# Presence Redundancy Group Setup

This chapter provides information to configure a presence redundancy group for IM and Presence Service nodes in a cluster.



# About Presence Redundancy Group Setup

In Cisco Unified CM Administration user interface, use the **System** > **Presence Redundancy Groups** menu path to create a presence redundancy group consisting of two IM and Presence Service nodes from the same cluster.

For information about how to enable high availability for the presence redundancy group, or to initiate a manual node failover, fallback, and recovery, see the *Cisco Unified Communications Manager Features and Services Guide*.

## Presence Redundancy Groups and High Availability

A presence redundancy group is comprised of two IM and Presence Service nodes from the same cluster and provides both redundancy and recovery for IM and Presence Service clients and applications. Use **Cisco Unified CM Administration** to assign nodes to a presence redundancy group and to enable high availability.

- Failover - Occurs in a presence redundancy group when one or more critical services fails on an IM and Presence Service node in the group or a node in the group fails. Clients automatically connect to the other IM and Presence Service node in that group.
- Fallback - Occurs when a fallback command is issued from the Command Line Interface (CLI) or Cisco Unified Communications Manager during either of these conditions:
  - The failed IM and Presence Service node comes back into service and all critical services are running. The failed over clients in that group reconnect with the recovered node when it becomes available.
  - The backup activated IM and Presence Service node fails due to a critical service failure, and the peer node is in the Failed Over state and supports the automatic recovery fallback.

Automatic FallbackIM and Presence Service supports automatic fallback to the primary node after a failover. Automatic fallback is the process of moving users back to the primary node after a failover without manual intervention. You can enable automatic fallback with the Enable Automatic Fallback service parameter on the Cisco Unified CM IM and Presence Administration interface. Automatic fallback occurs in the following scenarios:

- A critical service on Node A fails—A critical service (for example, the Presence Engine) fails on Node A. Automatic failover occurs and all users are moved to Node B. Node A is in a state called “Failed Over with Critical Services Not Running”. When the critical service recovers, the node state changes to "Failed Over." When this occurs Node B tracks the health of Node A for 30 minutes. If no heartbeat is missed in this timeframe and the state of each node remains unchanged, automatic fallback occurs.
- Node A is rebooted—Automatic failover occurs and all users are moved to Node B. When Node A returns to a healthy state and remains in that state for 30 minutes automatic fallback will occur.
- Node A loses communications with Node B—Automatic failover occurs and all users are moved to Node B. When communications are re-established and remain unchanged for 30 minutes automatic fallback will occur.

If failover occurs for a reason other than one of the three scenarios listed here, you must recover the node manually. If you do not want to wait 30 minutes before the automatic fallback, you can perform a manual fallback to the primary node. For example: Using presence redundancy groups, Cisco Jabber clients will fail over to a backup IM and Presence Service node if the services or hardware fail on the local IM and Presence Service node. When the failed node comes online again, the clients automatically reconnect to the local IM and Presence Service node. When the failed node comes online, a manual fallback operation is required unless the automatic fallback option is set.

You can manually initiate a node failover, fallback, and recovery of IM and Presence Service nodes in the presence redundancy group. A manual fallback operation is required unless the automatic fallback option is set.

For instructions to set up presence redundancy groups and high availability, see *Cisco Unified Communications Manager Administration Guide*.

# Presence Redundancy Groups and High Availability Considerations

## Presence Redundancy Group Interactions and Limitations

Consider the following when configuring presence redundancy groups using **Cisco Unified CM Administration**:

- Each presence redundancy group requires at least one IM and Presence Service node assigned to it, and each can support up to two IM and Presence Service nodes.
- An IM and Presence Service node can be assigned to only one presence redundancy group.
- Both nodes in the presence redundancy group must be running the same version of IM and Presence Service software.
- Both nodes in the presence redundancy group must be on the same cluster and have the same IM and Presence Service database publisher node.
- The IM and Presence node does not need to be collocated with the Cisco Unified Communications Manager publisher node.

- For WAN deployments, a minimum of 10 megabits per second of dedicated bandwidth is required for each IM and Presence cluster, with no more than an 80 millisecond round-trip latency. Any bandwidth less than this recommendation can adversely impact performance.
- The Cisco Jabber client can be either local or remote to the IM and Presence Service node.

