Oracle® Integrated Lights Out Manager (ILOM) 3.0

Getting Started Guide

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Contents

Using This Documentation

This Getting Started Guide describes how to perform the required procedures to access the Oracle Integrated Lights Out Manager (ILOM) 3.0 firmware for the first time on your system.

These procedures include ILOM log in, network connection, user account creation, directory service configuration, and firmware upgrade. This guide is written for technicians, system administrators, authorized service providers, and users who have experience managing system hardware.

To fully understand the information that is presented in this guide, use this Getting Started Guide in conjunction with other guides in the Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Collection. For a description of the guides that comprise the ILOM 3.0 Documentation Collection, see "Related Documentation" on page vi.

This preface contains the following topics:

- "Related Documentation" on page vi
- "Documentation, Support, and Training" on page vii
- "ILOM 3.0 Version Numbers" on page vii
- "Documentation Feedback" on page viii

Related Documentation

The following table lists the guides that comprise the ILOM 3.0 Documentation Collection. You can access or download these guides online at:

http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic

Note – The documents comprising the collection were formerly referred to as Sun Integrated Lights Out Manager (ILOM) 3.0 guides.

Title	Content	Part Number	Format
Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide	Information that describes ILOM features and functionality	820-6410	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide	Information and procedures for network connection, logging in to ILOM for the first time, and configuring a user account or a directory service	820-5523	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide	Information and procedures for accessing ILOM functions using the ILOM web interface	820-6411	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide	Information and procedures for accessing ILOM functions using the ILOM CLI	820-6412	PDF HTML
Oracle Integrated Lights Out Manger (ILOM) 3.0 Management Protocols Reference Guide	Information and procedures for accessing ILOM functions using SNMP, IPMI, or WS-Man and CIM	820-6413	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes	Late-breaking information about new ILOM 3.0 features, as well as known problems and workarounds	820-7329	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) CMM Administration Guide for Sun Blade 6000 and Sun Blade 6048 Modular Systems	Information and procedures for accessing CMM-specific ILOM functions	820-0052	PDF HTML

In addition to the ILOM 3.0 Documentation Collection, associated ILOM Supplement guides or platform Administration guides present ILOM features and tasks that are specific to the server platform you are using. Use the ILOM 3.0 Documentation Collection in conjunction with the ILOM Supplement or platform Administration guide that comes with your server platform.

Translated versions of some of these documents are available at the web site listed above the table. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation `http://docs.sun.com`
- Support `http://www.sun.com/support/`
- Training `http://www.sun.com/training/`

ILOM 3.0 Version Numbers

ILOM 3.0 has implemented a new version numbering scheme to help you identify which version of ILOM you are running on your system. The numbering scheme includes a five-field string, for example, `a.b.c.d.e`, where:

- `a` – Represents the major version of ILOM.
- `b` – Represents a minor version of ILOM.
- `c` – Represents the update version of ILOM.
- `d` – Represents a micro version of ILOM. Micro versions are managed per platform or group of platforms. See your platform Product Notes for details.
- `e` – Represents a nano version of ILOM. Nano versions are incremental iterations of a micro version.

For example, ILOM 3.1.2.1.a would designate:

- ILOM 3 as the major version of ILOM
- ILOM 3.1 as a minor version of ILOM 3
- ILOM 3.1.2 as the second update version of ILOM 3.1
- ILOM 3.1.2.1 as a micro version of ILOM 3.1.2
- ILOM 3.1.2.1.a as a nano version of ILOM 3.1.2.1

Documentation Feedback

Submit comments about this document by clicking the Feedback[+] link at:

`http://docs.sun.com`

Include the title and part number of your document with your feedback:

Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide,
part number 820-5523-12

CHAPTER 1

Getting Started With ILOM

Topics

Description	Links
Learn how to use this guide	• "About This Guide" on page 2
Review the ILOM getting started process and prerequisites, choose an interface, and plan your ILOM setup	• "ILOM Getting Started Process" on page 2 • "Connecting Your System to ILOM" on page 5
Review the requirements for connecting to ILOM	• "Connecting Your System to ILOM" on page 5 • "Using the Web Interface or CLI" on page 6 • "Using the `root` Account" on page 6

About This Guide

Oracle ILOM 3.0 Getting Started Guide provides easy-to-use setup and configuration procedures that will enable you to start using ILOM even before your host system is powered on.

With ILOM, you can remotely monitor and manage your Oracle Sun server platform without consuming operating system resources. ILOM provides fully featured interfaces, including a browser-based web interface, a command-line interface, an SNMP interface, and an IPMI interface. These interfaces are based on industry standards and are intuitive to use.

The getting started procedures describe how to connect your system to ILOM and how to configure the required initial ILOM settings. The procedures to verify and update the ILOM firmware version are also provided. You can find more in-depth descriptions of ILOM's features and functions in the other documents that comprise the ILOM 3.0 Documentation Collection. For a list of those documents, see "Related Documentation" on page vi.

ILOM Getting Started Process

You can use ILOM's default configuration and settings to access many of ILOM's features, or you can customize certain ILOM settings to work in your specific environment. Before you begin the initial setup of ILOM, determine how you want to access ILOM and how to configure ILOM for your system and data center environment.

TABLE 1-1 presents some tasks to consider when you start to use ILOM for the first time. Each task is described in more detail in the procedures that follow.

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TABLE 1-1 Initial ILOM Setup and Configuration Tasks

Task	Information to Consider	Refer to This Procedure
Prerequisite Information for Logging In to ILOM		
Connect your system to ILOM, choose to use either the ILOM web interface or the CLI, then learn about the preconfigured `root` user account	You can connect to ILOM using an Ethernet connection or a serial connection. As of ILOM 3.0.12 and later releases, you can use a dual-stack IPv4 and IPv6 network environment. You can set up ILOM for the first time using either the web interface or the command-line interface (CLI). For initial login, you will use the preconfigured `root` user account.	"Connecting Your System to ILOM" on page 5 "Using the Web Interface or CLI" on page 6 "Using the `root` Account" on page 6 Also refer to your platform documentation
Log In to ILOM for the First Time		
Log in to ILOM using the `root` user account	ILOM boots automatically when power is applied to your Oracle Sun server platform. ILOM is preconfigured with the `root` user account and its password. You can use this special account for initial login and account setup. To log in using the `root` account: • User name: **`root`** • Password: **`changeme`**	"Logging In to ILOM for the First Time Using the Web Interface" on page 8 "Logging In to ILOM for the First Time Using the CLI" on page 34
Configure ILOM for Network Access		
Configure the IPv4 or IPv6 network settings	You can accept the default dual-stack IPv4 (DHCPv4) and IPv6 (stateless) settings that are provided, or you can change the settings using the ILOM web interface or command-line interface (CLI). If your network only supports IPv4, you can also change the default IPv4 settings from the host operating system using the BIOS utility or IPMItool.	"Configuring an IPv4 and IPv6 Network Environment" on page 10 (web) "Configuring an IPv4 and IPv6 Network Environment" on page 35 (CLI)
Create Local User Accounts or Use a Directory Service		
Note - You can choose either to create a local user account or to configure a directory service.		
Add local user account and assign roles	After you have logged in to ILOM, you can create and configure up to 10 local user accounts.	"Adding User Accounts or Configuring a Directory Service" on page 13 (web) "Adding User Accounts or Configuring a Directory Service" on page 40 (CLI)

TABLE 1-1 Initial ILOM Setup and Configuration Tasks *(Continued)*

Task	Information to Consider	Refer to This Procedure
Configure ILOM for Active Directory	Before you can use Active Directory, you need to enter basic data, such as primary server, port number, and certificate mode, and optional data, such as alternate server and event or severity levels.	"Configure ILOM for Active Directory" on page 16 (web) "Configure ILOM for Active Directory" on page 41 (CLI)
Configure ILOM for LDAP	ILOM can use LDAP and can be an LDAP client for authentication purposes. To use LDAP authentication, you need to create a user account on your LDAP server that ILOM can authenticate with, or bind to, so that the client has permission to search the proper directory on the LDAP server.	"Configure LDAP Server" on page 22 (web) "Configure ILOM for LDAP" on page 45 (CLI)
Configure ILOM for LDAP/SSL	To configure LDAP with Secure Socket Layer (SSL), you need to enter basic data, such as primary server, port number, and certificate mode, and optional data such as alternate server and event or severity levels.	"Configure ILOM for LDAP/SSL" on page 24 (web) "Configure ILOM for LDAP/SSL" on page 46 (CLI)
Configure ILOM for RADIUS	To use RADIUS authentication, you must first set the IP address and port number of the RADIUS server, as well as set the shared secret, which you use to access the RADIUS server.	"Configure ILOM for RADIUS" on page 29 (web) "Configure ILOM for RADIUS" on page 49 (CLI)
Log In and Out of ILOM Using an Administrative User Account		
Log in to ILOM using a local, administrative user account	Once you have created a local user account or configured a directory service, log in to ILOM using that local, administrative user account.	"Log In to ILOM Using a New User Account" on page 30 (web) "Log In to ILOM Using a New User Account" on page 51 (CLI)
Log out of ILOM	You can log out of your ILOM session while preserving your configuration settings.	"Log Out of ILOM" on page 31 (web) "Log Out of ILOM" on page 51 (CLI)
Identify ILOM Version and Upgrade Firmware		
Identify ILOM version	You can quickly identify which version of ILOM is running on the service processor or chassis monitoring module.	"Identifying ILOM Version Information" on page 54
Update ILOM firmware	You can easily update your ILOM firmware to the latest version.	"Updating ILOM Firmware to Latest Version" on page 55

Connecting Your System to ILOM

You can connect your system to ILOM without a network connection using the serial port, or you can connect your system to ILOM over a network using the network management port.

If your network infrastructure uses a firewall, or non-standard ports for common services, you should review the default network port assignments that are documented in the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide.*

Connection Requirements

As of ILOM 3.0.12, new network configuration settings have been added to the ILOM web interface and CLI to support the configuration of a dual-stack IPv4 and IPv6 network environment. For information about dual-stack IPv4 and IPv6 networks, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide.*

Prior to performing the procedures for logging in to ILOM and configuring network settings, you should ensure that the following requirements are met.

