



CHAPTER 15

Cisco Unified Mobility Advantage and Cisco Unified Mobile Communicator Integration

Cisco Unified Communications Manager provides certain functionality for Cisco Unified Mobile Communicator clients in conjunction with a Cisco Unified Mobility Advantage server. This chapter discusses the features and the required configurations on both servers.

Cisco Unified Communications Manager provides the following functionality to Cisco Unified Mobile Communicator users:

- Dial-via-Office Reverse Callback
- Dial-via-Office Forward
- Call log monitoring, which allows users to review their office call history from their mobile devices
- Mobile Connect and the ability to enable and disable Mobile Connect from the mobile device
- Ability to transfer active Dial-via-Office calls between the mobile device and the desktop phone

For further configuration details about configuring the Cisco Unified Mobility Advantage server and the Cisco Unified Mobile Communicator client, see the following documentation:

- “Configuring a Cisco Unified Mobility Advantage Server Security Profile” chapter in the *Cisco Unified Communications Manager Security Guide*
- *Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1*, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html
- Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html
- End-user guides for the Cisco Unified Mobile Communicator at this URL: http://www.cisco.com/en/US/products/ps7271/products_user_guide_list.html

See the user guide for a particular Cisco Unified IP Phone for procedures that end users follow to configure the Cisco Unified Mobility settings for their phones by using the Cisco Unified CM User Options windows.



Note

For details of configuring Cisco Unified Mobility features that you configure within Cisco Unified Communications Manager and that do not require configuration of Cisco Unified Mobile Communicator nor Cisco Unified Mobility Advantage, see the “[Cisco Unified Mobility](#)” chapter.

This chapter includes information on the following topics:

- [Configuration Checklist for Cisco Unified Mobility with Cisco Unified Mobility Advantage](#), page 15-2
- [Introducing Cisco Unified Mobility with Cisco Unified Mobility Advantage](#), page 15-4
 - [Definitions](#), page 15-5
 - [List of Cisco Unified Mobility Features with Cisco Unified Mobility Advantage](#), page 15-5
 - [Cisco Unified Mobile Communicator](#), page 15-7
 - [Dial-via-Office Reverse Callback](#), page 15-10
 - [Dial-via-Office Forward](#), page 15-11
 - [Session Resumption](#), page 15-14
 - [Use Case Scenarios for Cisco Unified Mobility Features](#), page 15-15
- [Interactions and Limitations](#), page 15-18
 - [Limitations](#), page 15-18
- [System Requirements](#), page 15-19
- [Configuring Cisco Unified Mobility with Cisco Unified Mobility Advantage](#), page 15-19
- [Related Topics](#), page 15-20

Configuration Checklist for Cisco Unified Mobility with Cisco Unified Mobility Advantage

Configure the Cisco Unified Mobility Advantage server to communicate with Cisco Unified Communications Manager. See the following documentation for configuration information:

- *Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1*, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html
- Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html

For more information on Cisco Unified Mobility features that are available upon configuration of the Cisco Unified Mobility Advantage server, see the “[List of Cisco Unified Mobility Features with Cisco Unified Mobility Advantage](#)” section on page 15-5.

For more information on Cisco Unified Mobility features that are native to Cisco Unified Communications Manager and that do not require configuration of Cisco Unified Mobile Communicator nor Cisco Unified Mobility Advantage, see the “[List of Cisco Unified Mobility Features](#)” section on page 14-6 in the “[Cisco Unified Mobility](#)” chapter.

Table 15-1 summarizes the procedures for configuring Cisco Unified Mobile Communicator and Cisco Unified Mobility Advantage to operate with Cisco Unified Communications Manager. For detailed instructions, see the chapters and sections that the table references. In addition, see the “[Related Topics](#)” section on page 15-20.

Table 15-1 Cisco Unified Mobility with Cisco Unified Mobility Advantage Configuration Checklist

Configuration Steps	Related Procedures and Topics
<p>Step 1 On the Cisco Unified Mobility Advantage server, configure a Cisco Unified Communications Manager adapter that points to up to two nodes within the Cisco Unified Communications Manager cluster.</p> <p>Within Cisco Unified Mobility Advantage, specify a SOAP-enabled application user name and password on the adapter.</p> <p>Set the Communications Manager setting on the adapter configuration window to 8.x.</p> <p>You can also configure a security context or profile on the adapter to provide a secure connection to Cisco Unified Communications Manager, if desired</p>	<p><i>Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1</i>, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html</p> <p>Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html</p>
<p>Step 2 Activate and provision the user for the Cisco Unified Mobile Communicator client on the Cisco Unified Mobility Advantage server. The user ID on the Cisco Unified Mobility Advantage server must match the user ID and end-user account within Cisco Unified Communications Manager.</p>	<p><i>Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1</i>, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html</p> <p>Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html</p> <p><i>End User Configuration, Cisco Unified Communications Manager Administration Guide</i></p>
<p>Step 3 Upon activation, the user or Cisco Unified Mobility Advantage administrator should provision the user mobile phone for Cisco Unified Mobile Communicator on the Cisco Unified Mobility Advantage server and enter the mobile phone number.</p> <p>Configure this number to match the Mobility Identity directory number that is configured within Cisco Unified Communications Manager exactly.</p>	<p><i>Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1</i>, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html</p> <p>Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html</p> <p><i>Remote Destination Configuration Settings, page 14-44</i></p>

Table 15-1 Cisco Unified Mobility with Cisco Unified Mobility Advantage Configuration Checklist (continued)

Configuration Steps		Related Procedures and Topics
Step 4	On the Cisco Unified Mobility Advantage server, set the Enable Corporate PBX Integration and Enable Dial via Office settings to Yes under Manage Adapter Services.	<p><i>Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1</i>, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html</p> <p>Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html</p>

Introducing Cisco Unified Mobility with Cisco Unified Mobility Advantage

Administrators configure the basic setup of Cisco Unified Mobility for end users by using the Cisco Unified Communications Manager Administration windows. See the “[Cisco Unified Mobility](#)” chapter for details.

