

Remounting NSS subdirectories into POSIX file space

Joe R. Doupnik

MindworksUK and Univ of Oxford

joe.doupnik@oucs.ox.ac.uk



What is it?

Make a file or a directory tree appear in more than one place within the overall Linux directory tree

Source may be POSIX or NSS

Destination may be POSIX or NSS

NSS rights still apply when accessing NSS material

Speed penalty is essentially zero

The method: mount

man mount --

Since Linux 2.4.0 it is possible to remount part of the file hierarchy somewhere else. The call is

```
mount --bind olddir newdir
```

After this call the same contents is accessible in two places.

One can also remount a single file (on a single file).

This call attaches only (part of) a single file system, not possible submounts.

The entire file hierarchy including submounts is attached to a second place using

```
mount --rbind olddir newdir
```

Live example, /etc/fstab

```
# cat /etc/fstab
/dev/sdb2 /boot ext2 acl,user_xattr 1 2
/dev/sdb3 / xfs noatime,nodiratime,logbufs=8 1 1
/dev/sdb4 /home/extra xfs noatime,nodiratime,logbufs=8 1 2
/dev/sdb1 swap swap defaults 0 0
/dev/sdc1 /home/patches xfs noatime,nodiratime 1 2
...
SYS1 /home/sys1 nssvol noauto,rw,name=SYS1,ns=long,noatime 0 0
USER /home/user nssvol noauto,rw,name=USER,ns=long,noatime 0 0
/home/user/anonftp/pub /home/ftp/pub none rw,bind 0 0
```

Part of NSS volume remounted onto POSIX XFS space

Linux views of both sides

```
# ls -l /home/ftp
total 112
-rw-r--r-- 1 jrd wheel  5930 Jun  6  2004 0.3EE.jpeg
-rw-r--r-- 1 jrd nobody  318 Apr 30  2003 N.ico
-rw-r--r-- 1 jrd nobody  318 Apr 30  2003 favicon.ico
-rw-r--r-- 1 jrd users  3865 Apr  7 13:33 index.html
-rw-r--r-- 1 jrd root  64243 Dec 27  2002 jrdweb.jpg
-rw-r--r-- 1 jrd wheel  3775 Jun  6  2004 newcrest903.gif
drwxr-xr-x 2 jrd nobody 8192 Oct  5  2008 novell.faq
drwxrwxrwx 1 jrd root    0 Apr  7 13:31 pub ←
-rw-r--r-- 1 jrd nobody  26 Jun  3  2004 robots.txt
-rw-r--r-- 1 jrd root   1669 Jan 25  2008 valid-html401-blue.png
-rw-r--r-- 1 jrd nobody 1216 Jun  3  2004 win95.html
#
# ls -l /home/user/anonftp
total 0
drwxrwxrwx 1 jrd root 0 Apr  7 13:31 pub
```

XFS space

NSS space

Caveat, avoid a race condition

Mounting of /etc/fstab material is done before NSS has started

Thus our mount of an NSS subdir will fail at that time

Add a new start/stop script, shown next, which runs after NSS has started

Start/stop script, avoid race

```
#!/bin/sh
#
#   Template SUSE system startup script for mounting on /home/ftp/pub
#   Joe R. Doupnik, Jan 2009
#
# /etc/init.d/ftpmount
# and its symbolic link
# /(usr/)sbin/rcftpmount
#
### BEGIN INIT INFO
# Provides:          ftpmount
# Required-Start:    $syslog $remote_fs nss
# Should-Start:
# Required-Stop:    $syslog $remote_fs nss
# Should-Stop:
# Default-Start:    3 5
# Default-Stop:     0 1 2 6
# Short-Description: Mount NSS dir to /home/ftp
# Description:      Mount /home/user/anonftp/pub on /home/ftp/pub
### END INIT INFO
#
. /etc/rc.status

# Reset status of this service
rc_reset
```

Note requirement for NSS to be started before this script

Start/stop script, cont'd

```
case "$1" in
  start)
    echo -n "Mounting /home/user/anonftp/pub on /home/ftp/pub "
    test `mount | grep /home/ftp/pub` || mount -a
    rc_status -v
    ;;
  stop)
    echo -n "Dismounting /home/ftp/pub "
    umount /home/ftp/pub
    rc_status -v
    ;;
  restart)
    ## Stop the service and regardless of whether it was
    ## running or not, start it again.
    $0 stop
    $0 start
    rc_status
    ;;
  status)
    echo "Check mounting on /home/ftp/pub...\n"
    echo -n " "
    mount | grep /home/ftp/pub
    rc_status -v
    ;;
  *)
    echo "Usage: $0 {start|stop|status|restart}"
    exit 1
    ;;
esac
rc_exit
```




MindWorks Inc. Ltd
210 Burnley Road
Weir
Bacup
OL13 8QE UK

Telephone: +44 (0) 170 687 1900

Fax: +44 (0) 170 687 8203

Web: www.mindworksuk.com

Email: training@mindworksuk.com