- Plan how you want to set up ILOM on your server to work in your data center environment. Refer to the section for establishing communication with ILOM in the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.
- Connect to ILOM over a serial port without a network connection, or log in to ILOM over a network. To log in using a direct serial connection, attach a serial cable to the workstation, terminal, or terminal emulator and to the SER MGT port on the server, or if you are using a Sun Blade Modular System chassis, to the chassis monitoring module (CMM) port. To log in using a network connection, attach an Ethernet cable to the NET MGT port on the server or CMM. Refer to your platform documentation for more information.
- Determine the method to use to configure the network settings. As of ILOM 3.0.12, new dual-stack IPv4 and IPv6 settings are provided that enable ILOM to fully operate in an IPv4 and IPv6 network environment. Prior to ILOM 3.0.12, network configuration settings for IPv4 were provided. You can use either dual-stack IPv4 and IPv6 network settings, DHCP for IPv4 settings, or Stateless settings for IPv6. By default, ILOM will attempt to obtain network settings using DHCP.
- Verify that network addresses were accepted by ILOM for IPv4 network environments or that DNS and host names were accepted by ILOM for IPv6 network environments.

Using the Web Interface or CLI

You can access ILOM's features and functions using either the web interface or the command-line interface (CLI), as well as using an SNMP interface or IPMI interface. You can complete all ILOM tasks in either the web interface or the CLI.

The getting started procedures in this guide are divided into two chapters. Chapter 2 explains how to perform the initial setup and configuration tasks using the web interface. Chapter 3 explains how to perform the same tasks, but using the CLI. Before you begin the setup and configuration, choose one of the interfaces and follow the respective procedures.

Using the `root` Account

ILOM 3.0 provides the preconfigured `root` user account. You will use the `root` account for initial login to ILOM. This `root` user account will be familiar to users who are migrating from ILOM 2.x to ILOM 3.0 and who know how to log in using the `root` user account.

The `root` user account is persistent and is available on all interfaces (web interface, CLI, SSH, serial console, and IPMI) unless you choose to delete the `root` account. The `root` account provides built-in administrative privileges (read and write) for all ILOM features, functions, and commands.

To log in to ILOM using the `root` account:

- User name: **`root`**
- Password: **`changeme`**

To prevent unauthorized access to your system, you should change the `root` password (`changeme`) on each service processor (SP) or chassis monitoring module (CMM) in your system. Alternatively, you can delete the `root` account to secure access to your system. However, before you delete the `root` account, you must set up a new user account or configure a directory service in order to log in to ILOM.

If you delete the `root` account before you have configured a new user account or directory service to log in to ILOM, you can use another preconfigured account, the `default` user account, as an alternative way to log in and re-create the `root` account. For information about the `default` user account, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

CHAPTER 2

Initial ILOM Setup Procedures Using the Web Interface

Topics

Description	Links
Log in to ILOM for the first time	• "Logging In to ILOM for the First Time Using the Web Interface" on page 8
Configure the network environment	• "Configuring an IPv4 and IPv6 Network Environment" on page 10
Add user accounts or configure a directory service	• "Adding User Accounts or Configuring a Directory Service" on page 13
Find information about your next ILOM configuration steps	• "What Next?" on page 31

Logging In to ILOM for the First Time Using the Web Interface

To log in to the ILOM web interface for the first time, you use the default `root` user account and its default password `changeme`.

▼ Log In to ILOM Using the `root` User Account

To log in to the ILOM web interface for the first time using the `root` user account, open a web browser and do the following:

1. **Type `http://`*system_ipaddress* into the web browser.**

   If ILOM is operating in a dual-stack network environment, the *system_ipaddress* can be entered using either an IPv4 or IPv6 address format.

   For example:

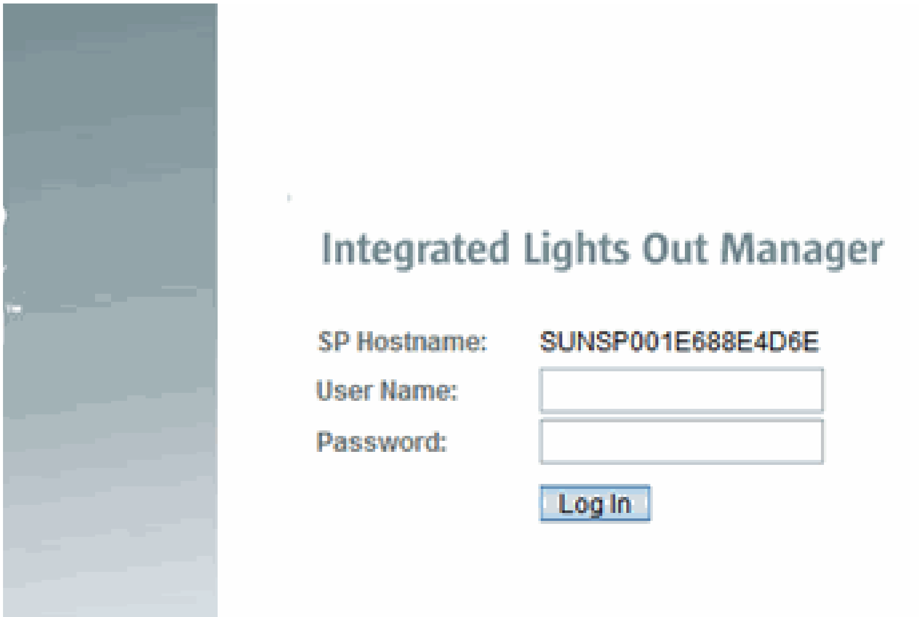
   For IPv4 - `http://10.8.183.106`

   or

   For IPv6 - `http://[fec0:a:8:b7:214:4fff:5eca:5f7e/64]`

   The web interface Login page appears.

   For more information about entering IP addresses in a dual-stack environment, and for diagnosing connection issues, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.



Integrated Lights Out Manager

SP Hostname: SUNSP001E688E4D6E

User Name:

Password:

2. **Type the user name and password for the** `root` **user account:**

   User Name: **`root`**

   Password: **`changeme`**

3. **Click Log In.**

   The Version page in the web interface appears.

You are now ready to configure your network settings and to access all of ILOM's features and functionality. To learn about ILOM's features and the procedures you can perform to access ILOM's functions, refer to the other documents in the ILOM 3.0 Documentation Collection. You can access the ILOM 3.0 Documentation Collection at:

`http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic`

Configuring an IPv4 and IPv6 Network Environment

The following web interface procedure provides instructions for configuring ILOM 3.0.12 and later versions to operate in a dual-stack IPv4 and IPv6 network environment. For a detailed description about configuring ILOM in the IPv4 and IPv6 network environment, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

If you are configuring ILOM to operate in an IPv4-only network environment, as is supported in ILOM 3.0.10 and earlier versions of ILOM, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide.*

By default, ILOM will attempt to obtain the IPv4 address using DHCPv4 and the IPv6 address using IPv6 stateless.

▼ Configure IPv4 and IPv6 Settings Using the Web Interface

1. **Log in to the ILOM SP web interface or the CMM ILOM web interface.**

2. **Navigate to the IPv4 and IPv6 network settings that are available on the Network tab.**

   For example:

   - On a server SP, click Configuration --> Network.
   - On a CMM, do the following:
     - Select the blade (in the left pane), then (in the right pane) click Configuration --> Network.
     - In the Network Settings table, select the radio button for either the CMM or the blade SP, then click Edit.

Note – The Network Settings page at the CMM level of the web interface does not support the dual-stack IPv4 and IPv6 properties. However, it does support IPv4 only properties. To change the IPv6 network settings for a CMM, see ”Configure IPv4 and IPv6 Settings Using the CLI” on page 35.

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3. **Verify that the network** `State` **is enabled.**

Note – The setting for network `State` is enabled by default for both IPv4 and IPv6. If necessary, you can optionally disable (uncheck) the network `State` for IPv6. However, the IPv4 network `State` must always be enabled in order for ILOM to operate in an IPv4 network environment or within a dual-stack IPv4 and IPv6 network environment.

4. **Perform the network configuration instructions below that apply to your network environment.**

   - **To manually configure a static IP**, see the steps below for IPv4 and/or see the steps for IPv6.

     - Steps to manually configure a static IPv4 address:

Steps	Description
a.	Enable the radio button for Static IP.
b.	Type the IP address for the device in the IP address text box.
c.	Type the subnet mask of the network on which the device resides.
d.	Type the device gateway access address.

     - Steps to manually configure a static IPv6 address:

Step	Description
•	Type the IP address for the device in the IP address text box. The input parameters for specifying the IPv6 static IP and netmask are: *<IPv6_address>*`/<subnet_mask_length_in_bits>` For example: `[fec0:a:8:b7:214:4fff:feca:5f7e/64]` **Note -** IPv6 supports the assignment of multiple IP addresses for a device. Therefore, you can manually configure a single static IPv6 address in ILOM, as well as enable one or more of the IPv6 auto-configuration options in ILOM, if desired.

   - **To enable DHCP to automatically assign an IPv4 address**, select the IPv4 DHCP radio button.

   - **To enable one or more of the IPv6 auto-configuration options**, select the appropriate option(s) described below.

IPv6 Auto-Configuration Option	Description
`Stateless` (enabled by default)	When enabled, the `Stateless` auto-configuration option is run to learn the IPv6 Stateless address(es) for the device from the network IPv6 router.
`DHCPv6 Stateless`	When enabled, the `DHCPv6 Stateless` auto-configuration option is run to learn the DNS information for the device from the network DHCPv6 server. **Note -** The `DHCPv6 Stateless` auto-configuration option is available in ILOM as of 3.0.14.
`DHCPv6 Stateful`	When enabled, the `DHCPv6 Stateful` auto-configuration option is run to learn the IPv6 address(es) and DNS information for the device from the network DHCPv6 server. **Note -** The `DHCPv6 Stateful` auto-configuration option is available in ILOM as of 3.0.14.

Note – As of ILOM 3.0.14 or later, you can enable the option for `Stateless` auto-configuration to run at the same time as when the option for `DHCPv6 Stateless` is enabled or when the option for `DHCPv6 Stateful` is enabled. However, the auto-configuration options for `DHCPv6 Stateless` and `DHCPv6 Stateful` should not be enabled to run at the same time.

Note – When you enable the auto-configuration for either `DHCPv6 Stateful` or `DHCPv6 Stateless`, ILOM will identify in the Network Settings page the DHCP Unique ID for the DHCPv6 server that was last used to retrieve the DHCP information.

5. **Click `Save` to apply the changes made.**

   All changes to the network settings are considered pending within the ILOM session until you click Save.

Note – Changing the static IP address on the device (SP or CMM) will end all active ILOM sessions to the device. A message will appear prompting you to close your browser session. You will need to log back in to ILOM using the newly assigned static IP address.

Note – IPv6 addresses learned for the device from any of the IPv6 auto-configuration options will not affect any of the active ILOM sessions to the device. You can verify the newly learned auto-configured addresses on the Network tab.

