



Upgrading Chassis Components

This chapter provides instructions on how to upgrade chassis components on the Cisco CRS 16-slot enhanced line card chassis.

This chapter presents the following topics:

- [Upgrading the Inlet Grille Screen, page 1](#)
- [Installing the Exhaust Baffle, page 6](#)

Upgrading the Inlet Grille Screen

To ensure protection against debris getting through the lower grille and into the chassis bay, Cisco Systems provides a screen that you can install behind the lower grille.

This section describes how to install the inlet grille screen in the Cisco CRS Carrier Routing System 16-slot EC line card chassis.

To install the inlet grille screen kit (CRS-16-SCREEN-KIT) as an update to an existing system, you must:

- 1 Remove the lower grille from the front (PLIM) side of the chassis.
- 2 Remove the lower grille frame assembly that is currently installed.
- 3 Install the new lower grille screen and frame assembly.
- 4 Re-install the original lower grille on the front (PLIM) side of the chassis.

Required Tools and Equipment

You need the following tools and parts to perform this task:

- 8 in. long number 1 Phillips screwdriver—magnetic head preferable
- Lower grille screen and frame assembly
- Lower grille screen kit (Cisco product number: CRS-16-SCREEN-KIT)

Removing the Currently Installed Front Inlet Grille

This section describes how to remove the currently installed front lower grille from the chassis.

Prerequisites

There are no prerequisites for this task.

Steps

To remove the front inlet grille from the chassis, perform the following steps:

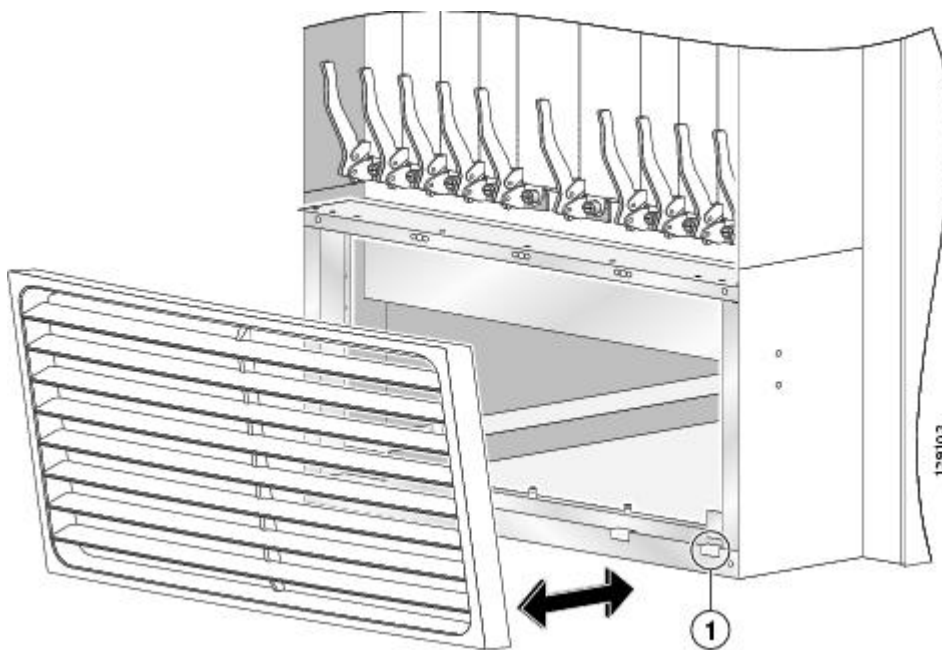
SUMMARY STEPS

1. Remove the inlet grille by unsnapping the top portion from the ball stud snaps (see below).
2. Rotate the grille toward you on its hook hanger brackets, then lift it clear of the support, and set it carefully aside for later use.

DETAILED STEPS

Step 1 Remove the inlet grille by unsnapping the top portion from the ball stud snaps (see below).

Figure 1: Removing the Front Inlet Grille



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Hook hanger brackets

Step 2 Rotate the grille toward you on its hook hanger brackets, then lift it clear of the support, and set it carefully aside for later use.

Removing the Currently Installed Inlet Grille Frame Assembly

Now that the inlet grille has been removed, you must remove the lower grille frame assembly.

Prerequisites

Before performing this task, ensure that the lower grille has been removed from the front (PLIM) side of the chassis. See the [Removing the Currently Attached Upper Rear Grille](#), on page 8 for more information.

