



# VNXe3200 Service Commands

Technical Notes

302-000-197

Rev 03

February 2015

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Published February 2015

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Part Number: 302-000-197

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## Executive summary

<b>Business case</b>	The VNXe3200™ is designed to be serviced by the user. You can solve common system problems within the Unisphere Service Page. However, a problem may occur that is not diagnosable or solvable by the options found on the Service Page.
<b>Solution overview</b>	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.
<b>Key results / recommendations</b>	The Service (svc) Commands listed in this document are a subset of the operating environment's software tools for servicing a VNXe system. You can use the UEMCLI scriptable system configuration for additional capability. This document does not discuss UEMCLI.



## Introduction

This document describes the set of operating environment commands you use to diagnose and solve VNXe system problems.

### Purpose

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

### Scope

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

The Service Commands listed are available on VNXe systems running OE revisions 2.0.0.X through 3.0.X.X.

**Note:** Some changes have occurred between revisions. Enter the “svc\_help” command to review commands available in a specific operating environment (OE) version.

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 your authorized Service Representative.

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

- Configuration—Set or reset the state of individual VNXe 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 into a VNXe Storage Processor (SP) as the Service user account to run commands. The login is through the console's SSH or a terminal attached to the platform's serial connector. 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.

VNXe SPs can run in one of two operational modes: Normal Mode or Service Mode. Some Service Commands run in both modes. Different Service Commands run in different SP 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 either mode.

## Audience

VNXe storage system administrators, EMC, EMC partner, field service personnel and support personnel.

The Service Commands run on the VNXe Linux operating environment. You need to be familiar with the Linux shell, your VNXe installed hardware, and the VNXe operating environment to use these commands.

Find additional information that may be helpful when using these commands in [www.emc.com/vnxesupport](http://www.emc.com/vnxesupport).

## Terminology

This technical note includes the following terminology.

**Table 1. Terminology**

Term	Definition
Admin user	The “admin” account can manage and configure servers, and to 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 VNXe system space. A section of this space is the backend repository, which is reserved for maintaining known good images of VNXe software.
Boot Counters	Boot counters are a troubleshooting mechanism designed into the VNXe architecture to help pinpoint the specific cause of software or hardware events during the boot sequence. If the VNXe 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 <a href="#">System Diagnostics (svc_diag)</a> for troubleshooting steps.
ConnectEMC	A feature of the EMC internal-standard Global-Services-approved solution for transporting event data from an EMC product to EMC support. ConnectEMC simplifies and standardizes the method that EMC products utilize to transport event files—error, informational, configuration, and others—from a service workstation to EMC support systems.

Term	Definition
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 IP Solution (ESRS IP) provides 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 VNXe system. You can manage and configure servers, and provision storage. User data is accessible while the system is in Normal Mode.
Service Mode	The VNXe 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 changing the Service Account password or injecting a service tool – are not persistent across reboots and their effect will not be present in Normal Mode.
Service User Account	The Service User Account has the right to perform maintenance and troubleshooting on the VNXe system. This is the only account that can log into the VNXe CLI (with SSH or a serial connection) and the Service Page within Unisphere.
Storage Processor (SP)	A discrete, highly available 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 Command Categories

Commands may be categorized by:

- Function—Step of the troubleshooting process the command is best used in.
- Mode—The system's operational mode in which the command is enabled.
- Usage—See the [Scope](#) section for a definition of the available Function and Mode categories.

In addition, the Target Audience is included in the Usage category. 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.

The following tables describe the usage of the commands by Function, Mode, and Usage.

**Table 2. Service Commands by Function**

Function	Name
Configuration	<a href="#">Apply Custom Log-on Banners (svc_banner)</a>
	<a href="#">Antivirus Configuration (svc_cava)</a>
	<a href="#">Upload SSL Certificates (svc_custom_cert)</a>
	<a href="#">ESRS Setup (svc_esrs)</a>
	<a href="#">Initial Configuration (svc_initial_config)</a>
	<a href="#">Service User Password Configuration (svc_service_password)</a>
Diagnostic	<a href="#">ACL Database Dump (svc_acldb_dump)</a>
	<a href="#">Array Configuration (svc_arrayconfig)</a>
	<a href="#">Data Collection (svc_dc)</a>
	<a href="#">System Diagnostics (svc_diag)</a>

Function	Name
	<a href="#">View Locks (svc_lockd)</a>
	<a href="#">Network Configuration Information (svc_networkcheck)</a>
	<a href="#">Operating System Information (svc_oscheck)</a>
	<a href="#">Collect Performance Information (svc_perfcheck)</a>
	<a href="#">Output Storage Information (svc_storagecheck)</a>
	<a href="#">Redirect Output (svc_tcpdump)</a>
	<a href="#">Configure Backup and Recovery (svc_cbr)</a>
	<a href="#">Create Management Interface (svc_network)</a>
	<a href="#">Restore VNXe OE (svc_reimage)</a>
	<a href="#">Reinitialize VNXe to Factory Settings (svc_reinit)</a>
	<a href="#">Service Shell (svc_service_shell)</a>
	<a href="#">Run FSCK on Storage (svc_storage_integritycheck)</a>
Recovery	<a href="#">Run FSCK on Storage (svc_storage_integritycheck)</a>
	<a href="#">Service Mode Information (svc_rescue_state)</a>
	<a href="#">Purge Logs (svc_purge_logs)</a>
System Operations	<a href="#">Boot Control (svc_boot_control)</a>
	<a href="#">Cache (svc_cache)</a>
	<a href="#">Help (svc_help)</a>

Function	Name
	Inject Troubleshooting Software Tool (svc_inject)
	Mount Storage (svc_mount)
	Synchronize Time (svc_ntp)
	Enable Secure Shell (svc_ssh)

**Table 3. Service Commands by Mode**

Mode	Name
Normal Mode Only	ACL Database Dump (svc_acldb_dump)
	Array Configuration (svc_arrayconfig)
	Apply Custom Log-on Banners (svc_banner)
	Antivirus Configuration (svc_cava)
	Change Hardware Configuration (svc_change_hw_config)
	Configure Backup and Recovery (svc_cbr)
	CIFS Support (svc_cifssupport)
	Upload SSL Certificates (svc_custom_cert)
	ESRS Setup (svc_esrs)
	Initial Configuration (svc_initial_config)
	Base Management Controller (BMC) Interface (svc_ipmi)
	View Locks (svc_lockd)
	Network Configuration Information (svc_networkcheck)

