



@ FILE NAME: M_CTC_ID_002.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for MCB1: v1.0.5

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=4099<UP,BROADCAST,MULTICAST> mtu 1500
inet 192.168.6.15 netmask 255.255.255.0 broadcast 192.168.6.255
ether 64:9d:99:ff:f5:12 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: 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::af68:bb13:894f:e285 prefixlen 64 scopeid 0x20<link>
ether 64:9d:99:ff:f5:13 txqueuelen 1000 (Ethernet)
RX packets 50645 bytes 22720855 (22.7 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 42521 bytes 4383036 (4.3 MB)
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 1518806 bytes 261121705 (261.1 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 3733531 bytes 5324139256 (5.3 GB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
device interrupt 16 memory 0xb1400000-b1420000

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 327017 bytes 4990471223 (4.9 GB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 327017 bytes 4990471223 (4.9 GB)
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 Wed 2022-12-14 16:44:02 IST; 1h 10min ago

Docs: man:dhcpd(8)

Main PID: 24693 (dhcpd)

Tasks: 1 (limit: 4915)

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

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

Dec 14 17:40:55 vvdn dhcpd[24693]: DHCPACK on 192.168.4.39 to 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 14 17:51:46 vvdn dhcpd[24693]: reuse_lease: lease age 651 (secs) under 25% threshold, reply with unaltered, existing lease for 192.168.4.39

Dec 14 17:51:46 vvdn dhcpd[24693]: DHCPREQUEST for 192.168.4.39 from 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 14 17:51:46 vvdn dhcpd[24693]: DHCPACK on 192.168.4.39 to 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 14 17:54:11 vvdn dhcpd[24693]: reuse_lease: lease age 796 (secs) under 25% threshold, reply with unaltered, existing lease for 192.168.4.39

Dec 14 17:54:11 vvdn dhcpd[24693]: DHCPDISCOVER from 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 14 17:54:12 vvdn dhcpd[24693]: DHCPPOFFER on 192.168.4.39 to 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 14 17:54:12 vvdn dhcpd[24693]: reuse_lease: lease age 797 (secs) under 25% threshold, reply with unaltered, existing lease for 192.168.4.39

Dec 14 17:54:12 vvdn dhcpd[24693]: DHCPREQUEST for 192.168.4.39 (192.168.4.15) from 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 14 17:54:12 vvdn dhcpd[24693]: DHCPACK on 192.168.4.39 to 98:ae:71:00:8a:c2 (mcb1) via eth1

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Pinging

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PING 192.168.4.39 (192.168.4.39) 56(84) bytes of data.

64 bytes from 192.168.4.39: icmp_seq=1 ttl=64 time=0.172 ms

64 bytes from 192.168.4.39: icmp_seq=2 ttl=64 time=0.142 ms

64 bytes from 192.168.4.39: icmp_seq=3 ttl=64 time=0.153 ms

64 bytes from 192.168.4.39: icmp_seq=4 ttl=64 time=0.145 ms

64 bytes from 192.168.4.39: icmp_seq=5 ttl=64 time=0.195 ms

--- 192.168.4.39 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4090ms

rtt min/avg/max/mdev = 0.142/0.161/0.195/0.022 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:192.168.4.39' 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.

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##### SYSTEM LOGS #####
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Oct 26 12:14:31 mcb1 daemon.info haveged: haveged: ver: 1.9.5; arch: generic; vend: ; build: (gcc 9.2.0 CTV); collect: 128K
Oct 26 12:14:31 mcb1 daemon.info haveged: haveged: cpu: (VC); data: 16K (D); inst: 16K (D); idx: 11/40; sz: 15456/64452
Oct 26 12:14:31 mcb1 daemon.info haveged: haveged: tot tests(BA8): A:1/1 B:1/1 continuous tests(B): last entropy estimate 7.99872
Oct 26 12:14:31 mcb1 daemon.info haveged: haveged: fills: 0, generated: 0
Oct 26 12:14:31 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:31 mcb1 daemon.info netopeer2-server[985]: getsockopt() error (Connection refused).
Oct 26 12:14:32 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:32 mcb1 daemon.info netopeer2-server[985]: getsockopt() error (Connection refused).
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Oct 26 12:14:36 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:36 mcb1 daemon.info netopeer2-server[985]: getsockopt() error (Connection refused).
Oct 26 12:14:37 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:37 mcb1 daemon.info netopeer2-server[985]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 26 12:14:37 mcb1 daemon.info netopeer2-server[985]: Session 73 (user "root", CID 1) created.
Oct 26 12:14:38 mcb1 daemon.err netopeer2-server[985]: Communication SSH socket unexpectedly closed.
Oct 26 12:14:39 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:39 mcb1 daemon.info netopeer2-server[985]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 26 12:14:39 mcb1 daemon.info netopeer2-server[985]: Session 74 (user "root", CID 1) created.
Oct 26 12:14:39 mcb1 daemon.err netopeer2-server[985]: Communication SSH socket unexpectedly closed.
Oct 26 12:14:40 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:40 mcb1 daemon.info netopeer2-server[985]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 26 12:14:40 mcb1 daemon.info netopeer2-server[985]: Session 75 (user "root", CID 1) created.
Oct 26 12:14:40 mcb1 daemon.err netopeer2-server[985]: Communication SSH socket unexpectedly closed.
Oct 26 12:14:40 mcb1 authpriv.info login[2148]: pam_unix(login:session): session opened for user root by LOGIN(uid=0)
Oct 26 12:14:40 mcb1 authpriv.notice login[2149]: ROOT LOGIN on '/dev/ttyPS0'
Oct 26 12:14:41 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:41 mcb1 daemon.info netopeer2-server[985]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 26 12:14:41 mcb1 daemon.info netopeer2-server[985]: Session 76 (user "root", CID 1) created.
Oct 26 12:14:41 mcb1 daemon.err netopeer2-server[985]: Communication SSH socket unexpectedly closed.
Oct 26 12:14:42 mcb1 daemon.info netopeer2-server[985]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 26 12:14:42 mcb1 daemon.info netopeer2-server[985]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 26 12:14:42 mcb1 daemon.info netopeer2-server[985]: Session 77 (user "root", CID 1) created.
Oct 26 12:14:42 mcb1 daemon.err netopeer2-server[985]: Communication SSH socket unexpectedly closed.
Oct 26 12:14:42 mcb1 auth.info sshd[2153]: Accepted password for operator from 192.168.4.15 port 45910 ssh2
Oct 26 12:14:42 mcb1 authpriv.info sshd[2153]: 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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