



@ FILE NAME: M_CTC_ID_020.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 user privileges.

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

3.4 NETCONF Access Control



****** Initial Get *******

> connect --ssh --host 192.168.214.37 --port 830 --login operator

Interactive SSH Authentication

Type your password:

Password:

> 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>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>



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

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

> connect --ssh --host 192.168.214.37 --port 830 --login installer

Interactive SSH Authentication

Type your password:

Password:

> status

Current NETCONF session:

ID : 4

Host : 192.168.214.37

Port: 830 Transport: SSH Capabilities:

 $urn: ietf: params: netconf: base: 1.0\ urn: ietf: params: netconf: base: 1.1\ urn: ietf: params: netconf: capability: writable-running: 1.0\ urn: ietf: params: netconf: capability: candidate: 1.0\ urn: ietf: params: netconf: capability: rollback-on-error: 1.0$

 $urn:ietf:params:netconf: capability:validate: 1.1\ urn:ietf:params:netconf: capability:validate: 1.1\ urn:ietf:params:netconf: capability:validate: 1.0\ urn:ietf:params:netconf: capability: with-defaults: 1.0? basic-mode=explicit&also-supported=report-all-tagged, trim, explicit$

 $urn: ietf: params: netconf: capability: notification: 1.0 \ urn: ietf: params: netconf: capability: interleave: 1.0 \ urn: ietf: params: netconf: param$

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,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-net conf-notifications? module = ietf-net conf-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 3 NETCONF server replies rejecting the protocol operation with an 'access-denied' error

ERROR

type : protocol tag : access-denied severity : error

</config>

path : /o-ran-usermgmt:users/user

message : Access to the data model "o-ran-usermgmt" is denied because "installer" NACM authorization failed.



- Nov 4 00:02:26 vvdn_lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.
- Nov 4 00:02:26 vvdn lpru daemon.info netopeer2-server[858]: getsockopt() error (Connection refused).
- Nov 4 00:02:27 vvdn lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.
- Nov 4 00:02:27 vvdn lpru daemon.info netopeer2-server[858]: Successfully connected to 192.168.214.234:4334 over IPv4.
- Nov 4 00:02:27 vvdn_lpru daemon.info netopeer2-server[858]: Session 132 (user "root", CID 1) created.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-service" of subtype "ssh-userauth".
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-auth" of subtype "password".
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: User "installer" authenticated.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-channel-open" of subtype "session".
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-channel" of subtype "subsystem".
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Call Home client "default-client" session 4 established.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Session 133 (user "root", CID 1) created.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: There are no subscribers for "ietf-netconf-notifications" notifications.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Generated new event (netconf-session-start).
- Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get" with ID 8 priority 0 for 1 subscribers.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get" "rpc" event with ID 8 priority 0 (remaining 1 subscribers).
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 8 priority 0 (remaining 0 subscribers).
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 8 priority 0 succeeded.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Session 4: thread 2 event new RPC.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get" with ID 9 priority 0 for 1 subscribers.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get" "rpc" event with ID 9 priority 0 (remaining 1 subscribers).
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Published event "operational" "/o-ran-software-management:software-inventory" with ID 4.
- Nov 4 00:02:28 vvdn_lpru user.notice fw_manager[929]: RPC #4 recieved. xpath -> /o-ran-software-management:software-inventory
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Event "operational" with ID 4 succeeded.
- Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...
- Nov 4 00:02:28 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 00:02:28 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 00:02:28 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 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 9 priority 0 (remaining 0 subscribers).

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 9 priority 0 succeeded.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 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 00:02:28 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 00:02:28 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 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Session 4: thread 1 event new RPC.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get-config" with ID 8 priority 0 for 1 subscribers.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get-config" "rpc" event with ID 8 priority 0 (remaining 1 subscribers).

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 8 priority 0 (remaining 0 subscribers).

 $Nov\ \ 4\ 00:02:28\ vvdn_lpru\ daemon.info\ netopeer 2-server [858]:\ Event\ "rpc"\ with\ ID\ 8\ priority\ 0\ succeeded.$

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

 $Nov\ \ 4\ 00:02:28\ vvdn_lpru\ daemon. info\ net opeer 2-server [858]:\ All\ data\ nodes\ and\ constraints\ resolved.$

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 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 00:02:28 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 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

 $Nov\ \ 4\ 00:02:28\ vvdn_lpru\ daemon.info\ netopeer 2-server [858]:\ Session\ \ 4:\ thread\ 0\ event\ new\ RPC.$

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Accepted a connection on :::830.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Session 138 (user "root", CID 1) created.

 $Nov\ 4\ 00:02:28\ vvdn_lpru\ daemon. info\ net opeer 2-server [858]: Received\ an\ SSH\ message\ "request-service"\ of\ subtype\ "ssh-user auth".$

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-auth" of subtype "password".

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: User "operator" authenticated.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-channel-open" of subtype "session".

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Received an SSH message "request-channel" of subtype "subsystem".

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Session 139 (user "root", CID 1) created.