	Synchronize Time (svc_ntp)
	Collect Performance Information (svc_perfcheck)
	Management Stack Controls (svc_restart_service)
	Run FSK on Storage (svc_storage_integritycheck)
	Service User Password Configuration (svc_service_password)
	Run FSK on Storage (svc_storage_integritycheck)
	Output Storage Information (svc_storagecheck)
	Boot Control (svc_boot_control)
	Create Management Interface (svc_network)
	Restore VNXe OE (svc_reimage)
	Data Collection (svc_dc)
	System Diagnostics (svc_diag)
	Help (svc_help)
	Inject Troubleshooting Software Tool (svc_inject)
	Service Shell (svc_service_shell)
	Shutdown (svc_shutdown)
	Redirect Output (svc_tcpdump)
Service Mode Only	Operating System Information (svc_oscheck)
	Purge Logs (svc_purge_logs)

	Reinitialize VNXe to Factory Settings (svc_reinit)
	Service Mode Information (svc_rescue_state)
	Mount Storage (svc_mount)

**Table 4. Service Commands by Usage**

Usage	Name
General Use	Apply Custom Log-on Banners (svc_banner)
	Antivirus Configuration (svc_cava)
	Upload SSL Certificates (svc_custom_cert)
	Data Collection (svc_dc)
	System Diagnostics (svc_diag)
	Help (svc_help)
	View Locks (svc_lockd)
	Network Configuration Information (svc_networkcheck)
	Synchronize Time (svc_ntp)
	Collect Performance Information (svc_perfcheck)
	Shutdown (svc_shutdown)
	Enable Secure Shell (svc_ssh)
	Output Storage Information (svc_storagecheck)
	Boot Control (svc_boot_control)
Technical	ACL Database Dump (svc_acldb_dump)



Usage	Name
Service	<a href="#">Configure Backup and Recovery (svc_cbr)</a>
	<a href="#">ESRS Setup (svc_esrs)</a>
	<a href="#">Initial Configuration (svc_initial_config)</a>
	<a href="#">Inject Troubleshooting Software Tool (svc_inject)</a>
	<a href="#">Mount Storage (svc_mount)</a>
	<a href="#">Create Management Interface (svc_network)</a>
	<a href="#">Restore VNXe OE (svc_reimage)</a>
	<a href="#">Reinitialize VNXe to Factory Settings (svc_reinit)</a>
	<a href="#">Management Stack Controls (svc_restart_service)</a>
	<a href="#">Service Shell (svc_service_shell)</a>
	<a href="#">Redirect Output (svc_tcpdump)</a>

## Serviceability Commands

This section describes the Service Commands available and provides 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`

### ACL Database Dump (`svc_acldb_dump`)

This command dumps 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. Run this command only on the master SP.

#### Use Cases

Usage: `svc_acldb_dump [-help | -h] { <NAS_Server_Name> options }`

Options:

`--help [-h]`: display this help message

`-dump -fs <file system name> -outpath <output directory name>` : dump the ACL database of specified file system to the specific directory.

#### Example Usage

```
spa:~> ./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

`svc_storage_map -list-fs` (page 69) lists all configured file systems.

## Array Configuration (svc\_arrayconfig)

This command captures a snap 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.

### Use Cases

Usage: `svc_arrayconfig [-s][-H][-g <group1, group2>][-v][-h]`

Captures the system configuration. Script returns the location of the capture file.

Options:

No options: Capture 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`: By default, all available groups will be captured. If only specific groups are required, they can be entered in a comma separated list. The possible groups include:

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 script version number

`-h, --help`: Display help and exit

### Related Commands

None.

## Apply Custom Log-on Banners (svc\_banner)

This command configures the login banner type for Linux and Unisphere.

Function: Configuration

Mode: Both

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.

A custom banner may be configured to display when authenticating through Unisphere as the Service user.

The login banner may be one of three different types:

- Simple—Displays a message containing:
  - VNXe 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 will also be displayed 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 will overwrite 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] [action] [parameter]`

Actions:

`-q` Quiet mode - Suppressed all output. This must be first parameter.

`-s` Single SP mode - Must be specified before action and after quiet (if applicable)

`--set-simple`: Sets system banner to default simple - destroys any custom banner installed on the system.

`--set-complex`: Sets system banner to include more system information, like hostname, software version, IP address. Destroys any custom banner installed on the system.

`-a|--activate`: Activates custom login banner if already in non-volatile memory

`-p|--put`: Puts files into OEM Customization directory & activates file as banner if it is named "en\_US.txt"

`-d|--delete`: Clears the login banner text from non-volatile memory and restores default system banner

`--dump`: Dumps the contents of the system banner as plain text to stdout

## Example Usage

To 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:

```
service@spa spa:~> svc_banner --put en_US.txt be_BY.txt  
zh_CN.txt
```

To revert to the default style banner, run the following command as the Service user:

```
service@spa spa:~> svc_banner --set-simple
```

## Related Commands

None.

## Boot Control (svc\_boot\_control)

This command 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 VNXe 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 list the boot\_control current settings. This command displays and clears the Cache Dirty or Cache Lost LUNs (CDCA) on this system.

Warning: This utility is for trained service personnel only.

### Use Cases

Usage: `svc_boot_control [<qualifiers>] <param>`

Where the qualifiers are:

`-h | --help`: Display this message

`-s | --set [net]`: Request stop before the storage system software starts up

`-c | --clear [net]`: Clear request to stop before the storage system starts up

`-l --list`: Lists boot\_control current settings.

### Related Commands

None.

**Cache (svc\_cache)** Use this command to find and clear dirty cache.

Function: System Operations

Mode: Both

Usage: Technical Service

### Description

See Knowledgebase article emc263713 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 Knowledgebase article. Improper usage of this tool could result in Data Loss.

### Use Cases

Usage: `svc_cache [<qualifiers>]`

Qualifiers:

- h --help: display this message
- r --force-lost: force cache lost on all SPs.
- c --clear-lost: clear all the cache lost LUNs for current SP, prepares 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. Can't 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: Continues the storage system software startup that is currently halted.
- cache-fix: Sets the boot control flag "cachefix".

### Related Commands

None.

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

Function: Diagnostic

Mode: Normal

Usage: General Use

### Description

A knowledgeable user can perform antivirus activities from the CLI with this command. CAVA is an antivirus solution for clients using industry-standard CIFS protocols in a Microsoft® Windows server. CAVA uses third-party antivirus software to identify and eliminate known viruses before they infect files on the storage system.

### Use Cases

