

Dandified way to package management in Yocto Project

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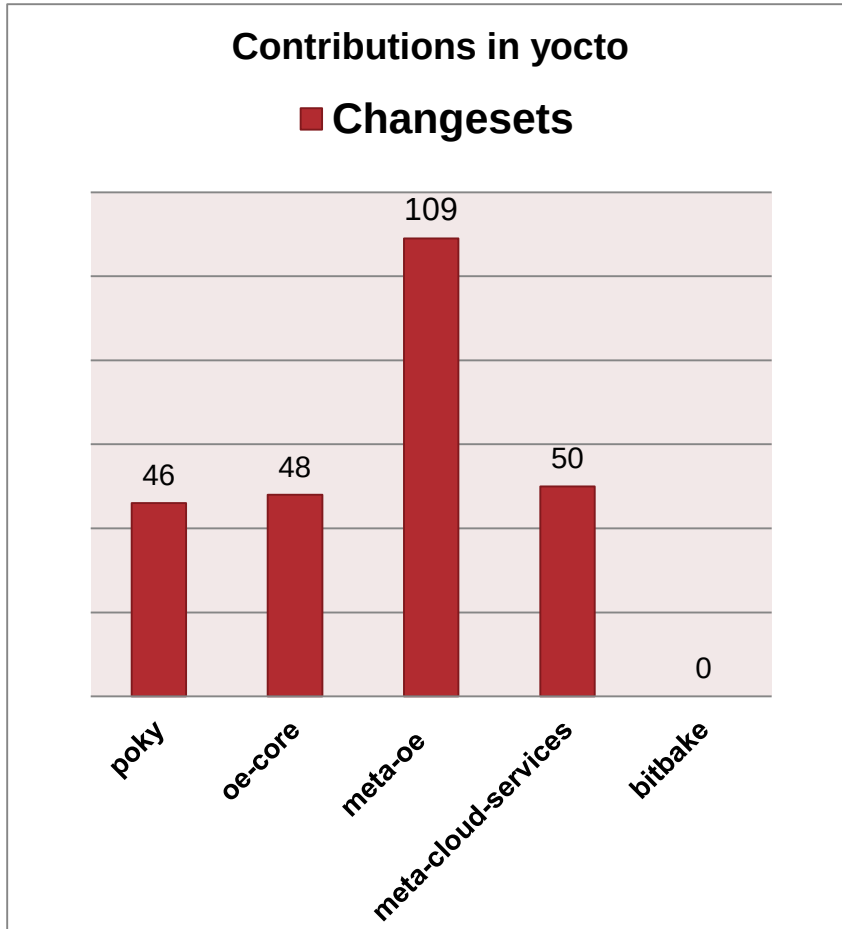
- Wang Mingyu, Fujitsu Ltd.
- Embedded Linux Developer
- In-House Embedded Linux Distro of Fujitsu
- Our Distribution includes LTSI Kernel and is built with Yocto Project
- Our Distribution is used for
 - IVI, Server System Controller, Storage System, Network Equipment, Printer, etc.



IVI: In-Vehicle Infotainment

Fujitsu's contributions to Yocto community

■ Data comes from yocto (2018-07-01 ~ 2019-07-01)



	Layers	Changesets
1	poky	46
2	oe-core	48
3	meta-oe	109
4	meta-cloud-services	50
5	bitbake	0

■ Maintain meta-spdxscanner

Fujitsu's contributions to Yocto community

- Data comes from yocto (2018-07-01 ~ 2019-07-01)

Developers with the most changesets

No.	Our Developer	Changesets
poky		
30	Zang Ruochen	25 (0.6%)
40	Hong Liu	11 (0.3%)
71	Lei Maohui	7 (0.2%)
oe-core		
30	Zang Ruochen	25 (0.4%)
50	Hong Liu	12 (0.2%)
63	Lei Maohui	7 (0.1%)
Meta-oe		
8	Zang Ruochen	72 (3.7%)
17	Hong Liu	23 (1.2%)
29	Lei Maohui	11 (0.6%)
meta-cloud-services		
1	Zang Ruochen	26 (22.6%)
2	Hong Liu	20 (17.4%)

