



Installing Exterior Cosmetic Components

This chapter provides instructions on how to install the Cisco CRS Enhanced 16-slot line card chassis exterior cosmetic components.

This chapter presents the following topics:

- [Information About Exterior Cosmetic Components, page 1](#)
- [Installing the Front \(PLIM\) Side Exterior Cosmetic Components, page 6](#)
- [Installing the Rear \(MSC\) Side Cosmetic Components, page 17](#)
- [Attaching the Upper Rear Air Grille and Rear Kick Plate Without Vertical Troughs, page 24](#)

Information About Exterior Cosmetic Components

This section contains some general information about the exterior cosmetic components.

The Cisco CRS Series enhanced 16-slot line card chassis is shipped with exterior cosmetic components for the front (PLIM) side and rear (MSC) side of the chassis.

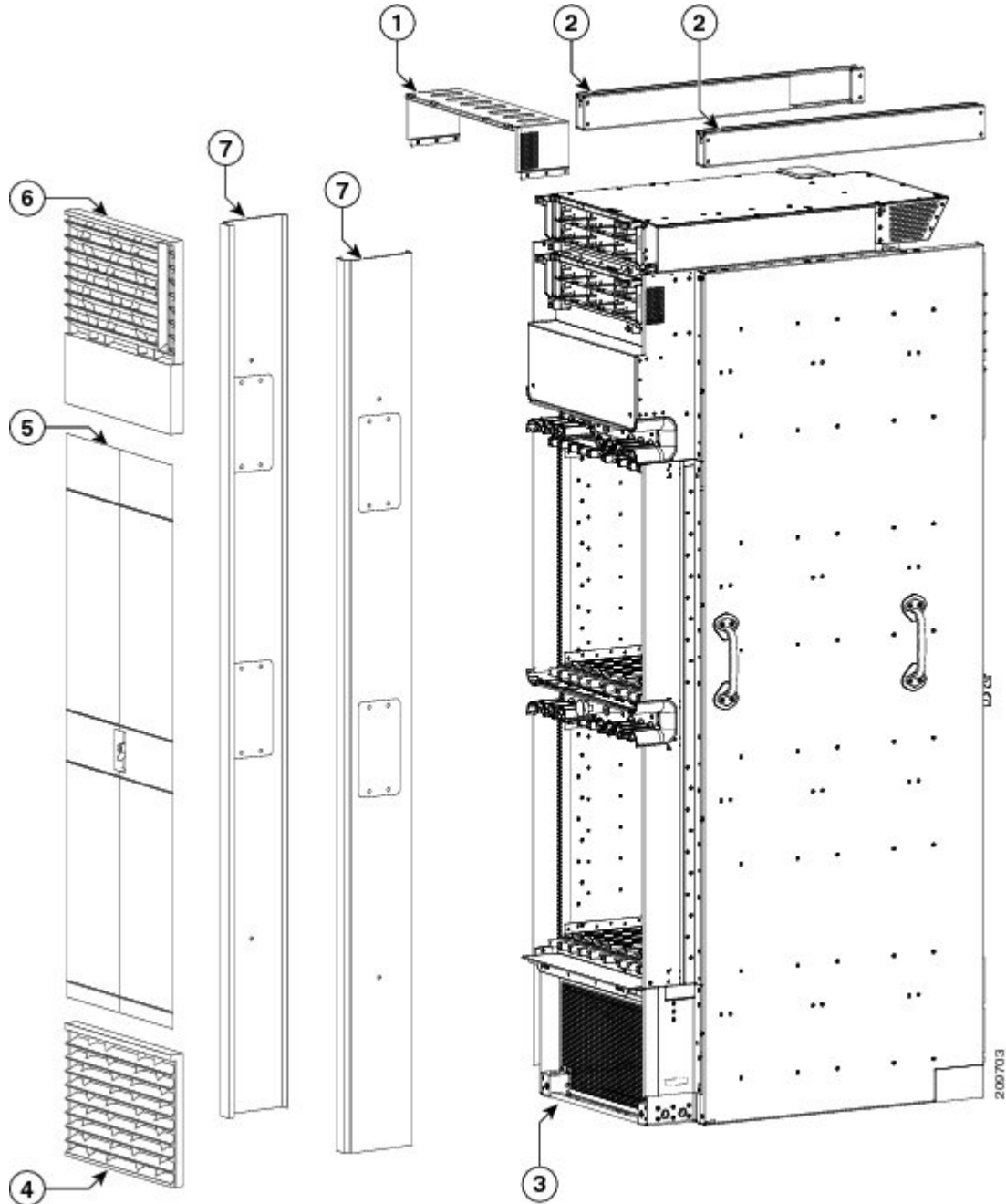


Note

Some exterior cosmetic components, such as the cable pass-through accessory plates, are not required to be installed.

This figure shows the default exterior cosmetic components for the front (PLIM) side of a Cisco CRS Series enhanced 16-slot line card chassis.

Figure 1: Default Front (PLIM) Side Exterior Cosmetic Components

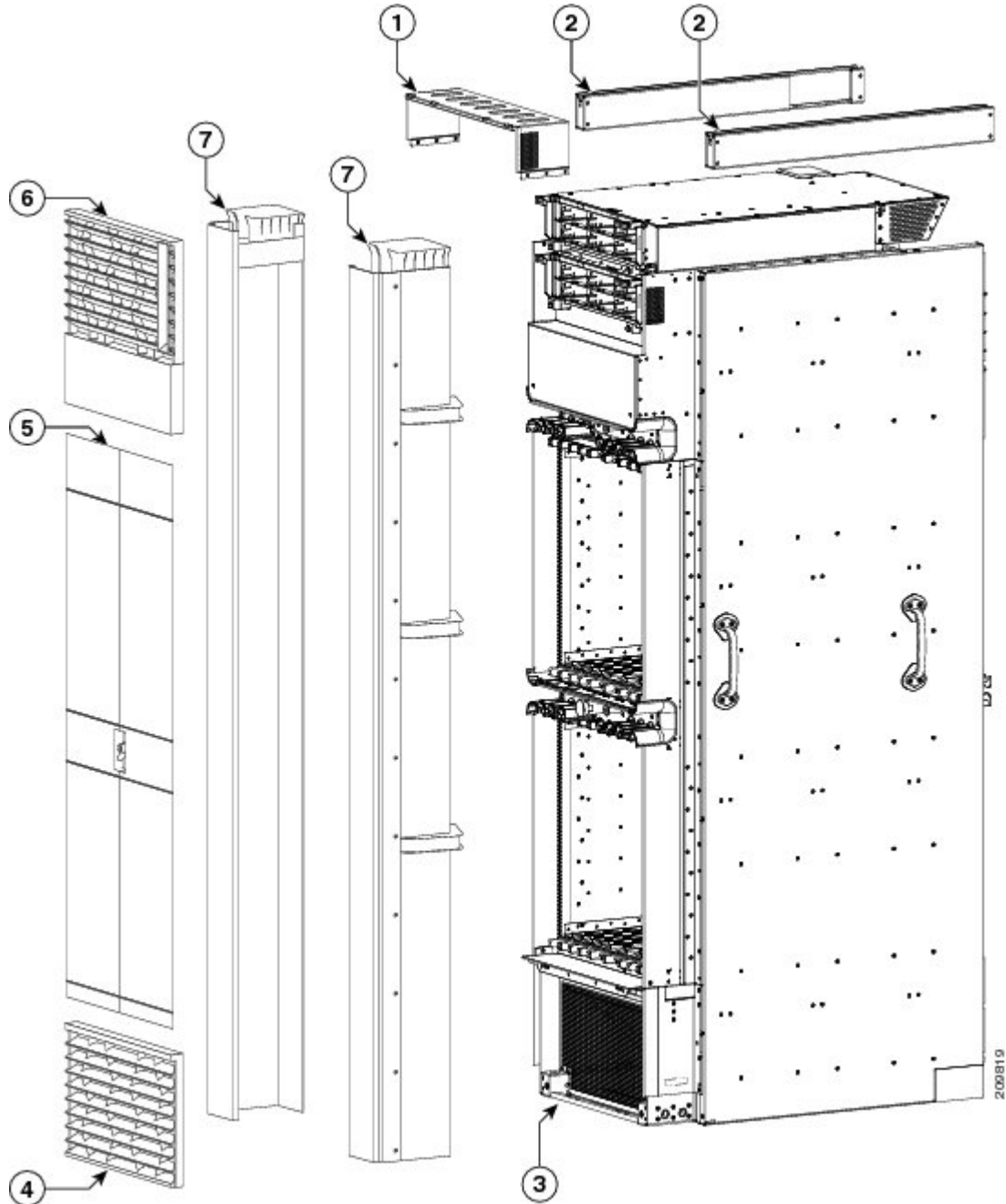


1	Upper grille support	5	Doors
2	Unistruts	6	Upper grille

3	Bracket for lower grille	7	Vertical cable troughs
4	Lower grille		

This figure shows the exterior cosmetic components for the front (PLIM) side of a Cisco CRS Series enhanced 16-slot line card chassis installed as part of a wide duct system.