```
Usage: svc_cava { <NAS_Server_Name> | ALL }  
  
        [ -audit | -update | -start]  
  
        | [-set accesstime={ now | none |  
[[[yy]mm]dd]hh]mm[.ss] }]  
  
        | [ -fsscan [ <fs_mountpath> { -list | -create | -  
delete } ] ]  
  
        | [ -serverlist { override } { -set {  
addr=[<ip1>][,<ip2>][,<FQDN1>][,...]} | file=<filename> } |  
-clear | -list ]
```

### Example Usage

```
root@VNXe-spa spa:/nas/bin> svc_cava server_2  
  
server_2 :  
  
10 threads started.  
  
2 Checker IP Address(es):  
  
10.x.x.216 OFFLINE at Tue Feb 21 18:45:41 2012 (GMT-00:00)  
MS-RPC over SMB, CAVA version: 4.6.8, ntStatus:  
  
CONNECTION_DISCONNECTED  
  
AV Engine: Network Associates  
Server Name: win2008-srv-01.pedomain.local.116.245.10.in-  
addr.arpa  
Last time signature updated: Mon Feb 20 22:19:42 2012 (GMT-  
00:00)  
  
10.x.x.171 ONLINE at Tue Feb 21 18:45:41 2012 (GMT  
00:00)  
MS-RPC over SMB, CAVA version: 4.6.8, ntStatus: SUCCESS  
AV Engine: Network Associates  
Server Name: win-95j4fp0i27r.pedomain.local  
Last time signature updated: Mon Feb 6 22:57:08 2012 (GMT-  
00:00)
```



31 File Mask(s):

\*.EXE \*.COM \*.DOC? \*.DOT \*.XL? \*.MD? \*.VXD \*.386 \*.SYS \*.BIN  
\*.RTF \*.OBD

\*.DLL \*.SCR \*.OBT \*.PP? \*.POT \*.OLE \*.SHS \*.MPP \*.MPT \*.XTP  
\*.XLB \*.CMD \*.OVL

\*.DEV \*.ZIP \*.TAR \*.ARJ \*.ARC \*.Z

No file excluded.

Share [\\foo675.pedomain.local\CHECK\\$](#).

RPC request timeout=25000 milliseconds.

RPC retry timeout=5000 milliseconds.

High water mark=200.

Low water mark=50.

Scan all virus checkers every 10 seconds.

When all virus checkers are offline:

Shutdown CIFS.

Scan on read disable.

Panic handler registered for 65 chunks.

MS-RPC User: FOO675\$

MS-RPC ClientName: foo675.PEDOMAIN.LOCAL

### Related Commands

None.

## Configure Backup and Recovery (svc\_cbr)

This command gathers metadata information to restore the system if needed.

Function: Recovery

Mode: Normal

Usage: Technical Service

### Description

The command also automatically runs daily with the "-b" option and can run at any time. The "-r" option must only be used by authorized service personnel.

### Use Cases

Usage: svc\_cbr [<options>]

Options:

-h, --help: print help message

-b, --backup: Back up config data (default action)

-np: NO Partial configuration is allowed (default: partial configuration is allowed)

-n, --name-prefix <name prefix>: <name prefix> is used to rename the resulting config archive

--cleanup: perform config archive cleanup

-l, --list: list configurations available for restore

-q, --query: <plugin name>

Query if the restore is allowed for the plugin

-r, --restore <config name> : <config name> Is the name of the config to be restored.

NOTE: Service Mode is required, and only qualified service personnel should attempt this operation.

--restore-complete: clears flags that indicate the CBR process is in progress. It can be used when the restore is complete or if the restore is cancelled.

### Related Commands

None.

## Change Hardware Configuration (svc\_change\_hw\_config)

This command changes hardware configuration information for the system.

Function: Configuration

Mode: Normal

Usage: General Use

### Description

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

### Use Cases

Usage: `svc_change_hw_config [<qualifiers>]` where the qualifiers are:

`-h|--help`: Display this message

`-e|--eSLIC`: Commit a new eSLIC / IO Module

`-n|--net`: Remove network interfaces found on non-existent ports.

`-u|--upgrade [options]`: Perform a system upgrade (see below).

This script changes hardware configuration information for the system. See the help text below for more information on specific qualifiers.

Refer to the system documentation for a complete description of upgrades and uses for this script.

`-e|--eSLIC`: Used to commit a new eSLIC/IO Module. Run while installing a new eSLIC or IO Module.

`-n|--net`: Used to remove network interfaces found on non-existent ports. For example, run this after an eSLIC has been removed to purge this configuration from the system.

`-u|--upgrade`: Used ONLY as part of the approved, official process to upgrade system memory.

Options:

`--begin [-b]`: valid in Normal Mode to begin an upgrade

`--commit [-c]`: valid in Service Mode to commit an upgrade

`--abort [-a]`: valid in Service Mode to abort an upgrade

See system documentation for more information before attempting an upgrade as this is only valid using the approved method of system memory upgrades.

Note: An upgrade involves running this script twice.

1. Run this script using the `"-b"` or `"--begin"` option to start the upgrade.

2. Perform whatever steps are necessary for the upgrade.
3. Rerun the script using the "-c" or "--commit" option to commit the upgrade.

#### Related Commands

None.

This command troubleshoots CIFS-related issues.

Function: Configuration

Mode: Normal

Usage: General Use

### Description

This command also provides information about network connectivity to Domain Controllers, access rights, credentials, access logs, and so on.

**Note:** This command must run on a primary SP.

### Use Cases

Usage: `svc_cifssupport {<NAS_Server_Name> | ALL}`

Options:

`-accessright`

`{-name<name>[-domain<domain_name>]}`

`|-sid<SID>`

`|-uname<unix_name>|-uid<user_id>}`

`{{-path<pathname>[-stop_on_symlink]]|-share<sharename>}`

`[-build[-admin<admin_name>]]`

`{-netbios<netbios_servername>|-compname<comp_name>|-standalone <netbios_name>}]`

`|-acl{{-path<pathname>[-stop_on_symlink]]|-share<sharename>}}[-verbose]`

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

`|-cred`

`{-name<name>[-domain<domain_name>]}`

`|-sid<SID>`

`|-uname<unix_name>`

`|-uid<user_id>}`

`[-build[-ldap][-admin<admin_name>]]`

`[-netbios<netbios_servername>|-compname<comp_name>|-standalone<netbios_name>]`

`|-pingdc`

`{-netbios<netbios_servername>|-compname<comp_name>}`

`[-dc<netbios_Dcname>]`

