

Continentalclusters
Version A.06.00
Release Notes



Manufacturing Part Number: T2346-90008
December 2006

Legal Notices

© Copyright 2006 Hewlett-Packard Development Company, L.P.

Confidential computer software. Valid license from HP required for possession, use, or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Intel®, Itanium®, registered trademarks of Intel Corporation or its subsidiaries in the United States or other countries.

Oracle ® is a registered trademark of Oracle Corporation.

UNIX® is a registered trademark in the United States and other countries, licensed exclusively through The Open Group.

1 **Continentalclusters Version A.06.00 Release Notes**

Announcements

Continentalclusters is a Hewlett-Packard high availability solution that provides disaster tolerant clustering with no distance limitation. Version A.06.00 of Continentalclusters, which contains enhancements and defect fixes, is being released on HP-UX 11i v2 with the following product number:

- T2346BA - license, media, and documentation

Version A.06.00 of Continentalclusters requires the HP-UX 11i v2 operating systems. Continentalclusters version A.04.00 or later will not automatically include the following separately purchased products: Metrocluster Continuous Access XP, Metrocluster Continuous Access EVA, and Metrocluster with EMC SRDF.

Since Continentalclusters configurations may be complex to configure and maintain, it is highly recommended that you use Hewlett-Packard's high availability consulting services to ensure a smooth installation and rollout. Contact your HP representative to inquire about high availability consulting. In addition, work with your HP representative to ensure that you have the latest firmware revisions for disk drives, disk controllers, LAN controllers, and other hardware.

Starting with version A.04.00, Continentalclusters recovery supports Oracle 9i RAC instances. Table 1-1 shows the Oracle RAC support requirements for Continentalclusters version A.06.00.

Table 1-1 Metrocluster Version Requirements for Continentalclusters Oracle RAC Support

Continental-cluster Version A.06.00	Metrocluster Continuous Access XP Version	Metrocluster Continuous Access EVA Version	Metrocluster EMC SRDF Version	HP-UX Version	SG and SGeRAC Version
Supported Physical Replications	A.06.00 or later	A.01.00 or later	A.05.01 or later	11i v2	A.11.17

Announcements**Table 1-1 Metrocluster Version Requirements for Continentalclusters Oracle RAC Support (Continued)**

Continental-cluster Version A.06.00	Metrocluster Continuous Access XP Version	Metrocluster Continuous Access EVA Version	Metrocluster EMC SRDF Version	HP-UX Version	SG and SGeRAC Version
Volume Managers and File Systems Supported	LVM, SLVM, Veritas CVM 4.1, and Veritas CFS 4.1	LVM and SLVM	LVM, SLVM, Veritas CVM 4.1, and Veritas CFS 4.1	11i v2	A.11.17
Supported Oracle Versions	9i, 9i RAC, 10g, and 10g RAC	9i, 9i RAC, 10g, and 10g RAC	9i, 9i RAC, 10g, and 10g RAC	11i v2	A.11.17

What's In this Version

Continentalclusters employs semi-automatic failover of Serviceguard packages from one cluster to another following a cluster event that indicates serious disruption of service on one of the clusters. The product consists of a set of configuration, management commands, and a set of daemons that monitors and sends notification of cluster events.

The A.06.00 version includes the following enhancement:

- Recovery of application packages configured with Veritas Cluster File System (CFS) or Veritas Cluster Volume Manager (CVM) version 4.1.

Continentalclusters Product Features

The Continentalclusters product has the following basic features:

- Continentalclusters works with any type of data replication. A set of guidelines for integrating your data replication technology can be found in Chapter 4 of the *Designing Disaster Tolerant HA Clusters Using Metrocluster and Continentalclusters* user's guide on: www.docs.hp.com -> High Availability -> Continentalclusters

Continentalcluster provides a pre-integrated data replication solution using HP StorageWorks Continuous Access XP, Continuous Access EVA or EMC SRDF with the separately purchased products Metrocluster Continuous Access XP, Metrocluster Continuous Access EVA, and Metrocluster with EMC SRDF. An alternative to using the pre-integrated data replication solution a customer-selected data replication solution can be chosen by following the integration guidelines.

