

# Probleemoplossing met VoLTE-gespreksfout vanwege 5012 (DIAMETER\_UNABLE\_TO\_COMPLY) bij CPS

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## Inleiding

Dit document beschrijft hoe u Voice-over-Long Term Evolution (VoLTE) kunt oplossen bij Cisco Policy Suite (CPS) vanwege 5012 (DIAMETER\_UNABLE\_TO\_COMPLY).

## Probleem

Gerapporteerd VoLTE-callfouten vanwege 5012 (DIAMETER\_UNABLE\_TO\_COMPLY) bij CPS.

Dit zijn de geconsolideerd-motor logboeken waarin u de opdrachtcode Rx\_AAR (265) kunt zien - Aanvraag die door het CPS werd ontvangen en antwoord dat via het CPS naar het IP Multimedia Substelsysteem (IMS) werd teruggestuurd via de RX-interface met resultaat-code DIAMETER\_UNABLE\_TO\_COMPLY (5012).

```
===== HOSTNAME-qnsXX [yyyy-mm-dd 15:32:00,673] =====
```

```
POLICY RESULT ERROR: null
```

```
    session action = None
```

```
    TRIGGER: Message: com.broadhop.diameter2.messages.DiameterRequestMessage
```

```
        Application Id: Rx (16777236)
```

```
        Command Code: Rx_AAR (265)
```

```
        Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
```

```
        Device protocol: RX_TGPP
```

```
        End to end id: 204492743 (0x0c304fc7)
```

```
        Hop by hop id: 2985189310 (0xb1ee5fbe)
```

```
        Origin state: 0
```

**SENT MESSAGES (asynchronous):** <<<<<<<<<<<<

Message: com.broadhop.diameter2.messages.DiameterResponseMessage

Application Id: Rx (16777236)

**Command Code: Rx\_AAA (265)**

Dest host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Device protocol: RX\_TGPP

End to end id: 204492743 (0x0c304fc7)

Hop by hop id: 2985189310 (0xb1ee5fbe)

Origin state: 0

Stack name: null

Origin realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Session-Id: pcsf-stdn.imsgrp1-111-1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrp1-111-1111111

Auth-Application-Id: 16777236

QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

**Result-Code: DIAMETER\_UNABLE\_TO\_COMPLY (5012)** <<<<<<<<<<<<

## Problemen oplossen

Hier is het gedrag zoals te zien is in geconsolideerde motorstammen:

In het geval van een defect tonen de geconsolideerde-motor-logbestanden, 5012 voor de autorisatie-/verificatieaanvraag (AAR), wanneer u het Req-bericht controleert, ziet u dat CPS codec-gegevens in de Hex-indeling afdrukken [vet gemarkeerd].

### FOUT-case: (Aanmelden motor)

```
HOSTNAME-qnsXX [yyyy-mm-dd 15:33:02,529] =====
POLICY RESULT ERROR: null
    session action = None
    TRIGGER: Message: com.broadhop.diameter2.messages.DiameterRequestMessage
        Application Id: Rx (16777236)
```

**Command Code: Rx\_AAR (265)**

Dest realm: YYYY.mncXYZ.mccXYZ.3gppnetwork.org

Device protocol: RX\_TGPP

End to end id: 90747852 (0x0568b3cc)

Hop by hop id: 2509770985 (0x959810e9)

Origin state: 0

Stack name: null

Origin host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Origin realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Session-Id: pcsf-stdn.imsgrout1-111-

1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrout1-111-1111111

Auth-Application-Id: 16777236

Media-Component-Description:

Media-Component-Number: 1

Media-Sub-Component:

Flow-Number: 1

Flow-Description:

Media-Sub-Component:

Flow-Number: 2

Codec-Data: uplink\r\noffer\r\nnm=audio 50010 RTP/AVP 99 97 105 96\r\n\r\nna=rtpmap:99 AMR-WB/16000/1\r\n\r\nna=fmtp:99 mode-change-capability=2;max-red=0\r\n\r\nna=rtpmap:97 AMR/8000/1\r\n\r\nna=fmtp:97 mode-change-capability=2;max-red=0\r\n\r\nna=rtpmap:105 telephone-event/16000\r\n\r\nna=fmtp:105 0-15\r\n\r\nna=rtpmap:96 telephone-event/8000\r\n\r\nna=fmtp:96 0-15\r\n\r\nna=curr:qos local none\r\n\r\nna=curr:qos remote none\r\n\r\nna=des:qos mandatory local sendrecv\r\n\r\nna=des:qos optional remote sendrecv\r\n\r\nna=ptime:20\r\n\r\nna=maxptime:240\r\n\r\n

(0x75706c696e6b0d0a6f666665720d0a6d3d617564696f203530303130205254502f415650203939203937203130352039360d0a613d7274706d61703a393920414d522d57422f31363030302f310d0a613d666d74703a3939206d6f64652d6368616e67652d6361706162696c6974793d323b6d61782d7265643d300d0a613d7274706d61703a393720414d522f383030302f310d0a613d666d74703a3937206d6f64652d6368616e67652d6361706162696c6974793d323b6d61782d7265643d300d0a613d7274706d61703a3130352074656c6570686f66e652d6576656e742f31363030300d0a613d666d74703a31303520302d31350d0a613d7274706d61703a39362074656c6570686f66e652d6576656e742f383030300d0a613d666d74703a393620302d31350d0a613d637572723a716f73206c6f63616c206e6f66e650d0a613d637572723a716f732072656d6f7465206e6f66e650d0a613d6465733a716f73206d616e6461746f7279206c6f63616c2073656e64726563760d0a613d6465733a716f73206f7074696f66e616c2072656d6f74652073656e64726563760d0a613d7074696d653a32300d0a613d6d6178)

Codec-Data: downlink\r\nanswer\r\nnm=audio 36602 RTP/AVP 97

96\r\n\r\nna=rtpmap:97 AMR/8000/1\r\n\r\nna=fmtp:97 mode-set=0,2,4,7; mode-change-period=2; mode-change-capability=2; mode-change-neighbor=1; max-red=0\r\n\r\nna=rtpmap:96 telephone-event/8000\r\n\r\nna=fmtp:96 0-15\r\n\r\nna=curr:qos local sendrecv\r\n\r\nna=curr:qos remote none\r\n\r\nna=des:qos mandatory local sendrecv\r\n\r\nna=des:qos mandatory remote sendrecv\r\n\r\nna=conf:qos remote sendrecv\r\n\r\nna=maxptime:40\r\n\r\n(0x646f776e6c696e6b0d0a616e737765720d0a6d3d617564696f203336363032205254502f4156502039372039360d0a613d7274706d61703a393720414d522f383030302f310d0a613d666d74703a3937206d6f64652d7365743d302c322c342c373b206d6f64652d6368616e67652d706572696f643d323b206d6f64652d6368616e67652d6361706162696c6974793d323b206d6f64652d6368616e67652d66e65696768626f723d313b206d61782d7265643d300d0a613d7274706d61703a39362074656c6570686f66e652d6576656e742f383030300d0a613d666d74703a393620302d31350d0a613d637572723a716f73206c6f63616c2073656e64726563760d0a613d637572723a716f732072656d6f7465206e6f66e650d0a613d6465733a716f73206d616e6461746f7279206c6f63616c2073656e64726563760d0a613d6465733a716f73206d616e6461746f72792072656d6f74652073656e64726563760d0a613d636f66e663a716f732072656d6f74652073656e64726563760d0a613d6d6178707)

DEBUG MSGS:

INFO : (core) Tagging message with ID: RX\_TGPP

INFO : (rx) Sending 265 Message on session pcsf-stdn.imsgrout1-111-

1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrout1-111-1111111

INFO : (balance) Error found, rolling back transaction

**ERROR : (core) Error processing policy request: null**

SERVICE CALC MSGS:

USE CASES:

SENT MESSAGES (asynchronous):

```
Message: com.broadhop.diameter2.messages.DiameterResponseMessage
Application Id: Rx (16777236)
Command Code: Rx_AAA (265)
Dest host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Device protocol: RX_TGPP
End to end id: 90747852 (0x0568b3cc)
Hop by hop id: 2509770985 (0x959810e9)
Origin state: 0
Stack name: null
Origin realm: YYYY.ims.mncXYZ.mccXYZ.3gppnetwork.org
Session-Id: pcsf-stdn.imsgr oup1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgr oup1-111-1111111
Auth-Application-Id: 16777236
QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Result-Code: DIAMETER_UNABLE_TO_COMPLY (5012)
```

## Successcase: (Aanmelden motor)

Voor succesgeval worden er geen Hex-gegevens gezien in zowel uplink- als downlink-codec en geen verschil in AAR in zowel succes- als mislukkinggevallen.

Voor succes kunt u terecht op **INFORMATIE: (kern) Succesvolle lading per sleutel: imsiFramedIpKey:1111111111111111:172.16.xx.yy** onder **DEBUG MSG**, dat niet aanwezig was in het faillissementsscenario.

```
HOSTNAME-qnsXX [yyyy-mm-dd 15:33:30,543]
POLICY RESULT SUCCESS:
  session action = None
  domainId = IMS
  locationId = ims
  SERVICES: IMS_DEFAULT
  TRIGGER: Message: com.broadhop.diameter2.messages.DiameterRequestMessage
    Application Id: Rx (16777236)
    Command Code: Rx_AAR (265)
    Dest realm: YYYY.ims.mncXYZ.mccXYZ.3gppnetwork.org
    Device protocol: RX_TGPP
    End to end id: 182837146 (0x0ae5df9a)
    Hop by hop id: 2274945953 (0x8798eba1)
    Origin state: 0
    Stack name: null
    Origin host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
    Origin realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
    Session-Id: pcsf-stdn.imsgr oup1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgr oup1-111-1111111
    Auth-Application-Id: 16777236
    Media-Component-Description:
      Media-Component-Number: 1
      Media-Sub-Component:
        Flow-Number: 1
      Media-Sub-Component:
        Flow-Number: 2
    Codec-Data: uplink\r\noffer\r\nm=audio 5008 RTP/AVP 116 107 118
96 111 110\r\na=rtpmap:116 AMR-WB/16000/1\r\na=fmtp:116 mode-change-capabil
ity=2;max-red=220\r\na=rtpmap:107 AMR-WB/16000/1\r\na=fmtp:107 octet-align=1;mode-change-
capability=2;max-red=220\r\na=rtpmap:118 AMR/8000/1\r\na=fmtp:118 mode-change-capab
```

ility=2;max-red=220\r\na=rtpmap:96 AMR/8000/1\r\na=fmtp:96 octet-align=1;mode-change-  
capability=2;max-red=220\r\na=rtpmap:111 telephone-event/16000\r\na=fmtp:111 0-15\r\na=  
rtpmap:110 telephone-event/8000\r\na=fmtp:110 0-15\r\na=curr:qos local none\r\na=curr:qos remote  
none\r\na=des:qos mandatory local sendrecv\r\na=des:qos optional remote sen  
drecv\r\na=ptime:20\r\na=maxptime:240\r\n (uplink  
offer

m=audio 50008 RTP/AVP 116 107 118 96 111 110 **Note: Codec-Data is in readable form not like how  
it was in failure case.**

a=rtpmap:116 AMR-WB/16000/1  
a=fmtp:116 mode-change-capability=2;max-red=220  
a=rtpmap:107 AMR-WB/16000/1  
a=fmtp:107 octet-align=1;mode-change-capability=2;max-red=220  
a=rtpmap:118 AMR/8000/1  
a=fmtp:118 mode-change-capability=2;max-red=220  
a=rtpmap:96 AMR/8000/1  
a=fmtp:96 octet-align=1;mode-change-capability=2;max-red=220  
a=rtpmap:111 telephone-event/16000  
a=fmtp:111 0-15  
a=rtpmap:110 telephone-event/8000  
a=fmtp:110 0-15  
a=curr:qos local none  
a=curr:qos remote none  
a=des:qos mandatory local sendrecv  
a=des:qos optional remote sendrecv  
a=ptime:20  
a=maxptime:240

