# Scalar i40 and Scalar i80: Rack Mount Installation

This document shows how to install a Scalar® i40 and the Scalar i80 in a rack. The instructions are the same for both models.

**WARNING:** If the rack is empty at the time of installation, do NOT install the library too high in the rack. The weight of the library may cause the rack to become "top heavy" and unstable if the library is installed in the top of an empty rack.

**WARNING:** Do not stack objects on top of the library, such as cables or other computer equipment. The additional weight could exceed the amount supported by the rack shelves.

**Caution:** Make sure the rack mounting rails are level, both left to right and front to back. If the library is not level in the rack, it will not work properly.

To install the rack mount, refer to the following sections:


- Supported Rack Types on page 2
- Space Requirements on page 2
- Rack Mount Kit Contents on page 3
- Installing the Rack Mount Shelves on page 4
- Installing the Library in the Rack on page 12


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# Supported Rack Types

The Scalar i40 and Scalar i80 libraries are designed to fit in most standard 19-inch equipment cabinets, including:

- Dell, 08P157 (US-08P157910-3AU-0900), square, 2.48–2.72 mm thick
- SUN, 38U, NGR900R, M6
- Emcor, 10 Series, round hole
- IBM, Machine Type 9306, Model 900, square, 28.25-inch deep, 2.0–2.25 mm thick
- HP, 10K, PN 245169-001, Asm 10642U GR Metallic, square, 2.0–2.2 mm thick
- EMC CX500
- Rittal Cable Tester Rack Frame, square

Rack depth of 34 in. (86.4 cm) minimum is recommended; however, rack depths of 24 to 36 in. (60.0 to 91.4 cm) are supported.

# Space Requirements

Please note:

The following specification depths exclude drive sleds. Drive sleds will add up to 1.97 (50 mm) to the overall length of the library, depending on version (half-height, full-height, Fibre Channel, SAS).

When planning space requirements, please also take into account installed cables (particularly the fiber-optic cable radius on Fibre Channel tape drives).

- Table 1 provides dimensions and air clearance requirements for the Scalar i40.
- Table 2 on page 3 provides dimensions and air clearance requirements for the Scalar i80.

Table 1 Scalar i40 Dimensions and Air Clearance Requirements

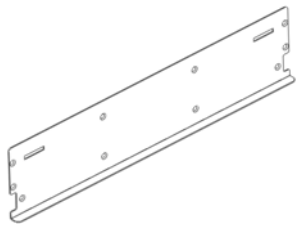
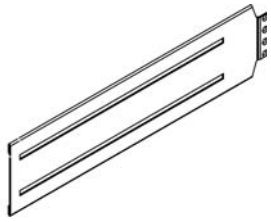
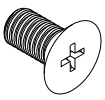
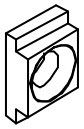
| Dimension | Scalar i40 |
|---|---|
| Height | 5.2 in. (132 mm) |
| Width (excluding “rack ears”) | 17.5 in. (445 mm) |
| Depth (from library front bezel to back of library; excluding drive sleds) | 31.2 in. (793 mm) |
| Air clearance | Open 4 in. (10.2 cm) in front of and behind library for proper air flow |

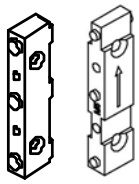
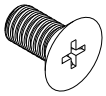
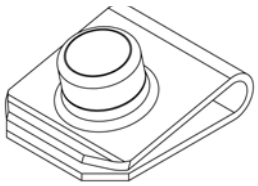
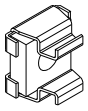
Table 2 Scalar i80 Dimensions and Air Clearance Requirements

| Dimension | Scalar i80 |
|---|---|
| Height | 10.4 in. (264 mm) |
| Width (excluding “rack ears”) | 17.5 (445 mm) |
| Depth (from library front bezel to back of library; excluding drive sleds) | 31.2 in. (793 mm) |
| Air clearance | Open 4 in. (10.2 cm) in front of and behind library for proper air flow |

# Rack Mount Kit Contents

The following items are included in the rack mount kit:

| Qty | Figure | Description |
|---|---|---|
| 2 |  | Shelf. |
| 2 |  | Shelf Extender. |
| 16 |  | Phillips head screw, countersunk (M5 x 10) – for shelf assembly. |
| 8 |  | T- nut (M5) – for shelf assembly. |

| Qty | Figure | Description |
|---|---|---|
| 8 total |  | Rail adapter – 4 each of two types are included. You need 4 for installation; choose the type appropriate for your rack (for more information, see Figure 3 on page 7). |
| 8 |  | Phillips head screw, countersunk (M4 x 12) – for mounting shelves to rack. |
| 8 | | Washer, countersunk – for mounting shelves to rack. |
| 4 |  | Clip nut (M5 x 0.8) – for securing library in rack. |
| 4 |  | Cage nut (M5) – to secure library to rack. Used in racks with square or round non-threaded holes. |

**Required Tools:**

- Phillips screw driver
- Magazine lock override tool — an opened paperclip, small screwdriver, or other object (3.5 mm or less in diameter that will not break off)

# Installing the Rack Mount Shelves

Before installing the rack mount shelves, collect the following information:

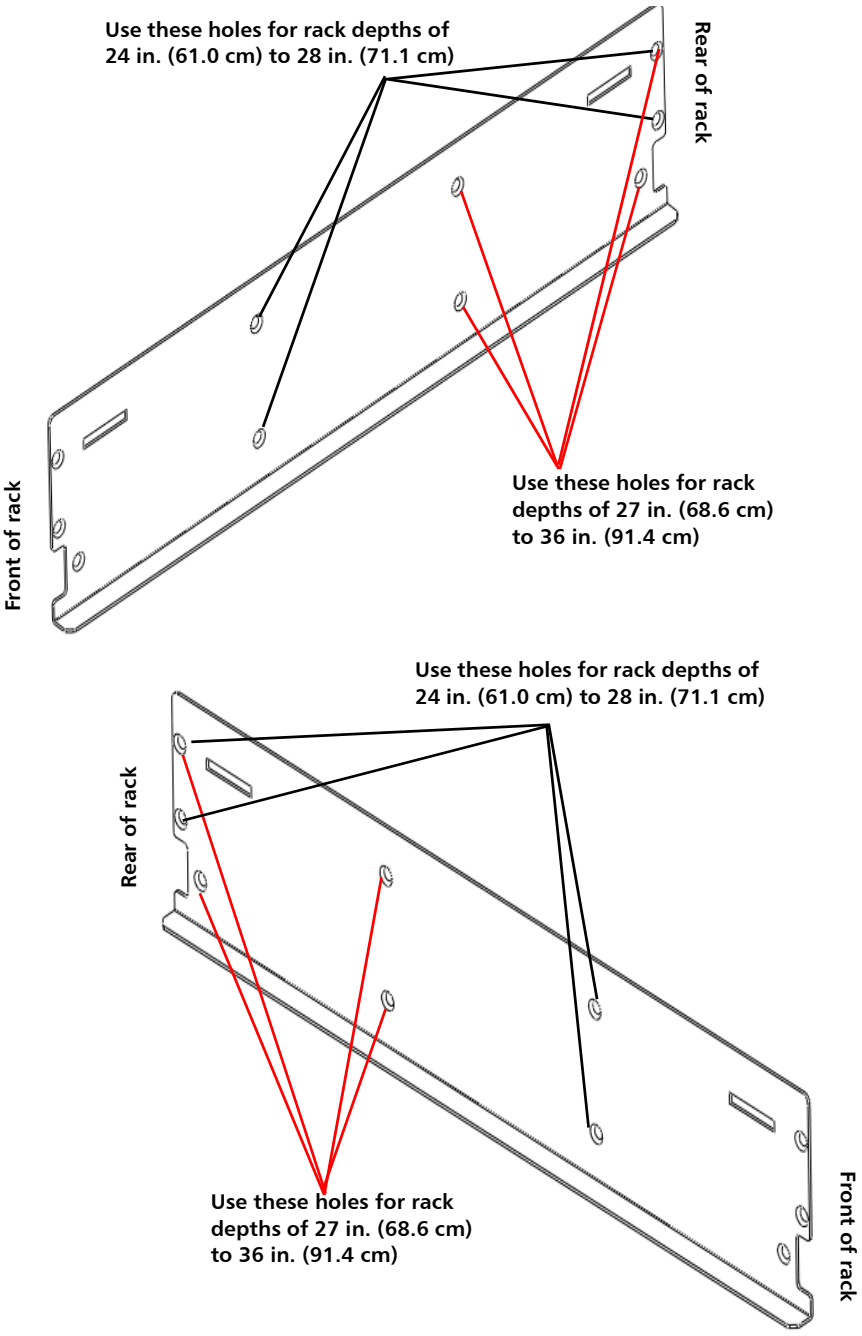
- Type of rack mount rails (square hole, through hole, or threaded hole)
- Depth of rack

After assembling this information, proceed as follows:

1 Assemble the rack mount shelves included in the accessory kit (left and right):

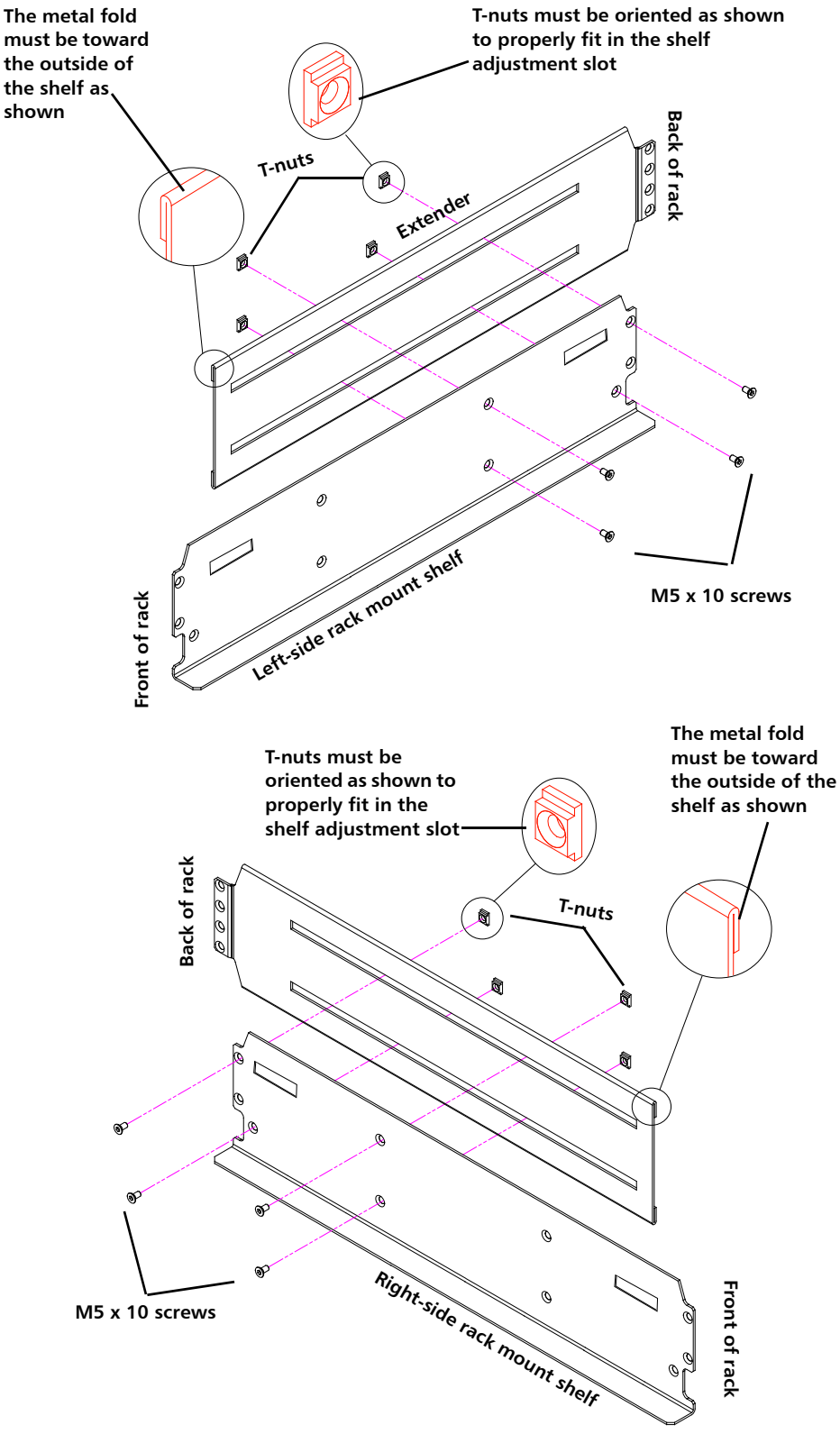
**a** The holes used to attach the two halves of the rack mount shelves differ, depending on the depth of the rack (see Figure 1. Quantum suggests that you use the holes that are exposed and have the widest spacing.

Figure 1 Rack Mount Shelf Depth Requirements



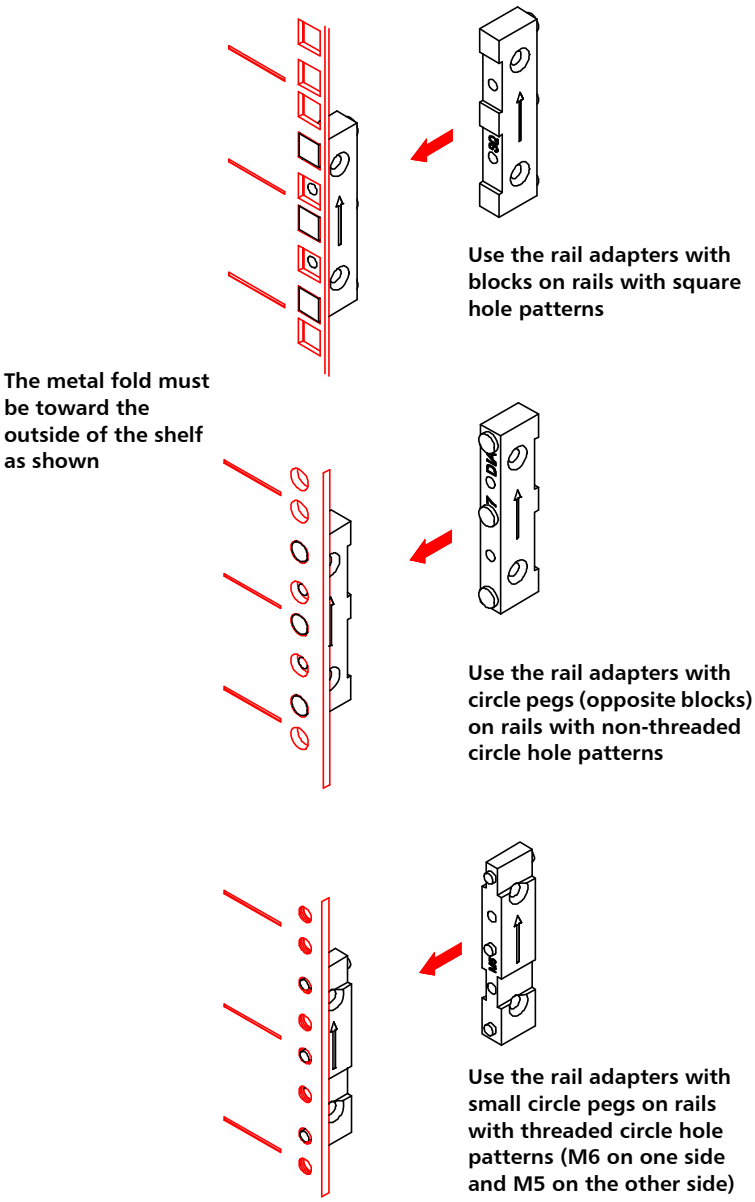

**b** Loosely attach the rack mount shelves to the extenders with 4 M5 x 10 screws and 4 T-nuts (see Figure 2 on page 6).

