

FIND

Σύνταξη: find pathname expression action

Το pathname είναι το σημείο εκκίνησης της αναζήτησης.

Το expression είναι μια έκφραση που συνδυάζει ένα ή περισσότερα κριτήρια αναζήτησης.

Η action είναι μια ενέργεια που θα επιδράσει πάνω στα αρχεία που έχουν εντοπισθεί.

Εκφράσεις της εντολής find:

-name filename: αληθής αν το όνομα αρχείου ταυτίζεται με το filename.

-type filetype: αληθής αν το τύπος του αρχείου είναι

b – αρχείο μπλοκ

c - αρχείο χαρακτήρα

d - κατάλογος

f – κανονικό αρχείο

p – ονομαστικός δίαυλος fifo

l – συμβολικός σύνδεσμος

s - υποδοχή

-size +/-number: αληθής αν το μέγεθος του αρχείου είναι number.

-atime +/- n: αληθής αν το αρχείο έχει προσπελαστεί μέσα n μέρες.

Το κενό ανάμεσα στα κριτήρια είναι το λογικό ΚΑΙ. Το -ο ανάμεσα στα κριτήρια είναι το λογικό Η. Το ! είναι το λογικό ΌΧΙ.

Ενέργειες της εντολής find:

-print: εμφανίζει όλα τα αρχεία που έχουν εντοπισθεί, στην οθόνη του υπολογιστή.

-exec command \; :εκτελεί την εντολή command στα αρχεία που έχουν εντοπισθεί.
Αν καθορίσετε {} σαν όρισμα γραμμής εντολών, αυτό αντικαθίσταται από το όνομα του τρέχοντος αρχείου.

-ok command \; : Το ίδιο με το exec αλλά με ερώτηση επιβεβαίωσης του χρήστη πριν από την εκτέλεση της εντολής command.

Παραδείγματα

find / -type d -print

Αναζητά όλους τους καταλόγους σε όλο το σύστημα Linux και εμφανίζει τα ονόματα των καταλόγων.

find / -type d -size 30 -print

Αναζητά όλους τους καταλόγους που έχουν μέγεθος 30 blocks σε όλο το σύστημα Linux και εμφανίζει τα ονόματα των καταλόγων.

find /etc -name 'f*' -print

Αναζητά ονόματα αρχείων που ξεκινούν με f από το κατάλογο /etc και εμφανίζει τα ονόματα των αρχείων.

Find Command in Unix/Linux

Find is one of the powerful utility of Unix (or Linux) used for searching the files in a directory hierarchy. The syntax of find command is

```
find [pathnames] [conditions]
```

Let see some practical exercises on using find command.

1. How to run the last executed find command?

```
!find
```

This will execute the last find command. It also displays the last find command executed along with the result on the terminal.

2. How to find for a file using name?

```
find -name "sum.java"
./bkp/sum.java
./sum.java
```

This will find all the files with name "sum.java" in the current directory and sub-directories.

3. How to find for files using name and ignoring case?

```
find -iname "sum.java"
./SUM.java
./bkp/sum.java
./sum.java
```

This will find all the files with name "sum.java" while ignoring the case in the current directory and sub-directories.

4. How to find for a file in the current directory only?

```
find -maxdepth 1 -name "sum.java"
./sum.java
```

This will find for the file "sum.java" in the current directory only

5. How to find for files containing a specific word in its name?

```
find -name "*java*"
./SUM.java
```

```
./bkp/sum.java
./sum.java
./multiply.java
```

It displayed all the files which have the word "java" in the filename

6. How to find for files in a specific directory?

```
find /etc -name "*java*"
```

This will look for the files in the /etc directory with "java" in the filename

7. How to find the files whose name are not "sum.java"?

```
find -not -name "sum.java"
```

```
./SUM.java
./bkp
./multiply.java
```

This is like inverting the match. It prints all the files except the given file "sum.java".

