

Alumno: Rodrigo Vila

Ejercicios Modulo 3 – Unidad 4

Ejercicio Número 1 Unidad 4:

Hagan pruebas para que noten la diferencia entre 4 palabras simples concatenadas (nueva + clave) y el uso de caracteres especiales.

Por ejemplo, probar las siguientes claves:

“nuevaclave”

“nu3v@claVe”

“NueVaCLaVe”

“nUEvAclAvE”

Prueba con “nuevaclave”:

GRC's Interactive Brute Force Password "Search Space" Calculator
(NOTHING you do here ever leaves your browser. What happens here, stays here.)

No Uppercase 10 Lowercase No Digits No Symbols

nuevaclave

Enter and edit your test passwords in the field above while viewing the analysis below.

Brute Force Search Space Analysis:

Search Space Depth (Alphabet):	26
Search Space Length (Characters):	10 characters
Exact Search Space Size (Count): <small>(count of all possible passwords with this alphabet size and up to this password's length)</small>	146,813,779,479,510
Search Space Size (as a power of 10):	1.47×10^{14}

Time Required to Exhaustively Search this Password's Space:

Online Attack Scenario: <small>(Assuming one thousand guesses per second)</small>	46.68 centuries
Offline Fast Attack Scenario: <small>(Assuming one hundred billion guesses per second)</small>	24.47 minutes
Massive Cracking Array Scenario: <small>(Assuming one hundred trillion guesses per second)</small>	1.47 seconds

Note that typical attacks will be online password guessing limited to, at most, a few hundred guesses per second.

(The Haystack Calculator has been viewed 8,960,965 times since its publication.)

Prueba con "nu3v@claVe":

GRC's Interactive Brute Force Password "Search Space" Calculator
(NOTHING you do here ever leaves your browser. What happens here, stays here.)

1 Uppercase 7 Lowercase 1 Digit 1 Symbol 10 Characters

nu3v@claVe

Enter and edit your test passwords in the field above while viewing the analysis below.

Brute Force Search Space Analysis:

Search Space Depth (Alphabet):	26+26+10+33 = 95
Search Space Length (Characters):	10 characters
Exact Search Space Size (Count): <small>(count of all possible passwords with this alphabet size and up to this password's length)</small>	60, 510,648,114,517,017,120
Search Space Size (as a power of 10):	6.05 x 10 ¹⁹

Time Required to Exhaustively Search this Password's Space:

Online Attack Scenario: <small>(Assuming one thousand guesses per second)</small>	19.24 million centuries
Offline Fast Attack Scenario: <small>(Assuming one hundred billion guesses per second)</small>	19.24 years
Massive Cracking Array Scenario: <small>(Assuming one hundred trillion guesses per second)</small>	1.00 weeks

Note that typical attacks will be online password guessing limited to, at most, a few hundred guesses per second.

(The Haystack Calculator has been viewed 8,964,170 times since its publication.)

Prueba con "NueVaCLaVe":

GRC's Interactive Brute Force Password "Search Space" Calculator
(NOTHING you do here ever leaves your browser. What happens here, stays here.)

5 Uppercase 5 Lowercase No Digits No Symbols

NueVaCLaVe

Enter and edit your test passwords in the field above while viewing the analysis below.

Brute Force Search Space Analysis:

Search Space Depth (Alphabet):	26+26 = 52
Search Space Length (Characters):	10 characters
Exact Search Space Size (Count): (count of all possible passwords with this alphabet size and up to this password's length)	147,389,519,791,195,396
Search Space Size (as a power of 10):	1.47 x 10 ¹⁷

Time Required to Exhaustively Search this Password's Space:

Online Attack Scenario: (Assuming one thousand guesses per second)	46.87 thousand centuries
Offline Fast Attack Scenario: (Assuming one hundred billion guesses per second)	2.44 weeks
Massive Cracking Array Scenario: (Assuming one hundred trillion guesses per second)	24.56 minutes

Note that typical attacks will be online password guessing limited to, at most, a few hundred guesses per second.

(The Haystack Calculator has been viewed 8,964,170 times since its publication.)

Prueba con "nUEvAcIaVe":

GRC's Interactive Brute Force Password "Search Space" Calculator
(NOTHING you do here ever leaves your browser. What happens here, stays here.)

5 Uppercase

5 Lowercase

No Digits

No Symbols

10 Characters

nUEvAclAve

Enter and edit your test passwords in the field above while viewing the analysis below.