Be aware that special configuration in Cisco Unified Communications Manager Administration is required for features that the Cisco Unified Mobile Communicator provides on user phones in conjunction with the Cisco Unified Mobility Advantage server.

This section discusses the following topics:

- [Definitions](#), page 15-5
- [List of Cisco Unified Mobility Features with Cisco Unified Mobility Advantage](#), page 15-5
- [Cisco Unified Mobile Communicator](#), page 15-7
- [Dial-via-Office Reverse Callback](#), page 15-10
- [Dial-via-Office Forward](#), page 15-11
- [Session Resumption](#), page 15-14
- [Use Case Scenarios for Cisco Unified Mobility Features](#), page 15-15

Additional Information

See the “[Related Topics](#)” section on page 15-20.

Definitions

Table 15-2 provides definitions of terms that are related to Cisco Unified Mobility with Cisco Unified Mobility Advantage and Cisco Unified Mobile Communicator.

Table 15-2 Definitions

Term	Definition
Cisco Unified Mobility Advantage	Cisco Unified Mobility Advantage specifies server software that is deployed behind the enterprise firewall to connect employee mobile phones to company resources. Cisco Unified Mobility Advantage runs in conjunction with the Cisco Unified Mobile Communicator client, which runs on employee mobile devices.
Cisco Unified Mobile Communicator	Cisco Unified Mobile Communicator specifies the client software that runs on supported mobile phones. Cisco Unified Mobile Communicator runs in conjunction with a Cisco Unified Mobility Advantage server to provide access to enterprise services.
Cisco Mobile 7.x	Cisco Unified Mobile Communicator clients that connect to Cisco Unified Communications Manager through a Cisco Unified Mobility Advantage proxy server.

Additional Information

See the “[Related Topics](#)” section on page 15-20.

List of Cisco Unified Mobility Features with Cisco Unified Mobility Advantage

This section provides a list of Cisco Unified Mobility features that are available to mobile phone users when the required configuration for Cisco Unified Mobility Advantage has also been performed. This material discusses configuration within Cisco Unified Communications Manager Administration.

For a complete discussion of Cisco Unified Mobility Advantage configuration, see the following documentation:

- *Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1*, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html
- Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html

The following entities and features require configuration of Cisco Unified Mobility in Cisco Unified Communications Manager Administration as well as configuration of Cisco Unified Mobility Advantage:

- Cisco Unified Mobile Communicator—Cisco Unified Mobile Communicator specifies a phone device that is running the Cisco Unified Mobile Communicator client and communicates via a data channel back to the Cisco Unified Mobility Advantage server by using Mobility Multiplexing Protocol (MMP). You configure the Cisco Unified Mobile Communicator in the Phone Configuration window in Cisco Unified Communications Manager Administration. See the “[Cisco Unified Mobile Communicator](#)” section on page 15-7 for a detailed discussion.

- **Dial-via-Office Reverse Callback**—The Dial-via-Office Reverse Callback feature resembles the Mobile Voice Access feature, except that Cisco Unified Communications Manager makes both calls. From the Cisco Unified Mobile Communicator client, using the data channel, the phone initiates the Dial-via-Office Reverse Callback feature. Cisco Unified Communications Manager then calls the mobility identity first. When the mobility identity answers, Cisco Unified Communications Manager calls the destination number. See the “[Dial-via-Office Reverse Callback](#)” section on [page 15-10](#) for a detailed discussion.
- **Dial-via-Office Forward**—The Dial-via-Office Forward feature resembles Mobile Voice Access, except that the request comes through data channel instead of from IVR. From the Cisco Unified Mobile Communicator (CUMC) client, using the data channel, the phone initiates the Dial-via-Office Forward feature. Cisco Unified Communications Manager then returns the Enterprise Feature Access (EFA) Number through the data channel. The mobility identity (MI) calls the Enterprise Feature Access number, and Cisco Unified Communications Manager calls the destination number. See the “[Dial-via-Office Forward](#)” section on [page 15-11](#) for a detailed discussion.
- **Session Resumption**—This feature provides one-touch reconnect to the last dialed target in case of any unexpected DVO-F call drop. This feature helps users who are making DVO-F calls and who experience a network failure. Prior to the implementation of this feature, if the mobile user pressed **Redial** (either by calling the last dialed number from the phone call history or by pressing Call Back if the phone provides such an option), the redial number specified the Dial-via-Office Forward Feature Access Number (configured under Service Parameter) or Enterprise Feature Access Number (configured under **Call Routing > Mobility > Enterprise Feature Access Number Configuration**). Cisco Unified Communications Manager treated the call as an Enterprise Feature Access call, and the user could not connect to the last redial target. With the implementation of this feature, when the user presses **Redial**, Cisco Unified Communications Manager reconnects the mobile user with the actual target DN. See the “[Session Resumption](#)” section on [page 15-14](#) for a detailed discussion.