)  
Codec-Data: downlink\r\nanswer\r\nm=audio 3302 RTP/AVP 118  
110\r\na=rtpmap:118 AMR/8000/1\r\na=fmtp:118 mode-set=0,2,4,7; mode-change-period  
=2; mode-change-capability=2; mode-change-neighbor=1; max-red=0\r\na=rtpmap:110 telephone-  
event/8000\r\na=fmtp:110 0-15\r\na=curr:qos local sendrecv\r\na=curr:qos remote no  
ne\r\na=des:qos mandatory local sendrecv\r\na=des:qos mandatory remote sendrecv\r\na=conf:qos  
remote sendrecv\r\na=maxptime:40\r\n (downlink  
answer

m=audio 3302 RTP/AVP 118 110  
a=rtpmap:118 AMR/8000/1  
a=fmtp:118 mode-set=0,2,4,7; mode-change-period=2; mode-change-capability=2; mode-change-  
neighbor=1; max-red=0  
a=rtpmap:110 telephone-event/8000  
a=fmtp:110 0-15  
a=curr:qos local sendrecv  
a=curr:qos remote none  
a=des:qos mandatory local sendrecv  
a=des:qos mandatory remote sendrecv  
a=conf:qos remote sendrecv  
a=maxptime:40  
)

Media-Type: AUDIO (0)  
Max-Requested-Bandwidth-UL: 64000  
Max-Requested-Bandwidth-DL: 41000  
Flow-Status: ENABLED (2)  
RS-Bandwidth: 0  
RR-Bandwidth: 0

Subscription-Id:

Subscription-Id-Type: END\_USER\_SIP\_URI (2)  
Subscription-Id-Data:

sip:+911234567890@ims.mncXYZ.mccXYZ.3gppnetwork.org

Subscription-Id:

Subscription-Id-Type: END\_USER\_IMSI (1)  
Subscription-Id-Data: <1111111111111111>

AF-Charging-Identifier: "PCSF:1-sbc"

Specific-Action: INDICATION\_OF\_LOSS\_OF\_BEARER (2)  
Specific-Action: INDICATION\_OF\_RECOVERY\_OF\_BEARER (3)  
Specific-Action: INDICATION\_OF\_RELEASE\_OF\_BEARER (4)

```

Specific-Action: IP_CAN_CHANGE (6)
Framed-IP-Address: 172.16.xx.yy (0x0aAAAAcB)
Supported-Features:
    Vendor-Id: XXXX

Service-Info-Status: FINAL SERVICE INFORMATION (0)
QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
DEBUG MSGS:
    INFO : (core) Tagging message with ID: RX_TGPP
    INFO : (core) Successful load by key:
imsiFramedIpKey:1111111111111111:172.16.xx.yy <<<<<<<<<
    INFO : (core) Start session triggered
    INFO : (rx) Success binding to Gx session 0008-
diameterproxy.AAAA.cisco.com;11111111;11111111;5c765a28-3b02 by IMSI And IP Address
    INFO : (TGPP) [Rel8, Rel9, Rel10] features supported for Vendor-Id XXXX,
Feature-List-ID X
    INFO : (core) domain: IMS
    INFO : (rx) Sending AAA Message on session pcsf-stdn.imsgr oup1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgr oup1-111-1111111
    INFO : (gx) Installing preconfigured rule: _1_1_2_AF_AUDIO
    INFO : (gx) Installing preconfigured rule: _1_1_1_AF_AUDIO
    INFO : (et) Event trigger 2 added
    INFO : (et) Event trigger 5 added
    INFO : (et) Event trigger 6 added
    INFO : (et) Event trigger 7 added
    INFO : (gx) Sending RAR Message on session 0008-
diameterproxy.AAAA.cisco.com;11111111;11111111;5c765a28-3b02
SERVICE CALC MSGS:
USE CASES:
    INFO : (use-cases) Use case 'XXXX IMS Default', status: true, Condition: No
Condition Set
SENT MESSAGES (asynchronous):
Message: com.broadhop.diameter2.messages.DiameterResponseMessage
Application Id: Rx (16777236)
Command Code: Rx AAA (265)
Dest host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Device protocol: RX_TGPP
End to end id: 182837146 (0x0ae5df9a)
Hop by hop id: 2274945953 (0x8798eba1)
Origin state: 0
Stack name: null
Origin realm: pcrf.mncXYZ.mccXYZ.3gppnetwork.org
Session-Id: pcsf-stdn.imsgr oup1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgr oup1-111-1111111
Auth-Application-Id: 16777236
IP-CAN-Type: 3GPP_EPS (5)
RAT-Type: EUTRAN (1004)
Supported-Features:
    Vendor-Id: XXXX

QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Result-Code: DIAMETER_SUCCESS (2001)