What is dnf-plugin-tui

- Background
- Overview
- Features

How to use dnf-plugin-tui

- Getting started
- Demo

Contribution

- Oe-core
- Meta-oe

Future

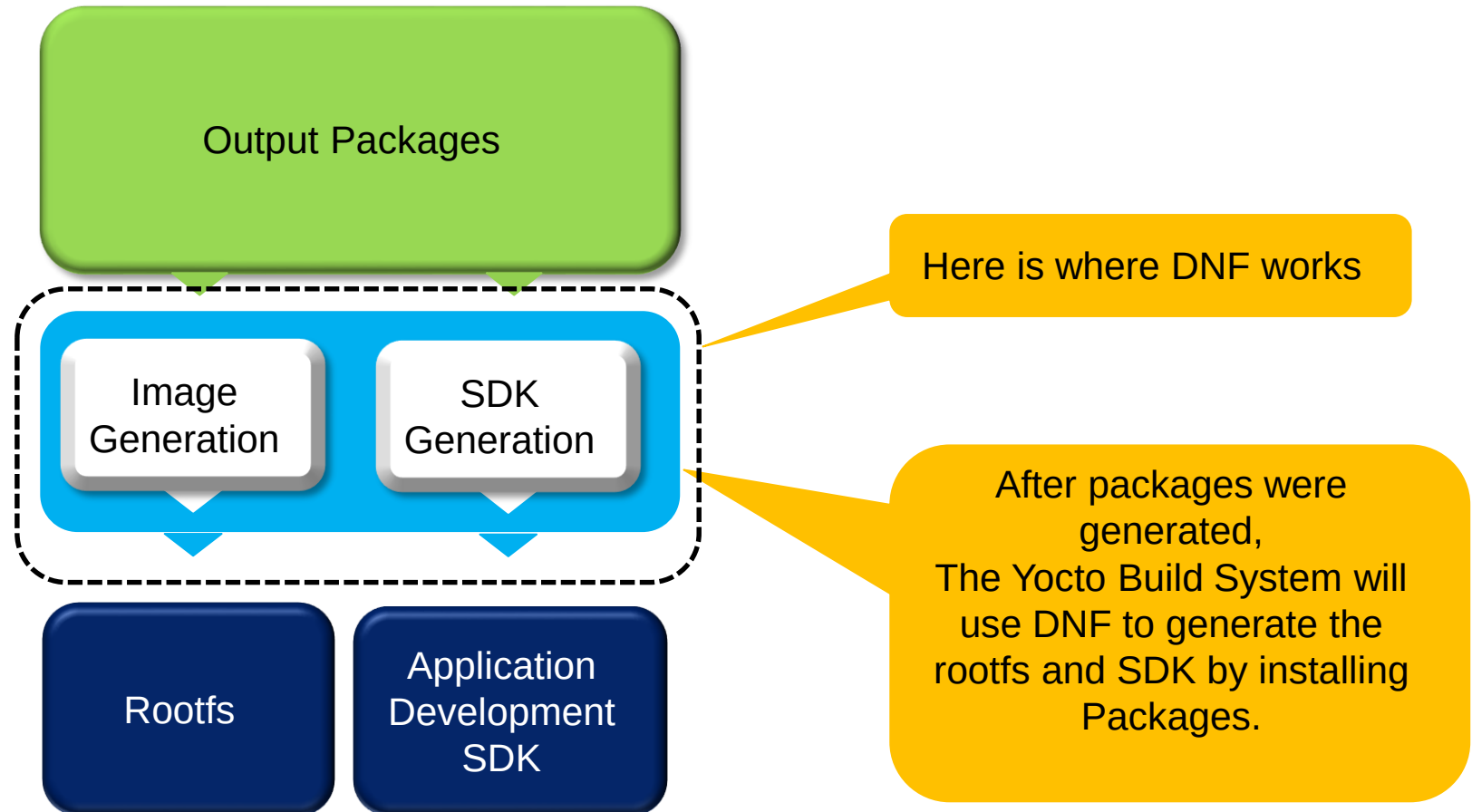
- Support more package types
- Make TUI more user friendly
- Contribution plan
- ClearlyDefined and Cve-check-tool

What is dnf-plugin-tui

- Background
- Overview
- Features

DNF in Yocto

- In Yocto, DNF is the default Package management to generate rootfs and SDK.



Typical case you meet when you try to modify your roots.



