Smart-1 Installing and Removing Expansion Line Cards

This document is for appliance models Smart-1 525, Smart-1 5050, and Smart-1 5150.

Safety Instructions

- Lift the appliance with assistance. To avoid injury, do not attempt to lift the appliance by yourself.
- Opening or removing the appliance cover, while the appliance is powered on may expose you to a risk of electric shock.
- Do not operate the appliance without the cover for more than five minutes. Operating the appliance without the cover can result in component damage.
- Many repairs may only be done by a certified service technician. Only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the technical support.
- We recommend that you always use an antistatic mat and antistatic strap on your wrist, while working on components inside the appliance.
- To ensure proper operation and cooling, all bays in the appliance and cooling fans must be always populated with a component or a blank.

For more information, see the *Enterprise Products Safety, Environmental, and Regulatory Information* booklet supplied in the original appliance shipping carton.
**Important** - We recommend that only experienced personnel install or remove hardware components. Installing or removing components incorrectly can permanently damage the Security Management Appliance.

**Important** - Make sure that you are electromagnetically grounded when working with hardware components of the appliance. ESD (electrostatic discharge) can damage the appliance.

### Hardware Components
**Smart-1 525**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front panel</td>
</tr>
<tr>
<td>2</td>
<td>Riser</td>
</tr>
<tr>
<td>3</td>
<td>Rear panel</td>
</tr>
</tbody>
</table>
## Smart-1 5050

![Smart-1 5050 Diagram]

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Front panel</td>
</tr>
<tr>
<td>2</td>
<td>Riser 1</td>
</tr>
<tr>
<td>3</td>
<td>Riser 2</td>
</tr>
<tr>
<td>4</td>
<td>Rear panel</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
</tr>
<tr>
<td>1</td>
<td>Front panel</td>
</tr>
<tr>
<td>2</td>
<td>Riser 1</td>
</tr>
<tr>
<td>3</td>
<td>Rear panel</td>
</tr>
</tbody>
</table>
Supported Expansion Line Cards

An expansion line card is an add-on card that can be inserted into an expansion slot on riser card to add enhanced functionality to the appliance through the expansion bus.

These expansion line cards are available for the Smart-1 525, Smart-1 5050, and Smart-1 5150 models:

- 1 Gb Ethernet
- 10 Gb Ethernet

For a list of supported line cards, see:

Smart-1 525, Smart-1 5050, and Smart-1 5150 Security Management Appliances

<table>
<thead>
<tr>
<th>Security Management Appliance</th>
<th>Available Expansion Line Card Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart-1 525</td>
<td>1</td>
</tr>
<tr>
<td>Smart-1 5050</td>
<td>3</td>
</tr>
<tr>
<td>Smart-1 5150</td>
<td>3</td>
</tr>
</tbody>
</table>

**Important** – On Smart-1 5150 appliances, do not move the RAID Controller from the right-most slot to any other slot.
Procedure

Use the relevant install or replace workflow for your appliance. For each step in the workflow, follow the instructions as described in the subsequent sections of this guide.

To install a new expansion line card on Smart-1 525 and Smart-1 5050 appliances:

1. Prepare the appliance.
2. Remove the riser.
3. Install a new expansion line card into the riser.
4. Install the riser.
5. Reassemble the appliance.
6. Install a transceiver.

To install a new expansion line card on Smart-1 5150 appliances:

1. Prepare the appliance.
2. Install a new expansion line card into the riser.
   
   We recommend that you populate the bottom-most slot first.
3. Reassemble the appliance.
4. Install a transceiver.

To replace an existing expansion line card on Smart-1 525 and Smart-1 5050 appliances:

1. Prepare the appliance.
2. Remove the riser.
3. Remove the existing expansion line card from the riser.
4. Install a new expansion line card into the riser.
5. Install the riser.
6. Reassemble the appliance.
7. Install a transceiver.
To replace an existing expansion line card on Smart-1 5150 appliances:

1. Prepare the appliance.
2. Remove the existing expansion line card from the riser.
3. Install a new expansion line card into the riser.
4. Reassemble the appliance.
5. Install a transceiver.