Figure 2: Front (PLIM) Side Exterior Cosmetic Components—Wide Duct System

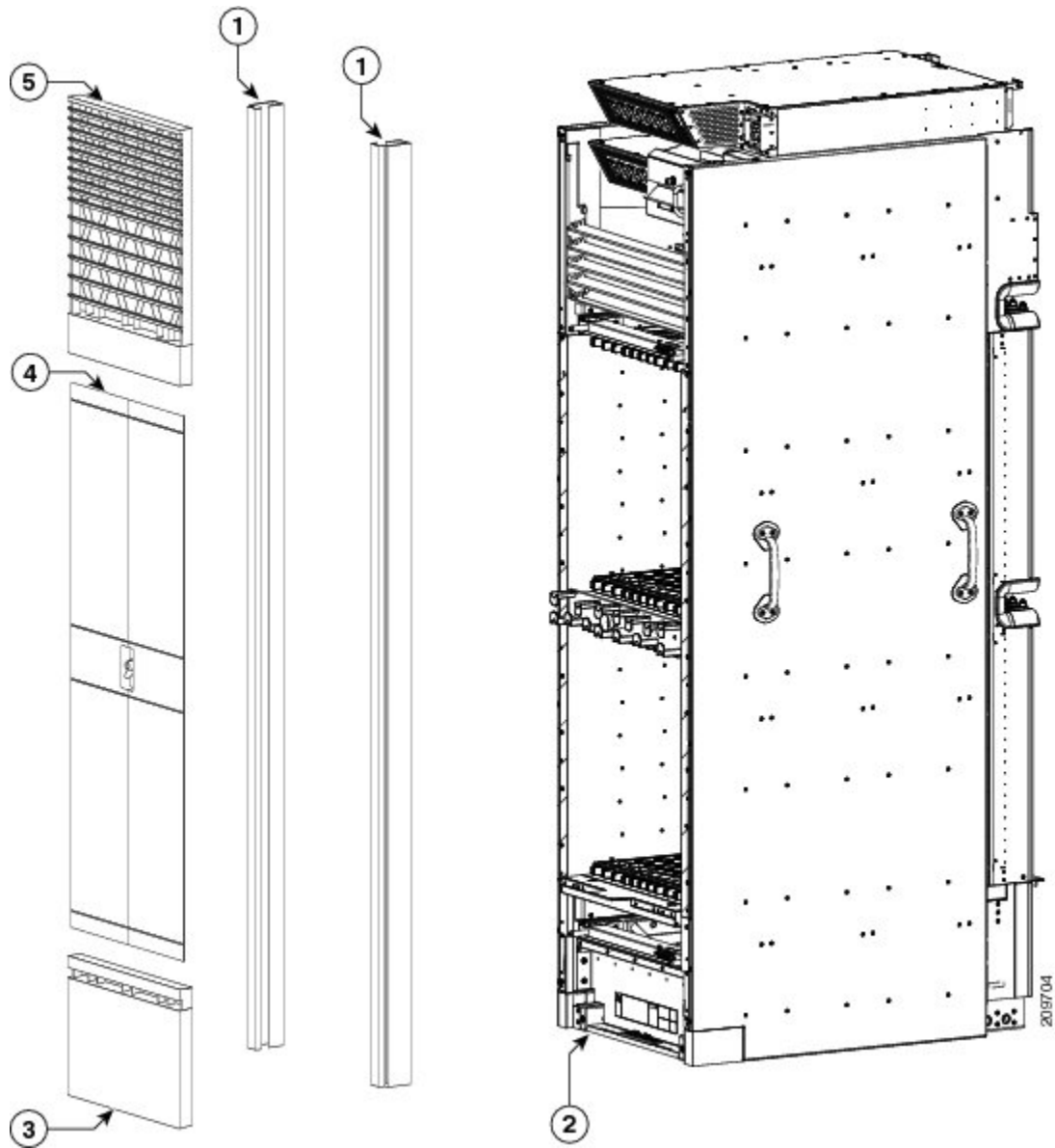


1	Upper grille support	5	Doors
2	Unistruts	6	Upper grille

3	Bracket for lower grille	7	Wide vertical cable troughs
4	Lower grille		

This figure shows the exterior cosmetic components for the rear (MSC) side of a Cisco CRS Series enhanced 16-slot line card chassis.

Figure 3: Rear (MSC) Side Exterior Cosmetic Components



1	Vertical cable trough	4	Doors
2	Bracket for optional rear kick panel	5	Upper air grille
3	Rear kick panel (optional, orderable separately)		

Installing the Front (PLIM) Side Exterior Cosmetic Components

This section describes how to install the default front (PLIM) side exterior cosmetic components ([Figure 1: Default Front \(PLIM\) Side Exterior Cosmetic Components](#), on page 2) on the Cisco CRS Series enhanced 16-slot line card chassis.



Note

While it is possible to install the various exterior components on the Cisco CRS Series enhanced 16-slot line card chassis in a different order, it is easier to install them in the order outlined in this section.

The lower grille screen and frame assembly are shipped pre-installed in the chassis. The upper grille support is not shipped pre-installed on the chassis but must be installed before the power shelves are installed in the chassis. For more information, see the [Installing the Upper Grille Support](#)

This section describes how to perform the following tasks:

Prerequisites

Before performing this task, you must first unpack and secure the chassis. See the *Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Unpacking, Moving, and Securing Guide*.

The upper grille support should already be installed at the top of the chassis. See the [Installing the Upper Grille Support](#) for more information.

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, bit size #1
- 3/8-in. drive ratchet wrench
- Default vertical cable troughs (Cisco product number 800-35625-xx [right], 800-35644-xx [left])
- Optional wide vertical cable troughs (Cisco product number 800-36457-xx [right], 800-36456-xx [left])
- Optional cable pass-through accessory kit (Cisco product number CRS-LCC-CM-COVER), used with default cosmetics
- Upper grille (Cisco product number 800-35465-xx)
- Lower grille (Cisco product number 800-35466-xx)

- Exterior doors kit (Cisco product number CRS-16-DOORS-F)

Steps

To install front (PLIM) side exterior cosmetic components, perform the following steps:

SUMMARY STEPS

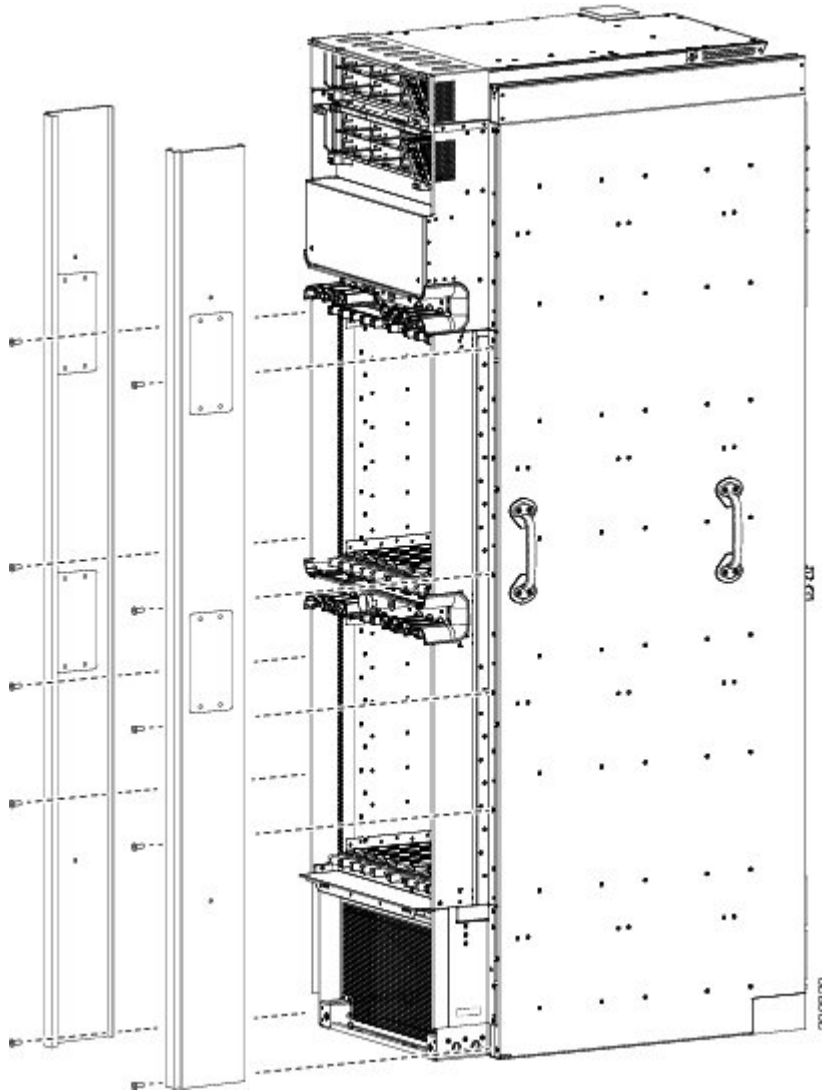
1. Unpack all cosmetic parts to prepare for installation.
2. (Attaching the Default Front Vertical Cable Troughs) Attach the vertical cable troughs—one right and one left—to the front (PLIM) side of the chassis (see *Installing the Front Vertical Cable Troughs* figure below):
3. (Installing the Cable Pass-through Accessory Plates (Optional)—Default Cable Trough Only) Remove the blank plates by unscrewing the four screws on each one.
4. Attach the inner cut-out plates using the four screws provided. See the *Cut-Out Plates* figure.
5. Attach the outer cut-out plate using the four screws provided.
6. (Attaching the Optional Wide Front Vertical Cable Troughs (Optional Trough)). Attach the vertical cable troughs—one right and one left—to the front (PLIM) side of the chassis (see *Installing the Front Vertical Cable Troughs* above):
7. (Installing the Upper Grille) Attach the upper grille by carefully inserting the four tabs on the grille into the appropriate hook hanger brackets on the top of the upper grille support (see below figure).
8. Press the grille and bezel firmly against the chassis until it snaps onto the ball stud snaps.
9. (Attaching the Lower Grille) Attach the lower grille by carefully inserting the tabs on the grille into the brackets on the bottom of the inlet grille frame.
10. Press the lower grille firmly until it snaps onto the ball stud snaps.
11. (Attaching the Front Exterior Doors) Orient the doors so that the slot on the metal part in the middle of the doors is lined up with the tab on the vertical cable trough. The door will then drop into position. See the below figure.
12. Insert the screws into the appropriate screw holes in the doors, and use the screwdriver to tighten fully. There are 11 M4x8 screws on each side for the metal sections of the doors and six M4x8 screws on each side for the plexiglass section of the door.
13. Ensure that the doors are properly aligned.
14. For wide duct installations (see *Door Adjustments for Wide Trough Installation* figure below):

DETAILED STEPS

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- Step 1** Unpack all cosmetic parts to prepare for installation.
- Step 2** (Attaching the Default Front Vertical Cable Troughs) Attach the vertical cable troughs—one right and one left—to the front (PLIM) side of the chassis (see *Installing the Front Vertical Cable Troughs* figure below):
- Note** The part number for the right side vertical cable trough is 800-35625-xx; the part number for the left side vertical cable trough is 800-35644-xx.
- a) Tug all Velcro straps forward so that they are flush with the back side of the cable troughs (where the troughs attach to the chassis) to ensure that the troughs fit flush to the chassis.
 - b) Insert the cable trough positioning studs into the guide slots on the unistrut, and let them slide down and lock into place.

- c) Insert the 10 M4x14-mm flat head screws (five on each trough) and use the screwdriver to turn the screws clockwise to attach the cable troughs firmly to the front of chassis.

Figure 4: Installing the Front Vertical Cable Troughs

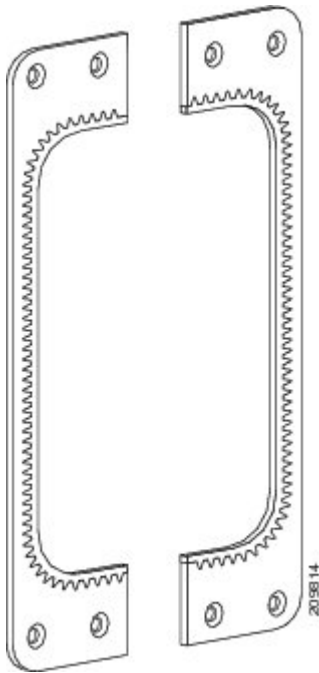


Step 3 (Installing the Cable Pass-through Accessory Plates (Optional)—Default Cable Trough Only) Remove the blank plates by unscrewing the four screws on each one.

Note 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 the required cables. To resolve this issue, you can install two pass-through accessory plates to allow cables be guided outside the default vertical troughs.

Step 4 Attach the inner cut-out plates using the four screws provided. See the *Cut-Out Plates* figure.

Figure 5: Cut-Out Plates



Step 5 Attach the outer cut-out plate using the four screws provided.

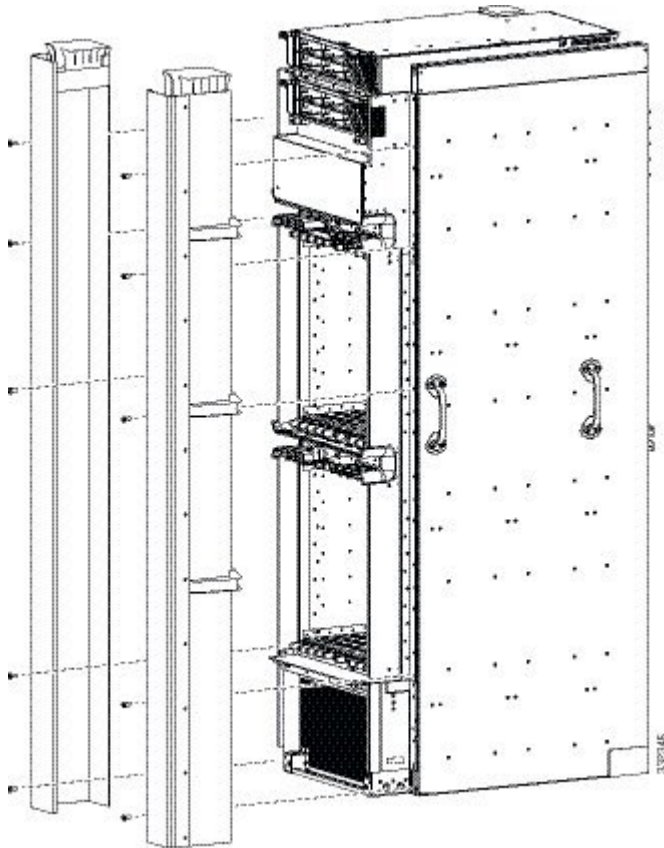
Step 6 (Attaching the Optional Wide Front Vertical Cable Troughs (Optional Trough)). Attach the vertical cable troughs—one right and one left—to the front (PLIM) side of the chassis (see *Installing the Front Vertical Cable Troughs* above):

Note The part number for the right side vertical cable trough is 800-36457-xx; the part number for the left side vertical cable trough is 800-36456-xx.

- a) Tug all Velcro straps forward so that they are flush with the back side of the cable troughs (where the troughs attach to the chassis) to ensure that the troughs fit flush to the chassis.
- b) Insert the cable trough hooks into guide slots, and let them slide down and lock into place.

- c) Insert the ten M4x14-mm flat head screws (five on each side) and use the screwdriver to turn the screws clockwise to attach the cable troughs firmly to the front of the chassis. See the below figure .

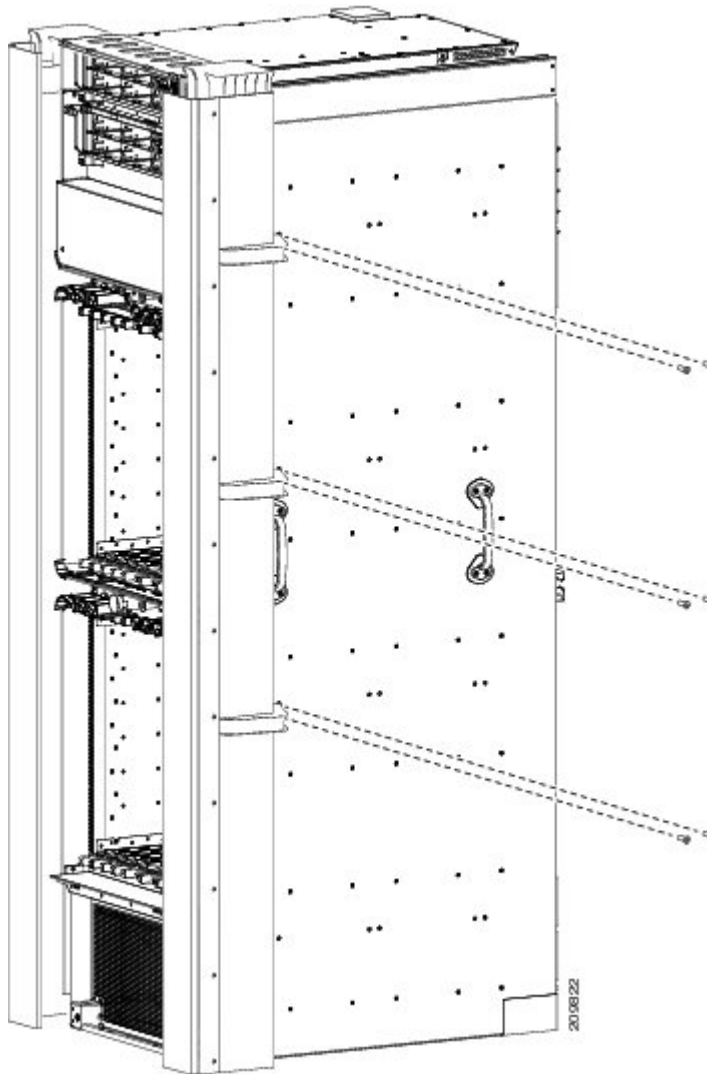
Figure 6: Attaching Wide Vertical Cable Troughs to Front of Chassis



