

Chapter 48

Monitoring Redundant HCMs

You monitor redundant High-Availability Chassis Managers (HCMs) on the M10i router so they can work with a companion Routing Engine to provide control and monitoring functions for router components. The HCMs also display alarm status and take Physical Interface Cards (PICs) online and offline.

Table 131 provides a checklist of tasks for you to perform to monitor redundant HCMs.

Table 131: Checklist for Monitoring Redundant HCMs

Monitor Redundant HCM Tasks	Command or Action
Understanding Redundant HCMs on page 624	
Displaying Redundant HCM Hardware Information on page 625	show chassis hardware
Displaying HCM Status and Mastership on page 625	
1. Check the HCM LEDs on page 625	Look at the LEDs on the HCM faceplate. The master HCM LED light flashes blue.
2. Check the HCM Environmental Status on page 626	show chassis environment hcm
Switching HCM Mastership on page 627	request chassis routing-engine master switch
Displaying HCM Alarms on page 628	show chassis alarms
Performing a Swap Test on an HCM on page 629	See “Performing A Swap Test” on page 438.
Returning an HCM on page 629	Find the serial number ID label, then see “Return the Failed Component” on page 86. See also the <i>M10i Internet Router Hardware Guide</i> .

Understanding Redundant HCMs

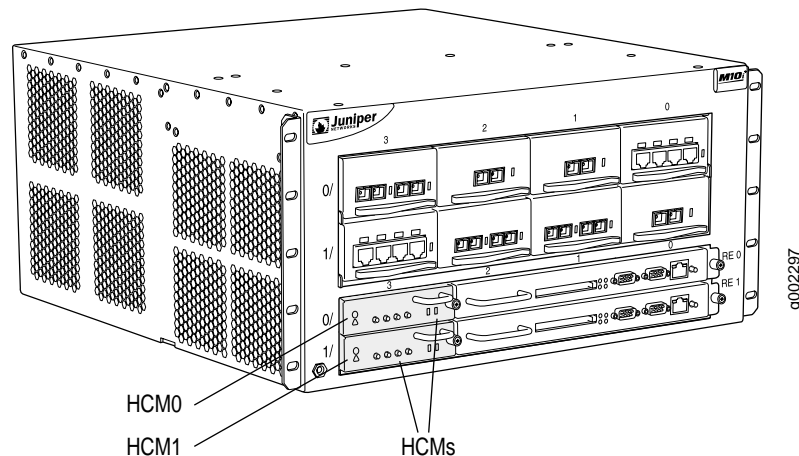
Purpose You monitor and maintain HCMs on the M10i router so that they can monitor and control router components, control component power-up and power-down, signal which Routing Engine is master, display alarm conditions, and take PICs offline.

What Are Redundant HCMs Two HCMs are installed in an M10i router. Each HCM works with a companion Routing Engine.

Two HCMs are installed into the midplane from the front of the chassis, as shown in Figure 234. The master HCM performs all functions and provides PIC removal buttons for the first Flexible PIC Concentrator (FPC). The standby HCM provides PIC removal buttons for the second FPC. The HCM in the slot labeled HCM0 is paired with the Routing Engine in the slot labeled RE0. Likewise, the HCM in the slot labeled HCM1 is paired with the Routing Engine in the slot labeled RE1. By default, the HCM in the slot labeled HCM0 is the master.

Figure 234: Redundant HCMs

M10i front



When HCM mastership changes because of failure, Routing Engine mastership also changes.

The HCM is hot-pluggable.