Preparing the Appliance

To prepare the appliance:

1. Make sure to follow the safety instructions (on page 1).
2. Shut down the appliance:
   - In Gaia Portal:
     Go to Maintenance > Shut Down, and click Halt
   - In Gaia Clish:
     Run: halt
3. Open the retention strap that secures the power cables to the PSUs. This example shows AC PSUs:

4. If AC PSUs are installed in the appliance:
   Disconnect the power cables from the AC PSUs.
5. If DC PSUs are installed in the appliance:
   Disconnect the safety ground wires from the DC PSUs.
   Disconnect the DC power connectors from the DC PSUs.

6. Remove the hook-and-loop straps that hold and secure the system cables, if they interfere with the PSU removal.

7. Remove any other attached cables, if necessary.

8. Remove the appliance from the rack.
   See the relevant *Installing the Telescoping Rails* booklets for illustrated installation procedures:
   - Smart-1 525 and Smart-1 5050 Telescoping Rails
     http://supportcontent.checkpoint.com/documentation_download?ID=58649
   - Smart-1 5150 Telescoping Rails
     http://supportcontent.checkpoint.com/documentation_download?ID=58650

9. Put the Electrostatic Discharge (ESD) grounding strap on your wrist and attach the other end to a grounding point.

10. Remove the appliance cover:
    a) Use a flat or a Phillips head screwdriver to rotate the latch release lock counter-clockwise to the unlocked position.
    b) Lift the latch.
    c) Slide the cover back.
        The tabs on the cover should disengage from the guide slots on the appliance.
    d) Hold the cover on both sides and lift the cover away from the appliance.
This example shows the Smart-1 525 cover:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latch release lock</td>
</tr>
<tr>
<td>2</td>
<td>Latch</td>
</tr>
<tr>
<td>3</td>
<td>Cover</td>
</tr>
</tbody>
</table>
Removing the Riser

Do the relevant procedure for your Smart-1 525/Smart-1 5050 appliance. For Smart-1 5150 appliances, it is not necessary to remove the riser to install or remove an expansion line card.

**Smart-1 525**

1. Lift and rotate the riser latch to open it.
2. Holding the touch points, lift the riser from the riser connector on the system board.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Touch point [2]</td>
</tr>
<tr>
<td>2</td>
<td>Riser</td>
</tr>
<tr>
<td>3</td>
<td>Riser latch</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Riser connector on the system board</td>
</tr>
<tr>
<td>5</td>
<td>Guide pin on the system board</td>
</tr>
<tr>
<td>6</td>
<td>Guide on the riser</td>
</tr>
<tr>
<td>7</td>
<td>Default Network Interfaces</td>
</tr>
</tbody>
</table>

**Smart-1 5050**

Hold the touch points and lift the riser, from the riser connector, on the system board.

Removing expansion riser 1:
Removing expansion riser 2:

Removing an Expansion Line Card from the Riser

Do the relevant procedure for your appliance when it is necessary to replace an existing expansion line card in your appliance.

**Smart-1 525**

1. Remove the riser.
2. Hold the expansion line card by its edges and remove it from the riser connector.

   **Note** - If you do not immediately install a replacement expansion line card when a line card fails, leave the failed line card in place to ensure proper appliance cooling until the new line card is installed.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Touch point (2)</td>
</tr>
<tr>
<td>2</td>
<td>Riser connector</td>
</tr>
<tr>
<td>3</td>
<td>Riser</td>
</tr>
<tr>
<td>4</td>
<td>Expansion line card</td>
</tr>
<tr>
<td>5</td>
<td>Default Network Interfaces</td>
</tr>
</tbody>
</table>

**Smart-1 5050 and Smart-1 5150**

1. If applicable, lift the expansion line card latch(es) out of the slot.
2. Hold the expansion line card by its edges, and pull the card until the card edge connector disengages from the expansion line card connector on the riser.

**Note** - If you do not immediately install a replacement expansion line card when a line card fails, leave the failed line card in place to ensure proper appliance cooling until the new line card is installed.
Removing an expansion line card from the expansion riser 1 on Smart-1 5050:

Removing an expansion line card from the expansion riser 2 on Smart-1 5050:
Removing an expansion line card from the expansion riser 1 on Smart-1 5150:

Installing an Expansion Line Card into the Riser

Do the relevant procedure for your appliance.

Smart-1 525

1. Unpack the expansion line card and prepare it for installation.
2. Locate the expansion line card connector on the riser.
3. Holding the expansion line card by its edges, position the card so that the card connector aligns with the connector on the riser.
4. Insert the card connector into the riser connector until the card is firmly seated.

