Outbound Dial Peer Group as an Inbound Dial-Peer Destination

Overview

This feature can group multiple outbound dial peers into a dial-peer group and configure this dial-peer group as the destination of an inbound dial peer.

You can group up to 20 outbound (SIP) dial peers into a dial-peer group and configure this dial-peer group as the destination of an inbound dial peer. Once an incoming call is matched by an inbound dial peer with an active destination dial-peer group, dial peers from this group are used to route the incoming call. No other outbound dial-peer provisioning to select outbound dial peers is used.

A preference can be defined for each dial peer in a dial-peer group. This preference is used to decide the order of selection of dial peers from the group for the setup of an outgoing call.

You can also specify various dial-peer hunt mechanism using the existing **dial-peer hunt** command.

> **Note**
>
> H.323 protocol is no longer supported from Cisco IOS XE Bengaluru 17.6.1a onwards. Consider using SIP for multimedia applications.

Feature Information

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information

Feature Name	Releases	Feature Information
Support for POTS dial-peer	Baseline Functionality	An outgoing POTS dial peer can be part of a dial-peer group. An inbound POTS dial peer can have a dial-peer group as the destination.

Restrictions

- If a dial-peer group is in the shutdown state, regular dial-peer search occurs.

- If all dial peers in an active dial-peer group are unavailable, call is disconnected.

- Calls are statically routed to one of the dialpeers in the active Dial peer group.

- The **destination-pattern** command is required on the outbound dial peer even though matching is not done based on this command.

- The outgoing call setup is deferred until inter-digit timer expires or a terminator is entered.

For POTS dial peers:

- Two-stage dialing is not supported.

- Overlapping dialing is not supported.

- TCL and VXML routing changes are not supported.

- Digit-stripping is not supported.

Configure Outbound Dial-Peer Group as an Inbound Dial-Peer Destination

Perform this task to configure a dial-peer group with multiple outbound peers and an inbound dial peer referencing this dial-peer group as a destination.

Before you begin

- Configure SIP outbound dial peers to be associated with a dial-peer group.

- For an outbound POTS dial peer, ensure that **destination-pattern .T** and **no digit-strip** are configured to avoid unexpected dialed digit strip.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **dial-peer voice** *outbound-dial-peer-id* [**voip** | **pots**]
4. **destination-pattern** *pattern*
5. **no digit-strip** for POTS dial peers.
6. **exit**
7. (Optional) **dial-peer hunt** *hunt-order-number*
8. **voice class dpg** *dial-peer-group-id*
9. **dial-peer** *outbound-dial-peer-id* [**preference** *preference-order*]
10. (Optional) **description** *string*
11. **exit**
12. **dial-peer voice** *inbound-dial-peer-id* [**voip** | **pots**]
13. **destination dpg** *dial-peer-group-id*
14. **end**

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**enable** **Example:** Device> **enable**	Enters privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** Device# **configure terminal**	Enters global configuration mode.
Step 3	**dial-peer voice** *outbound-dial-peer-id* [**voip**	**pots**] **Example:** For VoIP dial peer: Device(config)# **dial-peer voice 123 voip** **Example:** For POTS dial peer: Device(config)# **dial-peer voice 345 pots**	Defines a dial peer and enters dial peer configuration mode.
Step 4	**destination-pattern** *pattern* **Example:** For VoIP Dial Peers Device(config-dial-peer)# **destination-pattern 1004**	Configures a destination pattern. This step is required even though the value is not used for dial-peer matching.

