Hewlett Packard Enterprise

# Intelligent Provisioning 5.03 User Guide for HPE ProLiant Compute Gen12 Servers

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# Intelligent Provisioning 5.03 User Guide for HPE ProLiant Compute Gen12 Servers

## Abstract

This document details how to access and use the Intelligent Provisioning. It is included in the optimized server support software from the Service Pack for ProLiant (SPP). This document is intended for administrators experienced in using HPE ProLiant Compute Gen12 servers.

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## Notices



## Acknowledgments

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## Intelligent Provisioning

Intelligent Provisioning is a single-server deployment tool that installs the OS. It is embedded in all ProLiant compute modules. Intelligent Provisioning accesses the firmware, drivers, and tools available on the server so you can easily deploy and configure a server.

Intelligent Provisioning supports the following generations and associated versions:

- Gen8: 1.x versions
- Gen9: 2.x versions
- Gen10 and Gen10 Plus: 3.x versions
- Gen11: 4.x versions (excluding 4.4x)
- Gen12: 4.4x version for iLO 6
- Gen12: 5.x version for iLO 7 (AOIP is not supported)

**IMPORTANT**

Intelligent Provisioning version 5.02 onwards supports the following utilities and features on Gen12 servers.

- MR Storage Administrator
- Server Hardware Diagnostic UEFI
- Server Hardware Diagnostic Full Test
- Performance Maintenance
- Rapid setup
- Hardware Validation Tool (HVT)

**NOTE**

- AOIP is not supported on Gen12.servers.

**Subtopics**

Unsupported features

## Unsupported features

- OS installation is not supported on HPE MR408i-p Gen11 controller.
- IML Viewer and Survey Compare functionalities are currently unavailable on HVT.
- Always On Intelligent Provisioning (AOIP) is not supported for Gen12 platform.
- FTP source media does not support installation of Red Hat Enterprise Linux versions 8.7 and later for 8x and 9.1 and later for 9x.
- Active Health System Data
- Firmware update
- iLO Configuration Utility

- BIOS Configuration (RBSU) utility
- Intelligent storage configuration
- One-button secure erase
- System Erase and reset
- SR Storage Administrator

## Accessing Intelligent Provisioning

The following are the different ways of accessing Intelligent Provisioning.

**Subtopics**

Accessing Intelligent Provisioning using the iLO remote console (iRC) or a monitor

## Accessing Intelligent Provisioning using the iLO remote console (iRC) or a monitor

### Procedure

1. Open a browser.
2. Enter `https://<iLO host name or IP address>` to log on to the iLO web interface.
3. On the iLO web interface, click the IRC on the left panel.

   The remote console thumbnail window opens.
4. Click launch.
5. Reboot or power on the server.

   The server reboots and the POST screen appears.
6. Press F10 when prompted, during the server POST.

## Initial Configuration in Intelligent Provisioning

When you launch F10 mode from the POST screen, you are able to use Intelligent Provisioning.

Intelligent Provisioning offers tools to provision and maintain servers.

| Intelligent Provisioning |
| --- |
| Provisioning multiple servers. |
| Configuring multiple RAID arrays. |
| Users who have servers provisioned and deployed. |

**Subtopics**

Using the first time setup wizard
Re-enabling Intelligent Provisioning
Reinstalling Intelligent Provisioning

## Using the first time setup wizard

### About this task

The first time Intelligent Provisioning runs on a server, the First Time Setup wizard guides you through selecting preferences for your system.

The first time you launch Intelligent Provisioning, you get the option to select the Rapid Setup or the Perform Maintenance interface.

## Re-enabling Intelligent Provisioning

### About this task

If the Intelligent Provisioning (F10 Prompt) in your boot menu is disabled, you can re-enable it using the procedure described below.

### Procedure

1. Reboot the server and, when prompted, press F9.
2. From the System Utilities screen, select System Configuration > BIOS/Platform Configuration (RBSU) > Server Security > Intelligent Provisioning (F10 Prompt), and then press Enter.
3. Select Enabled.
4. Click Save & Exit, and then reboot the server.

## Reinstalling Intelligent Provisioning

You can reinstall Intelligent Provisioning instead of using the Firmware Update Utility to ensure you have the latest version. There are two methods for reinstalling Intelligent Provisioning.

**Subtopics**



## Reinstalling using an ISO image

### About this task

### Procedure

1. Download the ISO image file for the latest Intelligent Provisioning recovery media by clicking **Download** from the Intelligent Provisioning website (https://support.hpe.com/connect/s/softwaredetails?language=en_US&softwareId=MTX_0e528dc701d14e04864ba71f27).

**NOTE**

The following servers and Intelligent Provisioning versions are supported:

- Gen8 supports Intelligent Provisioning 1.x.
- Gen9 supports Intelligent Provisioning 2.x.
- Gen10 supports Intelligent Provisioning 3.x.
- Gen10 Plus supports Intelligent Provisioning from 3.x.
- Gen11 supports Intelligent Provisioning from 4.x
- Gen12 SP supports Intelligent Provisioning from 4.41
- Gen12 supports Intelligent Provisioning from 5.x.

2. To download the ISO image file, complete the onscreen instructions.
3. Mount the ISO file in one of the following ways:
   - Using iLO virtual media.

     **NOTE**

     When using iLO virtual media, the installation time depends on the network condition.
   - Burn the Intelligent Provisioning recovery media ISO file to a DVD and place it in the CD/DVD drive of the server.
   - Copy the recovery media to a USB key (See section Using the USB Key Utility for more information).
4. To power up the server, press ON.
5. To display the boot menu, press F11 during server POST.
6. Select CD/DVD to boot from the mounted ISO.
7. To update/reinstall Intelligent Provisioning, select the interactive method. The server continues booting from the Intelligent Provisioning recovery media.
8. Select Reinstall Intelligent Provisioning when the window opens.
9. After the installation completes, reboot the server by pressing F10.

## Reinstalling using an RPM package (Linux)

### Prerequisites

- You have `gptfdisk`, `sdparm`, and `mdadm` for SLES 15.x.
- You have `sdparm` for RHEL 9.x.

### Procedure

1. Download the RPM package file for the latest Intelligent Provisioning recovery RPM package from the SDR website (**https://downloads.linux.hpe.com/SDR/repo/ip/**).
2. Execute the command:

   `rpm -i firmware-intelligentprovisioning-<version>.x86_64.rpm`
3. Execute the command:

```
cd /usr/lib/x86_64-linux-gnu/firmware-intelligentprovisioning-ip-<version>/
```

4. Execute the command:

   ```
   #./hpsetup
   ```

5. Execute the command:

   ```
   #reboot
   ```

## Hardware configuration and OS installation using Intelligent Provisioning

### About this task

Follow the onscreen prompts in the Intelligent Provisioning **Rapid Setup** menu to complete the following tasks:

### Procedure

1. Selecting an install source
2. Configuring OS settings
3. Reviewing your settings

**Subtopics**



## Selecting an install source

### Prerequisites

- Make sure that the OS media images are accessible to the system.