To test the IPv4 or IPv6 network configuration from ILOM, use the Network Test Tools (Ping or Ping6). For details, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide.*

Adding User Accounts or Configuring a Directory Service

After you log in to ILOM using the `root` user account, you can choose either to create a local user account or to configure a directory service. For detailed information about ILOM user accounts and directory services, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

Topics

Description	Links
Learn how to add a user account and assign user roles (privileges)	• "Add User Account and Assign Privileges" on page 14
Learn how to configure ILOM for Active Directory	• "Configure ILOM for Active Directory" on page 16
Learn how to configure the LDAP server	• "Configure LDAP Server" on page 22
Learn how to configure ILOM for LDAP	• "Configure ILOM for LDAP" on page 23
Learn how to configure ILOM for LDAP/SSL	• "Configure ILOM for LDAP/SSL" on page 24
Learn how to edit the SSL tables	• "Edit LDAP/SSL Tables" on page 28
Learn how to configure ILOM for RADIUS	• "Configure ILOM for RADIUS" on page 29
Learn how to verify that the new user account or directory service is working properly	• "Log In to ILOM Using a New User Account" on page 30
Learn how to log out of ILOM	• "Log Out of ILOM" on page 31

▼ Add User Account and Assign Privileges

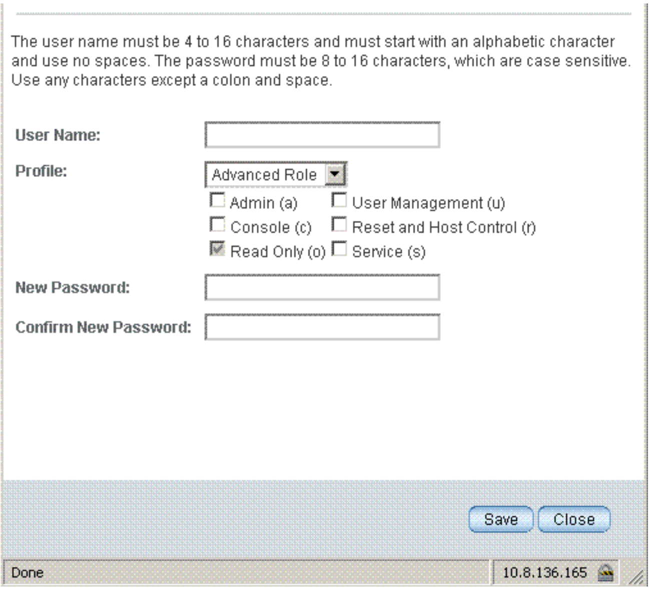
1. **Log in to the ILOM web interface.**

2. **Select User Management --> User Accounts.**

   The User Account Settings page appears.

3. **In the Users table, click Add.**

   The Add User dialog appears.



The user name must be 4 to 16 characters and must start with an alphabetic character and use no spaces. The password must be 8 to 16 characters, which are case sensitive. Use any characters except a colon and space.

User Name:

Profile: Advanced Role

☐ Admin (a) ☐ User Management (u)
☐ Console (c) ☐ Reset and Host Control (r)
☑ Read Only (o) ☐ Service (s)

New Password:

Confirm New Password:

4. **Complete the following information:**

   a. **Type a user name in the User Name field.**

   b. **Choose a profile. Options include** `Advanced Role` **for all new ILOM 3.0 installations.**

c. **Select the appropriate roles.**

See the following table for descriptions of advanced roles for user accounts.

Roles	Definition	Privileges
`a`	Admin	A user who is assigned the Admin (`a`) role is authorized to view and change the state of ILOM configuration variables. With the exception of tasks that users who have User Management, Console, and Reset and Host Control roles, users assigned the Admin role are authorized to perform all other ILOM functions.
`u`	User Management	A user who is assigned the User Management (`u`) role is authorized to create and delete user accounts, change user passwords, change roles assigned to other users, and enable/disable the physical-access requirement for the `default` user account. This role also includes authorization to set up LDAP, LDAP/SSL, RADIUS, and Active Directory.
`c`	Console	A user who is assigned the Console (`c`) role is authorized to access the ILOM Remote Console and the SP console and to view and change the state of the ILOM console configuration variables.
`r`	Reset and Host Control	A user who is assigned the Reset and Host Control (`r`) role is authorized to operate the system, which includes power control, reset, hot-plug, enabling and disabling components, and fault management. This role maps very closely to the ILOM 2.0 user with Operator privileges.
`o`	Read Only	A user who is assigned the Read Only (`o`) role is authorized to view the state of the ILOM configuration variables but cannot make any changes. Users assigned this role can also change the password and the Session Time-Out setting for their own user account.
`s`	Service	A user who is assigned the Service (`s`) role can assist Oracle service engineers in the event that on-site service is required.

d. **Type a password in the New Password field.**

The password must be at least 8 characters and no more than 16 characters. The password is case-sensitive. Use alphabetical, numeric, and special characters for better security. You can use any character except a colon. Do not include spaces in passwords.

e. **Retype the password in the Confirm New Password field to confirm the password.**

f. **When you are done entering the new user's information, click Save.**

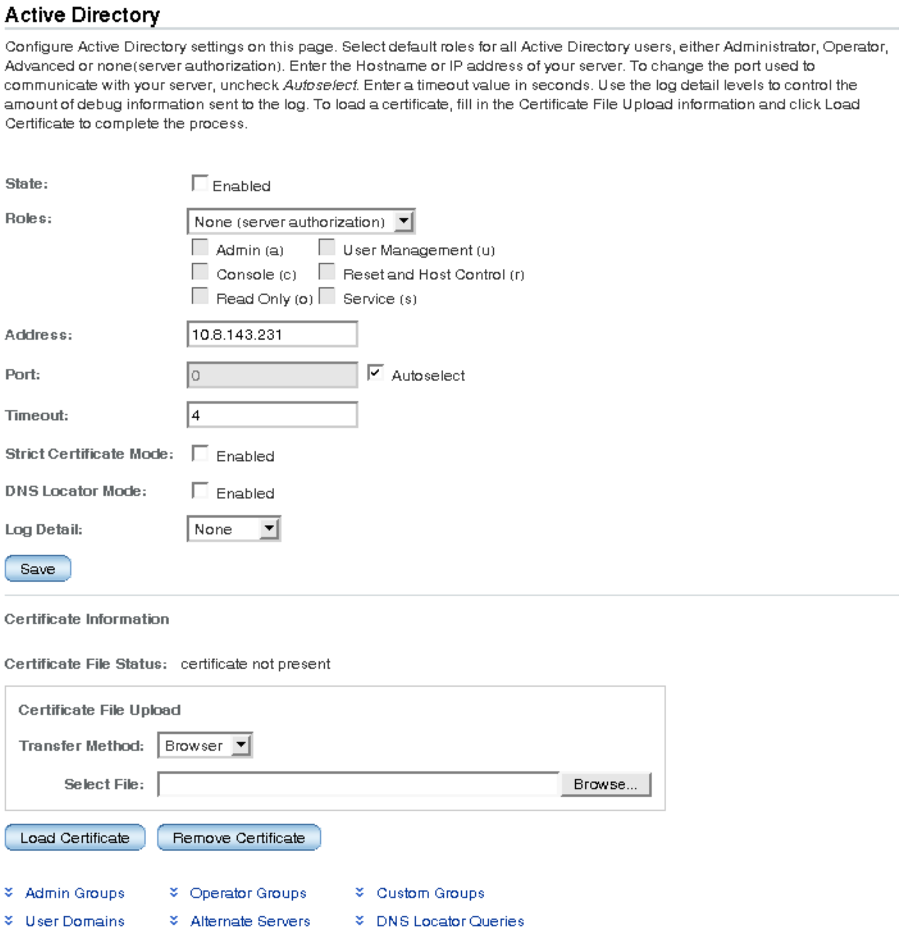
The User Account Settings page is redisplayed. The new user account and associated information is listed on the User Account Settings page.

▼ Configure ILOM for Active Directory

1. **Log in to the ILOM web interface**

2. **Select User Management --> Active Directory.**

   The Active Directory page appears.



Active Directory

Configure Active Directory settings on this page. Select default roles for all Active Directory users, either Administrator, Operator, Advanced or none(server authorization). Enter the Hostname or IP address of your server. To change the port used to communicate with your server, uncheck *Autoselect*. Enter a timeout value in seconds. Use the log detail levels to control the amount of debug information sent to the log. To load a certificate, fill in the Certificate File Upload information and click Load Certificate to complete the process.

State: □ Enabled

Roles: None (server authorization)

□ Admin (a) □ User Management (u)
□ Console (c) □ Reset and Host Control (r)
□ Read Only (o) □ Service (s)

Address: 10.8.143.231

Port: 0 ☑ Autoselect

Timeout: 4

Strict Certificate Mode: □ Enabled

DNS Locator Mode: □ Enabled

Log Detail: None

Save

Certificate Information

Certificate File Status: certificate not present

Certificate File Upload

Transfer Method: Browser

Select File:

3. **Configure the Active Directory settings.**

   See the following table for a description of the Active Directory settings.

Property (Web)	Property (CLI)	Default	Description
State	`state`	Disabled	Enabled | Disabled Specifies whether the Active Directory client is enabled or disabled.

Roles	`defaultRole`
	`(a|u|c|r|o|s)`
		(none)	Administrator | Operator | Advanced roles | none
			Access role granted to all authenticated Active Directory users. This property supports the legacy roles of Administrator or Operator, or any of the individual role ID combinations of 'a', 'u', 'c', 'r', 'o' and 's'. For example, `aucros`, where `a`=Admin, `u`= User Management, `c`=Console, `r`=Reset and Host Control, `o`=Read Only, and `s`=Service. If you do not configure a role, the Active Directory server is used to determine the role.

Address	`address`	0.0.0.0	IP address or DNS name of the Active Directory server. If the DNS name is used, DNS must be configured and functional.
Port	`port`	0	Port used to communicate with the server or enable `autoselect` (which assigns the port to 0). Available in the unlikely event of a non-standard TCP port being used.
Timeout	`timeout`	4	Timeout value in seconds. Number of seconds to wait for individual transactions to complete. The value does not represent the total time of all transactions because the number of transactions can differ depending on the configuration. This property allows for adjusting the time to wait when a server is not responding or is unreachable.
Strict Certificate Mode	`strictcertmode`	Disabled	Enabled | Disabled If enabled, the server certificate contents are verified by digital signatures at the time of authentication. Certificate must be loaded before Strict Certificate Mode can be set to enabled.
DNS Locator Mode	`dnslocatormode`	Disabled	Enabled | Disabled If enabled, an attempt to locate the Active Directory server is performed, based on the DNS locator queries that are configured.
Log Detail	`logdetail`	None	None | High | Medium | Low Specifies the amount of diagnostics that go into the event log.

