Services Management

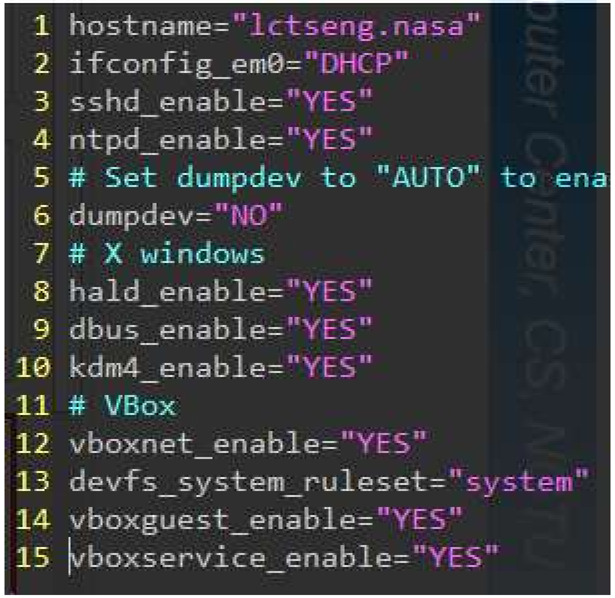
frank

Basic Services

e.g. ssh, http, ftp, etc.

Common Flow of Running a Service

1. Installation
   - Through ports, packages, or source tarballs
   - E.g. `pkg install kde4`
2. Configuration
   - Service specific config file(s)
   - rc.conf
   - E.g. `kdm4_enable="YES"`
3. Start
   - rc.d/*
   - E.g. `/usr/local/etc/rc.d/kdm4 start`
     - `service kdm4 start`
4. Maintenance
   - Updating、Restarting



```
hostname="lctseng.nasa"
ifconfig_em0="DHCP"
sshd_enable="YES"
ntpd_enable="YES"
# Set dumpdev to "AUTO" to ena
dumpdev="NO"
# X windows
hald_enable="YES"
dbus_enable="YES"
kdm4_enable="YES"
# VBox
vboxnet_enable="YES"
devfs_system_ruleset="system"
vboxguest_enable="YES"
vboxservice_enable="YES"
```

Configuration Files (1/3)

- ❑ Local installed programs' configuration files are located under /usr/local/etc
  - Daemon → *program-name*.conf
    - ➢ pure-ftpd.conf
  - user-program → *program-name***rc**
    - ➢ vimrc
    - ➢ screenrc

- ❑ Default config file usually installed with .sample or .default suffix
  - pure-ftpd.conf.sample

  or different suffix for different purpose
  - php.ini-dist
  - php.ini-recommended

  copy and rename before use it

Configuration Files (2/3)

- ❑ A program with multiple config files are usually located in /usr/local/etc/*program-name*/
  - apache*
  - postfix
- ❑ Most config files have clear comment at the beginning or before each description
- ❑ Most popular styles
  - *key* <space>*value*
  - *key* = *value*

