

# 排除MME中的DNS超时问题

## 目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[背景信息](#)

[DNS](#)

[与DNS相关的MME功能](#)

[SPGW选择程序](#)

[问题](#)

[故障排除](#)

[解决方案](#)

## 简介

本文档介绍与域名系统(DNS)超时有关的问题，这些问题针对移动管理实体(MME)中的DNS查询，用于为网关(SGW)和数据包数据网关(PGW)选择服务。

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- StarOS
- 与DNS相关的MME功能

### 使用的组件

本文档中的信息基于以下软件和硬件版本：

- DNS
- MME

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

## 背景信息

### DNS

DNS将域名转换为IP地址，浏览器使用这些地址加载ABCD页面。连接到网络的每台设备都有自己

的IP地址，供其他设备用于定位设备。

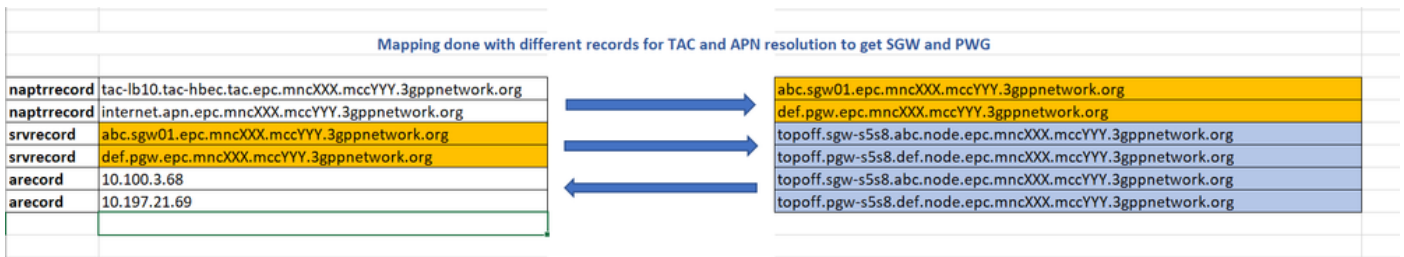
从移动性的角度来说，DNS是外部服务器，根据它与网络中节点的连接性，用于接入点名称(APN)和URL解析。

1. MME到DNS的连接：用于SPGW选择的APN解析
2. SPGW到DNS的连接：用于URL解析以访问Internet服务提供商(ISP)

DNS中使用的记录类型。

1. A/AAA记录：用于定义映射到主机的完全限定名称的IPv4和IPv6主机地址，其中A记录用于IPv4，而Authentication， Authorization and Accounting(AAA)用于IPv6。
2. NAPTR记录：用作指向服务记录(SRV)和A/AAA记录的查找服务，用于4G APN和TAC解决方案的SPGW选择过程。
3. SRV记录：用作名称颁发机构指针(NAPTR)和A/AAA记录之间映射的查找。

示例：观察A/SRV/NAPTR的映射方式。



## 与DNS相关的MME功能

- MME与DNS相关的基本功能是根据DNS查询选择SGW和PGW。
- 思科MME有其自己的DNS缓存，有助于避免频繁查询外部服务器，并将执行的每个查询存储在MME DNS缓存中，以减少向外部DNS服务器发送查询的需要。
- 当UE注册到演进分组系统(EPS)网络时，必须为其分配适当的SGW和PGW。MME根据DNS进行GW选择。
- NAPTR查询用于进行GW地址解析。
- 根据DNS查询，MME确定S-GW和P-GW之间的接口。

