Abstract

This guide provides information about purchasing, registering, and activating HPE iLO licenses.
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What is HPE iLO?

HPE iLO allows a system administrator to monitor and manage servers remotely.

- Integrated Lights-Out (iLO) is an embedded technology that ships in HPE Servers.
- It is the core foundation for the intelligence of the HPE Servers.

- iLO is key to make the server operational and boot.
- It helps simplify server set up, enable health monitoring as well as power and thermal control.
- These capabilities are included with the Server (iLO Standard).
- No installation needed and minimal setup is required.

- Features that enhance server admin productivity are licensed.
- Customers can choose from:
  - iLO Advanced Premium Security Edition
  - iLO Advanced
  - iLO Advanced for Blades
  - iLO Essentials
  - iLO Scale Out

It addresses the server administrator's concerns and needs.

"Server setup takes too long."

"I need more performance and streamlined operations at scale."

"I need automation that integrates into my existing datacenter tools."

"Security threats are getting smarter. I need to protect my business."

Deploy Faster
Simplify Operations
Increase Productivity
End to end Security
What's new for iLO licensing?

- New iLO Advanced Premium Security Edition license
- 2D security bar code added to all iLO License Entitlement Certificates
- Recovering a lost license key
- FREE factory-installed iLO Licenses
- iLO license key now printing on the License Entitlement Certificate
- iLO license key now printing on the electronic email
- New packaging for physical/paper licensing

IMPORTANT NOTICE

As of June 2017, the #0D1 option (factory installed), which provided customers the ability to have the iLO license installed in the factory, is no longer available with iLO electronic SKUs. However, HPE will still provide the #0D1 option (factory installed) with a physical license.

If you currently use the #0D1 option with iLO electronic SKUs, use the equivalent physical SKU along with the #0D1 option to get the factory-installed facility.

<table>
<thead>
<tr>
<th>Retired product number</th>
<th>New product number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E6U59ABE 0D1</td>
<td>512485-B21 #0D1</td>
<td>HPE iLO Advanced with 1-year 24x7 Technical Support Single-Server License</td>
</tr>
<tr>
<td>E6U60ABE 0D1</td>
<td>512488-B21 #0D1</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Single-Server License</td>
</tr>
<tr>
<td>E6U61ABE 0D1</td>
<td>BD774A #0D1</td>
<td>HPE iLO Essentials with 3-year 24x7 Technical Support Single-Server License</td>
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Table Continued
<table>
<thead>
<tr>
<th>Retired product number</th>
<th>New product number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E6U62ABE 0D1</td>
<td>BD775A #0D1</td>
<td>HPE iLO Essentials with 1-year 24x7 Technical Support Single-Server License</td>
</tr>
<tr>
<td>E6U63ABE 0D1</td>
<td>BD502A #0D1</td>
<td>HPE iLO Advanced for BladeSystem with 3-year 24x7 Technical Support</td>
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<tr>
<td>E6U64ABE 0D1</td>
<td>BD505A #0D1</td>
<td>HPE iLO Advanced with 3-year 24x7 Technical Support Single-Server License</td>
</tr>
</tbody>
</table>

For more information, see [HPE iLO license product numbers (SKUs)](#).

**HPE Edgeline support added**

HPE iLO licensing support is available for HPE Edgeline, including Moonshot cartridges with iLO used in an HPE Edgeline chassis.

**Security**

HPE iLO Advanced Premium Security Edition builds on the world's most secure industry standard servers by providing premium security capabilities that protect your Hewlett Packard Enterprise servers from attacks, detect intrusions, and allow you to recover your firmware securely. Available on all HPE ProLiant Gen10 Servers with iLO 5.

In addition to all the great iLO Advanced features you will receive, HPE is also introducing our new security features, such as:

- **Commercial National Security Algorithms (CNSA Mode)**: Highest level of security in the industry
- **Runtime Firmware Verification**: Periodic scanning of firmware to verify integrity
- **Automatic Secure Recovery**: Recover to authentic firmware immediately in the unlikely event of compromised firmware
- **Secure Erase of User Data**: Sanitization of flash parts to ensure a pristine server configuration for redeployment or initial production

**IMPORTANT:**

iLO Advanced Premium Security Edition is only available with iLO 5 and Gen10 servers.
**iLO Standard**
- Single sign-on
- Common criteria, FIPS validation
- Remote firmware update
- Agentless management

**iLO Advanced**
- Secure NICs
- TPM
- TAA SKUs
- Chassis Intrusion Detection
- SA cards
- Racks with biometric locks

**iLO Advanced Premium Security Edition**
- Secure erase of NAND/User data
- Runtime Firmware Verification
- Secure Start w/ Recovery (Automatic)

**HW Options**
- Secure NICs
- TPM
- TAA SKUs
- Chassis Intrusion Detection
- SA cards
- Racks with biometric locks

**Key features**
- Kerberos and CAC 2 Factor Authentication
- Directory services

**Acronym definitions:**
- **CAC**: Common Access Card - 2-factor authentication used by US military and related industries
- **CNSA**: Commercial National Security Algorithm suite - highest level cryptology
- **ESKM**: HPE Enterprise Secure Key Manager - for securing keys for storage encryption
- **FIPS**: Federal Information Processing Standard Publication 140-2
- **NAND**: NAND Flash memory - non-volatile memory storage
- **SIEM**: Security Information and Event Management software - products such as HPE ArcSight, Splunk
- **TAA**: Trade Agreements Act (19 U.S.C. & 2501-2581) - required for many sales to the US government
- **TPM**: Trusted Platform Module

**Silicon Root of Trust**
- HPE exclusive feature: essential firmware security is anchored directly into the silicon
- HPE builds our iLO silicon and writes our firmware code
- HPE unique FW integration; competitors buy general purpose BMCS off the shelf without ability to tie the firmware to hardware
- HPE Secure Compute protects millions of lines of FW code that run before the OS even boots.

**Runtime Verification**
- Verify integrity of essential system firmware.
- Customer picks the scheduled scan interval
- Verified good & malware free redundant firmware repository
- Detection of compromised code or malware residing in essential key firmware
- Customer notification of detected compromised essential firmware code

**Secure Recovery**
- Recovering essential firmware to known good state after detection of compromised code
- Customer Recovery Options:
  - Factory Recovery Set
  - Customer-defined Recovery Set
  - Logging Only (forensics mode)

**Commercial NSA**
- Commercial National Security Algorithms
- Used for handling the most confidential and secret information
- Uses the highest allowed level of commercial cryptography in the industry
Quick pick: Which HPE iLO license is right for me?

Trial license: Free 60-day
You can sign up for a 60-day free trial iLO license to test drive our licensed features.

NOTE:
If you have already signed up and applied a trial license to your server, you will not be able to do this. The free trial license key can only be applied to your server once.

Test drive these today:
- HPE iLO Advance Premium Security Edition
- HPE iLO Advanced
- HPE iLO Essentials
- HPE iLO Scale-Out

HPE iLO license options overview

IMPORTANT:

- **HPE iLO Standard Features Support**—iLO standard features support is covered under the hardware warranty for your server.

- **HPE iLO Support for Licensed Features**—Purchasing one (1) and three (3) year support licenses refers to the length of the support agreement for licensed iLO features. When you register your license, HPE prepares a support agreement. Once the support agreement expires, you can continue to use licensed features. However, support for those licensed features is not available. You have the option to renew licensed features support.

- HPE iLO licenses **do not expire**. Once it is installed on the server, the license will remain on that server even if the license support expires. Licenses are valid for the life of the server on which they are installed.

- HPE iLO license options vary by server platform and sales region. For a detailed list of options available for a specific product number, see [HPE iLO license product numbers (SKUs)](#).

Beginning the license selection process

Procedure

1. To determine which number combination is listed for the license type, server support, and purchasing option that best meets your needs, review the options shown below.

   **Example**
   
   If you want:
- An iLO Advanced license
- For any HPE ProLiant server model
- For less than 50 servers

Your selection is 1-1.

2. In the table following the figure, use the link that corresponds to your selection from Step 1 to go to **HPE iLO license product numbers (SKUs)** and determine the license product number that matches your installation, delivery, and support requirements.

![HPE iLO license decision process diagram](image)

**Figure 1: HPE iLO license decision process**

The following table describes where in the iLO license product numbers (SKUs) tables to find the product number SKU associated with the license options you selected in the Purchasing row above.
HPE iLO license product numbers (SKUs)

The following tables list available HPE iLO license product numbers (SKUs) and the delivery, support, and registration options available for each.

**NOTE:**
To insure that iLO single-server physical licenses are installed at the factory at no extra cost, you must include 0D1 option in the product number SKU as shown in the following tables.

⚠️ **IMPORTANT:**
- You are entitled to a one (1) or a three (3) year support contract on licensed features.
- After your one (1) or three (3) year support contract expires, your HPE iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features.
- HPE iLO licenses do not expire. Once it is installed on the server, the license will remain on that server even if the license support expires. Licenses are valid for the life of the server on which they are installed.
- HPE iLO standard features are shipped at no extra cost as part of your server purchase. Standard features are supported under the server hardware warranty.

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<thead>
<tr>
<th>If your purchasing selection is:</th>
<th>Find your product number (SKU) here:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>For a non-blade server: <strong>Advanced Single-server</strong>&lt;br&gt;For a single BladeSystem: <strong>Advanced for BladeSystem Single-server</strong>&lt;br&gt;For up to eight BladeSystems: <strong>Advanced for BladeSystem Eight-server</strong></td>
</tr>
<tr>
<td>1-2</td>
<td>For non-blade servers: <strong>Advanced Flexible Quantity</strong>&lt;br&gt;For BladeSystem: <strong>Advanced for BladeSystem Flexible Quantity</strong></td>
</tr>
<tr>
<td>1-3</td>
<td>For non-blade servers: <strong>Advanced Pay as you go volume (AKA/Tracking)</strong>&lt;br&gt;For BladeSystem: <strong>Advanced for BladeSystem Pay as you go volume (AKA/Tracking)</strong></td>
</tr>
<tr>
<td>2-1</td>
<td><strong>Essentials Single server</strong></td>
</tr>
<tr>
<td>3-1</td>
<td><strong>Scale-Out Flexible Quantity</strong></td>
</tr>
<tr>
<td>3-2</td>
<td><strong>Scale-Out Pay as you go volume (AKA/Tracking)</strong></td>
</tr>
<tr>
<td>4-1</td>
<td>Advanced Premium Security Edition <strong>Single server</strong></td>
</tr>
<tr>
<td>4-2</td>
<td>Advanced Premium Security Edition <strong>Flexible quantity</strong></td>
</tr>
<tr>
<td>4-3</td>
<td>Advanced Premium Security Edition <strong>Pay as you go volume (AKA/Tracking)</strong></td>
</tr>
</tbody>
</table>
Table 1: Advanced > Single-server - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features ¹,²</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>512485-B21 0D1</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>yes</td>
<td>HPE iLO Advanced with 1-year 24x7 Technical Support Single-Server License ³</td>
</tr>
<tr>
<td>BD505A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced 1 Server License with 3-year 24x7 Technical Support Single-Server License ³</td>
</tr>
<tr>
<td>E6U59ABE</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced 1 Server with 1-year 24x7 Technical Support Single-Server License</td>
</tr>
<tr>
<td>E6U64ABE</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced 1 Server with 3-year 24x7 Technical Support Single-Server License</td>
</tr>
</tbody>
</table>

