Linux Software Management

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https://github.com/swacademy/fss/tree/main/Linux

Software management in Linux

- Different Linux distributions may have different software management practices.

Software management in Linux (Cont.)

- Red Hat Package Manager(RPM)
- Software packages have a *.rpm* file extension.
- The YUM utility is a commonly used front-end interface for RPM.
- CentOS, Red Hat Linux, Amazon Linux 2…

Software management in Linux (Cont.)

- **dpkg**(Debian Package) Package Manager
- Software packages have a *.deb* file extension.
- The **APT(Advanced Package Tool)** utility is a commonly used front-end interface for RPM.
- Debian, Ubuntu, Mint…

Software management in Linux (Cont.)

- The GNU Compiler Collection (GCC) compiler is used to compile the code.

- A compiler turns human-readable code into machine-readable code.

- Then, can install compiled packages.

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Software management in Linux (Cont.)

Package Manager & Packages

- A package manager is a tool that automates the process of :
  - Installing
  - Upgrading
  - Configuring
  - Removing
  - Inventory

https://itsfoss.com/package-manager/

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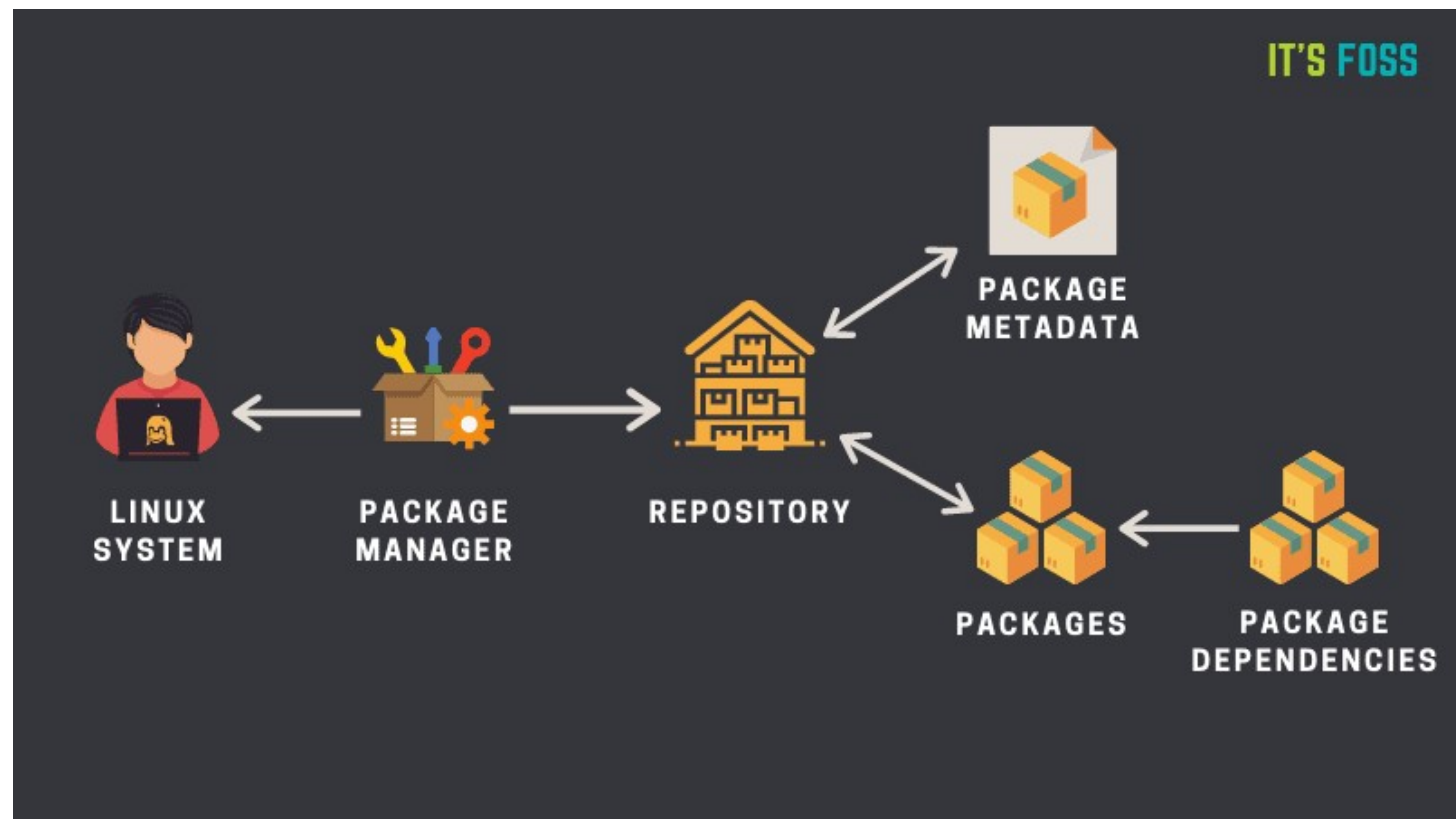
Package Manager & Packages (Cont.)

