



Upgrading Chassis Components

This chapter provides instructions on how to upgrade chassis components on the Cisco CRS Carrier Routing System Fabric Card Chassis.

This chapter presents the following topics:

- [Upgrading the Inlet Grille Screen, page 1](#)
- [Removing the Lower Grille, page 2](#)
- [Removing the Currently Installed Lower Grille Frame Assembly, page 4](#)
- [Installing the New Lower Grille Screen and Frame Assembly, page 5](#)
- [Installing the Rear Vertical Cable Troughs and Cutout Assembly, page 9](#)
- [Upgrading the Lower Horizontal Cable Guide, page 25](#)
- [Upgrading the Upper Horizontal Cable Guide, page 29](#)

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 new lower grille screen in the FCC. To install the lower grille screen kit (CRS-FCC-SCRN-KIT) as an update to an existing system, you must:

- 1 Remove the lower grille from the front (SFC) 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 lower grille on the front (SFC) 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-FCC-SCRN-KIT)

Removing the Lower Grille

This section describes how to remove the lower grille from the front (SFC) side of the FCC.

Prerequisites

There are no prerequisites for this task.

Steps

To remove the lower grille from your FCC, perform the following steps:

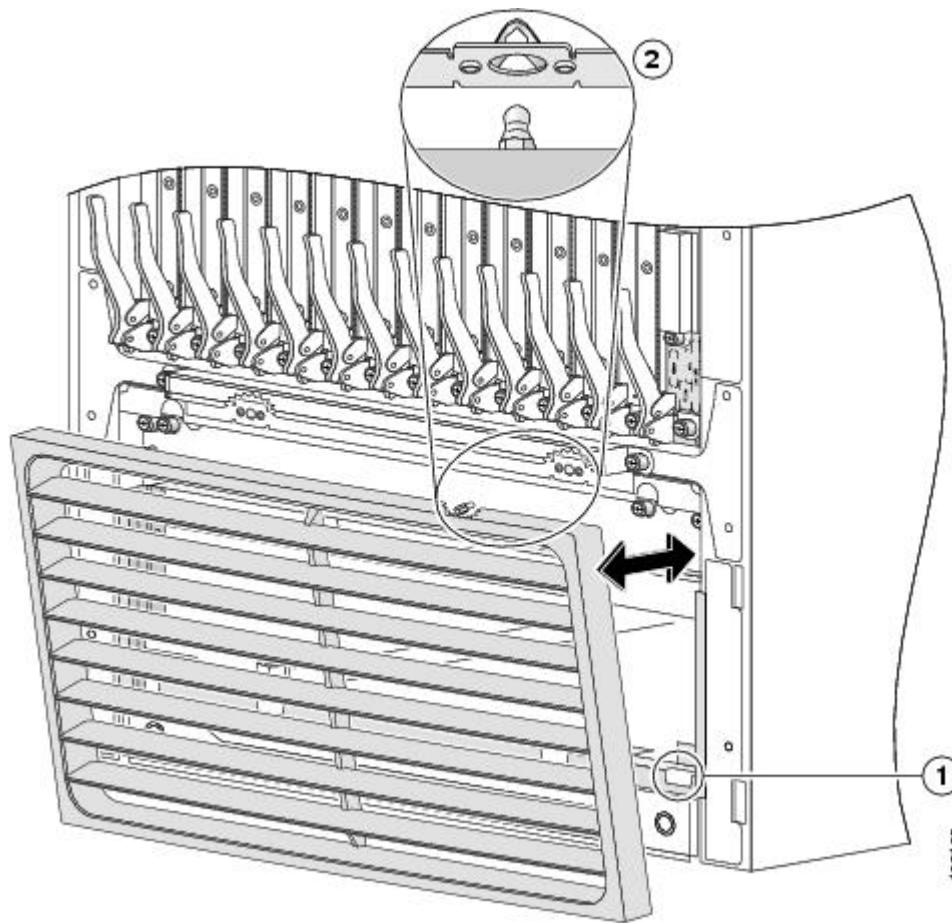
SUMMARY STEPS

1. Remove the lower grille by unsnapping the top portion from the ball stud snaps (see [Figure 1: Removing the Lower Grille](#)).
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 lower grille by unsnapping the top portion from the ball stud snaps (see [Figure 1: Removing the Lower Grille](#)).

Figure 1: Removing the Lower Grille



1	Hook hanger brackets	2	Ball stud
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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 Lower Grille Frame Assembly

Once the lower grille has been removed, you must remove the currently installed lower grille frame assembly from the chassis.

Prerequisites

Before performing this task, ensure that the lower grille has been removed from the front (SFC) side of the chassis. See the [Removing the Lower Grille, on page 2](#) for more information.

Steps

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

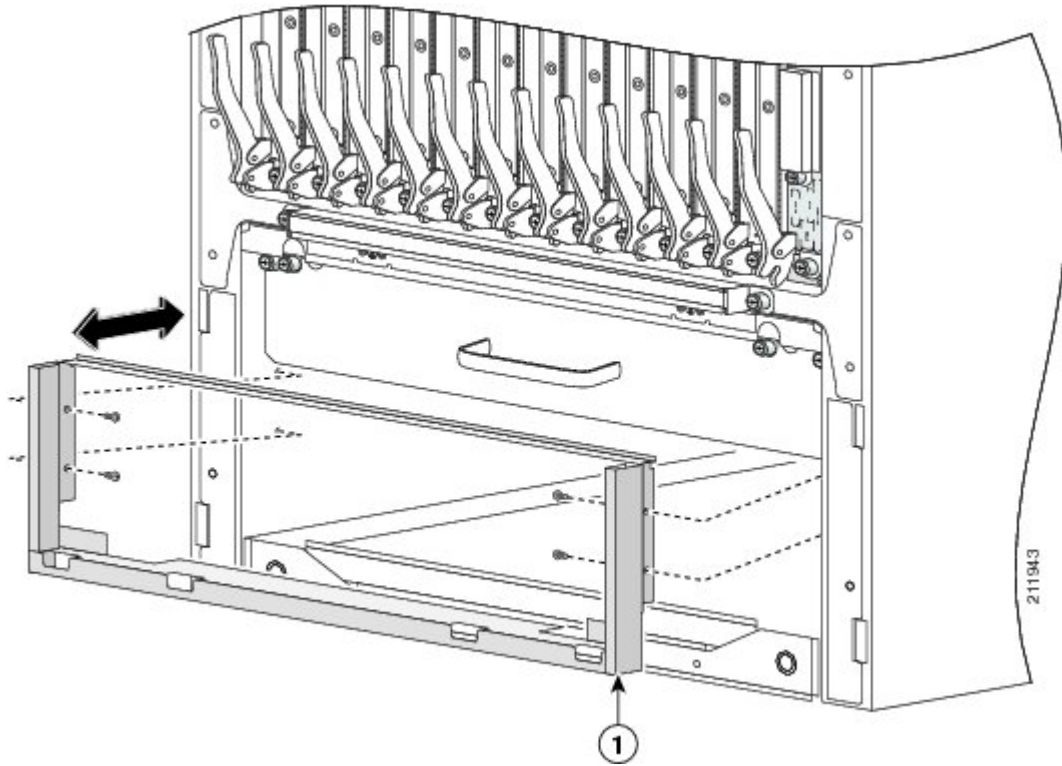
SUMMARY STEPS

1. Use the Phillips screwdriver to unscrew the four captive screws, two on each side, that attach the lower grille frame assembly to the chassis. See [Figure 2: Removing the Original Lower Grille Frame Assembly](#).
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 lower grille frame assembly to the chassis. See [Figure 2: Removing the Original Lower Grille Frame Assembly](#).

Figure 2: Removing the Original Lower Grille Frame Assembly



1	Lower grille frame assembly
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Step 2 Rotate the assembly forward, lift it away from the chassis, and set it aside.

Installing the New Lower Grille Screen and Frame Assembly

This section describes how to install the lower grille screen and frame assembly in the chassis.

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 in the chassis, you can reinstall the lower grille screen into the new frame.