Steps

To remove the currently installed lower grille frame assembly, perform the following steps:

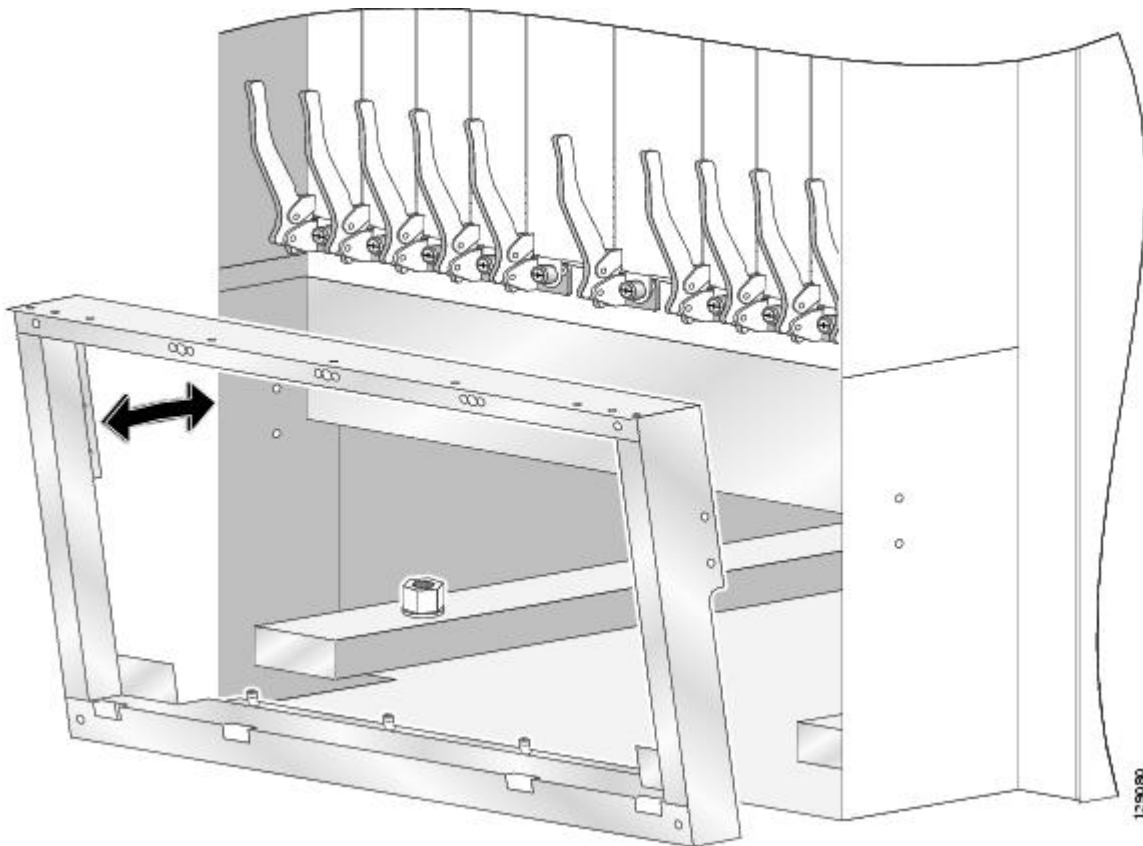
SUMMARY STEPS

1. Use the Phillips screwdriver to unscrew the four captive screws, two on each side, that attach the inlet grille frame assembly to the chassis (see below).
2. Rotate the assembly forward, lift it away from the chassis, and set it aside.

DETAILED STEPS

- Step 1** Use the Phillips screwdriver to unscrew the four captive screws, two on each side, that attach the inlet grille frame assembly to the chassis (see below).

Figure 2: Removing the Inlet Grille Frame Assembly



- Step 2** Rotate the assembly forward, lift it away from the chassis, and set it aside.

Installing the Inlet Grille Frame Assembly and Inlet Screen

This section describes how to install the new inlet grille frame assembly and the inlet grille screen.

In this task, you must first remove the lower grille screen from the frame, because the screws that attach the frame assembly to the chassis are inboard of the screen—that is, the new screen is shipped already installed into the new frame assembly, but you cannot attach the new frame to the chassis until you remove the screen first. When the new frame assembly is installed, you can reinstall the lower grille screen into the new frame.

Prerequisites

Before performing this task, ensure that the lower grille and lower grille frame assembly have been removed. See the and the [Removing the Currently Installed Inlet Grille Frame Assembly, on page 3](#) for more information.

