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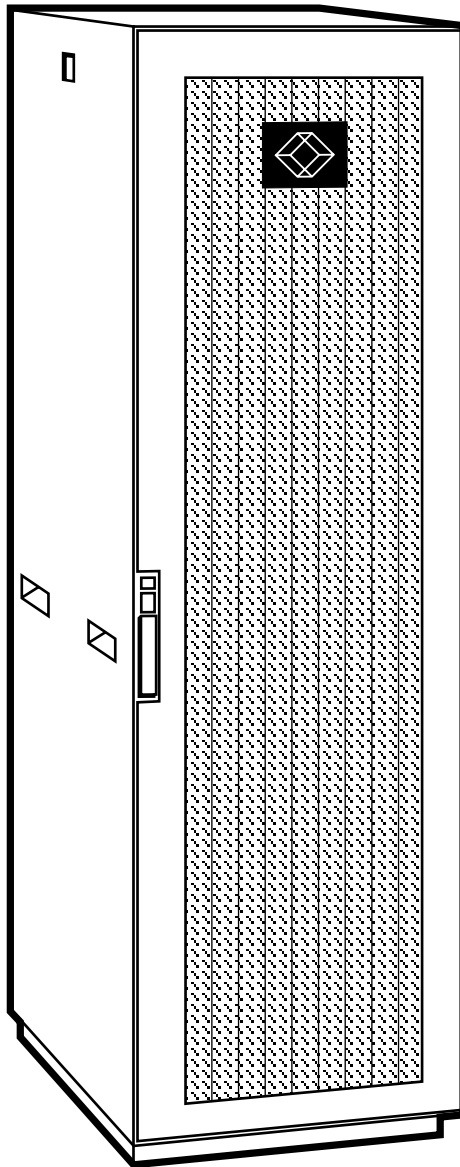
1000 Park Drive • Lawrence, PA 15055-1018 • 724-746-5500 • Fax 724-746-0746



JUNE 2003

RM2000A	RM2050A	RM2010
RM2020A	RM2060A	RM2011
RM2030A	RM2070A	RM2012
RM2040A	RM2080A	RM2015
		RM488

Performance Server Cabinets and Accessories



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Contents

Chapter	Page
1. Specifications	3
1.1 Performance Server Cabinets (RM2000A–RM2080A)	3
1.2 Tool-Less Shelf (RM2010)	3
1.3 Fan Trays (RM2011 and RM2012)	3
2. Performance Server Cabinets	4
2.1 Introduction	4
2.2 Installation	4
3. Tool-Less Shelf (RM2010)	6
4. 440-CFM Fan Tray (RM2011)	10
5. Roof-Mounted Fan Tray (RM2012)	11
6. Interconnect Hardware (RM2015)	12
7. Cage Nuts (RM488)	14

1. Specifications

1.1 Performance Server Cabinets (RM2000A–RM2080A)

Material: Sidewalls and frame: 16-gauge steel; Doors: 14-gauge steel

Overall Height: 78.7" (42U, 200 cm)

Interior Mounting Height: 75.3" (191.3 cm)

Exterior Width: 23.6" (60 cm) without sidewalls; 23.9" (60.7 cm) with sidewalls

Interior Width: 20.2" (51.3 cm)

Exterior Depth: RM2000A, RM2020A, RM2050A, RM2060A: 35.4" (89.9 cm); RM2030A, RM2040A, RM2070A, RM2080A: 39.4" (100.1 cm)

Interior Depth: RM2000A, RM2020A, RM2050A, RM2060A: 31.6" (80.3 cm); RM2030A, RM2040A, RM2070A, RM2080A: 35.5" (90.2 cm)

Side Walls: RM2000A, RM2030A, RM2050A, RM2070A: No; RM2020A, RM2040A, RM2060A, RM2080A: Yes

Weight: RM2000A, RM2050A: 220 lb. (99.8 kg); RM2020A, RM2060A: 300 lb. (136.1 kg); RM2030A, RM2070A: 260 lb. (117.9 kg); RM2040A, RM2080A: 340 lb. (154.2 kg)

1.2 Tool-Less Shelf (RM2010)

Capacity: 150 lb. (68 kg)

Construction: 16-gauge steel

Size: 17.3"W x 23.6"D (43.9 x 59.9 cm)

Weight: 11 lb. (5 kg)

