

IBM System Storage



# FIPS 140-2 Security Seal Application Procedures

*Covering 2499-192, 2499-384, 2499-416, 2499-816, 2498-F48, and 2498-R06 models*



IBM System Storage



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*Covering 2499-192, 2499-384, 2499-416, 2499-816, 2498-F48, and 2498-R06 models*

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## About this document

This document is intended for use by systems administrators and technicians experienced with networking, Fibre Channel, and storage area network (SAN) technologies. It describes how to install security seals on different IBM System Storage 2499 and 2498 Machine Type models for compliance with the U.S. Federal Information Processing Standards 140-2 (FIPS 140-2) requirements. Chapter 1, "FIPS Security Seal Preparation," on page 1 provides important information common to all installations. Once you have read that chapter, you can then go directly to the FIPS seal installation chapter specific to your product.

For these instructions, the products will be referred to by the Machine Type-Model (MTM) rather than the product name. Refer to the table below for the MTM for each product covered by these instructions.

*Table 1. Products and MTMs covered by these instructions*

| IBM product name             | Machine Type Model (MTM) | FIPS seal installation instructions chapter                      |
|------------------------------|--------------------------|--|
| IBM System Storage SAN06B-R  | 2498-R06                 | Chapter 2, "Applying security seals to the 2498-R06," on page 3  |
| IBM System Storage SAN48B-5  | 2498-F48                 | Chapter 3, "Applying security seals to the 2498-F48," on page 5  |
| IBM System Storage SAN384B   | 2499-192                 | Chapter 4, "Applying security seals to the 2499-192," on page 9  |
| IBM System Storage SAN768B   | 2499-384                 | Chapter 5, "Applying security seals to the 2499-384," on page 27 |
| IBM System Storage SAN384B-2 | 2499-416                 | Chapter 6, "Applying security seals to the 2499-416," on page 33 |
| IBM System Storage SAN768B-2 | 2499-816                 | Chapter 7, "Applying security seals to the 2499-816," on page 51 |

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## Product documents

The following documents contain information related to the products covered by these instructions. The documentation may be printed material or may be on the documentation CD shipped with the product. Newer versions of product documentation may be available through the IBM Publications Center Web site [www.ibm.com/shop/publications/order](http://www.ibm.com/shop/publications/order). Search by publication title or publication number. Newer versions may also be available through the IBM Support Portal [www.ibm.com/supportportal](http://www.ibm.com/supportportal). Enter your product machine type (2499 or 2498) or product name in the search field, and then select **Documentation** from the displayed page.

- *IBM System Storage® SAN06B-R Installation, Service, and User Guide, GC27-2270*
- *IBM System Storage SAN48B-5 Installation, Service, and User Guide, GA32-0895*

- *IBM System Storage SAN384B Installation, Service, and User Guide, GC52-1333*
- *IBM System Storage SAN384B-2 Installation, Service, and User Guide, GA32-0894*
- *IBM System Storage SAN768B Installation, Service, and User Guide, GA32-0574*
- *IBM System Storage SAN768B-2 Installation, Service, and User Guide, GA32-0893*
- *IBM System Storage SAN b-type Safety Notices*
- *IBM Environmental Notices and User Guide, Z125-5823*

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## Chapter 1. FIPS Security Seal Preparation

This document provides instructions for applying FIPS-compliant tamper-evident security seals to specific blades, switches, and enterprise platforms. The seals are applied in various locations on switch chassis, fabric backbone chassis, blades, mounting hardware, and across chassis components to provide evidence of tampering or removal of components. The same FIPS 140-2 Level 2 Seal Kit (Feature Code 7230) is used on all products covered by these instructions, but not all seals or parts will be used for each product. Ideally, the FIPS seals should be applied during the product installation process since some of the seal locations will be difficult to access once the products are installed into racks.

**Attention:** Many of the field replaceable units (FRUs) are sensitive to electrostatic discharge (ESD), and can potentially be damaged by improper handling. Wear a wrist grounding strap connected to chassis ground or a bench ground. Store all ESD-sensitive components in antistatic packaging.

---

### Items required

Before you begin any of these tasks, be sure you have the following items:

- Tamper Evident Seals Kit (FC 7230) (part number IB-000195) containing:
  - A set of serialized seals. The seal dimension is 0.5 in. x 1.25 in.
  - Six FIPS brackets, (two upper brackets and four lower brackets). These brackets are used to create a continuous crypto boundary and are installed on the 2499-192 and 2499-416 only.

**Note:** Store the seals in a plastic bag in a cool, dry location between 15° and 20° C (60° and 70° F) and less than 50 percent relative humidity. The effective life of seals is two years. After that time, you should discard and replace any unused seals.

- Electrostatic discharge (ESD) grounding strap (as recommended in the separate product manuals).

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### Seal application instructions

For all seal applications, be sure that the following instructions are observed.

- All surfaces to which the seals will be applied must be clean and dry. Use alcohol to clean the surfaces. Do not use other solvents.
- Do not use bare fingers to handle the labels. Slowly peel the backing from each seal, taking care not to touch the adhesive.
- Use very firm pressure across the entire seal surface to ensure maximum adhesion.
- Allow a minimum of 24 hours for the adhesive to cure. Tamper evidence might not be apparent until the adhesive cures.

---

### Tamper evidence information

When a tamper-evident seal is removed from the surface to which it has been applied, several tamper indications are apparent:

- The removed seal shows a checkerboard destruct pattern.

- The graphics printed within the seal are uniquely split between the removed seal and the residue left on the surface. The residue is visible under ultraviolet light.

---

## Chapter 2. Applying security seals to the 2498-R06

Use the instructions in this chapter to apply the FIPS security seals to the IBM System Storage SAN06B-R (2498-R06). The procedures are described in the following sections:

- “Applying seals to the 2498-R06 switch”
- “Viewing seals from the underside of the 2498-R06 switch” on page 4

---

### Applying seals to the 2498-R06 switch

A total of two seals are required to complete the security seal applications procedure for the 2498-R06 switch, one on the left side, and the other on the right side of the switch.

#### Applying a seal to the left side of the 2498-R06 switch

Figure 1 shows the left side of the 2498-R06 switch with a tamper-evident seal applied. Refer to the figure when performing the procedure.

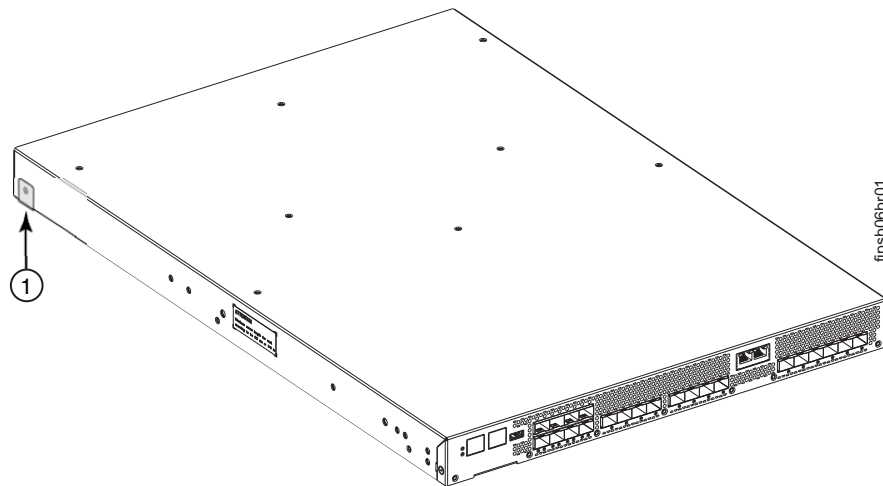


Figure 1. 2498-R06 switch top and left port side view with FIPS seal applied

Apply one seal over the screw on the left side of the switch towards the non-port side **1** and wrap it to the underside of the switch. Ensure that the seal is firmly affixed.

#### Applying a seal to the right side of the 2498-R06 switch

Figure 2 on page 4 shows the right side of the 2498-R06 switch with a tamper-evident seal applied. Refer to the figure when performing the procedure.

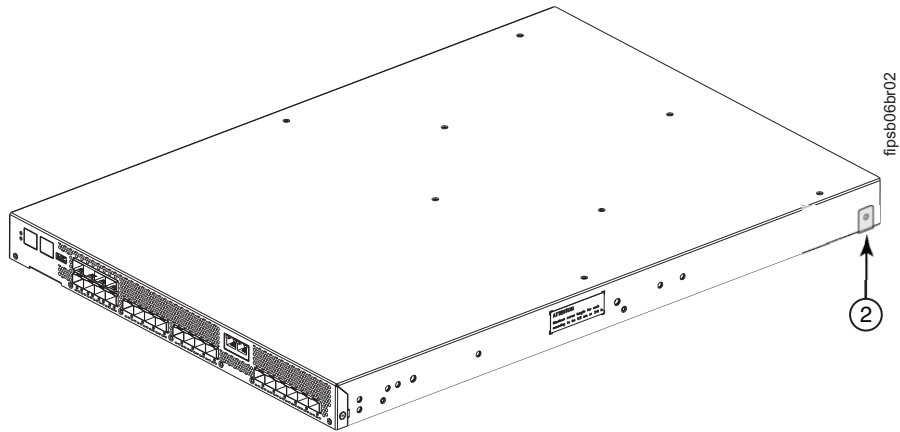


Figure 2. 2498-R06 switch top and right port side view with FIPS seal applied

Apply one seal over the screw on the right side of the switch towards the non-port side **2** and wrap it to the underside of the switch. Ensure that the seal is firmly affixed.

## Viewing seals from the underside of the 2498-R06 switch

Figure 3 shows the underside of the 2498-R06 switch with the two tamper-evident seals that were applied in the previous steps

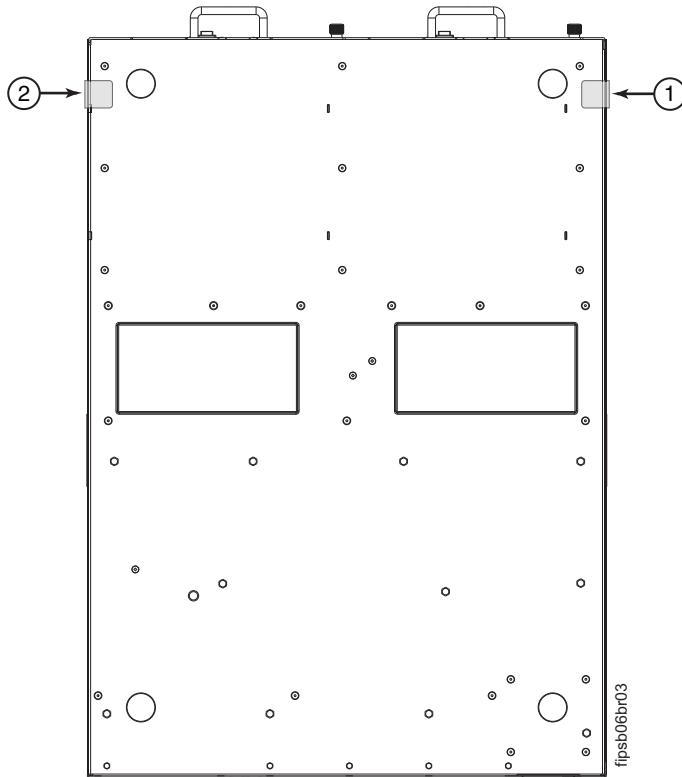


Figure 3. 2498-R06 underside view with the two FIPS seal locations shown

---

## Chapter 3. Applying security seals to the 2498-F48

Use the instructions in this chapter to apply the FIPS security seals to the IBM System Storage SAN48-F (2498-F48). The procedures are described in the following sections:

- “Applying seals to the 2498-F48 switch”
- “Viewing seals from the underside of the 2498-F48 switch” on page 6

---

### Applying seals to the 2498-F48 switch

Two seals are required to complete the security seal applications procedure for the 2498-F48 switch, one on the left side, and the other on the right side of the switch.

#### Applying a seal to the left side of the 2498-F48 switch

Figure 4 shows the left side of the 2498-F48 switch with a tamper-evident seal applied. Refer to the figure when performing the procedure.

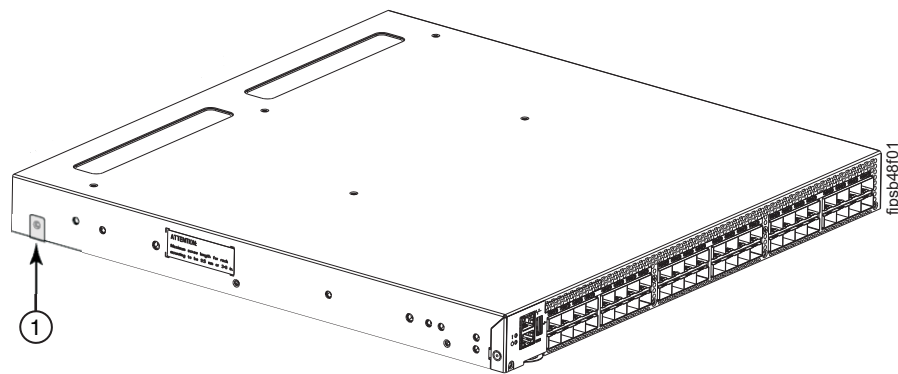


Figure 4. 2498-F48 switch top and left port side view with FIPS seal applied

Apply one seal over the screw on the left side of the switch towards the non-port side **1** and wrap it to the underside of the switch. Ensure that the seal is firmly affixed.

#### Applying a seal to the right side of the 2498-F48 switch

Figure 5 on page 6 shows the right side of the 2498-F48 switch with a tamper-evident seal applied. Refer to the figure when performing the procedure.

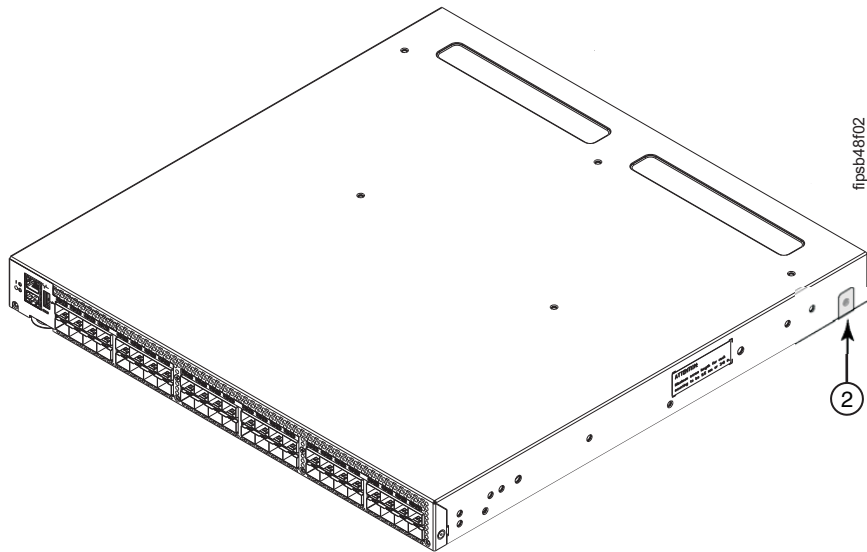


Figure 5. 2498-F48 switch top and right port side view with FIPS seal applied

Apply one seal over the screw on the right side of the switch towards the non-port side **2** and wrap it to the underside of the switch. Ensure that the seal is firmly affixed.

---

## Viewing seals from the underside of the 2498-F48 switch

Figure 6 on page 7 shows the underside of the 2498-F48 switch with the two tamper-evident seals that were applied in the previous steps



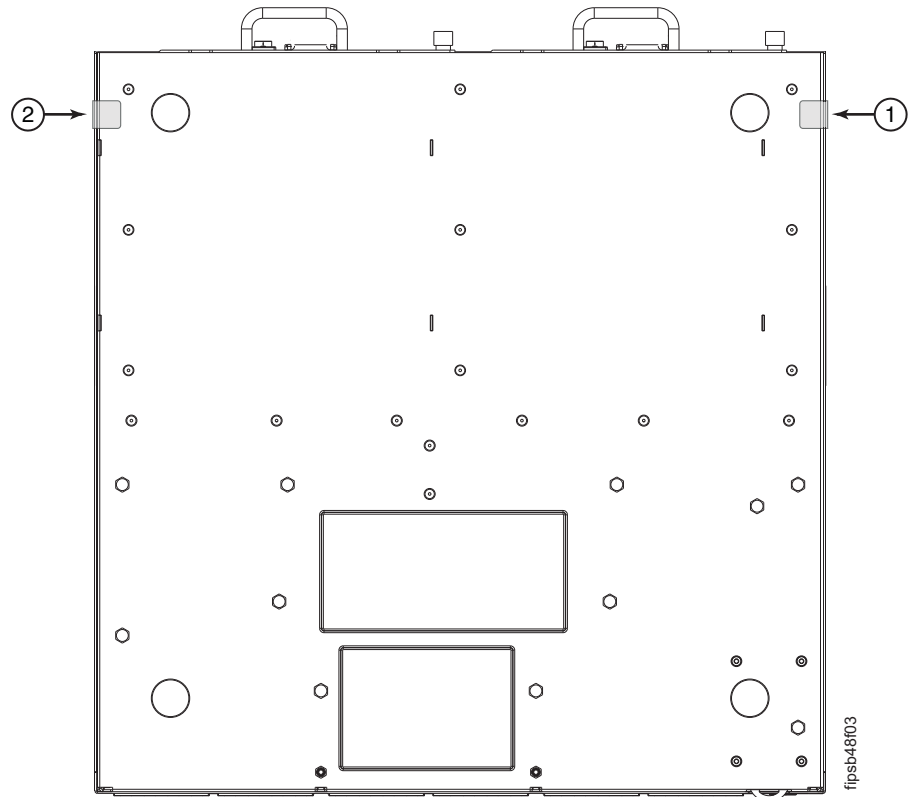


Figure 6. 2498-F48 underside view with the two FIPS seal locations shown



---

## Chapter 4. Applying security seals to the 2499-192

Use the instructions in this chapter to apply the FIPS security seals to the IBM System Storage SAN384B (2499-192). Nineteen (19) seals are required (three on the air duct, eight on the blades and filler panels, three on the port side brackets, three on the non-port side brackets, and two on the fan FRUs). The procedures are described in the following sections:

- “Applying seals to the port side of the 2499-192 chassis”
  - “Applying seals to blades with flat ejector handles” on page 12
  - “Applying seals to blades with stainless steel ejector handles” on page 13
  - “Applying seals to filler panels” on page 14
- “Applying seals to the non-port side of the 2499-192 chassis” on page 16
- “Installing FIPS brackets and FIPS seals to a rackmounted 2499-192” on page 16

---

### Applying seals to the port side of the 2499-192 chassis

Fourteen (14) seals are required on the port side of the 2499-192 chassis (three on the air duct, eight on the blades and filler panels, and three on the port side brackets). Figure 7 on page 10, Figure 8 on page 11, and Figure 9 on page 11 provide an overview of the location of components, FIPS seals, and FIPS brackets. Detailed instructions for different blade types, filler panels, fan assemblies, and rackmount brackets are provided in subsequent sections. The three figures below provide an overview of the location of FIPS seals on the port side of the 2499-192.

Figure 7 on page 10 identifies the components of the 2499-192 as viewed from the left port side of the chassis. These components are referenced in the procedures to follow.

Figure 8 on page 11 shows the location of the seals on the port side of the 2499-192 as viewed from the left.

Figure 9 on page 11 shows the port side of the 2499-192 as viewed from the right, and provides a detailed view of the lower right FIPS bracket that is referenced in Figure 8 on page 11. Installation of these FIPS brackets and seals is covered in “Installing FIPS brackets and FIPS seals to a rackmounted 2499-192” on page 16.

