



Cable Management Guide

Sun Fire™ High-End Server Systems

Sun Microsystems, Inc.
www.sun.com

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Cable Management

The cable management kit has been designed to provide the convenience of uncluttered and orderly cable management with the use of the black management straps. Within this kit, you will find additional green maintenance straps to install that provide a method for holding cables during component removal. With this kit, component maintenance can be accomplished by one technician.

Cable Straps

In the kit, there are six variations of cable straps used to manage the system cables.

Note – The mean time to install the cable straps for a fully configured system is approximately one hour or less.

One kit supplies enough cable straps (with spares) to manage the front of the Sun Fire™ system.

To supply the front and rear of the system, two kits are required. You may discard the rear-door straps if only the front of the system is populated.

TABLE 1 Cable Straps Description

Straps	Strap ID Number	Description	Number Per Kit
Black Management	5	10.0 in. (25.4 cm) black cable strap	14 - with 2 spares
	4	6.0 in. (15.2 cm) black lite cable strap	9 - with 2 spares
	3	6.0 in. (15.2 cm) black cable hanger strap with tie wrap	10 - with 2 spares
Green Maintenance	1	12.0 in. (30.5 cm) green cable hanger strap with tie wrap; air plenum maintenance straps	2 - with 2 spares
	6	18.0 in. (45.7 cm) green cable strap; front door maintenance straps	4 - with 2 spares
	2	51.0 in. (129.5 cm) green buckle strap; rear door maintenance straps	2

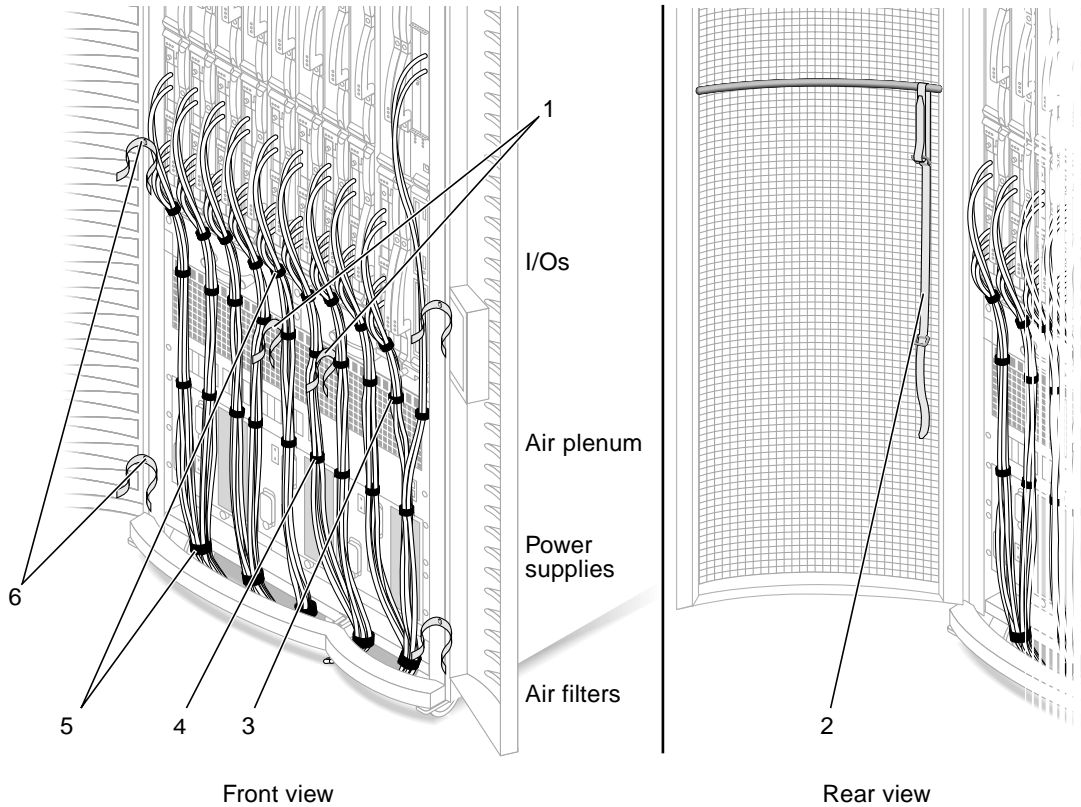
Required Tools

- Side-cutting pliers
- Screwdriver (supplied in system shipping kit, or equivalent)

You should individually bundle together the cables for each system board set as defined in the procedure below. This allows ease of access and removal of a single I/O board set without disturbing the adjacent board set cables.

