



@ FILE NAME: M_CTC_ID_019.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for MCB1: v1.0.7

Test Description : This scenario is MANDATORY for an O-RU supporting the Hybrid M-plane architecture model.

This test validates that the O-RU correctly implements NETCONF Access Control security aspects.

The scenario corresponds to the following chapters in [3]:

3.3 SSH Connection Establishment

3.4 NETCONF Access Control

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STEP 1. The TER NETCONF Client establishes a connection with the O-RU NETCONF Server.

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******* Connect to the NETCONF Server *******

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```
> connect --ssh --host 192.168.3.38 --port 830 --login operator
ssh-rsa key fingerprint is c0:7c:63:5d:4b:85:e7:27:e0:7e:f0:44:38:4e:ab:83
Interactive SSH Authentication done.

> status
Current NETCONF session:
ID      : 25
Host    : 192.168.3.38
Port    : 830
Transport : SSH
Capabilities:
urn:ietf:params:netconf:base:1.0 urn:ietf:params:netconf:base:1.1 urn:ietf:params:netconf:capability:writable-running:1.0
urn:ietf:params:netconf:capability:candidate:1.0 urn:ietf:params:netconf:capability:rollback-on-error:1.0
urn:ietf:params:netconf:capability:validate:1.1 urn:ietf:params:netconf:capability:startup:1.0 urn:ietf:params:netconf:capability:xpath:1.0
urn:ietf:params:netconf:capability:with-defaults:1.0?basic-mode=explicit&also-supported=report-all,report-all-tagged,trim,explicit
urn:ietf:params:netconf:capability:notification:1.0 urn:ietf:params:netconf:capability:interleave:1.0
urn:ietf:params:xml:ns:yang:ietf-yang-metadata?module=ietf-yang-metadata&revision=2016-08-05
urn:ietf:params:xml:ns:yang:1?module=yang&revision=2017-02-20
urn:ietf:params:xml:ns:yang:ietf-inet-types?module=ietf-inet-types&revision=2013-07-15
urn:ietf:params:xml:ns:yang:ietf-yang-types?module=ietf-yang-types&revision=2013-07-15
urn:ietf:params:netconf:capability:yang-library:1.1?revision=2019-01-04&content-id=63
urn:sysrepo:plugind?module=sysrepo-plugind&revision=2020-12-10
urn:ietf:params:xml:ns:yang:ietf-netconf-acm?module=ietf-netconf-acm&revision=2018-02-14
urn:ietf:params:xml:ns:netconf:base:1.0?module=ietf-netconf&revision=2013-09-29&features=writable-running,candidate,rollback-on-error,valid
ate,startup,url,xpath urn:ietf:params:xml:ns:yang:ietf-netconf-with-defaults?module=ietf-netconf-with-defaults&revision=2011-06-01
urn:ietf:params:xml:ns:yang:ietf-netconf-notifications?module=ietf-netconf-notifications&revision=2012-02-06
urn:ietf:params:xml:ns:yang:ietf-netconf-monitoring?module=ietf-netconf-monitoring&revision=2010-10-04
urn:ietf:params:xml:ns:netconf:notification:1.0?module=notifications&revision=2008-07-14
urn:ietf:params:xml:ns:netmod:notification?module=nc-notifications&revision=2008-07-14
urn:ietf:params:xml:ns:yang:ietf-x509-cert-to-name?module=ietf-x509-cert-to-name&revision=2014-12-10
urn:ietf:params:xml:ns:yang:iana-crypt-hash?module=iana-crypt-hash&revision=2014-08-06 urn:notification_history?module=notification_history
urn:ietf:params:xml:ns:yang:iana-if-type?module=iana-if-type&revision=2017-01-19
```

=====

```
> subscribe --filter-xpath /ietf-netconf-notifications:*
```

=====

Ok

```
#####Step 2 and 3 O-RU NETCONF server replies by silently omitting data
nodes#####
```

```
> get --filter-xpath /o-ran-usermgmt:users/user
```

```
<?xml version="1.0" ?>
<data xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0">
  <users xmlns="urn:o-ran:user-mgmt:1.0">
    <user>
      <name>oranuser</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>operator</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>observer</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>installer</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>user1</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>User2</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>User3</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>user2</name>
```

