53-1001802-01
January 31, 2010

Port Side Exhaust Kit

Installation Procedure

Supporting PowerConnect B-DCX-4S Backbone

53-1001802-01

Notes, Cautions, and Warnings

NOTE
A NOTE indicates important information that helps you make better use of your computer.

CAUTION
See the safety and regulatory information that shipped with your system. For additional regulatory information, see the Regulatory Compliance Homepage on www.dell.com at the following location: www.dell.com/regulatory_compliance.

CAUTION
A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

DANGER
A DANGER indicates a potential for property damage, personal injury, or death.

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Regulatory Model Codes: Brocade DCX-4S, Brocade DCX

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Introduction

Air flows into the PowerConnect B-DCX-4S Backbone through its non-port side and out through the exhaust vent on the side of the unit, The Port-Side Exhaust Mount Kit is designed to route this airflow out the exhaust vents on the port side of the unit while mounted in the equipment cabinet. This document provides instructions to install a PowerConnect B-DCX-4S Backbone in a 19 in. (48.26 cm) Electronic Industries Association (EIA) cabinet using the following Brocade Port-Side Exhaust Mount Kits:

- Kit for cabinet rail-to-rail depth of 27 to 31 in. (68.58 to 78.74 cm).
- Kit for cabinet rail-to-rail depth of 18 to 24 in. (45.72 to 60.96 cm).

Safety

Observe the caution notice in this manual. The caution notice has an ID, which is displayed in parentheses (C015). Use this ID to locate the translation of this caution notice in the *Brocade Product Safety Notices*.

CAUTION

Use safe lifting practices when moving the product. (C015)

NOTE

A fully populated PowerConnect B-DCX-4S weighs 103.50 kg (228.20 lb) with four FC8-48 port cards installed (192 ports) and requires a hydraulic or assisted lift to install it.

Installation guidelines

ATTENTION

To ensure adequate cooling, install the chassis with the air intake (nonport side) facing the cool-air aisle.

Follow these general installation guidelines:

- The shelf in the kit is 1 U high, so you need a total of 9 U of cabinet space to install the shelf and the PowerConnect B-DCX-4S Backbone. 1U is equal to 4.45 cm (1.75 in.).
- To allow the quick removal of all power from the chassis, use AC power sources that are easily accessible and located near the chassis.
- Verify that the additional weight of the chassis does not exceed the weight limits of the cabinet.

- Plan for cable management before installing the chassis. Cables can be managed in a variety of ways, such as by routing cables below the chassis, to either side of the chassis, through cable channels on the sides of the cabinet, or using patch panels. Refer to the product's *DCX-4S Backbone Hardware Reference Manua*l for specific information.
- Ensure that one or two dedicated electrical branch circuits with the following characteristics are available:
  - 200-240 VAC, 50-60 Hz (refer to the corresponding Hardware Reference Manual for additional electrical specifications)
  - Protected by a circuit breaker in accordance with local electrical codes
  - Supply circuit, line fusing, and wire size are adequate, according to the electrical rating on the chassis nameplate
  - Grounded outlets are installed by a licensed electrician and compatible with the power cords
  - Located close to the enterprise-class platform chassis and easily accessible
- To maximize fault tolerance, connect each power cord to a separate power source.
- Ensure that all equipment installed in the cabinet is grounded through a reliable branch circuit connection. Do not rely on a secondary connection to a branch circuit, such as a power strip.
- Ensure that the product fans have access to a total minimum airflow of 350 cubic ft (9.91 cubic meters) per minute. Do not block intake vents. Allow for a minimum of 14 in. (35.66 cm) clearance.
- Ensure that the air temperature on the air intake side is less than 104^{o} Fahrenheit (40^{o} Celsius) during operation.

Installing the DCX-4S in equipment cabinet

Use the following instructions to install the DCX-4S in an equipment cabinet using the Port-Side Exhaust Kit.

Time required

Allow approximately one hour to unpack and install a chassis in a cabinet.

Tools required

The following tools are required when installing the rack mount kit:

- Torque wrench with #2 Phillips screwdriver tip
- Flathead screwdriver
- Hydraulic or assisted lift with a minimum raise of 55 in. (140 cm) and a minimum capacity of 250 lbs (113 kg).

Unpacking the PowerConnect B-DCX-4S

Use the following procedure to unpack the PowerConnect B-DCX-4S.

CAUTION

Use safe lifting practices when moving the product. (C015)

NOTE
A fully populated PowerConnect B-DCX-4S weighs 103.50 kg (228.20 lb) with four FC8-48 port cards installed (192 ports) and requires a hydraulic or assisted lift to install it.

1. Unpack the PowerConnect B-DCX-4S.
   a. Cut the bands that encircle the packaging.
   b. Remove the lid and the kits and foam from the top of the chassis.
   c. Lift the cardboard box off the chassis and remove the plastic bag from around the chassis. Save the packing materials for use when returning the old chassis.
   d. Leave the chassis on top of the plastic shipping tray if the chassis must be transported to the installation location.
2. Use a pallet jack or other assisted lift to transport the new chassis to the installation area. Doorways must be wider than 36 in. (91 cm) to accommodate the chassis on the pallet.
3. Remove the Port-Side Exhaust kit, accessory kit, packing foam, and antistatic plastic from the chassis and set aside.

Installing with 27 to 31 in. (68.58 to 78.74 cm) kit

Use the following procedures to install the DCX-4S Backbone in a cabinet with rail-to-rail depth of 27 to 31 in.(68.58 to 78.74 cm). Be sure to use the 27-31 in. Port-Side Exhaust Kit for this installation.