- A recovery pair in a Continentalclusters consists of one primary cluster and one recovery cluster. One or more recovery pairs can be configured in a continental cluster with a common recovery cluster. Failover of a specific package occurs in one direction from the primary cluster to the recovery cluster. Each data center can serve as both primary and recovery cluster for different packages. In the cascading failover configuration, the primary cluster can be a metropolitan cluster using EMC SRDF or Continuous Access XP.

What's In this Version

- Logical data replication is also possible using the Oracle Standby Database. Template files and additional information are included in the Oracle Standby Database portion of the Enterprise Cluster Master Toolkit product (a separately purchased product). Other customer-selected logical data replication solutions can be implemented as well.
- Cluster monitoring is carried out over LAN or WAN connections. Use any LAN or WAN connection; however, some data replication methods may require high speed connections such as T1, T3, E3/ES or ATM leased lines or switched lines.

NOTE

Continentalclusters can co-exist with the Advanced Tape Services (ATS) feature of Serviceguard. However, an ATS package must not be configured as a Continentalclusters package. With ATS, a single tape drive (or set of tape drives) is shared between two nodes within a cluster of up to four nodes. All of the tape drives are located within a single data center. If the power were to be lost, the tape drives would not be accessible even if the package were to be failed over to the other data center with a Continentalclusters package. Therefore, using ATS in a Continentalclusters package is not practical.

Support for Cluster File System and Cluster Volume Manager Recovery

Continentalclusters environment now supports recovering applications running as Serviceguard packages that use Veritas Cluster File System (CFS) 4.1 or Veritas Cluster Volume Manager (CVM) 4.1 from Symantec for storage management. The application package must have dependencies defined with the corresponding CFS Mount Point Multi-node package (MNP) or CVM Disk Group MNP. This feature is implemented using the `/etc/cmconcl/ccrac/ccrac.config` file.

Prior to Continentalcluster A.06.00, the `ccrac.config` file was used for Oracle RAC configurations with SLVM or CVM 3.5 for storage management. Starting with Continentalcluster A.06.00, the `ccrac.config` file can also be used to configure Oracle RAC configuration with CVM 4.1 or CFS 4.1 for storage management. In addition, as a workaround, the `ccrac.config` file can be used to configure single instance application with CVM 4.1 and CFS 4.1. For

more information on configuring single instance applications using CFS or CVM, in Continentalclusters, refer to the Configuring Single Instance Applications in CFS/CVM Environments in Continentalclusters whitepaper, available at

www.docs.hp.com

This feature requires HP-UX 11i v2 and the selected HP Serviceguard Storage Management Suite bundle which includes Serviceguard A.11.17, CVM or CFS 4.1 support, and SGeRAC A.11.17 (if you need to configure Oracle RAC).

IMPORTANT

This feature is not supported in HP StorageWorks EVA disk array based replication environment.

Other Changes

Following are the other changes in this release:

- If `/etc/cmconcl/ccrac/ccrac.config` file is configured, you must specify the `CCRAC_CLUSTER` parameter for every recovery pair in the `ccrac.config` file. If you do not specify this parameter, the recovery process does not complete and the following error message is displayed:

Cluster name is not specified as a set.

- When using `TEXTLOG` type notification, you must specify the destination log file in the monitoring definition under `/var/opt/resmon/log`.

If you specify any other location for logging, the following error message appears:

The target after textlog "" is not valid.

Please specify a file under `/var/opt/resmon/log` directory.

If you upgraded Continentalclusters but are still using the old configuration file, the `TEXTLOG` location is still specified as `/var/adm/cmconcl`. As a result, the following error message appears:

The file path "s" specified for textlog is invalid.

What's In this Version

The destination file must be under `/var/opt/resmon/log` directory. Please change the path and restart the `ccmon` package.

- The default eventlog is changed to `/var/opt/resmon/log/cc/eventlog`. Prior to Continentalclusters A.06.00, this eventlog was under `/var/adm/cmconcl/eventlog`.
- When using CVM, the CVM activation must be done through the CVM Disk group MNP and the application package must be dependent on all its corresponding CVM Disk Group MNPs. The previous method of configuring CVM disk groups in the application package control script is not supported.

IMPORTANT

The 3 Data Center functionality provided by the HP StorageWorks XP disk arrays is not supported with CFS or CVM configurations in Continentalclusters.