- d) Insert the twelve M8x12 screws that attach the three brackets (two screws on each bracket) on each trough to the side of the chassis. Use the screwdriver to turn the screws clockwise to attach the cable trough brackets firmly to the side of the chassis. See the below figure.

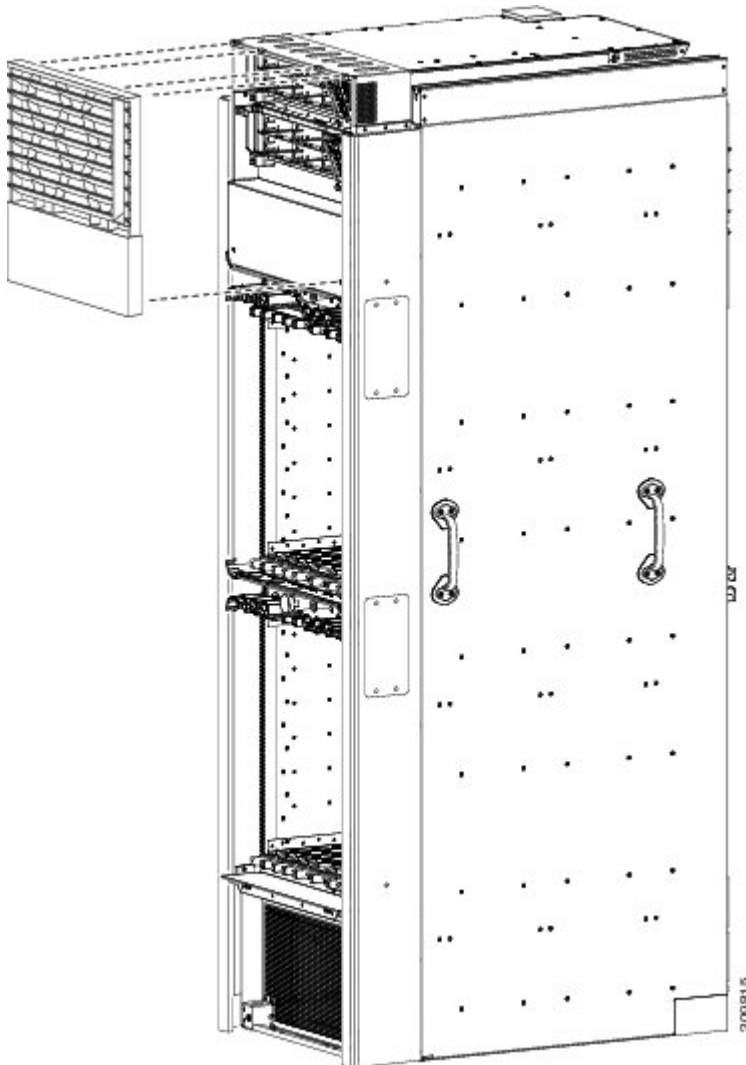
Note The brackets for securing the wide cable trough to the side of the chassis are shipped pre-installed on the cable trough.

Figure 7: Attaching Wide Vertical Cable Trough Brackets to Side of Chassis



- Step 7** (Installing the Upper Grille) Attach the upper grille by carefully inserting the four tabs on the grille into the appropriate hook hanger brackets on the top of the upper grille support (see below figure).
- Step 8** Press the grille and bezel firmly against the chassis until it snaps onto the ball stud snaps.

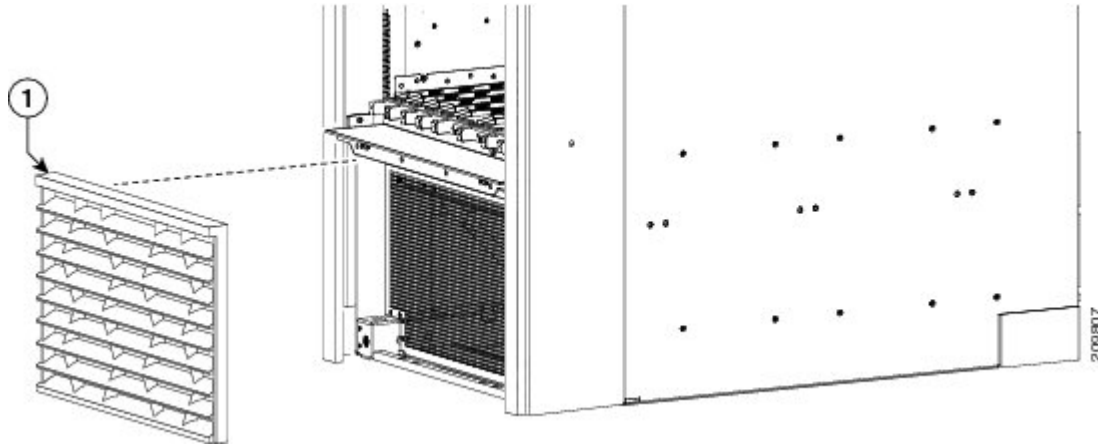
Figure 8: Attaching the Front Upper Grille



Step 9 (Attaching the Lower Grille) Attach the lower grille by carefully inserting the tabs on the grille into the brackets on the bottom of the inlet grille frame.

Step 10 Press the lower grille firmly until it snaps onto the ball stud snaps.

Figure 9: Installing the Front Lower Grille



1	Front lower grille
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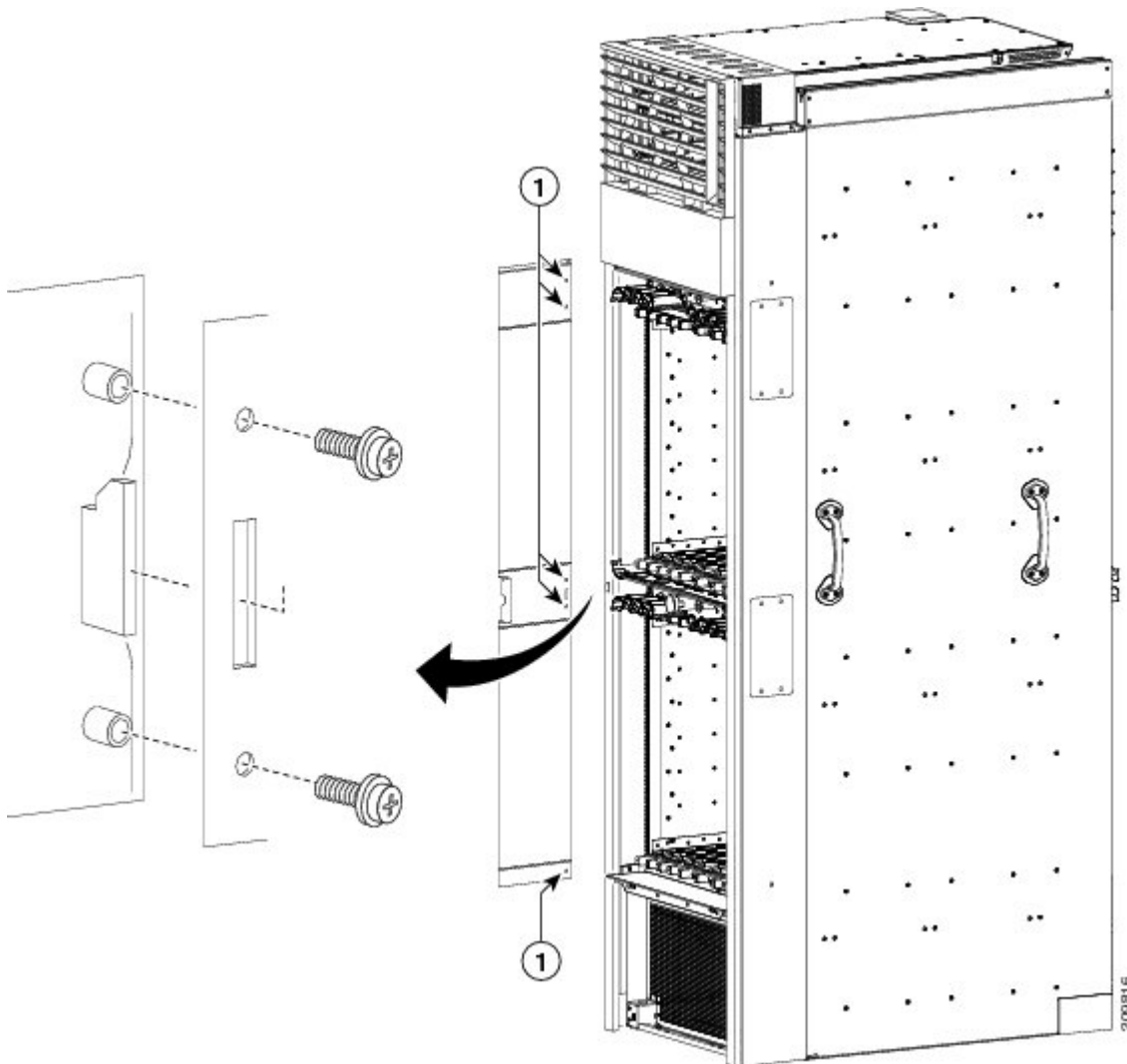
Note The procedure for installing the front doors on the default vertical cable troughs and the wide cable troughs is the same.