```
[-verbose]  
|-audit[user=<user_name>][,client=<client_name>][,full]  
|-gpo{-update|-  
info}[server=<server_name>|domain=<domain_name>]  
|-checkup[-full|-info]
```

#### Related Commands

None.

**Upload SSL  
Certificates  
(svc\_custom\_cert)**

This command 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>`

Optional Parameters:

`--help [-h]`: Displays this message

**Related Commands**

None.

## Data Collection (svc\_dc)

This command generates a Data Collection bundle for technical analysis.

Function: Diagnostic

Mode: Both

Usage: General Use

### Description

This command also 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 data collection (DC).

### Use Cases

Usage: `svc_dc [<options>]`

Options:

`-v, --version` display version information.

`-h, --help, -?` Print this message and exit.

`-l, --lifetime <maximum time in seconds allowed for DC execution>`

The script is terminated if this time is exceeded.  
The default is 5400 seconds.

`-csp, --current-sp` flag indicates that only current SP collection is performed.

by default both SPs collection is initiated.

`-n, --name-prefix <output file name prefix> <number to keep>`  
prefix used for resulting archive naming.  
number of this kind of files to be preserved in  
range [1,99].

`-p, --priority <HIGH/NORMAL>`

Set IO priority to HIGH or NORMAL.

`-lp, --list-profile`

List profiles.

`-pbc, --profile-based-collection <profile-name>`

Specify the profile which defines the specific  
subset data to be collected.

`-lcd, --list-cdumps` list available known core dumps

`-dc, --download-core <username>@<destination IP>  
<destination folder> <core name>`

Packs the available core-dump related information and  
transmits it to pointed location

Result naming: `<core name>_no_gdb.tar`  
`<core name>_nogdb_nodc.tar`  
`<core name>.tar`



The suffix will be omitted if the full processing was previously performed.

Example:

```
svc_dc -dc root@10.64.74.49
/c4_working/tmp C4Core_dump_...-22_03_35_31_ccsx

-dcn, --download-core-nobins <username>@<destination IP>
<destination folder> <core name>
    download core file without adding binaries to archive
    Result naming: <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
    Result naming: <core name>_abstract_only.tar

-dcp, --download-core-processed <username>@<destination
IP> <destination folder> <core name>
    perform full core dump analysis if it was not performed
before and transmit all available data.
    Result naming: <core name>.tar

-dpp, --download-pre-processed <username>@<destination
IP> <destination folder> <core name>
    perform pre-processing (logs gathering) and download
all available data if full analysis was performed before,
core abstracts also added to the resulting archive

-pc, --process-core <core name>
    perform full core dump analysis, do not perform
downloading
```

### Example Usage

```
service@VNXe-spb:~> 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

[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 VNXe3300\_service\_data\_FCNCH095103208\_2011-05-26\_20\_21\_31.tar to  
/EMC/backend/service/data\_collection/VNXe3300\_service\_data\_FCNCH095103208\_2011-05-26\_20\_21\_31.tar

[DC spb]: moving done...

DC data collected at  
/EMC/backend/service/data\_collection/VNXe3300\_service\_data\_FCNCH095103208\_2011-05-26\_20\_21\_31.tar

[DC spb]: Elapsed time: 2 minutes 19 seconds

### **Related Commands**

None.

This command 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 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.

The diagnostics that you can run are:

- Basic—General diagnostic.
- Boot control—System (re)boot status.
- CRU Extended—Current state of the hardware.
- 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—Extends the “basic” output with additional information such as the status from a peer SP, boot counter information, and so on.
- Network—Front-end port configuration information including MTU size.
- PMP—Permanent memory persistence. 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—Provides Midplane Part and Serial Numbers.
- SAS—Advanced diagnosis of the backend SAS ports.
- Software—State of the system software stack.
- Spinfo—Detailed output of SP hardware and software information.
- Systemcheck—Runs a quick test across the system to show the status of hardware and software.

Executing the command without arguments will result in the basic running diagnostic.

### Use Cases

Usage: `svc_diag [options]`

Options:

`-s | --state [ all | st0 | "st0,...stN" ]`

Executes a state or list of states. Lists of states enclosed in quotations, no spaces, comma-delimited. Specifies the keyword "all" to run ALL valid states. "all" must be the only option because it cannot be used with any other parameters.

-l|--list: Prints all valid states.

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

-h|--help: Prints this message.

If invoked with no options, this command defaults to "--state basic" and runs the basic state.

If an invalid state is given in the list, it is skipped, the user is notified of the error, and processing of subsequent states continues.

### 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)

## ESRS Setup (svc\_esrs)

This command provides an output of the system's EMC Secure Remote Server (ESRS) configuration.

Function: Configuration

Mode: Both

Usage: Technical Service

### Description

This command enables and disables EMC Secure Remote Support (ESRS) from the command line in Service Mode.

Run this command on the primary storage processor (SP). All changes made are local to the SP. These changes do not persist after a reboot.