¹ You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

² iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

³ License registration is not available in the Americas (AMS) and Asia Pacific or Japan (APJ) regions for these licenses. Your license key is printed on the installations instructions that are shipped with your order. Retain this key for your records and to obtain support.
Table 2: Advanced > Flexible Quantity - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>512486-B21</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced with 1-year 24x7 Technical Support Flexible Quantity License</td>
</tr>
<tr>
<td>BD506A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Flexible Quantity License with 3-year 24x7 Technical Support</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

Table 3: Advanced > Pay as you go volume (AKA/Tracking) - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
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<tbody>
<tr>
<td>512487-B21</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced with 1-year 24x7 Technical Support Tracking License</td>
</tr>
<tr>
<td>BD507A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced with 3-year 24x7 Technical Support Tracking License</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

3 For additional information on AKA, visit [www.hpe.com/info/aka](http://www.hpe.com/info/aka).
Table 4: Essentials > Single server - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
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<tbody>
<tr>
<td>BD775A 0D1</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>yes</td>
<td>HPE Integrated Lights-Out Essentials with 1-year 24x7 Technical Support Single-Server License</td>
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<tr>
<td>BD774A 0D1</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>yes</td>
<td>HPE Integrated Lights-Out Essentials with 3-year 24x7 Technical Support Single-Server License</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

Table 5: Scale-Out > Flexible Quantity - iLO 3, 4, and 5

<table>
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<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
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<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE Integrated Lights-Out Scale-Out with 1-year 24x7 Technical Support Flexible Quantity License</td>
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<td>BD776A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE Integrated Lights-Out Scale-Out with 3-year 24x7 Technical Support Flexible Quantity License</td>
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<tr>
<td>BD778AAE</td>
<td>Electronic</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE Integrated Lights-Out Scale-Out with 1-year 24x7 Technical Support Flexible Quantity E-LTU (Electronic License To Use)</td>
</tr>
<tr>
<td>BD776AAE</td>
<td>Electronic</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE Integrated Lights-Out Scale-Out with 3-year 24x7 Technical Support Flexible Quantity E-LTU (Electronic License To Use)</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).
Table 6: Scale-Out > Pay as you go volume (AKA/Tracking) - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features ¹,²</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description³</th>
</tr>
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<tbody>
<tr>
<td>BD779A</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Integrated Lights-Out Scale-Out with 1-year 24x7 Technical Support Tracking License</td>
</tr>
<tr>
<td>BD777A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Integrated Lights-Out Scale-Out with 3-year 24x7 Technical Support Tracking License</td>
</tr>
</tbody>
</table>

¹ You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

² iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

³ For additional information on AKA, visit [www.hpe.com/info/aka](http://www.hpe.com/info/aka).

Table 7: Advanced for BladeSystem > Single-server - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features ¹,²</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>512488-B21 0D1</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>yes</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Single-Server License</td>
</tr>
<tr>
<td>BD502A 0D1</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>yes</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Single-Server License</td>
</tr>
<tr>
<td>E6U60ABE</td>
<td>Electronic</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced BladeSystem License with 3-year 24x7 Technical Support</td>
</tr>
<tr>
<td>E6U63ABE</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>yes</td>
<td>HPE iLO Advanced for BladeSystem with 3-year 24x7 Technical Support Single-Server License</td>
</tr>
</tbody>
</table>

¹ You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

² iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).
License registration is not available in the Americas (AMS) and Asia Pacific or Japan (APJ) regions for these licenses. Your license key is printed on the installations instructions that are shipped with your order. Retain this key for your records and to obtain support.

Table 8: Advanced for BladeSystem > Eight-server - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>512489-B21</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Eight Server License</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

Table 9: Advanced for BladeSystem > Flexible Quantity - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>512490-B21</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Flexible Quantity License</td>
</tr>
<tr>
<td>BD503A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Blade with 3-year 24x7 Technical Support Flexible Quantity License</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).
### Table 10: Advanced for BladeSystem > Pay as you go volume (AKA/Tracking) - iLO 3, 4, and 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features 11,2 2</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>512491-B21</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Tracking License</td>
</tr>
<tr>
<td>BD504A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced for BladeSystem with 1-year 24x7 Technical Support Tracking License</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2 iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at [http://www.hpe.com/support/iLO4](http://www.hpe.com/support/iLO4) or [http://www.hpe.com/support/iLO5](http://www.hpe.com/support/iLO5).

3 For additional information on AKA, visit [www.hpe.com/info/aka](http://www.hpe.com/info/aka).

### Table 11: Advanced Premium Security Edition > Single-server - HPE Gen10 Servers with iLO 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features 11,2 2</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7E31A</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Premium Security Edition License with 1yr Support on Licensed Features</td>
</tr>
<tr>
<td>Q7E32AAE</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>yes</td>
<td>HPE iLO Advanced Premium Security Edition Electronic License with 1yr Support on Licensed Features</td>
</tr>
<tr>
<td>Q7E33A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Premium Security Edition License with 3yr Support on Licensed Features</td>
</tr>
<tr>
<td>Q7E34AAE</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>yes</td>
<td>HPE iLO Advanced Premium Security Edition Electronic License with 3yr Support on Licensed Features</td>
</tr>
</tbody>
</table>

1 You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.
iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at or http://www.hpe.com/support/iLO5.

### Table 12: Advanced Premium Security Edition > Flexible Quantity - HPE Gen10 Servers with iLO 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features 1,2</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7E32A</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Premium Security Flex Qty License with 1yr Support on Licensed Features</td>
</tr>
<tr>
<td>Q7E34A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Premium Security Flex Qty License with 3yr Support on Licensed Features</td>
</tr>
</tbody>
</table>

1. You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2. iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at or http://www.hpe.com/support/iLO5.

### Table 13: Advanced Premium Security Edition > Pay as you go volume (AKA/Tracking) - HPE Gen10 Servers with iLO 5

<table>
<thead>
<tr>
<th>Product number</th>
<th>Delivery</th>
<th>Support for licensed features 1,2</th>
<th>Is this HPE factory installed or preinstalled (the recommended option)?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7E35A</td>
<td>Physical</td>
<td>1-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Premium Security AKA Tracking License with 1yr Support on Licensed Features</td>
</tr>
<tr>
<td>Q7E36A</td>
<td>Physical</td>
<td>3-year 24x7</td>
<td>no</td>
<td>HPE iLO Advanced Premium Security AKA Tracking License with 1yr Support on Licensed Features</td>
</tr>
</tbody>
</table>

1. You are entitled to a one (1) or a three (3) year support contract on licensed features. After your one (1) or three (3) year support contract expires, your iLO licensed features still work, and are enabled. However, you will not have HPE support for those licensed features. Your licenses do not expire. They are valid for the life of the server on which they are applied.

2. iLO standard features and firmware updates are supported under the Server Hardware Warranty Contract. iLO firmware updates are available at or http://www.hpe.com/support/iLO5.

3. For additional information on AKA, visit [www.hpe.com/info/aka](http://www.hpe.com/info/aka).
Selecting an HPE iLO license

Selecting license options

To acquire the license that best meets your needs, review and select from:

1. License options
2. Purchasing options
3. Delivery options and documentation outputs
4. Support options

HPE iLO license options

HPE iLO licenses activate capabilities, augmenting iLO standard features available on all ProLiant servers. HPE iLO provides various license types and delivery options that enable you to activate advanced features to suit your infrastructure and business needs. Because licenses are “versionless,” you can use any advanced license regardless of the version of iLO you have installed. To determine which licenses are supported for your server model, see HPE iLO standard and licensed features.

HPE iLO standard and licensed features

The following table shows standard iLO features that ship at no extra cost in HPE ProLiant, HPE Edgeline, HPE Apollo, and HPE BladeSystem servers with iLO support, and the iLO licensed features that are available for each iLO license type.

---

💡 TIP:
To see a description of a feature, click on its link in the Feature column of the table.

---
See also:

For descriptions of features, see [Standard and licensed feature descriptions](#), or click on the link for the feature in the table.

**Table 14: HPE iLO standard and licensed features**

<table>
<thead>
<tr>
<th>Feature</th>
<th>iLO Standard</th>
<th>iLO Advanced Premium Security Edition</th>
<th>iLO Advanced / iLO Advanced for Blades</th>
<th>iLO Scale-Out</th>
<th>iLO Essentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform support</td>
<td>Ships at no extra cost in all servers that support iLO</td>
<td>All Gen10 servers with iLO 5</td>
<td>All servers (iLO Advanced for Blade Systems for BL and WS servers); plus Moonshot cartridges with iLO used in an Edgeline chassis</td>
<td>HPE Edgeline, HPE Apollo, HPE ProLiant Gen9 SL, XL, DL 100 Series and lower; HPE ProLiant Gen8 SL, BL, WS and DL160¹</td>
<td>HPE ProLiant Gen9 100 Series and lower, MicroServer; HPE ProLiant Gen8 SL, BL, and DL160</td>
</tr>
<tr>
<td>Active Health System Diagnostics</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Advanced Power Management (Power history graphs, Dynamic Power Capping)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Agentless Management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NEW Automatic Secure Recovery</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup and Restore</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEW Commercial National Security Algorithm (CNSA) Mode</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table Continued*
<table>
<thead>
<tr>
<th>Feature</th>
<th>iLO Standard</th>
<th>iLO Advanced Premium Security Edition</th>
<th>iLO Advanced / iLO Advanced for Blades</th>
<th>iLO Scale-Out</th>
<th>iLO Essentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform support</td>
<td>Ships at no extra cost in all servers that support iLO</td>
<td>All Gen10 servers with iLO 5</td>
<td>All servers (iLO Advanced for Blade Systems for BL and WS servers); plus Moonshot cartridges with iLO used in an Edgeline chassis</td>
<td>HPE Edgeline, HPE Apollo, HPE ProLiant Gen9 SL, XL, DL 100 Series and lower; HPE ProLiant Gen8 SL, BL, WS and DL160 (^1)</td>
<td>HPE ProLiant Gen9 100 Series and lower, MicroServer; HPE ProLiant Gen8 SL, BL, and DL160</td>
</tr>
<tr>
<td>Core Boosting (^2)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directory Service Authentication</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discovery Services</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email-Based Alerting</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Embedded Remote Support</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Embedded System Health</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Global Team Collaboration via Integrated Remote Console</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iLO Federation Discovery</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>iLO Federation Management</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iLO Reboot (^3)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>iLO RESTful API</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Feature</td>
<td>iLO Standard</td>
<td>iLO Advanced Premium Security Edition</td>
<td>iLO Advanced / iLO Advanced for Blades</td>
<td>iLO Scale-Out</td>
<td>iLO Essentials</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>--------------------------------------</td>
<td>----------------------------------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Platform support</td>
<td>Ships at no extra cost in all servers that support iLO</td>
<td>All Gen10 servers with iLO 5</td>
<td>All servers (iLO Advanced for Blade Systems for BL and WS servers); plus Moonshot cartridges with iLO used in an Edgeline chassis</td>
<td>HPE Edgeline, HPE Apollo, HPE ProLiant Gen9 SL, XL, DL 100 Series and lower; HPE ProLiant Gen8 SL, BL, WS and DL160[^1]</td>
<td>HPE ProLiant Gen9 100 Series and lower, MicroServer; HPE ProLiant Gen8 SL, BL, and DL160</td>
</tr>
</tbody>
</table>