Prerequisites

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

Steps

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

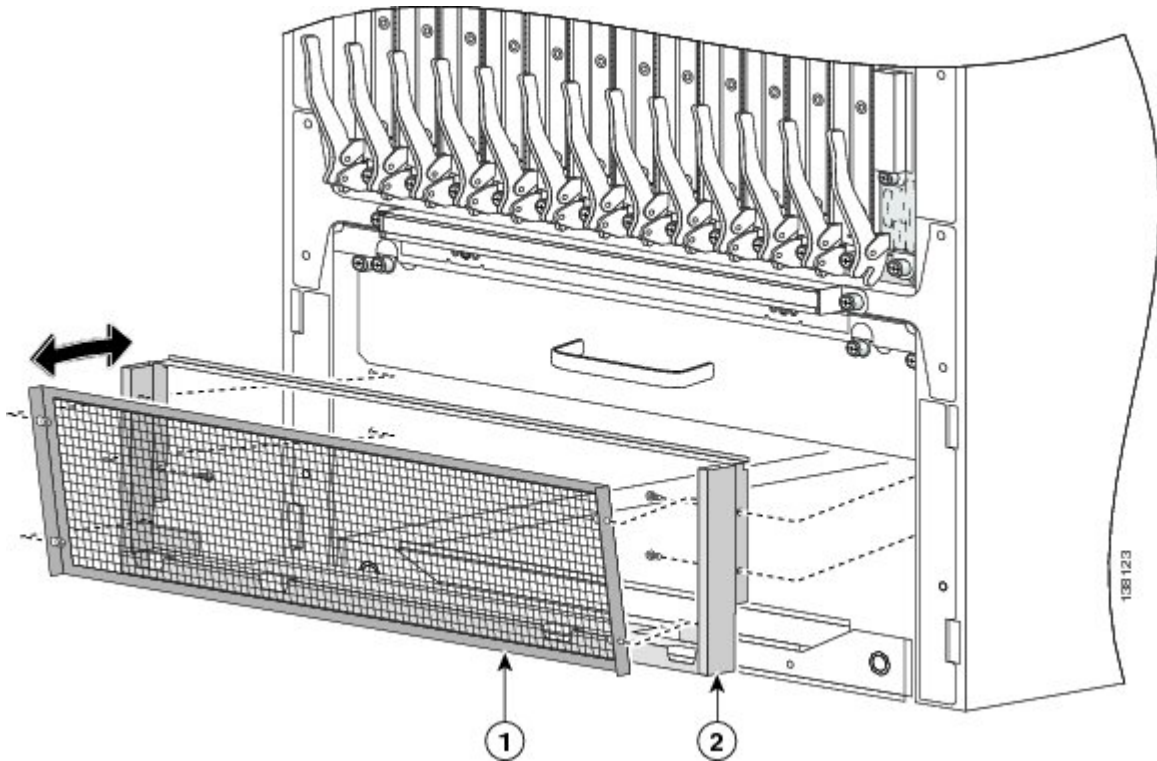
SUMMARY STEPS

1. Using the Phillips screwdriver, loosen the four captive screws, two on each side, that secure the lower grille screen to its frame assembly; then carefully set the screen aside. See [Figure 3: Installing the New Lower Grille Screen and Frame Assembly](#).
2. Attach the frame assembly to the chassis (see [Figure 3: Installing the New Lower Grille Screen and Frame Assembly](#)) 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. To reattach the lower grille screen (see [Figure 3: Installing the New Lower Grille Screen and Frame Assembly](#)) to the frame assembly, align the four captive screws on the screen to the screw holes on the frame assembly and tighten with the screwdriver.
4. Attach the lower grille to the chassis by carefully inserting the tabs on the grille into the hook hanger brackets. See [Figure 4: Installing the Lower Grille](#).
5. Press the lower grille firmly until it snaps onto the ball stud snaps. See [Figure 4: Installing the Lower Grille](#).

DETAILED STEPS

- Step 1** Using the Phillips screwdriver, loosen the four captive screws, two on each side, that secure the lower grille screen to its frame assembly; then carefully set the screen aside. See [Figure 3: Installing the New Lower Grille Screen and Frame Assembly](#).
- Step 2** Attach the frame assembly to the chassis (see [Figure 3: Installing the New Lower Grille Screen and Frame Assembly](#)) 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.

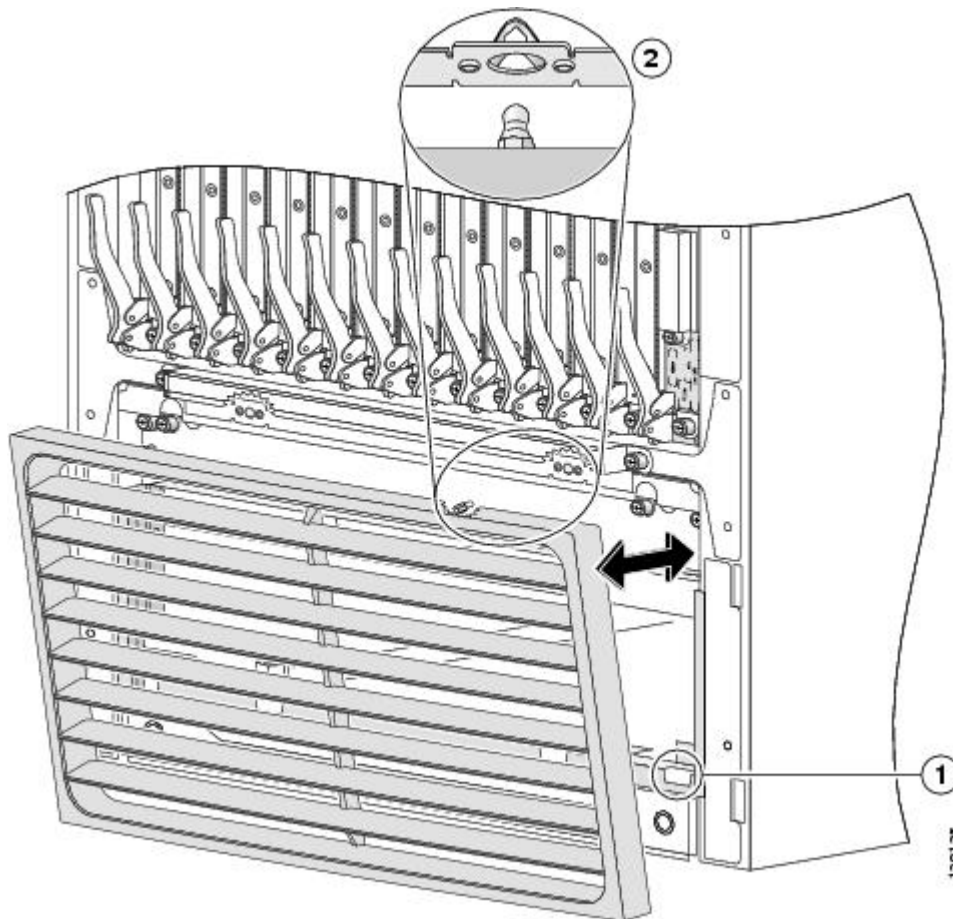
Figure 3: Installing the New Lower Grille Screen and Frame Assembly



1	Lower grille screen	2	Lower grille screen frame assembly
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- Step 3** To reattach the lower grille screen (see [Figure 3: Installing the New Lower Grille Screen and Frame Assembly](#)) to the frame assembly, align the four captive screws on the screen to the screw holes on the frame assembly and tighten with the screwdriver.
- Step 4** Attach the lower grille to the chassis by carefully inserting the tabs on the grille into the hook hanger brackets. See [Figure 4: Installing the Lower Grille](#).
- Step 5** Press the lower grille firmly until it snaps onto the ball stud snaps. See [Figure 4: Installing the Lower Grille](#).

Figure 4: Installing the Lower Grille



1	Hook hanger brackets	2	Ball stud
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Installing the Rear Vertical Cable Troughs and Cutout Assembly

This section describes how to remove the vertical troughs from the rear of the FCC, and replace with the new vertical cable troughs and cutout assembly.

To upgrade the rear vertical cable troughs, you must:

- 1 Remove the doors, lower bezel and upper grille from the rear (OIM) side of the chassis.
- 2 Remove the currently installed vertical cable troughs.
- 3 Install the new vertical cable troughs.
- 4 Install the cable pass-through accessory plates on the new vertical cable troughs.
- 5 Re-install the doors, lower bezel and upper grille on the rear (OIM) side of the chassis.

Upgrading the Currently Installed Vertical Cable Troughs

If you are installing the cable troughs with cutout assembly as an update to an existing system, the currently installed vertical trough must be removed from the chassis before the new vertical cable trough can be installed.

Prerequisites

Before performing this task, you must first remove the rear (OIM) side exterior doors, rear lower bezel, and rear upper grille. See the [b-crs-16slot-installation-guide_chapter_0101.pdf#unique_311](#) for more information.

Undo all velcro and carefully move the existing cables to either the inside or outside of the existing vertical cable trough (whichever is easier). Carefully pull slack, if required.

**Caution**

Do NOT disconnect cables from the chassis during the vertical cable trough upgrade procedure.

