
```

Change the IPv4 ARP caching settings for threshold 1 (minimum threshold) to 777.

svc_networkcheck --arp ipv4 set gc_thresh1 777

```
=== SP status: Normal Mode ===

net.ipv4.neigh.default.gc_thresh1 = 777
net.ipv4.conf.all.arp_ignore = 1
net.ipv4.conf.default.arp_ignore = 1
```

Check whether the IPv4 tcp listening port 10.0.0.1@10744 is available.

svc_networkcheck -tpc 10.0.0.1 10744

```
=== SP status: Normal Mode ===


======================== [spb][Thu Oct 18 00:25:28 UTC 2018] Beginning Run
========================

--- INFO: the tcp listening port 10.0.0.1@10744 is available.
```

```
======================== [spb][Thu Oct 18 00:25:28 UTC 2018] End of Run
========================
```

Check whether the IPv6 tcp listening port 2::2@6007 is available.

svc_networkcheck -tpc 2::2 6007

```
=== SP status: Normal Mode ===


======================== [spb][Thu Oct 18 00:29:32 UTC 2018] Beginning Run
========================

--- WARNING: the tcp listening port 2::2@6007 is unavailable.

======================== [spb][Thu Oct 18 00:29:32 UTC 2018] End of Run
========================
```

Check whether the hostname tcp listening port VV-DEV@4004 is available.

svc_networkcheck -tpc VV-DEV 4004

```
=== SP status: Normal Mode ===


======================== [spb][Thu Oct 18 00:27:01 UTC 2018] Beginning Run
========================

--- INFO: the tcp listening port VV-DEV@4004 is available.

======================== [spb][Thu Oct 18 00:27:01 UTC 2018] End of Run
========================
```

Related commands

Data collection (svc_dc)

Collect performance information (svc_perfcheck)

Network Bond options for FSN and LACP connections (svc_network_bond)

This service script allows you to view and modify the options of different network bonds for link aggregation (LACP) and fail-safe network (FSN) ports on the Unity system.

Function: Configuration, Diagnostic
Mode: Normal
Usage: General Use

Description

This command allows you to modify and view network bond options for high availability features such as Link Aggregations and Fail-safe Network (FSN) ports. Such a modification could be the amount of time the FSN fails over from the primary switch to the backup switch (updelay), or the fail-back from the back-up switch to the primary when the primary is available again (downdelay).

Use cases

Usage:

```
svc_network_bond
[-h|--help]
```

```
| [-d <device>]
        |{-s
              -o <option>
              -v <value>}
        |{-g
              |[-o <option>]}
```

Options:

[-h | --help]

Display help and exit.

[-d | --device]

Specify the name of the FSN or Link Aggregation port device for which you are viewing or modifying the network bond.

-s | --set Set the bond options.

NOTE: This action only applies to the current primary storage processor.

-o | --opt <downdelay> <miimon> <primary_reselect> <updelay> <xmit_hash_policy> Specify the option to view or modify.

-v | --value Enter the new value for the specified option.

-g | --get List the values of the specified parameter.

Example usage

The following example sets the updelay for `bond20` to 60000 milliseconds (5 minutes):

`svc_network_bond -s -d bond20 -o updelay -v 60000`

```
Output of above command with appropriate line breaks, and if needed:
Are you sure? (Y/N)Y
Continued...
```

The following example shows the current network bond settings for `fsn2`:

`svc_network_bond -g -d fsn2`

```
Output of above command with appropriate line breaks, and if needed:
Are you sure? (Y/N)Y
Continued...
```

Related commands

None.

Dump NFS clients (svc_nfssupport)

This service script dumps the NFS client IP addresses for further investigation, including the ability to parse by NFSv3 and NFSv4 (including NFS 4.2).

Function: Diagnostic
Mode: Normal
Usage: Technical Service

Description

List all NFS client IP addresses.

NOTE: This command must be run on the primary SP.

Use cases

Usage:

```
svc_nfssupport
        [-h | --help]|{<Nas_Server_Name> | ALL}
        |-listClient
    |-nfsV4ClientList
    |-nfsv4Status
    |-nfsV4ClientDisplay
        index=<client number>
        hostname=<name>
        ipaddress=<ipaddress>
```

Options:

[-h | --help]

Display help and exit.

{<Nas_Server_Name> | ALL}

Provide the name of the NAS server, or select ALL to return information for all NAS servers on the system.

-listClient

List all NFS clients which link to the specific NAS server

-nfsV4ClientList

List all NFS v4 clients.

-nfsV4Status

Show the status of all NFSv4 clients.

-nfsV4ClientDisplay

Display connection details for all or specified NFSv4 clients.

index=

The index of clients from **-nfsV4ClientList**.

hostname=

The hostname of the client.

ipaddress=

The client IP address.

Example usage

Display all NFS clients for fap_24_23_1.

svc_nfssupport fap_24_23_1 -listClient

```
NFS v3 Clients:
|--- 10.229.168.155
|--- 10.228.84.79
|--- 10.229.168.156

NFS v4 Clients:
|--- 10.228.84.79
|--- 10.229.171.175
|--- 10.229.168.142
|--- 10.229.168.155
```

Display all NFSv3 NFS clients for fap_24_23_1.

svc_nfssupport fap_24_23_1 -listClient -v3

```
NFS v3 Clients:
|--- 10.229.168.155
|--- 10.228.84.79
|--- 10.229.168.156
```

Display all NFSv4 NFS clients for fap_24_23_1.

svc_nfssupport fap_24_23_1 -listClient -v4

```
NFS v4 Clients:
|--- 10.228.84.79
|--- 10.229.171.175
|--- 10.229.168.142
|--- 10.229.168.155
```

Display all NFS clients for all NAS servers on the system.

svc_nfssupport ALL -listClient

```
NFS v3 Clients:
|--- 10.229.168.155
|--- 10.228.84.79
|--- 128.221.255.100
|--- 10.229.168.156

NFS v4 Clients:
|--- 10.228.84.79
|--- 10.229.171.175
|--- 10.229.168.142
|--- 10.229.168.155
```

Display the NFSv4 status of all servers.

svc_nfssupport ALL -nfsV4Status

```
=====================================
   NFSv4 Status for all NAS Servers
=====================================
NFSv4 status for SPA
--------------------
NFSv4 Service             :   Started
pNFS  Service             :   Started
Total Clients Connection  :    4
Total Users Connection    :    0
Total Open Files          :    0

NFSv4 status for SPB
--------------------
NFSv4 Service             :   Started
pNFS  Service             :   Started
Total Clients Connection  :    4
Total Users Connection    :    0
Total Open Files          :    0
```

Display all NFS v4 clients.

svc_nfssupport ALL -nfsV4ClientList

```
 ================================================================================
                        [NFS v4 Clients]
================================================================================
    Index    |   Host IP          |          Host Name       |     NAS Server
================================================================================
  0xca800000 |   10.207.128.171   |        10.207.128.171    |        nas2
  0x49800000 |   100.80.118.151   |        100.80.118.151    |        nas3
  0x49801000 |   100.80.118.151   |        100.80.118.151    |        nas2
  0x49c00000 |   100.80.118.152   |        100.80.118.152    |        nas2
  0x4a000000 |   100.80.118.153   |        100.80.118.153    |        nas3
```

```
  0x4a400000 |   100.80.118.154   |        100.80.118.154    |        nas3
================================================================================
```

Display connection details for all NFSv4 clients.

svc_nfssupport ALL -nfsV4ClientDisplay

```
================================================================================================
                      [Open File Details by NFSv4 Clients]
================================================================================================
================================================================================================
                Host IP                 |Total Users |Open Files #|     NAS Server
================================================================================================
             100.80.118.153             |     3      |     63     |        nas3
             100.80.118.151             |     1      |     10     |        nas3
             100.80.118.154             |     1      |     2      |        nas3
             100.80.118.151             |     1      |     1      |        nas2
================================================================================================
Total Open Files = 76       Total Users Connected = 6
================================================================================================
                           [Open File Details by User ID]
================================================================================================
  User ID  |                 Host IP                 |Open Files #|     NAS Server
================================================================================================
   60000   |             100.80.118.153              |     50     |        nas3
    1002   |             100.80.118.153              |     11     |        nas3
     0     |             100.80.118.151              |     10     |        nas3
    1001   |             100.80.118.154              |     2      |        nas3
     0     |             100.80.118.153              |     2      |        nas3
     0     |             100.80.118.151              |     1      |        nas2
================================================================================================
```

Display details for a single NFSv4 client IP address.

svc_nfssupport ALL -nfsV4ClientDisplay ipaddress=<*ipaddress*>

```
=============================================================
                      [Open File Details by NFSv4 Client]
=============================================================
  User ID  |    Host IP         |Open Files #|     NAS Server
=============================================================
    1001   |    <ipaddress>     |     1          |Test_nas_server_3_4
     0     |    <ipaddress>     |     1          |Test_nas_server_3_4
=============================================================
Total Open Files = 2
=============================================================
                [Open File Details with Inode Number]
=============================================================
  User ID  |     Inode #       |     NAS Server
=============================================================
    1001   |       9454        |Test_nas_server_3_4
     0     |       9451        |Test_nas_server_3_4
=============================================================
```

Related commands

None.

Synchronize time (svc_ntp)

This service script synchronizes the system time with an NTP server.

Function: System Operations
Mode: Normal
Usage: General Use

Description

This command allows the Service user to synchronize the system time with an NTP server. This tool can list information about the configured NTP servers and their status. It only runs in Normal Mode. Only use this command on the primary SP with a management IP configured.

NOTE: This utility is for trained service personnel only. This action can cause the SP or SPs to reboot and cause a Data Unavailable scenario.

Use cases

Usage:

```
svc_ntp
    [-h | --help]
    | [-i | --info]
    | [-s | --sync]
    | [--get_tos_orphan <tos_orphan_value>]
    | [--set_tos_orphan <tos_orphan_value>]
```

Options:

[-h | --help]
Display help and exit.

[-i | --info]
Display NTP information.

[-s | --sync]
Restart the NTP server and forces all SPs to update the time.

--get_tos_orphan
Display the NTP **tos** orphan setting.

--set_tos_orphan <tos_orphan_value>
Set the value for the **tos** orphan. The minimum value is 1 and the maximum value is 15.

Example usage

Synchronize NTP time:

svc_ntp -s

List the status of NTP servers:

svc_ntp -i

Related commands

None.

Operating system information (svc_oscheck)

This service script collects OS-related information and logs it to the user-specified file.

Function: Diagnostic
Mode: Service
Usage: Technical Service

Description

The logs that are collected with this command are for performance analysis and to triage system issues. The logs can be redirected to a desired file by specifying the filename and its path. The default output file location is `/home/services/Oslog.*`

By default, the output files are stored in `/EMC/backend/perf_stats/config/`. The default number of output files is five.

Use cases

Usage:

```
svc_oscheck
    [-h | --help]
    | [-p | --prefix] <name>
    | [-d | --directory] <dir>
    | [-c | --count] <num>
```

Options:

[-h | --help]

Display help and exit.

[-p | --prefix] <name>

Append the specified text string to the output file names.

[-d | --directory] <dir>

Specify a directory in which to store the output files.

[-c | --count] <num>

Specify the number of output file revisions to be retained.

Example usage

Collect log files and store in `/home/service/`:

`svc_oscheck -d /home/service`

Related commands

None.

NAS server backup and restore statistics (svc_pax)

This service script displays or resets the counters for NDMP and PAX backup statistics.

Function: Diagnostic
Mode: Normal
Usage: General Use

Description

This service script displays the advanced statistics of NDMP and PAX backup sessions in progress in the NAS servers. The statistics counters can also be reset.

Use cases

Usage:

```
svc_pax { SVDM_A | SVDM_B | ALL }
    [-h | -help | --help | <no option>]
    | -stats [-reset | -verbose]
```

Options:

[-h | -help | --help | <no option>]

Display help and exit.

-stats

Display in progress NDMP/PAX backups statistics counters.

-reset	Reset NDMP/PAX backups statistics counters.
-verbose	Display in progress NDMP/PAX backups advanced statistics counters.

Example usage

Reset the advanced PAX statistics on SPA:

svc_pax SVDM_A -stats -reset

```
SVDM_A : commands processed: 1
command(s) succeeded
```

View the verbose statistics for an active NDMP restore session on SPA:

svc_pax SVDM_A -stats -verbose

```
SVDM_A : commands processed: 1
command(s) succeeded
output is complete

************** SUMMARY PAX STATS ****************
---- NASS STATS ----
nass00 is not doing backup
nass01 is not doing backup
nass02 is not doing backup
nass03 is not doing backup
---- NASA STATS ----
** nasa thid 0 (RESTORE) **
Backup root directory: /16m_ok_1_0
Total bytes processed: 12140605440
Total file processed: 738
throughput: 68 MB/sec
average file size: 16065KB
Total nasa wait nass count: 0
Total nasa wait nass time: 0 msec
Total time since last reset: 170 sec
Tape device name: /dev/c80t0l0
0 size file processed: 13
1 -- 8KB size file processed: 1
8KB+1 -- 16KB size file processed: 0
16KB+1 -- 32KB size file processed: 0
32KB+1 -- 64KB size file processed: 0
64KB+1 -- 1MB size file processed: 0
1MB+1 -- 32MB size file processed: 724
32MB+1 -- 1GB size file processed: 0
1G more size file processed: 0
fs /16m_ok_1_0 size is: 120855445504 Bytes
Estimated time remain is 1524 sec

nasa01 is not doing backup/restore
nasa02 is not doing backup/restore
nasa03 is not doing backup/restore
```

```
---- NASW STATS ----
nasw00 RESTORE (in progress)
Session Total Time: 00:02:50 (h:min:sec)
Session Idle Time: 00:00:56 (h:min:sec)
KB Tranferred: 11858820 Block Size: 61440 (60 KB)
Average Transfer Rate: 68 MB/Sec 239 GB/Hour
Average Burst Transfer: 101 MB/Sec 357 GB/Hour
__Point-in-Time__ (over the last 10 seconds):
Rate=69 MB/Sec Burst=96 MB/Sec Idle=283 msec/sec
Get Pool: 17 buffers Put Pool: 29 buffers
Compression Page not available
ReadC=0.00 WriteC=0.00 Read=0 KB Written=0 KB

nasw01 BACKUP (terminated)
nasw02 BACKUP (terminated)
nasw03 BACKUP (terminated)

1488797790: ADMIN: 6: Command succeeded: printstats pax full


Value Definition
NASS STATS Thread responsible for traversing the file
system and providing metadata for each
directory and/or file.
Total file processed Total number of files and/or directories
for which metadata was processed.
Total NASS wait NASA count The number of times NASS waited for NASA.
Total NASS wait NASA time Amount of time NASS waited for NASA.
Total time since last reset Time since the last reset; a reset occurs
automatically when a backup completes.
fts_build time Time spent building the file system or
directory tree.
getstatpool If the value is consistently zero, then NASA
may be slowing down the backup.
putstatpool If the value is consistently zero, then NASS
may be slowing down the backup.
NASA STATS Thread responsible for writing file header
information, reading file data, and
writing to the buffer.
Backup root directory Directory being backed up.
Total bytes processed Bytes backed up since the last reset or
start of the current backup.
Total file processed Number of files backed up since the start
or reset of the current backup.
Throughput How fast NASA processed data.
Average file size Average file size for the current backup.
Total nasa wait nass count time Number of times NASA waited for NASS.
Total nasa wait nass time Amount of time NASA waited for NASS.
Total time since last reset Amount of time since the backup statistics
were reset; a reset occurs automatically
when a backup completes.
Tape device name Target device for the backup data.
File size statistics Statistics on the size of files backed up
since the start or reset of the current
backup.
NASW STATS Thread responsible for getting data from
the buffer pool, writing it to tape or
sending it to a remote Data Mover.
Session total time Total time of the current session.
Session idle time Idle time for the current session.
KB transferred Total KB transferred.
Average transfer rate Per second and per hour transfer rate for
the current session's data.
Average burst transfer Burst transfer rate in MB/s and GB/s.
Write block counters
(List/Direct) Scatter/gather write count.

