QuickSpecs

Overview

HPE Integrated Lights-Out (iLO)

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. This technology is combination of the iLO ASIC that is part of the server-board and the firmware that powers the ASIC. Different generations of ProLiant Servers carry different versions of the iLO ASIC.

Sl No	ProLiant Generation	iLO ASIC version
1	Gen10	iLO 5
2	Gen9 and Gen8	iLO 4
3	Gen7	iLO 3

iLO is key to make the server operational and boot. It helps simplify server set up, engage health monitoring as well as power and thermal control.

These capabilities are included with the Server at no extra cost (iLO Standard). No installation needed and minimal setup is required.

Industry leading features that enhance server administrator productivity are available through optional licenses. With iLO 5 Firmware version v1.40, the iLO Advanced license will include all licensed features. This new, simplified approach allows customers to have either standard, included features, or upgrade to licensed features that are all available with iLO Advanced.

What's New

Currently, when a customer orders a server, the server is shipped with the default iLO password being a randomized string. The randomized string which is the initial password for the iLO is printed on the iLO Default Network Settings Tag. The default password is used for the initial login and is restored when iLO is Reset to Defaults.
Using the randomized password is a security best practice. However, some customers that onboard large numbers of servers view this as an impediment to automation.

Customers who prefer to get their servers with a well-defined or common default iLO password, may now order SKU P08040-B21 along with their servers. Ordering this SKU with the server will instruct the factory NOT to randomize the password and set a HPE defined common password. All customers using this SKU will receive their systems with the same password. Server orders that do not include the SKU P08040-B21 will continue to receive their servers with randomized passwords. This common password will be printed on the iLO Default Network Settings Tag and will be the default password if iLO is Reset to Defaults.

HPE highly recommends changing of this password immediately after the initial onboarding process.

Customers who want to choose their own custom default password should use the HPE Factory Express Integration Services.

Hewlett Packard Enterprise

Standard Features

iLO 5 Firmware version v1.40

- Features previously requiring an iLO Advanced Premium Security Edition now enabled with an iLO Advanced license
- Security Dashboard – Displays the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features
- One-button Secure Erase via Intelligent Provisioning, designed to decommission/repurpose servers
- Support for Gemalto SafeNet and SafeNet AT key managers
- Virtual NIC functionality, allowing secure authenticated iLO access from the Operating System
- LDAP/Directory settings configurable via Redfish
- Firmware Downgrade Policy – Specifies how iLO handles requests to downgrade firmware that you can update through iLO
- NVMe wear level display
- Ability to edit Maintenance Windows in Firmware & OS Software section
- Password complexity rules feature
- Enable/disable for overlay video showing Server Health Summary
- Server configuration lock enabled via the BIOS
- Workload Performance Advisor – Provides server tuning recommendations to improve server performance

iLO 5 Firmware version v1.30

- Support for scheduled firmware updates
- Support for Intelligent System Tuning features via iLO UI
- Enhancements to AlertMail features including secure email and the ability to use an external SMTP mail server, eliminating the need for users to have their own SMTP server
- HTML5 IRC enhancements
    - Support for local files to be mounted via Virtual Media in HTML5 Remote Console
    - Improved performance of HTML5 Remote Console
    - Fixed keyboard bugs in HTML5 Remote Console
- Forensics capture of defective FW images to NAND, and ability to download bad image for external analysis
- Automatic Save/Restore of iLO configuration to/from NAND at iLO startup
- Enhancements to prevent NAND wear out

iLO 5 Firmware version v1.20

- HTML5 Remote Console
    - No dependency on JAVA or .NET
    - Native browser support for Chrome, Firefox, Edge, Internet Explorer, Safari
    - Support for Windows, Linux, Mac clients
    - Keyboard, Video, Mouse redirection
    - Virtual Media Support (via URLs)
- GUI and REST API to configure power settings for Apollo servers
- GUI and REST API to configure drive zoning for Apollo servers
- Support for IPv6 on share network port
- Support for Online Certificate Status Protocol (OCSP) for CAC/SmartCard/certificate based authentication
- Support for RSA-PSS certificate signatures
- RSA cipher support in CNSA mode
- Added NVMe drive properties to Redfish

Standard Features

iLO 4 Firmware version v2.70

- HTML5 Remote Console
- Support for Gemalto SafeNet and SafeNet AT key managers
- "All Host Links Down" SNMP trap
- Infosight skinny AHS download
- Integrated Remote Console power button confirmations.
- OpenSSL 1.0.1 -> 1.0.2o
- Added logging of Non-volatile flash memory wear data to Active Health System.

iLO 4 Firmware version v2.62

- Bug Fixes

Refer to the **HPE iLO User Guide (iLO 5 iLO 4)** and **release notes (iLO 5 iLO 4)** for a complete list of fixes/enhancements and also additional information on new features/enhancements/fixes.

RELATED FAQS for HPE iLO Licensing

Q: Can the iLO Advanced license key of the new electronic SKU's be installed via normal HPE factory CTO process?
A: No, this is has been discontinued, in case you need factory integration of iLO licenses please order the physical SKU with the #0D1 option.

Q: Can one still get iLO Advanced electronic licenses (E-LTU SKU)?
A: YES, electronic licenses are still available and can be ordered. Only the #0D1 option i.e. factory integration has been discontinued.

Q: Can the **FLEX or TRACKING license SKU's** be HPE Factory Integrated?
A: NO, the FLEX and TRACKING license SKU's cannot be installed in the Hewlett Packard Enterprise Factory. However, these licenses can be installed in the factory as part of the Factory Express service which is chargeable.

Q: What is the difference between one (1) and three (3) year support?
A: 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; standard iLO non licensed features are still supported. Your licenses do not expire. They are valid for the life of the server on which they are applied.

Q: How are iLO standard features (included with every ProLiant server at no additional cost) supported?
A: 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 - for iLO 4
http://www.hpe.com/support/iLO5 - for iLO 5

For more information on HPE iLO licensing, please refer to the **HPE iLO Licensing Guide**
at **http://www.hpe.com/support/iLOLicenseGuide-en**.

Licensing Redemption

HPE has a new licensing portal, visit us at **https://myenterpriselicense.hpe.com**.

Q: What does the customer receive when the electronic version is ordered?
A: The customer will still receive an email that contains a link to the licensing portal and the license key will be printed on the electronic email.

Standard Features

Customers are HIGHLY encouraged to register the product on the licensing portal.

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.

 For e-delivery products, the entitlement order number (EON) used to the register the product on the licensing portal will be the same as the Hewlett Packard Enterprise sales order number.