Brute Force Search Space Analysis:

Search Space Depth (Alphabet):	26+26 = 52
Search Space Length (Characters):	10 characters
Exact Search Space Size (Count): (count of all possible passwords with this alphabet size and up to this password's length)	147,389,519,791,195,396
Search Space Size (as a power of 10):	1.47×10^{17}

Time Required to Exhaustively Search this Password's Space:

Online Attack Scenario: (Assuming one thousand guesses per second)	46.87 thousand centuries
Offline Fast Attack Scenario: (Assuming one hundred billion guesses per second)	2.44 weeks
Massive Cracking Array Scenario: (Assuming one hundred trillion guesses per second)	24.56 minutes

Note that typical attacks will be online password guessing limited to, at most, a few hundred guesses per second.

(The Haystack Calculator has been viewed 8,964,170 times since its publication.)

En resumen:

Se realizaron pruebas para evaluar la seguridad de diferentes tipos de contraseñas, específicamente comparando contraseñas simples con aquellas que incorporan caracteres especiales y variaciones en el uso de mayúsculas y minúsculas.

El análisis demostró que las contraseñas simples son más vulnerables a ataques, mientras que las contraseñas que incorporan una combinación de caracteres especiales, números, y variaciones de mayúsculas y minúsculas ofrecen una mayor seguridad. Este ejercicio resalta la importancia de utilizar contraseñas complejas para proteger la información personal y sensible.

Adjunto otro "mapa" estimativo sobre cuánto tiempo tardaría aproximadamente un hacker para vulnerar una contraseña utilizando Fuerza bruta. Obviamente esto es estimativo y muy vago, ya que todo depende de distintos factores como el listado de diccionarios que utilizan, la capacidad de cómputo de su hardware y muchos otros factores:

TIME IT TAKES A HACKER TO BRUTE FORCE YOUR PASSWORD

Number of Characters	Number Only	Lowercase Letters	Upper and Lowercase Letters	Numbers, Upper and Lowercase Letters	Numbers, Upper and Lowercase Letters, Symbols
4	Instantly	Instantly	Instantly	Instantly	Instantly
5	Instantly	Instantly	Instantly	Instantly	Instantly
6	Instantly	Instantly	Instantly	1 sec	5 secs
7	Instantly	Instantly	25 secs	1 min	6 mins
8	Instantly	5 secs	22 mins	1 hours	8 hours
9	Instantly	2 mins	19 hours	3 days	3 weeks
10	Instantly	58 mins	1 months	7 months	5 years
11	2 secs	1 day	5 years	41 years	400 years
12	25 secs	3 weeks	300 years	2k years	34k years
13	4 mins	1 year	16k years	100k years	2m years
14	41 mins	51 years	800k years	9m years	200m years
15	6 hours	1k years	43m years	600m years	15bn years
16	2 days	34k years	2bn years	37bn years	1tn years
17	4 weeks	800k years	100bn years	2tn years	93tn years
18	9 months	23m years	6tn years	100tn years	7qd years

Tema adicional: Administración de Software (Linux)

Ejercicios

Hacer listados de:

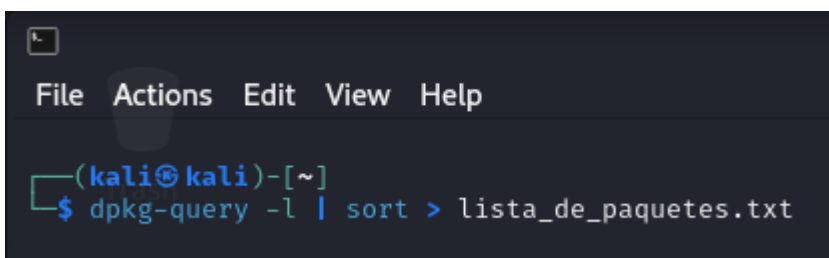
1. Una lista ordenada de todos los paquetes de su sistema
2. Un recuento de todos los paquetes de su sistema
3. Un recuento de todos los archivos en todos los paquetes de su sistema
4. Un recuento de todos los archivos de documentación instalados con RPMs
5. Una búsqueda de todos los paquetes en cuyo nombre aparece "perl"

Partamos de la base que el módulo está diseñado sobre ejercicios sobre la distribución CentOS, que utiliza el gestor de paquetes YUM (Yellowdog Updater, Modified) y los paquetes RPM (Red Hat Package Manager).

En esta ocasión realizaré el ejercicio sobre la distribución Kali, que utiliza “dpkg” (Debian Package Manager) y apt (Advanced Package Tool) para manejar los paquetes .deb.