**Integrated Remote Console** (IRC/Virtual KVM —Supports text and graphics)
- Pre-OS only all servers except BL and WS. Standard offering on BL and WS servers
- X

**Integrated Remote Console Record and Playback**
- X

**IPMI Over LAN/DCMI**
- X

**IPv6**
- X

**Jitter Smoothing**
- X

**Pre-Boot Health Summary**[^4]
- X

**Remote Syslog**
- X

**RIBC**
- X

**NEW Runtime Firmware Verification**
- X

[^1]: HPE ProLiant Gen9 100 Series and lower, MicroServer; HPE ProLiant Gen8 SL, BL, and DL160

---

Table Continued
<table>
<thead>
<tr>
<th>Feature</th>
<th>iLO Standard</th>
<th>iLO Advanced Premium Security Edition</th>
<th>iLO Advanced / iLO Advanced for Blades</th>
<th>iLO Scale-Out</th>
<th>iLO Essentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform support</td>
<td>Ships at no extra cost in all servers that support iLO</td>
<td>All Gen10 servers with iLO 5</td>
<td>All servers (iLO Advanced for Blade Systems for BL and WS servers); plus Moonshot cartridges with iLO used in an Edgeline chassis</td>
<td>HPE Edgeline, HPE Apollo, HPE ProLiant Gen9 SL, XL, DL 100 Series and lower; HPE ProLiant Gen8 SL, BL, WS and DL160¹</td>
<td>HPE ProLiant Gen9 100 Series and lower, MicroServer; HPE ProLiant Gen8 SL, BL, and DL160</td>
</tr>
<tr>
<td><strong>Scripted Virtual Media</strong></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NEW Secure Erase of Non-Volatile Storage (NAND/User Data)</strong></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Silicon Root of Trust</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>SSH Command Line Interface</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Text-Based Remote Console via SSH⁵</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NEW Two-Factor Authentication (Kerberos, Smart Card - PIV/ Common Access Card)</strong></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Virtual Media via Integrated Remote Console</strong></td>
<td>Standard offering on BL and WS servers only</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table Continued
<table>
<thead>
<tr>
<th>Feature</th>
<th>iLO Standard</th>
<th>iLO Advanced Premium Security Edition</th>
<th>iLO Advanced / iLO Advanced for Blades</th>
<th>iLO Scale-Out</th>
<th>iLO Essentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform support</td>
<td>Ships at no extra cost in all servers that support iLO</td>
<td>All Gen10 servers with iLO 5</td>
<td>All servers (iLO Advanced for Blade Systems for BL and WS servers); plus Moonshot cartridges with iLO used in an Edgeline chassis</td>
<td>HPE Edgeline, HPE Apollo, HPE ProLiant Gen9 SL, XL, DL 100 Series and lower; HPE ProLiant Gen8 SL, BL, WS and DL160¹</td>
<td>HPE ProLiant Gen9 100 Series and lower, MicroServer; HPE ProLiant Gen8 SL, BL, and DL160</td>
</tr>
<tr>
<td>Virtual Power Button</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Virtual Serial Port</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Virtual Serial Port Record and Playback</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Web-Based GUI</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NEWWorkload Matching Profiles</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

¹ When an iLO Scale-Out license is applied to a blade server, it does not remove features that are available with the iLO Standard for BladeSystem license.

² Core Boosting works with selected Intel processors to enable higher performance across more processor cores. For more information, see the HPE Gen10 Servers Intelligent System Tuning white paper, available from [www.hpe.com/support/gen10-intelligent-system-tuning-en](http://www.hpe.com/support/gen10-intelligent-system-tuning-en).

³ Available only on HPE Gen9 servers and above.

⁴ This feature is available only on HPE Gen9 servers and above.

⁵ This feature is supported only on servers that are configured to use the Legacy BIOS boot mode. It is not supported on servers that are configured to use UEFI mode.

### Purchasing options

iLO licenses are available directly from HPE and from HPE sales partners. The best way to obtain an iLO license is to purchase the software license at the same time you purchase your HPE server. However, if you are located in the US, you can also purchase your license separately from the HPE Small Business Marketplace site at [http://www.hpe.com/marketplace](http://www.hpe.com/marketplace).
Options are:

- **Single-Server License**—A single license installation.
- **Flexible Quantity License**—A single license entitlement to install on multiple iLO servers.
- **Activation Key Agreement (AKA) or “Tracking License”**—A volume licensing agreement valid for future license activations.

Use the following questions and answers to help you select from the options available.

**How many License Entitlement Certificates do I receive, either through paper/physical or electronic delivery?**

<table>
<thead>
<tr>
<th>Single Server</th>
<th>Flexible Quantity</th>
<th>Activation Key Agreement (AKA) or “Tracking License”</th>
</tr>
</thead>
<tbody>
<tr>
<td>One entitlement certificate for each license ordered. For example, if you order this license for 10 servers, you receive 10 certificates.</td>
<td>One single software entitlement certificate. When you register the entitlement online, you receive one single key to activate licensed features on multiple iLO servers. For example, if you order this license for 10 servers, you receive a single entitlement that enables you to use iLO advanced features on 10 servers.</td>
<td>None. This option is an “invoice only” option. This option is an efficient volume licensing program delivered through an AKA contract. It provides one master key (per product) that is assigned to your company, department, or branch—eliminating the need to maintain multiple keys. Your assigned master key code is valid for all future purchases of license activations for up to three years and can be used worldwide. You can add new products to your AKA during the term of your agreement. For more information, see Activation Key Agreement (AKA) or “Tracking License” details.</td>
</tr>
</tbody>
</table>

**When I register my license online, how many activation keys do I receive?**

<table>
<thead>
<tr>
<th>Single Server</th>
<th>Flexible Quantity</th>
<th>Activation Key Agreement (AKA) or “Tracking License”</th>
</tr>
</thead>
<tbody>
<tr>
<td>One for one. You receive one key for each single license ordered.</td>
<td>One for many. You receive one key for all licenses ordered.</td>
<td>No registration is required. A master key is provided when you first sign the Master Agreement. For more information, see Activation Key Agreement (AKA) or “Tracking License” details.</td>
</tr>
</tbody>
</table>

**When is each license type the best option?**

---

26 Selecting an HPE iLO license
<table>
<thead>
<tr>
<th>Single Server</th>
<th>Flexible Quantity</th>
<th>Activation Key Agreement (AKA) or “Tracking License”</th>
</tr>
</thead>
<tbody>
<tr>
<td>This license is the best option if you:</td>
<td>This license is the best option if you:</td>
<td>This license is the best option if you:</td>
</tr>
<tr>
<td>• Are purchasing a small number of ProLiant servers at a time</td>
<td>• Require a one-time purchase of iLO licenses for your current ProLiant installed base</td>
<td>• Plan to purchase a volume of iLO over time and on a regular basis</td>
</tr>
<tr>
<td>• Already own ProLiant servers and need iLO licenses</td>
<td>• Purchased quantities of new ProLiant servers and need an equivalent number of software licenses to match the number of servers purchased</td>
<td>• Want a simple software licensing option that provides one key per product for all licenses subsequently purchased over time</td>
</tr>
<tr>
<td>• Do not need the same license for multiple servers</td>
<td>• Want to curtail the number of license activation keys in use</td>
<td>• Want to eliminate the need to maintain multiple license keys in your data center over time</td>
</tr>
<tr>
<td></td>
<td>• Want to minimize physical deliverables, preferring a single license key per quantity of licenses purchased at any given time</td>
<td>• Want to use your keys worldwide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Want the least number of physical deliverables (no deliverables associated with the tracking licenses)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Want to add iLO licenses as a line item to standard ProLiant configurations purchased regularly from HPE or HPE partners or wanting to add iLO to existing ProLiant sales contracts with HPE</td>
</tr>
</tbody>
</table>

**Activation Key Agreement (AKA) or “Tracking License” details**

- Each master key that is issued is intended for future purchases of license activation keys.
- A master key is not intended to replace any:
  - Existing licenses residing on existing servers
  - Entitlement certificates purchased but not redeemed, or redeemed but not deployed
  - Entitlement certificates bundled with hardware purchases
- You cannot use a master key to replace any upgrade licenses.

For more information, see Activation Key Agreement (AKA) or “Tracking License” details. For additional information on AKA, visit [www.hpe.com/info/aka](http://www.hpe.com/info/aka).
• The maximum term under the AKA contract is three years. You can select a one, two, or three-year contract. At the end of your contract term, you must cease using your master keys. When the original agreement expires, you can choose to process a new AKA contract with HPE.

• There is no entitlement certificate sent, eliminating the need to complete the license entitlement redemption process.

• In most cases, your HPE account manager bundles the AKA tracking SKU with your server configurations (BOM), so when each server is purchased, the license SKU is included and paid for at the same time.

For more information, see www.hpe.com/info/aka.

Delivery options and documentation outputs

In most cases, you can select how you want HPE to provide the information you require to activate and install your license. Depending on your location and your product, the following options are available.

• Recommended: Factory installed/preinstalled

• Self-installed

Documentation outputs are as follows.

With paper/physical license delivery, including the factory installed option, you will receive a License Documents envelope.

1. This envelope is marked License Documents Enclosed.

   ![License Documents Enclosed Image]

   The envelope contains:

   • A printed License Entitlement certificate with your iLO license key

   • Important information about your Support Contract

   • Instructions on how to ensure that you have a valid HPE iLO license key

   • Instructions on how to register your iLO license

2. This type of license is no longer available.

   **IMPORTANT:**

   The type of HPE iLO License shown below has been retired. You should receive an HPE envelope as shown above. If you receive a license in the format shown below, with stickers applied, contact the HPE Licensing Team. Refer to HPE iLO licensing support contact addresses for more information.
License Entitlement Certificate

**IMPORTANT:**

Retain your License Entitlement Certificate in a secure location. It contains information that you must use to activate your license. If you received your License Entitlement Certificate electronically, print a copy to store for future reference.