FIGURE 1 shows a typical cable management scheme for a fully configured Sun Fire system, front view.

Slots: SB17 16 15 14 13 12 11 10 9 SC1 Rear
 SB8 7 6 5 4 3 2 1 0 SC0 Front



- | | |
|---|--|
| 1 12.0 in. (30.5 cm) green cable hanger strap, with tie wrap (two each) | 4 6.0 in. (15.2 cm) black lite cable strap (9 each) |
| 2 51.0 in. (129.5 cm) green buckle strap (2 each, for rear doors) | 5 10.0 in. (25.4 cm) black cable strap (14 each) |
| 3 6.0 in. (15.2 cm) black cable hanger strap with tie wrap (10 each) | 6 18.0 in. (45.7 cm) green cable strap (two per door, front) |

FIGURE 1 Full Configuration Cable Management

Note – Two additional 51.0 in. (129.5 cm) green buckle straps (No. 2) (provided in the cable management kit) will hang from the top crossbar of the rear doors to support the cables during component maintenance.

Installing Black Management Straps

The following procedure applies to the front and rear of the Sun Fire system, as applicable.

1. For each I/O cable set, starting at the bottom of the I/O, attach a 10.0 in. (25.4 cm) black cable strap (No. 5) to one of the cables in the I/O set, using the strap insert (FIGURE 2).
2. Continue wrapping the remaining I/O board set cables with the same black cable strap (No. 5).

For a fully populated system, you should have nine sets of cables hanging vertically at the system. The system control (SC) cables should hang freely.

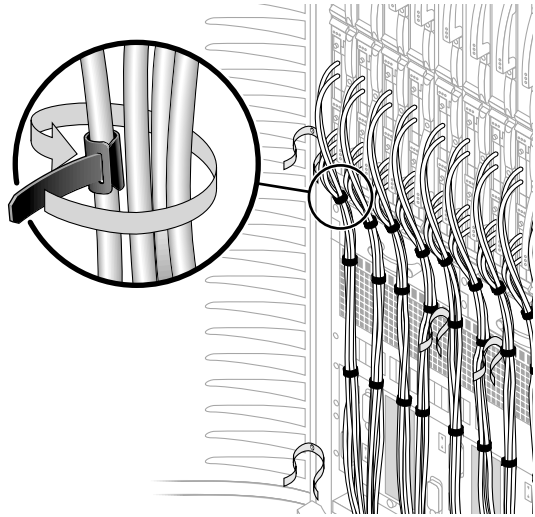


FIGURE 2 Top I/O Cable Bundle

3. Depending on your configuration requirements, securely tie the 6.0 in. (15.2 cm) black cable hanger straps (No. 3), with the Sun label and tie wrap, to the cutouts of the air plenum using the tie wrap (FIGURE 3).

These straps should hang directly vertical to the wrapped I/O board cable set bundles and the SC cables.

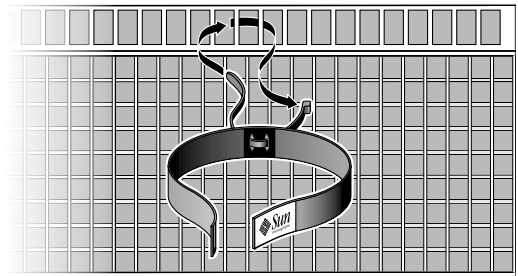


FIGURE 3 Cable Hanger Strap at Air Plenum

- Using the side-cutting pliers or equivalent, at the air plenum, cut off the ends of the tie wraps and vertically secure each of the bundled I/O board set cables and the SC cables, to the permanently mounted black cable hanger straps (No. 3) (FIGURE 4).

For a fully populated system, you should have ten sets of I/O cables and the SC cables hanging vertically at the front or rear of the system.

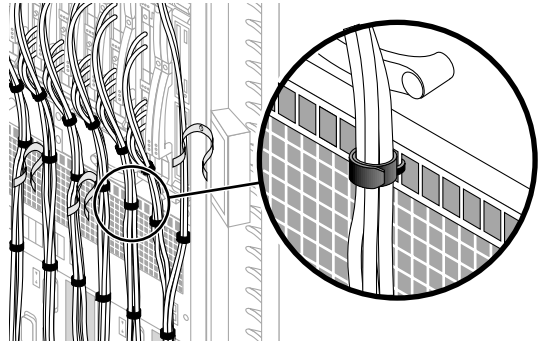


FIGURE 4 Cable Hanger Strap Holding Cables

- At the top of the power supplies, secure a 6.0 in. (15.2 cm) black lite cable strap (No. 4) to one of the cables in each I/O cable set, using the strap insert (FIGURE 5).
- Continue wrapping the remaining I/O board set cables with the same black lite cable strap (No. 4).