Read documents to know each option’s meaning

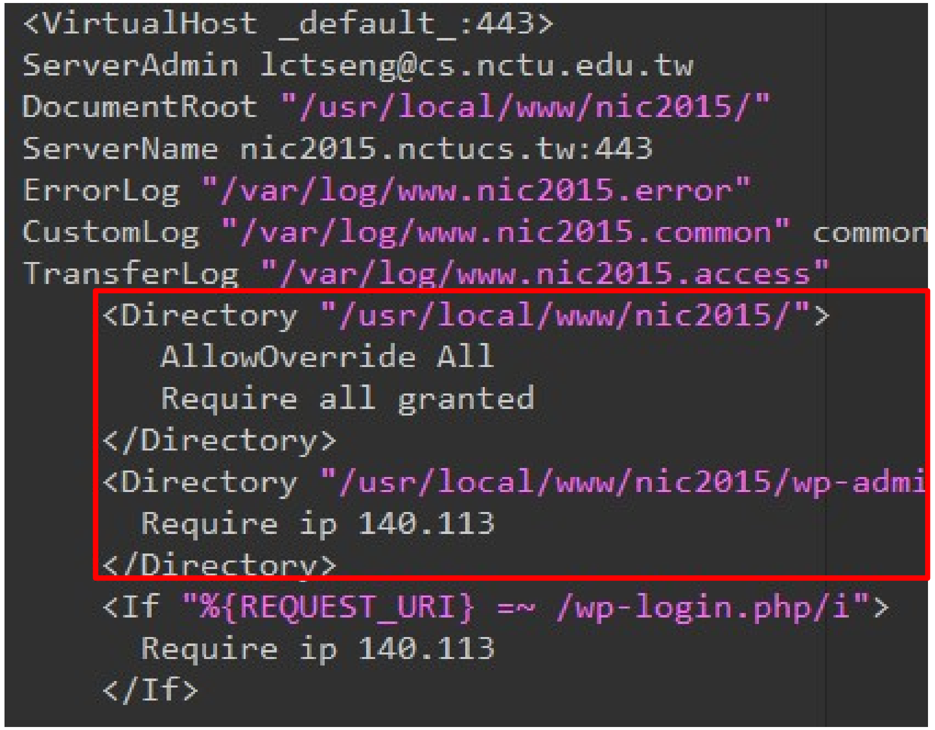
```
# pure-ftpd.conf

# IP address/port to listen to (default=all IP
and port 21)
Bind                          127.0.0.1,21

# Fork in background
Daemonize                       yes
```

Configuration Files (3/3)

❑ Some with local effectiveness (e.g. http server)

- Markup language-like

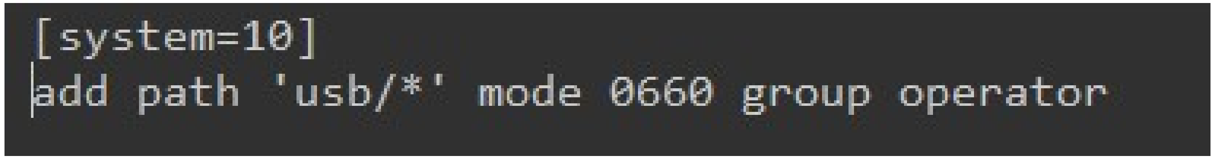
  <directory /path>
          setting-for-this-path…
  </directory>



```
<VirtualHost _default_:443>
ServerAdmin lctseng@cs.nctu.edu.tw
DocumentRoot "/usr/local/www/nic2015/"
ServerName nic2015.nctucs.tw:443
ErrorLog "/var/log/www.nic2015.error"
CustomLog "/var/log/www.nic2015.common" common
TransferLog "/var/log/www.nic2015.access"
    <Directory "/usr/local/www/nic2015/">
       AllowOverride All
       Require all granted
    </Directory>
    <Directory "/usr/local/www/nic2015/wp-admi
      Require ip 140.113
    </Directory>
    <If "%{REQUEST_URI} =~ /wp-login.php/i">
      Require ip 140.113
    </If>
```

- Samba、rsync、devfs…

  [xxxx]
   settings…
  [yyyy]
   settings….



```
[system=10]
add path 'usb/*' mode 0660 group operator
```

RC Script

Scripts for starting/stopping a service

What does RC means?

- ❑ Run Commands (RunCom)
- ❑ command scripts for auto-reboot and daemon startup
- ❑ rc(8)