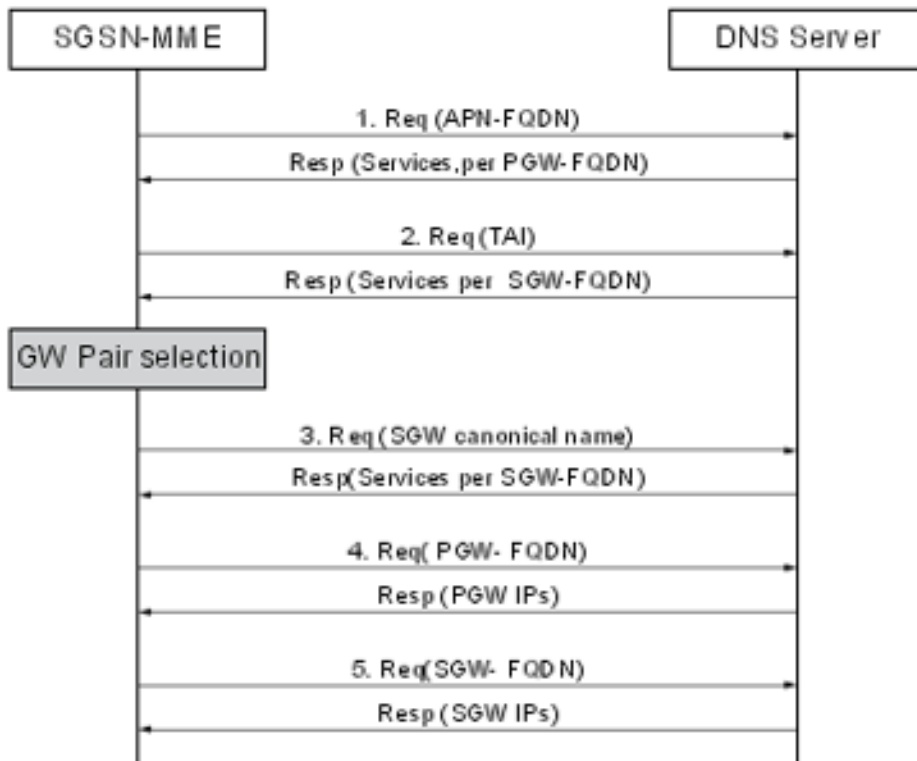
## SPGW选择程序

- MME执行初始DNS查询以获取GW标识和优先级列表
- 基于跟踪区域标识符(TAI)的S-GW选择
- 基于APN完成P-GW选择
- MME根据优先级信息或MME配置选择GW
- 然后进行第二个DNS查询以获取所需GW的IP地址。

因此，按照该过程，MME始终进行2个DNS查询，以获取GW IP地址，这已得到解释。

查询1:对于通过APN或TAI完成的第一个查询，您将获得与其映射的SRV配置文件或直接映射的响应记录输出。

查询2:此外，它会对SRV配置文件进行查询，并将其作为替换字符串发送以获取GW IP。



例如：

```
Query Name: abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org
Query Type: NAPTR      TTL: 515 seconds
Answer:
Order: 100            Preference: 50000
Flags: a              Service: x-3gpp-pgw:x-s5-gtp:x-s8-gtp:x-gn:x-gp
Regular Expression:
Replacement: _nodes._pgw.epc.mncXXX.mccYYY.3gppnetwork.org

Query Name: _nodes._pgw.epc.mncXXX.mccYYY.3gppnetwork.org
Query Type: NAPTR      TTL: 515 seconds
Answer:
Order: 100            Preference: 50000
Flags: a              Service: x-3gpp-pgw:x-s5-gtp:x-s8-gtp:x-gn:x-gp

Regular Expression: toff.pgw- s5s8.node.epc.mncXXX.mccYYY.3gppnetwork.org

Query Name: toff.pgw- s5s8.node.epc.mncXXX.mccYYY.3gppnetwork.org
Query Type: A          TTL: 646 seconds
Answer:
IP Address: X.X.X.X
```

## 问题

1.当您从MME查询APN abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org时，在MME处获取DNS超时。