Step 11 (Attaching the Front Exterior Doors) Orient the doors so that the slot on the metal part in the middle of the doors is lined up with the tab on the vertical cable trough. The door will then drop into position. See the below figure.

Note The part number for the right door is 800-35628-xx; the part number for the left door is 800-35646-xx. The door lock is on the left door.

Caution The doors scratch easily, so they should be handled with care.

Figure 10: Attaching the Front Doors



1

Screw locations

Step 12 Insert the screws into the appropriate screw holes in the doors, and use the screwdriver to tighten fully. There are 11 M4x8 screws on each side for the metal sections of the doors and six M4x8 screws on each side for the plexiglass section of the door.

Note To ensure that the door is well supported during installation, insert screws in the upper and lower metal sections first.

Step 13 Ensure that the doors are properly aligned.
The following substeps apply to the default cosmetics.

Note Typically, the doors will close without interfering with each other. However, you may need to adjust either the left or right door, or both, to align the doors properly. Adjust doors only if necessary.

- a) Check to see if the doors close without interfering with each other.
- b) To decrease the door gap, loosen the screws that secure the vertical trough to the chassis. Using the 2 mm hex key wrench, tighten the bottom set screws one full turn. Snug the screws that attach the vertical trough to the chassis and check the door alignment.
- c) To increase the door gap, loosen the screws that secure the vertical trough to the chassis. Using the 2 mm hex key wrench, tighten the top set screws one full turn. Snug the screws that attach the vertical trough to the chassis and check the door alignment.
- d) Repeat the procedure as necessary until the doors are properly aligned.
- e) Tighten the screws that secure the vertical trough to the chassis.

Step 14 For wide duct installations (see *Door Adjustments for Wide Trough Installation* figure below):

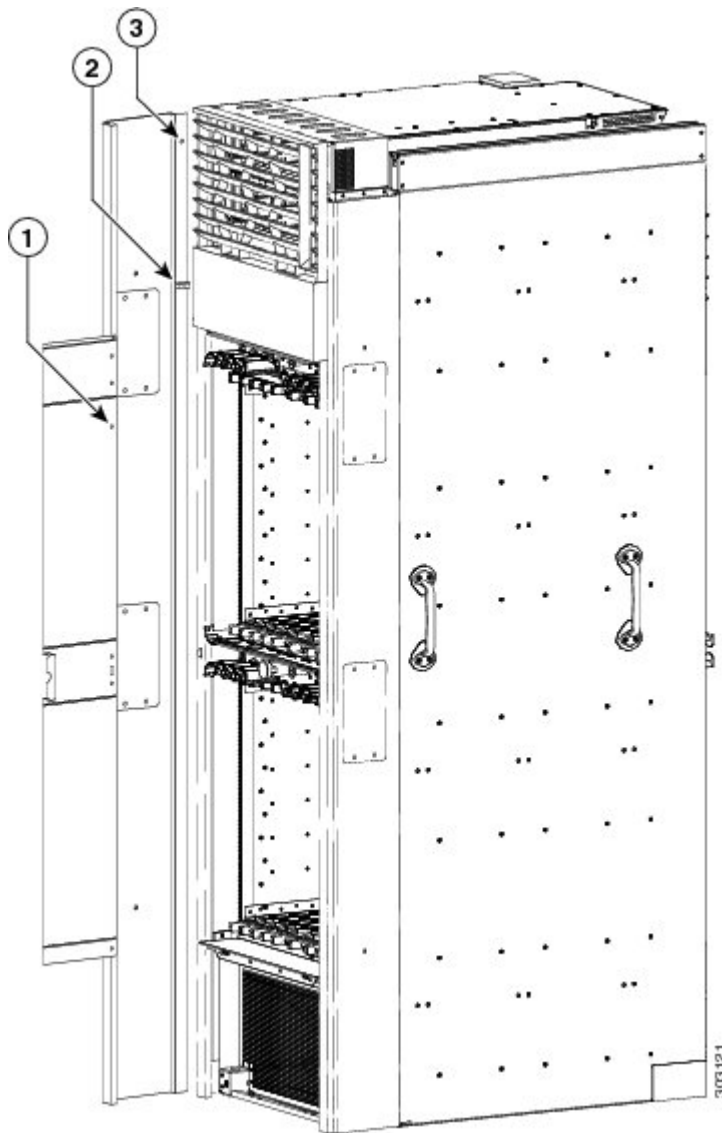
- a) Ensure that the doors are properly aligned.

Note Typically, the doors will close without interfering with each other. However, you may need to adjust either the left or right door, or both, to align the doors properly. Adjust doors only if necessary.

- b) Check to see if the doors close without interfering with each other.
- c) (Minor adjustments) Increase or decrease the door gap by loosening and adjusting the eleven (11) screws on each door as needed.
- d) (Major adjustments) Increase or decrease the door gap by loosening the seven (7) screws on the vertical metal bar on each door as needed.
- e) (Major adjustment) Using a flat blade screwdriver, insert it in the adjustment bracket (upper and lower) and pry either left or right to increase or decrease the door gap (see *Door Adjustments for Wide Trough Installation* figure below).
- f) Tighten all screws that were loosened during the procedure.

- g) Repeat procedure if additional adjustments are needed.

Figure 11: Door Adjustments for Wide Trough Installation



1	Minor adjustments (11 screws)	3	Major adjustments (7 screws on the vertical metal bar on each door)
2	Screwdriver location		

Installing the Rear (MSC) Side Cosmetic Components

This section describes how to install the rear (MSC) side exterior cosmetic components on the Cisco CRS Series enhanced 16-slot line card chassis. While it is possible to install the various exterior components on the chassis in a different order, it is easier to install them in the order outlined in this section. [Figure 3: Rear \(MSC\) Side Exterior Cosmetic Components, on page 5](#) shows the exterior cosmetics for the rear (MSC) side of a Cisco CRS Series enhanced 16-slot line card chassis.

The midchassis cable management bracket and rear door strike tube are shipped pre-installed on the chassis.