Figure 2 Assembling the Left and Right Rack Mount Shelves



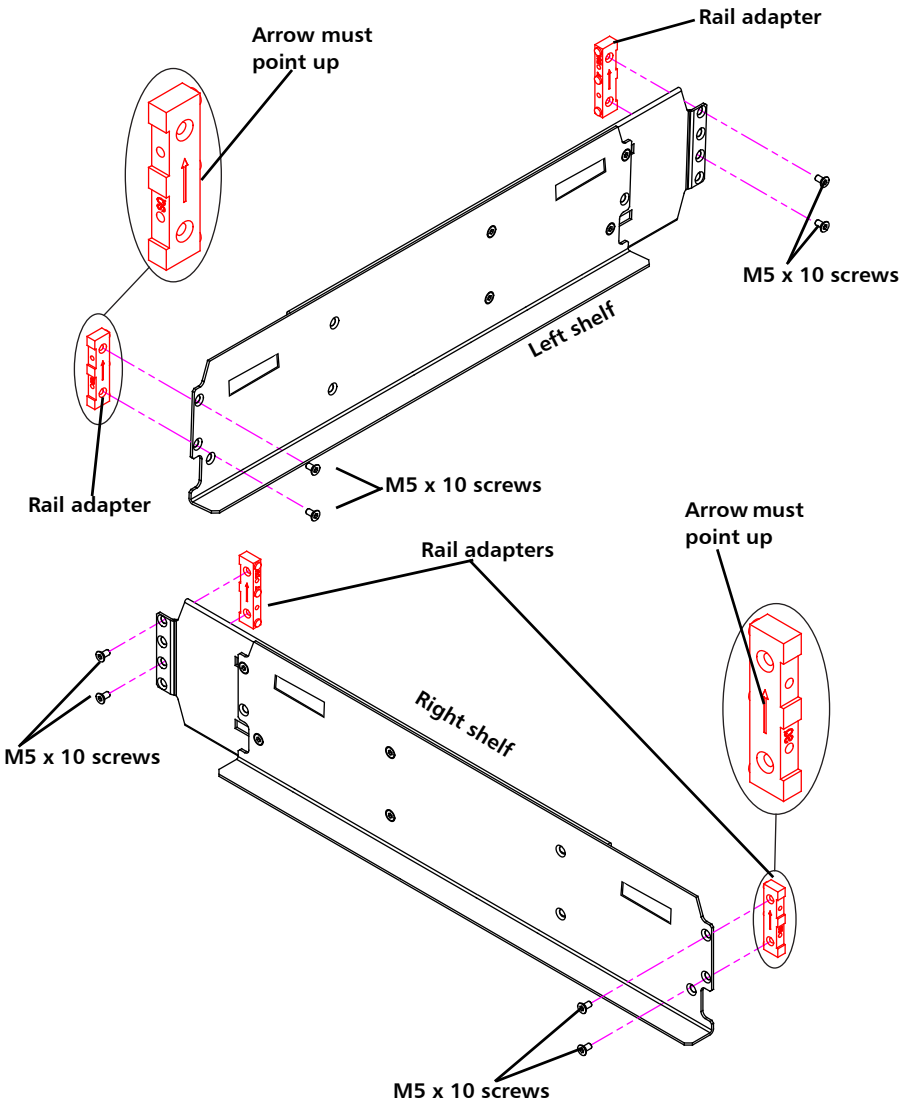
**c** Determine the type of rail adapter required for your rack. Each rail adapter is marked with the specific hole type supported (see Figure 3).

Figure 3 Rail Adapter Types




**d** Attach the appropriate rail adapter to the front and back of the rack mount shelves (right and left) with 2 M5 x 10 screws per adapter (see Figure 4 on page 8).

