



Job Aid: Replacing the Field Replaceable Units (FRUs) for the Avaya G450 Media Gateway



Important:

Always check the Avaya Support Website for Product Support Notices at <http://support.avaya.com> and select **Communication Manager > Product Support Notices**.

This Job Aid describes the steps required to complete the following replacement procedures for Avaya G450 Media Gateway replaceable parts:

- [Ordering equipment](#)
- [Replacing or inserting an MP20 or MP80 VoIP module](#)
- [Replacing the fan tray](#)
- [Replacing a power supply unit](#)
- [Installing the upgrade memory kit](#)

Note:

There are two hardware versions of the G450, referred to as *G450 1.x* and *G450 2.x*. *G450 1.x* is the G450 version with hardware suffix 1, and the *G450 2.x* is the G450 version with hardware suffix 2. The hardware suffix of the G450 is printed on the label displayed on the rear of the G450 chassis.

In cases where the instructions differ depending on the G450 version, instructions are given for both versions.

Ordering equipment

When ordering any of the field replaceable units, quote the following comcode:

Table 1: Avaya G450 Media Gateway comcodes for customer and services ordering

| Product | Comcode |
|--|-----------|
| 80 channels DSP daughterboard (MP80 VoIP module) | 700432503 |
| 20 channels DSP daughterboard (MP20 VoIP module) | 700432511 |
| G450 fan tray | 700438278 |

Table 1: Avaya G450 Media Gateway comcodes for customer and services ordering

| Product | Comcode |
|--------------------------------|-----------|
| G450 power supply unit 400W AC | 700432529 |
| Upgrade memory kit | 700457013 |

Replacing or inserting an MP20 or MP80 VoIP module

The G450 has four slots for media resources modules. Each slot can accommodate either an MP20 or an MP80 DSP daughterboard, each providing 20 or 80 VoIP channels, respectively. The basic configuration includes one MP20 or MP80 daughterboard in one of the four slots. You can replace an MP20 or MP80 daughterboard or insert one into an empty slot.

The slots are located on the G450 main board. You must pull out the main board to remove or insert a media resources module. The G450 supports hot insertion and removal of the main board without power drop. However, all services are suspended while the G450 main board is out, and all calls are disconnected. Any translation and other data that is in the running configuration but has not been saved to the startup configuration is lost.

This procedure requires the following steps:

1. [Removing the main board](#)
2. [Removing an MP20 or MP80 module](#) — Skip this step if you are inserting a daughterboard into an empty slot.
3. [Inserting an MP20 or MP80 module](#)
4. [Reinserting the main board](#)

Removing the main board



ELECTROSTATIC ALERT:

Hold the module only by the edges to avoid damage from static electricity. Do not touch the top or bottom of the circuit board. If possible, wear a wrist-strap and use an anti-static bag.



CAUTION:

The connector pins can be bent or damaged if the module is handled roughly, or if misaligned and then forced into position.

To remove the main board:

1. Unscrew the two captive screws, one at each side of the main board front panel (see [Figure 1](#)).
2. Open the latches on both sides of the main board.
3. Grasp the latches and pull out the main board from its slot.
4. Place the main board carefully on a table.

Figure 1: Removing and inserting the main board



Removing an MP20 or MP80 module



ELECTROSTATIC ALERT:

Hold modules only by the edges to avoid damage from static electricity. Do not touch the top or bottom of the circuit board. If possible, wear a wrist-strap and use an anti-static bag.



CAUTION:

The connector pins can be bent or damaged if the module is handled roughly, or if misaligned and then forced into position.

To remove an MP20 or MP80 module:

1. Locate the MP20 or MP80 module slot. The location differs depending on the hardware version of the G450 (see [Figure 2](#) and [Figure 3](#)).