The following example shows a License Entitlement Certificate for an HPE iLO Advanced single-server license with a one-year support option. The information listed in this certificate depends on the type of license purchased and the delivery option selected.
Information in this document:

1. License product name (abbreviated)
2. Product number (SKU)
3. Entitlement Order Number (EON): Enter this number in the HPE My License Portal (https://myenterpriselicense.hpe.com) to activate this license. To obtain HPE licensing support, you reference this number.
4. License Activation URL: To complete the optional step of activating your license, click or enter in a browser to access the HPE My License Portal (https://myenterpriselicense.hpe.com). Benefits of completing this step include:
• Receive important product alerts.
• Access the HPE Support Center (http://www.hpe.com/support/hpesc).
• Activate your unique HPE Support Agreement ID (SAID). Your SAID identifies you and keeps track of your products so that HPE can provide fast, personalized support.

5. Licensing Support URL: Click or enter in a browser to access the HPE licensing support portal.

6. Additional Information: Lists additional information about installing your license, including your license key.

7. 2D barcode: As part of our ongoing commitment to security, we’ve now enabled a new iLO key validation process. Users can now leverage a 2D barcode to seamlessly validate their iLO license keys and feel confident that their license keys are HPE authenticated.

8. License key: Retain this information.

With electronic license delivery, you receive:

This Electronic Delivery Receipt email.

![Electronic Software Delivery Receipt](image_url)
Table 15: Electronic Software Delivery Receipt

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Refer to the Important Notes section below to view important information about the electronic software.</td>
</tr>
<tr>
<td>2</td>
<td>Click the paperclip to open a zip file. This file contains two (2) documentation files:</td>
</tr>
<tr>
<td></td>
<td>• A PDL provides detailed installation instructions.</td>
</tr>
<tr>
<td></td>
<td>• A text document provides a short overview of installation instructions.</td>
</tr>
<tr>
<td>3</td>
<td>License key</td>
</tr>
<tr>
<td>4</td>
<td>HPE part number</td>
</tr>
<tr>
<td>5</td>
<td>Click this link to view frequently asked questions about the licensing portal.</td>
</tr>
</tbody>
</table>

**Electronic delivery benefits**

- License key is displayed on the electronic delivery receipt
- Provides fast order fulfillment
- Eliminates the need to dispose of physical packaging materials
- Enables you to manage your software assets digitally

**Authenticating a license**

Always authenticate your license to ensure that your license key is valid and you have a Genuine Hewlett Packard Enterprise Part. There are two ways to authenticate a license:

- Scan the QR/Datamatrix on your License Entitlement Certificate.
- Validating the license by going directly to [https://validate.ext.hpe.com/](https://validate.ext.hpe.com/). Refer to the steps below.

**Procedure**

1. Go to [https://validate.ext.hpe.com/](https://validate.ext.hpe.com/).
2. Enter your Security ID (SID) in the field provided and click **Validate**.
   If your license is valid, you will see the following information:
Risks of Counterfeit HPE Software, Spares & Options

HPE starts with the highest quality components. We work with Original Equipment Manufacturers (OEMs) to create specific HPE firmware, drivers, and software that provide optimized performance and manageability.

Around the world, a number of fraudulent HPE parts are being represented as new HPE product. These parts are packaged as HPE Option Kits and Spares Kits. HPE is providing these tools and information to allow validation of authentic HPE parts.

Validate Your Parts

Enter the Security ID (GID) from your product’s security label into the field below and click Validate. If you do not see your label here, HPE has additional information on older label revisions found on drives and memory.

XXXXXXXXX

VALIDATE

Hewlett Packard Enterprise Security Labels use several authentication factors, including the Security ID and hologram.

Security ID XXXXXXXXXX is valid, and your part is likely a Genuine Hewlett Packard Enterprise Part. Please complete the validation process by performing a visual inspection of the label hologram, using the guidelines found below. Security Label validation does not indicate whether the part is covered by an active warranty or contract. If you need service or support with this part, please visit the HPE Support website.
Selecting an HPE iLO license

Locating the Label

HDD/SSD
Most often found overlapping top or bottom edge of large white label

Memory DIMM
Usually found on the right side of the DIMM - opposite the memory specification label.

Processor & Heatsink
Processor ID can be validated via the label affixed to the bundled heatsink.

Arona Transceiver
Beginning in 2017, security ID numbers can be found on HPE Arona transceivers. The “5D” can be validated on this side.

Software
Beginning in 2017, security features in the form of 2D datamatrix barcodes can be found in some HPE software licenses.

Packaging
The hardware commodities listed here also ship with tamper evident labels on their packaging. You can validate your purchase with the Security ID found on the label.
If your license is invalid, you will see the following information:
Support options

Each HPE iLO license includes either a one-year, or a three-year support contract. In most cases, when you activate your license as described in the following procedures, HPE sends an email with information about the support you purchased with your license.

**IMPORTANT:**

- You do not need your support contract to obtain the iLO licensed features. Once you have entered the valid key, iLO licensed features will be enabled on your server.
- You are entitled to a one (1) or a three (3) year support contract on licensed features.
- After your one (1) or three (3) year support contract expires, your **HPE iLO licensed features still work, and are enabled.** However, you will not have HPE support for them.
- **Your licenses do not expire.** They are valid for the life of the server on which they are applied.
- **HPE iLO standard features** are supported under the server hardware warranty.

For details about a specific license, see **HPE iLO license product numbers (SKUs).**
Registering and redeeming a license key

Why register your licenses?

Registering your iLO licenses is important. Doing so:

- Provides important product alerts.
- Provides access to the HPE Support Center (www.hpe.com/downloads/software).
- Activates your unique HPE Support Agreement ID (SAID).

Your SAID identifies you and keeps track of your products so that HPE can provide fast, personalized support.

NOTE:
At this time, the HPE Licensing Portal does not track SAID agreements.

- Allows you to keep track of all your HPE product licenses in one convenient place via the HPE Licensing Portal.

To register one or more licenses:

Procedure

1. Locate the Entitlement Order Number (EON) listed on your License Entitlement Certificate or Licensing Confirmation Email.
2. Follow the steps for Registering a license.

Best practices for retaining license information

- If you received your license electronically, retain the Electronic Delivery Receipt email for future reference.
- If you received a non-electronic (paper) license that is shipped in the HPE iLO license envelope, retain your License Entitlement Certificate paperwork for future reference.
- After you purchase and activate a license, forward the confirmation emails you receive from HPE to others in your organization who might need to manage licenses in the future.

  ◦ You can easily forward the activation receipt and confirmation email to an address you specify during the license registration process. See Activating a license.
  ◦ If you are not the original purchaser of a license, request a copy from the person in your organization who made the purchase.
  ◦ For licenses that are not shipped in an HPE iLO license package, you can use the licensing portal or XML scripting to retrieve your license information. See Viewing installed license information.
NOTE:
For security, license key characters are hidden when you view license information in iLO.

- Because you cannot track a license that is shipped in an HPE iLO license package, you must retain physical copies of paperwork that is supplied using that method.

License documentation and activation

Do I need a license activation key?

You must have a license activation key to install and begin using your license. The license activation key is a 5-by-5-character code in the following format and is printed on your License Entitlement Certificate when ordering a physical (paper) license OR via an electronic email:

```
xxxxx-xxxxx-xxxxx-xxxxx-xxxxx
```

IMPORTANT:
Record each license activation key and retain it in a secure location for future reference. To ensure that keys are not used in other systems after installation, the key characters are hidden in the Activation Key field on the iLO Administration > Licensing page.

Next steps: Electronic and paper delivery methods

The license documentation you receive and how you must use it to activate your license depends on the delivery method used. Options are as follows:

- Electronic delivery
- Paper delivery not in an HPE iLO license package

For more information, see Delivery options and documentation outputs.

Registering a license

Registering your license is optional. Benefits include:

- Receive important product alerts.
- Access the HPE Support Center (http://www.hpe.com/support/hpesc).
- Access software updates via the HPE Update Center (www.hpe.com/downloads/software).
- Activate your unique HPE Support Agreement ID (SAID). Your SAID identifies you and keeps track of your products so that HPE can provide fast, personalized support.

Procedure

1. Locate and review your License Entitlement Certificate.
2. Go to the My License Portal https://myenterpriselicense.hpe.com and sign in with your HPE Passport account email address.

   The HPE License Portal welcome page appears and the Activate My Products tab is displayed.
3. Enter your Entitlement Order Number (EON) and click Search

A Select Products to Activate page similar to the following example displays your products that are available for license activation.
4. Do one of the following:
   - To activate licenses for all products listed, leave the **Select all Products in this family** check box selected.
   - To activate a specific license, select the corresponding check box.

5. Click **Next**.
   A **Designate Activatee** page appears.

![Activate](image)

6. Do one of the following:
   - To activate the license for yourself, select **I am activating for myself**.
   - To activate on behalf of another user, select **I am activating on behalf of another user**, and complete the information about the user.

7. To have license files emailed to the specified user, leave the **Email License files to this user** check box selected.

8. Click **Next**.
   The **Activation Complete** page appears.
9. (Optional) To participate in a survey about your license purchasing experience, click the survey link and follow the instructions.

10. Scroll to the bottom right of the page, and do the following:

    • To open the installation instructions, click the PDF file link.
    • To open the license key and copy it to your clipboard click the .TXT file link.
    • To share the files, select Share All, and enter an email address.
    • To download the files, select Download All, and enter a download location.

    An Activation Receipt similar to the following example is generated. If you selected the download or share options, your activation receipt is sent via email with your license activation key and installation instructions in an attached zip file.
Registered User
tim.smith@xyz.com
United States

Dear Customer,

Thank you for your license activation at the My License Portal. Your license keys and additional instructions (if applicable) are attached to this email.

Activation Details

<table>
<thead>
<tr>
<th>Entitlement Order #</th>
<th>Product #</th>
<th>Product Description</th>
<th>Activated Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXXXXXXXXXXXXX</td>
<td>HPE iLO Adv incl 3y TSU E-LTU</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

License Key Details

Product Family: HPE iLO

Get the most of out your iLO licensed features! Your purchase of an iLO license entitles you to free web-based training. To access your free HPE iLO training, visit our HPE Education website www.hpe.com/ww/iLOBundle To access HPE ProLiant training, visit our HPE Education website http://www.hpe.com/ww/learnproliant

<table>
<thead>
<tr>
<th>Description</th>
<th>File Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation Instructions</td>
<td>ILO_Installation_Instructions.pdf</td>
</tr>
<tr>
<td>HPE iLO License Key</td>
<td>HPE_iLOKey.txt</td>
</tr>
</tbody>
</table>

Attachment: license_HPE_iLO_zip

If you have questions, please contact Licensing Support.