NOTE: This document is a consolidation of previous QuickSpecs and covers HPE iLO 5, HPE iLO 4, HPE iLO 3 and HPE iLO 2 for HPE ProLiant servers. Please visit: **http://www.hpe.com/info/iLO**

Alert Administration for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant support delivery of SNMP server agent alerts as well as internally generated management processor alerts (e.g. unsuccessful login attempt), to a management console such as HPE Systems Insight Manager, Insight Control, OneView. Traps forwarded by the processor can be configured in Insight Manager for delivery to an administrator's pager or e-mail.
Always On Intelligent Provisioning	Intelligent Provisioning is now Always On. Intelligent Provisioning is accessible from the iLO browser user interface anytime without having to reboot your server. Clicking Always On to access Intelligent Provisioning has the same capabilities as accessing Intelligent Provisioning by pressing F10 from the POST screen.
Auto-Configuration of IP Address using DNS/DHCP for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant provides automatic network configuration. A default name and Dynamic Host Configuration Protocol (DHCP) client that leases an IP address from the DHCP server on the network are standard with HPE iLO for ProLiant. This allows the management processor to register its device name with Domain Name Services (DNS) and Windows® Internet Naming Service (WINS). For systems that do not use DNS/DHCP, static IP configuration is also supported.
Automated Group Administration & Actions for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant group administration automates configuring and managing large deployments of Integrated Lights-Out processors. Using iLO's extensive scripting language with HPE Lights-Out Configuration Utility, the HPE Lights-Out Online Configuration Utility or RESTful Interface Tool, an administrator can easily configure all settings for mass deployments, control all functions and activate the HPE Integrated Lights-Out (iLO) for ProLiant Advanced license keys simultaneously on multiple HPE ProLiant iLO processors. With a batch process or HPE System Insight Manager's powerful device query mechanism, these utilities enable scalable use and management of HPE ProLiant iLO's. Sample scripts are available at: **http://www.hpe.com/info/iLO**.
Auxiliary Power for HPE ProLiant	Because the HPE Integrated Lights-Out (iLO) for ProLiant management processor obtains its power from the auxiliary power plane of the server, it is always on when the server is plugged into a power source. If the server provides Redundant Power Supplies (RPS) then the HPE iLO for ProLiant will use redundant power and will continue operation in the event of a power supply failure.

Standard Features

POST LED Indicator for HPE ProLiant

The Integrated Lights-Out (iLO) has been designed to provide feedback during the POST process as a blade system does not include a directly attached monitor. The Integrated Lights-Out (iLO) blinks the Server Health LED during the boot process to enable the onsite administrator the results of the POST process.

Embedded System Health for HPE ProLiant

On supported server models, the HPE iLO for ProLiant management processor monitors fans, temperature sensors, power supply sensors and VRMs without having the System Management Driver loaded. The status of these is accessible from all HPE iLO for ProLiant user interfaces (browser, SMASH command line Redfish API, XML scripts and IPMI) independent of the host operating system The intelligence of iLO manages the Sea of Sensors thermal control, directs the Dynamic Power Capping technology and monitors the health of server components.

Flexible Interfaces for HPE ProLiant

Using any of the HPE iLO for ProLiant interfaces, customers can configure, update and control all HPE iLO for ProLiant Standard functions regardless of the state of the host server or operating system

- **Browser** - HPE iLO for ProLiant is fully accessible by means of Microsoft® Internet Explorer®, and Mozilla Firefox® (Linux® and Windows® only).
- **Redfish API** – HPE iLO for ProLiant conforms to industry-standard specification and schema for data center infrastructure management sponsored and controlled by the Distributed Management Task Force, Inc. (DMTF), Redfish establishes a new management standard for system control that is scalable, easy to use, and secure with the effort to modernize heterogeneous data centers. In addition, HPE ProLiant servers expose iLO RESTful API extensions, allowing customers to experience the full range of value-add features available from a programmable interface.
- **Command line** - HPE iLO for ProLiant supports the new industry standard command line, DMTF System Management Architecture for Server Hardware, Server Management Command Line Protocol (SM CLP) specification. These commands can be used on other SM CLP compliant Hewlett Packard Enterprise products, such as the first generation iLO, Lights-Out 100 Management Processors, HPE Integrity iLO, and other non-Hewlett Packard Enterprise products.
- **Scripting** - HPE iLO for ProLiant supports a scalable scripting interface using either programmable JSON, XML or PERL scripting. This enables scalable, simultaneous configuration, update and operation large groups of HPE iLO for ProLiant servers as well as iLO and RILOE II management processors.
- **Intelligent Platform Management Interface** (IPMI) is a standardized computer system interface used by system administrators for out-of-band management of computer systems and monitoring of their operation. System administrators can use IPMI messaging to monitor platform status (e.g. system temperatures, voltages, fans, power supplies and chassis intrusion); to query inventory information; to review hardware logs of out-of-range conditions; or to perform recovery procedures such as issuing requests from a remote console through the same connections e.g. system power-down and rebooting, or configuring watchdog timers. The standard also defines an alerting mechanism for the system to send a simple network management protocol (SNMP) platform event trap (PET).

Standard Features

Flexible Network Connectivity for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant provides a choice between two network connection methods to access all functionality: • **Dedicated connection** - Access HPE iLO for ProLiant via an embedded 10/100-MB (10/100/1000-MB on iLO 4) dedicated Ethernet NIC. This enables remote management over a dedicated, out-of-band management network. In-band SNMP notification of server problems on a real-time basis is also supported without separate telephone connections or modem sharing devices. The dedicated NIC can auto-negotiate speed and duplex options. The iLO Dedicated NIC provides the highest levels of reliability and security. • **Shared Network Port** - On selected ProLiant server models, HPE iLO for ProLiant supports network connectivity through a new high-speed shared connection via one of the embedded system NICs. The latest version of iLO also supports. Shared network port over the Flexible -LOM providing full accessibility to all HPE iLO for ProLiant functions including browser, Virtual Media and Virtual Keyboard Video and Mouse in graphics mode. The management processor maintains a unique IP address and MAC allowing the network controller to route HPE iLO for ProLiant and host data correctly. With the Shared Network Port, out-of-band management and production data can share the same wire eliminating the separate network connection for each server.
Flexible Setup Options for HPE ProLiant	An onboard ROM-based configuration utility allows fast and easy setup without additional software. HPE iLO for ProLiant can also be setup via the browser or command line interface over the network. Integration with SmartStart Scripting Toolkit allows configuration of the card as part of the initial server deployment. For large deployments, the HPE Lights-Out Configuration Utility or the iLO REST tool can be used to configure groups of HPE iLO for ProLiant processors, saving time and resources.
iLO Access Options and Services Control (iLO 5 and above only)	Ability to turn enable/disable iLO access options and services.
iLO Repository (iLO 5 and above only)	Storage space earmarked in the iLO which can be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware.
iLO Security Dashboard	Helps detect and address possible security vulnerabilities in current server setup
iLO Security Modes (iLO 5 and above only)	Ability to put harden iLO for specific security requirements.
iLO Service Port (Gen10 servers and above only)	The iLO Service port is a USB port connected to the iLO and is located on the front panel of the server. Users can connect their laptops to this port via a USB-Ethernet adapter (HPE recommends using the following HPE part Q7Y55A) and get the full access to the Integrate remote console. Users can also connect a USB drive to this port and download service logs to it. All servers may not have an iLO Service Port please refer server QuickSpecs to confirm.
Immutable Root of Trust (iLO 5 and later only)	Signatures for validation of integrity of iLO and UEFI/BIOS are built into the iLO ASIC. This prevents any possibility of tampering of security signatures throughout the supply-chain.

