



Automounter Filesystem - autofs

Automatic mounting

- ❑ Problems of /etc/fstab
 - Maintenance of /etc/fstab in large network
 - Crashed NFS server will make operation blocked
- ❑ automount daemon
 - Mount filesystems when they are referenced and unmount them when they are no longer needed
 - Supply a list of **replicated filesystems** to replace important but crashed NFS servers
 - Transparent to users
- ❑ Products
 - automount (from SUN Micro), simple and concise
 - amd (from Jan-Simon Pendry), complicated but more powerful

automount (1)

❑ Three kinds of configuration files (map)

- Direct map
 - Indirect map
 - Master map
- } Provide information about filesystems that are to be automounted
- List which direct and indirect maps that automount should pay attention to
- Difference between direct and indirect
 - All mount points in indirect map has common directory defined in master map

automount (2)

❑ Example of automount maps

<i>master</i>	/net	/etc/auto.net	-rw, intr
	/-	/etc/auto.direct	-ro, intr
<i>indirect</i>	WWW	-rw,soft,nosuid,vers=2	vega:/home/www
	mail	-rw,soft,nosuid,quota	ccserv:/spool/mail
	ftp	-ro,soft,nosuid	ftp:/home/ftp
<i>direct</i>	/vlsi/vlsi1	-rw,soft,nosuid	scorpio:/vlsi1
	/vlsi/vlsi2	-rw,soft,nosuid	scorpio:/vlsi2

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❑ Master map

- /etc/auto_master (FreeBSD)
- /etc/auto.master (Linux)
- /etc/auto_master (Solaris)

❑ Restart automounter when you change the maps

- /etc/rc.d/automount {start|stop}
- /etc/rc.d/automountd {start|stop}
- /etc/rc.d/autounmountd {start|stop} (FreeBSD)
- /etc/init.d/autofs {start|stop} (Solaris)
- /etc/init.d/autofs {start|stop|reload|status} (Linux)

automount (4)

❑ Replicated filesystem

- There are several identical NFS and I would like to mount anyone of them
- Constrain
 - Read-only
 - These replicated filesystem should be truly identical
- Automounter will choose a server based on its own idea of which one is the best

```
/usr/man      -ro      mybsd:/usr/man mybsd2(1):/usr/man  
/www/data     -ro      mybsd4,altair:/www/data
```

automount (5)

❑ Automatic automounts

- *automount* can query the *mountd* to find out what filesystems the server exports
- Using `-host` as map name in the master map file

```
/net          -host          -nosuid,soft
```

- `-host` does not enumerate all possible hosts
 - It waits for individual subdirectory names to be referenced
 - If `mybsd` exports `/usr/share/man`
 - Automount at the path `/net/mybsd/usr/share/man`

automount (6)

❑ Configure automount with NIS

- /etc/auto_master

```
+auto_master
```

- /etc/autofs/include_yp

```
#!/bin/sh  
ypcat -k $1
```

- In `-s /etc/autofs/include_yp /etc/autofs/include`
- Setup NIS maps on NIS master
- Edit /etc/rc.conf

```
autofs_enable="YES"
```


amd (1)

❑ Advantages over automount

- Sends “keep alive” queries to remote servers at regular intervals and maintains a list of servers that are accessible
 - Return an “**operation would block**” rather than hanging
- Not proprietary source code
- Offer another mount types that are not supported by automount
 - union
- Map syntax is more generic
- Provide a query-and-manipulation tool, amq
- ...

Q & A