Smart-1 Appliance Installing and Removing Hard Disk Drives

This document is for Smart-1 225, Smart-1 3050 and Smart-1 3150 models.

⚠️ **Important** - Make sure that you are electromagnetically grounded when doing these procedures. ESD (electrostatic discharge) can damage the appliance.
Removing a Hard Disk Drive

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ejector handle</td>
</tr>
<tr>
<td>2</td>
<td>Hard drive casing</td>
</tr>
</tbody>
</table>

To remove a hard disk drive:
1. On the hard disk drive, push left on the ejector handle to unlock the drive.
   
   **Important** - Do not use the ejector handle to remove the hard disk drive from the appliance. If you pull too hard on the ejector handle, it can break off from the hard drive casing.

2. Hold the hard drive casing and remove the hard disk drive from the appliance.
Installing a Hard Disk Drive

Insert the replacement hard disk drive into the appliance.

To install a hard disk drive:
1. Hold the hard drive casing and insert the replacement hard disk drive into the slot.
2. Push the extraction handle to close it.
   The hard disk drive clicks into position.

Attaching RAID ID Stickers

When replacing or adding hard disk drives, attach the number labels to the disks, as shown in the diagrams. For Smart-1 3050 and Smart-1 3150, the numbers agree with the RAID DiskNumber. You see the DiskNumber when you monitor the RAID status of the disks ("Monitoring RAID Synchronization" on page 7).

Smart-1 225 RAID Stickers

<table>
<thead>
<tr>
<th>Number of hard disk drives</th>
<th>RAID Disk Number</th>
</tr>
</thead>
</table>
| 2                          | DiskNumber 0 is the left disk.  
                              | DiskNumber 1 is the right disk. |

Smart-1 3050 RAID Stickers

<table>
<thead>
<tr>
<th>Number of hard disk drives</th>
<th>RAID Disk Number</th>
</tr>
</thead>
</table>
| 4                          | DiskNumber 1 is the disk furthest to the left.  
                              | DiskNumber 4 is the disk furthest to the right. |
### Smart-1 3150 RAID Stickers

<table>
<thead>
<tr>
<th>Number of hard disk drives</th>
<th>RAID Disk Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (default), 8, 10 or 12</td>
<td>DiskNumber 1 is the top left disk. DiskNumber 12 is the bottom right disk.</td>
</tr>
</tbody>
</table>

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**Adding or Replacing a Hard Disk Drive**

To keep RAID efficiency and prevent degradation, replace or install new disks while the appliance is switched on. Replacing disks when the appliance is off is not supported.

**Note:** Supported RAID modes change according to the number of disks in the appliance.

<table>
<thead>
<tr>
<th>Appliance</th>
<th>Default RAID Mode</th>
<th>Supported RAID modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart-1 225</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Smart-1 3050</td>
<td>10</td>
<td>5, 10</td>
</tr>
</tbody>
</table>
| Smart-1 3150  | • 6 for 6, 8, 10 disks  
• 60 for 12 disks | • 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 |
To add a new hard disk drive:

To learn how to add a new hard drive, see the *Smart-1 225/3050/3150 RAID Administration Guide* (http://supportcontent.checkpoint.com/documentation_download?ID=32479).

To replace a hard disk drive:

1. Log in to the appliance.
2. Enter Expert mode.
3. When the system is up, run `raid_diagnostics` to check the RAID state of the disks.

The example shows that DiskNumber:1 to DiskNumber:6 are in State:Online

4. Remove the hard disk from the slot.
5. The RAID alarm starts. To stop the alarm, run `raidconfig alarmoff`
6. Wait 15 seconds after removing the disk.

Run `raid_diagnostics` to confirm that the disk is not part of the RAID configuration.

The example shows that DiskNumber:6 is in State:MISSING
7. Insert a new hard disk.
   The system automatically adds the new hard disk to the RAID configuration.

8. Run `raid_diagnostics` to confirm.
   The example shows that `DiskNumber:6` is in `State:REBUILD`. The `SyncState` shows the synchronization progress.

9. After the `SyncState` is at 100%, turn on the the RAID alarm by running `raidconfig alarmon`
Monitoring RAID Synchronization

You can monitor the RAID status of the disks to see when the hard disks are synchronized. If you reboot the appliance before the hard disks are synchronized, the synchronization starts again at the next boot.

To monitor the RAID status of the disks - CLI:

1. Log in to the appliance.
2. Enter expert mode.
3. Use one of these tools to monitor the RAID status of the hard disks:
   - Run `raid_diagnostic`
     
     This shows data about the RAID and hard disks, with the percent synchronization done.
     
     The numbered labels on the hard disk drawers of the appliance agree with the `DiskNumber` value in the output of the `raid_diagnostic` command.
     
     This is an example output for Smart-1 225. DiskID 0 is the left hard disk. DiskID 1 is the right hard disk.

     ```
     Expert@cpmodule]#raid_diagnostic
     Raid Status:
     VolumeID:0 RaidLevel: RAID-1
     NumberOfDisks:2 RaidSize:465GB
     State:DEGRADED Flags: ENABLED RESYNC_IN_PROGRESS
     DiskID:0 DiskNumber:1 Vendor:ATA
     ProductID:<HDD Model> Size:465GB State:ONLINE Flags:NONE
     DiskID:1 DiskNumber:2 Vendor:ATA
     ProductID:<HDD Model> Size:465GB State:INITIALIZING Flags:OUT OF SYNC SyncState: 12%
     ```
   - Run `cpstat os -f raidInfo`
     
     This shows almost the same information as the `raid_diagnostic` command in tabular format.
To monitor the RAID status of the disks - Gaia WebUI:

In the Gaia WebUI, go to the Maintenance > RAID Monitoring page.

To monitor the RAID status of the disks - SmartView Monitor:

1. Open SmartView Monitor.
2. Click All Gateways.
3. Select the Smart-1 Gateway.
4. Click System Information.
5. Click RAID Volumes.

For more on RAID, see the Smart-1 225/3050/3150 RAID Administration Guide (http://supportcontent.checkpoint.com/documentation_download?ID=32479).