### Procedure

1. Select Rapid Setup on the Intelligent Provisioning Home page.
2. A Proxy Setting Window will appear. Configure the Proxy Setting if needed; otherwise, skip this step.
3. Select an Install Source from the icons. The available options, along with the required information and actions for each, are described in the following table.

| Media type | Required information or action |
| --- | --- |
| File on a USB drive | Allows you to install an OS from a USB drive.<br><br>**NOTE**<br>• This source is not supported in Always On Intelligent Provisioning mode.<br>• You must extract the ISO and copy it to the USB before the installation for RHEL and SLES. |
| DVD-ROM Media | Allows you to install an OS from a DVD-ROM. |
| SMB/CIFS (Windows Share) | Allows you to install an OS from a Windows Share directory. You need the following network connection information, including:<br>• Server Name or IP Address — The server name or IP address of the server that hosts the OS contents. If a server name is specified, a DNS entry is also required.<br>• Share Name—The name of the network share using Server Message Block (SMB) protocol that hosts the OS contents.<br>• Domain Name (optional)—The path to directory or file.<br>• Network Share User—The user name used to access the network share.<br>• Network Share Password (not encrypted) —The password for the user name used to access the network share.<br>• Confirm Password (not encrypted)— Re-enter the password to avoid errors. |
| An anonymous FTP server | Allows you to install an OS through an FTP source. You need the following network connection information, including:<br>• Server Name or IP Address —The FTP server name or IP address of the server that hosts the OS contents. FTP support requires anonymous access to the FTP server and does not support connecting to an FTP server through a proxy.<br><br>**IMPORTANT**<br>When entering an FTP path, remove spaces and punctuation. The FTP server directory structure cannot contain spaces or special characters (including punctuation). |
| Virtual media | Allows you to install the OS from a virtual media source. This option is only supported in Always On Intelligent Provisioning mode. |

4. Go to the Install Summary page if the media is supported automatically.

**IMPORTANT**

If an unsupported media device is selected, you will not be able to continue to the next screen. To resolve the issue, remove the unsupported media device, and ensure that you have a supported install source when prompted.

# Configuring OS settings

## Procedure

1. Enter the required information for the location of the OS files.

   Supported OS families include:

   - Microsoft Windows
   - VMware vSphere Custom Image
   - SUSE Linux Enterprise Server
   - Red Hat Enterprise Linux

   **NOTE**

   - Certain ProLiant servers require an HPE Customized image for a successful VMware ESXi installation. For more information or to download an image, see the Hewlett Packard Enterprise website at **https://www.hpe.com/info/esxidownload**.

2. To proceed, do the following:

   - For Windows Server or Hyper-V Server Installation, it provides the following settings:
     - Operating System

       **TIP**

       Users can select different editions of Windows server for installation.

     - Computer Name
     - Organization Name
     - Owner Name
     - Password
     - Confirm Password
     - OS Language
     - OS Keyboard
     - Time Zone
     - Selection to install Hyper-V role on this system

       **NOTE**

       This function will not show up while installing Hyper-V Server.

     - Selection to Enable Windows Firewall
   - For other Linux systems, it only provides the following settings:
     - Operating System
     - OS Hostname
     - Password
     - Confirm Password

**NOTE**

The default password for Red Hat Enterprise Linux is not set up.

The default password for SUSE Linux Enterprise Server is `password`.

The default password for ESXi 7.x and 8.x is `_Passw0rd_`.

## Converting the MR controller drives to the Unconfigured Good state

### About this task

If the drives connected to the MR controller are in JBOD state, they cannot be used for RAID/array configuration. To create a RAID volume on any of the drives, you must convert them to the Unconfigured Good state. Converting the drives to the Unconfigured Good state is only required for MR controllers.

### Procedure

1. Reboot or power on the server.
2. Press F9 on the server POST screen.

   The System Utilities screen appears.
3. On the System Utilities screen, select System Configuration.
4. To view the state of the drives attached to the MR controller, select MR Controller > Main Menu > Drive Management.

   The list of all the drives with their respective states appears.
5. Select Main Menu > Configuration Management > Make Unconfigured Good.
6. Select the drives to be converted, and click OK.
7. Select Confirm and Yes to confirm the selection.

   A success message appears.
8. Select OK.
9. To ensure that the drive state has been changed to the Unconfigured Good state, perform step 4.
10. To return to the Intelligent Provisioning screen, select > Embedded Applications > Intelligent Provisioning.

## Configuring the controller

### Prerequisites

The MR Controller sets the drives that are not part of any user-created RAID volumes to the JBOD state. If the drives connected to the MR controller are in JBOD state, then they cannot be used for RAID/array configuration.

To create a RAID volume on any of the drives attached to the MR controller, you must first set them to the Unconfigured Good state. For instructions on configuring the drives in the MR controller, see Converting the MR controller drives to the Unconfigured Good state.

### About this task

On this page, you can configure and allocate the disk space.

On the OS installation summary page, Intelligent Provisioning checks the RAID and drive status and performs the following:

- If there is an existing logical drive on the hardware / software RAID, Intelligent Provisioning only displays the information.

- If there is no existing logical drive, then Intelligent Provisioning automatically creates an OS drive and data drive based on the number of drives available.
- You can change the following logical drives:
  1. The recommended RAID configuration that Intelligent Provisioning automatically created.
  2. The array or logical drive you created from the RSS.
- You cannot change any existing array or logical drive on the server.

> **NOTE**
> If more than one RAID controller is installed on the server, Intelligent Provisioning will automatically select the best RAID controller for configuration.

### Procedure

1. Click the Pencil icon on the top-right corner of this page.
2. Click Create Array.
3. Enter the Model number and specify how you want to use it as an Array or Spare.
4. Click Next.
5. Select the Raid Mode, Raid Size (GB), Accelerator, Legacy Boot priority, and Strip size (KB).
6. Click Next to review the settings.
7. You can either click Back to change the settings or click Done to confirm them.
8. Under Create Logical Drive, you can view the drive information.
9. If you want to delete the current allocation, click Clear All Array.

## Selecting an OS drive to set partitions

### About this task

In this page, the user can choose to perform a manual partition, or let the OS perform the automatic partition during installation.

**For automatic partition:**

1. Leave the Use Recommended Partition check box enabled.
2. Open the Select one following drive to configure as OS drive menu. Select the hard drive on which you want to install the OS.

**For manual partition:**

1. Clear the Use Recommended Partition check box.

   The following section displays the chart for the default partition. (The chart varies based on the OS and version.)

