Initial Configuration

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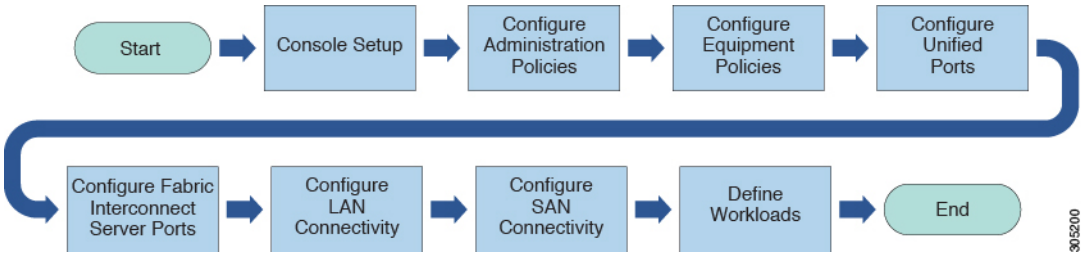
Initial Configuration Overview

Before you get started with Cisco UCS Manager initial configuration, review the *Fundamentals of Cisco Unified Computing System* and *System Requirements* sections in this guide.

The Cisco UCS Manager initial configuration involves the following steps:

Figure 1: Cisco UCS Manager Initial Configuration Overview



1. **Console Setup**—This step involves launching Cisco UCS Manager using the serial console. The Fabric Interconnect runs an initial configuration wizard and assigns three IP addresses in the management and administrative subnet: one for each Fabric Interconnect and one for the virtual IP interface that defines the Cisco UCS Manager instance and enables management. For more information on this step, see Console Setup, on page 2
2. **Configure Administration Policies**—This step involves configuration of administration policies, such as DNS Server, NTP, and Time Zone, that are necessary for proper functioning of all components. For more information on this step, see Configure Administration Policies, on page 10.

3. **Configure Equipment Policies**—This step involves performing chassis discovery by setting the equipment policies in Cisco UCS Manager. The Chassis Discovery Policy specifies the minimum number of connections between the I/O modules and the Fabric Interconnects. This value must be set explicitly. For more information on this step, see Configure Equipment Policies, on page 11
4. **Configure Unified Ports**—This step involves configuring Unified Ports on the primary and subordinate Fabric Interconnects. Configure Unified Ports, on page 11
5. **Configure Fabric Interconnect Server Ports**—This step involves configuring Fabric Interconnect Server Ports. For more information on this step, see Configure Fabric Interconnect Server Ports, on page 11
6. **Configure LAN Connectivity**—This step involves establishing initial LAN connectivity from Fabric Interconnects. For more information on this step, see Configure LAN Connectivity, on page 12.
7. **Configure SAN Connectivity**—This step involves establishing initial SAN connectivity from Fabric Interconnects. For more information on this step, see Configure SAN Connectivity, on page 12
8. **Define Workloads**—After completing initial configuration, you can define your workloads. For more information on this step, see Define Workloads, on page 12.

Console Setup

Initial configuration of Cisco UCS Fabric Interconnects is performed using the console connection. It is essential to maintain symmetric Cisco UCS Manager versions between the fabric interconnects in a domain. Refer to the latest *Cisco UCS Manager Release Notes*, and *Firmware Management guide* to determine the supported firmware versions.

Before you begin

Collect the following required information for the console setup:

- System name
- Password for the admin account. Choose a strong password that meets the guidelines for Cisco UCS Manager passwords. The password field cannot be blank.
- Management port IPv4 and subnet mask, or IPv6 address and prefix.
- Default gateway IPv4 or IPv6 address.
- DNS server IPv4 or IPv6 address (optional).
- Domain name for the system (optional).

Installation method

You can set up Cisco UCS Manager via GUI or CLI.

Installation Method	See
GUI	Configure the Primary Fabric Interconnect Using GUI, on page 3
CLI	Configure the Primary Fabric Interconnect Using CLI, on page 6

Configure Fabric Interconnects

Initial configuration of Fabric Interconnects is performed using the console connection. It is essential to maintain symmetric Cisco UCS Manager versions between the Fabric Interconnects in a domain. Refer to the latest *Cisco UCS Manager Release Notes*, and *Firmware Management guide* to determine the supported firmware versions.

Configure the Primary Fabric Interconnect Using GUI

You can either follow the procedure below for configuring the primary fabric interconnect or watch Cisco UCS Manager Initial Setup part 1.

Procedure

Step 1 Power on the fabric interconnect.
You will see the power on self-test messages as the fabric interconnect boots.