# Presence Redundancy Group Settings

*Table 1: Presence Redundancy Group Settings*

| Field | Description |
|---|---|
| Status | Displays the success or failure messages for save, delete, failover, fallback, and recover operations for the presence redundancy group. |
| **Presence Redundancy Group Configuration** | |
| Name | Enter a name for the presence redundancy group using up to 128 alphanumeric characters including underscore (_) and dash (-). |
| Description | (Optional) Enter a description for the presence redundancy group using up to 128 alphanumeric characters including symbols, but it cannot include double-quotes ("), percentage sign (%), ampersand (&), forward slash (\), or angle brackets (<>). |
| **Presence Redundancy Group Configuration** | |
| Presence Server* | This field displays the FQDN, hostname, or IP address of the selected IM and Presence Service node that is a member of the presence redundancy group. At least one node must be selected to created a presence redundancy group. This first Presence Server field is a mandatory field that must be populated.<br>Click the arrow to expand the drop-down list of available nodes, and use the up and down arrows to navigate the list. Only IM and Presence Service nodes that are available and are not already a part of a presence redundancy group are listed. The IM and Presence Service node must also be installed before it will display in the list.<br>**Note** An IM and Presence Service database publisher node is automatically assigned to the DefaultCUPSubcluster group. |

| Field | Description |
|---|---|
| Presence Server | This field displays the hostname or IP address of the selected IM and Presence Service node that is a member of the presence redundancy group. You can have up to two IM and Presence Service nodes in a presence redundancy group.<br><br>Click the arrow to expand the drop-down list of available nodes, and use the up and down arrows to navigate the list. Only IM and Presence Service nodes that are available and are not already a part of a presence redundancy group are listed. The IM and Presence Service node must also be installed before it will display in the list.<br><br>**Note** An IM and Presence Service database publisher node is automatically assigned to the DefaultCUPSubcluster group. |
| **High Availability** | |
| Enable High Availability | When checked, this check box indicates that high availability is enabled for this presence redundancy group. Uncheck this check box to disable high availability for this group. |
| Monitored Server | Lists the hostnames or IP addresses of the member nodes of this presence redundancy group. |
| Assigned Users | Displays the number of users who are assigned to this IM and Presence Service node. |
| Active Users | Displays the number of users that are homed to this IM and Presence Service node in any given high availability state. This number only changes when a high availability event occurs in the redundancy group. In the Normal state, the active user count equals the assigned users count. |
| Server State | The current state of the IM and Presence Service node. For more details about presence redundancy group node states, see topics related to node state definitions, causes, and recommended actions. |
| Reason | The reason for the current state of the IM and Presence Service node. For more details about presence redundancy group node states, see topics related to node state definitions, causes, and recommended actions. |

| Field | Description |
|---|---|
| ServerAction | The **Failover** button displays if the node is in the Normal state.<br>The Fallback button displays if the node is in the Idle or Failed Over state. |
| Recover | If both servers are in a failed state, the **Recover** button is available. |
| Save | Click to save the presence redundancy group with the current settings. |
| Delete | Click to delete the presence redundancy group. |
| Add New | Click to create a new presence redundancy group. |

# Set Up Presence Redundancy Groups

Use the Cisco Unified CM Administration user interface to assign IM and Presence Service nodes to presence redundancy groups. An IM and Presence Service node can be assigned to only one presence redundancy group. For high availability, you must assign two nodes from the same cluster to the presence redundancy group and enable high availability for the group.

### Before you begin

- At least two IM and Presence Service nodes must be configured on the same cluster for high availability.
- Make sure critical services are running on both nodes before assigning them to a presence redundancy group. You can check the IM and Presence Service node status from the **Server** window. If one or more critical services are not running and you checked the Enable High Availability check box for the presence redundancy group, the node will immediately fail over. If one or more critical services are not running on one of the nodes and all critical services are running on the other node, the cluster will go into a failed state as soon as you configure a presence redundancy group with high availability enabled.
- For deployments over the Wide Area Network (WAN), a minimum of 10 megabits per second of dedicated bandwidth is required for each IM and Presence Service cluster, with no more than an 80 millisecond round-trip latency. Any bandwidth less than this recommendation can adversely impact performance.

### Procedure

**Step 1** Choose **System** > **Presence Redundancy Groups**.

The **Find and List Presence Redundancy Groups** window displays.

**Step 2** Click **Add New**.

The **Presence Redundancy Group Configuration** window displays.

**Step 3** In the **Presence Redundancy Group Configuration** pane, perform the following actions:

a) Enter a unique name for the presence redundancy group in the Name field. You can enter a maximum of 128 alphanumeric characters, including underscore (_) and dash (-).
b) (Optional) Enter a description of the group in the Description field. You can enter a maximum of 128 alphanumeric characters including symbols, but it cannot include double-quotes ("), percentage sign (%), ampersand (&), forward slash (\), or angle brackets (<>).
c) Choose two different IM and Presence Service nodes in the Presence Server fields to assign them to the group.