1.3 Fan Trays (RM2011 and RM2012)

CFM: RM2011: 440; RM2012: 300

Construction: 16-gauge steel

Fans: RM2011: (2) 6" (15.2 cm); RM2012: (3) axial

Noise: RM2011: 59 dB; RM2012: 48 dB

Power: 115 VAC, 60 Hz, 51 watts

Size: RM2011: 19.8"H x 19.5"W x 2.6"D (50.3 x 49.5 x 6.6 cm); RM2012: 2.4"H x 20.1"W x 6"D (6.1 x 51.1 x 15.2 cm)

Weight: RM2011: 11 lb. (5 kg); RM2012: 7 lb. (3.2 kg)

2. Performance Server Cabinets

2.1 Introduction

The Performance Server Cabinets are versatile modular rack cabinets that can accommodate a wide variety of equipment. They contain standard 19" front and rear server-type rails with standard installation-hole spacing. The RM2000A, RM2020A, RM2030A, and RM2040A have fully perforated front and rear mesh doors for airflow. The RM2050A, RM2060A, RM2070A, and RM2080A have a polycarbonate front door with a peripheral perforation around it to allow for airflow and a fully perforated rear mesh door for airflow. All eight models have a fully perforated roof with four round cable-entry cutouts measuring 4" (10.2 cm) in diameter. All models also have four installed leveling feet and Ergoform-S door handles with pushbutton lock inserts.

There are four Performance Server Cabinets with perforated front and rear mesh doors:

- Two models measure 78.7"H x 35.4"D (200 x 90 cm), with sidewalls (product code RM2020A) or without (RM2000A).
- Two models measure 78.7"H x 39.4"D (200 x 100 cm), with sidewalls (product code RM2040A) or without (RM2030A).

The models without sidewalls measure 23.6" (60 cm) wide. Those with sidewalls measure 23.9" (60.7 cm) wide.

There are four Performance Server Cabinets with a polycarbonate front door with a peripheral perforation around it to allow for airflow and a fully perforated rear mesh door:

- Two models measure 78.7"H x 35.4"D (200 x 90 cm), with sidewalls (product code RM2060A) or without (RM2050A).
- Two models measure 78.7"H x 39.4"D (200 x 100 cm), with sidewalls (product code RM2080A) or without (RM2070A).

The models without sidewalls measure 23.6" (60 cm) wide. Those with sidewalls measure 23.9" (60.7 cm) wide.

2.2 Installation

Your Performance Server Cabinet should include the following:

- (50) captive nuts
- (50) screws
- (4) caps that can fit in the grommet material of the cable-entry cutouts in the roof
- (2) keys; these will be taped to the side of the cabinet
- This users' manual

When you place the cabinet, use the leveling feet to make sure that it is completely level both back to front and side to side.

The cabinet doesn't require assembly itself, although there are several accessories that can be installed in it. Optional accessories include a Tool-Less Shelf (RM2010) and both door-mounted (RM2011) and roof-mounted (RM2012) fan trays. You can also use Interconnect Hardware (RM2015) to join two cabinets together.

As you install devices in the cabinet, be aware that there are copper-coated grounding terminals welded to the roof and to the bottom of the sidewalls (on the cabinets with sidewalls). These are covered with plastic caps to protect them during the factory painting process. To ground a device to one of these terminals, remove the terminal's cap. Run a ground wire with a ring lug from the device to the terminal. Use an M8 nut and washers to secure the lug to the terminal.

To open the cabinet's doors, first slide the upper part of the handle (the plastic shield with the Black Box logo on it) upward to expose the button. If the cabinet is unlocked, press the button; the lower part of the handle will pop out so it can be grasped. If the cabinet is locked, insert the key and turn it to release the handle. The lower part of the handle can then be turned toward the inside of the cabinet to open the door. When you close the door, press the lower part of the handle back against the door until it clicks into place, lock the door (if necessary), and slide the upper part of the handle back down over the button.