4. **Click Save for your settings to take effect.**

5. **View the Active Directory certificate information.**

   See the following table for a description of Active Directory certificate settings:

Property (Web)	Property (CLI)	Displays	Description
Certificate File Status	`certstatus`	`certificate not present`	Read-only indicator of whether a certificate exists.
Certificate File Status	`certstatus`	`certificate present (details)`	Click on "details" for information about issuer, subject, serial number, valid_from, valid_to, and version.

6. **Complete the Certificate File Upload section by selecting a transfer method for uploading the certificate file and the requested parameters.**

Note – This section is required only if Strict Certificate Mode is used.

The following table describes the required parameters for each transfer method:

Transfer Method	Required Parameters
Browser	File Name
TFTP	Host Filepath
FTP	Host Filepath Username Password
SCP	Host Filepath Username Password

7. **Click the Load Certificate button or Remove Certificate button.**

8. **If a certificate is loaded, the following read-only details appear if you selected "certificate present (details)":**

Item	Description
issuer	Certificate Authority who issued the certificate.
subject	Server or domain for which the certificate is intended.
valid_from	Date when the certificate becomes valid.
valid_until	Date when the certificate becomes invalid.
serial_number	Serial number of the certificate.
version	Version number of the certificate.

9. **At the bottom of the Active Directory page, click the radio button next to the configuration option you want to configure:**
   - Admin Groups
   - Operator Groups
   - Custom Groups
   - User Domains
   - Alternate Servers
   - DNS Locator Queries

10. **Enter the required data in the tables.**

    The **Admin Groups**, **Operator Groups**, and **Custom Groups** tables contain the names of the Microsoft Active Directory groups in the Distinguished Name (DN) format, Simple Name format, or NT-Style Name. Custom Groups require the configuration of user roles to have Advanced Roles or Administrator/Operator privileges to perform various tasks.

    User Domains are the authentication domains used to authenticate a user. When the user logs in, the name used is formatted in the specific domain name format template that appears in the cell. `<USERNAME>` will be replaced by the user's login name during authentication. Either the principle or Distinguished Name format is supported. User authentication is attempted based on the user name that is entered and the configured user domains.

The **Alternate Servers** table provides redundancy for authentication. If a certificate is not supplied, a top-level primary certificate is used. The alternate servers have the same rules and requirements as the top-level certificate mode. Each server has its own certificate status, and its own certificate command to retrieve the certificate if it is needed.

The **DNS Locator Queries** table is used to query DNS servers to learn about the hosts to use for authentication. The DNS Locator queries are only used when DNS Locator is enabled and DNS is configured and functioning.

In the following tables, default data shows the expected format of the Active Directory data.

- **Admin Groups Table:**

  The name listed in entry 1 uses the Distinguished Name format.

ID	Name
1	`CN=SpSuperAdmin,OU=Groups,DC=sales,DC=east,DC=oracle,DC=com`

- **Operator Groups Table:**

  The name listed in entry 1 uses the Distinguished Name format.

ID	Name
1	`CN=SpSuperOper,OU=Groups,DC=sales,DC=east,DC=oracle,DC=com`

- **Custom Groups Table**:

  The name listed in entry 1 uses the Simple Name format.

ID	Name	Roles
1	`custom_group_1`	`Admin, User Management, Console, Reset and Host Control, Read Only (aucro)`

- **User Domains Table:**

  The domain listed in entry 1 shows the principle format that is used in the first attempt to authenticate the user. Entry 2 shows the complete Distinguished Name, which Active Directory would use if the attempt to authenticate with the first entry failed.

Note – In the example below, <USERNAME> represents a user's login name. During authentication, the user's login name replaces <USERNAME>.

ID	Domain
1	<USERNAME>@sales.east.oracle.com
2	CN=<USERNAME>,OU=Users,DC=sales,DC=east,DC=oracle,DC=com

- **Alternate Servers Table:**

  The entries below provide redundancy for authentication.

ID	Address	Port	Certificate Status
1	10.8.168.99	0	Certificate not present
2	10.8.143.230	0	Certificate not present

- **DNS Locator Queries Table:**

  The DNS Locator service query identifies the named DNS service. The port ID is generally part of the record, but it can be overridden by using the format <PORT:636>. Also, named services specific for the domain being authenticated can be specified by using the <DOMAIN> substitution marker.

Name	Domain
1	_ldap._tcp.gc._msdcs.<DOMAIN>.<PORT:3269>
2	_ldap._tcp.dc._msdcs.<DOMAIN>.<PORT:636>

11. **Click Save for your changes to take effect.**

▼ Configure LDAP Server

Follow these steps to configure the LDAP server. Refer to your LDAP documentation for detailed instructions.

1. **Ensure that all users authenticating to ILOM have passwords stored in "crypt" format or the GNU extension to crypt, commonly referred to as "MD5 crypt."**

   For example:

   `userPassword: {CRYPT}ajCa2He4PJhNo`

   or

   `userPassword: {CRYPT}$1$pzKng1$du1Bf0NWBjh9t3FbUgf46.`

   ILOM only supports LDAP authentication for passwords stored in these two variations of the crypt format.

2. **Add object classes `posixAccount` and `shadowAccount`, and populate the required property values for this schema (RFC 2307).**

Required Property	Description
uid	User name for logging in to ILOM
uidNumber	Any unique number
gidNumber	Any unique number
userPassword	Password
homeDirectory	Any value (this property is ignored by ILOM)
loginShell	Any value (this property is ignored by ILOM)

3. **Configure the LDAP server to enable LDAP server access to ILOM user accounts.**

   Either enable your LDAP server to accept anonymous binds, or create a proxy user on your LDAP server that has read-only access to all user accounts that will authenticate through ILOM.

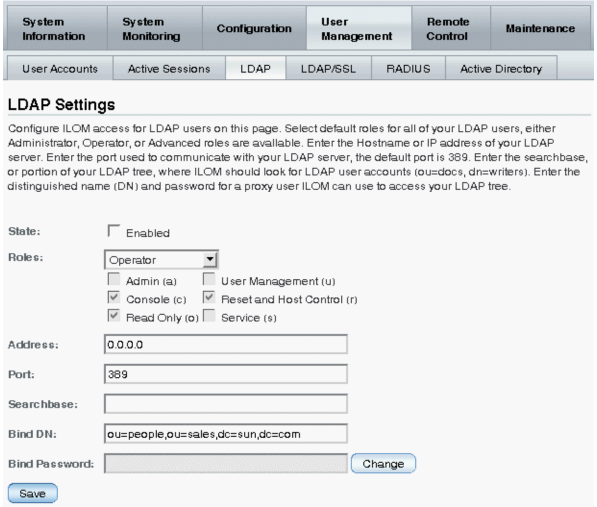
   See ”Configure ILOM for LDAP” on page 23.

▼ Configure ILOM for LDAP

1. **Log in to the ILOM web interface.**

2. **Select User Management --> LDAP.**

   The LDAP Settings page appears.



LDAP Settings

Configure ILOM access for LDAP users on this page. Select default roles for all of your LDAP users, either Administrator, Operator, or Advanced roles are available. Enter the Hostname or IP address of your LDAP server. Enter the port used to communicate with your LDAP server, the default port is 389. Enter the searchbase, or portion of your LDAP tree, where ILOM should look for LDAP user accounts (ou=docs, dn=writers). Enter the distinguished name (DN) and password for a proxy user ILOM can use to access your LDAP tree.

State: □ Enabled

Roles: Operator

□ Admin (a) □ User Management (u)

☑ Console (c) ☑ Reset and Host Control (r)

☑ Read Only (o) □ Service (s)

Address: 0.0.0.0

Port: 389

Searchbase:

Bind DN: ou=people,ou=sales,dc=sun,dc=com

Bind Password: Change

Save

3. **Enter the following values:**
   - **State** – Select the Enabled check box to authenticate LDAP users.
   - **Role** – Select either Administrator or Operator, or any of the individual ID role combinations of a, u, c, r, o, and s.
   - **Address** – The address of the LDAP server or DNS name. If the DNS name is used, DNS must be configured and functional.
   - **Port** – The port number on the LDAP server.
   - **Searchbase** – Type the branch of your LDAP server to search for users.
   - **Bind DN** – Type the Distinguished Name (DN) of a read-only proxy user on the LDAP server. ILOM must have read-only access to your LDAP server to search for and authenticate users.
   - **Bind Password** – Type the password of the read-only user.

4. **Click Save for your changes to take effect.**
5. **To verify that LDAP authentication works, log in to ILOM using an LDAP user name and password.**

Note – ILOM searches local users before LDAP users. If an LDAP user name exists as a local user, ILOM uses the local account for authentication.

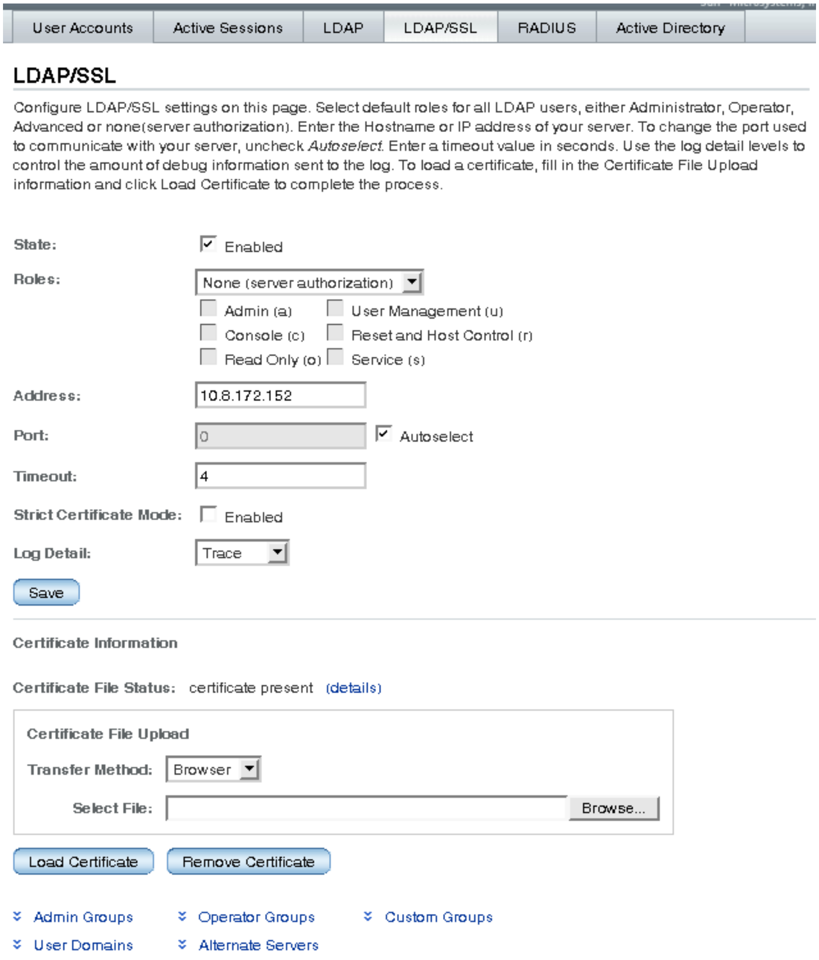
▼ Configure ILOM for LDAP/SSL

LDAP/SSL offers enhanced security to LDAP users by way of Secure Socket Layer (SSL) technology. Certificates are optional if Strict Certificate Mode is used.

