



# Feature Group D Support

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This document describes support for Feature Group D on Cisco platforms and includes the following sections:

- Feature Overview
- Supported Platforms
- Supported MIBs and RFCs
- Prerequisites
- Configuration Tasks
- Configuration Example
- Command Reference

## Feature Overview

This feature extends support for Feature Group D signaling on Cisco platforms. Feature Group D service is a trunk-side connection that enables telephone customers to choose their long distance network and use the same number of digits no matter which carrier they use. Routers interface with interexchange carriers using Feature Group D to support voice traffic in the carrier environment.

## Benefits

Cisco platforms use Feature Group D to provide voice functionality in the carrier environment. Feature Group D is a trunk-side local access transport area (LATA) access that supplies the following features:

- Call supervision to an interexchange carrier (IEC)
- Trunk-side access with an associated 10XXX access code for end-user use in originating and terminating communications
- Optional calling-party identification
- Recording of access-charge billing details
- Presubscription to a customer-specified IEC
- Automatic number identification (ANI) for billing purposes

## Restrictions

- This feature is not supported for E1 or analog E&M.

## Related Documents

- For information about Voice-over-IP configuration procedures and commands, refer to the *Voice over IP Software Configuration Guide*.
- For information about more advanced configuration topics, refer to the Cisco IOS software configuration guide and command reference publications. These publications are available on the Documentation CD-ROM that came with your router, on the World Wide Web from Cisco's home page, or you can order printed copies.

## Supported Platforms

This feature is supported on the following platforms:

- Cisco 2600 series routers
- Cisco 3600 series routers
- Cisco 7200 series routers

## Supported MIBs and RFCs

None.

## Prerequisites

- The platform must be using Digital T1/E1 Packet Voice Trunk Network Modules.
- The Digital T1/E1 Packet Voice Trunk Network Module can have one or two slots for voice/WAN interface cards (VWICs); VWICs supply one or two ports. Only the dual-mode (voice/WAN) multiflex trunk cards are supported in the digital E1 packet voice trunk network module, not older VICs.
- Drop-and-Insert capability is supported only between two ports on the same multiflex card.

## Configuration Tasks


To configure your digital T1/E1 packet voice trunk network module to use Feature Group D, you must perform the following tasks:

- Configuring Voice Card and T1 Controller Settings
- Configuration Example

## Configuring Voice Card and T1 Controller Settings

The following steps specify codec settings for voice cards and set up T1 controllers for Feature Group D.

	Command	Purpose
<b>Step 1</b>	Router# <b>configure terminal</b>	Enter global configuration mode.
<b>Step 2</b>	Router(config)# <b>voice-card slot</b>	Enter voice card interface configuration mode and specify the slot location by using a value from 0 through 5, depending upon your router.
<b>Step 3</b>	Router(config)# <b>controller T1 slot/port</b>	Enter controller configuration mode for the T1 controller at the specified <i>slot/port</i> location. Valid values for <i>slot</i> and <i>port</i> are 0 and 1.
<b>Step 4</b>	Router(config-controller)# <b>framing {sf   esf}</b>	Set the framing according to your service provider's instructions. Choose Extended Superframe (ESF) format or Superframe (SF) format.
<b>Step 5</b>	Router(config-controller)# <b>linecode {b8zs   ami}</b>	Set the line encoding according to your service provider's instructions. Bipolar-8 zero substitution (B8ZS) encodes a sequence of eight zeros in a unique binary sequence to detect line coding violations. Alternate mark inversion (AMI) represents zeros using a 01 during each bit cell, and ones are represented by 11 or 00, alternately, during each bit cell. AMI requires that the sending device maintain ones density. Ones density is not maintained independent of the data stream.