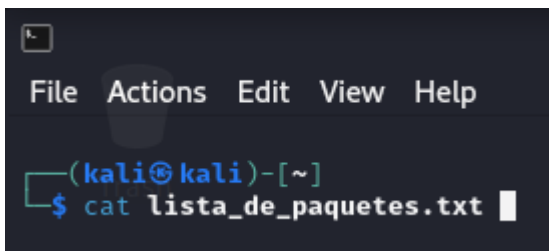
1- Una lista ordenada de todos los paquetes de su sistema:

Ejecutamos el comando: `dpkg-query -l | sort > lista_de_paquetes.txt`



```
File Actions Edit View Help
(kali@kali)-[~]
└─$ dpkg-query -l | sort > lista_de_paquetes.txt
```

Visualizamos el documento de texto: `cat lista_de_paquetes.txt`



```
File Actions Edit View Help
(kali@kali)-[~]
└─$ cat lista_de_paquetes.txt
```

Resultado – Lista de paquetes instalados ordenados alfabéticamente:

```

kali@kali:~$ dpkg-query -f '${Package}\n' -W | wc -l
2857

```

Name	Version	Architecture	Description
xfce4-places-plugin:amd64	1.8.3-1+b1	amd64	quick access to folders, documents and removable media
xfce4-power-manager	4.18.3-2	amd64	power manager for Xfce desktop
xfce4-power-manager-data	4.18.3-2	all	power manager for Xfce desktop, arch-indep files
xfce4-power-manager-plugins	4.18.3-2	amd64	power manager plugins for Xfce panel
xfce4-pulseaudio-plugin:amd64	0.4.8-1+b1	amd64	Xfce4 panel plugin to control pulseaudio
xfce4-screenshooter	1.10.4-1	amd64	screenshots utility for Xfce
xfce4-sensors-plugin	1.4.4-1	amd64	hardware sensors plugin for the Xfce4 panel
xfce4-session	4.18.3-1	amd64	Xfce4 Session Manager
xfce4-settings	4.18.3-1	amd64	graphical application for managing Xfce settings
xfce4-systemload-plugin:amd64	1.3.2-2+b1	amd64	system load monitor plugin for the Xfce4 panel
xfce4-taskmanager	1.5.6-1	amd64	process manager for the Xfce4 Desktop Environment
xfce4-timer-plugin:amd64	1.7.2-1+b1	amd64	timer plugin for Xfce panel
xfce4-verve-plugin:amd64	2.0.3-1+b1	amd64	Verve (command line) plugin for Xfce panel
xfce4-wavelan-plugin:amd64	0.6.3-1+b1	amd64	wavelan status plugin for the Xfce4 panel
xfce4-wiskeremenu-plugin	2.8.3-1	amd64	Alternate menu plugin for the Xfce desktop environment
xfce4-xkb-plugin:amd64	1.0.8.3-1+b1	amd64	xkb layout switch plugin for the Xfce4 panel
xfconf	4.18.1-1+b1	amd64	utilities for managing settings in Xfce
xfdesktop4	4.18.1-1	amd64	Xfce desktop background, icons and root menu manager
xfdesktop4-data	4.18.1-1	all	Xfce desktop background, icons and root menu (common files)
xfonts-100dpi	1:1.0.5	all	100 dpi fonts for X
xfonts-75dpi	1:1.0.5	all	75 dpi fonts for X
xfonts-base	1:1.0.5+nmu1	all	standard fonts for X
xfonts-encodings	1:1.0.4-2.2	all	Encodings for X.Org fonts
xfonts-scalable	1:1.0.3-1.3	all	scalable fonts for X
xfonts-utils	1:7.7+6	amd64	X Window System font utility programs
xfwm4	4.18.0-1	amd64	window manager of the Xfce project
xiccdd	0.3.0-2	amd64	X color management daemon
xinit	1.4.2-1	amd64	X server initialisation tool
xkb-data	2.41-2	all	X Keyboard Extension (XKB) configuration data
xkbset	0.8-1	amd64	Small utility to change the AccessX settings of XKEYBOARD
xml-core	0.19	all	XML infrastructure and XML catalog file support
xml-twig-tools	1:3.52-3	all	command line tools for processing XML documents
xorg	1:7.7+23	amd64	X.Org X Window System
xorg-docs-core	1:1.7.1-1.2	all	Core documentation for the X.Org X Window System
xorg-sgml-doctools	1:1.11-1.1	all	Common tools for building X.Org SGML documentation
xserver-common	2:21.1.12-1	all	common files used by various X servers
xserver-xephyr	2:21.1.12-1	amd64	nested X server
xserver-xorg	1:7.7+23	amd64	X.Org X server
xserver-xorg-core	2:21.1.12-1	amd64	Xorg X server - core server
xserver-xorg-input-all	1:7.7+23	amd64	X.Org X server -- input driver metapackage
xserver-xorg-input-libinput	1.4.0-1	amd64	X.Org X server -- libinput input driver
xserver-xorg-input-wacom	1.2.2-1	amd64	X.Org X server -- Wacom input driver
xserver-xorg-legacy	2:21.1.12-1	amd64	setuid root Xorg server wrapper
xserver-xorg-video-all	1:7.7+23	amd64	X.Org X server -- output driver metapackage
xserver-xorg-video-amdgpu	23.0.0-1	amd64	X.Org X server -- AMDGPU display driver
xserver-xorg-video-ati	1:22.0.0-1	amd64	X.Org X server -- AMD/ATI display driver wrapper
xserver-xorg-video-fbdev	1:0.5.0-2	amd64	X.Org X server -- fbdev display driver
xserver-xorg-video-intel	2:2.99.917+git20210115-1	amd64	X.Org X server -- Intel i8xx, i9xx display driver
xserver-xorg-video-nouveau	1:1.0.17-3	amd64	X.Org X server -- Nouveau display driver
xserver-xorg-video-radeon	1:22.0.0-1	amd64	X.Org X server -- AMD/ATI Radeon display driver
xserver-xorg-video-vesa	1:2.6.0-1	amd64	X.Org X server -- VESA display driver
xserver-xorg-video-vmware	1:13.4.0-1	amd64	X.Org X server -- VMware display driver
xsltproc	1.1.35-1+b1	amd64	XSLT 1.0 command line processor
xtightvncviewer	1:1.3.10-7	amd64	virtual network computing client software for X
xtl-dev	0.7.5-3	all	basic tools (containers, algorithms) used for xtensor and xeus
xtrans-dev	1.4.0-1	all	X transport library (development files)
xvfb	2:21.1.12-1	amd64	Virtual Framebuffer 'fake' X server
xxd	2:9.1.0377-1	amd64	tool to make (or reverse) a hex dump
xz-utils	5.6.1+really5.4.5-1	amd64	XZ-format compression utilities
yelp	42.2-1+b1	amd64	Help browser for GNOME
yelp-xsl	42.1-2	all	XSL stylesheets for the yelp help browser
zenity	4.0.1-1	amd64	Display graphical dialog boxes from shell scripts
zenity-common	4.0.1-1	all	Display graphical dialog boxes from shell scripts (common files)
zip	3.0-13	amd64	Archiver for .zip files
zlibg:amd64	1:1.3.dfsg+really1.3.1-1	amd64	compression library - runtime
zlibg-dev:amd64	1:1.3.dfsg+really1.3.1-1	amd64	compression library - development
zsh	5.9-6	amd64	shell with lots of features
zsh-autosuggestions	0.7.0-1	all	Fish-like fast/unobtrusive autosuggestions for zsh
zsh-common	5.9-6	all	architecture independent files for Zsh
zsh-syntax-highlighting	0.7.1-2	all	Fish shell like syntax highlighting for zsh
zstd	1.5.4+dfsg2-2	amd64	fast lossless compression algorithm -- CLI tool
// Name	Version	Architecture	Description