### Use Cases

Usage: `svc_esrs [OPTION]`

Options:

`-e, --enable`: Enables and starts ESRS on the local SP - Automatically downloads configuration, if required (reprovision)

`--force`: Optional argument to `--enable`, forces a reprovision

`-d, --disable` Disables ESRS

`-s, --status`: Displays ESRS state and connection status

`-g, --gwext_info`: Create the `gwext.ini` file with the g, required information and print it to the console. This is the only option for Normal Mode.

`-t, --trshoot_info`: Similar to `-g/gwext_info`, but does not generate the ini file. Lists some useful fields for ESRS troubleshooting.

`-h, --help [-h]`: Display help and exit

Notes:

All options apart from `-g/--gwext_info` and `-t/--trshoot_info` can only be used in Service Mode. This tool only exposes essential configuration options such as support credentials and required proxy information. Policy server usage is not supported.

### Example Usage

```
svc_esrs --enable
```

```
svc_esrs -s
```

### Related Commands

None

## Help (svc\_help)

This command lists the VNXe Service Commands.

Function: Systems Operation

Mode: Both

Usage: General Use

### Description

Use this command lists the Service Commands available to the Service user on the VNXe system.

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

### Use Cases

The following VNXe serviceability commands are available to the service user:

```
svc_arrayconfig
svc_banner
svc_boot_control
svc_cache
svc_cava
svc_cbr
svc_change_hw_config
svc_cifssupport
svc_custom_cert
svc_dc
svc_diag
svc_esrs
svc_help
svc_initial_config
svc_inject
svc_ipmi
svc_lockd
svc_mount
svc_network
svc_networkcheck
svc_ntp
svc_oscheck
svc_perfcheck
svc_purge_logs
svc_reimage
svc_reinit
svc_rescue_state
svc_restart_service
svc_service_password
svc_service_shell
svc_shutdown
svc_ssh
svc_storage_integritycheck
svc_storagecheck
svc_tcpdump
```

For detailed information on the available service commands, refer to the "VNXe Service Commands Technical Notes"

document on the EMC Online Support Site  
(<https://support.emc.com/>).

Each VNxe 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)

## Initial Configuration (svc\_initial\_config)

This command 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.

Ex: `svc_initial_config [-f <hostname>] -4 "<IPv4 address> <IPv4 netmask> <IPv4 default gateway>"`

`svc_initial_config [-f <hostname>] -6 "<IPv6 address> <prefix length> <IPv6 default gateway>"`

This script injects EMC approved, GPG-signed service tools, and hotfixes.

### Use Cases

Usage: `svc_initial_config [OPTIONS]`

`-h` or `--help`: Prints this usage information.

`-4`, `--network`: IPv4 address, netmask, and default gateway for management interface. MUST BE ENCLOSED BY "QUOTES" and given in that exact order:

`"ip net_mask def_gw".`

Use "auto" instead of "ip net\_mask def\_gw" for DHCP.

Use "disable" to disable IPv4 configuration.

`-6`, `--networkv6`: IPv6 address, prefix length, and default gateway for management interface. MUST BE ENCLOSED BY "QUOTES" and given in that exact order:

`"ip prefix_len def_gw"`

Use "auto" instead of "ip prefix\_len def\_gw" to enable IPv6 auto-configuration.

Use "disable" to disable IPv6 configuration.

`-f`, `--friendly_name`: New friendly\_name for the system Name must contain only letters, numbers, dot (.) or the hyphen (-) character. Name must not start nor end with a hyphen and be limited to a total length of 255 characters.

### Example Usage

```
service@VNxe-spb:~> svc_initial_config -a -f NewVNxe -n  
"10.2.2.42 255.255.255.0 10.2.2.1"
```

```
service@VNxe-spb:~> 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
```

```
service@VNxe-spb:~> svc_initial_config -a -f Host_Name -n
"10.244.X.X 255.255.255.0 10.244.X.1"
```

Error: this system has already been initialized with the following configuration:

```
ip=10.2.2.42 255.255.255.0 10.2.2.1
```

```
friendly_name=NewVNxe
```

### **Related Commands**

None.

This command repairs the software package and installs an encrypted, validated diagnostic tool.

Function: Systems Operations

Mode: Both

Usage: Technical Service

### Description

This command injects additional troubleshooting tools on a VNXe system. The VNXe 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 VNXe SP directly using file-based injection.

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

Since software version 2.1.x, when performing a service tool injection on a Dual-SP, VNXe attempts to inject the service tool on both SPs, regardless of their operational mode.

**Note:** The VNXe system removes a service tool package file after injection use. Injected tools have an expiration date. After that date, they may not run. Re-inject the tool to re-enable it after its expiration date.

### Use Cases

Usage: `svc_inject [-s] [-q] [cmd]`

Options:

`-q`: Suppresses extraneous output, useful for scripts

`-s`: Runs only on local SP, does not attempt to inject on peer SP

`-k [serial]`: Performs key-based injection- see more info below

`-h [-i|-e] [PACKAGE]`: Installs or erases a hotfix

`-t [-i|-e] [PACKAGE]`: Installs or erases a service tool

`-l [-h|-t|-a]`: Lists currently-installed hotfixes, service tools, or both hotfixes and service tools

-r [-a|-d|l|p]: Adds, deletes, and lists repositories, or list package

-p [PACKAGE]: Prints out detailed info about PACKAGE

-? | --help: Displays this usage message

### Example Usage

Injecting a tool called "svc\_foo":  
`svc_inject -t -i /path/to/svc_foo`

Erasing a hotfix called "hotfix\_tracker123\_artf456":  
`svc_inject -h -e hotfix_tracker123_artf456`

Listing all injected service tools and hotfixes:  
`svc_inject -l -a`

Key-based Injection More Info:  
"-k serial" launches the system serial number based module  
and "-k" with no option starts the challenge-based module.

### Related Commands

None.

## Base Management Controller (BMC) Interface (svc\_ipmi)

This command provides information such as the BMC's 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. It is the service command for dealing with EMC VNXe NFS locks.

### Use Cases

Usage: `svc_ipmi [<options>]`

Options:

`-h | --help`: Displays this message

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

`--sensor`: Lists the BMC sensor information.

`--sol-session-info`: Displays the information about the BMC console session.

