



@ FILE NAME: M_CTC_ID_002.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for MCB1: v1.0.4

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
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
ether 64:9d:99:ff:f5:13 txqueuelen 1000 (Ethernet)
RX packets 830 bytes 205120 (205.1 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 779 bytes 103139 (103.1 KB)
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 7436 bytes 1802920 (1.8 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 4326 bytes 477089 (477.0 KB)
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 1286 bytes 101700 (101.7 KB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 1286 bytes 101700 (101.7 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 Wed 2022-12-07 13:29:24 IST; 6min ago

Docs: man:dhcpcd(8)

Main PID: 2775 (dhcpcd)

Tasks: 1 (limit: 4915)

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

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

Dec 07 13:29:24 vvdn sh[2775]: Listening on LPF/eth1/64:9d:99:ff:f5:13/192.168.4.0/24

Dec 07 13:29:24 vvdn sh[2775]: Sending on LPF/eth1/64:9d:99:ff:f5:13/192.168.4.0/24

Dec 07 13:29:24 vvdn sh[2775]: Sending on Socket/fallback/fallback-net

Dec 07 13:29:24 vvdn dhcpcd[2775]: Sending on LPF/eth1/64:9d:99:ff:f5:13/192.168.4.0/24

Dec 07 13:29:24 vvdn dhcpcd[2775]: Sending on Socket/fallback/fallback-net

Dec 07 13:29:24 vvdn dhcpcd[2775]: Server starting service.

Dec 07 13:31:35 vvdn dhcpcd[2775]: DHCPDISCOVER from 98:ae:71:00:8a:c2 via eth1

Dec 07 13:31:36 vvdn dhcpcd[2775]: DHCPOFFER on 192.168.4.37 to 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 07 13:31:36 vvdn dhcpcd[2775]: DHCPREQUEST for 192.168.4.37 (192.168.4.15) from 98:ae:71:00:8a:c2 (mcb1) via eth1

Dec 07 13:31:36 vvdn dhcpcd[2775]: DHCPACK on 192.168.4.37 to 98:ae:71:00:8a:c2 (mcb1) via eth1

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Pinging

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PING 192.168.4.37 (192.168.4.37) 56(84) bytes of data.

64 bytes from 192.168.4.37: icmp_seq=1 ttl=64 time=0.153 ms

64 bytes from 192.168.4.37: icmp_seq=2 ttl=64 time=0.179 ms

64 bytes from 192.168.4.37: icmp_seq=3 ttl=64 time=0.183 ms

64 bytes from 192.168.4.37: icmp_seq=4 ttl=64 time=0.181 ms

64 bytes from 192.168.4.37: icmp_seq=5 ttl=64 time=0.152 ms

--- 192.168.4.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4082ms

rtt min/avg/max/mdev = 0.152/0.169/0.183/0.020 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:192.168.4.37' 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.

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##### SYSTEM LOGS #####
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Oct 29 23:56:38 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:38 mcb1 daemon.info netopeer2-server[986]: getsockopt() error (Connection refused).
Oct 29 23:56:39 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:39 mcb1 daemon.info netopeer2-server[986]: getsockopt() error (Connection refused).
Oct 29 23:56:40 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:40 mcb1 daemon.info netopeer2-server[986]: getsockopt() error (Connection refused).
Oct 29 23:56:40 mcb1 user.notice SYNCMNGR[1304]: Received message from S-Plane
Oct 29 23:56:41 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:41 mcb1 daemon.info netopeer2-server[986]: getsockopt() error (Connection refused).
Oct 29 23:56:42 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:42 mcb1 daemon.info netopeer2-server[986]: getsockopt() error (Connection refused).
Oct 29 23:56:43 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:43 mcb1 daemon.info netopeer2-server[986]: getsockopt() error (Connection refused).
Oct 29 23:56:44 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:44 mcb1 daemon.info netopeer2-server[986]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 29 23:56:44 mcb1 daemon.info netopeer2-server[986]: Session 76 (user "root", CID 1) created.
Oct 29 23:56:44 mcb1 daemon.err netopeer2-server[986]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:45 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:45 mcb1 daemon.info netopeer2-server[986]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 29 23:56:45 mcb1 daemon.info netopeer2-server[986]: Session 77 (user "root", CID 1) created.
Oct 29 23:56:45 mcb1 daemon.err netopeer2-server[986]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:46 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:46 mcb1 daemon.info netopeer2-server[986]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 29 23:56:46 mcb1 daemon.info netopeer2-server[986]: Session 78 (user "root", CID 1) created.
Oct 29 23:56:46 mcb1 daemon.err netopeer2-server[986]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:47 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:47 mcb1 daemon.info netopeer2-server[986]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 29 23:56:47 mcb1 daemon.info netopeer2-server[986]: Session 79 (user "root", CID 1) created.
Oct 29 23:56:47 mcb1 daemon.err netopeer2-server[986]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:48 mcb1 daemon.info netopeer2-server[986]: Trying to connect via IPv4 to 192.168.4.15:4334.
Oct 29 23:56:48 mcb1 daemon.info netopeer2-server[986]: Successfully connected to 192.168.4.15:4334 over IPv4.
Oct 29 23:56:48 mcb1 daemon.info netopeer2-server[986]: Session 80 (user "root", CID 1) created.
Oct 29 23:56:48 mcb1 daemon.err netopeer2-server[986]: Communication SSH socket unexpectedly closed.
Oct 29 23:56:48 mcb1 auth.info sshd[4836]: Accepted password for operator from 192.168.4.15 port 57534 ssh2
Oct 29 23:56:48 mcb1 authpriv.info sshd[4836]: 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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