**注意：**String+nc-nr是添加到5G服务并针对每个NAPTR资源记录(RR)添加的新字符串，用于标识服务接口。

```
"x-3gpp-pgw:x-s5-gtp+nc-nr:x-s8-gtp:x-gn:x-gp"
```

**注意：**+nc-nr是基于5G服务的新字符串，因此MME需要支持此服务才能工作，因为当MME执行DNS查询并获得响应以检查MME中是否启用了特定服务时。

```
[gn]SGSN-MME# dns-client query client-name dnsclient query-type NAPTR query-name
abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org
Wednesday October 27 17:06:20 ICT 2021
Query Name: abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org
Query Type: NAPTR      TTL: 0 seconds
Answer: -Negative Reply-
Failure Reason: DNS query timed out
```

2.在PCAP跟踪中，发现DNS服务器收到查询，并响应每个APN发送30到35个替换，因为数据包大小变为4186字节，MME启动TCP连接。

3.您可以看到DNS收到查询请求并发送响应，但没有任何内容只带有一个标志“消息被截断”。仅当响应消息被截断且4G响应的其余部分在消息未被截断时工作正常时，才会观察到这种情况。

截断消息的原因是，映射到APN的许多替换项超过30，并且增加了消息的大小并发送截断的消息标志作为响应。响应消息的总大小为4181字节作为TCP负载（请参阅图像）。

在MME收到此响应后，MME将启动与DNS的TCP连接。

No.	Time	Protocol	Length	Test Item	Info
38	2023-08-02 18:24:12.354486	DNS	4247	✓	Standard query response 8c7f65 NAPTR [Internet.apn.epc.mnc001.mcc262.3gppnetwork.org NAPTR 28]
39	2023-08-02 18:24:12.355426	TCP	66	✓	47684 → 53 [ACK] Seq=78 Ack=1449 Win=34352 Len=0 TSrc=2177277438 TSecr=384894879
40	2023-08-02 18:24:12.355426	TCP	66	✓	47684 → 53 [ACK] Seq=78 Ack=2897 Win=54784 Len=0 TSrc=2177277438 TSecr=384894879
41	2023-08-02 18:24:12.355441	TCP	66	✓	47684 → 53 [ACK] Seq=78 Ack=4282 Win=54832 Len=0 TSrc=2177277438 TSecr=384894879
42	2023-08-02 18:24:12.355446	TCP	66	✓	47684 → 53 [RST, ACK] Seq=78 Ack=4282 Win=54832 Len=0 TSrc=2177277438 TSecr=384894879
43	2023-08-02 18:24:12.426832	DNS	117	✓	Standard query 8c7f6b NAPTR sncyz.ba.apn.epc.mnc002.mcc448.3gppnetwork.org OPT
44	2023-08-02 18:24:12.927428	DNS	385	✓	Standard query response 8cc456 A rcc0000.lacfffa.mnc001.mcc258.gprs OPT
45	2023-08-02 18:24:17.677558	DNS	385	✓	Standard query response 8c7f6b A rcc0000.lacfffa.mnc001.mcc258.gprs OPT

```
Acknowledgment number (raw): 3451054488
1000 .... = Header Length: 32 bytes (8)
> Flags: 0x00E (PSH, ACK)
Window: 327
[Calculated window size: 28864]
[Window size scaling factor: 128]
Checksum: 8c7982 [unverified]
[Checksum Status: Unverified]
Urgent Pointer: 0
> Options: (32 bytes) No-Operation (NOP), No-Operation (NOP), Timestamps
  ↳ [SQ/ACK analysis]
    [RTT: 0.00023000 seconds]
    [Bytes in flight: 4281]
    [Bytes sent since last PSH flag: 4281]
  ↳ [Timestamps]
    TCP seq/len (4181 bytes)
    PSH Size: 4081
> Domain Name System (response)
```

## 从MME到DNS

- 帧31 - MME向DNS发送查询
- 帧32 - DNS发送一个响应，其标志设置为“消息被截断”
- 帧33/34/35 — 在MME和DNS之间建立TCP连接，并交换各自的功能

