
SGI® Modular InfiniteStorage™ (MIS) Platform Rail Replacement Kit Installation Instructions

These instructions are for owners of the SGI Modular InfiniteStorage (MIS) Platform 1.0, purchased prior to March 2013, for the replacement of the original, sliding rails with the new and improved rolling rails (Figure 1).

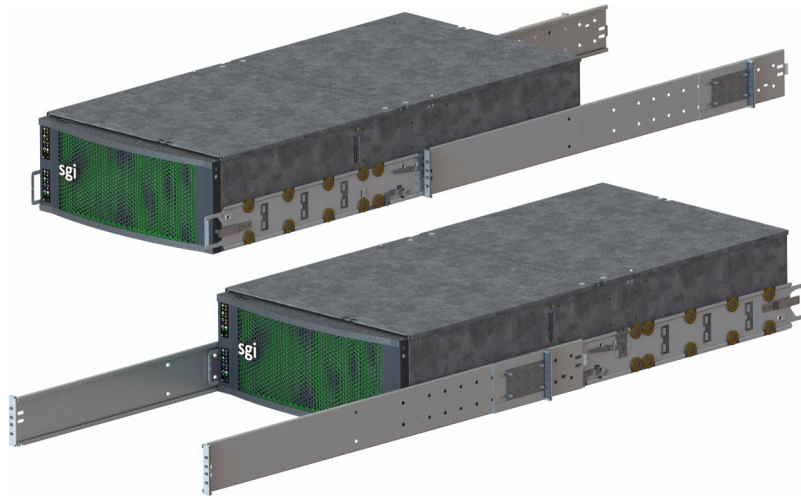


Figure 1 New Rolling Rails

Replacing the rails is NOT a hot-swappable service event. That is, you will have to power down the platform in order to replace them.

The following tools are required for these replacement procedures:

- #1 and #2 Phillips screwdrivers,
- Long #2 Phillips screwdriver,
- Flat-head screwdriver,
- Thin-tipped flat-head screwdriver

- 10mm hexagonal socket wrench,
- A cart sturdy enough to hold the chassis, and on which to work.

Included in the rail kit are the new inner and outer rolling rails, an adjustment tool (for proper rail spacing), and a plastic bag containing the required hardware for mounting the new rails (screws, washers, etc.).

Note: Screwdrivers with magnetic tips are recommended.



Warning: Review the electrical warnings and safety precautions listed in “*SGI Modular InfiniteStorage (MIS) User Guide*,” “Safety Precautions” on page xx,” before servicing this chassis.

Removing the rails will require removing all the drives from the chassis (for weight considerations). Be sure to have all the drives clearly labeled to ensure that they are replaced in the correct order. **If drives are replaced in the wrong order, zoning conflicts and data loss will occur.**

Power-off the MIS Platform

Before beginning rail replacement, first power off the platform by issuing a shut-down procedure from the operating system in MIS server platforms. If the platform is an MIS dual-server and **both** servers are powered up, the fans, drives and second server will remain powered on until the second server is powered off, then all power (but standby) will be turned off.

For a JBOD Unit, the power button on the front panel will turn off the power to that I/O module. If a second module is installed and powered on, it, the fans and the drives will remain on until it, too, is powered off.

Sliding the Chassis Forward/Backwards

You will need to slide the chassis out to remove the drives. To slide the chassis out in either direction, follow these steps:

1. Push the two release latches in, at the left and right sides, towards the center of the chassis.
2. Pull the chassis out using the handles. The chassis will latch at the 20-inch limit.
3. To slide the chassis back in, there are safety catches on the rails on both the left and right sides that will need to be pushed in towards the chassis in order to push it back into the rack.

Note: When depressing these safety latches, be sure to then more the chassis in *slowly*, as it is possible to get your fingers caught in the small holes of the safety latch.

4. Once the chassis is in the home position in the D-Rack, it can then be pulled out the rear of the rack, using the same steps above.

Removing the Front or Rear Chassis Cover

As shown in Figure 2, the top of the chassis is bifurcated; that is, there is a front and rear chassis cover.

1. Remove the single security screw from the cover.
2. Push the top detent, and slide the cover out and up from the chassis.

