



CHAPTER 4

Installing and Removing the VPN Services Port Adapter

This chapter describes how to install or remove the VSPA on the Catalyst 6500 Series switch. This chapter includes the following sections:

- [Handling the VSPA, page 4-1](#)
- [Installing and Removing the VSPA, page 4-2](#)
- [Checking the Installation, page 4-3](#)
- [Preparing for Online Removal of the VSPA, page 4-5](#)
- [Using VSPA Blank Filler Plates, page 4-7](#)

Handling the VSPA

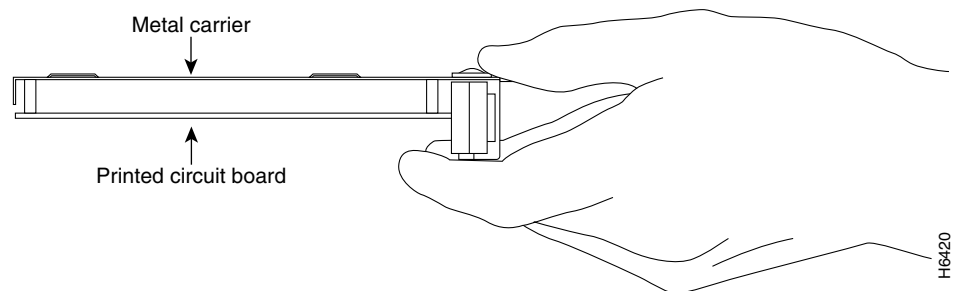
The VSPA circuit board is mounted to a metal carrier and is sensitive to electrostatic discharge (ESD) damage. Before you begin installation, read [Chapter 2, “Preparing to Install the VSPA and the SSC-600”](#) for a list of parts and tools required for installation.



Caution

Always handle the VSPA by the carrier edges and handle as shown in [Figure 4-1](#). Never touch the VSPA components or connector pins.

Figure 4-1 Handling the VSPA



Installing and Removing the VSPA

This section provides instructions for installing and removing the VSPA in the SSC-600.

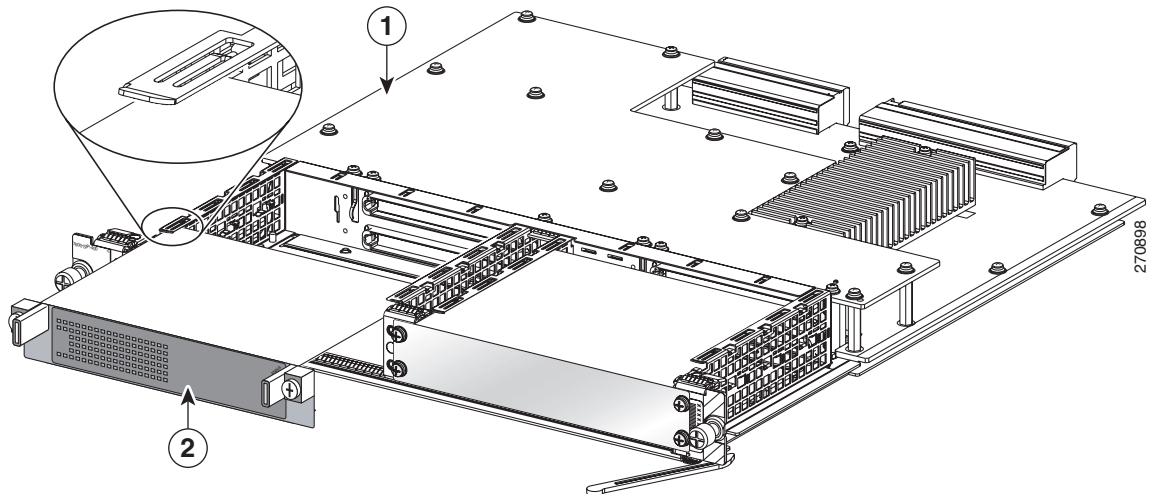


Warning

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself. Statement 94

Figure 4-2 shows how to install and remove the VSPA in the SSC-600.

Figure 4-2 VSPA Installation and Removal



1	SSC-600	2	VSPA
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Installing the VSPA in the SSC-600

To install the VSPA in a subslot of the SSC-600, refer to [Figure 4-2](#) and follow these steps:

- Step 1** Choose an unused subslot of the SSC-600 and remove the blank filler plate covering the subslot.
- Step 2** Locate the guide rails inside the SSC-600 that hold the VSPA in place. The guide rails are at the top left and top right of the VSPA subslot and are recessed about an inch, as shown in the detail of [Figure 4-2](#)
- Step 3** Carefully slide the VSPA all the way into the SSC-600 subslot until the VSPA is firmly seated in the interface connector.



Note The guide rails of the SSC-600 are not continuous. Be careful to keep the VSPA level to stay within the guide rails as the module slides into the card.