Step 2 If the system obtains a lease, go to step 6, otherwise, continue to the next step.

Step 3 Connect to the console port.

Step 4 At the installation method prompt, enter **`gui`**.

Step 5 If the system cannot access a DHCP server, you are prompted to enter the following information:

- IPv4 or IPv6 address for the management port on the fabric interconnect.
- IPv4 subnet mask or IPv6 prefix for the management port on the fabric interconnect.
- IPv4 or IPv6 address for the default gateway assigned to the fabric interconnect.

Note In a cluster configuration, both fabric interconnects must be assigned the same management interface address type during setup.

Step 6 Copy the web link from the prompt into a web browser and go to the Cisco UCS Manager GUI launch page.

Step 7 On the Cisco UCS Manager GUI launch page, select **Express Setup**.

Step 8 On the **Express Setup** page, select **Initial Setup** and click **Submit**.

Step 9 In the **Cluster and Fabric Setup** area:

a) Click the **Enable Clustering** option.
b) For the **Fabric Setup** option, select **Fabric A**.
c) In the **Cluster IP Address** field, enter the IPv4 or IPv6 address that Cisco UCS Manager will use.

Step 10 In the **System Setup** area, complete the following fields:

Field	Description
System Name	The name assigned to the Cisco UCS domain. In a standalone configuration, the system adds "-A" to the system name. In a cluster configuration, the system adds "-A" to the fabric interconnect assigned to fabric A, and "-B" to the fabric interconnect assigned to fabric B.

Field	Description
Admin Password	The password used for the Admin account on the fabric interconnect. Choose a strong password that meets the guidelines for Cisco UCS Manager passwords. This password cannot be blank.
Confirm Admin Password	The password used for the Admin account on the fabric interconnect.
Mgmt IP Address	The static IPv4 or IPv6 address for the management port on the fabric interconnect.
Mgmt IP Netmask or **Mgmt IP Prefix**	The IPv4 subnet mask or IPv6 prefix for the management port on the fabric interconnect. **Note** The system prompts for a **Mgmt IP Netmask** or a **Mgmt IP Prefix** based on what address type you entered in the **Mgmt IP Address**.
Default Gateway	The IPv4 or IPv6 address for the default gateway assigned to the management port on the fabric interconnect. **Note** The system prompts for a **Default Gateway** address type based on what type you entered in the **Mgmt IP Address** field.
DNS Server IP	The IPv4 or IPv6 address for the DNS Server assigned to the fabric interconnect.
Domain Name	The name of the domain in which the fabric interconnect resides.

Step 11 Click **Submit**.
A page displays the results of your setup operation.

Configure the Subordinate Fabric Interconnect Using GUI

You can either follow the procedure below for configuring the subordinate fabric interconnect or watch Cisco UCS Manager Initial Setup part 2.

Note When adding a new fabric interconnect to an existing High Availability cluster, for example, during a new install or when replacing a fabric interconnect, the new device will not be able to log into the cluster as long as the authentication method is set to remote. To successfully add a new fabric interconnect to the cluster, the authentication method must be temporarily set to local and the local admin credentials of the primary fabric interconnect must be used.

Procedure

Step 1 Power up the fabric interconnect.
You will see the power-up self-test message as the fabric interconnect boots.

Step 2 It the system obtains a lease, go to step 6, otherwise, continue to the next step.

Step 3 Connect to the console port.

Step 4 At the installation method prompt, enter **`gui`**.

Step 5 If the system cannot access a DHCP server, you are prompted to enter the following information:

- IPv4 or IPv6 address for the management port on the fabric interconnect
- IPv4 subnet mask or IPv6 prefix for the management port on the fabric interconnect
- IPv4 or IPv6 address for the default gateway assigned to the fabric interconnect

Note In a cluster configuration, both fabric interconnects must be assigned the same management interface address type during setup.

Step 6 Copy the web link from the prompt into a web browser and go to the Cisco UCS Manager GUI launch page.

Step 7 On the Cisco UCS Manager GUI launch page, select **Express Setup**.

Step 8 On the **Express Setup** page, select **Initial Setup** and click **Submit**.

The fabric interconnect should detect the configuration information for the first fabric interconnect.

Step 9 In the **Cluster and Fabric Setup** Area:

a) Select the **Enable Clustering** option.
b) For the **Fabric Setup** option, make sure **Fabric B** is selected.

Step 10 In the **System Setup** Area, enter the password for the Admin account into the **Admin Password of Master** field.
The **Manager Initial Setup** Area is displayed.