Figure 2: Location of MP20 and MP80 module slots in a G450 1.x

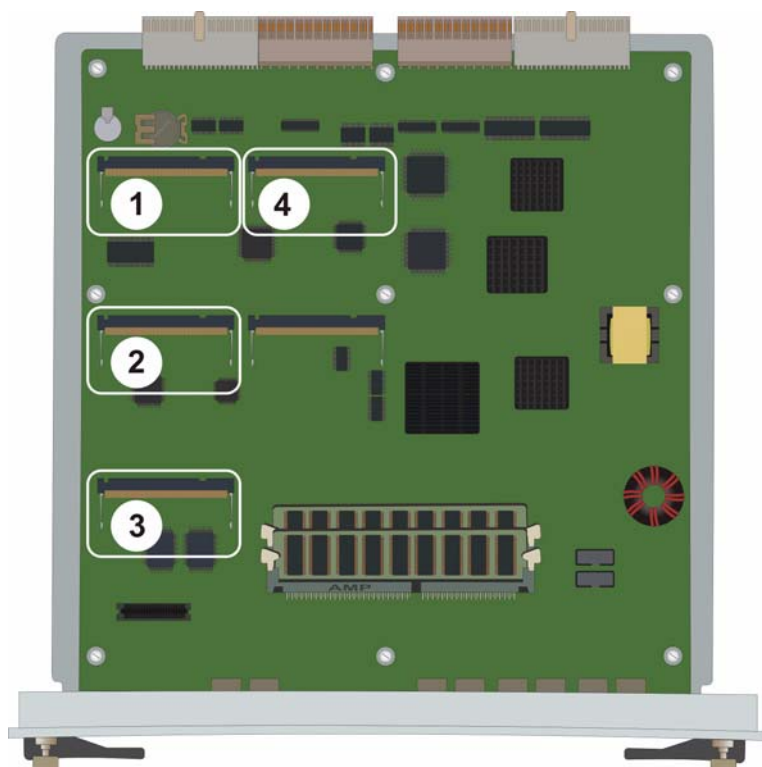


Figure notes:

- | | |
|-----------------------------|-----------------------------|
| 1. MP20 or MP80 module slot | 3. MP20 or MP80 module slot |
| 2. MP20 or MP80 module slot | 4. MP20 or MP80 module slot |
-

Figure 3: Location of MP20 and MP80 module slots in a G450 2.x

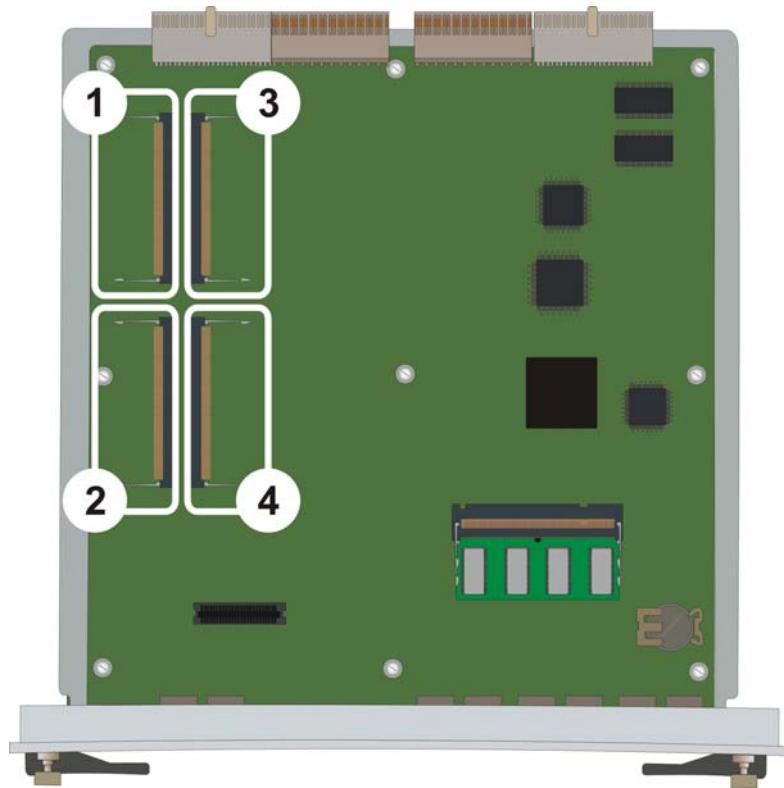


Figure notes:

- | | |
|-----------------------------|-----------------------------|
| 1. MP20 or MP80 module slot | 3. MP20 or MP80 module slot |
| 2. MP20 or MP80 module slot | 4. MP20 or MP80 module slot |

2. Open the latches on both sides of the module slot. The module lifts up.
3. Pull out the module. Touch the module only at the edges.