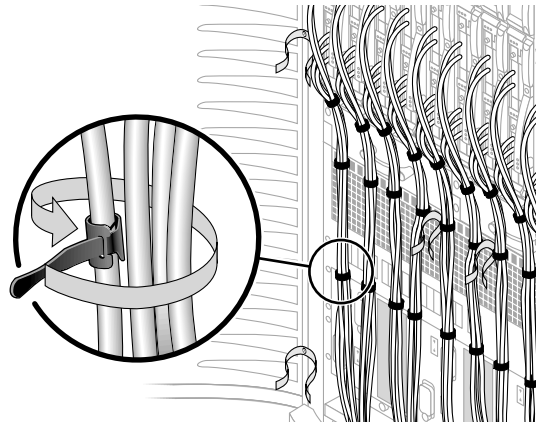


FIGURE 5 Lower I/O Cable Bundle at Power Supply

- Repeat Step 5 and Step 6 for the remaining I/O board set cables, and include the SC cables when wrapping the cables for slot SB0 on the front of the system or slot SB9 on the rear of the system (FIGURE 6).

For a fully populated system, you should have nine sets of cables hanging vertically at the front or rear of the system.

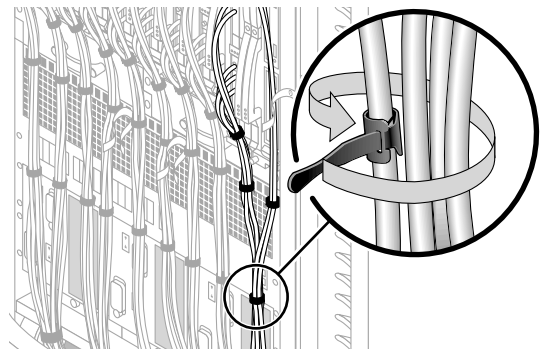


FIGURE 6 SC0 and Slot SB0 Cables—Front

8. At the base of the system, combine two side-by-side bundle sets and secure a 10.0 in. (25.4 cm) black cable strap (No. 5) to one of the cables in the set, using the strap insert (FIGURE 7).

9. Continue wrapping the remaining double I/O board set cables with the same black cable strap (No. 5).

For a fully populated system, a suggested five-bundle combination would be as follows:

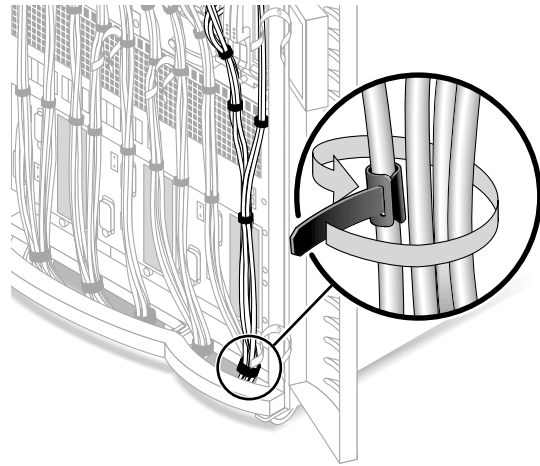


FIGURE 7 SC0 and Slot SB0 Cables—Front

- | | |
|--|--|
| ■ Wrap cables at I/O 7 and 8 (front) | Wrap cables at I/O 16 and 17(rear) |
| ■ Wrap cables at I/O 5 and 6 (front) | Wrap cables at I/O 14 and 15(rear) |
| ■ Wrap cables at I/O 4 (front) | Wrap cables at I/O 13 (rear) |
| ■ Wrap cables at I/O 2 and 3 (front) | Wrap cables at I/O 11 and 12 (rear) |
| ■ Wrap cables at I/O 0, 1, and SC0 (front) | Wrap cables at I/O 9, 10, and SC1 (rear) |

Installing Green Maintenance Straps

The green maintenance straps are installed for the routine maintenance of the honeycomb filter in the air plenum panel intake screen, the lower fan trays, the power supplies, and the bottom air filters. See “Component Maintenance” in this document for component maintenance cable-handling instructions.

