

How Multiple Calls Per Line Work in Cisco CallManager 4.x

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Configure Multiple Calls Per Line in Cisco CallManager 4.0

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Introduction

This document explains how the multiple calls per line feature works in Cisco CallManager 4.x.

With Cisco CallManager releases before 4.x, a maximum of two calls were supported per directory number (DN). This document describes the feature in Cisco CallManager 4.x that expands the number of calls per DN, which makes it database configurable. The absolute maximum number of calls per line appearance is 200.

In earlier versions, only one device can have active calls for a shared-line appearance with multiple devices. In other words, if one device has an active call, no other devices can use this shared-line appearance to make a new call. Also, it cannot receive an incoming new call, or resume an on-hold call. The new feature in Cisco CallManager 4.x allows all devices with a shared-line appearance to be able to make or receive new calls or resume held calls at the same time.

Cisco CallManager 4.x introduces the Call Forward Busy Trigger concept to replace the original Call Waiting flag. The Forward feature for Call Forward Busy (CFB) is changed to allow a database configurable setting to trigger CFB on a per line appearance base. If all registered devices that share the same DN reject an incoming call, this call is forwarded to the CFB destination if it is set.

The Call Forward No Answer (CFNA) feature is changed to allow the database configurable setting for the alerting duration before CFNA is triggered, on a per DN basis.

Prerequisites

Requirements

Cisco recommends that you have knowledge of Cisco CallManager Administration.

Components Used

The information in this document is based on Cisco CallManager 4.x.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Multiple Calls Per Line

These are the Multiple Calls Per Line enhancements in Cisco CallManager 4.x:

- Overcomes the limitation on the maximum number of calls per line.
- Introduces the CFB Trigger concept to replace the original Call Waiting flag.
- Configurable CFNA timer per line.

Maximum Number of Calls

In Cisco CallManager 3.x , the maximum number of calls allowed per DN is restricted to two. The new feature in Cisco CallManager 4.x makes this count database configurable, per line appearance, per cluster. However, due to the limited memory available in devices such as Cisco 7914 IP phones and the large number of lines that can be attached to them, it is necessary to limit the maximum number of calls for all lines on one single device. This limitation is stored in the database per device type.

- For Multiple Call Display (MCD) devices, the default maximum number of calls is set to **4** per line appearance.
- For non-MCD devices, this number remains at **2**, due to the limited display capability. The default is set to **2** as well.
- The sum of the maximum number of calls for all line appearances per device should not exceed the limit for that device type. If it exceeds the limit, the device is no longer able to register.

Once this limit is reached, a user cannot use that line to initiate new calls and no new incoming calls are offered.

Note: An MCD device can display more than two call instances per DN at any given time. The display information for one call instance does not interrupt the display information for another call instance. Cisco IP Phones 7960 and 7940 are MCD capable, while 7910, SP12, and 30VIP are not.

See Table–1 for a comparison of the maximum number of calls in Cisco CallManager 3.x and Cisco CallManager 4.0.

Table–1

	MCD Device	MCD Device	Non MCD Device	Non MCD Device
	Cisco CallManager 4.x	Cisco CallManager 3.x	Cisco CallManager 4.x	Cisco CallManager 3.x
Maximum number of calls per DN	Less than or equal to 200 (default 4)	Equal to 2	Less than or equal to 2 (default 2)	Equal to 2

Note: With CallManager 4.0 and later, 300 lines/phones can share the same DN.

Call Forward Busy Trigger

Some users might wish to have incoming calls routed to a CFB destination earlier than reaching the maximum number of calls allowed per line appearance. The Busy Trigger feature is present in Cisco CallManager 4.0 to satisfy these user requirements. If all the devices that share a particular line are busy, the call to that specific DN is rejected with a busy cause. If the CFB destination is set for that DN, this rejected call is routed to the CFB destination.

The Busy Trigger is database configurable per line appearance and per cluster. It cannot exceed the maximum number of calls set for this DN. The default value for MCD devices is set to **2**. By default, this busy trigger is 1 for non-MCD devices. As the maximum number of calls is already limited to 2, this cannot be set for more than 2.

See Table-2 for a comparison of CFB in Cisco CallManager 3.x and Cisco CallManager 4.0.

