TRENDING:

What is a sticky Bit and how to set it in Linux?

Linux TOP command explained

What is SUID and how to set SUID in Linux/Unix?

\*

\*

\*

[ ]

The Linux Juggernaut

\* Administration

+ Monitoring

+ Security

+ Servers

\* Basics

\* Cloud

+ AWS

+ KVM

\* Devops

+ Ansible

+ Docker

+ Packer

+ Puppet

+ Vagrant

\* Interviews

\* News

\* Offers

\* Programming

+ Awk

+ Bash

+ Batch

+ Git

+ Perl

+ PowerShell

+ python

+ Ruby

+ Sed

+ SQL

\* Reviews

+ Books

+ Linux/Unix

+ Open source

\* Mounix Systems

Select Page

Regular Expressions in Linux Explained with Examples

Posted by Surendra Anne | Jul 1, 2011 | Programming | 21 |

Regular Expressions in Linux Explained with Examples

Regular expressions (Regexp)is one of the advanced concept we require to

write efficient shell scripts and for effective system administration.

Basically regular expressions are divided in to 3 types for better

understanding.

1)Basic Regular expressions

[INS::INS]

2)Interval Regular expressions (Use option -E for grep and -r for sed)

3)Extended Regular expressions (Use option -E for grep and -r for sed)

Some FAQ's before starting Regular expressions

What is a Regular expression?

A regular expression is a concept of matching a pattern in a given string.

Which commands/programming languages support regular expressions?

vi, tr, rename, grep, sed, awk, perl, python etc.

Linuxnix-free-e-book

Basic Regular Expressions

Basic regular expressions: This set includes very basic set of regular

expressions which do not require any options to execute. This set of regular

expressions are developed long time back.

^ ?Caret/Power symbol to match a starting at the beginning of line.

$ ?To match end of the line

\* ?0 or more occurrence of the previous character.

. ?To match any character

[] ?Range of character

[^char] ?negate of occurrence of a character set

<word> ?Actual word finding

?Escape character

Lets start with our Regexp with examples, so that we can understand it

better.

^ Regular Expression

Example 1: Find all the files in a given directory

ls -l | grep ^-

As you are aware that the first character in ls -l output, ? is for regular

files and d for directories in a given folder. Let us see what ^- indicates.

The ^ symbol is for matching line starting, ^- indicates what ever lines

starts with -, just display them. Which indicates a regular file in Linux/

Unix.

If we want to find all the directories in a folder use grep ^d option along

ls -l as shown below

ls -l | grep ^d

How about character files and block files?

ls -l | grep ^c

ls -l | grep ^b

We can even find the lines which are commented using ^ operator with below

example

grep '^#' filename

How about finding lines in a file which starts with 'abc'

grep '^abc' filename

We can have number of examples with this ^ option.

$ Regular Expression

Example 2: Match all the files which ends with sh

ls -l | grep sh$

As $ indicates end of the line, the above command will list all the files

whose names end with sh.

how about finding lines in a file which ends with dead

grep 'dead$' filename

How about finding empty lines in a file?

grep '^$' filename

\* Regular Expression

Example 3: Match all files which have a word twt, twet, tweet etc in the

file name.

ls -l | grep 'twe\*t'

How about searching for apple word which was spelled wrong in a given file

where apple is misspelled as ale, aple, appple, apppple, apppppple etc. To

find all patterns

grep 'ap\*le' filename

Readers should observe that the above pattern will match even ale word as \*

indicates 0 or more of the previous character occurrence.

. Regular Expression

Example 4: Filter a file which contains any single character between t and t

in a file name.

ls -l | grep 't.t'

Here . will match any single character. It can match tat, t3t, t.t, t&t etc

any single character between t and t letters.

How about finding all the file names which starts with a and end with x

using regular expressions?

ls -l | grep 'a.\*x'

The above .\* indicates any number of characters

Note: .\* in this combination . indicates any character and it repeated(\*) 0

or more number of times.