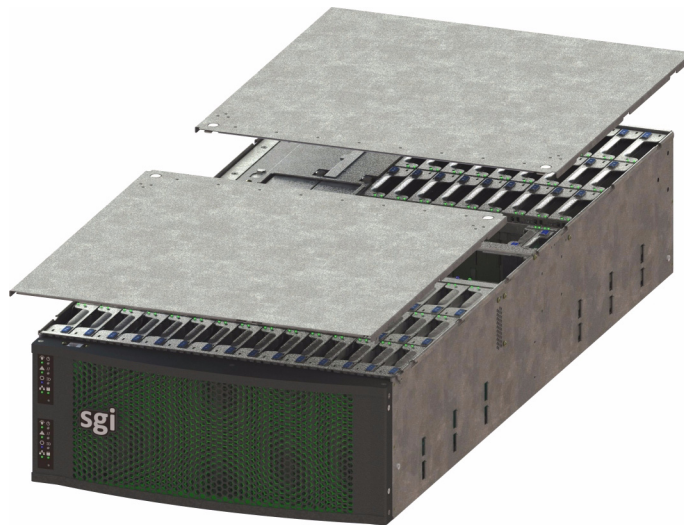


Figure 2 Front & Rear Chassis Covers

Removing the Drives

As shown in Figure 3, the drives are mounted in drive carriers to simplify their installation and removal from the drive bricks or boot drive bays in the chassis.

To remove the drive, perform the following steps:

1. Unlatch the drive carrier by sliding the grey latch toward the drive and pull the drive carrier out of the StorBrick or boot drive bay.

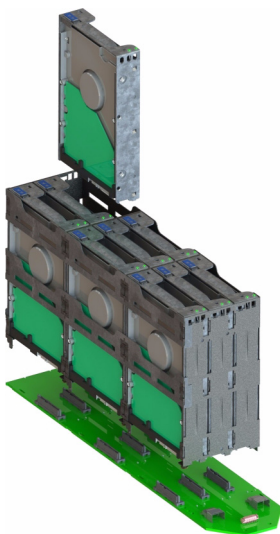


Figure 3 Removing Drives from the StorBrick

2. Once all the drives are removed from the front half of the chassis, slide the chassis to the rear of the rack and repeat drive removal until all the drives have been removed from the chassis.
3. After all the drives have been removed, using two people, remove the chassis from the rack and place on a sturdy cart. (If the cart has wheels, make sure the brakes are set to immobilize the cart.)

Removing the Air Ducts

1. Unscrew the screws that attach the air duct to the rack. (Some air ducts attach with two screws. Other air ducts will attach with a single screw and Velcro. See Figure 4 below.)
2. Remove the air duct from the rack.
3. Set aside for later re-installation.

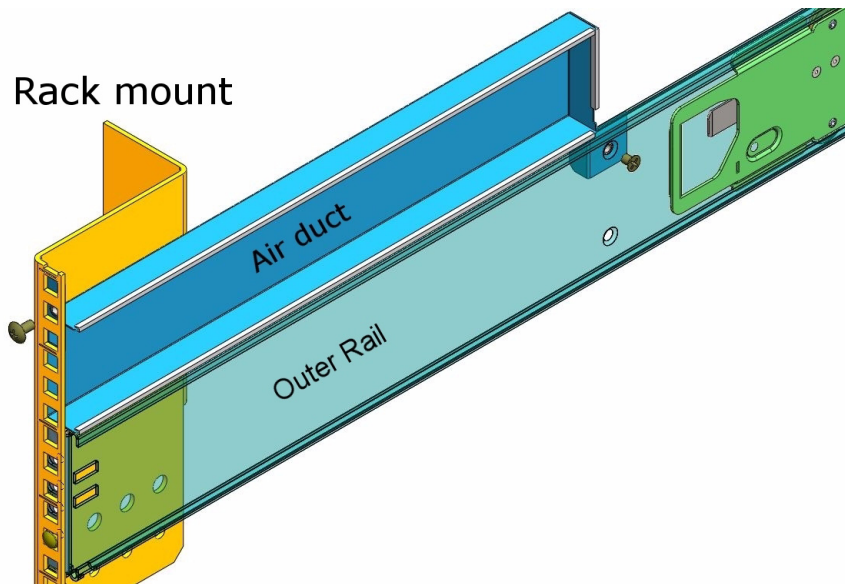


Figure 4 Air Duct above Outer Rail

Removing the 1.0 Inner Rail

1. Using a screwdriver, remove the mounting screws that attach the inner rails to the chassis (Figure 5).
2. Slide the rails off the support tabs, and remove them from the side of the chassis.
3. Repeat this for both sides.