Point-in-time_ (over the last Information on data processed during a 10
10 seconds) second interval.
Rate Transfer rate in MB/s.
Burst Burst transfer rate in MB/s.
Idle Amount of time NASW was idle in msec.
Get pool Number of buffers in get pool; if value is
```

```
consistently 0, then NASA and NASS may be
slowing down the backup.
Put pool Number of buffers in put pool; if value is
consistently 0, then the tape may be
slowing down the backup.
Compression rate retrieved Compression rate.
ReadC Read compression rate at the tape device.
WriteC Write compression rate at the tape device.
Read Amount of data read in KB.
Written Amount of data written in KB.
```

Related commands

Antivirus configuration (svc_cava)

CIFS support (svc_cifssupport)

Dynamic Access Control (svc_dac)

Event Publishing diagnostics (svc_event_publishing)

View locks (svc_lockd)

Advanced NAS settings (svc_nas)

Dump VHDX metadata (svc_vhdx)

Collect performance information (svc_perfcheck)

This service script outputs performance metrics.

Function: Diagnostic
Mode: Normal
Usage: General Use

Description

This command outputs front-end and backend setup and performance metrics, and extracts information that can be useful for performance troubleshooting. Similar content is available in Data Collects bundles. See Data collection (svc_dc).

Performance statistics that you can monitor are visible through the options on `svc_perfcheck`.

Use `--sar` option to produce output similar to the Linux `sar` command for the SP. This output includes CPU usage distribution.

The `--ktrace` option provides low-level information of every I/O operation. This option is for storage experts only.

The `--getconfig` option provides significant information about front-end configuration. It outputs to `/home/service/` in the format `report.neo_getconfig.<system name>-<date>.txt`.

The command only runs on the primary SP. It returns an error if run on the secondary SP.

NOTE: In order to prevent these output files from consuming too much space in the service partition on the system, the output files are automatically cleaned up every hour, such as 1 AM, 2 AM, 3 AM, and so on.

Use cases

Usage:

```
svc_perfcheck
    [-h | --help]
    | [-s | --sar] -i <seconds> -n <number intervals>
    | [-k | --ktrace] -f <tracefilename> -d <seconds> [-o "<rba types>"] [-z]
    | [-k | --ktrace] [-l] [-L] [-r <tracefilename>] [-Z]
    | [-g | --getconfig]
    | [-v | --vaai]
    | [-t | --top] -i <number iterations> [-c] [-p]
```

```
    | [-p | --perftop] -i <seconds> [-c] [-p]
    | [-r | --perfrecord] -i <seconds> [-c] [-p]
```

Options:

[-h | --help]

Display help and exit.

[-s | --sar]

Capture system statistics using sadc/sar on all SPs.

-i <seconds>	Specify the length of the interval in seconds.
-n <intervals>	Specify the number of intervals.

[-k | --ktrace]

Capture RBA trace on all SPs for the specified number of seconds for the specified filename.

-f <tracefilename.trc>	Specify the filename for the output.
-d <seconds>	Specify the length of the interval in seconds.
-o "<rba types>"	Specify the RBA type in the form of "-t <type1> -t <type2>". If not specified, the default is "-t tcd -t fbe_lun -t spc". Valid RBA types are: off, tcd, ccb, mpt, psm, lun, fru, dbe, dml, mvs, mva, mlu_dev, mlu_cbfs, cbfs, cpm, fedisk, clone, mig, agg, compr, fbe, fct, fbe_lun, fbe_rg, fbe_rg_fru, vd, pvd, pdo, dds, spc, mcio, ilc.

[-k | --ktrace]

Manage existing tracefile options.

[-l]	Display a short list of stored base tracefile names.
[-L]	Display a long list of stored tracefile names.
[-r <tracefilename>]	Remove any compressed or uncompressed versions of <tracefilename>.
[-Z]	Compress all existing uncompressed traces and remove uncompressed version.

[-g | --getconfig]

Get the performance-related configuration.

[-v | --vaai]

Get the vStorage Performance Stats.

[-t | --top]

Get the dynamic real-time view of a running system.

-i <number iterations>	Specify the number of intervals.
[-c]	Get local SP information only.
[-p]	Get peer SP information only.

[-p | --perftop]

Get performance top information.

-i <seconds>	Specify the length in seconds.
[-c]	Get local SP information only.
[-p]	Get peer SP information only.

[-r | --perfrecord]

Get performance record information.

-i <seconds>	Specify the length in seconds.

[-c] Get local SP information only.

[-p] Get peer SP information only.

Example usage

Get sadc system stats for 15 intervals of 10 seconds on both SPs:

```
svc_perfcheck --sar -i 10 -n 15
```

Get RBA trace for 30 second interval on both SPs:

```
svc_perfcheck --ktrace -f trace1 -d 30
```

Get RBA trace for 30 second duration on both SPs, overriding the default trace types:

```
svc_perfcheck --ktrace -f trace2 -d 30 -o "-t tcd -t fbe_lun -t pdo -t mlu_cbfs"
```

Related commands

Data collection (svc_dc)

Operating system information (svc_oscheck)

Network configuration information (svc_networkcheck)

Output storage information (svc_storagecheck)

Redirect output (svc_tcpdump)

Purge logs (svc_purge_logs)

This service script clears up space on the root file system or purges the logging database if specific limits are exceeded.

Function: Recovery
Mode: Service
Usage: Technical Service

Description

This command attempts to find large files on the file system and generates a report to analyze the findings. This command also reimages the system.

Use cases

Usage:

```
svc_purge_logs
    [-h | --help]
    | [-s | singlesp]
    {[-f | --fsusage]
    | [-c | --clear]
    | [-u | --skipupgrade]}
    | [-d | --dbpurge]
        { [-n | --num]
        | [-l | --list]}
```

Options:

[-h | --help]

Display help and exit.

[-s | singlesp]

Force Single SP operation. Without this operation, it clears files on both SPs.

[-f | --fsusage]

Generate a filesystem usage report. Cannot be used concurrently with `-c` or `-u`.

[-c | --clear]

Attempt to clear space on the root filesystem. Cannot be used concurrently with `-f` or `-u`.

[-u | --skipupgrade]

Skip clearing upgrade files on the root filesystem. Cannot be used concurrently with `-f` or `-c`.

Related commands

None.

Restore Unity OE (svc_reimage)

This service script is used per-SP operation to overwrite the SP's system partition.

Function: Recovery
Mode: Both
Usage: Technical Service

Description

This command overwrites the SP's system partition with a known, good image stored on the backend system device while maintaining the persistent configuration information (hostname, host registration, and user data).

This utility is for trained service personnel only.

NOTE: The script does no shutdown/reboot actions by default. The SP must be rebooted before a reimage operation will occur. In this case, clear the Boot Counters using the `svc_rescue_state` service tool prior to rebooting the system or it will reboot back into Service Mode and the reimage operation will not occur.

Use cases

Usage:

```
svc_reimage
    [-h | --help]
    | [-r | --reboot]
    | [-p | --powerdown]
    | [-f | --force]
```

Options:

[-h | --help]

Display help and exit.

[-r | --reboot]

Reboot after reimage.

[-p | --powerdown]

Power down after reimage.

[-f | --force]

Skip all prompts.

Related commands

Service Mode information (svc_rescue_state)

Reinitialize Unity to factory settings (svc_reinit)

This service script returns a Unity system to its factory-delivered state, deleting all user data and persistent configurations.

Function: Recovery
Mode: Service
Usage: Technical Service

Description

This command reinitializes a Unity system to factory settings. The Unity system's OE is overwritten with the Dell Software image contained in the backend image repository and all user data and persistent configurations are deleted. Use this command only when all installed SPs are in Service Mode.

NOTE:

This command is a last-resort troubleshooting solution. Try an SP reimage (`svc_reimage`) to correct the problem before using this command. Obtain a Data Collection and consult with the support provider before making the decision to run this command.

All user data and storage provisioning information will be lost. All persistent configurations on the system (hostname, storage configuration, and host registration) are permanently overwritten.

This utility is for trained service personnel only.

Use cases

Usage:

```
svc_reinit
    [-h | --help]
    | [-f | --force]
```

Options:

[-h | --help]

Display help and exit.

[-f | --force]

Skip all prompts.

Related commands

Restore Unity OE (svc_reimage)

Service Mode information (svc_rescue_state)

This service script views, sets, or clears the software boot control counters, which determine whether an SP is able to meet baseline functionality and boot normally, or whether it needs to go for Service Mode for repair.

Function: Recovery
Mode: Service
Usage: Technical Service

Description

This command is used in a variety of SP or system shutdown procedures, or during triage to determine which system component is responsible for the SP booting into Service Mode. The procedures are:

- List—this option details why the current SP has booted into Service Mode.

- Set—this option manually forces the SP to boot into Service Mode the next time it is rebooted.
- Clear—this option resets all the boot control counters and instructs the SP to attempt to boot into Normal Mode on the next reboot. Note that errors or faults can still cause the system to boot back into Service Mode. In most instances, you must first address the failure condition which put the SP into service mode before proceeding with clearing the counters.
- Clear Degraded—this option resets all of the degraded mode indicators stored in both the nvram and on the local SSD boot device. Only use this option to clear Degrade Mode conditions if the reason the system is in service mode was due to an 'rrchc' code in the Rescue Reason of `svc_diag` that indicates that:
  1. A driver on the system has decided to put the SP or system in 'degraded' mode.
  2. The fault that landed the system and driver into a 'degraded' state has been cleared or fixed locally in service mode.

  As with the Clear option, errors or faults can still cause the system to boot back into Service Mode.
- (virtual deployments only)Tie-breaker node (TBN) options:
  - Ignore TBN once—this option sets a flag file for the UnityVSA SP to have the SP ignore TBN status the next time system boots up. This can be used to recover the UnityVSA when the TBN VM is permanently down and both SPs are in **Service Mode**. The force suboption will skip the peer SP check in cases where both SPs are already confirmed to be down.
  - Clear TBN Ignore—this option clears the ignore option previously set.
  - List TBN Ignore—this option lists the current TBN ignore settings.

Use cases

Usage:

```
svc_rescue_state
    [-h | -? | --help]
    | [-l | --list]
    | [-s | --set]
    | [-c | --clear]
    | [-d | --clear_degraded]
    | [-i | --ignore_tbn_once][--force]
 | [-e | --clear_tbn_ignore]
 | [-p | --list_tbn_ignore]
```

Options:

[-h | -? | --help]

Display help and exit.

[-l | --list]

List all boot counters.

[-s | --set]

Set the Service Mode boot counter.

[-c | --clear]

Clear all the boot counters.

[-d | --clear_degraded]

Clears all degraded state indicators.

[-i | --ignore_tbn_once]

Request to ignore the TBN status once the next time system boots up. Specify the `--force` option to skip check of the peer SP status.

[-e | --clear_tbn_ignore]

Clear a previous ignore request of the TBN status.

[-p | --list_tbn_ignore]

List all TBN ignore settings.

Related commands

System diagnostics (svc_diag)

Management stack controls (svc_restart_service)

This service script restarts system management software.

Function: System Operations
Mode: Normal
Usage: Technical Service

Description

This command allows the Service user to initialize the system software for troubleshooting by exiting the MGMT process and then restarting it on the local or peer SP. The MGMT process launches Unisphere when an SP is in Normal Mode and is responsible for snapshot schedules and expansion of backend storage. For example, the auto-file system extension runs out of local pooled resources.

Restarting of the management software can disrupt management activities such as provisioning storage, configuration of networking, and other activities. Use `svc_restart_service MGMT` only after confirming that no other users are managing the system (better to specify "`svc_restart_service [--gendump] restart|failover MGMT`", "`svc_restart_service status MGMT`" won't impact system management). The Service user can run the Linux command last to see if other users are logged into the system.

Use cases

Usage:

```
svc_restart_service
    [-h | --help]
    | [--gendump] restart MGMT
```

Options:

[-h | --help]

Display help and exit.

[--gendump]

"--gendump" is optional, which generates a dump before shutdown MGMT process.

restart MGMT	Generate a dump before restarting the MGMT process. Restarts the MGMT process.
failover MGMT	Generates a dump before shutting down the MGMT process. Shutdown the MGMT and starts it on the peer SP.

status MGMT

Report MGMT running status.

Related commands

None.

Map a Linux block device to a VMware hard disk (svc_scsi_id)

This service script maps a Linux block device to the associated VMware hard disk in UnityVSA.

Function: Diagnostic
Mode: Both
Usage: General Use

Description

This script can be used to find the SCSI-ID of a virtual disk based on the device's path (for example, `/dev/sdd`). This allows the user to match the virtual disks on the virtual platform with the virtual disks shown in the VMware vSphere GUI.

The command displays the disk SCSI ID in a format corresponding to the virtual disk scsi-id format shown in the VMware vSphere GUI.

Use cases

Usage:

```
svc_scsi_id <disk-path>
```

Options:

<disk-path>

Specify the path to the virtual disk.

Return values:

- `0`—success
- `1`—error: platform type could not be determined
- `2`—error: not virtual platform
- `3`—error: disk-path argument missing
- `4`—error: disk-path device does not exist
- `5`—error: information about disk-path device not found
- `10`—error: not authorized user

Example usage

Find the SCSI-ID of a virtual disk at `/dev/sdd`:

`svc_scsi_id /dev/sdd`