   - The following chart displays the default partition for the Windows/Hyper-V operating system.

| Mount Point | Size (MB) | File System Type | Partition Label |
|---|---|---|---|
| Recovery | 500 | NTFS | |
| EFI system partition | 100 | FAT32 | |
| Microsoft reserved partition | 16 | NTFS | |
| Basic data partition | Rest of HDD | NTFS | |

While users can only change the Basic data partition, the rest of the partitions are also crucial for maintenance, and must not be changed.

- The following chart displays the default partition for the SUSE operating system.

| Mount Point | Size (MiB) | File System Type | Partition Label |
|---|---|---|---|
| `Swap` | 2000 | `swap` | |
| `/boot/efi` | 150 | `vfat` | |
| `/` | 40000 | `btrfs` | |
| `/home` | Rest of HDD | `Xfs` | |

While the user can only change the `/home partition`, the rest of the partitions are crucial for maintenance and must not be changed.

- The following chart displays the default partition for the Red Hat Enterprise Linux operating system:

| Mount Point | Size (MiB) | File System Type | Partition Label |
|---|---|---|---|
| `/boot` | 1000 | `Xfs` | |
| `/boot/efi` | 200 | `efi` | |
| `swap` | 1000 | `swap` | |
| `/` | 10000 | `xfs` | |
| `/home` | Rest of HDD | `xfs` | |

While the user can only change the `/home partition`, the rest partitions are crucial for maintenance and must not be changed.

**NOTE**

a. VMware does not allow manual partition.

b. When Boot mode is switched to Legacy mode, manual partition is disabled for Windows or Hyper-V Server.

2. To change the partition scheme for Windows or Hyper-V systems:

a. Click the cell that you want to change.

b. Adjust the Percentage or Size for this partition, provide the Partition Label if necessary, then click the Check icon.

An editable row appears at the top of the table.

c. Enter the data in the following columns:

- Mount Point
- Size
- Percentage
- File System Type

> **NOTE**
>
> For Windows or Hyper-V, the user can only use **NTFS**.

- Partition Label

Then, click the Check icon to complete.

d. Repeat steps c and d to create more partitions.

To change the partition scheme for SUSE/Red Hat system:

a. Click the `/home`, and click the cell you want to edit.

b. Adjust the Percentage or Size for this partition, provide the Partition Label if necessary, then click the Save Changes button.

c. You will see an editable row at the top of the table.

d. Enter the data in the following fields:

- Mount Point
- Size
- File System Type: For SUSE/Red Hat, you have the following choices:
  - `btrfs`
  - `ext2`
  - `ext3`
  - `ext4`
  - `vfat`
  - `xfs`
  - `swap`
- Partition Label

  Then click the Create button to complete.

e. Repeat step c and d to create more partitions.

## Reviewing your settings

### About this task

**CAUTION**

Continuing past this screen resets the drives to a newly installed state and installs the selected OS. Any existing information on the server is erased. This action does not affect the first-time setup, because there is no data present on the server.

### Procedure

1. Review and confirm your deployment settings.
2. Click Back to navigate to the Summary and Install button on the top-right corner.
3. Review the setting from the Summary and Install menu.
4. Click the Accept Configure button on the top-right corner to process the OS installation.

## Checking installation parameters

During the installation and configuration process, consider the following:

- An EULA might be displayed.
- If you attempt to deploy an OS on a server with no installed drives, it will show an error message stating `Rapid Setup did not find any supported disk installed on this system`, and the user will not be able to proceed.
- For Windows installations, messages about an untested Windows version and `hpkeyclick` messages might be displayed while the drivers are installed. This is expected behavior. No action is required.

## Server support and special characters

- HPE Synergy Servers do not support OS installations with Intelligent Provisioning. These servers do support the maintenance features described in Maintenance Operations, except deploying the OS installations.
- You can only use special characters in passwords. Do not use special characters in any other data fields. Special characters, punctuation, and spaces are not supported in any path-name.

## Source media types and installation methods supported for each OS

Each Rapid Setup screen provides a guided method for configuring the server, installing an OS, and updating the system software.

**IMPORTANT**

- Intelligent Provisioning only supports original, licensed vendor media, or Hewlett Packard Enterprise branded versions. Demo or developer versions of the OS, or media that has been modified to slipstream custom software or service packs, are not supported. The installation process may fail to correctly identify such versions of the OS.
- Manual install is not supported in Intelligent Provisioning.

For more information about source media and installation methods supported by each OS, see the Intelligent Provisioning Release Notes.

# Creating RAID Volume on Virtual Raid on CPU

Steps for creating a RAID volume on Virtual Raid on CPU (VROC):

1. Enabling the VROC
2. Creating the VROC RAID volume

**Subtopics**



# Enabling the VROC

## Procedure

1. Restart or Power on the server.
2. Press F9 on the server POST screen.

   The System Utilities screen appears.
3. On the System Utilities screen, select System Configuration.
4. Select BIOS/Platform Configuration (RBSU).
5. Select Storage Options and click SATA Controller Options.
6. In Embedded SATA Configuration, select the Intel VROC SATA Support.
7. Reboot the server.

# Creating the VROC RAID volume

## Procedure

1. Press F9 on the server POST screen.

   The System Utilities screen appears.
2. On the System Utilities screen, select System Configuration.
3. Select the Intel VROC SATA controller.

   The controller where you want to create the RAID.
4. Select Create RAID Volume.
5. Select the RAID level, disk and click Create Volume.

   The RAID Volume is created.

# About RAID arrays

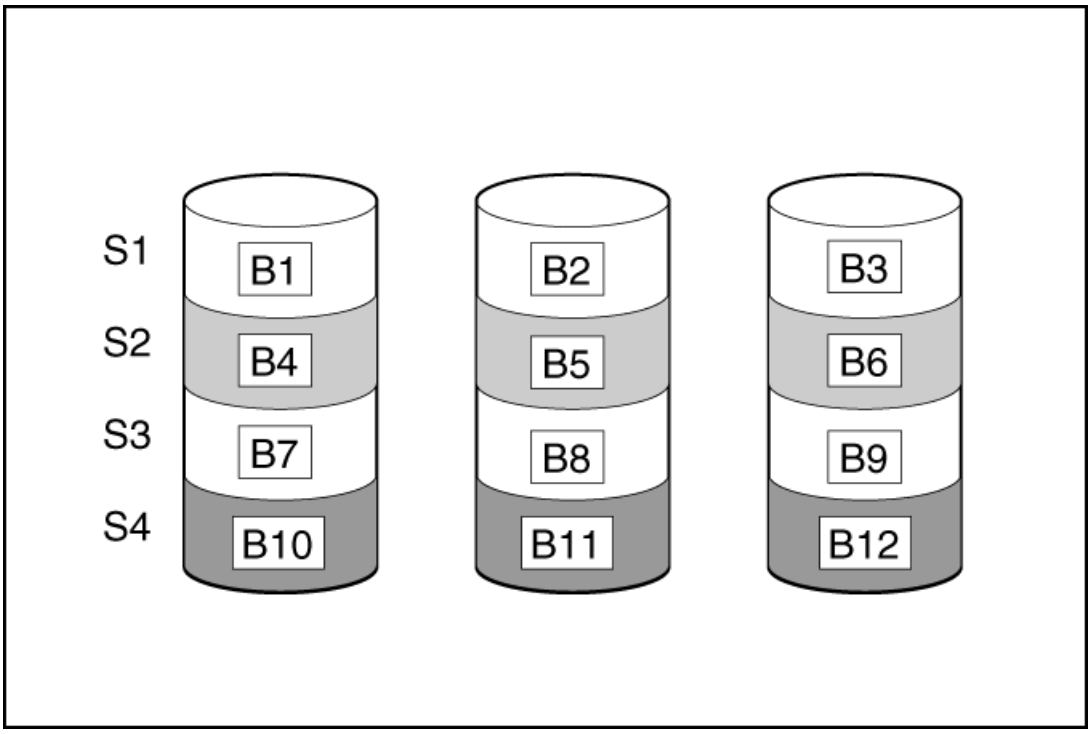
RAID arrays can help increase system performance and reduce the risk of drive failure. You can create RAID arrays with drives of different specifications, but performance will be based on the smallest drive or lowest speed. For example, if you create an array with a 1 TB drive and a 2 TB drive, then the array can store a maximum 1 TB of data. The extra storage on the larger drive is not available until you reformat the drive.