Standard Features

Integrated Lights-Out (iLO) Management for HPE ProLiant	**HPE Agentless Management 2.0:** The base hardware monitoring and alerting capability is built into the system (running on the HPE iLO chipset) and starts working the moment that a power cord and an Ethernet cable is connected to the server. This means that:

- All core management is out-of-band for increased security and stability: no OS software required, no open SNMP port on the OS and zero downtime updates.
- Monitor and Alerting on key internal server components: CPUs, memory, temperatures, fans, SmartArray controllers, hard drives (including cache modules) and power supplies.
- HPE Systems Insight Manager (HPE SIM) can see the system and will give customers preview of the System Health Summary and Sub-System Details.
- iLO integrates with HPE OneView.
  NOTE: On Gen10 servers, server monitoring is only via Agentless Management, HPE does not provide HPE Insight Management Agents or HPE WBEM providers for Gen10 servers.

HPE Active Health System: HPE Active Health System is an essential component of the HPE iLO Management. It provides customers with: Diagnostics tools/scanners wrapped into one; Always on, continuous monitoring for increased stability and shorter downtimes; Rich configuration history; Health and service alerts; Easy export and upload to Service and Support.

HPE Active Healthy System Viewer Tool: Enables you to read the Active Health System log files. It will provide errors messages and advises on a resolution. Use can create a support file, simply by uploading your AHS log file from within this tool.

Visit **http://www.hpe.com/servers/AHSV** for the **FREE** online version.

HPE Intelligent Provisioning: Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVDs are needed. For more information regarding Intelligent Provisioning please go to website at **http://www.hpe.com/info/intelligentprovisioning**

HPE Embedded Remote Support: Hewlett Packard Enterprise offers embedded remote support that allows a customer to enable remote support directly from iLO (also OA and IP) without installing OS agents on the device, greatly reducing the time to activate remote monitoring. Through Insight Remote Support 7.0.5 and later versions and Insight Online direct connect capability, customers now benefit from 24x7 remote monitoring, auto-generated service events, support cases and anywhere, anytime monitoring with HPE Insight Online, a personalized cloud-based IT dashboard. Through the HPE Support Center portal, Insight Online displays devices remotely monitored by Hewlett Packard Enterprise and lets you easily track your auto-generated service events and support cases, view device configurations, and proactively monitor your Hewlett Packard Enterprise contracts and warranties as well as HPE Proactive service credit balances. The Insight Online dashboard is also available in the HPE Support Center Mobile App.

Integrated Lights-Out (iLO) Event Log for HPE ProLiant	The HPE iLO for ProLiant Event Log stores detailed management processor events and data independent of the host operating system. Actions like server power on/off, reset, changes in user configuration, clear event log, successful and unsuccessful login attempts are logged along with the user's access machine name in the iLO Event Log enabling audits for security or troubleshooting purposes. The iLO Event Log is easily accessible through the browser, command line, script or Insight Manager.

Integrated Lights-Out (iLO) Standard Blade Edition Features for HPE ProLiant	HPE iLO for ProLiant Standard Blade Edition is enhanced to include several features that are essential for blade operation. The following additional features are supported as standard features on HPE ProLiant BL c-Class and HPE Integrated Lights-Out (iLO) supported c-Class BladeSystem servers:

- Virtual Keyboard Video and Mouse remote graphic console.
- Terminal Services Pass-Through supported in iLO2. Improvements in the iLO 3. Integrated Remote Console displaces the need for this feature. Virtual Media (browser access only to floppy disk, CD-ROM, DVD-ROM and USB-Drive based virtual media).

Standard Features

Integrated Management Log for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant captures and stores the server's Integrated Management Log (IML) for access via browser or command line even when the server is not operational. This capability can be helpful when troubleshooting remote host server problems. The IML contains a history of events that impact server health and management.
Integration with HPE Systems Insight Manager and other management applications for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant is integrated with Hewlett Packard Enterprise and other leading management applications to allow seamless use in lifecycle tasks and processes from deployment to fault management and administration. HPE OneView and HPE Systems Insight Manager (SIM) intelligently discovers HPE iLO for ProLiant devices and associates them with their host servers for fast access during fault management activities. HPE Insight Control Server Provisioning integrates tightly with HPE iLO when provisioning HPE ProLiant servers, including the Intelligent Provisioning capabilities of HPE ProLiant Gen8 servers. Intelligent discovery and launch of HPE iLO for ProLiant browser is also supported in HPE Openview Operations for Windows® and Network Node Manager®, Microsoft Operations Manager® and CA Unicenter®.