The following features, which were originally part of Cisco Unified MobilityManager, now reside in Cisco Unified Communications Manager:

- **Mobile Connect**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Desktop Call Pickup**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Mobile Voice Access**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Access List**—See the “[Cisco Unified Mobility](#)” chapter for details.

Cisco Unified Communications Manager also supports the following Cisco Unified Mobility features:

- **Midcall Enterprise Feature Support Using DTMF**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Two-stage Dialing**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Dual-mode Phone Support**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Manual Handoff of Calls on a Dual-mode Phone**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Time-of-Day Access**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **Directed Call Park via DTMF**—See the “[Cisco Unified Mobility](#)” chapter for details.
- **SIP URI Dialing**—See the “[Cisco Unified Mobility](#)” chapter for details.

See the [“Other Benefits of Cisco Unified Mobility Features”](#) section on page 14-7 for a discussion of other benefits of Cisco Unified Mobility features, such as simultaneous desktop ringing, single enterprise voice mailbox, system remote access, caller ID, remote on/off control, call tracing, security and privacy for Mobile Connect calls, and smartphone support.

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Cisco Unified Mobile Communicator

The Cisco Unified Mobile Communicator specifies a device type that you can configure in Cisco Unified Communications Manager Administration in the Phone Configuration window. The Cisco Unified Mobile Communicator uses Mobility Multiplexing Protocol (MMP) to communicate via the mobile phone data connection with the Cisco Unified Mobility Advantage server, which in turn registers the device with Cisco Unified Communications Manager through SIP. The Cisco Unified Mobile Communicator uses one Device License Unit (DLU) if the user has a desktop phone and three DLUs if the user does not have a desktop phone.

See the following topics for configuration details:

- [Cisco Unified Mobile Communicator Configuration, page 15-8](#)
- [Cisco Unified Mobile Communicator Configuration Details, page 15-9](#)

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Cisco Unified Mobile Communicator Configuration

Table 15-3 summarizes the procedures for configuring the Cisco Unified Mobile Communicator for Cisco Unified Mobility. For detailed instructions, see the information that the table references.

Table 15-3 Cisco Unified Mobile Communicator Configuration Checklist

Configuration Steps	Related Procedures and Topics
<p>Step 1 In Cisco Unified Communications Manager Administration, configure a Cisco Unified Mobile Communicator device.</p> <p>Note Prior to configuring the Cisco Unified Mobile Communicator device within Cisco Unified Communications Manager, make sure the user has been mobility enabled as described in the “Configure user accounts” step of the “Configuration Checklist for Cisco Unified Mobility with Cisco Unified Mobility Advantage” section of the “Cisco Unified Mobility” chapter.</p> <p>Use the Device > Phone menu option. For Phone Type, choose Cisco Unified Mobile Communicator.</p> <p>Note Make sure that you check the Enable Mobility check box in the End User Configuration window.</p> <p>Note Checking the Enable Mobility check box triggers licensing to consume device license units (DLUs) for mobile connect.</p>	<p>Configuration Checklist for Cisco Unified Mobility, page 14-2</p> <p>Cisco Unified IP Phone Configuration, Cisco Unified Communications Manager Administration Guide</p> <p>Cisco Unified Mobile Communicator Configuration Details, page 15-9</p>
<p>Step 2 In Cisco Unified Communications Manager Administration, configure a security profile for a Cisco Unified Mobility Advantage server.</p> <p>Use the System > Security Profile > CUMA Server Security Profile menu option.</p>	<p>See the <i>Cisco Unified Communications Manager Security Guide</i> for details.</p>
<p>Step 3 In Cisco Unified Communications Manager Administration, configure the enterprise feature access directory number (DN).</p> <p>Use the Call Routing > Mobility > Enterprise Feature Access Configuration menu option.</p> <p>Note You must perform this configuration step for the Dial-via-Office features to work.</p>	<p>Mobility Enterprise Feature Configuration, page 14-56</p>
<p>Step 4 Allow the Cisco Unified Mobility Advantage client to register with Cisco Unified Communications Manager.</p>	<p>See the <i>Cisco Unified Communications Manager Security Guide</i> for details.</p>
<p>Step 5 In the Cisco Unified CM User Options windows, configure end-user settings for the Cisco Unified Mobile Communicator, such as the following settings:</p> <ul style="list-style-type: none"> • Device—End user specifies his own Cisco Unified Mobile Communicator. • Remote Destinations—End user chooses his own Cisco Unified Mobile Communicator as the remote destination profile. 	<p>See the user guide for a particular Cisco Unified IP Phone model.</p>

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Cisco Unified Mobile Communicator Configuration Details

When you configure a Cisco Unified Mobile Communicator, keep in mind the following configuration requirements as you configure the fields in the Phone Configuration window:

- When configuring a new Cisco Unified Mobile Communicator, select the Cisco Unified Mobile Communicator phone type in the Phone Type drop-down list box.
- Device Name—Ensure this name is unique. You need no MAC address.
- Mobility User ID—You must configure this field. You can only choose the user ID of an end user for which the Enable Mobility check box in the Mobility Information pane of the End User Configuration window (**User Management > End User**) has been checked.
- Mobility Identity—This field must specify the Cisco Unified Mobile Communicator-enabled smartphone mobile number as the destination number. Be aware that the Mobility Identity configuration characteristics are identical to those of the Remote Destination configuration. To access the field, click the Add New Mobility Identity link in the Phone Configuration window, which takes you to the Remote Destination Configuration window so that you can add a mobile identity.
- Rerouting Calling Search Space—Ensure that this field is configured for basic calls to work. This setting applies to the Cisco Unified Mobile Communicator. This setting gets used to route calls to the mobility identity (that is, the Cisco Unified Mobile Communicator client phone). The setting gets used to route the Dial-via-Office callback call leg toward the mobility identity and to route the call leg toward the mobility identity for Mobile Connect/SNR calls.
- Calling Search Space—Ensure that this field is configured for basic calls to work. This setting gets used to route calls from the mobility identity. The setting gets used to route the call leg toward the dialed or target phone for Dial-via-Office calls.
- DND Option—The Cisco Unified Mobile Communicator only supports the Call Reject DND option.