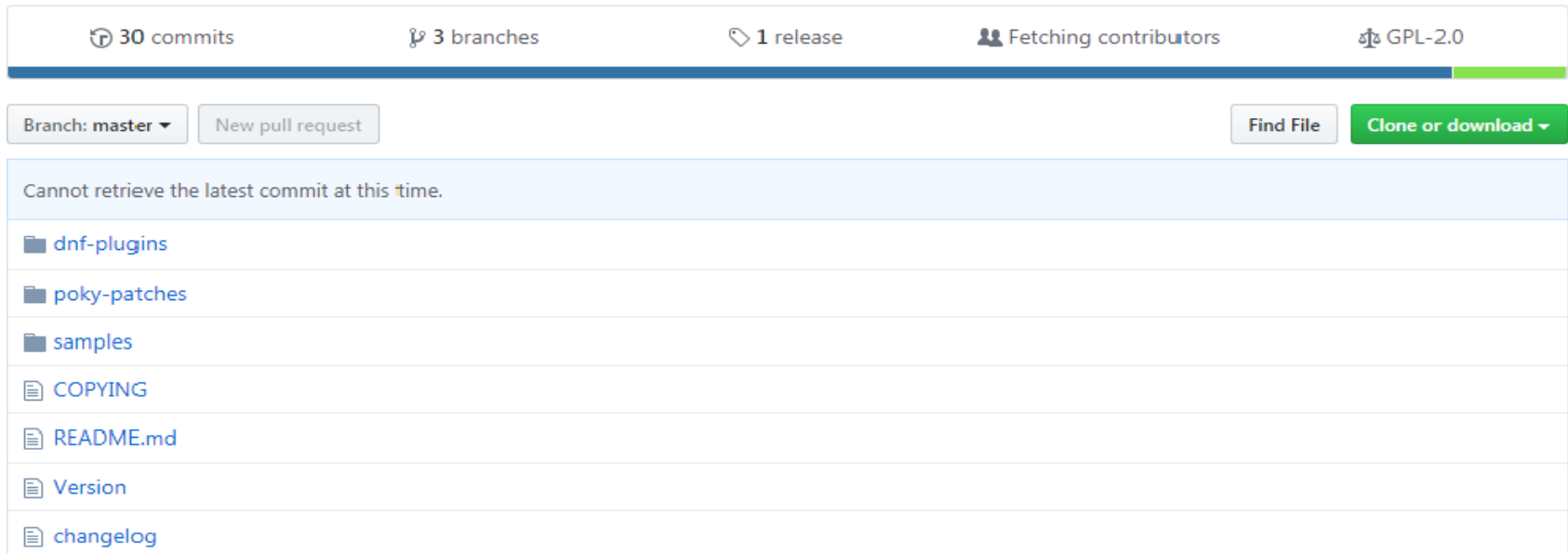
Introduction of dnf-plugin-tui

We redeveloped the DNF and Yocto to solve the issues mentioned above. We call it **dnf-plugin-tui** which means it can work on the Cross-Development environment in your host for package management as a plugin of DNF.

Git-Repo: <https://github.com/ubinux/dnf-plugin-tui.git>

Status: Support Yocto 2.6

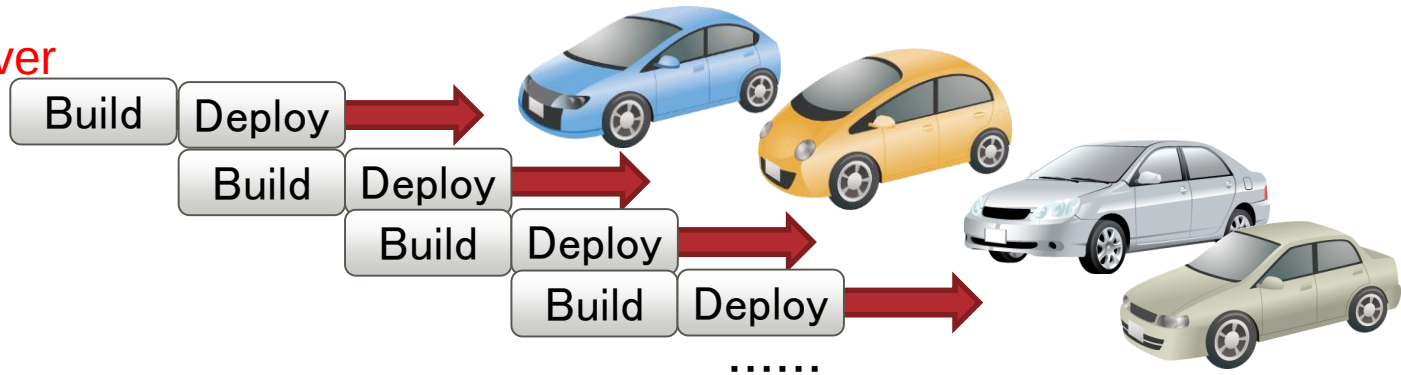
tui plugin for dnf



The screenshot shows the GitHub repository page for `dnf-plugin-tui`. At the top, there are statistics: 30 commits, 3 branches, 1 release, and a license of GPL-2.0. Below this, there are buttons for "Branch: master", "New pull request", "Find File", and "Clone or download". A message states "Cannot retrieve the latest commit at this time." Below this message, a list of files and folders is displayed: `dnf-plugins`, `poky-patches`, `samples`, `COPYING`, `README.md`, `Version`, and `changelog`.

