

ExpressCluster for Linux

Version 3

Script Command Reference

Revision 7us



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1 NOTES



The installation directory may contain executable format files and script files that are not listed in this manual; they should not be executed by programs or applications other than ExpressCluster. Any problems caused by not using ExpressCluster will not be supported.

2 COMMAND LIST

| Commands for configuring cluster | | |
|----------------------------------|---|------|
| Command | Description | Page |
| clpcfctrl | Distributes configuration information created with configuration tool to servers. Backs up cluster configuration information to be used in configuration tool. | 70 |
| clplnsc | Registers and shows the product version and test version of this product. | 89 |
| Commands to display status | | |
| Command | Description | Page |
| clpstat | Displays the cluster status and configuration information. | 8 |
| Commands for cluster operation | | |
| Command | Description | Page |
| clpcl | Starts, stops, suspends, and resumes ExpressCluster daemon. | 49 |
| clpdown | Stops ExpressCluster daemon and shuts down the server. | 53 |
| clpstdn | Stops ExpressCluster daemon in the entire cluster and shuts down all the servers. | 54 |
| clpgrp | Starts, stops, moves a group. | 56 |
| clptoratio | Extends and displays the various timeout values of all servers. | 79 |
| clproset | Modifies and displays I/O permission of a shared disk partition device. | 94 |
| clpmonctrl | Suspends/resumes a monitoring resource on a single server. | 123 |
| clpregctrl | Displays/initializes reboot count on a single server. | 128 |
| Log-related commands | | |
| Command | Description | Page |
| clplogcc | Collects log, OS information, etc. | 61 |
| clplogcf | Modifies and displays a configuration of log level and log output file size. | 82 |
| Script-related commands | | |
| Command | Description | Page |
| clplogcmd | Writes in the EXEC resource script to produce a desired message to the output destination | 120 |

| Mirror-related commands (WAN/LAN/LE only) | | |
|---|--|------|
| Command | Description | Page |
| clpmdstat | Displays mirroring status and configuration information. | 96 |
| clpmdctrl | Performs activation/deactivation of a mirror disk resource and mirror recovery. Displays/modifies the settings of maximum number of request queues. | 107 |
| clpmdinit | Initializes the cluster partition of a mirror disk resource. Creates a file system on the data partition of a mirror disk resource. | 114 |
| clpmdchng | Initializes a replaced mirror disk. This command is used when the disk used for a mirror disk in a clustered system has a problem and the disk is changed. | 117 |

3 STATUS DISPLAY COMMAND

| | |
|---------|--|
| clpstat | Displays cluster status and configuration information. |
|---------|--|

Command Line

```
clpstat -s [-h host_name]
clpstat -g [-h host_name]
clpstat -m [-h host_name]
clpstat -n [-h host_name]
clpstat -i [--detail] [-h host_name]
clpstat --cl [--detail] [-h host_name]
clpstat --sv [server_name] [-h host_name]
clpstat --hb [hb_name] [--detail] [-h host_name]
clpstat --grp [group_name] [--detail] [-h host_name]
clpstat --rsc [resource_name] [--detail] [-h host_name]
clpstat --mon [monitor_name] [--detail] [-h host_name]
```

Explanation Displays cluster status and configuration information.

| Option | | |
|-----------|------------------------|--|
| -s | | Displays cluster status. |
| No option | | |
| -g | | Displays a cluster group map. |
| -m | | Displays each monitor resource status on each server. |
| -n | | Displays each heartbeat resource status on each server. |
| -i | | Displays entire cluster configuration information |
| --cl | | Displays cluster configuration information. Displays mirror agent information as well for WAN/LAN/LE. |
| --sv | [<i>server_name</i>] | Displays server configuration information. By specifying the name of a server, you can display information of the specified server only. |
| --hb | [<i>hb_name</i>] | Displays heartbeat resource configuration information. By specifying the name of a heartbeat resource, you can display the specified heartbeat information only. |
| --grp | [<i>group_name</i>] | Displays group configuration information. By specifying the name of a group, you can display information of the specified group only. |

| | | |
|--------------------|--|---|
| | --rsc [<i>resource_name</i>] | Displays group resource configuration information. By specifying the name of a group resource, you can display information of the specified group resource only. |
| | --mon [<i>monitor_name</i>] | Displays monitor resource configuration information. By specifying the name of a monitor resource, you can display information of the specified resource only. |
| | --detail | By applying this option, more detailed setting option may be displayed. |
| | -h <i>host_name</i> | Acquires information from server specified with <i>host_name</i> . Acquires information from the command running server (local server) when the -h option is omitted. |
| Return Value | 0 Other than 0 | Success Failure |
| Remarks | According to the combination of options, configuration information shows information in various forms. | |
| Notes | Run this command as a root user. The ExpressCluster daemon must be active on the server to run this command. Specify server name in cluster for -h option server name. | |
| Example of Display | See the next section for examples of display. | |

Error Message

| Message | Causes/Actions to Take |
|----------------------------------|--|
| not super user. | Log in as a root user. |
| invalid configuration file. | Create valid cluster configuration information using Configuration Tool. |
| invalid option. | Specify a valid option. |
| could not connect server. | Check if the ExpressCluster daemon is activated. |
| invalid server status. | Check if the ExpressCluster daemon is activated. |
| specified server is not active. | Check if the ExpressCluster daemon is activated. |
| invalid server name. | Specify the valid name of a sever in the cluster. |
| invalid heartbeat resource name. | Specify a valid resource name in the cluster. |
| invalid group name. | Specify a valid group name in the cluster. |
| invalid group resource name. | Specify a valid group resource name in the cluster. |
| invalid monitor resource name. | Specify a valid monitor resource name in the cluster. |
| connection was lost. | Check if there is any server on the cluster with ExpressCluster stopped. |
| invalid parameter. | The value specified as a command parameter may be invalid. |
| connection timeout. | Timeout occurred in internal communication of ExpressCluster. If timeout keeps occurring, set a longer internal communication timeout. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

3.1 Example of a Display When Running the Status Display Command

3.1.1 Status display

You will see the following when the -s option is specified, or no option is specified.

Example of display

```

===== CLUSTER STATUS =====
Cluster : cluster ← See (1)
<server>
*server1 ..... : Online      server1 ← See (2)
  lanhb1       : Normal      LAN Heartbeat
  lanhb2       : Normal      LAN Heartbeat ← See (3)
  diskhb1      : Normal      DISK Heartbeat
  comhb1       : Normal      COM Heartbeat
server2 ..... : Online      server2
  lanhb1       : Normal      LAN Heartbeat
  lanhb2       : Normal      LAN Heartbeat
  diskhb1      : Normal      DISK Heartbeat
  comhb1       : Normal      COM Heartbeat
<group>
failover1 ..... : Online      failover group1 ← See (4)
current          : server1
disk1            : Online      /dev/sdb5
exec1            : Online      exec resource1 ← See (5)
fip1             : Online      10.0.0.11
failover2 ..... : Online      failover group2
current          : server2
disk2            : Online      /dev/sdb6
exec2            : Online      exec resource2
fip2             : Online      10.0.0.12
<monitor>
diskw1          : Normal      disk monitor1
diskw2          : Normal      disk monitor2
ipw1            : Normal      ip monitor1
pidw1           : Normal      pidw1
userw           : Normal      usermode monitor ← See (6)
=====

```

Explanation of each item

- (1) Cluster : Cluster name
- (2) Server name : Status Server comment
"*" indicates the server that executed this command.
- (3) Heartbeat resource name : Status Heartbeat resource comment
- (4) Group name : Status Group comment
current : Server name
Shows the server the group belongs now.
- (5) Group Resource Name : Status Group resource comment
- (6) Monitor Resource Name : Status Monitor resource comment

* Explanation of each status is provided in "3.2 Status ."

3.1.2 Group map display

You will see the following when the -g option is specified.

Example of display

```
===== GROUPMAP INFORMATION =====
Cluster : cluster ← See (1)
*server0 : server1 ← See (2)
server1 : server2

-----
server0 [o] : failover1[o] failover2[o] ← See (3)
server1 [o] : failover3[o]
=====
```

Explanation of each item

- (1) Cluster : Cluster name
- (2) server n : Server name (n is the index number of server)
"*" indicates the server that executed this command.
- (3) server n [server_status] : Group Name [status] Group Name [status] ...
Displays status of the group which is in the n-th server.
 - On the example shown above, the groups failover1 and failover2 are in server0, and the group failover 3 is in server 3,

- * Groups that are not running are not shown.
- * Explanation of each status is provided in "3.2 Status."

3.1.3 Monitor resource status display

You will see the following when the -m option is specified.

Example of display

```
===== MONITOR RESOURCE STATUS =====
Cluster : cluster ← See (1)
*server0 : server1 ← See (2)
server1 : server2

Monitor0 [diskw1 : Normal] ← See (3)
-----
server0 [o] : Online ← See (4)
server1 [o] : Online

Monitor1 [diskw2 : Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor2 [ipw1 : Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor3 [pidw1 : Normal]
-----
server0 [o] : Online
server1 [o] : Offline

Monitor4 [userw : Normal]
-----
server0 [o] : Online
server1 [o] : Online
=====
```

Explanation of each item

- (1) Cluster : Cluster name
- (2) server n : Server name (n is index number of server)
"*" indicates the server that executed this command.
- (3) Monitor n [*monitor_resource_name: status*]
(n is the identification number of monitor resource)
The status of a monitor resource gathering status information per server is displayed here.
- (4) server n [*server_status*] : status
Displays the status of each monitor resource per server.

* Explanation of each status is provided in "3.2 Status ."

3.1.4 Heartbeat resource status display

You will see the following when the -n option is specified.

Example of display

```

===== HEARTBEAT RESOURCE STATUS =====
Cluster : cluster
*server0 : server1
server1 : server2

HB0 : lanhb1
HB1 : lanhb2
HB2 : diskhb1
HB3 : comhb1

[on server0 : Online]
  HB  0  1  2  3
-----
server0 : o  o  o  o
server1 : o  o  o  x

[on server1 : Online]
  HB  0  1  2  3
-----
server0 : o  o  o  x
server1 : o  o  o  o
=====

```

Explanation of each item

- (1) Cluster : Cluster name
- (2) server n : Server name (n is index number of server)
"*" indicates the server which executed this command.
- (3) HB n : Heartbeat resource name
(n is the identification number of the heartbeat resource)
- (4) [on server n : status]
Displays the status of the server whose index number is n.
- (5) HB 0 1 2 ...
server n : status status status
Displays the heartbeat resource status on each server.
The number following HB indicates heartbeat resource identification number described in (3).

* Explanation of each status is provided in "3.2 Status ."

Explanation of example of display status

The example shown above displays the statuses of all heartbeat resources seen from server0 and server1 when COM heartbeat resource was disrupted.

Because comhb1, a COM heartbeat resource, is in incommunicable status in both servers, it is incommunicable to server1 on server0, and incommunicable to server0 on server1. The rest of heartbeat resources on both servers are in the status allowing communications.

3.1.5 Cluster configuration information display

You will see the following when specifying the `-i` option, or `--cl`, `--sv`, `--hb`, `--grp`, `--rsc`, or `--mon`. Detailed information is displayed when specifying the `--detail` option.

* See a separate guide, "Configuration Tool" for details of each item.

(1) `--cl` option

~ For SAN/SE ~

Example of display

```

===== CLUSTER INFORMATION =====
[Cluster : cluster] (1)
Comment : failover cluster (2)
<Timeout>
Synchronize Wait Time : 300 (3)
Heartbeat Timeout : 90000 (4)
Heartbeat Interval : 3000 (5)
Server Internal Timeout : 180 (6)
Timeout Ratio : 1 (7)
<Port Number>
Server Internal Port Number : 29001 (8)
Data Transfer Port Number : 29002 (9)
Heartbeat Port Number : 29002 (10)
Kernel Heartbeat Port Number : 29006 (11)
WebManager HTTP Port Number : 29003 (12)
Alert Sync Port Number : 29003 (13)
<Monitor>
Shutdown Monitor : On (14)
Shutdown Method : softdog (15)
Server Down Notify : Off (16)
Max Reboot Count : 0 (17)
Max Reboot Count Reset Time : 0 (18)
<Delay Warning>
Heartbeat Delay Warning : 80 (19)
Monitor Delay Warning : 80 (20)
<Mail Report>
Mail Address : (21)
=====

```

* The items enclosed in a dotted line section are displayed when the `--detail` option is used.

Explanation of each item

(1) [Cluster : *cluster_name*]

(2) Comment : Comment

<Timeout>

(3) Synchronize Wait Time : Start-up wait time (in seconds)

(4) Heartbeat Timeout : Heartbeat timeout (in milliseconds)

(5) Heartbeat Interval : Heartbeat send interval (in milliseconds)

(6) Server Internal Timeout : Internal communication timeout

(in seconds)

(7) Timeout Ratio : Current timeout ratio

<Port Number>

(8) Server Internal Port Number : Internal communication port number

(9) Data Transfer Port Number : Data transfer port number

(10) Heartbeat Port Number : Heartbeat port number

(11) Kernel Heartbeat Port Number : Kernel mode heartbeat port number

(12) WebManager HTTP Port Number : WebManager HTTP port number

(13) Alert Sync Port Number : Alert synchronous port number

<Monitoring>

(14) Shutdown Monitor : Shutdown monitor

(15) Shutdown Method : Shutdown monitoring method

(16) Server Down Notify : Server down notice

(17) Max Reboot Count : Maximum reboot count

(18) Max Reboot Count Reset Time : Maximum reboot count reset time
(in seconds)

<Delay Warning>

(19) Heartbeat Delay Warning : Delay warning of heartbeat resource (%)

(20) Monitor Delay Warning : Delay warning of monitoring resource (%)

<Mail Address>

(21) Mail Address : Address to which notice mails are sent

~ For WAN/LAN/LE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Cluster : cluster]
Comment                : failover cluster
<Timeout>
Synchronize Wait Time  : 300
Heartbeat Timeout      : 90000
Heartbeat Interval     : 3000
Server Internal Timeout : 180
Timeout Ratio          : 1
<Port Number>
Server Internal Port Number : 29001
Data Transfer Port Number  : 29002
Heartbeat Port Number      : 29002
Kernel Heartbeat Port Number : 29006
WebManager HTTP Port Number : 29003
Alert Sync Port Number     : 29003
Mirror Agent Port Number   : 29004 (22)
Mirror Driver Port Number  : 29005 (23)
<Monitor>
Shutdown Monitor        : On
Shutdown Method         : ipmi
Server Down Notify      : Off
Max Reboot Count        : 1
Max Reboot Count Reset Time : 0
<Delay Warning>
Heartbeat Delay Warning : 80
Monitor Delay Warning    : 80
<Mail Report>
Mail Address            :
<Mirror Agent>
Auto Mirror Recovery    : On (24)
Mirror Synchronization : On (25)
Receive Timeout         : 10 (26)
<Mirror Driver>
Request Queue Maximum Number : 2048 (27)
Connect Timeout         : 10 (28)
Send Timeout            : 30 (29)
Recieve Timeout        : 100 (30)
Ack Timeout             : 100 (31)
Bitmap Update Interval  : 100 (32)
Flush Sleep Time        : 1 (33)
Flush Count             : 32 (34)
=====
```

- * For WAN/LAN/LE, information related to mirror as shown in the box enclosed by a solid line will be additionally displayed.
- * The items enclosed in a dotted line are displayed when the --detail option is used.

Explanation of each item

For description on items other than those related to mirror, see “~For SAN/SE~”.

<Port Number>

- (22) Mirror Agent Port Number : Mirror agent port number
- (23) Mirror Driver Port Number : Mirror driver port number

<Mirror Agent>

- (24) Auto Mirror Recovery : Automatic mirror recovery
- (25) Mirror Synchronization : Mirror synchronization
- (26) Receive Timeout : Receive timeout (in seconds)

<Mirror Driver>

- (27) Request Queue Maximum Number : Request queue maximum number
- (28) Connect Timeout : Connect timeout (in seconds)
- (29) Send Timeout : Send timeout (in seconds)
- (30) Receive Timeout : Receive timeout (in seconds)
- (31) Ack Timeout : Ack timeout (in seconds)
- (32) Bitmap Update Interval : Bitmap update interval (in seconds)
- (33) Flush Sleep Time : Flush sleep time (x10 milliseconds)
- (34) Flush Count : Flush count

(2) --sv option

By specifying the name of a server after the --sv option, you can display only the information of the specified server.

Example of display

```
===== CLUSTER INFORMATION =====
[Server0 : server1] (1)
  Comment           : server1 (2)
  Version           : 3.1-4 (3)
  Edition           : SAN/SE (4)
  IP Address        : 10.0.0.1 (5)
[Server1 : server2]
  Comment           : server2
  Version           : 3.1-4
  Edition           : SAN/SE
  IP Address        : 10.0.0.2
```

Explanation of each item

- (1) [Server n: *server_name*] (n is index number of server)
- (2) Comment : Comment
- (3) Version : Version
- (4) Edition : Edition
- (5) IP Address : Public LAN address

(3) --hb option

By specifying the name of a heartbeat resource after the --hb option, you can display only the information of the specified heartbeat resource.

LAN heartbeat resource

Example of display

```
===== CLUSTER INFORMATION =====
[HB0 : lanhb1]
Type           : lanhb           (1)
Comment        : LAN Heartbeat  (2)
<server1>
IP Address     : 192.168.0.1     (4)
<server2>
IP Address     : 192.168.0.2
```

- * The items enclosed in a solid line are common to any resource.
- * The items enclosed in a dotted line are displayed when the --detail option is used.

Explanation of items common to any heartbeat resource

- (1) [HB n : *heartbeat_resource_name*]
(n is the identification number of the heartbeat resource)
- (2) Type : Heartbeat resource type
- (3) Comment : Comment

Explanation of Each Item

- (4) IP Address : Interconnect address /on *server_name*

DISK heartbeat resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[HB2 : diskhb1]
Type           : diskhb
Comment        : DISK Heartbeat
<server1>
Device Name    : /dev/sdb1       (1)
RAW Device Name : /dev/raw/raw1  (2)
<server2>
Device Name    : /dev/sdb1
RAW Device Name : /dev/raw/raw1
```

Explanation of each item

- (5) Device Name : DISK heartbeat Device /on *server_name*
- (6) RAW Device Name : RAW device for DISK heartbeat

COM heartbeat resource

Example of display

```
===== CLUSTER INFORMATION =====
[HB3 : comhb1]
Type           : comhb
Comment        : COM Heartbeat
<server1>
Device Name    : /dev/ttyS0
<server2>
Device Name    : /dev/ttyS0
=====
```

(1)

Explanation of each item

(7) Device Name : COM heartbeat device/on *server_name*

Kernel Mode LAN Heartbeat Resource

Example of display

```
===== CLUSTER INFORMATION =====
[HB4 : lankhb1]
Type           : lankhb
Comment        : Kernel Mode LAN Heartbeat
<server1>
IP Address     : 192.168.0.1
<server2>
IP Address     : 192.168.0.2
=====
```

(1)

Explanation of each item

(8) IP Address : Interconnect address

* **Tips**

By using the --sv option and the --hb option together, you can see the information as follows.