3. Tool-Less Shelf (RM2010)

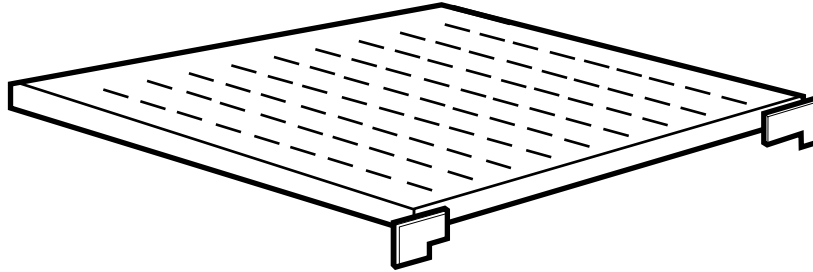


Figure 3-1. Tool-Less Shelf.

The Tool-Less Shelf for Performance Server Cabinets supports equipment weighing up to 150 lb. (68 kg). Its support surface measures 17.3"W x 23.6"D (43.9 x 59.9 cm), and its rear mounting arms extend to give the shelf a total front-rail-to-rear-rail depth of up to 35.5" (90.2 cm). It doesn't require any additional equipment for installation. To install the Tool-Less Shelf in a Performance Server Cabinet, take the following steps:

1. Make sure that all the shelf's locking pins are retracted. Insert the shelf in the cabinet at an angle until the mounting tabs have cleared the front rails.

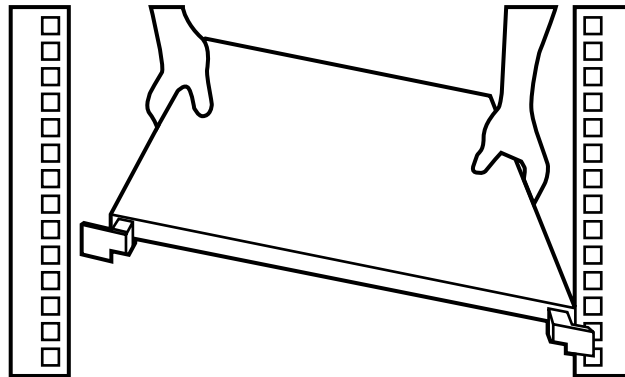


Figure 3-2. Inserting the shelf in the cabinet.

2. Straighten the shelf back to horizontal as you move it farther into the cabinet enclosure.

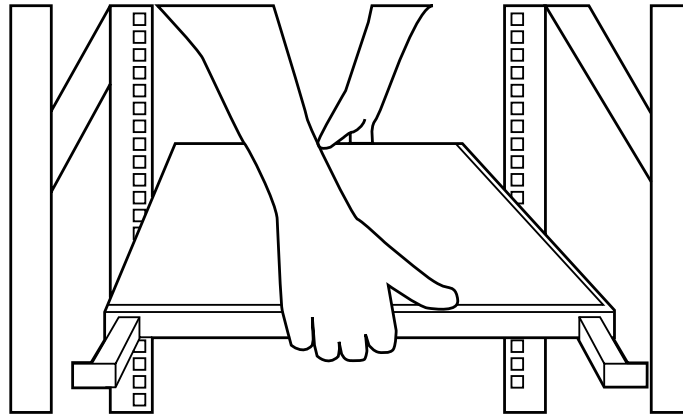


Figure 3-3. Straightening the shelf to horizontal.

3. Insert the shelf's front mounting tabs in the cabinet's front rails, making sure that the shelf is level from side to side.

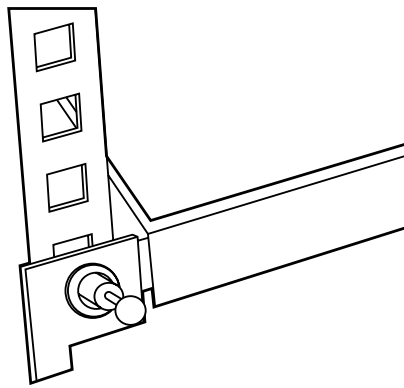


Figure 3-4. Front mounting tabs.

4. Extend the shelf's rear mounting arms into the cabinet's rear rails.

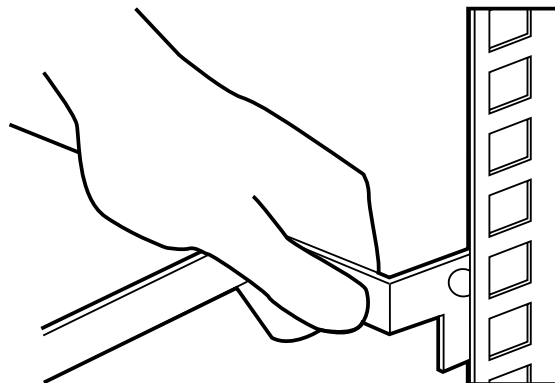


Figure 3-5. Rear mounting arms.

