

# 5G - Configuration with NETCONF

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## Scope

Enhance NETCONF support in ONAP supporting 5G and other use cases.

Proposed UC to focus on in Dublin for configuration with NETCONF:

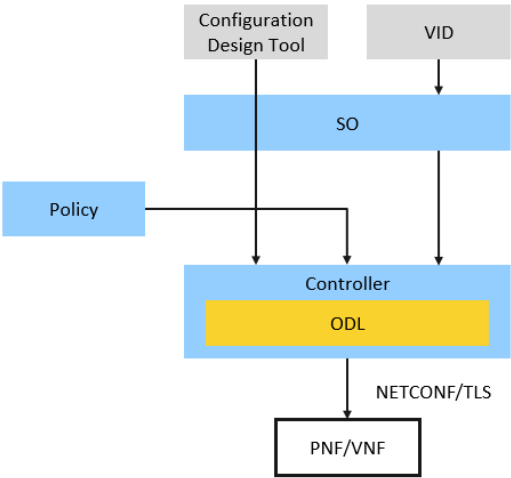
- Post-instantiation (triggered by SO)
  - Including final configuration step (36/37) in the PNF PnP UC
- (Stretch goal) Configuration modification (e.g. triggered by Policy)

Specific requirements on NETCONF support in ONAP:

- Officially support both PNFs and VNFs for north-bound controller APIs in the use cases
- Support for NETCONF over TLS (RFC7589)
- Support for YANG 1.1 (RFC7950) modules in addition to YANG 1.0

Presentations:

- [5G\\_UC\\_for\\_Dublin\\_NETCONF\\_Bulk\\_PM.pptx](#)
- [5G\\_UC\\_for\\_Dublin\\_NETCONF\\_Nov\\_22.pptx](#)
- [5G\\_UC\\_for\\_Dublin\\_NETCONF\\_PNF\\_Upgrade\\_DDF.pptx](#)



## Development Status

### Part 1: Protocol support

The first part of the feature focuses on supporting NETCONF/TLS and YANG 1.1 south-bound from the ONAP controller to PNFs and VNFs. OpenDaylight netconf-connector is proposed as the NETCONF client. TLS support has been added in the latest release (Flourine) although bug fixes may be required. One of the ONAP additions will be a mechanism in the controller to configure the keys and certificates used by ODL for NETCONF/TLS.

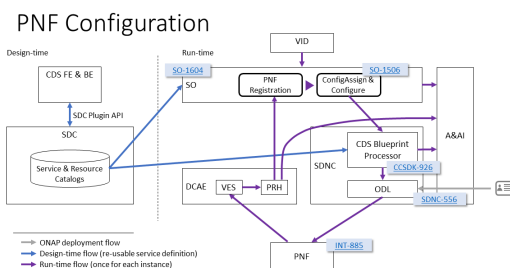
NETCONF requests could be triggered directly by using the ODL RESTCONF API for testing purposes, or from a directed graph (assuming suitable plugin is available).

Project	PTL	JIRA	Description	Status
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APPC SDNC CCSDK	Takamune Cho  Dan Timoney	<p><b>APPC-1277</b> - Getting issue details...</p> <p><b>STATUS</b></p>	<p>Enable NETCONF and TLS support in OpenDaylight when used by ONAP controller</p> <ol style="list-style-type: none"> <li>1. Upgrade to ODL Flourine release (service release may be required)</li> <li>2. Ensure required ODL features are installed by default in controller</li> <li>3. Develop solution to obtain and configure client certificate and private key as well as trusted certificates for NETCONF/TLS in ODL as part of controller instantiation <ul style="list-style-type: none"> <li>• Review solution in SECCOM</li> </ul> </li> </ol> <p>Verify configuration with NETCONF via controller/ODL with mix of YANG 1.0 and YANG 1.1 modules.</p>	<p>PTLs notified</p> <p>Feature has been delivered.</p> <p>Note: It is planned to start with SDNC in Dublin. To have same level of support in APPC, an additional ticket should be defined for (3), similar to SDNC-556.</p>
		<p><b>APPC-1258</b> - Getting issue details...</p> <p><b>STATUS</b></p>		
		<p><b>SDNC-551</b> - Getting issue details...</p> <p><b>STATUS</b></p>		
		<p><b>SDNC-555</b> - Getting issue details...</p> <p><b>STATUS</b></p>		
		<p><b>SDNC-556</b> - Getting issue details...</p> <p><b>STATUS</b></p>		
VNFRQTS	Steven Wright	<p><b>VNFRQTS-519</b> - Getting issue details...</p> <p><b>STATUS</b></p>	<p>Update xNF requirements</p> <ol style="list-style-type: none"> <li>1. NETCONF and security requirements shall allow NETCONF/TLS</li> <li>2. YANG requirements shall allow YANG 1.1</li> </ol>	<p>PTL notified</p> <p>Feature has been delivered.</p>
		<p><b>VNFRQTS-520</b> - Getting issue details...</p> <p><b>STATUS</b></p>		
		<p><b>VNFRQTS-603</b> - Getting issue details...</p> <p><b>STATUS</b></p>		

## Part 2: Configuration use cases

The second part of the feature will secure support for a complete PNF configuration use case, based on NETCONF/TLS as the device protocol. The solution will utilize Controller Design Studio (CDS) components including the run-time blueprint processor.



Project	PTL	JIRA	Description	Status
CCSDK	Dan Timoney	<div>CCSDK-926 - Getting issue details...<div>STATUS</div></div>	<p>Additional support for NETCONF/TLS configuration in the controller layer</p> <ol style="list-style-type: none"><li>1. Develop new capability in the CDS blueprint processor allowing use of the ODL netconf-connector from controller blueprints</li><li>2. Create and verify sample CBA file</li></ol>	<p>PTL notified</p> <p>Feature has been delivered.</p> <p>Note: As CDS components are under active development during Dublin, there are dependencies to several other Jira issues as well.</p>

SO	<a href="#">Seshu Kumar Mudiganti</a>	<div> <a href="#">SO-1506</a> - Getting issue details...  STATUS </div> <div> <a href="#">SO-1604</a> - Getting issue details...  STATUS </div> <div> <a href="#">SO-1671</a> - Getting issue details...  STATUS </div>	<p>Extend PNF support in the Service Orchestrator</p> <ol style="list-style-type: none"> <li>1. Update catalog DB schema for PNFs</li> <li>2. Add PNF model ingestion including blueprint information</li> <li>3. Add config-assign and config-deploy steps to the PNF workflow</li> </ol>	<p>PTL notified</p> <p>Feature has been delivered.</p> <p>Note: The PNF workflow extension will share some code with the VNF workflow, some of which is developed as part of other SO Jira issues.</p>
INT	<a href="#">Yang Xu</a>	<div> <a href="#">INT-885</a> - Getting issue details...  STATUS </div>	<p>Support NETCONF/TLS in the PNF simulator</p>	<p>PTL notified</p> <p>Feature has been delivered.</p>

## Testing

See the the Integration test page for details:

- [5G - Configuration with NETCONF - Test Cases](#)
- [5G - E2E PNF Onboarding with PnP & Configuration with Netconf over TLS - Integration Test Cases](#)