`--bmc-reset`: Resets just the BMC.

`--bmc-opmode`: States the BMC operation mode.

`--peer`: Retrieves the information from the peer BMC. This option is used with the above options.

### Related Commands

None.

## View Locks (svc\_lockd)

This command views information of NFS locks.

Function: Diagnostic

Mode: Normal

Usage: General Use

### Description

This command allows the Service user to view information about NFS locks currently held for provisioned VNXe storage. It only runs in Normal Mode when the system storage software is active.

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 NFS lock, use the “remove” command. The commands, “remove” and “info”, specify a lock on the command line.

### Use Cases

Usage: `svc_lockd [-h|--help] SVDM_[A|B] [command]`

Commands:

`-h| --help`: Prints this message

`list`: lists current locks info

`stat [reset]`: shows statistics about current locks

`info`: shows detailed information about specified lock

`remove`: removes specified lock

### Example Usage

Example: Get locks info for SVDM\_A  
`> svc_lockd SVDM_A info`

Example: Perform a stat reset for SVDM\_B  
`> svc_lockd SVDM_B stat reset`

### Related Commands

None.

## Mount Storage (svc\_mount)

This command 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 and 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 could panic and cause a reboot.

### Use Cases

Usage: `svc_mount [<qualifiers>]`

Qualifiers:

```
-h --help: Display this message
-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: Unmounts ssd, cores, and backend partitions
```

### Related Commands

Boot Control (svc\_boot\_control)

Create Management Interface (svc\_network)

## Create Management Interface (svc\_network)

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

Function: Diagnostic

Mode: Normal (if no management IP is active) or Service (Revision 2.2.x and higher: 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.

=== SP status: Normal Mode, Master SP ===

### Use Cases

Usage: `svc_network [-h|--help] [-d] -i <interface> -a <IP address> -n <netmask> -g <gateway>`

where the required parameters are:

`-h| --help`: Displays usage information

`-i <interface>`: Ethernet interface to set up (could be `mgmt_vdev` or `mgmt`)

`-a <IP address>`: IPv4 address the given interface will be assigned

`-n <netmask>`: Network mask or prefix length for the connection

`-g <gateway>`: Default route (gateway) for the connection

and the optional operators are:

`-d --debug`: Turns on extra debugging messages

### Related Commands

Boot Control (`svc_boot_control`)

Mount Storage (`svc_mount`)

This command 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.

With the exception of 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`
- Require Master SP: `-i`, `-r`, `-m`
- Run anytime: `-h`, `-e`, `-n`, `-p`, `-p6`, `-t`

### Use Cases

Usage: `svc_networkcheck [command] <parameters>`

Where the required commands are:

`-i`, `--info`: Performs network checks

`-r`, `--replication`: Performs replication checks

`-t`, `--tracert <ip>`: Performs trace route to `<ip>`, either IPv4 or IPv6

`-p`, `--ping <ip>|<hostname> [--mtu <1500|9000>] [-I <sip>]| [--mark <mark>]`

: Performs a ping of the `<ip>` or `<hostname>` IPv4 target from default port.

: Optional Args:

`--mtu` pings with the given MTU value

`-I <sip>` specifies the ping source IP or interface name.

`--mark <mark>` specifies the NAS connection mark used to find the source IP.

:The names are as listed in the "ip show" output



-p6, -- ping6 <ip>|<hostname> [--mtu <1500|9000>] [-I <sip>]: Performs a ping of the <ip> or <hostname> IPv6 target from default ports

: Optional Args:

--mtu pings with the given MTU value

:-I <sip> specifies the ping source IP or interface name.

: -mark <mark> specifies the NAS connection mark to be used to find the source IP.

:The names are listed in the "ip show" output

-e,--ethtool | [<port>|all]: Displays information about the mgmt port (default) using ethtool

: Optional Args:

: <port> "all" - gives info on <port> or all ports.

-m, --management [--routing | --dhcpclient | --dns | --all]

:Displays the system's management IP (v4 and v6) information

: Optional Args:

: --routing displays additional information about management routing

:--dhcpclient displays additional information for DHCPv4 or DHCPv6

: --dns displays additional DNS query information for the mgmt IP

:--all displays all options

-n, --netstat: Perform netstat on this SP

-h, --help: Displays this message

### Example Usage

```
service@VNxe-spa:~> 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

[output continues]

#### **Related Commands**

Collect Performance Information (svc\_perfcheck)

Data Collection (svc\_dc)

## Synchronize Time (svc\_ntp)

This command 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 VNXe's 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.

**WARNING:** This utility is for trained service personnel only. This action may cause the Storage Processor(s) to reboot and cause a Data Unavailable scenario.

### Use Cases

Usage: `svc_ntp [OPTION]`

Allows users to force an NTP time sync.

Options:

`-i, --info`: Display NTP information

`-s, --sync`: restart the NTP server and forces all SPs to update the time

`-h, --help`: Display help and exit

### Example Usage

Example: Synchronize NTP time

```
> svc_ntp -s
```

Example: List the status about NTP servers

```
> svc_ntp -i
```

### Related Commands

None.

## Operating System Information (svc\_oscheck)

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

Function: Recovery

Mode: Service

Usage: Technical Service

### Description

These logs are for performance analysis and to triage system issues. The collected 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 “/home/service”. The default number of output files is five.

### Use Cases

Usage: `svc_oscheck [<options>]`

where the options are:

`-h | --help`: Display usage information.

`-p | --prefix [name]`: Prefix in the file name for output files

`-d | --directory [dir]`: Path where the output files will be stored

`-c | --count [num]`: Number of output file revisions to be retained

### Example Usage

`Svc_oscheck -d /var/tmp`

### Related Commands

None.

Collect  
Performance  
Information  
(*svc\_perfcheck*)

This command 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 may be useful for performance troubleshooting. Similar content is available in Data Collects bundles – see *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 IO operation. This option is storage experts only.

The *--getconfig* option provides significant information about front-end configuration. It outputs to */EMC/backend/perf\_stats/config/* in the format *PerfConfig-<system name>\_<date>.txt*.

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

### Use Cases

Usage: *svc\_perfcheck* [<options>]

Options:

*-h* | *--help*: Displays usage information.

*-s* | *--sar -i* <seconds> *-n* <number intervals>: Capture system stats using *sadc/sar* on all SPs.

*-k* | *--ktrace -f* <tracefilename> *-d* <seconds> [*-o* <rba types>]: Capture RBA trace on all SPs.

*-g* | *--getconfig*: Get Performance related configuration.

*-v* | *--vaai*: Get vStorage Performance Stats.

### Example Usage

Get *sadc* system stats for 15 interval of 30 seconds on all SPs.