在给定快照中，您可以看到从MME发送的最大段大小(MSS)为9060。

当MME查询哪个DNS发送的响应“消息被截断”，并且它没有其他信息时，MME会根据DNS响应发起TCP连接。

```

31 2021-08-02 10:24:12.539211 DNS 117 ✓ Standard query 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org OPT
32 2021-08-02 10:24:12.539293 DNS 117 ✓ Standard query response 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org OPT
33 2021-08-02 10:24:12.539720 TCP 74 ✓ 47684 → 53 [SYN] Seq=0 Win=18120 Len=0 MSS=9060 SACK_PERM=1 TSval=2577277422 TSecr=0 WS=512
34 2021-08-02 10:24:12.539737 TCP 76 ✓ 53 → 47684 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1460 SACK_PERM=1 TSval=384894064 TSecr=2577
35 2021-08-02 10:24:12.540338 TCP 66 ✓ 47684 → 53 [ACK] Seq=1 Ack=1 Win=18432 Len=0 TSval=2577277423 TSecr=384894064
36 2021-08-02 10:24:12.554558 DNS 143 ✓ Standard query 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org OPT
37 2021-08-02 10:24:12.554570 DNS 66 ✓ 53 → 47684 [ACK] Seq=1 Ack=78 Win=29056 Len=0 TSval=384894079 TSecr=2577277437
38 2021-08-02 10:24:12.554686 DNS 4247 ✓ Standard query response 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org NAPTR 20 3276
39 2021-08-02 10:24:12.555626 TCP 66 ✓ 47684 → 53 [ACK] Seq=78 Ack=1449 Win=36352 Len=0 TSval=2577277438 TSecr=384894079

```

```

Domain Name System (response)
Transaction ID: 0xffd5
Flags: 0x8380 Standard query response, No error
 1... .. = Response: Message is a response
.000 0... .. = Opcode: Standard query (0)
... ..0... .. = Authoritative: Server is not an authority for domain
... ..1... .. = Truncated: Message is truncated
... ..1... .. = Recursion desired: Do query recursively
... ..1... .. = Recursion available: Server can do recursive queries
... ..0... .. = Z: reserved (0)
... ..0... .. = Answer authenticated: Answer/authority portion was not authenticated by the server
... ..0... .. = Non-authenticated data: Unacceptable
... ..0000 = Reply code: No error (0)
Questions: 1

```

```

29 2021-08-02 10:24:12.419414 DNS 126 ✓ Standard query 0x3b46 NAPTR tac-lbc4.tac-hb1c.tac.epc.mnc099.mcc250.3gppnetwork.org OPT
30 2021-08-02 10:24:12.419480 DNS 183 ✓ Standard query response 0x3b46 No such name NAPTR tac-lbc4.tac-hb1c.tac.epc.mnc099.mcc250.3gppnet
31 2021-08-02 10:24:12.539211 DNS 117 ✓ Standard query 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org OPT
32 2021-08-02 10:24:12.539293 DNS 117 ✓ Standard query response 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org OPT

```

```

.000 0... .. = Opcode: Standard query (0)
... ..0... .. = Authoritative: Server is not an authority for domain
... ..1... .. = Truncated: Message is truncated
... ..1... .. = Recursion desired: Do query recursively
... ..1... .. = Recursion available: Server can do recursive queries
... ..0... .. = Z: reserved (0)
... ..0... .. = Answer authenticated: Answer/authority portion was not authenticated by the server
... ..0... .. = Non-authenticated data: Unacceptable
... ..0000 = Reply code: No error (0)
Questions: 1
Answer RRs: 0
Authority RRs: 0
Additional RRs: 1
Queries
  internet.apn.epc.mnc003.mcc262.3gppnetwork.org: type NAPTR, class IN
    Name: internet.apn.epc.mnc003.mcc262.3gppnetwork.org
    [Name Length: 46]
    [Label Count: 7]
    Type: NAPTR (Naming Authority Pointer) (35)
    Class: IN (0x0001)

