Smart-1 Installing and Removing Storage Devices

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.

Storage Devices

- The supplied 3.5” disks are SATA III hot swappable.
- Hot swappable disks are supplied in hot swappable disk carriers that fit in the disk slots.
- On Smart-1 525, the two disks must be installed in the two left slots (0 and 1 on the diagram below).
- The disk carriers for the Smart-1 525 are not the same as the disk carriers for the Smart-1 5050 and the Smart-1 5150 models. The disk carriers for the Smart-1 5050 and Smart-1 5150 models are the same.
- If you do not immediately install a replacement disk when a disk fails, leave the failed disk in place to ensure proper appliance cooling until the new disk is installed.
RAID Levels and Disk Storage:

<table>
<thead>
<tr>
<th>Default RAID Level</th>
<th>Smart-1 525</th>
<th>Smart-1 5050</th>
<th>Smart-1 5150</th>
</tr>
</thead>
</table>
| 1                  | 10          | 6 for 6, 8, 10 disks
|                    |             | 60 for 12 disks |

<table>
<thead>
<tr>
<th>Supported RAID Levels</th>
<th>Smart-1 525</th>
<th>Smart-1 5050</th>
<th>Smart-1 5150</th>
</tr>
</thead>
</table>
| 1                     | 5, 10       | 5 for 6, 8, 10, 12 disks
|                       |             | 6 for 6, 8, 10, 12 disks
|                       |             | 10 for 8, 12 disks
|                       |             | 50 for 6, 8, 10, 12 disks
|                       |             | 60 for 8, 10, 12 disks |

<table>
<thead>
<tr>
<th>Default Storage</th>
<th>2 x 4TB disks</th>
<th>4 x 4TB disks</th>
<th>6 x 4TB disks</th>
</tr>
</thead>
</table>

| Optional Storage      | N/A           | N/A          | +2, +4, +6 x 4TB disks |

Numbering of the Disk Slots on the Front Panel:

- **Smart-1 525**

  Slot 0: Disk

  Slot 1: Disk

  Slot 2: Empty

  Slot 3: Empty

**Note** - Only Slot 0 and Slot 1 are supported in Smart-1 525. Do not install a disk in Slot 2 or Slot 3. If you do so, your appliance will show this error:

Disk slot occupation mismatch!!

Only use of slot 0 and 1 is supported.

- **Smart-1 5050**

  Slot 0: Disk

  Slot 1: Disk

  Slot 2: Disk

  Slot 3: Disk

**Note** - See the slot numbers below the bottom row of disk slots on the appliance.
• Smart-1 5150

<table>
<thead>
<tr>
<th>Slot 0: Disk</th>
<th>Slot 3: Disk</th>
<th>Slot 6: Optional</th>
<th>Slot 9 Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 1: Disk</td>
<td>Slot 4: Disk</td>
<td>Slot 7: Optional</td>
<td>Slot 10: Optional</td>
</tr>
<tr>
<td>Slot 2: Disk</td>
<td>Slot 5: Disk</td>
<td>Slot 8: Optional</td>
<td>Slot 11: Optional</td>
</tr>
</tbody>
</table>

**Note** - See the slot numbers below the bottom row of disk slots on the appliance.

**Disk Carrier LEDs:**

Each disk carrier has an activity indicator and a status indicator. The indicators provide information about the current status of the disk.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Activity indicator LED. Shows whether the disk is currently in use or not.</td>
</tr>
<tr>
<td>2</td>
<td>Status indicator LED. Shows the power condition of the disk. For LED patterns, see the table below.</td>
</tr>
<tr>
<td>3</td>
<td>Disk.</td>
</tr>
</tbody>
</table>
### Status indicator LED patterns:

<table>
<thead>
<tr>
<th>Status Indicator LED Pattern</th>
<th>Disk Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady green</td>
<td>Disk is online.</td>
</tr>
<tr>
<td>Flashes green twice per second</td>
<td>Identifying disk or preparing disk for removal.</td>
</tr>
<tr>
<td>Blinks green, amber, and then turns off</td>
<td>Predicted disk failure.</td>
</tr>
<tr>
<td>Blinks amber four times per second</td>
<td>Disk failed.</td>
</tr>
<tr>
<td>Blinks green slowly</td>
<td>Disk is rebuilding.</td>
</tr>
<tr>
<td>Blinks green for three seconds, blinks amber for three seconds, then turns off after six seconds</td>
<td>Disk rebuild stopped.</td>
</tr>
<tr>
<td>Off</td>
<td>Disk is ready for insertion or removal.</td>
</tr>
</tbody>
</table>

The status indicator LED remains off until all disks are initialized after the system is turned on. Disks are not ready for insertion or removal during this time.
Procedure

The steps are required to remove and install a disk:

1. Prepare the appliance.
2. Identify the disks (on Smart-1 5050 and Smart-1 5150).
3. Remove the disk carrier with the failed disk.
4. Install the disk carrier with the new disk.
5. Install the front panel bezel.
6. Make sure the new disk is recognized and synchronized.

