



@ FILE NAME: M_CTC_ID_003.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for LPRU: v1.1.0

Test Description : 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 uses improper credentials when trying to establish a SSH session with the 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 3775350 bytes 1652077688 (1.6 GB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 2442086 bytes 957137038 (957.1 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 3ffe:501:cafe::a001:1012 prefixlen 64 scopeid 0x0<global>

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

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

RX packets 49265 bytes 35318668 (35.3 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 160706 bytes 216665431 (216.6 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 60993 bytes 8041981 (8.0 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 46530 bytes 3063427 (3.0 MB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

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

inet 192.168.214.234 netmask 255.255.255.0 broadcast 192.168.214.255

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

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

RX packets 8090 bytes 28562574 (28.5 MB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 4365 bytes 368713 (368.7 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 588780 bytes 55883280 (55.8 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 588780 bytes 55883280 (55.8 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

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 Fri 2022-11-18 21:50:27 IST; 4min 16s ago

Docs: man:dhcpcd(8)

Main PID: 8261 (dhcpcd)

Tasks: 1 (limit: 4915)

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

└─8261 dhcpcd -user dhcpcd -group dhcpcd -f -4 -pf /run/dhcp-server/dhcpcd.pid -cf /etc/dhcp/dhcpcd.conf eth1.6

Nov 18 21:50:27 vvdn-PowerEdge-T440 sh[8261]: Sending on Socket/fallback/fallback-net

Nov 18 21:50:27 vvdn-PowerEdge-T440 dhcpcd[8261]: Sending on LPF/eth1.6/64:9d:99:b1:7e:62/192.168.214.0/24

Nov 18 21:50:27 vvdn-PowerEdge-T440 dhcpcd[8261]: Sending on Socket/fallback/fallback-net

Nov 18 21:50:27 vvdn-PowerEdge-T440 dhcpcd[8261]: Server starting service.

Nov 18 21:50:41 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPREQUEST for 192.168.252.37 from 78:7d:f3:01:13:bb via eth1.6: ignored (not authoritative).

Nov 18 21:50:46 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPREQUEST for 192.168.252.37 from 78:7d:f3:01:13:bb via eth1.6: ignored (not authoritative).

Nov 18 21:50:56 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPDISCOVER from 78:7d:f3:01:13:bb via eth1.6

Nov 18 21:50:57 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPOFFER on 192.168.214.37 to 78:7d:f3:01:13:bb (vvdn_lpru) via eth1.6

Nov 18 21:50:57 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPREQUEST for 192.168.214.37 (192.168.214.234) from 78:7d:f3:01:13:bb (vvdn_lpru) via eth1.6

Nov 18 21:50:57 vvdn-PowerEdge-T440 dhcpcd[8261]: DHCPACK on 192.168.214.37 to 78:7d:f3:01:13:bb (vvdn_lpru) via eth1.6

Pinging

PING 192.168.214.37 (192.168.214.37) 56(84) bytes of data.

64 bytes from 192.168.214.37: icmp_seq=1 ttl=64 time=0.112 ms

64 bytes from 192.168.214.37: icmp_seq=2 ttl=64 time=0.167 ms

64 bytes from 192.168.214.37: icmp_seq=3 ttl=64 time=0.148 ms

64 bytes from 192.168.214.37: icmp_seq=4 ttl=64 time=0.161 ms

64 bytes from 192.168.214.37: icmp_seq=5 ttl=64 time=0.149 ms

--- 192.168.214.37 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4096ms

rtt min/avg/max/mdev = 0.112/0.147/0.167/0.021 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 observer

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.214.37' 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)? yes

observer@::ffff:192.168.214.37 password:

nc ERROR: Unable to authenticate to the remote server (all attempts via supported authentication methods 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:192.168.214.37' 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)? yes

operator@::ffff:192.168.214.37 password:

nc ERROR: Unable to authenticate to the remote server (all attempts via supported authentication methods failed).

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

> listen --ssh --login installerr

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.214.37' 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)? yes

installerr@::ffff:192.168.214.37 password:

nc ERROR: Unable to authenticate to the remote server (all attempts via supported authentication methods failed).

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

> listen --ssh --login installer

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.214.37' 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)? yes

installer@::ffff:192.168.214.37 password:

nc ERROR: Unable to authenticate to the remote server (all attempts via supported authentication methods failed).

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

> listen --ssh --login operator1

Waiting 60s for an SSH Call Home connection on port 4334...The authenticity of the host '::ffff:192.168.214.37' 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)? yes

operator1@::ffff:192.168.214.37 password:

nc ERROR: Unable to authenticate to the remote server (all attempts via supported authentication methods failed).

cmd_listen: Receiving SSH Call Home on port 4334 as user "operator1" failed.

=====

SYSTEM LOGS

=====

Nov 4 00:04:49 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:49 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:50 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:50 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:51 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:51 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:52 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:52 vvdn_lpru daemon.info netopeer2-server[859]: getsockopt() error (Connection refused).

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Session 98 (user "root", CID 1) created.

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-service" of subtype "ssh-userauth".

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:04:53 vvdn_lpru daemon.info netopeer2-server[859]: Failed user "observer" authentication attempt (#1).

Nov 4 00:04:53 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:54 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:54 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.

Nov 4 00:04:54 vvdn_lpru daemon.info netopeer2-server[859]: Session 99 (user "root", CID 1) created.

Nov 4 00:04:54 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-service" of subtype "ssh-userauth".

Nov 4 00:04:54 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:04:54 vvdn_lpru daemon.info netopeer2-server[859]: Failed user "operator" authentication attempt (#1).

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 192.168.214.234:4334.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Session 100 (user "root", CID 1) created.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-service" of subtype "ssh-userauth".

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: User "installerr" not found locally.

Nov 4 00:04:55 vvdn_lpru daemon.info netopeer2-server[859]: Failed user "installerr" authentication attempt (#1).

Nov 4 00:04:55 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

Nov 4 00:04:56 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:56 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.

Nov 4 00:04:56 vvdn_lpru daemon.info netopeer2-server[859]: Session 101 (user "root", CID 1) created.

Nov 4 00:04:56 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-service" of subtype "ssh-userauth".

Nov 4 00:04:56 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:04:56 vvdn_lpru daemon.info netopeer2-server[859]: Failed user "installer" authentication attempt (#1).

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

Nov 4 00:04:57 vvdn_lpru user.notice SYNCMNGR[1175]: Received message from S-Plane

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: Successfully connected to 192.168.214.234:4334 over IPv4.

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: Session 102 (user "root", CID 1) created.

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-service" of subtype "ssh-userauth".

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: User "operator1" not found locally.

Nov 4 00:04:57 vvdn_lpru daemon.info netopeer2-server[859]: Failed user "operator1" authentication attempt (#1).

Nov 4 00:04:58 vvdn_lpru authpriv.debug sshd[5204]: pam_unix(sshd:account): account operator has password changed in future

Nov 4 00:04:58 vvdn_lpru auth.info sshd[5204]: Accepted password for operator from 192.168.214.234 port 59816 ssh2

Nov 4 00:04:58 vvdn_lpru authpriv.info sshd[5204]: pam_unix(sshd:session): session opened for user operator by (uid=0)

Nov 4 00:04:58 vvdn_lpru daemon.err netopeer2-server[859]: Communication SSH socket unexpectedly closed.

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

=====

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

=====

=====

Reject_SSH_Authentication_due_to_Incorrect_Credential	=	SUCCESS
--	----------	----------------

=====