Suppose you have files as..

awx

awex

aweex

awasdfx

a35dfetrx

etc.. it will find all the files/folders which start with a and ends with x

in our example.

[] Square braces/Brackets Regular Expression

Example 5: Find all the files which contains a number in the file name

between a and x

ls -l | grep 'a[0-9]x'

This will find all the files which is

a0xsdf

asda1xsdfas

..

..

asdfdsara9xsdf

etc.

So where ever it finds a number it will try to match that number.

Some of the range operator examples for you.

[a-z] ?Match's any single char between a to z.

[A-Z] ?Match's any single char between A to Z.

[0-9] ?Match's any single char between 0 to 9.

[a-zA-Z0-9] ? Match's any single character either a to z or A to Z or 0 to 9

[!@#$%^] ? Match's any ! or @ or # or $ or % or ^ character.

You just have to think what you want match and keep those character in the

braces/Brackets.

[^char] Regular Expression

Example6: Match all the file names except a or b or c in it?s filenames

ls | grep '[^abc]'

This will give output all the file names except files which contain a or b

or c.

<word> Regular expression

Example7: Search for a word abc, for example I should not get abcxyz or

readabc in my output.

grep '<abc>' filename

Escape Regular Expression

Example 8: Find files which contain [ in it?s name, as [ is a

special charter we have to escape it

grep "[" filename

or

grep '[[]' filename

Note: If you observe [] is used to negate the meaning of [ regular

expressions, so if you want to find any specail char keep them in [] so that

it will not be treated as special char.

Note: No need to use -E to use these regular expressions with grep. We have

egrep and fgrep which are equal to ?grep -E?. I suggest you just concentrate

on grep to complete your work, don't go for other commands if grep is there

to resolve your issues. Stay tuned to our next post on Regular expressions.

Share:

Rate:

PreviousRedhat Enterprise Linux version 6 aka RHEL6 features

NextRegular expressions in Linux -II

About The Author

[8f71515aab81c5a2f6b9a2f]

Surendra Anne

Mr Surendra Anne is from Vijayawada, Andhra Pradesh, India. He is a Linux/

Open source supporter who believes in Hard work, A down to earth person,

Likes to share knowledge with others, Loves dogs, Likes photography. He

works as Devops Engineer with Taggle systems, an IOT automatic water

metering company, Sydney . You can contact him at surendra (@) linuxnix dot

com.

\*

\*

\*

Related Posts

How to write shell script in Linux professionally

How to write shell script in Linux professionally

August 14, 2011

Vi editor: Delete matched search pattern from a file

Vi editor: Delete matched search pattern from a file

May 3, 2013

Shell script: Convert decimal to ascii values

Shell script: Convert decimal to ascii values

December 20, 2012

Mysql: How to find table and database size?

Mysql: How to find table and database size?

January 9, 2017

\* Pingback: SED(Steam EDitor ) Explained in detail for Linux/Unix | The

Linux Juggernaut()

\* Dfksf

well explained

\* Pingback: Learn SED with examples | The Linux Juggernaut()

\* gouthamk10

good work

\* Pingback: How To List Only Alphabetical Filename in Linux | The Linux

Juggernaut()

\* Pingback: Regular expressions in Linux -II | The Linux Juggernaut()

\* bozo

s/Carrot/Caret/

+ Surendra

thanks for the typo.. updated the post.

\* m\_theredhead

Example 3 and 4 are not quite right. They both say ?Match all files

which starts with ? but really match all files that contain blah. You

need a ^ to match the beginning. For example, creating a file called

?atweet? will match using the example.

+ Surendra

Updated the points 3 and 4

\* Fuzzy

Minor typo? you have ?expect? in a number of places you mean ?except?

+ Surendra

thanks for the hands up.. updated the post..