Ensure that a directory number is assigned to the Cisco Unified Mobile Communicator.

Keep in mind these other configuration requirements that apply to the Cisco Unified Mobile Communicator:

- Due to the lack of an integrated End User Configuration window for Cisco Unified Communications Manager and the Cisco Unified Mobility Advantage server, the Cisco Unified Mobile Communicator client user must configure identical remote destination numbers in both Cisco Unified Communications Manager Administration and in the Cisco Unified Mobility Advantage server.
- If a Cisco Unified Mobile Communicator client user ever changes his SIM card, the user must update the mobile number in the Cisco Unified Mobility Advantage server by deleting the old mobile phone number and adding the new mobile phone number. The corresponding configuration must take place in Cisco Unified Communications Manager Administration as well.
- Ensure Cisco Unified Communications Manager nodes are statically created in the Cisco Unified Mobility Advantage server administration console.
- The Cisco Unified Mobility Advantage server only uses AXL to update the Cisco Unified Communications Manager database but does not listen to Cisco Unified Communications Manager database change notifications.

General Considerations

Keep in mind the following general considerations for the Cisco Unified Mobile Communicator device:

- You can add one or more remote destinations in addition to the mobility identity to the Cisco Unified Mobile Communicator device (similar to the remote destination profile).
- No automatic migration support exists. You must manually reconfigure the device as a Cisco Unified Mobile Communicator device.
- Only the first call gets supported because, in 2.5G, the data channel does not remain available after the voice call connects.
- The Cisco Unified Mobility Advantage server can activate only one Cisco Unified Mobile Communicator device per user. (A user can have multiple mobile phones configured within Cisco Unified Mobility Advantage, but only one of mobile phones can be actively connected to the Cisco Unified Mobility Advantage server at a given time.)
- In configuration of the Cisco Unified Mobile Communicator device, the reroute CSS and CSS represent key considerations.

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Dial-via-Office Reverse Callback

The Dial-via-Office Reverse (DVO-R) Callback feature resembles the Mobile Voice Access feature, except that Cisco Unified Communications Manager makes both calls. From the Cisco Unified Mobile Communicator client, using the data channel, the phone initiates the Dial-via-Office Reverse Callback feature by sending a SIP INVITE message to Cisco Unified Communications Manager. Cisco Unified Communications Manager then calls the mobility identity (Cisco Unified Mobile Communicator client) first. When the mobility identity answers, Cisco Unified Communications Manager calls the dialed (target) number.

In all Dial-via-Office scenarios, the callback leg from Cisco Unified Communications Manager either to the Cisco Unified Mobile Communicator client mobile phone/mobility identity or to an alternate number always specifies the caller ID of the Enterprise Feature Access DID. The caller ID that gets sent for the call leg from Cisco Unified Communications Manager to the target or dialed number always specifies the user enterprise desk number (based on the shared line between the user desktop phone and the Cisco Unified Mobile Communicator client device type that is configured within Cisco Unified Communications Manager).

Example of Dial-via-Office Reverse Callback

The following example illustrates the sequence of events that takes place in an instance of dial-via-office reverse callback:

- User invokes the Dial-via-Office feature on the phone and calls target DN 2000.
- Phone sends INVITE 2000 with the callback number that is specified in the SDP parameter “c=PSTN E164 4085551234.”
- Cisco Unified Communications Manager sends back 183 Session In Progress with Enterprise Feature Access Number DID (4085556666) in SDP parameter.
- Cisco Unified Communications Manager calls back mobility identity 4085551234.
- When the mobility identity answers the call, Cisco Unified Communications Manager redirects the call to the target DN 2000.

Use Case Scenarios

See the [“Use Case Scenarios for Dial-via-Office Reverse Callback”](#) section on page 15-16 for the use case scenarios that Cisco Unified Communications Manager supports with this feature.

Limitations for Dial-via-Office Reverse Callback Feature

See the [“Dial-via-Office Limitations \(DVO-R and DVO-F\)”](#) section on page 15-18 for a list of limitations that apply to this feature.

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Dial-via-Office Forward

Users that have Cisco Mobile, a Cisco Unified Mobile Communicator application, installed on their mobile devices can take advantage of the Dial-via-Office Forward feature. Cisco Unified Mobile Communicator invokes the Dial-via-Office Forward feature from the mobile device through SIP signaling over the data channel between Cisco Unified Mobile Communicator-Cisco Unified Mobility Advantage and Cisco Unified Mobility Advantage-Cisco Unified Communications Manager to initiate calls to a final target. Because the calls are anchored at the enterprise, the feature offers a cost-saving solution to Cisco Unified Mobile Communicator mobile users.

**Note**

Only Cisco Unified Mobile Communicator devices with the Cisco Mobile client can invoke the Dial-via-Office Forward feature.