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
- Cable management retrofit kit (Cisco product number: CRS-FCC-CM-RETRO=)

Steps

To replace the vertical trough on the FCC, perform the following steps:

SUMMARY STEPS

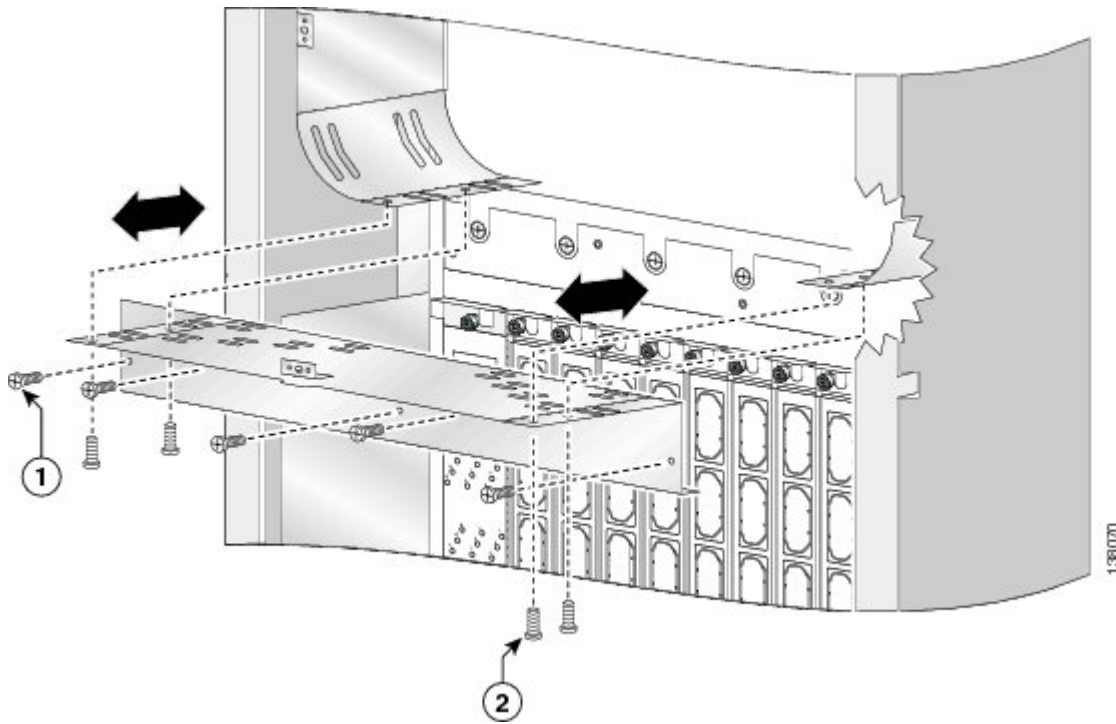
1. Remove the mounting screws that attach the upper, middle and lower horizontal cable guides to the vertical cable troughs (left and right sides of chassis).
2. Remove the five mounting screws that attach the upper horizontal cable guide to the chassis and remove upper cable guide completely. See [Figure 5: Rear Upper Horizontal Cable Guide](#) .
3. Remove the rear vertical cable troughs (see [Figure 8: Rear \(OIM\) Side Vertical Cable Troughs—Fixed Configuration Power Shown](#))—one right and one left— from the rear of the chassis:
4. If you plan to upgrade the lower horizontal cable guide, remove the five mounting screws that attach the lower horizontal cable guide to the chassis and remove lower cable guide completely. Replace with new lower horizontal cable guide with spools, by installing the four screws that attach the cable guide to the chassis. See the [Upgrading the Lower Horizontal Cable Guide](#) for more information.
5. Attach the rear vertical cable troughs —one right and one left—to the rear of the chassis (as shown in [Figure 8: Rear \(OIM\) Side Vertical Cable Troughs—Fixed Configuration Power Shown](#)) by inserting the 10 M4x14-mm flat head screws (5 on each side) and using the screwdriver to fasten the screws to attach the cable troughs firmly to the chassis.
6. Install the mounting screws that attach the upper horizontal cable guide to the chassis. See [Figure 9: Installing Rear Upper Horizontal Cable Guide](#) .
7. Re-install the mounting screws that attach the lower, middle and upper horizontal cable guides to the vertical cable troughs (left and right sides of chassis).

DETAILED STEPS

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- Step 1** Remove the mounting screws that attach the upper, middle and lower horizontal cable guides to the vertical cable troughs (left and right sides of chassis).

Figure 5: Rear Upper Horizontal Cable Guide shows the upper horizontal cable guide.

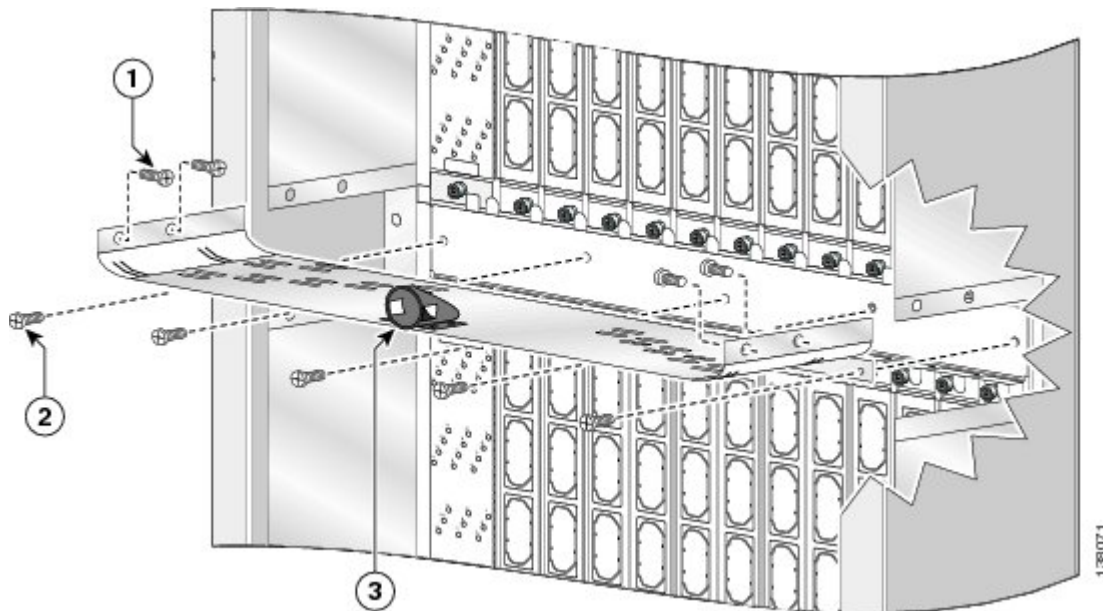
Figure 5: Rear Upper Horizontal Cable Guide



1	6 mm long screw attaching cable guide to chassis (quantity=5)
2	4-mm long screw attaching cable guide to vertical trough (quantity=4)

Figure 6: Rear Mid-Chassis Horizontal Cable Guide and Strike Tube shows the mid-chassis horizontal cable guide.

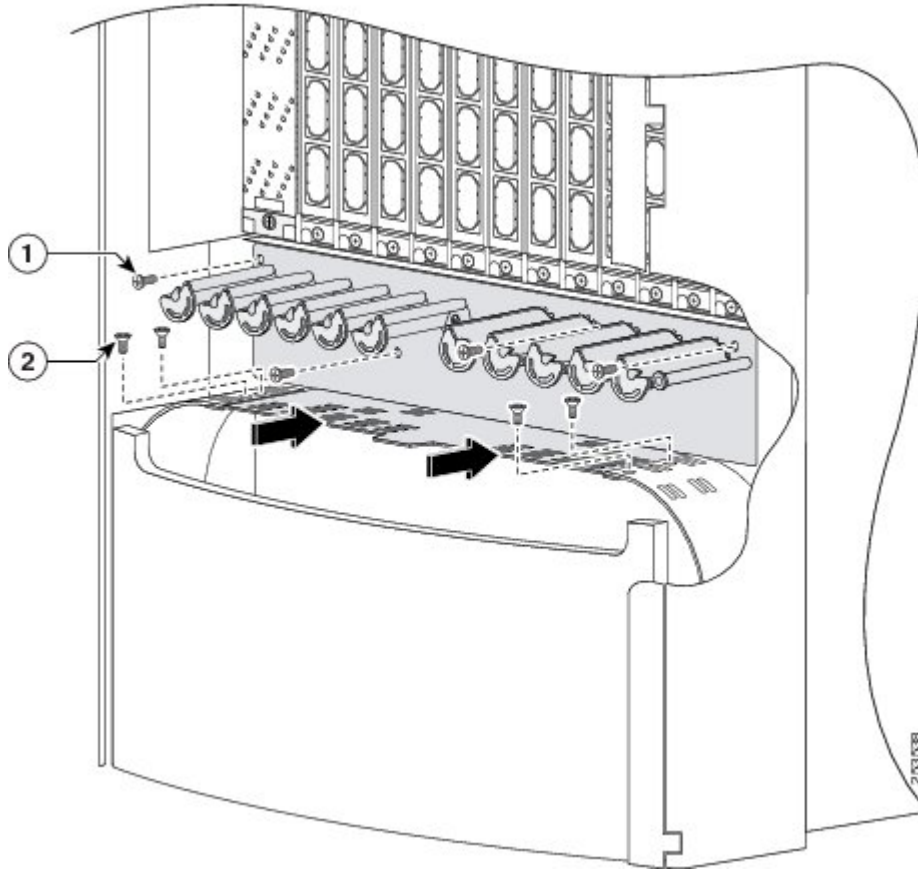
Figure 6: Rear Mid-Chassis Horizontal Cable Guide and Strike Tube



1	4 mm long screw attaching cable guide to vertical trough (quantity=4)
2	6 mm long screw attaching cable guide to chassis (quantity=5)
3	Strike tube on upper surface

Figure 7: Rear Lower Horizontal Cable Guide shows the lower horizontal cable guide.