This section contains the following procedures:

**Note**

For instructions on installing the rear cosmetics if the vertical trough is not used, see [Attaching the Upper Rear Air Grille and Rear Kick Plate Without Vertical Troughs, on page 24](#)

Prerequisites

Before performing these tasks, you must first unpack and secure the chassis. See *Cisco CRS Carrier Routing System 16-Slot Line Card Chassis Unpacking, Moving, and Securing 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 #1
- Rear vertical cable troughs (included in CRS-16-REAR-CM)
- Rear kick plate (included in CRS-16-REAR-CM)
- Upper air grille (CRS-16-REAR-GRL)
- Rear doors (CRS-16-DOORS-R)
- Upper rear air grille with mounting brackets (CRS-16-REAR-GRL), only if vertical troughs are not used
- Rear kick plate with mounting brackets (CRS-16-KP-REAR), only if vertical troughs are not used

Steps

To install the rear (MSC) exterior cosmetic components, perform the following steps:

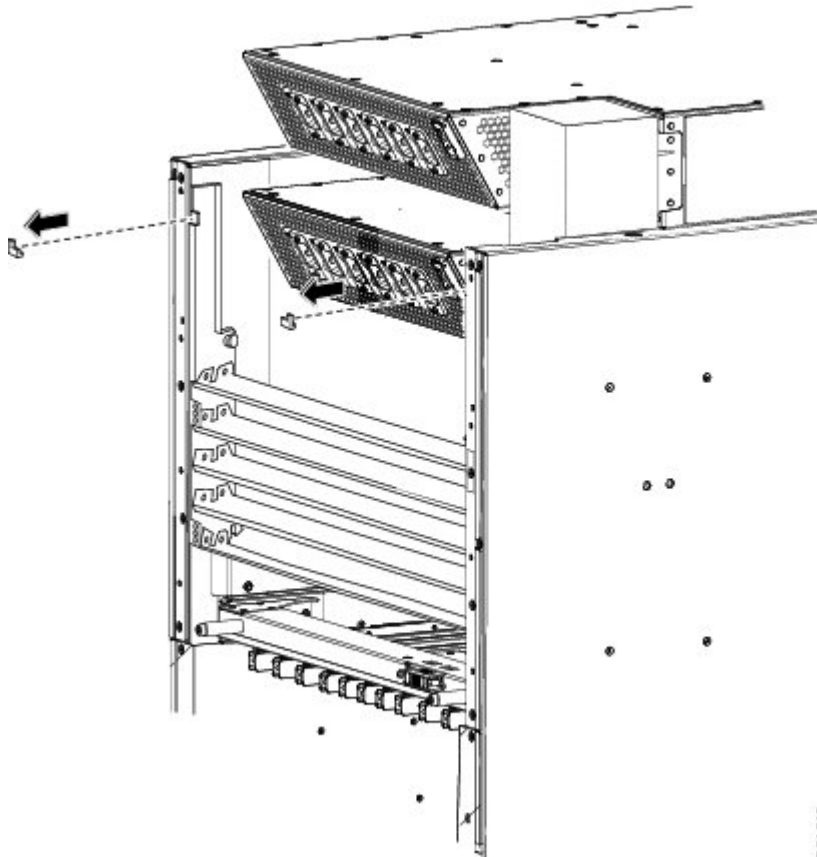
SUMMARY STEPS

1. Unpack all cosmetic parts to prepare for installation.
2. (Attaching the Rear Vertical Cable Troughs) Before you attach the left and right vertical cable troughs, if the verticals have L-brackets, they will need to be removed so that they do not interfere with the air deflector. See below figure.
3. Attach the rear vertical cable troughs—one left and one right—to the rear of the chassis (see the figure below) by inserting the 10 M4x14-mm pan head screws (five on each side) and using the screwdriver to turn the screws clockwise to attach the cable troughs firmly to the chassis. (You might need to use a ladder to reach the upper screws.)
4. (Attaching the Upper Rear Air Grille) Follow these steps if you are using the vertical troughs. To install the upper rear air grille without the vertical troughs, see the [Attaching the Upper Rear Air Grille and Rear Kick Plate Without Vertical Troughs](#), on page 24. Attach the upper grille by carefully hooking the hanger brackets that are on top of the grille over the hook supports that are on top of the vertical cable troughs (see below figure).
5. Press the upper rear air grille firmly until its ball studs snap onto the ball stud retainers.
6. (Attaching the Rear Kick Plate) Carefully slot the tabs on the bottom of the rear kick plate into the brackets on the chassis (see below figure).
7. To secure the top fasteners, firmly press the top edge of the rear kick plate against the chassis until it snaps onto the ball stud snaps.
8. (Installing the Rear Doors) Orient the doors so that the slot on the metal part in the middle of the doors is lined up with the tab on the vertical cable trough. The door will then drop into position. See figure below.
9. Insert the screws into the appropriate screw holes in the doors, and use the screwdriver to tighten fully. There are 10 M4x8 screws on each side for the metal sections of the doors and six M4x8 screws on each side for the plexiglass section of the door.
10. Ensure that the doors are properly aligned.

DETAILED STEPS

- Step 1** Unpack all cosmetic parts to prepare for installation.
- Step 2** (Attaching the Rear Vertical Cable Troughs) Before you attach the left and right vertical cable troughs, if the verticals have L-brackets, they will need to be removed so that they do not interfere with the air deflector. See below figure.

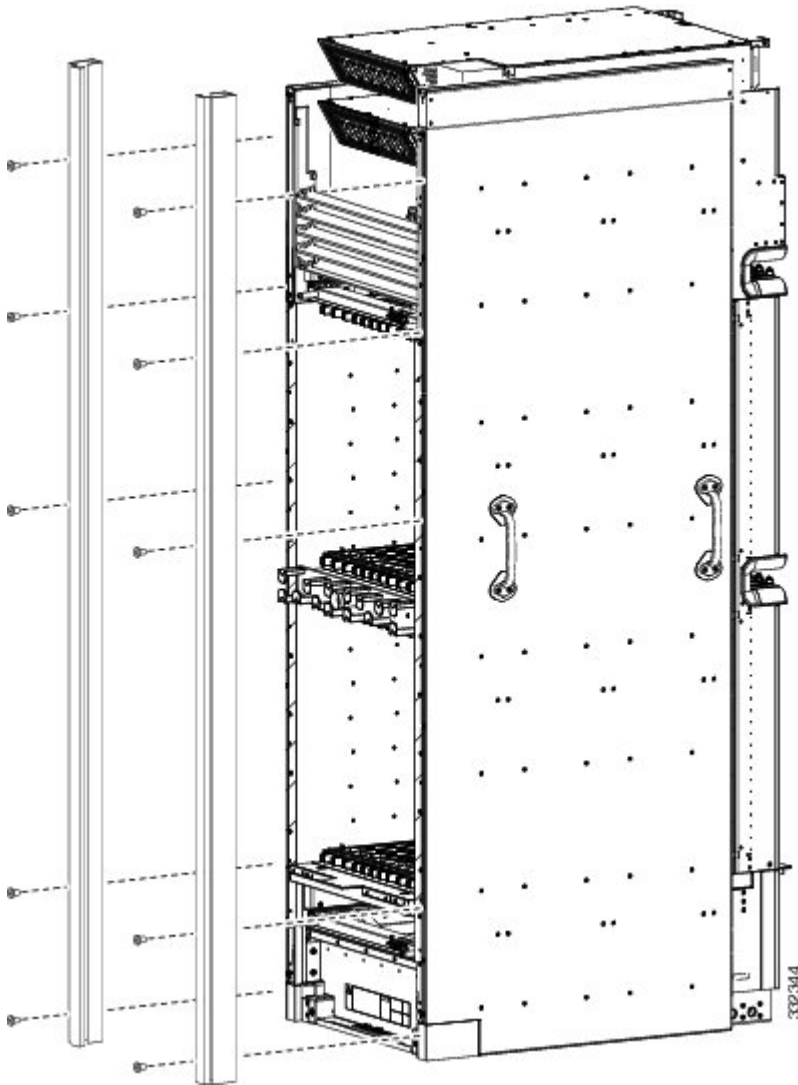
Figure 12: Removing L-Brackets



- Step 3** Attach the rear vertical cable troughs—one left and one right—to the rear of the chassis (see the figure below) by inserting the 10 M4x14-mm pan head screws (five on each side) and using the screwdriver to turn the screws clockwise to attach the cable troughs firmly to the chassis. (You might need to use a ladder to reach the upper screws.)

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.