```

## 从DNS到MME

- MME在TCP连接后发送查询
- DNS确认。
- DNS发送一个标志设置为“消息不被截断”的响应，因为与DNS共享的MSS设置为9060字节，它一次性发送整个响应。
- MME以ACK响应，无内容
- DNS将ACK发送到消息38中的内容，其中负载为4181字节
- MME发送TCP，以在收到最后一个分段后立即重置和关闭连接。

```

36 2021-08-02 04:54:12.554558 DNS 143 Standard query 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org OPT
37 2021-08-02 04:54:12.554570 TCP 66 53 → 47684 [ACK] Seq=0 Ack=78 Win=29056 Len=0 TSval=384894079 TSecr=2577277437
38 2021-08-02 04:54:12.554686 DNS 4247 Standard query response 0xffd5 NAPTR internet.apn.epc.mnc003.mcc262.3gppnetwork.org NAPTR 20 32767 A NAPTR
39 2021-08-02 04:54:12.554626 TCP 66 47684 → 53 [ACK] Seq=78 Ack=1449 Win=36352 Len=0 TSval=2577277438 TSecr=384894079
40 2021-08-02 04:54:12.554636 TCP 66 47684 → 53 [ACK] Seq=78 Ack=2897 Win=36784 Len=0 TSval=2577277438 TSecr=384894079
41 2021-08-02 04:54:12.555640 TCP 66 47684 → 53 [ACK] Seq=78 Ack=4182 Win=36832 Len=0 TSval=2577277438 TSecr=384894079
42 2021-08-02 04:54:12.555646 TCP 66 47684 → 53 [RST, ACK] Seq=0 Ack=4182 Win=0 Len=0 TSval=2577277438 TSecr=384894079
43 2021-08-02 04:54:12.420812 DNS 117 Standard query 0xc456 A rac0000.lac4209.rac.epc.mnc099.mcc250.3gppnetwork.org OPT
44 2021-08-02 04:54:12.4217420 DNS 185 Standard query 0xc456 A rac0000.lac4209.rac.epc.mnc099.mcc250.3gppnetwork.org OPT
45 2021-08-02 04:54:12.4217530 DNS 185 Standard query 0xc3f82 A rac0000.lac4209.rac.epc.mnc099.mcc250.3gppnetwork.org OPT
46 2021-08-02 04:54:12.409817 ARP 60 Gratuitous ARP for 217.138.72.1 (Reply)
47 2021-08-02 04:54:13.405612 DNS 156 Standard query response 0xc456 No such name A rac0000.lac4209.rac.epc.mnc099.mcc250.3gppnetwork.org SOA dns1.mnc099.mcc250.gpp
48 2021-08-02 04:54:13.405696 DNS 156 Standard query response 0xc456 No such name A rac0000.lac4209.rac.epc.mnc099.mcc250.3gppnetwork.org SOA dns1.mnc099.mcc250.gpp
49 2021-08-02 04:54:13.407374 DNS 124 Standard query 0xf481 NAPTR rac0000.lac4209.rac.epc.mnc099.mcc250.3gppnetwork.org OPT

```

```

> TCP Option - No-Operation (NOP)
> TCP Option - Timestamps: TSval 384894079, TSecr 2577277437
= [SEQ/ACK analysis]
 [RTT: 0.000618000 seconds]
 [Bytes in Flight: 4081]
 [Bytes sent since last PSH flag: 4081]
> [Timestamps]
TCP payload (4181 bytes)
[PSH flag: 4081]
Domain Name System (response)
Length: 4179
Transaction ID: 0xffd5

```

当MME收到2到3个数据段或一次尝试从DNS接收整个负载时，MME会发送TCP重置消息。

DNS commands to troubleshoot

```
show dns-client statistics
show dns-client statistics client <DNS Client Name>
show dns-client cache client <client name> [query-name <query-name>[query-type <NAPTR | AAAA | A>] | [query-type <NAPTR | AAAA | A>]]
dns-client query client-name <client name> query-type <NAPTR | AAAA> [query-name <query name>].show port datalink counters
```