\* Pingback: Regular Expressions in Linux Explained with Examples |

Thelinuxgeek()

\* Pingback: Links 18/10/2012: Wine 1.5.15, Mageia 3 Alpha 2 | Techrights()

\* vishnu sakhamuri

please change Ex 4, it will list not only files end with ?x?, it also

list files not also end with x. like below

asfsdfdsxdfdsfsd

akljljlxq

to return, only lines start with a and end with x, the RegExp is ?a.\*x$?

and in Example 8, there typo, it made your special, a specail.

\* arjun

how to match name with mail in given file by shell scripting

\* arjun

hi friends,how to match name with mail in given file by shell scripting

\* anonym

This is great, I really love your work, made my life easier.

But?i don't understand the part that you are a Linux evanghelist?? Is

linux considered a religion?

+ Surendra Anne

No.. but I use evanghelist in way to convay that I love Linux and

spread it.

\* udit prasad mishra

why command ls -l | fgrep ^- doesnot work.

+ Surendra Anne

Its not fgrep, but its grep. Can I know the error when you execute

this command?

\* Zahid Hussain

Thank you for nice share. However, I think there is some typo error.

Published = [A-Z] ?Match?s any single char between a to z.

Required = [A-Z] ?Match?s any single char between A to Z.

+ Surendra Anne

Thanks for headsup Zahid. Updated the post.

\* Subhaprasad Mukherjee

Can someone explain something to me? If I am using ls -l | grep ^- to

find all files, why does the ^ character here signify start of line and

not negation?

+ Surendra Anne

Because its not with in []. if you use ^ wit [^], that indicates

negate all the charecters which are in that braces.

\* Babab Dayryam

match a pattern in multiple files.Do i need to use a for/while loop

inside grep command.

+ Surendra

no need a for loop, just use grep?s opetions -r and bash glob

options. For example: In order to search for a word in all files in

present working directory use below command

grep ?babab? \*

Suppose if you want to search even in subdirectories, use -r which

is recursive.

grep -r ?babab? \*

Hope this helps.

HTH

Surendra.

Search for: [ ] [Search]

Get more stuff like this

in your inbox

Subscribe to our mailing list and get interesting stuff and updates to your

email inbox.

[ ] [Sign Up Now]

we respect your privacy and take protecting it seriously

Follow Us

\*

Facebook

\*

Google+

\*

Twitter

704 followers

Recent Posts

\* Join our Free DevOps Slack channels

Join our Free DevOps Slack channels

Jul 23, 2017 | Basics

\* How to use Positional parameters and special variables in Linux

How to use Positional parameters and special variables in Linux

Jun 28, 2017 | Basics

\* Linux: Connect to your WiFi network through CLI?

Linux: Connect to your WiFi network through CLI?

Jun 25, 2017 | Administration, Basics

\* Opscode Chef terminology you should know

Opscode Chef terminology you should know

May 1, 2017 | Chef, Devops

\* What is Opscode chef?

What is Opscode chef?

Apr 30, 2017 | Chef

Recent Comments

\* raghav r

on Understanding free command in Linux/Unix

\* Surendra

on 13 examples to use curly braces in Linux

\* sai nath

on 13 examples to use curly braces in Linux

\* dlightdaily

on How to find a file in Linux?

\* Parthasarathi

on Understanding free command in Linux/Unix

ABOUT ME..!

My photo

My name is Surendra Kumar Anne. I hail from Vijayawada which is cultural

capital of south Indian state of Andhra Pradesh. I am a Linux evangelist who

believes in Hard work, A down to earth person, Likes to share knowledge with

others, Loves dogs, Likes photography. At present I work at Bank of America

as Sr. Analyst Systems and Administration. You can contact me at surendra

(@) linuxnix dot com.

\* About US

\* Contribute

\* Editorial team

\* Support us

\* Advertise

\* Contact Us

\* Testimonials

\*

\*

\*

Pin It on Pinterest

Shares

\*

\*

2

\*

\*

\*

3

\*

6

\*

Share This

\*

Facebook

\*

Twitter

\*

Google+

\*

Buffer

\*

Digg

\*

Evernote

\*