	Command or Action	Purpose
	Example: For POTS Dial Peers Device(config-dial-peer)# **destination-pattern .T**	
Step 5	**no digit-strip** for POTS dial peers. **Example:** Device(config-dial-peer)# **no digit-strip**	Disable unexpected dialed digit strip.
Step 6	**exit** **Example:** Device(config-dial-peer)# **exit**	Exits to global configuration mode.
Step 7	(Optional) **dial-peer hunt** *hunt-order-number* **Example:** Device(config)# **dial-peer hunt 0**	Specifies a hunt selection mechanism for dial peers. • The default mechanism is random selection.
Step 8	**voice class dpg** *dial-peer-group-id* **Example:** Device(config)# **voice class dpg 181**	Creates a dial-peer group for grouping multiple outbound dial peers and enters voice class configuration mode. • You can use the **shutdown** command to resume regular outbound dial-peer provisioning in dial-peers with this dial-peer group as destination.
Step 9	**dial-peer** *outbound-dial-peer-id* [**preference** *preference-order*] **Example:** Device(config-class)# **dial-peer 123 preference 1**	Associates a configured outbound dial peer with this dial-peer group and configures a preference value. • Repeat this step for all outbound dial-peers that need to be added to this dial-peer group. • If preference is not specified, the order of selection is random or as specified by the **dial-peer hunt** command.
Step 10	(Optional) **description** *string* **Example:** Device(config-class)# **description Boston Destination**	Provides a description for the dial-peer group.
Step 11	**exit** **Example:** Device(config-class)# **exit**	Exits voice class configuration mode and enters global configuration mode.

	Command or Action	**Purpose**
Step 12	**dial-peer voice** *inbound-dial-peer-id* [**voip** | **pots**] **Example:** For VoIP dial peer: `Device(config)# `**`dial-peer voice 789 voip`** **Example:** For POTS dial peer: `Device(config)# `**`dial-peer voice 678 pots`**	Defines a dial peer and enters dial peer configuration mode.
Step 13	**destination dpg** *dial-peer-group-id* **Example:** `Device(config-dial-peer)# `**`destination dpg 181`**	Specifies a dial peer group from which an outbound dial peer can be chosen.
Step 14	**end** **Example:** `Device(config-dial-peer)# `**`end`**	Exits dial peer configuration mode and enters privileged EXEC mode.

Verifying Outbound Dial-Peer Groups as an Inbound Dial-Peer Destination

SUMMARY STEPS

1. **show voice class dpg** *dial-peer-group-id*
2. **show dial-peer voice** *inbound-dial-peer-id*

DETAILED STEPS

Step 1 **show voice class dpg** *dial-peer-group-id*

Displays the configuration of an outbound dial-peer group.

Example:

```
Device# show voice class dpg 200

Voice class dpg: 200      AdminStatus: Up
 Description: Boston Destination
 Total dial-peer entries: 4

 Peer Tag       Pref
 --------       ----
 1001           1
 1002           2
 1004           0
```

```
    1003          1
----------------------------------
```

Step 2   **show dial-peer voice** *inbound-dial-peer-id*

Displays the referencing of destination dial-peer group from an inbound dial peer.

Example:

```
Device# show dial-peer voice 100 | include destination dpg

        destination dpg tag = 200 status = valid,
```

Troubleshooting Tips

SUMMARY STEPS

1. Enter the following:

   • **debug voip dialpeer inout**
   • **debug voip ccapi inout**

DETAILED STEPS

Enter the following:

• **debug voip dialpeer inout**
• **debug voip ccapi inout**

Displays the configuration of an outbound dial-peer group.

Example:

```
*Jul 19 10:15:53.310 IST: //-1/ED647BD1B0F9/DPM/dpMatchCore:
   Dial String=4001, Expanded String=4001, Calling Number=
   Timeout=TRUE, Is Incoming=TRUE, Peer Info Type=DIALPEER_INFO_SPEECH
*Jul 19 10:15:53.310 IST: //-1/xxxxxxxxxxxx/DPM/vepm_match_pattern_map:
   DEPM 1000 use caching dialstring 4001 status 0
*Jul 19 10:15:53.310 IST: //-1/ED647BD1B0F9/DPM/MatchNextPeer:
```

Incoming dial peer is first matched:

```
Result=Success(0); Incoming Dial-peer=600 Is Matched
*Jul 19 10:15:53.310 IST: //-1/ED647BD1B0F9/DPM/dpMatchPeertype:exit@6602
*Jul 19 10:15:53.310 IST: //-1/ED647BD1B0F9/DPM/dpAssociateIncomingPeerCore:
   Result=Success(0) after DP_MATCH_INCOMING_DNIS; Incoming Dial-peer=600
*Jul 19 10:15:53.310 IST: //-1/ED647BD1B0F9/DPM/dpMatchSafModulePlugin:
   dialstring=NULL, saf_enabled=0, saf_dndb_lookup=0, dp_result=0
*Jul 19 10:15:53.310 IST: //-1/ED647BD1B0F9/DPM/dpAssociateIncomingPeerSPI:exit@7181
*Jul 19 10:15:53.311 IST: //-1/ED647BD1B0F9/DPM/dpMatchPeersCore:
   Calling Number=, Called Number=4001, Peer Info Type=DIALPEER_INFO_SPEECH
```