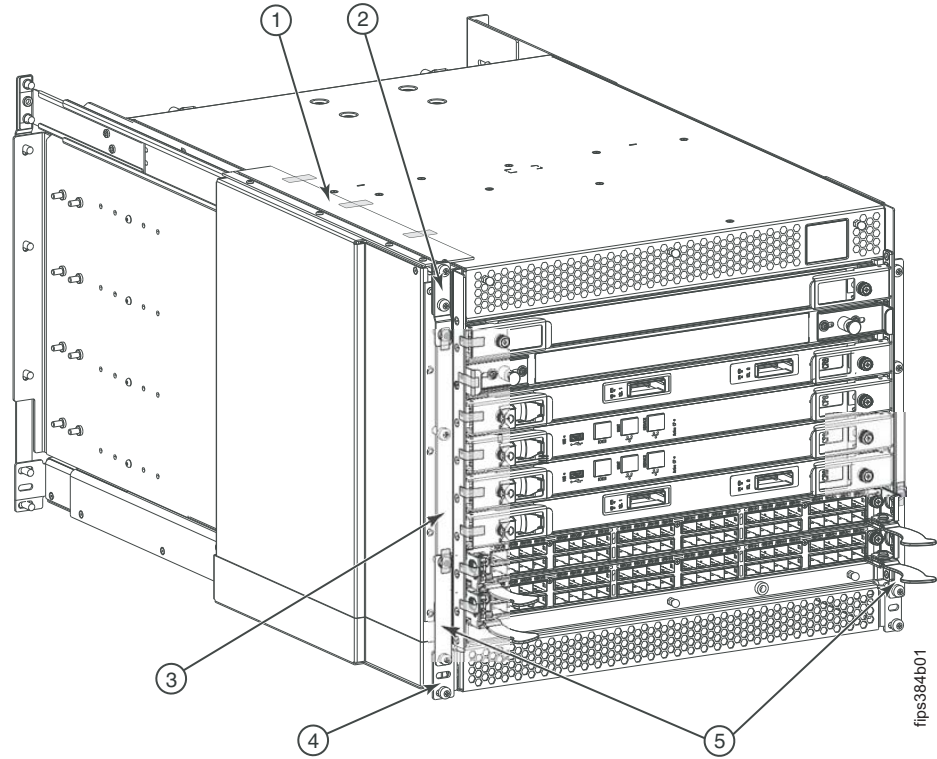


Figure 7. 2499-192 chassis components (left port view)

|          |                          |          |                                    |
|----------|--------------------------|----------|------------------------------------|
| <b>1</b> | Air duct                 | <b>4</b> | Exhaust kit shelf flange           |
| <b>2</b> | Upper FIPS bracket       | <b>5</b> | Lower left and right FIPS brackets |
| <b>3</b> | Chassis rackmount flange |          |                                    |

**Note:** The 2499-192 includes the port side exhaust kit as part of a standard order.

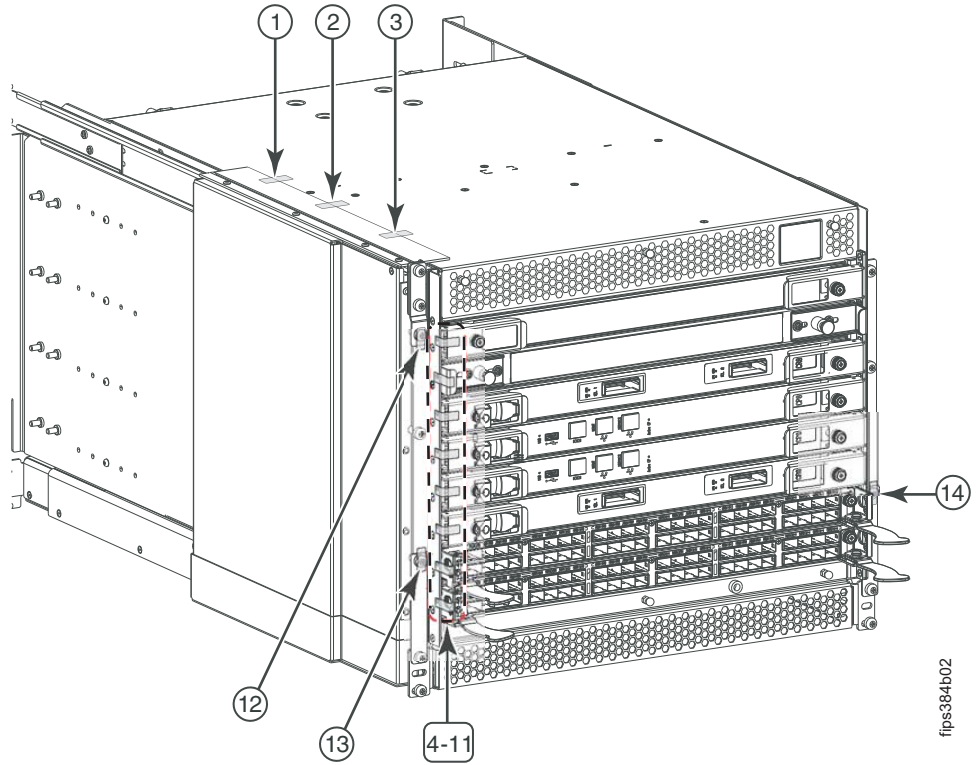


Figure 8. 2499-192 location of 14 seals on air duct and chassis port side (left port view)

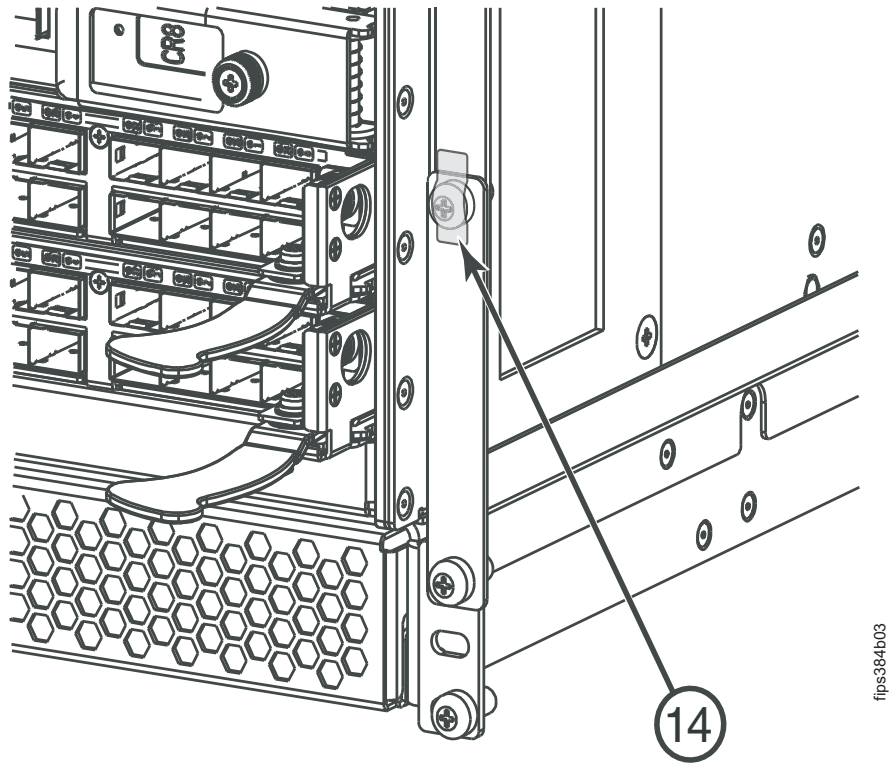


Figure 9. 2499-192 port side bracket and seal location detail (right port view)

Fourteen (14) seals are required on the port side of the 2499-192, including three for the rackmount installation. Follow the instructions below, referring to the numbered locations in Figure 8 on page 11 as needed, for locating the specified seals. Application of seals **12**, **13**, and **14** are covered in “Installing FIPS brackets and FIPS seals to a rackmounted 2499-192” on page 16.

1. Apply three seals ( **1** , **2** , and **3** ) to the air duct and the top of the chassis enclosure. Ensure that each seal is firmly affixed.
2. Locate the seam between the chassis frame and the left side of the chassis enclosure.
3. Apply one seal horizontally, beginning on each blade or filler panel, and wrapping around the chassis frame onto the left side of the chassis, **4-11** . Eight horizontal seals are required, one per blade or filler panel. Use the detailed instructions and illustrations following, depending on the type of blade or filler panel mounted in the chassis slot. For all seal applications:
  - Ensure that none of the indicator LEDs on the bezel is covered by the seal.
  - Ensure that the seal is firmly affixed.

For detailed steps and illustrations, see the following topics:

- “Applying seals to blades with flat ejector handles”
- “Applying seals to blades with stainless steel ejector handles” on page 13
- “Applying seals to filler panels” on page 14

## Applying seals to blades with flat ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-192. Supported blades are listed in Table 2.

*Table 2. 2499-192 supported blades with flat ejector handles*

| Blade type                    | Blade model |
|-------------------------------|-------------|
| Core switch blade             | CR4S-8      |
| Fibre Channel (FC) port blade | FC10-6      |
| Fibre Channel router blade    | FR4-18i     |

Figure 10 on page 13 shows the seal location on the blades with flat ejector handles on the 2499-192. Refer to the figure when performing the procedure. Not all blades that are listed in Table 2 are shown, but seal placement is the same for each.

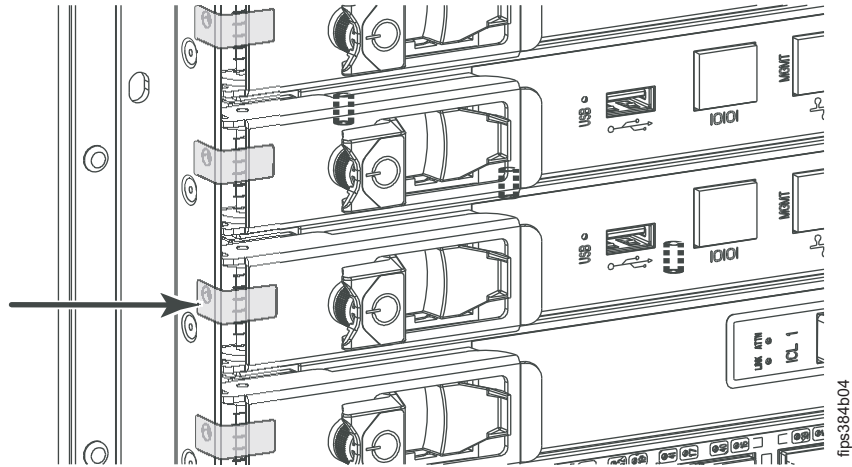


Figure 10. Blade FIPS seal application for 2499-192 port blade with flat ejector handles

See the SAN384B installation, service, and user guide for instructions on removing and replacing the blades.

1. Complete any blade or filler panel replacements prior to applying the FIPS seals.
2. Apply one seal beginning on the side of the chassis frame and wrapping onto the upper surface of the flat ejector handle on the blade.
3. Apply one seal to each blade with a flat ejector handle. Ensure that each seal is firmly affixed.

## Applying seals to blades with stainless steel ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-192. Supported blades are listed in Table 3.

Table 3. 2499-192 supported blades with stainless steel ejector handles

| Blade type                                   | Blade model                          |
|--|--------------------------------------|
| Fibre Channel (FC) port blade                | FC8-16<br>FC8-32<br>FC8-48<br>FC8-64 |
| Fibre Channel over IP (FCIP) extension blade | FX8-24                               |
| Fibre Channel over Ethernet (FCOE) blade     | FCOE10-24                            |

Figure 11 on page 14 shows the seal location on the blades with stainless steel ejector handles on the 2499-192. Refer to the figure when performing the procedure. Not all blades that are listed in Table 3 are shown, but seal placement is the same for each.

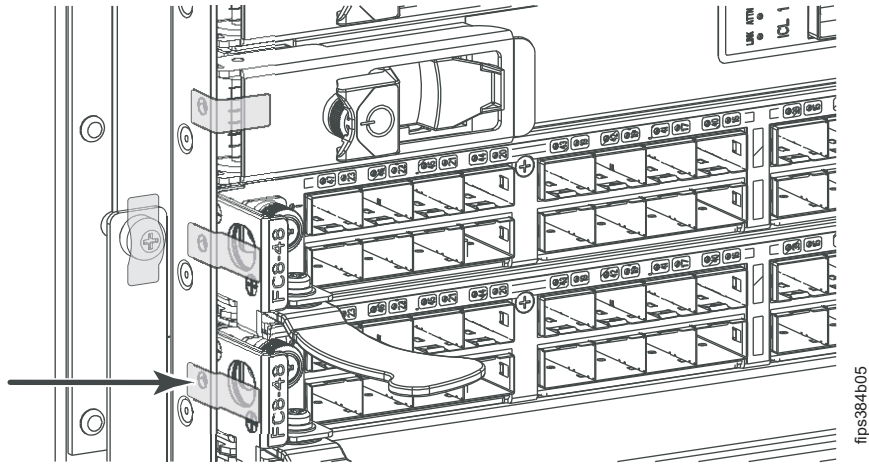


Figure 11. Blade FIPS seal application for 2499-192 port blade with stainless steel ejector handles

See the SAN384B installation, service and user guide for instructions on removing and replacing the blades.

1. Complete any blade or filler panel replacements prior to applying the FIPS seals.
2. Apply one seal beginning on the side of the chassis frame and wrap it onto the surface of the stainless steel ejector handle on the blade, as shown next to the arrow in Figure 11.
3. Apply one seal to each blade with a stainless steel ejector handle. Ensure that each seal is firmly affixed.

## Applying seals to filler panels

This procedure describes how to apply tamper-evident security seals to the filler panels on the 2499-192. Supported filler panels are listed in Table 4.

Table 4. 2499-192 supported filler panels

| Blade type   | Filler panel number            |
|--------------|--------------------------------|
| Filler panel | 49-1000064-02<br>49-1000294-05 |

Figure 12 on page 15 shows the filler panel seal location for the newer filler panel (49-1000294-05). Refer to the figure when performing the procedure (option 1).

**Attention:** If you are using the older filler panel (49-1000064-02), refer to Figure 13 on page 15 and complete the procedure that follows that figure (option 2).



## Filler panel option 1

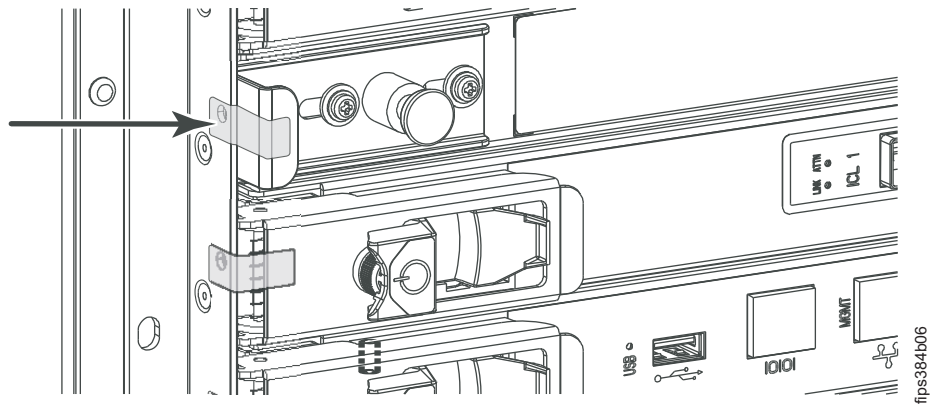


Figure 12. Filler panel FIPS seal application for 2499-192 newer filler panel (option 1)

See the SAN384B installation, service, and user guide for instructions about removing and replacing the filler panels.

1. Complete any filler panel installation or replacement before applying the FIPS seals.
2. Apply one seal beginning on the chassis frame, extending across the ejector handle on the filler panel, and spanning across to the surface of the handle. Ensure that the seal is firmly affixed.
3. Apply one seal to each additional filler panel, ensuring that each seal is firmly affixed.

## Filler panel option 2

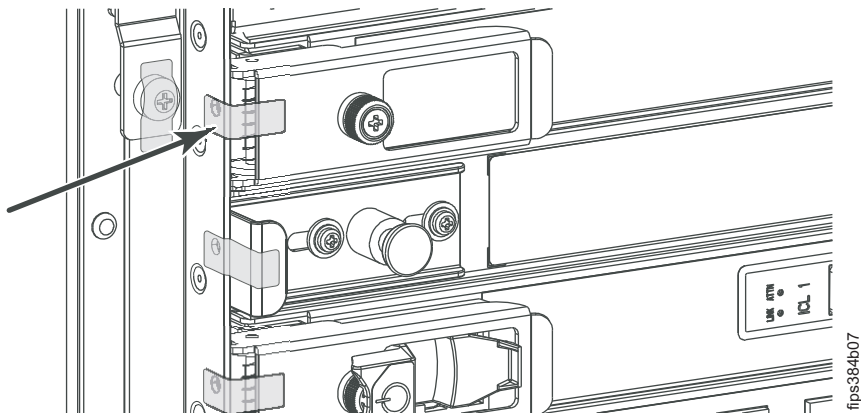


Figure 13. Filler panel FIPS seal application for 2499-192 older filler panel (option 2)

See the SAN384B installation, service, and user guide for instructions about removing and replacing the filler panels.

1. Complete any filler panel installation or replacement before applying the FIPS seals.
2. Apply one seal beginning on the chassis frame, extending across the hinge on the filler panel, and spanning across onto the surface of the filler panel. Ensure that the seal is firmly affixed.
3. Apply one seal to each additional filler panel, ensuring that each seal is firmly affixed.

You can either now complete the installation of the chassis seals on the non-port side (“Applying seals to the non-port side of the 2499-192 chassis”) or skip ahead to “Installing brackets and seals on the rackmounted 2499-192 port side” on page 17, to finish installing all brackets and seals on the port side, and then return to the next section to apply all of the nonport seal and bracket installations at one time.

---

## Applying seals to the non-port side of the 2499-192 chassis

Figure 14 shows the non-port side of the 2499-192 and the location of five FIPS seals ( **15** through **19** ). Refer to the figure when performing the procedure.

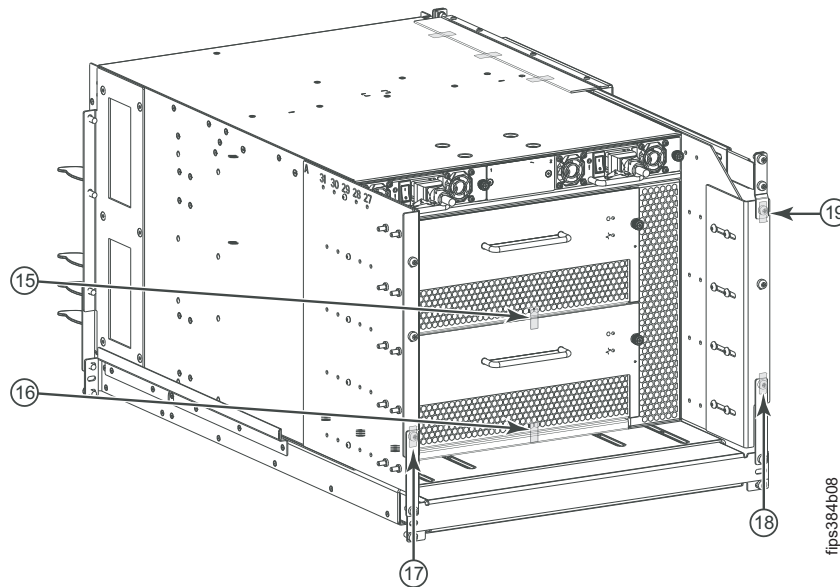


Figure 14. 2499-192 non-port side FIPS seal locations

Two seals are required for this procedure, both on the fan FRUs . Application of seals **15** and **16** is covered in this section. Application of seals **17** , **18** , and **19** is covered separately in “Installing brackets and seals on the rackmounted 2499-192 nonport side” on page 22.