**Subtopics**



## RAID 0

A RAID 0 configuration provides data striping, but there is no protection against data loss if a drive fails. However, it is useful for rapid storage of large amounts of noncritical data (for printing or image editing, for example) or when cost is the most important consideration. The minimum number of drives required is one.



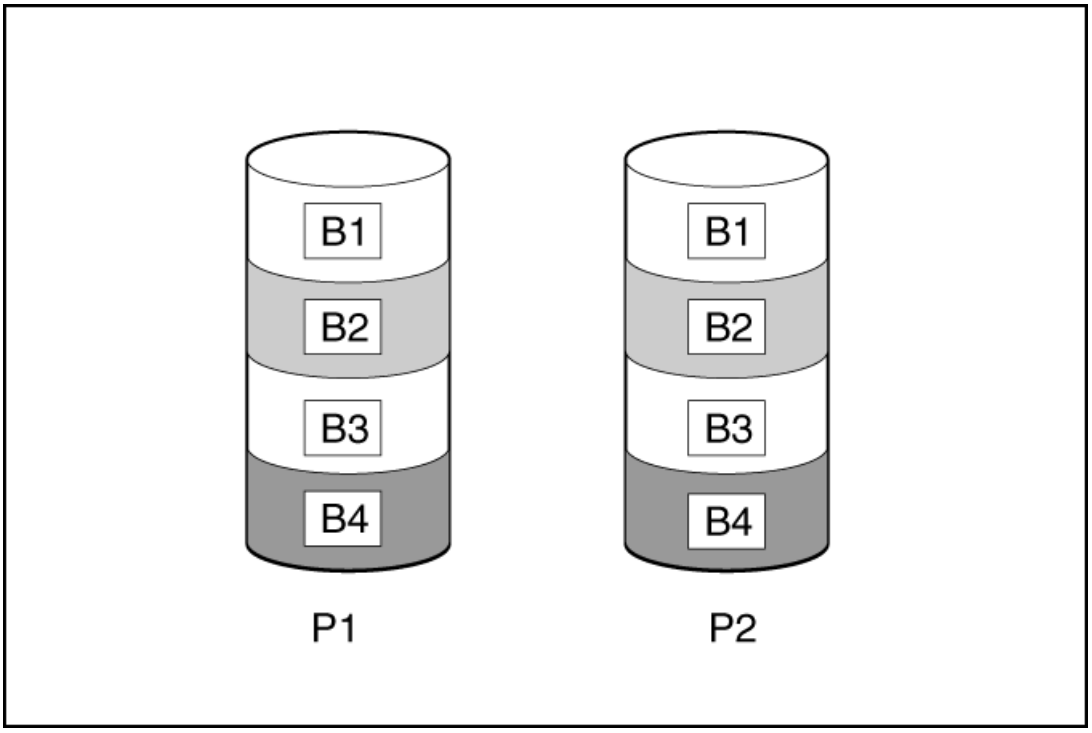

This method has the following benefits:

- It is useful when performance and low cost are more important than data protection.
- It has the highest write performance of all RAID methods.
- It has the lowest cost per unit of stored data of all RAID methods.
- It uses the entire drive capacity to store data (none allocated for fault tolerance).

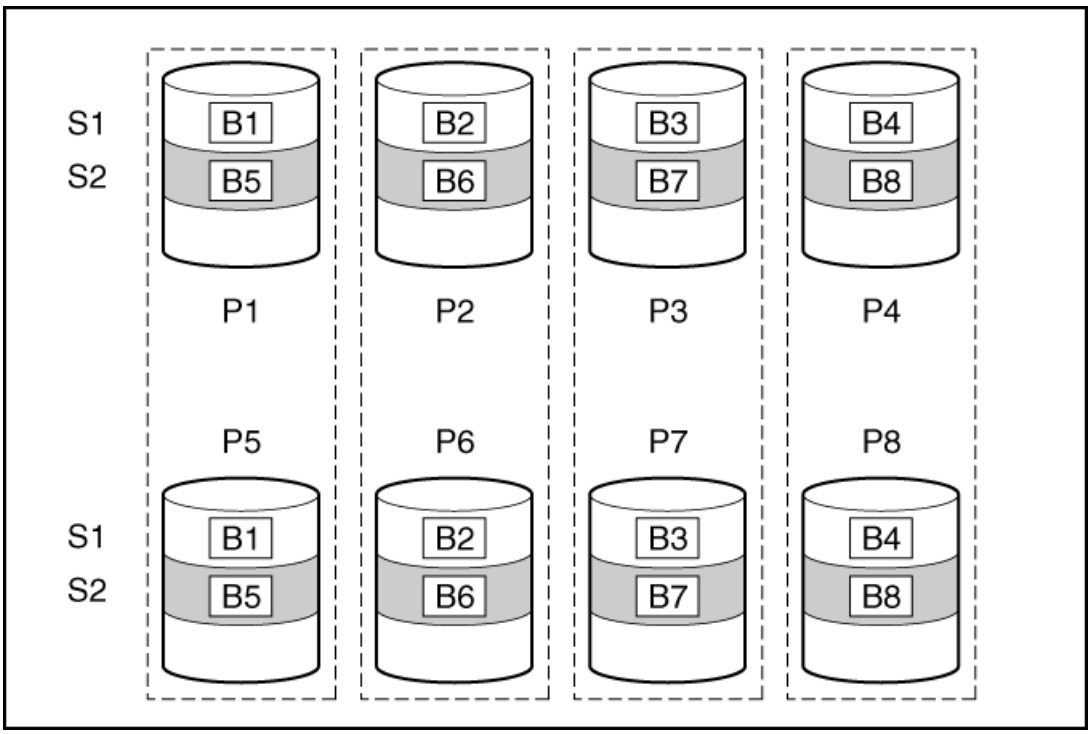
## RAID 1 and RAID 1+0 (RAID 10)

In RAID 1 and RAID 1+0 (RAID 10) configurations, data is duplicated to a second drive. The usable capacity is C x (n / 2) where C is the drive capacity with n drives in the array. A minimum of two drives is required.