```
output: 0:3
```

Related commands

None.

Service user password configuration (svc_service_password)

This service script tests or sets the Service user password.

Function: Configuration
Mode: Both
Usage: Technical Service

Description

This command checks if the Service user password is set to its default or is valid. It also allows you to change the Service user password.

The default Service user password is "service" (no quotation marks). When this command shows the default is in use, set a new password. The `-isdefault` mode switch returns a "yes" or "no." The reset option of this command sets the service password back to the default value.

For a password to be compliant with Unity security policies and to be accepted as valid, it must adhere to the following guidelines:

- For systems with release 5.3 or earlier:
  - 8-40 characters in length

    NOTE: The length of the password must be 15-40 characters when STIG is enabled.

  - At least 1 uppercase character
  - At least 1 lower case character
  - At least 1 digit
  - At least one special character from the following set: ! , @ # $ % ^ * _ ~ ?
  - No disallowed characters from the following set: & ' space tab
  - Password must be unique from the previous three Service Mode passwords.

    NOTE: An example of a valid password is: **m0de_S3rvice**

- For systems with release 5.4 or later:
  - 8-64 characters in length
  - At least 1 uppercase character
  - At least 1 lower case character
  - At least 1 digit
  - No disallowed characters from the following set: & ' space tab
  - Password must be unique from the previous three Service Mode passwords.

    NOTE: An example of a valid password is: **m0deS3rvice**

Changes made to the service password using this tool while in Service Mode are considered non-persistent—the Service user will have the same password he or she had before using the command to change it when the system returns to Normal Mode.

Use cases

Usage:

```
svc_service_password
    [-h | --help]
    | [-s | --set] [<password>]
    | [-r | --reset]
    | [-v | --validate]
    | [-d | --isdefault]
```

Options:

[-h | --help]

Display help and exit.

[-s | --set] [<password>]

Set password with either supplied on command line or prompt.

[-r | --reset]

Reset the default password.

[-v | --validate]

Validate the supplied password.

[-d | --isdefault]

Determine if password is factory default return 0 if factory default, 1 otherwise.

Example usage

For systems with release 5.3 or earlier, set the Service user password to **m0de_S3rvice**:

svc_service_password -set m0de_S3rvice

For systems with release 5.4 or later, set the Service user password to **m0deS3rvice**:

svc_service_password -set m0deS3rvice

Related commands

None.

Service shell (svc_service_shell)

This service script obtains super user access to Unity's operating system.

Function: Diagnostic
Mode: Both
Usage: Technical Service

Description

This command allows an authorized support entity to gain super user access to the Unity's operating system in both Normal and Service modes.

The support entity must enable this tool for use first. Once enabled, the tool is functional for 3 days. After 3 days, it automatically disables itself.

NOTE:

Do not use the `sz` command within the service shell. This command rapidly increases the size of the `svc_service_shell` log file and can cause problems.

Use cases

Usage:

```
svc_service_shell
    [-h | --help]
    | [cmd]
```

Options:

[-h | --help]

Display help and exit.

cmd

A single, standalone Linux command to run elevated privileges.

Related commands

None.

Shutdown (svc_shutdown)

This service script performs a safe reboot or shutdown of an SP, and shutdown of the system.

Function: System Operations
Mode: Both
Usage: General Use

Description

This service tool performs a safe reboot or power down (halt) of a Unity SP, and shutdown of the system.

SP reboot and shutdown can be performed in both Service and Normal Mode. System shutdown can be performed only when at least one of the SPs is in Normal Mode.

When initiated, the reboot operation attempts to gracefully shut down the active storage software and all running operating system processes before performing a warm reboot of the SP. The SP then automatically runs through its boot processes and – assuming it is in a healthy state and no fault requiring Service Mode exists – comes back online.

The halt operation performs the same graceful shutdown of the system software, but it does not reboot the SP. Instead, the SP remains in a powered-off state. There must be a physical removal and insertion of the SP or a power cycle of the chassis to bring it back online.

The hold-in-reset operation is similar to a reboot in that it does a graceful shutdown of the system software on the SP, but it halts the restart at the hold-in-reset state and allows the user to complete maintenance tasks on the SP. The SP will remain in this state until it is rebooted from the other SP using `svc_shutdown -r <spa | spb>`, the SP is removed and reseated, or the array is power cycled. Only one SP can be in the hold-in-reset state at a time.

NOTE:

- This may cause a Data Unavailable scenario if used incorrectly.
- This will cause a Data Unavailable scenario if used on a single node UnityVSA.

Use cases

Usage:

```
svc_shutdown
    [-h | --help]
    | --halt
    | [-r | --reboot] [<reason code>] [spa | spb]
    | [-q | --quickboot] [<reason code>]
    | --system-halt [--force]
    | --halt-local [--force]
    | --hold-in-reset [--force]
```

Options:

[-h | --help]
: Display help and exit.

--halt
: Halt the SP.

[-r | --reboot]
: Reboot the local SP (default) or the specified peer SP.

<reason code>
: Optionally specify a reason code.

[-q | --quickboot]
: Quick reboot the SP (skip POST).

--system-halt
: Halt the complete system.

--halt-local
: Halt the local SP.

--hold-in-reset
: Hold the local SP in Reset.

--force
: Perform the specified action without user confirmation.

Example usage

Restart the local SP (SPA):

svc_shutdown -r

```
Broadcast message from root@spa
        (unknown) at 21:22 ...
The system is going down for reboot NOW!
```

Shut down the system:

svc_shutdown -system-halt

```
################################################################################
WARNING: This action shuts down the system and you have to manually power up afterwards.
################################################################################
Enter "yes" if want to proceed with this action: yes
Normal Mode
1
1
Peer shutdown now in progress
System shutdown now in progress
```

Related commands

Service Mode information (svc_rescue_state)

Enable Secure Shell (svc_ssh)

This service script turns the Secure Shell Daemon (SSHD) on or off.

Function: System Operations
Mode: Both
Usage: General Use

Description

This command enables or disables the Service user to connect to the Unity's Linux CLI using an SSH connection over the system's Management interface. If SSH connectivity is disabled, or it did not turn on when requested from within Unisphere, a Service user can manually enable SSH while logged into Linux through a serial connection to the SP with this command.

This command can also disable SSH connections to the Unity system. If a user connects to the SP through SSH and SSH stops, that user's session ends. This command runs only on the primary SP in Normal Mode.

Use cases

Usage:

```
svc_ssh
    [-h | --help]
    | [-e |  --enable]
    | [-d | --disable]
    | [-s | --status]
```

Options:

[-h | --help]

Display help and exit.

[-e | --enable]

Enable SSHD on the system.

[-d | --disable]

Disable SSHD on the system.

[-s | --status]

Display the SSHD status.

Example usage

Disable SSHD:

svc_ssh -d

```
Connection to 10.x.x.43 closed by remote host.
```

Related commands

None.

STIG (svc_stig)

This service script enables, disables, and provides current status for each category of STIGs.

Function: Security
Mode: Service
Usage: Technical Service

Description

This service script enables, disables, and provides current status for each category of STIGs (Security Technical Implementation Guides).

Use cases

Usage:

```
svc_stig

  -h|--help                    : Display this message
  -d|--disable       [options] : Disable STIGs
  -e|--enable        [options] : Enable STIGs
  -s|--status        [options] : Get status for STIGs
```

Options:

[-h | --help]

Display help and exit.

[-d | --disable]

Used to disable all STIGs (no option specified).

-c | --cat [X] Used to disable a specific category of STIGs.

[-e | --enable]

Used to enable all STIGs (no option specified).

-c | --cat [X] Used to enable a specific category of STIGs.

[-s | --status]

Display the current status (enabled or disabled) for all STIGs (no option specified).

-c | --cat [X]	Display status for a specific Category of STIGs.
-b | --boolean-format	Display boolean status for a specific Category of STIGs.

Example usage

Enable STIG mode on system for all STIGs.

svc_stig -e

```
################################################################################
WARNING:
WARNING: This action will cause a reboot of the system!!
WARNING:
################################################################################

################################################################################
INFO:
INFO: Both Storage Processors will reboot in sequence, starting with peer SP.
INFO: When primary SP comes back from reboot, the process will automatically
INFO: restart to finish applying. Monitor status with 'svc_stig -s'. If status
INFO: does not change to expected value within 30 minutes, contact service
INFO: provider.
INFO:
################################################################################
Enter "yes" if want to proceed with this action:
```

Display the STIG mode status for all STIGs:

svc_stig -s

```
STIG CATEGORY 1: ENABLED
STIG CATEGORY 2: ENABLED
```

Related commands

None.

Run FSCK on storage (svc_storage_integritycheck)

This service script runs File System Check (FSCK) on storage file systems and returns them to a mountable state.

Function: Recovery
Mode: Normal
Usage: Technical Service

Description

This command automatically unmounts file systems that are in use, runs FSCK on them, and then remounts the file systems when it is safe to do so.

Executing this command is the fastest way to remount a file system.

A file system only appears as an output if it is corrupt and unmounted. The command gives an option to fix and remount corrupted and unmounted file systems.

Use cases

Usage:

```
svc_storage_integritycheck
    [-h | --help]
```

Options:

[-h | --help]

Display help and exit.

Related commands

None.

Output storage information (svc_storagecheck)

This service script collects storage information about an SP.

Function: Diagnostic
Mode: Normal
Usage: General Use

Description

This command allows you to investigate specifics about all virtual storage content on the system. It collects query information about particular kinds of shares (CIFS or NFS), iSCSI storage, or lower layers in the configuration stack.

Only run this command in Normal Mode on the Primary SP. Output is logged to the `/home/service/svc_storagecheck.log` file. The output of this command is lengthy if you run all available checks. View the output log using the Linux `less` utility.

For debugging, set `SVC_STORAGECHECK_LOG_TO_FILE=1` if you want to get the output of this script appended to the log file `/home/service/svc_storagecheck.log`. For example:

```
# SVC_STORAGECHECK_LOG_TO_FILE=1 svc_storagecheck
```

Use cases

Usage:

```
svc_storagecheck
    [-h | --help]
    | [-d | --dedupe]
    | [-b | --backend]
    | [-s | --sizes]
    | [-l | --list]
 | [-lp| --limitpoll]
    | [-n | --nfs]
    | [-c | --cifs]
    | [-m | --ndmp]
    | [-a | --all]
 | [-p | --listproc]
    | --fs_oid <oid>
    | --fs_list_oids
    <parameters>
```

Options:

[-h | --help]

Display help and exit.

[-d | --dedupe]

List the file systems that are performing file deduplication.

NOTE: Unity systems do not support deduplication, therefore this option returns no data.

[-b | --backend]

List information about the backend disks configured into the system.

[-s | --sizes]

Display details about all file system objects, and detailed information about the pool. This also returns filesystems free block and free inode information

[-l | --list]

Display details about all storage objects. Additionally this lists which file systems are mounted and provides information about the state of active NAS servers.

-lp | --limitpoll

Skips printing the `MluCli poll` output.

[-n | --nfs]

Displays information about NFS shares.

[-c | --cifs]

Displays information about CIFS shares and CIFS configuration.

[-m | --ndmp]

List information about active NDMP configuration, active NDMP sessions and NDMP parameter settings.

[-a | --all]

List the output of all other options (`-d`, `-b`, `-s`, `-l`, `-n`, `-c`, and `-m`).

--fs_oid <oid>

Display details about the object *<oid>*.

--fs_list_oids

Display abbreviated information about all FS objects (name, oid mount point).

-p | --listproc

Displays information about process objects.

Related commands

Collect performance information (svc_perfcheck)

Collect Tie-breaker Node trace information (svc_tbn_dc)

This service script is used to collect trace information from the Tie-breaker Node (TBN) VM on UnityVSA High-availability.

Function: Diagnostic
Mode: Normal
Usage: Technical Services

Description

This service script collects trace information for the TBN VM that can be used while diagnosing issues.

Use cases

Usage:

```
svc_tbn_dc
[-h | --help]
[-v | --version]
```

Options:

[-h | --help]

Display help and exit.

[-v | --version]

Display version information.

Example usage

Collect trace information:

svc_tbn_dc

```
Version: c4dev_PIE_3169R-4.5.0.1.1.046.1539870435-VVNX_OVA_DEBUG
/tmp/tbn_dc /
/
DC data collected at /home/service/user/tbn_dc.tar
Elapsed time: 0 minutes 0 seconds
```

Related commands

Configure Tie-breaker Node network (svc_tbn_network)

Change Tie-breaker Node password (svc_tbn_password)

Shutdown Tie-breaker Node VM (svc_tbn_shutdown)

Configure Tie-breaker Node network (svc_tbn_network)

This service script is used to configure a Tie-breaker Node (TBN) VM management interface on UnityVSA High-availability.

Function: Recovery
Mode: Normal
Usage: Technical Service

Description

This service script is used to configure a TBN VM management interface.

Use cases

Usage:

```
svc_tbn_network
[-h | --help]
[-v | --version]
[-a <IP address>]
[-n <netmask>]
[-g <gateway>]
[-d | --dhcp4]
[-o | --offline]
```

Options:

[-h | --help]

Display help and exit.

[-v | --version]

Display version information.

[-a <IP address>]

IPv4 or IPv6 address.

[-n <netmask>]

IPv4 network mask or IPv6 prefix length.

[-g <gateway>]

Default gateway.

[-d | --dhcp4]

Enable DHCP client (only support IPv4).

[-o | --offline]

Sets management interface down.

Example usage

To configure a TBN management interface:

svc_tbn_network -a 10.0.0.1 -n 255.255.252.0 -g 10.0.0.2

```
DEBUG: Check environment
DEBUG: Parse arguments
DEBUG: Check arguments
DEBUG: Check the given IP is valid IPv4 or IPv6
DEBUG: Setup management interface with static IP
DEBUG: Trun on management device
DEBUG: Config IP address
DEBUG: Save static IP configuration
DEBUG: Add default gateway
DEBUG: The default gateway is already configured.
DEBUG: Save route files for default gateway
default 10.0.0.2 - eth2
DEBUG: Start ssh service
   Active: active (running) since Fri 2018-10-19 07:38:51 UTC; 6min ago
DEBUG: Enable ssh service
```

Related commands

Collect Tie-breaker Node trace information (svc_tbn_dc)

Change Tie-breaker Node password (svc_tbn_password)

Shutdown Tie-breaker Node VM (svc_tbn_shutdown)

Change Tie-breaker Node password (svc_tbn_password)

This script allows user to change the password of a service user of a Tie-breaker Node (TBN) VM on UnityVSA High-availability.

Function: Diagnostic
Mode: Normal
Usage: Technical Services

Description

This command allows you to change the password of a service user.

Use cases

Usage:

```
svc_tbn_passwd
[-h | --help]
[-v | --version]
```

Options:

[-h | --help]

Display help and exit.

[-v | --version]

Display version information.

Example usage

Change a service user password.

svc_tbn_passwd