Steps

To install the new inlet grille frame and screen, perform the following steps:

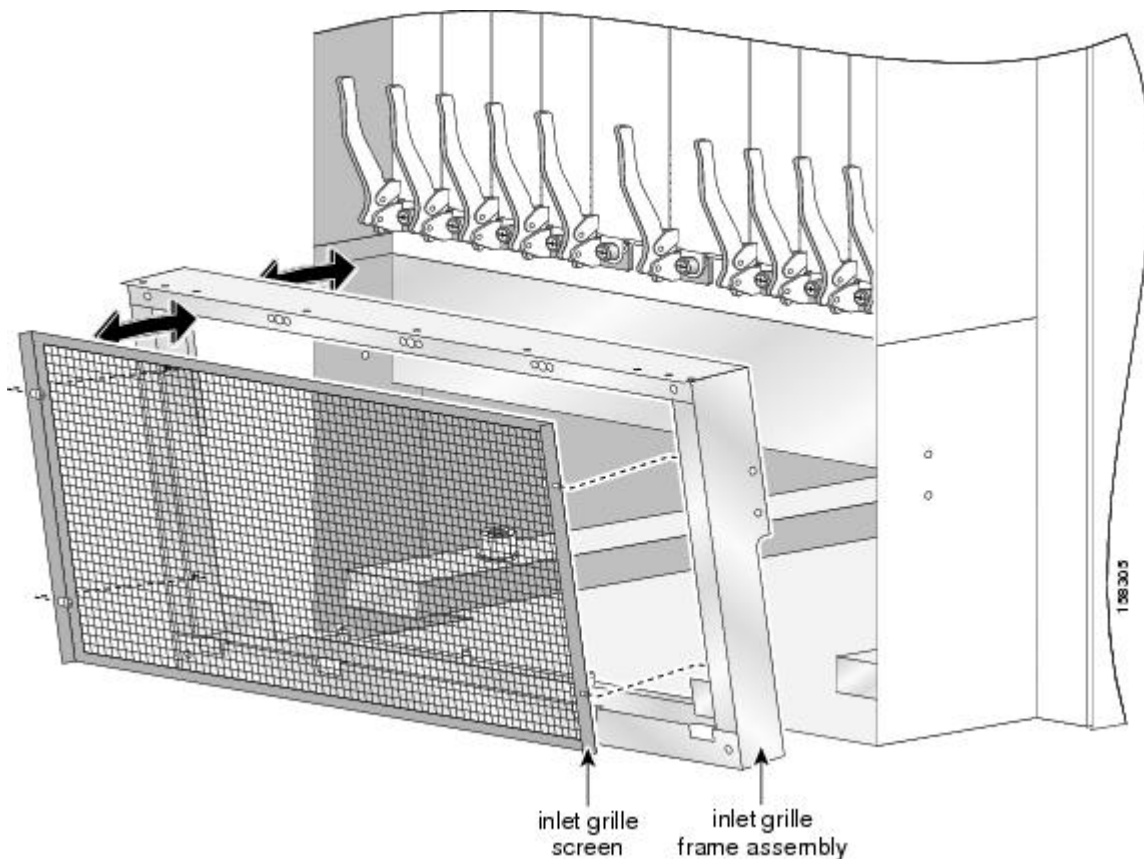
SUMMARY STEPS

1. Use the Phillips screwdriver to remove the four screws, two on each side, that secure the inlet grille screen to its frame assembly; then carefully set the screen aside.
2. Install the inlet grille fragment assembly (see Figure 8-3) by aligning the four screws, two on each side, on the frame to the screw holes on the chassis and tightening them with the screwdriver.
3. Attach the inlet grille screen (see Figure 8-3) to the frame assembly by aligning the four captive screws on the screen to the screw holes on the frame assembly and tightening the screws with the screwdriver.
4. Attach the inlet grille by carefully inserting the tabs on the grille into the hook hanger brackets on the inlet grille frame.
5. Press the grille firmly against the grille frame until it snaps onto the ball stud snaps.

DETAILED STEPS

- Step 1** Use the Phillips screwdriver to remove the four screws, two on each side, that secure the inlet grille screen to its frame assembly; then carefully set the screen aside.

Figure 3: Inlet Grille Screen and the Frame Assembly



- Step 2** Install the inlet grille fragment assembly (see Figure 8-3) by aligning the four screws, two on each side, on the frame to the screw holes on the chassis and tightening them with the screwdriver.
- Step 3** Attach the inlet grille screen (see Figure 8-3) to the frame assembly by aligning the four captive screws on the screen to the screw holes on the frame assembly and tightening the screws with the screwdriver.
- Step 4** Attach the inlet grille by carefully inserting the tabs on the grille into the hook hanger brackets on the inlet grille frame.
- Step 5** Press the grille firmly against the grille frame until it snaps onto the ball stud snaps.

Installing the Exhaust Baffle

This section describes the procedure for installing the new exhaust baffle.

