



@ FILE NAME: M_CTC_ID_002.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for LPRU: v1.0.16

This scenario validates that the O-RU properly executes the session establishment procedure with VLANs and a DHCPv4 server. This test is applicable to IPv4 environments. Two negative flows are included in this test:

The TER NETCONF Client does not trigger a SSH session establishment in reaction to Call Home initiated by THE O-RU NETCONF Server.

Interfaces Present in DU Side

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.17.95.65 netmask 255.255.240.0 broadcast 172.17.95.255

inet6 fe80::5fdb:64ba:ee9e:366c prefixlen 64 scopeid 0x20<link>

ether 4c:d9:8f:69:23:2b txqueuelen 1000 (Ethernet)

RX packets 183730 bytes 98441819 (98.4 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 71804 bytes 24548163 (24.5 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

device interrupt 17

eth1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 192.168.4.15 netmask 255.255.255.0 broadcast 192.168.4.255

inet6 fe80::5bb2:44e5:874e:988a prefixlen 64 scopeid 0x20<link>

inet6 3ffe:501:cafe::a001:1012 prefixlen 64 scopeid 0x0<global>

ether 64:9d:99:b1:7e:62 txqueuelen 1000 (Ethernet)

RX packets 18572 bytes 4494359 (4.4 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 57551 bytes 68881649 (68.8 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth2: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

ether 4c:d9:8f:69:23:2c txqueuelen 1000 (Ethernet)

RX packets 0 bytes 0 (0.0 B)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 0 bytes 0 (0.0 B)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

device interrupt 18

eth3: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

ether 64:9d:99:b1:7e:63 txqueuelen 1000 (Ethernet)

RX packets 0 bytes 0 (0.0 B)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 0 bytes 0 (0.0 B)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1.6: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 192.168.174.42 netmask 255.255.255.0 broadcast 192.168.174.255

inet6 fe80::669d:99ff:feb1:7e62 prefixlen 64 scopeid 0x20<link>

ether 64:9d:99:b1:7e:62 txqueuelen 1000 (Ethernet)

RX packets 440 bytes 75189 (75.1 KB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 467 bytes 50169 (50.1 KB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536

```
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 6850 bytes 1336903 (1.3 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 6850 bytes 1336903 (1.3 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
=====
```

DHCP Status

```
=====
```

```
=====
```

DHCP Status

```
=====
```

isc-dhcp-server.service - ISC DHCP IPv4 server

Loaded: loaded (/lib/systemd/system/isc-dhcp-server.service; enabled; vendor preset: enabled)

Active: active (running) since Sat 2023-01-21 13:10:40 IST; 4min 4s ago

Docs: man:dhcpd(8)

Main PID: 11866 (dhcpd)

Tasks: 1 (limit: 4915)

CGroup: /system.slice/isc-dhcp-server.service

866 dhcpd -user dhcpd -group dhcpd -f -4 -pf /run/dhcp-server/dhcpd.pid -cf /etc/dhcp/dhcpd.conf eth1.6

Jan 21 13:10:40 vvdn sh[11866]: Sending on LPF/eth1.6/64:9d:99:b1:7e:62/192.168.174.0/24

Jan 21 13:10:40 vvdn sh[11866]: Sending on Socket/fallback/fallback-net

Jan 21 13:10:40 vvdn dhcpd[11866]: Listening on LPF/eth1.6/64:9d:99:b1:7e:62/192.168.174.0/24

Jan 21 13:10:40 vvdn dhcpd[11866]: Sending on LPF/eth1.6/64:9d:99:b1:7e:62/192.168.174.0/24

Jan 21 13:10:40 vvdn dhcpd[11866]: Sending on Socket/fallback/fallback-net

Jan 21 13:10:40 vvdn dhcpd[11866]: Server starting service.

Jan 21 13:10:52 vvdn dhcpd[11866]: DHCPDISCOVER from 98:ae:71:01:91:87 via eth1.6

Jan 21 13:10:53 vvdn dhcpd[11866]: DHCPOFFER on 192.168.174.37 to 98:ae:71:01:91:87 (vvdn_lpru) via eth1.6

Jan 21 13:10:53 vvdn dhcpd[11866]: DHCPREQUEST for 192.168.174.37 (192.168.174.42) from 98:ae:71:01:91:87 (vvdn_lpru) via eth1.6

Jan 21 13:10:53 vvdn dhcpd[11866]: DHCPACK on 192.168.174.37 to 98:ae:71:01:91:87 (vvdn_lpru) via eth1.6

```
=====
```

Pinging

```
=====
```

PING 192.168.174.37 (192.168.174.37) 56(84) bytes of data.