```
Changing password for service.
   New password:
   Retype new password:
   passwd: password updated successfully
```

Related commands

Collect Tie-breaker Node trace information (svc_tbn_dc)

Configure Tie-breaker Node network (svc_tbn_network)

Shutdown Tie-breaker Node VM (svc_tbn_shutdown)

Shutdown Tie-breaker Node VM (svc_tbn_shutdown)

This service script provides shutdown facilities for the Tie-breaker Node (TBN) VM on UnityVSA High-availability.

Function: Diagnostic
Mode: Normal
Usage: Technical Services

Description

This command allows you to reboot the Tie-breaker Node VM.

Use cases

Usage:

```
svc_tbn_shutdown
[-h | --help]
[-v | --version]
{-r | --reboot}
```

Options:

[-h | --help]

Display help and exit.

[-v | --version]

Display version information.

{-r | --reboot}

Reboot the Tie-breaker Node (TBN) VM.

Related commands

Collect Tie-breaker Node trace information (svc_tbn_dc)

Configure Tie-breaker Node network (svc_tbn_network)

Change Tie-breaker Node password (svc_tbn_password)

Redirect output (svc_tcpdump)

This service script tries to run tcpdump network diagnostics on a specified system interface in a safe, controlled manner.

Function: Diagnostic
Mode: Normal
Usage: Technical Service

Description

This command allows you to run a Linux `tcpdump` on a system interface for diagnostic purposes. The output is saved in rotating files of fixed size. When an output file grows either to the size defined by `-C` or to the maximum internally defined size, output redirects to another file with the same base name but different suffix. The suffix is a digit from 0 to the value defined by either the `-W` option or the internally defined maximum rotation value. Rotating files are filled in numeric order.

The `tcpdump -r` command can read the output files from this command. Many options are analogous to their `tcpdump` counterparts. Run this command in any operational mode.

Use cases

Usage:

```
svc_tcpdump
    [-h | --help]
    | [-i | --interface] [name]
    | [-w | --filename] [name]
    | [-p | --path] [path]
    | [-W | --rotations] [number]
    | [-C | --size] [size]
    | [-s | --snaplen] [bytes]
    | [-t | --timestamp] [1-4]
    | [-v | --verbosity] [1-3]
    | [-D | --dump-intfs]
    | [-F | --input-expr] [file]
    | [-e | --llheader]
    | [-n | --no-addr]
    | [-q | --quiet]
    | [-y | --dlink] [type]
```

Options:

[-h | --help]

Display help and exit.

[-i | --interface] [name]

Interface for which to capture information. The default interface is mgmt_vdev.

[-w | --filename] [name]

Base file name for output files. By default, the output files are named `dump.out[0-4]`. The prefix `unity-tcpdump-` is added to output file names.

[-p | --path] [path]

Path for the output file storage. By default, the output files are stored in `/home/service`

[-W | --rotations] [number]

Number of files for output use. The default value is 5, and the number must be greater than or equal to 1.

[-C | --size] [size]

Size of each output file (in MB). The default value is 50 MB, and the size must be greater than or equal to 1.

[-s | --snaplen] [bytes]

Capture the specified number of bytes of data from each packet rather than the default of 65535 bytes.

[-t | --timestamp] [1–4]

Specify the timestamp setting, where:

- `1`—Do not print a timestamp on each dump line.
- `2`—Print an unformatted timestamp on each dump line.
- `3`—Print a delta (in micro-seconds) between current and previous line on each dump line.
- `4`—Print a timestamp in default format proceeded by date on each dump line.

[-v | --verbosity] [1–3]

Specify the verbosity of the output, with 3 being the most verbose.

[-D | --dump-intfs]

Print the list of the network interfaces available on the system and on which `tcpdump` can capture packets.

[-F | --input-expr] [file]

Use file as input for the filter expression.

[-e | --llheader]

Print the link-level header on each dump line.

[-n | --no-addr]

Do not convert addresses such as host addresses or port numbers to names.

[-q | --quiet]

Print less protocol information for shorter output lines.

[-y | --dlink] [type]

Set the data link type to use while capturing packets to datalinktype.

Example usage

Capture mgmt_vdev, save two 100 MB files called `system-tcpdump.out[0-1]` to `/home/service`:

```
svc_tcpdump -i mgmt_vdev -p /home/service -w tcpdump.out -W 2 -C 100 -s 1000
```

Related commands

None.

Display Real-time File Statistics (svc_topstats)

This command captures real-time statistics about specific I/O activity on the storage processor.

Function: Diagnostic and Troubleshooting
Mode: Normal
Usage: General Use

Description

This command captures real-time statistics about specific I/O activity on the storage processor. It is used to monitor the storage environment and to troubleshoot performance issues. Use this feature to correlate CIFS and NFS statistics by client IP addresses to CIFS and NFS users.

You can also use this command to control and manage the crawler service. This service crawls user-specified file system paths and creates inode to file pathname mappings.

Use cases

Usage:

```
svc_topstats <SVDM_A/SVDM_B>
      [-h|--help]
```

```
       [-list]
       | -info [-all|<statpath_name>]
       |[
         [{ -monitor <statpath_name>
                [-sort <field_name>]
                [-order {asc|desc}]
                [-lines <number>]
         }...]
         [-count <number>]
         [-format {text|cvs}]
         [-file <output_filepath> [-overwrite]]
         [-interval <seconds>]
         [-terminationsummary {no|yes|only}]
         [-noresolve]
        ]
       |[
       -fileresolver {
         -service {   -start [-maxlimit <limit>]
         | -stop
         | -delete
         | -status
         | -list
         | -add <path_name>
         | -drop <path_name>
         }
       ]
```

Options:

[-h | --help]

Display help and exit.

[-list]

List available statpaths.

[-info [-all | <statpath_name>]

Show information about a statpath.

[-monitor <statpath_name> [*<secondstatpath>*,*<thirdstatpath>*...]

Monitor the specified statpath. You can also monitor a list of statpaths by enclosing the statpaths in brackets and separating each item with a comma.

[-sort *<field_name>*]	Sort a monitored statpath on a specific value. For a list of all available field names, see Available file statistics for svc_topstats.
[-order {asc|desc}]	Set monitored sort order.
[-lines *<number>*]	Set the number of output lines.

[-count *<number>*]

Set how many times the statistics are displayed.

[-format {text|csv}]

Set the output format.

[-file *<output_filepath>* [-overwrite]]

Specify the filepath for the output. Optionally specify if any existing output file in the filepath location should be overwritten with the new file.

[-interval *<seconds>*]

Set how often, in seconds, that the statistics are displayed.

[-terminationsummary {no|yes|only}]

Toggle display of summary.

[-noresolve]

Do not attempt name resolution.

[-fileresolver]

Control and manage the crawler service.

[-service]	**-start [-maxlimit *<limit>*]**	Start the service with an optional limit, in M. The limit specifies the number of inode to filepath entries that are cached.
	-stop	Stop the service.
	-delete	Delete existing data.
	-status	Show service status.
	-list	List the paths defined for resolution.
	-add *<path_name>*	Add a resolution for a path.
	-drop *<path_name>*	Drop a resolution for a path.

Example usage

Get NFS export statistics:

svc_topstats SVDM_A -m nfs.nassvr.*.export -i 2

Get CIFS share statistics:

svc_topstats SVDM_A -m cifs.nassvr.*.share -i 2

Show a list of all available stat paths and their related field names.

svc_topstats SVDM_A -info

```
SVDM_A :

name            = nfs.nassvr
description     = Per NAS Server NFS statistics
type            = Set
member_stats    =
nfs.nassvr.*.client,nfs.nassvr.*.user,nfs.nassvr.*.group,nfs.nassvr.*.export
member_elements = nfs.nassvr.SVDM_A,nfs.nassvr.nas_server1
member_of       = nfs

name            = nfs.nassvr.*.client
description     = Per NFS client statistics
type            = Correlated Set
member_stats    =
nfs.nassvr.*.client.*.totalCalls,nfs.nassvr.*.client.*.readCalls,nfs.nassvr.*.client.*.wr
iteCalls,nfs.nassvr.*.client.*.suspectCalls,nfs.nassvr.*.client.*.totalBytes,nfs.nassvr.*
.client.*.readBytes,nfs.nassvr.*.client.*.writeBytes,nfs.nassvr.*.client.*.avgTime
member_elements =
member_of       = nfs.nassvr

name            = nfs.nassvr.*.client.*.totalCalls
description     = Number of NFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.readCalls
description     = Number of read calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

................................................
```

Use the UDoctor utility (svc_udoctor)

This service script allows you to enable, modify, delete, or disable jobs within the UDoctor scheduler, or generate an event statistics report.

Function: Configuration
Mode: Normal
Usage: General Use

Description

This command provides users with the ability to enable, disable, list, add, delete, and modify all jobs available in the UDoctor scheduler framework. This script exists so that users do not have to manually edit configuration files to customize their automated jobs. This script can also generate an event statistics report. It can only be run on the primary SP.

NOTE: Only root-level users can run this command with Unity OE 5.5.x and later.

Use cases

Usage:

```
svc_udoctor
[-h | --help]
| [-j | --jobs]
    {[-e | --enable] <job name>
    | [-d | --disable] <job name>
    | [-l | --list]}
    | [-m | --modify job] <job name>
    | [-add | --addjob] <new job name>
    | [-del | --deletejob] <job name>
    | [-view | --viewjob] <job name | all>
    | [-modifydcejob- |--modifydcejob] <dce jobname>
    | [-listdcejobs | --listdcejobs]
    | [-viewdcejob | --viewdcejob] <jobname | all>
| [-s | --statistics]
| [-n | --noaudit]
```

Options:

[-h | --help]

Display help and exit.

[-j | --jobs]

Perform the specified job action.

[-e | --enable] <job name>	Enable the specified job. Only a root user can perform this operation.
[-d | --disable] <job name>	Disable the specified job. Only a root user can perform this operation.
[-l | --list]	Display all jobs in the UDoctor scheduler.
[-m | --modify job] <job name>	Modify the properties of a specific job. Only a root user can perform this operation.
[-add | --addjob] <new job name>	Add a job. Only a root user can perform this operation.
[-del | --deletejob] <job name>	Delete a specific job or jobs. Only a root user can perform this operation.
[-view | --viewjob] <job name | all>	View the details of a specific job or all jobs.

[-modifydcejob- |--modifydcejob] <dce jobname>	Modify a DCE job in the `dce_config.ini` file. Only a root user can perform this operation.
[-listdcejobs | --listdcejobs]	List the DCE jobs configured in the `dce_config.ini` file.
[-viewdcejob | --viewdcejob] <jobname | all>	Display information about a specific DCE job or all DCE jobs from the `dce_config.ini` file.

[-s | --statistics]

Generate the event statistics report.

[-n | --noaudit]

Enable jobs without audit logs.

Example usage

Enable the **svc_dc** job:

```
svc_udoctor --jobs --enable svc_dc
```

```
    Enabling Job svc_dc
    Enabled Job svc_dc
```

Enable a **svc_dc** job without an audit log:

```
svc_udoctor --jobs --enable svc_dc --noaudit
```

Related commands

None.

Enable or disable USB ports (svc_usb)

This service script allows you to enable or disable USB devices on a Unity system.

Function: Security
Mode: Service
Usage: Technical Service

Description

This service script helps ensure that a USB connection cannot be used to load malicious firmware or software onto a Unity appliance. In addition, you can check the USB status on the current SP and its peer.

Use cases

Usage:

```
svc_usb
[-h | --help]
| [-d]
| [-e]
| [-s]
```

Options:

[-h | --help]

Display help and exit.

-d

Disable USB connections.

-e

Enable USB connections.

-s

Check the status of USB connections.

Example usage

The following example shows the USB status being checked:

```
svc_usb -s
USB storage is not blacklisted.
USB storage module is loaded.
Checking USB status on peer...
USB storage is not blacklisted.
USB storage module is loaded.
```

The following example shows USB connections being enabled on the primary SP and its peer:

```
svc_usb -e
USB storage enabled.
Enabling USB on peer...
USB storage enabled on peer.
```

The following example shows USB connections being disabled on the primary SP and its peer:

```
svc_usb -d
USB storage disabled.
Disabling USB on peer...
USB storage disabled on peer.
```

Dump VHDX metadata (svc_vhdx)

This service script helps diagnose issues with VHDX files.

Function: Diagnostic
Mode: Normal
Usage: Technical Service

Description

If a Windows client has an issue with a given SVHDX file, this command can be used to display categorized SVHDX metadata for troubleshooting. Field support personnel can dump the metadata using `svc_vhdx` for further analysis by SMB experts.

When the `[-v | --verbose]` option is used, the command prints additional information concerning blocks, sectors, and other details.

Use cases

Usage:

```
svc_vhdx
    [-h | --help]
    | <NAS server name> [-d | --dump] <file path> [-v | --verbose]
```

Options:

[-h | --help]

Display help and exit.

<NAS server name> [-d | --dump] <file path>

Dump the SVHDX metadata for the specified NAS server to the specified location.

[-v | --verbose] Include additional information.

Example usage

Dump the SVHDX metadata for *vdm1* to `/fs1/vDisk1.vhdx`:

`svc_vhdx vdm1 -d /fs1/vDisk1.vhdx`

```
Dump of VHDX file: /fs1/vDisk1.vhdx
Owner: Microsoft Windows 6.3.9600.16384
VHDX File information:
Image type:          Fixed
Image File size: :   8388608 (0x800000)
...
Header 1:
Checksum:            0x88046ec0
Sequence number:     1530 (0x5fa)
...
Metadata entries:    7
File parameter:
Offset:             Ox10000
Length:             Ox8
Flags:              IsRequired
...
Persistent reservations record 0:
Offset:             Ox10028
Length:             Ox3ec
Flags:              IsVirtualDisk

Persistent reservations record 1:
Offset:             Ox10414
Length:             Ox3ec
Flags:              IsVirtualDisk

Count of PR entries: 2, PRgen=89, vdisk open count=1
- iid=0e0f0001-0a0b-0c0d-0506-070801020304 hostname=realsrv11 (resHolder)
resKey=0x6b65792d31313131 UAtn=0
- iid=eeff0011-aabb-ccdd-5566-778811223344 hostname=realsrv11
resKey=0x6b65792d32323232 UAtn=0
The vdisk is reserved, resType=exclAccess_regsOnly (6)
```

Related commands

Antivirus configuration (svc_cava)

CIFS support (svc_cifssupport)

Dynamic Access Control (svc_dac)

Event Publishing diagnostics (svc_event_publishing)

View locks (svc_lockd)

Advanced NAS settings (svc_nas)

NAS server backup and restore statistics (svc_pax)

View services (svc_view_services)

Function: Diagnostic
Mode: Normal
Usage: Technical Service

Description

This command shows the status of all failed services on the system or cluster status.

Use cases

Usage:

```
svc_view_services
  -h|--help
  -c|--cluster
  -f|--failed
```

Options:

[-h | --help]

Display help and exit.

-c | --cluster

Display the status of the clustuer.

-f| --failed

Display the failed services.

Example usage

Check the status of the cluster:

`svc_view_services -c`

```
Last updated: Sun Oct 14 23:22:43 2018        Last change: Sun Oct 14 20:04:28 2018 by
root via crm_resource on spb
Stack: corosync
Current DC: spa (version 1.1.13-10.4-6f22ad7) - partition with quorum
2 nodes and 40 resources configured

Online: [ spa spb ]

 Clone Set: Main [child_main]
     Started: [ spa spb ]
 Clone Set: DoFencing [child_DoFencing]
     Started: [ spa spb ]
 DartConfigurator    (ocf::heartbeat:CFRA):    Started spa
 ECOM    (ocf::heartbeat:CFRA):    Started spa
 HA_Policy    (ocf::heartbeat:CFRA):    Started spa
 LinkUp    (ocf::heartbeat:CFRA):    Started spa
 NAS_A    (ocf::heartbeat:CFRA):    Started spa
 NAS_B    (ocf::heartbeat:CFRA):    Started spb
 PEService    (ocf::heartbeat:CFRA):    Started spa
 PgsqlShared    (ocf::heartbeat:CFRA):    Started spa
 apache    (ocf::heartbeat:CFRA):    Started spa
 apl    (ocf::heartbeat:CFRA):    Started spa
 c4fastvpa    (ocf::heartbeat:CFRA):    Started spa
 c4loga    (ocf::heartbeat:CFRA):    Started spa
 cic    (ocf::heartbeat:CFRA):    Started spb
 cp_db_init    (ocf::heartbeat:CFRA):    Started spa
 eVE    (ocf::heartbeat:CFRA):    Started spa
 iproute    (ocf::heartbeat:CFRA):    Started spa
 isns-service    (ocf::heartbeat:CFRA):    Started spa
 kmip-net-m    (ocf::heartbeat:CFRA):    Started spa
 kmip-net-s    (ocf::heartbeat:CFRA):    Started spb
 logDaemonBE    (ocf::heartbeat:CFRA):    Started spa
 logDaemonM    (ocf::heartbeat:CFRA):    Started spa
 metricsluna    (ocf::heartbeat:CFRA):    Started spa
 mgmtd    (ocf::heartbeat:CFRA):    Started spa
 mozzo    (ocf::heartbeat:CFRA):    Started spa
 nasdb    (ocf::heartbeat:CFRA):    Started spa
 obs_collector    (ocf::heartbeat:CFRA):    Started spa
```

```
 postgres-mon    (ocf::heartbeat:CFRA):    Started spa
 tomcat    (ocf::heartbeat:CFRA):    Started spa
 Clone Set: C4_INIT [child_C4_INIT]
     Started: [ spa spb ]
 Clone Set: CDX [child_CDX]
     Started: [ spa spb ]
 Clone Set: connectivity [child_connectivity]
     Started: [ spa spb ]
23:22:43 service@OB-R2064 spa:~/user> svc_view_services -f
UNIT                    LOAD   ACTIVE SUB    DESCRIPTION
cf.audit_cem.service    loaded failed failed Container Framework controlled component
audit_cem
cf.audit_emcsys.service loaded failed failed Container Framework controlled component
audit_emcsys
cf.audit_snoopy.service loaded failed failed Container Framework controlled component
audit_snoopy
```

Related commands

None.

Virtual platform host check (svc_vp_hostcheck)

This service script reports potential problems on the hypervisor that hosts UnityVSA.

Function: Diagnostic
Mode: Normal
Usage: General Use

Description

This script is only supported on Virtual Platforms, and checks for potential host issues including:

- CPU over-subscription
- Memory over-subscription
- Disk latency
- Host network latency

When using the `svc_vp_hostcheck` service command, the time frame and thresholds can be changed using the options documented below.

Use cases

Usage:

