Oracle SuperCluster Configuration Backup Utility - Backup Guide

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Using This Documentation

- **Overview** – Describes how to use `osc-config-backup` to back up Oracle SuperCluster component configurations.
- **Audience** – System administrators and authorized service providers.
- **Required knowledge** – Advanced experience in resource configurations of complex computer systems.

Product Documentation Library

Documentation and resources for this product and related products are available at:

- SuperCluster M8 and SuperCluster M7 library – `http://docs.oracle.com/cd/E58626_01`
- SuperCluster T5-8 library – `http://docs.oracle.com/cd/E40166_01`

Feedback

Provide feedback about this documentation at `http://www.oracle.com/goto/docfeedback`.

Understanding the `osc-config-backup` Tool

This document describes how to how to use `osc-config-backup` to back up SuperCluster component configurations.

Note - To recover SuperCluster components from `osc-config-backup` data, refer to the document called *Oracle SuperCluster Configuration Backup Utility - Recovery Guide*.

Note - Do not maintain a static copy of this document, because this information is subject to frequent updates.

These topics describe the SuperCluster `osc-config-backup` tool.

- "`osc-config-backup` Overview" on page 9
- "Important Notes" on page 10
- "Components Covered by `osc-config-backup`" on page 11
- "Backup Data and File Structure" on page 11

`osc-config-backup` Overview

The `osc-config-backup` tool simplifies the process of backing up SuperCluster component configurations. The backup data is stored on the internal ZFS storage appliance.

Common Use Cases

- To obtain an initial backup snapshot of the components immediately following the SuperCluster deployment
- To back up components prior to and after performing a QFSDP upgrade
- To save the component configurations prior to unforeseen hardware or software failures, thereby providing a means of recovery

Scheduling Considerations

Schedule the configuration backup during a time when the system is at rest.

Depending on your specific environment and the amount of data on SuperCluster, allocate plenty of time to allow your backup to run, which takes many hours.

Release Notes

Release notes for the backup and recovery processes are available from My Oracle Support (https://support.oracle.com). Refer to these MOS Doc IDs:

- `osc-config-backup` release notes – 1934129.1
- Recovery process release notes – 1934130.1

Important Notes

Backup Coverage

The `osc-config-backup` tool is not a replacement for an enterprise backup solution. The `osc-config-backup` tool does not back up your data.

Data storage on the Exadata Storage Servers is not covered by `osc-config-backup`. Use the Engineered Systems Backup Utility (ESBU) to back up this data. Refer to the article titled *RMAN Backup From SPARC SuperCluster to Sun ZFS Backup Appliance* (Doc ID 1517107.1), available on MOS at https://support.oracle.com.

For further details and best practices, refer to the white paper titled *Oracle Optimized Solution for Backup and Recovery of Oracle SuperCluster*, available at: http://www.oracle.com/technetwork/server-storage/hardware-solutions.

After an upgrade or re-installation of the `osc-config-backup` package, the `pkg verify` command might report an error about the GID. This occurs when the new installation of `osc-`

config-backup was not able to use the original GID for the osccfbck user and group, it that GID is already in use by other group. This is an example of the error:

```
# pkg verify osc-config-backup
PACKAGE
STATUS
pkg://exa-family/system/platform/supercluster/osc-config-backup
ERROR
        user: osccfbck
                ERROR: group: 'oninsall' should be 'osccfbck'
```

The error can be ignored because it does not prevent osc-config-backup from functioning properly.

Components Covered by osc-config-backup

These SuperCluster components are backed up by osc-config-backup:

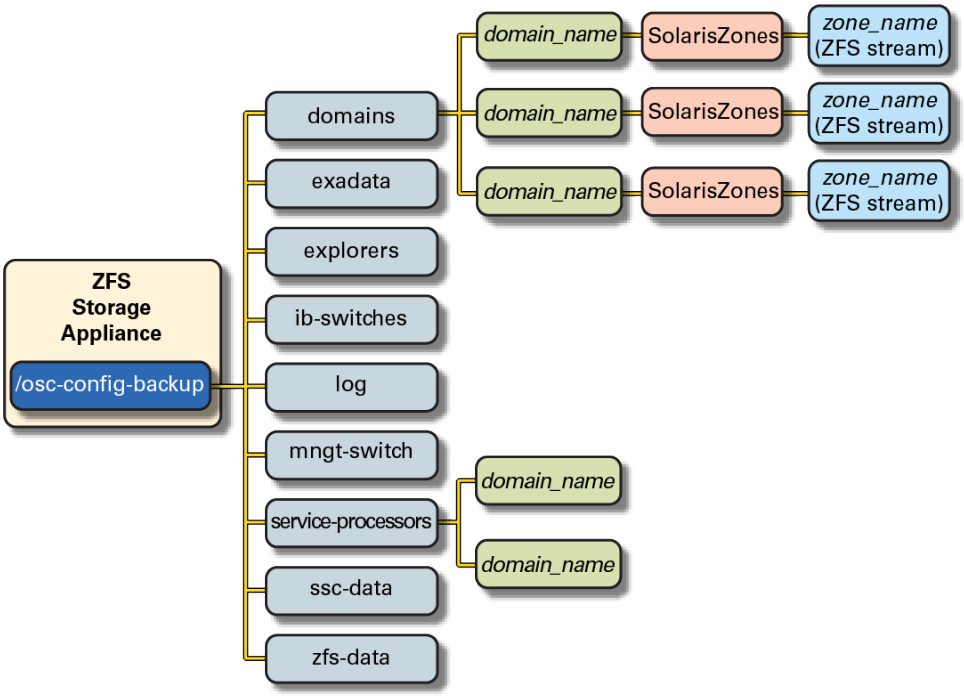
- **Domains** – Configuration, ZFS pools (rpool, bpool if present, and u01-pool for Database Domains)
- **Oracle Solaris zones** – Configuration, ZFS pools (rpool and u01-pool for Database Zones)
- **IB switches** – Configuration
- **Ethernet management switch** – Configuration
- **ZFS storage appliance** – Configuration
- **SuperCluster** – Configuration information (ssc-cu.zip file)
- **Service Processor** – Configuration
- **Explorer** – Data from each Database and Application Domain

Note - Data located outside the rpool and u01-pool zpools in zones and domains is not backed up by osc-config-backup.

Backup Data and File Structure

The osc-config-backup tool backs up data to the /osc-config-backup directory on the ZFS storage appliance. Mirrored LUNs and LUN snapshots might also be present on the ZFS storage appliance.

This figure shows the subdirectories in the `/osc-config-backup` directory.



This table describes the data contained in the `/osc-config-backup` subdirectories.

Directory	Includes
`domains`	Data from domains and zones (configuration, rpool, u01-pool). There is one subdirectory for each domain, which can include a `SolarisZones` directory for zones installed in that domain.
`exadata`	Exadata storage cell griddisk sizing information.
`explorers`	Explorer output.
`ib-switches`	IB switch configuration information, logs, and topology information.
`log`	Logs of `osc-config-backup` executions.
`mngt-switch`	Ethernet management switch configuration..
`service-processors`	Configuration.
`ssc-data`	Initial SuperCluster deployment data (`ssc-cu.zip` file) and Java OneCommand data.
`zfs-data`	ZFS Storage Appliance Support Extractor output and configuration.

Note - `osc-config-backup` only backs up the configuration information of the ZFS storage appliance. It is the customer's responsibility to ensure that all data on the ZFS storage appliance is backed up through replication (to a remote ZFS backup appliance) or NDMP. For more details about NDMP, refer to the white paper titled *NDMP Implementation Guide for the Sun ZFS Storage Appliance*, available from:`http://www.oracle.com/technetwork/server-storage/sun-unified-storage/documentation`

Backing Up Components With `osc-config-backup`

These topics describe how to back up SuperCluster components using the SuperCluster `osc-config-backup` tool.

- "Install the `osc-config-backup` Package" on page 15
- "`osc-config-backup.pl` Usage" on page 16
- "Run `osc-config-backup`" on page 17
- "Verify That the Steps Completed Successfully" on page 20
- "Replicate the Backup Data to an External ZFS Storage Appliance" on page 21

▼ Install the `osc-config-backup` Package

On SuperClusters running v2.2 software or later, the `osc-config-backup` package is present, but not automatically installed.

