

Scripting The Shell

"In shell, one need only write:

```
a=`expr $a + 1`
```

*where it is essential to have spaces around the + sign to use the \$ sign only before the righthand occurrence of the variable a, and to use the backward quote character instead of the common single quote. When UN*X brand operating system programmers want to develop an application quickly, they often use the shell because of this convenient syntax."*

Introduction

A Unix shell is not only an interactive command interpreter but also a powerful programming and job-control language. It can be used to automate many repetitive tasks, especially when used in conjunction with the cron or at facilities.

See Also

basename (1), df (1), awk (1), tail (1), expr (1), bash (1)

p. 683, Frisch

Setting Up

You should be root for this exercise.

Create a new directory under root's home directory for this exercise. Call the directory ckusage:

```
% mkdir /root/ckusage; cd /root/ckusage
```

The Script

Type the following script into a file called ckusage in the project subdirectory:

```
#!/bin/bash

name=`basename $0`
userlistfile=/etc/${name}.users

[ -z $1 ] && { echo "usage: $name percentage"; exit 1; }

if [ -r $userlistfile ]; then
    userlist=`cat $userlistfile`
else
    userlist=root
fi

df | awk '{print $1 " " $2 " " $3}' | tail +2 |
while read fs total used; do
    ninetypc=`expr $total \* $1 / 100`
    if [ $used -gt $ninetypc ]; then
        echo "$fs usage > $1%."
    fi
done | mail $userlist -s "$name report"

exit 0
```

Ensure that the script you created has execute permissions:

```
% chmod 755 ./ckusage
```

Create /etc/ckusage.users:

```
% echo $USER@`hostname` > /etc/ckusage.users
```

Scripting The Shell

Running The Script

The following sequence should show you how to run the script and view the results:

```
% ./ckusage 20
% mail
Mail version 8.1 6/6/93.  Type ? for help.
"/var/spool/mail/root": 1 message 1 new
>N 1 root@redhat.skewst.ho Sun Dec 27 10:32 16/480 "ckusage report"
& 1
Message 1:
From root Sun Dec 27 10:32:16 1998
Date: Sun, 27 Dec 1998 10:32:16 +1000
From: root <root@redhat.skewst.home.net.au>
To: root@redhat.skewst.home.net.au
Subject: ckusage report

/dev/hda1 usage > 20%.
/dev/sdb1 usage > 20%.
/dev/sdb5 usage > 20%.
/dev/sda1 usage > 20%.

& d
& q
%
```

Some Things To Try

If you are struggling to understand how this script is working, replace the first line of the script with:

```
#!/bin/bash -x
```

See if you can follow what is happening.

You might also like to modify the script to produce the following output (which includes the mount point for the filesystem):

```
/dev/sdb5 (/var) usage > 20%.
```

Only three lines need to be changed...

For Later

Retain this script and its enclosing directory for future exercises.