Figure 4 Assembling the Left-Hand Rack Mount Shelf

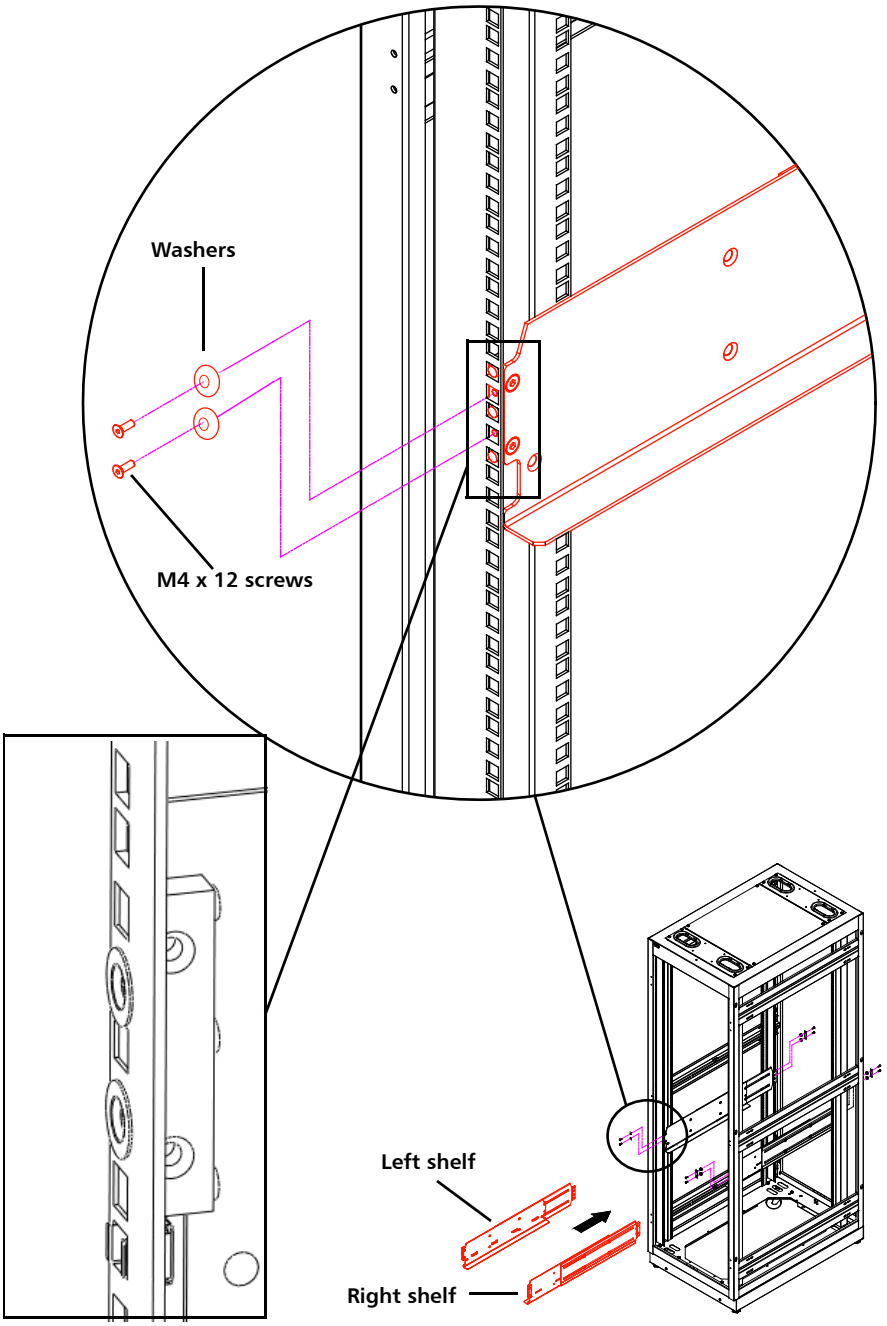



2 Install the left and right rack mount shelves into the rack (the rack mount shelves adjust to any size from 24 to 36 in.) and secure them with the following parts in the four locations shown in Figure 5 on page 9:

- 2 washers
- 2 M4 x 12 screws

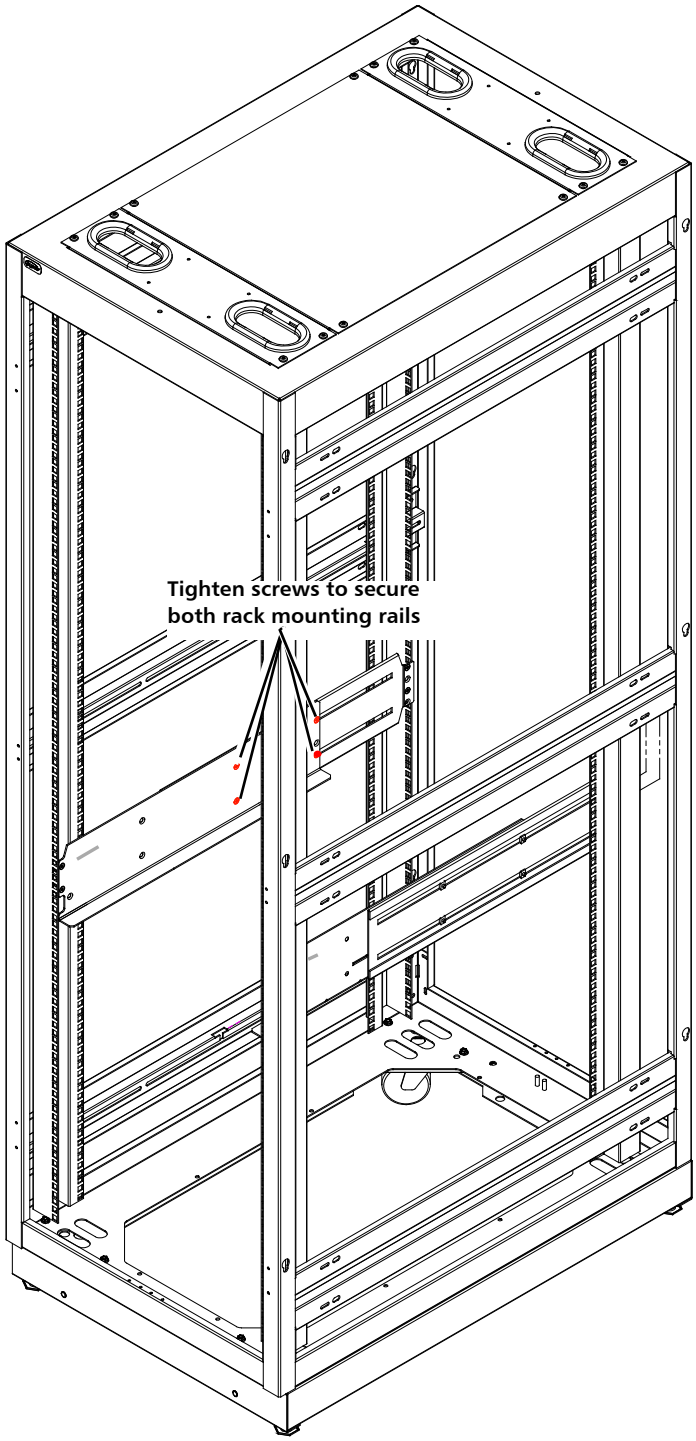
**Note:** The rack mount shelves must be installed on the inside rack rails.