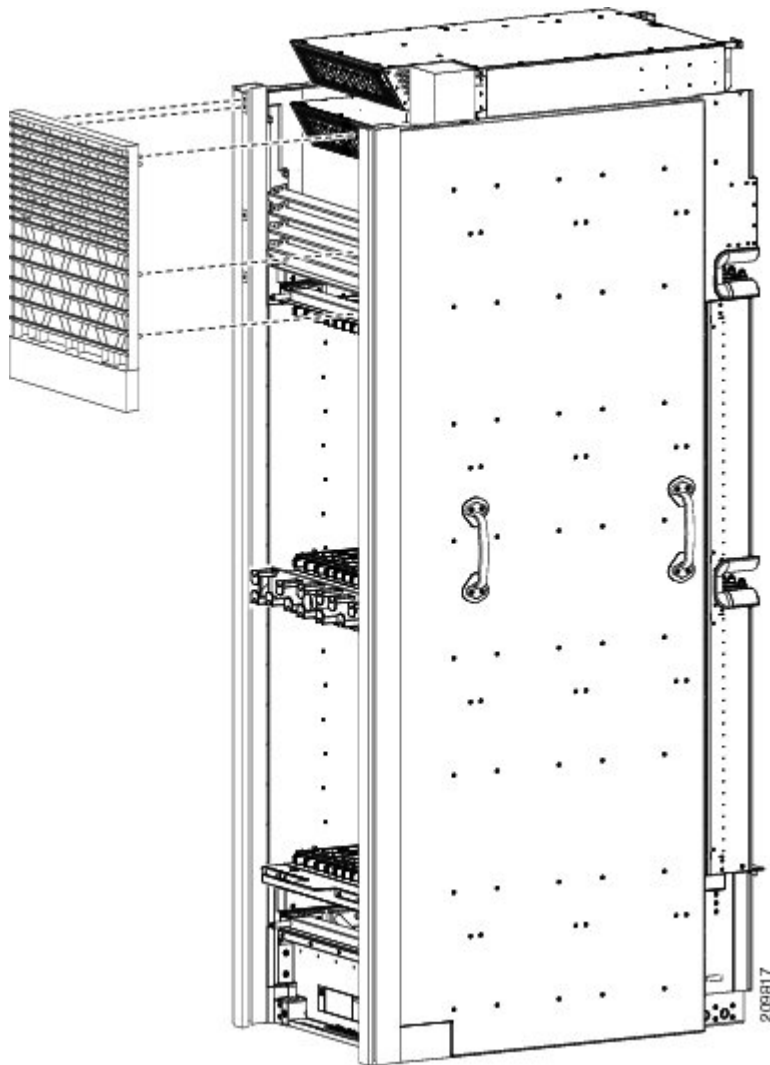
Figure 13: Attaching the Rear (MSC) Side Vertical Cable Troughs



Step 4 (Attaching the Upper Rear Air Grille) Follow these steps if you are using the vertical troughs. To install the upper rear air grille without the vertical troughs, see the [Attaching the Upper Rear Air Grille and Rear Kick Plate Without Vertical Troughs](#), on page 24. Attach the upper grille by carefully hooking the hanger brackets that are on top of the grille over the hook supports that are on top of the vertical cable troughs (see below figure).

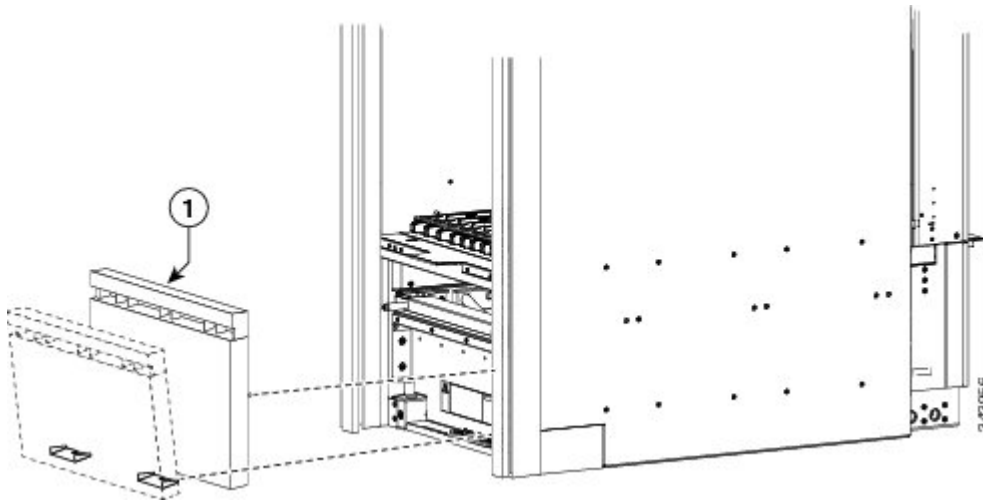
Note Because the upper rear air grille must be installed at the top of the chassis, it is easier to stand on a ladder while installing it.

Note Ensure cables are dressed correctly to ensure enough clearance to install the upper air grille.



- Step 5** Press the upper rear air grille firmly until its ball studs snap onto the ball stud retainers.
- Step 6** (Attaching the Rear Kick Plate) Carefully slot the tabs on the bottom of the rear kick plate into the brackets on the chassis (see below figure).

Figure 14: Attaching the Rear Kick Plate

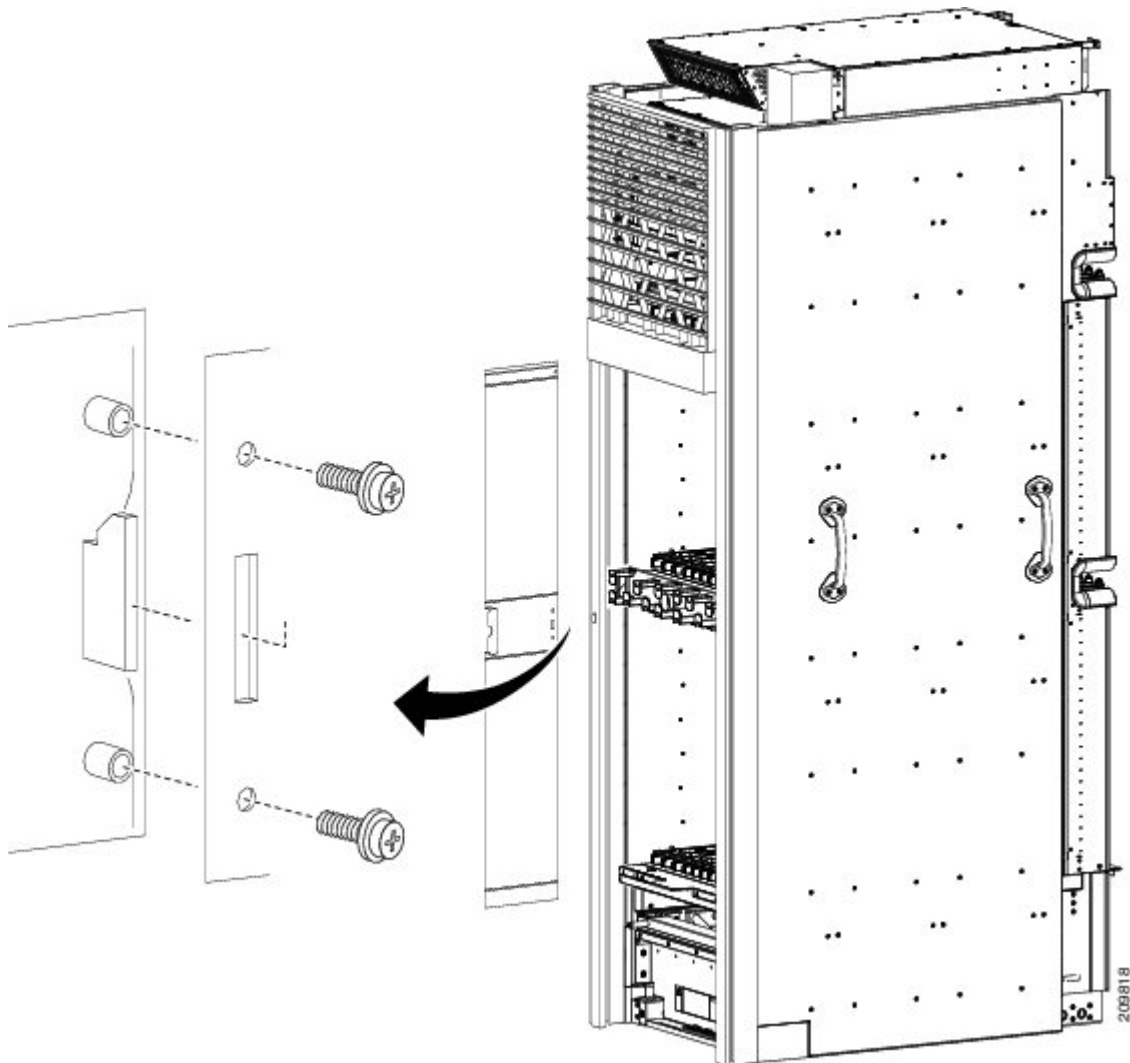


1	Rear kick plate
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- Step 7** To secure the top fasteners, firmly press the top edge of the rear kick plate against the chassis until it snaps onto the ball stud snaps.
- Step 8** (Installing the Rear Doors) Orient the doors so that the slot on the metal part in the middle of the doors is lined up with the tab on the vertical cable trough. The door will then drop into position. See figure below.
- Note** The part number for the right door is 800-35638-xx; the part number for the left door is 800-35475-xx. The door lock is on the left door.

Caution The doors scratch easily, so they should be handled with care.

Figure 15: Attaching the Rear Doors



- Step 9** Insert the screws into the appropriate screw holes in the doors, and use the screwdriver to tighten fully. There are 10 M4x8 screws on each side for the metal sections of the doors and six M4x8 screws on each side for the plexiglass section of the door.
- Note** To ensure that the door is well supported during installation, insert screws in the upper and lower metal sections first.
- Step 10** Ensure that the doors are properly aligned.
- Note** Typically, the doors will close without interfering with each other. However, you may need to adjust either the left or right door, or both, to align the doors properly. Adjust doors only if necessary.
- a) Check to see if the doors close without interfering with each other.