When the array contains only two physical drives, the fault-tolerance method is known as RAID 1.




When the array has more than two physical drives, drives are mirrored in pairs, and the fault-tolerance method is known as RAID 1+0 or RAID 10. If a physical drive fails, the remaining drive in the mirrored pair can still provide all the necessary data. Several drives in the array can fail without incurring data loss, as long as no two failed drives belong to the same mirrored pair. The total drive count must increment by 2 drives. A minimum of four drives is required.



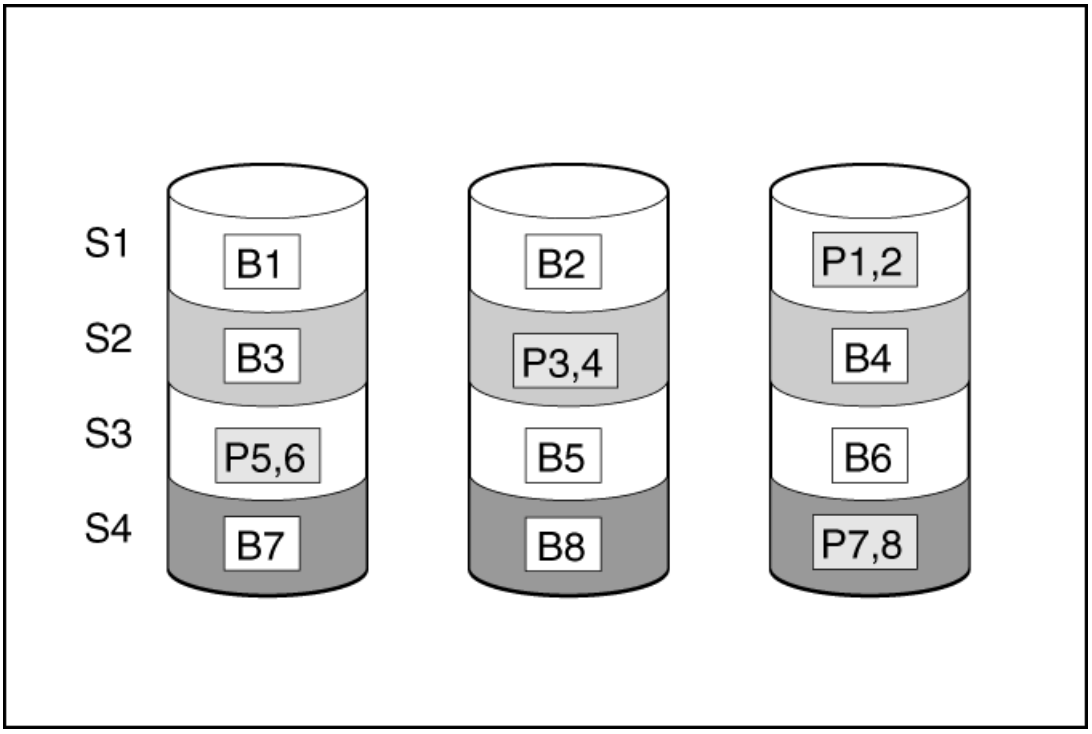

This method has the following benefits:

- It is useful when high performance and data protection are more important than usable capacity.
- This method offers the highest write performance of any fault-tolerant configuration.
- No data is lost when a drive fails, as the failed drive is not mirrored to another failed drive.

- Up to half of the physical drives in the array can fail.

## RAID 5

RAID 5 protects data using parity (denoted by Px, y in the figure). The system calculates parity data by summing (XOR) the data from each drive within the stripe. The strips of parity data are distributed evenly across every physical drive within the logical drive. When a physical drive fails, its data can be recovered from the remaining parity data and user data on the other drives in the array. The usable capacity is C x (n - 1) where C is the drive capacity with n drives in the array. A minimum of three drives is required.

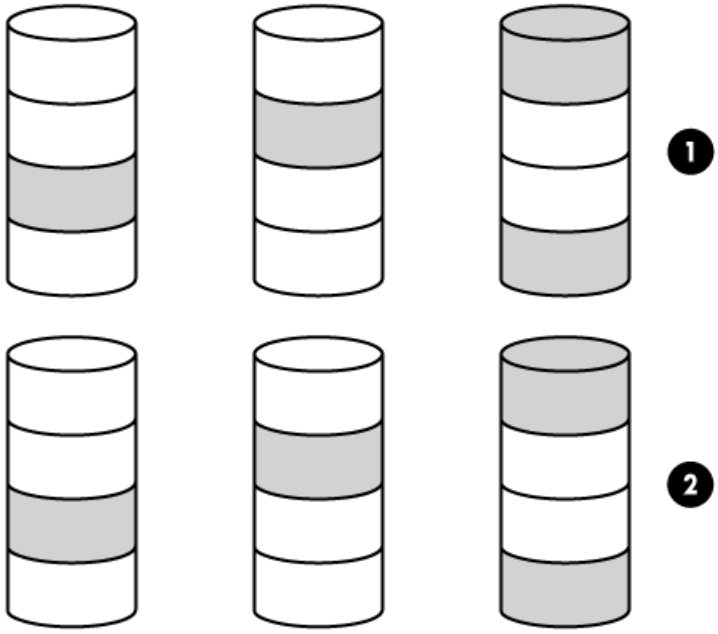



This method has the following benefits:

- It is useful when usable capacity, write performance, and data protection are equally important.
- It has the highest usable capacity of any fault-tolerant configuration.
- Data is not lost if one physical drive fails.

## RAID 50

RAID 50 is a nested RAID method in which the constituent drives are organized into several identical RAID 5 logical drive sets (parity groups). The smallest possible RAID 50 configuration has six drives organized into two parity groups of three drives each.




For any given number of drives, data loss is least likely to occur when the drives are arranged into the configuration that has the largest possible number of parity groups. For example, four parity groups of three drives are more secure than three parity groups of four drives. However, less data can be stored on the array with the larger number of parity groups.

All data is lost if a second drive fails in the same parity group before data from the first failed drive has finished rebuilding. A greater percentage of array capacity is used to store redundant or parity data than with non-nested RAID methods (RAID 5, for example). A minimum of six drives is required.