This procedure uses the Oracle Solaris `pkg` command to install `osc-config-backup`. Additional information about the `pkg` command is available in the document titled *Adding and Updating Software in Oracle Solaris 11.3*, available at: `http://docs.oracle.com/cd/E53394_01`.

1. **Check for the latest information about `osc-config-backup` in the Release Notes on My Oracle Support.**

   Go to `http://support.oracle.com`. Search for 1934129.1.

2. **On SuperCluster, log into the first node's primary domain and assume the root role.**

3. **Verify that the package is available.**

   In this example, the output following the command indicates that the package is available.

   ```
   # pkg list -av osc-config-backup
   ```

```
pkg://exa-family/system/platform/supercluster/osc-config-backup@0.5.11,5.11-2.3.0.1080:
20170322T171934Z
```

If the package is not listed, you might need to install a SuperCluster Quarterly Full Stack Download Patch (QFSDP).

4. **Install the `osc-config-backup` package.**
   Run one of these commands.

   - To install the package for the first time:

     ```
     # pkg install osc-config-backup
     ```

   - To update a previously installed package:

     ```
     # pkg update osc-config-backup
     ```

5. **Verify the package installation.**
   The lowercase `i` at the end of the output indicates that the package is installed.

```
# pkg list osc-config-backup
NAME (PUBLISHER)                                  VERSION                    IFO
system/platform/supercluster/osc-config-backup (exa-family) 0.5.11-2.3.0.1080         i
```

`osc-config-backup.pl` Usage

You run `osc-config-backup` in a step-by-step fashion on the first SuperCluster primary domain. The steps that are presented differ based on the SuperCluster model you are backing up.

Starting with version 1.0, run the `osc-config-backup.pl` script from the `/opt/oracle.supercluster/osc-config-backup/bin/` directory as the root user. For example:

```
root@primDom# su - osccfbck
osccfbck@primDom$ osc-config-backup.pl
```

This table lists the command options.

Command Option	Description
`-h`	Displays help.
`-a`	Displays all the steps and the result of each step. Possible results: - (hyphen) – Step has not been run.

Command Option	Description
	■ Exec – Step is currently running. ■ Done – Step ran and completed. ■ Intr – Step was interrupted before completion
-l	Displays all the steps.
-s *x*	Runs Step *x*, where *x* is a valid step number.
-state	Displays the current state of the tool. These are the possible states: ■ installed – The tool is installed but not yet configured. ■ discovery-complete – Step 1 Discover SuperCluster configuration, was successfully executed. The tool knows which nodes to backup. ■ networked – Step 2 Setup SSH equivalence, was successfully executed. The tool can connect to the nodes identified in Step 1 without prompting for a password. Interactive authentication - password prompt - remains active for nodes or steps that require superuser privileges. ■ service-ready – Step 3 Setup backup NFS share on ZFS-SA, was successfully executed. The NFS share used to store the backup data is mounted in the different domains. The tool is fully configured. Steps that actually generate backup data can be executed.
-v	Displays osc-config-backup version information.

▼ Run osc-config-backup

1. Use the -a option to view the steps to run.

Note - The steps that are presented differ based on the SuperCluster model you are backing up.

This is an example of the steps presented for SuperCluster T5-8:

```
osccfbck@primDom$ osc-config-backup.pl -a

------------------------------------------------------------------------------
No. |                                                 Details | Result |
------------------------------------------------------------------------------
 01 |                          Discover SuperCluster configuration |      - |
 02 |                                       Setup SSH equivalence |      - |
 03 |                             Setup backup NFS share on ZFS-SA |      - |
 04 |                                  Backup Domain configuration |      - |
```

```
 05 |                                Backup Domain & Zone ZFS pools |      - |
 06 |                                      Backup Management switch |      - |
 07 |                                   Backup Infiniband switches |      - |
 08 |                              Backup SuperCluster configuration |      - |
 09 |                                   Backup  ZFS-SA configuration |      - |
 10 |                                   Backup Exadata configuration |      - |
 11 |                                       Install and run explorer |      - |
 12 |                                        Cleanup SSH equivalence |      - |
-------------------------------------------------------------------------------
```

2. Run the first step to set up the `osc-config-backup.conf` script, and verify the data:

a. Run Step one.