Figure 5 Remove Old Inner Rails

Removing the 1.0 Outer Rails

1. Using a screwdriver, remove the screws attaching the outer rails to the rack.
2. Remove the outer rail from the rack.
3. Do this for both sides.

Installing the D-Rack Stiffener Brackets (for SGI D-Racks Only)

Note: The following procedure is for installing into a D-Rack *already on location*, where the customer is required install the outer rails into the SGI D-Rack. **These instructions are for SGI D-Racks on location ONLY.** SGI D-Racks shipped with chassis will come pre-installed with rolling rails and D-Rack Stiffener.

If you are installing rails into a SGI D-Rack on location, it will require installation of the D-Rack Stiffener. This item is two brackets: the attachment plate with a wedge-shaped cut-out (Figure 6), and the adjustment plate with interlocking tabs (Figure 7).

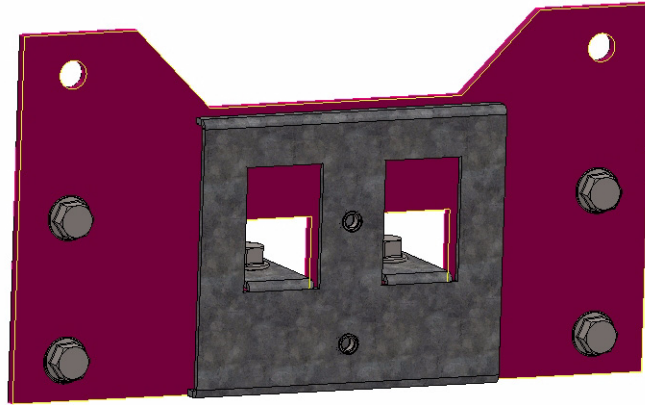


Figure 6 D-Rack Stiffener Attachment Plate

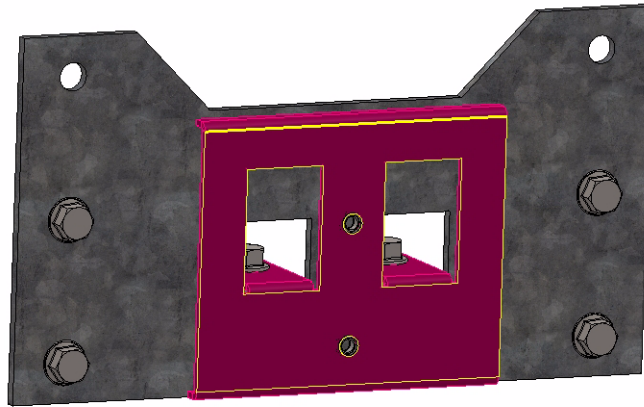


Figure 7 D-Rack Stiffener Adjustment Plate

These two pieces come together to form a single unit, held together by two vertical 6x16 metric hex flange bolts (Figure 8, in cyan) to make the D-Rack Stiffener, and attached to the D-Rack using four bolts (Figure 8, in magenta).

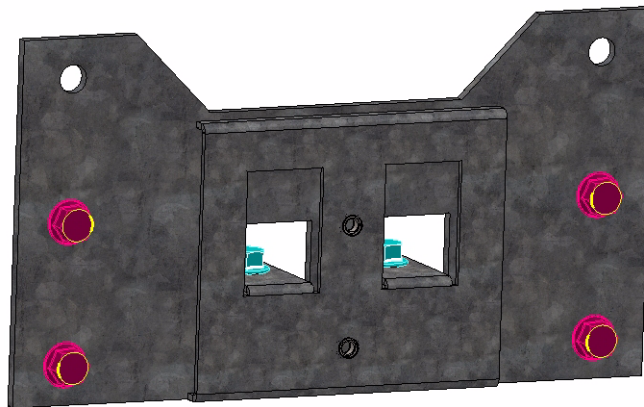


Figure 8 D-Rack Stiffener Bolts



Figure 9 D-Rack Stiffener

1. Due to their construction, it is easiest to join the brackets together first, and then attach the D-Rack Stiffener to the D-Rack.
2. Attach the inner bracket to the outer bracket using the vertical bolt and socket wrench (Figure 8). Do **not** tighten these bolts all the way. They will be used later for altering rail aligning using the alignment tool.