```
svc_ vp_hostcheck
    -h
    | -s [<timestamp>]
    | -e [<timestamp>]
    | -t
    | -d
    | -r
    | -p
```

Options:

-h

Display help and exit.

-s [<timestamp>]

Show potential issues that occurred after the specified timestamp, where the valid format is **YYYY-MM-DD HH:MM:SS[.UUUUUU]**. The default is the date and time when data started being recorded. The exit value is equal to the number of issues found.

-e [<timestamp>]

Show potential issues that occurred before the specified timestamp, where the valid format is **YYYY-MM-DD HH:MM:SS[.UUUUUU]**. The default is the current system time. The exit value is equal to the number of issues found.

-t

Minimum disk latency to report. The default is 20 ms.

-d

Minimum dropped frames percentage to report. The default is 2%.

-r

Minimum error frames to report. The default is 0.

-p

Minimum ping time to report. The default is 25 ms.

Related commands

None.

Appendix A

NAS server parameters

There are numerous valid NAS server parameters that you can use with Advanced NAS settings (svc_nas), their facilities, valid values, and scope.

The parameter values use the following naming convention:

- `default`—Default factory value. This reported value does not change.
- `current`—Value used by the system.
- `configured`—Value applied after restarting the NAS server (for local parameters) or SP (for global parameters). Some parameters are applied without restarting the NAS server or the SP.

Parameters that control global resources are defined globally (for all NAS servers) and can only be modified with the target `ALL`. Actions that are performed globally iterate through each NAS server. If an action fails on an individual server, it continues processing and reports any related errors.

Other parameters can be defined locally (for a specific NAS server) with the target `<NAS_server_name>`, allowing each NAS server to use different values for individual parameters. The initial value of the parameter is inherited from the value of the global parameter at the time that the NAS server is created.

Users can use `svc_nas <NAS_server_name> -restart` when a parameter modification requires restarting a NAS server to take effect.

The parameters list is initially composed of commonly used parameters. If a user specifies additional valid parameters as the target of an action, these parameters are added to the list for user convenience. This extended customer parameter list is preserved when upgrading the array.

Table 2. NAS server parameters

Facility	Parameter name	Values	Description	Scope
cfs	showChildFsRoot	0 or 1 Default: 1	Controls the Virtual File System (VVFS) version 1 NFS client access to checkpoints in the root directory of the production file system. • 0 = Checkpoint subdirectories do not appear in the root directory. • 1 = Each mounted checkpoint of a production file system is visible to NFS clients as a subdirectory of the file system root directory.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			The `.ckpt` directory is hidden by design and cannot be made visible.	
cifs	acl.extAcl	0–255 Default: 0	This parameter is a bit list that enables special capabilities for ACL management. Two kinds of capabilities are: ● Backup or restore specific UNIX attributes like access rights, UNIX mode, and UNIX name and symbolic link by using a regular CIFS-based backup tool (like NTbackup). ● View or change UNIX access rights from an ACL management tool, such as Windows Explorer. The bit list consists of seven binary bits (bits 0–6, right to left). Any combination of bits is allowed. Each bit is 1 when set, otherwise 0. ○ Bit 0 set (0000001 or +1) — the system presents the UNIX metadata associated with files and directories to CIFS backup clients by using a special ACE (access control entry) in the file or directory's ACL. This ACE can take either of two forms. If bit 0 is not set, the system uses an ACE type (CIFS allows vendors to define their own ACE types). If bit 0 is set, the system uses a standard ACE and encodes the information in the SID associated with that ACE. ○ Bit 1 set (0000010 or +2) — If bit 1 is set, then a Windows client can view and modify UNIX permissions on files and directories on the system. The UNIX permissions are presented as three additional ACEs in the ACL of each file and directory. You can view and modify these ACEs by using any CIFS ACL management application, such as Windows Explorer. ○ Bit 2 set (0000100 or +4) — If bit 2 is set, the system presents the UNIX permissions that are associated with files and directories in the ACL of the files so that CIFS network backup applications can back up and restore them to and from a Unity file system. ○ Bit 3 set (0001000 or +8) — If bit 3 is set, the system presents UNIX symbolic links as zero-byte files with a special ACL that captures the information that is associated with the symbolic link (for example, its target). If bit 3 is not set, the system may follow symbolic links on behalf of CIFS clients and, hence, a CIFS backup application does not back up the symbolic links, but instead, the files they point to. If this bit is set, the system follows symbolic links on behalf of CIFS network backup clients. This means that the CIFS backup application backs up the symbolic links, and not the files and directories they point to. ○ Bit 4 set (0010000 or +16) — Any file or directory on a Unity system can have as many as three names in the file system: a UNIX name, a long Windows or M256 name, and a DOS 8.3 name. If bit 4 is set, the system encodes	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			the UNIX name of files and directories in a special ACE in the ACL of the files so that CIFS network backup applications can back up and restore all three names of files and directories. ○ Bit 5 set (01000000 or +32) — By default, there is no way for NFS v2 and v3 clients to view or modify the ACLs associated with files and directories on the system. The tool emcsetsd allows NFS v2 and v3 clients to view and, if the user has permission to do so, modify the ACLs associated with files and directories on the system. Bit 5 must be set for the emcsetsd client tool to work. ○ Bit 6 set (1000000 or +64) — If set, bit 6 modifies the functions that are enabled with bit 1. If bit 6 is not set, UNIX rights that are applied to the file are the granted rights plus the rights not denied by the discretionary ACL (DACL). If bit 6 is set, UNIX rights that are applied are the granted rights less the denied rights by the DACL. In addition, the request is rejected if one of the three special ACEs is inheritable. This is because when changing rights on a directory, the client propagates rights down the tree to all nodes (files and directories), which is typically not a wanted behavior. Setting this bit prevents that. In practice, this means that ACLs for directories must be set by using the Advanced panel in the security properties within Windows Explorer. Examples of bit string settings: ● 0000010 — (bit 1 only = 2) Allows CIFS clients to view and modify the UNIX permissions on files and directories by using Windows Explorer. All other settings use the default values. ● 1000010 — (bit 1 + bit 6 = 66) Changes the way that the ACL is translated into UNIX permissions on files and directories. As a result, UNIX permissions applied to files and directories are the rights granted by any grant ACE for the UNIX user/group/other less any rights explicitly denied in any deny ACE for the UNIX user/group/other. ● 1100010 — (bit 1 + bit 6 + bit 5 = 98) Enables NFS v2 and v3 clients to view and modify the ACLs on files and directories by using the emcsetsd tool. **NOTE:** Restart the NAS server for changes to take effect.	
cifs	acl.restrictedTakeOwnership	0 or 1 Default: 0	Controls ownership rights in SECURE or UNIX access policy. ● 1 = Privilege. Take ownership. Ownership rights are considered only for the account that is mapped on UID 0. Only UID 0 can take ownership (except for backup or restore purposes).	NAS server
cifs	admin.shareC_NotCreated	0 or 1 Default: 0	By default, the C$ share is created automatically, which makes all the file systems visible. This parameter controls system C$ share creation.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			• 0 = Create C$ share on all VDMson the system except rootVDM. • 1 = Do not create C$. **NOTE:** You will not be able to browse the system to highlight directories to be shared using the MMC share creation tab.	
cifs	admin.shareC_RO	0 or 1 Default: 0	From C$ share access, you can write on file systems mounted on /, but not on the root file system. • 0 = Set directory / as read-only, but allow users to write on subdirectories. • 1 = Set the C$ share as read-only. A security descriptor is created on the share to prevent writes, and the umask is set to 022. **NOTE:** Restart the NAS server for changes to take effect.	NAS server
cifs	allowSnapSureVss	0 or 1 Default: 1	Controls the Microsoft Shadow Copies of Share Folders (SCSF) feature, which can be used to access previous versions of a file or directory that is stored by using a checkpoint directly from a CIFS client. • 0 = Disable SCSF checkpoint access. • 1 = Enable SCSF checkpoint access.	NAS server
cifs	cifsclient.timeout	0–0xffffffff Default: 20000	Specifies the CIFS client timeout (in milliseconds) that is required for a response to a CIFS client request from a local NAS server to a remote CIFS server. Used by CDMS. Example: 20000 = 20 seconds	NAS server
cifs	LanmanServer.disableNameChecking	0 or 1 Default: 0	Controls whether to disable checking the Kerberos ticket of the client for the principal name of the server. Microsoft Knowledge Base Article ID 281308 provides detailed information. • 0 = Do not disable checking. The client must use the primary system name in order to connect. • 1 = Disable checking and allow the client to connect with a DNS alias. **NOTE:** Restart the NAS server for the changes to take effect.	NAS server
cifs	LanmanServer.IdleUserAutoLogoff	0–0xffffffff Default: 4294967295 (0xffffffff)	Sets the number of minutes after which an idle user with no open files is automatically logged out of the server. Setting this parameter causes the system to free resources associated with user sessions that are orphaned by the client. The default behavior is for the user to be logged out when explicitly requested by the client or when the TCP connection is reset. Example: 15 = After 15 minutes of idle time, log out the user from the server.	NAS server
cifs	LanmanServer.maxLocalUsers	0–0xffffffff Default: 128	Specifies the maximum number of local users that can be created on a CIFS server.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
cifs	LanmanServer.MaxMpxCount	5–2048 Default: 127	Sets the maximum number of CIFS client commands that are allowed without acknowledgment in the NAS server (for example, Notify request). This value is used by the client machine to limit the number of commands. The value is returned in the negotiate command. **NOTE:** This parameter only affects the behavior of SMB1.	NAS server
cifs	maxVCThreads	1–0xffffffff Default: 3	Sets the maximum number of threads that are held in reserve to break deadlocks between file access requests and virus checking requests for the files. The maximum is one less than the number of CIFS threads set for the NAS server. Setting a reserved thread for a VC does not mean that the VC is unable to use another thread. This is only the number of threads that are used exclusively by the VC. The reserved threads are taken from the total available threads. Be careful not to use too high a number of threads for VC compared to the total CIFS thread. This could adversely affect performance. **NOTE:** Restart the NAS server for the changes to take effect.	Global
cifs	nthreads	32–2048 Defaults: Unity 300: 384 Unity 350, 400, and 500: 512 Unity 450, 550, 600, and 650: 1024	This parameter represents the number of threads that are dedicated to serve CIFS requests. The default value of this parameter is memory-dependent. Ensure that the system memory can support your configuration. The update of the CIFS thread count needs several minutes to take effect, and the cifs.nthreads value cannot be changed until the update is done.	Global
cifs	nullSession	0, 1, or 2 Default: 0	Allows client to use nullSession (no username, no password) to connect to a share. The mapped UID for such a user is –2. ● 0 = Prevent clients from connecting to a share when using nullSession. ● 1 = Allow clients to connect to a share without a username and password, but not read/write on the file system. ● 2 = Allow clients to connect to a share on a standalone server without a username and password, but not read/write on the file system.	NAS server
cifs	ReadOnly.Comp	0, 1, or 2 Default: 0	Controls support of the CIFS read-only bit behavior with other file server vendors. ● 0 = No correlation is made between UNIX permissions and the DOS read-only attribute on a file or directory. ● 1 = Enable compatibility with Samba: ○ If the UNIX owner write bit is off, the DOS read-only bit is considered on. ○ Only the owner can manipulate the DOS read-only bit.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			○ If the DOS read-only bit is set from CIFS, all UNIX write bits are reset. ○ If the DOS read-only bit is reset from CIFS, the write bit is set by an exclusive OR with the umask on all UNIX write bits. ● 2 = Enable compatibility with Network Appliance: ○ If any UNIX write bit is on, the DOS read-only bit is considered off. ○ If no UNIX write bit is on, the DOS read-only bit is considered on. ○ If the DOS read-only bit is set from CIFS, all UNIX write bits are reset. ○ If the DOS read-only bit is reset from CIFS, the UNIX owner write bit is set. **NOTE:** Restart the NAS server for the changes to take effect.	
cifs	ReadOnly.Delete	0 or 1 Default: 1	This parameter applies only if the cifs facility ReadOnly.Comp parameter has a nonzero value. ● 0 = Prevent NFS clients from deleting files and directories on which the DOS read-only attribute is set (except for directories in Network Appliance mode). ● 1 = Ignore the DOS read-only attribute and allow the deletion of files and directories.	NAS server
cifs	set_eas_ok	0 or 1 Default: 0	Unity does not support CIFS extended attributes, and the system rejects any request to set the extended attributes of a file. Some applications, however, rely on this mechanism. ● 0 = Prevent the system from accepting requests to set the extended attributes on files. ● 1 = Enable the system to accept requests to set extended attributes on files. Note that this does not mean that the system stores the extended attributes; it simply means that it does not reject a request to set them. Backup and migration applications can then restore or migrate files with extended attributes to the system. The file data and standard attributes of the files are restored or migrated to the system, but not the extended attributes.	NAS server
cifs	smb1.disabled	0 or 1 Default: 0	Disables SMB1 client access when the SMB2 or SMB3 protocol is configured. SMB1 clients connected before setting this parameter to 1 are disconnected by the server upon processing the next request. ● 0 = SMB1 clients have access to the SMB servers. ● 1 = SMB clients supporting only the SMB1 protocol (XP, Windows 2003, and earlier operating systems) cannot access to the SMB servers when the SMB MAX protocol is configured to allow SMB2 or SMB3.	Global
cifs	smbsigning	0 or 1 Default: 1	Controls Server Message Block (SMB) signing on the NAS server/VDM. ● 0 = Disable SMB signing. The NAS server overrides any SMB signing GPO that is set for the domain. SMB signing must also be disabled on Windows clients.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			• 1 = Enable SMB signing. The SMB signing relies on the GPO, if defined. When the GPO is not defined, it relies on the CIFS server Registry that is present on the NAS server. GPOs override the CIFS server Registry settings. **NOTE:** Restart the NAS server for the changes to take effect.	
cifs	srvmgr.diskdrive	0 or 1 Default: 0	Provides disk drive information to show the available disk space on a CIFS server to third-party applications. • 0 = the system returns one drive (drive C:) mapped on the root file system. • 1 = the system returns a disk drive list based on the share name definition. If a share name <A through Z>$ exists, then a list of drive equivalents to the share name (without the $) exist. Number of drives is limited to 26. All drives with share names ending in a $ assume the “Hidden Directory" property.	NAS server
cifs	srvpwd.updtMinutes	(0,4294967295) Default: 0	Defines the minimum time interval (in minutes) between CIFS server password changes. • 0 = Disable server password changes. Examples: • 1440 = Allow a server password change after 1440 minutes (24 hours). **NOTE:** Restart the NAS server for the changes to take effect.	NAS server
cifs	windowsTimeUpdate	0 or 1 Default: 0	This parameter specifies when the last modification time of CIFS files is updated. • 0 = Timestamps update on each CIFS write. • 1 = Timestamps are updated on CIFS close (this is how Windows behaves).	NAS server
cvfs	virtualDirName	Text string Default: ckpt	CVFS version 2 allows users to traverse a mounted checkpoint from a hidden virtual directory. This parameter defines a user-specified virtual directory name. The actual directory name is the specified string preceded by a dot. ckpt = Use `.ckpt` for the virtual directory name. Example: snapshot = Use `.snapshot` as the virtual directory name. **NOTE:** Reboot the SP for the changes to take effect.	Global
dns	excludeSubnetsUpdate	Text string containing a user-specified list of subnets. See description. Default: no excluded subnets	Specify a list of IPv4 and IPv6 subnets, which avoids the DNS update for interfaces connected to those subnets. Each subnet definition is separated with a space. The IPv4 subnet format is x.y.z.w/a.b.c.d and the IPv6 subnet format is [IPv6 Address]/prefix-length. Up to three subnets can be specified. By default there is no subnet, the parameter value is an empty string.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			Mixed IPv6 and IPv4 setups are allowed, for example: "192.168.1.0/255.255.255.0 3ffe::4e:0:0:0:0/64".	
dns	updateMode	0, 1, or 2 Default: 2	By default, the NAS server issues secure Dynamic DNS updates to the DNS server for the DNS domain it joins. • 0 = Do not issue updates. • 1 = Issue nonsecure updates. • 2 = Issue secure updates.	NAS server
dns	updatePTRrecord	0 or 1 Default: 0	Controls whether the DNS client of the NAS server updates the PTR record for all CIFS servers. • 0 = The DNS client does not update the PTR record. • 1 = Allow the DNS client to update the PTR record.	NAS server
dns	updateTTL	120–2400 Default: 1200	Defines the Time To Live (TTL) for DNS HOST record(s) related to a NAS network interface that is dynamically registered in a DNS server zone.	NAS server
dns	useTCP	0 or 1 Default:0	Enforce the TCP transport for all DNS traffic when the value is 1 (0 by default). • 0 = Do not enforce the TCP transport for all DNS traffic. • 1 = Enforce the TCP transport for all DNS traffic.	NAS server
filesystem	rstchown	0 or 1 Default: 1	Sets restricted file ownership. • 0 = Allow the owner of a file to change the file ownership or group ID to any other owner or group because chown and chgrp follow the less restrictive Portable Operating System Interface for UNIX (POSIX) semantics. • 1 = Allow only the superuser to change the owner of a file. The current owner can change the group ID only to a group to which the owner belongs. **NOTE:** This parameter applies to NFS, but not to CIFS.	NAS server
FLRCompliance	writeverify	0 or 1 Default: 0	Specifies whether write verification is enabled for FLR-C file systems. • 0 = Write verification is not enabled. • 1 = Write verification is enabled and the system will read-back data when it is written to ensure that it has not changed during the write process. **NOTE:** If FLR-C is enabled, this parameter must also be enabled in order to comply with SEC Rule 17a-4(f). **NOTE:** There may be a performance impact due to the write-back process, compared to performance when write verification is disabled.	NAS server
imt	dhsmEnabled	0 or 1 Default: 0	Enable/disable migration of DHSM stub files. • 0 = Enable migration of DHSM stub files, Default. • 1 = Disable migration of DHSM stub files. When enabled, new CIFS migrations preserve DHSM stub files automatically. **NOTE:** When enabled, source file systems containing DHSM stub files MUST have	Global

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			"backup=offline" otherwise stub files become regular files on the destination. Run "fs_dhsm -info <src_fs>" on the source system to check the current setting. Use "fs_dhsm -modify <src_fs> -backup offline" to modify the setting. When the migration of DHSM stub files is disabled ensure "backup=passthrough".	
imt	forceRollback	0 or 1 Default: 0	The value to decide whether to force rollback migration. If it is true, the migration dirty range is force deleted during rollback. **WARNING: Setting 1 will cause the dirty range being discarded during rollback, which may cause data lost. Use this option only when you have properly backed up the files which having dirty ranges, or youare100% surethatthe data can be discarded.**	Global
imt	remoteDhsmPort	1–65536 Default: 5080	Specifies the port number which file import sessions use to connect to the source VNX HTTP DHSM service. This value needs to be the same as the port number used by the HTTP service on the source side. This parameter needs to be set correctly when the source VDM to be imported contains FLR file systems. If the source VDM does not contain FLR file systems, this parameter has no effect on import session behavior.	NAS server
ldap	cacheMaxGroups	10–1000000 Default: 10000	Specifies the maximum number of cached groups. After reaching this limit, each new group entry removes the oldest entry. To reduce the maximum count below the current count of entries, use the server_ldap -clear command or restart the NAS server.	NAS server
ldap	cacheMaxHosts	10–1000000 Default: 10000	Specifies the maximum number of cached hosts. After reaching this limit, each new host entry removes the oldest entry. To reduce the maximum count below the current count of entries, use the `server_ldap -clear` command or restart the NAS server.	NAS server