Note - Your output might differ from this example.

```
osccfbck@primDom$ osc-config-backup.pl -s 1
[ ssc-bkp : v1.0.5 ] Executing step 1
[ sct58-tvp540-a-n1-db ] create_osc-config-backup.conf.sh start
[ sct58-tvp540-a-n1-db ] Wed Sep 16 15:54:30 BST 2015
[ sct58-tvp540-a-n1-db ] Using data from  /var/tmp/ssc-data/config
[ sct58-tvp540-a-n1-db ] Has the SuperCluster Management Switch been replaced by a
                                    customer supplied switch? Yes or No: No
************************producing osc-config-backup.conf file*******************
export BKP_INSTALL1=sct58-tvp540-a-n1-db;
export BKP_NODES=sct58-tvp540-a-n1-db sct58-tvp540-a-n1-s10 sct58-tvp540-a-n1-s11
          sct58-tvp540-a-n2-db sct58-tvp540-a-n2-s10 sct58-tvp540-a-n2-s11 ;
export BKP_IB_NET_IP=192.168.28.0;
export BKP_IB_NET_MASK=255.255.252.0;
export BKP_IB_NET_CIDR=22;
export BKP_IB_INTF=ipmpapp0;
export BKP_ZFSHEAD1=sct58-tvp540-a-zfs1;
export BKP_ZFSHEAD2=sct58-tvp540-a-zfs2;
export BKP_ZFSMOUNT=sct58-storIB;
export SSC_BKP_TOOLS_HOME=/opt/oracle.supercluster/osc-config-backup;
export BKP_MANSW=sct58-tvp540-a-cisco;
export BKP_IB1=sct58-tvp540-a-ib0;
export BKP_IB2=sct58-tvp540-a-ib1;
export BKP_IB3=sct58-tvp540-a-ib2;
export BKP_SP=sct58-tvp540-a-n1-sp sct58-tvp540-a-n2-sp ;
export BKP_CNAMES=sct58-tvp540-a-c1 sct58-tvp540-a-c2 sct58-tvp540-a-c3 sct58-
tvp540-a-c4;
export BKP_MANSWREPLACED=no;
************************** end osc-config-backup.conf file*********************
Please check the contents of the file osc-config-backup.conf before proceeding.
These variables are used in all the other steps.
[ sct58-tvp540-a-n1-db ] create_osc-config-backup.conf.sh completed
```

```
[ sct58-tvp540-a-n1-db ] Wed Sep 16 15:54:34 BST 2015
[ ssc-bkp : v1.0.5 ] Step 1 completed
```

b. Verify that the data collected is correct.

The data was collected from a file that was created during SuperCluster installation. Some addresses or host names might have changed since the installation.

Review the `osc-config-backup.conf` file and ensure that the addresses and host names are correct. If you need to correct any of the information, edit the file.

For example:

Note - Your output might differ from this example.

```
osccfbck@primDom$ more /opt/oracle.supercluster/osc-config-backup/conf/osc-config-
backup.conf
export BKP_INSTALL1=etc9cn01;
export BKP_IB_NET_IP=192.168.28.0;
export BKP_IB_NET_MASK=255.255.252.0;
export BKP_IB_NET_CIDR=22;
export BKP_IB_INTF=ipmpapp0;
export BKP_NODES="etc9-01-mgmt etc9-02-mgmt etc9-04-mgmt etc9-05-mgmt etc9-07-mgmt
      etc9-08-mgmt etc9-10-mgmt etc9-11-mgmt etc9cn01 etc9-03-mgmt etc9cn02 etc9-06-
mgmt
      etc9cn03 etc9-09-mgmt etc9cn04 etc9-12-mgmt";
export BKP_ZFSHEAD1=etc9-sn1;
export BKP_ZFSHEAD2=etc9-sn2;
export BKP_ZFSMOUNT=ssc-storIB;
export SSC_BKP_TOOLS_HOME=/opt/oracle.supercluster/osc-config-backup;
export BKP_MANSW=etc9sw-ip;
export BKP_IB1=etc9sw-ib1;
export BKP_IB2=etc9sw-ib2;
export BKP_IB3=etc9sw-ib3;
```

3. Run the remaining steps in sequential order.

A few steps prompt for information. Watch the output as each step runs, and reply to all prompts.

