

Call Failure to Long Distance/Mobile Destination

Document ID: 18659

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Introduction

This document remedies the situation where calls to most locations work, but calls to mobile (cell) phones or international locations fail. These calls typically disconnect with "recovery on timer expiry" in the Cisco IOS® Q.931 debugs.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on Cisco CallManager 3.x and 4.x.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Problem

Mobile Telephony networks typically take longer to connect, since they have to locate the user. International calls also typically experience delays in call establishment. This causes the timer T310 to expire.

This timer is initiated when Call Proceeding is received and stopped when Alert, Connect, Disc, or Progress is received. It is easy to determine if this is the issue by looking at debugs and/or Cisco CallManager traces. In order to do that, locate the Call Proceeding and verify that the Disconnect is sent n seconds later for every call that fails. You can verify that n is the value set for the T310 timer. This value is typically 10 seconds.

This is sample output from the **debug isdn q931** command on an IOS gateway.

```
Feb 4 11:10:40.396: ISDN Se3/0:15: TX -> SETUP pd = 8 callref = 0x000E
Feb 4 11:10:40.396: Bearer Capability i = 0x8090A3
Feb 4 11:10:40.396: Channel ID i = 0xA9838F
Feb 4 11:10:40.396: Display i = 'John', 0x20, 'Smith'
Feb 4 11:10:40.396: Calling Party Number i = 0x0080, '123456', Plan:Unknown, Type:Unknown
Feb 4 11:10:40.396: Called Party Number i = 0x80, '654321', Plan:Unknown, Type:Unknown
Feb 4 11:10:40.432: ISDN Se3/0:15: RX <- SETUP_ACK pd = 8 callref = 0x800E
Feb 4 11:10:40.432: Channel ID i = 0xA9838F
Feb 4 11:10:42.508: ISDN Se3/0:15: RX <- CALL_PROC pd = 8 callref = 0x800E
Feb 4 11:10:42.508: Progress Ind i = 0x8288 - In-band info or appropriate now available
Feb 4 11:10:42.508: Progress Ind i = 0x8282 - Destination address is non-ISDN
Feb 4 11:10:50.492: ISDN Se3/0:15: TX -> DISCONNECT pd = 8 callref = 0x000E
Feb 4 11:10:50.492: Cause i = 0x80E6 - Recovery on timer expiry
Feb 4 11:10:50.548: ISDN Se3/0:15: RX <- RELEASE pd = 8 callref = 0x800E
Feb 4 11:10:50.552: ISDN Se3/0:15: TX -> RELEASE_COMP pd = 8 callref = 0x000E
```

Solutions

In order to solve this situation, increase the value of timer T310. This can be done on the Cisco CallManager or the IOS gateway. When the call is controlled by the Cisco CallManager (in particular, if a Skinny Call Control Protocol (SCCP) gateway is used), this action needs to be carried out following Solution 1: Cisco CallManager Configuration. If no Cisco CallManager is involved (in particular, if you operate in Survivable Remote Site Telephony (SRST) mode), this action needs to be carried out following Solution 2: IOS Configuration.

Solution 1: Cisco CallManager Configuration

Complete these steps.

1. From the Cisco CallManager Administration page, select **Service > Service Parameters**.

System Route Plan Service Feature Device User Application Help

Cisco CallManager
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Cisco IPMA Configuration Wizard
Cisco CM Attendant Console
Media Resource
Service Parameters

Cisco CallManager 4.0 Administration

Details

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<http://www.cisco.com/wml/export/crypto/tool/storg.html>.
If you require further assistance please contact us by sending email to export@cisco.com.

2. Select **Cisco CallManager** from the list on the left if you use Cisco CallManager 3.x or select **Cisco CallManager** from the **Service** drop-down box if you use Cisco CallManager 4.x.

Cisco CallManager version 3.x

Services

- Cisco CTIManager
- Cisco CallManager
- Cisco Database Layer Monitor
- Cisco Extension Mobility
- Cisco IP Voice Media Streaming App
- Cisco MOH Audio Translator
- Cisco Messaging Interface
- Cisco RIS Data Collector
- Cisco TFTP
- Cisco Telephony Call Dispatcher

Cisco CallManager version 4.x

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Service Parameters Configuration

Select the server and the service you want to configure:

Server* 172.16.17.195

Service* — Not Selected —

Note: If the service you want to configure is not listed in the Service drop-down, you must activate it using [Service Activation](#).