Overview

Yocto Build server



Build and Deploy for Each Targets

Host

Packages

dnf-host
SDK

Deploy

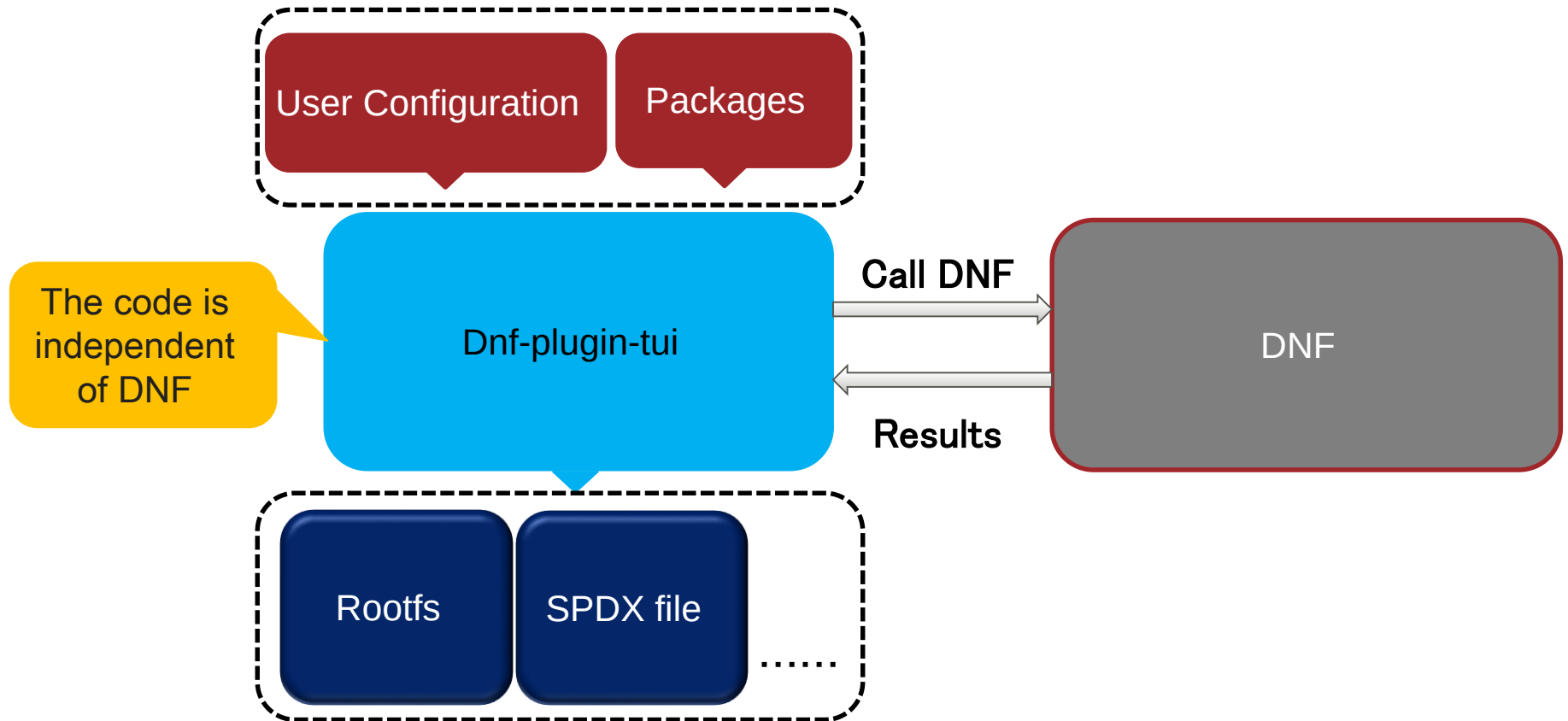
Build Once, Deploy Anywhere



- **Work as a plugin of dnf**
- **Support TUI**
- **Manage Bom**
- **Support config file**
- **Support multiple formats of image**
- **Support command line**