Inserting an MP20 or MP80 module



ELECTROSTATIC ALERT:

Hold modules only by the edges to avoid damage from static electricity. Do not touch the top or bottom of the circuit board. If possible, wear a wrist-strap and use an anti-static bag.



CAUTION:

The connector pins can be bent or damaged if the module is handled roughly, or if misaligned and then forced into position.

To insert an MP20 or MP80 module:

1. Position the MP20 or MP80 module at a 45 degree angle to the main board, and start inserting it into an MP20 or MP80 slot (see [Figure 4](#) and [Figure 5](#)).

Figure 4: Inserting an MP20 or MP80 module in a G450 1.x

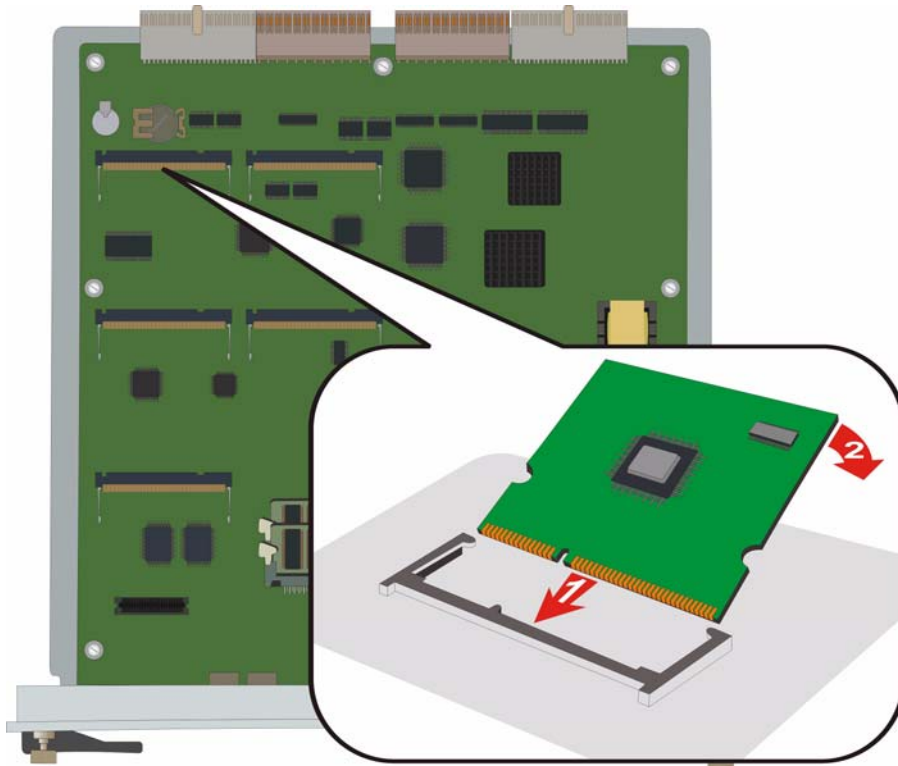
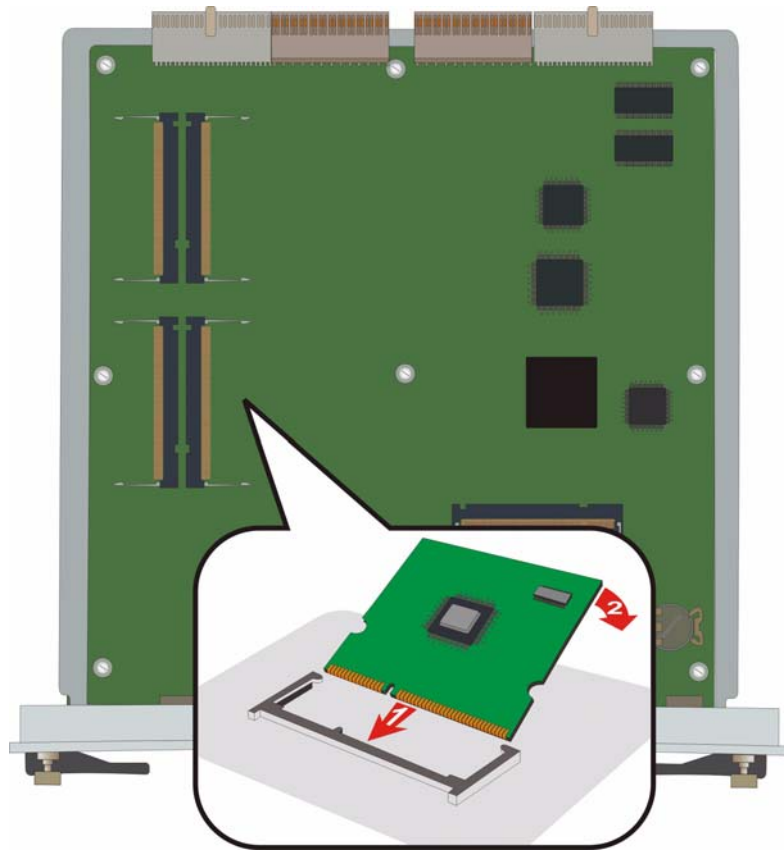