ldap	SecurityLayer	0, 1, 2, or 4 Default: 2	Sets the level of security the NAS server uses during negotiation with the domain controller during an LDAP BIND session. • 0 = No security layer — Respond with no security layer regardless of what the domain controller proposes. In Windows environments configured to enforce LDAP signing, the BIND procedure fails because of this value. • 1 = Same as LDAP server — Agree with any security layer proposed by the domain controller. • 2 = Integrity protection — Always propose LDAP signing, which checks the contents of the LDAP messages.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			• 4 = Privacy protection — Always propose LDAP message encryption, which prevents the data in the packets from being sent in clear text. **NOTE:** Changes to this parameter take effect at the next LDAP BIND.	
lockd	gpDuration	30–180 Default: 45	Sets the grace period interval (in seconds) after the NAS server restarts during which clients can reclaim the locks that are established before the restart. During this interval, no new lock can be granted.	Global
mount	forceFullShowmount	0 or 1 Default: 1	Controls the visibility of the NFS export information. It allows the filtering of entries if the client does not have mount permission for the file system corresponding to that entry. By default, it is disabled. • 0 = Enable NFS export hiding. • 1 = Disable NFS export hiding.	NAS server
mount	tcpResponseLimit	262144–1048576 Default: 262144	Changes the maximum size of the mount tcp response. Sets the parameter according to how many mount-exports are configured in the system. This parameter may limit how many exports can be shown by 'showmount'.	NAS server
NDMP	addBackupEnv	0 or 1 Default: 0	Specifies whether to add NDMP environment variables such as DIRECT=y and RECURSIVE=y to the DMA at the end of a backup. This internal parameter is added in cases where DDAR is wanted and the DMA depends on the two variables to perform a DDAR operation. The default value for this param is 0. If NDMP.addBackupEnv=0, this variable is not added to the DMA at the end of backup. if NDMP.addBackupEnv=1, this variable is added to DMA at the end of backup.	NAS server
NDMP	bufsz	64-1168 Default: 256	Size of the I/O buffer (in kilobytes) allocated for reading and writing on the tape as requested by TAPE_READ/TAPE_WRITE from the NDMP client.	NAS server
NDMP	CDBFsinfoBufSizeInKB	16-2048 Default: 1024	Used to adjust buffer size for SCSI/ TAPE_EXECUTE_CDB and CONFIG_GET_FS_INFO. It can be increased if the system has a big tape library with thousands of slots and the backup software does not divide the CDB read_element_status into multiple requests. It can also be increased if the system has thousands of file systems mounted. It can be decreased if the system cannot boot up due to fragmented memory. Default value for this param is 1024 KB.	NAS server
NDMP	concurrentDataStreams	1–20 Default: 20	Displays the maximum number of concurrent backup or restore streams that are set. This parameter also enables the user to change the concurrent backup sessions from the default value of four up to a maximum of eight, provided the system has at least 8 GB memory. The default value is 4. **NOTE:** Reboot the SP for changes to take effect.	Global
NDMP	convDialect	Text string Default: 8859-1	Defines the conversion dialect when an ASCII-mode image is restored to a NAS server that has Internationalization turned on. This applies only when	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			the conversion dialect you want to use is non-Latin1 dialect, such as big5.	
NDMP	dialect	Text string Default: null string	Sets the dialect on the NAS server to match the dialect of the backup client. This applies when the NAS server has Internationalization turned on. This applies only when the conversion dialect you want to use is non-Latin1 dialect such as big5.	NAS server
NDMP	envTakeLast	0 or 1 Default: 0	Specifies whether to take the last value for same NDMP environment variables with multiple values. This can be used as a workaround if the DMA runs into issues.	NAS server
NDMP	IPv6	0 or 1 Default: 1	Enable or disable IPv6 connection address extension (CAE). ● 0 = Disable CAE. ● 1 = Enable CAE.	Global
NDMP	NdmpSnapTimer	1-525600 Default: 240	Value (in minutes) used to adjust the speed to make the NDMP snap self-destroy time longer. First, set the NDMP snap self-destroy time as (NdmpSnapTimer+60) minutes and start the timer. Then, every time the NdmpSnapTimer times out if the session is still active, make the NDMP snap self-destroy time (NdmpSnapTimer+60) minutes longer. When the NDMP session is closed, the NdmpSnapTimer will be canceled. This prevents the NDMP snap from persisting forever when an SP reboot happens during an NDMP backup.	NAS server
NDMP	noxlt	0 or 1 Default: 0	Do not translate the file name to UTF8 when I18N is enabled for NDMP. ● 0 (default) = Do not translate the file name to UTF8 when I18N is enabled for NDMP. ● 1 = Translate the file name to UTF8 when I18N is enabled for NDMP.	Global
NDMP	portRange	Text string Default:10500-10531	Port range for NDMP data/mover listening	Global
NDMP	retryTapeOpenAnyway	0 or 1 Default: 0	Whether to retry tape open anyway in case of error. ● 0 (default) = Do not retry tape open anyway in case of error. ● 1 = Retry tape open anyway in case of error.	Global
NDMP	scsiReserve	0 or 1 Default: 0	Determines whether or not to send scsi reserve to the tape device during the tape open operation. ● 0 (default) = Do not send scsi reserve to the device. ● 1 = Send scsi reserve to the device.	NAS server
NDMP	snapsure	0 or 1 Default: 1	Determines whether SnapSure is used for backup if the NDMP environment variable SNAPSURE is not set or not supported by the DMA software. The NDMP environment variable, if set, overrides this parameter. ● 0 = Do not use SnapSure for backup. ● 1 = Use SnapSure for backup.	Global
NDMP	snapTimeout	2-60	NDMP backup SnapSure file system creation timeout value (in minutes). You can increase this parameter if	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
		Default: 5	the system is too busy to finish a SnapSure file system creation within the default timeout window. You can decrease this parameter (not recommended) if the system is idle most of the time.	
NDMP	v4OldTapeCompatible	0 or 1 Default: 1	For NDMP v2/v3, sets tape operation behaviors compatible with v4: ● 0 (default) = disables v4 tape behaviors for NDMP v2/v3 ● 1 = enables v4 tape behaviors for NDMP v2/v3	NAS server
nfs	netgroupprefix	0 or 1 Default: 0	Specifies how netgroups names are defined for host lists that use strings: ● 0 (default) = A netgroup name is defined using the @ prefix. Otherwise, the name is considered to be a hostname. ● 1 = A name with the @ prefix is considered to be a netgroup, and a name without the @ prefix is considered to be a hostname first, and then a netgroup name. This can impact performance.	NAS server
nfs	nosuid	0 or 1 Default: 0	Specifies the settings for `setuid` and `setgid` access right flags. These flags are used to allow users to run programs with elevated privileges. Create ticket UNITYD-43138 to track the invisible parameters. ● 0 (default) = setuid and setgid are allowed. ● 1 = setuid and setgid are ignored. This parameter applies to all NFS protocol versions. Parameter value changes apply immediately.	NAS server
nfs	nthreads	32–2048 Defaults: Unity 300: 384 Unity 350, 400, and 500: 512 Unity 450, 550, 600, and 650: 1024	This parameter represents the number of threads dedicated to serve NFS requests. The default value of this parameter is memory dependent. Ensure that the system memory can support your configuration. The update of the NFS thread count needs several minutes to take effect, and the nfs.nthreads value cannot be changed until the update is done.	Global
nfs	rootSquashAllGids	0 or 1 Default: 0	Specifies Linux or Solaris behavior for how to apply anonGid. ● 0 (default) = Only the GID 0 is replaced (squashed) by anonGid (Linux behavior). ● 1 = All GID are squashed (Solaris behavior)	NAS server
nfs	rootSquashGidsOnlyForNobodyUid	0 or 1 Default: 0	Specifies the link between anonUid and anonGid. ● 0 (default) = anonGid is taken into account regardless of the value of anonUid. ● 1 = anonGid is taken into account only if anonUID = -2 (VNX behavior).	NAS server
nfs	showExportLevel	0, 1, or 2 Default: 0	An NFS export is defined by both the exported path and the name of the export. By default, the server reports both entries (unless identical) in the client 'showmount -e' query. When set, this param will filter one or the other kind: ● 0 = Show all. (default)	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			• 1 = Show exported path only. • 2 = Show export name only.	
nfs	transChecksum	0 or 1 Default: 0	Specifies whether the NAS server supports Oracle Direct NFS (DNFS) for clients that use Oracle Database 11g with NFSv3. When support is enabled, the NAS server ensures that each transaction carries a unique ID and avoids the possibility of conflicting IDs that result from the reuse of relinquished ports. • 0 = Do not support DNFS. • 1 = Support Oracle 11g DNFS clients that use NFSv3.	NAS server
nfs	v3xfersize	8192–1048576 Default: 131072	Specifies the default transfer size for NFSv3 and NFSv4 reads and writes. **NOTE:** Do not change the transfer size for NFS datastores that have already been mounted on the ESXi host. Modifying the transfer size after datastore mount may cause issues with power up of the VMs on the datastore.	Global
nfsv4	delegationsEnabled	0 or 1 Default: 1	Specifies whether delegations are enabled. NFSv4 file delegations may be disabled in certain circumstances if they lead to client issues. • 0 = Prevent the NAS server from granting NFSv4 file delegations. • 1 = Allow NFSv4 file delegations as usual.	NAS server
nfsv4	domain	Default: empty string	(Applies if the value of the nfsv4.numericId parameter is `0`.) Determines the value to return to the NFSv4 client as the domain name. • If the value of this parameter is empty and NFS secure is used, the realm of the NFS server is used as the domain name. • If the value of this parameter is not empty, this value is returned to the NFSv4 client as the domain name of the UID and GID. **NOTE:** The administrator may need to update the `nfsv4.numericId` and `nfsv4.domain` parameters only if some legacy NFSv4 clients are connected to the NAS server.	NAS server
nfsv4	leaseDuration	10–180 Default: 18	Defines the duration during which the server maintains client states in the absence of client activity. This value must be less than the grace period duration specified by the lockd facility gpDuration parameter. **NOTE:** Reboot the SP for changes to take effect.	Global
nfsv4	numericId	0 or 1 Default: 1	Specifies whether NFSv4 UID and GID values are handled as numeric strings. • 0 = NFSv4 UID and GID values are handled as *`user_name@domain_name`* and *`group_name@domain_name`*, respectively, where *`domain_name`* is defined in the parameter `nfsv4.domain`. To translate the UID or GID into this format, a Unix Directory Service must be configured and a reverse	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			lookup of the UID or GID must be successful. If these conditions are not met, the system handles the UID and GID values as numeric strings. • 1 = NFSv4 UID and GID values are handled as numeric strings. **NOTE:** The administrator may need to update the `nfsv4.numericId` and `nfsv4.domain` parameters only if some legacy NFSv4 clients are connected to the NAS server.	

ns	switch	Text string (max 128 characters)
		Default: null string
			Defines specific name services. Name services are queried in the given order until a result is found. Syntax is:
			`"[ ]{<database>[ ]:[ ]<source1> <source2> [...]} [{...}]"`
			database is one of the following:
			• `passwd`
			• `group`
			• `hosts`
			• `netgroup`
			source1, *source2*, and so forth are one of the following:
			• `files`
			• `nis`
			• `ldap`
			• `dns`
			For example:
			`"hosts: dns passwd: files nis group:nis"`
			Unspecified databases use default rules according to the NAS server setup.
				NAS server

pax	checkUtf8Filenames	0 or 1 Default: 1	Specify whether to check if file names are in a valid UTF-8 format.	NAS server
pax	filter.caseSensitive	0 or 1 Default: 1	Sets whether or not the file filters become case-sensitive. 1=Filter is case-sensitive, 0=Filter is not case-sensitive.	NAS server
pax	filter.dialect	Text string Default: null string	Sets the dialect for translating PAX filter parameters. This applies when the NAS server operates in Internationalization mode. The filter-dialect is used to translate the filter value to UTF-8. If the translation fails, the filter cannot be used.	NAS server
pax	filter.numDirFilter	0-50 Default: 5	Specifies the number of directory filters that can be specified for a single backup.	NAS server
pax	filter.numFileFilter	0-50 Default: 5	Specifies the number of file filters that can be specified for a single backup.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
pax	maxCifsBufferLengthInKB	8-129 Default: 32	Maximum allowed CIFS ea/sd buffer length for NDMP backup/restore in kilobytes.	NAS server
pax	maxPaxHlkTableCnt	1024-4194304 Default: 1048576	Maximum allowed PAX hard link table count to control memory usage. Different memory settings will use different default and value ranges. 4GB={min=1024 max=4194304 default=1048576} 5GB={min=1024 max=5242880 default=1572864} 8GB={min=1024 max=6291456 default=2097152} 24GB={min=1024 max=14680064 default=6291456}	NAS server
pax	nFTSThreads	1-128 Default: 8	Specify the number of FTS worker threads per backup session.	NAS server
pax	nPrefetch	1-8 Default: 8	Specify the number of tape records prefetched for each worker thread.	NAS server
pax	nRestore	1-16 Default: 4	Specify the number of worker threads for each restore session.	NAS server
pax	nThread	1-128 Default: 16	Specify the number of worker threads for each backup session.	NAS server
pax	noFileStreams	0 or 1 Default: 0	Specify whether to allow CIFS file streams in a backup/restore.	NAS server
pax	paxReadBuff	16-128 Default: 64	Specify the number of buffers used to stream data for each restore job.	NAS server
pax	paxStatBuff	1-512 Default: 128	Specify the number of buffers in stat queue for each backup session.	NAS server
pax	paxWriteBuff	1-256 Default: 64	Specify the number of buffers in tape write queue for each backup session.	NAS server
pax	readWriteBlockSizeInKB	64-256 Default: 64	Specify the maximum allowed PAX buffer size for NDMP read/write in kilobytes.	NAS server
pax	scanOnRestore	0 or 1 Default: 1	Specify whether to scan for viruses upon restore.	NAS server
quota	useQuotasInFsStat	0, 1, or 2 Default: 0	Controls whether quotas are included when displaying file system free-space statistics to NFS clients that use the UNIX `df -k` command to view statistics. • 0 = Exclude quotas when a disk quota verification is done by using df. The actual available space can be less than the "space available" shown in the command output. • 1 = Include quotas. The df command run by a nonroot user reports only the space available to the user. This means the "space available" displays factors in the space that are preallotted to quota	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			trees, users, and groups. rquota is not supported for tree quotas. ● 2 = The df command will only report the space available to the file system or the tree. This means only the space in tree quotas is factored in, user and group quotas are not.	
security	maxNISCacheGroupsCount	10–1000000 Default: 10000	If the number of the groups exceeds this value, the group will not be inserted to the cache.	NAS server
security	maxNISCacheUsersCount	10–1000000 Default: 10000	If the number of users exceeds this value, the user will not be inserted to the cache.	NAS server
shadow	followabsolutpath	0–3 Default: 0	Controls whether Windows clients can follow a symbolic link that contains absolute paths (full pathnames). The bit list consists of two binary bits (bits 0 and 1, right to left). Each bit is 1 when set; otherwise 0. Bit 0: ● 0 = Do not allow following symbolic links that contain an absolute path. ● 1 = Allow following symbolic links that contain an absolute path. There are no restrictions on access, allowing users to easily go outside the share and also into another file system. When users go outside of the share, the security set on the original share to which the user is connected applies. Bit 1: ● 0 = Allow only absolute symbolic links owned by root (UID 0) to be followed. ● 1 = Allow any absolute symbolic links to be followed. Bit 1, if set, creates a potential security issue for NFS access because the NFS client can create an absolute symbolic link to any location in the NAS server. Example: 1 (01) = Allow following symbolic links, but only those owned by root. 0 through 3 assume their binary values. Refer to the multiprotocol resources for Unity systems on Dell Support for more information about this parameter.	NAS server
shadow	followdotdot	0 or 1 Default: 0	Controls symbolic link following within the current share if the target path includes the dot-dot component (..). ● 0 = Do not allow following symbolic links. ● 1 = Allow following symbolic links.	NAS server
shadow	offlinebitfilter	0 or 1 Default: 1	Specify DHSM offline bit behavior. ● 0 = Allows to set offline attribute independently of DHSM state. ● 1 = Set offline attribute dependently of DHSM state.	Global

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
ssl	protocol	2, 3, or 4 Default: 2	Defines the lowest version of the TLS protocol the NAS server external access supports for SSL communication. ● 2 = NAS server supports TLS protocol v1.0 and above. ● 3 = NAS server supports TLS protocol v1.1 and above. ● 4 = NAS server supports TLS protocol v1.2 and above. **NOTE:** Reboot both SPs for the changes to take effect.	Global
vdm	codepage	CP949, UTF8, 8859-1, 8859-15 Default: UTF8	Defines the default code page used for filename translating from NFSv3 and FTP clients. Windows and NFSv4 clients are not affected by this parameter. ● CP949 = EUC-KR Korean ● UTF8 = UTF-8 (8-bit Unicode) ● 8859-1 = Latin-1 Western Europe ● 8859-15 = Latin-9 (same as Latin-1, plus the Euro symbol €)	NAS server
viruschk	fsscanburst	0 - 1000 Default: 20	Defines the number of files sent in one burst by the scan process to the virus checker engines. File system scanning will be suspended until these files are no longer checked. This parameter is invisible initially. ● 0 = The burst will be set dynamically to: Number of AV threads * Number of online Common Antivirus Agent (CAVA) servers	NAS server
viruschk	noRetry	0–0xffffffff Default: 0X38	Defines the errors returned by the CAVA engine that are not followed by a retry. These errors are considered as normal case. This parameter uses the same bits as the audit parameter. ● 0x02 = ERROR_SETUP ● 0x04 = AV_NOT_FOUND ● 0x08 = FILE_NOT_FOUND ● 0x10 = ACCESS_DENIED ● 0x20 = FAIL ● 0x20000 = INSUFFICIENT_RESOURCES Example: 0x38 = 0x08 + 0x10 + 0x20	NAS server
viruschk	Notify	0, 1, 2, 3, 6, or 7 Default: 7	Controls notifications to users (through Windows pop-up messages) and the admin (through System Management events) when the CAVA service deletes, modifies, or renames a file because of a virus infection. ● 0 = Send Virus Checker file deletion and rename event notifications to System Management. ● 1 = Send Virus Checker file deletion, rename, and modification event notifications to System Management. ● 2 = Send Virus Checker file deletion and rename event notifications to System Management, and to SMB/CIFS client in Windows pop-up. ● 3 = Send Virus Checker file deletion, rename, and modification event notifications to System Management, and send deletion and rename event notifications to SMB/CIFS client in Windows pop-up.	NAS server

Table 2. NAS server parameters (continued)

Facility	Parameter name	Values	Description	Scope
			• 6 = Send Virus Checker file deletion and rename event notifications to System Management, and send deletion, rename, and modification event notifications to SMB/CIFS client in Windows pop-up. • 7 = Send Virus Checker file deletion, rename, and modification event notifications to System Management and to SMB/CIFS client in Windows pop-up. **NOTE:** Restart the NAS server for changes to take effect.	
viruschk	RPCtype	Default: 0x00000003	Defines the RPC type used by virus checking to communicate with the Virus Checker servers.	NAS server
viruschk	Traces	0–0xffffffff Default: 0	Defines the traces that appear in the server_log for Virus Checker: • 0x00000001 = In SMB/CIFS: setCheckStatus, setCheckWriter, check Wait • 0x00000002 = In SMB/CIFS: createEvent, sendEvent, mustBeChecked (scan on read) • 0x00000004 = In Virus Checker: connectAnyServer, vc_checkfile, stopThreads, exit, start • 0x00000008 = In SMB/CIFS applibnt: open, writeAsyncMsg, readMsg, close, rename • 0x00000010 = In Virus Checker: heartbeat of the virus checker servers • 0x40000000 = Warnings • 0xC0000000 = Warnings and errors	NAS server
viruschk	vnodeHWM	0–100 Default: 90	Sets the percentage of total vnodes available in the system pending on virus checking. An event is sent to System Management when the maximum is reached. The SMB/CIFS thread is blocked until the low water mark is reached again. **NOTE:** Restart the NAS server for changes to take effect.	NAS server
viruschk	vnodeLWM	0–100 Default: 60	Sets the percentage of total vnodes available in the system that returns the system in a normal state after the high water mark has been reached. An event is sent to System Management when the maximum is reached. **NOTE:** Restart the NAS server for changes to take effect.	NAS server
viruschk	vnodeMax	100–0xffffffff Default: 2000	Defines the maximum number of total vnodes available in the system pending on Virus Checking. An event is sent to the NAS server when the maximum is reached. The SMB/CIFS thread is blocked until the low water mark is reached again. **NOTE:** Restart the virus checker service for changes to take effect.	NAS server

Appendix B

Available file statistics for svc_topstats

The following is a list of the available statistics paths and field names for `svc_topstats`.

For the most updated list of all available statpath names and field names, run the **`svc_topstats <SVDM_A/SVDM_B> -info`** command.

