

How to speed up boot time in LinPAC?

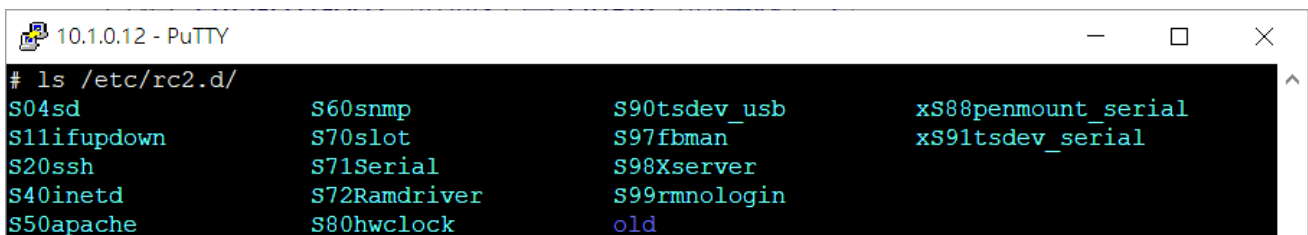
Applies to:			No. L1-001
Platform	Software operating system	OS version	Classification
LP-8x4x	Debian	All version	Product Functionality
LP-2000/5000 series	Ubuntu		
LP-8x2x LX-8000/9000 series			

User can make your LinPAC boot faster by disabling a system service, the following will show how it works on LP-8x4x and LP-8x2x (also available for LP-2000, LP-5000, LX-8000, LX-9000) series:

Debian operating system - LP-8x4x for example

Step 1: Use the 'ls' command to check which service is enabling now, as illustrated in Figure 1.

Command: # ls /etc/rc<x>.d // <x> for run level



```

10.1.0.12 - PuTTY
# ls /etc/rc2.d/
S04sd          S60snmp      S90tsdev_usb  xS88penmount_serial
S11ifupdown   S70slot      S97fbman      xS91tsdev_serial
S20ssh        S71Serial    S98Xserver
S40inetd      S72Ramdriver S99rmnologin
S50apache     S80hwclock   old
  
```

Figure 1

A "run level" is an operation mode that is used to determine which programs are executed during system startup. **The default run level for the LP-8x4x is level 2.**

Scripts in `/etc/rc<x>.d/` are all symbolic links whose targets are located in `/etc/init.d/`. The format of naming these links is `<S, xS or K> <2-digit-number> <original-name>`. The 2-digit-number determines the order in which the scripts are executed. The lower numbered file will be executed earlier.

Scripts prefixed with an S will start on that run level. In contrast, those prefixed with either a K or an x will stop.

Step 2: To disable a script from automatically starting, please rename the symbolic link with prefix *K* or *x*, as illustrated in Figure 2.

```

10.1.0.12 - PuTTY
# cd /etc/rc2.d
# ls
S04sd          S60snmp        S90tsdev_usb   xS88penmount_serial
S11lifupdown   S70slot        S97fbman       xS91tsdev_serial
S20ssh         S71Serial      S98Xserver     S99rmnologin
S40inetd       S72Ramdriver   S80hwclock     old
S50apache      S80hwclock
# mv S50apache xS50apache
# ls
S04sd          S70slot        S97fbman       xS88penmount_serial
S11lifupdown   S71Serial      S98Xserver     xS91tsdev_serial
S20ssh         S72Ramdriver   S99rmnologin
S40inetd       S80hwclock     old
S60snmp        S90tsdev usb   xS50apache

```

Figure 2

To re-enable the script, just undo the change.