Note: The screws that attach the D-Rack Stiffener to the rack can be tightened all the way.

3. Attach the the D-Rack Stiffener to the D-Rack using the four support screws. There are six holes available for the screws, but two will be blocked. Use the remaining four holes (Figure 8).

Note: When installing, leave the vertical bolts of the D-Rack Stiffener loose. The vertical bolts in the D-Rack Stiffener will allow the rails to be adjusted later using the alignment tool.

Shipping Tabs

The MIS rolling rails are shipped with safety shipping tabs to keep the rails from rolling out during shipping. These tabs will need to be removed prior to removing the inner rolling rail from the outer rail (see Figure 10, below).



Figure 10 Safety Shipping Tab with Screw

1. Remove the screw holding the safety tab in place using a phillips screwdriver.
2. Remove the shipping tab from the rails.

The rails can now be separated. Keep the tabs and screws in a safe place for possible future use (shipping the unit to another location).

Installing the 1.5 Outer Rails

1. Hold up the outer rails to the rack to determine if the depth is correct. If the rail cannot be secured to the rack at the front and rear, perform the following steps:
 - a. Remove the four screws that hold the rear mounting plate to the rail.
 - b. Move the rear mounting plate until the depth of the rail is correct for the depth of the rack.
 - c. Secure the screws on the adjustment plate firmly in place.
2. If installing into an SGI D-Rack, perform the following steps, otherwise, skip to step 3.
 - a. Use the small screws provided and attach the rail to the D-Rack stiffener.
 - b. Secure these screws firmly and make sure the screw heads are counter-sunk, so as not to catch on anything rolling in the rack. The vertical bolts in the D-Rack Stiffener will allow the rails to be adjusted later using the alignment tool.
3. Use the long phillips screwdriver to fasten the rear screws of the rail to the rack. Keep these screws loose for later adjustment.
4. Attach the rail to the rack at the front using the screws provided, keeping them loose for later adjustment.

Aligning the 1.5 Outer Rails



Warning: These steps *must* be taken or the wheels of the inner rail can get bound to the outer rail, causing the chassis to get stuck.

1. Tighten the screws on the left rail *completely*, middle bolts first (for D-racks), then the front screws, lastly the rear.
2. Using the included alignment tool, insert it into the rails so that it rests on the inner track of the outer rails, just as a chassis would.

3. Adjust the right rail until it is flush with the alignment tool and the left rail. Insure that the tool can be slid smoothly from the front to rear of the rack. (This step is best accomplished with two people, as shown in Figure 11.)



Figure 11 Adjustment Using the Alignment Tool

4. Tighten the screws on the right rail in order of front then back, leaving the middle bolts last (for D-racks), so as to keep as straight an alignment as possible.
5. Double-check the alignment by moving the alignment tool through the rack. There should be no play between the alignment tool and the rails (Figure 12).



Figure 12 Slide the Alignment Tool from Front to Back

6. When satisfied, remove the alignment tool from the rack.

Re-Installing the Air Ducts

1. Place the left air duct above the left rail.
2. Using its mounting screws, attach the air duct to the rack (see Figure 4 on page 5).
3. Repeat this for the right side.

Installing the 1.5 Inner Rolling Rails

1. Align the rolling rails to the chassis so that the word “**Front**” is at the front of the chassis.

Note: The word “**Front**” will be upside-down on one side of the chassis (Figure 13).