Commands to check if there were any problem internal to the starOS system where request is not able to reach from demux vpnmgr to DNS app in sessmgrs

```
show port npu counters
show cloud configuration
show iftask stats summary
show npu utilization table
show iftask port-stats card <card> ---- for all active SF cards
show iftask iomux-stats card <card> ---- for all active SF cards
```

MON SUB to be captured with options enabled (verbosity 5,Y,S,34,35,19,A,26)

PCAP traces to be captured

DNS cache flush commands

```
clear dns-client <client-name> cache
```

## 测试场景

- 1.使用专用测试捕获所有必需的调试日志/跟踪，并在用户浏览有问题的APN时同时启用日志
- 2.确保每次执行测试场景时，用户都需要执行新的连接来刷新用户。
- 3.为了测试目的，请分配一台测试仪，该测试仪需要使用其IMSI执行专用测试，并需要访问有问题的APN:abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org。

```
logging filter active facility vpn level debug ----- debug level logs
logging filter active facility tcpdemux level debug ----- debug level logs
logging monitor msid <MSID number> ----- (these logging command to be
executed in config mode)
```

## 故障排除

- 1.检查所有命令的输出，以确认系统内部是否存在丢包。
- 2.检查统计信息以确认节点中DNS超时增加的频率。

```
[gn]SGSN-MME# show dns-client statistics client dnsclient
Friday August 20 13:31:48 ICT 2021
DNS Usage Statistics:
```

```
-----
Query Type           Attempts           Successes           Failures
A                    2430996860        2410410937         20546467
SRV                  1325520986        1325516557         4429
AAAA                 3939810089        0                   3939810089
```

NAPTR	480586697	432853033	47732791
PTR	0	0	0
Total	3881947336	4168780527	4008093776

```

...
Total Resolver Queries: 4480708
Successful Queries:      670040
Query Timeouts:         409717
Domain Not Found:       2455918
Connection Refused:     0
Other Failures:         580612

```

运行这些命令以捕获多次迭代的统计信息并观察查询超时逐渐增加，但是在Demux和会话之间没有丢包，因此内部系统没有问题

此外，为了检查DNS中存在外部连接或配置问题的任何问题，您直接从MME（而非如图所示的APN）手动执行替换值查询，在该查询中，它可以得到正确的解决，而不会产生任何延迟，并得出外部连接和配置也不存在问题的结论。

```

[gn]SGSN-MME# dns-client query client-name dnsclient query-name
TOPON.test.NODE.EPC.MNCXXX.MCCYYY.3GPPNETWORK.ORG
Monday August 02 18:51:29 ICT 2021
Query Name: TOPON.test.NODE.EPC.MNCXXX.MCCYYY.3GPPNETWORK.ORG
Query Type: A          TTL: 1038 seconds
Answer:

```

```
IP Address: X.X.X.X ----- resolve properly and gave IP
```

问题出在DNS和SGSN-MME之间，在DNS中，您可以看到DNS发送响应，替换值为topon，MME必须再次查询topon条目，但如果手动执行查询解析成功，则不会出现此情况

根据命令输出和跟踪，很明显，当您查询APN时，您会通过分段中的TCP连接获得30个替换项的响应，而MME会确认这些分段会将重置发送到DNS。

由于MME发送TCP以重置，在MME中，我们可以看到DNS查询显示错误为查询超时，并且到此时，我们在MME命令输出中看不到这30个替换值，因为分段未完全确认，在此过程完成之前，MME发送TCP以重置。