Follow these steps to configure ILOM for LDAP/SSL:

1. **Log in to the ILOM web interface.**
2. **Select User Management --> LDAP/SSL.**

   The LDAP/SSL page appears, displaying the configuration settings and the LDAP/SSL tables.



User Accounts | Active Sessions | LDAP | LDAP/SSL | RADIUS | Active Directory

LDAP/SSL

Configure LDAP/SSL settings on this page. Select default roles for all LDAP users, either Administrator, Operator, Advanced or none(server authorization). Enter the Hostname or IP address of your server. To change the port used to communicate with your server, uncheck *Autoselect*. Enter a timeout value in seconds. Use the log detail levels to control the amount of debug information sent to the log. To load a certificate, fill in the Certificate File Upload information and click Load Certificate to complete the process.

State: ☑ Enabled

Roles: None (server authorization)
□ Admin (a) □ User Management (u)
□ Console (c) □ Reset and Host Control (r)
□ Read Only (o) □ Service (s)

Address: 10.8.172.152

Port: 0 ☑ Autoselect

Timeout: 4

Strict Certificate Mode: □ Enabled

Log Detail: Trace

Save

Certificate Information

Certificate File Status: certificate present (details)

Certificate File Upload

Transfer Method: Browser

Select File: Browse...

Load Certificate | Remove Certificate

Admin Groups | Operator Groups | Custom Groups
User Domains | Alternate Servers

3. Configure the LDAP/SSL settings.

See the following table for a description of the LDAP/SSL settings.

Property (Web)	Property (CLI)	Default	Description
State	`state`	Disabled	Enabled | Disabled Specifies whether the LDAP/SSL client is enabled or disabled.

Roles	`defaultRole`
	`(a|u|c|r|o|s)`
		(none)	Administrator | Operator | Advanced roles | none
			Access role granted to all authenticated LDAP/SSL users. This property supports the legacy roles of Administrator or Operator, or any of the individual role ID combinations of 'a', 'u', 'c', 'r', 'o' and 's'. For example, aucros, where a=Admin, u=User Management, c=Console, r=Reset and Host Control, o=Read Only, and s=Service. If you do not configure a role, the LDAP/SSL server is used to determine the role.

Address	`address`	0.0.0.0	IP address or DNS name of the LDAP/SSL server. If the DNS name is used, DNS must be configured and functional.
Port	`port`	0	Port used to communicate with the server or enable `autoselect` (which assigns the port to 0). Available in the unlikely event of a non-standard TCP port being used.
Timeout	`timeout`	4	Timeout value in seconds. Number of seconds to wait for individual transactions to complete. The value does not represent the total time of all transactions because the number of transactions can differ depending on the configuration. This property allows for adjusting the time to wait when a server is not responding or is unreachable.
Strict Certificate Mode	`strictcertmode`	Disabled	Enabled | Disabled If enabled, the server certificate contents are verified by digital signatures at the time of authentication. Certificate must be loaded before Strict Certificate Mode can be set to enabled.
Log Detail	`logdetail`	None	None | High | Medium | Low Specifies the amount of diagnostics that go into the event log.

4. **Click Save for your settings to take effect.**

5. **View the LDAP/SSL certificate information in the middle section of the LDAP/SSL page.**

   See the following table for a description of LDAP/SSL certificate settings.

Property (Web)	Property (CLI)	Displays	Description
Certificate File Status	`certstatus`	`certificate not present`	Read-only indicator of whether a certificate exists.
Certificate File Status	`certstatus`	`certificate present (details)`	Click on "details" for information about issuer, subject, serial number, valid_from, valid_to, and version.

6. **Complete the Certificate File Upload section by selecting a transfer method for uploading the certificate file and the required parameters.**

Note – This section is required only if Strict Certificate Mode is used.

   The following table describes the required parameters for each transfer method.

Transfer Method	Required Parameters
Browser	File Name
TFTP	Host Filepath
FTP	Host Filepath Username Password
SCP	Host Filepath Username Password

7. **Click the Load Certificate button or Remove Certificate button.**

8. **If a certificate is loaded, the following read-only details will appear if you selected “certificate present (details)”:**

Item	Description
`issuer`	Certificate Authority who issued the certificate.
`subject`	Server or domain for which the certificate is intended.
`valid_from`	Date when the certificate becomes valid.
`valid_until`	Date when the certificate becomes invalid.
`serial_number`	Serial number of the certificate.
`version`	Version number of the certificate.

▼ Edit LDAP/SSL Tables

Follow these steps to modify information for Admin Groups, Operator Groups, Custom Groups, User Domains, or Alternate Servers:

1. **Log in to the ILOM web interface.**

2. **Select User Management --> LDAP/SSL.**

   The LDAP/SSL page appears.

3. **At the bottom of the LDAP/SSL page, select the links next to the type of information you want to edit:**

   - Admin Groups
   - Operator Groups
   - Custom Groups
   - User Domains
   - Alternate Servers

4. **Select the radio button next to the individual table you want to edit, then click Edit.**

   The appropriate page appears: Edit LDAP/SSL **Admin Groups** page, Edit LDAP/SSL **Operator Groups** page, Edit LDAP/SSL **Custom Groups** page, Edit LDAP/SSL **User Domains** page, or Edit LDAP/SSL **Alternate Servers** page.

5. **In each Edit page, edit the information you want to modify.**

   See the procedure "Configure ILOM for Active Directory" on page 16 for examples of the information you can add or edit in the LDAP/SSL tables. Information in the Active Directory tables is similar to LDAP/SSL tables.

   For example, in the User Domains table, enter the information in the Name field as text. Use the `<USERNAME>` substitution marker to hold a place for the user's name.

   ```
   domain=uid=<USERNAME>,OU=people,DC=sales,DC=east,DC=oracle,
   DC=com
   ```

   You would be authenticated to ILOM with the supplied name.

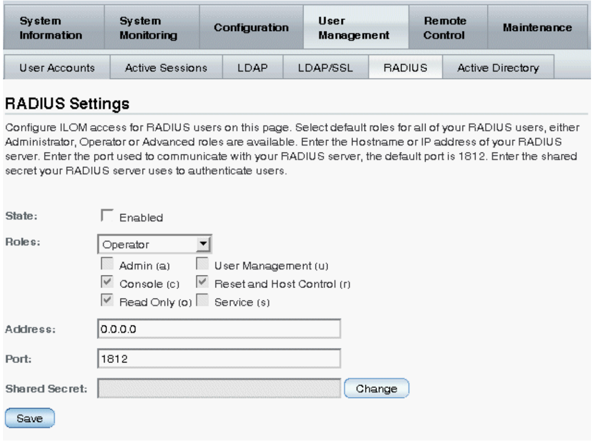
6. **Click Save for your changes to take effect.**

Configure ILOM for RADIUS

1. **Log in to the ILOM web interface.**

2. **Select User Management --> RADIUS.**

The RADIUS Settings page appears.



RADIUS Settings

Configure ILOM access for RADIUS users on this page. Select default roles for all of your RADIUS users, either Administrator, Operator or Advanced roles are available. Enter the Hostname or IP address of your RADIUS server. Enter the port used to communicate with your RADIUS server, the default port is 1812. Enter the shared secret your RADIUS server uses to authenticate users.

State: □ Enabled

Roles: Operator ▾

☐ Admin (a) ☐ User Management (u)

☑ Console (c) ☑ Reset and Host Control (r)

☑ Read Only (o) ☐ Service (s)

Address: 0.0.0.0

Port: 1812

Shared Secret:

3. **Complete the RADIUS settings.**

Property (Web)	Property (CLI)	Default	Description
State	`state`	Disabled	Enabled | Disabled Specifies whether the RADIUS client is enabled or disabled.
Role	`defaultrole` `a|u|c|r|o|s`	Read Only (o)	Administrator | Operator | Advanced Roles Access role granted to all authenticated RADIUS users. This property supports the legacy roles of Administrator or Operator, or any of the individual role ID combinations of 'a', 'u', 'c', 'r', 'o' and 's'. For example, `aucros`, where a=Admin, u=User Management, c=Console, r=Reset and Host Control, o=Read Only, and s=Service.
Address	`ipaddress`	0.0.0.0	IP address or DNS name of the RADIUS server. If the DNS name is used, DNS must be configured and functional.
Port	`port`	1812	Specifies the port number used to communicate with the RADIUS server. The default port is 1812.
Shared Secret	`secret`	(none)	Specifies the shared secret that is used to protect sensitive data and to ensure that the client and server recognize each other.

4. **Click Save for your settings to take effect.**

▼ Log In to ILOM Using a New User Account

To log in to the ILOM web interface using a non-`root` user account, open a web browser and do the following:

1. **Type `http://`*system_ipaddress* into the web browser.**

   If ILOM is operating in a dual-stack network environment, the *system_ipaddress* can be entered using either an IPv4 or IPv6 address format.

   For example:

   For IPv4 - `http://10.8.183.106`

   or

   For IPv6 - `http://[fec0:a:8:b7:214:4fff:5eca:5f7e/64]`

   The web interface Login page appears.

   For more information about entering IP addresses in a dual-stack environment, and for diagnosing connection issues, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

2. **Type the user name and password for the user account:**

   `User Name:` <*assigned_username*>

   `Password:` <*assigned_password*>

3. **Click Log In.**

   The ILOM web interface appears, displaying the Version page.

▼ Log Out of ILOM

- **Click the Log Out button in the ILOM web interface.**

  The Log Out button is located in the top right corner of the ILOM web interface. Do not use the Log Out button on your web browser to exit ILOM.

What Next?

You can now continue to customize your ILOM configuration for your system and data center environment. Before you configure ILOM for your environment, refer to the *Oracle Integrated Lights Out Manager 3.0 Concepts Guide* for an overview of the new ILOM 3.0 features and functionality. Knowing how the new ILOM features will affect your environment will help you configure ILOM settings so that you can access all of ILOM's capabilities in your system and data center.

Also refer to the Oracle ILOM 3.0 Procedures Guides for descriptions of how to perform ILOM tasks using a specific user interface and to your platform ILOM Supplement or platform Administration guide for platform-specific configuration instructions.