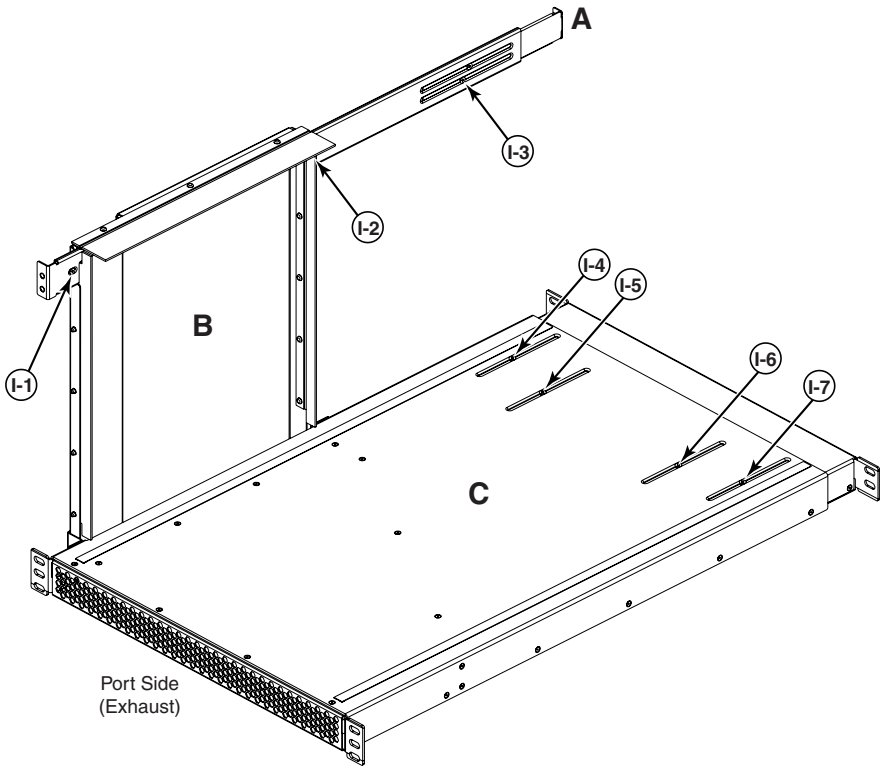
Parts list

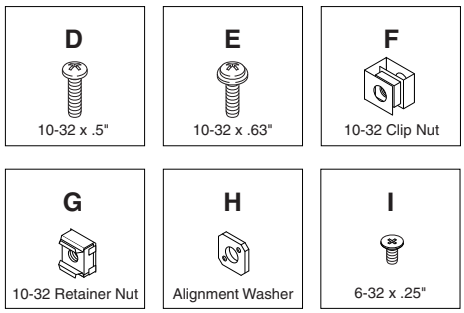
The following parts list refers to items illustrated in Figure 1 on page 6.

TABLE 1 Hardware for Port-Side Exhaust Kit for 27 to 31 in. (68.58 to 78.74 cm) cabinets

Item	Description	Quantity
A	Top rail	1
B	Duct	1
C	Shelf	1
D	10-32 x .5 in. (1.27 cm) Phillips screw (blue Loctite on threads)	12
E	10-32 x .63 in.(1.60 cm) Phillips screw with square cone washer	12
F	10-32 clip nut for cabinets that have rails with round holes	8
G	10-32 retainer nut for cabinets that have rails with square holes	8
H	Alignment washer for cabinets that have rails with square holes	12
I	6-32 x .25 in. (.635 cm) Phillips screw	2

FIGURE 1 Port-Side Exhaust Kit assembly for 27 to 31 in. (68.58 to 78.74 cm) cabinets





Torque requirements

Use the following torque settings when tightening screws that secure the rack mount kit and DCX-4S to the equipment cabinet.

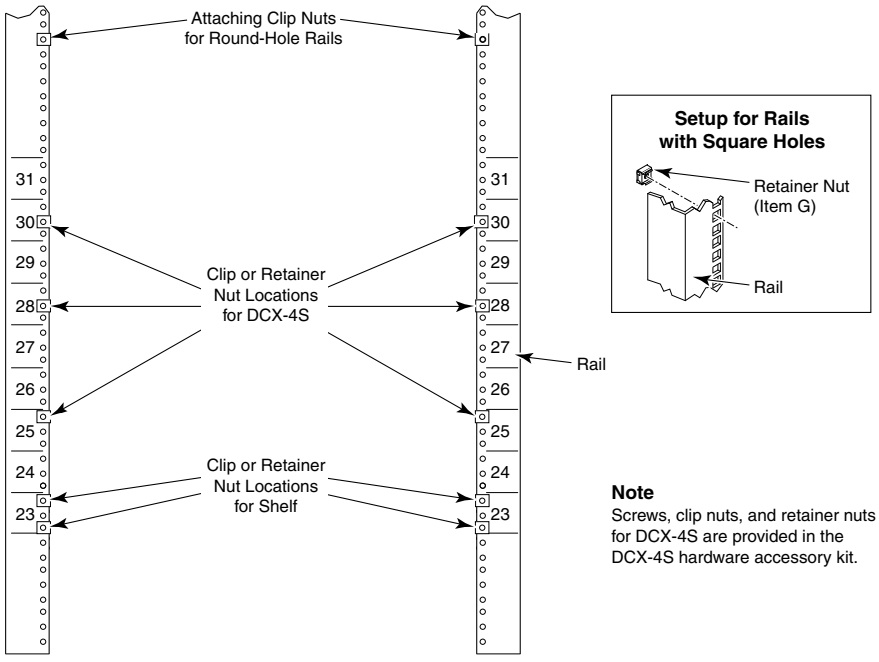
TABLE 2 Torque requirements for mounting screws

Screw size	Torque
6-32 x .25 in. (.635 cm) Phillips screw	8.75 in.-lbs (10 cm-kg)
10-32 x .63 in.(1.60 cm) Phillips screw	32 in.-lbs (36.86 cm-kg)

Install cabinet hardware

1. Determine how the DCX-4S can be oriented in the equipment cabinet so that the nonport side has access to intake air (cool).
2. Install clip nuts (F in Figure 1 on page 6) or retainer nuts (G in Figure 1 on page 6) in cabinet rail locations shown in Figure 2 on page 7. These nuts will secure the 10-32 screws that mount the Port Side Exhaust Kit shelf and DCX-4S to the cabinet. For rails with round holes, use clip nuts. For rails with square holes, use retainer nuts. Note that Figure 2 on page 7 shows relative positions for these nuts in the cabinet rails to mount the shelf and DCX-4S. You may mount the shelf and DCX-4S in 9 U of cabinet space higher or lower in the cabinet than shown.