Compatibility Information and Installation Requirements

The same version of Continentalclusters and Serviceguard must be installed on all nodes in all the clusters of the configuration. To use Continentalclusters, the following hardware and software must be installed and configured on all nodes.

Hardware Requirements

Host System Hardware Requirements

HP-UX 11i v2:

- HP 9000 Servers (requires HP-UX 11i v2)
- HP Integrity Servers

If you are doing data replication with XP series disk arrays, there are both hardware and software requirements. For more information on the hardware and software requirements for Metrocluster Continuous Access XP, refer to the Metrocluster with Continuous Access XP Release Notes, which can be found at www.docs.hp.com -> High Availability -> Metrocluster.

If you are doing data replication with EVA series disk arrays, there are both hardware and software requirements. For more information on the hardware and software requirements for Metrocluster Continuous Access EVA, refer to the *Metrocluster with Continuous Access EVA Release Notes*, which can be found on www.docs.hp.com -> High Availability -> Metrocluster.

If you are doing data replication with EMC Symmetrix disk arrays, there are both hardware and software requirements.

For more information on the hardware and software requirements for Metrocluster/SRDF, refer to the *Metrocluster with EMC SRDF Release Notes*, which can be found on www.docs.hp.com -> High Availability -> Metrocluster.

Software Requirements

There are both HP software and disk array management software requirements.

HP Software Requirements

HP-UX 11i v2:

- Serviceguard version A.11.17 or later.
- Serviceguard Extension for RAC version A.11.17 or later for configuring Oracle RAC in Continentalclusters.

NOTE

For detailed compatibility and feature information for Continentalclusters, refer to the *Disaster Tolerant Clusters Products Compatibility and Feature Matrix (Continentalclusters-CC)*, located at www.docs.hp.com -> High Availability -> Metrocluster.

NOTE

This list is subject to change without notice. Contact your HP representative to ensure you have the most up to date and required versions of HP software and disk array management software.

Bastille Security Set up

HP-UX 11i v2 Operating Environment includes Bastille and HP-UX IPFilter products that allow customers to control their systems security environment. Continentalclusters has the same set up requirements as Serviceguard and Event Monitoring Service products.

For the Bastille security setup requirements all Serviceguard mandatory HP-UX IP filter rules apply. In addition, the rules for remote command execution and cluster object manager (COM) must include all participating Continentalcluster nodes for <clusternodes> as designated in the section on “*Remote Failover*” of Chapter 8 (*Using HP-UX IPFilter with Serviceguard user’s guide*).

For the Bastille security setup requirements for Event Monitoring Service, refer your version of the *Event Monitoring Service* release notes.

Installing Continentalclusters

Continentalclusters can be installed while the system is running in multi-user mode.

1. Run `swinstall(1m)` to install Continentalclusters from a SD depot. Select the following fileset:

- T2346BA—Continentalclusters

Continentalclusters files are placed in the following directories:

- `/usr/lbin`
- `/usr/sbin`
- `/etc/opt/resmon`
- `/etc/cmconcl`
- `/opt/cmconcl`
- `/opt/cmom`

2. If you are using physical data replication with the XP series or EVA series or the EMC Symmetrix, purchase Metrocluster Continuous Access XP or Metrocluster Continuous Access EVA or Metrocluster with EMC SRDF and install either the HP StorageWorks Disk Array XP Raid Manager software (available as a set of `cpio` files with the XP system) or the EMC Symmetrix SymCLI software or HP StorageWorks Continuous Access EVA related software on all nodes.
3. If you are using the Oracle 8i Standby Database for logical data replication, purchase the Enterprise Cluster Master toolkit product, and consult your HP representative for more information about installing the template files.

Upgrading from Earlier Versions...

If upgrading Continentalclusters from an earlier version, the following steps are required:

1. Halt the `ccmon` package:

```
# cmhaltpkg ccmonpkg
```

2. Delete the old Continentalclusters configuration:

```
# cmdeleteconcl
```

3. Install to a new version of Continentalclusters.

4. If you have configured any monitoring definitions that have the notification type `TEXTLOG`, ensure that the destination files are set under the `/var/opt/resmon/log/` directory.