The ILOM 3.0 Documentation Collection can be found at:

`http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic`

CHAPTER 3

Initial ILOM Setup Procedures Using the ILOM CLI

Topics

Description	**Links**
Log in to ILOM for the first time	• "Logging In to ILOM for the First Time Using the CLI" on page 34
Configure the network environment	• "Configuring an IPv4 and IPv6 Network Environment" on page 35
Add user accounts or configure a directory service	• "Adding User Accounts or Configuring a Directory Service" on page 40
Find information about your next ILOM configuration steps	• "What Next?" on page 52

Logging In to ILOM for the First Time Using the CLI

To log in to the ILOM CLI for the first time, you use the default `root` user account and its default password `changeme`. After you set up your network environment, you can establish an Administrative user account using an assigned user account name and password.

▼ Log In to ILOM Using the `root` User Account

To log in to the ILOM CLI for the first time, use SSH and the `root` user account.

1. **To log in to the ILOM CLI using the `root` user account, type:**

   ```
   $ ssh root@system_ipaddress
   ```

   If ILOM is operating in a dual-stack network environment, the *system_ipaddress* can be entered using either an IPv4 or IPv6 address format.

   For example:

   For IPv4 - `10.8.183.106`

   or

   For IPv6 - `[fec0:a:8:b7:214:4fff:5eca:5f7e/64]`

   The ILOM Login prompt appears.

   For more information about entering IP addresses in a dual-stack environment, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

2. **Type the default user name and password:**

   ```
   <hostname>: root
   Password:changeme
   ```

   The ILOM CLI prompt appears (`->`).

Configuring an IPv4 and IPv6 Network Environment

The following CLI procedure provides instructions for configuring ILOM to operate in a dual-stack IPv4 and IPv6 network environment. For a detailed description about configuring ILOM in the IPv4 and IPv6 network environment, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

If you are configuring ILOM to operate in an IPv4-only network environment, as is supported in ILOM 3.0.10 and earlier versions of ILOM, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide.*

By default, ILOM will attempt to obtain the IPv4 address using DHCPv4 and the IPv6 address using IPv6 stateless.

▼ Configure IPv4 and IPv6 Settings Using the CLI

1. **Log in to the ILOM SP CLI or the CMM CLI.**

   Establish a local serial console connection or SSH connection to the server SP or CMM.

2. **Perform the network configuration instructions that apply to your network environment:**

   - To configure IPv4 network settings, perform Step 3 through Step 5 in this procedure.
   - To configure IPv6 network settings, perform Step 6 to Step 10 in this procedure.

3. **For IPv4 network configurations, use the `cd` command to navigate to the `/`*`x`*`/network` working directory for the device.**

   For example:

   - For a rackmount server SP type: `cd /SP/network`
   - For a chassis CMM type: `cd /CMM/network`
   - For a chassis blade server SP type: `cd /CH/BLn/network`
   - For a chassis blade server with multiple SP nodes type: `cd /CH/BLn/Noden/network`

4. **Type the `show` command to view the configured IPv4 network settings configured on the device.**

5. **To set IPv4 network settings for DHCP or static, perform one of the following:**

- **To configure DHCP IPv4 network settings**, set values for the following properties:

Property	Set Property Value	Description
state	set state=enabled	The network state is enabled by default for IPv4. **Note -** To enable the DHCP network option for IPv4 the state must be set to enabled.
pendingipdiscovery	set pendingipdiscovery=dhcp	The property value for ipdiscovery is set to dhcp by default for IPv4. **Note -** If the dhcp default property value was changed to static, you will need to set the property value to dhcp.
commitpending=	set commitpending=true	Type set commitpending=true to commit the changes made to the state and ipdiscovery property values.

- **To configure static IPv4 network settings**, set values for the following properties:

Property	Set Property Value	Description
state	set state=enabled	The network state is enabled by default for IPv4. **Note -** To enable the static IPv4 network option the state must be set to enabled.
pendingipdiscovery	set pendingipdiscovery=static	To enable a static IPv4 network configuration, you need to set the pendingipdiscovery property value to static. **Note -** The property value for ipdiscovery is set to dhcp by default for IPv4.
pendingipaddress pendingipnetmask pendingipgateway	set pendingipaddress=<*ip_address*> pendingipnetmask=<*netmask*> pendingipgateway=<*gateway*>	To assign multiple static network settings, type the set command followed by the pending command for each property value (IP address, netmask, and gateway), then type the static value that you want to assign.
commitpending=	set commitpending=true	Type set commitpending=true to commit the changes made to the state, ipdiscovery, and network settings property values.

6. **For IPv6 network configurations, use the** `cd` **command to navigate to the** `/x/network/ipv6` **working directory for the device.**

   For example:

   - For a rackmount server SP type: `cd /SP/network/ipv6`
   - For a chassis CMM type: `cd /CMM/network/ipv6`
   - For a chassis blade server SP type: `cd /CH/BLn/network/ipv6`
   - For a chassis blade server with multiple SP nodes type: `cd /CH/BLn/Noden/network/ipv6`

7. **Type the** `show` **command to view the configured IPv6 network settings configured on the device.**

   For example, see the following sample output values for the IPv6 properties on a server SP device:.

```
 -> show

  /SP/network/ipv6
     Targets:

     Properties:
         state = enabled
         autoconfig = stateless
         dhcpv6_server_duid = (none)
         link_local_ipaddress = fe80::214:4fff:feca:5f7e/64
         static_ipaddress = ::/128
         ipgateway = fe80::211:5dff:febe:5000/128
         pending_static_ipaddress = ::/128
         dynamic_ipaddress_1 = fec0:a:8:b7:214:4fff:feca:5f7e/64

     Commands:
         cd
         show
```

Note – The default IPv6 `autoconfig=` property value provided in ILOM 3.0.14 (and later) is `autoconfig=stateless`. However, if you have ILOM 3.0.12 installed on your CMM or server, the default property value for `autoconfig` appears as `autoconfig=stateless_only`.

Note – When the `autoconfig=` property is set to `dhcpv6_stateful` or `dhcpv6_stateless`, the read-only property for `dhcpv6_server_duid` will identify the DHCP Unique ID of the DHCPv6 server that was last used by ILOM to retrieve the DHCP information.

8. **To configure an IPv6 auto-configuration option, use the `set` command to specify the following auto-configuration property values.**

Property	Set Property Value	Description
`state`	`set state=enabled`	The IPv6 network `state` is `enabled` by default. To enable an IPv6 auto-configuration option, this state must be set to `enabled`.
`autoconfig`	`set autoconfig=`<*value*>	Specify this command followed by the `autoconf` value you want to set. Options include: • `stateless` (default setting provided in ILOM 3.0.14 or later) or `stateless_only` (default setting provided in ILOM 3.0.12) Automatically assigns IP address learned from the IPv6 network router. • `dhcpv6_stateless` Automatically assigns DNS information learned from the DHCP server. The `dhcpv6_stateless` property value is available in ILOM as of 3.0.14. • `dhcpv6_stateful` Automatically assigns the IPv6 address learned from the DHCPv6 server. The `dhcpv6_stateful` property value is available in ILOM as of 3.0.14. • `disable` Disables all auto-configuration property values and sets the read-only property value for link local address.

The following information is relevant to the IPv6 `autoconfig` options:

- IPv6 `auto-config` options take affect after they are set. You do not need to commit these changes under the `/network` target.
- IPv6 `auto-config` addresses learned for the device will not affect any of the active ILOM sessions to the device. You can verify the newly learned auto-configured addresses under the `/network/ipv6` target.
- As of ILOM 3.0.14 or later, you can enable the `stateless` `auto-config` option to run at the same time as when the option for `dhcpv6_stateless` is enabled or as when the option for `dhcpv6_stateful` is enabled. However, the `auto-config` options for `dhcpv6_stateless` and `dhcpv6_stateful` should not be enabled to run at the same time.

9. **To set a pending static IPv6 address, specify the following property values:**

Property	Set Property Value	Description
`state`	`set state=enabled`	The IPv6 network `state` is `enabled` by default. To enable a static IP address the `state` must be set to `enabled`.
`pendingipaddress`	`set pending_static_ipaddress=` *<ip_address>*/*<subnet_mask_length_in _bits>*	Type this command followed by the property value for the static IPv6 address and net mask that you want to assign to the device. IPv6 address example: `fec0:a:8:b7:214:4fff:feca:5f7e/64`

10. **To commit the pending IPv6 static network parameters, perform the following steps:**

    a. **Use the `cd` command to change the directory to the device `network` target.**

    For example:

    - For rackmount server type: `cd /SP/network`
    - For chassis CMM type: `cd /CMM/network`
    - For chassis blade server SP type: `cd /CH/BL`*n*`/network`
    - For chassis blade server SP with multiple nodes type: `cd /CH/BL`*n*`/Node`*n*`/network`

    b. **Type the following command to commit the changed property values for IPv6:**

    ```
    set commitpending=true
    ```

Note – Assigning a new static IP address to the device (SP or CMM) will end all active ILOM sessions to the device. To log back in to ILOM, you will need to create a new browser session using the newly assigned IP address.

To test the IPv4 or IPv6 network configuration from ILOM use the Network Test Tools (Ping and Ping6). For details, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide.*

Adding User Accounts or Configuring a Directory Service

After you log in to ILOM using the `root` user account, you can choose either to create a local user account or to configure a directory service. For detailed information about ILOM user accounts and directory services, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

Topics

Description	Links
Learn how to add a user account and assign user roles (privileges)	• "Add User Account and Assign Privileges" on page 40
Learn how to configure ILOM for Active Directory	• "Configure ILOM for Active Directory" on page 41
Learn how to configure ILOM for LDAP	• "Configure ILOM for LDAP" on page 45
Learn how to configure ILOM for LDAP/SSL	• "Configure ILOM for LDAP/SSL" on page 46
Learn how to configure ILOM for RADIUS	• "Configure ILOM for RADIUS" on page 49
Learn how to verify that the new user account or directory service is working properly	• "Log In to ILOM Using a New User Account" on page 51
Learn how to log out of ILOM	• "Log Out of ILOM" on page 51

▼ Add User Account and Assign Privileges

1. **Log in to the ILOM CLI.**

2. **Type the following command and your password to add a local user account:**

   ```
   -> create /SP/users/username password=password
   ```

   For example:

   ```
   -> create /SP/users/user5
   Creating user...
   Enter new password: ********
   Enter new password again: ********
   Created /SP/users/user5
   ```

3. **Type the following command to assign roles to a user account:**

   ```
   –> set /SP/users/username role=aucr
   ```

   For example:

   ```
   -> set /SP/users/user5 role=aucr
   Set 'role' to 'aucr'
   ```

   For a description of the user account roles, see "Add User Account and Assign Privileges" on page 40.