Figure 5: Inserting an MP20 or MP80 module in a G450 2.x



-
2. Push the module in all the way. Do not use too much force.
 3. Flatten the module so it is flush with the main board. The latches at both sides click shut.

Reinserting the main board

To insert the main board:

1. Open the latches on both sides of the slot.
2. Insert the main board vertically into the slot.
3. Push the main board in until the latches begin to close.
4. Close the latches.
5. Close and tighten the two captive screws on the front panel.

6. Use the **show platform mainboard** CLI command to check the main board and VoIP modules status. For example, when the main board is successfully installed, the output includes:

```
MAINBOARD BOARD:
-----
Type           : G450 mainboard
Description    : G450 field replaceable mainboard
Serial Number  : 0725IS123456
HW Vintage    : 0
HW Suffix     : A
FW Version    : 1
Faults        : No Fault Messages
```

When a VoIP module is successfully installed in a given VoIP module slot, the output for the slot includes:

```
MEDIA SOCKET #1:
Type           : MP80 VoIP DSP Module
Description    : VoIP DSP resource with 80 channels
Serial Number  : 0715IS812717
HW Vintage    : 0
HW Suffix     : A
Faults        : No Fault Messages
```

When no VoIP module is installed in a given VoIP module slot, the output for the slot includes:

```
MEDIA SOCKET #1:
Type           : UNKNOWN
Description    : UNKNOWN
Serial Number  : UNKNOWN
HW Vintage    : UNKNOWN
HW Suffix     : UNKNOWN
Faults        : NOT PRESENT
```

Replacing the fan tray

The fan system is field replaceable. It is mounted on a fan tray that can be replaced as one unit.

The G450 supports hot swap of the fan tray. There is no need to power down or reset the G450 when replacing a faulty fan tray unit.

Prepare the new fan tray for insertion before removing the current the fan tray: take the new fan tray out of its package and place it nearby.

**Important:**

Replace the fan tray within one minute, to avoid overheating the G450. If the G450 exceeds its allowed heat level, it shuts down.

Figure 6: Replacing the fan tray


To remove the fan tray:

1. Move away any cables that may obstruct the removal of the tray.
2. Unscrew the two captive screws on the front panel of the fan tray.
3. Grasp the screws and pull the fan tray out of its slot.

To insert the fan tray:

1. Insert the fan tray all the way into the slot.
2. Close and tighten the two captive screws on the front panel.

The fans start operating immediately.

3. Wait one minute and then use the **show platform fans** CLI command to check the status of the fans. For example:

```
G450-001(super)# show platform fans
FAN TRAY UNIT #1:
-----
Type           : G450 FAN TRAY
Description    : G450 FAN TRAY UNIT
Serial Number  : 0728IS123123
HW Vintage     : 1
HW Suffix      : A
Faults         : No Fault Messages
```

Replacing a power supply unit

The G450 provides full redundant, load sharing power supply units (1 + 1). A single power supply unit (PSU) provides sufficient power for any G450 configuration. If you choose to install two PSUs, they operate in a load sharing mode.

The G450 supports hot swap of the PSU. Even if you have only one PSU installed, there is no need to power down or reset the G450 when replacing a faulty PSU. You can install the replacement PSU in the second PWR slot, and it will become the active PSU once you remove the faulty PSU.

