



**@ FILE NAME: M\_CTC\_ID\_019.txt**

**@ TEST SCOPE: M PLANE O-RAN CONFORMANCE**

**@ Software Release for MCB1: v1.0.1**

**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 192.168.170.37 --port 830 --login operator

Interactive SSH Authentication

Type your password:

Password:

> status

Current NETCONF session:

ID : 2

Host : 192.168.170.37

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=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

=====

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 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>garuda</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>operator11302326379</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>operator44567591</name>
      <account-type>PASSWORD</account-type>
      <enabled>true</enabled>
    </user>
    <user>
      <name>operator8075861281902</name>
```

```
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
<user>
<name>operator17619020756748090</name>
<account-type>PASSWORD</account-type>
<enabled>true</enabled>
</user>
</users>
</data>
```

## =====

**##### SYSTEM LOGS #####**

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Oct 29 23:13:19 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.170.85:4334.

Oct 29 23:13:19 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:13:20 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.170.85:4334.

Oct 29 23:13:20 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.170.85:4334.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Successfully connected to 192.168.170.85:4334 over IPv4.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Session 88 (user "root", CID 1) created.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Received an SSH message "request-service" of subtype "ssh-userauth".

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Received an SSH message "request-auth" of subtype "password".

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: User "operator" authenticated.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Received an SSH message "request-channel-open" of subtype "session".

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Received an SSH message "request-channel" of subtype "subsystem".

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Call Home client "default-client" session 2 established.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Session 89 (user "root", CID 1) created.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There are no subscribers for "ietf-netconf-notifications" notifications.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Generated new event (netconf-session-start).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Published event "rpc" "/ietf-netconf:get" with ID 3 priority 0 for 1 subscribers.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Processing "/ietf-netconf:get" "rpc" event with ID 3 priority 0 (remaining 1 subscribers).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Successful processing of "rpc" event with ID 3 priority 0 (remaining 0 subscribers).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Event "rpc" with ID 3 priority 0 succeeded.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 0 event new RPC.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Published event "rpc" "/ietf-netconf:get" with ID 4 priority 0 for 1 subscribers.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Processing "/ietf-netconf:get" "rpc" event with ID 4 priority 0 (remaining 1 subscribers).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Published event "operational" "/o-ran-software-management:software-inventory" with ID 2.

Oct 29 23:13:21 mcb1 user.notice fw\_manager[1064]: RPC #2 recieved. xpath -> /o-ran-software-management:software-inventory

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Event "operational" with ID 2 succeeded.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref  
"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "STL=O-RU", but it is not required.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref  
"/ietf-hardware:hardware/ietf-hardware:component/o-ran-hardware:product-code" with the value "STL=O-RU", but it is not required.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref

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

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Successful processing of "rpc" event with ID 4 priority 0 (remaining 0 subscribers).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Event "rpc" with ID 4 priority 0 succeeded.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref

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

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref

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

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref

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

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 2 event new RPC.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Published event "rpc" "/ietf-netconf:get-config" with ID 2 priority 0 for 1 subscribers.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Processing "/ietf-netconf:get-config" "rpc" event with ID 2 priority 0 (remaining 1 subscribers).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Successful processing of "rpc" event with ID 2 priority 0 (remaining 0 subscribers).

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Event "rpc" with ID 2 priority 0 succeeded.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/ietf-hardware:name" with the value "ru-port1", but it is not required.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: There is no leafref

"/ietf-hardware:hardware/ietf-hardware:component/ietf-hardware:name" with the value "ru-port1", but it is not required.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:21 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 1 event new RPC.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Published event "rpc" "/notifications:create-subscription" with ID 1 priority 0 for 1 subscribers.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Processing "/notifications:create-subscription" "rpc" event with ID 1 priority 0 (remaining 1 subscribers).

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Successful processing of "rpc" event with ID 1 priority 0 (remaining 0 subscribers).

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Event "rpc" with ID 1 priority 0 succeeded.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 1 event new RPC.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Published event "rpc" "/ietf-netconf:get-config" with ID 3 priority 0 for 1 subscribers.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Processing "/ietf-netconf:get-config" "rpc" event with ID 3 priority 0 (remaining 1 subscribers).

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Successful processing of "rpc" event with ID 3 priority 0 (remaining 0 subscribers).

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Event "rpc" with ID 3 priority 0 succeeded.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Resolving unresolved data nodes and their constraints...

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: All data nodes and constraints resolved.

Oct 29 23:13:22 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 3 event new RPC.

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 3 event new RPC.

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: Session 2: thread 3 event session terminated.

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: There are no subscribers for "ietf-netconf-notifications" notifications.

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: Generated new event (netconf-session-end).

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: Call Home client "default-client" session terminated.

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: Trying to connect via IPv4 to 192.168.170.85:4334.

Oct 29 23:13:27 mcb1 daemon.info netopeer2-server[980]: getsockopt() error (Connection refused).

Oct 29 23:13:27 mcb1 auth.info sshd[8868]: Accepted password for operator from 192.168.170.85 port 35834 ssh2

Oct 29 23:13:27 mcb1 authpriv.info sshd[8868]: 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**

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