- ❑ http://www.freebsd.org/doc/en/books/handbook/configtuning-rcd.html

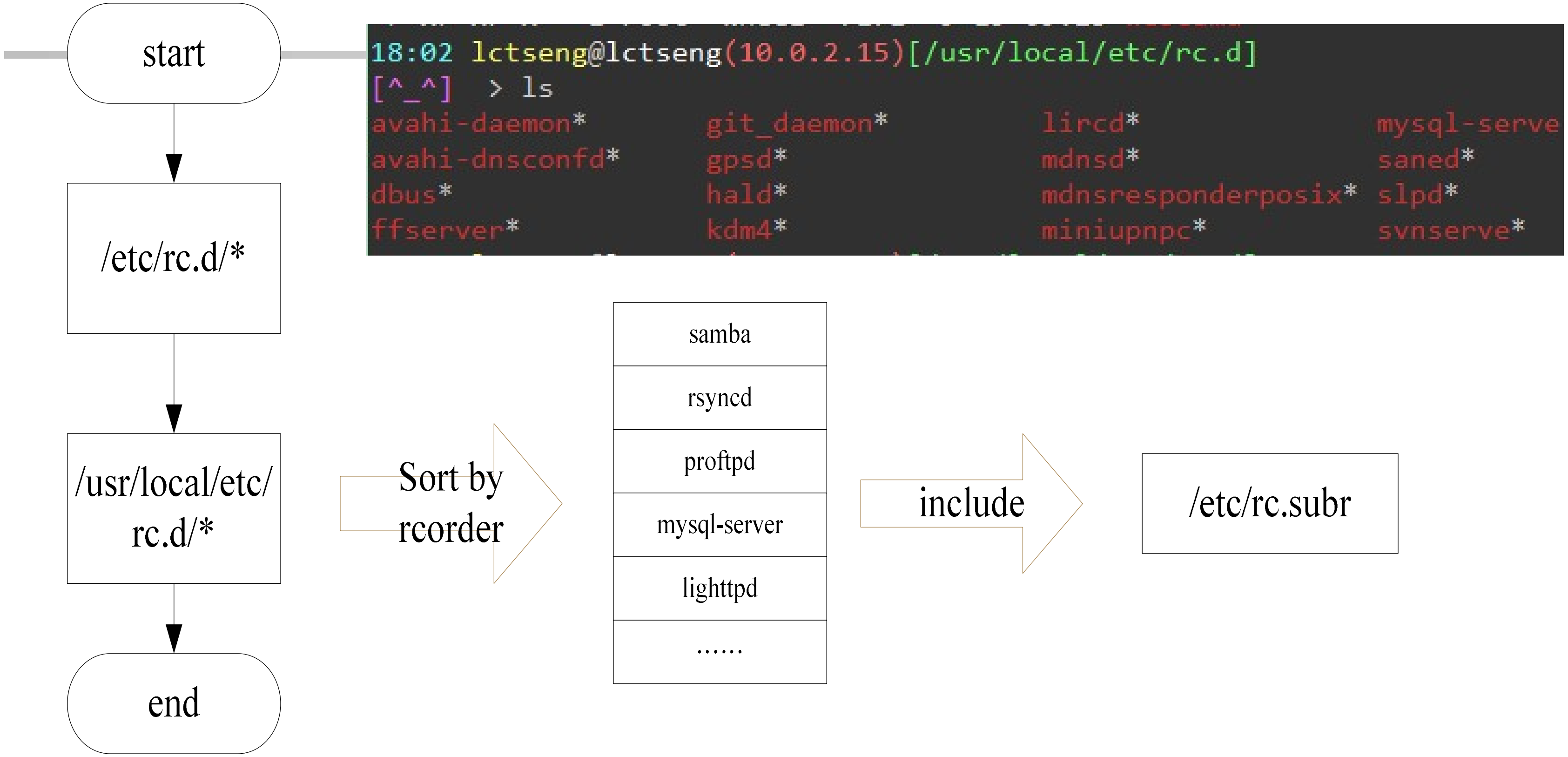
Why do we need RC Script?

- ❑ Start services on system startup.
- ❑ Starting and Stopping services in a standard way.
  - Without rc: `/usr/local/sbin/pure-ftpd –g /var/run/pure-ftpd.pid -A -c50 -B -C8 -D -fftp -H -I15 -lpam -lunix -L10000:8 -m4 -s -U133:022 -u100 -k99 –Z`

v.s.