Figure 5 Installing the Rack Mount Shelves




3 Once the rack mount shelves are secured to the rack, tighten the screws securing the adjustable shelves (right and left) together (see Figure 6 on page 10).

Figure 6 Tightening the Rack Mount Shelves




4 If the rack does not have threaded holes, install a clip nut or a cage nut in the back side of the rail, in the first empty hole below the rail adapter. This is what you will screw the library thumbscrews into to secure the library in the rack. See the table below for the type of nut, and Figure 7 on page 12 for the installation location.

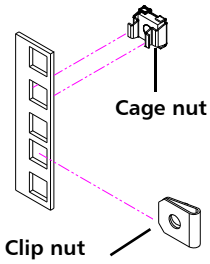
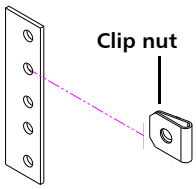
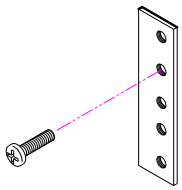
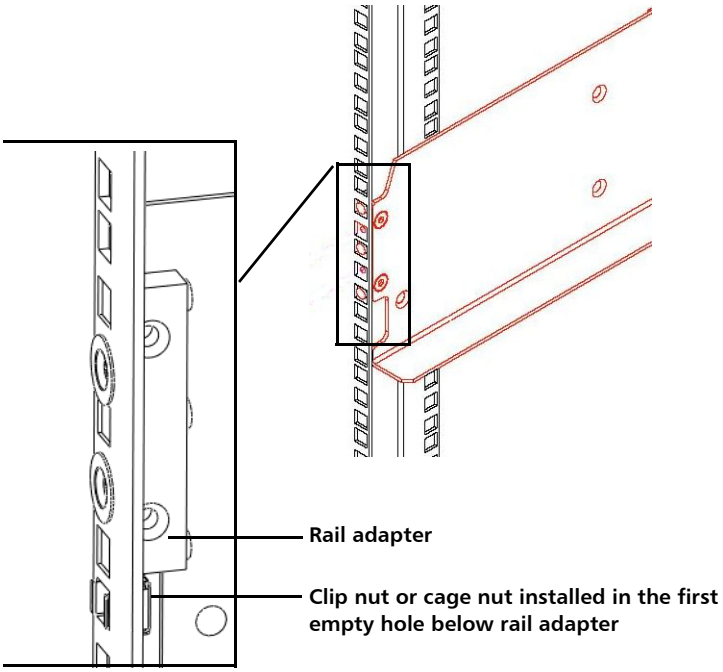
| Type of Rail/Type of Nut | Description |
|---|---|
|  | Square rack holes are the most common type of rack holes. They can accept either cage nuts which mount from the back of the rail or clip nuts which clip on from the side of the rack rail. |
|  | Round, unthreaded holes require clip nuts to accept mounting hardware. |
|  | Threaded holes require neither cage nuts nor clip nuts to accept mounting hardware. |

Figure 7 Location for Installing the Clip Nut or Cage Nut




# Installing the Library in the Rack

**Caution:** Make sure the rack mounting rails are level, both left to right and front to back. If the library is not level in the rack, it will not work properly.

**WARNING:** At least two people are required to lift and install the library.

1 Save the library configuration.

   a From the Web client, select **Tools > Save/Restore Configuration**.

   b Select **Save System Configuration** and **Apply**.

2 If tape drives are installed in the library, you should remove them to reduce weight (see Removing the Tape Drives from the Library on page 13).