Command Line # `clpstat --sv --hb --detail`

```
===== CLUSTER INFORMATION =====
[Server0 : server1]
  Comment           : server1
  Version           : 3.1-4
  Edition           : SAN/SE
  IP Address        : 10.0.0.1
[HBO : lanhb1]
  Type              : lanhb
  Comment           : LAN Heartbeat
  IP Address        : 192.168.0.1
[HB1 : lanhb2]
  Type              : lanhb
  Comment           : LAN Heartbeat
  IP Address        : 10.0.0.1
[HB2 : diskhb1]
  Type              : diskhb
  Comment           : DISK Heartbeat
  Device Name       : /dev/sdb1
[HB3 : comhb1]
  Type              : comhb
  Comment           : COM Heartbeat
  Device Name       : /dev/ttyS0
[Server1 : server2]
  Comment           : server2
  Version           : 3.1-4
  Edition           : SAN/SE
  IP Address        : 10.0.0.2
[HBO : lanhb1]
  Type              : lanhb
  Comment           : LAN Heartbeat
  IP Address        : 192.168.0.2
[HB1 : lanhb2]
  Type              : lanhb
  Comment           : LAN Heartbeat
  IP Address        : 10.0.0.2
[HB2 : diskhb1]
  Type              : diskhb
  Comment           : DISK Heartbeat
  Device Name       : /dev/sdb1
[HB3 : comhb1]
  Type              : comhb
  Comment           : COM Heartbeat
  Device Name       : /dev/ttyS0
=====
```

(4) --grp option

By specifying the name of a group after the --grp option, you can display only the information of the specified group.

Example of display

```
===== CLUSTER INFORMATION =====
[Group0 : failover1] (1)
Type : failover (2)
Comment : failover_group1 (3)
Startup Attribute : Auto Startup (4)
Failover Exclusive Attribute : Off (5)
Failback Attribute : Manual Failback (6)
Failover Attribute : Manual Failover (7)
Servers Which Can Be Started : 0 server1 (8)
: 1 server2
[Group1 : failover2]
Type : failover
Comment : failover_group2
Startup Attribute : Auto Startup
Failover Exclusive Attribute : Off
Failback Attribute : Auto Failback
Failover Attribute : Auto Failover
Servers Which Can Be Started : 0 server2
: 1 server1
=====
```

* The items enclosed in a dotted line are displayed when the --detail option is used.

Explanation of each item

- (1) [Group n : group name] (n is the identification number of group)
- (2) Type : Group type
- (3) Comment : Comment
- (4) Startup Attribute : Startup type
 - Manual Startup Manual startup
 - Auto Startup Automatic startup
- (5) Failover Exclusive Attribute : Startup exclusive attributes
 - Off No exclusion
 - Normal Normal exclusion
 - High Complete exclusion
- (6) Failback Attribute : Failback attribute
 - Manual Failback Manual failback
 - Auto Failback Automatic failback
- (7) Failover Attribute : Failover attribute
 - Manual Failover Manual failover
 - Auto Failover Automatic failover
- (8) Servers Which Can Be Started : Failover order
Displays servers which can be started up are shown in the failover policy sequence.

(5) **--rsc option**

By specifying the name of a group resource after the --rsc option, you can display only the information of the specified group resource.

Disk resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Resource0 : disk1] (1)
Type : disk (2)
Comment : /dev/sdb5 (3)
Failover Threshold : 1 (4)
Activity Retry Threshold : 0 (5)
Activity Final Action : No Operation (Next Resources Are Not Activated) (6)
Deactivity Retry Threshold : 0 (7)
Deactivity Final Action : No Operation (Next Resources Are Deactivated) (8)
Depended Resources : fip1 (9)
Device Name : /dev/sdb5 (10)
File System : ext3 (11)
Disk Type : disk (12)
Mount Point : /mnt/sdb5 (13)
Mount Option : rw (14)
Mount Timeout : 60 (15)
Mount Retry Count : 3 (16)
Action at Mount Failure : 1 (0:None, 1:Fsck) (17)
Unmount Timeout : 60 (18)
Unmount Retry Count : 3 (19)
Action at Unmount Failure : kill (20)
Fsck Option : -y (21)
Fsck Timeout : 1800 (22)
Fsck Timing : 2 (0:None, 1:Always, 2:Interval) (23)
Fsck Interval : 10 (24)
=====
```

- * The items enclosed in a solid line are common to any resource.
- * The items enclosed in a dotted line are displayed when the --detail option is used.

Explanation of items common to any group resources

- (1) [Resource n : *group_resource_name*]
(n is the identification number of group resource)
- (2) Type : Group resource type
- (3) Comment : Comment
- (4) Failover Threshold : Failover count
- (5) Activity Retry Threshold : Activity retry count
- (6) Activity Final Action : Last action at activity failures
 - No Operation (Next Resources Are Activated)
No action is taken (Activate next resources)
 - No Operation (Next Resources Are Not Activated)
No action is taken (Do not activate next resource)
 - Stop Group
Stop the group

- Stop Cluster Daemon
Stop the ExpressCluster daemon
 - Stop Cluster Daemon And OS Shutdown
Stop the ExpressCluster daemon and shutdown the OS
 - Stop Cluster Daemon And OS Reboot
Stop the ExpressCluster daemon and restart the OS
- (7) Deactivity Retry Threshold : Deactivity retry count
- (8) Deactivity Final Action : Final action at deactivity failures
- No Operation (Next Resources Are Deactivated)
No Action (Deactivate the next resource)
 - No Operation (Next Resources Are Not Deactivated)
No Action (Do not deactivate next resource)
 - Stop Cluster Daemon And OS Shutdown
Stop the ExpressCluster daemon and shut down the OS
 - Stop Cluster Daemon And OS Reboot
Stop the ExpressCluster daemon and restart the OS
- (9) Depended Resources : Depended resource

Explanation of each item

- (10) Device Name : Device name
- (11) File System : File system
- (12) Disk Type : Disk type
- (13) Mount Point : Mount point
- (14) Mount Option : Mount option
- (15) Mount Timeout : Mount timeout
- (16) Mount Retry Count : Mount retry count
- (17) Action at Mount Failure : Action at mount failure
- 0 No action
 - 1 Executes fsck
- (18) Unmount Timeout : Unmount timeout (in seconds)
- (19) Unmount Retry Count : Unmount retry count
- (20) Action at Unmount Failure : Action at unmount failure
- kill Force process termination
 - none No action
- (21) Fsck Option : fsck option
- (22) Fsck Timeout : fsck time-out (in seconds)

- (23) Fck Timing : fck timing before mounting
- 0 Does not execute fsck
 - 1 Always executes fsck
 - 2 Executes fsck once the interval is reached

(24) Fck Interval : fck interval

Mirror disk resource ~ For WAN/LAN/LE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Resource0 : md1]
Type
Comment : /dev/NMP1
Failover Threshold : 1
Activity Retry Threshold : 0
Activity Final Action : No Operation (Next Resources Are Not Activated)
Deactivity Retry Threshold : 0
Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
Depended Resources : fip1
Mirror Data Port Number : 29051 (1)
File System : ext3 (2)
Disk Device : /dev/sdb (3)
Cluster Partition Device : /dev/sdb1 (4)
Data Partition Device : /dev/sdb5 (5)
Mirror Connect : 192.168.0.1|192.168.0.2 (6)
Mirror Partition Device : /dev/NMP1 (7)
Mount Point : /mnt/sdb5 (8)
Mount Option : rw (9)
Mount Timeout : 60 (10)
Mount Retry Count : 3 (11)
Unmount Timeout : 60 (12)
Unmount Retry Count : 3 (13)
Force Operation
  When Detecting Failure : kill (14)
Fsync Option : -y (15)
Fsync Timeout : 1800 (16)
=====
```

Explanation of each item

- (1) Mirror Data Port Number : Mirror data port number
- (2) File System : File system
- (3) Disk Device : Disk device name
- (4) Cluster Partition Device : Cluster partition device name
- (5) Data Partition Device : Data partition device name
- (6) Mirror Disk Connect : Mirror disk connect
- (7) Mirror Partition Device : Mirror partition device name
- (8) Mount Point : Mount point
- (9) Mount Option : Mount option
- (10) Mount Timeout : Mount timeout
- (11) Mount Retry Count : Mount Retry Count

- (12) Unmount Timeout : Unmount timeout (in seconds)
- (13) Unmount Retry Count : Unmount retry count
- (14) Force Operation : Operation at unmount failures
When Detecting Failure
- kill Force termination
- none No Action
- (15) Fck Option : fck option
- (16) Fck Timeout : fck time-out (seconds)

FIP resource

Example of display

```
===== CLUSTER INFORMATION =====
[Resource2 : fip1]
Type                : fip
Comment             : 10.0.0.11
Failover Threshold  : 1
Activity Retry Threshold : 5
Activity Final Action : No Operation (Next Resources Are Not Activated)
Deactivity Retry Threshold : 0
Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
Depended Resources  :
IP Address          : 10.0.0.11 (1)
Ping Timeout        : 1 (2)
Ping Retry Count    : 5 (3)
Ping Interval       : 1 (4)
FIP Force Activation : 0 (0:0ff, 1:0n) (5)
ARP Send Count      : 1 (6)
=====
```

Explanation of each item

- (1) IP Address : FIP address
- (2) Ping Timeout : Timeout of ping to confirm redundancy (in seconds)
- (3) Ping Retry Count : Ping retry count
- (4) Ping Interval : Ping interval (in seconds)
- (5) FIP Force Activation : FIP force activation
- (6) ARP Send Count : ARP send count

Exec resource

Example of display

```
===== CLUSTER INFORMATION =====
[Resource1 : exec1]
  Type           : exec
  Comment        : exec resource1
  Failover Threshold : 1
  Activity Retry Threshold : 0
  Activity Final Action : No Operation(Next Resources Are Not Activated)
  Deactivity Retry Threshold : 0
  Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
  Depended Resouces : disk1, fip1
  Start Script
    Path         : /opt/userpp/start1.sh (1)
    Type         : Asynchronous (2)
    Timeout      : 1800 (3)
  Stop Script
    Path         : /opt/userpp/stop1.sh (4)
    Type         : Synchronous (5)
    Timeout      : 1800 (6)
    Log Output Path : (7)
=====
```

Explanation of each item

Start Script

- (1) Path : Path to the start script
- (2) Type : Synchronized/asynchronous start script
 - Synchronous Wait for the end of Start Script
 - Asynchronous Not wait for the end of Start Script
- (3) Timeout : Start script timeout (in seconds)

Stop Script

- (4) Path : Path to the stop script
- (5) Type : Synchronous/asynchronous stop script
 - Synchronous Wait for the end of Stop Script
 - Asynchronous Not wait for the end of Stop Script
- (6) Timeout : Stop script timeout (in seconds)
- (7) Log Output Path : Destination for message output when running the script

RAW resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Resource3 : raw1]
Type                : raw
Comment             : /dev/sde6
Failover Threshold  : 1
Activity Retry Threshold : 0
Activity Final Action : No Operation (Next Resources Are Not Activated)
Deactivity Retry Threshold : 0
Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
Depended Resources  : fip1
Device Name         : /dev/sde6 (1)
RAW Device Name     : /dev/raw/raw10 (2)
Disk Type           : disk (3)
=====
```

Explanation of each item

- (1) Device Name : Device name
- (2) RAW Device Name : RAW device name
- (3) Disk Type : Disk type

VxVM disk group resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Resource4 : vxdg1]
Type           : vxdg
Comment        : dg1
Failover Threshold : 1
Activity Retry Threshold : 0
Activity Final Action : No Operation (Next Resources Are Not Activated)
Deactivity Retry Threshold : 0
Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
Depended Resources : fip1
Disk Group Name : dg1 (1)
Clear Host ID   : 1 (0:Off, 1:On) (2)
Force           : 0 (0:Off, 1:On) (3)
Import Timeout  : 60 (4)
Start Volume Timeout : 60 (5)
Stop Volume Timeout : 60 (6)
Flush Timeout   : 60 (7)
Deport Timeout  : 60 (8)
=====
```

Explanation of each item

- (1) Disk Group Name : VxVM disk group name
- (2) Clear Host ID : Clear host ID option at import
- (3) Force : Force option at import
- (4) Import Timeout : Import timeout
- (5) Start Volume Timeout : Start volume timeout
- (6) Stop Volume Timeout : Stop volume timeout
- (7) Flush Timeout : Flush timeout
- (8) Deport Timeout : Deport timeout

VxVM volume resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Resource5 : vxvol1]
Type                : vxvol
Comment             : vol1
Failover Threshold  : 1
Activity Retry Threshold : 0
Activity Final Action : No Operation (Next Resources Are Not Activated)
Deactivity Retry Threshold : 0
Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
Depended Resources  : fip1, vxdg1
Volume Device Name  : /dev/vx/dsk/dg1/vol1 (1)
Volume RAW Device Name : /dev/vx/rdisk/dg1/vol1 (2)
File System         : vxfs (3)
Mount Point        : /mnt/vol1 (4)
Mount Option       : rw (5)
Mount Timeout      : 60 (6)
Mount Retry Count  : 3 (7)
Action at Mount Failure : 1 (0:None, 1:Fsock) (8)
Unmount Timeout    : 60 (9)
Unmount Retry Count : 3 (10)
Action at Unmount Failure : kill (11)
Fsock Option       : -y (12)
Fsock Timeout      : 1800 (13)
Fsock Timing       : 2 (0:None, 1:Always, 2:Interval) (14)
Fsock Interval     : 10 (15)
=====
```

Explanation of each item

- (1) Volume Device Name : VxVM volume device name
- (2) Volume RAW Device Name : VxVM volume RAW device name
- (3) File System : File system
- (4) Mount Point : Mount point
- (5) Mount Option : Mount option
- (6) Mount Timeout : Mount timeout
- (7) Mount Retry Count : Mount retry count
- (8) Action at Mount Failure : Action at mount failure
 - 0 No action
 - 1 Executes fsck
- (9) Unmount Timeout : Unmount timeout (in seconds)
- (10) Unmount Retry Count : Unmount retry count
- (11) Action at Unmount Failure : Action at unmount failure
 - kill Force process termination
 - none No action

- (12) Fck Option : fck option
- (13) Fck Timeout : fck time-out (in seconds)
- (14) Fck Timing : fck timing before performing mount
 - 0 Does not execute fsck
 - 1 Always executes fsck
 - 2 Executes fsck once the fsck interval is reached
- (15) Fck Interval : fck interval

NAS resource

Example of Display

```
===== CLUSTER INFORMATION =====
[Resource6 : nas1]
Type : nas
Comment : nfsserver1:/share1
Failover Threshold : 1
Activity Retry Threshold : 0
Activity Final Action : No Operation (Next Resources Are Not Activated)
Deactivity Retry Threshold : 0
Deactivity Final Action : Stop Cluster Daemon And OS Shutdown
Depended Resouces : fip1
Server Name : nfsserver1 (1)
Share Name : /share1 (2)
File System : nfs (3)
Mount Point : /mnt/nas1 (4)
Mount Option : rw (5)
Mount Timeout : 60 (6)
Mount Retry Count : 3 (7)
Unmount Timeout : 60 (8)
Unmount Retry Count : 3 (9)
Force Operation
  When Detecting Failure : kill (10)
Ping Timeout : 10 (11)
=====
```

Explanation of Each Item

- (1) Server Name : Server name
- (2) Share Name : Shared name
- (3) File System : File system
- (4) Mount Point : Mount point
- (5) Mount Option : Mount option
- (6) Mount Timeout : Mount timeout (in seconds)
- (7) Mount Retry Count : Mount retry count
- (8) Unmount Timeout : Unmount timeout (in seconds)
- (9) Unmount Retry Count : Unmount retry count
- (10) Force Operation
When Detecting Failure : Operation at unmount abnormality
 - kill Force termination
 - none No action is taken
- (11) Ping Timeout : ping timeout (in seconds)

* **Tips**

By using the `-grp` option and the `--rsc` option together, you can display the information as follows.

Command Line # `clpstat --grp --rsc`

```
===== CLUSTER INFORMATION =====
[Group0 : failover1]
  Comment : failover group1
[Resource0 : disk1]
  Type : disk
  Comment : /dev/sdb5
  Device Name : /dev/sdb5
  File System : ext2
  Mount Point : /mnt/sdb5
[Resource1 : exec1]
  Type : exec
  Comment : exec resource1
  Start Script
    Path : /opt/userpp/start1.sh
  Stop Script
    Path : /opt/userpp/stop1.sh
[Resource2 : fip1]
  Type : fip
  Comment : 10.0.0.11
  IP Address : 10.0.0.11
[Group1 : failover2]
  Comment : failover group2
[Resource0 : disk2]
  Type : disk
  Comment : /dev/sdb6
  Device Name : /dev/sdb6
  File System : ext2
  Mount Point : /mnt/sdb6
[Resource1 : exec2]
  Type : exec
  Comment : exec resource2
  Start Script
    Path : /opt/userpp/start2.sh
  Stop Script
    Path : /opt/userpp/stop2.sh
[Resource2 : fip2]
  Type : fip
  Comment : 10.0.0.12
  IP Address : 10.0.0.12
=====
```

(6) **--mon option**

By specifying the name of a monitor resource after the --mon option, you can display only information of the specified monitor resource.

Disk monitor resource

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor0 : diskw1] (1)
Type : diskw (2)
Comment : disk_monitor1 (3)
Monitor Timing : Always (4)
Target Resource : (5)
Interval : 60 (6)
Timeout : 120 (7)
Retry Count : 0 (8)
Final Action : No Operation (9)
Recover Object : disk1 (10)
Recover Object Type : Resource (11)
Re-activation Threshold : 3 (12)
Failover Threshold : 1 (13)
Start Monitor Wait Time : 0 (14)
Nice Value : 0 (15)
Target : /dev/sdb5 (16)
DISK/NAS : disk (17)
Method : Dummy Read (18)
I/O size : 2000000 (19)
=====
```

- * The items enclosed in a solid line are common to any resource.
- * The items enclosed in a dotted line are displayed when the --detail option is used.

Explanation of items common of any monitor resources

- (1) [MONITOR n: *monitor_resource_name*]
(n is the identification number of the group)
- (2) Type : Monitor resource type
- (3) Comment : Comment
- (4) Monitor Timing : Timing to start monitoring
 - Always Always
 - Activating While Active
- (5) Target Resource : Monitoring target resource
- (6) Interval : Monitoring interval
- (7) Timeout : Monitoring timeout (in seconds)
- (8) Retry Count : Monitoring retry count
- (9) Final Action : Last action
 - No Operation No Action

- Stop Group
 Stop group
- Stop Cluster Daemon
 Stop the ExpressCluster daemon
- Stop Cluster Daemon And OS Shutdown
 Stop the ExpressCluster daemon and shut down the OS
- Stop Cluster Daemon And OS Reboot
 Stop the ExpressCluster daemon and restart the OS

- (10) Recover Object : Target to be recovered when a problem is detected
- (11) Recover Object Type : Type of target to be recovered when a problem is detected
- (12) Re-activation Threshold : Restart count
- (13) Failover Threshold : Failover count
- (14) Start Monitor Wait Time : Time to wait for start of monitoring
- (15) Nice Value : nice value

Explanation of each item

- (16) DISK/NAS : Monitoring target disk type
 - (17) Target : Monitoring target device name
 - (18) Method : Monitoring method
 - (19) I/O size : Monitoring I/O size
- * Monitoring I/O size becomes effective when the monitoring method is "Dummy Read."

