Systemd

Symbolic links to the systemd startup configuration files are located in the /etc/systemd/system directory. Each target will have its own subdirectory as shown in Table 7-2.

**Table 7-2 Systemd Target File Locations**

|  |  |
| --- | --- |
| **Target** | **Directory** |
| Default | /etc/systemd/system/default.target.wants |
| Multiuser | /etc/systemd/system/multi-user.target.wants |
| Network | /etc/systemd/system/network.target.wants |
| Sockets | /etc/systemd/system/sockets.target.wants |
| Sysinit | /etc/systemd/system/sysinit.target.wants |

Fortunately you don't have to be a scripting/symbolic linking guru to make sure everything works right because Fedora RPM daemon packages install their files in the correct locations so that they work correctly at each target level.

When the system boots under systemd, it follows these basic steps.

1. First, systemd reads all the .target files in the /lib/systemd/system/ directory. Each target file contains a list of services that need to be run during the target activation; a list of pre-requisite targets that have to be completed and the target which must be completed immediately beforehand. In some cases the file will include targets that must be completed immediately afterwards. In this sample target file we see that the target expects the steps in sysinit.target and sockets.target to be completed as pre-requisites and that the target will also run immediately after they are completed

#

# File: /lib/systemd/system/basic.target

#

[Unit]

Description=Basic System

Requires=sysinit.target sockets.target

After=sysinit.target sockets.target

RefuseManualStart=yes

2. Using this information, systemd creates a master list of services and the order in which they should be started. The system will boot and systemd will stop starting daemons in the list after it executes the services in the default.target file found in the /etc/systemd/system directory. 3. When all this is completed without errors, the system has booted successfully.

Table 7-3 provides a summary of some important systemd commands that will be helpful to you with systemd. These are then covered in more detail.

**Table 7-3 Important Systemd Boot Related Commands**

|  |  |
| --- | --- |
| **Desired Result** | **Command** |
| Determine the current default target group | # ll /etc/systemd/system/default.target |
| Determine the current active target group (Alternative method | # runlevel |
| Set the default target group (multi-user) | # systemctl enable multi-user.target |
| Change the current target group (multi-user) | # systemctl isolate multi-user.target  # systemctl isolate runlevel3.target |
| List all active targets in the active target group | # systemctl list-units --type=target |

**Determine the current default target group**

As stated before the target control files are located in the /etc/systemd directory tree. The file that sets the default target is /etc/systemd/system/default.target. In this case doing a directory listing of this file shows that when the system boots next, it will be in target 3.

[root@bigboy tmp]# ll /etc/systemd/system/default.target

lrwxrwxrwx. 1 root root 36 Jan 1 2012 /etc/systemd/system/default.target -> /lib/systemd/system/runlevel3.target

[root@bigboy tmp]#

The currently running target can be determined using the runlevel command. Here we see that it is set to 3 also.

[root@bigboy tmp]# runlevel

N 3

[root@bigboy tmp]#

If you need to see all the various targets that are active then use the systemctl list-units --type=target command as shown here.

[root@bigboy tmp]# systemctl list-units --type=target

UNIT LOAD ACTIVE SUB JOB DESCRIPTION

basic.target loaded active active Basic System

cryptsetup.target loaded active active Encrypted Volumes

getty.target loaded active active Login Prompts

local-fs-pre.target loaded active active Local File Systems (Pre)

local-fs.target loaded active active Local File Systems

multi-user.target loaded active active Multi-User

network.target loaded active active Network

remote-fs.target loaded active active Remote File Systems

sockets.target loaded active active Sockets

sound.target loaded active active Sound Card

swap.target loaded active active Swap

sysinit.target loaded active active System Initialization

syslog.target loaded active active Syslog

LOAD = Reflects whether the unit definition was properly loaded.

ACTIVE = The high-level unit activation state, i.e. generalization of SUB.

SUB = The low-level unit activation state, values depend on unit type.

JOB = Pending job for the unit.

13 units listed. Pass --all to see inactive units, too.

[root@bigboy tmp]#

**Set the default target group**

To set the default target use either the systemctl enable x.target command or the ln -sf command to link the /lib/systemd/system/\*.target file to /etc/systemd/system/default.target. In these cases we set the default target to 3 and 5.

[root@bigboy tmp]# systemctl enable multi-user.target

[root@bigboy tmp]# systemctl enable graphical.target

[root@bigboy tmp]# ln -sf /lib/systemd/system/multi-user.target /etc/systemd/system/default.target

[root@bigboy tmp]# ln -sf /lib/systemd/system/graphical.target /etc/systemd/system/default.target