5. Insert the shelf's rear mounting tabs, making sure that the shelf is level from front to back. Release all of its locking pins.

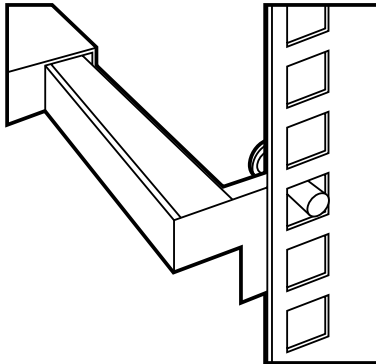


Figure 3-6. Inserting the shelf's rear mounting tabs.

This completes the installation. Here's what the shelf should look like when you've finished installing it.

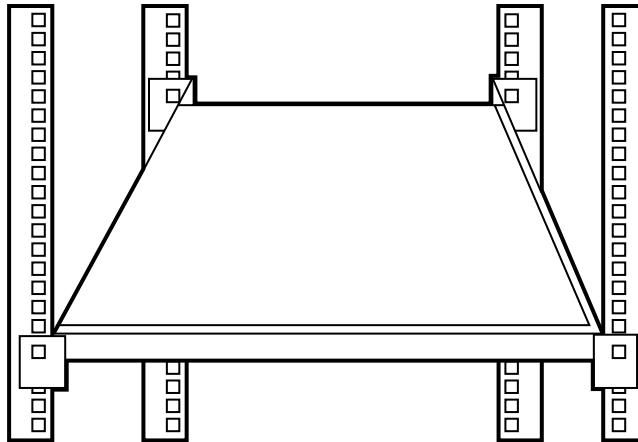


Figure 3-7. Front view of a completed installation.

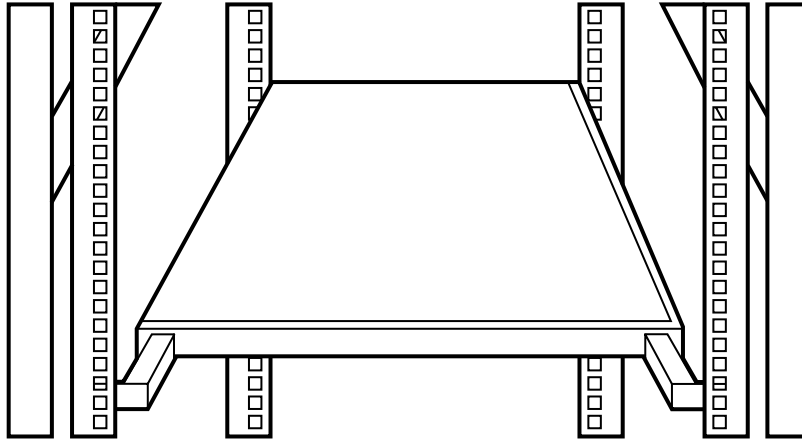


Figure 3-8. Rear view of a completed installation.

4. 440-CFM Fan Tray (RM2011)

The 440-CFM Fan Tray for Performance Server Cabinets is made of 16-gauge cold-rolled steel and measures 19.8"H x 19.5"W x 2.6"D (50.3 x 49.5 x 6.6 cm). It provides redundancy with two fans, each measuring 6" (15.2 cm) in diameter. Each fan displaces 220 CFM (6.2 m³/min.) of air for a total displacement of 440 CFM (12.5 m³/min.) during normal operation. The 440-CFM Fan Tray has a 10-ft. (3-m) power cord that plugs into 115-VAC, 60-Hz power. The fan tray produces 59 dB of acoustic noise.

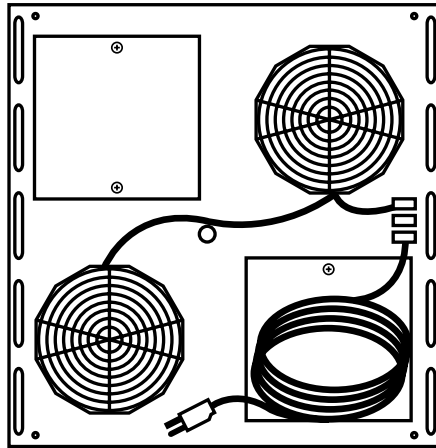


Figure 4-1. 440-CFM Fan Tray.