5. Re-apply the Continentalclusters configuration using the original configuration file.

```
# cmapplyconcl -C cmconcl.config
```

Refer to Chapter 4 of the *Designing Disaster Tolerant HA Clusters Using Metrocluster and Continentalclusters* user's guide for information on editing configuration files and issuing the configuration commands.

Compatibility Issues

Configuration with a metropolitan cluster as the primary cluster is supported in the cascading failover configuration using Metrocluster with EMC SRDF and Continuous Access XP. For information on configuration and setup, refer to the *Cascading Failover in a Continental Cluster* white paper on www.docs.hp.com -> High Availability -> Continentalclusters.

For details on using EMC SRDF, Continuous Access XP, or Continuous Access EVA, refer to appropriate chapter of the *Designing Disaster Tolerant High Availability Clusters* user's guide.

What Manuals are Available for this Version

For information about configuring Continentalclusters, refer to the following manual, which is shipped with Continentalclusters version number A.06.00. Also, review the README file that accompanies the software you are using

- *Understanding and Designing Serviceguard Disaster Tolerant Architectures* (B7660-90018)
- *Designing Disaster Tolerant HA Clusters Using Metrocluster and Continentalclusters* (B7660-90019)

You should also refer to the following documents when using Continentalclusters:

- *Managing Serviceguard Twelfth Edition*, (B3936-90100). This manual was extensively revised for the A.11.17 release and describes all basic cluster configuration and administration tasks.

The above documents are available on the HP-UX documentation web site at:

www.docs.hp.com -> High Availability

If you are using the XP disk array with Continuous Access XP for data replication, refer to the following:

- *HP StorageWorks Disk Array XP Business Copy User's Guide*
- *HP StorageWorks Disk Array XP Continuous Access User's Guide*
- *HP StorageWorks Disk Array XP Raid Manager User's Guide*
- *HP StorageWorks Disk Array XP Remote Control User's Guide*

Compatibility Information and Installation Requirements

If you are using the EVA disk array with Continuous Access EVA for data replication, refer to the following:

- *HP StorageWorks Continuous Access and Data Replication Manager SAN Extensions Reference Guide*
- *HP StorageWorks Continuous Access EVA Replication Performance Estimator V3.0 Application Notes.*
- *HP StorageWorks Continuous Access EVA User Interface V1.2 Installation Guide Addendum .*
- *HP StorageWorks Continuous Access EVA User Interface V1.2 Read Me First.*
- *HP StorageWorks Continuous Access EVA User Interface V1.2 Release Notes.*

If you are using EMC SRDF for data replication, contact EMC for any EMC products related documentation.

Before attempting to use VxVM storage with Continentalclusters, please refer to the following documents for your version of VERITAS software:

- *VERITAS Volume Manager Administrator's Guide.* This contains a glossary of VERITAS terminology.
- *VERITAS Volume Manager Storage Administrator Administrator's Guide*
- *VERITAS Volume Manager Reference Guide*
- *VERITAS Volume Manager Migration Guide*
- *VERITAS Volume Manager for HP-UX Release Notes*

Further Reading

Additional information about Continentalclusters and related high availability topics may be found on Hewlett-Packard's HA web page.

Support information, including current information on patches and known problems, is available from Hewlett-Packard IT center:

<http://itrc.hp.com> -> "subscribe to security bulletins and patch digests" -> High Availability program tips and issues (Americas and Asia Pacific)

<http://europe.itrc.hp.com> -> "subscribe to security bulletins and patch digests" -> High Availability program tips and issues (Europe)

To receive the latest news about recommended patches, product support matrices, and recently supported hardware, go to the IT Resource Center site above, and subscribe to the high availability programs tips and issues digest.

For detailed compatibility and feature information for Continentalclusters, refer to the *Disaster Tolerant Clusters Products Compatibility and Feature Matrix (Continentalclusters-CC)*, located on **www.docs.hp.com** -> High Availability -> Continentalclusters -> Support Matrixes.

Patches and Fixes in this Version

There are no patches required for Continentalclusters version A.06.00 at the time of publication. However, this is subject to change without notice. For the most current information, contact your HP support representative or Hewlett Packard IT Resource Center.

Additional patch requirements:

- Install any required patches for Serviceguard, Cluster Object Manager and Serviceguard Extension for RAC.
- In addition, all HP-UX patches required by Serviceguard are also required in a Continentalclusters configuration.

