

Chapter 41

Monitoring Redundant SCGs

You monitor and maintain redundant SONET Clock Generators (SCGs) installed in the T320 router and the T640 routing node to ensure that there is no interruption of function. SCGs provide a clock signal for SONET/SDH, and select a clock signal from any Flexible PIC Concentrator (FPC), or from the external clock inputs.

Table 117 lists the tasks you perform to monitor redundant SCGs.

Table 117: Checklist for Monitoring the Redundant SCG

Monitor SCG Tasks	Command or Action
Understanding Redundant SCGs on page 552	
Displaying Redundant SCG Hardware Information on page 553	show chassis hardware
Monitoring Redundant SCG Status on page 553	
1. Monitor the Redundant SCG Environmental Status on page 553	show chassis environment show chassis environment scg
2. Display the Redundant SCG LED States at the Command Line on page 555	show chassis craft-interface
3. View the Redundant SCG LEDs on page 555	Remove the rear component cover and look on the SCG faceplate at the back of the T320 router or T640 routing node chassis.
Displaying Redundant SCG Mastership on page 555	
1. Display the SCG Master and Standby from the Craft Interface Output on page 556	show chassis craft-interface
2. View the SCG LEDs on page 556	Remove the rear component cover and look on the SCG faceplate at the rear of the T320 router or T640 routing node chassis.
Performing a Swap Test on a Redundant SCG on page 556	
	1. Take the SCG offline. request chassis scg offline slot number
	2. Replace the SCG with one that you know works.
	3. Bring the SCG online. request chassis scg offline slot number
	4. Verify the SCG status. request chassis scg offline slot number
Returning the SCG on page 557	See "Return the Failed Component" on page 86, or follow the procedure in the M40e or M160 router hardware guide.

Understanding Redundant SCGs

Purpose Inspect redundant SCGs to ensure that they provide a clock signal for the SONET/SDH interfaces on the router and that they select a clock signal from any FPC, or from the external clock inputs.

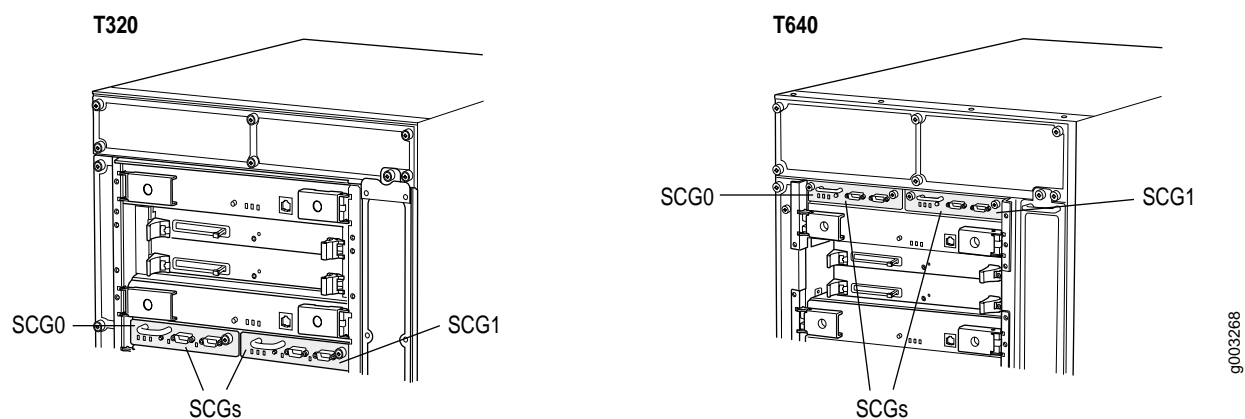
What Are Redundant SCGs Two SCGs are installed in the T320 router and the T640 routing node. The SCGs install into the upper rear of the chassis in the slots labeled SCG0 and SCG1.

If both SCGs are installed and functioning normally, SCG0 is master and SCG1 is backup. Removing the backup SCG does not affect the functioning of the routing node. Taking the master SCG offline can result in a brief loss of SONET clock lock while the backup SCG becomes master.

The SCGs are hot-pluggable.

Figure 226 shows the location of the SCGs on the T320 router and the T640 routing node.

Figure 226: T320 Router and T640 Routing Node Redundant SCG Location



See Also Monitoring the Host Subsystem on page 289

Monitoring Redundant SCGs on page 551

Displaying Redundant SCG Hardware Information

Action To display the redundant SCG 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                abcdef      T320
Midplane    REV 01  710-004339  AY4529
FPM GBUS    REV 02  710-004461  AY4511
FPM Display REV 02  710-002897  HF6094
CIP         REV 05  710-002895  HC0468
PEM 1       Rev 01  740-004359  2708013      Power Entry Module
SCG 0       REV 06  710-004455  AY4526
SCG 1       REV 06  710-004455  AY4523
```

What It Means The command output displays the SCG slot number, revision level, part number, and serial number.

Monitoring Redundant SCG Status

Steps To Take To monitor the redundant SCG status, follow these steps:

1. Monitor the Redundant SCG Environmental Status on page 553
2. Display the Redundant SCG LED States at the Command Line on page 555
3. View the Redundant SCG LEDs on page 555

Step 1: Monitor the Redundant SCG Environmental Status

Action To check the redundant SCG environment status, use the following CLI command:

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

Sample Output

```
t320@host> show chassis environment
Class Item      Status  Measurement
Power PEM 0     Absent
PEM 1           OK
Temp SCG 0      OK      30 degrees C / 86 degrees F
SCG 1           OK      29 degrees C / 84 degrees F
[...Output truncated...]
```

What It Means The command output displays the status and temperature for each SCG.

Alternative Action If there is a problem with the SCG status, you can display more detailed SCG environmental information with the following CLI command:

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

The command output is as follows:

```
t320@host> show chassis environment scg
SCG 0 status:
State           Online - Master clock
Temperature      30 degrees C / 86 degrees F
Power:
GROUND          0 mV
3.3 V           3317 mV
5.0 V           5072 mV
5.6 V           5697 mV
1.8 V bias      1794 mV
3.3 V bias      3304 mV
5.0 V bias      4991 mV
8.0 V bias      7318 mV
BUS Revision     40
SCG 1 status:
State           Online - Standby
Temperature      29 degrees C / 84 degrees F
Power:
GROUND          0 mV
3.3 V           3318 mV
5.0 V           5084 mV
5.6 V           5704 mV
1.8 V bias      1782 mV
3.3 V bias      3286 mV
5.0 V bias      5003 mV
8.0 V bias      7323 mV
BUS Revision     40
```

The command output displays the status for each SCG slot 0 and 1. The operating status can be Present, Online, Offline, or Empty. If Online, it can be the clock source (Master clock) or backup (Standby). As shown in the output, the redundant SCG is SCG1, with a status of Standby. The command output displays the temperature of the air flowing past the SCG. The command output also displays information about the SCG power supplies and the SCG circuitry revision level.

Step 2: Display the Redundant SCG LED States at the Command Line

Action To display the redundant SCG LED states, use the following CLI command:

```
user@host> show chassis craft-interface
```

Sample Output t320@host> show chassis craft-interface

```
[...Output truncated...]
```

```
SCG LEDs:
```

```
SCG 0 1
```

```
-----
```

```
Amber . .
```

```
Green * *
```

```
Blue * .
```

```
[...Output truncated...]
```

What It Means The command output displays the SCG LED status. The router has two SCGs installed. Asterisks (*) indicate the operation status. The color represents the possible SCG operating states: Amber (Fail), Green (OK), and Blue (Master). Both SCGs are functioning properly (Green). The SCG in slot 0 is operating as master; the SCG in slot 1 is the backup.

Step 3: View the Redundant SCG LEDs

Action To view the redundant SCG LEDs, remove the rear component cover and look on the SCG faceplate at the rear of the router chassis. Table 118 describes the functions of these LEDs.

Table 118: SCG LEDs

Label	Color	State	Description
OK	Green	On steadily	SCG is online and is functioning normally.
FAIL	Amber	On steadily	SCG has failed.
MASTER	Blue	On steadily	SCG is functioning as master.

Displaying Redundant SCG Mastership

If both SCGs are installed and functioning normally, SCG0 is master and SCG1 is backup. Removing the backup SCG does not affect the functioning of the routing node. Taking the master SCG offline might result in a brief loss of SONET clock lock while the backup SCG becomes master.

Steps To Take To determine which SCG is operating as the master and which is operating as the standby, follow these steps:

1. Display the SCG Master and Standby from the Craft Interface Output on page 556
2. View the SCG LEDs on page 556

Step 1: Display the SCG Master and Standby from the Craft Interface Output

Action To determine the SCG master and SCG standby from the craft interface status information, use the following CLI command:

```
user@host> show chassis craft-interface
```

Sample Output

```
user@host> show chassis craft-interface
[...Output truncated...]
SCG LEDs:
  SCG 0 1
  -----
  Amber . .
  Green * *
  Blue  * .
[...Output truncated...]
```

What It Means The command output displays which SCG is operating as master. Asterisks (*) indicate the operation status. The color represents the possible SCG operating states: Amber (Fail), Green (OK), and Blue (Master). The SCG in slot 0 is operating as master; the SCG in slot 1 is the backup.

Step 2: View the SCG LEDs

Action Check the blue MASTER LED on the SCG faceplate. If this LED is on steadily, the SCG is functioning as master. Table 118 on page 555 describes the functions of the SCG LEDs.

Performing a Swap Test on a Redundant SCG



CAUTION: Before performing a swap test, always check for bent pins in the midplane and check the SCG for stuck pins in the connector. Pins stuck in the component connector can damage other good slots during a swap test.

Action To perform a swap test on a redundant SCG, follow these steps:

1. Take the SCG offline by doing one of the following:

Use the following CLI command:

```
user@host> request chassis scg offline slot number
```

Attach an electrostatic discharge (ESD) wrist strap to your bare wrist, and connect the wrist strap to one of the ESD points on the chassis. Press the online/offline button on the SCG faceplate and hold it down until the LED goes out (about 5 seconds).

2. Loosen the captive screws on the edges of the SCG faceplate.
3. Grasp the SCG by the handle on the faceplate and slide it out of the chassis.
4. Place the SCG on the antistatic mat.

5. Remove the replacement SCG from its electrostatic bag.
6. Carefully align the sides of the SCG with the guides in the SCG slot.
7. Grasp the SCG by its handle and slide it straight into the chassis until it contacts the midplane.
8. Tighten the captive screws on the corners of the SCG faceplate.
9. Bring the SCG online by doing one of the following:

Use the following CLI command:

```
user@host> request chassis scg online slot number
```

Press the online/offline button until the green ONLINE LED lights.

10. Verify that the SCG is online by using the following CLI command:

```
user@host> request chassis scg online slot number
```

If the replaced SCG is online, the removed SCG has failed. Return the SCG as described in “Return the Failed Component” on page 86.

Returning the SCG

Action To return an SCG, locate the serial number on the top of the SCG, close to the midplane connector. See “Return the Failed Component” on page 86, or the procedure to return a field-replaceable unit in the T320 router or T640 routing node hardware guide.