  - With rc: `service pure-ftpd start`

RC Script

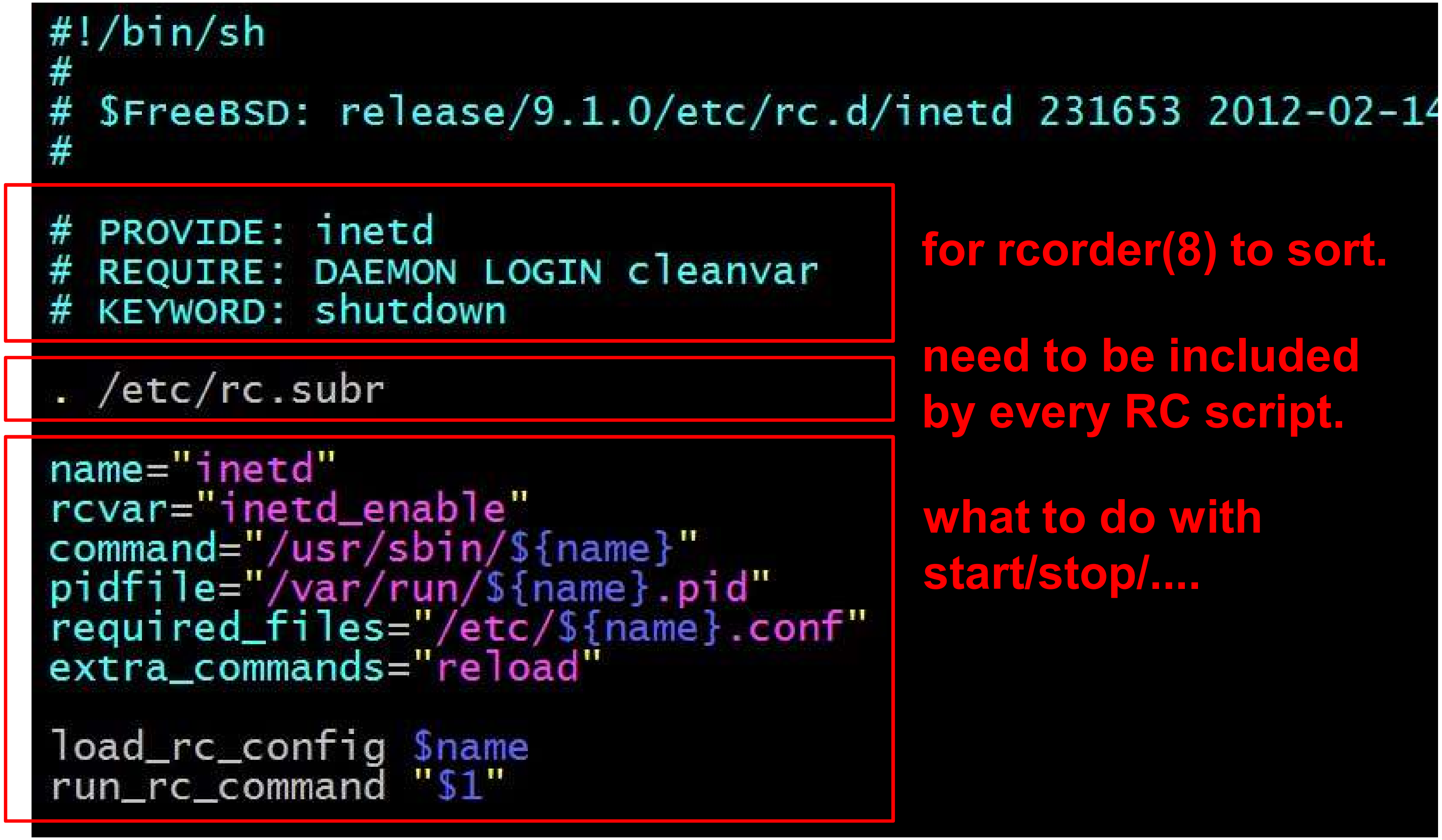


```
18:02 lctseng@lctseng(10.0.2.15)[/usr/local/etc/rc.d]
[^_^]  > ls
avahi-daemon*         git_daemon*           lircd*                mysql-serve
avahi-dnsconfd*       gpsd*                 mdnsd*                saned*
dbus*                 hald*                 mdnsresponderposix*   slpd*
ffserver*             kdm4*                 miniupnpc*            svnserve*
```