Cisco Unified Communications Manager returns the Dial-via-Office Forward (DVO-F) service access number, if the DVO-F service access number has been configured, or the Enterprise Feature Access (EFA) directory number (DN) through the data channel. The Cisco Unified Mobile Communicator client that runs on the mobile phone calls the number that it receives from Cisco Unified Communications Manager. The phone number of the mobile device that makes the DVO-F call gets matched against configured Mobility Identities (MI), thus ensuring that the system places only those calls that authorized users make. If a match occurs, the call request gets sent to the target party. Both complete match and partial match get supported, depending on the setting of the Matching Caller ID with Remote Destination service parameter.

This section covers the following topics for the Dial-via-Office Forward feature:

- [Configuration of Dial-via-Office Forward in Cisco Unified Communications Manager Administration](#), page 15-12
- [Dial-via-Office Forward Service Access Number](#), page 15-12
- [Globalization Support for EFA DN and DVO-F Service Access Number](#), page 15-13
- [Use Case Scenarios for Dial-via-Office Forward](#), page 15-13
- [Dial-via-Office Forward Call Characteristics](#), page 15-13
- [Example of Dial-via-Office Forward](#), page 15-13
- [Dial-via-Office Forward Configuration Tips](#), page 15-14
- [Limitations for Session Resumption Feature](#), page 15-15

Configuration of Dial-via-Office Forward in Cisco Unified Communications Manager Administration

The following configuration must take place in Cisco Unified Communications Manager Administration for the Dial-via-Office Forward feature to be enabled:

- **Call Routing > Mobility Configuration**

The value of the Enterprise Feature Access Directory Number setting should match the called number and should belong to the correct partition.

- **System > Service Parameters**

The Dial-via-Office Service Access Number can specify an alternate number.

Dial-via-Office Forward Service Access Number

The Dial-via-Office Forward Service Access Number service parameter provides customers the option to set up a dedicated number for Cisco Unified Mobile Communicator users to dial DVO-F while Cisco Unified Communications Manager receives the calls on a different number (for example, through 1-800 support). The DVO-F service access number can specify a toll-free 1-800 number, which the service provider can map to a local number that reaches the enterprise or to any other alternative number for Cisco Mobile clients to invoke DVO-F calls.

The Dial-via-Office Forward Service Access Number service parameter has the following characteristics:

- Length specifies up to 24 dialable digits.
- Does not specify a partition.

The Dial-via-Office Service Access Number service parameter interacts with the existing Enterprise Feature Access (EFA) DN as follows:

- The EFA DN must be configured to invoke the DVO-F feature. Whether DVO-F service access number is configured or not, the EFA DN terminates the inbound call from the Cisco Unified Mobile Communicator device.
- For the 183 Session in progress message response, the following rules apply:
 - If the Dial-via-Office Forward Service Access Number service parameter number is configured, Cisco Unified Communications Manager sends this alternative number to Cisco Unified Mobility Advantage in SDP.
 - If only EFA DN is configured, Cisco Unified Communications Manager sends the EFA DN to Cisco Unified Mobility Advantage.
- For incoming PSTN calls, the following matching takes place:
 - Called party number gets matched against either the EFA DN or the DVO-F service access number. Either Partial Match or Complete Match takes place. The Partial/Complete Match matches the calling number with the calling number in the original SIP INVITE message that the Cisco Unified Mobility Advantage forwarded to Cisco Unified Communications Manager.
 - Actually this is not accurate. Certainly, the system expects the inbound DVO-F call leg from CUMC to be to (called number) EFA DN or DVO-F service access number. But once the call is received on that number, called number is no longer important. The Partial/Complete Match portion is matching the calling number and the match is not made against the EFA/DVO-F service access number, but the calling number specified in the original SIP INVITE forwarded to Unified CM by CUMA.
 - If a match is found, the voice call correlates with the original SIP Invite, and the Call Await Timer gets stopped. Next, a call gets extended to the called number or target number that the user originally dialed and that the SIP Invite that the Cisco Unified Communications Manager received from Cisco Unified Mobility Advantage contains.

- If no match is found, after the Call Await Timer expires, the call disconnects, and the 503 Service Unavailable message gets sent.

Globalization Support for EFA DN and DVO-F Service Access Number

Both the Enterprise Feature Access Directory Number and the Dial-via-Office Forward Service Access Number support the following dialable digits:

- 0 through 9
- +, which must be preceded by backslash (\). Because backslash is not a dialable digit, it does not count toward the maximum length of 24 digits.
- * and #
- A through D

The preceding special characters can occur in any position.

Use Case Scenarios for Dial-via-Office Forward

See the “[Use Case Scenarios for Dial-via-Office Forward](#)” section on page 15-16 for the use case scenarios that Cisco Unified Communications Manager supports with this feature.