The following procedures apply to the front and rear of the system with the exception of the 51.0 in. (129.5 cm) green buckle straps (No. 2) that are used on the rear doors of the system.

Door Maintenance Straps

Due to the design differences of the front and rear system doors, there are separate green maintenance straps installed to hold the cable bundles during routine maintenance. The 51.0 in. (129.5 cm) green buckle straps (No. 2) have been included in this Cable Management Kit to facilitate the rear door cable-holding requirements.

For the Front Doors:

1. On the hinged side, using a Phillips screwdriver, remove the M4x10 screw located tenth from the bottom on the right door and eleventh from the bottom on the left door.

Note – The M4x10 screw should be turned no more than 3.0 revolutions to prevent the stripping of the internal door material, when attaching the maintenance strap. The strap should be loosely aligned.

2. Attach a 18.0 in. (45.7 cm) green cable strap (No. 6) and secure with the M4x10 screw (FIGURE 8).

This strap can be mounted using either side of the grommet.

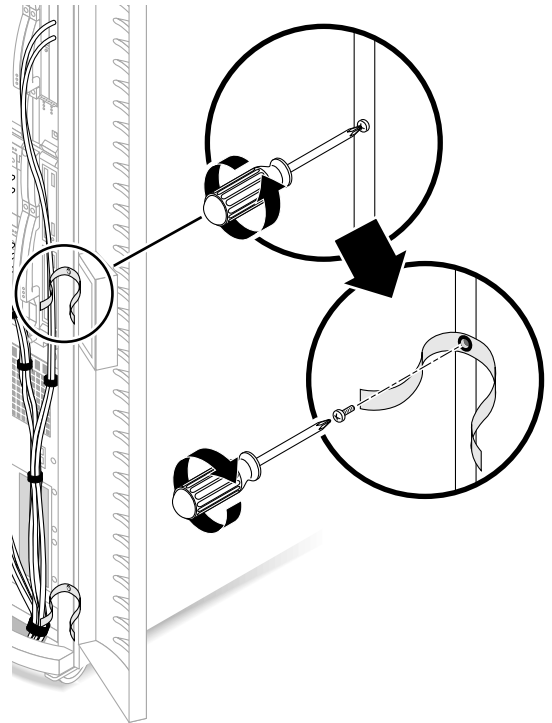


FIGURE 8 Front Door Maintenance Strap

3. On the same doors, using a Phillips screwdriver, remove the M4x10 screw located second from the bottom.
4. Attach a 18.0 in. (45.7 cm) green cable strap (No. 6) and secure with the M4x10 screw.

For the Rear Doors:

The rear door green buckle strap (No. 2) is 51.0 in (129.5 cm) long. The buckle end used at the top crossbar of the door measures approximately 17.0 in. (43.2 cm) and the other buckle end used to hold the cables measures approximately 12.0 in. (30.5 cm).

1. **Attach the 17.0 in. (43.2 cm) end of the 51.0 in. (129.5 cm) green buckle strap (No. 2) to the top crossbar on the hinged side of the door (FIGURE 9).**
2. **Insert the 17.0 in. (43.2 cm) end of the strap (No. 2), buckle facing toward you, underneath and over the crossbar and insert the end through the buckle.**
3. **Loosely secure the hook (plastic hooks) side of the strap to the loop (fuzzy material) side of the strap.**

This strap should be pushed close to the hinged side of the door to retain proper tension when the cables are held during maintenance.

