



# ANI/DNIS Delimiter for CAS Calls on CT1

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This document introduces the automatic number identifier/dialed number identification service (ANI/DNIS) delimiter for channel associated signaling (CAS) calls on channelized T1 (CT1) for the Cisco AS5300 and Cisco AS5800 universal access servers. It includes information on the benefits of the new feature, supported platforms, related documents, and so forth.

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## Feature Overview

This feature allows the Cisco AS5300 and Cisco AS5800 universal access servers to provide the ANI/DNIS delimiter on incoming T1/CAS trunk lines. The digit collection logic in the call switching module (CSM) for incoming T1 CAS calls in dual tone multifrequency (DTMF) is modified to process the delimiters, the ANI digits, and the DNIS digits.

For this feature to work, a CAS signaling class with the template to process ANI/DNIS delimiters has to be defined. This creates a signaling class structure which can be referred to by its name.

## T1 CAS

CAS is the transmission of signaling information within the voice channel. Various types of CAS signaling are available in the T1 world. The most common forms of CAS signaling are loop-start, ground-start, and receive and transmit (E&M). The biggest disadvantage of CAS signaling is its use of user bandwidth to perform signaling functions. CAS signaling is often referred to as robbed-bit-signaling because user bandwidth is being “robbed” by the network for other purposes. In addition to receiving and placing calls, CAS signaling also processes the receipt of DNIS and ANI information, which is used to support authentication and other functions.

## Benefits

Provides the ANI/DNIS delimiter on incoming T1/CAS trunk lines.

## Restrictions

This feature is only functional in a T1 CAS configured for E&M-feature group b (wink start). E&M signaling is typically used for trunks. It is normally the only way that a central office (CO) switch can provide two-way dialing with direct inward dialing. In all the E&M protocols, off-hook is indicated by A=B=1, and on-hook is indicated by A=B=0. If dial pulse dialing is used, the A and B bits are pulsed to indicate the addressing digits.

For this feature, here is an example of configuring for E&M-feature group b:

```
ds0-group 1 timeslots 1-24 type e&m-fgb dtmf dnis
```

## E&M Wink Start—Feature Group B

In the original Wink Start protocol, the terminating side responds to an off-hook from the originating side with a short wink (transition from on-hook to off-hook and back again). This wink tells the originating side that the terminating side is ready to receive addressing digits. After receiving addressing digits, the terminating side then goes off-hook for the duration of the call. The originating endpoint maintains off-hook for the duration of the call.

## Related Features and Technologies

Refer to the “T1 CAS” section on page 1.

## Related Documents

- *Cisco AS5300 Software Configuration Guide*
- *Cisco AS5800 OAM&P Guide*
- *Dial Solutions Configuration Guide, Cisco IOS Release 12.0*
- *Configuring T1 CAS for VoIP on Cisco Access Platforms*

## Supported Platforms

- Cisco AS5300
- Cisco AS5800

# Supported Standards, MIBs, and RFCs

None

## Prerequisites

None

## Configuration Tasks

See “Configuring the Signaling Class” to enable the ANI/DNIS delimiter for CAS calls on the CT1 feature.

## Configuring the Signaling Class

To configure the signaling class, perform the following tasks in global configuration mode:

	Command	Purpose
Step 1	Router> <b>enable</b> Password: <i>password</i> Router#	Enter enable mode.  Enter password.  You have entered enable mode when the prompt changes to Router#.
Step 2	Router# <b>config term</b>	Enter global configuration mode. You have entered global configuration mode when the prompt changes to Router(config)#.
Step 3	Router(config)# <b>service internal</b>	Configure service internal to enable the <b>profile incoming</b> command.
Step 4	Router(config)# <b>signaling-class cas name</b>	Name the signaling class and enable the signaling-class submode.
Step 5	Router(config-sig-class)# <b>profile incoming template</b>	Define the template to process the ANI/DNIS delimiter.
Step 6	Router(config-sig-class)# <b>exit</b>	Return to global configuration mode.
Step 7	Router(config)# <b>controller T1 slot/port/number</b>	Enable this feature for a T1 controller.
Step 8	Router(config-controller)# <b>cas-custom channel</b>	Specify a single channel group number.
Step 9	Router(config-ctrl-cas)# <b>class name</b>	Enable the ANI/DNIS delimiter feature by specifying the template.

To disable the delimiter, use the command **no class** under the cas-custom configuration.

To remove the signaling class, use the configuration command **no signaling-class cas**. When removing a signaling class, make sure the signaling class is no longer used by any controllers; otherwise, the following warning will be displayed:

```
% Can't delete, signaling class test is being used
```

# Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command reference publications.

- **cas-custom**
- **class**
- **profile incoming**
- **signaling-class cas**

# cas-custom

To customize T1/CAS signaling parameters for a particular T1 channel group on a channelized T1 line, use the **cas-custom** controller configuration command.