 $Nov\ 4\ 00:02:28\ vvdn_lpru\ daemon. info\ net opeer 2-server [858]:\ There\ are\ no\ subscribers\ for\ "ietf-net conf-notifications"\ notifications.$

 $Nov\ 4\ 00:02:28\ vvdn_lpru\ daemon. info\ net opeer 2-server [858]:\ Generated\ new\ event\ (net conf-session-start).$

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.



Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:get" with ID 10 priority 0 for 1 subscribers.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:get" "rpc" event with ID 10 priority 0 (remaining 1 subscribers).

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 10 priority 0 (remaining 0 subscribers).

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 10 priority 0 succeeded.

Nov 4 00:02:28 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:28 vvdn lpru daemon.info netopeer2-server[858]: Session 5: thread 0 event new RPC.

Nov 4 00:02:29 vvdn_lpru daemon.info netopeer2-server[858]: Session 5: thread 1 event new RPC.

Nov 4 00:02:29 vvdn_lpru daemon.info netopeer2-server[858]: Session 5: thread 1 event session terminated.

Nov 4 00:02:29 vvdn_lpru daemon.info netopeer2-server[858]: There are no subscribers for "ietf-netconf-notifications" notifications.

Nov 4 00:02:29 vvdn_lpru daemon.info netopeer2-server[858]: Generated new event (netconf-session-end).

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/notifications:create-subscription" with ID 4 priority 0 for 1 subscribers.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/notifications:create-subscription" "rpc" event with ID 4 priority 0 (remaining 1 subscribers).

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Successful processing of "rpc" event with ID 4 priority 0 (remaining 0 subscribers).

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Event "rpc" with ID 4 priority 0 succeeded.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Session 4: thread 0 event new RPC.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Resolving unresolved data nodes and their constraints...

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: All data nodes and constraints resolved.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Published event "rpc" "/ietf-netconf:edit-config" with ID 3 priority 0 for 1 subscribers.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Processing "/ietf-netconf:edit-config" "rpc" event with ID 3 priority 0 (remaining 1 subscribers).

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: edit-config error-option "stop-on-error" not supported, rollback-on-error will be performed.

Nov 4 00:02:34 vvdn_lpru daemon.err netopeer2-server[858]: Access to the data model "o-ran-usermgmt" is denied because "installer" NACM authorization failed.

 $Nov\ \ 4\ 00:02:34\ vvdn_lpru\ daemon. info\ net opeer 2-server [858]: Failed\ processing\ of\ "rpc"\ event\ with\ ID\ 3\ priority\ 0\ (remaining\ 1\ subscribers).$

Nov 4 00:02:34 vvdn_lpru daemon.err netopeer2-server[858]: Access to the data model "o-ran-usermgmt" is denied because "installer" NACM authorization failed.

Nov 4 00:02:34 vvdn_lpru daemon.warn netopeer2-server[858]: Event "rpc" with ID 3 priority 0 failed (User callback failed).

Nov 4 00:02:34 vvdn_lpru daemon.err netopeer2-server[858]: Failed to send an RPC (User callback failed).

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Session 4: thread 3 event new RPC.

Nov 4 00:02:34 vvdn_lpru daemon.info netopeer2-server[858]: Session 4: thread 3 event reply error.

Nov 4 00:02:37 vvdn_lpru user.notice SYNCMNGR[1175]: Received message from S-Plane

Nov 4 00:02:39 vvdn_lpru daemon.info netopeer2-server[858]: Session 4: thread 1 event new RPC.

Nov 4 00:02:39 vvdn lpru daemon.info netopeer2-server[858]: Session 4: thread 1 event session terminated.

Nov 4 00:02:39 vvdn_lpru daemon.info netopeer2-server[858]: There are no subscribers for "ietf-netconf-notifications" notifications.

Nov 4 00:02:39 vvdn_lpru daemon.info netopeer2-server[858]: Generated new event (netconf-session-end).



- Nov 4 00:02:39 vvdn_lpru daemon.info netopeer2-server[858]: Call Home client "default-client" session terminated.
- Nov 4 00:02:39 vvdn_lpru daemon.info netopeer2-server[858]: Trying to connect via IPv4 to 192.168.214.234:4334.
- Nov 4 00:02:39 vvdn_lpru daemon.info netopeer2-server[858]: getsockopt() error (Connection refused).
- Nov 4 00:02:39 vvdn_lpru authpriv.debug sshd[3969]: pam_unix(sshd:account): account installer has password changed in future
- $Nov\ 4\ 00:02:39\ vvdn_lpru\ auth.info\ sshd [3969]:\ Accepted\ password\ for\ installer\ from\ 192.168.214.234\ port\ 53714\ ssh2$
- Nov 4 00:02:39 vvdn_lpru authpriv.info sshd[3969]: pam_unix(sshd:session): session opened for user installer by (uid=0)



Expected Result: The NETCONF server replies rejecting the protocol operation with an				
"access-denied" error.				
************** Actual Result ************************************				
	========	=======================================	========	
=======================================			==========	
Access Control NMS (negative case)	=	SUCCESS		