**Note:** The three seals shown on the air duct at the top of the chassis were applied during steps in “Applying seals to the port side of the 2499-192 chassis” on page 9.

1. Locate the joint at the bottom of each fan FRU.
2. Apply one seal mounted vertically that bridges the seam between the two fan FRUs ( **15** ). Ensure that the seal is firmly affixed.
3. Apply one seal mounted vertically that bridges the seam between the lower fan FRU and the chassis enclosure ( **16** ). Ensure that the seal is firmly affixed.

---

## Installing FIPS brackets and FIPS seals to a rackmounted 2499-192

A total of six FIPS brackets and six FIPS seals are required on the rackmount hardware of a 2499-192 installed in a rack. Three brackets and seals are required on the port side, and three brackets and seals are required on the nonport side. This procedure is divided into two sections:

- “Installing brackets and seals on the rackmounted 2499-192 port side”
- “Installing brackets and seals on the rackmounted 2499-192 nonport side” on page 22

## Installing brackets and seals on the rackmounted 2499-192 port side

The following procedure describes how to install FIPS brackets and apply seals on the rack installation hardware of the port side of a rackmounted 2499-192. Figures are provided throughout the procedure. Refer to the figures when performing the procedure.

**Note:** This procedure describes the seal application for the port side rackmount FIPS brackets and seals only and assumes that all other seals have already been applied to the chassis, air duct, and blades and filler panels, which was covered in “Applying seals to the port side of the 2499-192 chassis” on page 9 and “Applying seals to the non-port side of the 2499-192 chassis” on page 16.

**Attention:** The exhaust kit shelf helps support the weight of the 2499-192 chassis. Install only one bracket at a time.

Three brackets and three seals are required.

1. Ensure that the duct shelf and chassis are properly installed in the rack. For more information, refer to the SAN384B installation, service, and user guide.
2. Remove the three rackmount screws needed to secure the upper left FIPS bracket, as indicated by the top three arrows in Figure 15.

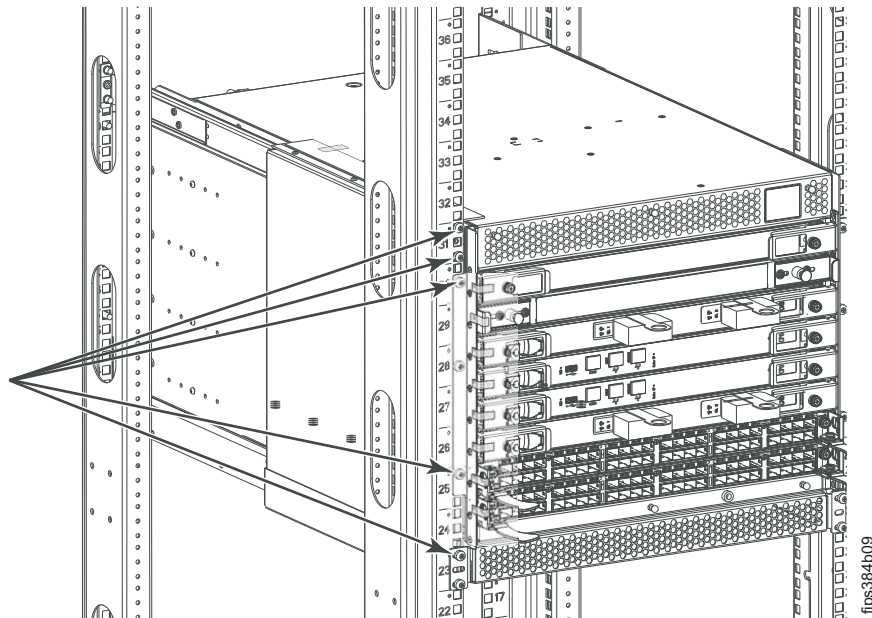


Figure 15. Five 2499-192 rackmount screws used for left side FIPS brackets (left port view)

3. Use the three rackmount screws that you just removed to install the upper left FIPS bracket between the chassis rackmount flange and top rail flange, as shown by the upper arrow in Figure 16 on page 18, then tighten securely. The

bracket with the slight bend is the upper FIPS bracket.

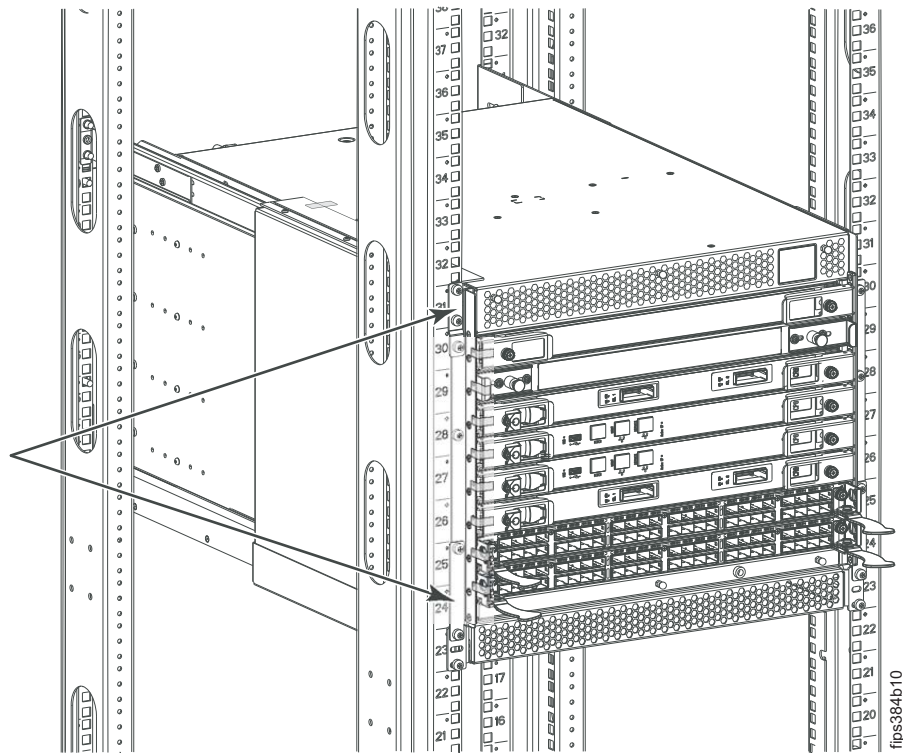


Figure 16. Upper and lower 2499-192 rackmount FIPS brackets installed on the left cabinet rail (left port view)

4. Remove the two rackmount screws needed to secure the lower left FIPS bracket, as identified by the two lower arrows in Figure 15 on page 17. (You can also refer to Figure 18 on page 19 for a more detailed mirror image of the similar lower right rackmount screws.)  
**Attention:** When installing each lower FIPS bracket, remove only the upper rackmount screw that secures the exhaust kit shelf flange to the rack. This shelf helps support the weight of the 2499-192 chassis, so the lower rackmount screws securing the exhaust kit shelf to the rack rails must remain in place.
5. Using the two rackmount screws that you removed in step 4, install the lower left FIPS bracket between the chassis rackmount flange and exhaust kit shelf flange, as identified by the lower arrow in Figure 16, then tighten securely. The straight bracket is the lower FIPS bracket. (You can also refer to Figure 19 on page 20 for a more detailed mirror image of the similar lower right FIPS bracket.)
6. Apply one seal mounted vertically to the upper left FIPS bracket, ( **1** in Figure 17 on page 19). Ensure that the seal is firmly affixed.

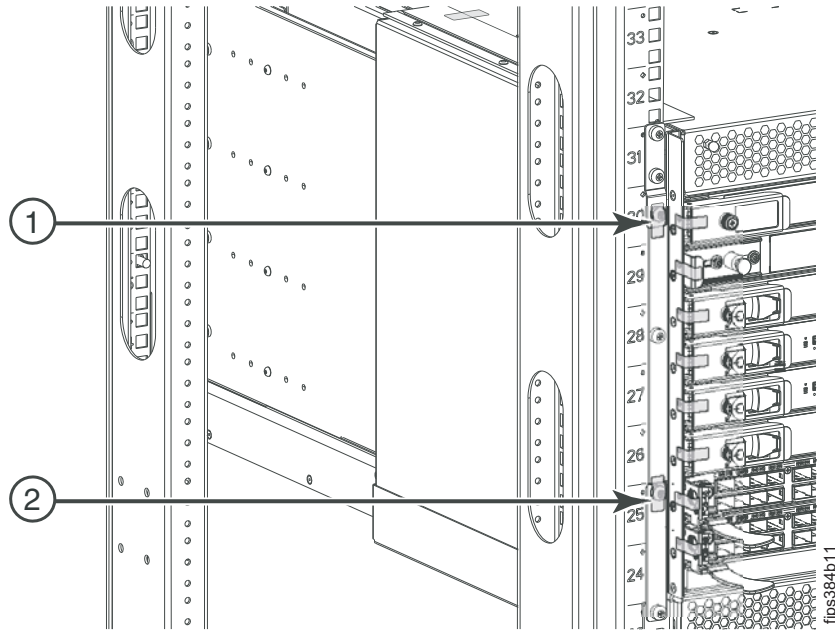


Figure 17. Upper and lower 2499-192 rackmount FIPS seals on the left rack rail (left port view)

7. Apply one seal mounted vertically to the top screw attaching the lower left FIPS bracket, (**2** in Figure 17). Ensure that the seal is firmly affixed. (You can also refer to Figure 20 on page 20. for a more detailed mirror image of the similar lower right FIPS seal.)
8. Remove the two rackmount screws needed to secure the lower right FIPS bracket, as shown in Figure 18.

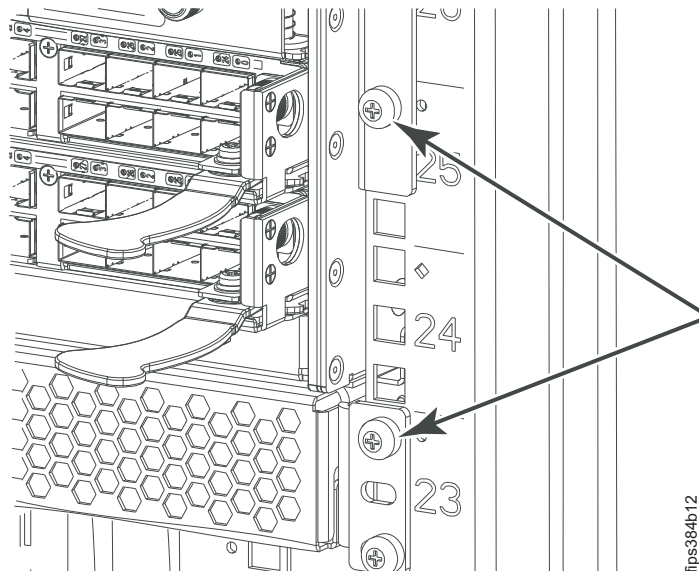


Figure 18. Lower right 2499-192 rackmount screws to remove for FIPS bracket installation (detailed port side view)

9. Use the two rackmount screws that you just removed to install the lower right FIPS bracket between the chassis rackmount flange and exhaust kit shelf flange, as shown in Figure 19 on page 20, then tighten securely. The straight

bracket is the lower FIPS bracket.

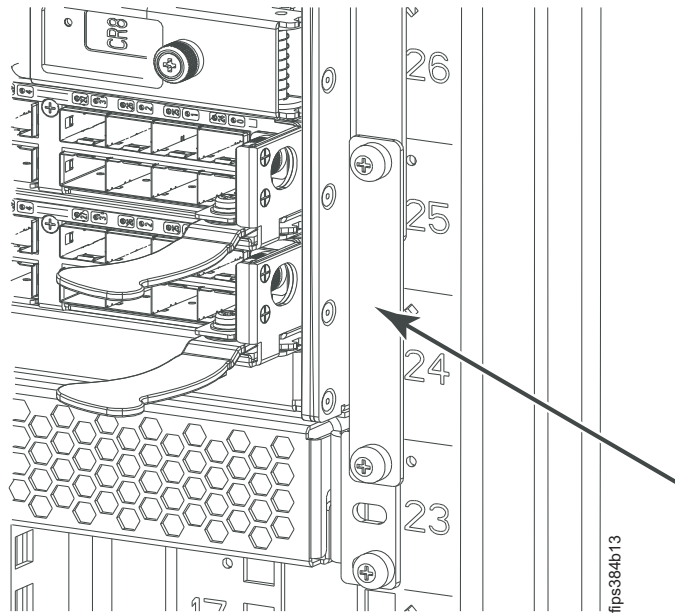


Figure 19. Lower right 2499-192 FIPS bracket installation (detailed port side view)

10. Apply one seal mounted vertically to the lower right FIPS bracket, as shown in Figure 20. Ensure that the seal is firmly affixed.

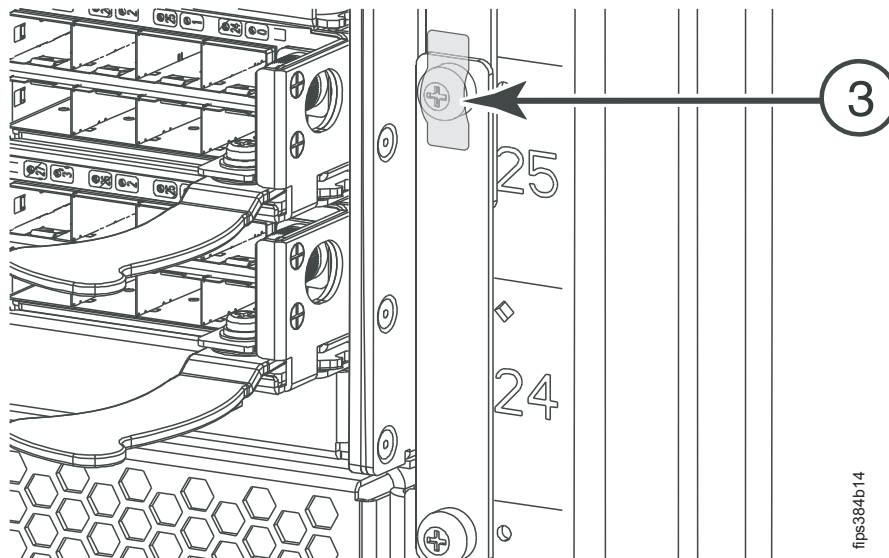


Figure 20. Lower right 2499-192 FIPS seal application (detailed port side view)

Refer to Figure 21 on page 21 and Figure 22 on page 21 for completed representations of the port side of a rackmounted 2499-192 with FIPS brackets and rackmount screws installed and seals applied, as viewed from the left port view and right port view respectively.



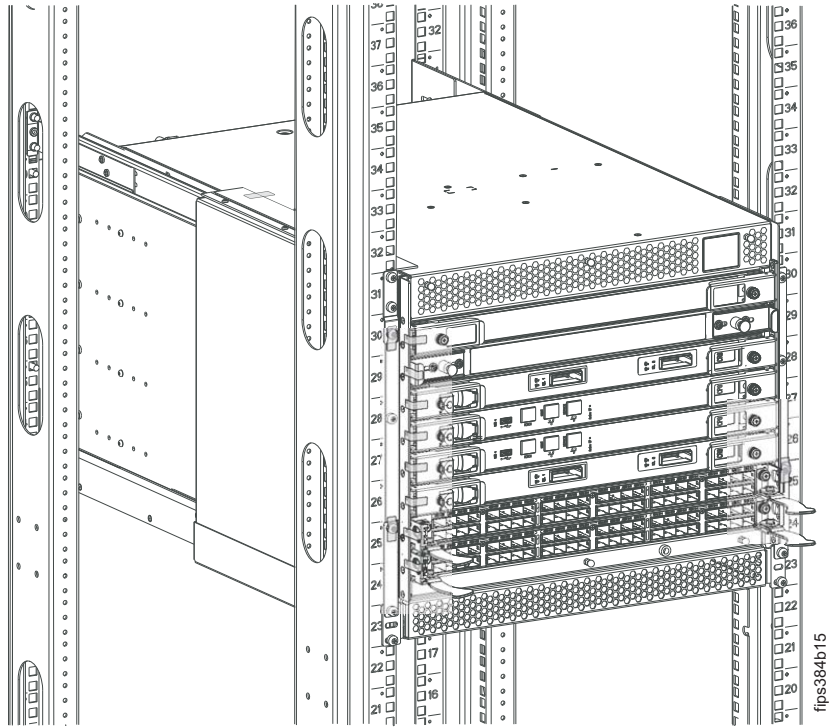


Figure 21. 2499-192 port side FIPS seal completed rackmount installation (left port view)

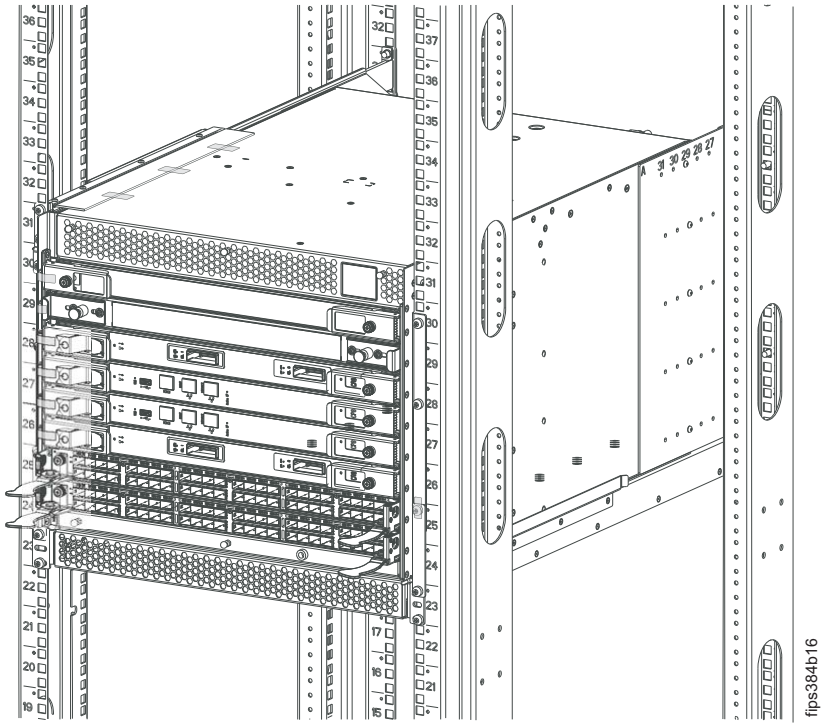


Figure 22. 2499-192 port side FIPS seal completed rackmount installation (right port view)

## Installing brackets and seals on the rackmounted 2499-192 nonport side

The following procedure describes how to install brackets and apply seals to a rackmounted 2499-192 when viewed from the non-port side. Figures are provided throughout the procedure. Refer to the figures when performing the procedure.

**Note:** This procedure describes the seal application for the non-port side rackmount brackets only and assumes that all other seals have already been applied to the chassis, air duct, and fan FRUs. For more information, see “Applying seals to the port side of the 2499-192 chassis” on page 9 and “Applying seals to the non-port side of the 2499-192 chassis” on page 16.

**Attention:** The exhaust kit shelf helps support the weight of the 2499-192 chassis. Do not remove the lower rackmount screws that secure the exhaust kit shelf flange to the rack; only remove the upper screws,

Three brackets and three seals are required for the nonport side.

1. Remove the seven rackmount screws that are needed to secure the upper and lower FIPS brackets to the chassis, as shown by the arrows in Figure 23.