```
name            = nfs.nassvr
description     = Per NAS Server NFS statistics
type            = Set
member_stats    =
nfs.nassvr.*.client,nfs.nassvr.*.user,nfs.nassvr.*.group,nfs.nassvr.*.export
member_elements = nfs.nassvr.SVDM_A,nfs.nassvr.nas_server1
member_of       = nfs

name            = nfs.nassvr.*.client
description     = Per NFS client statistics
type            = Correlated Set
member_stats    =
nfs.nassvr.*.client.*.totalCalls,nfs.nassvr.*.client.*.readCalls,nfs.nassvr.*.client.*.wr
iteCalls,nfs.nassvr.*.client.*.suspectCalls,nfs.nassvr.*.client.*.totalBytes,nfs.nassvr.*
.client.*.readBytes,nfs.nassvr.*.client.*.writeBytes,nfs.nassvr.*.client.*.avgTime
member_elements =
member_of       = nfs.nassvr

name            = nfs.nassvr.*.client.*.totalCalls
description     = Number of NFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.readCalls
description     = Number of read calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.writeCalls
description     = Number of write calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.suspectCalls
description     = Number of suspicious NFS calls
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.totalBytes
description     = Number of bytes read and written
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.readBytes
description     = Number of bytes read by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client
```

```
name            = nfs.nassvr.*.client.*.writeBytes
description     = Number of bytes written by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.client.*.avgTime
description     = Average microseconds per NFS call
type            =
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.client

name            = nfs.nassvr.*.user
description     = Per NFS user statistics
type            = Correlated Set
member_stats    =
nfs.nassvr.*.user.*.totalCalls,nfs.nassvr.*.user.*.readCalls,nfs.nassvr.*.user.*.writeCal
ls,nfs.nassvr.*.user.*.suspectCalls,nfs.nassvr.*.user.*.totalBytes,nfs.nassvr.*.user.*.re
adBytes,nfs.nassvr.*.user.*.writeBytes,nfs.nassvr.*.user.*.avgTime
member_elements =
member_of       = nfs.nassvr

name            = nfs.nassvr.*.user.*.totalCalls
description     = Number of NFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.user.*.readCalls
description     = Number of read calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.user.*.writeCalls
description     = Number of write calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.user.*.suspectCalls
description     = Number of suspicious NFS calls
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.user.*.totalBytes
description     = Number of bytes read and written
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.user.*.readBytes
description     = Number of bytes read by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.user.*.writeBytes
description     = Number of bytes written by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user
```

```
name            = nfs.nassvr.*.user.*.avgTime
description     = Average microseconds per NFS call
type            =
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.user

name            = nfs.nassvr.*.group
description     = Per NFS group statistics
type            = Correlated Set
member_stats    =
nfs.nassvr.*.group.*.totalCalls,nfs.nassvr.*.group.*.readCalls,nfs.nassvr.*.group.*.write
Calls,nfs.nassvr.*.group.*.suspectCalls,nfs.nassvr.*.group.*.totalBytes,nfs.nassvr.*.grou
p.*.readBytes,nfs.nassvr.*.group.*.writeBytes,nfs.nassvr.*.group.*.avgTime
member_elements =
member_of       = nfs.nassvr

name            = nfs.nassvr.*.group.*.totalCalls
description     = Number of NFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.readCalls
description     = Number of read calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.writeCalls
description     = Number of write calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.suspectCalls
description     = Number of suspicious NFS calls
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.totalBytes
description     = Number of bytes read and written
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.readBytes
description     = Number of bytes read by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.writeBytes
description     = Number of bytes written by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group

name            = nfs.nassvr.*.group.*.avgTime
description     = Average microseconds per NFS call
type            =
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.group
```

```
name            = nfs.nassvr.*.export
description     = Per NFS export statistics
type            = Correlated Set
member_stats    =
nfs.nassvr.*.export.*.totalCalls,nfs.nassvr.*.export.*.readCalls,nfs.nassvr.*.export.*.wr
iteCalls,nfs.nassvr.*.export.*.suspectCalls,nfs.nassvr.*.export.*.totalBytes,nfs.nassvr.*
.export.*.readBytes,nfs.nassvr.*.export.*.writeBytes,nfs.nassvr.*.export.*.avgTime
member_elements =
member_of       = nfs.nassvr

name            = nfs.nassvr.*.export.*.totalCalls
description     = Number of NFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.readCalls
description     = Number of read calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.writeCalls
description     = Number of write calls this client has executed
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.suspectCalls
description     = Number of suspicious NFS calls
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.totalBytes
description     = Number of bytes read and written
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.readBytes
description     = Number of bytes read by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.writeBytes
description     = Number of bytes written by the NFS client
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.nassvr.*.export.*.avgTime
description     = Average microseconds per NFS call
type            =
member_stats    =
member_elements =
member_of       = nfs.nassvr.*.export

name            = nfs.filesystem
description     = Per filesystem nfs statistics
type            = Set
member_stats    = nfs.filesystem.*.client
member_elements =
nfs.filesystem.536870917,nfs.filesystem.536870916,nfs.filesystem.536870915,nfs.filesystem
```

```
.536870913
member_of       = nfs

name            = nfs.filesystem.*.client
description     = Per client NFS statistics
type            = Correlated Set
member_stats    = nfs.filesystem.*.client.*.op
member_elements =
member_of       = nfs.filesystem

name            = nfs.filesystem.*.client.*.op
description     = Per client NFS Op statistics
type            = Correlated Set
member_stats    =
nfs.filesystem.*.client.*.op.*.avgTime,nfs.filesystem.*.client.*.op.*.totalCalls
member_elements =
member_of       = nfs.filesystem.*.client

name            = nfs.filesystem.*.client.*.op.*.avgTime
description     = Average microseconds per NFS call
type            =
member_stats    =
member_elements =
member_of       = nfs.filesystem.*.client.*.op

name            = nfs.filesystem.*.client.*.op.*.totalCalls
description     = Number of NFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = nfs.filesystem.*.client.*.op

name            = cifs.nassvr
description     = Per NAS Server CIFS statistics
type            = Set
member_stats    = cifs.nassvr.*.client,cifs.nassvr.*.user,cifs.nassvr.*.server
member_elements = cifs.nassvr.SVDM_A,cifs.nassvr.nas_server1
member_of       = cifs

name            = cifs.nassvr.*.client
description     = Per CIFS client statistics
type            = Correlated Set
member_stats    =
cifs.nassvr.*.client.*.totalCalls,cifs.nassvr.*.client.*.readCalls,cifs.nassvr.*.client.*
.writeCalls,cifs.nassvr.*.client.*.suspectCalls,cifs.nassvr.*.client.*.totalBytes,cifs.na
ssvr.*.client.*.readBytes,cifs.nassvr.*.client.*.writeBytes,cifs.nassvr.*.client.*.avgTim
e
member_elements =
member_of       = cifs.nassvr

name            = cifs.nassvr.*.client.*.totalCalls
description     = Number of CIFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.readCalls
description     = Number of CIFS read calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.writeCalls
description     = Number of CIFS write calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.suspectCalls
description     = Number of suspicious CIFS calls
```

```
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.totalBytes
description     = Number of bytes read and written
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.readBytes
description     = Number of bytes read by the CIFS client
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.writeBytes
description     = Number of bytes written by the CIFS client
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.client.*.avgTime
description     = Average microseconds per CIFS call
type            =
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.client

name            = cifs.nassvr.*.user
description     = Per CIFS user statistics
type            = Correlated Set
member_stats    =
cifs.nassvr.*.user.*.totalCalls,cifs.nassvr.*.user.*.readCalls,cifs.nassvr.*.user.*.write
Calls,cifs.nassvr.*.user.*.suspectCalls,cifs.nassvr.*.user.*.totalBytes,cifs.nassvr.*.use
r.*.readBytes,cifs.nassvr.*.user.*.writeBytes,cifs.nassvr.*.user.*.avgTime
member_elements =
member_of       = cifs.nassvr

name            = cifs.nassvr.*.user.*.totalCalls
description     = Number of CIFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.readCalls
description     = Number of CIFS read calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.writeCalls
description     = Number of CIFS write calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.suspectCalls
description     = Number of suspicious CIFS calls
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.totalBytes
description     = Number of bytes read and written
```

```
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.readBytes
description     = Number of bytes read by the CIFS client
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.writeBytes
description     = Number of bytes written by the CIFS client
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.user.*.avgTime
description     = Average microseconds per CIFS call
type            =
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.user

name            = cifs.nassvr.*.server
description     = Per CIFS server statistics
type            = Correlated Set
member_stats    =
cifs.nassvr.*.server.*.totalCalls,cifs.nassvr.*.server.*.readCalls,cifs.nassvr.*.server.*
.writeCalls,cifs.nassvr.*.server.*.suspectCalls,cifs.nassvr.*.server.*.totalBytes,cifs.na
ssvr.*.server.*.readBytes,cifs.nassvr.*.server.*.writeBytes,cifs.nassvr.*.server.*.avgTim
e
member_elements =
member_of       = cifs.nassvr

name            = cifs.nassvr.*.server.*.totalCalls
description     = Number of CIFS calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.readCalls
description     = Number of CIFS read calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.writeCalls
description     = Number of CIFS write calls requested
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.suspectCalls
description     = Number of suspicious CIFS calls
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.totalBytes
description     = Number of bytes read and written
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.readBytes
```

```
description     = Number of bytes read by the CIFS client
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.writeBytes
description     = Number of bytes written by the CIFS client
type            = Counter
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = cifs.nassvr.*.server.*.avgTime
description     = Average microseconds per CIFS call
type            =
member_stats    =
member_elements =
member_of       = cifs.nassvr.*.server

name            = fs.qtree
description     = Per Quota tree statistics
type            = Correlated Set
member_stats    =
fs.qtree.*.totalCalls,fs.qtree.*.readCalls,fs.qtree.*.writeCalls,fs.qtree.*.totalBytes,fs
.qtree.*.readBytes,fs.qtree.*.writeBytes
member_elements =
member_of       = fs

name            = fs.qtree.*.totalCalls
description     = Number of read and write requests on this Quota Tree
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtree

name            = fs.qtree.*.readCalls
description     = Number of read requests by the Quota Tree
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtree

name            = fs.qtree.*.writeCalls
description     = Number of write requests by the Quota Tree
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtree

name            = fs.qtree.*.totalBytes
description     = Number of bytes read and written by the Quota Tree
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtree

name            = fs.qtree.*.readBytes
description     = Number of bytes read by the Quota Tree
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtree

name            = fs.qtree.*.writeBytes
description     = Number of bytes written by the Quota Tree
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtree

name            = fs.filesystem
description     = Per filesystem toptalker statistics
```

```
type            = Set
member_stats    = fs.filesystem.*.file
member_elements =
fs.filesystem.536870917,fs.filesystem.536870916,fs.filesystem.536870915,fs.filesystem.536
870913
member_of       = fs

name            = fs.filesystem.*.file
description     = Per file statistics
type            = Correlated Set
member_stats    =
fs.filesystem.*.file.*.totalBytes,fs.filesystem.*.file.*.readBytes,fs.filesystem.*.file.*
.writeBytes,fs.filesystem.*.file.*.avgTime,fs.filesystem.*.file.*.avgReadTime,fs.filesyst
em.*.file.*.avgWriteTime
member_elements =
member_of       = fs.filesystem

name            = fs.filesystem.*.file.*.totalBytes
description     = Total number of read and write bytes for the file
type            = Counter
member_stats    =
member_elements =
member_of       = fs.filesystem.*.file

name            = fs.filesystem.*.file.*.readBytes
description     = Number of read bytes for the file
type            = Counter
member_stats    =
member_elements =
member_of       = fs.filesystem.*.file

name            = fs.filesystem.*.file.*.writeBytes
description     = Number of bytes written to the file
type            = Counter
member_stats    =
member_elements =
member_of       = fs.filesystem.*.file

name            = fs.filesystem.*.file.*.avgTime
description     = Average microseconds per read and write to access the file
type            =
member_stats    =
member_elements =
member_of       = fs.filesystem.*.file

name            = fs.filesystem.*.file.*.avgReadTime
description     = Average microseconds per read to access the file
type            =
member_stats    =
member_elements =
member_of       = fs.filesystem.*.file

name            = fs.filesystem.*.file.*.avgWriteTime
description     = Average microseconds per write to access the file
type            =
member_stats    =
member_elements =
member_of       = fs.filesystem.*.file

name            = fs.qtreeFile
description     = Per quota tree toptalker statistics
type            = Set
member_stats    = fs.qtreeFile.*.file
member_elements =
member_of       = fs

name            = fs.qtreeFile.*.file
description     = Per file statistics
type            = Correlated Set
member_stats    =
fs.qtreeFile.*.file.*.totalBytes,fs.qtreeFile.*.file.*.readBytes,fs.qtreeFile.*.file.*.wr
iteBytes,fs.qtreeFile.*.file.*.avgTime,fs.qtreeFile.*.file.*.avgReadTime,fs.qtreeFile.*.f
ile.*.avgWriteTime
```

```
member_elements =
member_of       = fs.qtreeFile

name            = fs.qtreeFile.*.file.*.totalBytes
description     = Total number of read and write bytes for the file
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtreeFile.*.file

name            = fs.qtreeFile.*.file.*.readBytes
description     = Number of read bytes for the file
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtreeFile.*.file

name            = fs.qtreeFile.*.file.*.writeBytes
description     = Number of bytes written to the file
type            = Counter
member_stats    =
member_elements =
member_of       = fs.qtreeFile.*.file

name            = fs.qtreeFile.*.file.*.avgTime
description     = Average microseconds per read and write to access the file
type            =
member_stats    =
member_elements =
member_of       = fs.qtreeFile.*.file

name            = fs.qtreeFile.*.file.*.avgReadTime
description     = Average microseconds per read to access the file
type            =
member_stats    =
member_elements =
member_of       = fs.qtreeFile.*.file

name            = fs.qtreeFile.*.file.*.avgWriteTime
description     = Average microseconds per write to access the file
type            =
member_stats    =
member_elements =
member_of       = fs.qtreeFile.*.file
```

Notes, cautions, and warnings

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

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

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

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