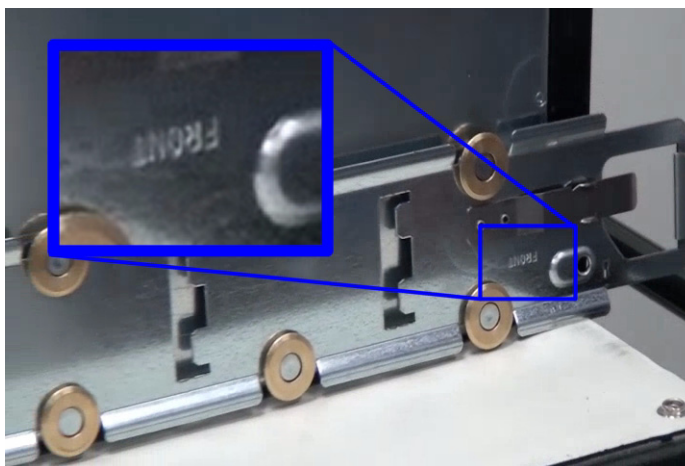


Figure 13 Align Rails to **Front**

2. Locate the six support tabs along the side of the chassis (Figure 14).

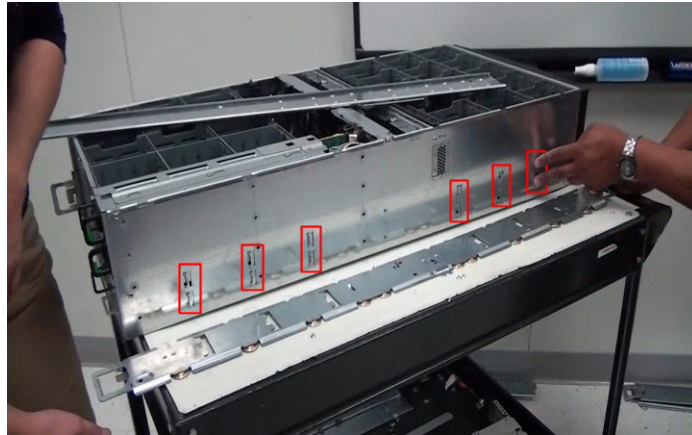


Figure 14 Support Tabs

3. Slide the rolling rail beneath the support tabs on the side of the chassis until it locks firmly into place (Figure 15).

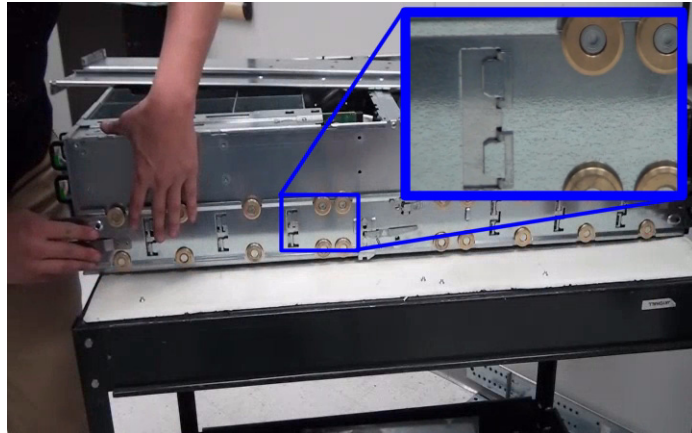


Figure 15 Lock on to Support Tabs

4. Using the included screws, attach the rolling rail to the chassis. Make sure the screw heads are counter-sunk, so as not to catch on anything when rolling in the rack.
5. You may have to move aside a safety latch in order to install some rolling rail screws. Be sure to set the safety latches back to their home positions after rolling rail installation (Figure 16).



Figure 16 Return Latch to Home Position

6. Do this for both sides.

Return the Chassis to the Rack

1. Using two people, return the chassis to the rack.
2. Test the motion of the chassis in the rack by moving it forward and backwards in the rack. This should only require one person to slid the rack forwards and backwards.
3. When satisfied, re-install the drives into the system.

Re-installing the Drives

To re-install a hard drive into the Storbrick, perform the following steps:

1. Replace the drives in their carriers into the StorBrick. **Make sure to replace the drives in the *exact* same location they were in, prior to removal. This includes boot drives.**
2. Push the drive carrier down to lock it place.
3. Replace the chassis cover, safety screw, and slide the chassis back to the rear-extended position.

4. Replace the drives in their StorBricks in the rear of the chassis. Make sure to replace the drives in the exact same location they were, prior to removal.
5. Push the drive carrier down to lock it place.
6. Replace the chassis cover, safety screw, and slide the chassis back to center position in the rack.