Installing the exhaust baffle and the rear louver grille is necessary only if you have ordered the exhaust baffle and louver grille as an upgrade to your existing Cisco CRS Carrier Routing System 16-slot EC line card chassis. New systems ship with the exhaust baffle pre installed.

**Note**

The rear louver grille (with the internal grille) should always be used with the internal baffle installed. Using the new rear grille without the exhaust baffle causes degradation of the system thermal performance.

The new air exhaust components redirect the airflow from the back of the Cisco CRS Carrier Routing System 16-slot EC line card chassis away from eye level. This air exhaust redirection provides a more comfortable work environment if any work needs to be done in the back of the Cisco CRS Carrier Routing System 16-slot EC line card chassis while it is operational.

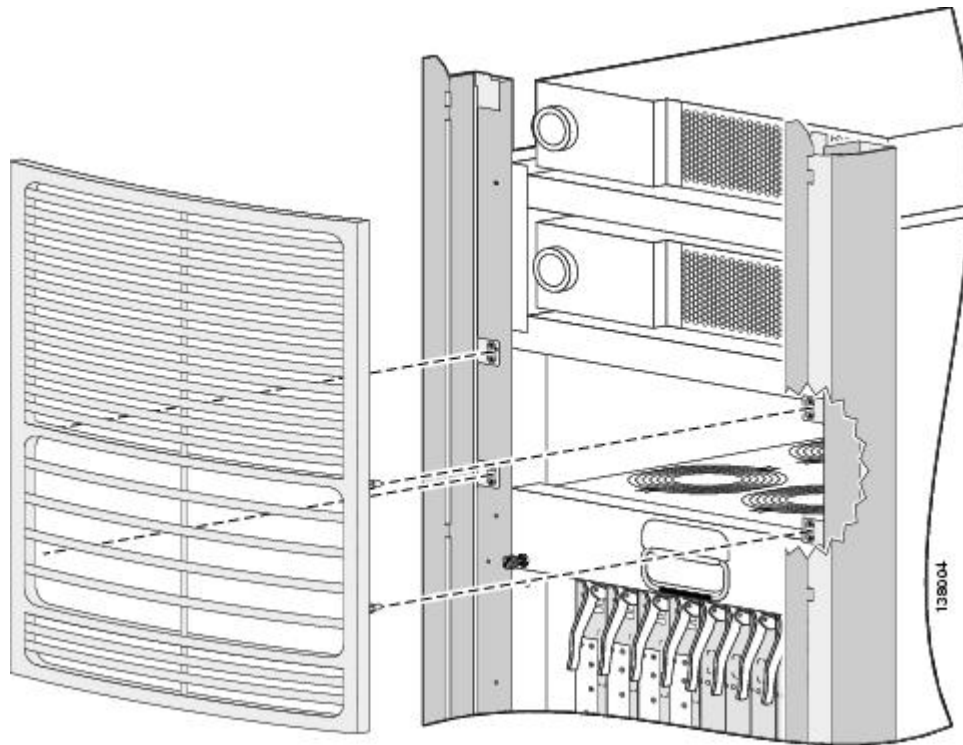
The main tasks for this procedure are:

- Remove the currently attached upper rear grille.
- Remove the upper fan tray.
- Install the exhaust baffle.
- Reinstall the fan tray.

Removing the Currently Attached Upper Rear Grille

This section describes how to remove the upper rear grille (see Figure 8-4) that is currently attached to the Cisco CRS Carrier Routing System 16-slot EC line card chassis so that you can replace it with the updated louver grille.

Figure 4: Removing the Upper Rear Grille—Fixed Configuration Power Shown



Prerequisites

Ensure that *all* power to the Cisco CRS Carrier Routing System 16-slot EC line card chassis is OFF prior to initiating the tasks to install the exhaust baffle.

Steps

To remove the currently attached upper rear grille (see [Figure 4: Removing the Upper Rear Grille—Fixed Configuration Power Shown](#), on page 8), follow these steps:

SUMMARY STEPS

1. Remove the upper grille by unsnapping the bottom portion from the ball stud snaps on the vertical mounting brackets.
2. Rotate the grille toward you on its hook hanger brackets, and then lift it clear of the brackets.
3. Set it carefully aside.
4. Be sure that all parts have been carefully set aside and repackaged appropriately.