Note: If you want to configure a new program to run at boot time, please refer to the following link for the chapter <4.5.1 Configuring a program to run at boot time>

http://www.icpdas.com/web/product/download/pac/linux/lp-8000/document/manual/lp-8x4x/lp-8x4x_user_manual_en.pdf

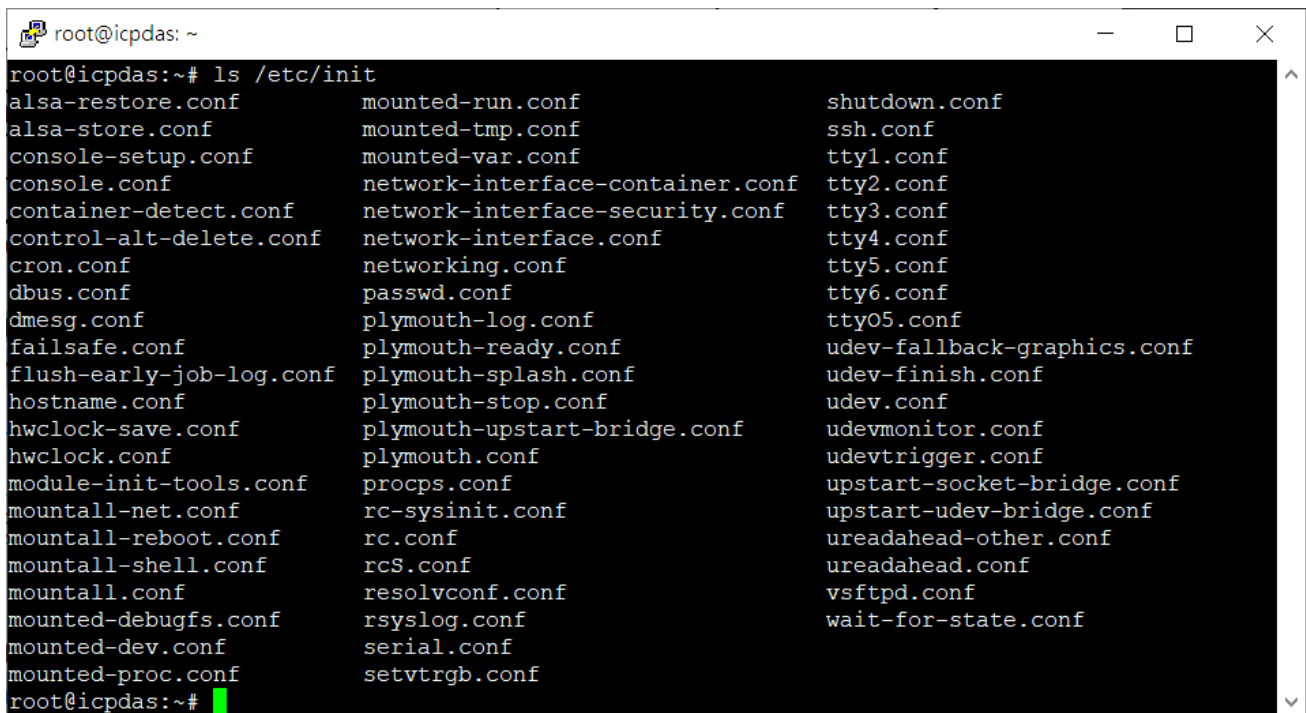
❑ Ubuntu operating system - LP-8x2x for example

There are two parts for LP-8x2x series about programs which automatically start at boot time, we suggest user to check both of them to make your LinPAC perform better.

1. Ubuntu Upstart

Step 1: Use the 'ls' command to check which service is enabling now, as illustrated in Figure 3.