Figure 7: Rear Lower Horizontal Cable Guide



1	6 mm long screw attaching cable guide to chassis (quantity=4)
2	4-mm long screw attaching cable guide to vertical trough (quantity=4)

Step 2 Remove the five mounting screws that attach the upper horizontal cable guide to the chassis and remove upper cable guide completely. See [Figure 5: Rear Upper Horizontal Cable Guide](#) .

Step 3 Remove the rear vertical cable troughs (see [Figure 8: Rear \(OIM\) Side Vertical Cable Troughs—Fixed Configuration Power Shown](#))—one right and one left— from the rear of the chassis:

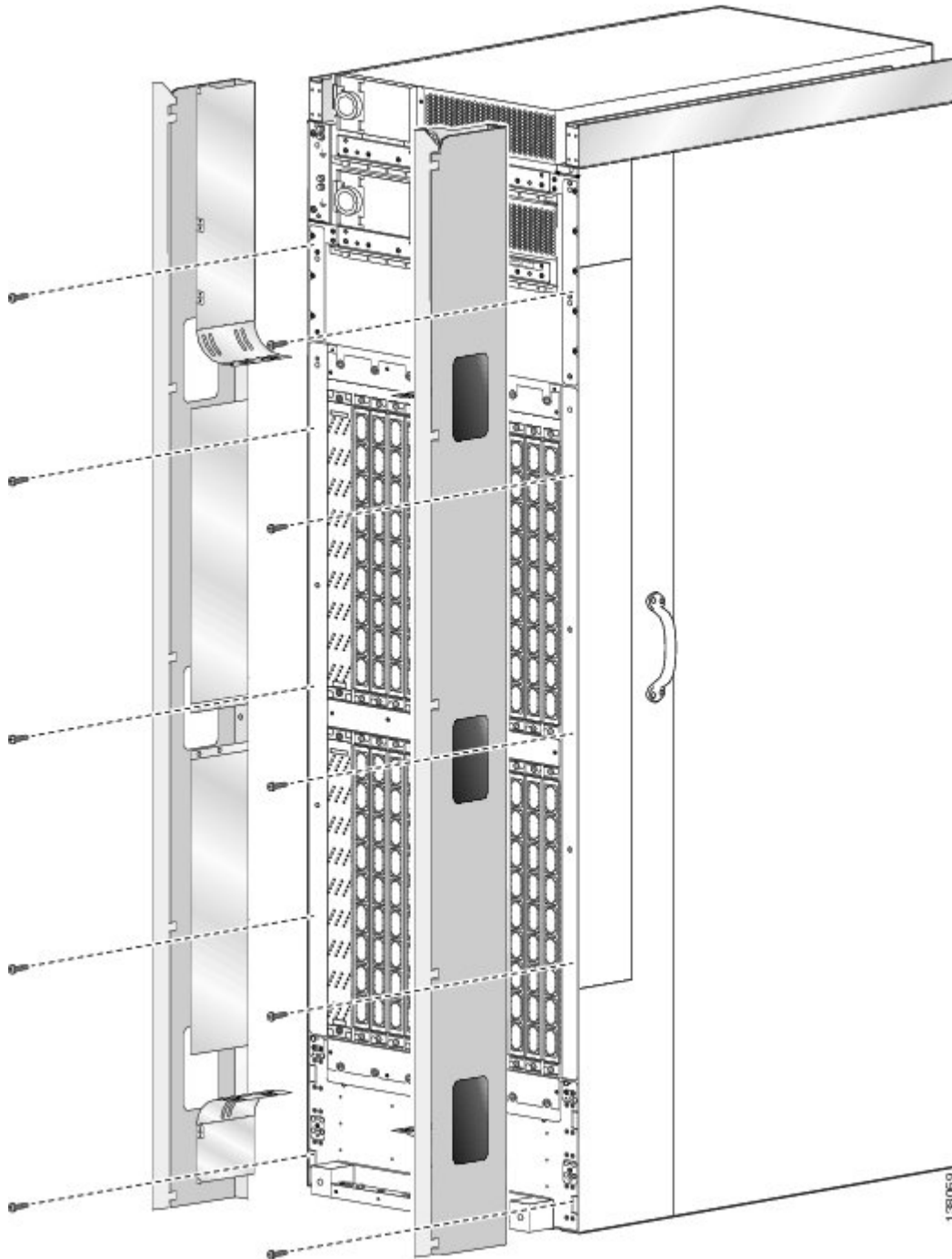
- a) Unscrew the 10 M4x14-mm flat head screws (5 on each side) that hold the troughs to the chassis, and set them aside.
- b) Slide the cable troughs upward slightly to unhook them from the guide slots; lift them away from the chassis, and set them carefully aside.

Note We recommend that you use two people to remove the troughs, one person to hold the troughs while the other person removes the screws.

- Step 4** If you plan to upgrade the lower horizontal cable guide, remove the five mounting screws that attach the lower horizontal cable guide to the chassis and remove lower cable guide completely. Replace with new lower horizontal cable guide with spools, by installing the four screws that attach the cable guide to the chassis. See the [Upgrading the Lower Horizontal Cable Guide](#) for more information.
- Step 5** Attach the rear vertical cable troughs—one right and one left—to the rear of the chassis (as shown in [Figure 8: Rear \(OIM\) Side Vertical Cable Troughs—Fixed Configuration Power Shown](#)) by inserting the 10 M4x14-mm flat head screws (5 on each side) and using the screwdriver to fasten the screws to attach the cable troughs firmly to the chassis.

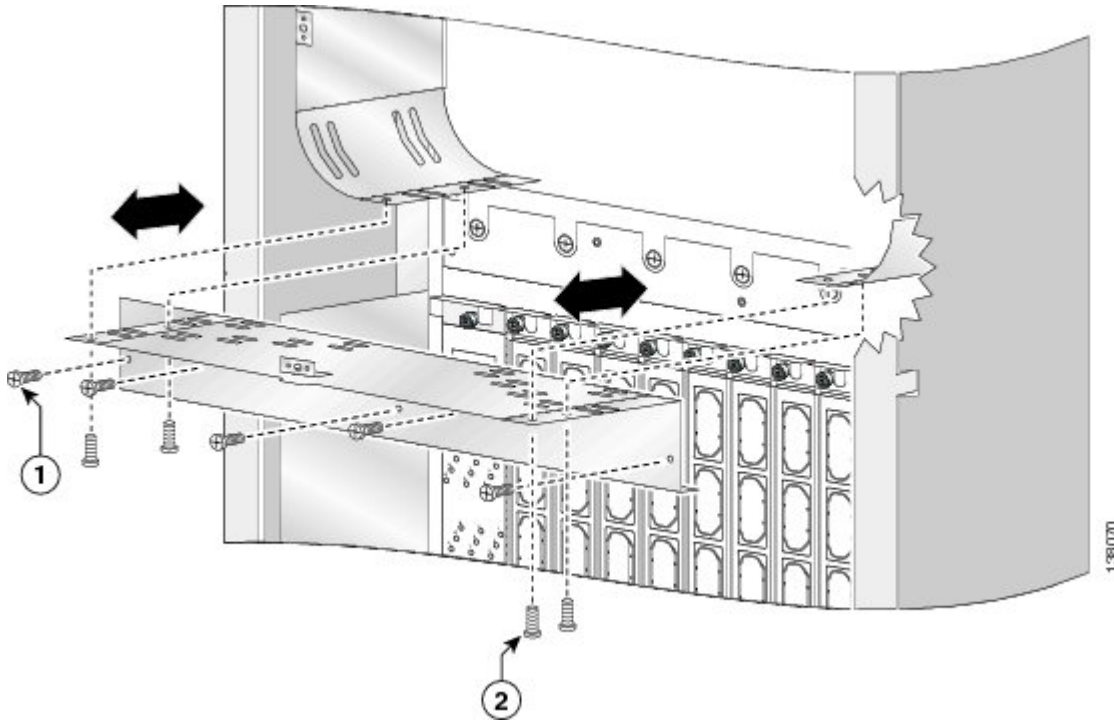
Note We recommend that you use two people to install the troughs, one person to hold the troughs in place while the other person inserts and tightens the screws.