```
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
<user>
<name>user3</name>
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
<user>
<name>user4</name>
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
<user>
<name>operator9272416</name>
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
<user>
<name>operator08457170344525021180394</name>
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
<user>
<name>operator1767096287497333</name>
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
</users>
</data>
```

=====

SYSTEM LOGS

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Nov 4 02:47:53 mcb1 daemon.info netopeer2-server[984]: Trying to connect via IPv4 to 192.168.4.15:4336.

Nov 4 02:47:53 mcb1 daemon.err netopeer2-server[984]: connect() failed (Network is unreachable).

Nov 4 02:47:54 mcb1 daemon.info netopeer2-server[984]: Trying to connect via IPv4 to 192.168.4.15:4336.

Nov 4 02:47:54 mcb1 daemon.err netopeer2-server[984]: connect() failed (Network is unreachable).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/fw_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/fw_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 1.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 1 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/nw_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/nw_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 2.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 2 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/operations_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/operations_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 3.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 3 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/pm_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/pm_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 4.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 4 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/um_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/um_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 5.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 5 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/sys_monitor

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/sys_monitor", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 6.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 6 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/fault_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/fault_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 7.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 7 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/file_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/file_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 8.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 8 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/supervision

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/supervision", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 9.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 9 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/sync_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/sync_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 10.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 10 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/ald_controller

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/ald_controller", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 11.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 11 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/log_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/log_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 12.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 12 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/radio_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/radio_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 13.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 13 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.notice wd_manager[1441]: Value is 1 for Xpath /vvdn_mcel-wdm:system-apps/cli_manager

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/cli_manager", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 14.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 14 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 user.warn log_manager[1407]: Failed to open /media/sd-mmcbk0p4/O-RAN/log/timezone. Using default value...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "o-ran-troubleshooting" event with ID 1.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 1 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Trying to connect via IPv4 to 192.168.4.15:4336.

Nov 4 02:47:55 mcb1 daemon.err netopeer2-server[984]: connect() failed (Network is unreachable).

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/supervision", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 15.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 15 priority 0 (remaining 0 subscribers).

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/ald_controller", but it is not required.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 16.

Nov 4 02:47:55 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 16 priority 0 (remaining 0 subscribers).

Nov 4 02:47:56 mcb1 user.notice SYNCMNGR[1305]: Received message from S-Plane

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: Session 25: thread 0 event new RPC.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: Session 25: thread 0 event session terminated.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: Resolving unresolved data nodes and their constraints...

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: There is no instance of "/vvdn_mcel-wdm:system-apps/fault_manager", but it is not required.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: All data nodes and constraints resolved.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: Processing "notif" "ietf-netconf-notifications" event with ID 17.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: Successful processing of "notif" event with ID 17 priority 0 (remaining 0 subscribers).

Nov 4 02:47:56 mcb1 daemon.err netopeer2-server[984]: Session 25: invalid session to write to.

Nov 4 02:47:56 mcb1 daemon.err netopeer2-server[984]: Session 25: failed to write notification (error).

Nov 4 02:47:56 mcb1 daemon.err netopeer2-server[984]: Sending a notification to session 25 failed.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: There are no subscribers for "ietf-netconf-notifications" notifications.

Nov 4 02:47:56 mcb1 daemon.info netopeer2-server[984]: Generated new event (netconf-session-end).

Nov 4 02:47:56 mcb1 authpriv.debug sshd[7141]: pam_unix(sshd:account): account operator has password changed in future

Nov 4 02:47:56 mcb1 auth.info sshd[7141]: Accepted password for operator from 192.168.3.15 port 48236 ssh2

Nov 4 02:47:56 mcb1 authpriv.info sshd[7141]: pam_unix(sshd:session): session opened for user operator by (uid=0)

Expected Result : The O-RU NETCONF server replies by silently omitting data nodes and their descendants to which the client does not have read access from the <rpc-reply> message

=====
***** **Actual Result** *****
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=====
Access Control Sudo (negative case) = SUCCESS
=====