FIGURE 2 Clip and retainer nut locations on cabinet rails

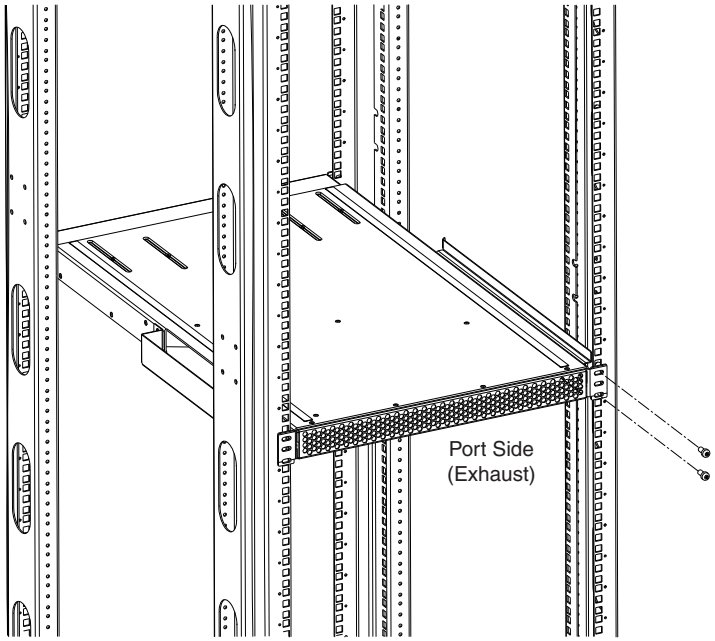


3. Install the shelf (C in Figure 1):

   a. The shelf can be adjusted to a length of between 27 and 31 inches (68.58 and 78.74 cm) to accommodate your cabinet size. To lengthen or shorten the shelf, loosen the four 6-32 screws in the four slots on the shelf (I-4 through I-7 in Figure 1 on page 6) and adjust the shelf to the desired length. Once adjusted, tighten the four 6-32 screws.

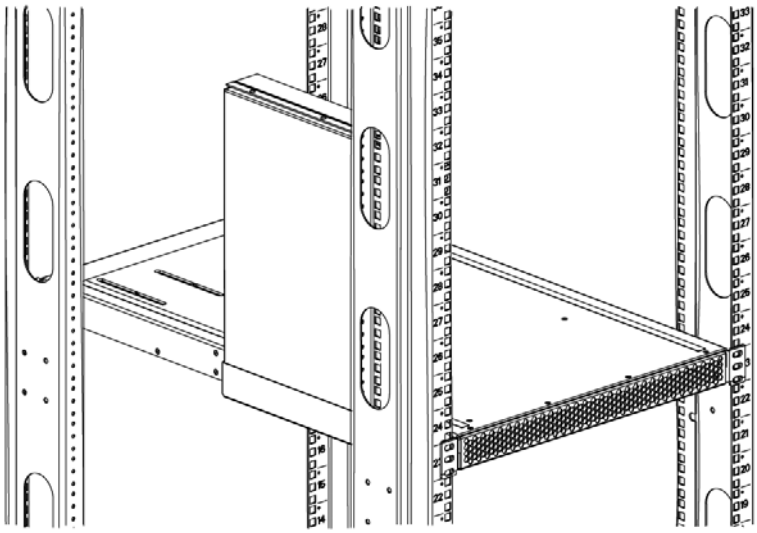
   b. Secure the shelf to the cabinet with eight 10-32 screws with washers (E in Figure 1 on page 6), two screws in each corner of the shelf (see Figure 3). Tighten screws according to specifications under "Torque requirements" on page 6.

FIGURE 3 Shelf installed in cabinet



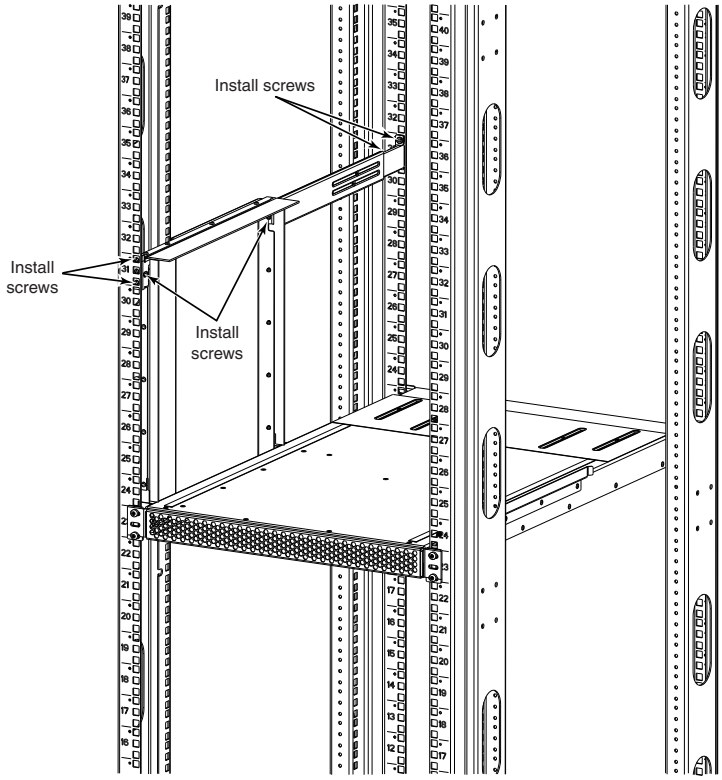
4. Install the air-duct assembly by inserting it down into the side slot on the shelf. Ensure that the tabs of the duct align and engage with the slots in the shelf.