Dial-via-Office Forward Call Characteristics

Using the preceding example, the following characteristics apply to a Dial-via-Office Forward call:

- Based on the INVITE SDP parameter “a=setup:active,” Cisco Unified Communications Manager determines that the Cisco Mobile client wants to initiate a DVO-F call.
- The Call Await Timer, which is set to 30 seconds, starts when Cisco Unified Communications Manager sends the 183 Session In Progress message to Cisco Unified Mobility Advantage.
- If the Cisco Unified Communications Manager does not receive a PSTN call from Cisco Unified Mobile Communicator before the Call Await Timer expires, Cisco Unified Communications Manager sends a “503 Service Unavailable” message and clears resources that are associated with the DVO-F Invite.
- When a PSTN call arrives, the following attempts at matching take place:
 - Cisco Unified Communications Manager tries to match the calling party number against known Mobility Identities (MIs) to determine whether the call will get anchored. Cisco Unified Communications Manager performs the match based on the option that is set for the Matching Caller ID with Remote Destination service parameter (either Partial Match or Complete Match).
 - Cisco Unified Communications Manager also tries to match the called party number against the EFA DN or DVO-F service access number and determines whether the call is a DVO-F call.
- After the call gets established, the user can invoke other Cisco Unified Mobility features, such as hold, resume, conference, transfer, and desk pickup.

Example of Dial-via-Office Forward

The following example illustrates the sequence of events that takes place in an instance of Dial-via-Office Forward (DVO-F):

1. User launches the Cisco Unified Mobile Communicator application and enters 2000 as target number.
2. Cisco Unified Mobile Communicator sends SIP Invite message with target number as 2000.
3. Cisco Unified Communications Manager sends back 183 Session In Progress via the data channel. The SDP parameter specifies the Dial-via-Office Forward service access number or EFA DN.

4. Cisco Unified Mobile Communicator autodial the number that the SDP specifies.
5. Cisco Unified Communications Manager correlates this voice call with the SIP data channel call by comparing the calling party number with the Mobility Identity and by comparing the called party number with the EFA DN or the DVO-F service access number.
6. The call then progresses normally.

Dial-via-Office Forward Configuration Tips

The following configuration tips apply when you are configuring the Dial-via-Office Forward feature:

- Cisco Unified Mobile Communicator device must get provisioned with a valid Mobility Identity (MI).
- Cisco Unified Mobile Communicator device must register with Cisco Unified Communications Manager.
- If the Cisco Unified Mobile Communicator caller ID that the Cisco Unified Communications Manager receives does not match the provisioned MI completely, perform the following configuration:
 - Set the Matching Caller ID with Remote Destination service parameter to Partial Match.
 - Specify the number of matched digits in the Number of Digits for Caller ID Partial Match service parameter.
- Make sure the ingress gateway gets configured properly, so the called party number matches either the EFA DN or the DVO-F Service Access Number service parameter.
- If the called party number is expected to match the EFA DN, ensure that the Inbound Calling Search Space for Remote Destination service parameter is set properly as follows:
 - If the Trunk or Gateway Inbound Calling Search Space option is chosen, the EFA DN partition must belong to the trunk or gateway calling search space.
 - If the Remote Destination Profile + Line Calling Search Space option is chosen, the EFA DN partition must belong to the calling search spaces of the Cisco Unified Mobile Communicator device and its enterprise DN.

Limitations for Dial-via-Office Reverse Callback Feature

See the [“Dial-via-Office Limitations \(DVO-R and DVO-F\)”](#) section on page 15-18 for a list of limitations that apply to this feature.

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Session Resumption

The Session Resumption feature allows the user to call back to a meeting (after a signal loss) without inputting the meeting ID and password again.

Mobile call failure is very common in the cellular network. For DVO-F calls, the dialed number that is stored on the mobile handset specifies the DVO-F service access number, which is an internally configured DID number. When the user presses **Redial** on the user handset (either by calling the last dialed number from the phone call history or by pressing Call Back if the phone provides such an option), the stored number has already been dialed, so Cisco Unified Communications Manager cannot reach the original target.

Upon implementation of the Session Resumption feature, Cisco Unified Communications Manager stores the target number DN when the DVO-F call initially gets made. If the user presses **Redial** after a network failure, Cisco Unified Communications Manager receives the call for the DVO-F service access number, which Unified CM replaces with the stored target DN. Thus, the redial request succeeds: either a new call gets extended to the original target, or the original call gets reconnected, depending on whether the original call got released.

Configuration Details

The following configuration details apply to the Session Resumption feature.

- The Session Resumption feature uses the setting of the Session Resumption Await Timer service parameter, which you configure in the Service Parameter Configuration window (**System > Service Parameters**) for the Cisco CallManager service in the Clusterwide Parameters (System - Mobility) pane. The Session Resumption Await Timer service parameter has a default setting of 180 seconds (3 minutes), but can be set to any value between 0 seconds and 300 seconds (5 minutes). Setting the Session Resumption Await Timer service parameter to 0 seconds disables the timer and the Session Resumption feature.
- After the Session Resumption Await Timer expires in the case of a DVO-F call that was interrupted due to network failure, the record of the original target DN for this DVO-F call gets deleted. Any Redial call that is placed after the timer expires gets invoked as an enterprise feature access (EFA) call: the Session Resumption feature does not get triggered.
- If a Redial call gets extended to a busy target DN, the user receives a busy tone.

Use Case Scenarios

See the [“Use Case Scenarios for Session Resumption”](#) section on page 15-17 for use cases that apply to the Session Resumption feature.

Limitations for Session Resumption Feature

See the [“Session Resumption Limitation”](#) section on page 15-18 for a list of limitations that apply to this feature.