Figure 8: Rear (OIM) Side Vertical Cable Troughs—Fixed Configuration Power Shown



Step 6 Install the mounting screws that attach the upper horizontal cable guide to the chassis. See [Figure 9: Installing Rear Upper Horizontal Cable Guide](#).

Figure 9: Installing Rear Upper Horizontal Cable Guide



1	6 mm long screw attaching cable guide to chassis (quantity=5)
2	4-mm long screw attaching cable guide to vertical trough (quantity=4)

Note If applicable, replace with new upper horizontal cable guide with additional velcro positions. See the [Upgrading the Upper Horizontal Cable Guide](#) for more information.

Step 7 Re-install the mounting screws that attach the lower, middle and upper horizontal cable guides to the vertical cable troughs (left and right sides of chassis).

Installing the Cable Pass-through Accessory Plates

Depending on the size of the installation, and the number and type of cables being used, the body of the chassis may become overcrowded and unable to accommodate all of the required cables. To resolve this, you can install pass-through accessory plates to allow cables be guided outside the vertical trough.

System growth and cable type will determine whether cable pass-through accessory plates are required to be installed.

- If the chassis is part of a multishelf system with vertical cabling, cable pass-through accessory plates are not required to be installed.
- If the chassis is part of a multishelf system with horizontal cabling, cable-pass-through accessory plates are required to be installed.
- If riser cable is installed on the chassis, cable-pass-through accessory plates are required to be installed.

Prerequisites

Before performing this task, you must first ensure that the doors have been removed from the rear (OIM) side of the chassis and that the vertical troughs with cut-out plates have been installed. See the “[Removing the Rear Exterior Doors](#)” section on page 5-36 and the [Upgrading the Currently Installed Vertical Cable Troughs](#) for more information.

Steps



Note

If you do not plan to route existing cables through the cutouts on the vertical cable troughs, then you are only required to perform [#task_1052997/_1053046](#), [#task_1052997/_1053059](#) and [#task_1052997/_1057913](#).

To attach the cable pass-through accessory plates to the vertical troughs, perform the following steps:

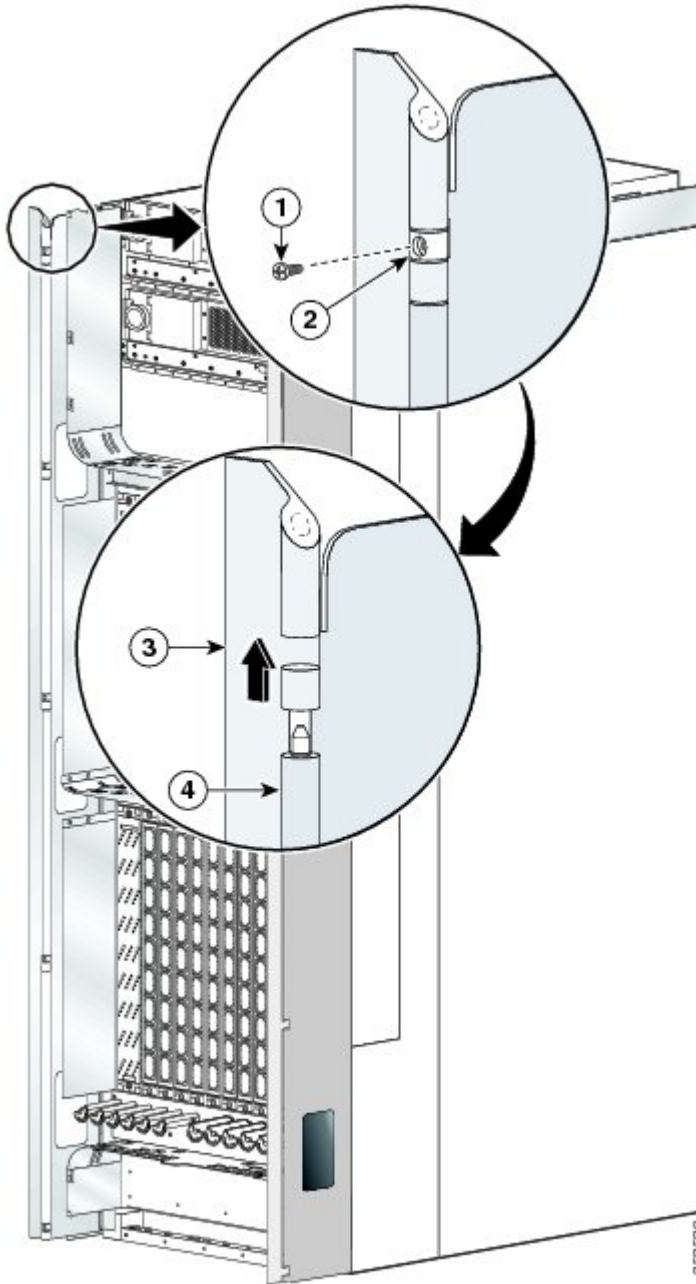
SUMMARY STEPS

1. Remove the hinge keepers and the door hinges from the rear of the chassis (left and right side). See [Figure 10: Removing Hinge Keeper and Door Hinge](#). Optional—only required if you are going to route existing cables through the cutouts.
2. Remove the blank plates by unscrewing the four screws on each one. See [Figure 11: Removing Blank Plates from Cable Troughs—Fixed Configuration Power Shown](#).
3. Attach the inner cut-out plates, as shown in [Figure 12: Cut-out plate](#), using the four screws provided. See [Figure 13: Inner Cut-out Plate—Fixed Configuration Power Shown](#).
4. Route the cables through the opening. Reposition cables in the vertical cable trough. Ensure that cables are secured with velcro on upper and middle horizontal cable management brackets. Optional—only required if you are going to route existing cables through the cutouts.
5. Attach the outer cut-out panel using the screws provided. See [Figure 14: Outer cut-out plate—Fixed Configuration Power Shown](#).
6. Re-install the hinge keepers and door hinges. Optional—only required if you are going to route existing cables through the cutouts.
7. Re-install the doors on the rear (OIM) side of the chassis. Optional—only required if you are going to route existing cables through the cutouts.

DETAILED STEPS

Step 1 Remove the hinge keepers and the door hinges from the rear of the chassis (left and right side). See [Figure 10: Removing Hinge Keeper and Door Hinge](#). Optional—only required if you are going to route existing cables through the cutouts.