	Command	Purpose
Step 6	Router(config-controller)# <b>ds0-group</b> <i>ds0-group-no</i> <b>timeslots</b> <i>timeslot-list</i> <b>type</b> { <b>e&amp;m-fgd</b>   <b>fgd-eana</b> }	<p>This command defines the T1 channels for use by compressed voice calls as well as the signaling method the router uses to connect to the PBX or CO.</p> <p>The <i>ds0-group-no</i> parameter is a value from 0 through 23 that identifies the DS0 group.</p> <p> <b>Note</b> The <b>ds0-group</b> command automatically creates a logical voice port that is numbered as follows: <i>slot/port:ds0-group-no</i>. Although only one voice port is created, applicable calls are routed to any channel in the group.</p> <p>The value <i>timeslot-list</i> is a single number, numbers separated by commas, or a pair of numbers separated by a hyphen to indicate a range of timeslots. For T1, allowable values are from 1 through 24. To map individual DS0 time slots, define additional groups. The system maps additional voice ports for each defined group.</p> <p>The signaling method selection for <b>type</b> depends on the connection that you are making. The <b>e&amp;m-fgd</b> setting allows E&amp;M interface connections for PBX trunk lines (tie lines) and telephone equipment to use Feature Group D switched-access service. The <b>fgd-eana</b> setting supports the exchange access North American (EANA) signaling.</p>
Step 7	Router(config-controller)# <b>no shutdown</b>	Activate the controller.
Step 8	Router(config-controller)# <b>exit</b>	Exit controller configuration mode.

## Configuration Example

The following example configures FeatureGroup D access on Cisco 2600, 3600, and 7200 series routers:

```
controller T1 2/0
  framing esf
  linecode b8zs
  ds0-group 0 timeslots 1-24 type e&m-fgd
!
dial-peer voice 3 pots
  destination-pattern 02...
  direct-inward-dial
  port 2/0:0
  prefix ,02
```

# Command Reference

This section documents a modified command. All other commands used with this feature are documented in the Cisco IOS Release 12.1 and 12.1(3)T command references.

## ds0-group

To define T1 channels for compressed voice calls and the channel-associated signaling (CAS) method by which the router connects to the PBX or PSTN, enter the **ds0-group** controller configuration command. The **no** form of the command removes the group and signaling setting.

```
ds0-group ds0-group-no timeslots timeslot-list type { e&m-immediate | e&m-delay | e&m-wink
| e&m-fgd | fgd-eana }
```

```
no ds0-group ds0-group-no
```

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### Syntax Description

<i>ds0-group-no</i>	A value from 0 through 23 that identifies the DS0 group.
<i>timeslot-list</i>	The value of <i>timeslot-list</i> is a single time-slot number, a single range of numbers, or multiple ranges of numbers separated by commas. For T1, allowable values are from 1 through 24. Examples are: <ul style="list-style-type: none"> <li>• 2</li> <li>• 1-15, 17-24</li> <li>• 1-23</li> <li>• 2, 4, 6-12</li> </ul>
<b>type</b>	The signaling method selection for <b>type</b> depends on the connection that you are making. The E&M interface allows connection for PBX trunk lines (tie lines) and telephone equipment. <p>The options are as follows:</p> <ul style="list-style-type: none"> <li>• <b>e&amp;m-immediate</b> specifies no specific offhook and onhook signaling.</li> <li>• <b>e&amp;m-delay</b> specifies that the originating endpoint sends an offhook signal and then and waits for an offhook signal followed by an onhook signal from the destination.</li> <li>• <b>e&amp;m-fgd</b> specifies Feature Group D signaling.</li> <li>• <b>e&amp;m-wink</b> specifies that the originating endpoint sends an offhook signal and waits for a wink signal from the destination.</li> <li>• <b>fgd-eana</b> specifies Exchange Access North American (EANA) signaling.</li> </ul>

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### Defaults

There is no DS0 group.

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### Command Modes

Controller configuration

## Command History

Release	Modification
11.3 MA	The command was introduced as the <b>voice-group</b> command for the Cisco MC3810 multiservice access concentrator.
12.0(5)XK and 12.0(7)T	The command was introduced for the Cisco 2600 and 3600 series with a different name and some keyword modifications.
12.1(2)XH and 12.1(3)T	The command was modified for Feature Group D signaling.

## Usage Guidelines

The **ds0-group** command automatically creates a logical voice port that is numbered as follows on Cisco 2600 and 3600 series routers: *slot/port:ds0-group-no*. Although only one voice port is created for each group, applicable calls are routed to any channel in the group.

## Examples

The following example configures ranges of T1 controller time slots for FXS ground-start and FXO loop-start signaling:

```
controller T1 1/0
 framing esf
 linecode b8zs
 ds0-group 1 timeslot 1-10 type e&m-fgd
```

## Related Commands

Command	Description
<b>codec complexity</b>	To change codec complexity by using this voice-card configuration command, you must first remove any configured CAS or DS0 groups; then, reinstate them after the change.