DETAILED STEPS

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|---------------|--|
| Step 1 | Remove the upper grille by unsnapping the bottom portion from the ball stud snaps on the vertical mounting brackets. |
| Step 2 | Rotate the grille toward you on its hook hanger brackets, and then lift it clear of the brackets. |
| Step 3 | Set it carefully aside. |
| Step 4 | Be sure that all parts have been carefully set aside and repackaged appropriately. |
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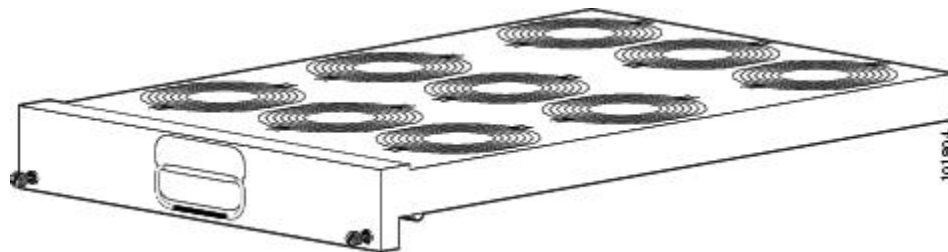
What to Do Next

The next task is to remove the upper rear fan tray as described in the next section.

Removing the Upper Fan Tray

This section describes how to remove the upper fan tray (see Figure below) from the Cisco CRS Carrier Routing System 16-slot EC line card chassis.

Figure 5: Fan Tray



Prerequisites

Before performing this task, you must first remove the upper rear grille as described in the previous section.

Required Tools and Equipment

You need the following tools to perform this task:

- ESD-preventive wrist strap
- Large flat head screwdriver
- Step platform

Steps

To remove the upper fan tray, follow these steps:

SUMMARY STEPS

1. Attach the ESD-preventive wrist strap to your wrist and connect its leash to one of the ESD connection sockets on the front (PLIM) side of the chassis or a bare metal surface on the chassis.
2. If necessary, use a step platform to reach the upper fan tray comfortably.
3. Using the screwdriver, loosen the two captive screws on the fan tray cover faceplate.
4. Pull firmly on the cover to swing it free; some force may be required, as the rubber seals can stick.
5. Grasp the fan tray handle and pull it straight out to disconnect the fan tray from the connector mounted on the front of the fan tray bay on the rear (MSC) side of the chassis. Slide the fan tray halfway from the fan tray bay.
6. Use your free hand to support the fan tray, then slide the fan tray completely from the fan tray bay.
7. Set the fan tray carefully aside.

DETAILED STEPS

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- Step 1** Attach the ESD-preventive wrist strap to your wrist and connect its leash to one of the ESD connection sockets on the front (PLIM) side of the chassis or a bare metal surface on the chassis.
- Step 2** If necessary, use a step platform to reach the upper fan tray comfortably.
- Step 3** Using the screwdriver, loosen the two captive screws on the fan tray cover faceplate.
- Step 4** Pull firmly on the cover to swing it free; some force may be required, as the rubber seals can stick.
Caution A fan tray weighs approximately 44 lbs (20 kg); use two hands when handling it.
- Step 5** Grasp the fan tray handle and pull it straight out to disconnect the fan tray from the connector mounted on the front of the fan tray bay on the rear (MSC) side of the chassis. Slide the fan tray halfway from the fan tray bay.
- Step 6** Use your free hand to support the fan tray, then slide the fan tray completely from the fan tray bay.
- Step 7** Set the fan tray carefully aside.
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What to Do Next

You are now ready to install the exhaust baffle, as described in the next section.

Installing the Exhaust Baffle

The new air exhaust components—the exhaust baffle and the rear louver grille (Product Number: CRS-16-LCC-R-GRL=)—redirect the airflow from the back of the Cisco CRS Carrier Routing System 16-slot EC line card chassis away from eye level. This air exhaust redirection provides a more comfortable work environment if any work needs to be done in the back of the Cisco CRS Carrier Routing System 16-slot EC line card chassis while it is operational.

Prerequisites

Before performing this task, you must first remove the upper rear grille upper fan tray as described in the previous sections.

Required Tools and Equipment

You need the following tools and components to perform this task:

- ESD-preventive wrist strap
- Cisco CRS Grille Kit: CRS-16-LCC-R-GRL=
- Number 1 flat-head screwdriver with at least a 9-inch shaft
- Step platform

Steps

To install the exhaust baffle, follow these steps:

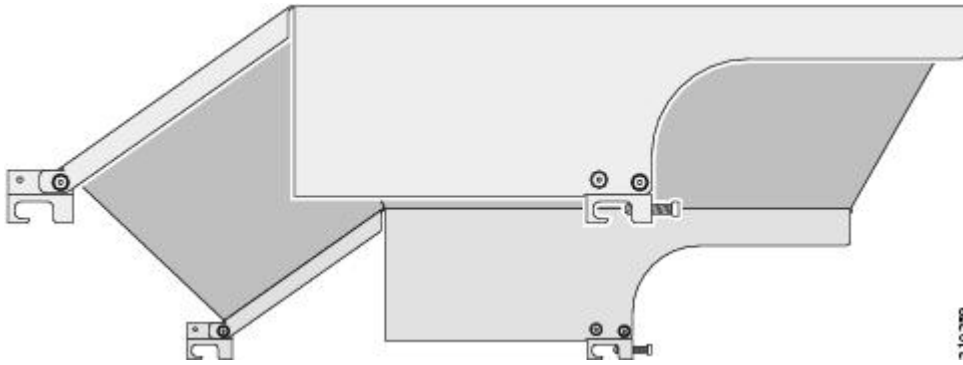
SUMMARY STEPS

1. Attach the ESD-preventive wrist strap to your wrist and connect its leash to one of the ESD connection sockets on the rear side of the chassis.
2. If necessary, use a step platform to reach the upper fan tray comfortably.
3. Observe the four retention brackets at the front and rear of the exhaust baffle (see figure below).
4. Using both hands, lift the exhaust baffle and insert it into the open bay as shown below.
5. Align the rear retention brackets directly over the third rivets from the rear of the chassis (see figure below); then let the exhaust baffle drop down over the rivets.
6. Pull the exhaust baffle toward you to make the retention brackets snug against the rivets.
7. To secure the exhaust baffle to the chassis, use the 9-inch Number 1 flat-blade screwdriver to tighten the four retention bracket screws (see figure below).

DETAILED STEPS

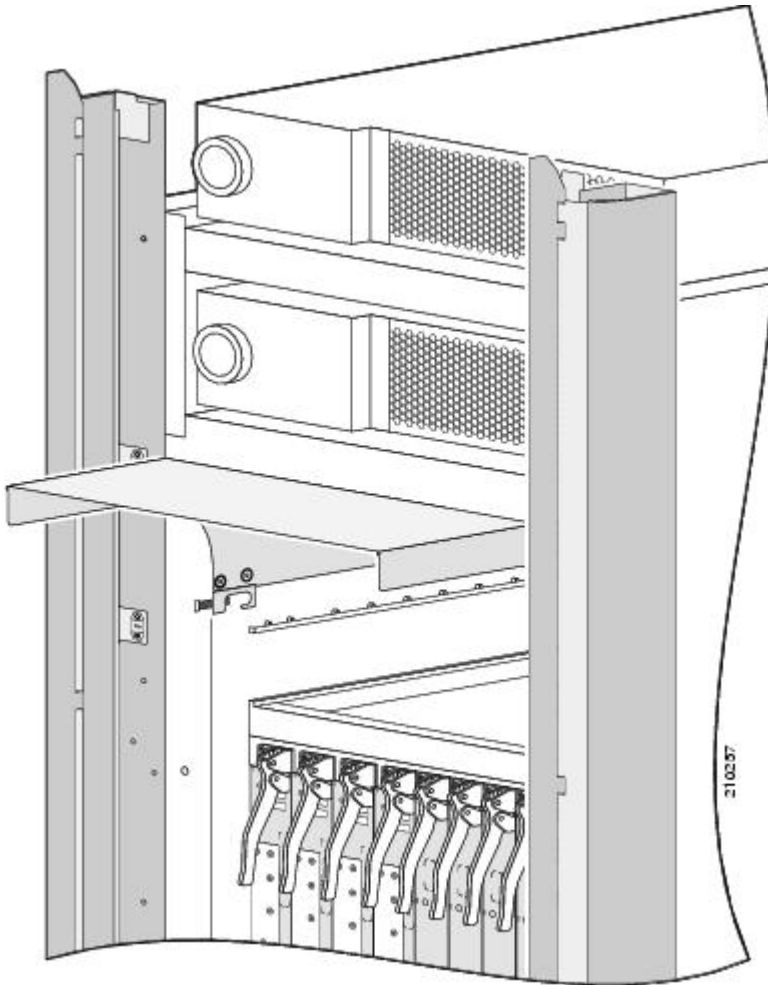
- Step 1** Attach the ESD-preventive wrist strap to your wrist and connect its leash to one of the ESD connection sockets on the rear side of the chassis.
- Step 2** If necessary, use a step platform to reach the upper fan tray comfortably.
- Step 3** Observe the four retention brackets at the front and rear of the exhaust baffle (see figure below).

Figure 6: Exhaust Baffle and Retention Brackets



Step 4 Using both hands, lift the exhaust baffle and insert it into the open bay as shown below.