Configure ILOM for Active Directory

1. **Log in to the ILOM CLI using the `root` user account.**

2. **Use the `show` command to view the top-level properties. Type:**

```
-> cd /SP/clients/activedirectory
/SP/clients/activedirectory

-> show

 /SP/clients/activedirectory
    Targets:
        admingroups
        alternateservers
        cert
        customgroups
        dnslocatorqueries
        opergroups
        userdomains

    Properties:
        address = 10.5.121.321
        defaultrole = Administrator
        dnslocatormode = enabled
        logdetail = trace
        port = 0
        state = disabled
        strictcertmode = disabled
        timeout = 4

    Commands:
        cd
        set
        show
```

3. **Use the** `show` **command to view information in the tables. Type:**

   -> **`show /SP/clients/activedirectory/`***name***`/`***n*

   Where *n* is **`1`** through **`5`**, and where *name* is one of the following:

   - **`admingroups`** (for Admin Groups properties)
   - **`opergroups`** (for Operator Groups properties)
   - **`customgroups`** (for Custom Groups properties)
   - **`userdomains`** (for User Domains properties)
   - **`alternateservers`** (for Alternate Servers properties)
   - **`dnslocatorqueries`** (for DNS Locator Queries properties)
   - **`cert`** (for certificate properties - `cert` is not a table; therefore the value of 1 through 5 for *n* does not apply)

   You can use the `show` command to retrieve the certificate properties:

```
-> show /SP/clients/activedirectory/cert
 /SP/clients/activedirectory/cert
    Targets:

    Properties:
        certstatus = certificate not present
        clear_action = (none)
        issuer = (none)
        load_uri = (none)
        serial_number = (none)
        subject = (none)
        valid_from = (none)
        valid_until = (none)
        version = (none)
```

You can also use the show command to retrieve the alternate server certificate properties:

```
-> show /SP/clients/activedirectory/alternateservers/1/cert
 /SP/clients/activedirectory/alternateservers/1/cert
    Targets:

    Properties:
        certstatus = certificate not present
        clear_action = (none)
        issuer = (none)
        load_uri = (none)
        serial_number = (none)
        subject = (none)
        valid_from = (none)
        valid_until = (none)
        version = (none)
```

4. **Use the set command to configure top-level properties.**

   For example:

```
-> set address=10.5.121.321
Set 'address' to 10.5.121.321
->set ...etc. for defaultrole, dnslocator, logdetail, port, state,
stricmode, timeout
```

5. **Use the set command to load a certificate or to modify properties.**

   For example:

   - **To load an Active Directory certificate:**

```
-> set /SP/clients/activedirectory/cert load_uri=
tftp://10.6.143.192/sales/cert.cert
Set 'load_uri' to 'tftp://10.6.143.192/sales/cert.cert'
```

   - **To load an Alternate Server certificate:**

```
-> set /SP/clients/activedirectory/alternateservers/1/cert
load_uri=tftp://10.6.143.192/sales/cert.cert
Set 'load_uri' to 'tftp://10.6.143.192/sales/cert.cert'
```

- **To modify Admin Groups Table properties:**

```
-> set /SP/clients/activedirectory/admingroups/1 name=CN=
spSuperAdmin,OU=Groups,DC=sales,DC=oracle,DC=com
Set 'name' to 'CN=spSuperAdmin,OU=Groups,DC=sales,DC=oracle,DC=
com'
```

- **To modify Operator Groups table properties:**

```
-> set /SP/clients/activedirectory/opergroups/1 name=CN=
spSuperOper,OU=Groups,DC=sales,DC=oracle,DC=com
Set 'name' to 'CN=spSuperOper,OU=Groups,DC=sales,DC=oracle,DC=
com'
```

- **To modify Custom Groups Table properties**:

Note – You can set the role to any one or a combination of Admin (`a`), User Management (`u`), Console (`c`), Reset and Host Control (`r`), or Read Only (`o`). The legacy roles Administrator or Operator are also supported.

```
-> set /SP/clients/activedirectory/customgroups/1 name=CN=
spSuperCust,OU=Groups,DC=sales,DC=oracle,DC=com
Set 'name' to 'CN=spSuperCust,OU=Groups,DC=sales,DC=oracle,DC=
com'
-> set /SP/clients/activedirectory/customgroups/1 roles=au
Set ‘roles’ to au
```

- **To modify User Domains Table properties:**

```
-> set /SP/clients/activedirectory/userdomains/1 domain=
username@sales.oracle.com
Set 'domain' to 'username@sales.oracle.com'
```

- **To modify Alternate Servers Table properties:**

```
-> set /SP/clients/activedirectory/alternateservers/1 address=
ip_address
```

- **To modify DNS Locator Queries table properties:**

```
-> set /SP/clients/activedirectory/dnslocatorqueries/1 service=
_ldap._tcp.gc._msdcs.<DOMAIN>.<PORT:3269>
```

The DNS Locator service query identifies the named DNS service. The port ID is generally part of the record, but it can be overridden by using the format <PORT:636>. Also, named services specific for the domain being authenticated can be specified by using the <DOMAIN> substitution marker.

Name	Domain
1	_ldap._tcp.gc._msdcs.<DOMAIN>.<PORT:3269>
2	_ldap._tcp.dc._msdcs.<DOMAIN>.<PORT:636>

▼ Configure ILOM for LDAP

1. **Log in to the ILOM CLI.**

2. **Use the** `set` **command to enter the proxy user name and password.**

   For example:

   ```
   -> set /SP/clients/ldap binddn="cn=proxyuser, ou=people, ou=sales,
   dc=oracle, dc=com" bindpw=password
   ```

3. **Enter the IP address or DNS name of the LDAP server. Type:**

   ```
   -> set /SP/clients/ldap address=ldap_ipaddress|DNS_name
   ```

4. **(Optional) Assign the port used to communicate with the LDAP server; the default port is 389. Type:**

   ```
   -> set /SP/clients/ldap port=ldap_port
   ```

5. **Enter the Distinguished Name of the branch of your LDAP tree that contains users and groups. Type:**

   ```
   -> set /SP/clients/ldap searchbase="ou=people, ou=sales, dc=
   oracle, dc=com"
   ```

   This is the location in your LDAP tree that you want to search for user authentication.

6. **Set the state of the LDAP service to enabled. Type:**

   ```
   -> set /SP/clients/ldap state=enabled
   ```

7. **To verify that LDAP authentication works, log in to ILOM using an LDAP user name and password.**

Note – ILOM searches local users before LDAP users. If an LDAP user name exists as a local user, ILOM uses the local account for authentication.

▼ Configure ILOM for LDAP/SSL

LDAP/SSL offers enhanced security to LDAP users by way of Secure Socket Layer (SSL) technology. Certificates are optional if Strict Certificate Mode is used.

Follow these steps to configure ILOM for LDAP/SSL:

1. **Log in to the ILOM CLI.**

2. **Use the** `show` **command to view top-level properties. Type:**

```
-> cd /SP/clients/ldapssl
/SP/clients/ldapssl

-> show

 /SP/clients/ldapssl
    Targets:
        admingroups
        alternateservers
        cert
        customgroups
        opergroups
        userdomains

    Properties:
        address = 10.5.121.321
        defaultrole = Administrator
        logdetail = trace
        port = 0
        state = disabled
        strictcertmode = disabled
        timeout = 4

    Commands:
        cd
        set
        show
```

3. **Use the** `show` **command to view information in the tables. Type:**

   -> **`show /SP/clients/ldapssl/`***name***`/`***n*

   Where *n* is **`1`** through **`5`**, and where *name* is one of the following:

   - **`admingroups`** (for Admin Groups properties)
   - **`opergroups`** (for Operator Groups properties)
   - **`customgroups`** (for Custom Groups properties)
   - **`userdomains`** (for User Domains properties)
   - **`alternateservers`** (for Alternate Servers properties)
   - **`cert`** (for certificate properties - `cert` is not a table; therefore the value of 1 through 5 for *n* does not apply)

   You can use the `show` command to retrieve the certificate properties:

```
-> show /SP/clients/ldapssl/cert
 /SP/clients/ldapssl/cert
    Targets:

    Properties:
        certstatus = certificate not present
        clear_action = (none)
        issuer = (none)
        load_uri = (none)
        serial_number = (none)
        subject = (none)
        valid_from = (none)
        valid_until = (none)
        version = (none)
```

   You can also use the `show` command to retrieve the alternate server certificate properties:

```
-> show /SP/clients/ldapssl/alternateservers/1/cert
 /SP/clients/ldapssl/alternateservers/1/cert
    Targets:

    Properties:
        certstatus = certificate not present
        clear_action = (none)
        issuer = (none)
        load_uri = (none)
        serial_number = (none)
        subject = (none)
        valid_from = (none)
        valid_until = (none)
        version = (none)
```

4. **Use the** `set` **command to configure top-level properties.**

   For example:

```
-> set address=10.5.121.321
Set ’address’ to 10.5.121.321
->set ...etc. for defaultrole, logdetail, port, state, strictmode,
timeout
```

5. **Use the** `set` **command to load a certificate or to modify properties.**

   For example:

   - **To load an LDAP/SSL certificate:**

```
-> set /SP/clients/ldapssl/cert load_uri=
tftp://10.6.142.192/sales/cert.cert
Set ’load_uri’ to ’tftp://10.6.142.192/sales/cert.cert’
```

   - **To load an Alternate Server certificate:**

```
-> set /SP/clients/ldapssl/alternateservers/1/cert load_uri=
tftp://10.6.142.192/sales/cert.cert
Set ’load_uri’ to ’tftp://10.6.142.192/sales/cert.cert’
```

   - **To modify Admin Groups properties:**

```
-> set /SP/clients/ldapssl/admingroups/1 name=CN=
spSuperAdmin,OU=Groups,DC=sales,DC=oracle,DC=com
Set 'name' to 'CN=spSuperAdmin,OU=Groups,DC=sales,DC=oracle,DC=
com'
```

   - **To modify Operator Groups properties:**

```
-> set /SP/clients/ldapssl/opergroups/1 name=CN=spSuperOper,OU=
Groups,DC=sales,DC=oracle,DC=com
Set 'name' to 'CN=spSuperOper,OU=Groups,DC=sales,DC=oracle,DC=
com'
```

   - **To modify Custom Groups properties**:

Note – You can set the role to any one or a combination of Admin (`a`), User Management (`u`), Console (`c`), Reset and Host Control (`r`), or Read Only (`o`). The legacy roles Administrator or Operator are also supported.

```
-> set /SP/clients/ldapssl/customgroups/1 name=CN=
spSuperCust,OU=Groups,DC=sales,DC=oracle,DC=com
Set 'name' to 'CN=spSuperCust,OU=Groups,DC=sales,DC=oracle,DC=
com'
-> set /SP/clients/ldapssl/customgroups/1 roles=au
Set ‘roles’ to au
```

- **To modify User Domains properties:**

Note – In the example below, `<USERNAME>` represents a user’s login name. During authentication, the user’s login name replaces `<USERNAME>`.

```
-> set /SP/clients/ldapssl/userdomains/1 name=<USERNAME>@uid=
<USERNAME>,OU=people,DC=oracle,DC=com
Set 'domain' to 'uid=<USERNAME>,OU=people,DC=oracle,DC=com’
```

- **To modify Alternate Servers properties:**

```
-> set /SP/clients/ldapssl/alternateservers/1 address=ip_address
```

▼ Configure ILOM for RADIUS

1. **Log in to the ILOM CLI.**

2. **To display the properties of RADIUS, type:**

   ```
   -> show /SP/clients/radius
   ```

   For example:

```
-> show /SP/clients/radius
/SP/clients/radius
   Targets:

   Properties:
     address = 0.0.0.0
     defaultrole = Operator
     port = 1812
     secret = (none)
     state = disabled
```

3. **Use the `set` command to modify properties.**

   For example:

   ```
   -> set /SP/clients/radius ipaddress=1.2.3.4 port=1812 state=
   enabled defaultrole=administrator secret=changeme
   ```

   For a description of the RADIUS settings, see ”Configure ILOM for RADIUS” on page 49.