3 Install the library into the rack (see Completing the Installation of the Library into the Rack on page 13).

4 Reinstall the tape drives (see Reinstalling the Tape Drives on page 15).

## Removing the Tape Drives from the Library

These instructions explain how to remove the tape drives from the library. Complete these steps for each tape drive in the library.

1. To avoid damaging static-sensitive parts while performing this procedure, observe the following precautions:
   - Use an antistatic wrist strap. If you do not have one, touch the outside of the library on the sheet metal before touching any components, to discharge static from your body.
   - Keep static-sensitive parts in their original shipping containers until ready for installation. Look for the ESD sticker to identify static-sensitive parts.

   - Avoid touching connectors and other components.
   - Dry climates and cold-weather heating environments have lower relative humidity and are more likely to produce static electricity.
2. Before you remove a tape drive, make sure the tape drive you want to remove is empty of media; from the Operator panel, select **Actions > Tape Drive > Unload**.
3. Take the tape drive offline:
   a. From the Operator panel, select **Actions > Tape Drive > Change Mode**.
   b. Select the tape drive and press **Modify**.
   c. Press the **Down** button to select **Offline**, then press **Apply**.
4. Disconnect the cable from the back of the tape drive.

   **Note:** Label the cables so that you can reconnect them to the correct ports.

5. Unscrew the captive thumbscrews securing the drive sled to the back of the library. Half-height tape drives have two thumbscrews. Full-height tape drives have four thumbscrews.
6. Using the handle, pull the drive sled out of the library. It should slide out smoothly and easily.
7. Set the tape drive down gently on a stable surface.

## Completing the Installation of the Library into the Rack

These instructions explain how to install the library into the rack after the tape drives have been removed.

**WARNING:** At least two people are required to lift and install the library.

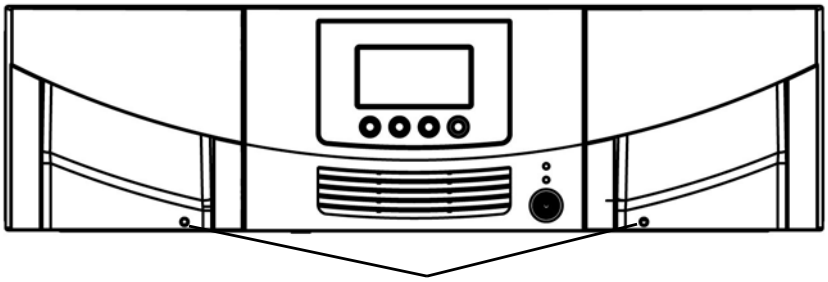
1 Lift the library, place it on the rack shelves, and slide it into the rack as far as it will go.

2 Open one of the magazines slightly, to access the captive thumbscrew that is attached to the library chassis. You will use this thumbscrew to secure the library to the rack. To open the magazine, insert the magazine lock override tool into the access hole in the bottom of the magazine bezel (see Figure 8). Use the tool to depress the release latch, while gently pulling outward on the magazine bezel handle.

   Right-side magazines will only slide out as far as the I/E station (one column of slots). To release the right-side magazines fully:

   - On the Scalar i40 and the bottom right magazine of the Scalar i80, reach under the open magazine and insert the tool directly into the access hole in the library chassis to depress the release latch, while pulling out on the magazine bezel handle.
   - On the top right magazine of the Scalar i80, reach under the open magazine and press the release latch directly with your finger, while pulling out on the magazine bezel handle.

Figure 8 Magazine Release Latch Access Holes

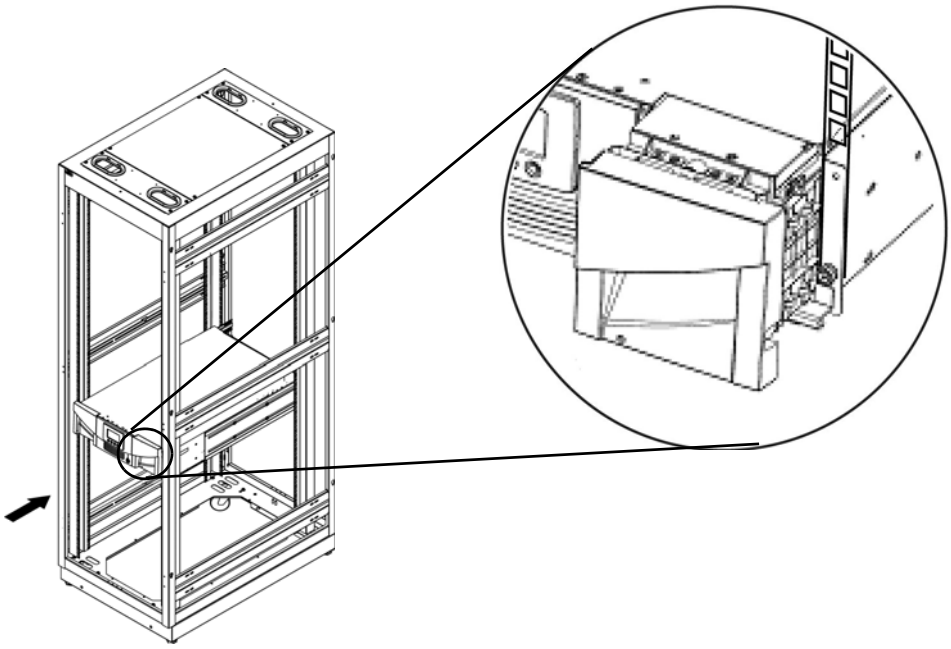



3 Screw the captive thumbscrew finger-tight into the rack (and through the clip nut or cage nut, if installed) (see Figure 9 on page 15).