The 440-CFM Fan Tray comes with its own mounting hardware. To install the 440-CFM Fan Tray in a Performance Server Cabinet, take these steps:

1. Place the tray against the inside of the cabinet's rear door, aligning the tray's mounting holes with an appropriate set of holes in the door's "stiffener channel" (the flattened, squared-off tube that runs the height of the door on either side). Position the tray so that when the door is closed, the "fat" part of the fans will face toward the inside of the cabinet; in this position, the fans will blow hot air out the back of the cabinet. (It isn't possible to install the tray so that the fans blow the other direction. It doesn't matter which edge of the tray goes on top and which goes on the bottom; turn it so that its power cord will be able to reach an outlet in the cabinet, but keep in mind that the power cord must not be stretched when the cabinet door is opened and closed.)
2. Secure the tray to the door with the tray's included mounting hardware.
3. Plug the tray's power cord into a working 115-VAC outlet. It should begin operating immediately; it has no ON/OFF switch.

5. Roof-Mounted Fan Tray (RM2012)

The Roof-Mounted Fan Tray for Performance Server Cabinets is made of 1.5-mm/16-gauge steel and measures 2.4"H x 20.1"W x 6"D (6.1 x 51.1 x 15.2 cm). It provides redundancy and even airflow with three axial fans, each measuring 4.7" (11.9 cm) in diameter. Each fan displaces 100 CFM (2.8 m³/min.) of air for a total displacement of 300 CFM (8.5 m³/min.) during normal operation. The Roof-Mounted Fan Tray has a 6-ft. (1.8-m) power cord that plugs into 115-VAC, 60-Hz power. It consumes 51 watts and produces 48 dB of acoustic noise. The fan tray is grounded through the fasteners which connect the tray to the cabinet's frame.

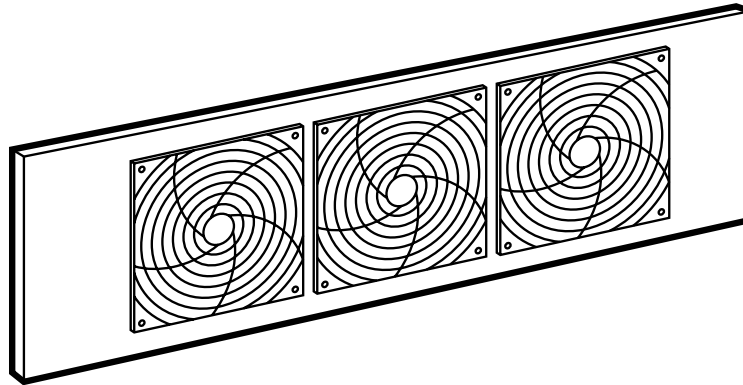


Figure 5-1. Roof-Mounted Fan Tray.

The Roof-Mounted Fan Tray comes with its own mounting hardware. To install the tray in a Performance Server Cabinet—which should be done before any other equipment is installed in the cabinet—take these steps:

1. Align the tray at the top of the cabinet frame between the frame's right and the left top sides, taking note of where the mounting screwholes at the ends of the tray are. Position the tray so that the power cord is on the inside of the cabinet; in this position, the fans will blow hot air out the top of the cabinet. It doesn't matter which end of the tray is on the left and which end is on the right. (If you have a cold-air vent directly above the cabinet and would like the fans to blow air *into* its enclosure, it is theoretically possible to install the tray upside down; however, this would require temporarily removing the cabinet roof and plugging in the tray outside the cabinet.)
2. Insert the four included self-retaining clip nuts in the frame at the points where they adjoin the tray's mounting screwholes.
3. Put one of the included paint-cutting washers on each of the four included M6 x 20 screws. Insert these screws through the holes in the tray into the clip nuts, and secure the tray to the frame by tightening the screws.
4. Plug the tray into a working 115-VAC outlet. It should begin operating right away; it has no ON/OFF switch.

As you install devices in the cabinet, make sure to leave at least 4" (10.2 cm) of clearance between the bottom of the Roof-Mounted Fan Tray and any other devices.

