You can deploy two Application Servers as part of one logical site. Database replication enables the Application Servers to synchronize user profiles, user groups, and meeting data. Only one Application Server is active at any time. If the active server fails, then you can activate the standby server and place the previously active server in standby mode. Each Application Server in a site is called a node.

If the site includes two Media Servers, then one Media Server will be associated with each Application Server. If the site includes only one Media Server, then it is always associated with the active Application Server.

In a failover deployment, each Application Server is configured with two IP addresses—one for each of the following interfaces:

- eth0—Physical network interface
  - Assign the same shared hostname and IP address to eth0 on both Application Servers.
  - Anyone who tries to access the shared hostname or IP address will reach the active Application Server.
  - The eth0 interface is disabled on the standby Application Server.

- eth0:0—Virtual network interface
  - Assign a unique hostname and IP address to eth0:0 on each Application Server.
  - Use the eth0:0 hostname or IP address to access an Application Server that is in standby mode.
  - The system uses the eth0:0 virtual network interface for database replication between the two nodes.
Prerequisites for Application Server Failover


Determine the hostname, IP address, subnet mask, and default gateway for each of the following:
- Node 1 eth0 and Node 2 eth0—Shared hostname and IP address, for example: meetings.example.com, 10.0.0.1
- Node 1 eth0:0—Unique hostname and IP address, for example: meetings1.example.com, 10.0.0.2
- Node 2 eth0:0—Unique hostname and IP address, for example: meetings2.example.com, 10.0.0.3

Configure the Domain Name System (DNS) server for forward and reverse DNS lookup of all three hostname–IP address pairs. Verify by running the nslookup hostname and nslookup ip-address commands.

Whether you configure Application Server failover before or after you install any Web Server(s) and your call-control devices (such as Cisco Unified Communications Manager), make sure that these devices identify the active Application Server by using the shared hostname and IP address of eth0.

Note

The interface eth0 mentioned throughout this module actually refers to the physical Ethernet port 1 on the Application Server.

When a node is rebooted, interface eth0 is initially disabled. However, during startup of the Cisco Unified MeetingPlace application, the node checks for an active Application Server on the network by attempting to ping the eth0 IP address, which is identical on both nodes. If the ping is unsuccessful, then the rebooted node enables the eth0 interface and becomes the active server.

Related Topics
- Prerequisites for Application Server Failover, page 2
- Restrictions for Application Server Failover, page 3
- How to Configure Application Server Failover, page 3
- How to Perform Application Server Failover, page 10
Restrictions for Application Server Failover

- Not all Application Server configurations are replicated between the active and standby servers. If you make any configuration changes after you set up Application Server failover, make sure you follow the “Configuring the Application Servers in a Failover Deployment” section on page 8.
- Directory Service between two Application Servers is not supported in a failover deployment.
- Only the database, Apache Tomcat, and SIM processes run on a standby server, which you will notice if you enter the `mpx_sys status` command on the standby server.
- Do not leave a standby server out of production for a long time, as that can cause the primary server to fail. If the standby server must be brought down for days or weeks at a time, disable replication during this time.
- To use Single Sign On (SSO) authentication with Microsoft Outlook in a failover environment, you must install SSL on both the active server and the standby server.
- If you are using SSL on your system, you must manually transfer all files in the following directories from the active server to the standby server:
  - `/usr/local/enrollment` (for Application Server SSL and single sign-on authentication for users who schedule meetings from Microsoft Outlook)
  - `/opt/cisco/meetingplace/web/current/etc/conf/` (for Cisco WebEx integration)

Copy the files by using the `failoverUtil copyConfigFiles` command and restore files by using the `failoverUtil restoreConfigFiles` command.

How to Configure Application Server Failover

- Setting Up Failover for Two Newly Installed Application Servers, page 4
- Setting Up Failover for One Existing Application Server and One Newly Installed Application Server, page 6
Setting Up Failover for Two Newly Installed Application Servers

Before You Begin

- Complete the “Prerequisites for Application Server Failover” section on page 2.
- Read the “Restrictions for Application Server Failover” section on page 3.

