



Cisco Unified CallManager Express Dial Plan

This chapter describes the key elements of your Cisco Unified CallManager Express (Cisco Unified CME) dial plan:

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Note

For additional information, see the [“Related Documents and References”](#) section on page xii.

POTS Dial Peers

POTS dial peers are router configuration structures that point calls to a particular voice interface based on whether the dialed number matches certain criteria (as specified in the dial peer’s **destination-pattern**). The voice interface can be a PSTN trunk, an analog phone, a fax machine, or an IP phone. The following example shows several sample POTS dial peers, including some for PSTN trunks and one for an analog phone or fax machine.

```
!11-digit long-distance PSTN dialing with an access code of 9
dial-peer voice 1 pots
  preference 1
  destination-pattern 91.....
  port 2/0:23
  forward-digits 11
!
!7-digit local PSTN dialing with an access code of 9
dial-peer voice 4 pots
  destination-pattern 9[2-9].....
  port 2/0:23
  forward-digits 7
!
!Analog phone or fax machine
dial-peer voice 2701 pots
  destination-pattern 2701
  port 2/0/0
```

VoIP Dial Peers

VoIP dial peers are router configuration structures that point calls to a particular IP interface based on the same criteria that are used for POTS dial peers (that is, matching the dialed number to the dial peer's **destination-pattern**). IP interfaces can be H.323 or Session Initiation Protocol (SIP). The following example shows an H.323 dial peer that directs calls to another site where all the extensions start with three.

```
dial-peer voice 3000 voip
 destination-pattern 3...
 session target ipv4:172.19.153.41
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
```

Extensions

You can configure the extensions defined for your IP phones either by using the GUI or directly on the router using the **ephone-dn** command. As covered in [Chapter 5, “Cisco Unified CallManager Express Call Transfer and Forward,”](#) an ephone-dn has two components:

- A virtual POTS dial peer for directing calls to the phone
- A virtual voice port



Note

The voice ports and dial peers automatically generated by ephone-dns do not appear on the Cisco Unified CME running configuration. They can be seen only using more specific **show** commands.

The following example shows the definition on an ephone-dn and its associated POTS dial peer and voice port.

```
router# show running-config

ephone-dn 1
 number 3001
 description User1
 name User1
 call-forward busy 3105
 call-forward noan 3105 timeout 10
 !
router# show telephony-service dial-peer

dial-peer voice 20001 pots
 destination-pattern 3001
 huntstop
 call-forward busy 3105
 call-forward noan 3105
 !
router# show telephony-service voice-port

voice-port 50/0/1
 station-id number 3001
 station-id name User1
 timeout ringing 10
 progress_ind setup enable 3
 port 50/0/1
```

Digit Manipulation Features

Having an internal dial plan such as calling from one IP phone to another using a short extension of three or four digits, while also calling the outside world through the PSTN using fully qualified E.164 numbers, requires a certain amount of digit manipulation to add or subtract leading digits to or from an extension.

Typically, you have a *trunk access* code for an IP phone user to specify that a call should be routed to the PSTN as opposed to another extension. This access code must be translated to a PSTN-recognizable number before delivering the call to the PSTN. In a previous example you saw 9 used as the PSTN access code. Because this number matches the dial peer **destination-pattern** explicitly, it is deleted from the digit string forwarded to the PSTN. You can also see **forward-digits** commands in those POTS dial peers. These control how many of the numbers dialed by the IP phone user are forwarded to the PSTN, thereby offering simple digit manipulation within the dial peer statement itself.

Chapter 4, “Voice Gateways,” covered more sophisticated digit manipulation features available in Cisco Unified CME, such as Cisco IOS translation rules.

Other Cisco Unified CME Dial Plan Features

Various other types of DNs or extensions also make up part of your dial plan in the sense that defining these features requires the definition of digits to dial to activate the feature. These features include speed dial, intercom, call park, and paging.

There are also other special types of numbers, such as the AA and voice mail pilot numbers, as well as MWI DNs. The **transfer-pattern** feature also plays a role in your dialing plan, because this definition determines what numbers your IP phone users can transfer calls to.

Class of Restriction (COR) and call blocking are features that determine which numbers might *not* be dialed on the system.



Note

Dial plans are a wide topic that extends well beyond the scope of Cisco Unified CME. Visit the Cisco.com website and search for “Cisco Unified CME dial plans” for more information.