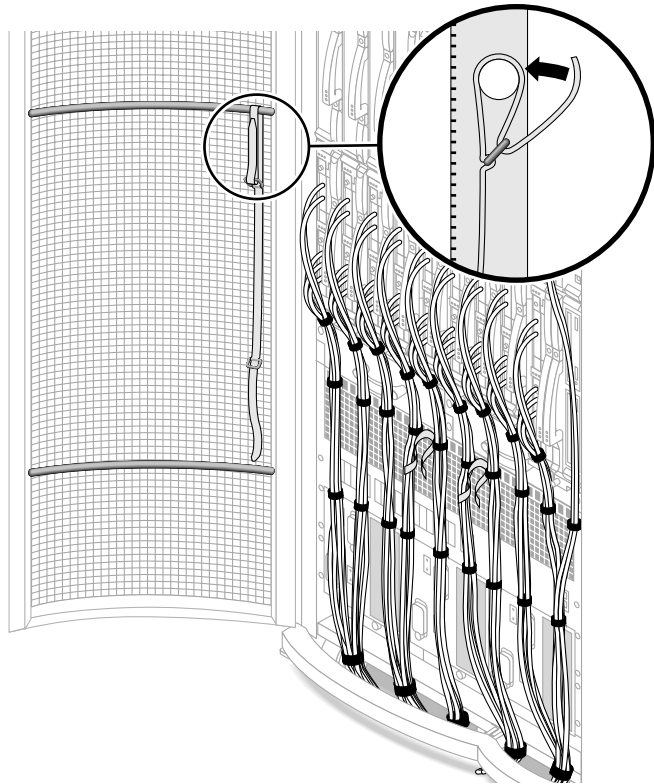


FIGURE 9 Rear Door Maintenance Strap

4. **During non-maintenance periods, bring the bottom of the strap up and over the top crossbar, on each door, to keep the straps away from the air plenum.**

Note – During maintenance while cables are being supported by the bottom portion of the strap, the top portion of the strap, at the crossbar, can be retightened to lift the cables upward and away from the component removing area.

Air Plenum Maintenance Straps

At the Front of the System:

1. At the center of the air plenum cutouts, securely tie one 12.0 in. (30.5 cm) green cable hanger strap (No. 1), with tie wrap, between slot SB4 and SB5 and cut off the end of the tie wrap.
2. At the center of the air plenum cutouts, securely tie one 12.0 in. (30.5 cm) green cable hanger strap (No. 1), with tie wrap, between slot SB2 and SB3 and cut off the end of the tie wrap (FIGURE 10).

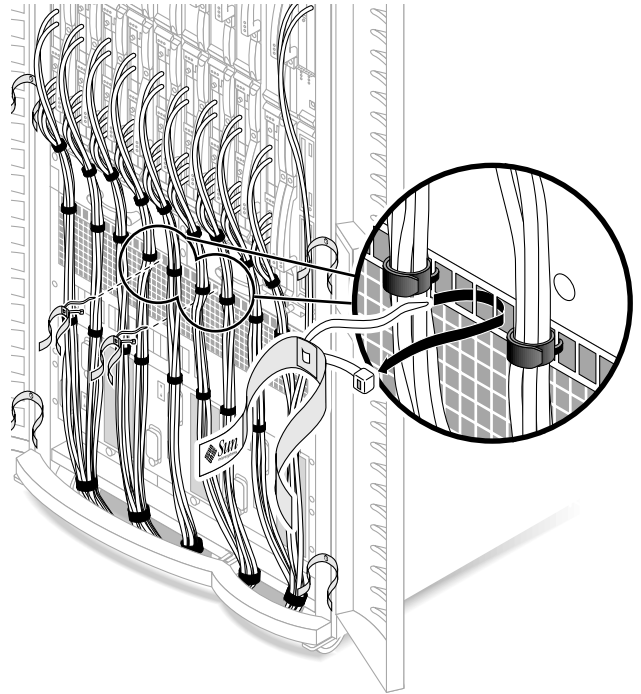


FIGURE 10 Air Plenum Maintenance Strap

At the Rear of the System:

1. At the center of the air plenum cutouts, securely tie one 12.0 in. (30.5 cm) green cable hanger strap (No. 1), with tie wrap, between slot SB13 and SB14 and cut off the end of the tie wrap.
2. At the center of the air plenum cutouts, securely tie one 12.0 in. (30.5 cm) green cable hanger strap (No. 1), with tie wrap, between slot SB11 and SB12 and cut off the end of the tie wrap.

Component Maintenance

The bundled cables should hang as vertically straight as possible with ample cable slack below the floor tiles for lifting of the cables to provide access for the maintenance of removable components. Ensure no sharp edges are on the floor tile cutout. Be careful moving components in and out of the system as sharp edges could possibly damage cables.

I/O Board Sets

For I/O board maintenance, all cable management straps should remain in place. Any disconnected cable set will hang from the black cable hanger strap (No. 3) at the air plenum cutout. For I/O component remove and replace procedures, refer to the system service manual.