4 Repeat Step 2 and Step 3 for the remaining thumbscrews.

5 Close all the magazine doors by pushing them in until they click shut.

Figure 9 Securing the Scalar i40 and Scalar i80 in the Rack



## Reinstalling the Tape Drives

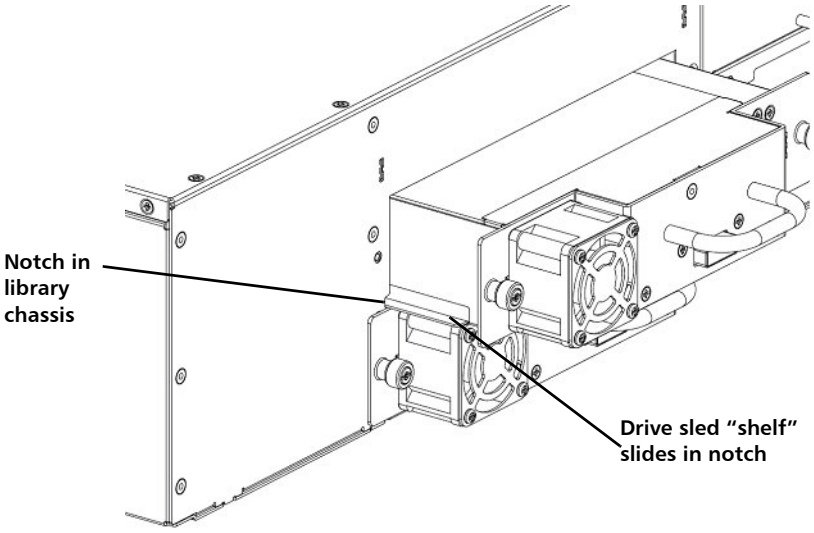
These instructions explain how to reinstall the tape drives you removed from the library.

**Note:** To avoid damaging static-sensitive parts while performing this procedure, review Step 1 on page 13.

1 Insert the tape drive into the appropriate drive slot.

The "shelf" on the bottom of the drive sled fits into the notch in the library chassis and slides on the plastic guide rails (see Figure 10 on page 16). The tape drive must be level to slide in smoothly. At the very end of the slide, you will feel a slight "click" as the tape drive sled connector connects into its mating connector in the library chassis.

Figure 10 Installing a Tape Drive




2 Tighten the tape drive's captive thumbscrews finger-tight to secure the tape drive to the library chassis.

   The tape drive LED illuminates red for up to 30 seconds. Then the tape drive fan starts and the LED turns amber, indicating that the tape drive is offline.

3 Reconnect the tape drive cable from the tape drive to the host.

   The tape drive takes about 2 minutes to reach a ready state.

4 Bring the tape drive online, if it is not online already.

   a From the Operator panel, select **Actions > Tape Drive > Change Mode**.

   b Select the tape drive you want to bring online, and press **Modify**. Use the **Up** button to change the mode to **Online**, then press **Apply**.

   The tape drive LED turns green.

5 Repeat Step 1 on page 15 through Step 4 for each tape drive you removed from the library.

6 Verify the installation by reviewing the library configuration report.

   a From Web client, select **Reports > Library Configuration**.

   b Make sure that each drive is online, in the correct partition, and has the control path status that you want. You may need to refresh your Internet browser.

7 Verify that the host computer and backup applications can see the reinstalled tape drive configuration correctly.

8 Run the **Installation and Verification Test (IVT)**.

   You should run the full IVT upon installation of a new library, and whenever you remove, replace, or service components that require you to move the library into or out of a rack or desktop kit. The test calibrates the robot to the library, verifies that the robot is functioning properly, and verifies that the magazines and tape drives are installed correctly and reachable by the

robot. The test also verifies that the barcode labels can be read by the robot scanning operation.

**a** Be sure the following prerequisites are met, before running the test (for more information, see the *Quantum Scalar i40 and Scalar i80 User's Guide*):

- All diagnostic tickets must be closed
- I/E station slots must be allocated (minimum of five)
- All magazines must be installed in the library (two in the Scalar i40; four in the Scalar i80)
- Tape drives must be in the ready state. (You can check this from the Web client: select **Setup > Drive Settings** to list the drives in the Ready state.)
- A scratch tape must be in the top I/E station slot and assigned to the System partition.

**b** From the Operator panel, select **Tools > IVT**.

After you confirm that you want to continue with the test, a message displays informing you that partitions will be taken offline and all Web users will be logged out.

The library conducts a series of tests; each prerequisite is listed as the library checks it.

**c** If there is a problem, the operation panel provides a message of explanation about how to fix it; you must fix the problem and repeat Step b to begin the test again.

After the test checks the prerequisites, it performs three sub tests.

**d** If any of the sub tests fail, check the library diagnostic tickets to help determine and resolve the problem and run the test again starting at Step b.