- b) To decrease the door gap, loosen the screws that secure the vertical trough to the chassis. Using the 2 mm hex key wrench, tighten the bottom set screws one full turn. Snug the screws that attach the vertical trough to the chassis and check the door alignment.
- c) To increase the door gap, loosen the screws that secure the vertical trough to the chassis. Using the 2 mm hex key wrench, tighten the top set screws one full turn. Snug the screws that attach the vertical trough to the chassis and check the door alignment.
- d) Repeat the procedure as necessary until the doors are properly aligned.
- e) Tighten the screws that secure the vertical trough to the chassis.

Attaching the Upper Rear Air Grille and Rear Kick Plate Without Vertical Troughs

Use the procedures in this section to install the upper rear air grille (CRS-16-REAR-GRL) and rear kick plate (CRS-16-KP-REAR) if you are not using the vertical troughs. If you are using the vertical troughs, see the procedure in the [Installing the Rear \(MSC\) Side Cosmetic Components](#), on page 17.



Note

Because the upper rear air grille must be installed at the top of the chassis, it is easier to stand on a ladder while installing it.



Note

Ensure cables are dressed correctly to ensure enough clearance to install the upper air grille.

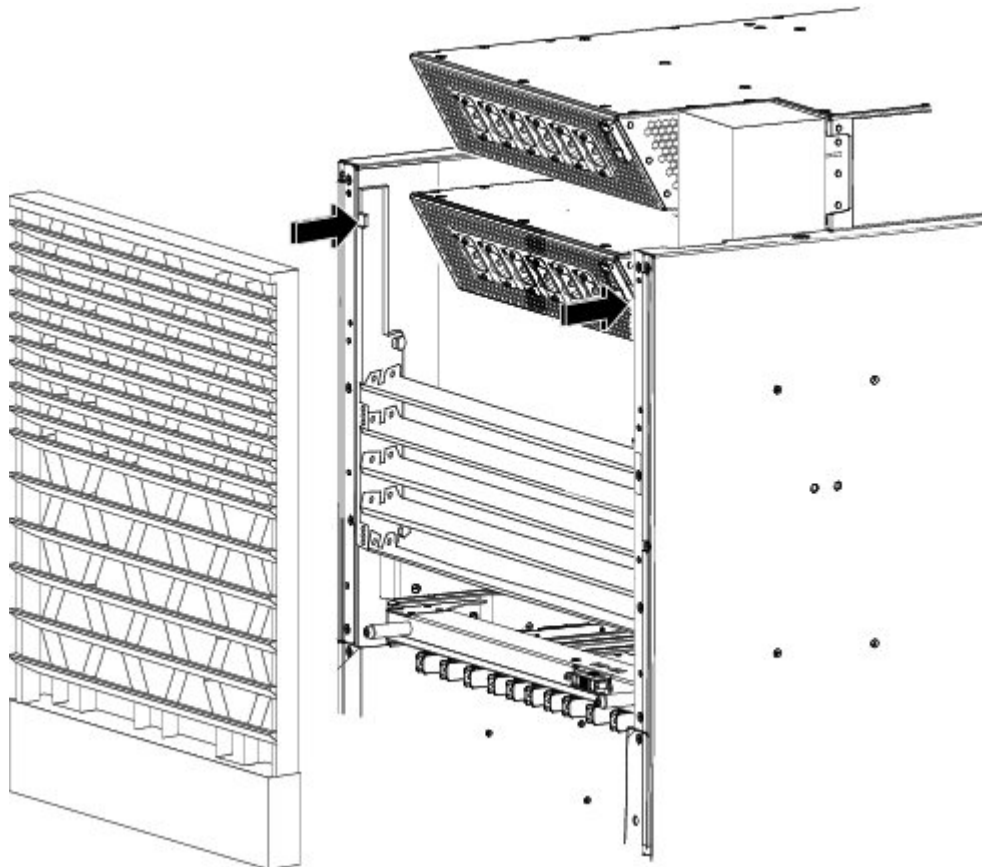
SUMMARY STEPS

1. To attach the upper rear air grille, hang the grille on the inside grille supports.
2. Pivot to the closed position.
3. To attach the rear kick plate, first attach the two brackets provided with the kick plate and fasten them using the captive screws that are included (see figure below).
4. Carefully slot the tabs on the bottom of the rear kick plate into the brackets on the chassis (see figure below).
5. To secure the top fasteners, firmly press the top edge of the rear kick plate against the chassis until it snaps onto the ball stud snaps.

DETAILED STEPS

Step 1 To attach the upper rear air grille, hang the grille on the inside grille supports.

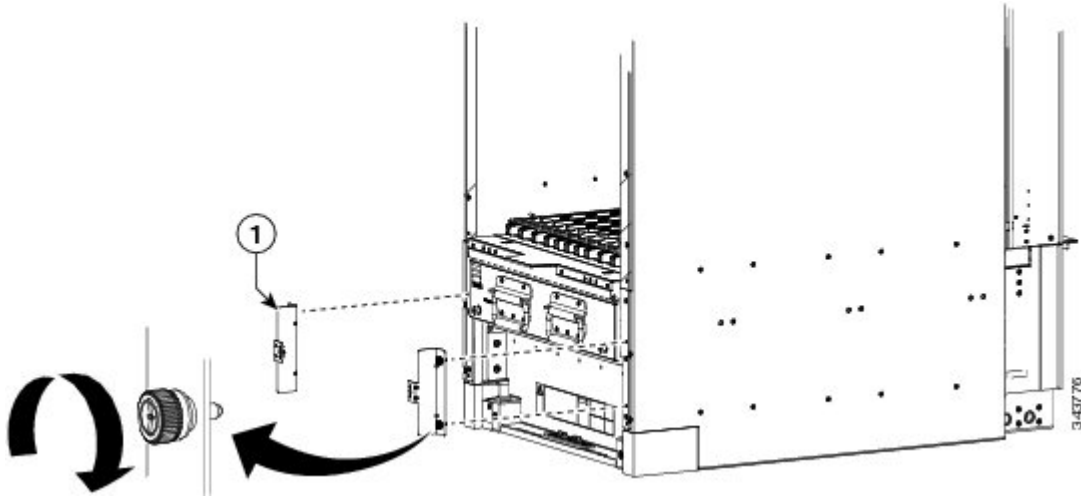
Figure 16: Grille Positioning and Inside Supports



Step 2 Pivot to the closed position.

Step 3 To attach the rear kick plate, first attach the two brackets provided with the kick plate and fasten them using the captive screws that are included (see figure below).

Figure 17: Attaching Brackets for the Rear Kick Plate

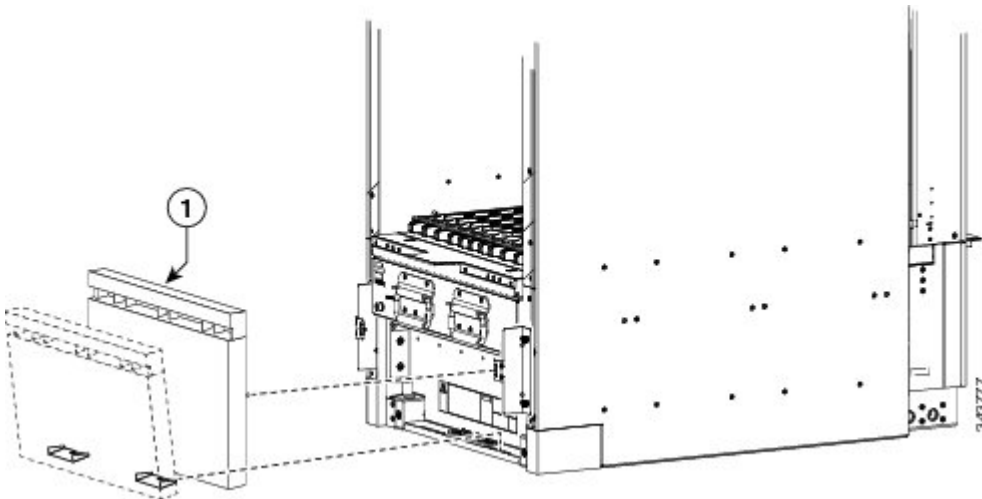


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Brackets for rear kick plate

Step 4 Carefully slot the tabs on the bottom of the rear kick plate into the brackets on the chassis (see figure below).

Figure 18: Attaching the Lower Rear Kick Plate



1

Rear kick plate

- Step 5** To secure the top fasteners, firmly press the top edge of the rear kick plate against the chassis until it snaps onto the ball stud snaps.
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