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<tr>
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<td>Expansion line card</td>
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<tr>
<td>5</td>
<td>Default Network Interfaces</td>
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</tbody>
</table>

**Smart-1 5050 and Smart-1 5150**

1. Unpack the expansion line card and prepare it for installation.
2. If applicable, lift/pull the expansion line card latch and remove the filler bracket.
3. Hold the card by its edges, and align the card edge connector with the expansion line card connector on the riser.
4. Insert the card edge connector firmly into the expansion line card connector until the card is fully seated.
5. Close/push the expansion line card latch.
Installing an expansion line card into the expansion riser 1 on Smart-1 5050:

Installing an expansion line card into the expansion riser 2 on Smart-1 5050:
Installing an expansion line card into the expansion riser 1 on Smart-1 5150:
We recommend that you populate the bottom-most slot first.

Installing the Riser

Do the relevant procedure for your Smart-1 525/Smart-1 5050 appliance.

Smart-1 525

1. Open the riser latch.
2. Align the following:
   a) Guide on the riser with the guide pin on the system board.
   b) Riser connector with the connector on the system board.
3. Lower the riser until the riser is firmly seated in the connector on the system board.
4. Close the riser latch.

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<td>Riser</td>
</tr>
<tr>
<td>2</td>
<td>Guide on the riser</td>
</tr>
<tr>
<td>3</td>
<td>Guide pin on the system board</td>
</tr>
<tr>
<td>4</td>
<td>Riser connector on the system board</td>
</tr>
<tr>
<td>5</td>
<td>Guide slot on the chassis</td>
</tr>
<tr>
<td>6</td>
<td>Expansion line card latch</td>
</tr>
</tbody>
</table>
**Smart-1 5050**

1. Holding the touch points, align the riser with the connector and the riser guide pin on the system board.

2. Lower the riser into place until the riser connector is fully seated in the connector.

Installing expansion riser 1:

Installing expansion riser 2:
Reassembling the Appliance

To reassemble the appliance:

1. Install the cover:
   a) Make sure all internal cables are routed correctly and connected, and no tools or extra parts are left inside the system.
   b) Align the tabs on the cover with the guide slots on the appliance.
   c) Push the latch down.
   d) Slide the cover forward.
      The tabs on the cover should engage with the guide slots on the appliance.
      The latch should lock into place.
   e) Use a flat or Phillips head screwdriver to rotate the latch release lock clockwise to the locked position.
Example shows the Smart-1 525 cover:

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2. Install the appliance into the rack. See the relevant *Installing the Telescoping Rails* booklets for illustrated installation procedures:

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Smart-1 5150 Telescoping Rails
http://supportcontent.checkpoint.com/documentation_download?ID=58650

3. If you have transceivers for your expansion line cards, install them now. See Installing a Transceiver (on page 24). If not, install them later.
4. If AC PSUs are installed in the appliance:
   Connect the power cables from the AC PSUs.

5. If DC PSUs are installed in the appliance:
   Connect the safety ground wires from the DC PSUs.
   Connect the DC power connectors from the DC PSUs.

6. If you opened the hook-and-loop straps, close them to secure the system cables.

7. Make a loop and secure the power cables to the PSUs using the retention strap.
   Example shows AC PSUs:

8. Press the **Power** button on the front panel to turn on the Security Management Appliance.
Installing a Transceiver

If your expansion line card contains removable transceivers, you can install and replace these transceivers.

For a list of supported transceivers, see:

Smart-1 525, Smart-1 5050, and Smart-1 5150 Security Management Appliances

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Expansion line card with fiber optic ports</td>
</tr>
<tr>
<td>2</td>
<td>Transceiver</td>
</tr>
<tr>
<td>3</td>
<td>Transceiver latch</td>
</tr>
</tbody>
</table>

To install a transceiver:

1. Push the transceiver into an expansion line card port until it snaps into position.
2. Turn the transceiver latch lever up to lock into the expansion line card.
3. Connect the fiber optic cable to the transceiver.

To remove a transceiver:

1. Disconnect the fiber optic cables from the transceiver.
2. Pull the latch lever down to release the transceiver.
3. Gently, pull the transceiver out of the expansion line card.