```
svc_perfcheck --sar -i 10 -n 15
```

Get RBA trace for 30 second interval on all SPs.

```
svc_perfcheck --ktrace -f filename -d 30
```

Get RBA trace for 30 second interval on all SPs overriding default trace types to RBA. See `rba.exe -h` to find the valid RBA types.

```
Svc_perfcheck --ktrace -f filename -d 30 -o "-t tcd -t  
fbe_lun -t pdo -t mlu_cbfs"
```

### Related Commands

Data Collection (`svc_dc`)

Operating System Information (`svc_networkcheck`)

Network Configuration Information (`svc_networkcheck`)

Output Storage Information (`svc_storagecheck`)

Redirect Output (`svc_tcpdump`)

## Purge Logs (svc\_purge\_logs)

This command clears up space on the root file system or purges the logging database if specified limits are exceeded.

Function: Recovery

Mode: Service

Usage: Technical Service

### Description

This command clears up space on the root file system or purges the logging database if specified limits are exceeded. It also attempts to find large files on the file system and generates a report to analyze the findings.

### Use Cases

Usage: `svc_purge_logs [-s] [-f|-c|-h|-u] or [-d] [-n|-h]`

Options:

`--singlessp [-s]`: Forces Single SP operation. Without this operation, it clears files on both SPs.

`--fsusage [-f]`: Generates a filesystem usage report

`--clear [-c]`: Attempts to clear space on the root filesystem

`--skipupgrade [-u]`: Skips clearing upgrade files on the root filesystem

`--help [-h]`: Displays this message.

### Related Commands

None.

## Restore VNXe OE (svc\_reimage)

This command is used per-SP operation to overwrite the SP's system partition.

Function: Recovery

Mode: Service

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 command does no shutdown/reboot actions by default. Before a reimage can occur, reboot the SP. 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 [<qualifiers>]`

where the qualifiers are:

- h| --help: Display this message
- r| --reboot: Reboot after reimage
- p| --powerdown: Powerdown after reimage
- f|--force: Skips all prompts

### Related Commands

Service Mode Information (`svc_rescue_state`)



## Reinitialize VNXe to Factory Settings (svc\_reinit)

This command returns VNXe 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 VNXe system to factory settings. The VNXe system's OE is overwritten with the EMC 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.

WARNING: 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.

WARNING: All user data and storage provisioning information will be lost.

WARNING: All persistent configurations on the system (hostname, storage configuration, and host registration) are permanently overwritten.

WARNING: This utility is for trained service personnel only.

### Use Cases

Usage: `svc_reinit [<qualifiers>]`

where the qualifiers are:

`-h --help`: Display this message

`-f --force`: Skip all prompts

### Related Commands

Restore VNXe OE (*svc\_reimage*)

## Service Mode Information (svc\_rescue\_state)

This command 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 should go into 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.

### Use Cases

Usage: `svc_reimage [<qualifiers>]`

where the qualifiers are:

`--help [-h, -?]`: display this message

`--list [-l]`: list all boot counters

`--set [-s]`: set the Service-Mode boot counter

`--clear [-c]`: clear all the boot counters

`--clear_degraded: [-d]`: Clears all degraded state indicators

\* The List option details why the current SP has booted into Service Mode.

\* The Set option manually forces the SP to boot into Service Mode the next time it is rebooted.

\* The Clear 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 may 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.

\* The Clear\_Degraded 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 may still cause the system to boot back into Service Mode.

#### **Related Commands**

System Diagnostics (svc\_diag)

## Management Stack Controls (`svc_restart_service`)

This command restarts system management software.

Function: System Operations

Mode: Normal

Usage: Technical Service

### Description

This command replaces `svc_restart_mgmt`, and has extended features.

You can run these extended commands to initialize the system software for troubleshooting purposes by exiting the process and then restarting it on the local SP.

Restarting portions of the system software interrupts their function.

The features which may be restarted are:

- **MGMT**—Launches Unisphere when an SP is in Normal Mode. MGMT is also 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. The Service user can run the Linux command `last` to see if other users are logged into the system.
- **NAS\_A**—Controls SPA file server virtualization software. Restarting NAS\_A will result in 'Date Unavailable' for all servers and shares accessed through this service.
- **NAS\_B**—Controls SPB file server virtualization software. Restarting NAS\_B results in 'Date Unavailable' for all servers and shares accessed through this service.
- **NASDB**—Controls the services used for NAS management activities from failover to configuration. Data is still accessible during this reboot activity.

### Use Cases

Usage: `svc_restart_service <qualifiers>`

Where "action" is:

`-h --help`: Display this message

`restart`: Restarts a software component (MGMT)

And "service" is:

MGMT: when used with "restart"

If the first argument is `--term`, the script kills the MGMT process using SIGTERM instead of SIGABRT.

### Related Commands

Restart Management Stack (`svc_restart_mgmt`)

**Service User  
Password  
Configuration  
(svc\_service\_password)**

This command 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 VNXe security policies and to be accepted as valid, it must adhere to the following guidelines:

- 8-40 characters in length
- 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.

An example of a valid password is: m0de\_S3rvice.

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 <qualifiers> [<Password>]`

where <qualifiers> are:

`--help[-h]`: Display this message

`--set [-s]`: Set password with either supplied on command line or prompt.

--reset [-r]: Reset the default password  
--validate [-v]: Validate the supplied password  
--isdefault [-d]: Determine if password is factory default  
return 0 if factory default, 1 otherwise.

#### Example Usage