See Also M10i Internet Router Overview on page 11

Monitoring the HCM on page 431

Host Redundancy Overview on page 463

Monitoring Redundant Routing Engines on page 491

Displaying Redundant HCM Hardware Information

Action To display the redundant HCM hardware information, use the following JUNOS software command-line interface (CLI) command:

```
user@host> show chassis hardware
```

Sample Output

```
user@host> show chassis hardware
Hardware inventory:
Item      Version  Part number  Serial number  Description
Chassis           31875      M10i
Midplane    REV 04   710-008920   CE1044        M10i Midplane
Power Supply 0 Rev 05   740-008537   QE16425       AC Power Supply
Power Supply 1 Rev 05   740-008537   QE16644       AC Power Supply
HCM slot 0     REV 01   710-010580   CC7625        M10i HCM
HCM slot 1     REV 01   710-010580   CC7629        M10i HCM
Routing Engine 0 REV 09   740-009459   1000513670    RE-5.0
Routing Engine 1 REV 09   740-009459   1000513630    RE-5.0
```

What it Means The command output shows that on this M10i router, two HCMs are installed in slots 0 (HCM0) and 1 (HCM1) along with their companion Routing Engines. By default, the HCM in the slot labeled HCM0 is the master.

Displaying HCM Status and Mastership

By default, the HCM in the slot labeled HCM0 is the master.

Steps To Take To display the redundant HCM status and mastership, follow these steps:

1. Check the HCM LEDs on page 625
2. Check the HCM Environmental Status on page 626

Step 1: Check the HCM LEDs

Action To see which HCM is functioning as master, look at the LEDs on the HCM faceplate. On the HCM faceplate, two LEDs indicate HCM status—a green PWR LED and a blue MSTR LED. Table 132 describes the LED states.

Table 132: HCM LEDs

Label	Color	State	Description
PWR	Green	On steadily	HCM is functioning normally.
		Blinking	HCM is starting up.
MSTR	Blue	On steadily	HCM is master.

Step 2: Check the HCM Environmental Status

Action To check the HCM environmental status and view which HCM is functioning as master, use the following CLI command:

```
user@host> show chassis environment hcm
```

Sample Output user@host> **show chassis environment hcm**

```
HCM 0 status:
State           Online Master
FPGA Revision    27
HCM 1 status:
State           Online Standby
FPGA Revision    27
```

What it Means The command output shows that both HCMs (HCM0 and HCM1) are online. HCM0 is functioning as master, and HCM1 is functioning as standby. The command output also gives the Field Programmable Gate Array (FPGA) revision level. The FPGA is a gate on the chip used in the HCM.

Alternative Action To display the status of an HCM in a certain slot, use the following CLI command:

```
user@host> show chassis environment hcm 1
```

Sample Output user@host> **show chassis environment hcm 1**

```
HCM 1 status:
State           Online Standby
FPGA Revision    27
```

Switching HCM Mastership

When HCM mastership changes because of failure, Routing Engine mastership will change as well.

If the Routing Engines are running JUNOS Release 6.0 or later and are configured for graceful switchover, the standby Routing Engine immediately assumes Routing Engine functions and there is no interruption to packet forwarding. Otherwise, packet forwarding halts while the standby Routing Engine becomes the master and the Packet Forwarding Engine components reset and connect to the new master Routing Engine. For information about configuring graceful switchover, see the section about Routing Engine redundancy in the *JUNOS System Basics Configuration Guide*.



NOTE: Router performance might change if the standby Routing Engine's configuration differs from the former master's configuration. For the most predictable performance, configure the two Routing Engines identically, except for parameters unique to a Routing Engine, such as the hostname defined at the [edit system] hierarchy level and the management interface (fxp0 or equivalent) defined at the [edit interfaces] hierarchy level.

To configure Routing Engine-specific parameters and still use the same configuration on both Routing Engines, include the appropriate configuration statements under the re0 and re1 statements at the [edit groups] hierarchy level and use the apply-groups statement. For instructions, see the *JUNOS System Basics Configuration Guide*.

Action To switch HCM mastership to the backup HCM, use the following CLI command:

```
user@host> request chassis routing-engine master switch
```

Sample Output

```
user@host> request chassis routing-engine master switch
warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between routing engines ? [yes,no] yes
```

```
Resolving mastership...
Complete. The other routing engine becomes the master.
```

What It Means The HCM that was master is now the backup HCM.