Procedure

Step 1  Install the first Application Server (Node 1).
During installation, you configure the hostname and IP address of eth0, which is called “Ethernet Port 1(device eth0)” on the Network Setup page.


Step 3  Log in to the CLI of Node 1.
If you are logging in remotely, use the eth0 IP address or hostname.

Step 4  Enter the following command to set up Node 1 for failover:

```
failoverUtil setDeployment failover
```

Step 5  Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.
Node 1 automatically restarts and enters standby mode.

Step 6  Install the second Application Server (Node 2), ensuring the following:
- Node 1 and Node 2 use the exact same IP address and hostname for eth0.
- Time is synchronized between Node 1 and Node 2.

Step 7  Install any licenses on the second Application Server (Node 2) in active mode and reboot the system. For information about licenses, see the About Licenses module in the Planning Guide for Cisco Unified MeetingPlace 7.1 at http://www.cisco.com/en/US/products/sw/ps5664/ps5669/products_implementation_design_guides_list.html.

Step 8  Log in to the CLI of Node 2.
If you are logging in remotely, use the eth0 IP address or hostname.

Step 9  Enter the following command to set up Node 2 for failover:

```
failoverUtil setDeployment failover
```

Step 10  Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.
Node 2 automatically restarts and enters standby mode.

Step 11  Enter the following command to initialize database replication:

```
mp_replication init -n 2 -r remote-eth0:0 [-v]
```
**Step 12** Log in to the CLI of Node 1.

If you are logging in remotely, use the Node 1 eth0:0 IP address or hostname.

**Step 13** Enter the following commands to initialize and start database replication:

```bash
mp_replication init -n 1 -r remote-eth0:0 [-v]
mp_replication switchON [-v]
```

**Step 14** Enter the following command to change Node 1 from standby mode to active mode:

```bash
failoverUtil setServer active
```

---

**Note**

Node must be active to add licenses (step 7).

---

**Verifying**

Using the hostname or IP address of the virtual eth0:0 interface, log in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

To verify that the replication was successful, log in to both nodes (eth0:0 interface) as root user and enter the `mp_replication status` command. The following should display in your output:

<table>
<thead>
<tr>
<th><strong>Local Server</strong></th>
<th><strong>Remote Server</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Replication Type: Local</td>
<td>Replication Type: Intra-site</td>
</tr>
<tr>
<td>Site: 1</td>
<td>Site: 1</td>
</tr>
<tr>
<td>Node: 1</td>
<td>Node: 2</td>
</tr>
<tr>
<td>State: Active</td>
<td>State: Active</td>
</tr>
<tr>
<td>Status: Local</td>
<td>Status: Connected</td>
</tr>
</tbody>
</table>

**Troubleshooting Tips**

- If the Administration Center in both nodes displays “Failover deployment. Standby server,” then something may have interrupted the process initiated in **Step 14**. To resolve this issue, see the `failoverUtil setDeployment failover` command description in the Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module.

- If you switch on replication with sync via the `mp_replication switchON` command and replication fails, it is possible that a table is locking due to the processes on an active server. To resolve this issue, run the `mp_replication switchON` with sync command again.

- During this process, you may see several error messages. These error messages are expected behavior and informational only. The final message of the command explicitly says if the command ran successfully or not.

An example of an error message that you can ignore is:
Configuring Application Server Failover for Cisco Unified MeetingPlace

How to Configure Application Server Failover

* Error: 
'/opt/cisco/meetingplace/database/versions/IIF.10.00.UC5XL/etc/sqlhosts not initialized. xxxxxxx is missing'
* Forcing the fix

The final message, which indicates if the process was successful, is:

Database Replication changes for this machine (Host = <hostname>; IP Addr = <ip addr>) is SUCCESSFUL

Related Topics
- Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module

What To Do Next
Proceed to the “Configuring the Application Servers in a Failover Deployment” section on page 8.

Setting Up Failover for One Existing Application Server and One Newly Installed Application Server

In this task:
- Node 1 is the existing Application Server.
- Node 2 is the new Application Server.