IP monitor resource

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor2 : ipw1]
Type                : ipw
Comment             : ip_monitor1
Monitor Timing      : Always
Target Resource     :
Interval           : 30
Timeout            : 10
Retry Count         : 0
Final Action        : No Operation
Recover Object      : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold  : 0
Start Monitor Wait Time : 0
Nice Value          : 0
IP Address List     : 192.168.15.254 (1)
=====
```

Explanation of each item

(1) IP Address List : Monitoring target IP address

PID monitor resource

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor3 : pidw1]
Type                : pidw
Comment             : pidw1
Monitor Timing      : Activating
Target Resource     : exec1
Interval           : 5
Timeout            : 60
Retry Count         : 0
Final Action        : No Operation
Recover Object      : exec1
Recover Object Type : Resource
Re-activation Threshold : 3
Failover Threshold  : 1
Start Monitor Wait Time : 0
Nice Value          : 0
Target PID          : 1197 (1)
=====
```

Explanation of each item

(1) Target PID : Monitoring target PID

Mirror disk monitor resource ~ For WAN/LAN/LE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor4 : mdw1]
Type                : mdw
Comment             : mirror disk monitor
Monitor Timing     : Always
Target Resource    :
Interval           : 10
Timeout            : 30
Retry Count        : 0
Final Action       : No Operation
Recover Object     : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold : 0
Start Monitor Wait Time : 0
Nice Value         : 0
Target             : md1 (1)
=====
```

Explanation of each item

(1) Target : Monitoring target resource

Mirror disk connect monitor resource ~ For WAN/LAN/LE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor5 : mdnw1]
Type                : mdnw
Comment             : mirror disk connect monitor
Monitor Timing     : Always
Target Resource    :
Interval           : 60
Timeout            : 120
Retry Count        : 0
Final Action       : No Operation
Recover Object     : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold : 0
Start Monitor Wait Time : 0
Nice Value         : 0
Target             : 192.168.11.37|192.168.11.38 (1)
=====
```

Explanation of display

(1) Target : Target mirror disk connect

User space monitor resource

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor6 : userw]
Type                : userw
Comment             : usermode monitor
Monitor Timing      : Always
Target Resource     :
Interval            : 0
Timeout             : 0
Retry Count         : 0
Final Action        :
Recover Object      : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold : 0
Start Monitor Wait Time : 0
Nice Value          : -20
Method              : softdog (1)
Open/Close Temporary File : 1 (0:0ff, 1:0n) (2)
with Writing        : 1 (0:0ff, 1:0n) (3)
Size                : 10000 (4)
Create Temporary Thread : 1 (0:0ff, 1:0n) (5)
Use HB interval and timeout : 1 (0:0ff, 1:0n) (6)
=====
```

Explanation of each item

- (1) Method : Monitoring method
- (2) Open/Close Temporary File : Open/Close temporary file
- (3) with Writing : Write into temporary file
- (4) Size : Size of the data to be written into temporary file
- (5) Create Temporary Thread : Create temporary thread
- (6) Use HB interval and timeout : Use HB interval and timeout

RAW monitor resource

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor7 : raww1]
Type : raw
Comment : raw_monitor1
Monitor Timing : Always
Target Resource :
Interval : 60
Timeout : 120
Retry Count : 0
Final Action : No Operation
Recover Object : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold : 0
Start Monitor Wait Time : 0
Nice Value : 0
Target RAW Device Name : /dev/raw/raw30 (1)
Device Name : /dev/sdb (2)
Method : Dummy Read (3)
I/O size : 1024 (4)
=====
```

Explanation of each item

- (1) Target RAW Device Name : Monitoring target RAW device name
- (2) Device Name : Device name
- (3) Method : Monitoring method
- (4) I/O size : Monitoring I/O size

VxVM daemon monitor resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor8 : vxdw]
Type                : vxdw
Comment             : VxVM daemon monitor
Monitor Timing      : Always
Target Resource     :
Interval           : 60
Timeout            : 120
Retry Count         : 0
Final Action        : No Operation
Recover Object      : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold  : 0
Start Monitor Wait Time : 0
Nice Value          : 0
=====
```

Explanation of each item

There is no item specific to VxVM daemon monitor resource.

VxVM volume monitor resource ~ For SAN/SE ~

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor9 : vxvolw1]
Type                : vxvolw
Comment             : vxvol_monitor1
Monitor Timing      : Activating
Target Resource     : vxvol1
Interval           : 60
Timeout            : 120
Retry Count         : 0
Final Action        : No Operation
Recover Object      : vxvol1
Recover Object Type : Resource
Re-activation Threshold : 3
Failover Threshold  : 1
Start Monitor Wait Time : 0
Nice Value          : 0
Target              : /dev/vx/rdisk/dg1/vol1 (1)
Method              : Dummy Read (2)
I/O size            : 1024 (3)
=====
```

Explanation of each item

- (1) Target : Monitoring target VxVM volume device name
- (2) Method : Monitoring method
- (3) I/O size : Monitoring I/O size

NIC Link Up/Down monitor resource

Example of Display

```
===== CLUSTER INFORMATION =====
[Monitor10 : miw1]
Type                : miw
Comment             : eth0
Monitor Timing      : Always
Target Resource     :
Interval            : 10
Timeout             : 60
Retry Count         : 3
Final Action        : No Operation
Recover Object      : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold  : 1
Start Monitor Wait Time : 0
Nice Value          : 0
Target              : eth0 (1)
=====
```

Explanation of Each Item

(1) Target : Name of interface to be monitored

Multi Target Monitor Resource

Example of display

```
===== CLUSTER INFORMATION =====
[Monitor11 : mtw1]
Type                : mtw
Comment             :
Monitor Timing      : Always
Target Resource     :
Interval            : 30
Timeout             : 30
Retry Count         : 0
Final Action        : No Operation
Recover Object      : cluster
Recover Object Type : Myself
Re-activation Threshold : 0
Failover Threshold  : 0
Start Monitor Wait Time : 0
Nice Value          : 0
Monitor Resource List : diskw1 (1)
                    : ipw3
                    : raww1
=====
```

Explanation of Each Item

(1) Monitor Resource List : Monitor resource list

(7) -i option

By specifying the `-i`, you can display the configuration information with all `--cl`, `--sv`, `--hb`, `--grp`, `--rsc`, and `--mon` options specified.

If you execute the `-i` option and the `--detail` option together, all the detailed cluster configuration information appears.

Since this option displays large amount of information at a time, if you run the option and see the information, use command, such as the `less` command, using pipe, or redirect the output in a file.

*** Tips**

Specifying the `-i` option displays all the information on a console. If you wish to see a part of the information, it is useful to combine the `--cl`, `--sv`, `--hb`, `--grp`, `--rsc`, and/or `--mon` option. For example, you can use these options as follows.

Example:

In case you want to see the detail of the information of the server whose name is "server0," the group whose name is "failover1," and the entire group resources of the specified group:

```
# clpstat --sv server0 --grp failover1 --rsc --detail
```

3.2 Status

See a separate guide, “Web Manager” for details of each status.

| Server | | |
|--|---------|----------------------------|
| Function | Status | Description |
| Status display Heartbeat resource status display | Online | Activated |
| | Offline | Stopped |
| | Caution | Heartbeat resource failure |
| | Unknown | Status unknown |
| Group map display Monitor resource status display | o | Active |
| | x | Stopped |
| | - | Status unknown |

| Heartbeat Resource | | |
|-----------------------------------|---------|---------------------------|
| Function | Status | Description |
| Status display | Normal | Normal |
| | Caution | Failure (Partial) |
| | Error | Failure (All) |
| | Unused | Not in use |
| | Unknown | Status unknown |
| Heartbeat resource status display | o | Possible to communicate |
| | x | Impossible to communicate |
| | - | Unused or status unknown |

| Group | | |
|-------------------|-----------------|-----------------------------|
| Function | Status | Description |
| Status display | Online | Activated |
| | Offline | Stopped |
| | Online Pending | Now being activated |
| | Offline Pending | Now being stopped |
| | Error | Error |
| | Unknown | Status unknown |
| Group map display | o | Activated |
| | e | Error |
| | p | Now being activated/stopped |

| Group Resource | | |
|-----------------------|-----------------|---------------------|
| Function | Status | Description |
| Status display | Online | Activated |
| | Offline | Stopped |
| | Online Pending | Now being activated |
| | Offline Pending | Now being stopped |
| | Online Failure | Activation failed |
| | Offline Failure | Stopping failed |
| | Unknown | Status unknown |

| Monitor Resource | | |
|---------------------------------|-----------------|---------------------|
| Function | Status | Description |
| Status Display | Normal | Normal |
| | Caution | Error (Partial) |
| | Error | Error (All) |
| | Unused | Unused |
| | Unknown | Status Unknown |
| Monitor Resource Status Display | Online | Activated |
| | Offline | Stopped |
| | Caution | Warning |
| | Suspend | Suspend |
| | Online Pending | Now being activated |
| | Offline Pending | Now being stopped |
| | Online Failure | Activation failed |
| | Offline Failure | Stopping failed |
| | Unused | Used |
| | Unknown | Status unknown |

4 OPERATION COMMAND

- * Notes for specifying group resources as monitor resources to be recovered



If the group resource (disk resource, exec resource...) is set as the recovery target at the setting when a failure of monitor resource is detected and monitor resource detected a failure during the recovery operation transition (reactivation -> failover -> final action), do not perform the following command, and control the cluster and group from Web manager.

- + termination/suspension of cluster
- + start/terminate/migrate group

If you perform the control written above during the recovery operation transmission due to a monitor resource failure, the group resource of other group may not terminate.

In addition, if after final action has been done, the control written above may be performed even when the monitor resource is in a failure status.

4.1 Cluster Operation Command

| | |
|-------|--------------------|
| clpcl | Operates a cluster |
|-------|--------------------|

Command Line

```
clpcl -s [-a] [-h host_name]
clpcl -t [-a] [-h host_name]
clpcl -r [-a] [-h host_name]
clpcl --suspend [--force]
clpcl --resume
```

Description Starts, stops, suspends, and resumes the ExpressCluster daemon.

| | | |
|---------------|---------------------|---|
| Option | -s | Starts the ExpressCluster daemon. |
| | -t | Stops the ExpressCluster daemon. |
| | -r | Restarts ExpressCluster daemon. |
| | --suspend | Suspends the entire cluster |
| | --resume | Resumes the entire cluster |
| | -a | Executed on all servers |
| | -h <i>host_name</i> | Makes a processing request to the server specified in <i>host_name</i> . Makes a processing request to the command-running server (local server) if the -h option is skipped. |
| | --force | When used with the --suspend option, forcefully performs suspend regardless of the status of the server in the cluster. |

| | | |
|---------------------|--------------|---------|
| Return Value | 0 | Success |
| | Other than 0 | Failure |

Remarks

Notes Run this command as a root user.

For the name of a server for the -h option, specify the name of a server in the cluster that allows name resolution.

When executing suspend, the ExpressCluster daemon should be activated in all servers in the cluster. When the --force option is used, suspend is forcefully executed even if there is any stopped server in the cluster.

When starting up or resuming the cluster, you try to connect to the cluster server in the order shown below, and use one of successfully connected paths.

1. IP address on the interconnect LAN side
2. IP address on the public LAN side
3. IP address whose name was resolved by the server name in the cluster configuration information

When execute resume, check if there is any active server in the cluster using the clpstat command.

Example of Execution

Example 1: Activating the ExpressCluster daemon of local server
clpcl -s

Example 2: Activating the ExpressCluster daemon of server1 from server0

```
# clpcl -s -h server1
Start server1 : Success
```

If a server name is specified, you will see the display as shown above.

Start *server_name* : Execution result

(If execution is unsuccessful, cause of the failure)

Example 3: Activating the ExpressCluster daemon in all servers

```
# clpcl -s -a
Start server0 : Success
```

```
Start server1 : Failed cluster daemon already started.
```

When all the servers are activated, you will see the display as shown above.

Start *server_name* : Execution result

(If execution is unsuccessful, cause of the failure)

Example 4: Stopping the ExpressCluster daemon in all servers

```
# clpcl -t -a
```

If the ExpressCluster daemon in all servers is stopped, the execution result of each server is not displayed.

In case an error occurs, an error message is displayed.

* **Suspend and Resume**

For updating cluster configuration information or updating ExpressCluster, you can stop the ExpressCluster daemon while continuing the operation. This status is called “**suspend**.” Returning from suspend status to normal status is called “**resume**.”

Suspend and resume require process to all servers in the cluster. Execute suspend when the ExpressCluster daemon in all servers in the cluster is activated.

In the suspend status, the following functions stop because the ExpressCluster daemon stops while active resources stay active.

- + All heartbeat resources stop.
- + All monitor resources stop.
- + You cannot work with groups or group resources (start, stop, move).
- + You cannot display or change the cluster status by Web Manager or with the clpstat command.
- + The following commands are disabled;
 - = clpstat
 - = Other clpcl options than --resume
 - = clpdown
 - = clpstdn
 - = clpgrp
 - = clptoratio
 - = clpmonctrl

Error Message

| Message | Cause/Action to Take |
|------------------------------------|---|
| not super user. | Log in as a root user. |
| invalid configuration file. | Create valid cluster configuration information using Configuration Tool. |
| invalid option. | Specify a valid option |
| cluster daemon is not started. | Executed stopping process on the stopped ExpressCluster daemon. |
| cluster daemon already started. | Executed the startup process on the activated ExpressCluster daemon. |
| could not connect server. | Check if the ExpressCluster daemon is activated. |
| get nodelist failed. | Specify a valid name of the server in the cluster. |
| invalid server status. | Check if the ExpressCluster daemon is activated. |
| specified server is not active. | Check if the ExpressCluster daemon is activated. |
| some server in cluster is active. | When executing resume, check if there is any server in the cluster with the activated ExpressCluster daemon. |
| all server must be active. | When executing suspend, the ExpressCluster daemon must be activated in all servers in the cluster. |
| some server in cluster is suspend. | Execute resume because some server(s) in the cluster is the suspend status. |
| invalid server name. | Specify the valid name of a sever in the cluster. |
| connection was lost. | Check if there is any server in the cluster with the ExpressCluster daemon stopped. |
| invalid parameter. | The value specified as a command parameter may be invalid. |
| connection timeout. | Timeout occurred in internal communication of ExpressCluster. If timeout keeps occurring, set a longer internal communication timeout. |
| error occurred on some server. | If stopping process has been executed with servers specified, there is a server with the failed process. Check the status of the server with the failed process. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

4.2 Server Shutdown Command

| | |
|---------|----------------------|
| clpdown | Shuts down a server. |
|---------|----------------------|

Command Line

clpdown [-r] [-h *host_name*]

Description Stops the ExpressCluster daemon and shuts down a server.

| | | |
|---------------|---------------------|---|
| Option | No Option | Shuts down a server. |
| | -r | Restarts the server. |
| | -h <i>host_name</i> | Makes a processing request to the server specified in <i>host_name</i> . Makes a processing request to the command-running server (local server) if the -h option is skipped. |

| | | |
|---------------------|--------------|---------|
| Return Value | 0 | Success |
| | Other than 0 | Failure |

Remarks This command runs the following command internally after stopping the ExpressCluster daemon.
 Without any option specification shutdown
 With the -r option specification reboot

Notes Run this command as a root user.

For the name of a server for the -h option, specify the name of a server in the cluster.

For WAN/LAN/LE, do not run this command while activating a group. Group deactivation should not be executed while a group is being activated. Because of this, the OS may shut down while the mirror disk resource is not deactivated properly, which can result in mirror break.

Example of Execution **Example 1:** Stopping and shutting down ExpressCluster daemon in a local server
 # clpdown

Example 2: Shutting down and rebooting server1 from server0
 # clpdown -r -h server1

Error Message See "4.1 Cluster Operation Command".

4.3 Cluster Shutdown Command

| | |
|---------|--------------------|
| clpstdn | Shuts down cluster |
|---------|--------------------|

Command Line

clpstdn [-r] [-h *host_name*]

Description Stops the ExpressCluster daemon in the entire cluster and shuts down all servers.

Option

| | |
|---------------------|---|
| No Option | Executes cluster shutdown. |
| -r | Executes cluster shutdown reboot. |
| -h <i>host_name</i> | Makes a processing request to the server specified in <i>host_name</i> . Makes a processing request to the command-running server (local server) if the -h option is skipped. |

Return Value

| | |
|--------------|---------|
| 0 | Success |
| Other than 0 | Failure |

Remarks

Notes Run this command as a root user.

For the name of a server for the -h option, specify the name of a server in the cluster.

A server that cannot be communicated from the server that run the command (a server with all LAN heartbeat resource off) will not be shutdown.

For WAN/LAN/LE, do not execute this command while activating a group.

Group deactivation should not be executed while a group is being activated. Because of this, the OS may shut down while the mirror disk resource is not deactivated properly, which can result in mirror break.

Example of Execution **Example 1:**Performing cluster shutdown
clpstdn

Example 2:Performing cluster shutdown reboot
clpstdn -r

Error Message See "4.1 Cluster Operation Command".

4.4 Group Operation Command

| | |
|--------|----------------|
| clpgrp | Operates group |
|--------|----------------|

Command Line

```
clpgrp -s [group_name] [-h host_name] [-f]
clpgrp -t [group_name] [-h host_name] [-f]
clpgrp -m group_name [-h host_name] [-a host_name]
```

Description Executes starting, deactivation, and migration of a group.

Option -s [group_name] Starts up a group. When you specify the name of a group, only the specified group starts up. If no group name is specified, all groups start up.

-t [group_name] Stops group. When you specify the name of a group, only the specified group stops. If no group name is specified, all groups stop.

-m group_name Moves a specified group.

-h host_name Makes a processing request to the server specified in *host_name*. Makes a processing request to the command-running server (local server) if the -h option is skipped.

-a host_name Defines the server which was specified by *host_name* as a destination to which a group will be migrated. When the -a option is skipped, the group will be migrated according to the failover policy.

-f If you use the -s option to the group which is active on remote server, it will forcefully start up on the server which requested the process. If used with -t option, it will stop forcefully.

Return Value 0 Success
 Other than 0 Failure

Remarks

Notes Run this command as a root user.

The ExpressCluster daemon must be activated on the server which runs this command

Specify a server in the cluster as server name for the -h and -a options.

Specify the group name for -m option.

When failover exclusion attribute of a group is "Normal Exclusion" and you want to move the group with the -m option, explicitly specify the server to which the group is moved by the -a option. Moving the group will fail when "Normal Exclusion" groups in all servers to which the group can be moved are active if the -a option is omitted.

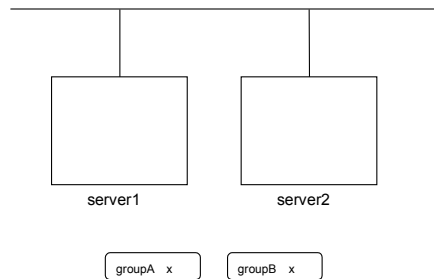
Example of Execution

The following shows simple example of status transition when groups are operated.

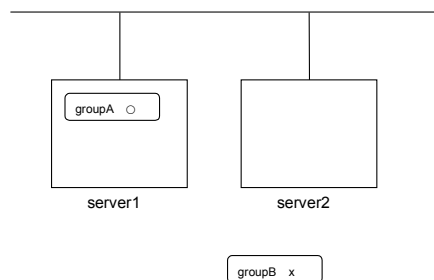
Example: if there are two servers in the configuration and two groups.

Failover policy of group
groupA server1 -> server2
groupB server2 -> server1

(1) Both groups are in stopped.

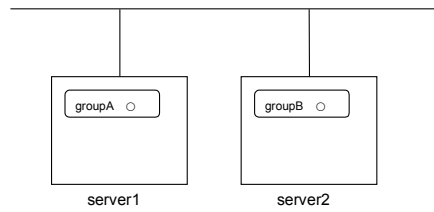


(2) Run the following command on server1.
clpgrp -s groupA



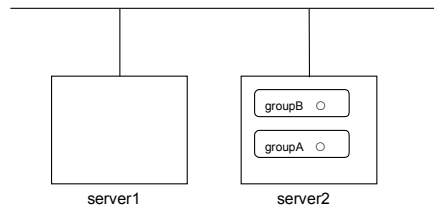
GroupA starts in server1.