The dial-peer group associated with a dial peer is selected:

```
*Jul 19 10:15:53.311 IST: //-1/ED647BD1B0F9/DPM/dpMatchPeersCore:
   Outbound Destination DPG Group Request; Destination DPG=1
*Jul 19 10:15:53.311 IST: //-1/ED647BD1B0F9/DPM/dpMatchDestDPGroup:
   Result=0
*Jul 19 10:15:53.311 IST: //-1/ED647BD1B0F9/DPM/dpMatchPeersCore:
   Result=SUCCESS(0) after DestDPGroup
*Jul 19 10:15:53.311 IST: //-1/ED647BD1B0F9/DPM/dpMatchSafModulePlugin:
   dialstring=4001, saf_enabled=0, saf_dndb_lookup=1, dp_result=0
```

List of active Dial-peers configured within the DPG, sorted by preference:

```
*Jul 19 10:15:53.311 IST: //-1/ED647BD1B0F9/DPM/dpMatchPeersMoreArg:
   Result=SUCCESS(0)
 List of Matched Outgoing Dial-peer(s):
    1: Dial-peer Tag=1004
    2: Dial-peer Tag=1001
    3: Dial-peer Tag=1003
    4: Dial-peer Tag=1002
```

Configuration Examples for Outbound Dial Peer Group as an Inbound Dial-Peer Destination

```
Device> enable
Device# configure terminal
! Configuring outbound dial peers that are to be grouped.
Device(config)# dial-peer voice 1001 voip
Device(config-dial-peer)# destination-pattern 1001
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# session target ipv4:10.1.1.1
Device(config-dial-peer)# exit

Device(config)# dial-peer voice 1002 voip
Device(config-dial-peer)# destination-pattern 1002
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# session target ipv4:10.1.1.2
Device(config-dial-peer)# exit


Device(config)# dial-peer voice 1003 voip
Device(config-dial-peer)# destination-pattern 1003
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# session target ipv4:10.1.1.3
Device(config-dial-peer)# exit


Device(config)# dial-peer voice 1004 pots
Device(config-dial-peer)# destination-pattern 5...
Device(config-dial-peer)# no digit-strip
Device(config-dial-peer)# direct-inward-dial
Device(config-dial-peer)# port 1/0/0:23
```

```
Device(config-dial-peer)# forward-digits all
Device(config-dial-peer)# exit

!Grouping outbound dial peers and configuring preferences if needed.
Device(config)# voice class dpg 200
Device(config-class)# dial-peer 1001 preference 1
Device(config-class)# dial-peer 1002 preference 2
Device(config-class)# dial-peer 1003 preference 3
Device(config-class)# dial-peer 1004 preference 4
Device(config-class)# description Boston Destination
Device(config-class)# exit

!Associating outbound dial peer group with an inbound dial peer group.
Device(config)# dial-peer voice 100 voip
Device(config-dial-peer)# incoming called-number 13411
Device(config-dial-peer)# destination dpg 200
Device(config-dial-peer)# end

!Associating outbound dial peer group with an inbound POTS dial peer group.
Device(config)# dial-peer voice 600 pots
Device(config-dial-peer)# incoming called-number 4T
Device(config-dial-peer)# destination dpg 200
Device(config-dial-peer)# end
```

Verifying Outbound Dial-Peer Group Configuration

```
Device# show voice class dpg 200

Voice class dpg: 200      AdminStatus: Up
 Description: Boston Destination
 Total dial-peer entries: 4

 Peer Tag       Pref
 --------       ----
 1001           1
 1002           2
 1004           0
 1003           1
-----------------------------------
```

Verifying Inbound Dial-Peer Referencing Outbound Dial-Peer Group

```
Device# show dial-peer voice 100 | include destination dpg

        destination dpg tag = 200 status = valid,

Device# show dial-peer voice 600 | include destination dpg

        destination dpg tag = 200 status = valid,
```