```

Op basis van de logs met een geconsolideerd wachtwoord lijkt het er ook op dat de binding van Gx met een Rx-sessie niet plaatsvindt. Dit is te zien in de geconsolideerde-qns logboeken, met een uitzondering die hier wordt getoond.

```
HOSTNAME-qnsXX yyyy-mm-dd 02:23:03,445 [pool-3-thread-1] WARN
c.b.policy.impl.RulesPolicyService - An exception was thrown while executing a policy action.

java.lang.NullPointerException: null    <<<<<<<<<<

    at
com.broadhop.diameter2.policy.rx.tgpp.DiameterRxTGPPDeviceMgr.getGxSession(DiameterRxTGPPDeviceM
gr.java:1104)

    at
com.broadhop.diameter2.policy.rx.tgpp.DiameterRxTGPPDeviceMgr.filterEvent(DiameterRxTGPPDeviceMg
r.java:7418)

    at com.broadhop.blueprint.master.MasterBlueprint.filterEvent(MasterBlueprint.java:1283)

    at
com.broadhop.blueprint.master.MasterBlueprint.executionPreSession2(MasterBlueprint.java:245)

    at
com.broadhop.policy.Rule_Execute_Presession_Phase_2__392a9765_1022_4823_b082_cde9f22abf37__e4Baw
WmREeKEu46lGH_XOQ__0.consequence(Unknown Source)
```

## Oplossing

Het volledige DB-scandepot is ingeschakeld en is ingesteld op **5**. Het aantal RX AAR' s neemt toe en gaat verder dan 110 (5\*22) en tegelijkertijd worden RX AAA-responsen 5012 waargenomen.

Dit omdat het thema is ingesteld op 5 en er 22 QNS-VM's zijn en de volledige DB-scan slechts 110 verzoeken toelaat.

Alle andere verzoeken worden met de foutreactie ingetrokken. Alle AAR-verzoeken doen een volledige DB-scan omdat ze nog geen IMSland framedIP-toets in de lookaside-toetsen hebben ingesteld.

Dit is de procedure om het probleem op te lossen:

Stap 1. Voeg **imsiFramedIpKey** toe onder PB - cluster - kant-en-klare voorvoegsels.

Stap 2. Wacht tot deze publicatie succesvol is (wacht 5 min na publicatie).

Stap 3. Ga terug naar de terminal van "Cluster Manager" en start het qns-proces opnieuw op met het script **restartall.sh**.

Stap 4. Nadat de herstart-handeling is voltooid, voert u **diagnostics.sh** uit om te controleren of CPS in bedrijf is.

Stap 5. Meld u aan bij één van de QNS SCOM-console met behulp van telnet-opdracht:

telnet <qns vm host name> 9091 [Eg:- telnet qns01 9091]

Execute "rebuildAllSkRings" command on OSGI console to rebuild the configured "Lookaside Key Prefixes" so qns process start utilizing it

```
osgi> rebuildAllSkRings
```

Please wait until execution completes

Execute "disconnect" command on console and it waits for user input just press "Enter" key to come out from OSGI console.

```
osgi> disconnect
```

Disconnect from console? (y/n; default=y)

Connection closed by foreign host.