- Step 4** After the VSPA is properly seated, fasten the VSPA in place with the captive installation screws. Tighten the screws to a torque of 6 inch-pounds (69 N-cm). Do not overtighten these screws.

**Caution**

When a subslot is not in use, a blank filler plate must fill the empty subslot to allow the chassis to conform to electromagnetic interference (EMI) emissions requirements and to allow proper airflow across the installed modules. For more information, see the [“Using VSPA Blank Filler Plates” section on page 4-7](#).

Removing the VSPA from the SSC-600

To remove the VSPA from the SSC-600, refer to [Figure 4-2](#) and follow these steps:

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- Step 1** Unfasten the captive installation screws on the VSPA.
- Step 2** Grasp the handles of the VSPA and pull the VSPA from the SSC-600.
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Checking the Installation

This section describes the procedures you can use to verify the SSC-600 and VSPA installation, and includes information on the following topics:

- [Verifying the SSC-600 and VSPA Installation, page 4-3](#)
- [Using the show module Command to Verify SSC-600 and VSPA Status, page 4-4](#)

Verifying the SSC-600 and VSPA Installation

This section describes how to verify the SSC-600 and VSPA installation by observing the SSC-600 LED states, VSPA LED states, and the information displayed on the console terminal.

When the system has initialized, the SSC-600 STATUS LED should be green (on) and the VSPA STATUS LED should be green (on).

The following sample display shows the events logged by the system as the SSC-600 with the VSPA was removed from module slot 4 in the chassis:

```
Router#
00:06:17:%WS_ALARM-6-INFO:ASSERT CRITICAL slot 4 Active Card Removed OIR Alarm
00:06:17:%OIR-6-REMCARD:Card removed from slot 4, interfaces disabled
```

The following sample display shows the events logged by the system when you reinsert the SSC-600 with the installed VSPA:

```
Router#
00:07:29:%OIR-6-INSCARD:Card inserted in slot 4, interfaces administratively shut down
00:07:32:%WS_ALARM-6-INFO:CLEAR CRITICAL slot 4 Active Card Removed OIR Alarm
```

To verify that the SSC-600 and VSPA are installed correctly, follow these steps:

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- Step 1** Observe the console display messages and verify that the system discovers and reinitializes the SSC-600, as follows:

- As the SSC-600 is initialized, the STATUS LED will first be orange, indicating that power is on, but the SSC-600 is being configured. When the SSC-600 is active, the STATUS LED will illuminate green.
- VSPAs will follow the same sequence once the SSC-600 has completed its initialization. The VSPA STATUS LED will illuminate orange, turning to green when the VSPA becomes active.
- When the SSC-600 and VSPA STATUS LEDs are green, all associated interfaces are configurable.

Refer to the *Cisco VPN Services Port Adapter Configuration Guide* for configuration instructions.

- If the SSC-600 or VSPA is replaced with a module of the same type (as in an OIR or hardware swap), the previous configuration will be reinstated when the SSC-600 and VSPA become active.
- If the SSC-600 or VSPA has not been previously installed in the same slot or subslot, then the configuration for all associated interfaces will be empty.

Step 2 If the SSC-600 and VSPAs have not become active within three minutes, refer to the system console messages as follows:

- If the SSC-600 or VSPA is undergoing an FPD upgrade, then console messages will indicate that the FPD process has been initiated. The upgrade process might take several minutes. Use the **show upgrade fpd progress** command to obtain information about the FPD process. SSC-600s or VSPAs that have received an FPD upgrade will automatically be rebooted. Return to [Step 1](#).
- If there is no indication that an FPD upgrade is occurring, see [Chapter 5, “Troubleshooting the Installation.”](#)

Using the show module Command to Verify SSC-600 and VSPA Status

Use the **show module** command to display the type and status of the installed modules. Verify that the status of the new VSPA and SSC-600 is displayed as “Ok.” If the **show module** command indicates that the VSPA or SSC-600 has not initialized, see [Chapter 5, “Troubleshooting the Installation.”](#)

Command	Purpose
Router(config)# show module slot	Displays the type and status of a module and submodules in the specified slot. <ul style="list-style-type: none"> • <i>slot</i>—Specifies the chassis slot number where the SSC-600 is installed.

The following example of the **show module** command reports an operational SSC-600 in slot 4 and an operational VSPA in slot 4, subslot 0:

```
Router# show module 4
Mod Ports Card Type                               Model                               Serial No.
-----
  4    0  2-subslot Services SPA Carrier-600      WS-SSC-600                          JAB113100EN

Mod MAC addresses                               Hw  Fw           Sw           Status
-----
  4  001a.a2ff.1320 to 001a.a2ff.1327  0.302 12.2(SIERRA_ 12.2(SIERRA_ Ok

Mod  Sub-Module                               Model                               Serial           Hw           Status
-----
4/0  IPSec Accelerator 3                      WS-IPSEC-3       PRTA6104008     0.38         Ok
```

```
Mod  Online Diag Status
-----
  4   Pass
4/0  Pass
```

Preparing for Online Removal of the VSPA

The Catalyst 6500 Series switch supports online insertion and removal (OIR) of an VSPA independent of removing the SSC-600. The SSC-600 can remain installed in the chassis with one VSPA remaining active while you remove another VSPA from one of the SSC-600 subslots. If you are not planning to immediately replace the VSPA into the SSC-600, then you must install a blank filler plate in the subslot. The SSC-600 should always be fully installed with either functional VSPAs or blank filler plates.

