

Emergency Call SOS - 999 MME Implicit Detach UE Upon Call Termination

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Introduction

This document describes the improper subscriber detachment that occurs as a result of the defect outlined in Bug ID [CSCwr06145](#).

Background Information

After a user (UE) completes an emergency call, the network incorrectly implicitly detaches the UE immediately when it returns to idle state.

The root cause is a software defect in Cisco's MME logic, incorrectly triggering an implicit detach when the T3412 extended timeout is set to zero.

Prerequisites

Components Used

The information in this document is based on these software and hardware versions:

- Software Version:21.28.m28 (see BST for additional affected software versions).
- Hardware Platform: ASR-5500.

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

Affected Devices/Versions:

- Cisco ASR5500 System Software Version 21.28.m28 and prior releases where the previously mentioned logic is implemented.
- All ASR5000/ASR5500 platforms, including legacy and virtual MME.
- All software images/configurations where `emm t3412-extended-timeout` can be set to zero.

Problem

The Cisco MME implementation references emergency session logic and uses `emm t3412-extended-timeout` configuration to determine when to trigger implicit detach for UEs after emergency service.

According to affected configuration:

`emm t3412-extended-timeout` is set to 0.

Cisco MME code (incorrectly) triggers implicit detach "immediately" because its logic interprets the extended timer value of 0 as expiration, rather than ignoring it.

As a result, upon transition to idle after emergency bearer release, the MME deletes all PDN sessions, implicitly detaches the UE, and the subsequent service request from UE is rejected with "implicitly detached" cause.

Network logs confirm Delete Session Requests for all PDNs and SGs-IMSI-Detach (when SGs interface present).

This is not standard-compliant because, by spec, when T3412 extended is not advertised, normal periodic TAU timers must be used.

Technical Indicators:

- Immediate detach observed in S1AP, GTPv2 logs at idle transition.
- No extended timer advertised in NAS Accept messages.
- Attach Accept/TAU Accept from network to UE lacks T3412 extended timer IE.
- All nodes (legacy/virtual) exhibit same behavior.

Example Configuration where the `emm t3412-extended-timeout` configuration is set to 0.

```
emm t3412-timeout 6480
emm t3412-extended-timeout 0
emm implicit-detach-timeout 3600
```

In the sample trace, after the emergency call is released and the device went to IDLE, the implicit detach incorrectly happened, followed by a Service Reject.