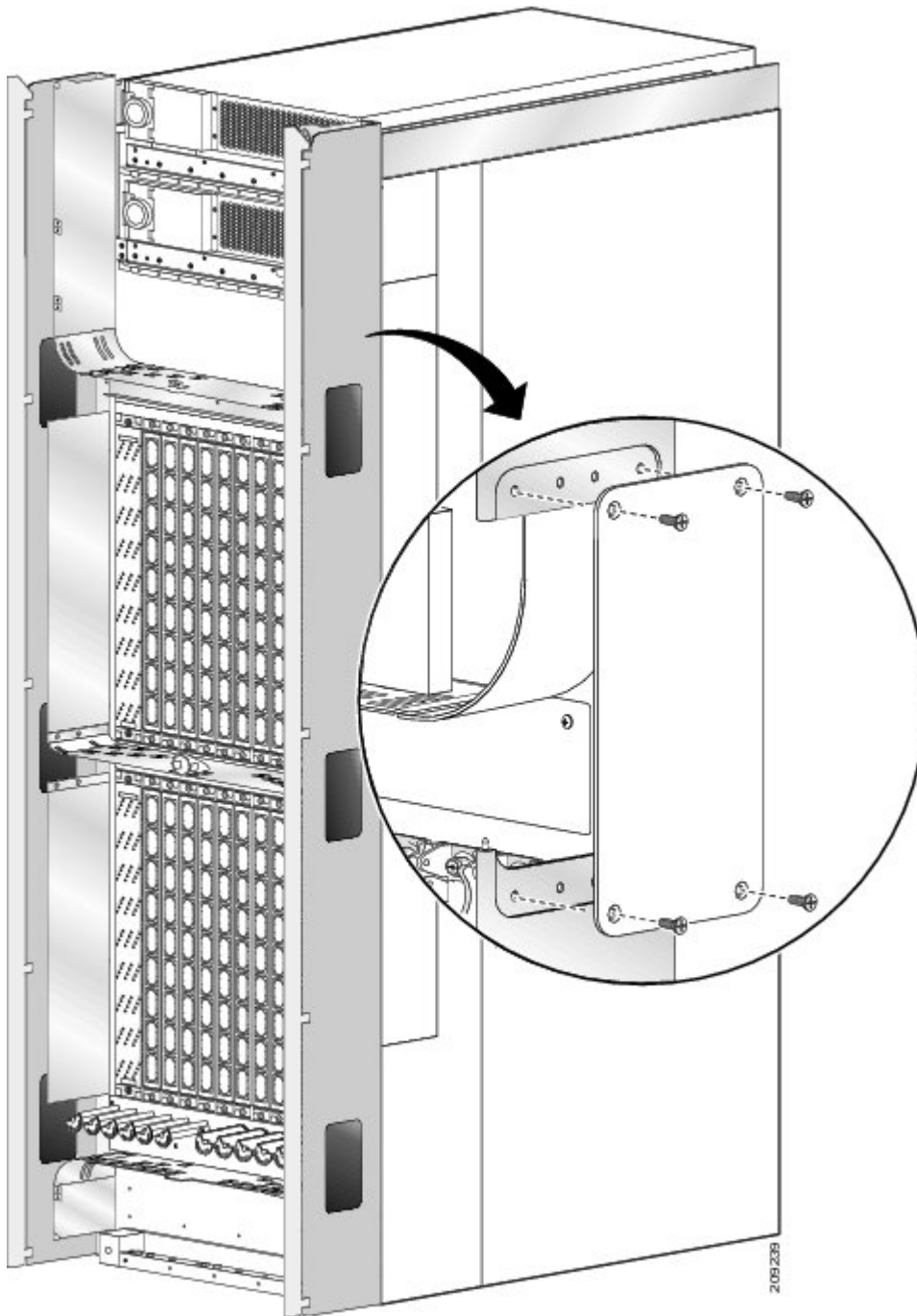
Figure 10: Removing Hinge Keeper and Door Hinge



1	Screw	3	Door hinge
2	Hinge keeper	4	Vertical trough

- Step 2** Remove the blank plates by unscrewing the four screws on each one. See [Figure 11: Removing Blank Plates from Cable Troughs—Fixed Configuration Power Shown](#).

Figure 11: Removing Blank Plates from Cable Troughs—Fixed Configuration Power Shown



- Step 3** Attach the inner cut-out plates, as shown in [Figure 12: Cut-out plate](#), using the four screws provided. See [Figure 13: Inner Cut-out Plate—Fixed Configuration Power Shown](#).

Figure 12: Cut-out plate

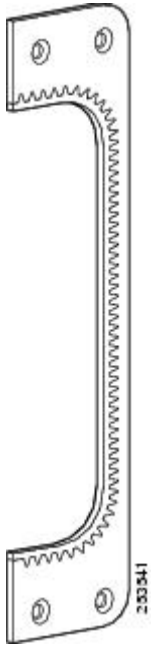
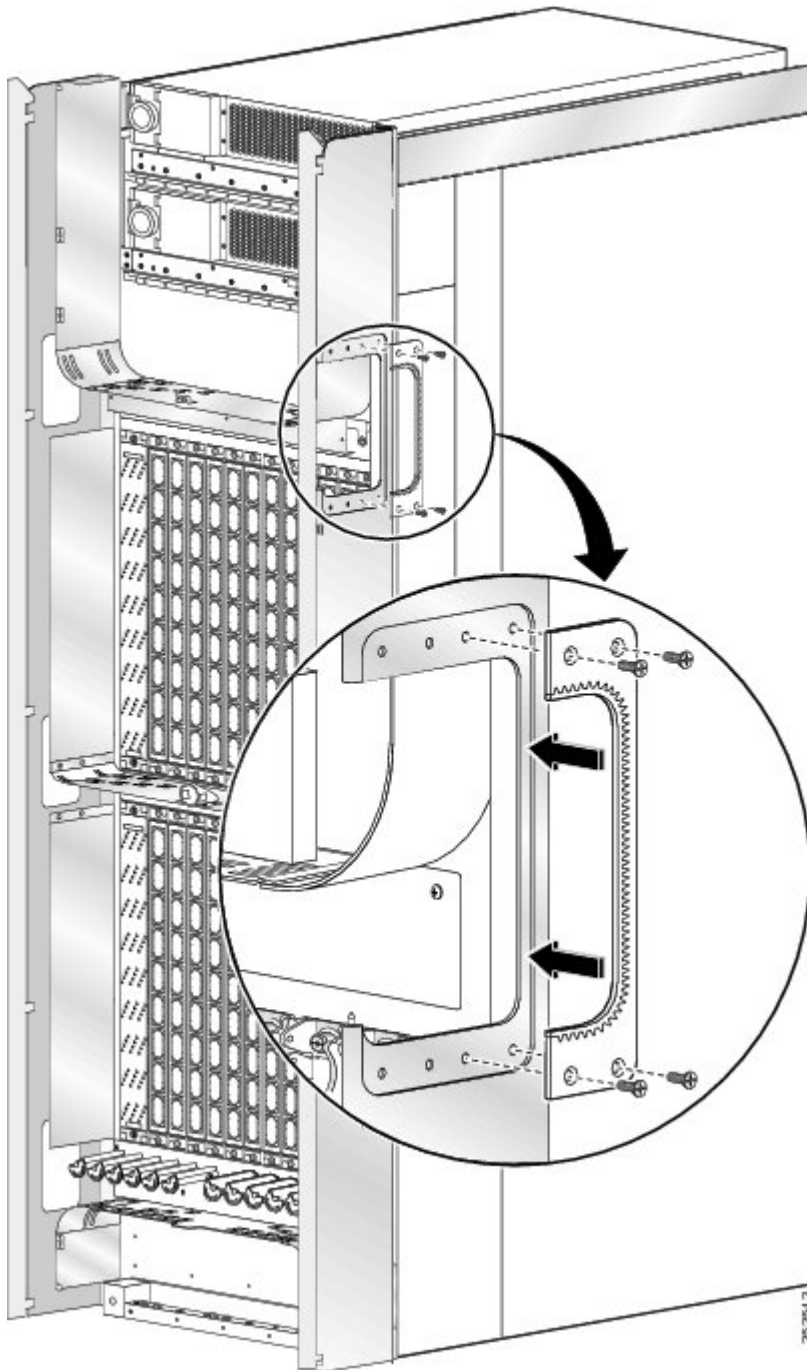
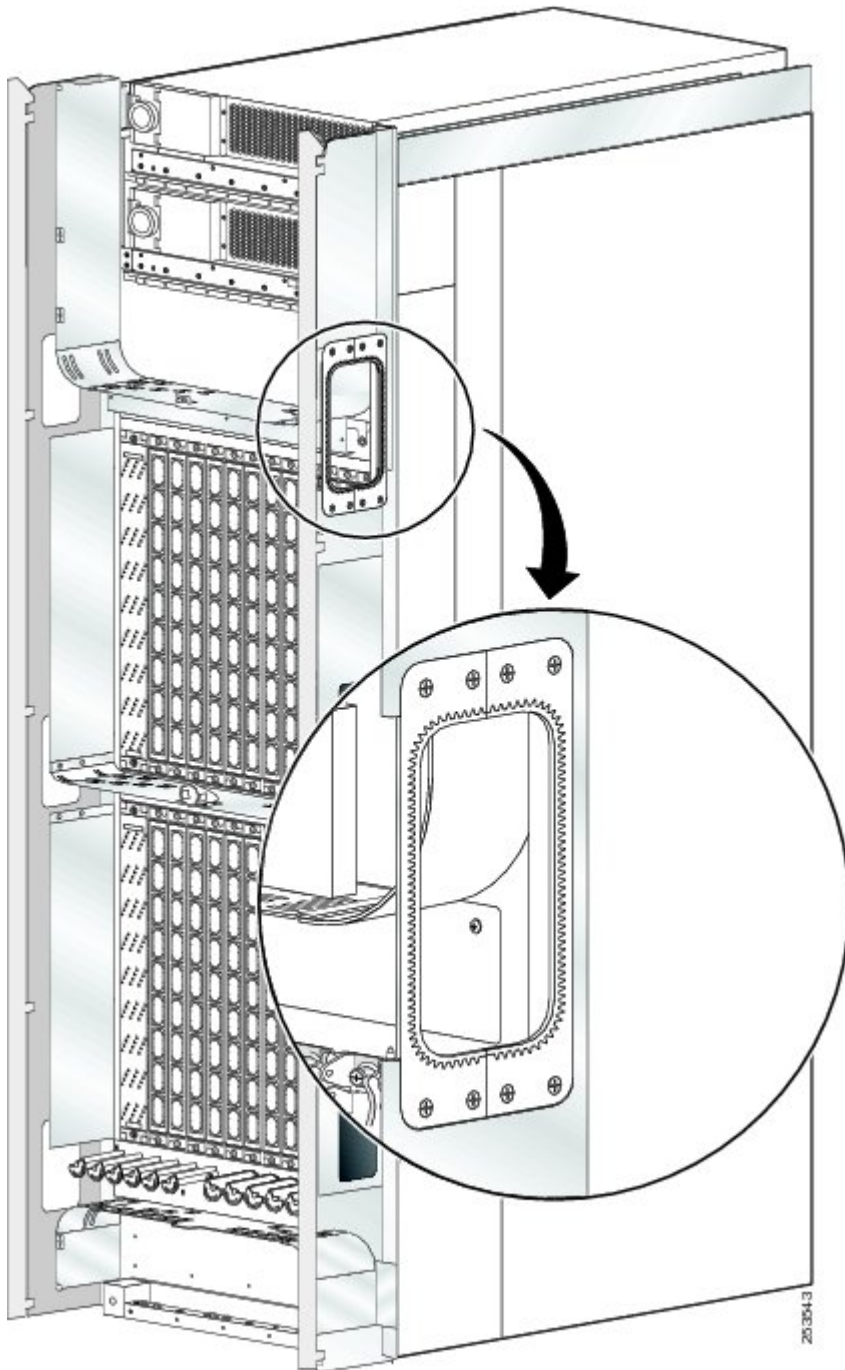