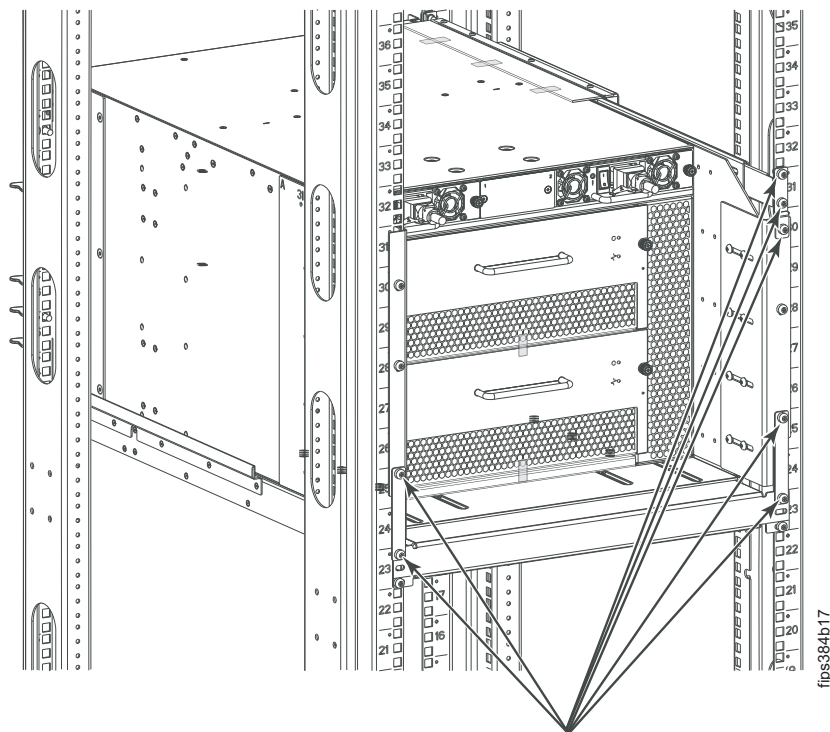


Figure 23. 2499-192 rackmount screw removal (non-port side view)

2. Use two of the rackmount screws that you removed in step 1 to install the lower left FIPS bracket between the chassis rackmount flange and exhaust kit shelf flange, as shown in Figure 24 on page 23, then tighten securely. The straight bracket is the lower FIPS bracket.



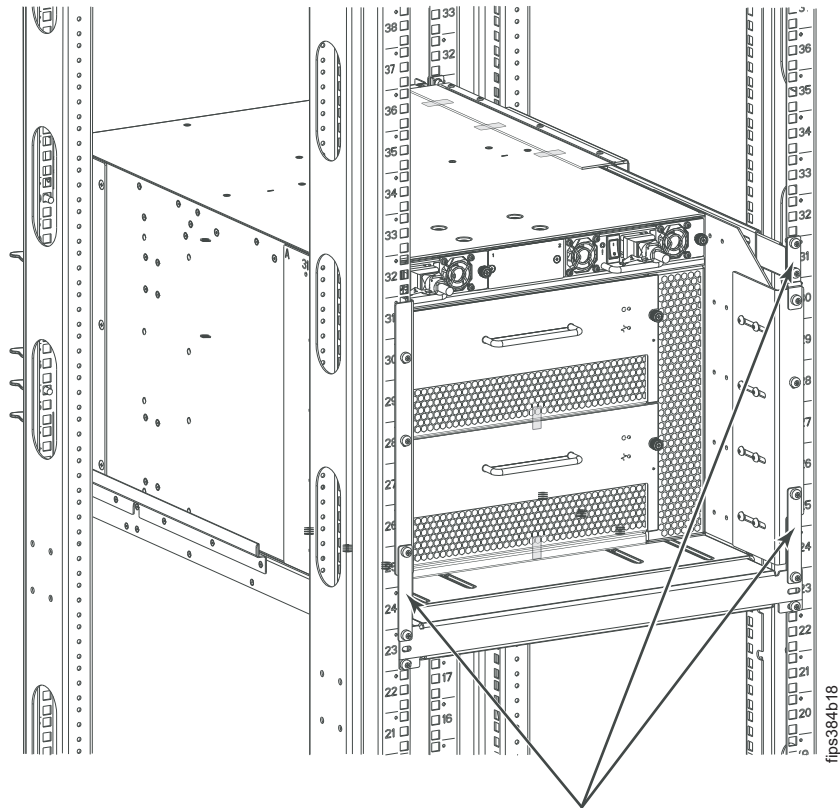


Figure 24. Three 2499-192 rackmount FIPS brackets installed on non-port side

3. Use three of the rackmount screws that you removed in step 1 to install the upper right FIPS bracket between the chassis rackmount flange and top rail flange, as shown in Figure 24, then tighten securely. The bracket with the slight bend is the upper FIPS bracket.
4. Use the remaining two rackmount screws that you removed in step 1 to install the lower right FIPS bracket between the chassis rackmount flange and shelf flange, as shown in Figure 24, then tighten securely. The straight bracket is the lower FIPS bracket.
5. Apply one seal **4** mounted vertically to the upper right FIPS bracket screw, one seal **5** to the lower right FIPS bracket screw, and one seal **6** to the lower left FIPS bracket screw, as shown in Figure 25 on page 24. Ensure that each seal is firmly affixed.

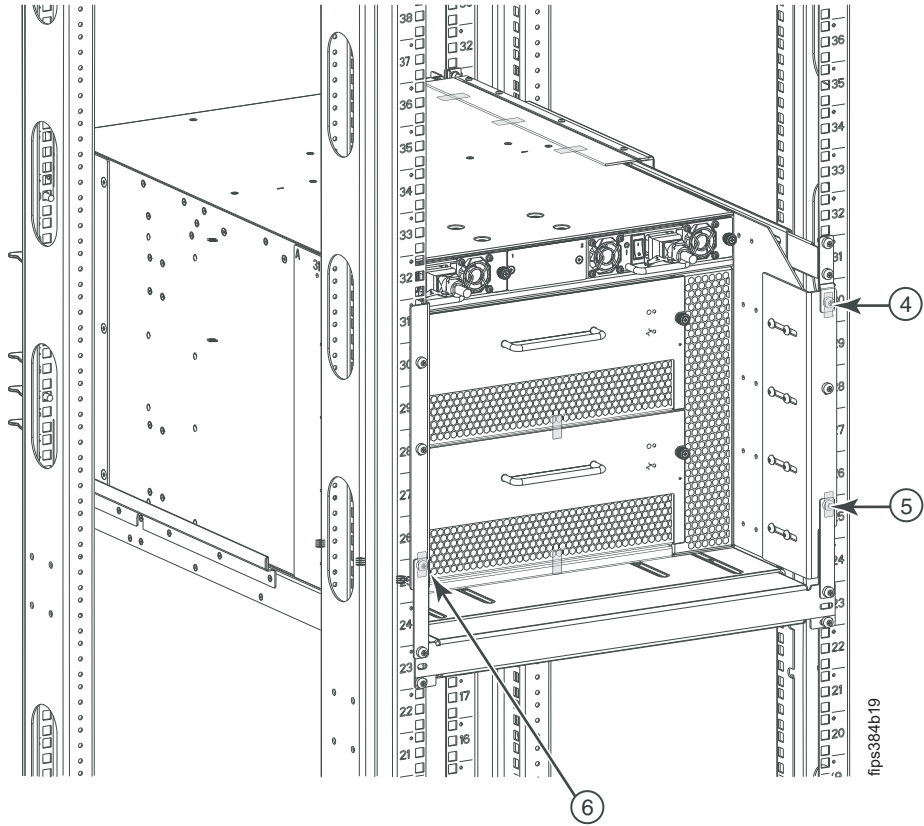


Figure 25. Three FIPS seals applied to the FIPS bracket screws on non-port side of the rackmounted 2499-192

Refer to Figure 26 on page 25 for a completed representation of a rackmounted 2499-192 with FIPS brackets installed and FIPS seals applied.

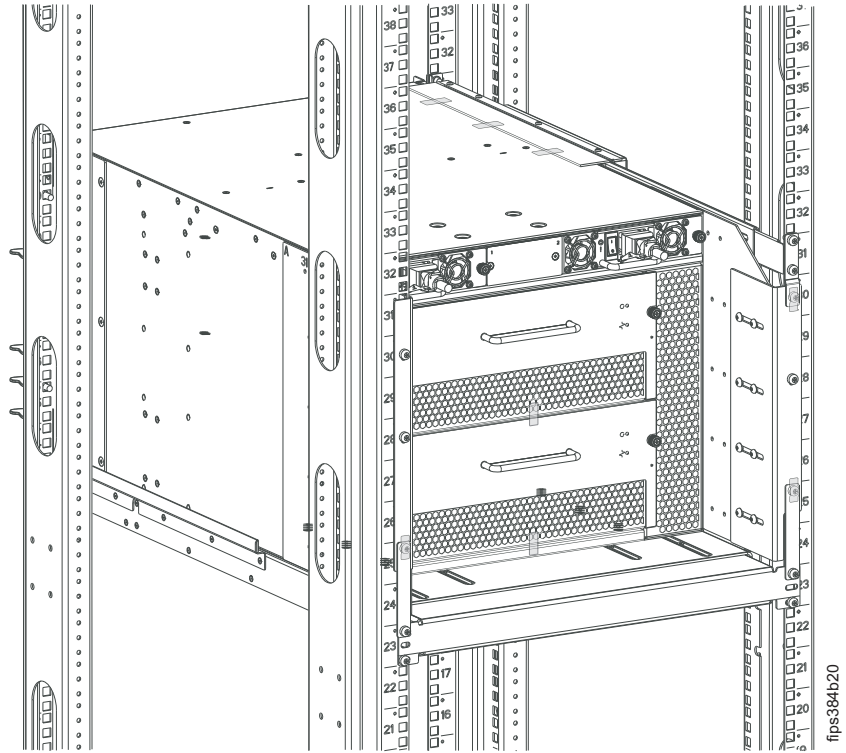


Figure 26. Completed installation of FIPS brackets and seals on the non-port side of the rackmounted 2499-192



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## Chapter 5. Applying security seals to the 2499-384

Use the instructions in this chapter to apply the FIPS security seals to the IBM System Storage SAN768B (2499-384). The procedures are described in the following sections. For detailed instructions on removing or replacing any components, refer to the SAN768B installation, service, and users guide.

- “Applying seals to the 2499-384 chassis”
- “Applying seals to the port side of the 2499-384” on page 28
  - “Applying seals to blades with flat ejector handles” on page 29
  - “Applying seals to blades with stainless steel ejector handles” on page 30
  - “Applying seals to filler panels” on page 31
- “Applying seals to the non-port side of the 2499-384” on page 31

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### Applying seals to the 2499-384 chassis

Figure 27 shows the right side of the 2499-384 with the chassis door attached. Refer to the figure when performing the procedure. Twenty-two (22) seals are required to complete the security seals application procedure for the 2499-384 (three on the chassis, 12 on the port side blades and filler panels, and seven on the non-port side).

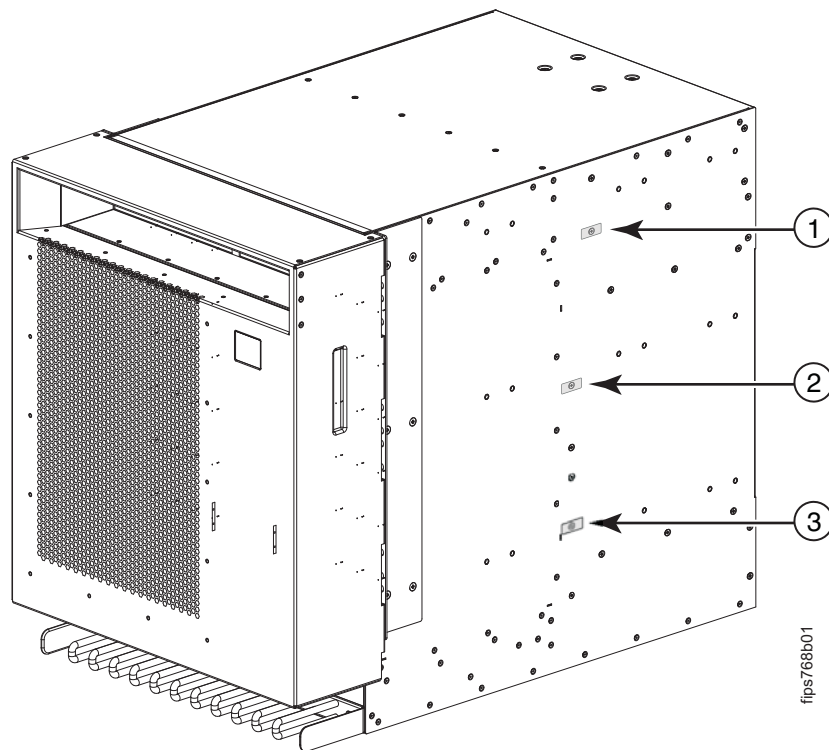


Figure 27. 2499-384 chassis right side seal location

Three FIPS seals are required for the right side of the chassis.

1. Locate the three screws on the right side of the chassis enclosure, as shown by **1**, **2**, and **3** in Figure 27 on page 27.
2. Apply one seal to each screw head and cover completely. Ensure that each seal is firmly affixed.

---

## Applying seals to the port side of the 2499-384

Figure 28 shows the port side of the 2499-384 with the chassis door removed. The chassis door can be removed by grasping two edges of the door and pulling it straight out. Refer to the SAN768B installation, service, and users guide for full instructions on any component removal. Refer to the figure when performing this procedure.

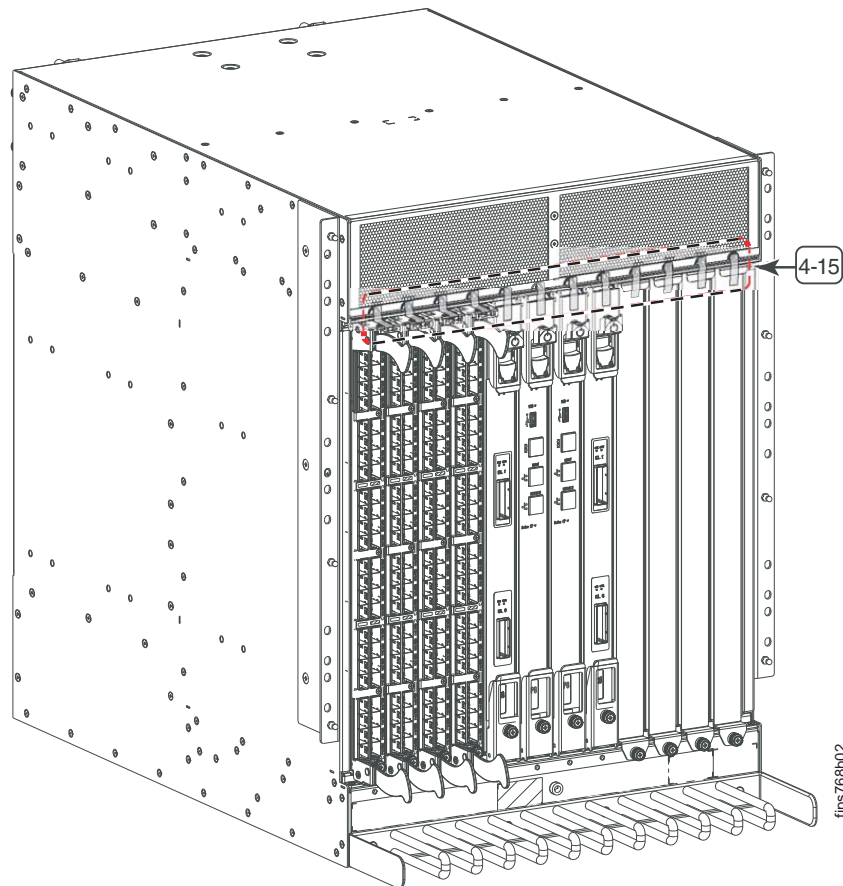


Figure 28. 2499-384 port side seal location

Twelve (12) seals are required, one seal for each blade or filler panel installed in the port side of the 2499-384 chassis.

1. Locate the seam between the chassis frame and the ejector handle for each blade and filler panel.
2. Apply one seal beginning on the lower frame of the exhaust vent, spanning the gap between the frame and each blade or filler panel, and extending onto the upper blade ejector handle, or ending just before the thumbscrew (depending on the blade type). Use the detailed instructions below for each type of blade or filler panel, following these general guidelines:
  - Ensure that none of the indicator LEDs on the bezel is covered by the seal.

- Ensure that the seal is firmly affixed to the exhaust vent frame and the ejector handle for each blade and filler panel.
- Ensure that the seal does not cover either the microswitch or the thumbscrew.
- Ensure that the seal does not cover any of the exhaust vent. It must make contact only with the frame.

For detailed information, see the following topics:

- “Applying seals to blades with flat ejector handles”
- “Applying seals to blades with stainless steel ejector handles” on page 30
- “Applying seals to filler panels” on page 31

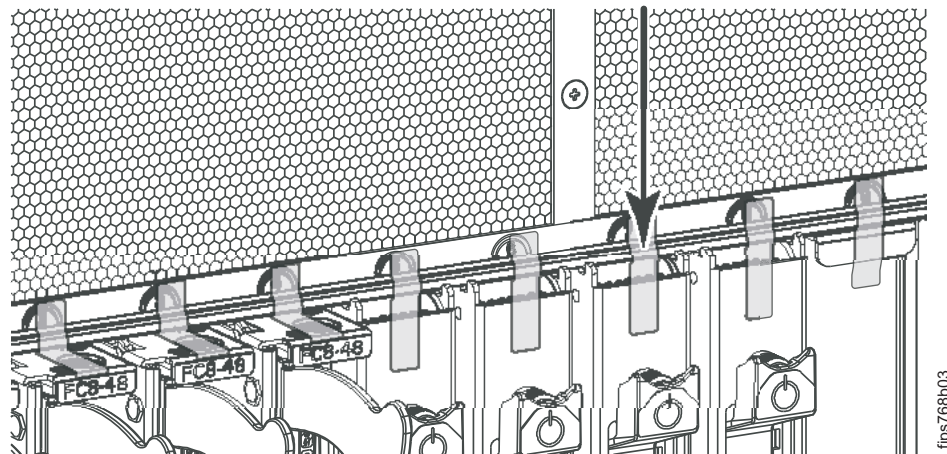
## Applying seals to blades with flat ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-384. Supported blades are listed in Table 5.

*Table 5. Supported 2499-384 blades with flat ejector handles*

| Blade type                 | Blade model |
|----------------------------|-------------|
| Control processor blade    | CP8         |
| Core switch blade          | CR8         |
| Fibre Channel port blade   | FC10-6      |
| Fibre Channel router blade | FR4-18i     |

Figure 29 shows the flat ejector handle seal locations on the 2499-384. Refer to the figure when performing the procedure. Not all blades types that are listed in Table 5 are shown, but seal placement is the same for each.



*Figure 29. Detail of seals applied to 2499-384 blades with flat ejector handles.*

Complete any blade replacements prior to applying any seals. Refer to the SAN768B installation, service, and users guide for instructions.

1. Apply one seal beginning on the lower frame of the exhaust vent, spanning the gap between the frame and the blade, extending onto the upper blade ejector handle, and ending just before the thumbscrew.
  - Ensure that the seal is firmly affixed to the exhaust vent frame and the blade ejector handle.

- Ensure that the seal does not cover either the microswitch or the thumbscrew.
  - Ensure that the seal does not cover the exhaust vent. It must make contact only with the frame.
2. Repeat step one as needed, applying one seal to each remaining blade with flat ejector handles.