Action To check HCM status and mastership after a switchover, use the following CLI command:

```
user@host> show chassis environment hcm
```

Sample Output

```
user@host> show chassis environment hcm
HCM 0 status:
  State           Online Standby
  FPGA Revision   27
HCM 1 status:
  State           Online Master
  FPGA Revision   27
```

Action To switch HCM mastership from the backup to the default master, use the following CLI command

```
user@host> request chassis routing-engine master switch
warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between routing engines ? [yes,no] (no) yes

Resolving mastership...

Message from syslogd@host cfeb at Jan 28 15:10:37 ...
argh cfeb RDP: Remote side reset connection: rdp.(scb:17408).(serverRouter:chassis)

Message from syslogd@host cfeb at Jan 28 15:10:37 ...
argh cfeb RDP: Remote side reset connection: rdp.(scb:17409).(serverRouter:pfe)

Message from syslogd@host cfeb at Jan 28 15:10:37 ...
argh cfeb CM: ALARM SET: (Major) RE chassis socket closed abruptly
Complete. The local routing engine becomes the master.
```

Displaying HCM Alarms

If a single HCM installed in a routing platform fails, no alarm can be sent. However, if it is a dual system, the following alarm is displayed when the backup Routing Engine takes over.

Action To view an HCM alarm when the backup Routing Engine takes over, use the following CLI command:

```
user@host> show chassis alarms
```

Sample Output

```
user@host> show chassis alarms
1 alarm currently active
Alarm time      Class Description
2005-02-16 22:10:27 UTC  Minor Backup RE Active
```

Verifying HCM Failure

Action To view current HCM status when the backup Routing Engine takes over, use the following CLI command.

```
user@host> show chassis routing-engine
```

Sample Output

```
user@host> show chassis routing-engine
Routing Engine status:
Slot 0:
  Current state      Backup
  Election priority  Master (default)
  Temperature        33 degrees C / 91 degrees F
  DRAM               2048 MB
  Memory utilization  13 percent
CPU utilization:
  User               0 percent
  Background         0 percent
  Kernel             0 percent
  Interrupt          0 percent
  Idle               100 percent
Model               RE-3.0
```

```

Serial ID      P10865703096
Start time     2005-02-16 22:13:19 UTC
Uptime         2 hours, 13 minutes, 57 seconds
Routing Engine status:
Slot 1:
  Current state      Master
  Election priority   Backup (default)
  Temperature        33 degrees C / 91 degrees F
  CPU temperature     29 degrees C / 84 degrees F
  DRAM               2048 MB
  Memory utilization  12 percent
CPU utilization:
  User              0 percent
  Background        0 percent
  Kernel            3 percent
  Interrupt          0 percent
  Idle              97 percent
Model            RE-3.0
Serial ID        P10865701255
Start time       2005-02-03 03:13:39 UTC
Uptime           13 days, 21 hours, 12 minutes, 35 seconds
Load averages:   1 minute  5 minute 15 minute
                  0.00     0.03   0.01

```

What It Means The Routing Engine in slot RE0 and companion HCM in slot HCM0 are backup. The Routing Engine in slot RE1 and companion HCM in slot HCM1 are master.

Alternative Method To verify an HCM failure, you can also use the following CLI command:

```
user@host> show chassis environment hcm
```

Sample Output user@host> **show chassis environment hcm**

```

HCM 0 status:
  State      Offline
  FPGA Revision  27
HCM 1 status:
  State      Online Master
  FPGA Revision  27

```

What It Means The HCM in slot HCM0 is offline. The HCM in slot HCM1 has taken over as master.

Performing a Swap Test on an HCM

Action To perform a swap test on a HCM, see “Performing A Swap Test” on page 438.

Returning an HCM

Action To return an HCM, find the serial number ID label (see “Locate the HCM Serial Number ID Label” on page 442), then follow the procedure as described in the *M10i Internet Router Hardware Guide*, or see “Return the Failed Component” on page 86.