Work as a plugin of DNF

- You can use the dnf-plugin-tui as a plugin of DNF



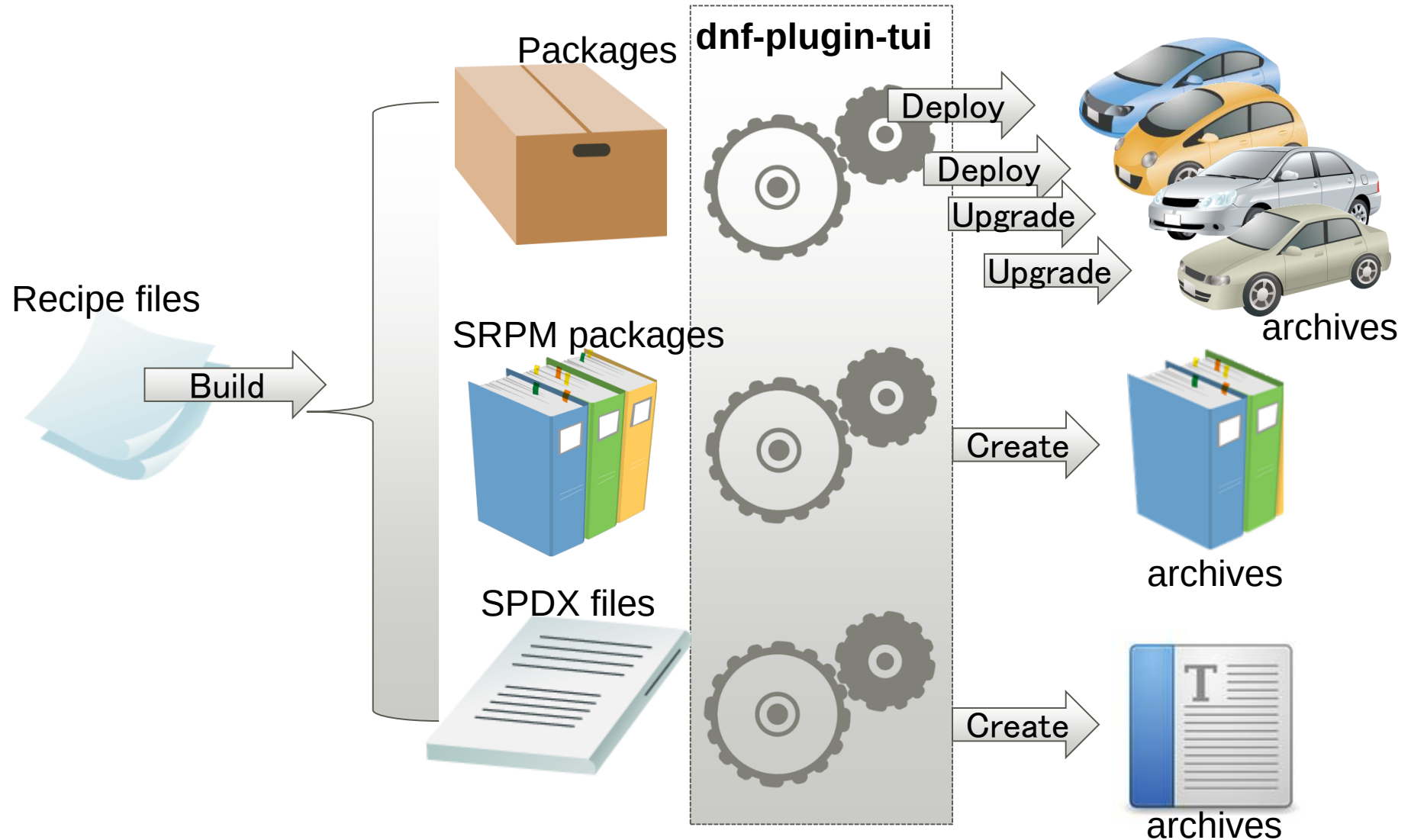
Support TUI

- You can use the Text-based UI to manage packages

```
Package Installer
| Select package |
[ ] acl
[ ] attr
[ ] base-files
[ ] base-passwd
[ ] base-passwd-update
[ ] bash
[ ] bash-bashbug
[ ] bash-completion
[ ] bash-completion-extra
[ ] bc
[ ] bsdcpio
[ ] bsdtar
[ ] busybox
[ ] busybox-hwclock
[ ] busybox-syslog
[ ] busybox-udhcp
[ ] busybox-udhcpd
[ ] bzip2
[ ] ca-certificates
[ ] catchsegv
[ ] coreutils
[ ] cryptodev-linux
[ ] curl
-----
All Packages [2364]    Installed Packages [0]    Selected Packages [0]
```

F1:select/unselect All F2:Search F3:Next F4:Back F5:Info F9:Exit

Manage Bom



About Openchain

The Companies behind OpenChain



Support config file

■ Sample for config file

Select install type

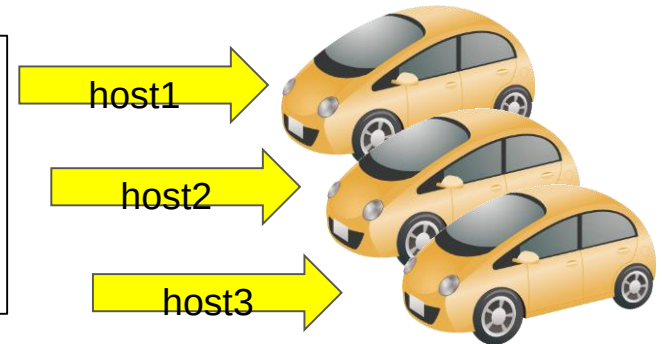
```
New --->
Load package file --->
Reference1 (busybox based root file system) --->
Reference2 (systemd based root file system) --->
```

■ Like kernel config, selected package list can be saved and reused.

```
[ ] acl
[ ] attr
[ ] base-files
[*] base-passwd
[*] base-passwd-update
[ ] bash
[ ] bash-bashbug
[ ] bash-completion
[ ] bash-completion-extra
[*] bc
[ ] busybox
```