Standard Features

Integrated Remote Console for HPE ProLiant	The HPE iLO .NET Integrated Remote Console is launched from the iLO web browser interface, utilizes Microsoft .NET Framework® 3.5 (on the client PC) and takes advantage of Microsoft DirectX® based hardware acceleration to provide high performance and outstanding user graphics. HPE iLO has an enriched viewing experience with maximum resolution of 1600 x 1200 and maximum color depth of 32k colors. With HPE iLO, remote screen fits within one window and the screen can be scaled to any size, avoiding the use of scroll bars. HPE iLO for ProLiant has a Java-free Integrated Remote Console for environments with Microsoft Windows® host and client operating systems. With HPE iLO Standard and HPE iLO Standard Blade Edition, Integrated Remote Console provides access to Virtual Keyboard Video and Mouse in pre-OS text mode and Virtual power from a single screen. ProLiant OA/iLO Standard Blade Edition also allows virtual media to be controlled from the IRC. Starting with iLO 5 v1.20 onwards a HTML5 remote console is supported.
Local User Accounts And Logon Records for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant Standard supports up to 12 local user accounts with customizable access rights, individual logins and passwords. HPE iLO for ProLiant also provides logging of user actions in the event log, progressive delays for failed login attempts, and login legal warning.
Microsoft Emergency Management Service Console Integration for HPE ProLiant	The Microsoft Emergency Management Service® console provides a text-based screen to access the host server. HPE Integrated Lights-Out (iLO) for ProLiant provides the option to access the EMS console from the Integrated Lights-Out (iLO) browser interface. The Emergency Management Service console option is available on all HPE ProLiant servers using Windows Server 2003® or later.
Mobile App for HPE iLO	HPE iLO brings additional efficiency and effective remote management at the touch of your fingertips with the HPE iLO Mobile App. The HPE iLO Mobile App gives you immediate secured access to your server from the touch of your Smartphone or Tablet devices. Today we support Apple's iOS and Android devices (Phone and Tablet). This feature is supported on HPE iLO 3 and HPE iLO 4.To learn more visit: **http://www.hpe.com/info/ilo/mobileapp**.
Multi-Language Support	We provide our customers with the ability to read the HPE iLO GUI in the following languages: English, Japanese and simplified Chinese. Multi-Language support is only available on servers which carry a version of iLO with NAND.
Power Consumption Reporting for HPE ProLiant	On supported server models, the HPE iLO for ProLiant management processor displays the present power consumption in Watts and BTU. The present power is a five minute average that is calculated and displayed via all HPE iLO interfaces (browser, CLI, script).
Power Regulator for HPE ProLiant	Power Regulator for ProLiant can be enabled on supported server models from HPE iLO for ProLiant Standard browser, CLP and script interfaces. Power Regulator Static Low Power and Dynamic Power Savings Modes as well as Operating System based modes (AMD PowerNow or Intel Demand Based Switching) can be enabled to save on server power and cooling costs. On supported ProLiant servers, Power Regulator allows CPU's to operate at lower frequency and voltage during periods of reduced application activity.

Standard Features

Power Supply High-Efficiency Mode for HPE ProLiant	Beginning with the HPE ProLiant G6 servers, power supply high efficiency mode enables servers to run at maximum power efficiency even at low loads. When operating in this mode, the ProLiant OA will channel load through a single primary supply, as opposed to balancing power load equally across both supplies. In the event of a power supply outage, the secondary supply will immediately assume the load for the server. Power supply high-efficiency mode is not enabled automatically and must be configured through the iLO user interface.
Remote Firmware Update for HPE ProLiant	This feature ensures that HPE Integrated Lights-Out (iLO) for ProLiant is always up-to-date with the latest firmware available from Hewlett Packard Enterprise. Updates to the ROM code on HPE iLO for ProLiant are accomplished through the browser interface, command line, REST API , XML script, or using online flash components for Windows® Linux® and VMware®.
Remote Serial Console (Virtual Serial Port) for HPE ProLiant	Access to the host server's serial, text-based (Virtual Serial Port) during all server states over an Ethernet network is a standard feature on all HPE Integrated Lights-Out for ProLiant management processors. From the operating system-independent console you can monitor and control the BIOS and the server during Power-On System start-up testing (POST), as well as Microsoft Emergency Management Services® and serial tty sessions on systems running Linux operating systems. After OS is installed access can be set up to be re-directed to the Virtual Serial Port. Also in the event of a crash you can configure the OS to send the core data dumps to the Virtual Serial port.
ROM-base Setup Utility (RBSU) for HPE ProLiant	Embedded configuration utility within the system ROM and accessible through the HPE Integrated Lights-Out (iLO) for ProLiant interface that facilitates pre-OS display of server resources, configuration of primary boot controller and boot order, and configuration of system devices and installed options.
Security for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant provides strong security for remote management in distributed IT environments by using industry-standard Secure Sockets Layer (SSL) and Transport Layer Security (TLS) encryption of HTTP data transmitted across the network. SSL or TLS encryption (up to 256-bit) ensures that the HTTP information is secure as it travels across the network. HPE Integrated Lights-Out (iLO) for ProLiant also uses Secure Shell version 2 to provide strong authentication and encryption of commands executed on iLO management processors over a network. PuTTY and OpenSSH clients may be used to access HPE iLO for ProLiant over a Secure Shell connection. In addition, HPE iLO for ProLiant provides a configurable option to enable strong encryption Advanced Encryption Standard (AES) on browser, REST API, CLP and XML scripting interfaces.
Single Sign-on for HPE ProLiant	When using local user accounts on HPE Integrated Lights-Out and BladeSystem Onboard Administrator, single-sign on is supported. This allows users to access automatically, login to HPE ProLiant iLO from the BladeSystem OA user interface.
Static IP Bay Configuration for HPE ProLiant	The Static IP Bay Configuration feature simplifies deployment by automatically assigning IP addresses to individual blades from a reserved static pool as they're powered on even if DHCP is present.
System Diagnostics for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant may be used to diagnose systems. The Remote Console, Integrated Remote Console and Remote Serial Console may be used to monitor the system for POST error messages. The Integrated Management Log and HPE iLO for ProLiant Event Log record events useful for diagnostics. HPE Integrated Lights-Out (iLO) for ProLiant Virtual Media (if activated by an iLO Advanced key) may be used to boot and run System Diagnostics.

Standard Features

Virtual Indicators for HPE ProLiant

HPE Integrated Lights-Out (iLO) for ProLiant provides the ability to control server Unit ID LEDs from the HPE iLO browser, REST API command line (SM CLP), XML scripting. The server Unit ID LED is the blue LED on the ProLiant server that is used for identifying systems in a rack full of servers.

Virtual Key Video Mouse remote text console for HPE ProLiant

Embedded hardware remote console capabilities in a text mode screen prior to loading of the operating system; is provided as a standard feature on all ProLiant Integrated Lights-Out (iLO) management processors. This provides access to system BIOS and during Power-On System start-up testing using Virtual KVM technology. Remote text in "pre-OS" mode is accessible from the Integrated Remote Console and the Java applet Remote Console. The Java applet supports both Microsoft® and Sun Java® software.

Virtual Power Button for HPE ProLiant

Using a supported browser, command line or script interface, HPE Integrated Lights-Out (iLO) for ProLiant can be used to remotely operate 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, REST API, command line (SM CLP), XML. 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.

