NetConf/Yang

**Training URLs:**  
[Developing Applications and Automating Workflows using Cisco Core Platforms](https://digital-learning.cisco.com/" \l "/course/62476)

Use Chapter 10. Employing Model-Driven Programmability, parts 10.1-10.5

**Objectives:**  
Learn how to configure and troubleshoot NetConf/Yang on IOS-XR based devices

**Pre-requisites:**  
None

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**Max Days / Weeks for Completition:**  
3-4 days

## Configuration Requirements:

1. **(5 points)** Select one of IOS-XR based device from CALO RTP or EMEA la, preferably ASR9000 or NCS55xx

with IOS-XR release 6.3.3 or later. Complete required SSH server configuration on selected device

1. **(5 points)** Complete required Netconf/Yang configuration on selected device. Verify agent is ready with appropriate CLI command
2. **(5 points)** Install Docker Desktop on laptop using either [Docker Desktop for Mac](https://hub.docker.com/editions/community/docker-ce-desktop-mac) or [Docker Desktop for Windows](https://hub.docker.com/editions/community/docker-ce-desktop-windows). Verify if Docker Desktop is up and running with appropriate CLI command in Terminal session.
3. **(10 points)** Use either Git to clone [GitHub repository](https://www-github.cisco.com/vzhovtan/led-t-netconf-yang) or download Zip archive from

GitHub. If repository was cloned the directory “led-t-netconf-yang” has been created, if Zip archive downloaded from GitHub then create “led-t-netconf-yang” directory and unzip downloaded files there

1. **(10 points)** Go to the“led-t-netconf-yang” directory Create new Docker image with the tag led-t:latest using provided Dockerfile.
2. **(5 points)** Start new Docker container with created image
3. **(10 points)** Edit “netconf\_yang\_loopback.py” file in container and add proper target selected IOS-XR device IPv4 address, username and password. Save the file and run it in container with appropriate command.
4. **(10 points)** Verify Netconf capabilities exchange and compare the output from the script with appropriate CLI command.
5. **(10 points)** Verify Netconf statistics on selected IOS-XR device running “netconf\_yang\_loopback.py” few times and capturing appropriate CLI commands.
6. **(10 points)** Check the Netconf traces on IOS-XR device and compare them with the output from “netconf\_yang\_loopback.py” file for Loopback interface.
7. **(10 points)** Use pyang CLI in Docker container to see the structure of “openconfig-interfaces.yang” module
8. **(10 points)** Check Netconf client status on selected device, initiate Netconf session form a different terminal session and check Netconf client status on device again while session is opened.