Debug logs analysis

For abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org

```

2021-Oct-27+17:06:20.910 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software
internal system syslog] query:14585, UDP, Sent time 1635329180, Timeout set 1635329183 ----
timer is set here
2021-Oct-27+17:06:20.910 [vpn 5919 info] [9/0/11730 <vpnmgr:6> dns_resolver.c:323] [software
internal system syslog] Sent out a DNS Query abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org to DNS
Server ----- DNS query is send for the first time
2021-Oct-27+17:06:20.911 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software
internal system syslog] TCP Connection Init, While Sending Query
2021-Oct-27+17:06:20.911 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software
internal system syslog] TCP Connection Open with DHost
2021-Oct-27+17:06:20.911 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software
internal system syslog] query:14585, TCP, Sent time 1635329180, Timeout set 1635329183 -----
--- DNS query is send for the second time
2021-Oct-27+17:06:20.911 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software
internal system syslog] TCP Connection Successful - DHost-Id = 6766924, Sock_fd = 21
2021-Oct-27+17:06:21.008 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software
internal system syslog] TCP READ, Kernel Closed, EOF -DHost-Id = 6766924, Sock_fd = 21, errno =
115, req_read_len = 0
2021-Oct-27+17:06:21.008 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpmngr_func.c:8011] [software

```



```
internal system syslog] TCP Connection close - DHost-Id = 6766924, Sock_fd = 21
2021-Oct-27+17:06:23.019 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:14585, TCP, Timeout detected: 1635329183 ----- Timeout
detected here
2021-Oct-27+17:06:23.019 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Init, While Sending Query ----- Query is
send again
2021-Oct-27+17:06:23.019 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Open with DHost
2021-Oct-27+17:06:23.019 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:14585, TCP, Sent time 1635329183, Timeout set 1635329186 -----
Again send the query with new timer value set
2021-Oct-27+17:06:23.019 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Successful - DHost-Id = 6504921, Sock_fd = 23
2021-Oct-27+17:06:26.036 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:14585, TCP, Timeout detected: 1635329186 ----- Timeout
detected here
2021-Oct-27+17:06:26.036 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:35196, UDP, Timeout detected: 1635329186 ----- Timeout
detected here
```