Cable Management Arm

The cable management arm is an optional addition to the MIS chassis that helps keep cables organized in the rack. It attaches to a plate on the rear of the MIS chassis and to the rack in which the chassis is mounted. The cable management arm comes in a length designed for 26" deep racks, such as the D-Rack. It can be shortened to accommodate other rack sizes (Figure 17).

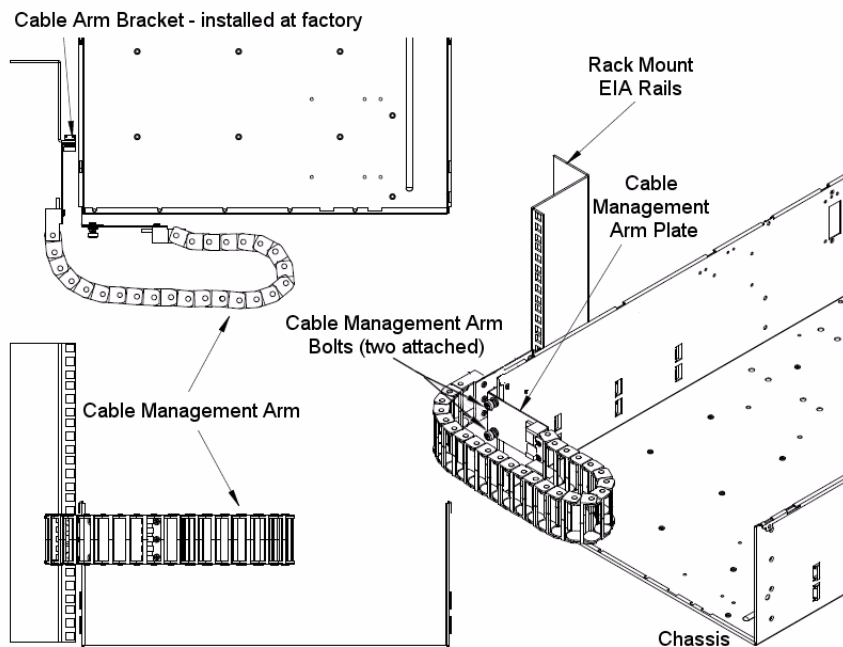


Figure 17 Cable Management Arm

Shortening the Cable Management Arm

Removing segments from the cable management arm is done using a thin flat-head screwdriver.

- For a 26" deep rack, do not remove any sections.
- For a 30" deep rack, remove 3 sections of the arm.
- For a 34" deep rack, remove 6 sections of the arm.

There are two ways that segments can be removed: either while the cable management arm is not attached to the chassis or rack, and devoid of cables, or while attached to the rack and chassis, full of cables.

Shortening the Cable Management Arm While Empty

For the first method, segments are removed from the *end* of the arm. Use the flat-head screwdriver and slip it between the plastic pieces that form the joint of the arm (Figure 18).



Figure 18 Remove Segments from the End of an Empty Arm

Pry the joint open using the thin blade of the screwdriver by wedging it between the plastic parts that make up the joint and twisting the screwdriver until the outer plastic piece pops off of the inner plastic tab (Figure 19).



Figure 19 Pry the Joint Apart



Figure 20 Pull the Segments from the Arm

The segments are now removed from the end of the arm (Figure 20), and the arm can now be attached to the chassis and rack (Figure 21).



Figure 21 Shortened Arm Ready for Installation

Shortening the Cable Management Arm While Full

The second way to shorten the cable management arm is while it is already installed on the rack, with cables in it. In this case, the segments are removed from the *middle* of the cable management arm (Figure 22).

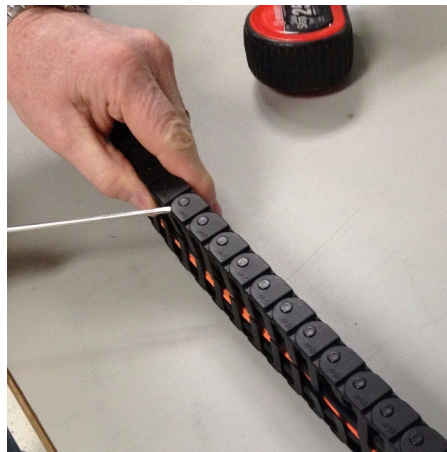


Figure 22 Remove Segments from the Middle of a Full Arm

Pry the joint of a segment open by using the thin blade of a flat-head screwdriver by wedging it between the plastic parts that make up the joint and twist the screwdriver until the outer plastic piece pops off of the inner plastic tab (Figure 23).