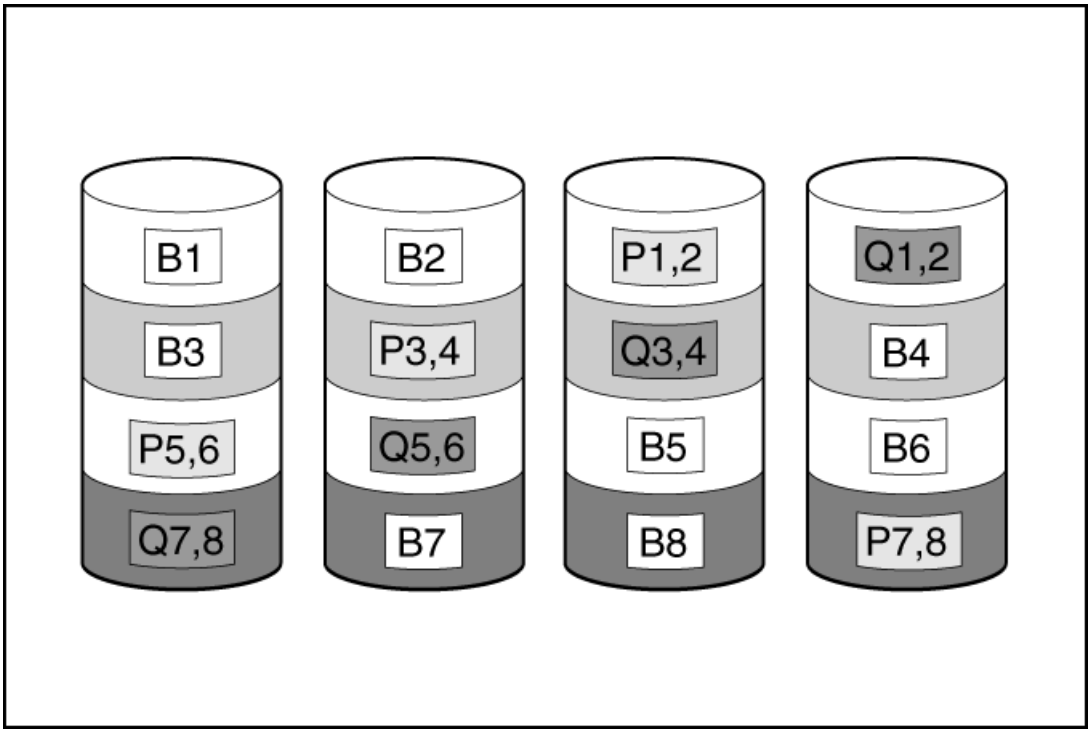
This method has the following benefits:

- Higher performance than for RAID 5, especially during writes.
- Better fault tolerance than either RAID 0 or RAID 5.
- Up to n physical drives can fail (where n is the number of parity groups) without loss of data, as long as the failed drives are in different parity groups.

## RAID 6

RAID 6 protects data using double parity. With RAID 6, two different sets of parity data are used (denoted by Px,y and Qx,y in the figure), allowing data to still be preserved if two drives fail. Each set of parity data uses a capacity equivalent to that of one of the constituent drives. The usable capacity is C x (n - 2) where C is the drive capacity with n drives in the array.

A minimum of 4 drives is required.




This method is most useful when data loss is unacceptable but cost is also an important factor. The probability of data loss is less when an array is configured with a RAID 6 Advanced Data Guarding (ADG) setup than with a RAID 5 configuration.

This method has the following benefits:

- It is useful when data protection and usable capacity are more important than write performance.
- It allows any two drives to fail without loss of data.

## RAID 60

RAID 60 is a nested RAID method in which the constituent drives are organized into several identical RAID 6 logical drive sets (parity groups). The smallest possible RAID 60 configuration has eight drives organized into two parity groups of four drives each.

For any given number of hard drives, data loss is least likely to occur when the drives are arranged into the configuration that has the largest possible number of parity groups. For example, five parity groups of four drives are more secure than four parity groups of five drives. However, less data can be stored on the array with the larger number of parity groups.

The number of physical drives must be exactly divisible by the number of parity groups. Therefore, the number of parity groups that you can specify is restricted by the number of physical drives. The maximum number of parity groups possible for a particular number of physical drives is the total number of drives divided by the minimum number of drives necessary for that RAID level (3 for RAID 50, 4 for RAID 60).

A minimum of 8 drives is required.

All data is lost if a third drive in a parity group fails before one of the other failed drives in the parity group has finished rebuilding. A greater percentage of array capacity is used to store redundant or parity data than with non-nested RAID methods.

This method has the following benefits:

- Higher performance than for RAID 6, especially during writes.
- Better fault tolerance than RAID 0, 5, 50, or 6.
- Up to 2n physical drives can fail (where n is the number of parity groups) without loss of data, as long as no more than two failed drives are in the same parity group.

## Dedicated spare

The dedicated spare drive activates any time a drive within the array fails.