Protocol	Info
DIAMETER	cmd=Session-Termination Request(275) flags=RP-- appl=3GPP Rx(16777236) h2h=f523cda6 e2e=f523cda6
DIAMETER	cmd=Session-Termination Request(275) flags=RP-- appl=3GPP Rx(16777236) h2h=ac580 e2e=f523cda6
DIAMETER	SACK (Ack=0, Arwnd=65535) cmd=Session-Termination Answer(275) flags=-P-- appl=3GPP Rx(16777236) h2h=ac580 e2e=f523cda6
DIAMETER	cmd=Re-Auth Request(258) flags=RP-- appl=3GPP Gx(16777238) h2h=84b e2e=97f5e6ea
	<Ignored>
	<Ignored>
	<Ignored>
DIAMETER	cmd=Session-Termination Answer(275) flags=-P-- appl=3GPP Rx(16777236) h2h=f523cda6 e2e=f523cda6
	<Ignored>
GTPv2	Delete Bearer Request
	<Ignored>
	<Ignored>
GTPv2	Delete Bearer Request
DIAMETER	SACK (Ack=2, Arwnd=65535) cmd=Re-Auth Answer(258) flags=-P-- appl=3GPP Gx(16777238) h2h=84b e2e=97f5e6ea
S1AP/NAS-EPS	E-RABReleaseCommand [NAS-cause=normal-release], Ciphered message
S1AP	e-RABReleaseResponse
S1AP/NAS-EPS	UplinkNASTransport, Ciphered message
GTPv2	Delete Bearer Response
DIAMETER	cmd=3GPP-Location-Report Request(8388621) flags=RP-- appl=3GPP SLg(16777255) h2h=adb004f0 e2e=725d3fd
DIAMETER	cmd=3GPP-Location-Report Request(8388621) flags=RP-- appl=3GPP SLg(16777255) h2h=38640701 e2e=725d3fd
DIAMETER	cmd=3GPP-Location-Report Request(8388621) flags=RP-- appl=3GPP SLg(16777255) h2h=97c80 e2e=725d3fd
DIAMETER	SACK (Ack=0, Arwnd=1000000) cmd=3GPP-Location-Report Answer(8388621) flags=-P-- appl=3GPP SLg(16777255) h2h=97c80 e2e=725d3fd
DIAMETER	cmd=3GPP-Location-Report Answer(8388621) flags=-P-- appl=3GPP SLg(16777255) h2h=38640701 e2e=725d3fd
DIAMETER	cmd=3GPP-Location-Report Answer(8388621) flags=-P-- appl=3GPP SLg(16777255) h2h=adb004f0 e2e=725d3fd
S1AP	UEContextReleaseRequest [RadioNetwork-cause=user-inactivity]
GTPv2	Release Access Bearers Request
GTPv2	Release Access Bearers Response
GTPv2	Delete Session Request
GTPv2	Delete Session Request
GTPv2	Delete Session Request
GTPv2	Delete Session Response
S1AP	SACK (Ack=38, Arwnd=1048576) , UEContextReleaseCommand [RadioNetwork-cause=user-inactivity]
	<Ignored>
	<Ignored>
	<Ignored>
SGSAP	SGsAP-IMSI-DETACH-INDICATION
SGSAP	SACK (Ack=7, Arwnd=32114) SGsAP-IMSI-DETACH-ACK
DIAMETER	cmd=Credit-Control Request(272) flags=RP-- appl=3GPP Gx(16777238) h2h=adb01612 e2e=3a9d47
S1AP	UEContextReleaseComplete
DIAMETER	cmd=Credit-Control Request(272) flags=RP-- appl=3GPP Gx(16777238) h2h=97dc0 e2e=3fa1604
DIAMETER	cmd=Credit-Control Request(272) flags=RP-- appl=3GPP Gx(16777238) h2h=ac6c0 e2e=3a9d47
DIAMETER	SACK (Ack=0, Arwnd=65535) cmd=Credit-Control Answer(272) flags=-P-- appl=3GPP Gx(16777238) h2h=97dc0 e2e=3fa1604
	<Ignored>
	<Ignored>
	<Ignored>
S1AP/NAS-EPS	InitialUEMessage, Service request
S1AP/NAS-EPS	SACK (Ack=42, Arwnd=1048576) , DownlinkNASTransport, Service reject (Implicitly detached)
S1AP	UEContextReleaseCommand [NAS-cause=unspecified]
S1AP	UEContextReleaseComplete
S1AP/NAS-EPS	InitialUEMessage, Attach request, PDN connectivity request
S1AP/NAS-EPS	DownlinkNASTransport, Ciphered message
S1AP/NAS-EPS	UplinkNASTransport, Ciphered message
DIAMETER	cmd=3GPP-ME-Identity-Check Request(324) flags=RP-- appl=3GPP S13/S13'(16777252) h2h=adb00c01 e2e=725d46c
S1AP/NAS-EPS	DownlinkNASTransport
S1AP/NAS-EPS	UplinkNASTransport, Ciphered message
GTPv2	Create Session Request
S1AP/NAS-EPS	SACK (Ack=46, Arwnd=1048576) , DownlinkNASTransport, Ciphered message
GTPv2	Create Session Response
SGSAP	SGsAP-LOCATION-UPDATE-REQUEST
S1AP	LocationReportingControl
GSM MAP	invoke updateLocation
GSM MAP	invoke updateLocation
SGSAP	SGsAP-LOCATION-UPDATE-ACCEPT

Solution

Old behavior: For emergency sessions with MS network feature support enabled, while moving to idle, T3412 extended timer (emmt3412-extended-timeout) was considered as mobile reachability timer.

This occurs because the MME logic incorrectly interprets the emmt3412-extended-timeout` value of "0" as expiration, rather than ignoring it.

New behavior: For emergency sessions with MS network feature support enabled, while moving to idle, if T3412 extended timer (emmt3412-timeout) is configured as 0, then T3412 timer will be considered as mobile reachability timer.

The Fix for this defect [CSCwr06145](#) is available in Cisco ASR5000/ASR5500 System Software R21.28.m38 and later.

References:

- Bugs: [CSCwr06145](#) : Emergency Call Incorrect Implicit Detach