Sincerely,

Hewlett Packard Enterprise

11. Retain the Activation Receipt for future reference.

Verifying license activation

✓ Verify:

You receive an Activation Receipt.

You can view information about your activated license on the Software downloads and licenses page in your HPE Passport account.
Installing a license

License installation methods

You can use the following methods to install a license:

- **Entering the 25-digit alphanumeric license key (aka 5x5 key) in iLO using a browser**
- **Using XML scripting**
- **Using the iLO CLI**
- **Using the RESTful API**
- **Using iLO Federation group licensing**

Prerequisites

Procedure

- The Configure iLO Settings privilege
- A license activation key
- The license is supported on the server on which you want to install it.

Entering the 25-digit alphanumeric license key (aka 5x5 key) in iLO using a browser

Procedure

1. Locate your license activation key.
2. Log in to iLO and navigate to the **Administration > Licensing** page.
IMPORTANT:
Once you enter your activation key in this window, all that will display of it is the last five digits. Record and save your license key somewhere else before you enter it here.

3. On the Licensing page, enter the license key in the Activation Key box.
To move between segments, press the Tab key or click inside a segment of the Activation Key box. The cursor advances automatically when you enter data into the segments of the Activation Key box.

4. Click Install.
The EULA confirmation page opens.

5. Review the EULA confirmation details, and click OK.

Using XML scripting

You can use XML commands and an advanced scripting interface to install your licenses. This method is useful when you want to roll out license keys as part of a large-scale server deployment. Scripts are XML files written for a scripting language called RIBCL. The following methods are available:

- **Recommended method**: HPQLOCFG (HP Lights-Out Configuration Utility)—A utility that replaces the previous HP Lights-Out Configuration Utility (CPQLOCFG). This utility is a Windows command-line utility that sends XML configuration and control scripts over the network to iLO.
NOTE:
The HPQLOCFG (HP Lights-Out Configuration Utility) has the same command formatting as the CPQLOCFG utility.

- **HPONCFG (HP Lights-Out Online Configuration Utility)**—A local online scripted setup utility that runs on the host and passes RIBCL scripts to the local iLO. This utility requires the HPE ProLiant iLO 3 or 4 Channel Interface Driver.

- **LOCFG (Lights-Out Configuration Utility)**—A custom iLO scripting environment that includes a Perl sample you can use to send RIBCL scripts to iLO over the network.

NOTE:
Because the HPONCFG and LOCFG utilities run on the server itself, you do not need to enter the server IP address, FQDN, or login credentials when using either of those utilities. All other commands for installing a single-server license are the same for all utilities.

For more information, see:

- **The HPE iLO 4 Scripting and Command-Line Guide**
- **How to Install an iLO License Key Through Scripting**

**Sample license XML script**

```xml
<RIBCL VERSION="2.0">
  <LOGIN PASSWORD="password" USER_LOGIN="adminname">
    <RIB_INFO MODE="write">
      <LICENSE>
        <ACTIVATE KEY="11223-34455-66778-89900-AABBC"/>
      </LICENSE>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

**Sample license JSON script**

```json
{
  "body": {
    "LicenseKey": "XXXXX-XXXXX-XXXXX-XXXXX-XXXXX"
  },
  "path": "/rest/v1/managers/1/LicenseService"
}
```

**Recommended procedure: Installing a single license using HPQLOCFG (HP Lights-Out Configuration Utility)**

**Procedure**

1. Locate your license activation key.
2. Go to [www.hpe.com/support/ilo4](http://www.hpe.com/support/ilo4) and download the latest utility.
3. Locate the folder in which your utility is installed.
4. Move the License.xml file into the same folder as the utility.
5. Open a command prompt, navigate to the folder containing the utility and XML file, and open the XML file.

6. Do one of the following:

- To execute the generic script without modifying it:

  ```
  UtilityName.exe -s IPAddress/fqdn -f xmlFileName.xml -l logfile.txt -u username -p password -t KEY="KEY"
  
  Example
  hpqlocfg.exe -s mydl360server.mydomain.com -f License.xml -l mylogfile.txt -u adminaccount -p myadminpass123 -t KEY="abcde-fghij-klmno-pqrst-uvwxy"
  ```

- To modify the License.xml file:

  a. Enter the login information for the system on which you are installing the license.

     For example: `<LOGIN PASSWORD="myAdminPass123" USER_LOGIN="adminAccount">

  b. Enter the license key you purchased.

     `<ACTIVATE KEY="abcde-fghij-klmno-pqrst-uvwxy"/>

  c. Save the changes to your file, and then execute as follows. To specify verbose (detailed) output, add the `-v` tag.

     ```
     UtilityName.exe -s IPAddress/fqdn -f xmlFileName.xml -l logfile.txt -v
     
     Example
     hpqlocfg.exe -s mydl360server.mydomain.com -f License.xml -l mylogfile.txt -v
     ```

Sample output

When the non-verbose form of the command is successful, no output is displayed.

Verbose output looks similar to the following.

```xml
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
  STATUS="0x0000"
  MESSAGE='No error'
/>
</RIBCL>
```
Installing a single license using (HP Lights-Out Online Configuration Utility) or LOCFG (Lights-Out Configuration Utility)

**Procedure**

1. Locate your license activation key.
2. Go to [www.hpe.com/support/ilo4](http://www.hpe.com/support/ilo4) and download the latest utility.
3. Locate the folder in which your utility is installed.
4. Move the `License.xml` file into the same folder as the utility.
5. Open a command prompt, navigate to the folder containing the utility and XML file, and open the XML file.
6. At the command prompt, do one of the following:

   - To execute the generic script without modifying it:
     ```
     UtilityName.exe -f xmlFileName.xml -l logfile.txt
     
     Example
     hponcfg.exe -f License.xml -l mylogfile.txt
     ```
   - To modify the `License.xml` file:
     a. Enter the license key you purchased.
        ```
        <ACTIVATE KEY="abcdef-ghi-jklmno-pqrst-uvwxy"/>
        ```
     b. Save the changes to your file, and then execute as follows. To specify verbose (detailed) output, you can add the `-v` tag.
        ```
        UtilityName.exe -f xmlFileName.xml -l logfile.txt
        
        Example
        hponcfg.exe -f License.xml -l mylogfile.txt
        ```

**Using the iLO CLI**

**Procedure**

1. Open a connection in an SSH client application, such as PuTTY.
2. Leave the SSH port as 22, and the **Connection type** as SSH.
3. At the login prompt, enter your user name and password. The `hpiLO->` prompt appears.
4. To navigate to the license page, enter `cd map1/oemhp_license1`, and then enter `show`.
   The license information is displayed, including the license type (`oemhp_name1`), and the license key that is partially redacted for security reasons.
5. To add a license, replace `KEY` with your 5X5 license key in the following command:
   ```
   oemhp_licenseinstall KEY
   ```
Valid formats for entering a license key are:

- `oemhp_licenseinstall "AAAAA-BBBBB-CCCCC-DDDDD-EEEEE"
- `oemhp_licenseinstall AAAAA-BBBBB-CCCCC-DDDDD-EEEEE`
- `oemhp_licenseinstall AAAAABBBBBCCCCCDDDDDEEEEE`
- `oemhp_licenseinstall "AAAAABBBBBCCCCCDDDDDEEEEE"

The following output is displayed:

- `status=0`
- `status_tag=COMMAND COMPLETED`
- New license key installed

Using the RESTful Interface Tool

Procedure

1. Locate your license activation key.
2. Download the RESTful Interface Tool (Windows MSI package, or Linux RPM package) from [https://hewlettpackard.github.io/python-redfish-utility/](https://hewlettpackard.github.io/python-redfish-utility/).
3. Locate the folder in which you specified the utility to install.
4. Move the `License.json` file into the same folder as the utility.
5. Open a command prompt, navigate to the folder containing the utility and JSON file, and open the JSON file.
6. Replace the default (invalid) license key with your valid key.
7. Save the changes to your file, and execute the RESTful command as follows:
   ```
ilorest.exe rawpost license.json --url mydl360server.mydomain.com -u adminaccount -p myadminpass123
   ```
8. If the command is successful, a message stating that The resource has been created successfully appears.

For more information, see [Managing Hewlett Packard Enterprise Servers Using the RESTful API](https://hewlettpackard.github.io/python-redfish-utility/).

Using iLO Federation group licensing

You can use iLO Federation, a licensed feature, to manage your iLO license keys. The iLO Federation Group Licensing page displays the license status for iLO Federation group members, and you can use the Group Licensing page to activate iLO licensed features within a configured group.

Consider the following when you use iLO Federation group licensing feature to install a license in these scenarios:
On the servers in an iLO Federation group, each member of the group must have the Configure iLO Settings privilege.

On multiple servers, you must use a key that is authorized for the number of selected servers.

On a server that already has a key installed, the new key replaces the current key. If you do not want to replace existing licenses, click Unlicensed in the License Information Status table to install licenses only on servers that are unlicensed.

For more information, see the HPE iLO Federation User Guide.

### Verifying license installation

<table>
<thead>
<tr>
<th>Verify:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No installation error messages are displayed.</td>
<td></td>
</tr>
<tr>
<td>You can view information about your installed licenses.</td>
<td></td>
</tr>
</tbody>
</table>
Managing licenses

Prerequisites

- An HPE Passport account
- Privileges to configure iLO settings
- An installed license

Viewing installed license information

Viewing installed licenses in iLO

Procedure

1. Log in to iLO and navigate to the Administration > Licensing page.
2. Under Current License Status, view the following information for each installed license:
   - License—The license type
   - Status—The license status. A green check indicates that the license is installed and active.
   - Activation Key—The installed key

   NOTE:
   For security, key characters are hidden.

Viewing installed licenses in the licensing portal

Procedure

2. Enter your HPE Passport account email address and password, and click Sign In.
4. To view information for each installed license, click My Entitlements.
5. Log out and close your browser.

Viewing installed licenses using XML scripting

You can use XML commands and one of these scripting utilities to view your installed licenses.
NOTE:
Because the HPONCFG and LOCFG utilities run on the server itself, you do not need to enter the server IP address or FQDN when using either of those utilities. All other commands for viewing installed licenses are the same for all utilities.

Sample Get_all_licenses script

```xml
<RIBCL VERSION="2.0">
<LOGIN PASSWORD="password" USER_LOGIN="adminname">
  RIB_INFO MODE="read" <GET_ALL_LICENSES/>
</RIB_INFO>
</LOGIN>
</RIBCL>
```

Using HPQLOCFG (HP Lights-Out Configuration Utility)

Open a command prompt in the HPQLOCFG utility and do one of the following:

Procedure

- To execute the generic script without modifying it:

  ```bash
  UtilityName.exe -s IPAddress/fqdn -f xmlFileName.xml -l logfile.txt -u username -p password
  ```

  Example

  ```bash
  hpqlocfg.exe -s mydl360server.mydomain.com -f Get_All_Licenses.xml -l mylogfile.txt -u adminaccount -p myadminpass123
  ```

- To modify the Get_All_Licenses.xml file:

  1. Enter the login information for the system on which you are installing the license. For example:

     ```xml
     <LOGIN PASSWORD="myAdminPass123" USER_LOGIN="adminAccount">
     ```

  2. Save the changes to your file, and then execute as follows. To specify verbose (detailed) output, you can add the -v tag.

     ```bash
     UtilityName.exe -s IPAddress/fqdn -f xmlFileName.xml -l logfile.txt
     ```

     Example

     ```bash
     hpqlocfg.exe -s mydl360server.mydomain.com -f Get_All_Licenses.xml -l mylogfile.txt
     ```

Using HPONCFG (HP Lights-Out Online Configuration Utility) or LOCFG (Lights-Out Configuration Utility)

Open a command prompt in the HPONCFG or LOCFG utility and do one of the following:

Procedure

- To execute the generic script without modifying it:

  ```bash
  UtilityName.exe -f xmlFileName.xml -l logfile.txt
  ```

  Example

  ```bash
  hpqlocfg.exe -s mydl360server.mydomain.com -f Get_All_Licenses.xml -l mylogfile.txt
  ```
hponcfg.exe -f Get_All_Licenses.xml -l mylogfile.txt

- To modify the Get_All_Licenses.xml file:
  1. Modify the file.
  2. Save the changes to the file, and then execute as follows. To specify verbose (detailed) output, you can add the \-v tag.

`UtilityName.exe -f xmlFileName.xml -l logfile.txt -v`

Example

hponcfg.exe -f Get_All_Licenses.xml -l mylogfile.txt -v

Viewing installed licenses using the iLO CLI

For information, see the HPE iLO Scripting and Command Line Guide.

Recovering a lost license key

There are two situations in which you might need to recover a lost license key:

- **System board replacement**: If a system board replacement is required to address a hardware issue, you can use this feature to transfer the iLO configuration from the original system board to the new system board.

  1. Replace the system board and transfer the hardware components from the old system board to the new system board.
  2. Power on the system and ensure that all components are working correctly.
  3. Log in to iLO with the default user credentials for the new system board.
  4. Click Administration in the navigation tree, and then click Backup & Restore.
  5. Click Restore.
  6. Depending on your browser, click Browse or Choose File, and then navigate to the backup file.
  7. If the backup file is password protected, enter the password.
  8. Click Upload and Restore. iLO will prompt you to confirm the request.
  9. Click Restore. iLO reboots and closes your browser connection. It might take several minutes before you can re-establish a connection.

- **Lost license key**: If a license key is accidentally replaced, or you reset iLO to the factory default settings, and you are not sure which key to install, you can restore the license key and other configuration settings from a backup file.

  1. Log in to iLO with the default user credentials for the new system board.
  2. Click Administration in the navigation tree, and then click Backup & Restore.
  3. Click Restore.
  4. Depending on your browser, click Browse or Choose File, and then navigate to the backup file.
  5. If the backup file is password protected, enter the password.
6. Click **Upload and Restore**. iLO will prompt you to confirm the request.

7. Click **Restore**. iLO reboots and closes your browser connection. It might take several minutes before you can re-establish a connection.

**Reactivating your HPE iLO license key after your server reverts to factory defaults**

**IMPORTANT:**

If your server reverts to factory defaults, you must reactivate and reinstall your license key on that server.

**Troubleshooting**

**License key network error**

**Symptom**

You are installing a license and you see a **Network error: Connection refused** message.

**Cause**

You entered an invalid host name or IP address during license installation.

**Action**

Check for errors in the host name and IP address, and then try again.

**Server disconnect error**

**Symptom**

You are installing a license using the iLO CLI and you see a **Server sent disconnect** message.

**Cause**

The CLI serial console session has been acquired by someone else.

**Action**

Try establishing a new telnet session and, when can do so, try the command again.

**License key installation errors**

**Symptom**

You see a **License Key Error** or a **License Installation Failed** message.
Solution 1

Cause
The key is not an iLO license key.

Action
Obtain an iLO license key, and then try again.

Solution 2

Cause
An evaluation key was submitted when a regular license was previously installed.

Action
None. iLO does not support installing an evaluation key when a regular key was previously installed.

Solution 3

Cause
The iLO date and time settings are incorrect.

Action
Check the iLO date and time settings, and then try again.

Solution 4

Cause
The license key entered is incorrect.

Action
Check for errors in the license key, and then try again.

License key not received after completing the activation process

Symptom
You completed the license activation process but did not receive your license activation key.

Action
1. Locate the Entitlement Order Number (EON) on your License Entitlement Certificate.
2. For further assistance, contact the HPE licensing support team, and provide the EON. See HPE iLO licensing support contact addresses.
HPE iLO license return policy

You can obtain a replacement iLO license if:

- The license is purchased in error, and the associated License Entitlement Certificate key is not yet redeemed. A redeemed license is one that is registered in the My License Portal and has an iLO 25-character license key assigned to it.
- The license is self-installed.
- The license is preinstalled at the factory, you lose your EON, and need a new license for a replaced motherboard.

To begin the return policy, contact the licensing team. See HPE iLO licensing support contact addresses.
Websites

General websites

Hewlett Packard Enterprise Information Library
www.hpe.com/info/EIL

For additional websites, see Support and other resources.

Product websites

iLO

http://www.hpe.com/info/ilo

iLO 5 Information Library
http://www.hpe.com/support/ilo-docs

iLO Support
http://www.hpe.com/support/ilo5

iLO Advanced
http://www.hpe.com/servers/iloadvanced

iLO Advanced Premium Security Edition
http://www.hpe.com/servers/ilopremium

iLO mobile app
http://www.hpe.com/info/ilo/mobileapp

Active Health System Viewer
http://www.hpe.com/servers/ahsv

Intelligent System Tuning
http://www.hpe.com/info/ist

HPE ProLiant Gen10 servers
http://www.hpe.com/info/proliantgen10-docs

HPE ProLiant Gen10 and HPE Synergy compute module troubleshooting
http://www.hpe.com/info/Gen10-troubleshooting

UEFI System Utilities
http://www.hpe.com/info/ProLiantUEFI/docs

SUM
http://www.hpe.com/info/sum-docs

SPP
http://www.hpe.com/info/spp/documentation

Intelligent Provisioning
http://www.hpe.com/info/intelligentprovisioning/docs

iLO RESTful API and RESTful Interface Tool
http://www.hpe.com/info/redfish

Remote Support
http://www.hpe.com/info/insightremotesupport/docs
Related information

<table>
<thead>
<tr>
<th>Website</th>
<th>Link</th>
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</thead>
<tbody>
<tr>
<td>Activation Key Agreement (AKA)/Tracking License</td>
<td><a href="http://www.hpe.com/info/aka">www.hpe.com/info/aka</a></td>
</tr>
<tr>
<td>HPE iLO</td>
<td><a href="http://www.hpe.com/info/ilo">http://www.hpe.com/info/ilo</a></td>
</tr>
<tr>
<td>HPE iLO Advanced License video</td>
<td><a href="https://www.youtube.com/watch?v=8MTcDsS7yQY">https://www.youtube.com/watch?v=8MTcDsS7yQY</a></td>
</tr>
<tr>
<td>HPE iLO Documentation</td>
<td><a href="http://www.hpe.com/info/ilo/docs">http://www.hpe.com/info/ilo/docs</a></td>
</tr>
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<td>HPE iLO Essentials License video</td>
<td><a href="https://www.youtube.com/watch?v=bTSxIwy5010">https://www.youtube.com/watch?v=bTSxIwy5010</a></td>
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<td>HPE iLO Free Online Training</td>
<td><a href="http://www.hpe.com/ww/iloBundle">http://www.hpe.com/ww/iloBundle</a></td>
</tr>
<tr>
<td>HPE iLO Licensing</td>
<td><a href="http://www.hpe.com/info/ilo/licensing">http://www.hpe.com/info/ilo/licensing</a></td>
</tr>
<tr>
<td>HPE iLO Licensing (Spanish)</td>
<td><a href="https://www.youtube.com/watch?v=xYzIph2ZrUE&amp;feature=youtu.be">https://www.youtube.com/watch?v=xYzIph2ZrUE&amp;feature=youtu.be</a></td>
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<tr>
<td>HPE iLO Scale–Out License video</td>
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<tr>
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</tr>
<tr>
<td>HPE ProLiant training</td>
<td><a href="http://www.hpe.com/ww/learnproliant">http://www.hpe.com/ww/learnproliant</a></td>
</tr>
<tr>
<td>HPE Technical Support</td>
<td><a href="http://www.hpe.com/assistance">http://www.hpe.com/assistance</a></td>
</tr>
</tbody>
</table>
HPE iLO licensing support contact addresses

NOTE:

- To obtain support, you must provide proof of a license purchase.
- You cannot exchange a license that is redeemed (activated).

- Americas: licensing.ams@hpe.com
- Europe, Middle East, and Africa: licensing.emea@hpe.com
- Asia-Pacific and Japan: licensing.apj@hpe.com

Obtaining your Service Agreement ID (SAID), and accessing updates

The SAID is a 12 digit number assigned for entitlement to a service agreement contract. You must have a SAID to access HPE Technical Support and Software Updates for HPE hardware and software products.

When your license is registered on the My License Portal, you receive a Welcome to Support letter or email that includes your SAID, along with other contract information.

After you receive your SAID, you can link it to your HPE Passport account so that you can access updates directly from the Software updates and licensing portal (http://www.hpe.com/downloads/software).

Procedure


2. On the left navigation menu, click Manage my contracts & warranties.

3. Click Link support agreements and follow the instructions.

To access software updates if you have not yet linked your SAID to your HPE Passport account:

- Go to the Software updates and licensing portal at http://www.hpe.com/downloads/software, and sign in with your HPE Passport account.
- Select Directly enter an SAID, enter your SAID, and click View available products.

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
http://www.hpe.com/assistance

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

  http://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

**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
  www.hpe.com/support/hpesc

  Hewlett Packard Enterprise Support Center: Software downloads
  www.hpe.com/support/downloads

  Software Depot
  www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:

  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:

  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 Passport set up with relevant entitlements.

---

**Customer self repair**

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.
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 will initiate a fast and accurate resolution based on your product's service level. 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.

Remote support and Proactive Care information

HPE Get Connected
www.hpe.com/services/getconnected

HPE Proactive Care services
www.hpe.com/services/proactivecare

HPE Proactive Care service: Supported products list
www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list
www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central
www.hpe.com/services/proactivecarecentral

Proactive Care service activation
www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

To view the warranty for your product or to view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products reference document, go to the Enterprise Safety and Compliance website:
www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional warranty information

HPE ProLiant and x86 Servers and Options
www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise Servers
www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products
www.hpe.com/support/Storage-Warranties

HPE Networking Products
www.hpe.com/support/Networking-Warranties

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:
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:

www.hpe.com/info/reach

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

www.hpe.com/info/ecodata

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

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, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hpe.com). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.
