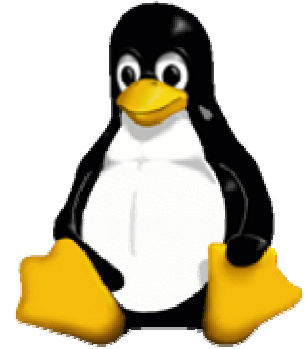




OPERATING SYSTEMS



Božo Krstajić, PhD, University of Montenegro Podgorica

bozok@cg.ac.yu



The /etc/rc.d directory

The system initialization files are stored in the **/etc/rc.d** directory.

Each task or runlevel is given its own **rc** file.

There are several categories of initialization files:

- system startup,
- runlevels,
- network initialization,
- and System V compatibility.



System Startup

The first program to run under Slackware besides the Linux kernel is **init**.

This program reads the **/etc/inittab** file to see how to run the system.

It runs the **/etc/rc.d/rc.S** script to prepare the system before going into your desired runlevel.

The **rc.S** file enables your virtual memory, mounts your filesystems, cleans up certain log directories, initializes Plug and Play devices, loads kernel modules, configures PCMCIA devices, sets up serial ports, and runs System V init scripts (if found).



Runlevel Initialization Scripts

After system initialization is complete, **init** moves on to runlevel initialization. A runlevel describes the state that your machine will be running in (the runlevel tells **init** if you will be accepting multiuser logins or just a single user, whether or not you want network services, and if you will be using the X Window, ...).

The files below define the different runlevels in Slackware Linux:

rc.0 - Halt the system (runlevel 0). By default, this is symlinked to rc.6.

rc.4 - Multiuser startup (runlevel 4), but in X11 with KDM, GDM, or XDM as the login manager.



Runlevel Initialization Scripts

rc.6 - Reboot the system (runlevel 6).

rc.K - Startup in single user mode (runlevel 1).

rc.M - Multiuser mode (runlevels 2 and 3), but with the standard text-based login. This is the default runlevel in Slackware.



Network Initialization

Runlevels 2, 3, and 4 will start up the network services.

The following files are responsible for the network initialization:

rc.inet1- Created by **netconfig**, this file is responsible for configuring the actual network interface.

rc.inet2- Runs after rc.inet1 and starts up basic network services.

rc.httpd- Starts up the Apache web server.

rc.samba- Starts up Windows file and print sharing services.

rc.news - Starts up the news server.



Other Files

rc.cdrom - If enabled, this script will scan for a CD-ROM in a drive and mount it under /cdrom if it finds one.

rc.gpm - Starts up general purpose mouse services. Allows you to copy and paste at the Linux console.

rc.font - Loads the custom screen font for the console.

rc.local - Contains any specific startup commands for your system. This is empty after a fresh install, as it is reserved for local administrators. This script is run after all other initialization has taken place.



Enabling/disabling scripts

Automatic:

To **enable** a script, all you need to do is **add** the **execute** permissions to it.

To **disable** a script, **remove** the **execute** permissions from it.

Manual:

rc.name start

rc.name stop



Networking configuration

Drivers for NICs are installed as kernel modules.

The module for your NIC has to be loaded during the initialization of Slackware Linux.

On most systems the NIC is automatically detected and configured during the installation of Slackware Linux.

You can reconfigure your NIC with the **netconfig** command.

The **netconfig** adds the driver (module) for the detected card to **/etc/rc.d/rc.netdevice**.

netconfig



Configuration of interfaces

Network cards are available under Linux through so-called “interfaces”.

The **ifconfig** command can be used to display the available interfaces details:

```
# ifconfig -a
```

Network cards get the name **ethn**, in which **n** is a number, starting with 0.

Interfaces can be configured in the **/etc/rc.d/rc.inet1.conf** file.

You can simply read the comments, and fill in the required information.



Resolving

Each computer on the internet has a hostname and IP address-.

/etc/hosts is a table of IP addresses with associated hostnames. This file can be used to name computers in a small network.

An example of the **/etc/hosts** file:

```
127.0.0.1      localhost
192.168.1.1    tazzy.slackfans.org tazzy
192.168.1.2    gideon.slackfans.org
```



Resolving

The **`/etc/resolv.conf`** file is used to specify which nameservers the system should use.

A nameserver converts hostnames to IP addresses.

Your provider should have given you at least two nameserver addresses (DNS servers).

You can add these nameservers to **`/etc/resolv.conf`** by adding the line `nameserver ipaddress` for each nameserver.

For example:

```
nameserver 192.168.1.1  
nameserver 192.168.1.69
```



The internet super server

There are two ways to offer TCP/IP services: by running server applications standalone as a daemon or by using the internet super server, **inetd**. The **inetd** is a daemon which monitors a range of ports.

If a client attempts to connect to a port **inetd** handles the connection and forwards the connection to the server software which handles that kind of connection.

The **inetd** can be configured using the **/etc/inetd.conf** file.



The internet super server

For example: How loaded FTP server?

Let's have a look at an example line (for FTP) from **inetd.conf**:

```
# File Transfer Protocol (FTP) server:  
# ftp stream tcp nowait root /usr/sbin/tcpd proftpd
```

This line specifies that **inetd** should accept FTP connections and pass them to **tcpd**.

So, just remove **#** and reenable initd or reboot host!



Apache – web server

Apache is the most popular web server since 1996.

Apache can be installed automatically by adding the apache package from the “n” disk set.

After installing Apache it can be started automatically while booting the system by making the **/etc/rc.d/rc.httpd** file executable.

The Apache configuration can be changed in the **/etc/apache/httpd.conf** file.

Apache can be stopped/started/restarted every moment with the **apachectl** command, and the stop, start and restart parameters.

For example, the command to restart Apache:

```
# rc.httpd start/stop/restart  
# apachectl restart
```