Preparing the Appliance

1. Make sure to follow the safety instructions (on page 1).
2. If installed, remove the front panel bezel:
   a) At the left end of the bezel, unlock the keylock using the bezel key.
   b) For Smart-1 525 - Lift the release latch next to the keylock.
   c) For Smart-1 5050 and Smart-1 5150 - On the left side of the bezel, press and hold the release button.
   d) Pull the left end of the bezel away from the front panel.
   e) Unhook the right end of the bezel.
   f) Pull the bezel away from the appliance.
   g) At the right end of the bezel, insert the bezel key into the back of the bezel, so it is not lost.
Identifying the Disks on Smart-1 5050 and Smart-1 5150

To identify the disks individually on Smart-1 5050 or Smart-1 5150:

1. Connect to the command line on the appliance.
2. Log in to Expert mode.
3. Send a signal to each disk to make the LED blink on the disk carrier:
   - On Smart-1 5050, there are 4 disks:
     ```bash
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:0\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:1\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:2\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:3\] -aALL
     ```
   - On Smart-1 5150, there are up to 12 disks:
     ```bash
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:0\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:1\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:2\] -aALL
     ... ... ...
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -start -physdrv\[32:11\] -aALL
     ```
   For the location of disks in the corresponding disk slots, see Storage Devices (on page 2).
4. After you identified each disk, send a signal to each disk to stop the LED blinking:
   - On Smart-1 5050, there are 4 disks:
     ```bash
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:0\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:1\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:2\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:3\] -aALL
     ```
   - On Smart-1 5150, there are up to 12 disks:
     ```bash
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:0\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:1\] -aALL
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:2\] -aALL
     ... ... ...
     /opt/MegaRAID/MegaCLI/MegaCLI -v -PdLocate -stop -physdrv\[32:11\] -aALL
Removing the Disk Carrier

1. Press the release button on the front of the hot swappable disk carrier.
2. Open the hot swappable disk carrier handle.
3. While holding the handle, slide the disk carrier out of the disk slot.
4. Wait for at least 15 seconds. The appliance needs time to recognize that you removed a disk.
Installing the Disk Carrier

1. Press the release button on the front of the disk carrier.
2. Open the release handle.
3. Insert the disk carrier into the disk slot.
4. Slide the disk carrier until the disk connects with the backplane.
5. Close the disk carrier release handle to lock the disk carrier in place.
6. Wait for at least 15 seconds. The appliance needs time to recognize that you installed a disk.

Notes:

- When installing a disk carrier, before locking its handle, make sure that the adjacent disk carriers are fully installed. Otherwise, you can damage the shield spring on the adjacent disk carrier that is partially installed.
- The disk carriers for the Smart-1 525 are not the same as the disk carriers for the Smart-1 5050 and the Smart-1 5150 models. The disk carriers for the Smart-1 5050 and the Smart-1 5150 models are the same.
Installing the Front Panel Bezel

1. On the back of the bezel, locate and remove the bezel key.
2. Hook the right end of the bezel onto the appliance.
3. For Smart-1 525 - Fit the left end of the bezel onto the appliance and push the release latch next to the keylock.
4. For Smart-1 5050 and Smart-1 5150 - On the bezel left side, press and hold the release button. Fit the left end of the bezel onto the appliance and release the button.
5. Lock the keylock at the left end of the bezel using the bezel key.

Making Sure the New Disk is Recognized and Synchronized

1. Connect to the command line on the appliance (using SSH or console).
2. Log in to Expert mode.
3. Check that the replacement disk works correctly. Monitor the disk synchronization until it completes.
   Run this command: `raid_diagnostic`
Smart-1 5150 Disk Slot Blanks

Smart-1 5150 lets you install additional disks. This section shows how to remove and install disk slot blanks that cover the empty disk slots.

To remove a disk slot blank on Smart-1 5150:

1. Press the release button to open the release handle on the disk slot blank.
2. While holding the handle, slide the blank panel that covers the disk slot out of the disk slot.

To install a disk slot blank on Smart-1 5150:

Important - If you are not replacing the failed disk immediately, then to maintain proper system cooling, install the blank panel that covers the disk slot in the empty disk slot. You can also remove the disk from the disk carrier and install the empty disk carrier into its disk slot.

1. Insert the disk slot blank into the disk slot.
2. Push the disk slot blank into the disk slot.
   The release button clicks into place.