The interface configuration is retained (recalled) when an VSPA is removed and then replaced with one of the same type.

If you are planning to remove the SSC-600 along with its VSPAs, then you do not need to follow the procedures in this section. To remove the SSC-600, see the [“Preparing for Online Removal of the SSC-600” section on page 3-4](#).

This section includes the following topics:

- [Deactivating the VSPA, page 4-5](#)
- [Reactivating the VSPA, page 4-6](#)
- [Verifying Deactivation and Activation of the VSPA, page 4-7](#)

Deactivating the VSPA

Although graceful deactivation of the VSPA is preferred by using the **hw-module subslot shutdown** command, the Catalyst 6500 Series switch does support removal of the VSPA without deactivating it first. Before deactivating the VSPA, ensure that the SSC-600 is seated securely into the slot before pulling out the VSPA itself.



Note

If you are preparing for an OIR of the VSPA, it is not necessary to independently shut down each of the interfaces prior to deactivation of the VSPA. The **hw-module subslot shutdown** command automatically stops traffic on the interfaces and deactivates them along with the VSPA in preparation for OIR. You also do not need to independently restart any interfaces on the VSPA after OIR of the VSPA or SSC-600.

To deactivate the VSPA and all of its interfaces prior to removal of the VSPA, use the following command in global configuration mode:

Command	Purpose
<pre>Router(config)# hw-module subslot slot/subslot shutdown</pre>	Deactivates the VSPA in the specified slot and subslot of the SSC-600. <ul style="list-style-type: none"> • <i>slot</i>—Specifies the chassis slot number where the SSC-600 is installed. • <i>subslot</i>—Specifies subslot number on the SSC-600 where the VSPA is installed.

For more information about chassis slot numbering, refer to the [“Identifying Slots and Subslots” section on page 1-8](#).

The following example deactivates the VSPA (and its interfaces) that is installed in subslot 0 of the SSC-600 located in slot 2 of the chassis and removes power to the VSPA. Notice that no corresponding console messages are shown:

```
Router# configure terminal
Router(config)# hw-module subslot 2/0 shutdown
```

Reactivating the VSPA



Note

You do not need to reactivate the VSPA after an OIR of either the SSC-600 or the VSPA if you did not deactivate the VSPA prior to removal. If the chassis is running, then the VSPAs automatically start upon insertion into the SSC-600 or with insertion of the SSC-600 into the chassis.

If you deactivate the VSPA using the **hw-module subslot shutdown** global configuration command and need to reactivate it without performing an OIR, enter the **no hw-module subslot shutdown** global configuration command to reactivate the VSPA and its interfaces.

To activate the VSPA and its interfaces after the VSPA has been deactivated, enter the following command in global configuration mode:

Command	Purpose
<pre>Router(config)# no hw-module subslot slot/subslot shutdown</pre>	Activates the VSPA and its interfaces in the specified slot and subslot of the SSC-600. <ul style="list-style-type: none"> • <i>slot</i>—Specifies the chassis slot number where the SSC-600 is installed. • <i>subslot</i>—Specifies subslot number on the SSC-600 where an VSPA is installed.

The following example activates the VSPA that is installed in slot 2 of the chassis and all of its interfaces:

```
Router# configure terminal
Router(config)# no hw-module subslot 2/0 shutdown
```

Verifying Deactivation and Activation of the VSPA

When you deactivate the VSPA, the corresponding interfaces are also deactivated. This means that these interfaces will no longer appear in the output of the **show interface** command.

To verify the deactivation of the VSPA, enter the **show module** command in privileged EXEC configuration mode, as described in the [“Using the show module Command to Verify SSC-600 and VSPA Status” section on page 4-4](#). Observe the Operational Status field associated with the VSPA that you want to verify.

Using VSPA Blank Filler Plates

Blank filler plates are available to fill an unused VSPA subslot on the SSC-600. The following blank filler plate covers an unused subslot:

800-25580-02: ASY, MECH, BLANK, HHSPA



Caution

When a subslot of the SSC-600 is not in use, a blank filler plate must be installed in the empty subslot to allow the chassis to conform to electromagnetic interference (EMI) emissions requirements and to allow proper airflow across the SSC-600 and VSPA. If you plan to install a new VSPA in a subslot that is not in use, you must first remove the blank filler plate.