Before You Begin
- Complete the “Prerequisites for Application Server Failover” section on page 2.
- Read the “Restrictions for Application Server Failover” section on page 3.
- Back up and archive the data on the existing Application Server (Node 1). See the Backing Up, Archiving, and Restoring Data on the Cisco Unified MeetingPlace Application Server module.

Caution
Performing this task temporarily brings down your Cisco Unified MeetingPlace system. Proceed only during a scheduled maintenance period.

Procedure

Step 1
Install the second Application Server (Node 2), ensuring the following:
- To reduce system downtime during this procedure, enter the Node 2 eth0:0 (or any valid and currently unused) IP address and hostname when you configure “Ethernet Port 1(device eth0)” on the Network Setup page.
  - This configuration is temporary; you will change the eth0 IP address and hostname to the correct value later in this procedure.
- Node 1 and Node 2 server times must be synchronized with each other.

Step 2
Log in to the CLI of Node 1.
If you are logging in remotely, use the Node 1 eth0 IP address or hostname.
Configuring Application Server Failover for Cisco Unified MeetingPlace

How to Configure Application Server Failover

Step 3
Enter the following command to set up Node 1 for failover:

```
failoverUtil setDeployment failover
```

Step 4
Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.

Node 1 automatically restarts and enters **standby** mode.

Step 5
Log in to the CLI of Node 2.

If you are logging in remotely, use the temporary Node 2 eth0 IP address or hostname that you entered during installation in Step 1.

Step 6
Enter the **net** command to change the Node 2 eth0 IP address and hostname to match the Node 1 eth0 IP address and hostname.

Because Node 1 is still in standby mode, Node 2 is now the active server.

Step 7
Enter **reboot** to restart Node 2.

Step 8
Log in to the CLI of Node 2, this time using the shared eth0 IP address or hostname.

Step 9
Enter the following command to set up Node 2 for failover:

```
failoverUtil setDeployment failover
```

Step 10
Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.

Node 2 automatically restarts and enters **standby** mode.

Step 11
Enter the following command to initialize database replication:

```
mp_replication init -n 2 -r remote-eth0:0 [-v]
```

Step 12
Log in to the CLI of Node 1.

If you are logging in remotely, use the Node 1 eth0:0 IP address or hostname.

Step 13
Enter the following commands to initialize and start database replication and synchronize existing data:

```
mp_replication init -n 1 -r remote-eth0:0 [-v]

mp_replication switchON -S -F from-sync [-v]
```

Step 14
Enter the following command to change Node 1 from standby mode to active mode:

```
failoverUtil setServer active
```

Verifying

Using the hostname or IP address of the virtual eth0:0 interface, log in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

To verify that the replication was successful, log in to both nodes (eth0:0 interface) as root user and enter the **mp_replication status** command. The following should display in your output:

<table>
<thead>
<tr>
<th>Local Server</th>
<th>Remote Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replication Type: Local</td>
<td>Replication Type: Intra-site</td>
</tr>
<tr>
<td>Site: 1</td>
<td>Site: 1</td>
</tr>
<tr>
<td>Node: 1</td>
<td>Node: 2</td>
</tr>
</tbody>
</table>
Configuring Application Server Failover for Cisco Unified MeetingPlace

Troubleshooting Tips

- If the Administration Center in both nodes displays “Failover deployment. Standby server,” then something may have interrupted the process initiated in Step 14. To resolve this issue, see the failoverUtil setDeployment failover command description in the Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module.

- If you switch on replication with sync via the mp_replication switchON command and replication fails, it is possible that a table is locking due to the processes on an active server. To resolve this issue, run the mp_replication switchON with sync command again.

- During this process, you may see several error messages. These error messages are expected behavior and informational only. The final message of the command explicitly says if the command ran successfully or not.