Virtual Private Network (VPN) support for HPE ProLiant

HPE iLO for ProLiant functionality is available securely over the Internet around the world when used in conjunction with VPN technology. VPN is supported on both HPE iLO for ProLiant network connection methods, dedicated and shared network ports.

Simple Network Management Protocol Version 3 (SNMPv3)

SNMP is the protocol developed to manage nodes (servers, workstations, routers, switches and hubs etc.) on an IP network. HPE iLO now has SNMP Version 3 (SNMPv3) which has added security and remote configuration capabilities over the previous versions. The SNMPv3 architecture introduces the User-based Security Model (USM) for message security and the View-based Access Control Model (VACM) for access control. The architecture supports the concurrent use of different security, access control, and message processing models. More specifically: Security, authentication and privacy, authorization and access control, Administrative Framework, naming of entities, people and policies, usernames and key management, notification destinations, proxy relationships , and remotely configurable via SNMP operations.

IPv6 on Dedicated NIC

The HPE iLO 4 dedicated NIC supports IPv6 addressing. DHCPv6, SLAAC/router assigned addresses and static IPv6 addresses are supported.

iLO Federation Discovery

Built in standard uniquely recognizes numerous servers at once via multicast discovery methods supporting both IPv4 and IPv6 environment providing the following information:
-   Queries and displays group health status
-   Displays group configuration
-   Provides registered server name
-   Discovers and identifies what servers have licenses installed
-

See the section below for additional iLO Federation Management features that are supported with the iLO Advanced license.

To learn more see the iLO Federation User Guide:
http://www.hpe.com/support/ilo5-federation-ug-en

Standard Features

iLO RESTful Application Program Interface (API)	The iLO RESTful API management interface functionality is available for iLO 4, iLO 5 and Moonshot iLO Chassis Management Module-based. Hewlett Packard Enterprise servers uses the basic HTTP operations (GET, PUT, POST, DELETE, and PATCH) to either submit or return a JSON formatted "resource" to or from a URI. The API enables users to manage one or multiple servers to:

- Get full inventory
- Control Power and reset
- Configure BIOS, iLO 4, iLO 5 and Smart Array (supported only on iLO 5/Gen10 controllers and above) settings
- Status of server health
- Fetch event logs and SSH Serial Console
- And more

iLO RESTful API Redfish conformant. To learn more see the **https://hewlettpackard.github.io/ilo-rest-api-docs/ilo5** or **http://www.hpe.com/info/restfulapi**.

NOTE: For more information on supported servers and licensed features see the iLO license matrix.

Advanced functionality, through the HPE iLO Advanced license such as graphical remote console, multi-user collaboration, and video record/playback can be activated with the optional HPE iLO Advanced or HPE iLO Advanced for BladeSystem licenses. These HPE iLO Advanced licenses can be purchased stand-alone or as part of HPE Insight Control or HPE OneView. The Advanced licensed features offer sophisticated remote administration of servers in dynamic data center and remote locations and can help significantly reduce cost associated with IT-related travel and unplanned downtime. For more specific license information, visit our **iLO Family Datasheet**.

3rd Party Key Manager Support	Facilitates key exchange for disk connect to a smart array controller, encrypted by Utimaco ESKM, Gemalto Safenet or SafenetAT key managers – providing easy integration of ProLiant servers in environments where the encryption key management is done by Utimaco ESKM, Gemalto Safenet or SafenetAT.
Automatic and On-Demand Video Record and Playback for HPE ProLiant	HPE ProLiant iLO Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Server faults include an ASR, server boot sequence, Linux panic, or Windows® blue screen. Additionally users are able to manually record and save any console video sequence to their client hard drive for replay from the HPE iLO Integrated Remote Console.
Automatic Firmware Recovery (iLO 5 and above only)	Recover iLO, UEFI/BIOS and other essential firmware automatically to a known good version (either factory default or a known good firmware recipe resident in the iLO Repository) on detection of a compromised iLO, UEFI/BIOS and other essential firmware.
Commercial National Security Algorithms mode (CNSA) support (iLO 5 and above only)	Support for CNSA compliant cryptography preventing the use of insecure algorithms.
Directory Services Integration for HPE ProLiant	HPE Integrated Lights-Out (iLO) for ProLiant integrates with enterprise-class directory services to provide secure, scalable, and cost effective user management. Directory services, such as Microsoft® Active Directory Novell eDirectory and OpenLDAP (iLO 4 v2.53), can be used to authorize directory users with assigned user roles to Integrated Lights-Out processors. With Active Directory, customers have the flexibility to integrate with or without a schema extension. An easy and reliable installation program is available to install a management console snap-in and extend customer's existing directory schema to enable directory support for the HPE lights-out management products. A directory migration tool is available to automate setup for both methods of integration. In addition, current versions of HPE iLO firmware will support directory nested groups.

Standard Features

Global Team Collaboration for HPE ProLiant
Up to six (via iLO 3 and above) and four (via iLO 2) HPE ProLiant iLO users with remote console privileges in different locations can collaborate using the shared remote console to troubleshoot, maintain and administer remote servers. In iLO2, the session leader can allow either view only or full console control by individual participants. In iLO3 and iLO4 the session leader can allow full console control by individual participants. Shared remote console mode is supported from the Integrated Remote Console on clients using Microsoft® Internet Explorer browsers as well as Firefox via iLO 3.

iLO Federation Management
The next generation enabling technology delivering unprecedented scale, speed and simplicity. iLO Federation Management, requires an iLO Advanced, iLO Advanced for BladeSystem or iLO Scale-Out license, and enables users to manage multiple servers as one via:
- Group Power Control
- Group Power Capping
- Group Firmware Update
- Group Configuration
- Group Virtual Media
- Group License Activation

To learn more see the iLO Federation User
Guide: **http://h20564.www2.hpe.com/hpsc/doc/public/display?docId=c04149067**

iLO FREE Trial 60 Day License
A FREE license key is available to temporarily activate iLO licensed features for evaluation purposes. The evaluation key unlocks all of the industry leading remote management on supported HPE ProLiant servers up to 60 days. Evaluation keys are available at: **http://www.hpe.com/info/TryiLO**.

iLO Serial Port Record\ Playback for HPE ProLiant
HPE iLO takes the output data from the Remote Virtual Serial Console (VSP) and saves it to iLO memory for so data can be later accessed. Very similar to "video console replay ", but is text based data only from the serial port. This would be used to store logs of data and\or history of activity to be retrieved later to see exactly what activity was done - or actions occurred (Play back) but all text based.