FIGURE 4 Installing air duct into side slot on shelf



5. Install the top-rail assembly (A in Figure 1 on page 6) to the air-duct assembly: Refer to Figure 5 on page 10.
    a. The top-rail assembly can be adjusted to a length of between 27 and 31 inches (68.58 to 78.74 cm) to fit on the inside of the cabinet rails. To lengthen or shorten the top-rail assembly, loosen the two 6-32 screws (I-3 in Figure 1 on page 6) and adjust the top-rail assembly to the desired length. The length will be approximately the length of the adjustable shelf. Once adjusted, tighten the two 6-32 screws.
    b. Insert the top-rail assembly down into the air-duct assembly and then secure the top-rail assembly to the air-duct assembly with two 6-32 screws, one screw on each side of the air-duct assembly (I-1 and I-2 in Figure 1 on page 6). Tighten screws according to specifications under "Torque requirements" on page 6.

FIGURE 5 Securing top rail in cabinet.



6. Secure the top-rail assembly to the cabinet with four 10-32 screws, two screws on each end of the top-rail assembly.
   - For rails with round holes:

     Use two 10-32 screws with washers (E in Figure 1 on page 6) on each end of the top rail assembly. Tighten screws according to specifications under "Torque requirements" on page 6.
   - For rails with square holes:

     Use the two standard 10-32 screws (D in Figure 1 on page 6) with blue Loctite on the threads and alignment washers (H in Figure 1 on page 6) on each end of the top rail assembly. Tighten screws according to specifications under "Torque requirements" on page 6.

Install DCX-4S in cabinet

1. Ensure that the door is removed from the port side of the DCX-4S. For instructions, refer to the corresponding Hardware Reference Manual.
2. Use a lift to raise the chassis to the correct level.

CAUTION

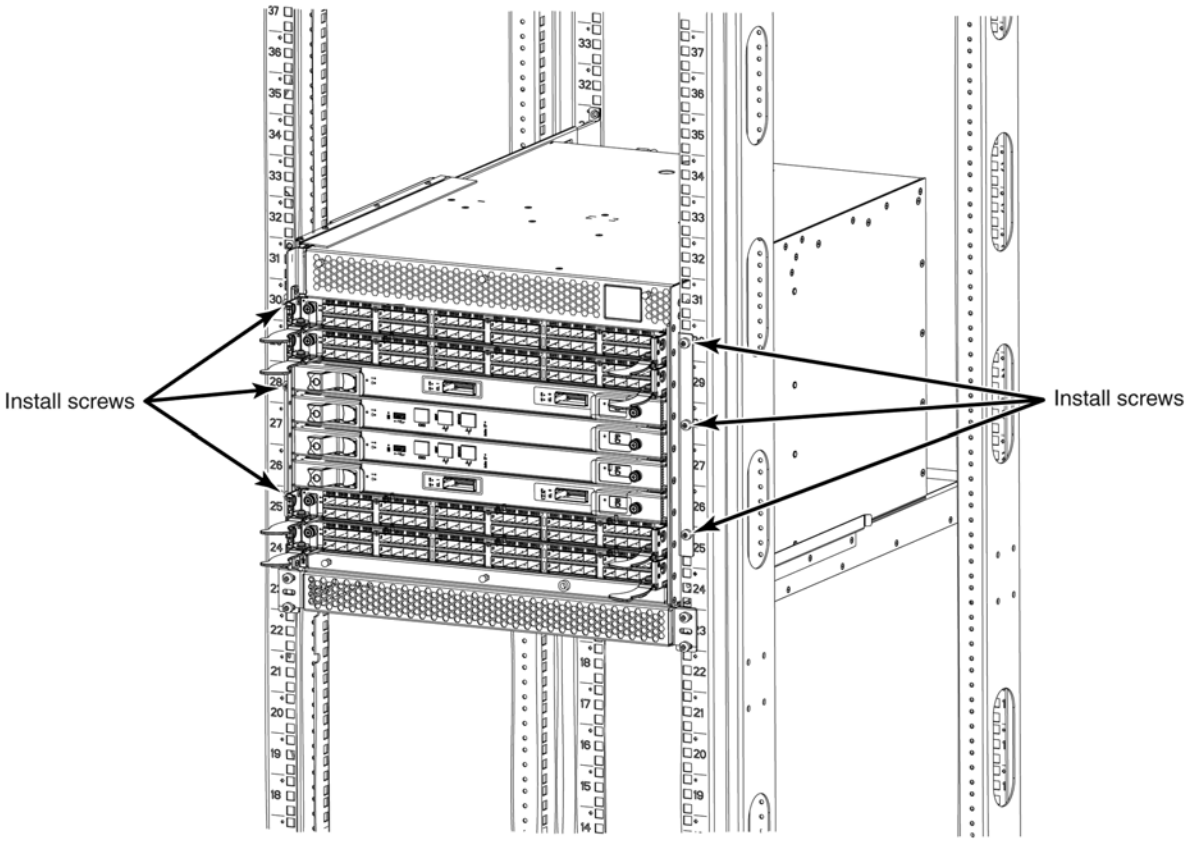
Use safe lifting practices when moving the product. (C015)

3. If applicable, lock the wheels of the lift.

4. Carefully lift the DCX-4S and slide it into the cabinet.
5. Secure the DCX-4S to the cabinet with six 10-32 screws with washers. Tighten screws according to specifications under "Torque requirements" on page 6.

NOTE
Screws, clip nuts, and retainer nuts to secure the DCX-4S to the cabinet are provided in the DCX-4S hardware accessory kit.

FIGURE 6 DCX-4S with 27 to 31 in. (68.58 to 78.74 cm) Port-Side Exhaust Kit installed in cabinet



NOTE
For rails with round holes, use the clip nuts (F in Figure 1 on page 6) on the rails for securing the 10-32 screws. For rails with square holes, use the retainer nuts (G in Figure 1 on page 6). Also refer to Figure 2 on page 7.

6. Install the DCX-4S door and required cable management system using instructions in the corresponding *DCX-4S Backbone Hardware Reference Manual*.