## Applying seals to blades with stainless steel ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-384. Supported blades are listed in Table 6.

Table 6. Supported 2499-384 blades with stainless steel ejector handles

| Blade type                                   | Blade model                          |
|--|--------------------------------------|
| Fibre Channel port blade                     | FC8-16<br>FC8-32<br>FC8-48<br>FC8-64 |
| Fibre Channel over IP (FCIP) extension blade | FX8-24                               |
| Fibre Channel over Ethernet (FCOE) blade     | FCOE10-24                            |

Figure 30 shows the stainless steel ejector handle seal locations on the 2499-384. Refer to the figure when performing the procedure. Not all blade types that are listed in Table 6 are shown, but seal placement is the same for each.

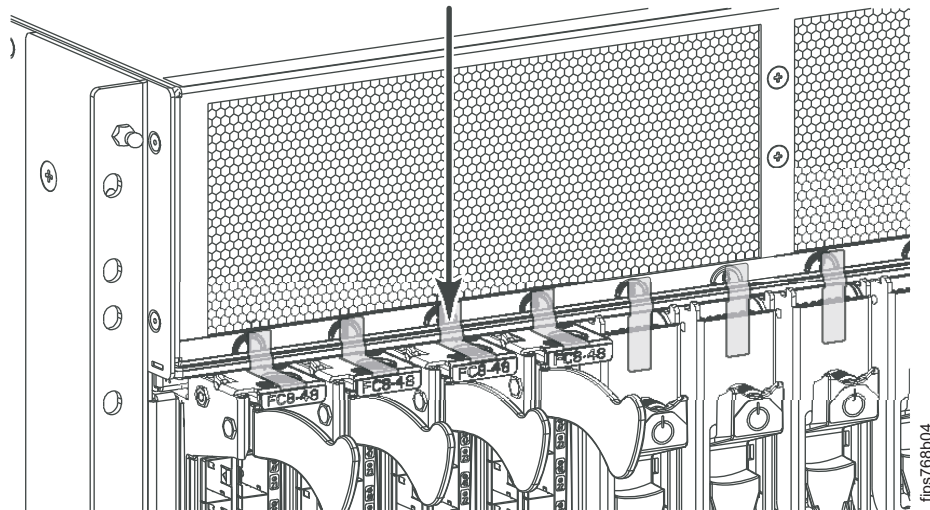


Figure 30. Detail of seals applied to 2499-384 blades with stainless steel ejector handles.

Complete any blade replacement procedure prior to applying FIPS seals, referring to the SAN768 installation, service, and users guide for instructions.

1. Apply one seal beginning on the lower frame of the exhaust vent and curving down onto the upper surface of the pull tab of the blade.
  - Ensure that the seal is firmly affixed to both the exhaust vent frame and the top of the stainless steel ejector handle.
  - Ensure that the seal does not cover any of the exhaust vent. It must make contact only with the frame.



2. Repeat as necessary, applying one seal to each blade with a stainless steel ejector handle.

---

## Applying seals to filler panels

This procedure describes how to apply tamper-evident security seals to filler panels on the 2499-384. Supported filler panels are listed in Table 7

Table 7. Supported 2499-384 filler panels

| Type         | Filler panel model |
|--------------|--------------------|
| Filler panel | 49-1000016-04      |

Figure 31 shows the filler panel seal location on the 2499-384. Refer to the figure when performing the procedure.

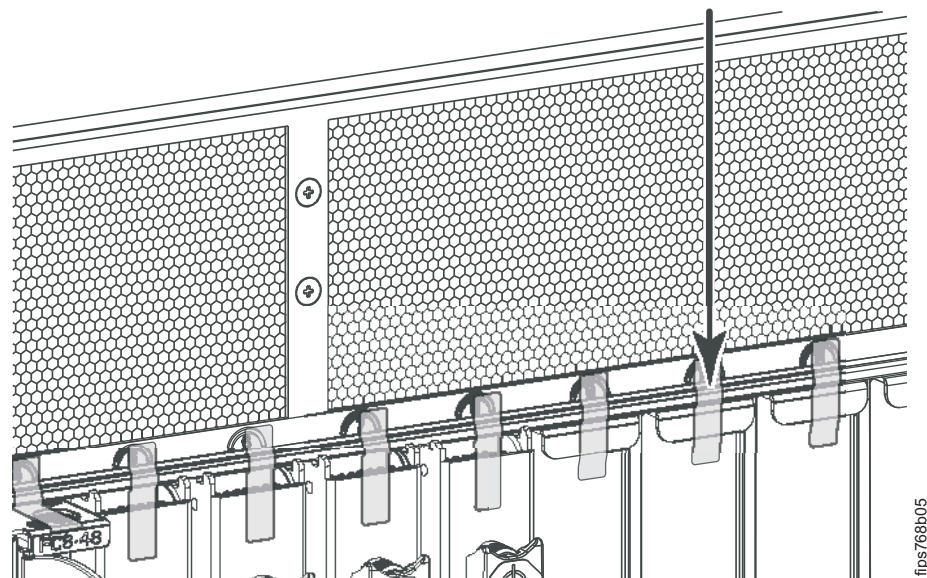


Figure 31. Detail of seals applied to 2499-384 filler panels

Replace any filler panels, if needed, prior to installing the FIPS seals, referring to the SAN768B installation, service, and users guide for instructions.

1. Apply one seal beginning on the lower frame of the exhaust vent, extending across the ejector handle at the top of the filler panel, and spanning down to the surface of the filler panel. The seal may have to “tent” over the gap between the ejector handle and the surface of the filler panel.
  - Ensure that the seal is firmly affixed to the exhaust vent frame, the ejector handle, and the surface of the filler panel.
  - Ensure that the seal does not cover any of the exhaust vent. It must make contact only with the frame.
2. Repeat as necessary, applying one seal to each filler panel.

---

## Applying seals to the non-port side of the 2499-384

Figure 32 on page 32 shows the non-port side of the 2499-384. Refer to the figure when performing the procedure.

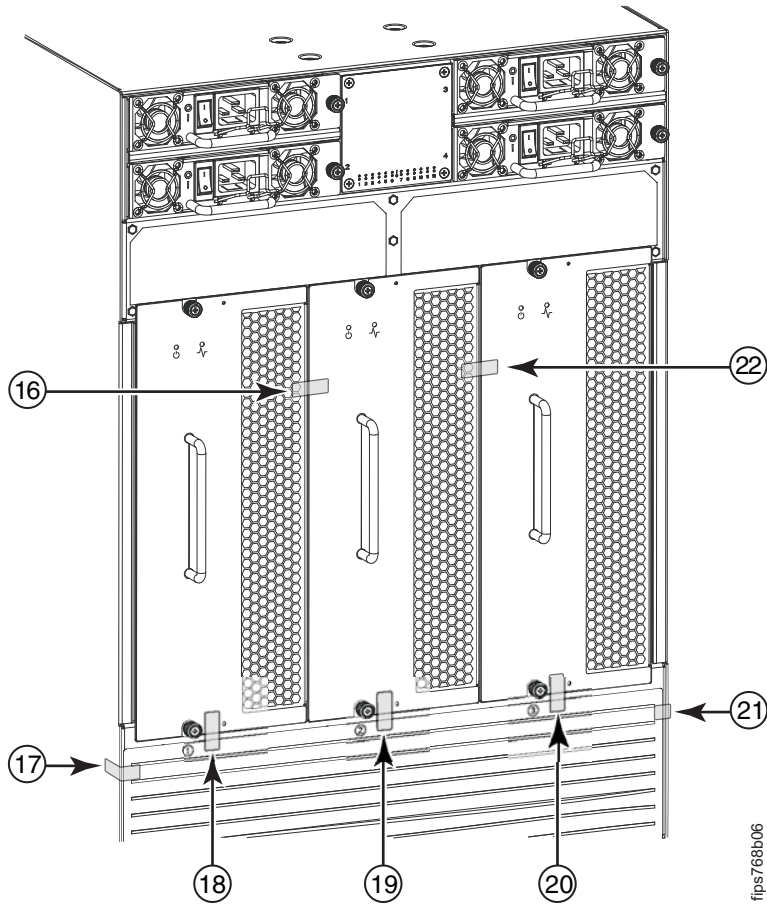


Figure 32. Seals applied to the nonport side of the 2499-384

Seven seals are required on the nonport side of the 2499-384.

1. Locate the two vertical joints dividing the three fan FRUs.
2. Apply one seal mounted horizontally that bridges the seam between each fan FRU. Two seals are required ( **16** and **22** in Figure 32). Ensure that the seal is firmly affixed to both sides of the seam.
3. Locate the joint between the bottom of each fan FRU and the lower chassis enclosure.
4. Apply one seal mounted vertically that bridges the seam between each fan FRU and the lower chassis enclosure. Three seals are required ( **18** , **19** , and **20** ). Ensure that the seal is firmly affixed to both the fan FRU and the chassis enclosure.
5. Apply one seal to the lower chassis and wrap it around the left side of the chassis ( **17** ) .
6. Apply one seal to the lower chassis and wrap it around the right side of the chassis ( **21** ) .

---

## Chapter 6. Applying security seals to the 2499-416

Use the instructions in this chapter to apply the FIPS security seals to the IBM System Storage SAN384B-2 (2499-416). Nineteen (19) seals are required (three on the air duct, eight on the blades and filler panels, three on the port side brackets, three on the non-port side brackets, and two on the fan FRUs). The procedures are described in the following sections:

- “Applying seals to the port side of the 2499-416 chassis”
  - “Applying seals to blades with flat ejector handles” on page 36
  - “Applying seals to blades with stainless steel ejector handles” on page 37
  - “Applying seals to filler panels” on page 38
- “Applying seals to the non-port side of the 2499-416 chassis” on page 39
- “Installing FIPS brackets and FIPS seals to a rackmounted 2499-416” on page 40

---

### Applying seals to the port side of the 2499-416 chassis

Fourteen (14) seals are required on the port side of the 2499-416 chassis (three on the air duct, eight on the blades and filler panels, and three on the port side brackets). Figure 33 on page 34, Figure 34 on page 35, and Figure 35 on page 35 provide an overview of the location of components, FIPS seals, and FIPS brackets. Detailed instructions for different blade types, filler panels, fan assemblies, and rackmount brackets are provided in subsequent sections. The three figures below provide an overview of the location of FIPS seals on the port side of the 2499-416.

Figure 33 on page 34 identifies the components of the 2499-416 as viewed from the left port side of the chassis. These components are referenced in the procedures to follow.

Figure 34 on page 35 shows the location of the seals on the port side of the 2499-416 as viewed from the left.

Figure 35 on page 35 shows the port side of the 2499-416 as viewed from the right; and provides a detailed view of the lower right FIPS bracket that is referenced in Figure 34 on page 35. Installation of these FIPS brackets and seals is covered in “Installing FIPS brackets and FIPS seals to a rackmounted 2499-416” on page 40.

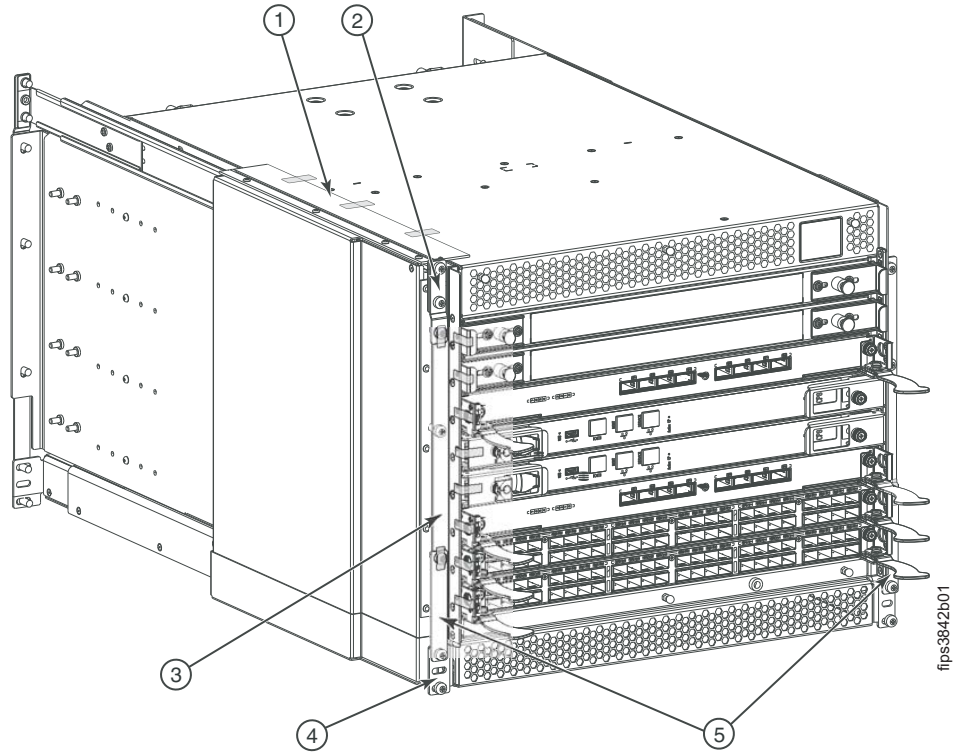
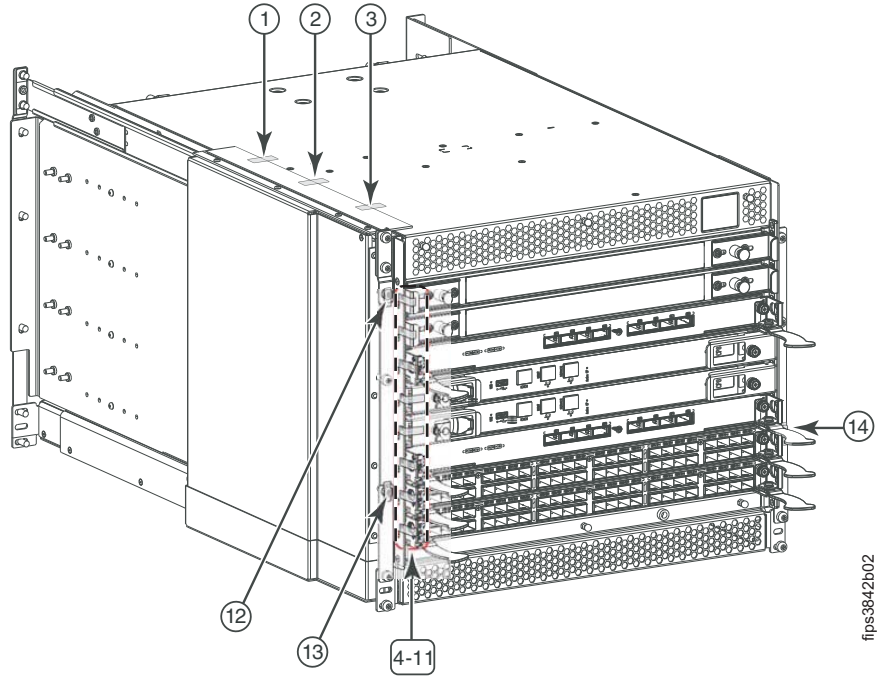


Figure 33. 2499-416 chassis components (left port view)

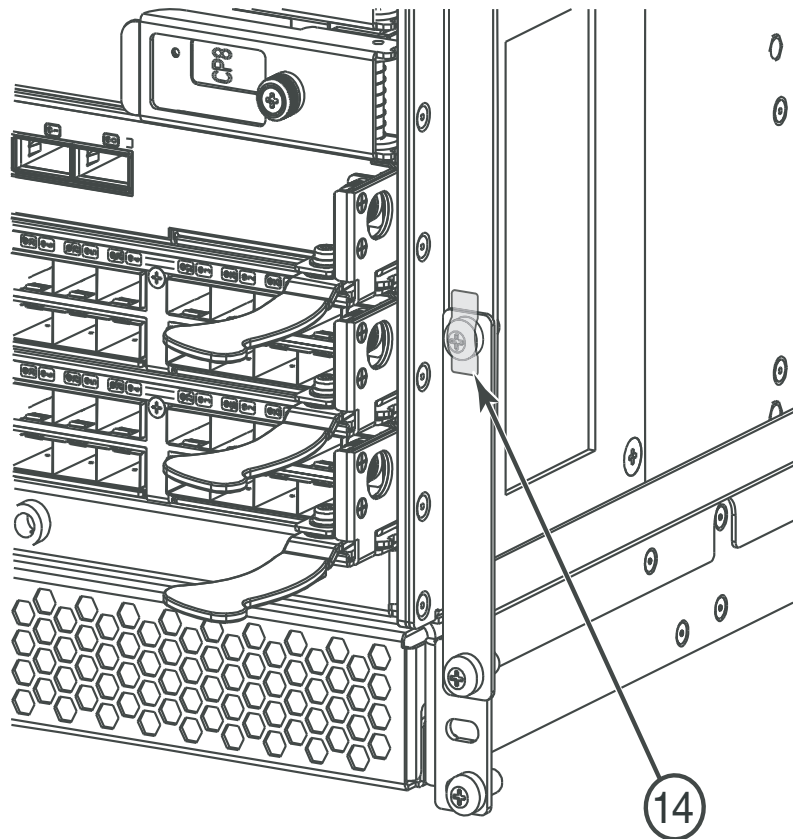
|          |                          |          |                                    |
|----------|--------------------------|----------|------------------------------------|
| <b>1</b> | Air duct                 | <b>4</b> | Exhaust kit shelf flange           |
| <b>2</b> | Upper FIPS bracket       | <b>5</b> | Lower left and right FIPS brackets |
| <b>3</b> | Chassis rackmount flange |          |                                    |

**Note:** The 2499-416 includes the port side exhaust kit as part of a standard order.



fips3842b02

Figure 34. 2499-416 location of 14 seals on air duct and chassis port side (left port view)



fips3842b03

Figure 35. 2499-416 port side bracket and seal location detail (right port view)

Fourteen (14) seals are required on the port side of the 2499-416, including three for the rackmount installation. Follow the instructions below, referring to the numbered locations in Figure 34 on page 35 as needed, for locating the specified seals. Application of seals **12**, **13**, and **14** are covered in “Installing FIPS brackets and FIPS seals to a rackmounted 2499-416” on page 40.

1. Apply three seals ( **1** , **2** , and **3** ) to the air duct and the top of the chassis enclosure. Ensure that each seal is firmly affixed.
2. Locate the seam between the chassis frame and the left side of the chassis enclosure.
3. Apply one seal horizontally, beginning on each blade or filler panel, and wrapping around the chassis frame onto the left side of the chassis, **4-11** . Eight horizontal seals are required, one per blade or filler panel. Use the detailed instructions and illustrations following, depending on the type of blade or filler panel mounted in the chassis slot. For all seal applications:
  - Ensure that none of the indicator LEDs on the bezel is covered by the seal.
  - Ensure that the seal is firmly affixed.

For detailed steps and illustrations, see the following topics:

- “Applying seals to blades with flat ejector handles”
- “Applying seals to blades with stainless steel ejector handles” on page 37
- “Applying seals to filler panels” on page 38

## Applying seals to blades with flat ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-416. Supported blades are listed in Table 8.

*Table 8. 2499-416 supported blades with flat ejector handles*

| Blade type              | Blade model |
|-------------------------|-------------|
| Control processor blade | CP8         |

Figure 36 on page 37 shows the seal location on the blades with flat ejector handles on the 2499-416. Refer to the figure when performing the procedure. Not all blades that are listed in Table 8 are shown, but seal placement is the same for each.