Command: # ls /etc/init



```

root@icpdas: ~
root@icpdas:~# ls /etc/init
alsa-restore.conf      mounted-run.conf       shutdown.conf
alsa-store.conf        mounted-tmp.conf       ssh.conf
console-setup.conf     mounted-var.conf       tty1.conf
console.conf           network-interface-container.conf  tty2.conf
container-detect.conf network-interface-security.conf  tty3.conf
control-alt-delete.conf network-interface.conf  tty4.conf
cron.conf              networking.conf        tty5.conf
dbus.conf              passwd.conf            tty6.conf
dmesg.conf             plymouth-log.conf      ttyO5.conf
failsafe.conf          plymouth-ready.conf    udev-fallback-graphics.conf
flush-early-job-log.conf plymouth-splash.conf   udev-finish.conf
hostname.conf          plymouth-stop.conf     udev.conf
hwclock-save.conf     plymouth-upstart-bridge.conf  udevmonitor.conf
hwclock.conf           plymouth.conf          udevtrigger.conf
module-init-tools.conf procps.conf             upstart-socket-bridge.conf
mountall-net.conf      rc-sysinit.conf        upstart-udev-bridge.conf
mountall-reboot.conf  rc.conf                ureadahead-other.conf
mountall-shell.conf   rcS.conf               ureadahead.conf
mountall.conf          resolvconf.conf        vsftpd.conf
mounted-debugfs.conf  rsyslog.conf           wait-for-state.conf
mounted-dev.conf      serial.conf
mounted-proc.conf     setvtrgb.conf
root@icpdas:~#

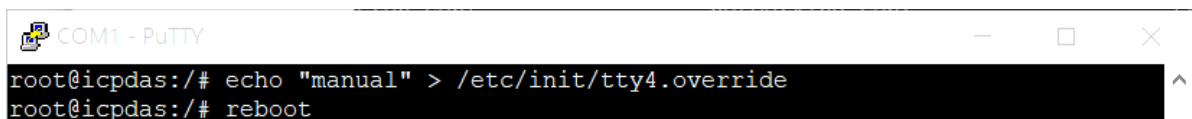
```

Figure 3

Step 2: Use the following command to prevent the program from automatically executing at boot time, we take tty4 as an example, as illustrated in Figure 4.

Command: # echo "manual" > /etc/init/tty4.override

Step 3: Reboot the LinPAC.



```

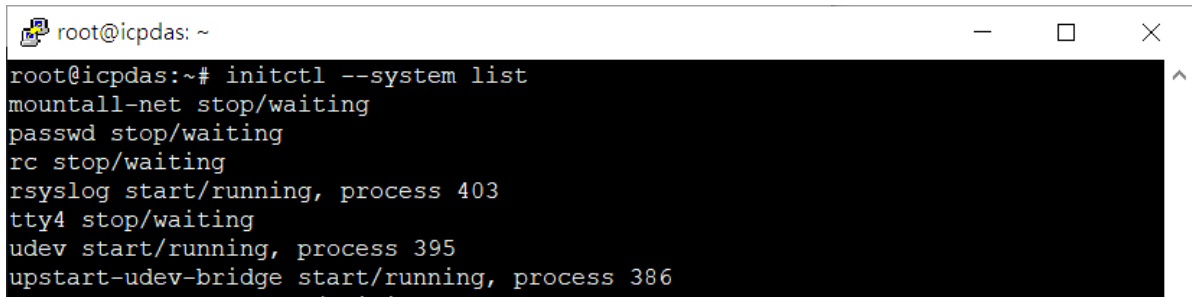
COM1 - PuTTY
root@icpdas:/# echo "manual" > /etc/init/tty4.override
root@icpdas:/# reboot

```

Figure 4

Step 4: Using the following command to check the status of all job instances, as illustrated in Figure 5.