Intelligent System Tuning (Jitter Smoothing) (iLO 5 and above only)
Improve workload throughput, start by leveling and balancing frequency fluctuation with HPE's patented Jitter Smoothing technology. Engaging processor turbo boost can cause frequency fluctuations or "jitter" which results in a constant struggle between maximum output and deterministic performance needs. Now available on all ProLiant Gen10 servers, Jitter Smoothing mitigates processor frequency fluctuation to improve overall workload throughput above turbo mode. Beneficial for high frequency trading applications. To enable this capability an iLO Advanced license is needed.

Intelligent System Tuning (Core Boosting) (iLO 5 and above only)
When enabling Intel Turbo Boost mode, Core Boosting will maintain higher frequencies across more active cores on select servers and Intel processors; This is accomplished while maintaining Intel specs, warranty, and reliability. To enable this capability iLO Advanced license is needed

One-Button Secure Erase
Easily erase all user data on the server, secondary storage and NVRAM, per NIST Standards 800-88r1 with the click of a button in the UI/one call via RESTful API. Allowing easy repurpose and redeployment of servers with confidence that servers have been reset back to factory settings.

Power Regulator Reporting for HPE ProLiant
iLO Advanced iLO Advanced for BladeSystem and iLO Scale-Out enable access to power related data from any of the three iLO interfaces (browser, script or command line) on supported server models. Available information includes time spent in Power Regulator Dynamic Savings mode and average, peak and minimum power consumption over 24 hour intervals. Check the server QuickSpecs to verify specific system support for Power Regulator and power monitoring.

Standard Features

Remote Kernel Debugger for Windows® for HPE ProLiant	Integrated Lights-Out allows you to connect a Microsoft® Windows® debugger running on a remote PC to the iLO Virtual Serial Port (VSP) to diagnose and repair operating system kernel errors.
Remote System logs	HPE iLO keeps a log of everything being done, so it can later be used for troubleshooting or simply has a record. Syslog can be configured to receive logging from a remote client, or to send logging to a remote syslog server. Remote logging is sending a duplicate record of those events not only to the local machine but to a remote machine as well.
Runtime Firmware Validation (iLO 5 and above only)	Validation of iLO and UEFI/BIOS firmware at runtime. Notification and automated recovery on detection of compromised firmware.
Server Configuration Lock	Ensures secure transit and locks server hardware configuration using a password
Server System Restore	Improvement of server system restore – extending the number of components that can be restored
Single Sign-On for HPE ProLiant	ProLiant users can automatically login to iLO from HPE OneView, HPE System Insight Manager (version 5.1 or greater) and the HPE BladeSystem Onboard Administrator. In addition, to direct access and authentication using iLO Active Directory integration, the role based authentication in HPE OneView, SIM and Onboard Administrator can be used to simplify user access and user account administration.
Two-factor authentication via Kerberos for HPE ProLiant	HPE ProLiant Integrated Lights-Out (iLO) provides strong user authentication with two-factor authentication via Kerberos or smart cards such as Common Access Card (CAC) and Personal Identity Verification (PIV) cards using digital certificates embedded on smartcards or USB -security tokens. Using this form of strong authentication, iLO access can be restricted only to IT individuals possessing a certificate bearing smartcard or USB security token and a PIN.
Video Player for HPE ProLiant	HPE iLO allows you to view automatically captured server video footage or on-demand captured footage within an iLO session or separately through the new iLO Video Player.
Virtual Keyboard Video and Mouse graphic console for HPE ProLiant	HPE iLO graphical consoles provide Virtual KVM capabilities with KVM over IP performance. This gives system administrators a single console that is responsive and agile for routine administration and emergency situations. iLO Virtual KVM works with a standard browser and no additional software is required on the remote server or client system for iLO 2. HPE iLO 3 and iLO 4 require the .NET Framework 3.5, which is already provided with Windows® 7.
Virtual Media for HPE ProLiant	The USB-based Virtual Media feature allows an IT administrator to boot the remote server using a standard 1.44-MB diskette, CD ROM, DVD+R or USB flash drive on a client PC or from a floppy diskette, CD or DVD image stored on a virtual media server on the network. Virtual Media saves time and increases efficiency by eliminating the need to visit servers in datacenters and remote sites just to insert a diskette, CD-ROM, DVD-ROM or USB key.
Warranty	Hewlett Packard Enterprise will replace defective delivery media replacement for a period of 90 days following the date of purchase.

Standard Features

Workload Performance Advisor   Provides server tuning recommendations to improve server performance

Service and Support

HPE Software Support   Hewlett Packard Enterprise offers a number of software support services, many of which are provided to customers at no additional charge.

Software Technical Support and Update Service

All HPE iLO licenses include one or three years of 24 x 7 HPE Software Technical Support and Update Service. 24x7 HPE Software Technical Support and Update Service Care can also be purchased on a standalone basis. This service provides access to Hewlett Packard Enterprise technical resources for help in resolving software implementation or operational problems. With the Software Technical Support and Update Services, HPE iLO licensed customers will benefit from expedited problem resolution and proactive notification and delivery of iLO software updates. For more information about this service, see: **https://www.hpe.com/us/en/services/foundation-care-services.html**

If you received a license entitlement certificate, registration for this service will automatically take place upon redemption of the license certificate/key online and a service contract will be created for you.

If the license information you received for your product instructs you to register for Software Technical Support and Update Service, please follow the instructions or you will not be eligible for telephone support or product updates.

Once registered for this service, you will receive a letter in the mail containing the Customer Service Phone number for your reference and your Service Agreement Identifier (SAID). After you have received your SAID, you can go to the Software Update Manager (SUM) web page to view your contract online and elect electronic delivery for your updates.

HPE Support Center   Personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more **HPE Support Center**

HPE Support Center Mobile App allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Support Services or HPE contractual support agreement.

NOTE: HPE Support Center Mobile App above is subject to local availability.

Parts and Materials   Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

HPE Services   iLO Care Pack options can be found at
https://ssc.hpe.com/portal/site/ssc?action=determineNodeContents&nodeId=28814

Configuration Information

In order to assist with your buying decisions on iLO Licensing, Hewlett Packard Enterprise provides the following reference material.
- HPE iLO Standard – FREE – no license required
- HPE Factory Installed Licenses – No extra cost
- **Selecting the right iLO license**
- **HPE iLO Licensing Guide**
- **Supported Servers and Features**

NOTE: HPE iLO licenses can be purchased regardless of the version of iLO you are using, however some of the licensed features may require a specific iLO ASIC version to function.