6. Interconnect Hardware (RM2015)

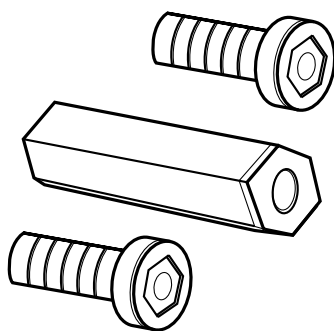


Figure 6-1. Interconnect Hardware.

The Interconnect Hardware for Performance Server Cabinets consists of six spacers and twelve M6 x 12 screws. Use these to bind a pair of Performance Server Cabinets together. Do *not* use this hardware if the joined cabinets will be lifted or transported while loaded, particularly if the combined load in the cabinets will equal or exceed 500 lb. (226.8 kg); instead, call Black Box Technical Support for a quote on more robust mounting hardware.

To attach two Performance Server Cabinets with the Interconnect Hardware, take these steps, referring to the illustration on the next page:

1. There are six notches on the Performance Server Cabinet's side rails: one in each of the four corners and one halfway up along each side. When you receive the cabinets from the factory, these notches are sheathed with plastic caps. Use a screwdriver or similar device to pry the caps off on the left side of one of the cabinets you'll be joining and the right side of the other cabinet.
2. Carefully align the unsheathed notches on one cabinet with those on the other, and push the cabinets together. (If you'll be using the cabinets in a high-vibration area, you might want to consider applying gasketing between the outside cabinet rails that will be adjoined. If you do this, you will need to cut out a piece of the gasketing where the notches are.)
3. Place one of the spacers firmly in each of these pairs of notches so that the spacer fits snugly between the frame's internal angles. Secure the spacers to each cabinet's frame by screwing two of the included M6 x 12 screws through the angles and into the ends of each spacer. (You will need an Allen wrench or an electric screwdriver with a hex bit to do this.)

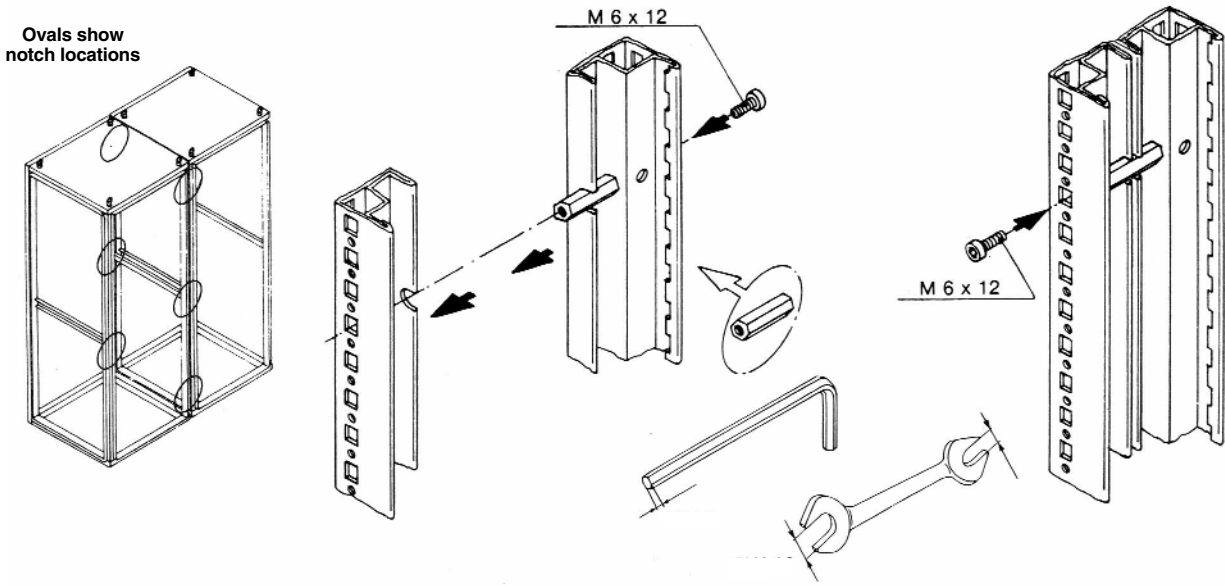


Figure 6-2. Using the Interconnect Hardware to join a pair of Performance Server Cabinets together.

7. Cage Nuts (RM488)

Use cage nuts and screws to rackmount standard devices such as hubs, routers, and switches.