



Installing and Removing a MIP

This chapter describes how to install and remove a MIP on the Cisco ASR 1000 Series Aggregation Services Routers. This chapter contains the following sections:

- [Handling the MIP, page 3-1](#)
- [Online Insertion and Removal, page 3-2](#)
- [MIP Installation and Removal, page 3-5](#)

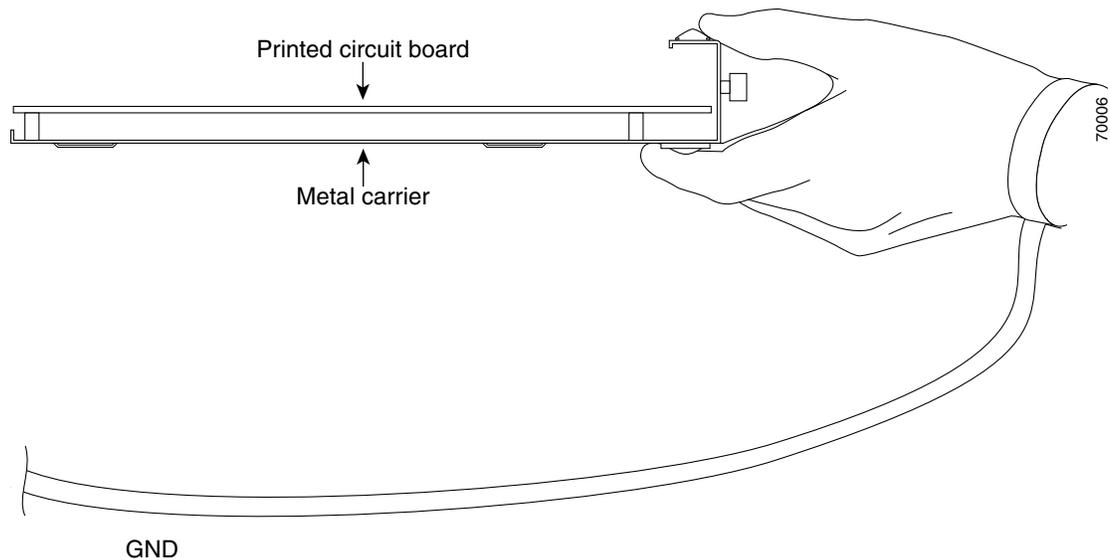
Handling the MIP

Each MIP circuit board is mounted on a metal carrier and is sensitive to electrostatic discharge (ESD) damage. Before you begin installation, read [Chapter 2, “Preparing to Install a MIP or EPA”](#) for a list of parts and tools required for installation.



Caution

Always handle the MIP by the carrier edges and handles; never touch the line card components or connector pins.

Figure 3-1 Handling a MIP

When a slot is not in use, a blank filler plate must be installed in the empty slot to allow the router or switch to conform to electromagnetic interference (EMI) emission requirements and to allow proper airflow across the installed modules. If you plan to install the MIP in a slot that is not in use, you must first remove the blank filler plate.

Online Insertion and Removal

The Cisco ASR 1000 Series Aggregation Services Routers support online insertion and removal (OIR) of the MIP, the EPAs, and the SFP+ and CPAK modules. Therefore, you can remove the MIP with its SFP+ or CPAK modules still intact, or you can remove SFP+ or CPAK modules independently from the MIP, leaving the line card installed in the router.

This section includes the following topics on OIR support:

- [Preparing for Online Removal of the MIP, page 3-2](#)
- [Deactivating a MIP, page 3-3](#)
- [Reactivating a MIP, page 3-3](#)
- [Verifying the Deactivation and Activation of the MIP, page 3-3](#)

Preparing for Online Removal of the MIP

The Cisco ASR 1000 series router support OIR of the MIP. If you plan to remove a MIP, deactivate the line card first using the **hw-module slot slotnumber shutdown** global configuration command.

When you deactivate the MIP using this command, it automatically deactivates each of the SFP+ or CPAK modules that are installed in the MIP. Therefore, it is not necessary to deactivate each of the SFP+ or CPAK modules prior to deactivating the MIP.

