



Universidad Tecnológica  
del Norte de Guanajuato  
Organismo Público Descentralizado del Gobierno del Estado

**Facultad de:** *Infraestructura de Redes Digitales*

**Nombre del Alumno(a):** *Ángel Armando Ramírez Vázquez*

**Matrícula:** *1221100627*

**Materia:**

*Programación de Redes*

**Nombre de la Actividad:**

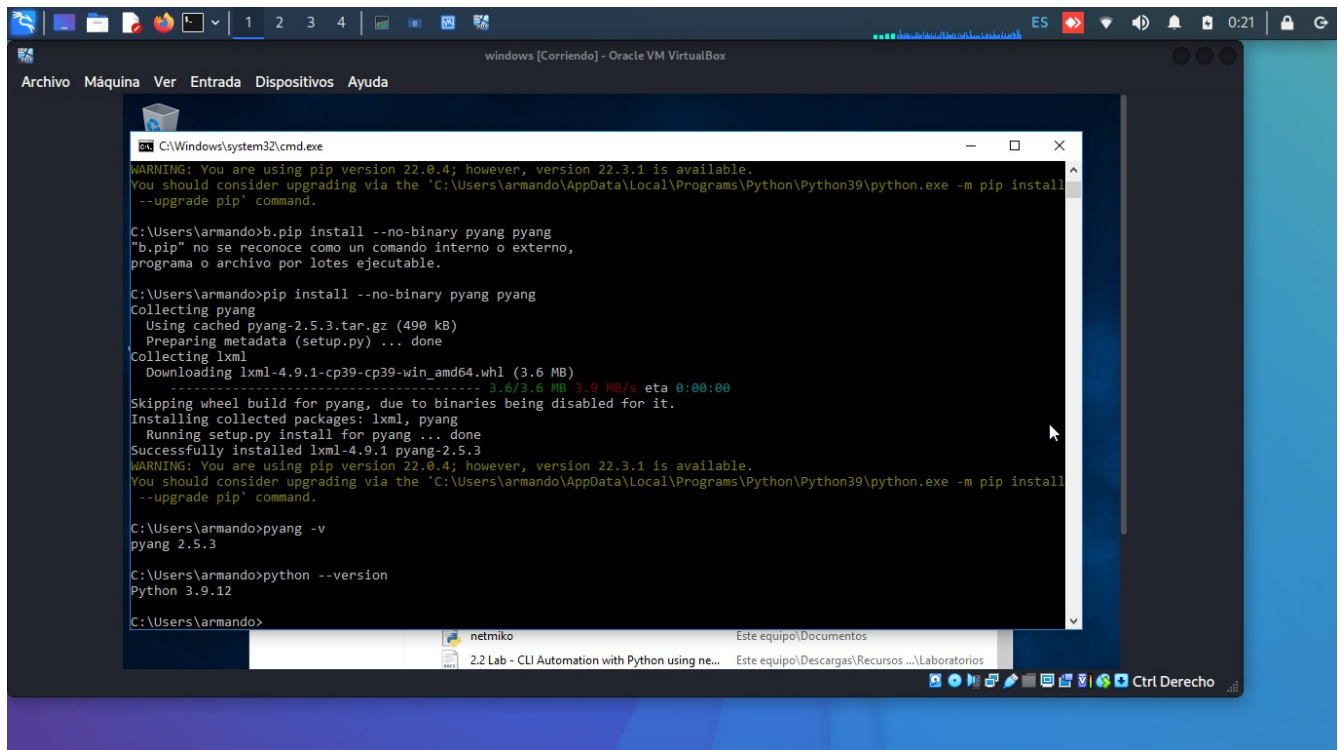
*2.3 Lab - Explore YANG models using the pyang tool*