Air Plenum Panel Intake Screen

For the Front Left Side:

1. **Release the five left-side cable bundles from the black cable hanger straps (No. 3) of the air plenum.**
2. **Lift the five wrapped cable bundles on the left side of the system, pulling upward to obtain cable slack from beneath the tile floor.**
3. **Secure the bundles with the upper green cable strap (No. 6) on the adjacent door (FIGURE 11).**

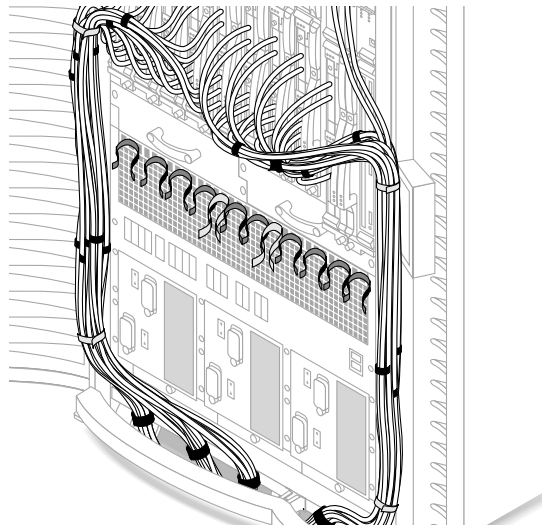


FIGURE 11 Air Plenum Removal—Front

- 4. To reduce the strain on the upper green cable strap (No. 6) at the front of the system, continue to pull the cables upward and secure the bundle with the lower green cable strap (No. 6) on the door.**

Ensure the cables are held tight and that ample room is provided to gain access to the air plenum panel.

For the Front Right Side:

- 1. Release the four right-side cable bundles and the SC bundle from the black cable hanger straps (No. 3) of the air plenum.**
- 2. Lift the four bundles on the right side of the system, pulling upward to obtain cable slack from beneath the tile floor.**
- 3. Secure the bundles with the upper green cable strap (No. 6) on the adjacent door (FIGURE 11).**
- 4. To reduce the strain on the upper green cable strap (No. 6) at the front of the system, continue to pull the cables upward and secure the bundle with the lower green cable strap (No. 6) on the door.**

Ensure the cables are held tight and that ample room is provided to gain access to the air plenum panel.

Note – Refer to the system service manual for the air plenum panel intake screen filter-replacement procedure.

- 5. After maintenance on the front of the system, release the four green cable straps (No. 6) and return all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.**

For the Rear Left Side:

- 1. Release the five left-side cable bundles from the black cable hanger straps (No. 3) of the air plenum.**
- 2. Lift the five wrapped cable bundles on the left side of the system, pulling upward to obtain cable slack from beneath the tile floor.**
- 3. Use the lower end of the green buckle strap (No. 2) on the adjacent door to secure the five left-side cable bundles.**

Wrap the end of the strap around the cable bundles placing the end of the strap through the lower buckle and secure the strap material.

- 4. Adjust the upper end of the green buckle strap (No. 2) at the crossbar by retightening the strap to lift the cables upward and away from the components.**

For the Rear Right Side:

- 1. Release the four right-side cable bundles and the SC bundle from the black cable hanger straps (No. 3) of the air plenum.**
- 2. Lift the four bundles on the right side of the system, pulling upward to obtain cable slack from beneath the tile floor.**
- 3. Use the lower end of the green buckle strap (No. 2) on the adjacent door to secure the four right-side cable bundles.**
Wrap the end of the strap around the cable bundles placing the end of the strap through the lower buckle and secure the strap material.
- 4. Adjust the upper end of the green buckle strap (No. 2) at the crossbar by retightening the strap to lift the cables upward and away from the components.**

Note – For a less than fully populated system, the lower portion of the green buckle strap (No. 2) has also been designed to accommodate a minimum number of cables. Ensure the top of the strap is fully cinched to gain maximum cable lift.

- 5. After maintenance on the rear of the system, release the bottom buckle of the green buckle straps (No. 2), returning the end of the strap over the top crossbar, and reposition all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.**

Lower Fan Trays and Left and Right Power Supplies

Unwrap the black cable hanger straps (No. 3) at the air plenum, as needed, for your system configuration maintenance.

For the Left Side:

1. For the left fan tray or power supply, lift the first four wrapped cable bundles on the left side of the system, pulling upward to obtain cable slack from beneath the tile floor.
2. Secure the bundles with the upper green cable strap (No. 6) on the adjacent door.
3. To reduce the strain on the upper green cable strap (No. 6), continue to pull the cables upward and secure the bundle with the lower green cable strap (No. 6) on the door (FIGURE 12).