HPE iLO customer scenarios

Business requirements and solutions

Managing multiple servers from one system

Requirement
You are a mid-size business with a few servers, and many virtual machines. You must manage these servers from a single pane of glass without purchasing an additional server or complex tools.

Solution
Use HPE iLO Federation to:

• Manage multiple servers from one system by running the iLO web interface.
• Communicate with other iLO systems via multi-cast discovery, peer-to-peer communication, and iLO Federation groups.
• Retrieve iLO Federation data. When data is loaded on an iLO Federation page in the iLO web interface, a request for data is sent from the iLO system running the web interface to its peers, and from those peers to other peers, until all the data for the selected iLO Federation group is retrieved.
• View information from iLO Federation nodes.
• Deploy settings to iLO Federation nodes. (Required license: iLO Advanced)

Configuring, managing, and optimizing server performance

Requirement
You want to create, read, update, or delete information on a server using simple HTTPS calls.

Solution
Use the iLO RESTful API implementation in UEFI and iLO. It provides:

• A new, single command-line interface tool
• Redfish Protocol compliance
• A programmable, intelligent management solution that helps ensure that your servers are scalable, secured, discoverable, and extensible

Protecting your data

Requirement
You want to protect your server from unauthorized access and data breaches.

Solution
Use UEFI and HPE iLO.

• With UEFI server configuration you can:
- Create a chain of trust for installation authentication.
- Increase server security with four new levels of Secure Boot options

- With iLO server access and management, featuring two-factor user authentication, you can protect your server with:
  - The iLO Event Log
  - Agentless Management
  - Directory services integration (Required license: iLO Advanced)
  - LDAP
  - Role-based access control within iLO
  - Kerberos-based Single-Sign-on (Required license: iLO Advanced)

**Implementing a standardized method for server control and monitoring**

**Requirement**
Your company has asked you to implement a standardized method for controlling and monitoring your server.

**Solution**
Use the Intelligent Platform Management Interface (IPMI) in iLO to:

- Manage events and status independently of the host system processor, firmware (BIOS or UEFI), and operating system, including:
  - Monitoring system information, such as fans, temperatures, and power supplies
  - Utilizing recovery capabilities, such as system resets and power on/off operations
  - Reviewing logging details about abnormal events, such as over-temperature readings or fan failures
  - Viewing inventories of hardware components

**Connecting to a network**

**Requirement**
You want to connect your server to a network.

**Solution**
Use HPE iLO to connect your server to a network port. iLO standard provides two options:

- A dedicated network management port on HPE ProLiant Gen9 Servers with 4 GB NAND
- A shared network port that enables VLAN tagging on HPE ProLiant Gen9 Servers with 2 GB NAND

**Maximizing power efficiency**

**Requirement**
You want to conserve the energy consumption of your server.
Solution
Use HPE iLO power control options to:

- Securely turn servers on or off remotely.
- Monitor power consumption and server power settings.
- Dynamically change power capping (Required license: iLO Advanced)

Identifying and resolving problems

Requirement
You want to be alerted to problems as they occur with your server and to resolve them quickly.

Solution
Use the iLO Integrated Management Log to:

- View detailed event logs, including server outages and resets.
- Configure event notifications via:
  - SNMP alerts
  - Remote Syslog (Required license: iLO Advanced)
  - Email alerts (Required license: iLO Advanced)

Discovering all servers in your infrastructure

Requirement
Your team installed 100 new servers in your data center and they must be discovered immediately.

Solution
Use iLO Federation to discover hundreds of servers in seconds. It provides:

- Query and display capabilities
- Group health status updates
- Group configuration details
- DNS name registration information

Remotely managing servers

Requirement
You are away from your office and need to access your server.

Solution
Use the iLO web interface or mobile app to manage your server anytime from anywhere. With iLO, you can remotely:

- Inventory and deploy servers using ROM-based tools
- Launch and monitor the progress of LO scripts
• Use the remote console
• Power your server on and off
• Troubleshoot and diagnose issues
• Mount an ISO CD/DVD image via virtual media (Required license: iLO Advanced)
• Engage with up to six coworkers in different locations at once (Required license: iLO Advanced)
• Record and play back for later reference the steps you need to administer servers (Required license: iLO Advanced)

Deploying, managing, and updating firmware across your data center

Requirement
You want to quickly, deploy, manage, and update firmware across hundreds of servers in your data center.

Solution
Use the full management capabilities of iLO Federation provided by either an iLO Advanced or iLO Scale-Out license. Either of these licenses enable iLO Federation options for performing:

• Group firmware updates (Required license: iLO Advanced or iLO Scale-Out)
• Group license activation (Required license: iLO Advanced or iLO Scale-Out)
• Group virtual media (Required license: iLO Advanced or iLO Scale-Out)
• Group power control (Required license: iLO Advanced or iLO Scale-Out)
• Group power capping (Required license: iLO Advanced or iLO Scale-Out)
The following list describes features that are standard HPE iLO server features, and features that require a license. Where applicable, it shows which required licenses are needed for a feature.

**Active Health System Diagnostics**
Provides a 24/7 control center for your server that enables you to continuously monitor more than 1600 system parameters and receive consolidated health and service alert.

**Recommended for**
All customers

**Active Health System Viewer**
A free tool that enables you to view and self-diagnose any issues with your server. Obtain the viewer at [www.hpe.com/servers/ahsv](http://www.hpe.com/servers/ahsv).

**Recommended for**
All customers

**Advanced Power Management**
Provides access to power related data from any of the three iLO interfaces (browser, script, or command line). Available information includes time spent in Power Regulator Dynamic Savings mode, average, peak, and minimum power consumption over 24-hour intervals, and iLO Power Meter (when supported by the host).

**Recommended for**
Enterprise, financial, government, security conscious customers

**Required license**
iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem

**Agentless Management**
Monitors and generates SNMP traps and additional operating system data independently of the operating system and processor.

**Recommended for**
All customers

**Automatic Secure Recovery**
Validates the iLO firmware when power is applied. If the firmware is invalid, the iLO firmware is flashed automatically (iLO Standard license). Also validates the system ROM during server startup. If valid system ROM is not detected, the server is prevented from booting. Recovery options include swapping the active and redundant ROM, and initiating a firmware verification scan and recovery action (iLO Advanced Premium Security Edition license).

**Required license**
iLO Advanced Premium Security Edition

**Backup and Restore**
The Backup and Restore feature allows you to restore the iLO configuration on a system with the same hardware configuration as the system that was backed up. This feature is not meant to duplicate a configuration and apply it to a different iLO system.
In general, it is not expected that you will need to perform an iLO restore operation. However, there are cases in which having a backup of the configuration eases and expedites the return to a normal operating environment.

As with any computer system, backing up your data is a recommended practice to minimize the impact from failures. Hewlett Packard Enterprise recommends performing a backup each time that you update the iLO firmware.

**Commercial National Security Algorithm (CNSA) Mode**

Commercial National Security Algorithm (CNSA) mode (also known as SuiteB security state) is available only when the FIPS security state is enabled.

When set to this security state:

- iLO operates in a mode intended to comply with the SuiteB requirements defined by the NSA, and intended to secure systems used to hold United States government top secret classified data.
- You cannot use SUM to directly install iLO Secure Flash components, TPM components, or NVDIMM components. To install these component types, use SUM to add files or install sets to the iLO installation queue, or install each update individually by using the iLO Firmware or Group Firmware Update pages.
- You cannot connect to the server with network-based tools that do not support TLS 1.2.
- The system maintenance switch setting to bypass iLO security (sometimes called the iLO Security Override switch) does not disable the password requirement for logging in to iLO.

**Required license**

iLO Advanced Premium Security Edition

**Core Boosting**

Core boosting works with selected Intel processors to enable higher performance across more processor cores. For more information, see the HPE Gen10 Servers Intelligent System Tuning white paper, available from [www.hpe.com/support/gen10-intelligent-system-tuning-en](http://www.hpe.com/support/gen10-intelligent-system-tuning-en).

**Directory Service Authentication**

Integrates directory services, such as Microsoft® Active Directory, to authorize directory users with assigned user roles to Integrated Lights-Out processors.

**Required license**

iLO Advanced Premium Security Edition, iLO Advanced, or iLO Advanced for BladeSystem

**Discovery Services**

Automatically reports server locations to HPE SIM and Insight Control. Power Discovery Services is an enhancement to the iPDU technology. It automatically reports iPDU power status.

**Required license**

iLO Advanced Premium Security Edition, iLO Advanced, or iLO Advanced for BladeSystem

**Email-Based Alerting**

Sends iLO alert conditions that are detected independently of the host operating system to a specified email address.

**Recommended for**

All customers

**Required license**
Embedded Remote Support

Enables you to register servers for HPE remote support.

Recommended for

All customers

Embedded System Health

Monitors fans, temperature sensors, power supply sensors, and VRMs without loading the System Management Driver.

You can access the status of these components from all HPE iLO for ProLiant user interfaces (browser, SMASH CLP command line, and script), independently of the host operating system. The management processor also reports sensor status to the operating system through an IPMI specified interface. The intelligence of iLO manages the Sea of Sensors thermal control, directs the Dynamic Power Capping technology, and monitors the health of server components.

Recommended for

All customers performing system maintenance

Global Team Collaboration via Integrated Remote Console

Enables up to six iLO users with remote console privileges in different locations to collaborate using the Integrated Remote Console to troubleshoot, maintain, and administer remote servers.

Required license

iLO Advanced Premium Security Edition, iLO Advanced, or iLO Advanced for BladeSystem

iLO Federation Discovery

Queries using any iLO in the Federation Group of multiple systems to return results from the full group. When data is loaded on an iLO Federation page in the iLO web interface, a request for data is sent from the iLO system running the web interface to its peers, and from those peers to other peers until all the data for the selected iLO Federation group is retrieved.

Recommended for

Enterprise customers with a large number of HPE servers

iLO Federation Group License Activation

Activates licensed features on all servers within a configured iLO Federation group.

Required license

iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem

iLO Federation Management

Enables you to manage multiple servers from one system running the iLO web interface.

Recommended for

Enterprise customers with a large number of HPE servers

Required license

iLO Advanced Premium Security Edition, iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem
iLO Reboot
When the UID button for is pressed for five seconds, initiates a manual reboot iLO without bringing down the server.

Recommended for
All customers

iLO RESTful API