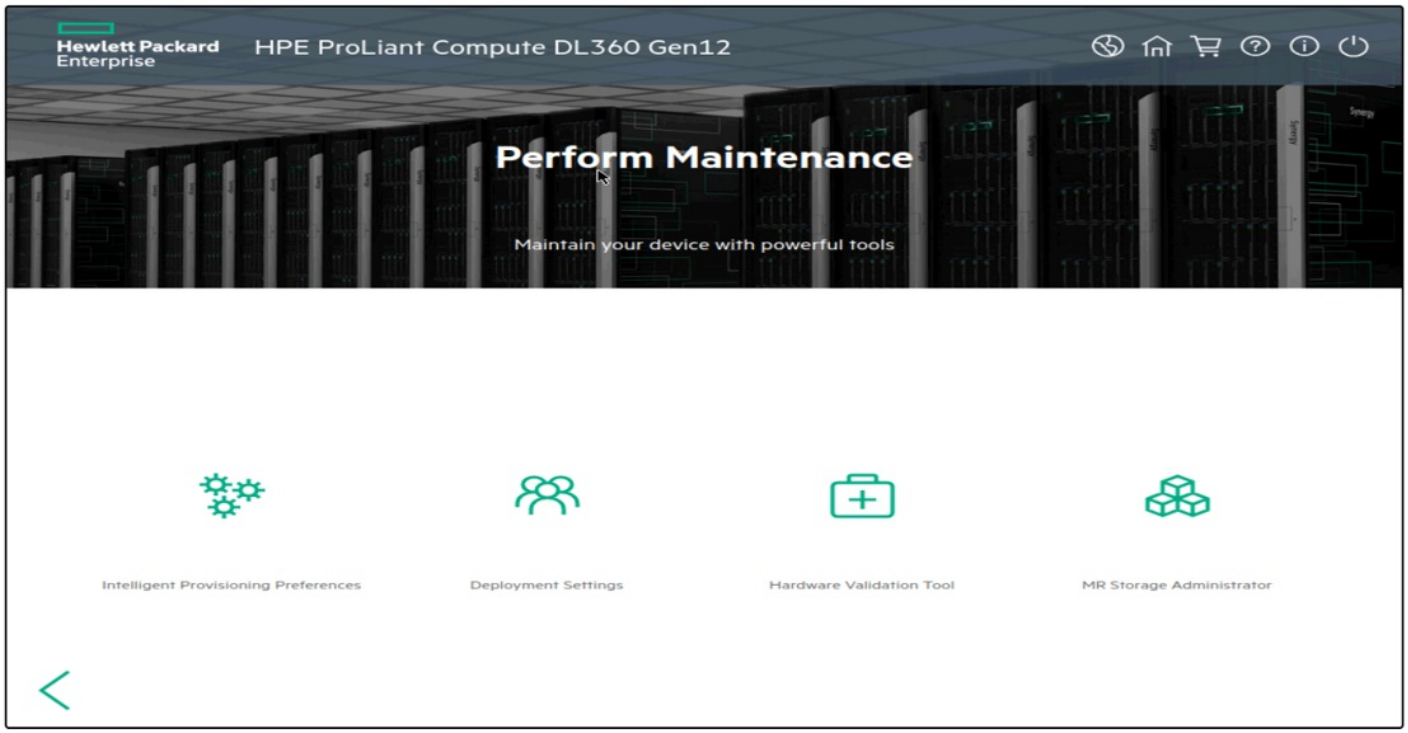
## Failure spare activation

Failure spare activation mode activates a spare drive when a member drive within an array fails to use fault tolerance methods to regenerate the data.

Assigning one or more online spare drives to an array enables you to postpone replacement of faulty drives.

## Maintenance Operations

Once you access the Intelligent Provisioning Home screen, you can click Perform Maintenance to view the available options.




**Subtopics**

- Setting Intelligent Provisioning preferences
- Using deployment settings
- About Hardware Validation Tool
- Using the hardware validation tool
- Creating a RAID configuration with MR Storage Administrator (MRSA)

**More information**

- Accessing Intelligent Provisioning

## Setting Intelligent Provisioning preferences

### About this task

Use Intelligent Provisioning Preferences to modify the basic preferences, including the interface, keyboard languages, network and share setting, system date and time, and software update settings. In addition, the EULA is accessible from this screen.

### Procedure

1. On the Intelligent Provisioning home screen, click Perform Maintenance.
2. Select Intelligent Provisioning Preferences from the maintenance options.
3. In the Basic Setting tab, select settings for the following options:
   - Interface Language
   - Keyboard Language
   - Boot BIOS Mode - This is always UEFI Optimized.
   - System Software Update—Select a source for firmware update.
     - Update from HPE Website
     - Update from Custom URL
   - Time Zone
   - System Date
   - System Time
   - Enable Feedback
   - Accept EULA, or click Read EULA

   In the Network Settings tab, enter the following details:
   - Choose network interface for updates and installs
   - Use Proxy, and provide proxy details.
   - DHCP Auto-Configuration, IPv4/IPv6 switch and provide the configuration details.
4. Click Submit.

### Results

When Intelligent Provisioning is run for the first time on a server, it is the first screen that is displayed within Intelligent Provisioning.

#### More information

- Maintenance Operations

## Using deployment settings

Information on how to:

- Create a deployment profile/package
- Configure a server using an existing deployment profile

#### Subtopics

Creating a deployment using Intelligent Provisioning
Using a deployment to configure a single server

**More information**

- Maintenance Operations

## Creating a deployment using Intelligent Provisioning

### About this task

The Intelligent Provisioning Deployment Settings page enables you to create deployments or server configuration packages.
You can deploy the packages using a USB key or iLO Scripting to one or more ProLiant servers or HPE Synergy compute modules. Using Deployment Settings is an alternative to using the Scripting Toolkit or iLO RESTful Interface Tool.

### Procedure

1. On the Intelligent Provisioning home screen, click Perform Maintenance.
2. Select Deployment Settings from the maintenance options.
3. On the Deployment Settings screen, do one of the following:
   a. To create a new customized profile, click Create New Deployment, and navigate the deployment settings screens to complete the settings in the following steps.
   b. To edit an existing customized profile, click  (Edit).
4. Enter a Deployment Name—Enter a name for this deployment package. Do not include spaces or special characters.

   **NOTE**

   Steps 5–10 below, although optional make your deployment profile more precise, resulting in a sound server configuration.

5. (Optional) Enter User Notes and Captured From details.
6. (Optional) Enter an Operating System:
   a. Click Create button.
   b. Select the Install source.
   c. Select the Install media or OS type.
   d. Configure OS settings.

      For example, in a VMware OS and a virtual media source, you could enter a URL of the format: **http://VMware-ESXi-8.0.3-24674464-HPE-803.0.0.12.2.0.2-sep2025.iso**
   e. Select Use Automation Controller Setting or not.
   f. Configure the partition table.
   g. Click Save button if everything is correct.
7. (Optional) Enter the ROM Settings
8. (Optional) Enter the Storage Controller Settings
9. (Optional) Enter Intelligent Provisioning Preferences
10. (Optional) Enter Hardware Validation Tool— Select Hardware Validation Tool options for each deployment.
11. Click Save to save the profile.

**More information**

- Accessing Intelligent Provisioning

## Using a deployment to configure a single server

### Prerequisites

You have a deployment (settings profile or package) available with you on your current server or on a server over the network, or on a USB drive.

### About this task

**IMPORTANT**

Do not interrupt the configuration process.

### Procedure

Do one of the following:

1. To use the deployment you created on the same server, click (Deploy).
2. To use a previously created deployment that does not exist on this server:

   Select Deployment Settings > Import.

   - From Network Share enter:
     - Server Name or IP Address —Server name or IP address of the server that hosts the OS contents. If a server name is specified, a DNS entry is also required.
     - Share Name—The name of the network share using Server Message Block (SMB) protocol that hosts the OS contents.
     - Domain Name—Name of the domain that hosts the network share.
     - Network Share User—User name used to access the network share.
     - Network Share Password (not encrypted) and Confirm Password —Password for the user name used to access the network share.
   - From USB Drive
     a. Insert the USB key containing the deployment.
     b. Select the deployment from USB and click Next.
     c. Click Deploy.

     **NOTE**

     The newly imported deployment is added with the prefix "New Import".

## About Hardware Validation Tool

The Hardware Validation Tool performs discovery on the components in your system and then displays the results. You can:

- Test the system
- View test results
- Export test results

## Using the hardware validation tool

### Procedure

1. Click Hardware Validation Tool.

   The tool performs hardware discovery. This discovery process might take several minutes.