Figure 23 Pry Open the Segment Joint

Do the same to the joint on the other side, and then pull the arm apart by sliding it down the cables (Figure 24).



Figure 24 Pull Apart the Cable Management Arm

Pry apart the segment joint on the other end of the section you wish to remove (Figure 25), until the number of unwanted segments have been separated from the rest of the cable arm.



Figure 25 Pry Apart the Joint at the Other End

Once complete, separate the section of unwanted segments from the cables by twisting the section off (Figure 26).



Figure 26 Twist the Section of Segments from the Cables

Bring the two spliced ends of the cable management arm together, and snap the joint together (Figure 27).



Figure 27 Join the Spliced Ends of the Cable Management Arm

The cable arm should now be the appropriate length for the depth of the rack.

Installing the Cable Management Arm

To install the cable management arm, perform the following steps.

1. First extend the chassis out the rear of the rack (“Sliding the Chassis Forward/Backwards” on page 2).
2. Next, lie the cable management arm on a table with the open side up.
3. Lay the cables to be attached to the chassis on top, and starting at one end, press the cables into the arm until they snap inside. Continue to press the cables down the length of the arm until they are all inside.
4. Once complete, slide the arm down the cables until there is enough slack to allow the arm to be bolted into place on the Cable Arm Bracket (Figure 17 on page 15).
5. Using the attached bolts, fasten the Cable Management Arm Plate to the Cable Arm Bracket.
6. Then, wrap the arm around itself (as in Figure 17).
7. Next, slide the chassis out the front of the rack to be able to access the rack mount EIA side rails.
8. Attach the end arm plate to the EIA rail using the provided hardware.
9. Return the chassis to the stored position in the rack.
10. The cables can now be connected to their corresponding inputs (power, networking).
11. Once cabling is complete, use the provided velcro strips to wrap the cords and hold them tight (Figure 28).

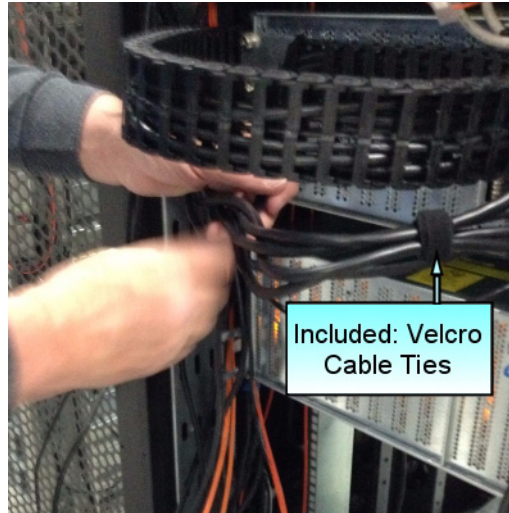


Figure 28 Velcro Cable Ties

Turning the Platform on

To power-on an MIS Server Platform, hold down the power button firmly until the fans spin up and the hardware lights come on. This will initialize the machine's BIOS and start internal diagnostics, including hardware status, RAID Volume information, missing hardware alerts (e.g., missing batteries), and missing configuration alerts. This process will be repeated for each expander in the machine, and finally (if conditions allow), the machine's operating system will load and welcome/log-in screen appear.

If the machine is powering on and there is a fault (e.g., the machine was in the middle of a rebuild when the power was cut, a degraded RAID set is in the system, battery is exhausted, etc.), these warnings will appear during start-up.

If the platform is an MIS dual-server and both servers are powered down, performing the above steps powers on the server with which you are working, the drives, and the fans. The second server will remain powered off until it is powered on, then all power will be turned on.

For a JBOD Unit, the power button on the front panel will turn on the power to that I/O module, the fans and the drives. If a second module is installed and powered off, it will remain off until it, too, is powered on.

Using the MIS Platform

For further instruction on how to use the MIS Platform, please refer to the *SGI Modular InfiniteStorage (MIS) Platform User Guide (007-5818-xxx)*.

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