13000 Appliances Installing and Removing Memory

**Important** - We recommend that only experienced personnel install or remove hardware components. Installing or removing components incorrectly can permanently damage the appliance.

Preparing the Appliance

Before you start to install or remove DIMMs, make sure that:

- You can connect to the WebUI or CLI to shut down the appliance.
- The appliance is in a clean environment and on a level surface.
- You can physically access and open the cover of the appliance.
- You have the Check Point DIMM upgrade kit.

**Important** - To protect the appliance and the memory modules from electrostatic discharge damage, make sure that you are properly grounded before you touch these components. Read the Health and Safety Information in the 13000 Appliances Getting Started Guide before you start to prepare the appliance.

We recommend that you use the grounding wrist strap that is included in the upgrade kit. The grounding plug on the rear of the appliance provides a chassis grounding point.

Upgrade Kit Contents

- Installation guide - 13000 Appliances Installing and Removing Memory
- Expansion DIMMs
- Upgrade kit sticker
- ESD grounding strap (anti-static)
To prepare the appliance:

1. Put on the grounding wrist strap included in the upgrade kit.
2. Attach the grounding wrist strap cord to the ESD socket on the rear of the appliance.
3. Shut down the appliance from the WebUI, CLI, or power switch.
4. Remove the power cords from the appliance.
5. Loosen the appliance cover screws.
6. Remove the top cover from the appliance.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Appliance cover</td>
</tr>
<tr>
<td>2</td>
<td>Appliance cover screws</td>
</tr>
<tr>
<td>3</td>
<td>ESD grounding socket</td>
</tr>
</tbody>
</table>
DIMM Configuration

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cooling fan units</td>
</tr>
<tr>
<td>2</td>
<td>Power supply units</td>
</tr>
<tr>
<td>3</td>
<td>Sockets for DIMMs</td>
</tr>
<tr>
<td>4</td>
<td>Appliance front panel</td>
</tr>
</tbody>
</table>

The 13500 and 13800 appliances have a default 16GB memory configuration with four 4GB DIMMs.
13500 Upgrade Options:

- To upgrade an appliance to 32GB, install an additional four 4GB DIMMs.
- To upgrade an appliance to 48GB, install an additional eight 4GB DIMMs.
- To upgrade an appliance to 64GB, replace the existing 4GB DIMMs with eight 8GB DIMMs.

13800 Upgrade Option:

- To upgrade an appliance to 64GB, replace the existing 4GB DIMMs with eight 8GB DIMMs.

Default 16GB Configuration for 13500 and 13800

*Top View

(front of the appliance is at the bottom of the diagram)
Upgraded 32GB Configuration for 13500
Upgraded 64GB Configuration for 13500/13800

Top View
(front of the appliance is at the bottom of the diagram)

Upgraded 48GB Configuration for 13500

Top View
(front of the appliance is at the bottom of the diagram)
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Memory socket with DIMM installed</td>
</tr>
<tr>
<td></td>
<td>Expansion memory socket</td>
</tr>
</tbody>
</table>

## Installing DIMMs

Install the additional DIMMs in the expansion memory sockets in the appliance.

⚠️ **Important** - There are sharp metal parts in the appliance, like the heat sink fin and bracket, that can cause injury and damage the hardware.

To install DIMMs in the appliance:

1. Find the DIMM slots on the system board.
   
   The basic memory configuration of the appliance ships with four DIMMs installed.

2. Press on the two white retaining clips outward.
3. Align the new DIMM above the socket.

The top of the DIMM is smooth. The bottom edge has two different-length sets of contacts, which connect to the slots on the socket.

**Important** - Only touch the top corners of the DIMM. Pressing on the heat sink or other DIMM components can damage the hardware.

4. Press the new DIMM into the socket until it clicks into position.

The retaining clips move into the lock position as you press the DIMM into position.

5. Do steps 1 - 4 again for the other DIMMs.
**Important** - Make sure that there are no leftover parts inside the appliance.

6. Make sure the DIMM(s) are installed correctly.
   a) Replace the appliance cover without using the appliance cover screws.
   b) Connect the power cords to the appliance.
   c) Turn on the appliance.
   d) Make sure that the LCD screen shows the appliance model.

7. Use the appliance cover screws to secure the cover on the appliance.

**Attaching the Upgrade Sticker**

After you install new DIMMs, attach the upgrade sticker on the appliance.

To attach the upgrade sticker:

1. Make sure that the appliance operates correctly.
2. Attach the upgrade sticker on the appliance cover.
   Make sure that the upgrade sticker does not block the ventilation holes.

**Removing DIMMs**

Make sure that you prepare the appliance before you remove DIMMs. For more information, see Preparing the Appliance (on page 1).
To remove DIMMs from the appliance:

1. Put on the ESD strap and attach the other end to a grounding point.
2. Press the two retaining clips outward.

3. Carefully pull the DIMM up.

**Important** - Only touch the rear corners of the DIMM. Pressing on the heat sink or other DIMM components can damage the hardware.

If necessary, pull one end of the DIMM, then the other, to gradually release it from the contact pins.

**Important** - Make sure that there are no leftover parts inside the appliance.
4. Make sure the DIMMs are installed correctly.
   a) Replace the appliance cover without tightening the appliance cover screws.
   b) Connect the power cords to the appliance.
   c) Turn on the appliance.
   d) Make sure that the LCD screen shows the appliance model.

5. Tighten the appliance cover screws to secure the cover on the appliance.

### Verifying the Memory Configuration

To make sure that the memory configuration is correct:

1. In the CLI, enter Expert mode.
2. Run: `# free -g -o`

#### Example for 13800 with 64GB of memory:

```
[Expert@gw-418dca:0]# free -g -o

  total  used  free  shared  buffers  cached
Mem:     62    0   62    0       0       0
Swap:    18    0   18
```

**Note** - The amount of installed memory is shown in the row named `Mem` under the column named `total`.

For reasons related to available memory address space, the total installed memory shown in the `free` utility is similar but not identical to the actual installed memory.

In the above example, 64GB of RAM are installed on the system. This corresponds to the 62GB of total memory shown in the `free` utility.