Ensure the cables are held tight and that ample room is provided to gain access to the components.

4. For the rear of the system only, secure the bundles using the lower buckle of the maintenance strap (No. 2) and readjust the strap at the crossbar to retighten and lift the cables upward and away from the components.

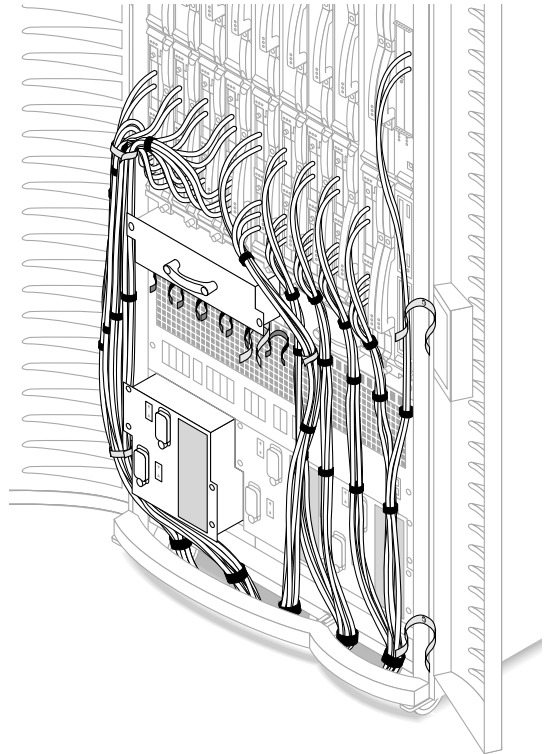


FIGURE 12 Fan Tray and Power Supply Maintenance—Front Left Side

5. For the front or rear of the system, lift the next bundle on the left side and attach it to the farthest right green cable hanger strap (No. 1) on the air plenum.
6. After maintenance on the front of the system, release the green cable straps and the green cable hanger strap (No. 6 and No. 1) and return all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.

7. After maintenance on the rear of the system, release the bottom buckle of the green buckle strap (No. 2), returning the end of the strap over the top crossbar, and the green cable hanger strap (No. 1), and reposition all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.

For the Right Side:

1. For the right fan tray or power supply, lift the SC bundle and the next two wrapped cable bundles on the right side of the system, pulling upward to obtain cable slack from beneath the tile floor.
2. Secure the bundles with the upper green cable strap (No. 6) on the adjacent door.
3. To reduce the strain on the upper green cable strap (No. 6), continue to pull the cables upward and secure the bundle with the lower green cable strap (No. 6) on the door.

Ensure the cables are held tight and that ample room is provided to gain access to the components.

4. For the rear of the system only, secure the bundles using the lower buckle of the maintenance strap (No. 2) on the adjacent door and readjust the strap at the crossbar to retighten and lift the cables upward and away from the components.
5. For the front or rear of the system, lift the next two bundles on the right side and attach them to the farthest left green cable hanger strap (No. 1) on the air plenum.

Note – Refer to the system service manual for fan tray and power supply replacement procedures.

6. After maintenance on the front of the system, release the green cable straps and the green cable hanger strap (No. 6 and No. 1) and return all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.
7. After maintenance on the rear of the system, release the bottom buckle of the green buckle strap (No. 2), returning the end of the strap over the top crossbar, and the green cable hanger strap (No. 1), and reposition all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.

Center Power Supply

1. Lift the five left cable set on the left side of the system and the four right cable sets and SC cables on the right side, pulling upward to obtain cable slack from beneath the tile floor.
2. Secure the bundles with the lower green cable strap (No. 6) on the adjacent doors (FIGURE 13).

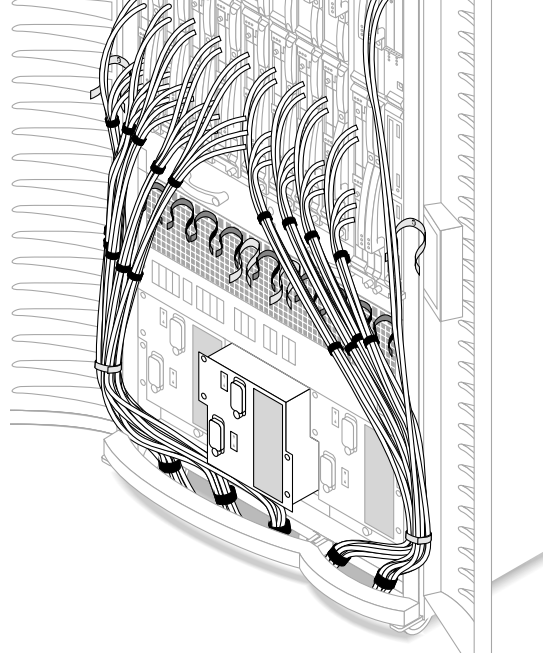


FIGURE 13 Center Power Supply Removal—Front

3. For the rear of the system only, secure the bundles using the lower buckle of the maintenance straps (No. 2) and readjust the straps at the crossbar to retighten and lift the cables upward and away from the components.