64 bytes from 192.168.174.37: icmp_seq=1 ttl=64 time=0.122 ms

64 bytes from 192.168.174.37: icmp_seq=2 ttl=64 time=0.136 ms

64 bytes from 192.168.174.37: icmp_seq=3 ttl=64 time=0.129 ms

64 bytes from 192.168.174.37: icmp_seq=4 ttl=64 time=0.218 ms

64 bytes from 192.168.174.37: icmp_seq=5 ttl=64 time=0.175 ms

--- 192.168.174.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4101ms

rtt min/avg/max/mdev = 0.122/0.156/0.218/0.036 ms

=====

The O-RU NETCONF Serve establishes TCP connection and performs a Call Home procedure towards the NETCONF Client and not establishes a SSH.

=====

> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.174.37' cannot be established.

ssh-rsa key fingerprint is c0:7c:63:5d:4b:85:e7:27:e0:7e:f0:44:38:4e:ab:83.

Are you sure you want to continue connecting (yes/no)? no

nc ERROR: Checking the host key failed.

cmd_listen: Receiving SSH Call Home on port 4334 as user "observer" failed.

> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.174.37' cannot be established.

ssh-rsa key fingerprint is c0:7c:63:5d:4b:85:e7:27:e0:7e:f0:44:38:4e:ab:83.

Are you sure you want to continue connecting (yes/no)? no

nc ERROR: Checking the host key failed.

cmd_listen: Receiving SSH Call Home on port 4334 as user "operator" failed.

> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.174.37' cannot be established.

ssh-rsa key fingerprint is c0:7c:63:5d:4b:85:e7:27:e0:7e:f0:44:38:4e:ab:83.

Are you sure you want to continue connecting (yes/no)? no

nc ERROR: Checking the host key failed.

cmd_listen: Receiving SSH Call Home on port 4334 as user "installer" failed.

> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.174.37' cannot be established.

ssh-rsa key fingerprint is c0:7c:63:5d:4b:85:e7:27:e0:7e:f0:44:38:4e:ab:83.

Are you sure you want to continue connecting (yes/no)? no

nc ERROR: Checking the host key failed.

cmd_listen: Receiving SSH Call Home on port 4334 as user "installer" failed.

> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.174.37' cannot be established.

ssh-rsa key fingerprint is c0:7c:63:5d:4b:85:e7:27:e0:7e:f0:44:38:4e:ab:83.

Are you sure you want to continue connecting (yes/no)? no

nc ERROR: Checking the host key failed.

cmd_listen: Receiving SSH Call Home on port 4334 as user "operator" failed.

=====

SYSTEM LOGS

=====

Nov 4 00:04:41 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:41 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:42 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:42 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:43 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:43 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:44 vvdn_lpru user.notice SYNCMNGR[1174]: Received message from S-Plane

Nov 4 00:04:44 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:44 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:45 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:45 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:46 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:46 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:47 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:47 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:48 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:48 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.174.42:4334 over IPv4.

Nov 4 00:04:48 vvdn_lpru daemon.info netopeer2-server[859]: Session 89 (user "root", CID 1) created.

Nov 4 00:04:49 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:50 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:50 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.174.42:4334 over IPv4.

Nov 4 00:04:50 vvdn_lpru daemon.info netopeer2-server[859]: Session 90 (user "root", CID 1) created.

Nov 4 00:04:51 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:52 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:52 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.174.42:4334 over IPv4.

Nov 4 00:04:52 vvdn_lpru daemon.info netopeer2-server[859]: Session 91 (user "root", CID 1) created.

Nov 4 00:04:52 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.174.42:4334 over IPv4.

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Session 92 (user "root", CID 1) created.

Nov 4 00:04:54 vvdn_lpru user.notice SYNCMNGR[1174]: Received message from S-Plane

Nov 4 00:04:54 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.174.42:4334.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.174.42:4334 over IPv4.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Session 93 (user "root", CID 1) created.

Nov 4 00:04:56 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:56 vvdn_lpru authpriv.debug sshd[4854]: pam_unix(sshd:account): account operator has password changed in future

Nov 4 00:04:56 vvdn_lpru auth.info sshd[4854]: Accepted password for operator from 192.168.174.42 port 38888 ssh2

Nov 4 00:04:56 vvdn_lpru authpriv.info sshd[4854]: pam_unix(sshd:session): session opened for user operator by (uid=0)

Expected Result : The TER NETCONF Client and O-RU NETCONF Server exchange capabilities through NETCONF <hello> messages.

=====

***** Actual Result *****

=====

=====

Transport and Handshake in IPv4 Environment (negative case: refuse SSH Connection) =

SUCCESS

=====