

# Callhome to VES:pnfRegistration

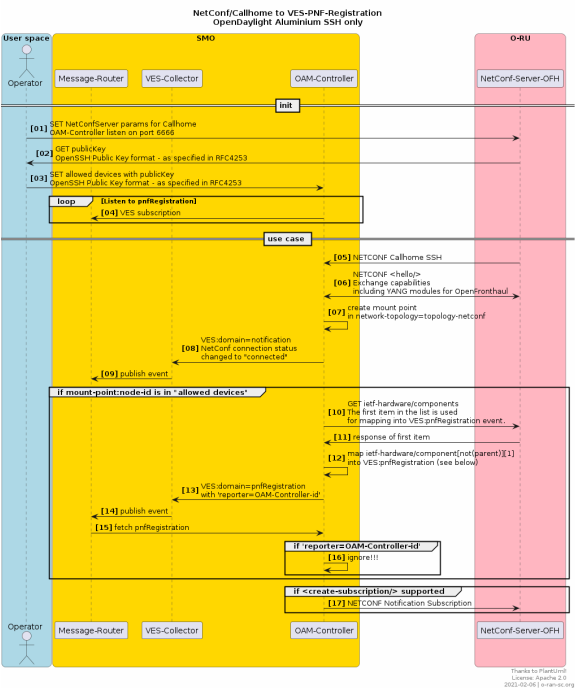
- Objective
- Sequence Diagram
- Implementation
- Mapping to VES pnfRegistration fields

## Objective

Typically network-functions supporting NetConf Callhome do not support at the same time the VES event 'pnfRegistration'. In order to inform the  $\mu$ Services within the SMO, a functionality at OAM-Controller level should be implemented. This function should send a VES pnfRegistration event to the VES-Collector when a new NetConf Server, which is part of the callhome-allowed-devices list inside the OAM-Controller, sends a Callhome message and a new mount-point is created.

As the OAM controller is listening to VES.pnfRegistration to establish NetConf sessions for "O-RAN O1 nodes" the VES:pnfRegistration invoked by the OAM-Controller must be ignored.

## Sequence Diagram



## Implementation

It is assumed that the existing "MountPoint-Registrar" functionality could be enhanced.

Please note that the ODL version Aluminium does not support NetConf Callhome via TLS. It should be checked, if the OpenDaylight version Silicon (R0 March 2021) could be used instead.

## Mapping to VES pnfRegistration fields

The following mapping table bases on the capabilities of OpenDaylight version Aluminium and maps them to the VES 7.2 fields for domain 'pnfRegistration'.

### VES:commonEventHeader

domain

eventId

eventName

eventType

### internalHeaderFields

lastEpochMicrosec

nfcNamingCode

nfNamingCode

(under discussion)

A couple of VES fields needs to be filled with values from a self:hardware/component which does not have the leaf "parent". If more than one competent would not have the leaf "parent" then the first component should be used for such fields (e.g. manufacture name).

### implementation of OpenDaylight Aluminium (link)

Static text "pnfRegistration"

Value of 'nt:network-topology/nt:topology/nt:node/nt:node-id'.

Value of 'nt:network-topology/nt:topology/nt:node/nt:node-id'.

Static text: "NetConf Callhome Registration"

not mapped

Time of OAM-Controller

always ""

always ""

|                                  |                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| nfVendorName                     | The value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[1]/mfg-name or empty string if not found.<br><br>Under discussion: how to identify the "root" component?                                                                                                                                                                     |
| priority                         | Static text "Normal"                                                                                                                                                                                                                                                                                                                                    |
| reportingEntityId                | The OAM-Controller identifier with in the SMO - e.g. the fully qualified domain name or IP-Address.<br>If a VES:pnfRegistration event is fetched from the Message-Router, then this VES:pnfRegistration event must not be processed and must be ignored, avoiding double registration by NetConf Callhome and VES:pnfRegistration                       |
| reportingEntityName              | as configured by helm charts for the OpenDaylight cluster name                                                                                                                                                                                                                                                                                          |
| sequence                         | As per NetConf notification increasing sequence number as unsigned integer 32 bits. The value is reused in the eventId field.                                                                                                                                                                                                                           |
| sourceId                         | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/uuid or 'nt:network-topology/nt:topology/nt:node/nt:node-id' if ietf component not found.                                                                                                                                                                        |
| sourceName                       | Value of 'nt:network-topology/nt:topology/nt:node/nt:node-id'.                                                                                                                                                                                                                                                                                          |
| startEpochMicrosec               | Current OAM-Controller Node timestamp in unix time format - as microseconds elapsed since 1 Jan 1970 not including leap seconds.<br>Q: is it possible to read a timestamp from the NetConf Callhome message?                                                                                                                                            |
| timeZoneOffset                   | Static text: "+00:00" - Please note, the time format in all related OAM controller times is in UTC time format - a mapping to other time formats happens in presentation layer only (e.g. on user settings, browser settings, ...)                                                                                                                      |
| version                          | Static text: "4.1"                                                                                                                                                                                                                                                                                                                                      |
| vesEventListenerVersion          | Static text "7.2"                                                                                                                                                                                                                                                                                                                                       |
| <b>VES:pnfRegistrationFields</b> | <br>If an ietf-hardware component is not identified for the mapping into VES:pnfRegistrationFields or a and optional leaf is not provided, then the VES:pnfRegistrationFields should be part of the message with its default value (e.g. empty string "")<br><br>The ietf-hardware component must not have the 'parent' leaf.                           |
| additionalFields                 | not mapped<br>Note: a mapping of NetConf ports, and NetConf credentials are not required.<br><br>In case a fully qualified domain name is used by the O-RU, then the oamFqdn should be added here, The fields 'ves:oamV4IpAddress' and 'oamV6IpAddress' would be not in such ves.pnfRegistration message. Note: such use case is not expected for 2021. |
| lastServiceDate                  | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/last-change or "1970-01-01T00:00:00z" if not found.                                                                                                                                                                                                                                        |
| macAddress                       | not mapped                                                                                                                                                                                                                                                                                                                                              |
| manufactureDate                  | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/mfg-date or empty string if not found.                                                                                                                                                                                                                           |
| modelName                        | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/model-name or empty string if not found.                                                                                                                                                                                                                         |
| oamV4IpAddress                   | Value of 'nt:network-topology/nt:topology/nt:node/nt:host', <b>IF</b> in IPv4 format otherwise an empty string                                                                                                                                                                                                                                          |
| oamV6IpAddress                   | Value of 'nt:network-topology/nt:topology/nt:node/nt:host', <b>IF</b> in IPv6 format. otherwise an empty string                                                                                                                                                                                                                                         |
| pnfRegistrationFieldsVersion     | Static text: "2.0"                                                                                                                                                                                                                                                                                                                                      |
| serialNumber                     | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/serial-num or empty string if not found.                                                                                                                                                                                                                         |
| softwareVersion                  | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/software-rev or empty string if not found.                                                                                                                                                                                                                       |
| unitFamily                       | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/alias or empty string if not found.                                                                                                                                                                                                                              |
| unitType                         | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/class or empty string if not found.                                                                                                                                                                                                                              |
| vendorName                       | Value of ietf-hardware ( <a href="#">RFC8348</a> ) /hardware/component[not(parent)][1]/mfg-name or empty string if not found.                                                                                                                                                                                                                           |