   Only servers that are installed and unassigned display in the Presence Server fields.

**Note** (Optional) You can check the Enable High Availability check box to enable high availability for the presence redundancy group. See topics related to enabling high availability for more information.

**Step 4** Click **Save**.

# Enable or Disable High Availability

Use the **Cisco Unified CM Administration** user interface to enable or disable high availability for a presence redundancy group that has two IM and Presence Service nodes assigned. You must manually enable high availability for the presence redundancy group to operate in a high availability capacity.

**Caution** Disabling high availability for a presence redundancy group removes failover protection for users on those IM and Presence Service nodes.

### Before you begin

- Enable high availability for a presence redundancy group only if replication is setup in the IM and Presence Service cluster and all critical services are running.
- Make sure critical services are running on at least one node in the presence redundancy group before you turn on high availability in a presence redundancy group. If critical services are not running on either node, the presence redundancy group will go into a Failed state when you turn on high availability. If critical services are only down on one node, then that node fails over to the other node when you turn on high availability. For more information about the critical services for specific deployments, see the *Cisco Unified Communications Manager Administration Guide* (on Cisco.com).
- You can turn off high availability in a presence redundancy group so that the two nodes in the presence redundancy group act as standalone nodes. If you turn off high availability in a presence redundancy group when either node is in a failed over scenario (Failed Over, Failed), users on the failed node are homed to the backup node. IM and Presence Service  does not move these users to the primary node; they remain on the backup node.
- See the *Configuration and Administration of IM and Presence Service on Cisco Unified Communications Manager* for more information about setting up IM and Presence Service nodes and stopping or starting critical services.

**Caution** Failure to set up replication in the IM and Presence Service cluster and ensure that all critical services are running may result in an immediate failover when high availability is enabled for the presence redundancy group.

### Procedure

**Step 1** Choose **System** > **Presence Redundancy Groups**.

The **Find and List Presence Redundancy Groups** window displays.

**Step 2** Choose the presence redundancy group search parameters, and then click **Find**.

Matching records appear.

**Step 3** Choose the presence redundancy group that is listed in the **Find and List Presence Redundancy Group** window.

The **Presence Redundancy Group Configuration** window appears.

**Step 4** Perform one of the following actions:

a) To enable high availability, check the **Enable High Availability** check box.
b) To disable high availability, uncheck the **Enable High Availability** check box.

**Step 5** Click **Save**.

# Delete Presence Redundancy Group

Use **Cisco Unified CM Administration** user interface to delete an existing presence redundancy group from the cluster.

Observe the following restrictions:

- You cannot remove a node from a presence redundancy group if users are assigned to the node.
- You cannot delete a presence redundancy group if there are servers assigned to the presence redundancy group.

### Procedure

**Step 1** Choose **System** > **Presence Redundancy Groups**.

The **Find and List Presence Redundancy Groups** window displays.

**Step 2** Choose the presence redundancy group search parameters, and then click **Find**.

Matching records appear.

**Step 3** Choose one of the following delete procedures:

a) Check the check box beside the presence redundancy group that is listed in the search results, and then click **Delete Selected**.
b) Choose the presence redundancy group that is listed in the search results. The **Presence Redundancy Group Configuration** window appears.

   Click **Delete**.

c) Click **OK** to delete this presence redundancy group or click **Cancel** to continue without deleting the presence redundancy group.

# View Presence Redundancy Group Node Status

Use the **Cisco Unified CM Administration** user interface to view the status of IM and Presence Service nodes that are members of a presence redundancy group.

### Procedure

**Step 1** Choose **System** > **Presence Redundancy Groups**.

The **Find and List Presence Redundancy Groups** window displays.

**Step 2** Choose the presence redundancy group search parameters, and then click **Find**.

Matching records appear.

**Step 3** Choose a presence redundancy group that is listed in the search results.

The **Presence Redundancy Group Configuration** window appears. If two nodes are configured in that group and high availability is enabled, then the status of the nodes within that group are displayed in the High Availability area.