**Profesor:**

*Barron Rodríguez Gabriel*

**Lugar y Fecha de Presentación:** *Dolores Hidalgo C.I.N.*; hoy *6* de *Diciembre* del  
2022

## Paso 1. Instala el modulo de python pyang



```
C:\Windows\system32\cmd.exe
WARNING: You are using pip version 22.0.4; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\armando\AppData\Local\Programs\Python\Python39\python.exe -m pip install
--upgrade pip' command.

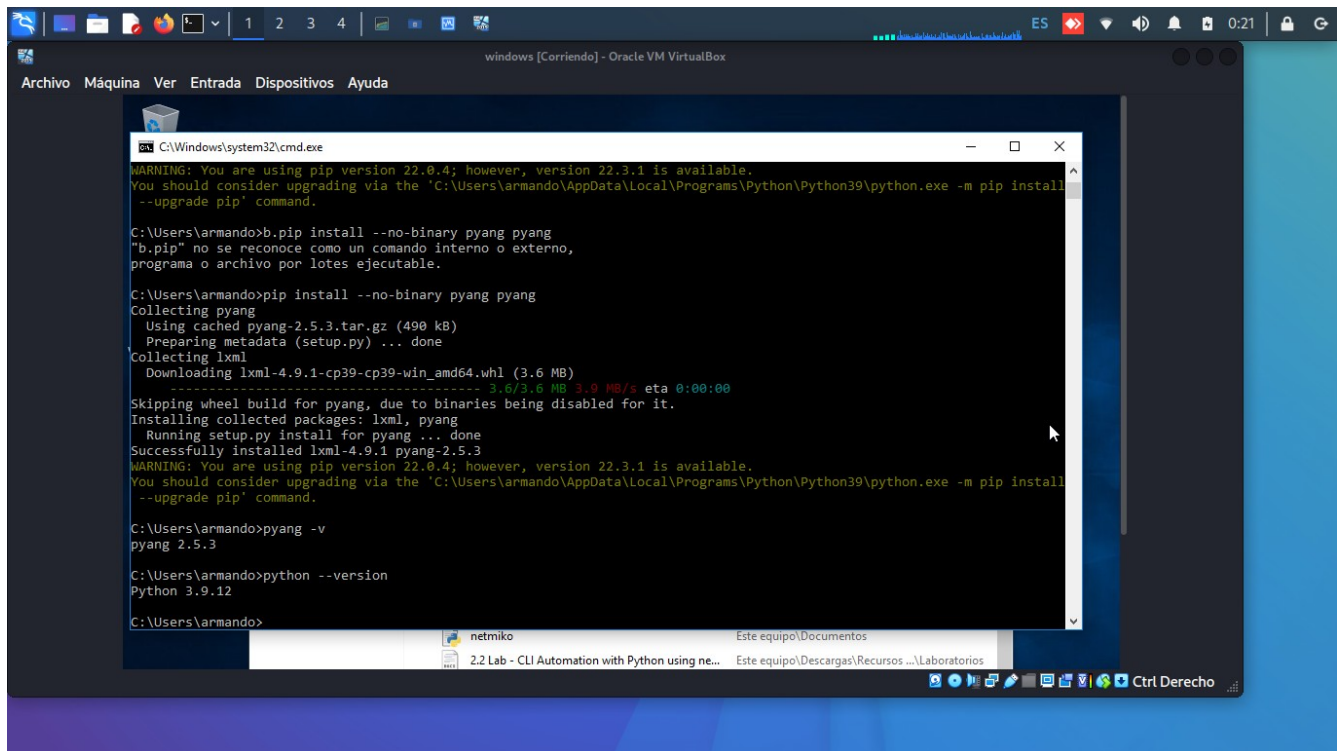
C:\Users\armando>b.pip install --no-binary pyang pyang
"b.pip" no se reconoce como un comando interno o externo,
programa o archivo por lotes ejecutable.

C:\Users\armando>pip install --no-binary pyang pyang
Collecting pyang
  Using cached pyang-2.5.3.tar.gz (490 kB)
  Preparing metadata (setup.py) ... done
Collecting lxml