2. After the discovery finishes, the tool displays the test results.
3. Select one of the following tabs:

   - Survey: Displays an overview of the hardware in the system.
   - Test: Tests the hardware and displays the test results. It also, identifies the time taken to run the tests by enabling the elapsed time and sets the test loop.
   - Export: Exports test results. If there is no network connection, save the files to a USB key.
   - Compare: Compares the tests to previous test results.
   - Integrated Management Log (IML): Displays the log list.

**NOTE**

Use the Hardware Validation Tool only for limited loop testing. Using it for endless loop testing will fill up the log space. If there are no failures reported at the end of the 2 to 3 testing loops, then the system is working as expected.

## Creating a RAID configuration with MR Storage Administrator (MRSA)

The following section introduces the concept of MRSA.

**Subtopics**



## Using MRSA

MRSA provides high-availability configuration, management, and diagnostic capabilities for all MegaRAID products

## MRSA features

MRSA is a browser-based utility that runs in either offline or online mode. MRSA:

- Supports online array capacity expansion, logical drive extension, assignment of online spares, and RAID or stripe size migration.

- Suggests the optimum configuration for an unconfigured system.
- Provides different modes of operation, enabling faster configuration or greater control over the configuration options.
- Displays on-screen tips for individual steps of a configuration procedure.
- Monitors the activities and performance of the server and all the controller cards attached to it.
- Displays information related to drive failures, device failures, and so on
- GUI helps you to view, create, and manage storage configurations.

## Accessing MRSA

**Launching MRSA:**

- MRSA can be launched from F10
  Press F10 and select MR Storage Administrator from the menu.

  The MR Storage Administrator window appears.
- **Download Support Logs from the MR controllers:**
  1. Select Download Support Log inside the MRSA utility.
  2. Select Confirm and then click Yes Download.

     A window will open.
  3. Select Save file, and then click Ok.

     You will be directed to the media folder, where connected USB drives are listed. The volume label is used to identify the drive.
  4. Select the drive and click Save.

  **NOTE**

  VFAT, EXT4, and HPFS/NTFS/exFAT work as file systems for the USB key.

## Controller dashboard

You can perform controller-related actions and view all the information pertaining to a controller from the Controller Dashboard.

The following are the items in the controller dashboard.

1. **Controller Summary**: Displays the name of the MegaRAID controller card and basic controller properties. The basic controller properties include the controller serial number, vendor ID, SAS address, driver version, device ID, and the host interface.
2. **Controller Views**: Displays all the configured arrays, logical drives, and drives associated with the selected controller card. It also displays the hardware, such as enclosures and backplanes, associated with the controller.
3. **Controller Actions**: Lets you perform the following actions:
   - Create a configuration
   - Clear a configuration
   - Update the controller firmware
   - Import or clear foreign configurations
   - View premium features

- View the event log

## Controller configurations

You can use the MR Storage Administrator application to create and modify storage configurations on systems with Hewlett Packard Enterprise controllers.

**Two types of configurations can be created:**

- **Simple Configuration:** The simple configuration option is the quickest and easiest way to create a storage configuration. When you select simple configuration mode, the system creates the best configuration possible using the available drives.
  **To create a simple configuration.**
  1. Select Configure > Simple Configuration from the Server Dashboard or the Controller Dashboard.

     The Simple Configuration page opens.
- **Advanced Configuration:** The advanced configuration option provides an easy way to create a storage configuration. It gives you greater flexibility than simple configuration because you can select the drives and the logical drive parameters when you create a logical drive. In addition, an advanced configuration procedure to create spanned arrays.

**To create an advanced configuration.**

1. Select Configure > Advanced Configuration from the Server Dashboard or the Controller Dashboard.

   The Advanced Configuration page opens.

For more information, see the **HPE MR Storage Administrator User Guide** posted at **https://support.hpe.com/hpesc/public/docDisplay?docId=a00048286en_us**

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**Subtopics**



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## Using the USB Key utility

The USB Key Utility is a Windows application that copies Intelligent Provisioning or SPP contents, and other CD or DVD images to a USB flash drive. After copying data to the USB flash drive, you can run Intelligent Provisioning or SPP from the USB flash drive instead of from a CD or DVD. This process is beneficial in headless-server operations. It also simplifies the storage, transportation, and usage of the contents by allowing you to retrieve their images from the web and customize them as needed.

Installing the utility adds a shortcut in System Tools in the Programs Start menu folder.

**Features**

The USB Key Utility supports:

- ISO files larger than 1 GB.
- Quick Formatting on USB flash drives.
- USB flash drives up to a maximum of 32 GB. USB flash drives larger than 32 GB are not displayed in the utility.

**Subtopics**



## Troubleshooting

**Subtopics**

# Showing `Unable to install without the usb_storage driver loaded, Aborting`, when upgrading or installing with rpm

## Symptom

When running the command `./hpsetup`, an error message `Unable to install without the usb_storage driver loaded, Aborting` appears on the console.

## Cause

The usb_storage module is disabled.

## Action

Enable the USB storage drive by using `modprobe usb-storage`.

# Websites

## General websites

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

**https://www.hpe.com/storage/spock**

Technical papers and analyst reports

**https://www.hpe.com/us/en/resource-library**

For additional websites, see Support and other resources.

# Support and other resources

**Subtopics**



# Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  **https://www.hpe.com/info/assistance**

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

https://www.hpe.com/support/hpesc

### Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

## HPE product registration

To gain the full benefits of the Hewlett Packard Enterprise Support Center and your purchased support services, add your contracts and products to your account on the HPESC.

- When you add your contracts and products, you receive enhanced personalization, workspace alerts, insights through the dashboards, and easier management of your environment.
- You will also receive recommendations and tailored product knowledge to self-solve any issues, as well as streamlined case creation for faster time to resolution when you must create a case.

To learn how to add your contracts and products, see https://www.hpe.com/info/add-products-contracts.

## Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

  Hewlett Packard Enterprise Support Center

  https://www.hpe.com/support/hpesc

  My HPE Software Center

  https://www.hpe.com/software/hpesoftwarecenter
- To subscribe to eNewsletters and alerts:

  https://www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:

  https://www.hpe.com/support/AccessToSupportMaterials

**IMPORTANT**

Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Account set up with relevant entitlements.

## Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which initiates a fast and accurate resolution based on the service level of your product. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

HPE Get Connected

**https://www.hpe.com/services/getconnected**

HPE Tech Care Service

**https://www.hpe.com/services/techcare**

HPE Complete Care Service

**https://www.hpe.com/services/completecare**

## Warranty information

To view the warranty information for your product, see the **warranty check tool**.

## Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

**https://www.hpe.com/support/Safety-Compliance-EnterpriseProducts**

### Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

**https://www.hpe.com/info/reach**

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

**https://www.hpe.com/info/ecodata**

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

**https://www.hpe.com/info/environment**

## Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, use the Feedback button and icons (at the bottom of an opened document) on the Hewlett Packard Enterprise Support Center portal (**https://www.hpe.com/support/hpesc**) to send any errors, suggestions, or comments. This process captures all document information.