- ❑Dependency between each service is described in header of the script
- ❑rcorder is used to find out dependency ordering of each script
- ❑Each rc script define what to do when start/stop …
- ❑/etc/rc.subr defines what to do & check before/after start stop ….
  - ❑ rc.subr(8)

Inside the RC Script

❑ Example: /etc/rc.d/inetd



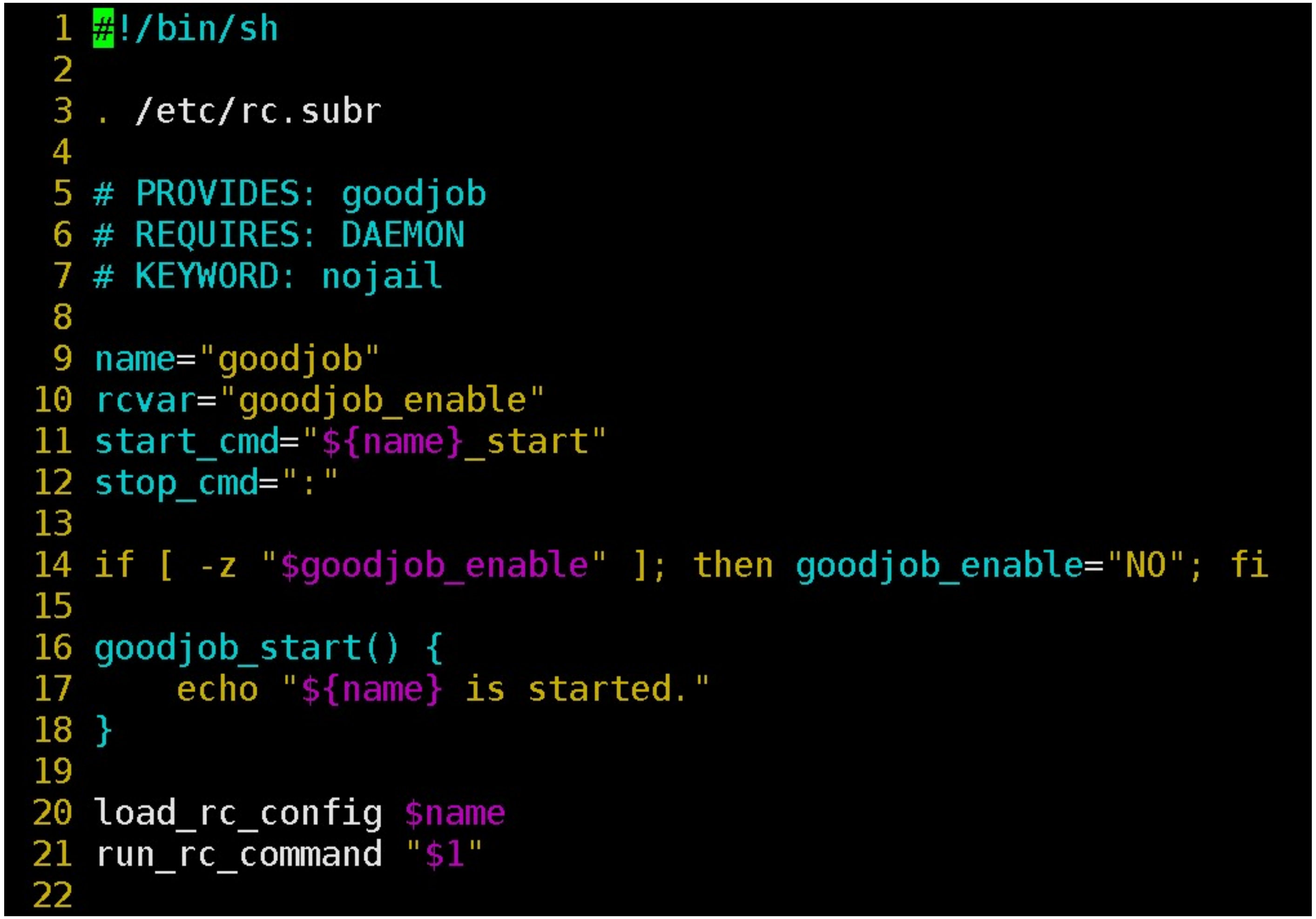
```
#!/bin/sh
#
# $FreeBSD: release/9.1.0/etc/rc.d/inetd 231653 2012-02-14
#

# PROVIDE: inetd
# REQUIRE: DAEMON LOGIN cleanvar
# KEYWORD: shutdown

. /etc/rc.subr

name="inetd"
rcvar="inetd_enable"
command="/usr/sbin/${name}"
pidfile="/var/run/${name}.pid"
required_files="/etc/${name}.conf"
extra_commands="reload"

load_rc_config $name
run_rc_command "$1"
```