Installing with 18-24 in. (45.72 to 60.96 cm) kit

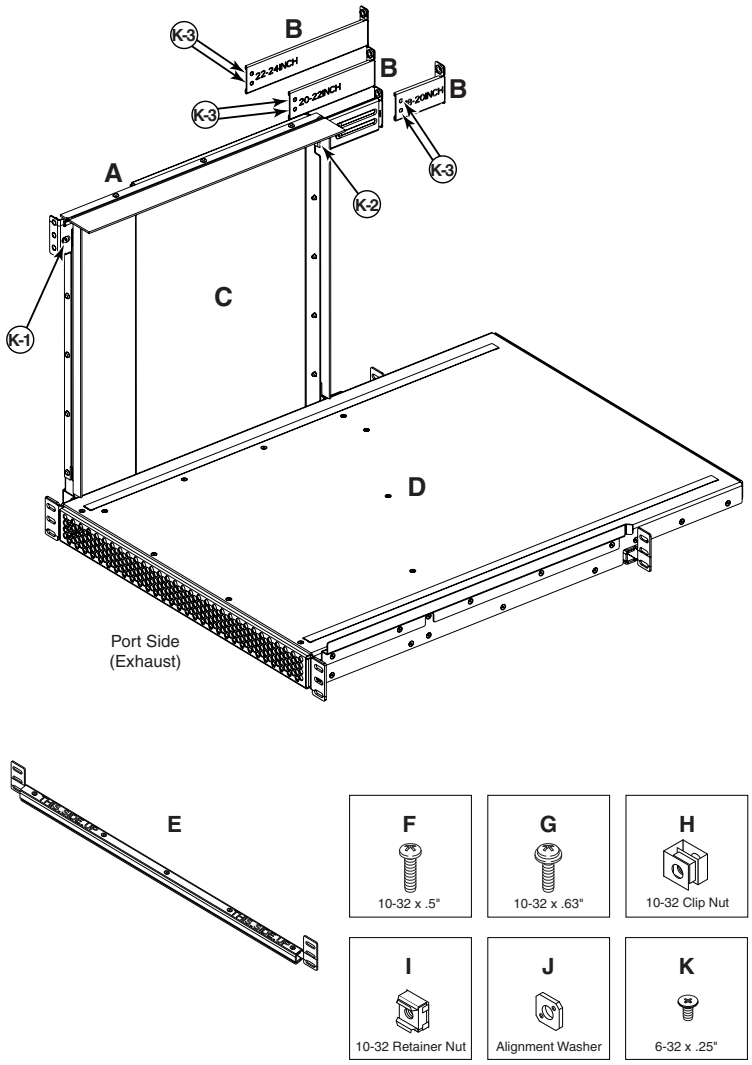
Parts list

The following parts list refers to items illustrated in Figure 7 on page 13.

TABLE 3 Hardware for Port-Side Exhaust Kit for 18-in. to 24 in. (45.72 to 60.96 cm) cabinets

Item	Description	Quantity
A	Top rail	1
B	Top rail mounting brackets for 18-20 in., (45.72-50.8 cm) 20-22-in. (50.8-55.88 cm), and 22-24.in (55.88-60.96 cm) cabinets	3
C	Duct	1
D	Shelf	1
E	Shelf saddle	1
F	10-32 x .5 in. (1.27 cm) Phillips screw (blue Loctite on threads)	12
G	10-32 x .63 in.(1.60 cm) Phillips screw with square-cone washer	12
H	10-32 clip nut for cabinets that have rails with round holes	8
I	10-32 retainer nut for cabinets that have rails with square holes	8
J	Alignment washer for cabinets that have rails with square holes	12
K	6-32 x .25 in. (.635 cm) Phillips screw	2

FIGURE 7 Port-Side Exhaust Kit assembly for 18 to 24 in. (45.72 to 60.96 cm) cabinets



Torque requirements

Use the following torque settings when tightening screws that secure the rack mount kit and DCX-4S to the equipment cabinet.

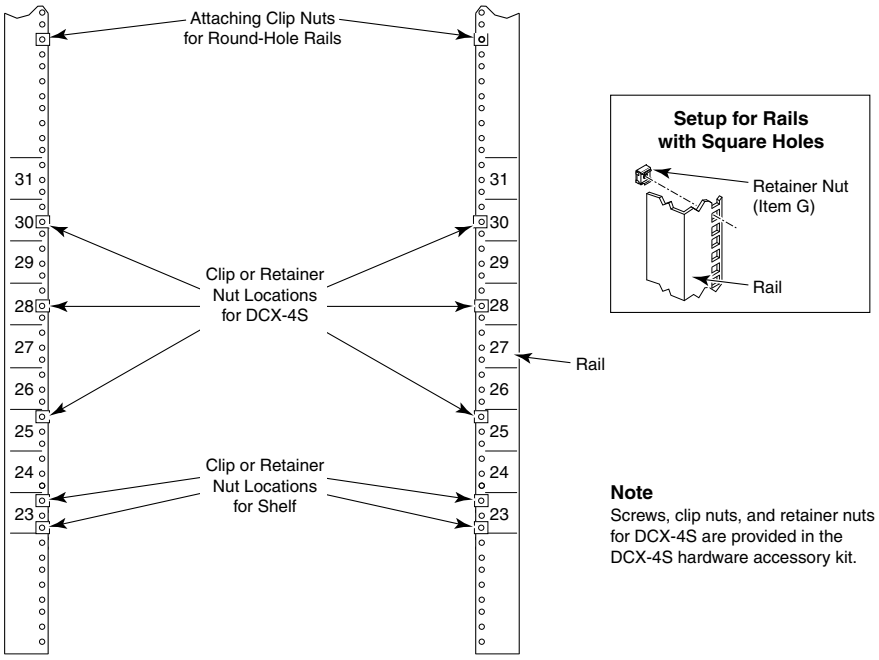
TABLE 4 Torque requirements for mounting screws

Screw size	Torque
6-32 x .25 in. (.635 cm) Phillips screw	8.75 in.-lbs (10 cm-kg)
10-32 x .63 in.(1.60 cm) Phillips screw	32 in.-lbs (36.86 cm-kg)

Install cabinet hardware

1. Determine how the DCX-4S can be oriented in the equipment cabinet so that the nonport side has access to intake air (cool).
2. Install clip nuts (H in Figure 7 on page 13) or retainer nuts (I in Figure 7 on page 13) in cabinet rail locations shown in Figure 8 on page 14. These nuts will secure the 10-32 screws that mount the Port Side Exhaust Kit shelf and DCX-4S to the cabinet. For rails with round holes, use clip nuts. For rails with square holes, use retainer nuts. Note that Figure 8 on page 14 shows relative positions for these nuts in the cabinet rails to mount the shelf and DCX-4S. You may mount the shelf and DCX-4S in 9 U of cabinet space higher or lower in the cabinet than shown.