For more details about a particular step, see “Referencing osc-config-backup Step Details” on page 23.

Note - The number of steps varies based on the platform.

Verify That the Steps Completed Successfully

1. **Verify that all the steps completed successfully.**

   Use the `-a` option to view the results. For result descriptions, see "`osc-config-backup.pl` Usage" on page 16.

   For example:

```
osccfbck@primDom$ osc-config-backup.pl -a
--------------------------------------------------------------------------------
No. |                                                        Details | Result |
--------------------------------------------------------------------------------
 01 |                            Discover SuperCluster configuration |   DONE |
 02 |                                        Setup SSH equivalence |   DONE |
 03 |                               Setup backup NFS share on ZFS-SA |   DONE |
 04 |                                    Backup Domain configuration |   DONE |
 05 |                                  Backup Domain & Zone ZFS pools |   DONE |
 06 |                                        Backup Management switch |   DONE |
 07 |                                      Backup Infiniband switches |   DONE |
 08 |                                Backup SuperCluster configuration |   DONE |
 09 |                                     Backup  ZFS-SA configuration |   DONE |
 10 |                                     Backup Exadata configuration |   DONE |
 11 |                                         Install and run explorer |   DONE |
 12 |                                          Cleanup SSH equivalence |   DONE |
--------------------------------------------------------------------------------
```

2. **Check the `osc-config-backup` log files for success.**

   Log files are located in `/osc-config-backup/log`. One log report is created for each `osc-config-backup` step that generates backup data.

   If a step ran more than once, the `.log` report is rotated. The previous reports are renamed to `.log.0`, `.log.1`, up to `.log.9`, saving the reports of the last ten runs for a step.

   Use the reports to identify what was successfully backed up and what was not.

   For example::

```
osccfbck@primDom$ egrep -i success osc-config-backup/log/*.log
```

3. **Check the `osc-config-backup` log files for warnings and errors.**

   For example:

```
osccfbck@primDom$ egrep -i 'error|warning' osc-config-backup/log/*.log
```

Replicate the Backup Data to an External ZFS Storage Appliance

Once the backup with `osc-config-backup` is complete, the backup data is located on the SuperCluster internal ZFS Storage Appliance. It is strongly recommended to save this data outside of SuperCluster. This can be done by using the replication from the internal ZFS storage appliance to an external one. To facilitate this task, `osc-config-backup` generates a list of projects to be replicated. This list is available in `osc-config-backup/log/projectsToReplicate.log`. The projects are available on the internal ZFS storage appliance.

1. **Review the `osc-config-backup/log/projectsToReplicate.log` file.**
2. **Replicate the backup data on an external storage system.**

Referencing `osc-config-backup` Step Details

These topics describe what each `osc-config-backup` step performs:

- "`Step 1 – Discover SuperCluster configuration`" on page 23
- "`Step 2 – Setup SSH equivalence`" on page 24
- "`Step 3 – Setup backup NFS share on ZFS-SA`" on page 24
- "`Step 4 – Backup Domain configuration`" on page 24
- "`Step 5 – Backup Domain and Zone ZFS Pools`" on page 24
- "`Step 6 – Backup Management switch`" on page 25
- "`Step 7 – Backup Infiniband switches`" on page 25
- "`Step 8 – Backup SuperCluster configuration`" on page 25
- "`Step 9 – Backup ZFS-SA configuration`" on page 25
- "`Step 10 – Backup Exadata configuration`" on page 26
- "`Step 11 – Install and run explorer`" on page 26
- "`Step 12 – Cleanup SSH equivalence`" on page 26

`Step 1 – Discover SuperCluster configuration`

This step creates a file called `osc-config-backup.conf` that contains the host details and information that the tool uses to back up the components.

If necessary you can manually configure an `osc-config-backup.conf` file. See "Create an `osc-config-backup.conf` File Manually" on page 28.

Step 2 – Setup SSH equivalence

This step sets up `ssh` equivalence to communicate with the components. For each component identified in "Step 1 – Discover SuperCluster configuration" on page 23, you are prompted for the root password. You might also be prompted to accept keys.