for rcorder(8) to sort.

need to be included by every RC script.

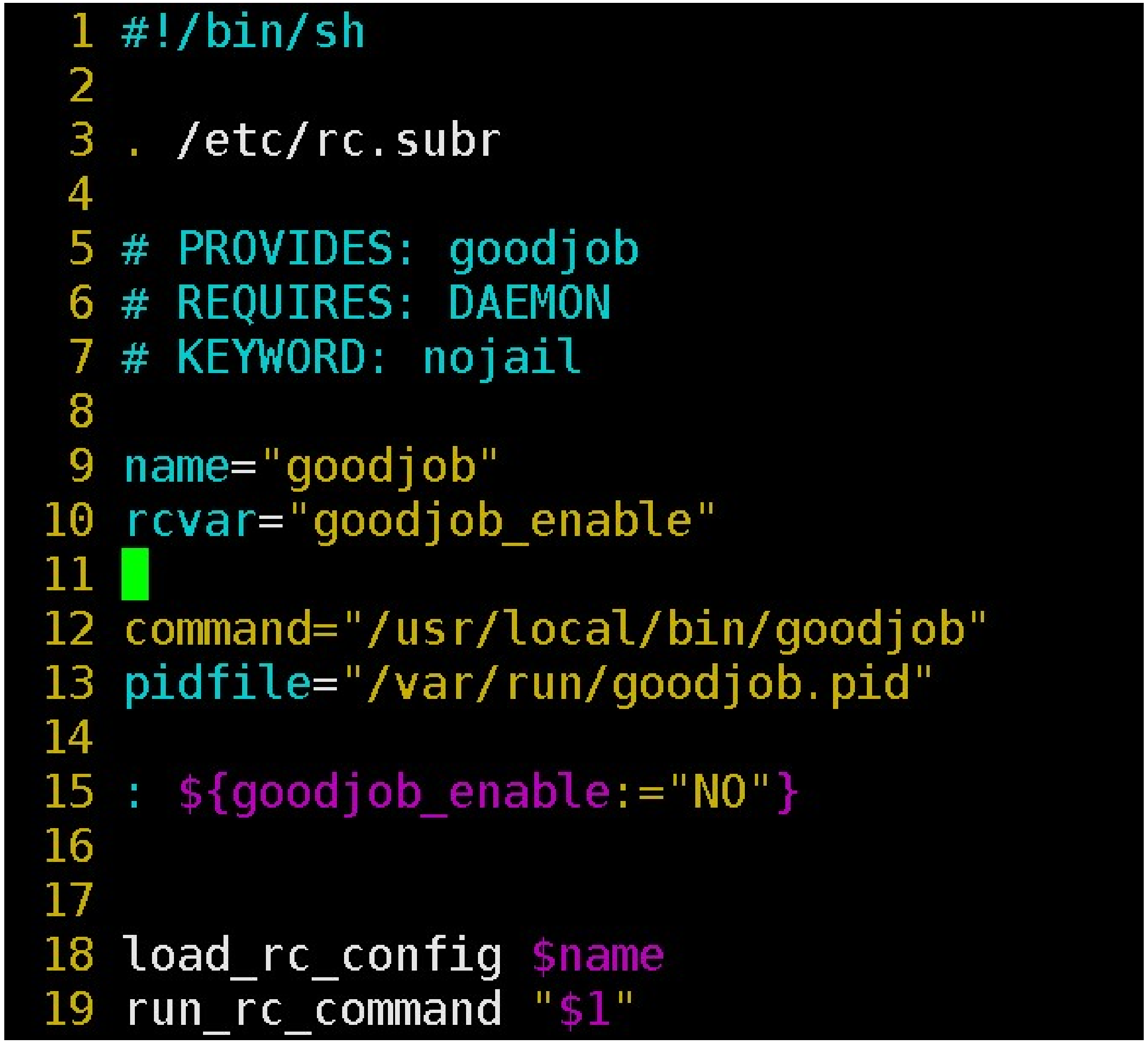
what to do with start/stop/....