# Node State Definitions

*Table 2: Presence Redundancy Group Node State Definitions*

| State | Description |
|---|---|
| Initializing | This is the initial (transition) state when the Cisco Server Recovery Manager service starts; it is a temporary state. |

| State | Description |
|---|---|
| Idle | IM and Presence Service is in Idle state when failover occurs and services are stopped. In Idle state, the IM and Presence Service node does not provide any availability or Instant Messaging services. In Idle state, you can manually initiate a fallback to this node using the **Cisco Unified CM Administration** user interface. |
| Normal | This is a stable state. The IM and Presence Service node is operating normally. In this state, you can manually initiate a failover to this node using the **Cisco Unified CM Administration** user interface. |
| Running in Backup Mode | This is a stable state. The IM and Presence Service node is acting as the backup for its peer node. Users have moved to this (backup) node. |
| Taking Over | This is a transition state. The IM and Presence Service node is taking over for its peer node. |
| Failing Over | This is a transition state. The IM and Presence Service node is being taken over by its peer node. |
| Failed Over | This is a steady state. The IM and Presence Service node has failed over, but no critical services are down. In this state, you can manually initiate a fallback to this node using the **Cisco Unified CM Administration** user interface. |
| Failed Over with Critical Services Not Running | This is a steady state. Some of the critical services on the IM and Presence Service node have either stopped or failed. |
| Falling Back | This is a transition state. The system is falling back to this IM and Presence Service node from the node that is running in backup mode. |
| Taking Back | This is a transition state. The failed IM and Presence Service node is taking back over from its peer. |
| Running in Failed Mode | An error occurs during the transition states or Running in Backup Mode state. |
| Unknown | Node state is unknown.<br>A possible cause is that high availability was not enabled properly on the IM and Presence Service node. Restart the Server Recovery Manager service on both nodes in the presence redundancy group. |

# Node States, Causes, and Recommended Actions

You can view the status of nodes in a presence redundancy group on the **Presence Redundancy Group Configuration** window when you choose a group using the **Cisco Unified CM Administration** user interface.