Step 11 In the **Manager Initial Setup** Area, the field that is displayed depends on whether you configured the first fabric interconnect with an IPv4 or IPv6 management address. Complete the field that is appropriate for your configuration, as follows:

Field	Description
Peer FI is IPv4 Cluster enabled. Please Provide Local fabric interconnect Mgmt0 IPv4 Address	Enter an IPv4 address for the Mgmt0 interface on the local fabric interconnect.
Peer FI is IPv6 Cluster Enabled. Please Provide Local fabric interconnect Mgmt0 IPv6 Address	Enter an IPv6 for the Mgmt0 interface on the local fabric interconnect.

Step 12 Click **Submit**.

A page displays the results of your setup operation.

Configure the Primary Fabric Interconnect Using CLI

Procedure

Step 1 Connect to the console port.

Step 2 Power on the fabric interconnect.
You will see the power-on self-test messages as the fabric interconnect boots.

Step 3 When the unconfigured system boots, it prompts you for the setup method to be used. Enter **console** to continue the initial setup using the console CLI.

Step 4 Enter **setup** to continue as an initial system setup.

Step 5 Enter **y** to confirm that you want to continue the initial setup.

Step 6 Enter the password for the admin account.

Step 7 To confirm, re-enter the password for the admin account.

Step 8 Enter **yes** to continue the initial setup for a cluster configuration.

Step 9 Enter the fabric interconnect fabric (either **A** or **B**).

Step 10 Enter the system name.

Step 11 Enter the IPv4 or IPv6 address for the management port of the fabric interconnect.

If you enter an IPv4 address, you will be prompted to enter an IPv4 subnet mask. If you enter an IPv6 address, you will be prompted to enter an IPv6 network prefix.

Step 12 Enter the respective IPv4 subnet mask or IPv6 network prefix, then press **Enter**.

You are prompted for an IPv4 or IPv6 address for the default gateway, depending on the address type you entered for the management port of the fabric interconnect.

Step 13 Enter either of the following:

- IPv4 address of the default gateway
- IPv6 address of the default gateway

Step 14 Enter **yes** if you want to specify the IP address for the DNS server, or **no** if you do not.

Step 15 (Optional) Enter the IPv4 or IPv6 address for the DNS server.

The address type must be the same as the address type of the management port of the fabric interconnect.

Step 16 Enter **yes** if you want to specify the default domain name, or **no** if you do not.

Step 17 (Optional) Enter the default domain name.

Step 18 Review the setup summary and enter **yes** to save and apply the settings, or enter **no** to go through the Setup wizard again to change some of the settings.

If you choose to go through the Setup wizard again, it provides the values you previously entered, and the values appear in brackets. To accept previously entered values, press **Enter**.

Example

The following example sets up the first fabric interconnect for a cluster configuration using the console and IPv4 management addresses:

```
Enter the installation method (console/gui)?  console
Enter the setup mode (restore from backup or initial setup) [restore/setup]? setup
You have chosen to setup a new switch.  Continue? (y/n): y
Enter the password for "admin":
Confirm the password for "admin":
Do you want to create a new cluster on this switch (select 'no' for standalone setup or if
 you want this switch to be added to an existing cluster)? (yes/no) [n]: yes
Enter the switch fabric (A/B): A
Enter the system name: foo
Mgmt0 IPv4 address: 192.168.10.10
Mgmt0 IPv4 netmask: 255.255.255.0
IPv4 address of the default gateway: 192.168.10.1
Virtual IPv4 address: 192.168.10.12
Configure the DNS Server IPv4 address? (yes/no) [n]: yes
  DNS IPv4 address: 20.10.20.10
Configure the default domain name? (yes/no) [n]: yes
  Default domain name: domainname.com
Join centralized management environment (UCS Central)? (yes/no) [n]: no
Following configurations will be applied:
  Switch Fabric=A
  System Name=foo
  Management IP Address=192.168.10.10
  Management IP Netmask=255.255.255.0
  Default Gateway=192.168.10.1
  Cluster Enabled=yes
  Virtual Ip Address=192.168.10.12
  DNS Server=20.10.20.10
  Domain Name=domainname.com
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

The following example sets up the first fabric interconnect for a cluster configuration using the console and IPv6 management addresses:

```
Enter the installation method (console/gui)?  console
Enter the setup mode (restore from backup or initial setup) [restore/setup]? setup
You have chosen to setup a new switch.  Continue? (y/n): y
Enter the password for "admin":
Confirm the password for "admin":
Do you want to create a new cluster on this switch (select 'no' for standalone setup or if
 you want this switch to be added to an existing cluster)? (yes/no) [n]: yes
Enter the switch fabric (A/B): A
Enter the system name: foo
Mgmt0 address:  2001::107
Mgmt0 IPv6 prefix: 64
IPv6 address of the default gateway: 2001::1
Configure the DNS Server IPv6 address? (yes/no) [n]: yes
  DNS IP address: 2001::101
Configure the default domain name? (yes/no) [n]: yes
  Default domain name: domainname.com
Join centralized management environment (UCS Central)? (yes/no) [n]: no
Following configurations will be applied:
  Switch Fabric=A
  System Name=foo
  Enforced Strong Password=no
  Physical Switch Mgmt0 IPv6 Address=2001::107
  Physical Switch Mgmt0 IPv6 Prefix=64
```

```
  Default Gateway=2001::1
  Ipv6 value=1
  DNS Server=2001::101
  Domain Name=domainname.com
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

Configure the Subordinate Fabric Interconnect Using CLI

This procedure describes setting up the second fabric interconnect using IPv4 or IPv6 addresses for the management port.

Note When adding a new Fabric Interconnect to an existing High Availability cluster, for example, during a new install or when replacing a Fabric Interconnect, the new device will not be able to log into the cluster as long as the authentication method is set to remote. To successfully add a new Fabric Interconnect to the cluster, the authentication method must be temporarily set to local and the local admin credentials of the primary Fabric Interconnect must be used.

Procedure

Step 1 Connect to the console port.

Step 2 Power up the fabric interconnect.
You will see the power-on self-test messages as the fabric interconnect boots.

Step 3 When the unconfigured system boots, it prompts you for the setup method to be used. Enter **console** to continue the initial setup using the console CLI.

Note The fabric interconnect should detect the peer fabric interconnect in the cluster. If it does not, check the physical connections between the L1 and L2 ports, and verify that the peer fabric interconnect has been enabled for a cluster configuration.

Step 4 Enter **y** to add the subordinate fabric interconnect to the cluster.

Step 5 Enter the admin password of the peer fabric interconnect.

Step 6 Enter the IP address for the management port on the subordinate fabric interconnect.

Step 7 Review the setup summary and enter **yes** to save and apply the settings, or enter **no** to go through the Setup wizard again to change some of the settings.

If you choose to go through the Setup wizard again, it provides the values you previously entered, and the values appear in brackets. To accept previously entered values, press **Enter**.

Example

The following example sets up the second fabric interconnect for a cluster configuration using the console and the IPv4 address of the peer:

```
Enter the installation method (console/gui)? console
Installer has detected the presence of a peer Fabric interconnect. This Fabric interconnect
 will be added to the cluster. Continue (y/n) ? y
Enter the admin password of the peer Fabric Interconnect:
```

```
Peer Fabric interconnect Mgmt0 IPv4 Address: 192.168.10.11
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

The following example sets up the second fabric interconnect for a cluster configuration using the console and the IPv6 address of the peer:

```
Enter the installation method (console/gui)? console
Installer has detected the presence of a peer Fabric interconnect. This Fabric interconnect
 will be added to the cluster. Continue (y/n) ? y
Enter the admin password of the peer Fabric Interconnect:
Peer Fabric interconnect Mgmt0 IPv6 Address: 2001::107
Apply and save the configuration (select 'no' if you want to re-enter)? (yes/no): yes
```

Verify Console Setup

You can verify that both fabric interconnect configurations are complete by logging into the fabric interconnect via SSH and verifying the cluster status through CLI. For this procedure, you can watch Cisco UCS Manager Initial Setup part 3.

Use the following commands to verify the cluster state:

Command	Purpose	Sample Output

show cluster state	Displays the operational state and leadership role for both fabric interconnects in a high availability cluster.	The following example displays that both fabric interconnects are in the Up state, HA is in the Ready state, fabric interconnect A has the primary role, and fabric interconnect B has the subordinate role:
		`UCS-A# show cluster state`
		`Cluster Id:`
		`0x4432f72a371511de-0xb97c000de1b1ada4`
		
		`A: UP, PRIMARY`
		`B: UP,`
		`SUBORDINATE HA READY`

Command	Purpose	Sample Output

show cluster extended-state	Displays extended details about the cluster state and typically used when troubleshooting issues.	The following example shows how to view the extended state of a cluster:
		`UCSC# show cluster extended-state 0x2e95deadbd0f11e2-0x8ff35147e84f3de2Start time: Thu May 16 06:54:22 2013Last election time: Thu May 16 16:29:28 2015System Management Viewing the Cluster State A: UP, PRIMARY B: UP, SUBORDINATE`
		
		`A: memb state UP, lead state PRIMARY, mgmt services state: UP B: memb state UP, lead state SUBORDINATE, mgmt services state: UP heartbeat state PRIMARY_OK HA READY Detailed state of the device selected for HA quorum data: Device 1007, serial: a66b4c20-8692-11df-bd63-1b72ef3ac801, state: active Device 1010, serial: 00e3e6d0-8693-11df-9e10-0f4428357744, state: active Device 1012, serial: 1d8922c8-8693-11df-9133-89fa154e3fa1, state: active`

Configure Administration Policies

After completing initial configuration, configure global system administration settings such as faults, events, users, external directory services, communication services, and licensing.

Use the following table for specific guidance on how to configure various administration policies.

Task	See
Time Zone Management	*Cisco UCS Manager Administration Management Guide*
Register with Cisco UCS Central	*Cisco UCS Manager Infrastructure Management Guide*
User Management	*Cisco UCS Manager Infrastructure Management Guide*
Communications Management	*Cisco UCS Manager Administration Management Guide*

Task	See
(Optional) Key Management	*Cisco UCS Manager Administration Management Guide*
License Management	*Cisco UCS Manager Administration Management Guide*

Configure Equipment Policies

After configuring administration policies, set equipment policies such as Chassis/FEX Discovery policy, Power Policy, MAC Address changing policy and SEL Policy.

Use the following table for specific guidance on how to configure various equipment policies.

Task	See
Configure global policies including Chassis/FEX Discovery Policy, Power Policy and Information Policy	*Cisco UCS Manager Infrastructure Management Guide*
Configure SEL Policy	*Cisco UCS Manager Administration Management Guide*

Configure Unified Ports

After configuring equipment policies, enable Unified Ports. It is recommended that you first configure Unified Ports on the Primary Fabric Interconnect, then on the Subordinate Fabric Interconnect.

Use the following table for specific guidance on how to configure Unified ports.

Task	See
Configure Unified Ports	*Cisco UCS Network Management Guide*

Configure Fabric Interconnect Server Ports

After configuring Unified Ports, enable Fabric Interconnect Server Ports.

Use the following table for specific guidance on how to configure fabric interconnect server ports.

Task	See
Configure Fabric Interconnect Server Ports **Note** Starting with Cisco UCS Manager release 3.1(3), you can automatically configure the fabric interconnect server ports.	*Cisco UCS Manager Network Management Guide*

Configure LAN Connectivity

After configuring Fabric Interconnect Server Ports, complete initial LAN connectivity by enabling Fabric Interconnect Ethernet Ports.

Use the following table for specific guidance on how to configure LAN connectivity.

Task	See
Configure Fabric Interconnect Ethernet Ports	*Cisco UCS Manager Network Management Guide*

Configure SAN Connectivity

After configuring LAN connectivity, complete initial SAN connectivity by enabling Fabric Interconnect FC Ports.

Use the following table for specific guidance on how to configure SAN connectivity.

Task	See
Configure Fabric Interconnect FC Ports	*Cisco UCS Manager Storage Management Guide*

Define Workloads

After completing Cisco UCS Manager initial configuration, use the following steps in the recommended order to define your workload:

Step	Description	See
Define organizational hierarchy	Cisco UCS organizational structure facilitates hierarchical configuration of Cisco UCS resources. An Organization can be created for policies, pools, and service profiles. The default Organization for any resource category is Root. Based on requirements, multiple sub-organizations can be created under the Root organization. You can create nested sub-organization under a sub-organization.	*Cisco UCS Manager Administration Management Guide*

Step	Description	See
Define Pools	Pools in Cisco UCS Manager are used for abstracting unique identities and resources for devices such as vNICs, vHBAs and server pools can assign servers in groups based on similar server characteristics.	*Cisco UCS Manager Network Management Guide*
Configure Adapters	Cisco UCS contains predefined adapter policies for most operating systems, including hypervisors. The settings in these predefined policies are for optimal adapter performance.	*Cisco UCS Manager Network Management Guide*
Configure Server Policies	Configuring Server Policies in Cisco UCS Manager includes Server-Related Policies such as BIOS Policy, Local Disk Configuration Policy, IPMI Access Profiles, and Server Autoconfiguration.	*Cisco UCS Manager Server Management Guide*
Configure Service Profile Templates	Cisco UCS Service Profile Templates are used to create multiple services profiles with similar characteristics.	*Cisco UCS Manager Server Management Guide*