- When installing software in the package everything you need is included :
  - Pre-compiled code
  - Documentation
  - Installation guide

https://linuxopsys.com/topics/linux-package-manager
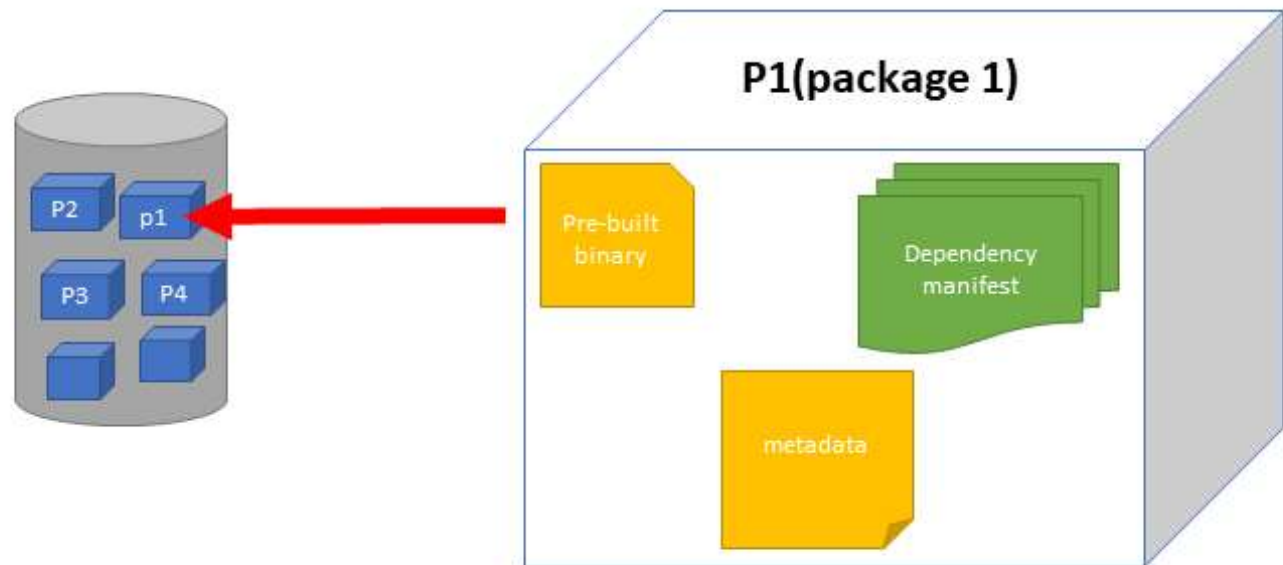
Repository

- Is a server that contains software packages.