Table-2

	MCD Device	MCD Device	Non-MCD Device	Non-MCD Device
	Cisco CallManager 4.x	Cisco CallManager 3.x	Cisco CallManager 4.x	Cisco CallManager 3.x
CFB trigger per DN	Less than or equal to the maximum number of calls (default 2)	Equal to 1 (Call Waiting disabled) Equal to 2 (Call Waiting enabled)	Less than or equal to the maximum number of calls (default 1)	Equal to 1 (Call Waiting disabled) Equal to 2 (Call Waiting enabled)

This Busy Trigger replaces the Call Waiting Flag per DN. If the Call Waiting Flag is set to true during migration, the busy trigger is set to **2**. Otherwise, it is set to **1**.

CFNA Timer

In prior versions, the CFNA timer is configured through a service parameter and the default is 12 seconds. The new feature in Cisco CallManager 4.0 makes it database configurable, per DN, and per cluster. The default is 12 seconds. This applies to both MCD and non-MCD devices.

See Table-3 for a comparison of CFNA timer values in Cisco CallManager 3.x and Cisco CallManager 4.0.

Table-3

	Cisco CallManager 4.x	Cisco CallManager 3.x
Call Forward No Answer Timer	Database configurable, per DN, per cluster. Default is 12 seconds.	Configured through a service parameter. Default is 12 seconds.

Configure Multiple Calls Per Line in Cisco CallManager 4.0

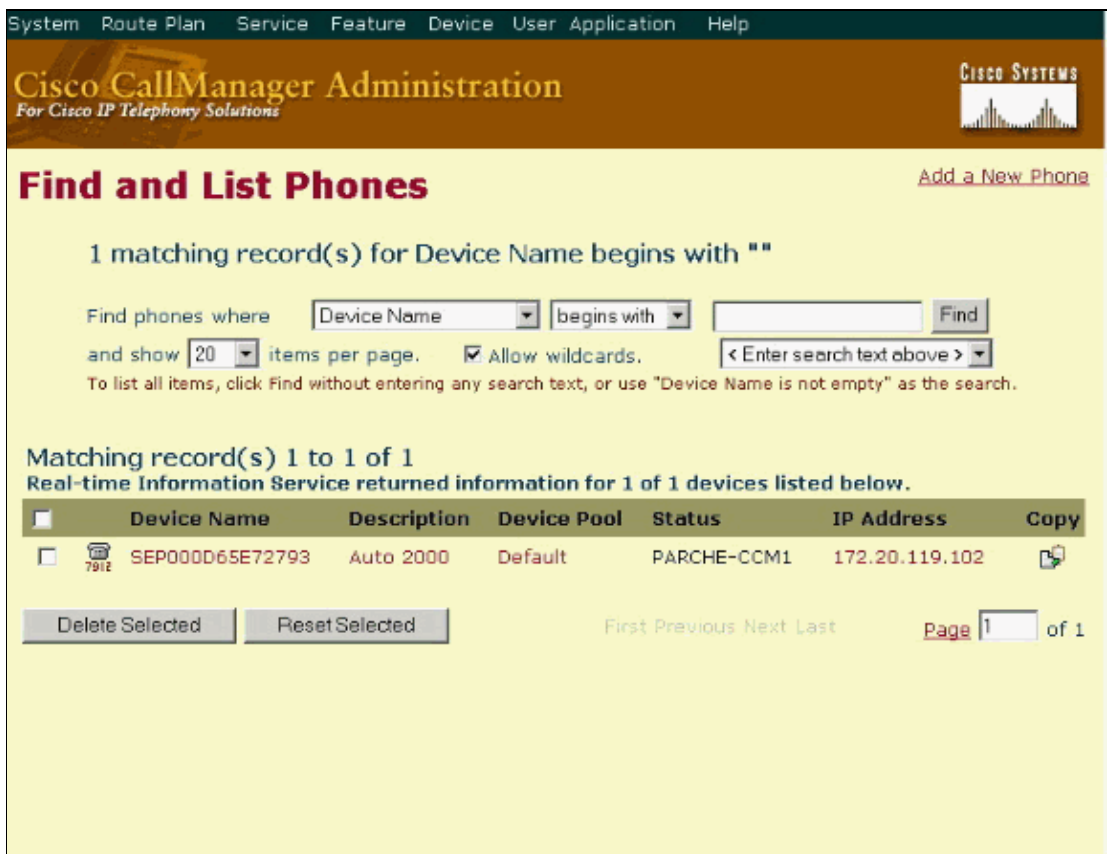
Complete these steps to configure multiple calls per line.