Figure 7: Inserting the Exhaust Baffle into the Chassis Bay—Fixed Configuration Power Shown

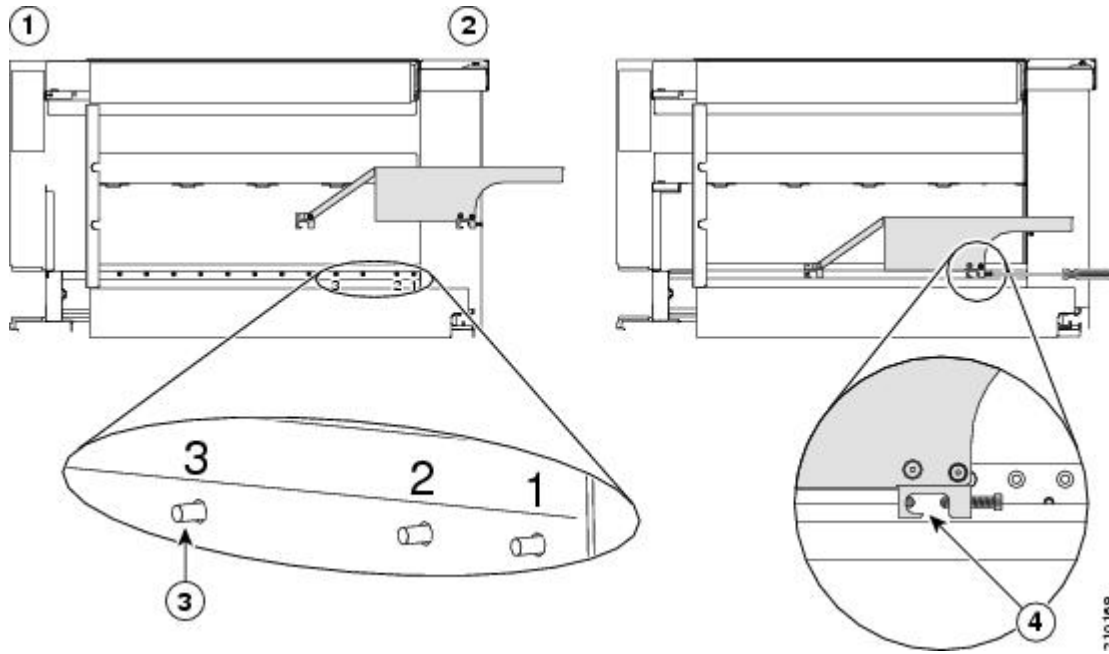


Observe the rivets on both sides of the open bay.

Step 5 Align the rear retention brackets directly over the third rivets from the rear of the chassis (see figure below); then let the exhaust baffle drop down over the rivets.

Note The front retention brackets will drop into the appropriate rivets.

Figure 8: Fitting the Baffle Retention Brackets Over the Rivets



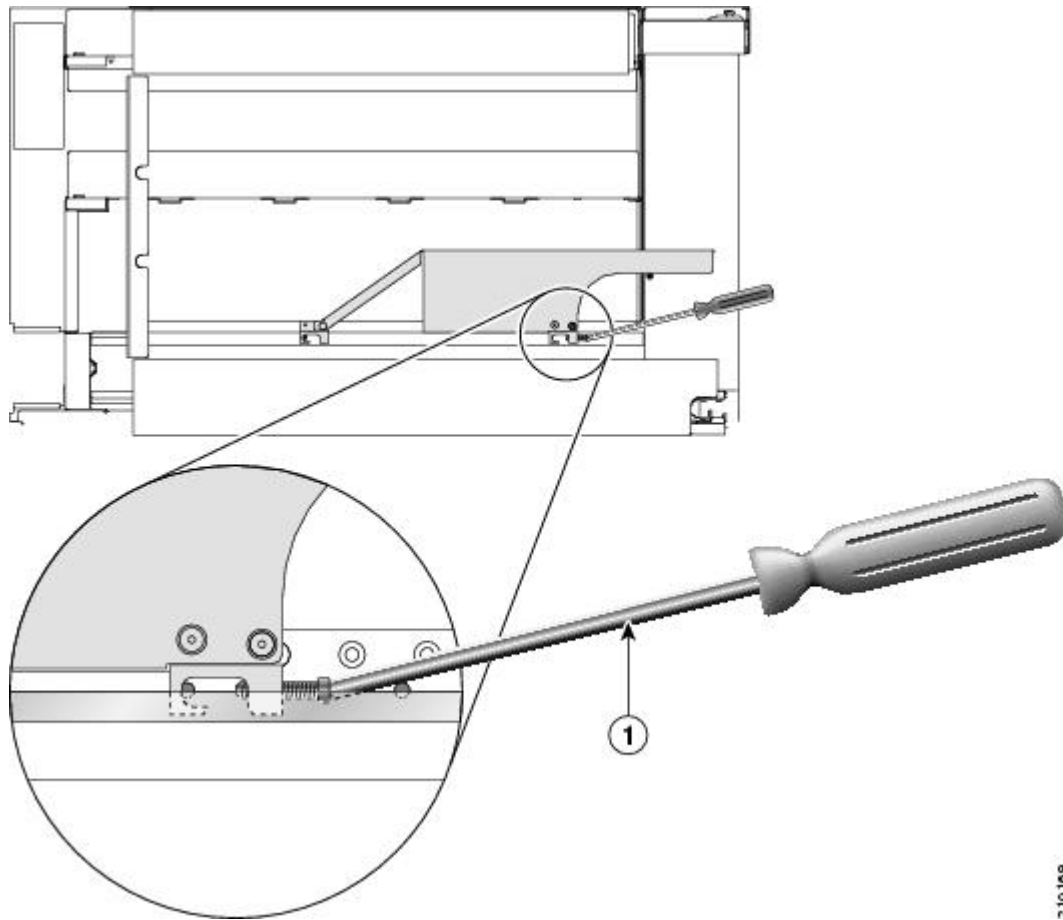
1	Front of chassis	2	Rear of chassis
3	Third rivet from the rear of the chassis, upon which the exhaust baffle rests	4	Exhaust baffle retention bracket sits down on the rivet