```
svc_service_password -set abcd
```

#### Related Commands

None.

## Service Shell (svc\_service\_shell)

This command obtains super user access to VNXe's operating system.

Function: Recovery

Mode: Both

Usage: Technical Service

### Description

This command allows an authorized support entity to gain super user access to the VNXe'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.

### Use Cases

Usage: `svc_service_shell [-h|--help] [cmd]`

This is an EMC service tool which opens a service shell or executes a single command with elevated privileges.

Optional Parameters:

`-h| --help`: Displays this message

`cmd`: A single, standalone Linux command to run elevated privileges.

### Related Commands

None.

## Shutdown (svc\_shutdown)

This command 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 VNXe SP, and shutdown of the system.

SP reboot and shutdown can be performed in both Service and Normal Mode. At least one SP must be in Normal Mode System to perform a shutdown.

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 – come back online. The halt operation is similar to the reboot in that it 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 then insertion of the SP or a power cycle of the chassis to bring it back online.

**WARNING:** This may cause a Data Unavailable scenario if used incorrectly.

### Use Cases

Usage: `svc_shutdown [<qualifier>]`

Where <qualifiers> are:

`--help | -h`: Display this message

`--halt <reason code>`: Halt the SP

`--reboot | [-r] <reason code>`: Reboots the system

`--quickbook | [-q] <reason code>`: Quick reboot the SP (skip POST)

`--system-halt [--force]`: Halt the complete system; the force option suppresses confirmation. Reason codes are optional.

### Example Usage

Example 1: User wants to reboot SPA

```
service@VNXe-spa:~/> svc_shutdown -r
```

```
service@VNXe-spa spa:~>
```

Broadcast message from root@spa

(unknown) at 21:22 ...

The system is going down for reboot NOW!

Example 2: User wants to shutdown the system



```

service@ VNXe-spa:~> svc_shutdown --system-halt

#####

#####

WARNING: This action will shut down the system and you will
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 command turns the Secure Shell Daemon (SSHD) on or off.

Function: System Operations

Mode: Both

Usage: Technical Service

### Description

This command enables or disables the Service user to connect to the VNXe'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 may manually enable SSH while logged into Linux through a serial connection to the SP with this command.

This command may also disable SSH connections to the VNXe system. If SSH is disabled while a user is connected to the SP through SSH, that user's session will end. This command runs only on the primary SP in Normal Mode.

### Use Cases

Usage: `svc_ssh [options]`

Options:

- e, --enable: Enables sshd on the system
- d, --disable: Disables sshd on the system
- s, --status: Prints status of sshd

### Example Usage

```
service@VNXe-spa:~> svc_ssh -d
```

Disabling sshd ...

Connection to 10.x.x.43 closed by remote host.

### Related Commands

None.

**Run FSCK on  
Storage  
(svc\_storage\_integ  
ritycheck)**

This command 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 will only be listed 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 [<qualifiers>]`

Where the qualifiers are:

`--help [-h]`: Displays this message

**Related Commands**

None.

## Output Storage Information (svc\_storagecheck)

This command 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 at the location specified above using the Linux `less` utility.

### Use Cases

Usage: `svc_storagecheck [command] <parameters>`

where the commands are:

`-d, --dedupe`

`-s, --sizes`

`-l, --list`

`-n, --nfs`

`-c, --cifs`

`-m, --ndmp`

`-a, --all`

`-h, --help`

SRM/SRA Diagnostic commands:

`--fs_oid`

find FS OID

`--fs_list_oids`

list all FS OIDs. The OID can be used to find FS

### Related Commands

Collect Performance Information (svc\_perfcheck)

## Display storage mappings (svc\_storage\_map)

This command displays disk mappings.

Function: Diagnostic

Mode: Normal

Usage: General Use

### Description

This command enables you to display information about disk mappings for user LUNs, file systems, and VDMs. It also includes intermediate mappings.

### Use Cases

```
svc_storage_map -h
```

Usage: `svc_storage_map [<qualifiers>]`

where <qualifiers> are:

`--help[-h]`: Display this message

`--lun=<name>[-l=<name>]`: Display mappings relative to specific User LUN

`--fs=<name>[-f=<name>]`: Display mappings relative to specific User File System

`--vdm=<name>[-v=<name>]`: Display mappings relative to specific VDM

`--list-lun` - List User LUNs

`--list-fs` - List User Filesystems

`--list-vdm` - List VDM's

This script displays information about the disk mappings for user LUNs,

Dart FileSystems and VDMs, including intermediate mappings.

### Example Usage:

Example specifying User LUN:

```
svc_storage_map --lun=lunname or --lun=myLUN00
```

Example specifying File System:

```
svc_storage_map --fs=SharedFolder00
```

Example specifying VDM's

```
svc_storage_map --vdm=SVDM_A
```

### Related Commands

None.

## Redirect Output (svc\_tcpdump)

This command attempts to run tcpdump network diagnostics on a given system interface in a safe, controlled manner.

Function: Diagnostic

Mode: Both

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 numerical order.

Output files from this command may be read using the tcpdump -r command.

Many options are analogous to their tcpdump counterparts.

This command may run in any operational mode.

### Use Cases

Usage: `svc_tcpdump [<options>]`

where the options are:

- h| --help: Display usage information.
- i| --interface [name]: Interface for which information will be captured
- w| --filename [name]: Base file name for output files
- p|--path [path]: Path for the output file storage
- W| --rotations [number]: Number of files for output use
- C| --size [size]: Size of each output file (in MB)
- s| --snaplen [bytes]: Captures this specified number of byte of data from each packet rather than the default 65535
- t| --timestamp [1-4]: Timestamp commands:
  - 1: Don't 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]: Specifies verbosity of output, 3 being the most

-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: Prints the link-level header on each dump line

-n| --no-addr: Don't convert addresses (host addresses, port numbers, etc.) 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.

#### DEFAULTS AND CONSTRAINTS

A prefix of "vnxe-tcpdump-" is added to output file names. Rotations (-W) and size (-C) must be >= 1. The default file size is 50MB and the default number of files is 5. The default interface is mgmt\_vdev. By default, the output files are named "dump.out[0-4]" & stored in /home/service

#### Example Usage:

##### EXAMPLE

Capture mgmt\_vdev, save 2 100MB files called vnxe-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.