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Use Case Scenarios for Cisco Unified Mobility Features

The following sections describe the following use case scenarios that Cisco Unified Communications Manager supports for Cisco Unified Mobility features if the required configuration for Cisco Unified Mobility Advantage is also performed:

- [Use Case Scenarios for Dial-via-Office Reverse Callback](#), page 15-16
- [Use Case Scenarios for Dial-via-Office Forward](#), page 15-16
- [Use Case Scenarios for Session Resumption](#), page 15-17

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Use Case Scenarios for Dial-via-Office Reverse Callback

The Dial-via-Office Reverse Callback feature supports the following use case scenarios:

- Mobile user invokes Dial-via-Office Reverse Callback feature to remote destination and succeeds.
- Mobile user invokes Dial-via-Office Reverse Callback feature to non-remote destination and succeeds.
- Mobile user invokes Dial-via-Office Reverse Callback feature and fails.

Additional Information

See the [“Related Topics”](#) section on page 15-20.

Use Case Scenarios for Dial-via-Office Forward

The Dial-via-Office Forward feature supports the following use case scenarios:

1. Enterprise has configured EFA DN only.

The DVO-F feature succeeds only when the Cisco Unified Mobile Communicator client automatically dials the exact EFA DN and Cisco Unified Communications Manager also receives the identical call party number.

Example

EFA DN = 1239876

DVO-F Service Access Number service parameter = EMPTY

Cisco Unified Communications Manager sends 1239876 in 183 message and receives PSTN call to 1239876.

2. Enterprise provides a 1-800 toll-free number for DVO-F calls.

Enterprise sets up a toll-free number, which may be mapped to an actual number (ring-to number) when the service provider receives the call.

If the ring-to number gets applied, administrator must configure the toll-free number (for example, 18008889999) by using the Dial-via-Office Forward Service Access Number service parameter and the ring-to number (for example, 4081239876) as the EFA DN.

Example

EFA DN = 1239876 (localized format, depending on service provider)

DVO-F Service Access Number service parameter = 18008889999

Cisco Unified Communications Manager sends 18008889999 in 183 Session in progress message and receives PSTN call, which maps to 1239876.

3. Enterprise provides globalized number for DVO-F calls

Enterprise sets up a globalized access number, which allows its Cisco Unified Mobile Communicator users to invoke the DVO-F calls anywhere in the world without the need to know the international escape code for the country where they are located.

If the service provider delivers only a localized number, administrator must configure the globalized number (for example, \+14081239876) as the DVO-F Service Access Number service parameter and the localized number that Cisco Unified Communications Manager receives (for example, 1239876) as the EFA DN.

Example

EFA DN = 1239876 (localized format, depending on service provider)

DVO-F Service Access Number service parameter = \+14081239876 (requires backslash as escape for + character)

Cisco Unified Communications Manager sends +14081239876 in message 183 Session in progress and receives PSTN call, which maps to 1239876.

Additional Information

See the [“Related Topics” section on page 15-20](#).

Use Case Scenarios for Session Resumption

The Session Resumption feature supports the following use case scenarios.

Session Resumption Use Case 1: New Call to Target

In the case of a DVO-F Redial call where a new call gets made to the target, the following steps take place:

1. User makes DVO-F call, for example, to target DN 1000.
2. While user and target are in a call, a mobile network failure happens.
3. Session Resumption Await Timer starts. Target hears MOH. User does not resume the call on his shared desk line, Desk Pickup Timer (default specifies 30 seconds) expires shortly. Target hangs up.
4. Before Session Resumption Await Timer expires, user called the DVO-F service number.
5. Cisco Unified Communications Manager finds out target (1000) was the last target and makes a new call to the last target (1000 in this example). User and target reconnect.

Session Resumption Use Case 2: Reconnect Existing Call

In the case of a DVO-F Redial call where the existing call to the target gets reconnected, the following steps take place:

1. User makes DVO-F call, for example, to target DN 1000.
2. While user and target are in a call, a mobile network failure happens.
3. Session Resumption Await Timer starts. Target hears MOH. User does not resume the call on his shared desk line.
4. Before Desk Pickup Timer (default specifies 30 seconds) expires, user calls the DVO-F service number.
5. Cisco Unified Communications Manager finds that target (1000) was the last target, stops MOH, and reconnects user with the target who was still waiting for user.

Note that no new call is extended to DN 1000: only media switching takes place as the original call to DN 1000 gets reconnected. From the DN 1000 user point of view, when a network failure occurs, DN 1000 first hears MOH. After a few seconds, if the mobile user pressed **Redial** before the desk pickup timer expires, the original call reconnects and the parties continue the call.

Additional Information

See the [“Related Topics” section on page 15-20](#).

Interactions and Limitations

Be aware that most standard Cisco Unified Communications Manager features are fully compatible with Cisco Unified Mobility features. See the following sections of the “[Cisco Unified Mobility](#)” chapter for details of any exceptions:

- [Interactions, page 14-28](#)
- [Limitations, page 14-30](#)

Additionally, the limitations that apply to features that require Cisco Unified Mobility Advantage and Cisco Unified Mobile Communicator functionality are detailed in the following section:

- [Limitations, page 15-18](#)

Additional Information

See the “[Related Topics](#)” section on [page 15-20](#).