Command: # `initctl --system list`



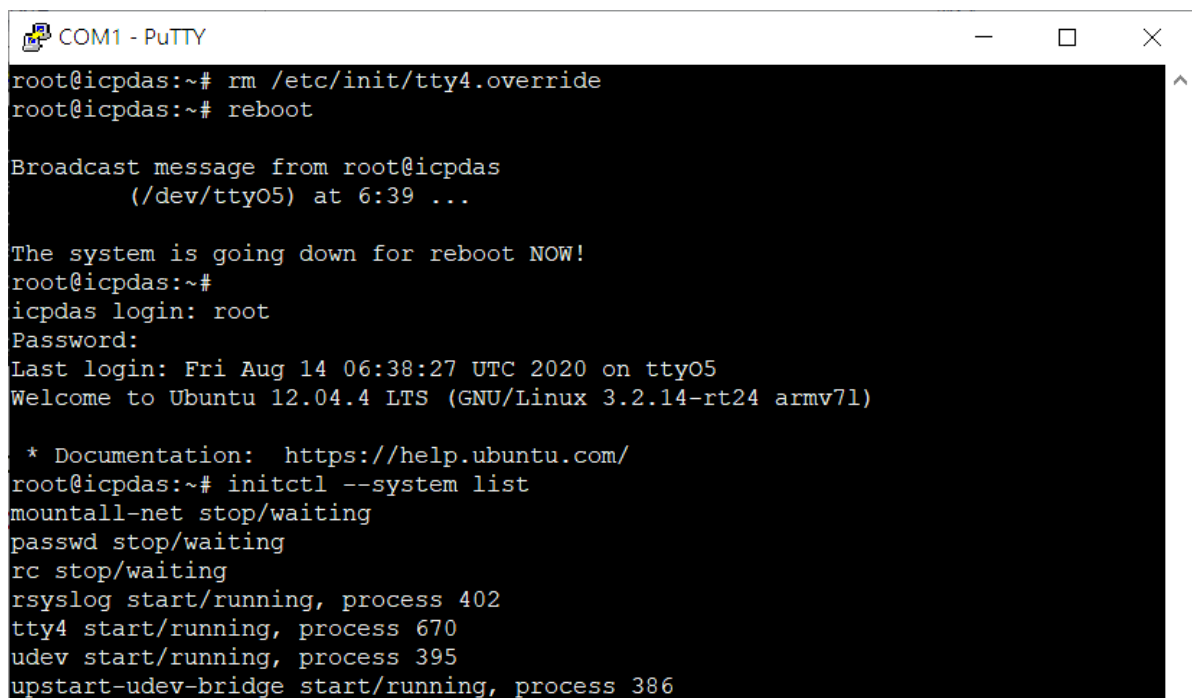
```

root@icpdas: ~
root@icpdas:~# initctl --system list
mountall-net stop/waiting
passwd stop/waiting
rc stop/waiting
rsyslog start/running, process 403
tty4 stop/waiting
udev start/running, process 395
upstart-udev-bridge start/running, process 386
  
```

Figure 5

To revert to the original behavior, just delete the override file, as illustrated in Figure 6.

Command: # `rm /etc/init/tty4.override`



```

COM1 - PuTTY
root@icpdas:~# rm /etc/init/tty4.override
root@icpdas:~# reboot

Broadcast message from root@icpdas
(/dev/ttyO5) at 6:39 ...

The system is going down for reboot NOW!
root@icpdas:~#
icpdas login: root
Password:
Last login: Fri Aug 14 06:38:27 UTC 2020 on ttyO5
Welcome to Ubuntu 12.04.4 LTS (GNU/Linux 3.2.14-rt24 armv7l)

 * Documentation: https://help.ubuntu.com/
root@icpdas:~# initctl --system list
mountall-net stop/waiting
passwd stop/waiting
rc stop/waiting
rsyslog start/running, process 402
tty4 start/running, process 670
udev start/running, process 395
upstart-udev-bridge start/running, process 386
  
```

Figure 6


More information can be found at:

<http://upstart.ubuntu.com/cookbook/#disabling-a-job-from-automatically-starting>

2. Linux System-V

Step 1: Use the 'ls' command to check which service is enabling now, as illustrated in Figure 7.

Command: # ls /etc/rc<x>.d // <x> for run level



```
COM1 - PuTTY
root@icpdas:~# ls /etc/rc2.d
README  S20apache2  S23ntp  S70pppd-dns  S75sudo  S99rc.local
```

Figure 7

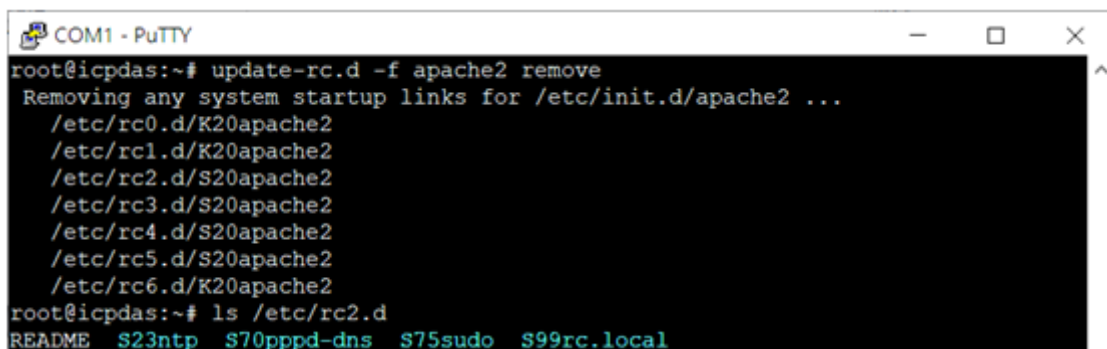
A “run level” is an operation mode that is used to determine which programs are executed during system startup. **The default run level for the LP-8x2x is level 2.**