other configured repositories

Software Delivery Repository

3. install / update

components   dependencies

2. apt-get install <pkg>, yum install <pkg>, or zypper install <pkg>

1. add_repo.sh

Your System
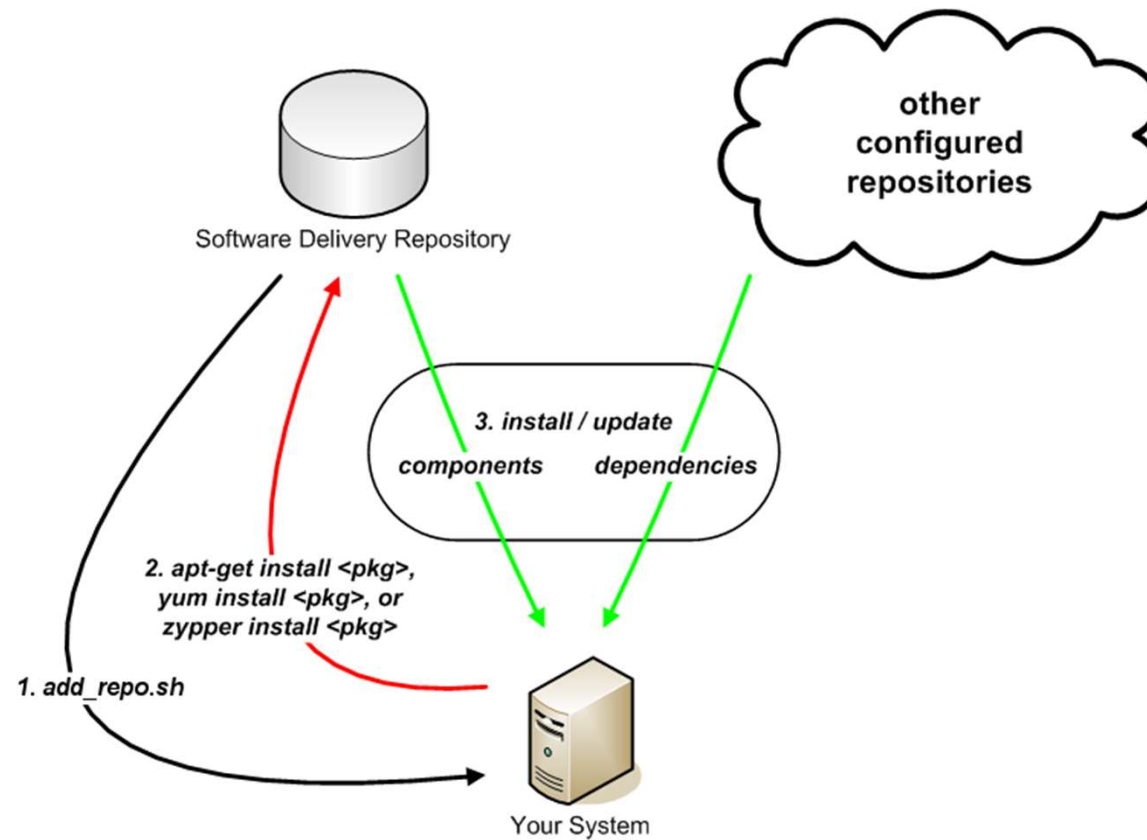
https://downloads.linux.hpe.com/SDR/getting_started.html

`apt` Package Manager

- Is a command-line utility for installing, updating, removing, and otherwise managing deb packages on Ubuntu, Debian, and related Linux distributions.

- Installing packages

```
$ sudo apt install package-name [package-name…]
```

- Updating package index

```
$ sudo apt update
```

- Upgrading packages

```
$ sudo apt upgrade [package-name]
```

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`apt` Package Manager (Cont.)

- Full upgrading

  `$ sudo apt full-upgrade`

- Dist upgrading

  `$ sudo apt dist-upgrade`

- Removing packages

  `$ sudo apt remove package-name [package-name…]`

  `$ sudo apt purge package-name`

- Remove unused packages

  `$ sudo apt autoremove`

  `$ sudo apt –purge autoremove`

`apt` Package Manager (Cont.)

- Listing packages
  ```
  $ sudo apt list
  $ sudo apt list | grep package-name
  $ sudo apt list -installed
  $ sudo apt list --upgradeable
  ```
- Searching packages
  ```
  $ sudo apt search package-name
  ```
- Package information
  ```
  $ sudo apt show package-name
  ```