Figure 7: Replacing a power supply unit



To remove a PSU:

1. Disconnect the G450 power cable from the mains socket.
2. Disconnect the G450 power cable from the power connector, located on the front panel of the PSU, at the rear of the G450.
3. Loosen the two captive screws, one on each side of the PSU.
4. Grasp the two side handles and pull the PSU out of its slot.

To insert a PSU:

1. Position the PSU before the opening and engage both sides of the unit in the interior guides.
2. Slide the PSU slowly into the chassis, maintaining an even pressure to assure that the unit does not become twisted or disengaged from the guides.
3. Close and tighten the two captive screws on the front panel.
4. Connect the power cable to the power connector on the PSU.
5. Plug the power cable into a mains socket. When the PSU is powered, the green LED on the PSU panel lights.

6. After powering up, use the **show platform power** CLI command to check the status of the PSUs. The upper PSU is referred to as PSU #1, and the lower PSU is PSU #2. For example:

```
G450-001(super)# show platform power
POWER SUPPLY UNIT #1:
-----
Type           : G450 PSU
Description    : G450 FR Power Supply 400W
Serial Number  : 0735IS123321
HW Vintage    : 0
HW Suffix     : A
Faults        : No Fault Messages

POWER SUPPLY UNIT #2:
-----
Type           : G450 PSU
Description    : G450 FR Power Supply 400W
Serial Number  : 0735IS654321
HW Vintage    : 0
HW Suffix     : A
Faults        : No Fault Messages
```

Installing the upgrade memory kit

The upgrade memory kit enables increasing the number of announcement files on the G450 from 256 to 1024, by storing them on a removable compact flash. This also increases the total amount of announcement time from 45 minutes to four hours. However, since the announcements are played from RAM, you must also increase RAM. The upgrade memory kit therefore consists of:

- A 1 GB compact flash memory card
- Two RAM cards. One is intended for use in a G450 1.x, and the other is intended for use in a G450 2.x.

This section describes the steps required to install or remove the upgrade memory kit components in the Avaya G450:

- [Inserting or replacing a RAM card](#)
- [Inserting or removing a compact flash memory card](#)

Inserting or replacing a RAM card

The G450 has two RAM slots. The basic G450 configuration includes one RAM card.

The slots are located on the G450 main board. You must pull out the main board to remove or insert a memory card. The G450 supports hot insertion and removal of the main board without power drop. However, all services are suspended while the G450 main board is out, and all calls passing through the gateway are disconnected. Any translation and other data that is in the running configuration but has not been saved to the startup configuration is lost.

To increase RAM memory in the gateway:

- **In the G450 1.x, insert the 256 MB RAM card provided in the kit into the second RAM slot.**
- **In the G450 2.x, remove the RAM card from the main board and replace it with the 512 MB RAM card provided in the kit.**

These procedures include the following steps:

1. [Removing the main board](#)
2. Upgrading RAM memory:
 - In the G450 1.x: [Inserting a G450 1.x RAM card](#)
 - In the G450 2.x: [Replacing the G450 2.x RAM card](#)
3. [Reinserting the main board](#)