Example: Goodjob



```
#!/bin/sh

. /etc/rc.subr

# PROVIDES: goodjob
# REQUIRES: DAEMON
# KEYWORD: nojail

name="goodjob"
rcvar="goodjob_enable"
start_cmd="${name}_start"
stop_cmd=":"

if [ -z "$goodjob_enable" ]; then goodjob_enable="NO"; fi

goodjob_start() {
    echo "${name} is started."
}

load_rc_config $name
run_rc_command "$1"

```

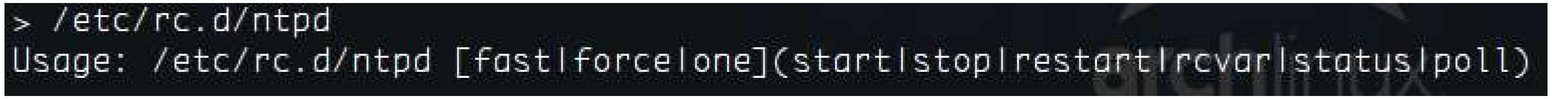
Example: Yet another Goodjob



```
#!/bin/sh

. /etc/rc.subr

# PROVIDES: goodjob
# REQUIRES: DAEMON
# KEYWORD: nojail

name="goodjob"
rcvar="goodjob_enable"

command="/usr/local/bin/goodjob"
pidfile="/var/run/goodjob.pid"

: ${goodjob_enable:="NO"}


load_rc_config $name
run_rc_command "$1"
```

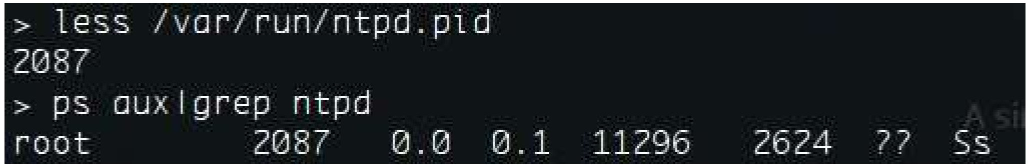
How to use rc script(1/2)

- ❑ Example ntpd



```
> /etc/rc.d/ntpd
Usage: /etc/rc.d/ntpd [fast|force|one](start|stop|restart|rcvar|status|poll)
```

- ❑ After booting… (rc.conf)
  - Pidfile: Record (master) process id of the service



```
> less /var/run/ntpd.pid
2087
> ps aux|grep ntpd
root         2087   0.0  0.1  11296   2624  ??  Ss
```

- ❑ Start / Stop / Restart (Start after stop)