1. Enter the **http://<Your CallManager's name or IP address>/ccmadmin/** URL in the browser to connect to the Administration tool on your Cisco CallManager server.
2. Go to the Device menu and select **Phone**.



3. Click **Find**.

The devices which are registered to this Cisco CallManager are listed. Click on a specific device in which you want to configure the features mentioned in this document.



4. Click on a specific line in the Phone Configuration Page.

For example, click on **Line 1 – 2000** on the left-hand side at the top.

The screenshot displays the Cisco CallManager Administration web interface. At the top, there is a navigation menu with links for System, Route Plan, Service, Feature, Device, User, Application, and Help. The main header area includes the Cisco CallManager Administration logo and the Cisco Systems logo. Below the header, there are several links: [Add a new phone](#), [Add/Update Speed Dials](#), [Subscribe/Unsubscribe Services](#), [Dependency Records](#), and [Back to Find/List Phones](#).

Phone Configuration

Directory Numbers
Base Phone
Line 1 - 2000

Phone: SEP000D65E72793 (Auto 2000)
Registration: Registered with Cisco CallManager PARCHE-CCM1
IP Address: 172.20.119.102
Status: Ready

Phone Configuration (Model = Cisco 7912)

Device Information

MAC Address*	<input type="text" value="000D65E72793"/>
Description	<input type="text" value="Auto 2000"/>
Owner User ID	<input type="text"/> (Select User ID)
Device Pool*	<input type="text" value="Default"/> (View details)
Calling Search Space	<input type="text" value="< None >"/>
AAR Calling Search Space	<input type="text" value="< None >"/>
Media Resource Group List	<input type="text" value="< None >"/>
User Hold Audio Source	<input type="text" value="< None >"/>
Network Hold Audio Source	<input type="text" value="< None >"/>
Location	<input type="text" value="< None >"/>

5. You can find these options and configure them as required at the Directory Number Configuration page:

- ◆ **No Answer Ring Duration** This option allows you to configure the CFNA timer per DN, per cluster.
- ◆ **Maximum Number of Calls** This allows the maximum number of calls database configurable, per line appearance, per cluster rather than limit of two calls per DN as in the previous versions.
- ◆ **Busy Trigger** The minimum number of calls present in a specific line appearance that causes the device to reject new incoming calls with a busy cause for that line appearance. Only if all registered devices that share this line are busy, new incoming calls are rejected with a busy cause. This busy trigger is database configurable, per line appearance, per cluster. It cannot exceed the maximum number of calls set for this DN. The default for MCD devices is set to **2**.

Call Forward and Pickup Settings

	Voice Mail	Destination	Calling Search Space
Forward All	<input type="checkbox"/>	<input type="text"/>	< None >
Forward Busy	<input type="checkbox"/>	<input type="text"/>	< None >
Forward No Answer	<input type="checkbox"/>	<input type="text"/>	< None >
No Answer Ring Duration	<input type="text"/>	(seconds)	
Call Pickup Group	< None >		

Multilevel Precedence and Preemption Alternate Party Settings

Target (Destination)	<input type="text"/>
Calling Search Space	< None >
No Answer Ring Duration	<input type="text"/>

Line Settings for this Device

	Value
Display (Internal Caller ID)	<input type="text"/>
Line Text Label	<input type="text"/>
External Phone Number Mask	<input type="text"/>
Maximum Number of Calls*	4 (1 - 200)
Busy Trigger*	2 (<= Max. Calls)
Message Waiting Lamp Policy	Use System Policy
Ring Setting (Phone Idle)	Use System Default
Ring Setting (Phone Active)**	Use System Default

Configure Multiple Calls Per Line in Cisco CallManager 4.1

Complete these steps to configure multiple calls per line.

1. Enter the **http://<Your CallManager's name or IP address>/ccmadmin/** URL in the browser to connect to the Administration tool on your Cisco CallManager server.
2. Go to the Device menu and select **Phone**.



3. Click **Find**.

The devices which are registered to this Cisco CallManager are listed. Click on a specific device in which you want to configure the features mentioned in this document.