Inserting a G450 1.x RAM card

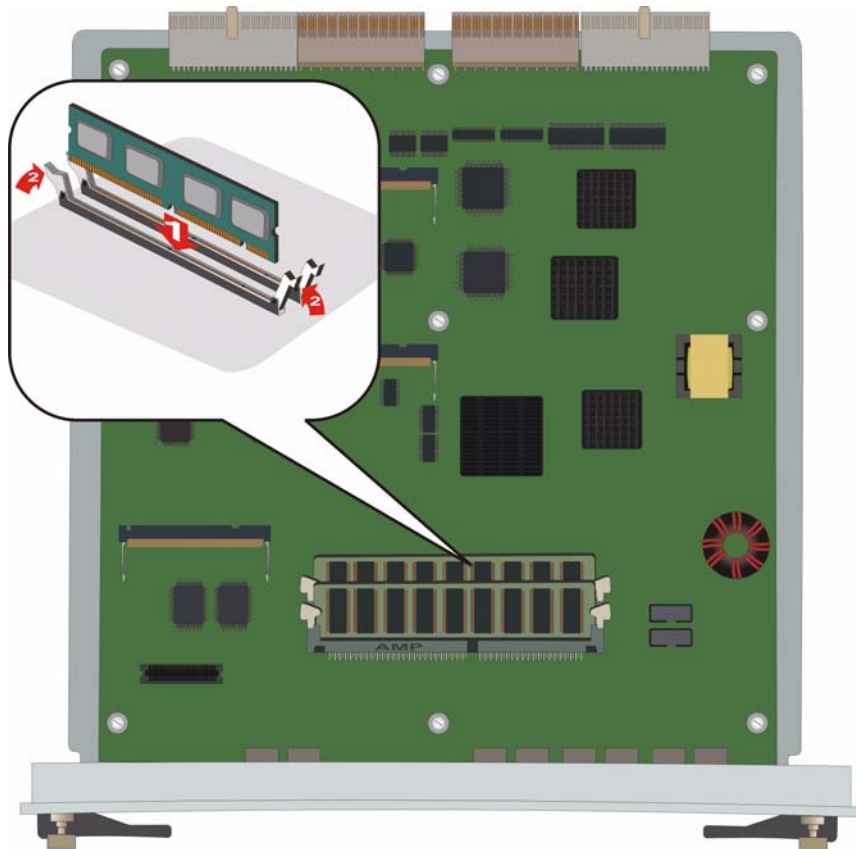


ELECTROSTATIC ALERT:

Hold the module only by its edges to avoid damage from static electricity. Do not touch the top or bottom of the circuit board. If possible, wear a wrist-strap and use an anti-static bag.

1. Locate the empty RAM slot (see [Figure 8](#)).
2. Make sure the white latches at either side of the empty RAM slot are open outwards.
3. Push the 256 MB RAM card provided in the kit down until the two latches on either side of the card lock into place.

Figure 8: Inserting a RAM card in a G450 1.x



Note:

To remove a RAM card, open the latches on both sides of the RAM slot housing the RAM card. The RAM card lifts up. Pull out the RAM card.

Replacing the G450 2.x RAM card



ELECTROSTATIC ALERT:

Hold the module only by its edges to avoid damage from static electricity. Do not touch the top or bottom of the circuit board. If possible, wear a wrist-strap and use an anti-static bag.

1. Locate the RAM slot holding the RAM card (see [Figure 9](#)).
2. Open the latches on both sides of the RAM slot. The RAM card lifts up.
3. Pull out the 256 RAM card.

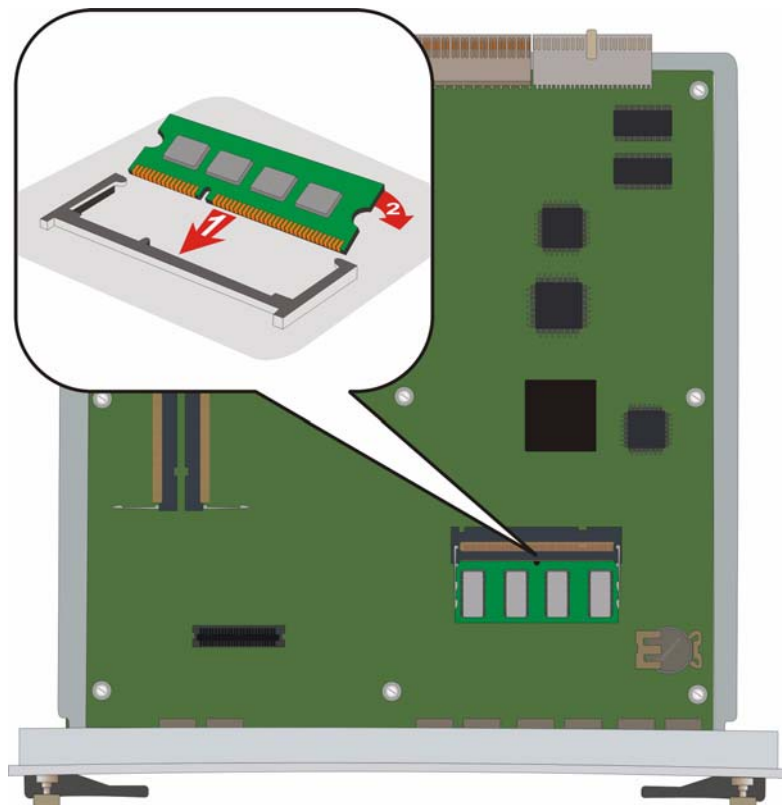


Important:

Make sure to remove the 256 RAM card. Failure to do so may result in continuous resets.