The iLO RESTful API is a management interface that server management tools can use to perform server configuration, inventory, and monitoring via iLO. A REST client, such as the RESTful Interface Tool, sends HTTPS operations to the iLO web server to GET and PATCH JSON-formatted data, and to configure supported iLO and server settings.

iLO RESTful API with Redfish Compliance
Operates iLO via Redfish-compliant HPE RESTful API

Recommended for
Customers with multi-vendor data centers who want a common way to manage them, and don’t like the insecure nature of IPMI.

Integrated Remote Console (IRC)
Turns a supported browser into a virtual desktop, giving you full control over the display, keyboard, and mouse of the host server. You can use the Remote Console to access the remote file system and network drives, observe POST boot messages as the remote host server restarts, and initiate ROM-based setup routines to configure the remote host server hardware. When you are installing operating systems remotely, the Integrated Remote Console enables you to view and control the host server monitor throughout the installation process.

Recommended for
All customers with remote management needs.

Required license
With iLO Standard and iLO Scale-Out licenses, support for this feature is pre-OS text mode only. Full support is available with all other iLO license types.

Integrated Remote Console Record and Playback
Records and plays back video streams of events, such as startup, ASR events, and sensed operating system faults. You can manually start and stop the recording of console video. You can use the Integrated Remote Console applet to view saved iLO video files.

Recommended for
Enterprise customers

Required license
iLO Advanced Premium Security Edition, iLO Advanced or iLO Advanced for BladeSystem

IPMI over LAN/DCMI
Uses the LAN or Data Center Management Interface function of the Intelligent Platform Management Interface specification to establish remote connectivity independently of the processor, firmware, and operating system.

Recommended for
Customers with multi-vendor data centers who want a common way to manage them.
IPv6

Provides IPv6 network support.

Jitter Smoothing

HPE's Jitter Smoothing technology mitigates processor frequency fluctuation to reduce latency and deliver deterministic and reliable performance. In variable workloads where processor frequency changes occur often, Jitter Smoothing can improve overall throughput above turbo boost mode alone.

Kerberos Authentication

Integrates iLO authentication into a customer security system. If the client workstation is logged in to the domain, and the user is a member of a directory group for which iLO is configured, enables a user to log in to iLO without supplying a user name and password.

Recommended for

Enterprise, financial, government, security conscious customers

Required license

iLO Advanced Premium Security Edition, iLO Advanced, or iLO Advanced for BladeSystem

Pre-Boot Health Summary

You can use iLO to display the Pre-Boot Health Summary on an external monitor when the server is powered on or off. This feature is useful for troubleshooting when the server will not start up, and can also be used to view the server IP address and other health information.

Recommended for

All customers

Remote Insight Board Command Language (RIBCL)

Provides Remote Insight Board Command Language for server administration.

Remote Syslog

Sends event notification messages to Syslog servers.

Recommended for

Enterprise customers with Security and Event Management (SIEM) systems

Required license

iLO Advanced Premium Security Edition, iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem

Runtime Firmware Verification

The Firmware Verification feature allows you to run an on-demand scan or implement scheduled scans. To respond to detected issues, choose between logging the results or logging the results and initiating a repair action that uses a recovery install set.

Required license

iLO Advanced Premium Security Edition

Scripted Virtual Media

Connects scripted media for access by the servers in an iLO Federation group.

Required license

iLO Advanced Premium Security Edition, iLO Advanced, or iLO Advanced for BladeSystem
Secure Erase of Non-Volatile Storage (NAND/User Data)
This will trigger a secure hardware erase of all user and warranty info. It may take up to 24 hours and cannot be aborted until it completes. This feature needs an iLO Advanced Premium Security Edition license in order to be displayed and functioning in the GUI.

Required license
iLO Advanced Premium Security Edition

Secure Shell (SSH) Command Line Interface
Provides monitoring and management via a Secure Shell CLI.

Recommended for
All customers who have remote management needs.

Silicon Root of Trust
With HPE Gen10 Servers, HPE offers the first industry-standard servers to include a silicon root of trust built into the hardware. The silicon root of trust provides a series of trusted handshakes from lowest level firmware to BIOS and software to ensure a known good state.

The iLO 5 chipset acts as a silicon root of trust and includes an encrypted hash embedded in silicon hardware at the chip fabrication facility. This makes it virtually impossible to insert any malware, virus, or compromised code that would corrupt the boot process. Rather than the iLO firmware checking the integrity of the firmware every time it boots, the iLO 5 hardware determines whether to execute the iLO firmware, based on whether it matches the encryption hash that is permanently stored in the iLO chipset silicon. These improvements help ensure that, if iLO 5 is running, your server is trusted.

Smart Array Secure Encryption
Supports HPE Smart Array controllers, providing data-at-rest encryption for direct-attached HDD or SSD storage connected to servers. This encryption provides an integrated solution to encrypting HDD or SSD volumes by using 256-bit XTS-AES algorithms.

Recommended for
Enterprise, financial, government, security conscious customers

Required license
iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem

Text-Based Remote Console via SSH
Provides a text-based remote console you can customize that is protected by the SSH encryption.

Recommended for
Hyperscale customers

Required license
iLO Advanced Premium Security Edition, iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem

Two-Factor Authentication (Kerberos, Smart Card - PIV/Common Access Card)
You can implement two-factor authentication by configuring Kerberos authentication or PIV/CAC Smartcard authentication.

Required license
iLO Advanced Premium Security Edition or iLO Advanced

Virtual Media via Integrated Remote Console
Enables you to use the Integrated Remote Console to control virtual media.
Recommended for
All customers with remote management needs.

Required license
iLO Standard for BladeSystem, iLO Essentials; iLO Advanced, or iLO Advanced for BladeSystem

Virtual Power Button
Remotely operates the power button of a host.
For example, if the host server is off, you can turn it on from the HPE ProLiant iLO browser, command line (SM CLP), XML scripting, or WS Management interfaces. You can also power off and on the server in one step. A "press and hold" option is available for the Virtual Power Button in the event a momentary press is insufficient to power off a server experiencing an operating system failure.

Recommended for
All customers who have remote management needs.

Virtual Serial Port
Provides a bidirectional data flow with a server serial port. Using the remote console, this feature enables you to operate as if a physical serial connection exists on the remote server serial port.

Recommended for
Hyperscale customers who are predominantly Linux users

Virtual Serial Port Record and Playback
Provides a bidirectional data flow with a server serial port, enabling you to operate as if a physical serial connection exists on the remote server serial port. The iLO Virtual Serial Port is displayed as a text-based console, but the information is rendered through graphical video data. iLO displays this information through an SSH client when the server is in a pre-operating-system state, enabling a nonlicensed iLO to observe and interact with the server during POST activities.

Required license
iLO Advanced Premium Security Edition, iLO Scale-Out, iLO Advanced, or iLO Advanced for BladeSystem

Web-Based GUI
Adds web-based monitoring and management of licensed features to the standard iLO user interface.

Recommended for
All customers

Workload Matching Profiles
HPE Workload Matching allows you to tune the resources in your HPE ProLiant server by choosing a preconfigured workload profile. The server will automatically configure the BIOS settings to match the selected workload.
Why is it important to register even though my license key is already installed?

Registration is important because:

- If you lose your license key, you can obtain it through the My License Portal (https://myenterpriselicense.hpe.com).
- You receive your support contract that is included in the price of your iLO license.

What happens if I lose my license key?

Does my license expire?

No. Your license is valid for the life of the server.

Do I lose functionality of licensed features when my one or three year Technical and Support Contract expires?

No. Your licensed features, and standard features, continue to be available. If you require support on licensed features, you must obtain a support contract.

Are standard iLO features covered in my one or three year Technical Support Contract?

No. Standard iLO features are covered under your server hardware warranty.

Can I upgrade from an Essentials or a Scale-Out license to an iLO Advanced license?

No, not at this time.

Can I transfer my license to another server?

No. Your license key is only valid for the server on which it is installed.

What is a SAID?

A SAID (Service Agreement Identification) is a 12-digit number assigned for entitlement to a service agreement contract. You must have it to access HPE Technical Support and Software Updates for HPE Hardware and Software products.

How do I get a SAID and what do I do with it?

After you register your license on the My License Portal (https://myenterpriselicense.hpe.com), HPE sends your SAID in a welcome letter similar to the following example.
Thank you for purchasing HPE Packaged Support Services with your HPE product. These services are designed to supplement the product warranty. The support you have purchased is detailed below:

<table>
<thead>
<tr>
<th>Service Agreement ID</th>
<th>1111 2222 3333</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage Dates</td>
<td>01/01/2016 – 12/31/2019</td>
</tr>
<tr>
<td>HP Sales Order Number</td>
<td>26R190026001</td>
</tr>
<tr>
<td>SAR (Support Account Reference)</td>
<td>ACMECORPHPSW1</td>
</tr>
<tr>
<td>Contract #</td>
<td>2151234567</td>
</tr>
</tbody>
</table>

If you require service, please call HP Response Center: 1-800-633-3000

Our service entitlement process is new. This new process will increase security and facilitate global service delivery and access. The 12-digit system-generated number is unique to you. When you place a call you will need the SAID listed above and the Serial Number of the product requiring service (for hardware). Note: SAID replaces the system handle, obligation ID or access numbers previously used for entitlement purposes.

Please forward or share this information with your System Manager(s) or any personnel placing Support Service calls against this service contract/agreement.

Please verify your Serial Numbers with the attached document. If the Serial Numbers do not appear on the enclosed list or are incorrect, please call your HP Contact as soon as possible to make the changes and ensure appropriate support.

If you have additional questions about these services, please call HP Customer Service Center 1-800-386-1115.

Hewlett Packard
Enterprise

Figure 3: Sample SAID welcome letter

After you receive your SAID, you can link it to your HPE Passport account so that you can access updates directly from the Software updates and licensing portal (http://www.hpe.com/downloads/software).

When do I use my SAID?

Use your SAID to access:

- HPE Technical Phone Support
- The HPE Support Center (http://www.hpe.com/support/hpesc)
- Software updates for HPE Software products via the HPE Update Center (http://www.hpe.com/downloads/software)
What if I have not received my welcome letter with my SAID, or I lost my SAID?

• If you purchased your license directly from HPE, send an email requesting a welcome letter and SAID to the address for your region. Make sure to include your HPE sales order number.
  ◦ Americas: licensing.ams@hpe.com
  ◦ Europe, Middle East, and Africa: licensing.emea@hpe.com
  ◦ Asia-Pacific and Japan: licensing.apj@hpe.com

• If you purchased your license from a reseller, contact the reseller and provide your sales order number to request your SAID and welcome letter.