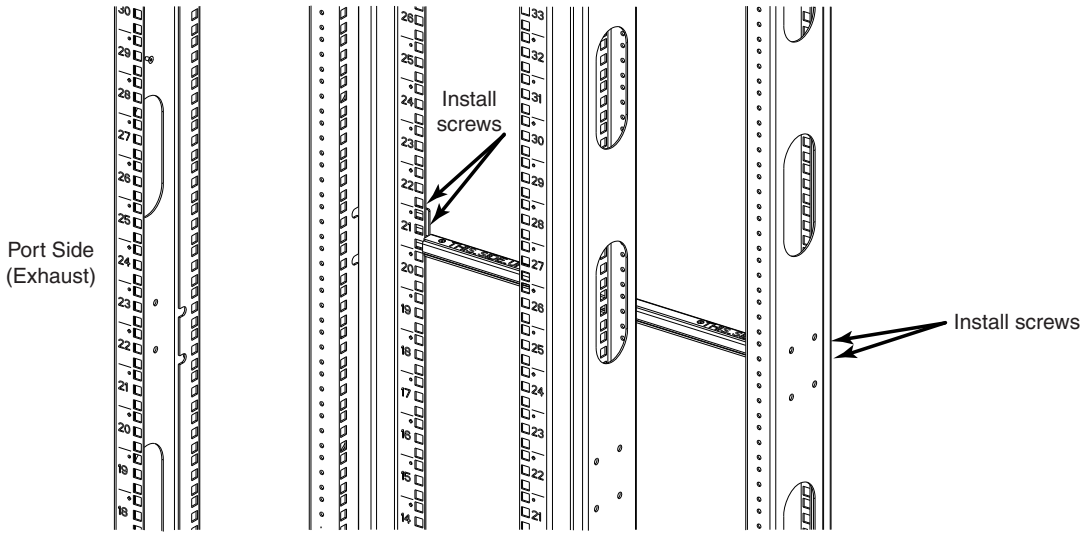
FIGURE 8 Clip and retainer nut locations on cabinet rails



3. Install the shelf saddle (E in Figure 7 on page 13) to the nonport side of the equipment cabinet .Install the saddle in the same vertical location as where the shelf installs on the port side of the rack. In using Figure 2 on page 7 as example, if the shelf is installed in location 23 on the port side, install the saddle in location 23 on the nonport side. Ensure that the words “THIS SIDE UP” on the saddle face towards the port side of the rack (refer to Figure 9).

   Secure the saddle to the equipment cabinet using four 10-32 screws with washers (G in Figure 7 on page 13), two screws on each side of the saddle. Tighten screws according to specifications under “Torque requirements” on page 13.

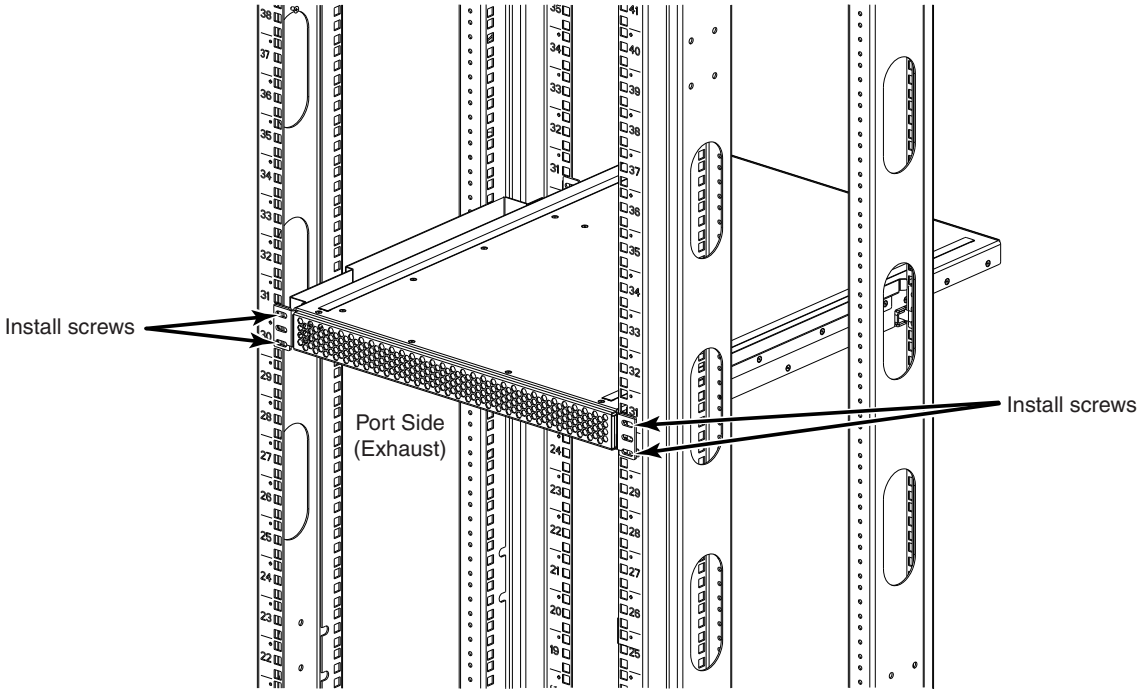
FIGURE 9 Installing saddle to equipment cabinet



NOTE
For rails with round holes, use the clip nuts (H in Figure 7 on page 13) on the rails for securing 10-32 screws. For rails with square holes, use the retainer nuts (I in Figure 7 on page 13). Also refer to Figure 8 on page 14.

4. Place the shelf (D in Figure 7 on page 13) on the saddle then secure it to the cabinet rails using four 10-32 screws with washers (G in Figure 1 on page 6). Tighten screws according to specifications under “Torque requirements” on page 13.