Step 3 – Setup backup NFS share on ZFS-SA

This step creates an `osc-config-backup` project on the ZFS storage appliance, and NFS share in this project. It also mounts this share on the `osc-config-backup` directory located in the home directory of the `osccfbck` role.

Step 4 – Backup Domain configuration

This step copies the LDom configuration in the service processor of each control domain to the `osc-config-backup/domains` directory.

Step 5 – Backup Domain and Zone ZFS Pools

This step covers both domains and non-global zones as follows:

- **Domains** – ZFS pools are backed up either as ZFS streams or as ZFS snapshots. Snapshots are performed on the ZFS storage appliance. The ZFS pools covered are the rpool, the bpool if present, and the u01-pool for Database Domains. Backup information and streams are stored in `osc-config-backup/domains/hostname`hostname (see "Backup Data and File Structure" on page 11).
- **Application Zones** – Zones installed on internal drives or on the ZFS storage appliance are covered by `osc-config-backup`. The zone's rpool is backed up as a ZFS stream. The backup information and the stream are stored in `osc-config-backup/domains/`*hostname*`/SolarisZones/`*hostname* (see "Backup Data and File Structure" on page 11). This is the only backup available for the zone. If the zone is installed on external storage, no backup is performed.

- **Database Zones** – Zones created with the SuperCluster tools (such as Java OneCommand) are covered by `osc-config-backup`. ZFS pools are backed up as ZFS streams. The ZFS pools covered are the rpool and the u01-pool. The streams are stored in `osc-config-backup/domains/`*hostname*`/SolarisZones/`*hostname* (see "Backup Data and File Structure" on page 11). This is the only backup available for the zone.

Step 6 – Backup Management switch

This step copies the `running-config`, `startup-config`, and the ROM image from the management switch to `osc-config-backup/mngt-switch`.

If the default management switch that comes with the SuperCluster has been replaced by a different one, skip Step 5. The new switch has to be backed up and restored independently of `osc-config-backup`.The default management switch can be `telnet` or SSH enabled. If the switch is Telnet enabled, you are prompted for the password. If the switch is SSH enabled, the tool obtains the password from "Step 2 – Setup SSH equivalence" on page 24.

Step 7 – Backup Infiniband switches

This step gathers IB switch data and stores the data in `osc-config-backup/ib-switches`.

If you skipped Step 5 because your SuperCluster is using a non-default management switch, you must use the `-f` (force) option to continue running Step 6.

Step 8 – Backup SuperCluster configuration

This step backs up the SuperCluster configuration files that were used during the initial SuperCluster deployment. The data is recorded in `osc-config-backup/ssc-data`.

Step 9 – Backup ZFS-SA configuration

This step copies ZFS storage appliance details to `osc-config-backup/zfs-sa`.

Note - The `osc-config-backup` tool does not back up the ZFS storage appliance data. See "Important Notes" on page 10.

Step 10 – Backup Exadata configuration

This step only backs up the Exadata grid disk configuration information to the `osc-config-backup/exadata` subdirectory.

Step 11 – Install and run explorer

This step runs Explorer on all nodes and copies the finished Explorer data to `osc-config-backup/explorers`.

Step 12 – Cleanup SSH equivalence

This step secures SuperCluster by removing SSH equivalence that was set up in "Step 2 – Setup SSH equivalence" on page 24. You might need to perform this step to address your corporate security policies.

This step only removes SSH equivalence created by `osc-config-backup`. If an equivalence was created by another tool, or created manually, it is untouched.

Accessing Debug Files and Creating a Config File Manually

These topics describe how to access the `osc-config-backup` log files for troubleshooting purposes and how to create an `osc-config-backup.conf` file manually.

- "Access `osc-config-backup` Debug Files" on page 27
- "Create an `osc-config-backup.conf` File Manually" on page 28

Access `osc-config-backup` Debug Files

Debug files are automatically generated when certain `osc-config-backup` steps run.

The `osc-config-backup-debug.log` file is located in the domain where `osc-config-backup` is executed.

Functions or commands with a non-null return code are also reported.

1. **Identify the debug files.**

   The snapshot debug files are related to"`Step 5 – Backup Domain and Zone ZFS Pools`" on page 24 Backup Domain & Zone datasets and are located in each domain.