  An example of an error message that you can ignore is:

  * Error:
  '/opt/cisco/meetingplace/database/versions/IIF.10.00.UCSXL/etc/sqlhosts not initialized. xxxxxx is missing'
  * Forcing the fix

  The final message, which indicates if the process was successful, is:

  Database Replication changes for this machine (Host = <hostname>; IP Addr = <ip addr>) is SUCCESSFUL

Related Topics


- Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module

What To Do Next

Proceed to the “Configuring the Application Servers in a Failover Deployment” section on page 8.

Configuring the Application Servers in a Failover Deployment

Whenever you need to configure the Application Server in a failover deployment, use this procedure to make sure that both the active and standby servers have the same configuration.

Before You Begin

- Complete one of the following tasks:
  - Setting Up Failover for Two Newly Installed Application Servers, page 4
  - Setting Up Failover for One Existing Application Server and One Newly Installed Application Server, page 6

- Determine the hostname or IP address of both of the following virtual network interfaces:
  - eth0:0 of the active server

<table>
<thead>
<tr>
<th>Local Server</th>
<th>Remote Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>State: Active</td>
<td>State: Active</td>
</tr>
<tr>
<td>Status: Local</td>
<td>Status: Connected</td>
</tr>
</tbody>
</table>
Configuring Application Server Failover for Cisco Unified MeetingPlace

How to Configure Application Server Failover

– eth0:0 of the standby server

Procedure

Step 1  Go to http://application-server/admin/.

Use the shared eth0 hostname or IP address, which always goes to the active Application Server.

Step 2  Log in as a System administrator.

Step 3  Configure the active server.

Take note of any changes you make on pages or fields that are labeled as:

• Copied
• Server-specific
• Partially replicated

Step 4  If you made changes to any copied pages or parameters, then perform the following steps:

a. Log in to the CLI of the active server.

   If you are logging in remotely, use the eth0 IP address or hostname.

b. Enter the following command to compress and transfer the files from the active server to the standby server:

   failoverUtil copyConfigFiles

c. Log in to the CLI of the standby server.

   If you are logging in remotely, use eth0:0 IP address or hostname.

d. Enter the following command to decompress the transferred files and put them in the correct directories on the standby server:

   failoverUtil restoreConfigFiles

Step 5  If you made changes to any server-specific pages or parameters, then perform the following steps.

Tip  If your workstation screen is large enough to accommodate two full web browser windows without overlapping, then you can simultaneously view the Administration Center for both the active and standby servers. This may help you configure the server-specific parameters to match between the active and standby servers.

a. Go to http://standby-eth0:0/admin/.

   Use either the hostname or IP address of the virtual eth0:0 interface of the standby Application Server.

b. Log in as a System administrator.

c. Verify that “Failover deployment. Standby server.” appears at the top of the page.

d. Configure the server-specific parameters on the standby server.
What to Do Next

Perform the following from both Application Servers to replicate custom prompts and some configurations from the Primary application server to the Standby application server during a maintenance window or off-peak hours.

---

**Step 1**
Log in to the CLI of the active server.

**Step 2**
If you are logging in remotely, use the eth0 IP address or hostname.

**Step 3**
Enter the following command to compress and transfer the files from the active server to the standby server:

```
failoverUtil copyConfigFiles
```
This will compress and copy over configuration files and user prompts to the remote server.

**Step 4**
Log in to the CLI of the standby server.

**Step 5**
If you are logging in remotely, use eth0:0 IP address or hostname.

**Step 6**
Enter the following command to decompress the transferred files and put them in the correct directories on the standby server:

```
failoverUtil restoreConfigFiles
```
This action copies over custom prompts including customized system prompts and user name recordings. Without this action .wav files are not replicated to the standby server.

---

Related Topics

- [Logging In to the Cisco Unified MeetingPlace Administration Center](#) module
- [Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace](#) module
- [Integrating Cisco Unified MeetingPlace with Cisco WebEx](#) module
- [Customizing Music and Voice Prompts for Cisco Unified MeetingPlace](#) module
- [How to Perform Application Server Failover, page 10](#)

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About the Active and Standby Application Server Database

If the active or standby application server database exceeds the specified size, an alarm is sent. The active application server also outdials the administrator to indicate the alarm condition.