Step 6 Pull the exhaust baffle toward you to make the retention brackets snug against the rivets.

Step 7 To secure the exhaust baffle to the chassis, use the 9-inch Number 1 flat-blade screwdriver to tighten the four retention bracket screws (see figure below).

Tip Continue to pull the exhaust baffle toward you while you tighten the retention bracket screws.

Figure 9: Securing the Exhaust Baffle to the Chassis



1	Tightening retention bracket screw with 9-inch flat screwdriver
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The exhaust baffle is now installed. You can now reinstall the upper fan tray.

What to Do Next

Reinstall the fan tray, as described in the next section.

Reinstalling the Upper Fan Tray

This section describes how to reinstall the upper fan tray in the Cisco CRS Carrier Routing System 16-slot EC line card chassis.

Prerequisites

Before performing this task, make sure the exhaust baffle is correctly and securely installed.

Required Tools and Equipment

You need the following tools and part to perform this task:

- ESD-preventive wrist strap
- Large flat-head screwdriver
- Fan tray (Cisco product number CRS-16-LCC-FAN-TR)
- Step platform

Steps

To install the upper fan tray, follow these steps:

SUMMARY STEPS

1. If necessary, use a step platform to reach the upper fan tray comfortably.
2. Attach the ESD-preventive wrist strap to your wrist and connect its leash to one of the ESD connection sockets on the front (PLIM) side of the chassis or a bare metal surface on the chassis.
3. Using two hands to support the fan tray, position it in front of the fan tray bay so that the fan tray connector that is on the back of the fan tray lip is aligned with the connector mounted on the front of the fan tray bay (on the rear side of the chassis).
4. Slide the fan tray into the fan tray bay. Stop when the fan tray makes contact with the chassis connector in the back of the fan tray bay.
5. Firmly push on the fan tray handle to seat the fan tray connector in the chassis connector. When completely seated, the fan tray faceplate flanges meet the front (PLIM) side of the chassis.
6. Replace the fan tray cover and tighten the two captive screws on the fan tray cover faceplate.

DETAILED STEPS

- Step 1** If necessary, use a step platform to reach the upper fan tray comfortably.
- Step 2** Attach the ESD-preventive wrist strap to your wrist and connect its leash to one of the ESD connection sockets on the front (PLIM) side of the chassis or a bare metal surface on the chassis.
- Step 3** Using two hands to support the fan tray, position it in front of the fan tray bay so that the fan tray connector that is on the back of the fan tray lip is aligned with the connector mounted on the front of the fan tray bay (on the rear side of the chassis).
- Caution** A fan tray weighs approximately 44 lbs (20 kg); use two hands when handling it.
- Step 4** Slide the fan tray into the fan tray bay. Stop when the fan tray makes contact with the chassis connector in the back of the fan tray bay.
- Caution** To prevent damage to the chassis connector, use firm but not excessive force when inserting a fan tray into its bay.
- Step 5** Firmly push on the fan tray handle to seat the fan tray connector in the chassis connector. When completely seated, the fan tray faceplate flanges meet the front (PLIM) side of the chassis.
- Note** All electrical and control line connections are made automatically when the connectors mate.
- Step 6** Replace the fan tray cover and tighten the two captive screws on the fan tray cover faceplate.
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What to Do Next

Now you can install the upper rear louver grille.