Although graceful deactivation of the MIP is preferred using the **hw-module slot slotnumber shutdown** command, the Cisco ASR 1000 series router do support the removal of the MIP without deactivating it first.

Deactivating a MIP

To deactivate a MIP and its installed SFP+ or CPAK modules prior to the removal of the MIP, use the following command in the global configuration mode:

Command	Purpose
Router(config)# hw-module slot slotnumber shutdown	Shuts down the installed interfaces and deactivates the MIP in the specified slot, where: <i>slotnumber</i> —Specifies the chassis slot number in which the MIP is installed.

Reactivating a MIP

After you deactivate the MIP, whether or not you have performed an OIR, you must use the **no hw-module slot slotnumber shutdown** global configuration command to reactivate the MIP.

The installed SFP+ or CPAK modules automatically get reactivated upon reactivation of the MIP in the router. For example, consider a scenario where you remove a MIP from the router to replace it with another MIP. You reinsert the same EPAs and SFP+ or CPAK modules into the new MIP. When you enter the **no hw-module slot slotnumber shutdown** command on the router, the SFP+ or CPAK modules will automatically get reactivated with the new MIP.

To reactivate a MIP and its installed SFP+ or CPAK modules after the MIP has been deactivated, use the following command in the global configuration mode:

Command	Purpose
Router(config)# no hw-module slot slotnumber shutdown	Reactivates the line card in the specified slot and its installed SFP+ or CPAK modules. Here: <i>slotnumber</i> —Specifies the slot number of the chassis on which the MIP is installed. Note This command is used only if this card was previously shut down using the hw-module slot slotnumber shutdown global configuration command. A newly inserted line card does not require this command to activate the card.

Verifying the Deactivation and Activation of the MIP

To verify the deactivation of the MIP, enter the **show platform** command in the privileged EXEC configuration mode. Observe the State field associated with the MIP that you want to verify.

The following example shows the MIP located in slot 1. In this scenario, slot 1 is powered down. This is indicated by its disabled status.

```
Router(config)# hw-module slot 1 shutdown

Router# show platform
Chassis type: ASR1009-X

Slot      Type                State                Insert time (ago)
-----
0         ASR1000-MIP100     ok                   03:04:17
1         ASR1000-MIP100     disabled             03:04:17
...
<output truncated>
...

Router# show platform diag

Chassis type: ASR1009-X
Slot: 1, ASR1000-MIP100
  Running state           : disabled
  Internal state          : offline
  Internal operational state : disabled
  Physical insert detect time : 00:00:52 (03:05:30 ago)
  Software declared up time  : 00:35:26 (02:30:56 ago)
  CPLD version            : 15072100
  Firmware version        : 15.5(3r)S1
```

To verify the activation and proper operation of a MIP, enter the **no hw-module slot 1 shutdown** command. After this, enter the **show platform** command and observe slot 1 in the ok state. Finally, enter the **show platform diag** command and observe ok in the Running state field, as shown in the following example:

```
Router(config)# no hw-module slot 1 shutdown

Router# show platform
Chassis type: ASR1009-X

Slot      Type                State                Insert time (ago)
-----
0         ASR1000-MIP100     ok                   03:04:17
1         ASR1000-MIP100     ok                   03:04:17
...
<output truncated>
...

Router# show platform diag

Chassis type: ASR1009-X
Slot: 1, ASR1000-MIP100
  Running state           : ok
  Internal state          : online
  Internal operational state : ok
  Physical insert detect time : 00:00:52 (03:05:30 ago)
  Software declared up time  : 00:35:26 (02:30:56 ago)
  CPLD version            : 15072100
  Firmware version        : 15.5(3r)S1
```

MIP Installation and Removal

This section provides step-by-step instructions for installing and removing a MIP.

**Caution**

When performing the following procedures, wear a grounding wrist strap to avoid ESD damage to the MIP. Some platforms have an ESD connector for attaching the wrist strap. Do not directly touch the midplane or backplane with your hand or any metal tool.