  Downloading lxml-4.9.1-cp39-cp39-win_amd64.whl (3.6 MB)
    ----- 3.6/3.6 MB 3.0 MB/s eta 0:00:00
Skipping wheel build for pyang, due to binaries being disabled for it.
Installing collected packages: lxml, pyang
  Running setup.py install for pyang ... done
Successfully installed lxml-4.9.1 pyang-2.5.3
WARNING: You are using pip version 22.0.4; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\armando\AppData\Local\Programs\Python\Python39\python.exe -m pip install
--upgrade pip' command.

C:\Users\armando>pyang -v
pyang 2.5.3

C:\Users\armando>python --version
Python 3.9.12

C:\Users\armando>
```



```
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WARNING: You are using pip version 22.0.4; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\armando\AppData\Local\Programs\Python\Python39\python.exe -m pip install
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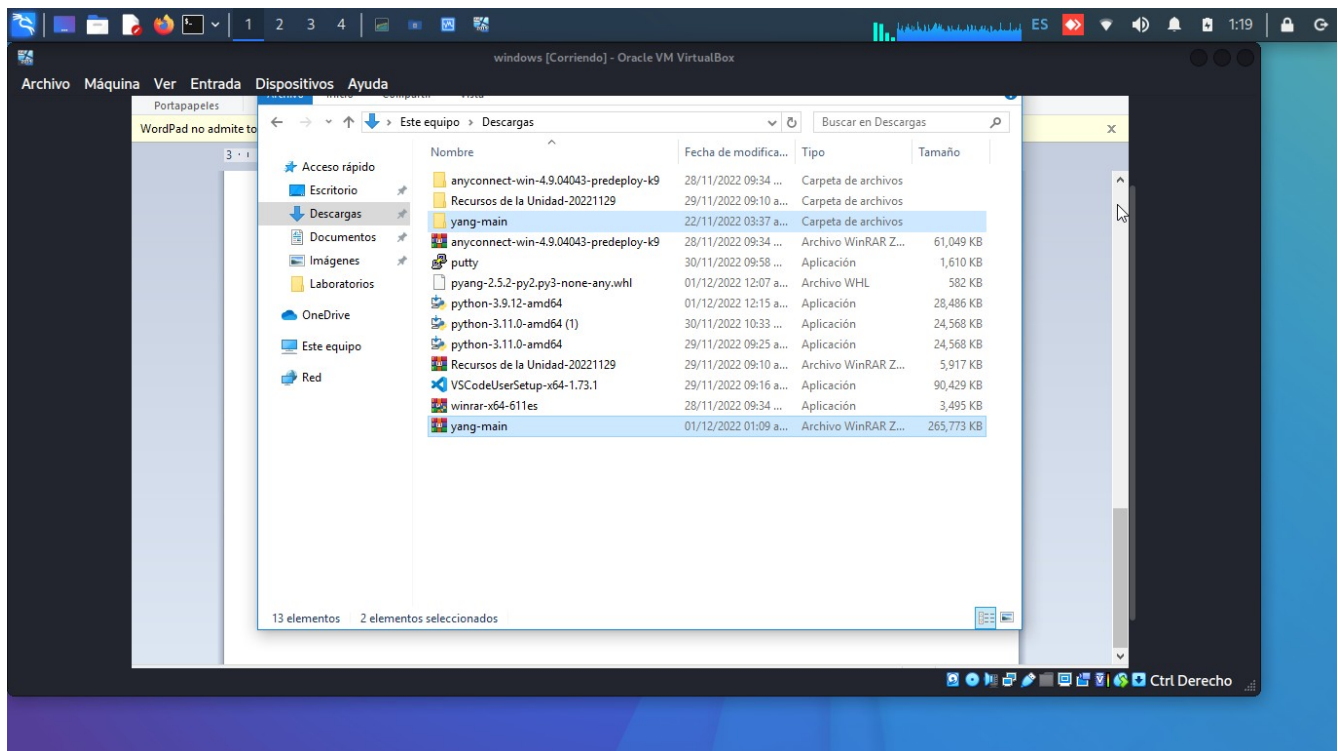
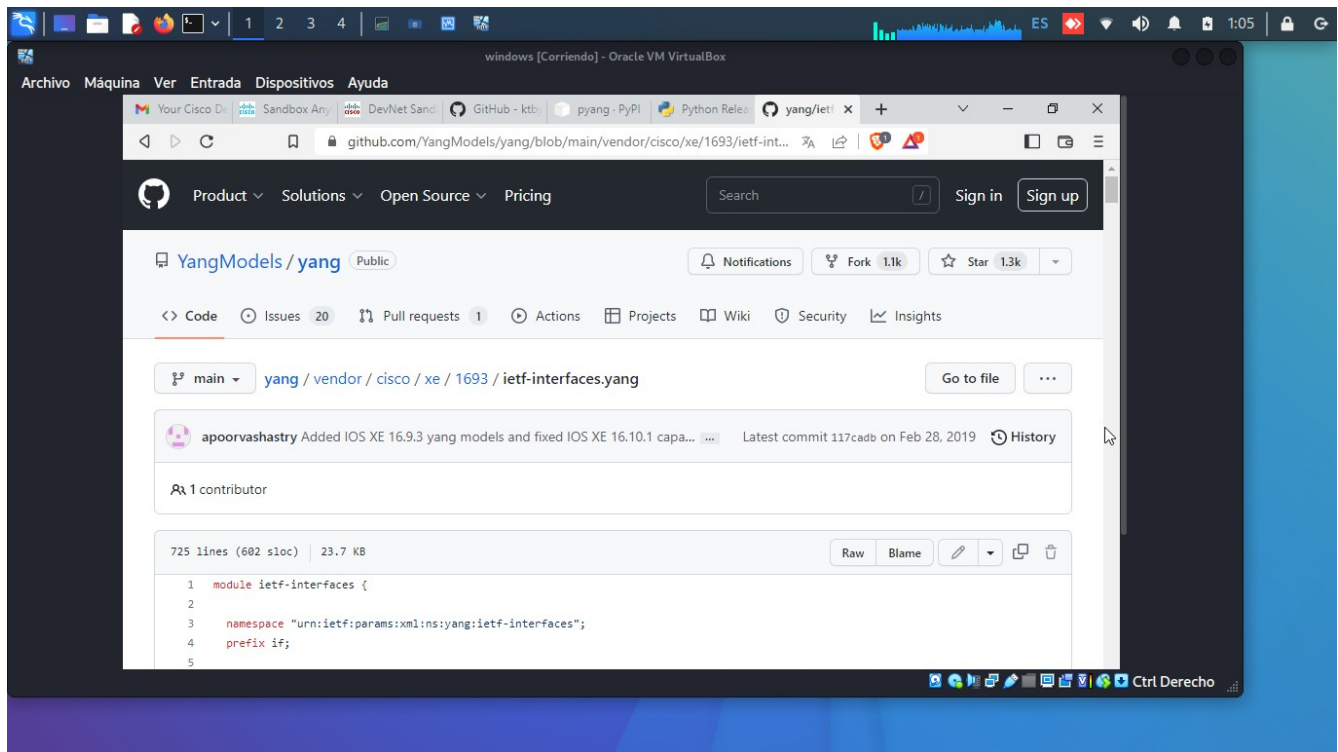
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Collecting pyang
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  Running setup.py install for pyang ... done
Successfully installed lxml-4.9.1 pyang-2.5.3
WARNING: You are using pip version 22.0.4; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\armando\AppData\Local\Programs\Python\Python39\python.exe -m pip install
--upgrade pip' command.

C:\Users\armando>pyang -v
pyang 2.5.3

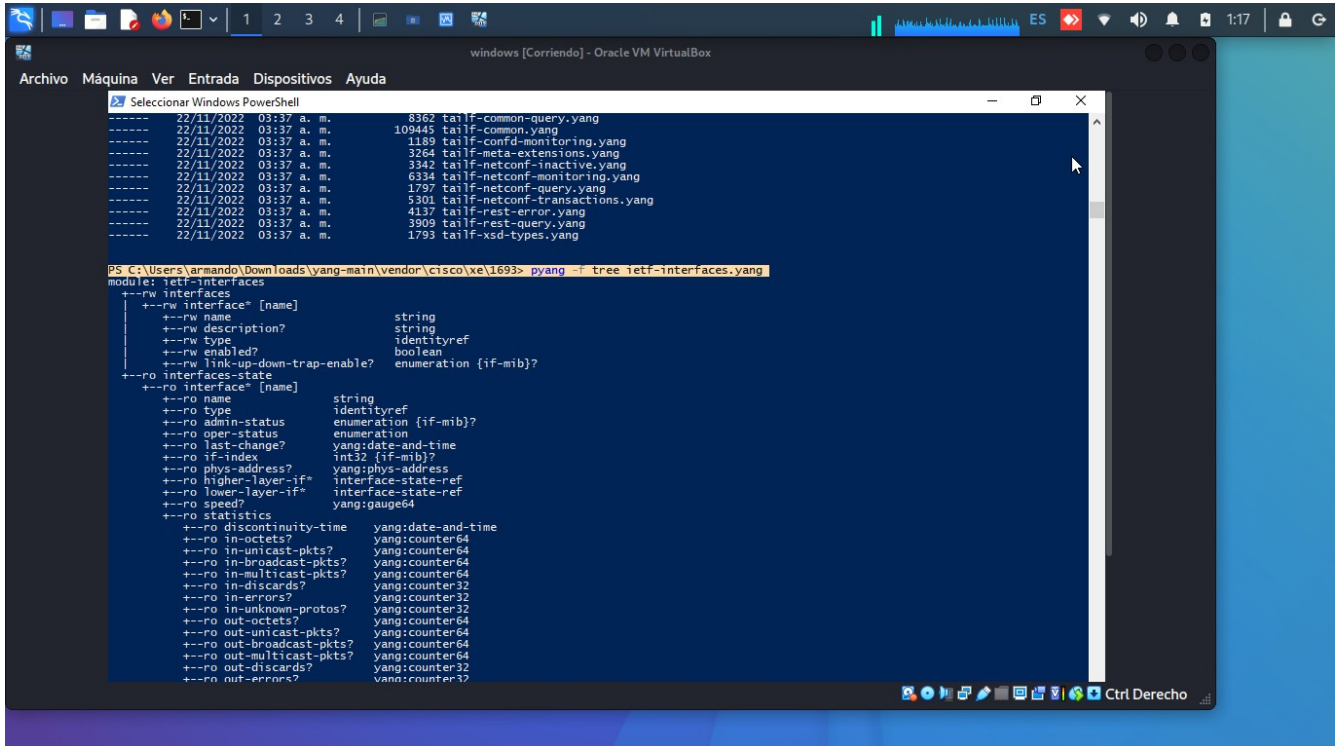
C:\Users\armando>python --version
Python 3.9.12

C:\Users\armando>
```