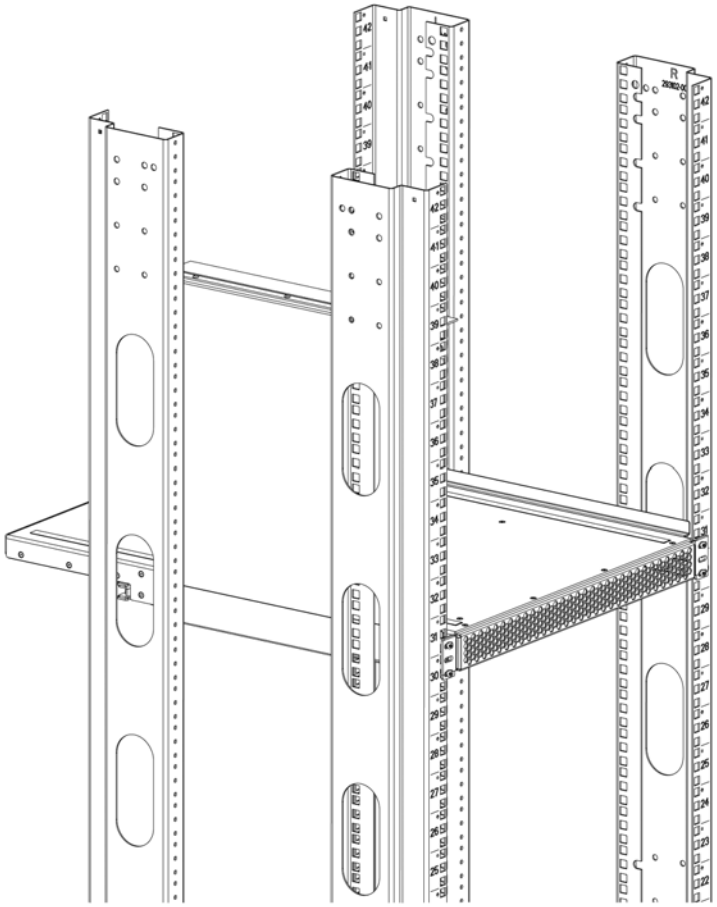
FIGURE 10 Shelf installed in cabinet



NOTE
For rails with round holes, use the clip nuts on the front rails for securing 10-32 screws. For rails with square holes, use the retainer nuts (H and I in Figure 7 on page 13). Also refer to Figure 8 on page 14.

5. Install the air-duct assembly (C in Figure 7 on page 13) by inserting it down into the side-slot on the shelf. Ensure that the tabs of the duct align and engage with the slots in the shelf. Also refer to Figure 11 on page 17.

FIGURE 11 Installing air duct into side slot on shelf



6. Install the top-rail inner bracket to the top-rail assembly:

    a. Determine the size of the top-rail inner bracket that you will need to install on the top rail so that the top rail will fit on the inside of the equipment cabinet rails. Remove the appropriate bracket from the accessory kit. Note that the accessory kit contains three sizes, depending the depth of your equipment cabinet (B in Figure 7 on page 13).

    b. Secure the top-rail inner bracket to the top-rail assembly with two 6-32 screws (K-3 in Figure 7 on page 13). Tighten screws according to specifications under "Torque requirements" on page 13.

7. Install the top-rail assembly:

    a. Insert the top-rail assembly (with the top-rail inner bracket attached) down into the air-duct assembly and then secure the top-rail assembly to the air-duct assembly with two 6-32 screws, one screw on each side of the air-duct assembly (K-1 and K-2 in Figure 7 on page 13). Also refer to Figure 12 on page 18.

    b. Secure the top-rail assembly to the rack. Refer to Figure 12 on page 18.