▼ Log In to ILOM Using a New User Account

Use this procedure to log in to ILOM to verify that the non-`root` user account is functioning properly.

Follow these steps to log in to ILOM as a non-`root` account user:

1. **Using a Secure Shell (SSH) session, log in to ILOM by specifying your user name and IP address of the server SP or CMM.**

   ```
   $ ssh root@system_ipaddress
   ```

   Or

   ```
   $ ssh -l username ipaddress
   ```

   If ILOM is operating in a dual-stack network environment, the *system_ipaddress* can be entered using either an IPv4 or IPv6 address format.

   For example:

   For IPv4 - `10.8.183.106`

   or

   For IPv6 - `[fec0:a:8:b7:214:4fff:5eca:5f7e/64]`

   The ILOM Login prompt appears.

   For more information about entering IP addresses in a dual-stack environment, and for diagnosing connection issues, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*.

2. **Type the user name and password for the user account.**

   <hostname>: *<assigned_username>*

   `Password:` *<assigned_password>*

   The ILOM CLI prompt appears (->).

▼ Log Out of ILOM

- **At the command prompt, type:**

  ```
  -> exit
  ```

What Next?

You can now continue to customize your ILOM configuration for your system and data center environment. Before you configure ILOM for your environment, refer to the *Oracle Integrated Lights Out Manager 3.0 Concepts Guide* for an overview of the new ILOM 3.0 features and functionality. Knowing how the new ILOM features will affect your environment will help you configure ILOM settings so that you can access all of ILOM's capabilities in your system and data center.

Also refer to the Oracle ILOM 3.0 Procedures Guides for descriptions of how to perform ILOM tasks using a specific user interface and to your platform ILOM Supplement or platform Administration guide for platform-specific configuration instructions.

The ILOM 3.0 Documentation Collection can be found at:

`http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic`

CHAPTER 4

ILOM Firmware

Topics

Description	Links
Identify your ILOM firmware version.	• "Identifying ILOM Version Information" on page 54
Update your ILOM firmware	• "Updating ILOM Firmware to Latest Version" on page 55

Identifying ILOM Version Information

You can easily identify the ILOM firmware version that is running on the server SP. To identify the ILOM firmware version, you need the Read Only (o) role enabled.

▼ Identify ILOM Version Using the Web Interface

1. **Log in to the ILOM web interface.**
2. **Select System Information --> Version.**

   The current firmware version information appears.

▼ Identify ILOM Version Using the CLI

1. **Log in to the ILOM CLI.**
2. **At the command prompt, type** `version`**.**

   The current firmware version information appears. For example:

```
SP firmware 3.0.0.1
SP firmware build number: 38000
SP firmware date: Fri Nov 28 14:03:21 EDT 2008
SP filesystem version: 0.1.22
```

Updating ILOM Firmware to Latest Version

You can use either the ILOM web interface or the CLI to update ILOM firmware. See:

- "Update ILOM Firmware Using the Web Interface" on page 55
- "Update ILOM Firmware Using the CLI" on page 57

Before You Begin

Prior to performing the procedures in this section, the following requirements must be met:

- Identify the version of ILOM that is currently running on your system.
- Download the firmware image for your server or CMM from the platform's product web site. Refer to the section about Updating the Firmware in either the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Procedures Guide* or the *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide.*
- Copy the firmware image to a server using a supported protocol (TFTP, FTP, HTTP, HTTPS). For a CLI update, copy the image to a local server. For a web interface update, copy the image to the system on which the web browser is running.
- If required by your platform, shut down your host operating system before updating the firmware on your server SP.
- Obtain an ILOM user name and password that has Admin (a) role account privileges. You must have Admin (a) privileges to update the firmware on the system.
- The firmware update process takes about six minutes to complete. During this time, do not perform other ILOM tasks. When the firmware update is complete, the system will reboot.

▼ Update ILOM Firmware Using the Web Interface

1. **Log in to the ILOM web interface as any user with Admin (a) role account privileges.**

2. **Select Maintenance --> Firmware Upgrade.**

   The Firmware Upgrade page appears.

3. **In the Firmware Upgrade page, click Enter Upgrade Mode.**

   An Upgrade Verification dialog appears, indicating that other users who are logged in will lose their session when the update processes completes.

4. **In the Upgrade Verification dialog, click OK to continue.**

   The Firmware Upgrade page appears.

5. **In the Firmware Upgrade page, do the following:**

   a. **Specify the image location by performing one of the following:**

      - Click **Browse** to select the location of the firmware image you want to install.
      - If supported on your system, click **Specify URL** to specify a URL that will locate the firmware image. Then type the URL into the text box.

   b. **Click the Upload button to upload and validate the file.**

      Wait for the file to upload and validate.

      The Firmware Verification page appears.

6. **In the Firmware Verification page, enable one of the following options:**

   - **Preserve Configuration.** Enable this option if you want to save your existing configuration in ILOM and restore that existing configuration after the update process completes.
   - **Delay BIOS upgrade until next server power-off.** Enable this option if you want to postpone the BIOS upgrade until the next time the system reboots.

Note – The BIOS prompt only appears on x86 systems currently running an ILOM 3.x firmware release. If you answer yes (`y`) to the prompt, the system postpones the BIOS upgrade until the next time the system reboots. If you answer no (`n`) to the prompt, the system automatically updates the BIOS, if necessary, when updating the SP firmware.

If you choose to update the BIOS, the system will automatically overwrite the current BIOS settings and then assign the BIOS factory default settings.

---

7. **Click Start Upgrade to start the upgrade process or click Exit to cancel the process.**

   When you click Start Upgrade the upload process will start and a prompt to continue the process appears.

8. **At the prompt, click OK to continue.**

   The Update Status page appears providing details about the update progress. When the update status indicates 100%, the firmware update is complete.

   When the update completes, the system *automatically* reboots.

Note – The ILOM web interface might not refresh properly after the update completes. If the ILOM web page is missing information, or displays an error message, you might be viewing a cached version of the page from the version previous to the update. Clear your browser cache and refresh your browser before continuing.

---

9. **Reconnect to the ILOM web interface using the same user name and password that you provided in Step 1 of this procedure.**

   If you did not preserve the ILOM configuration before the firmware update, you will need to perform the initial ILOM setup procedures to reconnect to ILOM.

10. **Verify that the proper firmware version has been installed. Select System Information --> Version.**

    The firmware version on the SP or CMM should correspond to the firmware image you installed.

▼ Update ILOM Firmware Using the CLI

1. **Log in to the ILOM CLI as any user with Admin (a) role account privileges.**

2. **Verify that you have network connectivity to update the firmware.**

   For example:

   - To verify network connectivity on a server SP, type:

     ```
     -> show /SP/network
     ```

   - To verify network connectivity on a CMM, type:

     ```
     -> show /CMM/network
     ```

3. **Type the following command to load the ILOM firmware image:**

   ```
   -> load -source <supported_protocol>://<server_ipaddress>/<path_to_firmware_image>/<filename.xxx>
   ```

   A note about the firmware update process followed by message prompts to load the image are displayed. The text of the note depends on your platform.

4. **At the prompt for loading the specified file, type `y` for yes or `n` for no.**

   The prompt to preserve the configuration appears.

   For example:

   ```
   Do you want to preserve the configuration (y/n)?
   ```

5. **At the preserve configuration prompt, type `y` for yes or `n` for no.**

   Type `y` to save your existing ILOM configuration and to restore that configuration when the update process completes.

Note – If you type `n` at the preserve configuration prompt, another platform-specific prompt appears.

---

6. **Do one of the following:**

   - If you have a **2.x firmware release installed** on your system, the system will enter a special mode to load the new firmware. Then the system will automatically reboot to complete the firmware update. Proceed to Step 7.
   - If you have a **3.x firmware release installed on a SPARC system**, the system will enter a special mode to load the new firmware. Then the system will automatically reboot to complete the firmware update. Proceed to Step 7.
   - If you have a **3.x firmware release installed on an x86 system**, a prompt to postpone the BIOS update will appear.

     For example:

     ```
     Do you want to force the server off if BIOS needs to be upgraded
     (y/n)?
     ```

   a. **At the prompt to postpone the BIOS update, type `y` for yes or `n` for no.**

   The system will enter a special mode to load the new firmware and then the system will automatically reboot to complete the firmware update.

Note – The BIOS prompt only appears on x86 systems currently running an ILOM 3.x firmware release. If you answer yes (`y`) to the prompt, the system postpones the BIOS upgrade until the next time the system reboots. If you answer no (`n`) to the prompt, the system automatically updates the BIOS, if necessary, when updating the SP firmware.

If you choose to update the BIOS, the system will automatically overwrite the current BIOS settings and then assign the BIOS factory default settings.

---

   b. **Proceed to Step 7.**

7. **Reconnect to the ILOM server SP or CMM using an SSH connection and using the same user name and password that you provided in Step 1 of this procedure.**

   If you did not preserve the ILOM configuration before the firmware update, you will need to perform the initial ILOM setup procedures to reconnect to ILOM.

8. **Verify that the proper firmware version has been installed. At the CLI prompt, type:**

   ```
   -> version
   ```

   The firmware version on the SP or CMM should correspond to the firmware image you installed.