(3) Run the following command in server2.
clpgrp -s



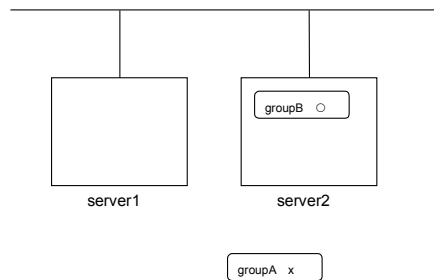
All groups that are currently stopped but can be started up start up in server2.

(4) Run the following command in server1
clpgrp -m groupA



GroupA migrates to server2.

(5) Run the following command in server1
clpgrp -t groupA -h server2



groupA stops.

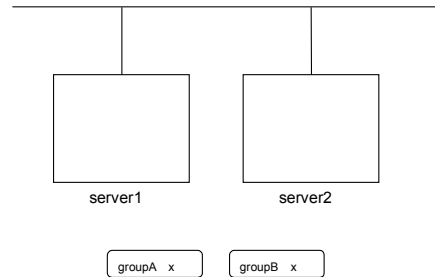
(6) Run the following command in server1.

```
# clpgrp -t
operable group does not exist.
```

When the command is run, the error message “operable group does not exist.” is displayed since server1 does not have a group which can be stopped.

(7) On server1, run the command you have run in (6) adding -f.

```
# clpgrp -t -f
```



Groups which were started up in server2 can be forcefully deactivated from server1.

Error message

| Message | Cause/Action to Take |
|--|---|
| not super user. | Log in as a root user. |
| invalid configuration file. | Create valid cluster configuration information using Configuration Tool |
| invalid option. | Specify a valid option |
| could not connect server. | Check if the ExpressCluster daemon is activated. |
| invalid server status. | Check if the ExpressCluster daemon is activated. |
| specified server is not active. | Check if the ExpressCluster daemon is activated. |
| invalid server name. | Specify the valid name of a sever in the cluster. |
| connection was lost. | Check if there is any server in the cluster with the ExpressCluster daemon stopped. |
| invalid parameter. | The value specified as a command parameter may be invalid. |
| connection timeout. | Timeout occurred in internal communication of ExpressCluster. If timeout keeps occurring, set a longer internal communication timeout. |
| in case of -m option (move), must be specified group name. | Specify a group name for the -m option |

| Message | Cause/Action to Take |
|--|--|
| specified server is invalid. | Server which starts, stops, and or to which the group is moved is invalid. Specify a valid server. |
| group can not be started because of waiting synchronization. | Start up the group after waiting for the remote server to start up, or waiting for start-up wait time to time out. |
| operable group does not exist. | Check if there is any group which is operable in the server which requested the process. |
| group already started on local server. | Check the status of group using Web Manager or the clpstat command. |
| group already started on other server. | Check the status of group using Web Manager or the clpstat command. If you would like to start up the group which was started in the remote server from the local server, perform the group migration or run the command by adding the -f option. |
| group already stopped. | Check the status of group using Web Manager or the clpstat command. |
| could not start some resource. | Check the status of group using Web Manager or the clpstat command. |
| could not stop some resource. | Check the status of group using Web Manager or the clpstat command. |
| group is busy. | Since group is now being started up or stopped, wait a little and retry. |
| error occurred on some group. | Check the status of group using Web Manager or the clpstat command. |
| invalid group name. | Specify the valid name of a group in the cluster. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

5 LOG COLLECTION COMMAND

| | |
|----------|--------------|
| clplogcc | Collects Log |
|----------|--------------|

Command Lines

```
clplogcc [ [-h host_name] [-n targetnode1 -n targetnode2 .....] ]
          [-t collect_type] [-r syslog_rotate_number] [-o path]
```

Description Collects logs and OS information and etc. by connecting to the data transfer server in the cluster.

| | | |
|---------------|--------------------------------|---|
| Option | None | Collects log in the cluster. |
| | -h <i>host_name</i> | Specifies a name of the server to connect for collection of cluster node information |
| | -t <i>collect_type</i> | Specifies a log collecting pattern. When this option is skipped, a log collecting pattern will be type1. Information on log collecting types is provided in the next section. |
| | -r <i>syslog_rotate_number</i> | Specifies how many generations of syslog will be collected. When this option is skipped, only one generation will be collected. |
| | -o <i>path</i> | Specifies the output destination of collector files. When this option is skipped, logs are outputted under tmp of the install path. |
| | -n <i>targetnode</i> | Specifies the name of a log collecting server. With this specification, logs of the specified server, rather than the entire cluster, will be collected. |
| | -l | Collects logs on local server without going through the data transfer server. The -h option and the -n option cannot be specified at the same time. |

| | | |
|---------------------|--------------|---------|
| Return Value | 0 | Success |
| | Other than 0 | Failure |

Remarks Since log files are compressed by tar.gz, add the xzf option to the tar command to decompress them.

Notes Run this command as a root user.

All servers in the cluster should make sure to check the data transfer server is active.

For the name of a server for the -h option, specify the name of a server in the cluster that allows name resolution.

For the name of a server for the -n option, specify the name of a server that allows name resolution. If name resolution is not possible, specify interconnect or a public LAN.

When running this command, you try to connect to the cluster server in the order shown below, and use one of successfully connected paths

1. IP address on the interconnect LAN side
2. IP address on the public LAN side
3. IP address whose name was resolved by the server name in the cluster configuration information

Example of Execution

Example 1: Collecting logs from all servers in the cluster

```
# clplogcc
Collect Log server1 : Success
Collect Log server2 : Success
```

Result of log collection for the server (server status) that executed the log collection is displayed.
 Process *server_name*: Execution result (server status)

Execution Result

For this command, the following processes appear.

| Steps in Process | Explanation |
|------------------|---|
| Connect | Displayed when connection fails. |
| Get Filesize | Displayed when file size acquisition fails. |
| Collect Log | Displays a result of acquiring file |

The following results (server status) are shown

| Result (server status) | Explanation |
|------------------------|---------------------------------|
| Success | Success |
| Timeout | Timeout occurred. |
| Busy | The server is in busy. |
| Not Exist File | File does not exist. |
| No Freespace | No free space on the disk. |
| Failed | Failure caused by other errors. |

Error Message

| Message | Cause/Action to Take |
|---|--|
| not super user. | Log in as a root user. |
| invalid configuration file. | Create correct cluster configuration information using Configuration Tool |
| invalid option. | Specify a valid option. |
| specified number is over max num. | Specify a number within a valid range. |
| specified number is not numeric. | Specify a valid number. |
| syslog's rotation number must be specified as follows. (0-99) | Specify a valid number for the syslog generation. |
| collect type must be specified 'type1' or 'type2' or 'type3'. | Invalid collection type has been specified. |
| specified path is invalid. | Use a full path to specify file collection output destination. |
| over max server number. | The number of servers you can specify is within the maximum number of servers for cluster configuration. |
| could not connect server. | Check if the ExpressCluster daemon is activated. |
| get nodelist failed. | Specify a valid name of the server in the cluster. |
| invalid server status. | Check if the ExpressCluster daemon is activated. |
| server is busy. | This command may be already activated. Check to see the activation status. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

5.1 Log Collecting Option

5.1.1 Collecting type (-t option)

Choose one from type 1 to 3 for a log collection type.

| | type1 | type2 | type3 |
|-----------------------------------|-----------------------|----------------------------------|----------------------------------|
| (1) Default Collector Information | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (2) syslog | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| (3) core | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| (4) OS information | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| (5) script | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |
| (6) ESM/PRO/AC | <input type="radio"/> | <input checked="" type="radio"/> | <input checked="" type="radio"/> |

Run as follows from the command line.

Example: When collecting logs using type2

```
# clplogcc -t type2
```

* When non option is specified, a log type will be, by default, type 1.

(1) Default collection information

- + Logs of each module in an ExpressCluster server
- + Attribute information of each module (ls -l) in an ExpressCluster server
 - = In bin, lib
 - = In alert/bin, webmgr/bin
 - = In drivers (only WAN/LAN/LE)
 - = In drivers/md (only WAN/LAN/LE)
 - = In drivers/khb
 - = In drivers/ka
- + ExpressCluster version information
- + distribution information (/etc/*-release)
- + update log
- + CPU license and node license
- + Configuration file
- + Policy file
- + Shared memory dump
- + Output result of kernel parameter (sysctl -a)
- + glibc version
- + Kernel loadable module configuration information (/etc/modules.conf, /etc/modprobe.conf)
- + Kernel ring buffer information (dmesg execution result)
- + File system information (/etc/fstab)
- + IPC resource information (ipcs execution result)
- + System information (uname -a execution result)
- + All network interface information (ethtool execution result)
- + Information collected at an emergency OS shutdown (See Section 5.2 "Information Collection at Emergency OS Shutdown" for details.)
- + libxml2 version
- + Static host table (/etc/hosts)

(2) syslog

- + syslog (/var/log/messages)
- + Specified number of generations syslog (/var/log/messages.x)

(3) core file

- + core file of ExpressCluster module
- + Stored under the /opt/nec/clusterpro/log in the following archive names.
 - Alert related
al**yyyymmdd_x**.tar
 - Web manager related
wm**yyyymmdd_x**.tar
 - ExpressCluster core related
cls**yyyymmdd_x**.tar

yyyymmdd indicates the date when the log is collected. **x** is a sequence number.

(4) OS information

- + mirror information (WAN/LAN/LE only)
 - = /proc/liscalstat
 - = /proc/liscalinner
- + Kernel mode LAN heartbeat, keep alive information
 - = /proc/khb_moninfo
 - = /proc/ka_moninfo
- + /proc/devices
- + /proc/mdstat
- + /proc/modules
- + /proc/lvm
- + /proc/mounts
- + /proc/meminfo
- + /proc/cpuinfo
- + /proc/partitions
- + /proc/pci
- + /proc/version
- + all files of /proc/scsi/ all files in the directory
- + all files of /proc/ide/ all files in the directory
- + ifconfig (ifconfig execution result)
- + iptables (iptables -L execution result)
- + ipchains (ipchains -L execution result)
- + df (df execution result)
- + raw device information (raw -qa execution result)
- + kernel module load information (lsmod execution result)
- + host name, domain name information (hostname, domainname execution result)

When collecting logs, the following message may be displayed. However, this does not mean failure. Logs are collected normally.

| |
|---|
| hd#: bad special flag: 0x03 ip_tables: (C) 2000-2002 Netfilter core team |
|---|

(Where hd# is the name of the IDE device that exist on the server)

(5) Script

- + Statupu/stop script for a group that was created with the Configuration tool.

If you specify a user-defined script other than the above one (/opt/nec/clusterpro/scripts), its information is not collected by the Log Collection. It must be collected separately as necessary.

(6) ESMPRO/AC Related log

- + Files that are collected by running the acupslog command.

5.1.2 Generation of syslog (-r option)

To collect syslogs for the number of generations specified, run the command as follows.

Example: Collecting logs for the 3 generations

```
# clplogcc -r 3
```

The following syslog are included in collected logs.

/var/log/messages

/var/log/messages.1

/var/log/messages.2

- * When no option is specified, only /var/log/messages is collected.
- * You can collect logs for 0 to 99 generations.
- * When 0 is specified, all syslogs are collected.

| Number of Generation | Number of generations to acquire |
|----------------------|----------------------------------|
| 0 | All Generations |
| 1 | Current |
| 2 | Current + Generation 1 |
| 3 | Current + Generation 1 to 2 |
| : | |
| : | |
| x | Current + Generation 1 to (x-1) |

5.1.3 Log file output path file name (-o option)

- * A file Name will be saved as “server name-log.tar.gz”
- * If IP address is specified for the -n option, a file name is save as “IP address-log.tar.gz”
- * Since logs files are compressed by tar.gz, decompress them by adding the xzf option to the tar command.

(1) If not specifying -o option

Logs are output in tmp of install path.

```
# clplogcc
Collect Log server_name : Success
# ls /opt/nec/clusterpro/tmp
server_name-log.tar.gz
```

(2) If specifying -o option

If you run the command as follows, logs are output in a specified directory /home/log

```
# clplogcc -o /home/log
Collect Log server_name : Success
# ls /home/log
server_name-log.tar.gz
```

5.1.4 Specifying log collector server (-n option)

By using the -n option, you can collect logs from only the specified server.

Example: When collecting logs from Server1 and Server3 in the cluster.

```
# clplogcc -n Server1 -n Server3
```

- * Specify a server in the same cluster.
- * The number of servers you can specify is within the maximum number of servers in the cluster configuration.

5.2 Information Collection at Emergency OS Shutdown

The OS resource information is collected when the cluster daemon forming the cluster fails due to a termination by a signal interruption (core dump) or an internal status error.

Information to be collected is as follows;

- (1) OS information (/proc/*)
 - /proc/devices
 - /proc/partitions
 - /proc/mdstat
 - /proc/modules
 - /proc/lvm/*
 - /proc/mounts
 - /proc/meminfo
 - /proc/scsi/*
 - /proc/ide/*
 - /proc/liscalinner
 - /proc/liscalstat
 - /proc/net/bond*

- (2) Information by running commands
 - Results of the sysctl -a
 - Results of the ps
 - t Results of the op
 - Results of the lsof (The fd information for each process)
 - Results of the netstat -i
 - Results of the ifconfig
 - Results of the df
 - Results of the raw -qa

These are the default information collected by the Log Collection. You don't need to collect them separately.

6 CLUSTER GENERATION, CLUSTER CONFIGURATION INFORMATION BACKUP COMMAND

6.1 Cluster Generation Command

| | |
|-------------------------------|---|
| <code>clpcfctrl --push</code> | Delivers cluster configuration information to servers |
|-------------------------------|---|

Command Line

```
clpcfctrl --push -[l|w] [-c <hostname>|<IP>] [-h <hostname>|<IP>] [-p <portnumber>]
[-d <device>] [-m <mountpoint>]
[-x <directory>]
```

Description Delivers configuration information which was created by Configuration Tool to servers.

| | | |
|---------------|---------------------|---|
| Option | <code>--push</code> | This option is specified when delivering information. You cannot skip this option. |
| | <code>-l</code> | Specify this option when using an FD which was saved using Configuration Tool on Linux. To use an FD which was saved in Windows format using Configuration Tool on Linux, specify <code>-w</code> . You cannot specify both <code>-l</code> and <code>-w</code> at the same time. Specify either <code>-l</code> or <code>-w</code> . |
| | <code>-w</code> | Specify this option when using an FD which was saved using Configuration Tool on Windows. Also, specify when using an FD which was saved as Windows using Configuration Tool on Linux. You cannot specify both <code>-l</code> and <code>-w</code> at the same time. Specify either <code>-l</code> or <code>-w</code> . |
| | <code>-c</code> | Specifies a server to access to acquire a list of servers. Specify a host name or IP address. When this option is skipped, configuration information in the FD will be used. |
| | <code>-h</code> | Specifies servers to which configuration information is delivered. Specify host name or IP address. If this option is skipped, configuration |

information is delivered to all servers.

- p Specify a port number of data transfer port.
When this option is skipped, the default will be used.
It is generally not necessary to specify this option.
- d Specifies a FD device file
Specify when different from /dev/fd0.
When this option is skipped, /dev/fd0 is used.
- m Specifies a FD mount point.
Use with -w.
When this option is skipped, /mnt/floppy is used.
- x Used only in an environment where FDs cannot be used.
Specify this option when delivering configuration information in specified the directory.
This option is used with -l or -w.
When -l is specified, configuration information which was saved on the file system using Configuration Tool on Linux is used.
When -w is specified, configuration information which was saved using Configuration Tool on Windows is used.

| | | |
|--------------|--------------|---------|
| Return Value | 0 | Success |
| | Other than 0 | Failure |

Remarks According to the environment, /mnt/floppy doesn't exist. When not existing, make /mnt/floppy, or specify the mount point by -m option.
When the supermount service is operating and it is set that /mnt/floppy is used, /mnt/floppy cannot be used. Stop the supermount service or specify another mount point by -m option.

Notes Run this command as a root user.

When running this command, you try to connect to the cluster server in the order shown below, and use one of successfully connected paths.

1. IP address on the interconnect LAN side
2. IP address on the public LAN side
3. IP address whose name was resolved by the server name in the cluster configuration information

Example of
Execution

Example 1: Generating a cluster from the FD which was saved using Configuration Tool on Linux

```
# clpcfctrl --push -l  
file delivery to server 10.0.0.11 success.  
file delivery to server 10.0.0.12 success.
```

success.(code:0)

Example 2: Delivering configuration information from the FD which was saved using Configuration Tool on Windows to a specified server

```
# clpcfctrl --push -w -h 10.0.0.11  
success.(code:0)
```

Example 3: Delivering configuration information which was saved using Configuration Tool on Linux

```
# clpcfctrl --push -l -x /mnt/config  
file delivery to server 10.0.0.11 success.  
file delivery to server 10.0.0.12 success.
```

success.(code:0)

Error Message

| Message | Cause/Action to Take |
|--|---|
| not super user. | Log in as a root user. |
| already started. | This command is already running. |
| invalid option. | The option is invalid. Check the option. |
| invalid mode. | Check if --push is specified. |
| invalid host. | Server which was specified with -h is not included in configuration information. Check if specified server name or IP address is correct. |
| canceled. | Displayed when anything other than "y" is entered for command inquiry. |
| initialize xml library failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| load configuration file failed. | |
| change configuration file failed. | |
| load all policy file failed. | Reinstall ExpressCluster server RPM. |
| load cfctrl policy file failed. | Reinstall ExpressCluster server RPM. |
| get create flag failed. | This is not the FD created using Configuration Tool. |
| get restart flag failed. | This is not the FD created using Configuration Tool. |
| get install path failed. | Reinstall ExpressCluster server RPM. |
| get cfctrl path failed. | Reinstall ExpressCluster server RPM. |
| invalid create flag. | This is not the FD created using Configuration Tool. |
| invalid restart flag. | This is not the FD created using Configuration Tool |
| initialize trncl library failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| connect to server %s failed.(please retry later) | Connecting to the server has failed. Check to see if other server is started up. Run the command again after the server has started up. |
| connect to trnsv failed. | Connecting to the server has failed. Check to see if other server is started up. |
| get node list failed. | Check if the server which was specified by -c is a cluster member. |
| file delivery failed. | Delivering configuration information has failed. Check to see if other server is started up. Run the command again after the server has started up. |
| multi file delivery failed. | Delivering configuration information has failed. Check to see if other server is started up. Run the command again after the server has started up. |
| complete file delivery failed. | Delivering configuration information has failed. Check to see if other server is started up. Run the command again after the server has started up. |

| Message | Cause/Action to Take |
|----------------------------------|---|
| not exist work directory. | Reinstall ExpressCluster server RPM. |
| make work directory failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| not exist directory. | |
| not directory. | |
| not exist source file. | |
| source file is directory. | |
| not exist source directory. | |
| source file is not directory. | |
| change code(EUC to SJIS) failed. | |
| change code(SJIS to EUC) failed. | |
| command error. | |
| mount floppy failed. | Mounting the FD has failed. Check if the FD is inserted. Also, if Configuration Tool is used on Linux, check if it was saved in a Windows format. Confirm whether the mount point exists. When the supermount service is operating, stop the supermount service or use -m option. |
| umount floppy failed. | Unmounting the FD has failed. Check to see if FD is inserted. |
| command(tar -xf) failed. | Loading from the FD has failed. Check to see if FD is inserted. Also, if using Configuration Tool on Linux, check if it was saved as Linux format. |
| memory allocation failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| change directory failed. | |
| command execution failed. | |
| make directory failed. | |
| remove directory failed. | |
| remove file failed. | |
| open file failed. | |
| read file failed. | |
| write file failed. | |

6.2 Cluster Configuration Information Backup Command

| | |
|-------------------------------|--|
| <code>clpcfctrl --pull</code> | Backups cluster configuration information. |
|-------------------------------|--|