HPE iLO Scale-Out, Essentials, Advanced for BladeSystem, and Advanced Premium Security Edition licenses have been discontinued with the release of iLO 5 v1.40.

With iLO 5 v1.40, the security features from the Advanced Premium Security Edition license will now be included with the purchase of an iLO Advanced license.

For more information on license tiers, please visit our HPE iLO Licensing Guide

HPE Integrated Lights-Out (iLO) Advanced for ProLiant Servers (supported on ALL Servers)

HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE
HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21
HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Common Password FIO Setting	P08040-B21

NOTE: Supported on ALL Servers

NOTE: HPE highly recommends changing of this password immediately after the initial onboarding process.

NOTE: Tracking and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

NOTE: Tracking licenses may only be purchased by customers that have implemented an activation key agreement (AKA) with Hewlett Packard Enterprise. You can request an AKA at **http://www.hpe.com/info/aka**

NOTE: When purchasing an iLO electronic license, regardless of the number of licenses purchased, customers will obtain only ONE (1) License Entitlement Certificate. This ONE (1) License Entitlement Certificate will be used for all licenses purchased.

NOTE: An iLO Advanced license is automatically included with Synergy compute modules. Use the licensing page to view the license. You cannot add or remove a license on Synergy compute modules.

HPE recommended USB to Ethernet Adapter to connect iLO Service Port to laptops

HPE Serial Special Cable Kits	Q7Y55A

NOTE: For more information, visit: **http://www.hpe.com/info/ilo/licensing**

Configuration Information

Discontinued iLO Licenses and Replacement Part Numbers

HPE is simplifying iLO licensing. All features would either be standard or enable via iLO Advanced license. All other iLO iLO licenses are being discontinued.

Please see our **HPE iLO Licensing Guide** documentation for more details surrounding this transition.

Summary:

- Customers who have iLO Advanced and upgrade to v1.40 will get the security features at no additional cost.
- Customers that already have iLO Advanced Premium Security Edition will continue to get the security features as before.
- The iLO Essentials and iLO Advanced for BladeSystem licenses can no longer be purchased after January 31, 2019.
- The iLO Advanced Premium Security Edition license can no longer be purchased after the release of iLO 5 v1.40
- All the above changes will not impact our customers support and support agreements.
- Customers who have licenses which are discontinued will continue to use the features and get support as long as they have a valid support contract
- Customer who have licenses which are discontinued but have not be applied to a server, can use these licenses at a time of their choosing.
- Previously purchased licenses that are unused can still be utilized

Table 1: Discontinued iLO Essentials Licenses and Replacement Part Numbers:

Description	SKU	Replacement SKU Description	Replacement SKU
HPE iLO Essentials License with 1yr Support on iLO Licensed Features	BD775A	HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Essentials License with 3yr Support on iLO Licensed Features	BD774A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Essentials Electronic License with 1yr Support on iLO Licensed Features	E6U62ABE	HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Essentials Electronic License with 3yr Support on iLO Licensed Features	E6U61ABE	HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE

Configuration Information

Table 2: Discontinued iLO Advanced for BladeSystem Licenses and Replacement Part Numbers:

Description	SKU	Replacement SKU Description	Replacement SKU
HPE iLO Advanced for BladeSystem 8-server License with 1yr Support on iLO Licensed Features	512489-B21	None	None
HPE iLO Advanced for BladeSystem 1-server License with 1yr Support on iLO Licensed Features	512488-B21	HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced for BladeSystem 1-server License with 3yr Support on iLO Licensed Features	BD502A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced for BladeSystem Electronic License with 1yr Support on iLO Licensed Features	E6U60ABE	HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced for BladeSystem Electronic License with 3yr Support on iLO Licensed Features	E6U63ABE	HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE
HPE iLO Advanced for BladeSystem Flexible Quantity License with 1yr Support on iLO Licensed Feature	512490-B21	HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced for BladeSystem Flexible Quantity License with 3yr Support on iLO Licensed Features	BD503A	HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced for BladeSystem AKA Tracking License with 1yr Support on iLO Licensed Features	512491-B21	HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21

Table 2: Discontinued iLO Advanced for BladeSystem Licenses and Replacement Part Numbers:

Description	SKU	Replacement SKU Description	Replacement SKU
HPE iLO Advanced for BladeSystem AKA Tracking License with 3yr Support on iLO Licensed Features	BD504A	HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A
HPE iLO Advanced Blade Electronic License with 3yr 24x7 Tech Support and Updates	BD503AAE	HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE

Configuration Information

Table 3: Discontinued iLO Advanced Premium Security Edition Licenses and Replacement Part Numbers:

Description	SKU	Replacement SKU Description	Replacement SKU
HPE iLO Advanced Premium Security Upgrade Electronic License with 3yr Support on Licensed Features	Q7E12AAE	None	None
HPE iLO Advanced Premium Security Edition License with 1yr Support on Licensed Features	Q7E31A	HPE iLO Advanced 1-server License with 1yr Support on iLO Licensed Features	512485-B21
HPE iLO Advanced Premium Security Edition License with 3yr Support on Licensed Features	Q7E33A	HPE iLO Advanced 1-server License with 3yr Support on iLO Licensed Features	BD505A
HPE iLO Advanced Premium Security Edition Electronic License with 1yr Support on Licensed Features	Q7E32AAE	HPE iLO Advanced Electronic License with 1yr Support on iLO Licensed Features	E6U59ABE
HPE iLO Advanced Premium Security Edition Electronic License with 3yr Support on Licensed Features	Q7E34AAE	HPE iLO Advanced Electronic License with 3yr Support on iLO Licensed Features	E6U64ABE
HPE iLO Advanced Premium Security Flex Qty License with 1yr Support on Licensed Features	Q7E32A	HPE iLO Advanced Flexible Quantity License with 1yr Support on iLO Licensed Features	512486-B21
HPE iLO Advanced Premium Security Flex Qty License with 3yr Support on Licensed Features	Q7E34A	HPE iLO Advanced Flexible Quantity License with 3yr Support on iLO Licensed Features	BD506A
HPE iLO Advanced Premium Security AKA Tracking License with 1yr Support on Licensed Features	Q7E35A	HPE iLO Advanced AKA Tracking License with 1yr Support on iLO Licensed Features	512487-B21
HPE iLO Advanced Premium Security AKA Tracking License with 3yr Support on Licensed Features	Q7E36A	HPE iLO Advanced AKA Tracking License with 3yr Support on iLO Licensed Features	BD507A

Factory Integration Rules:

Factory integration of iLO electronic licenses (E-LTU) has been discontinued. If you need factory integration of iLO licenses please order the physical license along with the #0D1 option. This will ensure factory integration of the iLO license at no extra cost.