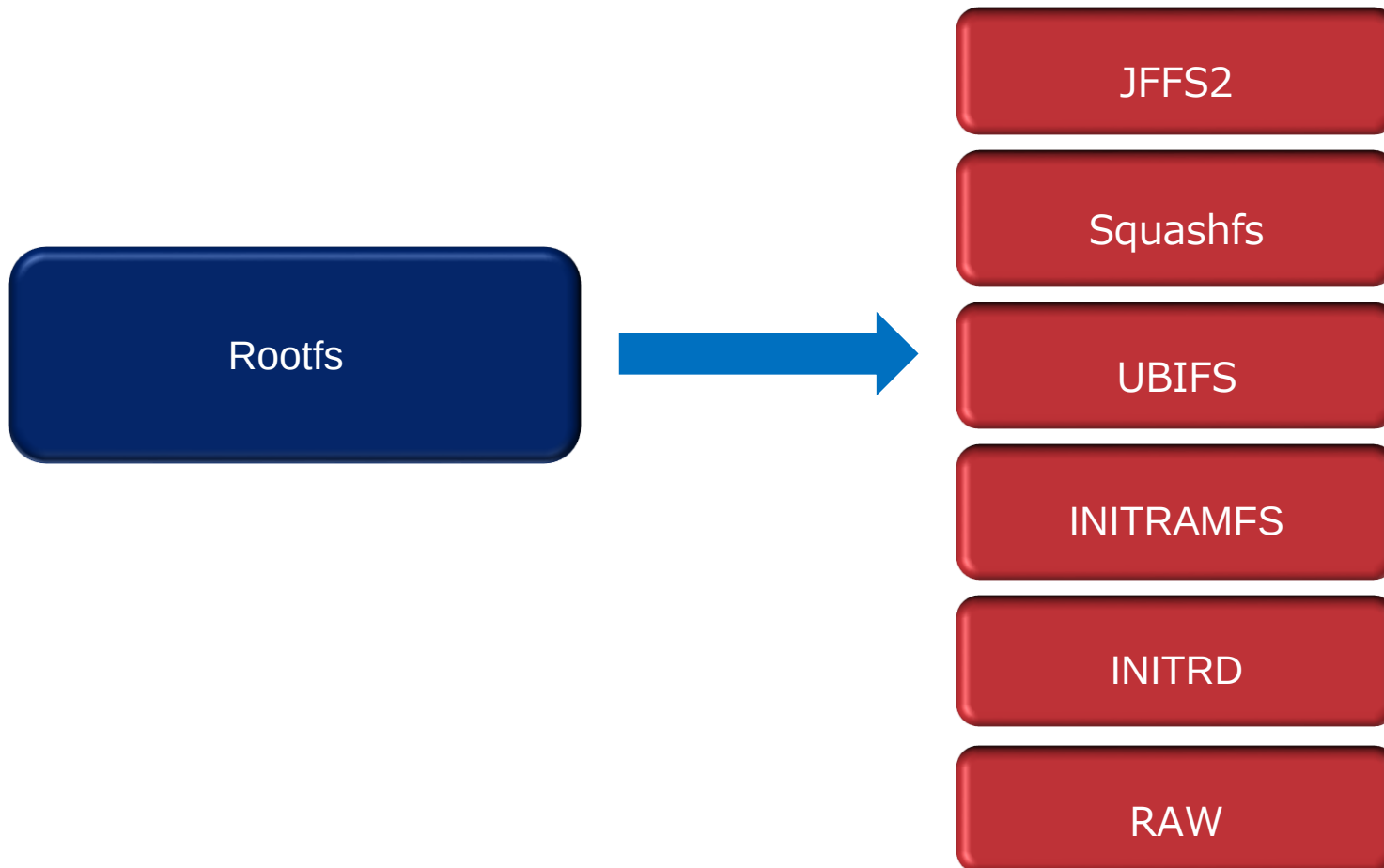
```
$ cat .config
base-passwd
bc
base-passwd-
update
```

Load package list
(Optional)



Support multiple formats of image

- Support more image format, e.g EXT4, Squashfs, UBIFS and so on.



Support command line

- After init, you can use dnf tui command line to manage packages.

```
# dnf tui --command list
# dnf tui --command search <spec>
# dnf tui --command info <spec>
# dnf tui --command repolist
# dnf tui --command install <spec>
# dnf tui --command remove <spec>
# dnf tui --command upgrade <spec>
```

- New options

- --nosave

```
# dnf tui --command install bash --nosave
# dnf tui --command remove bash --nosave
```

- --pkg_list

```
# dnf tui --command install --pkg_list pkg.list //Install packages that list in pkg.list
# dnf tui --command remove --pkg_list pkg.list //Remove packages that list in pkg.list
```

How to use dnf-plugin-tui

- Getting Started
- Demo

Add dnf-plugin-tui into toolchain

- First you need to add dnf-plugin-tui into your Yocto Project.

Get the
Source Code

```
$ git clone https://github.com/ubinux/dnf-plugin-tui.git  
$ ls dnf-plugin-tui/poky-patches/  
0001-meta-oe-patch-dnf-plugin-tui-new-recipe.patch  
0001-poky-2.6-Added-some-nativesdk-oss-for-nativesdk-  
dnf.patch  
0002-poky-2.6-Dnf-tui-plugin-patch-for-upstream-dnf.patch
```