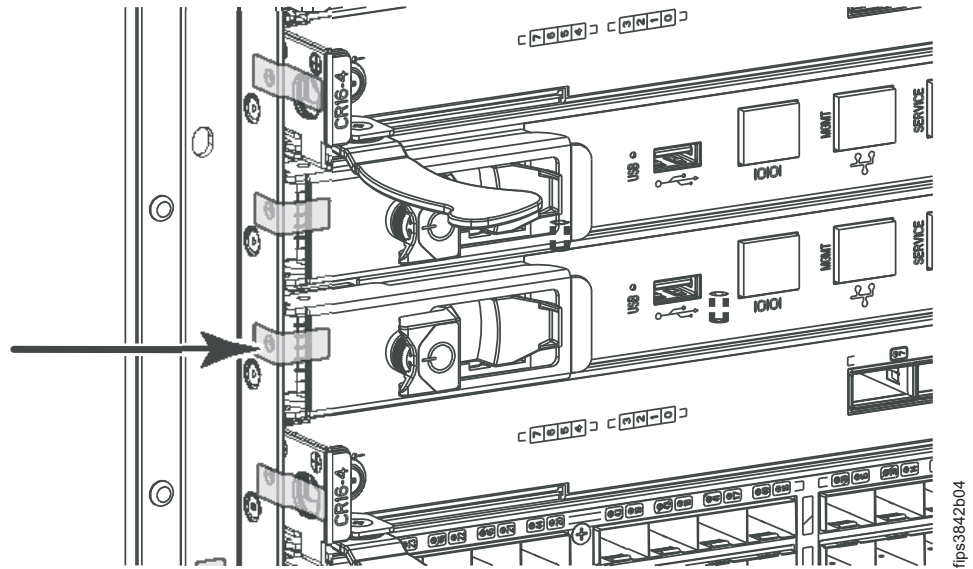


Figure 36. Blade FIPS seal application for 2499-416 port blade with flat ejector handles

See the SAN384B-2 installation, service, and user guide for instructions on removing and replacing the blades.

1. Complete any blade or filler panel replacements prior to applying the FIPS seals.
2. Apply one seal beginning on the side of the chassis frame and wrapping onto the upper surface of the flat ejector handle on the blade.
3. Apply one seal to each blade with a flat ejector handle. Ensure that each seal is firmly affixed.

## Applying seals to blades with stainless steel ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-416. Supported blades are listed in Table 9.

Table 9. 2499-416 supported blades with stainless steel ejector handles

| Blade type                                   | Blade model                  |
|--|------------------------------|
| Core switch blade                            | CR16-4                       |
| Fibre Channel (FC) port blade                | FC8-64<br>FC16-32<br>FC16-48 |
| Fibre Channel over IP (FCIP) extension blade | FX8-24                       |

Figure 37 on page 38 shows the seal location on the blades with stainless steel ejector handles on the 2499-416. Refer to the figure when performing the procedure. Not all blades that are listed in Table 9 are shown, but seal placement is the same for each.



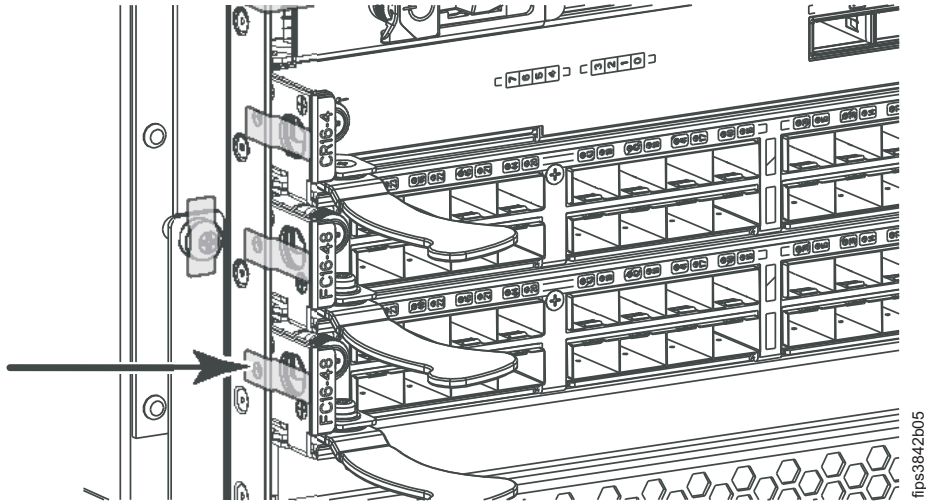


Figure 37. Blade FIPS seal application for 2499-416 port blade with stainless steel ejector handles

See the SAN384B-2 installation, service and user guide for instructions on removing and replacing the blades.

1. Complete any blade or filler panel replacements prior to applying the FIPS seals.
2. Apply one seal beginning on the side of the chassis frame and wrap it onto the surface of the stainless steel ejector handle on the blade, as shown next to the arrow in Figure 37.
3. Apply one seal to each blade with a stainless steel ejector handle. Ensure that each seal is firmly affixed.

## Applying seals to filler panels

This procedure describes how to apply tamper-evident security seals to the filler panels on the 2499-416. Supported filler panel is listed in Table 10.

Table 10. 2499-416 supported filler panel

| Blade type   | Filler panel number |
|--------------|---------------------|
| Filler panel | 49-1000294-05       |

Figure 38 on page 39 shows the seal location for the filler panel. Refer to the figure when performing the procedure.



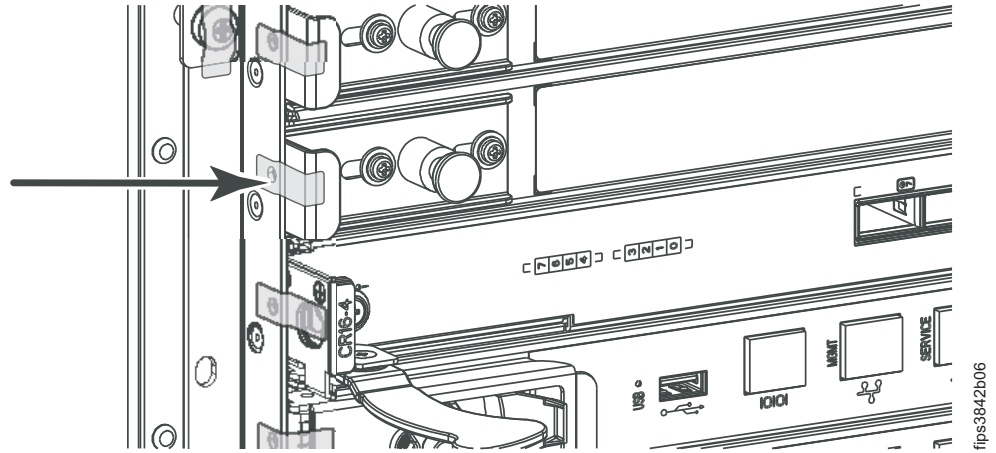


Figure 38. FIPS seal application for 2499-416 filler panel

See the SAN384B-2 installation, service, and user guide for instructions about removing and replacing the filler panels.

1. Complete any filler panel installation or replacement before applying the FIPS seals.
2. Apply one seal beginning on the chassis frame, extending across the ejector handle on the filler panel, and spanning across to the surface of the handle. Ensure that the seal is firmly affixed.
3. Apply one seal to each additional filler panel, ensuring that each seal is firmly affixed.

You can either now complete the installation of the chassis seals on the non-port side (“Applying seals to the non-port side of the 2499-416 chassis”) or skip ahead to “Installing brackets and seals on the rackmounted 2499-416 port side” on page 41, to finish installing all brackets and seals on the port side, and then return to the next section to apply all of the nonport seal and bracket installations at one time.

---

## Applying seals to the non-port side of the 2499-416 chassis

Figure 39 on page 40 shows the non-port side of the 2499-416 and the location of five FIPS seals ( **15** through **19** ). Refer to the figure when performing the procedure.

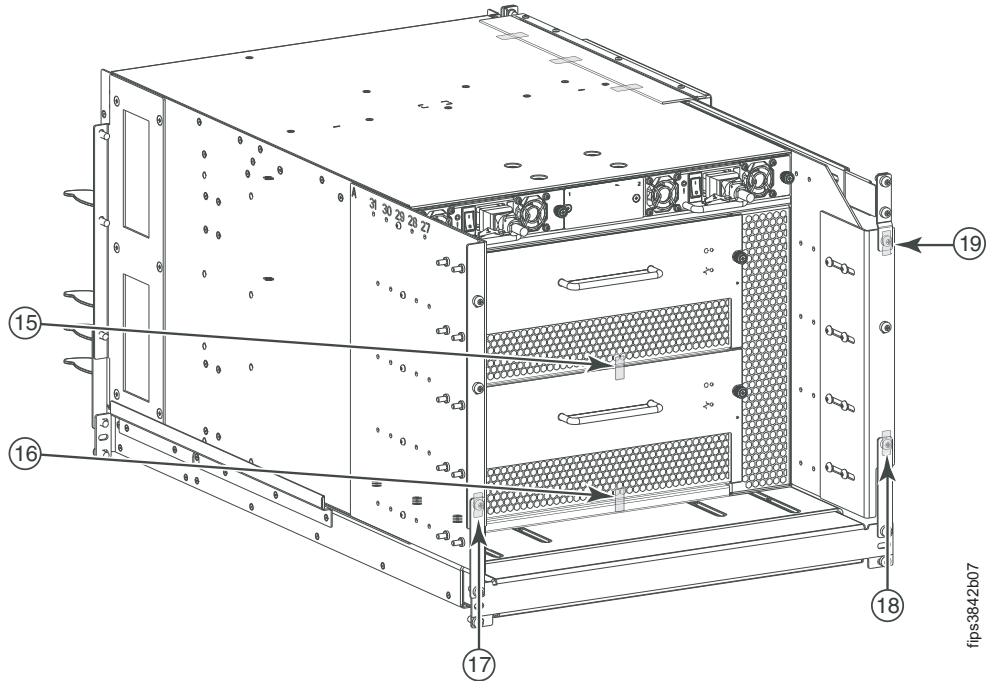


Figure 39. 2499-416 non-port side FIPS seal locations

Two seals are required for this procedure, both on the fan FRUs . Application of seals **15** and **16** is covered in this section. Application of seals **17** , **18** , and **19** is covered separately in “Installing brackets and seals on the rackmounted 2499-416 nonport side” on page 46.

**Note:** The three seals shown on the air duct at the top of the chassis were applied during steps in “Applying seals to the port side of the 2499-416 chassis” on page 33.

1. Locate the joint at the bottom of each fan FRU.
2. Apply one seal mounted vertically that bridges the seam between the two fan FRUs ( **15** ). Ensure that the seal is firmly affixed.
3. Apply one seal mounted vertically that bridges the seam between the lower fan FRU and the chassis enclosure ( **16** ). Ensure that the seal is firmly affixed.

---

## Installing FIPS brackets and FIPS seals to a rackmounted 2499-416

Six FIPS brackets and six FIPS seals are required on the rackmount hardware of a 2499-416 installed in a rack. Three brackets and seals are required on the port side, and three brackets and seals are required on the nonport side. This procedure is divided into two sections:

- “Installing brackets and seals on the rackmounted 2499-416 port side” on page 41
- “Installing brackets and seals on the rackmounted 2499-416 nonport side” on page 46

## Installing brackets and seals on the rackmounted 2499-416 port side

The following procedure describes how to install FIPS brackets and apply seals on the rack installation hardware of the port side of a rackmounted 2499-416. Figures are provided throughout the procedure. Refer to the figures when performing the procedure.

**Note:** This procedure describes the seal application for the port side rackmount FIPS brackets and seals only and assumes that all other seals have already been applied to the chassis, air duct, and blades and filler panels, which was covered in “Applying seals to the port side of the 2499-416 chassis” on page 33 and “Applying seals to the non-port side of the 2499-416 chassis” on page 39.

**Attention:** The exhaust kit shelf helps support the weight of the 2499-416 chassis. Install only one bracket at a time.

Three brackets and three seals are required.

1. Ensure that the duct shelf and chassis are properly installed in the rack. For more information, refer to the SAN384B-2 installation, service, and user guide.
2. Remove the three rackmount screws needed to secure the upper left FIPS bracket, as indicated by the top three arrows in Figure 40.

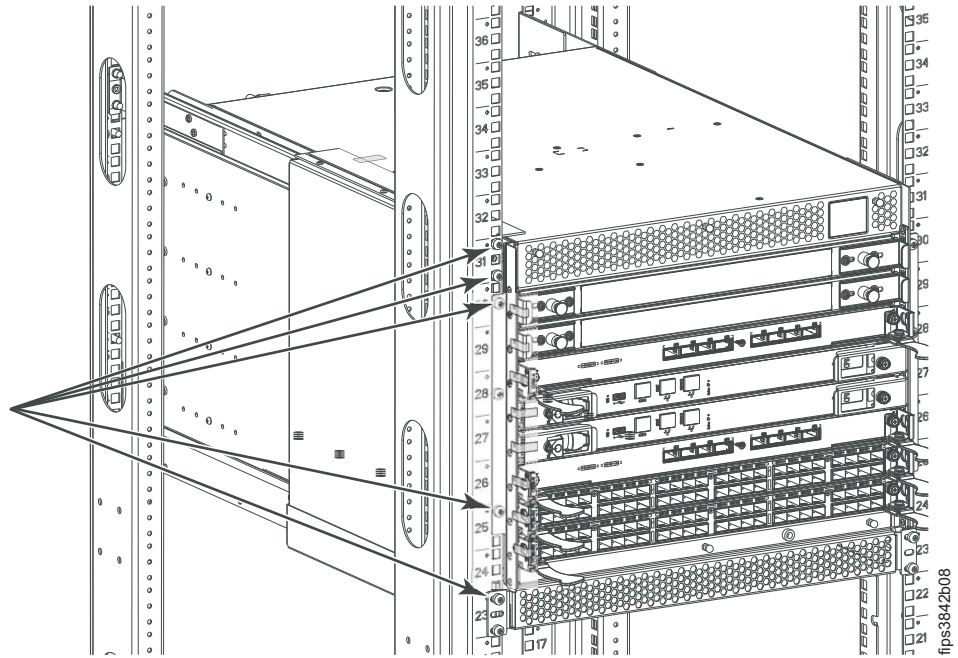


Figure 40. Five 2499-416 rackmount screws used for left side FIPS brackets (left port view)

3. Use the three rackmount screws that you just removed to install the upper left FIPS bracket between the chassis rackmount flange and top rail flange, as shown by the upper arrow in Figure 41 on page 42, then tighten securely. The bracket with the slight bend is the upper FIPS bracket.

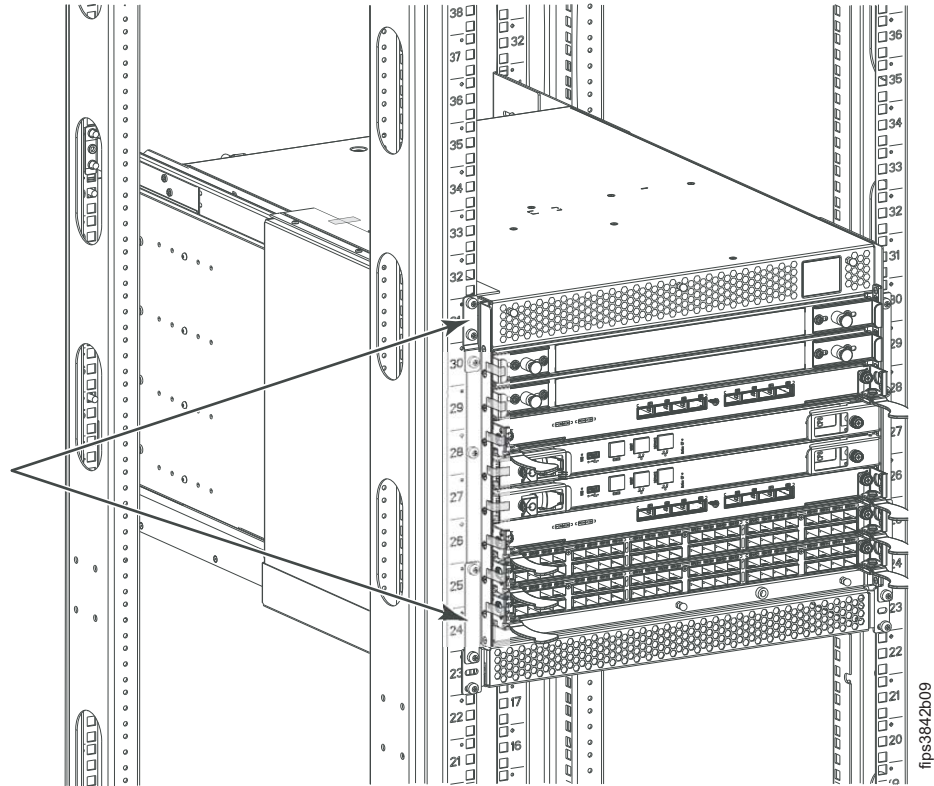


Figure 41. Upper and lower 2499-416 rackmount FIPS brackets installed on the left cabinet rail (left port view)

4. Remove the two rackmount screws needed to secure the lower left FIPS bracket, as identified by the two lower arrows in Figure 40 on page 41. (You can also refer to Figure 43 on page 44 for a more detailed mirror image of the similar lower right rackmount screws.)

**Attention:** When installing each lower FIPS bracket, remove only the upper rackmount screw that secures the exhaust kit shelf flange to the rack. This shelf helps support the weight of the 2499-416 chassis, so the lower rackmount screws securing the exhaust kit shelf to the rack rails must remain in place.

5. Using the two rackmount screws that you removed in step 4, install the lower left FIPS bracket between the chassis rackmount flange and exhaust kit shelf flange, as identified by the lower arrow in Figure 41, then tighten securely. The straight bracket is the lower FIPS bracket. (You can also refer to Figure 44 on page 44 for a more detailed mirror image of the similar lower right FIPS bracket.)
6. Apply one seal mounted vertically to the upper left FIPS bracket, ( **1** in Figure 42 on page 43). Ensure that the seal is firmly affixed.

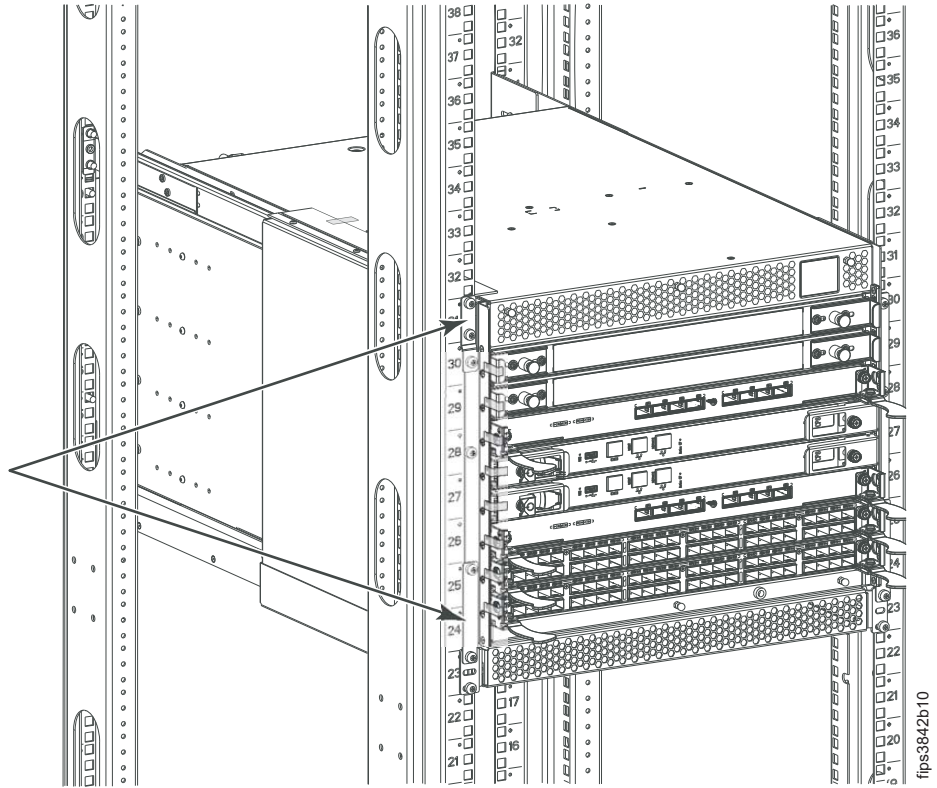


Figure 42. Upper and lower 2499-416 rackmount FIPS seals on the left rack rail (left port view)

7. Apply one seal mounted vertically to the top screw attaching the lower left FIPS bracket, (**2** in Figure 42). Ensure that the seal is firmly affixed. (You can also refer to Figure 45 on page 45 for a more detailed mirror image of the similar lower right FIPS seal.)
8. Remove the two rackmount screws needed to secure the lower right FIPS bracket, as shown in Figure 43 on page 44.