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`apt` Package Manager (Cont.)

```
ubuntu@ubuntu-desktop:~$ sudo apt list --installed | grep apache2

WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

apache2-bin/jammy-updates,jammy-security,now 2.4.52-1ubuntu4.7 amd64 [installed,automatic]
apache2-data/jammy-updates,jammy-updates,jammy-security,jammy-security,now 2.4.52-1ubuntu4.7 all [installed,automatic]
apache2-utils/jammy-updates,jammy-security,now 2.4.52-1ubuntu4.7 amd64 [installed,automatic]
apache2/jammy-updates,jammy-security,now 2.4.52-1ubuntu4.7 amd64 [installed]
ubuntu@ubuntu-desktop:~$
```
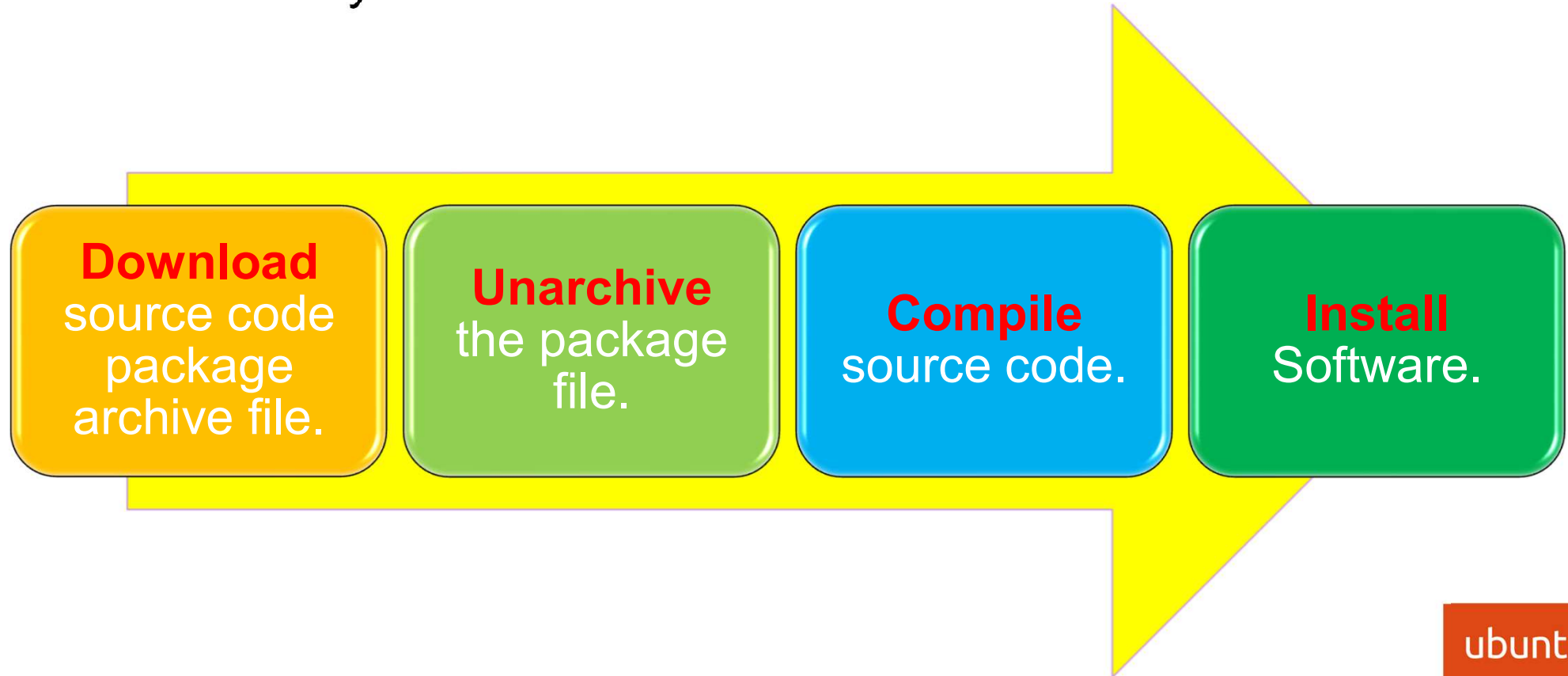
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Software Installation from Source Code

- Linux programs are generally open source, so can compile the software directly from the source code and can install the software.

Download source code package archive file.

Unarchive the package file.

Compile source code.

Install Software.

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File Search Utility

- **wget** & **curl** are commonly used utilities for retrieving files from different servers.
- They both can be used to download files using FTP and HTTP(s).
- Can also send HTTP POST request using **curl** and **wget**.

File Search Utility (Cont.)

- Is just a command-line tool without any APIs.
- Supports recursive download, while **curl** doesn't.
- Examples

```
$ wget http://www.openss7.org/repos/tarballs/strx25-0.9.2.1.tar.bz2
```

File Search Utility (Cont.)

- Client for URLs
- Supports HTTP, HTTPS, FTP and many other additional protocols(SCP, SFTP, TFTP, TELNET, LDAP(S), FILE, POP3, IMAP, SMTP, RTMP and RTSP).
- Provides APIs that can be used by programmers inside their own code.
- Uses `libcurl` which is a cross-platform library.
- Examples

```
$ curl -O http://www.openss7.org/repos/tarballs/strx25-0.9.2.1.tar.bz2
```

File Search Utility (Cont.)


```
ubuntu@ubuntu-desktop:/tmp$ wget http://www.openss7.org/repos/tarballs/strx25-0.9.2.1.tar.bz2
--2024-01-02 16:29:56--  http://www.openss7.org/repos/tarballs/strx25-0.9.2.1.tar.bz2
Resolving www.openss7.org (www.openss7.org)... 142.59.210.7
Connecting to www.openss7.org (www.openss7.org)|142.59.210.7|:80... connected.
HTTP request sent, awaiting response... 404 Not Found
2024-01-02 16:29:59 ERROR 404: Not Found.

ubuntu@ubuntu-desktop:/tmp$ curl -O http://www.openss7.org/repos/tarballs/strx25-0.9.2.1.tar.bz2
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   339    0   339    0     0    132      0 --:--:--  0:00:02 --:--:--   132
ubuntu@ubuntu-desktop:/tmp$
```

Lab. 소프트웨어 관리