* indicates required item

- Cisco CallManager
- Cisco CTI Manager
- Cisco CTL Provider
- Cisco Database Layer Monitor
- Cisco Extended Functions
- Cisco Extension Mobility
- Cisco IP Manager Assistant
- Cisco IP Voice Media Streaming App
- Cisco Messaging Interface
- Cisco MOH Audio Translator

3. On the Service Parameters Configuration page, look for T310.

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Service Parameters Configuration

Select Another Server/Service

Find what: T310

Match whole word only Match case

Direction: Up Down

Find Next Cancel

Current Server: 172.16.17.195

Current Service: Cisco CallManager

Status: Ready

Update Set to Default Advanced

All parameters apply to the current server except those in the Clusterwide group(s)

Parameter Name	Parameter Value	Suggested Value
Dial Plan Path*	C:\Program Files\Cisco\DialPlan\	C:\Program Files\Cisco\DialPlan\

System

4. Set the value of T310 Timer (msec) to the recommended value of **60000 msec**.

T309 Timer (msec)*	<input type="text" value="90000"/>	90000
T310 Timer (msec)*	<input type="text" value="60000"/>	60000
T313 Timer (msec)*	<input type="text" value="4000"/>	4000

5. Scroll to the top of the page and click **Update**.

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

Service Parameters Configuration [Select Another Server/Service Parameters for all servers](#)

Current Server : 172.16.17.195

Current Service: Cisco CallManager

Status: Ready

All parameters apply to the current server except those in the Clusterwide group(s)

Parameter Name	Parameter Value	Suggested Value
Dial Plan Path*	<input type="text" value="C:\Program Files\Cisco\DialPlan\"/>	C:\Program Files\Cisco\DialPlan\

System

Solution 2: IOS Configuration

IOS configuration is achieved through this interface command:

```
Router(config-if)#isdn t310 <value in milliseconds>
```

You can check the setting using the **show isdn timers** command.

```
Router#show isdn timers
ISDN Serial2/0:15 Timers (dsl 0) Switchtype = primary-net5
ISDN Layer 2 values
K = 7 outstanding I-frames
N200 = 3 max number of retransmits
T200 = 1.000 seconds
T202 = 2.000 seconds
T203 = 10.000 seconds
ISDN Layer 3 values
T303 = 4.000 seconds
T304 = 30.000 seconds
T305 = 30.000 seconds
T306 = 30.000 seconds
T307 = 180.000 seconds
```

T308 = 4.000 seconds
T309 Disabled
T310 = 60.000 seconds
T313 = 4.000 seconds
T316 = 120.000 seconds

Note: In Cisco CallManager version 3.x, due to operator implementations in some countries, you can be required to include a "sending complete indicator". This parameter is located in the Cisco CallManager parameters page.

SdlTraceTypeFlags*	<input type="text" value="0x00004B05"/>	<input type="text" value="0x8000CB15"/>
SendingCompleteIndicator*	<input type="text" value="True"/>	<input type="text" value="False"/>

Note: By default, in Cisco CallManager version 4.x, all outbound calls through a PRI interface that use an ETSI-based protocol type include sending a complete indicator in the outgoing SETUP message. This indicates effectively that all these outbound calls use Enbloc signaling, not overlap sending procedures for call setup. Due to operator implementations in some countries, it can possibly be required to enable overlap sending. In order to do this, check the **Allow Overlap Sending** check box in the Route Pattern configuration page.

Route Pattern/Hunt Pilot Configuration

[Add a New Route Pattern/Hunt Pilot](#)
[Back to Find/List Route Patterns and Hunt Pilots](#)

Route Pattern/Hunt Pilot: New
Status: Ready
Note: Any update to this Route Pattern or Hunt Pilot automatically resets the associated gateway or Route/Hunt List

Pattern Definition

Route Pattern/Hunt Pilot*

Partition

Description

Numbering Plan*

Route Filter

MLPP Precedence

Gateway or Route/Hunt List*

Route Option
 Route this pattern
 Block this pattern

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Related Information

- **Voice Technology Support**
- **Voice and Unified Communications Product Support**
- **Troubleshooting Cisco IP Telephony** [🔗](#)
- **Technical Support – Cisco Systems**

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Updated: Feb 03, 2006

Document ID: 18659