Note – Refer to the system service manual for power supply replacement procedures.

4. After maintenance on the front of the system, release the green cable straps (No. 6) and return all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.
5. After maintenance on the rear of the system, release the bottom buckle of the green buckle straps (No. 2) returning the end of each strap over the top crossbar and reposition all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.

Air Filters

For the Left Side:

1. For the left air filter, lift the five wrapped cable bundles on the left side of the system, pulling upward to obtain cable slack from beneath the tile floor.
2. Secure the bundles with the upper green cable strap (No. 6) on the adjacent door.

Ensure the cables are held tight and that ample room is provided to gain access to the air filter (FIGURE 14).

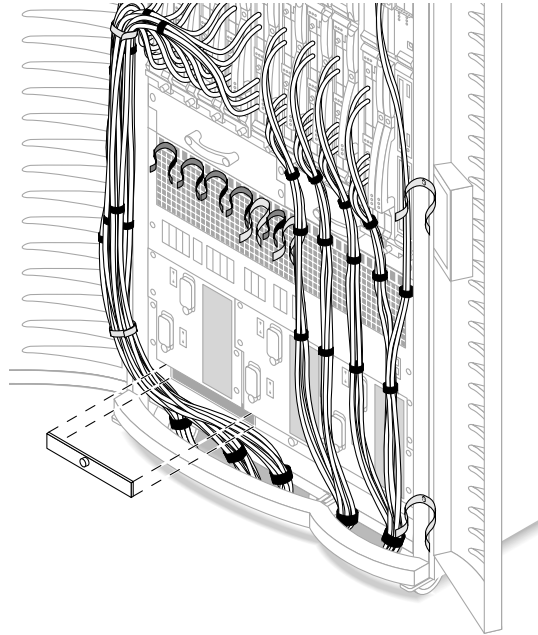


FIGURE 14 Air Filter Removal—Left Side

3. To reduce the strain on the upper green cable strap (No. 6), continue to pull the cables upward and secure the bundle with the lower green cable strap (No. 6) on the adjacent door.
- Ensure the cables are held tight and that ample room is provided to gain access to the components.
4. For the rear of the system only, secure the bundles using the lower buckle of the maintenance strap (No. 2) on the adjacent door and readjust the straps at the crossbar to retighten and lift the cables upward and away from the components.
 5. After maintenance on the front of the system, release the green cable straps (No. 6) and return all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.
 6. After maintenance on the rear of the system, release the bottom buckle of the green buckle strap (No. 2) returning the end of the strap over the top crossbar and reposition all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.

For the Right Side:

1. **For the right air filter, lift the four wrapped cable bundles and the SC cables on the right side of the system, pulling upward to obtain cable slack from beneath the tile floor.**
2. **Secure the bundles with the upper green cable strap (No. 6) on the adjacent door.**
Ensure the cables are held tight and that ample room is provided to gain access to the air filter.
3. **To reduce the strain on the upper green cable strap (No. 6), continue to pull the cables upward and secure the bundle with the lower green cable strap (No. 6) on the adjacent door.**
Ensure the cables are held tight and that ample room is provided to gain access to the components.
4. **For the rear of the system only, secure the bundles using the lower buckle of the maintenance strap (No. 2) on the adjacent door and readjust the straps at the crossbar to retighten and lift the cables upward and away from the components.**
5. **For the center air filter, follow the procedure in the “Center Power Supply” section above.**

Note – Refer to the system service manual for air filter replacement procedures.

6. **After maintenance on the front of the system, release the green cable straps (No. 6) and return all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.**
7. **After maintenance on the rear of the system, release the bottom buckle of the green buckle strap (No. 2) returning the end of the strap over the top crossbar and reposition all the I/O board set cables to their former location securing each cable set with the black cable hanger straps (No. 3) on the air plenum.**