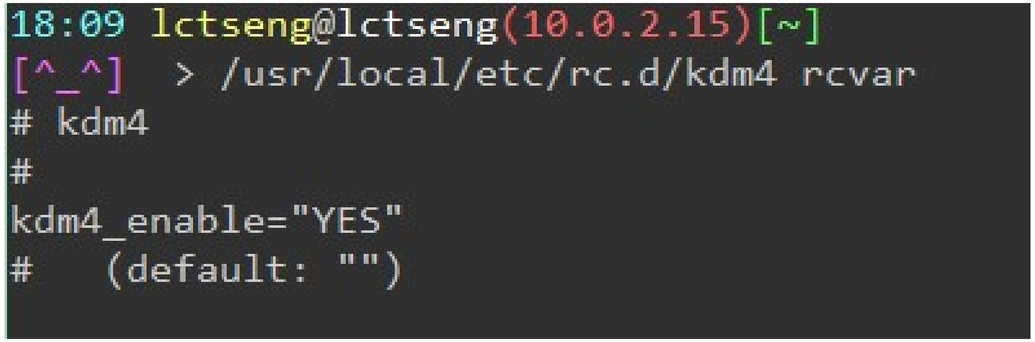
- ❑ An easy way to access: “service”
  - ➢ `$ service ntpd start/stop/restart/reload/…`
  - ➢ Search `/etc/rc.d` and `/usr/local/etc/rc.d`

How to use rc script(2/2)

- ❑ Status
  - Check the service is running or not
- ❑ Reload
  - Reload configuration file if the service support
- ❑ [one | fast | force]
  - One
    - ➢ Skip the check of rcvar="YES"
    - ➢ Start the service even if XXXX_enable="NO"
  - Force
    - Force start the service
    - Ignore any error it encountered (no prerequisite test)
    - ➢ ignore rcvar="YES" and set rc_force="YES"
  - Fast
    - ➢ Skip the check for an existing running process (pid check)
    - ➢ Set rc_fast="YES"

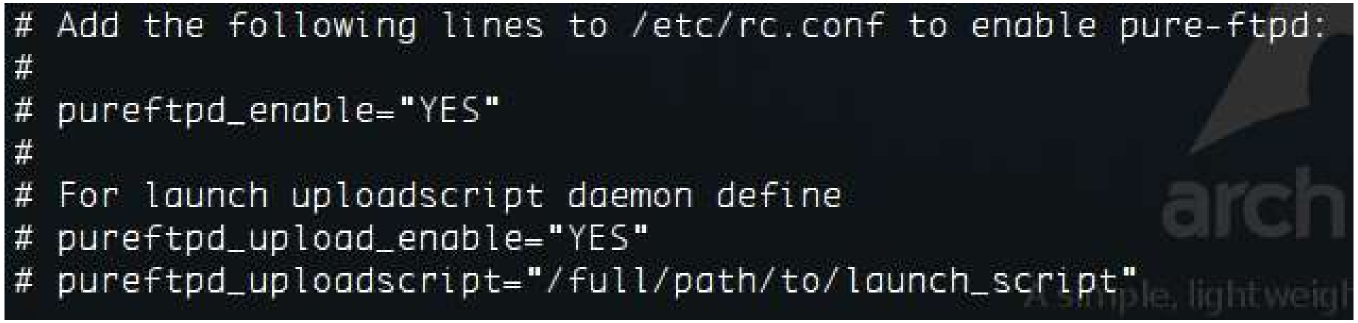
Local installed service

- ❑ Use *path-to-rcscript* rcvar command to know which variable should set to “YES” to enable this service



```
18:09 lctseng@lctseng(10.0.2.15)[~]
[^_^]  > /usr/local/etc/rc.d/kdm4 rcvar
# kdm4
#
kdm4_enable="YES"
#   (default: "")
```

- ❑ For further information, read comments from that script
  - /usr/local/etc/rc.d/pure-ftpd



```
# Add the following lines to /etc/rc.conf to enable pure-ftpd:
#
# pureftpd_enable="YES"
#
# For launch uploadscript daemon define
# pureftpd_upload_enable="YES"
# pureftpd_uploadscript="/full/path/to/launch_script"
```