



@ FILE NAME: M_CTC_ID_002.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for MCB1: v1.0.1

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

ether 64:9d:99:ff:f5:12 txqueuelen 1000 (Ethernet)

RX packets 2114 bytes 392681 (392.6 KB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 935 bytes 95517 (95.5 KB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth1: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

ether 64:9d:99:ff:f5:13 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

eth2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 172.25.96.163 netmask 255.255.254.0 broadcast 172.25.97.255

inet6 fe80::a7de:bea9:9091:a5f0 prefixlen 64 scopeid 0x20<link>

ether b4:2e:99:60:73:8c txqueuelen 1000 (Ethernet)

RX packets 95284 bytes 118524978 (118.5 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 44564 bytes 21331766 (21.3 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

device interrupt 16 memory 0xb1400000-b1420000

eth0.458: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 192.168.156.187 netmask 255.255.255.0 broadcast 192.168.156.255

inet6 fe80::669d:99ff:feff:f512 prefixlen 64 scopeid 0x20<link>

ether 64:9d:99:ff:f5:12 txqueuelen 1000 (Ethernet)

RX packets 853 bytes 136709 (136.7 KB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 883 bytes 85821 (85.8 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 8074 bytes 632859 (632.8 KB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 8074 bytes 632859 (632.8 KB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

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DHCP Status

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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 Mon 2022-11-28 10:32:22 IST; 8min ago

Docs: man:dhcpcd(8)

Main PID: 7017 (dhcpcd)

Tasks: 1 (limit: 4915)

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

-user dhcpcd -group dhcpcd -f -4 -pf /run/dhcp-server/dhcpcd.pid -cf /etc/dhcp/dhcpcd.conf eth0.458

Nov 28 10:32:22 vvdn sh[7017]: Listening on LPF/eth0.458/64:9d:99:ff:f5:12/192.168.156.0/24

Nov 28 10:32:22 vvdn sh[7017]: Sending on LPF/eth0.458/64:9d:99:ff:f5:12/192.168.156.0/24

Nov 28 10:32:22 vvdn sh[7017]: Sending on Socket/fallback/fallback-net

Nov 28 10:32:22 vvdn dhcpcd[7017]: Sending on LPF/eth0.458/64:9d:99:ff:f5:12/192.168.156.0/24

Nov 28 10:32:22 vvdn dhcpcd[7017]: Sending on Socket/fallback/fallback-net

Nov 28 10:32:22 vvdn dhcpcd[7017]: Server starting service.

Nov 28 10:32:39 vvdn dhcpcd[7017]: DHCPDISCOVER from 98:ae:71:00:8a:c2 via eth0.458

Nov 28 10:32:40 vvdn dhcpcd[7017]: DHCPOFFER on 192.168.156.37 to 98:ae:71:00:8a:c2 (mcb1) via eth0.458

Nov 28 10:32:40 vvdn dhcpcd[7017]: DHCPREQUEST for 192.168.156.37 (192.168.156.187) from 98:ae:71:00:8a:c2 (mcb1) via eth0.458

Nov 28 10:32:40 vvdn dhcpcd[7017]: DHCPACK on 192.168.156.37 to 98:ae:71:00:8a:c2 (mcb1) via eth0.458

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Pinging

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PING 192.168.156.37 (192.168.156.37) 56(84) bytes of data.

64 bytes from 192.168.156.37: icmp_seq=1 ttl=64 time=0.152 ms

64 bytes from 192.168.156.37: icmp_seq=2 ttl=64 time=0.214 ms

64 bytes from 192.168.156.37: icmp_seq=3 ttl=64 time=0.208 ms

64 bytes from 192.168.156.37: icmp_seq=4 ttl=64 time=0.211 ms

64 bytes from 192.168.156.37: icmp_seq=5 ttl=64 time=0.165 ms

--- 192.168.156.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4097ms

rtt min/avg/max/mdev = 0.152/0.190/0.214/0.026 ms

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

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> listen --ssh --login operator

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.156.37' cannot be established.

ssh-rsa key fingerprint is 59:9e:90:48:f1:d7:6e:35:e8:d1:f6:1e:90:aa:a3:83:a0:6b:98:5a.

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.

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##### SYSTEM LOGS #####
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Oct 29 23:56:24 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:24 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).
Oct 29 23:56:25 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:25 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).
Oct 29 23:56:26 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:26 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).
Oct 29 23:56:27 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:27 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).
Oct 29 23:56:27 mcb1 user.notice SYNCMNGR[1310]: Received message from S-Plane
Oct 29 23:56:28 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:28 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).
Oct 29 23:56:29 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:29 mcb1 daemon.info netopeer2-server[981]: getsockopt() error (Connection refused).
Oct 29 23:56:30 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:30 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.
Oct 29 23:56:30 mcb1 daemon.info netopeer2-server[981]: Session 101 (user "root", CID 1) created.
Oct 29 23:56:30 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:31 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:31 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.
Oct 29 23:56:31 mcb1 daemon.info netopeer2-server[981]: Session 102 (user "root", CID 1) created.
Oct 29 23:56:31 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:32 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:32 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.
Oct 29 23:56:32 mcb1 daemon.info netopeer2-server[981]: Session 103 (user "root", CID 1) created.
Oct 29 23:56:32 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:33 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:33 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.
Oct 29 23:56:33 mcb1 daemon.info netopeer2-server[981]: Session 104 (user "root", CID 1) created.
Oct 29 23:56:33 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:34 mcb1 daemon.info netopeer2-server[981]: Trying to connect via IPv4 to 192.168.156.187:4334.
Oct 29 23:56:34 mcb1 daemon.info netopeer2-server[981]: Successfully connected to 192.168.156.187:4334 over IPv4.
Oct 29 23:56:34 mcb1 daemon.info netopeer2-server[981]: Session 105 (user "root", CID 1) created.
Oct 29 23:56:34 mcb1 daemon.err netopeer2-server[981]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:34 mcb1 auth.info sshd[7918]: Accepted password for operator from 192.168.156.187 port 60134 ssh2
Oct 29 23:56:34 mcb1 authpriv.info sshd[7918]: pam_unix(sshd:session): session opened for user operator by (uid=0)
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Expected Result : The TER NETCONF Client and O-RU NETCONF Server exchange capabilities through NETCONF <hello> messages.

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

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

SUCCESS

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