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Find and List Phones

[Add a New Phone](#)

3 matching record(s) for Device Name begins with ""

Find phones where begins with Find

and show items per page. Allow wildcards.

To list all items, click Find without entering any search text, or use "Device Name is not empty" as the search.

Matching record(s) 1 to 3 of 3
Real-time Information Service returned information for 2 of 3 devices listed below.

<input type="checkbox"/>	Device Name	Description	Device Pool	Status	IP Address	Copy
<input type="checkbox"/>	7940 SEP0007EB26DE79	1C10	Default	Not Registered	172.16.2.225	
<input type="checkbox"/>	7960 SEP000A8A93E0A8	SEP000A8A93E0A8	Default	Not Found		
<input type="checkbox"/>	7960 SEP000A8A93E0F9	1C05	Default	172.16.2.201	172.16.2.101	

Delete Selected Reset Selected First Previous Next Last Page of 1

4. Click on a specific line in the Phone Configuration Page.

For example, click on **Line 1 – 1005** on the left-hand side at the top.

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Phone Configuration

[Add a new phone](#)
[Add/Update Speed Dials](#)
[Subscribe/Unsubscribe Services](#)
[Dependency Records](#)
[Back to Find/List Phones](#)

Directory Numbers

Base Phone

- 7960 Line 1 - 1005 in Internal_Numbers
- 7960 Line 2 - 1010 in Internal_Numbers

Phone: SEP000A8A93E0F9 (1005)
Registration: Registered with Cisco CallManager 172.16.2.201
IP Address: 172.16.2.101
 Status: Ready

Phone Configuration (Model = Cisco 7960)

Device Information

MAC Address*

Description

Owner User ID (Select User ID)

Device Pool* (View details)

Calling Search Space

5. You can find these options and configure them as required at the Directory Number Configuration page.

- ◆ **No Answer Ring Duration** This option allows you to configure the CFNA timer per DN, per cluster.

MLPP Alternate Party Settings – Changes affect all listed devices		
Target (Destination)	<input type="text"/>	
Calling Search Space	< None >	
No Answer Ring Duration	<input type="text"/> (seconds)	
Line Settings for all Devices – Changes affect all listed devices		
Alerting Name	<input type="text"/>	
Line Settings for this Device – Changes affect only this device		
	Value	Update Shared Device Settings

- ◆ **Maximum Number of Calls** This allows the maximum number of calls database configurable, per line appearance, per cluster rather than limit of two calls per DN as in the previous versions.
- ◆ **Busy Trigger** The minimum number of calls present in a specific line appearance that causes the device to reject new incoming calls with a busy cause for that line appearance. Only if all registered devices that share this line are busy, new incoming calls are rejected with a busy cause. This busy trigger is database configurable, per line appearance, per cluster. It cannot exceed the maximum number of calls set for this DN. The default for MCD devices is set to **2**.

Line Settings for this Device – Changes affect only this device		
	Value	Update Shared Device Settings
Display (Internal Caller ID)	<input type="text"/>	<input type="checkbox"/>
Line Text Label	<input type="text"/>	<input type="checkbox"/>
External Phone Number Mask	<input type="text"/>	<input type="checkbox"/>
Message Waiting Lamp Policy	Use System Policy	<input type="checkbox"/>
Ring Setting (Phone Idle)	Use System Default	<input type="checkbox"/>
Ring Setting (Phone Active)**	Use System Default	<input type="checkbox"/>
Propagate selected		
Multiple Call / Call Waiting Settings – Changes affect only this device		
Maximum Number of Calls*	<input type="text" value="4"/> (1 - 200)	
Busy Trigger*	<input type="text" value="2"/> (<= Max. Calls)	
Forwarded Call Information Display – Changes affect only this device		
<input checked="" type="checkbox"/> Caller Name	<input type="checkbox"/> Caller Number	
<input type="checkbox"/> Redirected Number	<input checked="" type="checkbox"/> Dialed Number	

Related Information

- [Cisco CallManager Administration Guide, Release 3.3\(3\)](#)
- [Cisco CallManager 3.3](#)
- [Cisco CallManager Software Support Page](#)
- [Voice Technology Support](#)
- [Voice and IP Communications Product Support](#)
- [Recommended Reading: Troubleshooting Cisco IP Telephony](#)
- [Technical Support & Documentation – Cisco Systems](#)

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