Apply these
patches

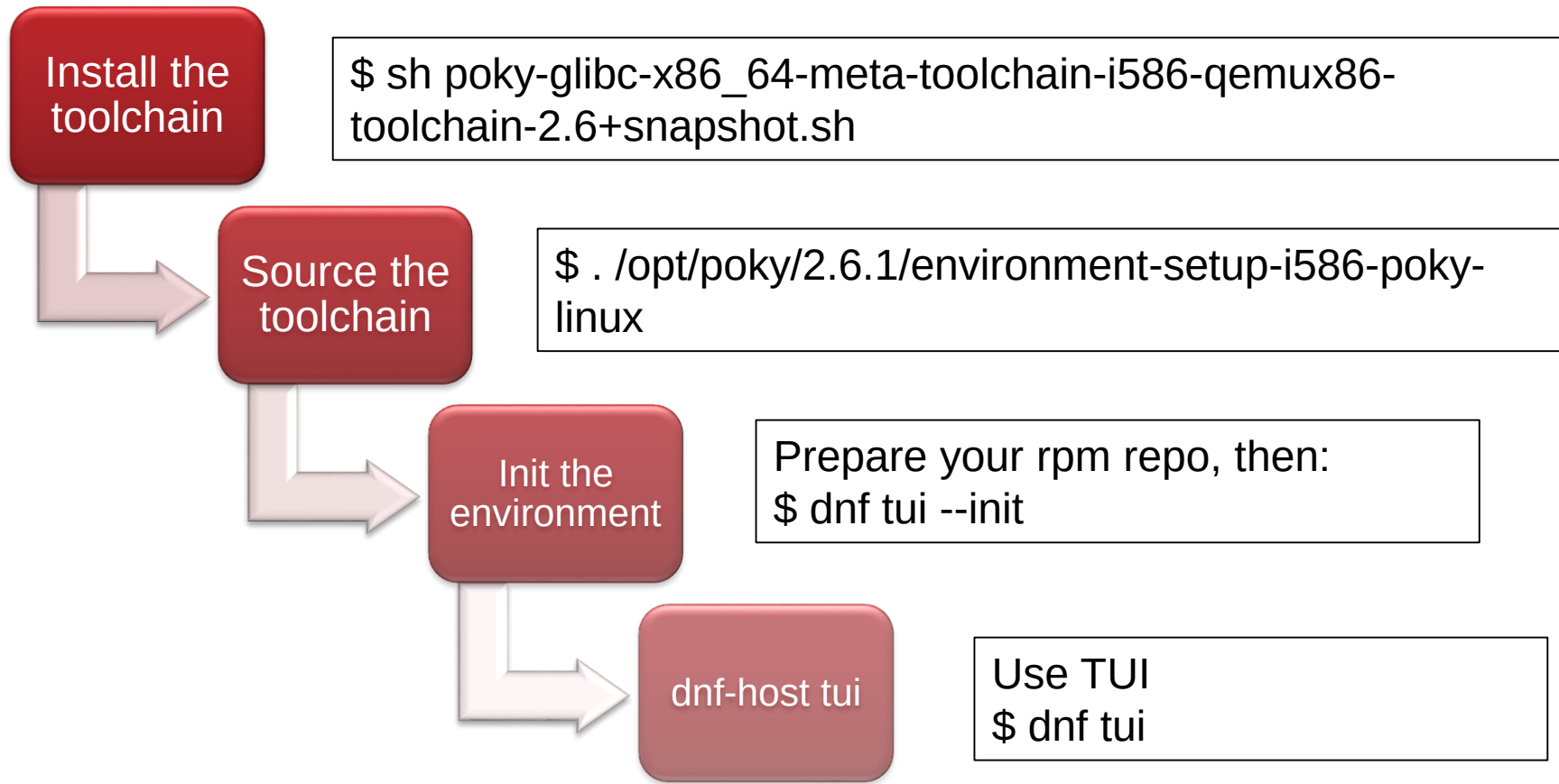
```
$ cd poky  
$ patch -p1 < XXX.patch
```

Bitbake the SDK

**Build meta-toolchain to get sdk
that includes dnf-host**
\$ bitbake meta-toolchain

How to use **dnf-plugin-tui**

- Then you can use dnf-plugin-tui on the Cross-Development environment.



Complete!

Prepare rootfs

progress:[#####]100%

Put rootfs to destination

progress:[#####]100%

Do you like to keep the tarball of rootfs.[Y/n]?