**cas-custom** *channel*

## Syntax Description

<i>channel</i>	Specifies a single channel group number, which can be between 0 and 23.
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## Defaults

No default behavior or values

## Command Modes

Controller configuration

## Command History

Release	Modification
11.2 P	The command was introduced.
12.1(1) T	The command was modified to support T1.

## Examples

The following example configures enables this feature on channel 1:

```
Router(config)#controller T1 1/0/1
Router(config-controller)#cas-custom 1
```

## Related Commands

Commands	Descriptions
<b>profile incoming</b>	Defines a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence for a signaling class.
<b>signaling-class cas</b>	Defines a signaling class with a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence.

# class

To activate the **signaling-class cas** command, use the **class** controller configuration command. The *name* must match up with the name in the **signaling-class cas** command.

**class** *name*

**no class** *name*

<b>Syntax Description</b>	<i>name</i> The signaling class which specifies the template that processes the ANI/DNIS delimiter.				
<b>Defaults</b>	No default behavior or values				
<b>Command Modes</b>	Controller configuration				
<b>Command History</b>	<table border="1"> <thead> <tr> <th style="border-top: 1px solid black; border-bottom: 1px solid black;">Release</th> <th style="border-top: 1px solid black; border-bottom: 1px solid black;">Modification</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">12.1(1)T</td> <td style="border-bottom: 1px solid black;">The command first appeared.</td> </tr> </tbody> </table>	Release	Modification	12.1(1)T	The command first appeared.
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<b>signaling-class cas</b>	Defines a signaling class with a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence.				

# profile incoming

To define a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence for a signaling class, use the **profile incoming** signaling-class submenu command.



## Note

This command can only be entered when service internal is configured.

### **profile incoming** *template*

## Syntax Description

For this feature, the template will be **S<\*a<\*d<\*n**, where:

S	Start the state machine.
<*	Wait for the digit * to be detected. The digit to be detected is the next character in the template. If any other digit is detected, then that is a failure. If the digit is detected, then go to the next directive
a	Digits are collected as the ANI until the first non digit or a timeout occurs.
d	Digits are collected as the DNIS until the first non digit or a timeout occurs.
n	Notify the CSM of the collected ANI and DNIS.

## Defaults

No default behavior or values

## Command Modes

Signaling-class submenu

## Command History

Release	Modification
12.1(1)T	The command first appeared.

## Examples

The following example enables this command:

```
Router(config)#service internal
Router(config)#signaling-class cas test
Router(config-sig-class)#profile incoming S<*a<*d<*n
```

## Related Commands

Command	Description
<b>signaling-class cas</b>	Defines a signaling class with a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence.

# signaling-class cas

To define a signaling class with a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence, use the **signaling-class cas** global configuration command. The signaling class is referred by the *name*.

**signaling-class cas** *name*

**no signaling-class cas** *name*

## Syntax Description

<i>name</i>	The signaling class which specifies the template that processes the ANI/DNIS delimiter
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## Defaults

No default behavior or values

## Command Modes

Global configuration

## Command History

Release	Modification
12.1(1)T	The command first appeared.

## Examples

The following example enables this command:

```
Router(config)#signaling-class cas test
Router(config-sig-class)#profile incoming S<*a<*d<*n

Router(config)#controller T1 1/0/1
Router(config-controller)#cas-custom 1
Router(config-ctrl-cas)#class test
```

## Related Commands

Command	Description
<b>class</b>	Activates the <b>signaling-class cas</b> command.
<b>profile incoming</b>	Defines a template formed by directives guiding the Call Service Module (CSM) to process the digit sequence for a signaling class.

# Glossary

**ANI**—Automatic number identification. SS7 (signaling system 7) feature in which a series of digits, either analog or digital, are included in the call, identifying the telephone number of the calling device. In other words, ANI identifies the number of the calling party.

**CAS**—Channel associated signaling. Call signaling that enables the access server to send or receive analog calls.

**CO**—Central office. Local telephone company office to which all local loops in a given area connect and in which circuit switching of subscriber lines occurs.

**CSM**—Call switching module. The IOS software module which controls T1/E1/ISDN link establishment.

**DNIS**—Dialed number identification service, also known as the called party number. The telephone number of the called party after translation occurs in the Public Switched Telephone Network. A given destination may have a different DNIS number based on how the call is placed (for example, 800 or direct dial).

**DTMF**—Dual tone multifrequency. Use of two simultaneous voice-band tones for dialing (such as touch tone).

**E&M**—RecEive and transMit (or ear and mouth). Trunking arrangement generally used for two-way switch-to-switch or switch-to-network connections. Cisco's analog E&M interface is an RJ-48 connector that allows connections to PBX trunk lines (tie lines). E&M is also available on E1 and T1 digital interfaces.

**T1**—Digital WAN carrier facility. T1 transmits DS-1 formatted data at 1.544 Mbps through the telephone-switching network, using AMI or B8ZS coding.