Paso 2.- Descarga el archivo Yang Models for the IOS XE VM.



Paso 3. Usa pyang en la línea de comandos.



```
----- 22/11/2022 03:37 a. m. 8362 tailf-common-query.yang
----- 22/11/2022 03:37 a. m. 109445 tailf-common.yang
----- 22/11/2022 03:37 a. m. 1189 tailf-confd-monitoring.yang
----- 22/11/2022 03:37 a. m. 3264 tailf-meta-extensions.yang
----- 22/11/2022 03:37 a. m. 3342 tailf-netconf-inactive.yang
----- 22/11/2022 03:37 a. m. 6334 tailf-netconf-monitoring.yang
----- 22/11/2022 03:37 a. m. 1797 tailf-netconf-query.yang
----- 22/11/2022 03:37 a. m. 5301 tailf-netconf-transactions.yang
----- 22/11/2022 03:37 a. m. 4137 tailf-rest-error.yang
----- 22/11/2022 03:37 a. m. 3909 tailf-rest-query.yang
----- 22/11/2022 03:37 a. m. 1793 tailf-xsd-types.yang

PS C:\Users\armando\Downloads\yang-main\vendor\cisco\xe1693> pyang -f tree ietf-interfaces.yang
module: ietf-interfaces
  +-rw interfaces
    +-rw interface* [name]
      +-rw name string
      +-rw description? string
      +-rw type identityref
      +-rw enabled? boolean
      +-rw link-up-down-trap-enable? enumeration {if-mib}?
    +-ro interfaces-state
      +-ro interface* [name]
        +-ro name string
        +-ro type identityref
        +-ro admin-status enumeration {if-mib}?
        +-ro oper-status enumeration
        +-ro last-change? yang:date-and-time
        +-ro if-index int32 {if-mib}?
        +-ro phys-address? yang:phys-address
        +-ro higher-layer-if* interface-state-ref
        +-ro lower-layer-if* interface-state-ref
        +-ro speed? yang:gauge64
        +-ro statistics
          +-ro discontinuity-time yang:date-and-time
          +-ro in-octets? yang:counter64
          +-ro in-unicast-pkts? yang:counter64
          +-ro in-broadcast-pkts? yang:counter64
          +-ro in-multicast-pkts? yang:counter64
          +-ro in-discards? yang:counter32
          +-ro in-errors? yang:counter32
          +-ro in-unknown-protos? yang:counter32
          +-ro out-octets? yang:counter64
          +-ro out-unicast-pkts? yang:counter64
          +-ro out-broadcast-pkts? yang:counter64
          +-ro out-multicast-pkts? yang:counter64
          +-ro out-discards? yang:counter32
          +-ro out-errors? yang:counter32
```