**P4 DOWNLOAD DOCUMENTATION:**

First, I would like to welcome all the learners into the world of P4. This documentation will help you walk through the installation process of the P4 environment.

**Step-1:** First and the foremost step is to download a virtual machine and install Ubuntu Linux distribution version 18.04.5 or 16.04 in it, as it is of paramount importance because the installation script sets up environment to execute P4 and any roadblocks encountered might render your system with unwanted glitches. Allocate a minimum of 2GB RAM and a minimum of 20GB of free disk space for your virtual machine. For a detailed guide follow this link:

<https://www.youtube.com/watch?v=QbmRXJJKsvs>

**Step-2:** Open your virtual box and boot into your guest operating system and the first thing is to run the following command:

**sudo apt-get update**

This will install all the pending updates of your guest system.

After that next thing is to install git and the command is:

**sudo apt install git**

**Step-3:** Clone the repository from the address<https://github.com/jafingerhut/p4-guide> into the home directory itself. If you clone it to any other directory, then, installation process may run into permission issues. Command to do the same is:

**git clone https://github.com/jafingerhut/p4-guide.git**

**Step-4:** Run the following command on the terminal to start the installation process:

**./p4-guide/bin/install-p4dev-v2.sh |& tee log.tx**

This command will install the complete P4 emulation environment along with all the implicit dependencies.

It has an approximate installation time of 2 hours and can take up space up to 11GB.

**P4 PROGRAM STRUCTURE:**

1) Headers

2) Parser

3) Check-Sum Verification

4) Ingress Processing

5) Egress Processing

6) Check-Sum update

7) Deparser

8) Switch

**P4 SAMPLE PROGRAMS:**

Sample programs can be obtained from<https://github.com/p4lang/tutorials> which gives an insight on how a P4 program is run on a target switch which in this case would be a BMV2 software switch.

**COMPILING AND RUNNING**

**A P4 PROGRAM:**

For the compilation process we can take inspiration from the makefile provided in the tutorials utils directory which compiles the p4 program and feeds it to the BMV2 switch.