Figure 13: Inner Cut-out Plate—Fixed Configuration Power Shown



- Step 4** Route the cables through the opening. Reposition cables in the vertical cable trough. Ensure that cables are secured with velcro on upper and middle horizontal cable management brackets. Optional—only required if you are going to route existing cables through the cutouts.
- Step 5** Attach the outer cut-out panel using the screws provided. See [Figure 14: Outer cut-out plate—Fixed Configuration Power Shown](#).

Figure 14: Outer cut-out plate—Fixed Configuration Power Shown



Step 6 Re-install the hinge keepers and door hinges. Optional—only required if you are going to route existing cables through the cutouts.

Step 7 Re-install the doors on the rear (OIM) side of the chassis. Optional—only required if you are going to route existing cables through the cutouts.

Upgrading the Lower Horizontal Cable Guide

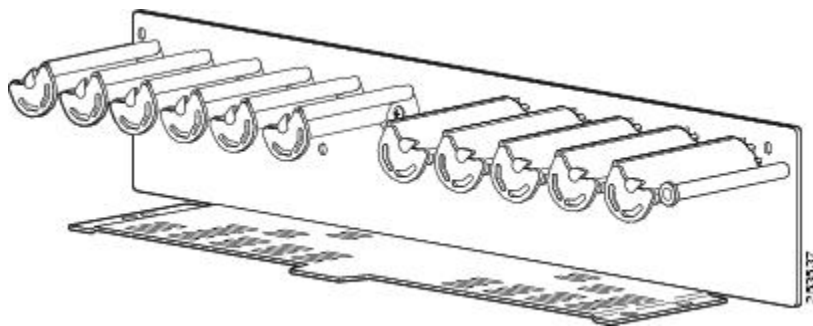
If you are installing the new lower horizontal cable guide as an update to an existing system, the currently installed lower horizontal cable guide must be removed from the chassis before the new lower horizontal cable guide can be installed.

**Note**

The lower horizontal cable guide should be replaced as part of the vertical cable trough replacement procedure described in the [Upgrading the Currently Installed Vertical Cable Troughs](#).

[Figure 15: New CRS Fabric Card Chassis Lower Horizontal Cable Guide](#) shows the new lower horizontal cable guide.

Figure 15: New CRS Fabric Card Chassis Lower Horizontal Cable Guide



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
- Cable management retrofit kit (Cisco product number: CRS-FCC-CM-RETRO=)

Prerequisites

Before performing this task, you must first open the doors on the rear (OIM) side of the chassis.

Steps

To upgrade the lower horizontal cable guide, perform the following steps:

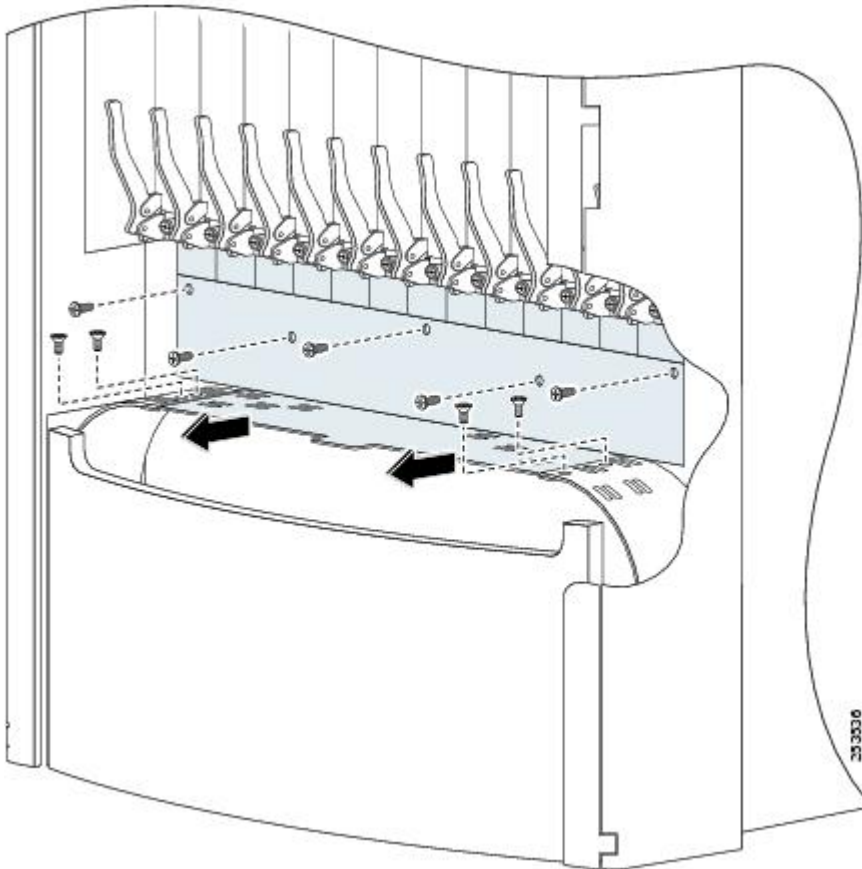
SUMMARY STEPS

1. Remove the nine screws that attach the horizontal cable guide to the chassis as shown in [Figure 16: Removing the Currently Installed Lower Horizontal Cable Guide](#). Four screws attach the cable guide to the vertical trough flanges, and five screws attach the cable guide to the rear of the chassis.
2. Pull lower horizontal cable guide straight out and set aside. See [Figure 16: Removing the Currently Installed Lower Horizontal Cable Guide](#).
3. Slide the new lower horizontal cable guide into the chassis.
4. Attach the rear lower horizontal cable guide to the chassis by inserting four longer Phillips head screws through the holes in the face of the cable guide and into the chassis and tighten. See [Figure 17: Installing the CRS Fabric Card Chassis Lower Fiber Guide](#).
5. Insert the four short screws (two on each side) that attach the bracket to the vertical cable trough support flange and tighten. See [Figure 17: Installing the CRS Fabric Card Chassis Lower Fiber Guide](#).
6. Close the doors on the rear (OIM) side of the chassis.