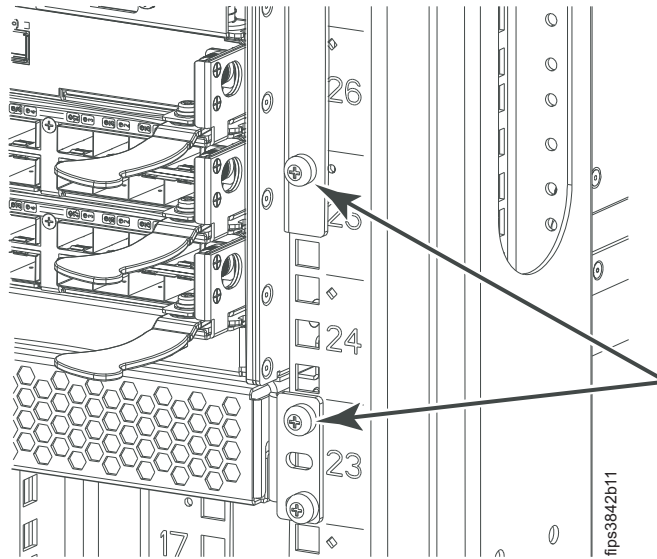


Figure 43. Lower right 2499-416 rackmount screws to remove for FIPS bracket installation (detailed port side view)

9. Use the two rackmount screws that you just removed to install the lower right FIPS bracket between the chassis rackmount flange and exhaust kit shelf flange, as shown in Figure 44, then tighten securely. The straight bracket is the lower FIPS bracket.

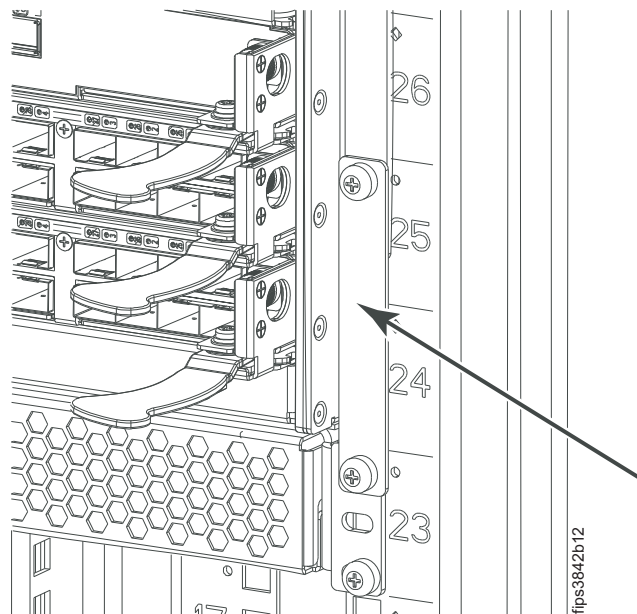


Figure 44. Lower right 2499-416 FIPS bracket installation (detailed port side view)

10. Apply one seal mounted vertically to the lower right FIPS bracket, as shown in Figure 45 on page 45. Ensure that the seal is firmly affixed.



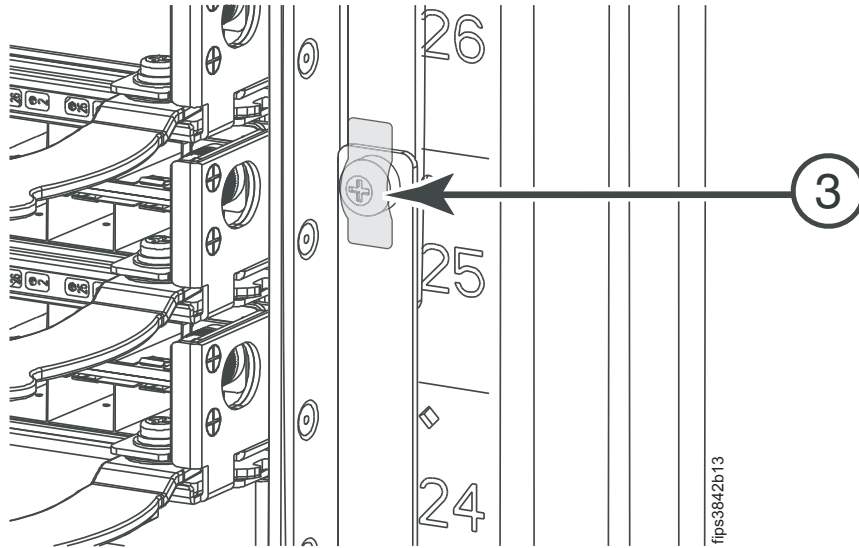


Figure 45. Lower right 2499-416 FIPS seal application (detailed port side view)

Refer to Figure 46 and Figure 47 on page 46 for completed representations of the port side of a rackmounted 2499-416 with FIPS brackets and rackmount screws installed and seals applied, as viewed from the left port view and right port view respectively.

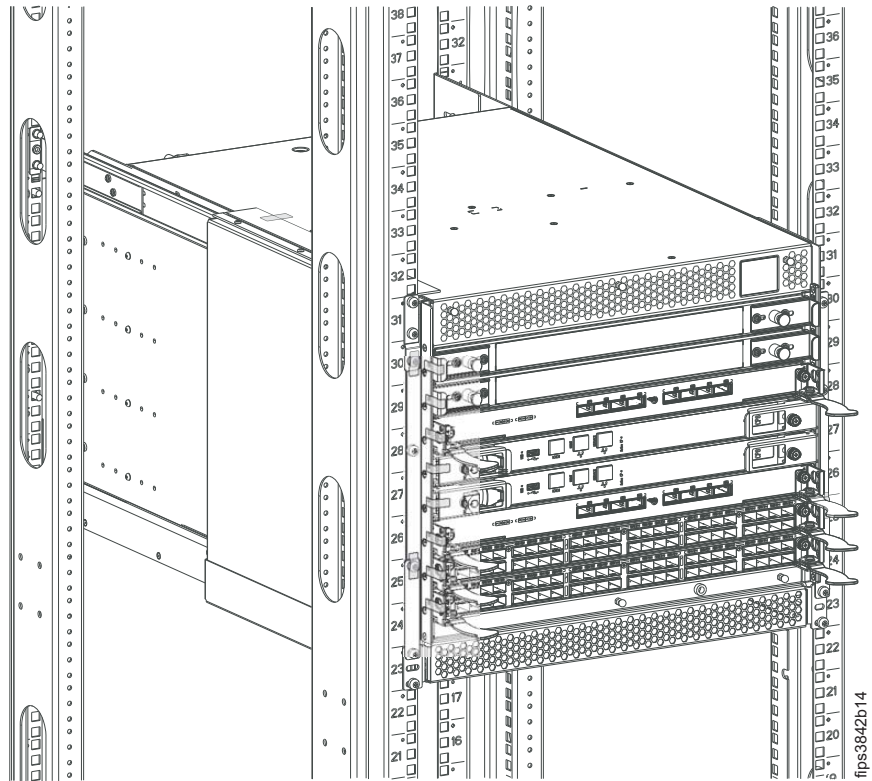


Figure 46. 2499-416 port side FIPS seal completed rackmount installation (left port view)

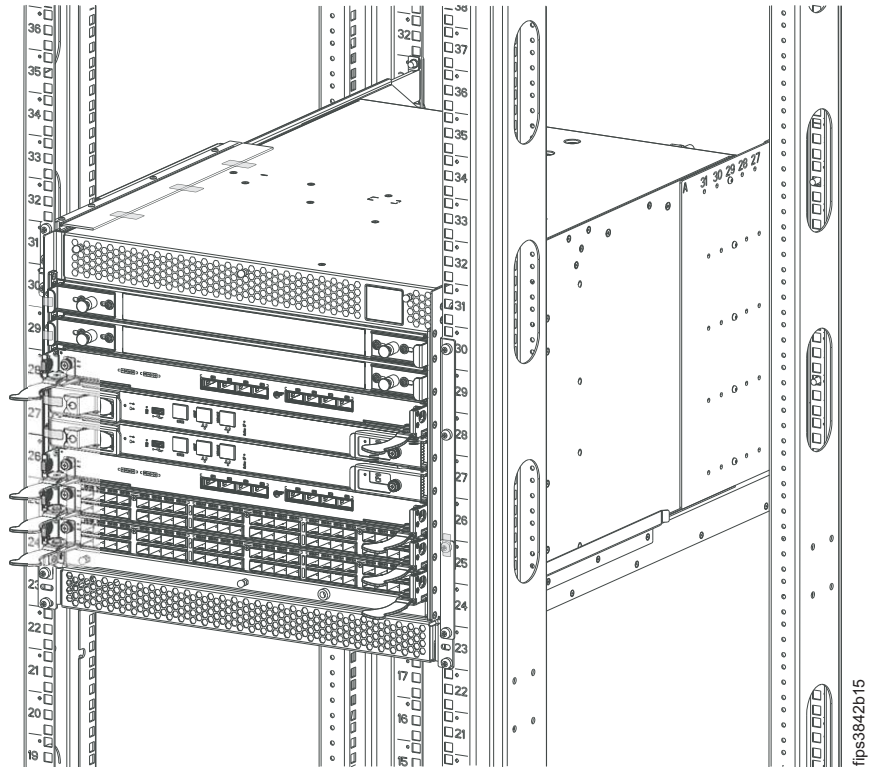


Figure 47. 2499-416 port side FIPS seal completed rackmount installation (right port view)

## Installing brackets and seals on the rackmounted 2499-416 nonport side

The following procedure describes how to install brackets and apply seals to a rackmounted 2499-416 when viewed from the non-port side. Figures are provided throughout the procedure. Refer to the figures when performing the procedure.

**Note:** This procedure describes the seal application for the non-port side rackmount brackets only and assumes that all other seals have already been applied to the chassis, air duct, and fan FRUs. For more information, see “Applying seals to the port side of the 2499-416 chassis” on page 33 and “Applying seals to the non-port side of the 2499-416 chassis” on page 39.

**Attention:** The exhaust kit shelf helps support the weight of the 2499-416 chassis. Do not remove the lower rackmount screws that secure the exhaust kit shelf flange to the rack; only remove the upper screws,

Three brackets and three seals are required for the nonport side.

1. Remove the seven rackmount screws that are needed to secure the upper and lower FIPS brackets to the chassis, as shown by the arrows in Figure 48 on page 47.



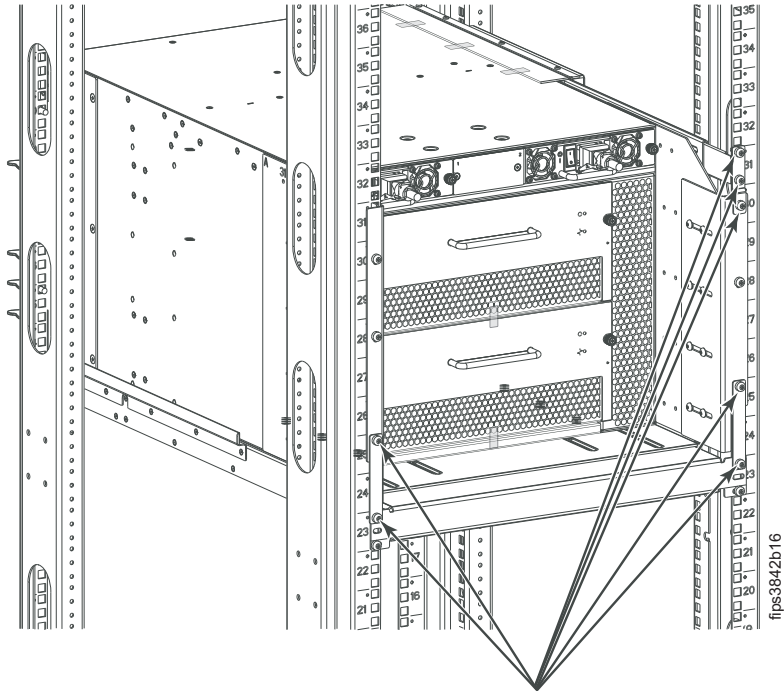


Figure 48. 2499-416 rackmount screw removal (non-port side view)

2. Use two of the rackmount screws that you removed in step 1 to install the lower left FIPS bracket between the chassis rackmount flange and exhaust kit shelf flange, as shown in Figure 49, then tighten securely. The straight bracket is the lower FIPS bracket.

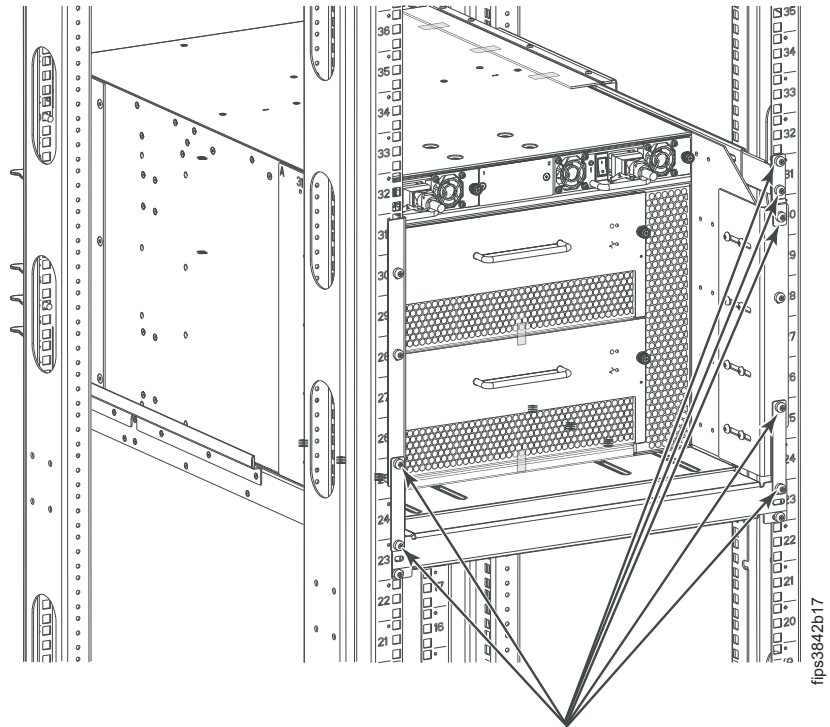


Figure 49. Three 2499-416 rackmount FIPS brackets installed on non-port side

3. Use three of the rackmount screws that you removed in step 1 to install the upper right FIPS bracket between the chassis rackmount flange and top rail flange, as shown in Figure 49 on page 47, then tighten securely. The bracket with the slight bend is the upper FIPS bracket.
4. Use the remaining two rackmount screws that you removed in step 1 to install the lower right FIPS bracket between the chassis rackmount flange and shelf flange, as shown in Figure 49 on page 47, then tighten securely. The straight bracket is the lower FIPS bracket.
5. Apply one seal **4** mounted vertically to the upper right FIPS bracket screw, one seal **5** to the lower right FIPS bracket screw, and one seal **6** to the lower left FIPS bracket screw, as shown in Figure 50. Ensure that each seal is firmly affixed.

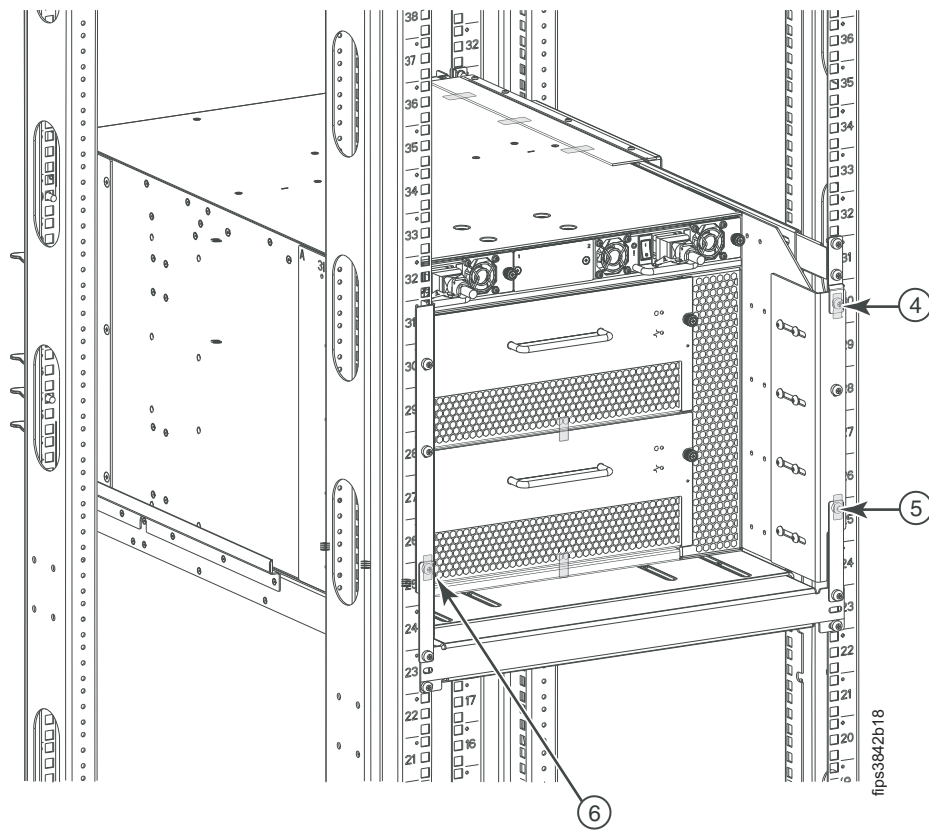


Figure 50. Three FIPS seals applied to the FIPS bracket screws on non-port side of the rackmounted 2499-416

Refer to Figure 51 on page 49 for a completed representation of a rackmounted 2499-416 with FIPS brackets installed and FIPS seals applied.