8. How to limit the file searches to specific directories?

```
find -name "sum.java"
./tmp/sum.java
./bkp/var/tmp/files/sum.java
./bkp/var/tmp/sum.java
./bkp/var/sum.java
./bkp/sum.java
./sum.java
```

You can see here the find command displayed all the files with name "sum.java" in the current directory and sub-directories.

a. How to print the files in the current directory and one level down to the current directory?

```
find -maxdepth 2 -name "sum.java"
./tmp/sum.java
./bkp/sum.java
./sum.java
```

b. How to print the files in the current directory and two levels down to the current directory?

```
find -maxdepth 3 -name "sum.java"
./tmp/sum.java
./bkp/var/sum.java
./bkp/sum.java
./sum.java
```

c. How to print the files in the subdirectories between level 1 and 4?

```
find -mindepth 2 -maxdepth 5 -name "sum.java"  
./tmp/sum.java  
./bkp/var/tmp/files/sum.java  
./bkp/var/tmp/sum.java  
./bkp/var/sum.java  
./bkp/sum.java
```

9. How to find the empty files in a directory?

```
find . -maxdepth 1 -empty  
./empty_file
```

10. How to find the largest file in the current directory and sub directories

```
find . -type f -exec ls -s {} \; | sort -n -r | head -1
```

The find command "find . -type f -exec ls -s {} \;" will list all the files along with the size of the file. Then the sort command will sort the files based on the size. The head command will pick only the first line from the output of sort.

11. How to find the smallest file in the current directory and sub directories

```
find . -type f -exec ls -s {} \; | sort -n -r | tail -1
```

Another method using find is

```
find . -type f -exec ls -s {} \; | sort -n | head -1
```

12. How to find files based on the file type?

a. Finding socket files

```
find . -type s
```

b. Finding directories

```
find . -type d
```

c. Finding hidden directories

```
find -type d -name ".*"
```

d. Finding regular files

```
find . -type f
```

e. Finding hidden files

```
find . -type f -name ".*"
```

13. How to find files based on the size?

a. Finding files whose size is exactly 10M

```
find . -size 10M
```

b. Finding files larger than 10M size

```
find . -size +10M
```

c. Finding files smaller than 10M size

```
find . -size -10M
```

14. How to find the files which are modified after the modification of a give file.

```
find -newer "sum.java"
```

This will display all the files which are modified after the file "sum.java"

15. Display the files which are accessed after the modification of a give file.

```
find -anewer "sum.java"
```

16. Display the files which are changed after the modification of a give file.

```
find -cnewer "sum.java"
```

17. How to find the files based on the file permissions?

```
find . -perm 777
```

This will display the files which have read, write, and execute permissions. To know the permissions of files and directories use the command "ls -l".

18. Find the files which are modified within 30 minutes.

```
find . -mmin -30
```

19. Find the files which are modified within 1 day.

```
find . -mtime -1
```

20. How to find the files which are modified 30 minutes back

```
find . -not -mmin -30
```

21. How to find the files which are modified 1 day back.

```
find . -not -mtime -1
```

22. Print the files which are accessed within 1 hour.

```
find . -amin -60
```

23. Print the files which are accessed within 1 day.

```
find . -atime -1
```

24. Display the files which are changed within 2 hours.

```
find . -cmin -120
```

25. Display the files which are changed within 2 days.

```
find . -ctime -2
```

26. How to find the files which are created between two files.

```
find . -cnewer f1 -and ! -cnewer f2
```

So far we have just find the files and displayed on the terminal. Now we will see how to perform some operations on the files.

1. How to find the permissions of the files which contain the name "java"?

```
find -name "*java*" | xargs ls -l
```

Alternate method is

```
find -name "*java*" -exec ls -l {} \;
```

2. Find the files which have the name "java" in it and then display only the files which have "class" word in them?

```
find -name "*java*" -exec grep -H class {} \;
```

3. How to remove files which contain the name "java".

```
find -name "*java*" -exec rm -r {} \;
```

This will delete all the files which have the word "java" in the file name in the current directory and sub-directories.

Similarly you can apply other Unix commands on the files found using the find command. I will add more examples as and when i found.