   For example:

```
# ls -1 /var/log/osc-config-backup-data/*debug*.log*
/var/log/osc-config-backup-data/osc-config-backup-debug.log
/var/log/osc-config-backup-data/osc-config-backup-debug.log.0
/var/log/osc-config-backup-data/osc-config-backup-debug.log.1
/var/log/osc-config-backup-data/osc-config-backup-debug.log.10
/var/log/osc-config-backup-data/osc-config-backup-debug.log.11
/var/log/osc-config-backup-data/osc-config-backup-debug.log.12
/var/log/osc-config-backup-data/osc-config-backup-debug.log.13
/var/log/osc-config-backup-data/osc-config-backup-debug.log.14
/var/log/osc-config-backup-data/osc-config-backup-debug.log.15
/var/log/osc-config-backup-data/osc-config-backup-debug.log.16
```

```
/var/log/osc-config-backup-data/osc-config-backup-debug.log.17
/var/log/osc-config-backup-data/osc-config-backup-debug.log.2
/var/log/osc-config-backup-data/osc-config-backup-debug.log.3
/var/log/osc-config-backup-data/osc-config-backup-debug.log.4
/var/log/osc-config-backup-data/osc-config-backup-debug.log.5
/var/log/osc-config-backup-data/osc-config-backup-debug.log.6
/var/log/osc-config-backup-data/osc-config-backup-debug.log.7
/var/log/osc-config-backup-data/osc-config-backup-debug.log.8
/var/log/osc-config-backup-data/osc-config-backup-debug.log.9
/var/log/osc-config-backup-data/osc-config-backup-snapshotGZ-debug.log
/var/log/osc-config-backup-data/osc-config-backup-snapshotNGZ-debug.log
#
```

2. **Check a debug file for debug information.**

   For example:

```
# grep 'DBG INFO' /var/log/osc-config-backup-data/osc-config-backup-debug.log
setup_iscsi_initiators.sh:227 ** DBG INFO netMask=‘cidr2nmask $CIDR‘ returned 1 **
```

Create an `osc-config-backup.conf` File Manually

Perform this task only if you are unable to run the `osc-config-backup` step called `Setup SSC-BKP setenv script`(see “Step 1 — Discover SuperCluster configuration” on page 23).

1. **Use an editor to create a file called `osc-config-backup.conf` in the `/opt/oracle.supercluster/osc-config-backup/conf` directory.**

2. **Using this table and example, create environment variables in the file using this syntax:**

   `export` *Variable*`=`*value*`;`

Variable	Value
`BKP_INSTALL1`	Primary domain where you are running `osc-config-backup`, which is the first compute node domain.
`BKP_IB_NET_IP`	Network address of the ZFS storage appliance IB network.
`BKP_IB_NET_MASK`	Netmask for the ZFS storage appliance IB network.
`BKP_IB_NET_CIDR`	Netmask CIDR of the ZFS storage appliance IB network.
`BKP_CNAMES`	Exadata cell host names.
`BKP_NODES`	Space-separated list of all domains in SuperCluster.
`BKP_SP`	Compute node service processor.

Variable	Value
BKP_ZFSHEAD1	Management hostname of the first ZFS storage appliance controller.
BKP_ZFSHEAD2	Management hostname of the second ZFS storage appliance controller.
BKP_ZFSHEAD_SP	ZFS storage appliance service processor.
BKP_ZFSMOUNT	Host name of the ZFS storage appliance (available from /etc/hosts on all nodes).
SSC_BKP_TOOLS_HOME	Always set to /opt/oracle.supercluster/osc-config-backup.
BKP_MANSW	Host name of the Ethernet management switch.
BKP_MANSWREPLACED	If the management switch has been replaced (yes/no).
BKP_IB1	Host name of the spine IB switch.
BKP_IB2	Host name of the leaf 1 IB switch.
BKP_IB3	Host name of the leaf 2 IB switch.

3. **When the `osc-config-backup.conf` file is complete, edit the `/opt/oracle.supercluster/osc-config-backup/conf/state.conf` file.**

   Add this line, and save the file:

   ```
   State: discovery-complete
   ```

4. **Run `osc-config-backup -s 2` to back up the components.**

   See "Run osc-config-backup" on page 17.

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