The tarball is /home/teset/rootfs-201907101143.tar.bz2

Target dir is /opt/ubq/devkit/arm64/rootfs-201907101143

Contribution

- Oe-core
- Meta-oe



- oe-core

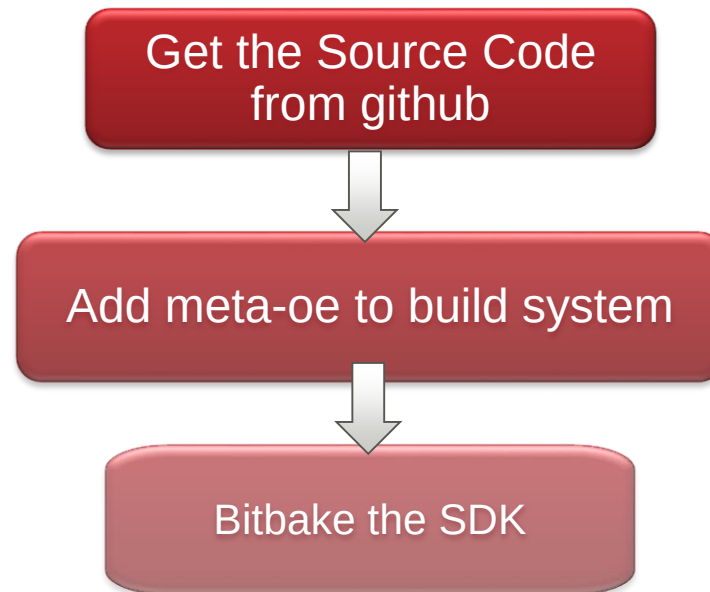
commit content : Make dnf-nativesdk work

commit status : dnf-nativesdk is accepted

- meta-oe

commit content : Add recipe of dnf-plugin-tui

commit status : in discussion



Future

- Make TUI more user friendly
- Contribution plan
- ClearlyDefined and Cve-check-tool



Make TUI more user friendly

```
[ ] Bash
[*] Base-files
[ ] Base-passwd
.....
[ ] Coreutils
[*] Util-linux
.....
[ ] Httpd
.....
```



```
[*] Base → [ ] Bash
          [*] Base-files
          [ ] Base-passwd
          .....
[*] Utils → [ ] Coreutils
            [*] Util-linux
            .....
[ ] Web Server → [ ] Httpd
                .....
```

Contribution plan

- Continuous development.
- Release dnf-plugin-tui follow the step of Yocto.

ClearlyDefined

https://clearlydefined.io/about



ClearlyDefined

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About

Stats

Docs

Login

About ClearlyDefined

ClearlyDefined and our parent organization, the [Open Source Initiative](#), are on a mission to help FOSS projects thrive by being, well, clearly defined. Lack of clarity around licenses and security vulnerabilities reduces engagement — that means fewer users, fewer contributors and a smaller community.



ClearlyDescribed

Knowing simple things like the source location for the open source component you are using enables contribution of docs, bug fixes, or new features. It also inspires confidence by enabling IP and security code scans, and source code archiving and disclosure. Round that out with project and issue tracking site info, and you have a sound basis for engagement. [Learn more...](#)

Package
information



ClearlyLicensed

Defining and knowing the license for an open source component is essential to a successful partnership. Communities choose a license with terms they like. ClearlyDefined helps clarify that choice and enables consumers to follow the terms by identifying key data such as license set, attribution parties, and code location. [Learn more...](#)

Manage spdx file



ClearlySecure

Teams working hard to create quality, secure free and open source components need a simple way of recording security issues they find and fix. Bug report and pull requests are great. CVEs and global notifications are even better. It can still be hard to relate that data to the components you use. ClearlyDefined gives communities a security forum that builds confidence and makes for even more collaboration. [Learn more...](#)

Manage result of
cve-check-tool

Cve-check-tool

- Manage the cve result file of packages installed by dnf-tui-plugin.
Cve result file is the result of checking packages by cve-check-tool.

PACKAGE NAME: db

PACKAGE VERSION: 5.3.28

CVE: CVE-2016-0682

CVE STATUS: Unpatched

CVE SUMMARY: Unspecified vulnerability in the DataStore component in Oracle Berkeley DB 11.2.5.0.32, 11.2.5.1.29, 11.2.5.2.42, 11.2.5.3.28, 12.1.6.0.35, and 12.1.6.1.26 allows local users to affect confidentiality, integrity, and availability via unknown vectors, a different vulnerability than CVE-2016-0689, CVE-2016-0692, CVE-2016-0694, and CVE-2016-3418.

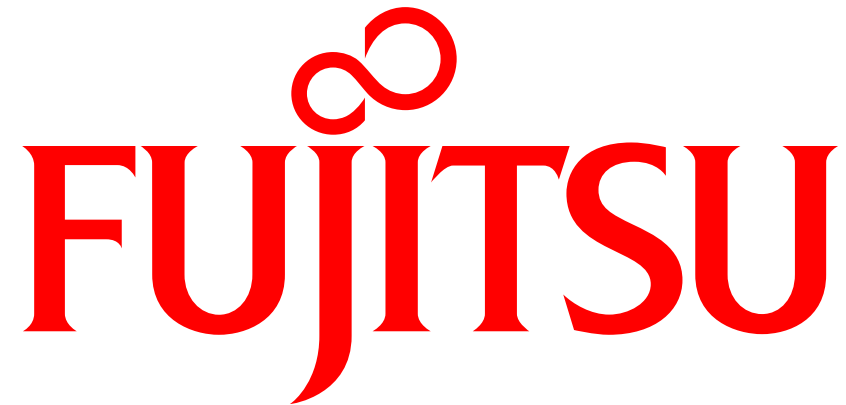
CVSS v2 BASE SCORE: 6.9

VECTOR: LOCAL

MORE INFORMATION: <https://web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2016-0682>

Any Questions?

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