NOTE: When a user purchases an iLO license they get the right to use the licensed features perpetually, the time duration in the license refers to the duration for which they are entitled to support and updates. An iLO license is tied to the life of the server that it has been applied on, it cannot be transferred from that server to any other server.

NOTE: When purchasing an iLO electronic license, regardless of the number of licenses purchased, customers will obtain only ONE (1) License Entitlement Certificate. This ONE (1) License Entitlement Certificate will be used for all licenses purchased.

Technical Specifications

HPE iLO On System Management	**Architecture**	PCI Express based health and remote management ASIC
	Processor	**iLO 5** Embedded ARM processor core operating at 800MHz **iLO 4** Embedded ARM processor core operating at 400MHz
	Upgradeability	Firmware upgradeable via Flash ROM
	Video Support	**iLO 5** 1920 x 1200 (32 bpp) **iLO 4** 1920 x 1200 (16 bpp)
	Interfaces	HPE iLO Dedicated* Network connection (10/100/1000 Mb/s) on rack, tower and SL systems **NOTE:** *Optional Module on some servers. HPE iLO Shared Network connection (10/100/1000 Mb/s) on rack, tower and SL systems HPE iLO network connection on blades (100 Mb/s) to Onboard Administrator (with 10/100/1000 Mb/s uplink) on blade systems HPE iLO network connection on Synergy compute modules (1000 Mb/s) to the Enclosure Manager
	Operating System Support	For information on the Hewlett Packard Enterprise Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from Hewlett Packard Enterprise, please visit our OS Support Site at: **http://www.hpe.com/info/ossupport**.
	Client System Support	For information on Client System Support, please visit the HPE iLO Release notes
	Client Browser Support	Microsoft Internet Explorer Firefox Extended Support Release (ESR) Google Chrome **NOTE:** Please refer to the iLO GUI login help page for latest list of supported browser versions.
	Command Line Support	Secure Shell and serial port access Secure Shell version 2 CLP and XML scripting interface RESTful Interface tool
	Security	FIPS 140-2 validation Common Criteria certification Secure Socket Layer Transport Layer Security Configurable for PCI DSS compliance Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser AES encryption of video **iLO 5** Immutable silicon root of trust

Technical Specifications

		Runtime firmware validation CNSA support Common Access Card support Security Modes Granular Control over iLO services and access options Encrypted virtual media
	Directory Support Services	Active Directory, OpenLDAP, Novell eDirectory
	Driver Support	HPE ProLiant iLO Management Controller Driver Package
	Management protocols supported	SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HPE RIBCL XML, and iLO RESTful API (Redfish Spec conformance)

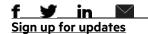|	
Environment friendly Products and Approach End-of life Management and Recycling	Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
02-Dec-2019	Version 29	Changed	Service and Support Section was updated

Overview and Configuration Information sections were updated. |
| 02-Apr-2019 | Version 28 | Changed | Overview section updated.
Added new features in Standard Features section. |
04-Jun-2018	Version 27	Changed	Overview section was updated.
05-Mar-2018	Version 26	Changed	SKU Descriptions were updated
05-Feb-2018	Version 25	Changed	Overview –What's New section was updated
04-Dec-2017	Version 24	Changed	Overview and Standard Features sections were updated
23-Oct-2017	Version 23	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
25-Sep-2017	Version 22	Added	Added Information for iLO 5 v1.15 and iLO 4 v.2.54 and v2.55
17-Jul-2017	Version 21	Changed	The SKU Q7E36A changed from 1yr support to 3yr support.
11-Jul-2017	Version 20	Added	Added iLO 5/Gen10 information.
05-Jun-2017	Version 19	Added	Added information on version 2.53.
Added information on changes to #0D1 option for Electronic SKUs and the fact that it would discontinued.
Added a pointer to iLO licensing guide for detailed information on licensing.
Added RESTful API information under scripting.
		Changed	RESTful API branding changes.
		Removed	Removed information on feature of 2.40 related to critical temperature cutoff as it applied to a small subset of servers.
18-Nov-2016	Version 18	Added	Added a note on licensing for Synergy compute modules and note on 2.50
26-Sep-2016	Version 17	Changed	Overview sections was revised.
06-Jun-2016	Version 16	Changed	Overview section was updated.
18-Mar-2016	Version 15	Changed	Removed Care Pack SKU numbers and replaced with link to site with Care Pack information, this will ensure customers get the latest SKU information.
19-Feb-2016	Version 14	Added	Added new HPE Pointnext operational and licenses information.
		Changed	Overview, and Standard Features were revised.
28-Sep-2015	Version 13	Added	HPE RESTful Application Program Interface (API) section was added to Standard Features.
Redfish 1.0 Spec conformance was added to the management protocols supported in Technical Specifications.
		Changed	HPE RESTful API was revised in the Overview section.
03-Mar-2015	Version 12	Changed	Overview section was revised.
10-Oct-2014	Version 11	Changed	Overview section was revised.
09-Sep-2014	Version 10	Changed	Changes made throughout the QuickSpecs.
18-Feb-2014	Version 9	Changed	Changes made in Step 2.
14-Feb-2014	Version 8	Changed	Changes made throughout the QuickSpecs.
08-Nov-2013	Version 7	Changed	Models and HPE Pointnext operational services were revised.
10-Sep-2013	Version 6	Changed	Models and HPE Pointnext operational services were revised.
19-Aug-2013	Version 5	Changed	Overview: change was made in HPE Embedded Remote Support (iLO 4) section only.
29-Mar-2013	Version 4	Changed	Overview: Updated Product description at the beginning of the section and updated hyperlink Models section.
Standard Features: Completely updated Remote Serial Console (Virtual Serial Port) for HPE ProLiant section.
Additional Features: Completely updated Text Console via SSH for HPE ProLiant section.

Summary of Changes

19-Feb-2013	Version 3	Changed	Overview and Models sections completely revised. The HPE Pointnext operational descriptions were updated in the Related Options section.
		Added	Added iLO Serial Port Record\ Playback for HPE ProLiant, and Remote System logs to the Additional Options section. HPE iLO 4 On System Management was added to the Technical Specifications section.
31-Aug-2012	Version 2	Changed	Changes made throughout the QuickSpecs.
06-Mar-2012	Version 1	New	Initial version.

f   𝕏   in   ✉

Sign up for updates

Hewlett Packard Enterprise