Assignment #4

NES 470, Spring 2023, Dr. Ahmad T. Al-Hammouri

Objectives:

To acquire a hands-on experience with the YANG data modeling language to write a YANG model.

Problem Statement:

This is a sequel assignment to Assignment #2. You are going to re-implement the model for the firewall table using the newer YANG modeling language instead of SMIv2.

The model requirements are as follows:

- The module name is `ID-xxxxxx`, where '`xxxxxx`' is your student ID.
- Each entry in the firewall table defines a firewall rule and has the following information:
  - Source MAC address.
  - Destination MAC address.
  - Source IP address.
  - Destination IP address.
  - Source TCP/UDP port number.
  - Destination TCP/UDP port number.
  - Protocol type: one of TCP, UDP, or ICMP
  - Action: one of accept, drop, or reject
  - Number of packets that have matched this rule/entry.
- The RESTCONF client can **retrieve** any piece of data in the firewall table.
- The RESTCONF client can **modify** any piece of data in the firewall table **except the number of packets that have matched a given rule**.
- All the information (data nodes) above are **mandatory**.
- Each data node must have the **appropriate** data type and the appropriate classification of being configuration or state data.
- The model must conform to **YANG 1.1** RFC.
- When validated by the `pyang` tool, the model must produce **no** errors and **no** warnings.

Hints:

- As discussed in class, a **table** can be constructed with a YANG **`list`** data node.
- You are highly encouraged to start with, and build upon the simple `example-system` YANG module discussed in class.
- You are highly encouraged to look into, to investigate, and to mimic the IETF's or the OpenConfig's `interfaces` YANG modules, or other real and standard YANG modules.
- Run `pyang --tree-help` to obtain a full explanation of the symbols used in the tree output of `pyang`.

- Edit the file inside the "`~/yang/standard/ietf/RFC`" directory.