Command Line

```
clpcfctrl --pull -[l|w] [-h <hostname>|<IP>] [-p <portnumber>]
[-d <device>] [-m <mountpoint>]
[-x <directory>]
```

Description Backs up cluster configuration information to be used for Configuration Tool.

| | | |
|---------------|---------------------|---|
| Option | <code>--pull</code> | This option is specified when performing backup. You cannot skip this option. |
| | <code>-l</code> | This option is specified when backing up to the FD which is used for Configuration Tool on Linux. You cannot specify both <code>-l</code> and <code>-w</code> at the same time. You cannot skip both <code>-l</code> and <code>-w</code> . |
| | <code>-w</code> | This option is specified when backing up to the FD which is used for Configuration Tool on Windows. FD must be formatted by 1.44MB (VFAT). You cannot specify both <code>-l</code> and <code>-w</code> at the same time. You cannot skip both <code>-l</code> and <code>-w</code> . |
| | <code>-h</code> | Specifies the source server for backup. Specify host name or IP address. When this option is skipped, the configuration information of command running server is used. |
| | <code>-p</code> | Specifies a port number of data transfer port. When this option is skipped, the default value is used. It is generally not necessary to specify this option. |
| | <code>-d</code> | Specifies a FD device file. Specify when differ from <code>/dev/fd0</code> When abbreviated, use <code>/dev/fd0</code> |
| | <code>-m</code> | Specifies mount point of FD. Use with <code>-w</code> When this option is skipped, <code>/mnt/floppy</code> is |

| | | |
|----------------------|---|--|
| | | used. |
| | -x | Used only in an environment where FDs cannot be used. Backs up the configuration information in the specified directory. Use with either -l or -w. When -l is specified, configuration information is backed up in a format which can be loaded by Configuration Tool on Linux. When -w is specified, configuration information is saved in a format which can be loaded by Configuration Tool on Windows. |
| Return Value | 0 Other than 0 | Success Failure |
| Remarks | According to the environment, /mnt/floppy doesn't exist. When not existing, make /mnt/floppy, or specify the mount point by -m option. When the supermount service is operating and it is set that /mnt/floppy is used, /mnt/floppy cannot be used. Stop the supermount service or specify another mount point by -m option. | |
| Notes | Run this command as a root user. When running this command, you try to connect to the cluster server in the order shown below, and use one of successfully connected paths. <ol style="list-style-type: none"> 1. IP address on the interconnect LAN side 2. IP address on the public LAN side 3. IP address whose name was resolved by the server name in the cluster configuration information | |
| Example of Execution | <p>Example 1: Backing up on the FD which is used by Configuration Tool on Linux # clpcfctrl --pull -l success.(code:0)</p> <p>Example 2: Backing up configuration information about the specified server to the FD which is used on Configuration Tool on Windows success.(code:0)</p> <p>Example 3: Backing up configuration information to be loaded by Configuration Tool on Linux to the specified directory # clpcfctrl --pull -l -x /mnt/config success.(code:0)</p> | |

Error Message

| Message | Cause/Action to take |
|--|---|
| not super user. | Log in as a root user. |
| already started. | Already active. |
| invalid option. | The option is invalid. Check the option. |
| invalid mode. | Check if --pull is specified. |
| canceled. | Displayed when anything other than "y" is entered for command inquiry. |
| initialize xml library failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| load configuration file failed. | |
| change configuration file failed. | |
| load all policy file failed. | Reinstall ExpressCluster server RPM. |
| load cctrl policy file failed. | Reinstall ExpressCluster server RPM. |
| Message | Cause/Action to take |
| get install path failed. | Reinstall ExpressCluster server RPM. |
| get cctrl path failed. | Reinstall ExpressCluster server RPM. |
| initialize trncl library failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| connect to server %s failed.(please retry later) | Connecting to the server has failed. Check if other server is started. Run the command again after the server has started up. |
| connect to trnsv failed. | Connecting to the server has failed. Check if other server is started. |
| get collect size failed. | Acquiring configuration information has failed. Check if other server is started. |
| file collect failed. | Acquiring configuration information has failed. Check if other server is started. |
| not exist work directory. | Reinstall ExpressCluster server RPM. |
| make work directory failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| not exist directory. | |
| not directory. | |
| not exist source file. | |
| source file is directory. | |
| not exist source directory. | |
| source file is not directory. | |
| change code(EUC to SJIS) failed. | |
| change code(SJIS to EUC) failed. | |
| command error. | |
| mount floppy failed. | Mounting the FD has failed. Check if the FD is inserted. Also, if Configuration Tool is used on Linux, check if it was saved in a Windows format. Confirm whether the mount point exists. When the supermount service is operating, stop the supermount service or use -m option. |
| umount floppy failed. | Unmounting the FD has failed. Check to see if the FD is inserted. |
| command(tar -cf) failed. | Backing up to the FD has failed. Check if the FD is inserted. |

| Message | Cause/Action to take |
|---------------------------|--|
| memory allocation failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| change directory failed. | |
| command execution failed. | |
| make directory failed. | |
| remove directory failed. | |
| remove file failed. | |
| open file failed. | |
| read file failed. | |
| write file failed. | |

7 TIMEOUT TEMPORARY ADJUSTMENT COMMAND

| | |
|------------|---|
| clptoratio | Extends and displays current timeout ratio. |
|------------|---|

Command Line

```
clptoratio -r ratio -t time
clptoratio -i
clptoratio -s
```

Description Temporarily extends the various timeout values of the following on all servers in the cluster.

- + Monitor resource
- + Heartbeat resource
- + Mirror agent
- + Mirror driver
- + Alert synchronous service
- + Web manager service

Displays current timeout ratio.

Option

| | |
|-----------------|--|
| -r <i>ratio</i> | Specifies timeout ratio. Use 1 or larger integer. The maxim timeout ratio is 10,000. If you specify "1", you can turn the modified timeout ratio back to the original just as using the -i option. |
| -t <i>time</i> | Specifies extension period. You can specify minutes for m, hours for h, and days for d. The longest period is 30 days. Example: 2m, 3m, 4d |
| -i | Sets back the modified timeout ratio. |
| -s | Refers to the current timeout ratio. |

Return Value

| | |
|--------------|---------|
| 0 | Success |
| Other than 0 | Failure |

Remarks

When the cluster is shutdown, the timeout ratio you have set will become ineffective. If any server in the cluster is not shutdown, the timeout you will be maintained.

With the -s option, you can only refer to the current timeout ratio. You cannot see other information such as remaining time of extended period.

You can see the original timeout value by using the status display command.

```
Heartbeat timeout # clpstat --cl --detail
```

```
Monitor resource timeout # clpstat --mon monitor
```

```
resource name --detail
```

Notes

Run this command as a root user.

Make sure the ExpressCluster daemon is activated in all servers in the cluster.

When setting a timeout ratio, make sure to specify extension period. However, if you set "1" for the timeout ratio, you cannot specify the extension period.

You cannot specify a combination such as "2m3h," for extension period.

Example of Execution

Example 1: Doubling the timeout ratio for three days

```
# clptoratio -r 2 -t 3d
```

Example 2: Setting back the ratio of timeout to original

```
# clptoratio -i
```

Example 3: Referring to the current timeout ratio

```
# clptoratio -s
```

```
present toratio : 2
```

As you can see, the current time-out ratio is set to 2.

Error Message

| Message | Cause/Action to take |
|--|--|
| not super user. | Log in as a root user. |
| invalid configuration file. | Create valid cluster configuration using Configuration Tool. |
| invalid option. | Specify a valid option. |
| specified number is over max num. | Specify a number within a valid range. |
| specified number is not numeric. | Specify a valid number. |
| ratio must be specified as follows. (1-max) | Specify 1 or larger integer for ratio. |
| over max ratio. | Specify a ratio that is not larger than the maximum ratio. |
| time must be specified as follows. ex) 2m, 3h, 4d | Set a valid extension period. |
| over max time. | Set the extension period which does not go over the maximum. |
| could not connect server. | Check if the ExpressCluster daemon is activated. |
| specified server is not active. | Check if the ExpressCluster daemon is activated. |
| connection was lost. | Check if there is any server in the cluster with the ExpressCluster daemon stopped. |
| invalid parameter. | The value specified as a command parameter may be invalid. |
| connection timeout. | Timeout occurred in internal communication of ExpressCluster. If timeout keeps occurring, set a longer internal communication timeout. |
| error occurred on some server. | There is a server in which the processing has failed. Check the status of servers in the cluster. Run the command with all servers in the cluster activated. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

8 LOG LEVEL/SIZE MODIFICATION COMMAND

| | |
|----------|---|
| clplogcf | Modifies and displays log levels and log output file size |
|----------|---|

Command Line

clplogcf -t <type> -l <level> -s <size>

clplogcf -t <type>

clplogcf

| | | |
|--------------|---|---|
| Description | Modifies log level and log output file size. Displays the value currently configured. | |
| Option | -t | Specifies a module type whose settings will be changed. If both -l and -s are skipped, the information which is set to the specified module will be shown. See the list of "Types which can be specified to the -t option" for types which may be specified. |
| | -l | Specifies a log level. You can specify one of the following for a log level. 1, 2, 4, 8, 16, 32 More detailed information is produced as the log level increases. See the list of "Default Value of Log Level and Log File Sizes" for default values of each module type. |
| | -s | Specifies the size of a file to output logs. The unit is byte. |
| | None | Displays entire current configuration information. |
| Return Value | 0 Other than 0 | Success Failure |
| Remarks | Logs that ExpressCluster outputs use four log files for each type. Therefore, it is necessary to have the disk space which is four times larger than what is specified by -s. | |
| Notes | Run this command as a root user. To run this command, the ExpressCluster event service must be active. | |

Example of
Execution

Example 1: modifying a pm log level
clplogcf -t pm -l 8

Example 2: Seeing the pm log level and log file
clplogcf -t pm
TYPE, LEVEL, SIZE
pm, 8, 1000000

Example 3: Displaying the values currently configured
clplogcf
TYPE, LEVEL, SIZE
trnsv, 4, 1000000
xml, 4, 1000000
logcf, 4, 1000000

Error Message

| Message | Cause/Action to take |
|--|--|
| not super user. | Log in as a root user. |
| invalid option. | Option is invalid. Check the option. |
| change configuration failed.(Perhaps clpevent is not running.) | clpevent may not be activated. |
| invalid level | The specified level is invalid. |
| invalid size | The specified size is invalid. |
| load config file failed. | Non-clustered server |
| initialize xml library failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| print current configuration failed. | clpevent may not be active |

Types which can be specified for the -t option

| Type | Module | Description | SAN/SE | WAN/LAN/LE |
|----------|--------------------|--|--------|------------|
| apicl | libclpapicl.so.1.0 | API client library | o | o |
| apisv | libclpapisv.so.1.0 | API server | o | o |
| cl | clpcl | Cluster startup and stop command | o | o |
| cfctrl | clpcfctrl | Cluster generation, cluster information backup command | o | o |
| down | clpdown | Server stopping command | o | o |
| grp | clpgrp | Group startup, stop and move command | o | o |
| haltp | clpuserw | Shut down install monitoring | o | o |
| lcns | libclplcns.so.1.0 | License library | o | o |
| lcnsc | clplcnsc | License registration command | o | o |
| logcc | clplogcc | Log collection command | o | o |
| logcf | clplogcf | Log level, size modification command | o | o |
| logcmd | clplogcmd | Message producing Command | o | o |
| mail | clpmail | Mail report | o | o |
| monctrl | clpmonctrl | Monitoring control command | o | o |
| nm | clpnm | Node map management | o | o |
| pm | clppm | Process management | o | o |
| rc/rc_ex | clprc | Group and group resource management | o | o |
| reg | libclpreg.so.1.0 | Reboot count control library | o | o |
| regctrl | clpregctrl | Reboot count control command | o | o |
| rm | clprm | Monitor management | o | o |
| roset | clproset | Disk control | o | o |
| relpath | clprelpath | Process kill command | o | o |
| sem | libclpsem.so.1.0 | Semaphore library | o | o |
| shmcm | libclpshmcm.so.1.0 | Shared memory library | o | o |
| shmmn | libclpshmmn.so.1.0 | Shared memory library | o | o |
| shrm | libclpshrm.so.1.0 | Shared memory library | o | o |
| stat | clpstat | Status display command | o | o |
| stdn | clpstdn | Cluster shutdown command | o | o |
| toratio | clptoratio | Timeout ratio modification command | o | o |
| trncl | libclptrncl.so.1.0 | Transaction library | o | o |
| trnsv | clptrnsv | Transaction server | o | o |
| vxdgc | clpvxdgc | VxVM disk group import/deport command | o | x |
| xml | libclpxml.so.1.0 | Configuration information access library | o | o |
| alert | clpaltinsert | Alert | o | o |
| webmgr | clpwebmc | Web manager | o | o |
| webalert | clpald | Alert Synchronization | o | o |
| disk | clpdisk | Disk resource | o | x |
| exec | clpexec | EXEC resource | o | o |
| fip | clpfip | FIP resource | o | o |
| nas | clpnas | NAS resource | o | o |
| raw | clpraw | RAW resource | o | x |
| vxdg | clpvxdg | VxVM disk group resource | o | x |
| vxvol | clpvxvol | VxVM volume resource | o | x |
| diskw | clpdiskw | Disk monitor resource | o | o |

| | | | | |
|---------|--------------------|--|---|---|
| ipw | clpipw | IP monitor resource | 0 | 0 |
| miiw | clpmiiw | NIC Link Up/Down monitor resource | 0 | 0 |
| mtw | clpmtw | Multi target monitor resource | 0 | 0 |
| pidw | clppidw | PID monitor resource | 0 | 0 |
| raww | clpraww | RAW monitor resource | 0 | 0 |
| userw | clpuserw | User space monitor resource | 0 | 0 |
| vxdw | clpvxdw | VxVM daemon monitor resource | 0 | x |
| vxvolw | clpvxvolw | VxVM volume monitor resource | 0 | x |
| comhb | clpcomhb | COM heartbeat | 0 | 0 |
| diskhb | clpdiskhb | Disk heartbeat | 0 | x |
| lanhb | clplanhb | LAN heartbeat | 0 | 0 |
| lankhb | clplankhb | Kernel mode LAN heartbeat | 0 | 0 |
| mdadm | libclpmdadm.so.1.0 | Mirror disk admin library | x | 0 |
| mdagent | clpmdagent | Mirror Agent | x | 0 |
| mdchng | clpmdchng | Mirror disk change command | x | 0 |
| mdctrl | clpmdctrl | Mirror disk resource operation command | x | 0 |
| mdinit | clpmdinit | Mirror disk initialization command | x | 0 |
| mdstat | clpmdstat | Mirror status display command | x | 0 |
| md | clpmd | Mirror disk resource | x | 0 |
| mdw | clpmdw | Mirror disk monitor resource | x | 0 |
| mdnw | clpmdnw | Mirror disk connect monitor resource | x | 0 |

Default log levels and log file sizes

| Type | Level | Size (bytes) SAN/SE | Size (bytes) WAN/LAN/LE |
|----------|-------|------------------------|----------------------------|
| apicl | 4 | 500000 | 500000 |
| apisv | 4 | 500000 | 500000 |
| cl | 4 | 100000 | 100000 |
| cfctrl | 4 | 100000 | 100000 |
| down | 4 | 100000 | 100000 |
| grp | 4 | 100000 | 100000 |
| haltp | 4 | 100000 | 100000 |
| lcns | 4 | 100000 | 100000 |
| lcnsc | 4 | 100000 | 100000 |
| logcc | 4 | 100000 | 100000 |
| logcf | 4 | 100000 | 100000 |
| logcmd | 4 | 100000 | 100000 |
| mail | 4 | 100000 | 100000 |
| monctrl | 4 | 100000 | 100000 |
| nm | 4 | 200000 | 200000 |
| pm | 4 | 100000 | 100000 |
| rc | 4 | 200000 | 200000 |
| rc_ex | 4 | 200000 | 200000 |
| reg | 4 | 100000 | 100000 |
| regctrl | 4 | 100000 | 100000 |
| rm | 4 | 200000 | 200000 |
| roset | 4 | 100000 | 100000 |
| relpath | 4 | 100000 | 100000 |
| sem | 4 | 100000 | 100000 |
| shmcm | 4 | 100000 | 100000 |
| shnm | 4 | 100000 | 100000 |
| shrm | 4 | 100000 | 100000 |
| stat | 4 | 100000 | 100000 |
| stdn | 4 | 100000 | 100000 |
| toratio | 4 | 100000 | 100000 |
| trncl | 4 | 200000 | 200000 |
| trnsv | 4 | 200000 | 200000 |
| vxdgc | 4 | 100000 | 0 |
| xml | 4 | 100000 | 100000 |
| alert | 4 | 400000 | 400000 |
| webmgr | 4 | 400000 | 400000 |
| webalert | 4 | 400000 | 400000 |
| disk | 4 | 100000 | 0 |
| exec | 4 | 100000 | 100000 |
| fip | 4 | 100000 | 100000 |
| nas | 4 | 100000 | 100000 |
| raw | 4 | 100000 | 0 |
| vxdg | 4 | 100000 | 0 |
| vxvol | 4 | 100000 | 0 |
| diskw | 4 | 100000 | 100000 |
| ipw | 4 | 100000 | 100000 |

| | | | |
|-----------|-------|--------------|---------------|
| miiw | 4 | 1000000 | 1000000 |
| mtw | 4 | 1000000 | 1000000 |
| pidw | 4 | 1000000 | 1000000 |
| raww | 4 | 1000000 | 1000000 |
| userw | 4 | 1000000 | 1000000 |
| vxdw | 4 | 1000000 | 0 |
| vxvolw | 4 | 1000000 | 0 |
| comhb | 4 | 1000000 | 1000000 |
| diskhb | 4 | 1000000 | 0 |
| lanhb | 4 | 1000000 | 1000000 |
| lanhb | 4 | 1000000 | 1000000 |
| mdadm | 4 | 0 | 10000000 |
| mdagent | 4 | 0 | 1000000 |
| mdchng | 4 | 0 | 1000000 |
| mdctrl | 4 | 0 | 1000000 |
| mdinit | 4 | 0 | 1000000 |
| mdstat | 4 | 0 | 1000000 |
| md | 4 | 0 | 10000000 |
| mdw | 4 | 0 | 10000000 |
| mdnw | 4 | 0 | 10000000 |
| liscal *1 | - | 0 | 0 |
| clpka *1 | - | 0 | 0 |
| clpkhb *1 | - | 0 | 0 |
| | Total | 80000000 * 4 | 117000000 * 4 |

* If a module's size is zero, its log is not output.

*1 Logs are output to syslog.