Limitations

This section provides a listing of limitations by feature. The section comprises the following topics:

- [Dial-via-Office Limitations \(DVO-R and DVO-F\), page 15-18](#)
- [Session Resumption Limitation, page 15-18](#)

Dial-via-Office Limitations (DVO-R and DVO-F)

The Dial-via-Office Forward (DVO-F) feature specifies these limitations in Cisco Unified Communications Manager:

- Only one outstanding DVO-F call that is getting established from a particular Cisco Unified Mobile Communicator device can be supported at a time.
- DVO-F cannot support simultaneous calls from a single Cisco Unified Mobile Communicator device.
- DVO-F can support two simultaneous DVO-F calls from a single Cisco Unified Mobile Communicator device.
- DVO-F relies on caller ID in the SIP Invite message to correlate a PSTN call with the SIP call:
 - If the calling party number or called party number cannot go through the mobile voice network (for example, GSM), the DVO-F call fails. A standard service provider announcement plays. Cisco Unified Communications Manager sends a 503 Service Unavailable message after the Call Await Timer expires.
 - If Cisco Unified Communications Manager does not receive the calling party number (that is, the Cisco Unified Mobile Communicator user blocks his or her caller ID), the DVO-F call fails. A reorder tone will play. Cisco Unified Communications Manager sends the 503 Service Unavailable message after the Call Await Timer expires.

Session Resumption Limitation

The Session Resumption feature specifies the following limitation:

- Session Resumption feature provides support only for Dial-via-Office Forward calls.

Additional Information

See the “[Related Topics](#)” section on [page 15-20](#).

System Requirements

Cisco Unified Mobility, in conjunction with Cisco Unified Mobility Advantage, requires the following software component:

- Cisco Unified Communications Manager 6.0 or later.

Additionally, Cisco Unified Mobility Advantage requires additional software components. See the following documentation for details:

- *Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1*, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html
- Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html

Additional Information

See the “[Related Topics](#)” section on page 15-20.

Configuring Cisco Unified Mobility with Cisco Unified Mobility Advantage

The “[Configuration Checklist for Cisco Unified Mobility](#)” section on page 14-2 of the “[Cisco Unified Mobility](#)” chapter provides an overview checklist of the procedures and steps that are necessary for an administrator to configure Cisco Unified Mobility features that are native to Cisco Unified Communications Manager.

The “[Configuring Cisco Unified Mobility](#)” section on page 14-35 of the “[Cisco Unified Mobility](#)” chapter provides detailed procedures for each Cisco Unified Communications Manager Administration menu option that must be configured to provision Cisco Unified Mobility features that are native to Cisco Unified Communications Manager. The section covers configuration of the following entities in Cisco Unified Communications Manager Administration:

- Access lists
- Remote destination profiles (You do not need nor use these resources for integration with Cisco Unified Mobility Advantage.)
- Remote destinations
- Mobile voice access media resources (You do not need nor use these resources for integration with Cisco Unified Mobility Advantage.)
- H.323 and SIP gateways for mobile voice access (You do not need nor use these resources for integration with Cisco Unified Mobility Advantage.)
- Enterprise feature access two-stage dialing (Integration with Cisco Unified Mobility Advantage does not require configuration of this feature; however, configuration of the Enterprise Feature Access DID is needed because this DID provides the caller ID that Cisco Unified Communications Manager sends for Dial-via-Office callback call legs.)
- Mobility Enterprise Feature configuration
- Mobility profiles
- Handoff mobility configuration

- Mobility softkeys

End users use the Cisco Unified CM User Options windows to further configure or modify the Cisco Unified Mobility settings that apply to their mobile phones.

For the steps that are necessary to configure Cisco Unified Mobility Advantage with Cisco Unified Communications Manager to provide Cisco Unified Mobility features that require Cisco Unified Mobility Advantage, see the following documentation:

- *Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1*, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html
- Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html



Tip

Before you configure Cisco Unified Mobility, review the “Configuration Checklist for Cisco Unified Mobility with Cisco Unified Mobility Advantage” section on page 15-2.

Additional Information

See the “Related Topics” section on page 15-20.

Related Topics

- [Configuration Checklist for Cisco Unified Mobility with Cisco Unified Mobility Advantage, page 15-2](#)
- [Introducing Cisco Unified Mobility with Cisco Unified Mobility Advantage, page 15-4](#)
 - [Definitions, page 15-5](#)
 - [List of Cisco Unified Mobility Features with Cisco Unified Mobility Advantage, page 15-5](#)
 - [Cisco Unified Mobile Communicator, page 15-7](#)
 - [Dial-via-Office Reverse Callback, page 15-10](#)
 - [Dial-via-Office Forward, page 15-11](#)
 - [Use Case Scenarios for Cisco Unified Mobility Features, page 15-15](#)
- [Interactions and Limitations, page 15-18](#)
 - [Limitations, page 15-18](#)
- [System Requirements, page 15-19](#)
- [Configuring Cisco Unified Mobility with Cisco Unified Mobility Advantage, page 15-19](#)
- [End User Configuration, Cisco Unified Communications Manager Administration Guide](#)
- [Service Parameter Configuration, Cisco Unified Communications Manager Administration Guide](#)
- [Licenses for Cisco Unified Mobility, Cisco Unified Communications Manager Features and Services Guide](#)

Additional Cisco Documentation

- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Security Guide*

- Applicable Cisco Unified IP Phone User Guides
- Applicable Cisco Unified IP Phone Administration Guides
- *Installing and Configuring Cisco Unified Mobility Advantage, Release 7.1*, at http://www.cisco.com/en/US/products/ps7270/prod_installation_guides_list.html
- Configuration guides for Cisco Unified Mobility Advantage, Release 7.1, at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html
- *Configuring Features in Cisco Unified Mobility Advantage: Dial Via Office Forward* at http://www.cisco.com/en/US/products/ps7270/products_installation_and_configuration_guides_list.html.
- Applicable Cisco Unified Mobile Communicator end-user documentation