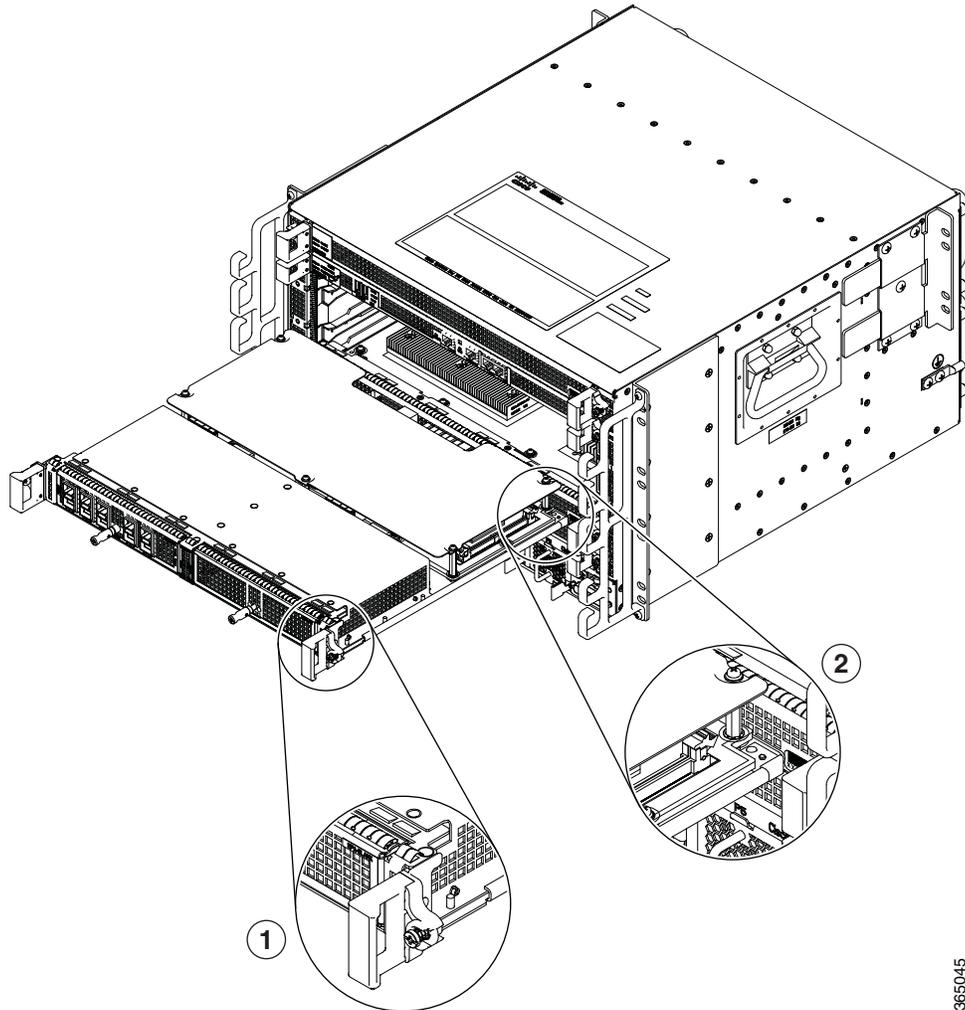
To install a MIP, refer to [Figure 3-2](#) and do the following:

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- Step 1** Before inserting a MIP, make sure that the chassis is grounded.
 - Step 2** To insert the MIP, carefully align the edges of the MIP between the guide rails in the router slot.
 - Step 3** Carefully slide the MIP into the router slot until the MIP makes contact with the backplane.
 - Step 4** Tighten the captive installation screws on both sides of the MIP.
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To remove a MIP, refer to [Figure 3-2](#) and do the following:

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- Step 1** To remove the MIP, first disconnect all cables from the SPF+ or CPAK interfaces.
 - Step 2** Loosen the captive installation screws on both sides of the MIP.
 - Step 3** Slide the MIP out of the router slot.
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Figure 3-2 MIP Installation and Removal



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1	Captive installation screw
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2	Guide rails
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