Another example abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org

```
2021-Oct-27+17:06:27.257 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:19140, UDP, Sent time 1635329187, Timeout set 1635329190 ----
timer is set here
2021-Oct-27+17:06:27.257 [vpn 5919 info] [9/0/11730 <vpnmgr:6> dns_resolver.c:323] [software
internal system syslog] Sent out a DNS Query abcd.apn.epc.mncXXX.mccYYY.3gppnetwork.org to DNS
Server ----- Query send for the first time
2021-Oct-27+17:06:27.258 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Init, While Sending Query
2021-Oct-27+17:06:27.258 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Open with DHost
2021-Oct-27+17:06:27.258 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:19140, TCP, Sent time 1635329187, Timeout set 1635329190 -----
Same Query send for the second time
2021-Oct-27+17:06:27.258 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Successful - DHost-Id = 7201531, Sock_fd = 22
2021-Oct-27+17:06:27.309 [vpn 5921 debug] [7/0/12843 <sessmgr:79> dns_snaptr.c:1466] [software
internal system syslog] VPN DEBUG : snaptr_match_valid_entries Initial ue_usage_type:0 nc_nr:0
----- snaptr match starts
2021-Oct-27+17:06:27.309 [vpn 5921 debug] [7/0/12843 <sessmgr:79> dns_snaptr.c:237] [software
internal system syslog] VPN DEBUG : snaptr_compare_service_protocol_set rr_service_parameter x-
3gpp-mme:x-gn, inp_svc_param x-3gpp-sgw:x-s5-gtp ue_usage_type_enabled:0 nc_nr_enabled:0 -----
-- nc_nr enabled which I mentioned earlier
2021-Oct-27+17:06:27.309 [vpn 5921 debug] [7/0/12843 <sessmgr:79> dns_snaptr.c:237] [software
internal system syslog] VPN DEBUG : snaptr_compare_service_protocol_set rr_service_parameter x-
3gpp-sgw:x-s5-gtp:x-s8-gtp, inp_svc_param x-3gpp-sgw:x-s5-gtp ue_usage_type_enabled:0
nc_nr_enabled:0
2021-Oct-27+17:06:27.309 [vpn 5921 debug] [7/0/12843 <sessmgr:79> dns_snaptr.c:279] [software
internal system syslog] VPN DEBUG : 0.rr_prot_token x-s5-gtp, input token x-s5-gtp
2021-Oct-27+17:06:27.309 [vpn 5921 debug] [7/0/12843 <sessmgr:79> dns_snaptr.c:323] [software
internal system syslog] VPN DEBUG : 4.Success Selected Protocol(Normal):x-s5-gtp -----
snaptr protocol matched
2021-Oct-27+17:06:30.057 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:19140, TCP, Timeout detected: 1635329190 ----- TCP timeout
happens
2021-Oct-27+17:06:30.057 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Init, While Sending Query ----- Again TCP connection
initiated
2021-Oct-27+17:06:30.057 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Open with DHost
2021-Oct-27+17:06:30.057 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:19140, TCP, Sent time 1635329190, Timeout set 1635329193 -----
```



```
New timer value set with send query
2021-Oct-27+17:06:30.057 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection Successful - DHost-Id = 7136007, Sock_fd = 21
2021-Oct-27+17:06:30.158 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP READ, Kernel Closed, EOF - DHost-Id = 7136007, Sock_fd = 21, errno =
115, req_read_len = 0 - Error because TCP connection is busy because previous connection is not
closed
2021-Oct-27+17:06:30.158 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] TCP Connection close - DHost-Id = 7136007, Sock_fd = 21 -----
Connection closed
2021-Oct-27+17:06:30.171 [vpn 5921 debug] [14/0/12709 <sessmgr:15> dns_snaptr.c:1466] [software
internal system syslog] VPN DEBUG : snaptr_match_valid_entries Initial ue_usage_type:0 nc_nr:0 -
-- again snaptr match takes place
2021-Oct-27+17:06:30.171 [vpn 5921 debug] [14/0/12709 <sessmgr:15> dns_snaptr.c:237] [software
internal system syslog] VPN DEBUG : snaptr_compare_service_protocol_set rr_service_parameter x-
3gpp-mme:x-gn, inp_svc_param x-3gpp-sgw:x-s5-gtp ue_usage_type_enabled:0 nc_nr_enabled:0
2021-Oct-27+17:06:30.171 [vpn 5921 debug] [14/0/12709 <sessmgr:15> dns_snaptr.c:237] [software
internal system syslog] VPN DEBUG : snaptr_compare_service_protocol_set rr_service_parameter x-
3gpp-sgw:x-s5-gtp:x-s8-gtp, inp_svc_param x-3gpp-sgw:x-s5-gtp ue_usage_type_enabled:0
nc_nr_enabled:0
2021-Oct-27+17:06:30.171 [vpn 5921 debug] [14/0/12709 <sessmgr:15> dns_snaptr.c:279] [software
internal system syslog] VPN DEBUG : 0.rr_prot_token x-s5-gtp, input token x-s5-gtp
2021-Oct-27+17:06:33.073 [vpn 5456 info] [9/0/11730 <vpnmgr:6> vpnmgr_func.c:8011] [software
internal system syslog] query:19140, TCP, Timeout detected: 1635329193 -----TCP timeout detected
```

从日志中，它表示在第一次超时后，MME发送错误115进行下一次重试，因为第一个TCP连接仍未在套接字处关闭。第一个TCP连接的超时已发生，且上一个连接未关闭。

启动新连接，该连接位于已建立且未清除先前连接的同一套接字上。您会看到错误115（操作正在进行），即使新连接已形成，但套接字在第一次超时后未关闭先前的连接。

## 解决方案

重新启动DNS上下文的vpnmgr。尚未提供软件修复。