Monitoring Agent Types which can be specified for the -t option

| Type | Module | Description |
|-------------|-----------------|--|
| ora9mon | clp_ora9mon | Database Agent (Oracle9i) |
| ora10mon | clp_ora10mon | Database Agent (Oracle10g) |
| db28mon | clp_db28mon | Database Agent (DB2 V8) |
| psql73mon | clp_psql73mon | Database Agent (PostgreSQL7.3/7.4) |
| psql72mon | clp_psql72mon | Database Agent (PostgreSQL7.2) |
| psql80mon | clp_psql80mon | Database Agent (PostgreSQL8.0) |
| mysql323mon | clp_mysql323mon | Database Agent (MySQL3.23) |
| mysql40mon | clp_mysql40mon | Database Agent (MySQL4.0) |
| mysql41mon | clp_mysql41mon | Database Agent (MySQL4.1) |
| sybmon | clp_sybmon | Database Agent (Sybase) |
| nfsmon | clp_nfsmon | File Server Agent (NFS) |
| sambamon | clp_sambamon | File Server Agent (samba) |
| httpm | clphttpm | Internet Server Agent R2.0-1 (http) |
| httpmon | clp_httpmon | Internet Server Agent R2.0-2 or later (http) |
| smtm | clpsmtm | Internet Server Agent R2.0-1 (smtp) |
| smtmmon | clp_smtmmon | Internet Server Agent R2.0-2 or later (smtp) |

Monitoring Agent Default Value of Log Level/Log File Size

| Type | Level | Size (byte) SAN/SE | Size (byte) WAN/LAN/LE |
|-------------|-------|-----------------------|---------------------------|
| ora9mon | 4 | 1000000 | 1000000 |
| ora10mon | 4 | 1000000 | 1000000 |
| db28mon | 4 | 1000000 | 1000000 |
| psql73mon | 4 | 1000000 | 1000000 |
| psql72mon | 4 | 1000000 | 1000000 |
| psql80mon | 4 | 1000000 | 1000000 |
| mysql323mon | 4 | 1000000 | 1000000 |
| mysql40mon | 4 | 1000000 | 1000000 |
| mysql41mon | 4 | 1000000 | 1000000 |
| sybmon | 4 | 1000000 | 1000000 |
| nfsmon | 4 | 1000000 | 1000000 |
| sambamon | 4 | 1000000 | 1000000 |
| httpm | 4 | 1000000 | 1000000 |
| httpmon | 4 | 1000000 | 1000000 |
| smtm | 4 | 1000000 | 1000000 |
| smtmmon | 4 | 1000000 | 1000000 |

9 LICENSE MANAGEMENT COMMAND

| | |
|----------|-------------------|
| clplcncs | Manages licenses. |
|----------|-------------------|

Command Line

```
clplcncs -i [licensefile] -p productid
clplcncs -l -p productid
clplcncs -d -p productid
```

Description Registers and refers the licenses of the product version and trial version of this product.

Option -i [*licensefile*] Registers licenses. When a license file is specified, license information is acquired from the file for registration. If nothing is specified, license information is entered interactively.

-l Refers to the license.

-d Deletes the license.

-p *productid* Specifies the product ID of a license product.

| Cluster product | |
|-----------------|--|
| Product ID | License product name |
| SE30 | ExpressCluster SAN/SE for Linux Ver3.0 |
| SE31 | ExpressCluster SAN/SE for Linux Ver3.1 |
| LE30 | ExpressCluster WAN/LAN/LE for Linux Ver3.0 |
| LE31 | ExpressCluster WAN/LAN/LE for Linux Ver3.1 |
| FSO30 | Fastsync(TM) Option for Linux Ver3.0 |
| FSO31 | Fastsync(TM) Option for Linux Ver3.1 |
| DBMON20 | Database Agent for Linux R2.0 |
| DBMON30 | Database Agent for Linux R3.0 |
| ISMON20 | Internet Server Agent for Linux R2.0 |
| ISMON30 | Internet Server Agent for Linux R3.0 |
| FSMON20 | File Server Agent for Linux R2.0 |
| FSMON30 | File Server Agent for Linux R3.0 |

| | | |
|--------------|---|--|
| Return Value | 0 | Normal Termination |
| | 1 | Normal Termination (license asynchronous status) *This means license synchronization failed in the cluster at the time of license registration. See the Trouble shooting section of “License Registration” in a separate guide “Cluster Installation and Configuration Guide” for actions to take in this situation. |
| | 2 | Initialization error |
| | 4 | Option invalid |
| | 7 | Other internal error |

Example of
Execution

Registration

1. Interactively

```
# cplcnc -i -p SE30
```

1.1 Product Version

1.1.1 Select a product division.

```
Selection of product division
 1. Product
 2. Trial
Select product division ...
```

1.1.2 Enter a license number.

```
Enter number of license [ 1 to 99 (default:99) ] ...
```

1.1.3 Enter a serial No.

```
Enter serial number [ Ex. XX000000 ] ...
```

1.1.4 Enter a license key.

```
Enter license key
[ Ex. XXXXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX ] ...
```

1.2 Trial Version

1.2.1 Selection a product division.

```
Selection of product division
 1. Product
 2. Trial
Select product division ...
```

1.2.2 Enter a user name.

```
Enter user name [ 1 to 64byte ] ...
```

1.2.3 Enter a trial start date.

```
Enter trial start date [ Ex. yyyy/mm/dd ] ...
```

1.2.4 Enter a trial end date.

```
Enter trial end date [ Ex. yyyy/mm/dd ] ...
```

1.2.5 Enter a license key.

```
Enter license key
[ Ex. XXXXXXXX-XXXXXXXX-XXXXXXXX-XXXXXXXX ] ...
```

2. Specifying a license file

```
# cplcnc -i /tmp/cpulcns.key -p SE30
```

Reference `# clplcnc -l -p SE30`

1. Product Version

```
< Cluster CPU License SAN/SE 3.0 <PRODUCT> >  
  
Seq... 1  
Key..... A1234567-B1234567-C1234567-D1234567  
The number of license... 2  
Status... valid
```

2. Trial Version

```
< Cluster CPU License SAN/SE 3.0 <TRIAL> >  
  
Seq... 1  
Key..... A1234567-B1234567-C1234567-D1234567  
User name... NEC  
Start date..... 2003/01/01  
End date..... 2003/12/31  
Status..... valid
```

Remarks

Notes

Run this command as a root user.

When you register a license, to perform license synchronization, make sure the data transfer server is started up and a cluster has been generated.

When synchronizing the licenses, you try to connect to the cluster server in the order shown below, and use one of successfully connected paths

1. IP address on the interconnect LAN side
2. IP address on the public LAN side

3. IP address whose name was resolved by the server name in the cluster configuration information

When deleting a license, only license information on the server this command was run is deleted. License information on other servers is not deleted. To delete entire license information in the cluster, run this command in all servers.

Also, if there is more than one piece of license information of the product ID specified to be deleted, all information of the product ID will be deleted.

Message List

| Message | Cause/Action to Take |
|---|--|
| command was success. | The command was successful. |
| command failed. | The command was unsuccessful. |
| command success, but not sync license in cluster. | There is a server which is not running in the cluster. Perform the cluster generation steps in all servers in the cluster. See a separate guide, "Cluster Installation and Configuration Guide" for information on cluster generation. |
| not super user. | You are not authorized to run this command. Log in as a root user. |
| invalid configuration file. | Cluster configuration information is invalid. Check the cluster configuration information using Configuration Tool. |
| initialize error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| command was already started. | The command is already running. Check the running status using a command such as the ps command. |
| license is unregistered. | The license is not registered. Register the license. |
| unable open license file. | I/O cannot be done to the license file. Check if the license file exists in the specified path. |
| unable read license file. | |
| invalid field in license file. | The field format of the license file is invalid. The license file may be corrupted. Check it with the file sender. |
| initialization of library failed. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| termination of library failed. | |
| unable register license. | Check if the optional product ID or entered license information is correct. |
| unable refer license. | |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

10 DISK I/O LOCK-OUT COMMAND

| | |
|----------|---|
| clproset | Modifies and displays I/O permission of partition device. |
|----------|---|

Command Line

```
clproset -o [-d device_name | -r resource_name -t resource_type | -a]
clproset -w [-d device_name | -r resource_name -t resource_type | -a]
clproset -s [-d device_name | -r resource_name -t resource_type | -a]
```

Description Configures partition device I/O permission of a shared disk to ReadOnly / ReadWrite possible.
Displays a configured I/O permission status of partition device.

Option

- o Sets partition device I/O to ReadOnly. When ReadOnly is set, you cannot write into the partition device in which you made such settings.
- w Sets partition device I/O to ReadWrite possible. When ReadWrite is set, you may read from and write into the partition device in which you made such settings.
- s Displays the I/O permission status of a partition device.
- d *device_name* Specifies a partition device.
- r *resource_name* Specifies a disk resource name.
- t *resource_type* Specifies a group resource type. For the current version, always specify "disk" as group resource type.
- a Runs against all disk resource.

Return Value

| | |
|--------------|---------|
| 0 | Success |
| Other than 0 | Failed |

Remarks

Notes Run this command as a root user.

This command can only be used on a shared disk resource. It cannot be used for a mirror disk resource.

Be sure to specify a group resource type when specifying a resource name.

Example of Execution

Example 1: When making I/O which has disk resource name disk1 into RW

```
# clproset -w -r disk1 -t disk  
/dev/sdb5 : success
```

Example 2:When acquiring all resource I/O information

```
# clproset -s -a  
/dev/sdb5 : rw  
/dev/sdb6 : ro
```

Error message

| Message | Cause/Action to Take |
|--|---|
| not super user. | Log in as a root user. |
| invalid configuration file. | Create valid cluster configuration information using Configuration Tool. |
| invalid option. | Specify a valid option. |
| in case of -r option (resource), must be specified -t (resource type). | Be sure to specify the -t option when using the -r option. |
| resource type must be specified 'disk'. | Specify "disk" when specifying a group resource type. |
| invalid group resource name. | Specify a valid group resource name. |
| invalid device name. | Specify a valid device name. |
| command timeout. | Check if OS is heavily loaded. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |



Do not use this command for the purposes other than mentioned in a separate guide "Maintenance."

If you run this command while the ExpressCluster daemon is active, you may corrupt the file system.

11 MIRROR RELATED COMMAND

11.1 Mirror Status Display Command

| | |
|-----------|--|
| clpmdstat | Displays status related mirroring and configuration information. |
|-----------|--|

Command Line

clpmdstat --connect
clpmdstat --mirror *mirrordisk-alias*
clpmdstat --active *mirrordisk-alias*
clpmdstat --detail *mirrordisk-alias*
clpmdstat --list
clpmdstat --driver
clpmdstat --agent

Description Displays various statuses related to mirroring.
 Displays mirror disk resources configuration information.

| | | |
|--------|-----------|--|
| Option | --connect | Displays mirror disk connect status |
| | --mirror | Displays mirror disk resource status. |
| | --active | Displays mirror disk resource active status. |
| | --detail | Displays mirror disk resources configuration information. |
| | --list | Displays a list of mirror disk resources. Displays whether or not FastSync Option is set. |
| | --driver | Displays mirror disk driver status. |
| | --agent | Displays mirror agent status. |

Parameter *mirrordisk-alias* Specifies a mirror disk resource name.

| | | |
|--------------|--------------|---------|
| Return Value | 0 | Success |
| | Other than 0 | Failure |

Remarks

Precautions Run this command as a root user.

Example of Display Examples of display are shown in the next section.

Error Message

| Message | Cause/Action to Take |
|--|--|
| Error: not super user | Log in as a root user. |
| Error: reading config file error | Reading a configuration file has failed. Check if a configuration file exists and if it is configured correctly. |
| Error: get mirror disk name error | Acquiring a mirror disk resource name has failed. Check if mirror agent is operating normally. |
| Error: mirror disk not exist | The specified mirror disk resource was not found. Specify a valid mirror disk resource name. |
| Error: invalid mirror-alias | Specify a valid mirror disk resource name. |
| Error: failed to get server name | Acquiring a server name has failed. Check if configuration file is valid and the mirror agent is operating normally. |
| Error: communication error | Communicating to the remote server has failed. Check if the mirror agent in the remote server is operating normally, and the mirror disk connect is connected. |
| Error: remote mirror down | Communicating to the remote server has failed. Check if the mirror agent in the remote server is operating normally, and the mirror disk connect is connected. |
| Error: get mirror status error | Acquiring mirror disk status has failed. Check if the mirror agent in the local server is operating normally. |
| Error: get mirror index error | Check if mirror agent is operating normally. |
| Error: mirror agent is not running | The mirror agent is not started up. Check if mirror agent is running. |
| Error: get local agent status error | Acquiring mirror agent status of the local server has failed. Shutdown the cluster and restart the both servers. |
| Error: get remote agent status error | Acquiring mirror agent status of the remote server has failed. Shutdown the cluster and restart the both servers. |
| Error: get local and remote agent status error | Acquiring mirror agent status of both servers has failed. Shutdown the cluster and restart both servers. |
| Error: get local mirror active status error | Acquiring active status of the mirror disk resource of the local server has failed. Shutdown the cluster and restart both servers. |
| Error: get remote mirror active status error | Acquiring active status of the mirror disk resource of the remote server has failed. Shutdown the cluster and restart the both servers. |

| Message | Cause/Action to Take |
|---|---|
| Error: get local and remote mirror active status error | Acquiring active status of the mirror disk resources of both servers has failed. Shutdown cluster and restart the both servers. |
| Error: mirror recovery status unknown | Acquiring mirror recovery status has failed. Restart the local server. |
| Error: failed to get network information | Check if mirror agent is operating normally. |
| Error: get mirror list info error | Acquiring a list of mirror disks has failed. Restart the local server. |
| Error: get mirror information error | Acquiring mirror configuration information has failed. Check if the mirror agent is operating normally. |
| Error: failed to get mirror-disk information | Acquiring mirror disk configuration information has failed. Restart the local server. |
| Error: get local and remote mirror-disk information error | Acquiring mirror disk configuration information of both servers has failed. Shutdown the cluster and restart both servers. |
| Error: local driver status abnormal | Acquiring mirror driver status of the local server has failed. Restart the local server. |
| Error: get remote driver status error | Acquiring mirror driver status of the remote server has failed. Check the current network load. If it fails again, restart the remote server. |
| Error: remote driver status abnormal | Acquiring mirror driver status of the remote server has failed. Check the current network load. If it fails again, restart the remote server. |
| Error: both drivers status abnormal | Acquiring mirror driver status of both servers has failed. Shutdown the cluster and restart the both servers. |
| Error: blocksize synchronize error | Acquiring mirror difference information in cluster partition has failed. Check if the mirror disk connect is properly connected, and mirror agents in both servers are operating normally. |
| Error: get bitmap bit number failed! | Acquiring mirror difference information in cluster partition has failed. Shutdown the cluster. If this error happens again, replace the disk. See a separate guide, "Maintenance" for information on replacing disks. |
| Error: bitmap bit number is invalid! | Mirror difference information in cluster partition is invalid. Shutdown the cluster. If this error happens again, replace the disk. See a separate guide, "Maintenance" for information on replacing disks. |

| Message | Cause/Action to Take |
|--|--|
| Error: get local bitmap information failed | Acquiring mirror difference information of the local server has failed. Restart the local server. |
| Error: read local bitmap error | Reading mirror difference information of the local server has failed. Restart the local server. |
| Error: get remote device size error | Acquiring disk space size of the remote server has failed. Shut down the cluster and restart the server. |
| Error: get semaphore error | Acquiring semaphore has failed. Restart the local server. |
| Error: malloc error | Reserving memory space has failed. Restart the local server. |
| Error: local driver was not loaded | The mirror driver in local server is not loaded. See a separate guide, "Maintenance" for reference. |
| Error: internal error(errorcode: 0xxxx) | Shut down the cluster, and restart the server. |

11.1.1 Example of a display when running the mirror status display command

(1) Mirror disk connect status display

When the --connect option is specified, the status of mirror disk connect is displayed.

| Server Name | IP Address | Status |
|-------------|-------------|--------|
| server1 | 192.168.0.1 | Using |
| server2 | 192.168.0.2 | Using |

* Item description

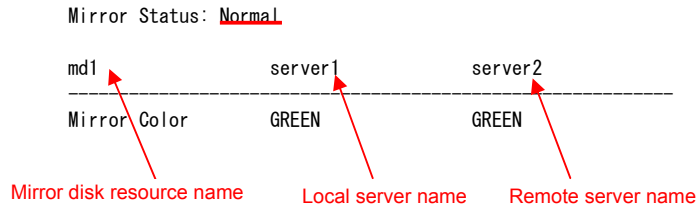
| Item name | Description | | | | | | | | | | |
|-------------|---|--------|-------------|-------|------------|------|----------|-------|-------|----|----------------|
| Server Name | Server name | | | | | | | | | | |
| IP Address | IP address specified for mirror disk connect | | | | | | | | | | |
| Status | Status of mirror disk connect | | | | | | | | | | |
| | <table border="1"><thead><tr><th>Status</th><th>Description</th></tr></thead><tbody><tr><td>Using</td><td>Being used</td></tr><tr><td>Free</td><td>Not used</td></tr><tr><td>Error</td><td>Error</td></tr><tr><td>--</td><td>Status unknown</td></tr></tbody></table> | Status | Description | Using | Being used | Free | Not used | Error | Error | -- | Status unknown |
| Status | Description | | | | | | | | | | |
| Using | Being used | | | | | | | | | | |
| Free | Not used | | | | | | | | | | |
| Error | Error | | | | | | | | | | |
| -- | Status unknown | | | | | | | | | | |

(2) Mirror disk resource status display

When the --mirror option is specified, the status of the specified mirror disk resource is displayed.

The status of a mirror disk resource is displayed in one of three ways depending on the status.

A. When the mirror disk resource is normal:



* Item Description

| Item name | Description | | | | | | | | | | | | | | |
|-----------------|--|--------|-------------|-------|--------|--------|---------------------------|------------|-------|----------|-------------------------|-----------------|--|------|--------------------|
| Mirror Status | Status of the mirror disk resource <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Using</td> <td>Normal</td> </tr> <tr> <td>Normal</td> <td>Mirroring being recovered</td> </tr> <tr> <td>Recovering</td> <td>Error</td> </tr> <tr> <td>Abnormal</td> <td>Abnormal</td> </tr> <tr> <td>No Construction</td> <td>Mirroring is not constructed initially</td> </tr> </tbody> </table> | Status | Description | Using | Normal | Normal | Mirroring being recovered | Recovering | Error | Abnormal | Abnormal | No Construction | Mirroring is not constructed initially | | |
| Status | Description | | | | | | | | | | | | | | |
| Using | Normal | | | | | | | | | | | | | | |
| Normal | Mirroring being recovered | | | | | | | | | | | | | | |
| Recovering | Error | | | | | | | | | | | | | | |
| Abnormal | Abnormal | | | | | | | | | | | | | | |
| No Construction | Mirroring is not constructed initially | | | | | | | | | | | | | | |
| Mirror Color | Status of a mirror disk in each server <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>GREEN</td> <td>Normal</td> </tr> <tr> <td>YELLOW</td> <td>Mirroring being recovered</td> </tr> <tr> <td>RED</td> <td>Error</td> </tr> <tr> <td>GRAY</td> <td>Stopped, status unknown</td> </tr> <tr> <td>BLACK</td> <td>Cluster partition not yet initialized, cluster partition data error etc.</td> </tr> <tr> <td>BLUE</td> <td>Both system active</td> </tr> </tbody> </table> | Status | Description | GREEN | Normal | YELLOW | Mirroring being recovered | RED | Error | GRAY | Stopped, status unknown | BLACK | Cluster partition not yet initialized, cluster partition data error etc. | BLUE | Both system active |
| Status | Description | | | | | | | | | | | | | | |
| GREEN | Normal | | | | | | | | | | | | | | |
| YELLOW | Mirroring being recovered | | | | | | | | | | | | | | |
| RED | Error | | | | | | | | | | | | | | |
| GRAY | Stopped, status unknown | | | | | | | | | | | | | | |
| BLACK | Cluster partition not yet initialized, cluster partition data error etc. | | | | | | | | | | | | | | |
| BLUE | Both system active | | | | | | | | | | | | | | |

B. When the mirror disk resource has a trouble:

Mirror Status: Abnormal

Total Difference: 1%

| md1 | server1 | server2 |
|--------------------|---------------------|---------|
| Mirror Color | GREEN | RED |
| Lastupdate Time | 2004/02/24 15:41:07 | -- |
| Break Time | 2004/02/24 15:40:38 | -- |
| Disk Error | OK | OK |
| Difference Percent | 1% | 0% |

* Item Description

| Item name | Explanation | | | | | | | | |
|--------------------|---|--------|-------------|----|--------|-------|-----------------------------|----|----------------|
| Mirror Status | Status mirror disk resource *1 | | | | | | | | |
| Total Difference | Data difference that was merged among servers in percentage | | | | | | | | |
| Mirror Color | Status of a mirror disk in each server *1 | | | | | | | | |
| Lastupdate Time | Time when data was last updated on server | | | | | | | | |
| Break Time | Time when mirror break occurred | | | | | | | | |
| Disk Error | Status of Disk I/O <table border="1" data-bbox="711 905 1198 1066"> <thead> <tr> <th>Status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>OK</td> <td>Normal</td> </tr> <tr> <td>ERROR</td> <td>Abnormal (I/O not possible)</td> </tr> <tr> <td>--</td> <td>Status unknown</td> </tr> </tbody> </table> | Status | Description | OK | Normal | ERROR | Abnormal (I/O not possible) | -- | Status unknown |
| Status | Description | | | | | | | | |
| OK | Normal | | | | | | | | |
| ERROR | Abnormal (I/O not possible) | | | | | | | | |
| -- | Status unknown | | | | | | | | |
| Difference Percent | Data difference among each server in percentage. | | | | | | | | |

*1 Refer to "A. When the mirror disk resource is normal."

