Managing Software in Linux Systems

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Overview

Software Packaging Environments

- apt
- yum / dnf
- zypper

Installing From Source

Python Virtual Environments

Software Packaging

Alma (RHEL)

dnf / yum

openSUSE

zypper

Ubuntu 20.04

apt

Demo

Working on the Ubuntu

- We investigate **apt**

Demo

Working on the openSUSE

- We investigate managing software using **zypper**

Demo

Working on the Alma

- We investigate **yum / dnf**

Current NMAP Versions

Ubuntu 20.04: 7.80

NMAP Source: 7.92

```
# apt install git wget build-essential checkinstall libpcre3-dev libssl-dev libpcap-dev
$ git clone https://github.com/nmap/nmap.git
$ cd nmap
$ ./configure
$ make
$ sudo make install
$ nmap -V
```

Installing Software From Source

To get the very latest version of software or to customize the install, we can download and compile the source code

```
#include <stdio.h>
void main () {
        printf("Hello world!\n");
}
```

Simple (Very) C Source Code

This is not a programming course, but it helps to understand what source code is by creating some

Demo

Working on Ubuntu

- we install **nmap** from source
- create simple C source file

Source Code

Not Just C

Python Scripts Also Source Code

Python Libraries

System

Installing Python packages with pip into the system add many libraries

Virtual Environment

Using Virtual Environments can lighten the system load and help avoid version clash

```
$ sudo apt install python3-virtualenv
$ mkdir python
$ cd python
$ virtualenv ansible
$ source ansible/bin/activate
$ pip3 install ansible
$ ansible --version
```

Installing Ansible From Source into Virtual Environment

Ansible is Python based configuration management tool. It uses many Python libraries which we can keep separate from the system Python libraries using a virtual environment

Summary

Software Repositories

- apt
- zypper
- yum / dnf

Software from Source

- nmap
- ./configure
- make
- sudo make install

Python Virtual Environments

Thank You and Congratulations