***Table 3: Presence Redundancy Group Node High-Availability States, Causes, and Recommended Actions***

| **Node 1** | | **Node 2** | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Normal | Normal | Normal | Normal | Normal |
| Failing Over | On Admin Request | Taking Over | On Admin Request | The administrator initiated a manual failover from node 1 to node 2. The manual failover is in progress. |
| Idle | On Admin Request | Running in Backup Mode | On Admin Request | The manual failover from node 1 to node 2 that the administrator initiated is complete. |
| Taking Back | On Admin Request | Falling Back | On Admin Request | The administrator initiated a manual fallback from node 2 to node 1. The manual fallback is in progress. |
| Idle | Initialization | Running in Backup Mode | On Admin Request | The administrator restarts the SRM service on node 1 while node 1 is in “Idle” state. |
| Idle | Initialization | Running in Backup Mode | Initialization | The administrator either restarts both nodes in the presence redundancy group, or restarts the SRM service on both nodes while the presence redundancy group was in manual failover mode. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Idle | On Admin Request | Running in Backup Mode | Initialization | The administrator restarts the SRM service on node 2 while node 2 is running in backup mode, but before the heartbeat on node 1 times out. |
| Failing Over | On Admin Request | Taking Over | Initialization | The administrator restarts the SRM service on node 2 while node 2 is taking over, but before the heartbeat on node1 times out. |
| Taking Back | Initialization | Falling Back | On Admin Request | The administrator restarts the SRM service on node 1 while taking back, but before the heartbeat on node 2 times out. After the taking back process is complete, both nodes are in Normal state. |
| Taking Back | Automatic Fallback | Falling Back | Automatic Fallback | Automatic Fallback has been initiated from node 2 to node 1 and is currently in progress. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Failed Over | Initialization or Critical Services Down | Running in Backup Mode | Critical Service Down | Node 1 transitions to Failed Over state when either of the following conditions occur:<br>• Critical services come back up due to a reboot of node 1.<br>• The administrator starts critical services on node 1 while node 1 is in Failed Over with Critical Services Not Running state.<br>When node 1 transitions to Failed Over state the node is ready for the administrator to perform a manual fallback to restore the nodes in the presence redundancy group to Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Failed Over with Critical Services not Running | Critical Service Down | Running in Backup Mode | Critical Service Down | A critical service is down on node 1. IM and Presence Service performs an automatic failover to node 2.<br>**Recommended Actions:**<br>**1.** Check node 1 for any critical services that are down and try to manually start those services.<br>**2.** If the critical services on node 1 do not start, then reboot node 1.<br>**3.** When all the critical services are up and running after the reboot, perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Failed Over with Critical Services not Running | Database Failure | Running in Backup Mode | Database Failure | A database service is down on node 1. IM and Presence Service performs an automatic failover to node 2.<br>**Recommended Actions:**<br>**1.** Reboot node 1.<br>**2.** When all the critical services are up and running after the reboot, perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Running in Failed Mode | Start of Critical Services Failed | Running in Failed Mode | Start of Critical Services Failed | Critical services fail to start while a node in the presence redundancy group is taking back from the other node.<br><br>**Recommended Actions.** On the node that is taking back, perform the following actions:<br><br>**1.** Check the node for critical services that are down. To manually start these services, click **Recovery** in the **Presence Redundancy Group Configuration** window.<br><br>**2.** If the critical services do not start, reboot the node.<br><br>**3.** When all the critical services are up and running after the reboot, perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Running in Failed Mode | Critical Service Down | Running in Failed Mode | Critical Service Down | Critical services go down on the backup node. Both nodes enter the failed state.<br>**Recommended Actions:**<br>1. Check the backup node for critical services that are down. To start these services manually, click **Recovery** in the **Presence Redundancy Group Configuration** window.<br>2. If the critical services do not start, reboot the node. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Node 1 is down due to loss of network connectivity or the SRM service is not running. | | Running in Backup Mode | Peer Down | |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| | | | | Node 2 has lost the heartbeat from node 1. IM and Presence Service performs an automatic failover to node 2.<br><br>**Recommended Action.** If node 1 is up, perform the following actions:<br><br>**1.** Check and repair the network connectivity between nodes in the presence redundancy group. When you reestablish the network connection between the nodes, the node may go into a failed state. Click **Recovery** in the **Presence Redundancy Group Configuration** window to restore the nodes to the Normal state.<br><br>**2.** Start the SRM service and perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| | | | | **3.** (If the node is down) Repair and power up node 1.<br>**4.** When the node is up and all critical services are running, perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Node 1 is down (due to possible power down, hardware failure, shutdown, reboot) | | Running in Backup Mode | Peer Reboot | IM and Presence Service performs an automatic failover to node 2 due to the following possible conditions on node 1:<br>• hardware failure<br>• power down<br>• restart<br>• shutdown<br>**Recommended Actions:**<br>**1.** Repair and power up node 1.<br>**2.** When the node is up and all critical services are running, perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Failed Over with Critical Services not Running OR Failed Over | Initialization | Backup Mode | Peer Down During Initialization | Node 2 does not see node 1 during startup.<br>**Recommended Action:**<br>When node1 is up and all critical services are running, perform a manual fallback to restore the nodes in the presence redundancy group to the Normal state. |
| Running in Failed Mode | Cisco Server Recovery Manager Take Over Users Failed | Running in Failed Mode | Cisco Server Recovery Manager Take Over Users Failed | User move fails during the taking over process.<br>**Recommended Action:**<br>Possible database error. Click **Recovery** in the **Presence Redundancy Group Configuration** window. If the problem persists, then reboot the nodes. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Running in Failed Mode | Cisco Server Recovery Manager Take Back Users Failed | Running in Failed Mode | Cisco Server Recovery Manager Take Back Users Failed | User move fails during falling back process.<br>**Recommended Action:**<br>Possible database error. Click **Recovery** in the **Presence Redundancy Group Configuration** window. If the problem persists, then reboot the nodes. |
| Running in Failed Mode | Unknown | Running in Failed Mode | Unknown | The SRM on a node restarts while the SRM on the other node is in a failed state, or an internal system error occurs.<br>**Recommended Action:**<br>Click **Recovery** in the **Presence Redundancy Group Configuration** window. If the problem persists, then reboot the nodes. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Backup Activated | Auto Recover Database Failure | Failover Affected Services | Auto Recovery Database Failure. | The database goes down on the backup node. The peer node is in failover mode and can take over for all users in the presence redundancy group. Auto-recovery operation automatically occurs and all users are moved over to the primary node. |
| Backup Activated | Auto Recover Database Failure | Failover Affected Services | Auto Recover Critical Service Down | A critical service goes down on the backup node. The peer node is in failover mode and can take over for all users in the presence redundancy group. Auto-recovery operation automatically occurs and all users are moved over to the peer node. |

| Node 1 | | Node 2 | | |
|---|---|---|---|---|
| **State** | **Reason** | **State** | **Reason** | **Cause/Recommended Actions** |
| Unknown | | Unknown | | Node state is unknown.<br>A possible cause is that high availability was not enabled properly on the IM and Presence Service node.<br>**Recommended Action:**<br>Restart the Server Recovery Manager service on both nodes in the presence redundancy group. |