C. When mirroring is being recovered:

Mirror Status: Recovering

```
md1          server1          server2
-----
Mirror Color  YELLOW          YELLOW

Recovery Status  Value
-----
```

| | |
|--------------|--------------------|
| Status: | Recovering |
| Direction: | server1 -> server2 |
| Percent: | 15% |
| Used Time: | 00:00:21 |
| Remain Time: | 00:01:59 |

The items enclosed in a solid line are displayed by running "clpmdctrl --view mirror disk resource name."

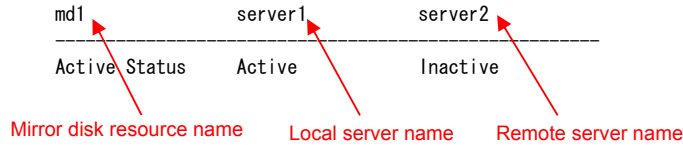
* Item description

| Item name | Description | | | | | | | | | | |
|---------------|---|--------|-------------|-----------|---|------------|---------|------------|---------------------------|---------|------------------------|
| Mirror Status | Status of the mirror disk resource*1 | | | | | | | | | | |
| Mirror Color | Status of a mirror disk each server*1 | | | | | | | | | | |
| Status | <p>Mirror recovery status</p> <table border="1"> <thead> <tr> <th>Status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Preparing</td> <td>Preparing before copying When the resource is started up during a recovery, and when I/O load is high, this status may continue for a long time.</td> </tr> <tr> <td>Recovering</td> <td>Copying</td> </tr> <tr> <td>Completing</td> <td>In the process after copy</td> </tr> <tr> <td>Nothing</td> <td>Recovery being stopped</td> </tr> </tbody> </table> | Status | Description | Preparing | Preparing before copying When the resource is started up during a recovery, and when I/O load is high, this status may continue for a long time. | Recovering | Copying | Completing | In the process after copy | Nothing | Recovery being stopped |
| Status | Description | | | | | | | | | | |
| Preparing | Preparing before copying When the resource is started up during a recovery, and when I/O load is high, this status may continue for a long time. | | | | | | | | | | |
| Recovering | Copying | | | | | | | | | | |
| Completing | In the process after copy | | | | | | | | | | |
| Nothing | Recovery being stopped | | | | | | | | | | |
| Direction | <p>Mirror recovery copying direction</p> <p>Displayed by [Copy source server] -> [Copy destination server] Or [Copy destination server] <- [Copy source server]</p> | | | | | | | | | | |
| Percent | The rate how much copy has completed against the amount of data copy is needed. | | | | | | | | | | |
| Used Time | Lapsed time since copying has started | | | | | | | | | | |
| Remain Time | <p>The estimated time to complete copying the remain.</p> <p>Because the estimate is based on the copying speed of what has already been copied, the value may vary according to how heavily the server is loaded.</p> | | | | | | | | | | |

*1 Refer to "A. When the mirror disk resource is normal."

(3) Mirror disk resource active status display

When the --active option is specified, active status of the specified mirror disk is displayed.



* Status of mirror partition device

| Active Status | Explanation |
|---------------|----------------|
| Active | Active |
| Inactive | Inactive |
| -- | Unknown status |

(4) Mirror disk resource information display

When the --detail option is specified, configuration information of the specified mirror disk resource is displayed.

Mirror Name : md1
Mount Option : rw
File System Type : ext3

| Server Name | Mount Point | NMP/Disk Size(MB) | Device |
|-------------|-------------|-------------------|-----------|
| server1 | /mnt/sdb5 | 1024/1024 | /dev/sdb5 |
| server2 | /mnt/sdb5 | 1024/2048 | /dev/sdb5 |

* Item description

| Item name | Description |
|-------------------|--|
| Mirror Name | Mirror disk resource name |
| Mount Option | Mount option |
| File System Type | File system type |
| Server Name | Server name |
| Mount Point | Mount point |
| NMP/Disk Size(MB) | NMP: Smaller size of both servers' data partition sizes Disk Size: Actual data partition size |
| Device | Data partition device name |

(5) Mirror disk resource list display

When the --list option is specified, a list of mirror disk resources is displayed. Whether or not the FastSync Option is installed is displayed as well.

FastSync Option : Installed

| Mirror Name | Server Name | Mount Point |
|-------------|-------------|-------------|
| md1 | server1 | /mnt/sdb5 |
| | server2 | /mnt/sdb5 |
| md2 | server1 | /mnt/sdc5 |
| | server2 | /mnt/sdc5 |

* Item Description

| Item name | Description | | | | | | | | |
|--|---|---|-------------|-----------|--|---------------|---|---------|---|
| FastSync Option | Usage of the FastSync Option | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Status</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Installed</td> <td>Product version or trial version is effective.</td> </tr> <tr> <td>not installed</td> <td>License is not registered or the trial version has expired.</td> </tr> <tr> <td>unknown</td> <td>Acquiring license information has failed.</td> </tr> </tbody> </table> | Status | Description | Installed | Product version or trial version is effective. | not installed | License is not registered or the trial version has expired. | unknown | Acquiring license information has failed. |
| | Status | Description | | | | | | | |
| | Installed | Product version or trial version is effective. | | | | | | | |
| | not installed | License is not registered or the trial version has expired. | | | | | | | |
| unknown | Acquiring license information has failed. | | | | | | | | |
| Check the expiration date of trial version and other information by using the clplcns command. | | | | | | | | | |
| Mirror Name | Mirror disk resource name | | | | | | | | |
| Server Name | Server name | | | | | | | | |
| Mount Point | Mount point | | | | | | | | |

(6) Mirror driver status display

When the --driver option is specified, the status of mirror driver is displayed.

| Driver | server1 | server2 |
|---------------|---------|---------|
| Active Status | Active | Active |

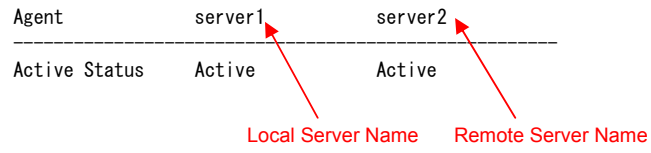
↖ Local Server Name ↖ Remote Server Name

* Driver Status

| Active Status | Explanation |
|---------------|----------------|
| Active | Active |
| Inactive | Inactive |
| -- | Status unknown |

(7) Mirror agent status display

When the --agent option is specified, mirror agent status is displayed.



* Driver Status

| Active Status | Explanation |
|---------------|----------------|
| Active | Active |
| Inactive | Inactive |
| -- | Status unknown |

11.2 Mirror Disk Resource Operation Command

| | |
|-----------|--------------------------------|
| clpmdctrl | Operates mirror disk resource. |
|-----------|--------------------------------|

Command Line

```
clpmdctrl --active mirrordisk-alias
clpmdctrl --active -nomount mirrordisk-alias
clpmdctrl --deactive mirrordisk-alias
clpmdctrl --force recovery-source-servername mirrordisk-alias
clpmdctrl --recovery mirrordisk-alias
clpmdctrl --view mirrordisk-alias
clpmdctrl --cancel mirrordisk-alias
clpmdctrl --getreq
clpmdctrl --setreq request-count
```



Do not use the --active, and --deactive options when the ExpressCluster daemon is started up. Otherwise it may corrupt file system data.

Do not use this option for the purposes other than mentioned in a separate guide "Maintenance."

Description Performs activation/deactivation of a mirror disk resource and mirror recovery.
Displays and modifies the settings of maximum number of request queues.

| | | |
|---------------|------------|--|
| Option | --active | Activates the mirror disk resource on the local server. If mirror disk resource status is normal, mirroring is performed. If mirror disk resource status is not normal, mirroring will not be performed. |
| | --deactive | Deactivates the active mirror disk resource on the local server. |
| | --force | Forcefully performs mirror recovery of the specified mirror disk resource. |
| | --recovery | Performs either full mirror recovery or differential mirror recovery for the specified mirror disk resource. Whether to perform full mirror recovery or differential mirror recovery is determined automatically. |
| | --view | Displays recovery status of a mirror disk resource. |

| | | |
|--------------|--|---|
| | <code>--cancel</code> | Cancels mirror recovery. |
| | <code>--getreq</code> | Displays the current maximum number of request queue. |
| | <code>--setreq</code> | Configures the maximum number of request queue. What you configure here returns to the value set in the cluster configuration information when server shuts down. To modify the cluster configuration information, use Configuration Tool. See a separate guide, "Configuration Tool" for details. It is only effective to the server for which command is run. |
| | <code>-nomount</code> | This option is used with the <code>--active</code> option. Allows access to mirror partition device without mounting the file system. |
| parameter | <i>recovery-source-servername</i> | Specify a copy source. |
| | <i>mirrordiisk-alias</i> | Specify a mirror disk resource name. |
| | <i>request-count</i> | Specify a maximum number of request queue. You can specify a number between 256 and 65535. |
| Return Value | 0 Other than 0 | Success Failure |
| Remarks | <p>When the FastSync Option is not installed, the <code>--recovery</code> option performs full mirror recovery.</p> <p>For information on the recovery status of the mirror disk resource, which is displayed by specifying the <code>--view</code> option, see information on the mirror recovery of the <code>--mirror</code> option in the <code>clpmdstat</code> command</p> <p>Request-count which is displayed by specifying the <code>--getreq</code> option is the same as "Request Queue Maximum Number" which is displayed by the <code>clpstat</code> command. # <code>clpstat --cl --detail</code></p> | |

Notes

Run this command as a root user.

When performing forced mirror recovery only for the local server while the remote server is not running, specify the server that is forcefully mirror recovered as a copy source.

When performing mirror recovery again after mirror recovery failed, specify the same server for a copy source.

While you are installing the FastSync Option, if you resume the force mirror recovery which was suspended using [cancel] in the environment where FastSync Option has been installed, use this command to execute the force monitoring recovery.

Examples of Execution

Example 1: When activating the mirror disk resource md1

```
# clpmdctrl --active md1  
<md1@server1>: active successfully
```

Example 2: When deactivating the mirror disk resource md1

```
# clpmdctrl --deactive md1  
<md1@server1>: deactive successfully
```

Example 3: When mirror recovering the mirror disk resource md1

```
# clpmdctrl --recovery md1
```

Example 4: When setting the maximum number of request queue to 2048

```
# clpmdctrl --setreq 2048  
current I/O request count <2048>
```

Error Message

| Message | Cause/Action to Take |
|--|--|
| Error: not super user | Log in as a root user. |
| Error: reading config file error | Reading the configuration file has failed. Check if the configuration file exists and it is configured correctly. |
| Error: mirror disk not exist | Finding the specified mirror disk resource has failed. Specify a valid mirror disk resource name. |
| Error: invalid mirror-alias | Specify a valid mirror disk resource name. |
| Error: failed to get server name | Acquiring the server name has failed. Check if configuration file is correct and the mirror agent is operating normally. |
| Error: server name not exist | Finding the specified server name has failed. Check if the entered server name exists in the configuration file. |
| Error: invalid server name | Specify a valid sever name. |
| Error: communication error | Communicating to the remote server has failed. Check if the mirror agent of the remote server is operating and the mirror disk connect is connected. |
| Error: remote mirror down | Communicating to the remote server has failed. Check if the mirror agent of the remote server is operating and the mirror disk connect is connected. |
| Error: get mirror status error | Acquiring mirror disk status has failed. Check if the mirror agent of the local server is operating normally. |
| Error: get mirror index error | Check if the mirror agent is operating normally. |
| Error: the status of local mirror is abnormal | Status of the mirror disk resource of the local server is abnormal. |
| Error: this device is already active | The specified mirror disk resource is already active. Check the active status of the mirror disk resource using the following command. clpmdstat --active <alias> |
| Error: disk error | A hardware error occurred in the disk. Check the disk. |
| Error: disk size unmatch | Data partition sizes of both servers do not match. |
| Error: device not mounted | The specified mirror disk resource is not active. Check the active status of mirror disk resource. |
| Error: mirror is not recovering | There is no mirror disk under mirror recovery. |
| Error: mirror(s) is recovering, please try again later | The mirror disk resource is under mirror recovery. Wait until mirror recovery is completed |
| Error: cancel-recovery is not be accepted | Canceling mirror recovery has failed. They system may be highly loaded. Wait for a while and retry. |

| Message | Cause/Action to Take |
|--|--|
| Error: mirror need not recovery. please use option '--force' to force recovery | Mirror recovery has been performed on the mirror disk resource which is in normal status and not requiring mirror recovery. To perform forced mirror recovery, use "clpmdctrl --force." |
| Error: last recovery failed, please change recovery direction and try again | The server you specified for a copy source is not valid. When performing the mirror recovery again after having failed mirror recovery, specify the same server that you specified last time for the failed mirror recovery for a copy source. |
| Error: the direction of recovery is not confirmed, please use "clpmdctrl --force" to try again | Forced mirror recovery is necessary. Use "clpmdctrl --force" and perform forced mirror recovery. |
| Error: recovery direction error | The server with older data is specified as a copy source. Specify correct recovery direction. |
| Error: mirror recovery status unknown | Acquiring mirror recovery status has failed. Restart the local server. |
| Error: local mirror and remote mirror both are not constructed | Initial mirror construction of mirror disk is necessary. Construct an initial mirror configuration using "clpmdctrl --force." |
| Error: local mirror not constructed | Initial mirror construction is necessary for the mirror disk of the local server. Specify remote server as a copy source and construct initial mirror using "clpmdctrl --force." |
| Error: remote mirror not constructed | Initial mirror construction is necessary for the mirror disk of the remote server. Specify the local server as a copy source and construct initial mirror using "clpmdctrl --force." |
| Error: mirror flag is error, please use "clpmdinit" to construct the mirror first | Cluster partition of the mirror disk resource is abnormal. When the server with error has the newest data, see a separate guide "Maintenance," and back up data, initialize cluster partition, and follow the same "disk replacement" steps using the same disk. If this occurs again, replace the disk having errors with a new disk. |
| Error: local mirror and remote mirror both active. Please shutdown one mirror first, and try again | Both systems are active. Perform cluster shutdown and after server reactivation, perform minor recovery. |
| Error: mirror agent is not running | Mirror agent is not active. Check to see if mirror agent is active. |
| Error: system call error | Executing active/inactive system command has failed. Check if a search path is set as environmental variable. |
| Error: failed to create mount point | Creating a mount point has failed. Disk space may be insufficient. Check to see disk space. |

| Message | Cause/Action to Take |
|---|---|
| Error: fsck timeout | Timeout occurred on active fsck. In case it is not the journaling file system, fsck may take time if data partition of the mirror disk is large. Set the longer timer for the fsck timeout using Configuration Tool. |
| Error: mount timeout | Timeout occurred on active mount. Set the longer timer for the mount timeout using Configuration Tool. |
| Error: umount timeout | Timeout occurred on inactive unmount. Set the longer timer for the unmount timeout using Configuration Tool. |
| Error: fsck failed | fsck has failed. The cause may be: unmatch of data partition file system type and configuration file, invalid fsck option or destroyed partition. Check. |
| Error: mount failed | Mount during activation has failed. The cause may be unmatch of data partition file system type and configuration in the configuration file or destroyed partition. Check. |
| Error: umount failed | Unmount during inactive has failed. Check to see if the file system on data partition is busy. |
| Error: activation is in process | The mirror disk is in the process of activation. Try after activation is completed. |
| Error: set cluster partition flags failed | Forced recovery or activation of a standalone server has failed. Check to see if hardware error has occurred on disk. |
| Error: invalid request count | An invalid request queue maximum number has been entered. Check the range of numbers which can be specified. |
| Error: failed to set request count | Setting a request queue maximum number has failed. Restart the local server. |
| Error: failed to get request count | Acquiring a request queue maximum number has failed. Restart the local server. |
| Error: failed to get NMP path | Check if mirror agent is operating normally. Restart the local server. |
| Error: get mirror information error | Acquiring mirror configuration information has failed. Check if mirror agent is operating normally. |
| Error: failed to get mirror-disk information | Acquiring mirror disk configuration information has failed. Restart the local server. |
| Error: get local and remote mirror-disk information error | Acquiring mirroring disk configuration information of both servers has failed. Perform cluster shutdown and restart the both servers. |

| Message | Cause/Action to Take |
|---|---|
| Error: get bitmap bit number failed! | Acquiring information on mirror difference on the cluster partition has failed. Perform cluster shutdown. If the error occurs again, replace the disk. See a separate guide, "Maintenance" for information on how to replace disks. |
| Error: bitmap bit number is invalid! | Mirror difference information in the cluster partition is invalid. Perform cluster shutdown. If the error occurs again, replace the disk. See a separate guide, "Maintenance" for information on how to replace disks. |
| Error: read local bitmap error | Reading mirror difference information of the local server has failed. Restart the local server. |
| Error: read remote bitmap error | Reading mirror difference information of the remote server has failed. Restart the remote server. |
| Error: get local bitmap information failed | Acquiring mirror difference of the local server has failed. Restart the local server. |
| Error: get device size error | Acquiring the disk space has failed. Perform cluster shutdown and restart the server. |
| Error: get remote device size error | Acquiring the disk space of the remote server has failed. Perform cluster shutdown and restart the server. |
| Error: operation on port error | Configuring cluster partition has failed. Restart the local server. |
| Error: set information error | Error occurred in the mirror disk resource status settings. Restart the local server. |
| Error: create thread error | Creating thread has failed. Restart the local server. |
| Error: internal error(create process failed) | Creating the process has failed. Restart the local server. |
| Error: get semaphore error | Acquiring semaphore has failed. Restart the local server. |
| Error: malloc error | Reserving memory has failed. Restart the local server. |
| Error: local driver was not loaded | Mirror driver of the local sever is not loaded. See a separate guide, "Maintenance" and check the status |
| Error: internal error(errorcode: 0xxx) | Perform the cluster shutdown. |
| Error: NMP size of recovery destination is smaller, can not recover | Mirror recovery cannot be executed since NMP size of recovery destination is smaller. Change the destination and execute again. |
| Error: NMP size of local server is bigger, can not active | Initial mirror configuration is not completed. Execute forced mirror recovery from the server whose NMP size is smaller to the larger one. |

11.3 Mirror Disk Initialization Command

| | |
|-----------|----------------------------|
| clpmdinit | Initializes a mirror disk. |
|-----------|----------------------------|

Command Line

clpmdinit --create normal [mirrordiisk-alias]

clpmdinit --create quick [mirrordisk-alias]

clpmdinit --create force [mirrordisk-alias]



Generally you do not need to run this command when constructing or operating a cluster. Be cautious to run this command because it initializes the partition used for data.

| | |
|-------------|--|
| Description | Performs initialization on the cluster partition of a mirror disk resource. Creates a file system on the data partition of a mirror disk resource. |
| Option | <p>--create normal Initializes cluster partition and creates a file system of the data partition, if necessary.¹ Whether or not necessary is determined according to the magic number, which ExpressCluster sets on cluster partition. Execution of the command with this option is generally not necessary.</p> <p>--create quick Initializes the cluster partition, if necessary. Whether or not necessary is determined according to the magic number, which ExpressCluster sets on cluster partition. Execution of the command with this option is generally not necessary.</p> <p>--create force Forcefully initializes cluster partition and creates a file system of the data partition.¹ This option is used when using the disk which was already used as a mirror disk of ExpressCluster again.</p> |
| Parameter | <p><i>mirrordisk-alias</i> Specifies a mirror disk resource name. If this parameter is not specified, the process is performed on all mirror disk resources.</p> |

¹ If "Perform First mkfs" is not selected in the cluster configuration information, the file system will not be created.