NOTE

Patches can be superseded or withdrawn at any time. Be sure to check the status of any patch before downloading it.

An updated list of patches is available on the Hewlett Packard IT Resource Center:

<http://itrc.hp.com> -> “subscribe to security bulletins and patch digests” -> High Availability program tips and issues (Americas and Asia Pacific)

<http://europe.itrc.hp.com> -> “subscribe to security bulletins and patch digests” -> High Availability program tips and issues (Europe)

Fixes

There are no known fixes at the time of this publication. However, this is subject to change without notice. For the most current information contact your HP support representative.

Known Problems and Workarounds

The following describes known problems with the Continentalclusters version A.06.00 and workarounds for them. This is subject to change without notice. For the most current information contact your HP support representative.

More recent information on known problems and workarounds may be available on the Hewlett Packard IT Resource Center:

<http://itrc.hp.com> (Americas and Asia Pacific)

<http://europe.itrc.hp.com> (Europe)

misleading recovery message

- *What is the problem?*

In Serviceguard 11.15 and higher environments, the message, “The id of the user requesting the connection is not available in the authentication session” may occur when running `cmrecovercl`.
- *What is the workaround?*

This message is only an auditing message and can be ignored.

no space allowed in file `/etc/opt/cmom/cmomhosts` directive order setup

- *What is the problem?*

The directive order of `order deny,allow` or `order allow,deny` specified in `/etc/opt/cmom/cmomhosts` does not allow any space between “`deny,allow`” or “`allow,deny`”. If the file is not setup properly, nodes that are running monitor packages will not be able to obtain information from other nodes about the cluster status.
- *What is the workaround?*

After Continentalclusters configuration, before the first startup of the monitor package, make sure that the file `/etc/opt/cmom/cmomhosts` on all of the participating nodes contain the correct directive order specification.

Persistent “cmomd” Processes

- *What is the problem?*

If the node where the monitor process (cmclsentryd) is running goes down and then comes back up (as in a power failure), the cmomd process will remain on one or more nodes in the cluster that is being monitored. In these circumstances, the cmomd process will continue on the system until terminated by a user. This can become a significant problem if a monitoring node is powered off and on several times, leaving several cmomd processes on the monitored cluster, using system process table space as well as other system resources.

- *What is the workaround?*

After a failure of the monitoring node, kill the unused cmomd processes.

Provider File Renaming

- *What is the problem?*

If the provider file, which is named `/opt/cmom/providers/cmprovider.omp` by default, is copied to a backup file by adding a prefix to the name (for example, “bk_cmprovider.omp”), then Serviceguard will not be able to tell which file is the correct one.

- *What is the workaround?*

Do not rename the provider file to a different name by adding a prefix. As an alternative, store copies or alternate versions of the file in a different directory.

Applications hang when all PV links are down

- *What is the problem?*

When all PV links to a disk array used by a primary or recovery package are down, the package applications accessing that array will hang indefinitely. The applications will not detect an error and cannot be killed. Even running `cmhaltpkg` will not stop the application.

- *What is the workaround?*

Known Problems and Workarounds

The default behavior of LVM is to retry access forever following a failure. There are a number of ways to recover from this application hang problem:

- Reboot the node. The package will then move to another node in the cluster.
- Fix the problem so that one or more PV Links is restored. The application will then continue normally.
- It is also possible to change the default LVM behavior so that it will not retry forever. There is an `lvchange` option that will establish a timeout value which will cause LVM to return an error to the application if the access to the array has failed and the timeout period has expired. The command uses the following format:

```
lvchange -t <seconds> /dev/<vgname>/<lvname>
```

This command must be run from one host, on all logical volumes in the package volume groups. A starting timeout value of 60 seconds is suggested; the timeout must *not* be set to less than 60 seconds.

Once the `lvchange -t` command is run on a host, all other hosts will automatically inherit the new timeout value for the logical volumes. View the current timeout value by running the `lvdisplay` command and checking the value listed for “IO Timeout (Seconds)”. If the value is displayed as “default,” then LVM will use the default behavior and retry forever.

Software Availability in Native Languages

Continentalclusters is not available in native language versions.