DETAILED STEPS

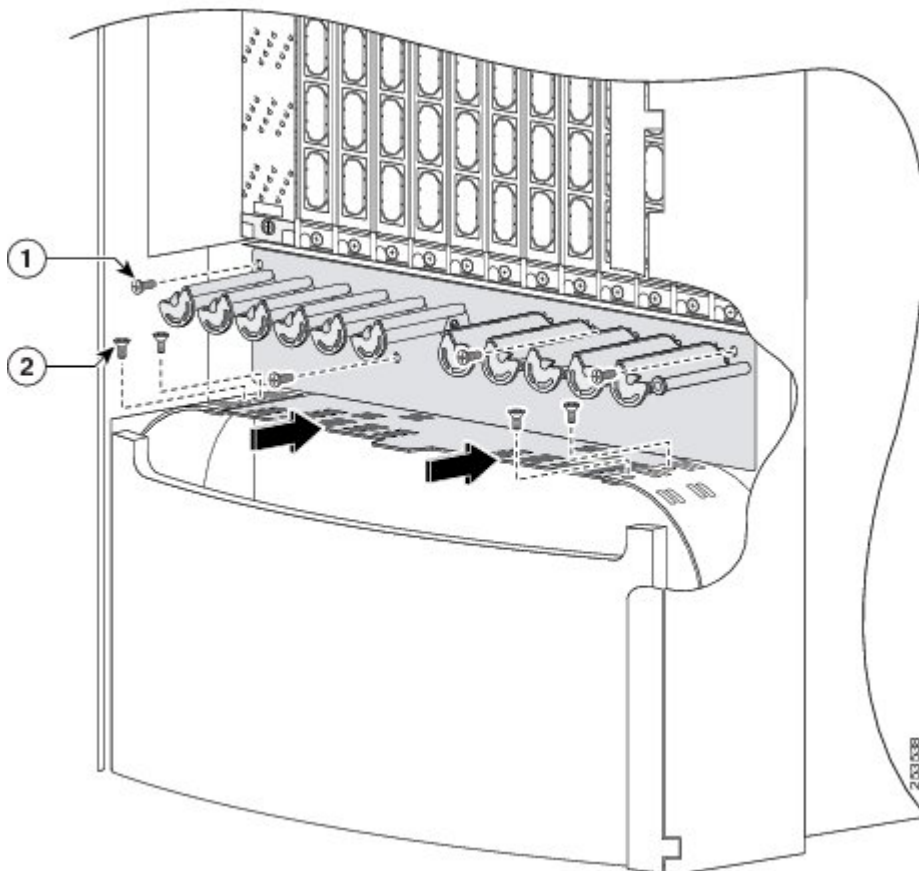
- Step 1** Remove the nine screws that attach the horizontal cable guide to the chassis as shown in [Figure 16: Removing the Currently Installed Lower Horizontal Cable Guide](#). Four screws attach the cable guide to the vertical trough flanges, and five screws attach the cable guide to the rear of the chassis.
- Step 2** Pull lower horizontal cable guide straight out and set aside. See [Figure 16: Removing the Currently Installed Lower Horizontal Cable Guide](#).

Figure 16: Removing the Currently Installed Lower Horizontal Cable Guide



- Step 3** Slide the new lower horizontal cable guide into the chassis.
- Step 4** Attach the rear lower horizontal cable guide to the chassis by inserting four longer Phillips head screws through the holes in the face of the cable guide and into the chassis and tighten. See [Figure 17: Installing the CRS Fabric Card Chassis Lower Fiber Guide](#).
- Step 5** Insert the four short screws (two on each side) that attach the bracket to the vertical cable trough support flange and tighten. See [Figure 17: Installing the CRS Fabric Card Chassis Lower Fiber Guide](#).

Figure 17: Installing the CRS Fabric Card Chassis Lower Fiber Guide



1	6 mm long screw attaching cable guide to chassis (quantity=5)
2	4-mm long screw attaching cable guide to vertical trough (quantity=4)

- Step 6** Close the doors on the rear (OIM) side of the chassis.

Upgrading the Upper Horizontal Cable Guide

If you are installing the new upper horizontal cable guide as an update to an existing system, the currently installed upper horizontal cable guide must be removed from the chassis before the new upper horizontal cable guide can be installed.



Note The upper horizontal cable guide should be replaced as part of the vertical cable trough replacement procedure described in the [Upgrading the Currently Installed Vertical Cable Troughs](#).



Note The new upper horizontal cable guide contains additional slots.

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
- Cable management retrofit kit (Cisco product number: CRS-FCC-CM-RETRO=)

Prerequisites

Before performing this task, open the doors on the rear (OIM) side of the chassis, if they haven't already been removed.

Steps

To upgrade the upper horizontal cable guide, perform the following steps:

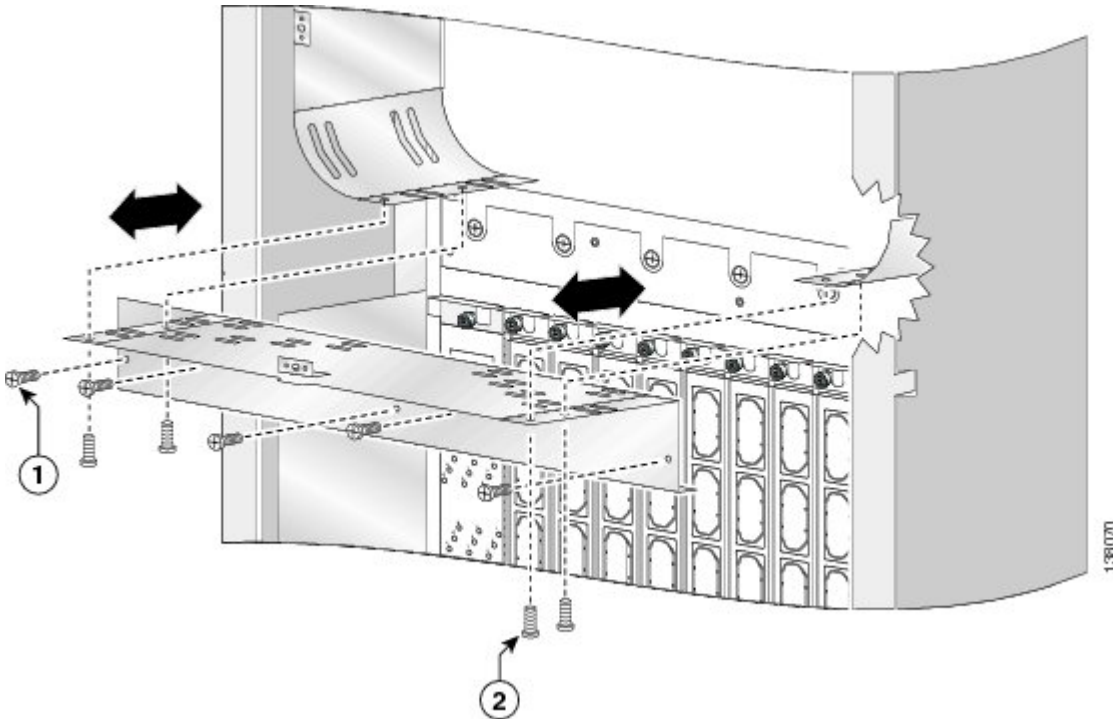
SUMMARY STEPS

1. Use the screwdriver to remove the four screws (two on each side) that attach the bracket to the vertical cable trough support flange (see [Figure 18: Removing the Rear Upper Horizontal Cable Guide](#)), and set them aside.
2. Using the screwdriver, remove the five longer Phillips head screws that attach the face of the bracket to the chassis. Remove the cable guide and carefully set it aside. (see [Figure 18: Removing the Rear Upper Horizontal Cable Guide](#))
3. Attach the new rear upper horizontal cable guide by inserting five longer Phillips screws through the holes in the face of the bracket and into the chassis and tighten.
4. Insert the four short Phillips screws (two on each side) that attach the bracket to the vertical cable trough support flange and tighten.
5. Re-install (if previously removed) and close the doors on the rear (OIM) side of the chassis. See the [“Attaching the Rear Exterior Doors”](#) section on page 5-33.

DETAILED STEPS

- Step 1** Use the screwdriver to remove the four screws (two on each side) that attach the bracket to the vertical cable trough support flange (see [Figure 18: Removing the Rear Upper Horizontal Cable Guide](#)), and set them aside.
- Step 2** Using the screwdriver, remove the five longer Phillips head screws that attach the face of the bracket to the chassis. Remove the cable guide and carefully set it aside. (see [Figure 18: Removing the Rear Upper Horizontal Cable Guide](#))

Figure 18: Removing the Rear Upper Horizontal Cable Guide



1	6 mm long screw attaching cable guide to chassis (quantity=5)
2	4-mm long screw attaching cable guide to vertical trough (quantity=4)

- Step 3** Attach the new rear upper horizontal cable guide by inserting five longer Phillips screws through the holes in the face of the bracket and into the chassis and tighten.
Note There are two different lengths of screws used to attach the horizontal cable guides; 4 mm long screws and 6 mm long. Extra screws are provided.

- Step 4** Insert the four short Phillips screws (two on each side) that attach the bracket to the vertical cable trough support flange and tighten.
- Step 5** Re-install (if previously removed) and close the doors on the rear (OIM) side of the chassis. See the [“Attaching the Rear Exterior Doors” section on page 5-33](#) .
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