Return Value 0 Success
 Other than 0 Failure

Remarks

Notes If you run this command, the mirror disk will be initialized. Be cautious when using it.

Run this command as a root user.

Until this command returns control, do not run other command.

When running this command, make sure mirror agent in all servers in the cluster is deactivated.

* How to check

/etc/init.d/clusterpro_md status

In executing a command, please set an environment variable LANG as C.

Example of Execution

Example 1: Forcefully initializing cluster partition because the disk used for the mirror disk resource md1 was used as a mirror disk of ExpressCluster

clpmdinit --create force md1

mirror info will be set as default

the main handle on initializing mirror disk <md1> success

initializing mirror disk complete

Error Message

| Message | Causes/Action to Take |
|--|--|
| not super user | Log in as a root user. |
| agent running | Stop the mirror agent. |
| clpmdinit running! | This command is running. Run after the command is completed. |
| clpmdchnng running! | The clpmdchnng command is running. Run after the command is completed. |
| invalid mirror-alias | Specify a valid mirror disk resource name. |
| non- mirror-disk exists in config file | The mirror disk resource was not found. Configure a valid mirror disk resource. |
| Mirror-disk <%1> not exist | The specified mirror disk resource was not found. Specify a valid mirror disk resource name. |
| cluster partition not exist(<%1>) | Check to see if the cluster partition of the specified mirror disk resource exists. |
| cluster partition size is too small <mirror alias> | Check if the cluster partition size of the specified mirror disk resource is 10 Mbyte or larger. |

| Message | Causes/Action to Take |
|--|--|
| internal error(open error <%1/%2>) | Cluster partition of the specified mirror disk resource does not exist or OS resource may be insufficient. Check. |
| internal error(<%1> cluster partition: unknownerror) | Initializing cluster partition has failed. Check to see if there is any hardware error on the disk. |
| internal error(<%1> cluster partition: flag) | Setting cluster partition has failed. Check to see if the cluster partition space is sufficient or a hardware error has not occurred on the disk. |
| data partition not exist(<%1>) file: dppath | Check if the data partition of the specified mirror disk resource exists. |
| format device failed<%1> mirror<%2>: fstype<%3> | Initializing the data partition has failed. Check if the data partition of the specified mirror disk resource exists, hardware error has not occurred on the disk, and you have specified a file system supported by OS. |
| unknown error occur during formatting mirror-disk<%1> | Initializing the data partition has failed. Check if the data partition of the specified mirror disk resource exists or a hardware error has not occurred on the disk. |
| internal error(data partition can't open:<%1>) file:dppath | Initializing the data partition has failed. Check if the data partition of the specified mirror disk resource exists and OS resource is sufficient. |
| internal error(data partition check error---<%1>) | Initializing the data partition has failed. Check to see a hardware error has not occurred on the disk. |
| get mirror list info error | Acquiring the mirroring disk list has failed. Restart the local server. |
| internal error(write PID failed) | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| internal error(initialize failed) | Reading the configuration file or initializing the shared memory and semaphore has failed. Check to see if configuration file is correct and restart the local server. |
| internal error(terminate failed) | Releasing the shared memory has failed. Check if a system error has occurred while executing the program. |
| malloc error | Reserving memory has failed. Restart the local server. |

11.4 Mirror Disk Change Command

| | |
|-----------|-------------------------------------|
| clpmdchng | Initializes a replaced mirror disk. |
|-----------|-------------------------------------|

Command Line
clpmdchng --execute *diskname*



Generally you do not need to run this command when constructing or operating a cluster.

Do not use the command for purposes other than mentioned in a separate guide "Maintenance."

Be cautious to run this command because it initializes the partition used for data.

| | | |
|--------------|--|---|
| Description | Performs the initialization of a replaced mirror disk. This command is used when the disk used for a mirror disk in the clustered system has a problem and is replaced by another disk. | |
| Option | --execute | Performs the initialization of a replaced mirror disk. ² |
| Parameter | <i>diskname</i> | Specify a disk device name. |
| Return Value | 0 Other than 0 | Success Failure |
| Remarks | See a separate guide, "Maintenance" for disk replacement procedures. | |
| Notes | Run this command as a root user. Until this command returns the control, please do not run other commands. Make sure mirror agent is deactivated in all servers in the cluster when running this command. * How to check # /etc/init.d/clusterpro_md status In executing a command, please set an environment variable LANG as C. | |

² If "Perform First mkfs" is not selected in the cluster configuration information, the file system will not be created.

Example of Execution **Example 1:**When having replaced a disk in failed disk device /dev/sdb

```
#clpmdchnge --execute /dev/sdb
```

 mirror info will be set as default
 the main handle on change disk success

Error Message

| Message | Causes/Action to Take |
|---|--|
| not super user | Log in as a root user. |
| agent running | Stop the mirror agent. |
| clpmdchnge running! | This command is running. Run after the command is completed. |
| clpmdinit running! | The clpmdinit command is running. Run after the command is completed. |
| non- mirror-disk exists in config file | The mirror disk resource was not found. Configure a valid mirror disk resource. |
| the disk number get from config file is invalid. | Mirror disk resource configuration information is invalid. Configure a valid mirror disk resource. |
| invalid device name | Specify a valid disk device name. |
| no mirror-disk on this disk | Specify a valid disk device name. |
| get disk info failed | Acquiring the disk information has failed. Check the configuration file. |
| unknown error occur during checking disk | Checking the disk device has failed. Check to see if the replaced disk is properly connected. |
| cluster partition not exist(<%1>) | Check if the cluster partition of the mirror disk resource exists in the replaced disk. |
| cluster partition size is too small <%1 > | Check if the cluster partition size of the mirror disk resource is 10 Mbyte or larger. |
| internal error(open error <%1/%2>) | Check cluster partition of the mirror disk resource exists and OS resource is enough. |
| internal error(<%1> cluster partition: unknowerror) | Initializing the cluster partition has failed. Check if there is any hardware error on the disk. |
| internal error(<%1> cluster partition: flag) | Setting cluster partition has failed. Check to see if the cluster partition space is sufficient or a hardware error has not occurred on the disk. |
| data partition not exist(<%1>) file: dppath | Check if the data partition of the mirror disk exists. |
| format device failed<%1> mirror<%2>: fstype<%3> | Initializing the data partition has failed. Check if the data partition of the specified mirror disk resource exists, hardware error has not occurred on the disk, and you have specified a file system supported by OS. |
| unknown error occur during formatting mirror-disk<%1> | Initializing the data partition has failed. Check if the data partition of the specified mirror disk resource exists or a hardware error has not occurred on the disk. |

| Message | Causes/Action to Take |
|---|--|
| internal error(data partition can't open:<%1>) file:dppath | Initializing the data partition has failed. Check if the data partition of the specified mirror disk resource exists and OS resource is sufficient. |
| internal error(data partition check error---<%1>) | Initializing the data partition has failed. Check to see a hardware error has not occurred on the disk. |
| get mirror list info error | Acquiring the mirroring disk list has failed. Restart the local server. |
| Message | Causes/Action to Take |
| internal error(write PID failed) | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| internal error(initialize failed) | Reading the configuration file or initializing the shared memory and semaphore has failed. Check to see if configuration file is correct and restart the local server. |
| internal error(terminate failed) | Releasing the shared memory has failed. Check if a system error has occurred while executing the program. |
| malloc error | Reserving memory has failed. Restart the local server. |

12 MESSAGE PRODUCING COMMAND

This command runs in the following editions and versions.

| Edition | ExpressCluster rpm version |
|------------|----------------------------|
| SAN/SE | 3.1-1 or later |
| WAN/LAN/LE | 3.1-1 or later |

| | |
|------------------|---|
| clplogcmd | The command which registers the specified character strings with system log and alert, and reports by mail. |
|------------------|---|

Command Line

`clplogcmd -m message [--syslog] [--alert] [--mail] [-i eventID] [-l level]`



Typically, this command is not necessary for cluster creation or operation. The command is written in the script of the EXEC resource.

| | | |
|-------------|---|---|
| Description | Written in the EXEC resource script to produces any optional message you want to the output destination | |
| Options | -m message | Specify character strings to be produced in messages. You cannot skip this option. The maximum size of message is 511 bytes. (If you specify system log as the output destination, the maximum size is 485 bytes.) The character strings exceeding the maximum size will not be shown. You may use alphabets, numbers, and symbols *1 |
| | --syslog --alert --mail | Specify the output destination from system log, alert, and mail. (You may specify one or more desitinations.) You can skip this parameter. The system log and alert will be the output desitination when the parameter is abbreviated. See <i>Maintenance</i> for more information on the output destinations. |
| | -i eventID | Specify event IDs. The maximum value of event ID is 10000. You can skip this parameter. The default value is 1. |
| | -l level | Specify a level at which alerts are produced |

from ERR, WARN, or INFO. Icons on the alert view of WebManger are specified according to the level you configured here. You can skip this parameter. By default, INFO is set. See *WebManager* for more information.

Return Value 0 Success
 Other than 0 Failure

Remarks

Notes Run this command as a root user.
 When you are specifying mail as the output destination, you need to make the setting to send mails using the mail command.

Example of Execution


Example 1: Specifying message only (output destination: system log, alert)
 If you write the following in the script of EXEC resource, character strings are produced in system log, alert.

clplogcmd -m test1

The following log is produced in system log.

Sep 1 14:00:00 server1 CLUSTERPRO: <type: logcmd><event: 1> test1

The following is produced in the alert view of Web Manager.

| | Receive Time | Time ▼ | Server Name | Module Name | Event ID | Message |
|---|---------------------|---------------------|-------------|-------------|----------|---------|
|  | 2004/09/01 14:00:00 | 2004/09/01 14:00:00 | server1 | logcmd | 1 | test1 |

Example 2: Specifying message, output destination, event ID and level
 (output destination: mail)

If you write the following in the script of EXEC Resource, character strings are sent to the mail address set in the cluster properties. See *Configuration Tool* for more information on the mail address setting.

clplogcmd -m test2 --mail -i 100 -l ERR

A mail with the following contents is sent to the mail destination.

Message: test2
Type: logcmd
ID: 100
Host: server1
Date: 2004/09/01 14:00:00

***1 You must note the followings when you are using symbols in character strings.**

The symbols that must be replaced in "":

& ' () ~ | ; : * < > , .

(Example If you specify "#" in the message, # will be produced.)

The symbols that must have \ before them:

\ ! " & ' () ~ | ; : * < > , .

(Example If you specify \\ in the message, \ will be produced.)

The symbols that must be placed in "" and have \ in before them:

`

(Example If you specify "" in the message, ` will be produced.)

- * When spaces are included in character strings, they must be placed in "".
- * % cannot be used in character strings.

13 MONITORING CONTROL COMMAND

This command runs in the following editions and versions.

| Edition | ExpressCluster rpm version |
|------------|----------------------------|
| SAN/SE | 3.1-1 or later |
| WAN/LAN/LE | 3.1-1 or later |

| | |
|-------------------|-------------------------------|
| clpmonctrl | Controls the monitor resource |
|-------------------|-------------------------------|

Command Line:

`clpmonctrl -s [-m resource name ...] [-w wait time]`

`clpmonctrl -r [-m resource name ...] [-w wait time]`



Since this command controls the monitor resource on a single server, it must be run on all servers that control monitoring.

Description Suspends/resumes a monitoring resource on a single server.

Option

- s, --suspend Suspends monitoring
- r, --resume Resumes monitoring
- m, --monitor Specify one or more monitoring resources to control. You can skip this option. By default, all monitor resources are controlled.
- w, --wait Waits for control monitoring on monitoring resource basis. (in seconds) You can skip this option. The default value is 5.

Return Value

- 0 Normal termination
- 1 Execution authority is invalid
- 2 Option is invalid
- 3 Initialization error
- 4 Cluster configuration information is invalid.
- 5 Monitor resource is not registered.
- 6 Specified monitor resource is invalid.
- 10 Cluster is not activated.
- 11 ExpressCluster daemon is suspended.
- 12 Waiting for cluster synchronization
- 90 Monitoring control wait timeout
- 128 Duplicated activation
- 255 Other internal error

Example of Monitoring resource configuration Execution

```
# clpstat -m
=== MONITOR RESOURCE STATUS ===
Cluster : cluster
*server0 : server1
server1 : server2

Monitor0 [ipw1 : Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor1 [miiw1: Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor2 [userw : Normal]
-----
server0 [o] : Online
server1 [o] : Online
=====
```

In Example 1 through 4, the monitoring resources of the server1 is controlled.
 To control the monitoring resources of the server2, run this command in the server2.

Example 1: Suspend all monitor resources

```
# clpmonctrl -s
Command was success.
# clpstat -m
=== MONITOR RESOURCE STATUS ===
Cluster : cluster
*server0 : server1
server1 : server2

Monitor0 [ipw1 : Caution]
-----
server0 [o] : Suspend
server1 [o] : Online

Monitor1 [miiw1: Caution]
-----
server0 [o] : Suspend
server1 [o] : Online

Monitor2 [userw : Caution]
-----
server0 [o] : Suspend
server1 [o] : Online
=====
```

Example 2: Resume all monitoring resources

```
# clpmonctrl -r
Command was success.
# clpstat -m
=== MONITOR RESOURCE STATUS ===
Cluster : cluster
*server0 : server1
server1 : server2

Monitor0 [ipw1 : Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor1 [miiw1: Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor2 [userw : Normal]
-----
server0 [o] : Online
server1 [o] : Online
=====
```

Example 3: Suspend the IP monitor resource (ipw1) only

```
# clpmonctrl -s -m ipw1
Command was success.
# clpstat -m
=== MONITOR RESOURCE STATUS ===
Cluster : cluster
*server0 : server1
server1 : server2

Monitor0 [ipw1 : Caution]
-----
server0 [o] : Suspend
server1 [o] : Online

Monitor1 [miiw1: Normal]
-----
server0 [o] : Online
server1 [o] : Online

Monitor2 [userw : Normal]
-----
server0 [o] : Online
server1 [o] : Online
=====
```

Example 4: Resume the IP monitor resource (ipw1) only

```
# clpmonctrl -r -m ipw1
Command was success.
# clpstat -m
=== MONITOR RESOURCE STATUS ===
Cluster : cluster
  *server0 : server1
  server1 : server2

  Monitor0 [ipw1 : Normal]
-----
  server0 [o] : Online
  server1 [o] : Online

  Monitor1 [miiw1: Normal]
-----
  server0 [o] : Online
  server1 [o] : Online

  Monitor2 [userw : Normal]
-----
  server0 [o] : Online
  server1 [o] : Online
=====
```

Remarks If you suspend a monitoring resource that is already suspended or resume a monitoring resource that is already resumed, this command terminates successfully without changing the status of the monitoring resource.

Notes Run this command as a root user.

Check the status of monitoring resource using a status display command or Web Manager.

Before you run this command, use the clpstat command or Web Manager to confirm that monitoring resources are in either “Online” or “Suspend” status.

In the state where activity of the exec resource is deactivated, if the PID monitor resource which had stopped is resumed, a PID monitor resource cannot detect abnormalities.

For example, the following cases correspond above.

1. PID monitor is suspended.
2. The group of target resource of PID monitor is deactivated.
3. PID monitor is resumed.

Error Message

| Message | Causes/ Actions to take |
|---|--|
| Command was success. | The command was successful. |
| Not super user. | You are not authorized to run this command. Log in as a root user. |
| Initialize error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |
| Config was invalid. | The cluster configuration information is invalid. Check the cluster configuration information using Configuration Tool. |
| Monitor was unregistered. | The monitoring resource is not registered. |
| The specified monitor was unregistered. | The specified monitoring resource is not registered. Check the cluster configuration information using Configuration Tool. |
| The cluster has been stopped. | The cluster has been stopped. Check the activation status of the ExpressCluster daemon using the ps command and such. |
| The cluster has been suspended. | The cluster daemon has been suspended. Check the activation status of the ExpressCluster daemon using the ps command and such. |
| Waiting for synchronization of the cluster... | Waiting for synchronization of the cluster. Wait for cluster synchronization is finished, and then try again. |
| Monitor %1 was unregistered, ignored. | There is an unregistered monitor resource in the specified monitor resources, but it is ignored and the process is continued Check the cluster configuration information using Configuration Tool. %1: Monitor resource name |
| Command has already started. | The command is already running. Check the running status using the ps command and such. |
| Internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |

14 REBOOT COUNT CONTROL COMMAND

This command runs in the following editions and versions.

| Edition | HA Cluster rpm version |
|------------|------------------------|
| SAN/SE | 3.1-6 or later |
| WAN/LAN/LE | 3.1-6 or later |

| | |
|-------------------------|------------------------------|
| <code>clpregctrl</code> | Controls reboot count limit. |
|-------------------------|------------------------------|



Because this command controls reboot count on a single server, it needs to be executed on all servers whose reboot count you want to control.

Description Displays/initializes reboot count on a single server

Option

| | |
|-------------|---|
| -g, --get | Displays reboot count information |
| -c, --clear | Initializes reboot count |
| -t | Specifies the type to initialize reboot count. The type that can be specified is <i>rc</i> or <i>rm</i> |
| -r | Specifies the registry name. The registry name that can be specified is <i>haltcount</i> . |

Return Value

| | |
|-------|--|
| 0 | Normal termination |
| 1 | Execution authority is invalid |
| 2 | Duplicated activation |
| 3 | Option is invalid |
| 4 | Cluster configuration information is invalid |
| 10~17 | Initialization error |
| 20~22 | Failed to obtain reboot count information |
| 90 | Failed to allocate memory |
| 91 | Failed to change work directory |

Example of Reboot count information display
Execution

```
# clpregctrl -g
*****
-----
type      : rc
registry  : haltcount
comment   : halt count
kind      : int
value     : 0
default   : 0
-----
type      : rm
registry  : haltcount
comment   : halt count
kind      : int
value     : 3
default   : 0
*****
success.(code:0)
#
```

Example 1 and 2 initialize reboot count.
Perform this command on server2 when you want to control the
reboot count of server2.

**Example1: When you initialize of count reboots caused by
group resource error.**

```
# clpregctrl -c -t rc -r haltcount
success.(code:0)
#
```

**Example2: When you initialize count of reboots caused by
monitor resource error.**

```
# clpregctrl -c -t rm -r haltcount
success.(code:0)
#
```

Remarks See a separate guide, "Resource Details" for reboot count
limitation.

Notes Run this command as a root user.

Error Message

| Message | Causes/ Actions to take |
|-------------------|---|
| success. | The command was successful. |
| not super user. | You are not authorized to run this command. Log in as a root user. |
| already started. | The command is already running. Check the running status using the ps command and such. |
| invalid argument. | Specify a valid option. |
| internal error. | Memory or OS resource may be insufficient. Check memory and/or OS resource. |