---

How to Perform Application Server Failover

- [Performing Application Server Failover, page 11](#)
- [Performing Application Server Failover to Switch to the Previous Active Server, page 12](#)
Performing Application Server Failover

Before you perform this task:
- Node 1 is the current active server.
- Node 2 is the current standby server.

After you complete the task:
- Node 1 will be the standby server.
- Node 2 will be the active server.

Caution
Performing this task temporarily brings down your Cisco Unified MeetingPlace system. Perform this task only if the current active server fails, or during a scheduled maintenance period.

Procedure

Step 1
If the Node 1 is up, then complete the following steps:

a. Log in to the CLI of Node 1.
   If you are logging in remotely, use the Node 1 eth0:0 IP address or hostname.

b. Enter the following command to change the server to standby mode:
   ```
   failoverUtil setServer standby
   ```

   Note
   When you use this command to set your server to standby, the server starts shutting down services. During the “Stopping MeetingPlace application” phase of the shutdown, an alarm might occur that indicates the system has crashed and the core files are being generated. This does not indicate a system problem.

Step 2
Log in to the CLI of Node 2.
If you are logging in remotely, use the Node 2 eth0:0 IP address or hostname.

Step 3
Enter the following command to change the server to active mode:
```
failoverUtil setServer active
```
Troubleshooting Tips
If the Administration Center displays the wrong failover mode on either or both servers, then something may have interrupted the process initiated by the failoverUtil setDeployment failover command. To resolve this issue, see the failoverUtil setDeployment failover command description in the Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module.

Related Topics
- Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module
- Performing Application Server Failover to Switch to the Previous Active Server, page 12

Performing Application Server Failover to Switch to the Previous Active Server

Before you perform this task:
- Node 1 is the current standby server.
- Node 2 is the current active server.

After you complete the task:
- Node 1 will be the active server.
- Node 2 will be the standby server.

Before You Begin

Caution
Performing this task temporarily brings down your Cisco Unified MeetingPlace system. Perform this task only if the current active server fails, or during a maintenance period.

- Complete the “Prerequisites for Application Server Failover” section on page 2.
- Back up and archive the data on the currently active Application Server (Node 1). See the Backing Up, Archiving, and Restoring Data on the Cisco Unified MeetingPlace Application Server module.

Procedure

Step 1 If Node 1 was brought to single-server mode, then you will need to do the following:

a. Log in to the Node 1 CLI using the console.

b. Enter the following command to set up failover:

   failoverUtil setDeployment failover

   c. Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.

      Node 1 automatically restarts and enters standby mode.

Step 2 Log in to the CLI of Node 1.

   If you are logging in remotely, use the Node 1 eth0:0 IP address or hostname.

Step 3 If the database replication configuration was removed from Node 1, then enter the following command to initialize database replication:

   mp_replication init -n 1 -r remote-eth0:0 [-v]

Step 4 Log in to the CLI of Node 2.
Step 5  Enter the following command to change Node 2 to standby mode:

    failoverUtil setServer standby

Note  When you use this command to set your server to standby, the server starts shutting down services. During the “Stopping MeetingPlace application” phase of the shutdown, an alarm might occur that indicates the system has crashed and the core files are being generated. This does not indicate a system problem.

Step 6  Log in to the CLI of Node 1.

Step 7  Enter the following command to synchronize existing data from Node 2 and start database replication:

    mp_replication switchON [-S -F from-sync] [-v]

Step 8  Enter the following command to change Node 1 to active mode:

    failoverUtil setServer active

Verifying  Using the hostname or IP address of the virtual eth0:0 interface, log in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

Troubleshooting Tips  If the Administration Center displays the wrong failover mode on either or both servers, then something may have interrupted the process initiated by the failoverUtil setDeployment failover command. To resolve this issue, see the failoverUtil setDeployment failover command description in the Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module.

Related Topics
- Using the Command-Line Interface (CLI) in Cisco Unified MeetingPlace module
- Performing Application Server Failover, page 11