@ FILE NAME: M_CTC_ID_019.txt

@ TEST SCOPE: M PLANE O-RAN CONFORMANCE

@ Software Release for LPRU: v1.1.0

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 192.168.214.37 --port 830 --login operator

        Interactive SSH Authentication

        Type your password:

        Password:

        > status

        Current NETCONF session:

        ID   : 3

        Host   : 192.168.214.37

        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=61 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,validate,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

==

Ok

==
###########Step 2 and 3 O-RU NETCONF server replies by silently omitting data nodes####################
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==
> get --filter-xpath /o-ran-usermgmt:users/user
==

```xml
<?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>operator10804206543</name>
   <account-type>PASSWORD</account-type>
   <enabled>true</enabled>
  </user>
  <user>
   <name>operator27689832</name>
   <account-type>PASSWORD</account-type>
   <enabled>true</enabled>
  </user>
  <user>
   <name>operator569496134733421925922</name>
   <account-type>PASSWORD</account-type>
   <enabled>true</enabled>
  </user>
 </users>
</data>
```

```
=========================================================================
   ############ SYSTEM LOGS #############
=========================================================================
```

Nov 4 00:01:55 vvdn_lpru user.notice SYNCMNGR[1175]: Received message from S-Plane

Nov 4 00:01:55 vvdn_lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:01:55 vvdn_lpru daemon.info netopeer2-server[858]: getsockopt() error (Connection refused).

Nov 4 00:01:56 vvdn_lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:01:56 vvdn_lpru daemon.info netopeer2-server[858]: getsockopt() error (Connection refused).

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Successfully connected to 192.168.214.234:4334 over IPv4.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Session 124 (user "root", CID 1) created.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-service" of subtype "ssh-userauth".

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: User "operator" authenticated.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-channel-open" of subtype "session".

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-channel" of subtype "subsystem".

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Call Home client "default-client" session 3 established.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Session 125 (user "root", CID 1) created.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: There are no subscribers for "ietf-netconf-notifications" notifications.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Generated new event (netconf-session-start).

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get" with ID 6 priority 0 for 1 subscribers.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get" "rpc" event with ID 6 priority 0 (remaining 1 subscribers).

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 6 priority 0 (remaining 0 subscribers).

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 6 priority 0 succeeded.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 2 event new RPC.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get" with ID 7 priority 0 for 1 subscribers.

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get" "rpc" event with ID 7 priority 0 (remaining 1 subscribers).

Nov 4 00:01:57 vvdn_lpru daemon.info netopeer2-server[858]: Published event "operational" "/o-ran-software-management:software-inventory" with ID 3.

Nov 4 00:01:57 vvdn_lpru user.notice fw_manager[929]: RPC #3 recieved. xpath -> /o-ran-software-management:software-inventory

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Event "operational" with ID 3 succeeded.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "VVDN O-RU", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "VVDN O-RU", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "VVDN=O-RU", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 7 priority 0 (remaining 0 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 7 priority 0 succeeded.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "VVDN O-RU", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "VVDN O-RU", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "VVDN=O-RU", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 2 event new RPC.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get-config" with ID 6 priority 0 for 1 subscribers.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get-config" "rpc" event with ID 6 priority 0 (remaining 1 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 6 priority 0 (remaining 0 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 6 priority 0 succeeded.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/ietf-hardware:name" with the value "ru-port0", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/ietf-hardware:name" with the value "ru-port0", but it is not required.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 1 event new RPC.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/notifications:create-subscription" with ID 3 priority 0 for 1 subscribers.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/notifications:create-subscription" "rpc" event with ID 3 priority 0 (remaining 1 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 3 priority 0 (remaining 0 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 3 priority 0 succeeded.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 2 event new RPC.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get-config" with ID 7 priority 0 for 1 subscribers.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get-config" "rpc" event with ID 7 priority 0 (remaining 1 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 7 priority 0 (remaining 0 subscribers).

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 7 priority 0 succeeded.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:01:58 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 2 event new RPC.

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 2 event new RPC.

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: Session 3: thread 2 event session terminated.

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: There are no subscribers for "ietf-netconf-notifications" notifications.

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: Generated new event (netconf-session-end).

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: Call Home client "default-client" session terminated.

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.

Nov 4 00:02:03 vvdn_lpru daemon.info netopeer2-server[858]: getsockopt() error (Connection refused).

Nov 4 00:02:03 vvdn_lpru authpriv.debug sshd[3353]: pam_unix(sshd:account): account operator has password changed in future

Nov 4 00:02:03 vvdn_lpru auth.info sshd[3353]: Accepted password for operator from 192.168.214.234 port 51296 ssh2

Nov 4 00:02:04 vvdn_lpru authpriv.info sshd[3353]: 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** *****************
===

==
Access Control Sudo (negative case)   =   SUCCESS

==