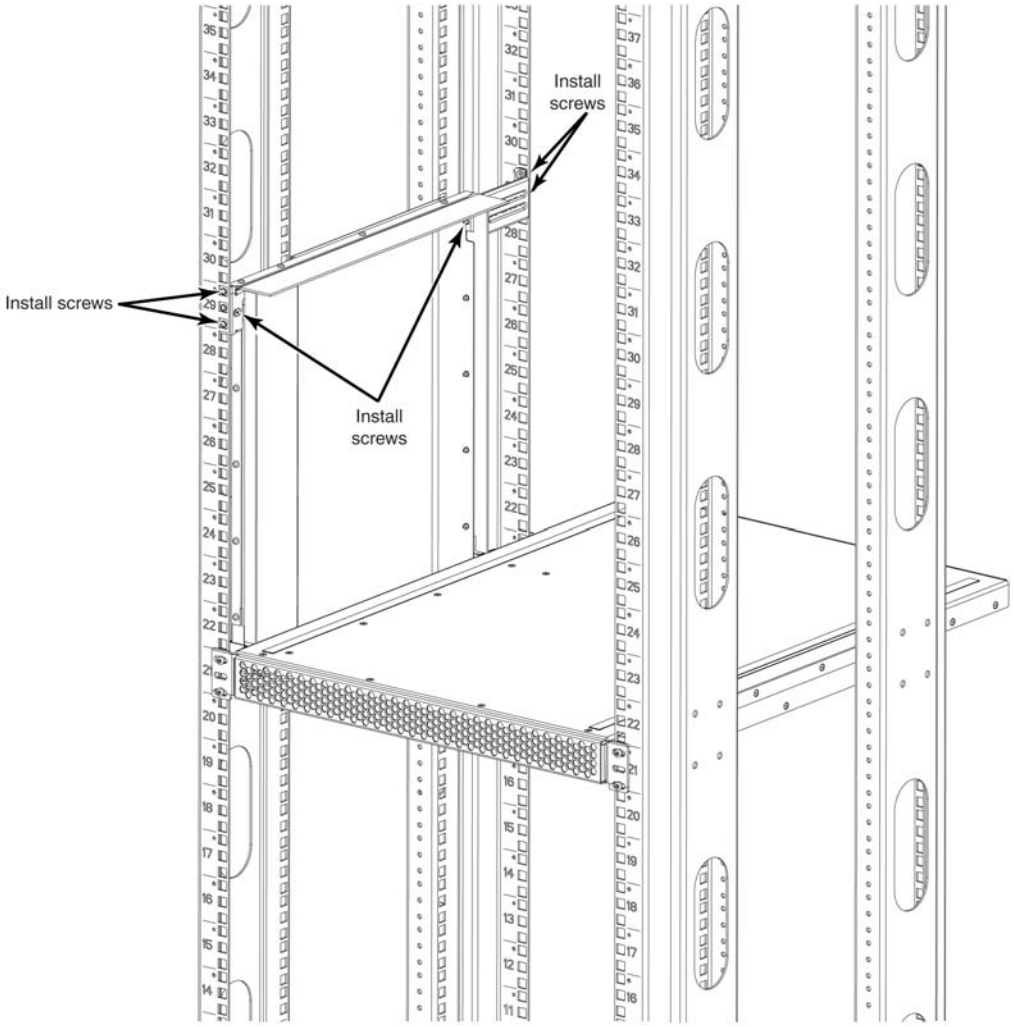
    For rails with round holes

    Use two 10-32 screws with washers (G in Figure 7 on page 13) on each end of the top rail assembly. Tighten screws according to specifications under "Torque requirements" on page 13.

    For rails with square holes

Use the two standard 10-32 screws (F in Figure 7 on page 13) with blue Loctite on the threads and alignment washers (J in Figure 7 on page 13) on each end of the top rail assembly. Tighten screws according to specifications under "Torque requirements" on page 13.

FIGURE 12 Securing top rail in cabinet.



Install DCX-4S in cabinet

1. Ensure that the door is removed from the port side of the DCX-4S. For instructions, refer to the corresponding *DCX-4S Backbone Hardware Reference Manual*.
2. Use a lift to raise the chassis to the correct level.

CAUTION

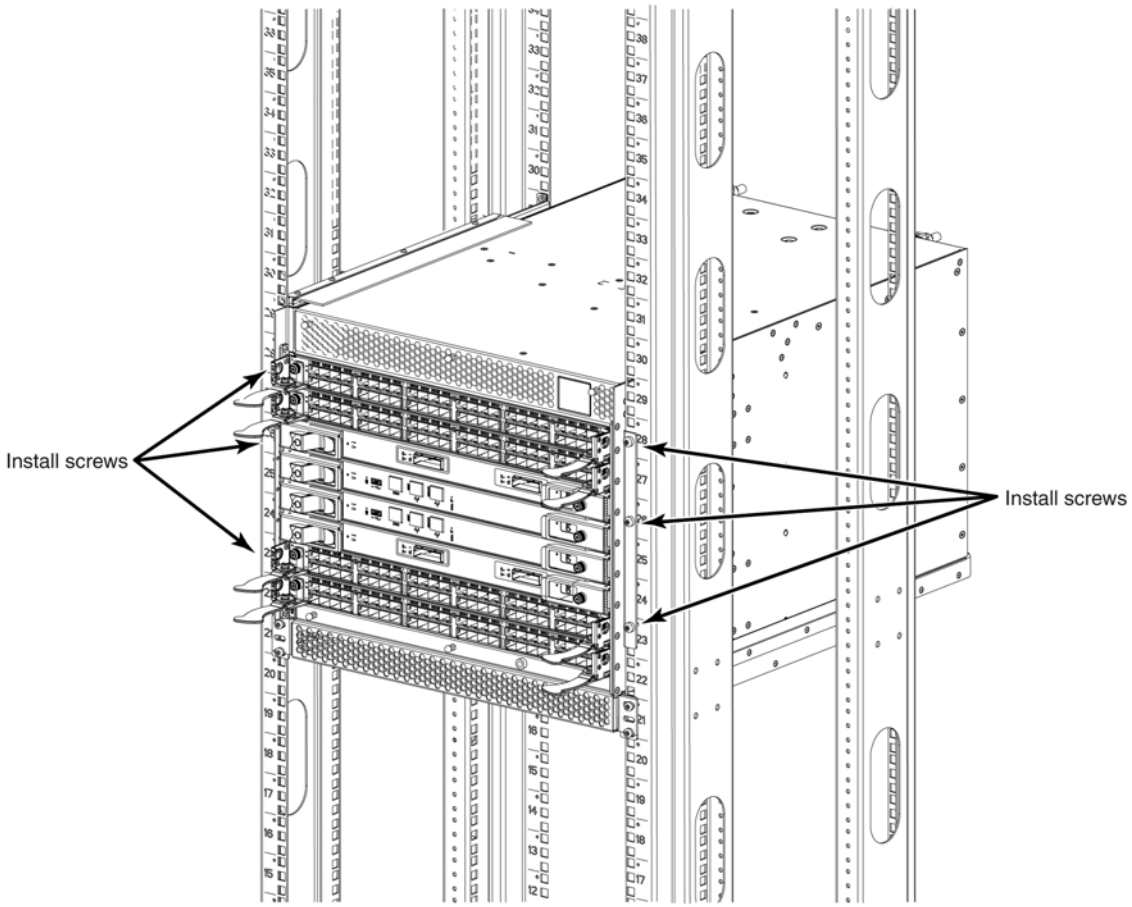
Use safe lifting practices when moving the product. (C015)

3. If applicable, lock the wheels of the lift.

4. Carefully lift the DCX-4S and slide it into the cabinet.
5. Secure the DCX-4S to the cabinet with six 10-32 screws with washers, three screws on each side (Figure 13 on page 19). Tighten screws according to specifications under "Torque requirements" on page 13.

NOTE
Screws, clip nuts, and retainer nuts for securing the DCX-4S to the equipment rack are included in the DCX-4S hardware accessory kit.

FIGURE 13 DCX-4S with 18 to 24 in. (45.72 to 60.96 cm) Port-Side Exhaust Kit installed in cabinet



NOTE
For rails with round holes, use the clip nuts on the front rails for securing 10-32 screws. For rails with square holes, use the retainer nuts (H and I in Figure 7 on page 13). Also refer to Figure 8 on page 14.

6. Install the DCX-4S door and required cable management system using instructions in the *DCX-4S Backbone Hardware Reference Manual*.