Scripts in `/etc/rc<x>.d/` are all symbolic links whose targets are located in `/etc/init.d/`. The format of naming these links is `<S, xS or K> <2-digit-number> <original-name>`. The 2-digit-number determines the order in which the scripts are executed. The lower numbered file will be executed earlier.

Scripts prefixed with an S will start on that run level. In contrast, those prefixed with either a K or an x will stop.

Step 2: Use the following command to remove System-V style init script links, we take apache2 as an example, as illustrated in Figure 8.

Command: # update-rc.d -f apache2 remove

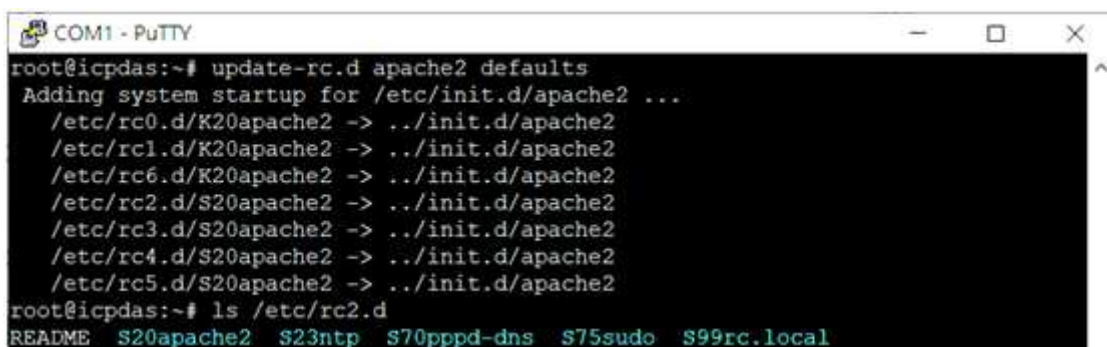


```
COM1 - PuTTY
root@icpdas:~# update-rc.d -f apache2 remove
Removing any system startup links for /etc/init.d/apache2 ...
/etc/rc0.d/K20apache2
/etc/rc1.d/K20apache2
/etc/rc2.d/S20apache2
/etc/rc3.d/S20apache2
/etc/rc4.d/S20apache2
/etc/rc5.d/S20apache2
/etc/rc6.d/K20apache2
root@icpdas:~# ls /etc/rc2.d
README  S23ntp  S70pppd-dns  S75sudo  S99rc.local
```

Figure 8

To re-install the service, just use the following command, as illustrated in Figure 9.

Command: update-rc.d apache2 defaults



```
COM1 - PuTTY
root@icpdas:~# update-rc.d apache2 defaults
Adding system startup for /etc/init.d/apache2 ...
/etc/rc0.d/K20apache2 -> ../init.d/apache2
/etc/rc1.d/K20apache2 -> ../init.d/apache2
/etc/rc6.d/K20apache2 -> ../init.d/apache2
/etc/rc2.d/S20apache2 -> ../init.d/apache2
/etc/rc3.d/S20apache2 -> ../init.d/apache2
/etc/rc4.d/S20apache2 -> ../init.d/apache2
/etc/rc5.d/S20apache2 -> ../init.d/apache2
root@icpdas:~# ls /etc/rc2.d
README  S20apache2  S23ntp  S70pppd-dns  S75sudo  S99rc.local
```

Figure 9