4. Push the 512 RAM card provided in the kit down into the slot until the two latches on either side of the card lock into place.

Figure 9: Inserting a RAM card in a G450 2.x



Inserting or removing a compact flash memory card

The G450 supports hot insertion and removal of a compact flash memory card without power drop, provided the compact flash is not in use when you remove it.

Inserting a compact flash memory card

1. Remove the blank plate covering the compact flash memory card slot, located in the center of the main board front panel.
2. Position the compact flash memory card so that the vendor name is facing up and the connector is pointing toward the G450, and gently insert it into the compact flash slot.
3. After installing the compact flash memory card and the additional 256 MB RAM card, the announcement files are not automatically moved from the internal flash to the compact flash. To move them:
 - a. Make sure the gateway is registered to CM.
 - b. At the CM, set **enable CF** to **y** in the **change media-gateway** screen
 - c. In the SAT interface of the CM, enter **enable announcement-board**.

The announcement files are copied from internal flash to the compact flash, and the yellow CARD IN USE LED associated with the compact flash lights up.

4. Use the **show platform mainboard** G450 CLI command to check the compact flash status. Sample output includes:

```
COMPACT FLASH MEMORY
-----
Type           : 2.0 GB
Serial Number  : STI1M28407353000355
Model Number   : STI Flash 8.0.0
Faults        : OK
```

Removing a compact flash memory card

After installing a compact flash memory card, you may decide to remove it for one of several reasons. The following sections provide instructions for safe removal of a compact flash memory card in each possible scenario.

- [Replacing a compact flash memory card with a different compact flash memory card](#) holding a different set of announcements
- [Replacing a compact flash memory card while retaining the current announcements](#). You may wish to do this because the current compact flash memory card failed, or you want to have two copies of the announcement files, or you want to use a faster compact flash card.
- [Downgrading from a compact flash to internal flash memory](#)

Replacing a compact flash memory card with a different compact flash memory card

1. At the SAT interface of the CM, enter **disable announcement-board**.



Important:

If you do not enter the SAT command **disable announcement-board**, then, when you insert the new compact flash, its contents will be overwritten by the contents of the old compact flash.

2. Make sure the yellow CARD IN USE LED associated with the compact flash is not flashing.



WARNING:

If a compact flash is removed while it is in use, the announcement files on the compact flash may become corrupted and the G450 may reset, causing all announcement files in RAM to be lost.

3. Remove the compact flash memory card.
4. Insert the new compact flash memory card into the compact flash slot.
5. At the SAT interface of the CM, enter **enable announcement-board**.

Replacing a compact flash memory card while retaining the current announcements

1. Make sure the yellow CARD IN USE LED associated with the compact flash is not flashing.



WARNING:

If a compact flash is removed while it is in use, the announcement files on the compact flash may become corrupted and the G450 may reset, causing all announcement files in RAM to be lost.

2. Remove the compact flash memory card.
3. Insert the new compact flash memory card into the compact flash slot.

The announcement files of the old compact flash are written to the new compact flash.

Downgrading from a compact flash to internal flash memory

You can downgrade from using up to 1024 announcements on a compact flash to using up to 256 announcements on the internal flash.



WARNING:

The internal flash can only store up to 256 announcement files, totaling no more than 45 minutes.

1. Backup the announcements from the compact flash to a USB device by entering the G450 command **backup config usb usb-device backup-name announcements-compact-flash**.

Note:

If you have only a few announcement files, you can use the G450 command **copy announcement-file usb** to copy them one by one.

2. At the SAT interface of the CM, enter **disable announcement-board**, and then set **enable CF** to **n** in the **change media-gateway** screen.
3. Remove the compact flash memory card.
4. Optionally remove the second RAM card.
5. At the SAT interface of the CM, enter **enable announcement-board**.
6. Make sure there are no more than 256 announcement files in the backup. If the number of announcement files exceeds 256, manually delete as many as necessary in the backup directory.
7. Restore the announcements from the USB device to internal flash by entering the G450 command **restore usb usb-device backup-name announcements-internal-flash**.

Note:

If you copied the announcement files one by one, you can restore them one by one using the G450 command **copy ftp announcement-file**.

8. Screw on the blank plate to cover the compact flash slot.