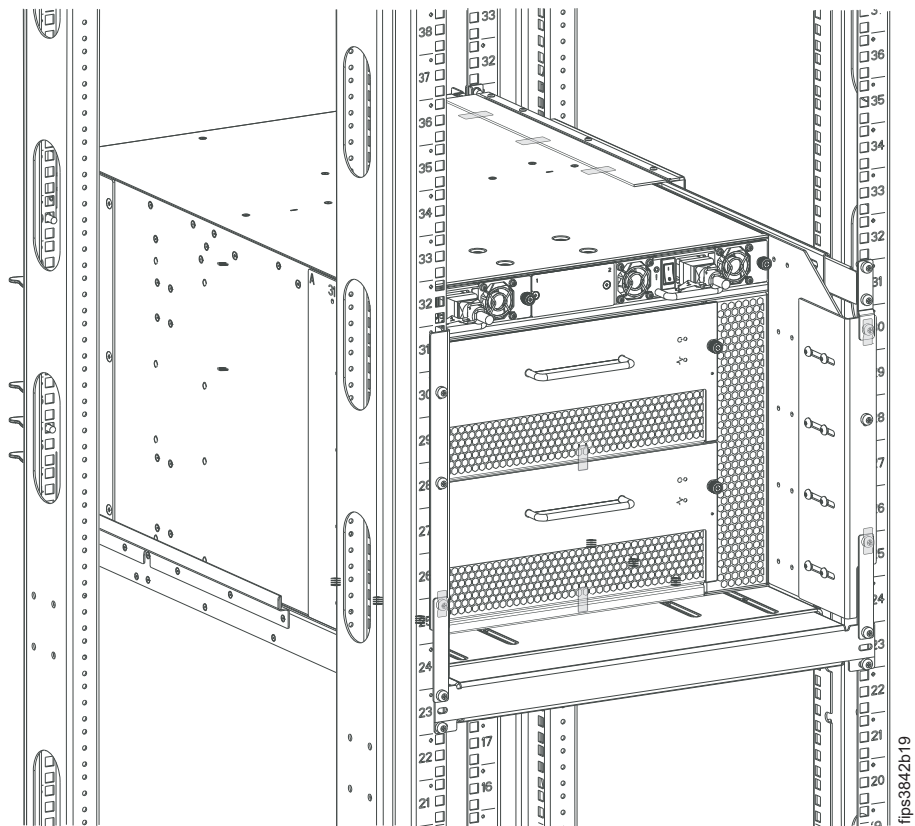


Figure 51. Completed installation of FIPS brackets and seals on the non-port side of the rackmounted 2499-416



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## Chapter 7. Applying security seals to the 2499-816

Use the instructions in this chapter to apply the FIPS security seals to the IBM System Storage SAN768B-2 (2499-816). The procedures are described in the following sections. For detailed instructions on removing or replacing any components, refer to the SAN768B-2 installation, service, and user guide.

- “Applying seals to the 2499-816 chassis”
- “Applying seals to the port side of the 2499-816” on page 52
  - “Applying seals to blades with flat ejector handles” on page 53
  - “Applying seals to blades with stainless steel ejector handles” on page 54
  - “Applying seals to filler panels” on page 55
- “Applying seals to the non-port side of the 2499-816” on page 55

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### Applying seals to the 2499-816 chassis

Figure 52 shows the right side of the 2499-816 with the chassis door attached. Refer to the figure when performing the procedure. Twenty-two (22) seals are required to complete the security seals application procedure for the 2499-816 (three on the chassis, 12 on the port side blades and filler panels, and seven on the non-port side).

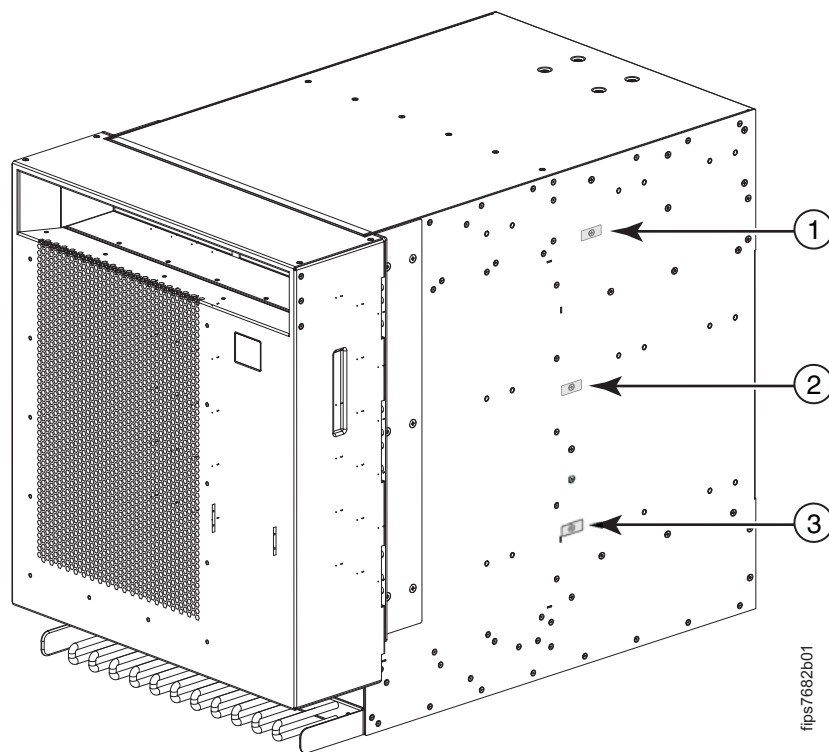


Figure 52. 2499-816 chassis right side seal location

Three FIPS seals are required for the right side of the chassis.

1. Locate the three screws on the right side of the chassis enclosure, as shown by **1**, **2**, and **3** in Figure 52 on page 51.
2. Apply one seal to each screw head and cover completely. Ensure that each seal is firmly affixed.

---

## Applying seals to the port side of the 2499-816

Figure 53 shows the port side of the 2499-816 with the chassis door removed. The chassis door can be removed by grasping two edges of the door and pulling it straight out. Refer to the SAN768B-2 installation, service, and users guide for full instructions on any component removal. Refer to the figure when performing this procedure.

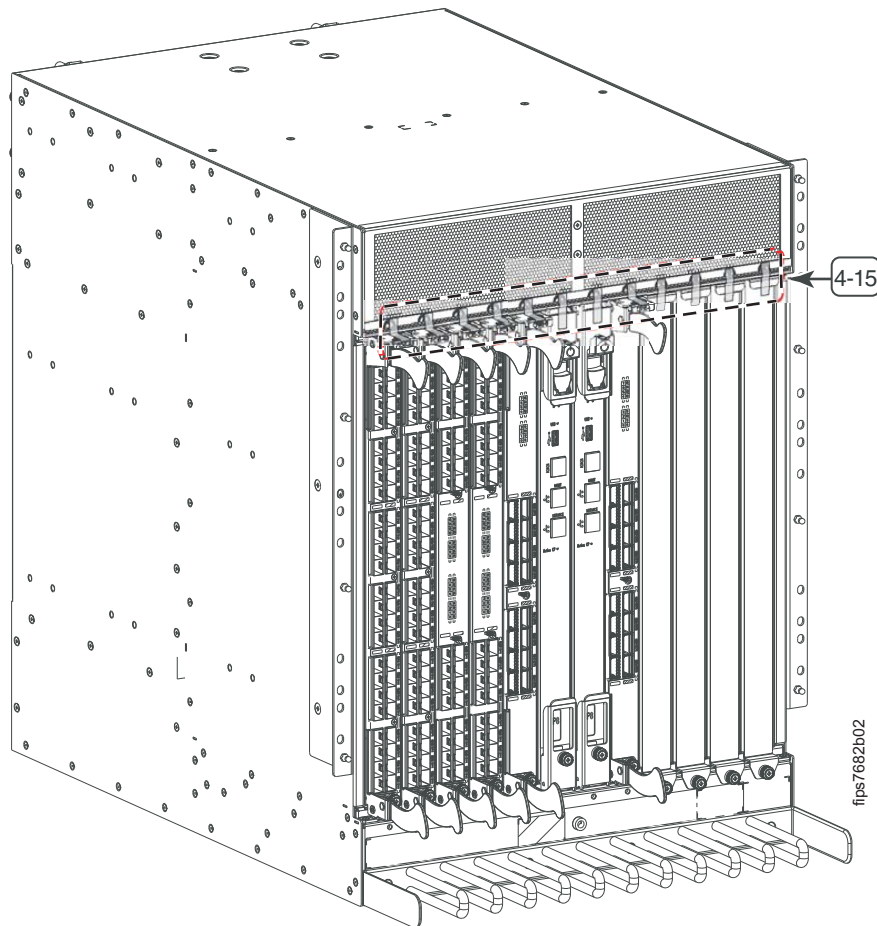


Figure 53. 2499-816 port side seal location

Twelve (12) seals are required (**4-15** in Figure 53), one seal for each blade or filler panel installed in the port side of the 2499-816 chassis.

1. Locate the seam between the chassis frame and the ejector handle for each blade and filler panel.
2. Apply one seal beginning on the lower frame of the exhaust vent, spanning the gap between the frame and each blade or filler panel, and extending onto the upper blade ejector handle, or ending just before the thumbscrew (depending

on the blade type). Use the detailed instructions below for each type of blade or filler panel, following these general guidelines:

- Ensure that none of the indicator LEDs on the bezel is covered by the seal.
- Ensure that the seal is firmly affixed to the exhaust vent frame and the ejector handle for each blade and filler panel.
- Ensure that the seal does not cover either the microswitch or the thumbscrew.
- Ensure that the seal does not cover any of the exhaust vent. It must make contact only with the frame.

For detailed information, see the following topics:

- “Applying seals to blades with flat ejector handles”
- “Applying seals to blades with stainless steel ejector handles” on page 54
- “Applying seals to filler panels” on page 55

## Applying seals to blades with flat ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-816. Supported blades are listed in Table 11.

Table 11. Supported 2499-816 blades with flat ejector handles

| Blade type              | Blade model |
|-------------------------|-------------|
| Control processor blade | CP8         |

Figure 54 shows the flat ejector handle seal locations on the 2499-816. Refer to the figure when performing the procedure. Not all blade types that are listed in Table 11 are shown, but seal placement is the same for each.

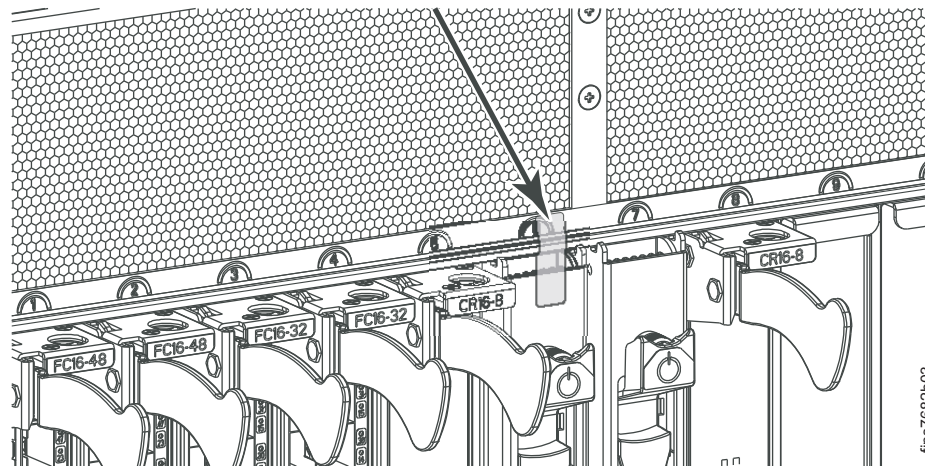


Figure 54. Detail of seals applied to 2499-816 blades with flat ejector handles.

Complete any blade replacements prior to applying any seals. Refer to the SAN768B-2 installation, service, and users guide for instructions.

1. Apply one seal beginning on the lower frame of the exhaust vent, spanning the gap between the frame and the blade, extending onto the upper blade ejector handle, and ending just before the thumbscrew.
  - Ensure that the seal is firmly affixed to the exhaust vent frame and the blade ejector handle.



- Ensure that the seal does not cover either the microswitch or the thumbscrew.
  - Ensure that the seal does not cover the exhaust vent. It must make contact only with the frame.
2. Repeat step one as needed, applying one seal to each remaining blade with flat ejector handles.

## Applying seals to blades with stainless steel ejector handles

This procedure describes how to apply tamper-evident security seals to the following blades on the 2499-816. Supported blades are listed in Table 12.

Table 12. Supported 2499-816 blades with stainless steel ejector handles

| Blade type                                   | Blade model                   |
|--|-------------------------------|
| Core switch blade                            | CR16-8                        |
| Fibre Channel port blade                     | FC8-64<br>FC16-32<br>FC168-48 |
| Fibre Channel over IP (FCIP) extension blade | FX8-24                        |

Figure 55 shows the stainless steel ejector handle seal locations on the 2499-816. Refer to the figure when performing the procedure. Not all blade types that are listed in Table 12 are shown, but seal placement is the same for each.

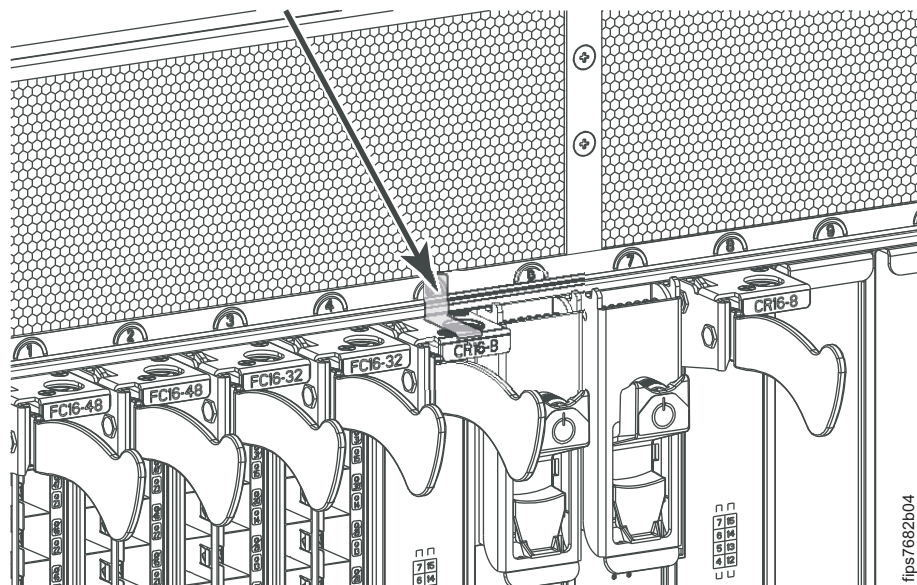


Figure 55. Detail of seals applied to 2499-816 blades with stainless steel ejector handles.

Complete any blade replacement procedure prior to applying FIPS seals, referring to the SAN768B-2 installation, service, and users guide for instructions.

1. Apply one seal beginning on the lower frame of the exhaust vent and curving down onto the upper surface of the pull tab of the blade.
  - Ensure that the seal is firmly affixed to both the exhaust vent frame and the top of the stainless steel ejector handle.



- Ensure that the seal does not cover any of the exhaust vent. It must make contact only with the frame.
2. Repeat as necessary, applying one seal to each blade with a stainless steel ejector handle.

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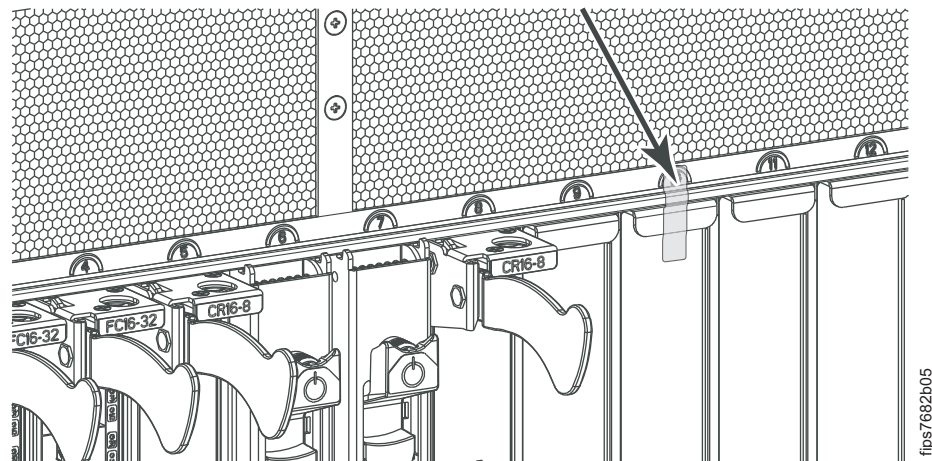
## Applying seals to filler panels

This procedure describes how to apply tamper-evident security seals to filler panels on the 2499-816. Supported filler panels are listed in Table 13

*Table 13. Supported 2499-816 filler panels*

| Type         | Filler panel model |
|--------------|--------------------|
| Filler panel | 49-1000016-04      |

Figure 56 shows the filler panel seal location on the 2499-816. Refer to the figure when performing the procedure.



*Figure 56. Detail of seals applied to 2499-816 filler panels*

Replace any filler panels, if needed, prior to installing the FIPS seals, referring to the SAN768B-2 installation, service, and users guide for instructions.

1. Apply one seal beginning on the lower frame of the exhaust vent, extending across the ejector handle at the top of the filler panel, and spanning down to the surface of the filler panel. The seal may have to “tent” over the gap between the ejector handle and the surface of the filler panel.
  - Ensure that the seal is firmly affixed to the exhaust vent frame, the ejector handle, and the surface of the filler panel.
  - Ensure that the seal does not cover any of the exhaust vent. It must make contact only with the frame.
2. Repeat as necessary, applying one seal to each filler panel.

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## Applying seals to the non-port side of the 2499-816

Figure 57 on page 56 shows the non-port side of the 2499-816 with the FIPS seals in place. Refer to the figure when performing the procedure.

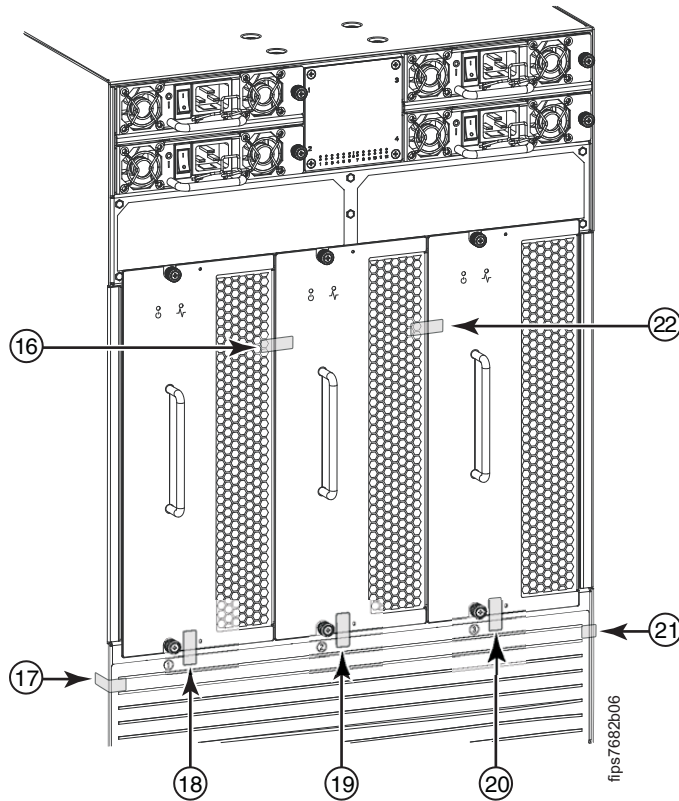


Figure 57. Seals applied to the nonport side of the 2499-816

Seven seals are required on the nonport side of the 2499-816.

1. Locate the two vertical joints dividing the three fan FRUs.
2. Apply one seal mounted horizontally that bridges the seam between each fan FRU. Two seals are required ( **16** and **22** in Figure 57). Ensure that the seal is firmly affixed to both sides of the seam.
3. Locate the joint between the bottom of each fan FRU and the lower chassis enclosure.
4. Apply one seal mounted vertically that bridges the seam between each fan FRU and the lower chassis enclosure. Three seals are required ( **18** , **19** , and **20** ). Ensure that the seal is firmly affixed to both the fan FRU and the chassis enclosure.
5. Apply one seal to the lower chassis and wrap it around the left side of the chassis ( **17** ) .
6. Apply one seal to the lower chassis and wrap it around the right side of the chassis ( **21** ) .

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