2- Un recuento de todos los paquetes de su sistema:

Para realizar un recuento de todos los paquetes instalados en mi sistema Kali Linux utilizare el comando: `dpkg-query -f '${binary:Package}\n' -W | wc -l`

```

kali@kali:~$ dpkg-query -f '${binary:Package}\n' -W | wc -l
2857

```

Desglose del Comando:

`dpkg-query -f '${binary:Package}\n' -W:`

`dpkg-query` es una herramienta que consulta la base de datos de paquetes gestionados por `dpkg`.

`-f '${binary:Package}\n'` especifica el formato de salida, en este caso, listando solo los nombres de los paquetes, uno por línea.

`-W` es una opción que indica que se deben listar todos los paquetes instalados.

`wc -l:`

`wc` (word count) es una herramienta que cuenta líneas, palabras y caracteres.

`-l` cuenta el número de líneas en la salida, que en este caso corresponderá al número total de paquetes instalados.

3- Un recuento de todos los archivos en todos los paquetes de su sistema:

Para realizar un recuento de todos los archivos en todos los paquetes del sistema utilizare el comando: `dpkg-query -f '${binary:Package}\n' -W | xargs dpkg -L | wc -l`

Explicación del Comando:

`dpkg-query -f '${binary:Package}\n' -W:`

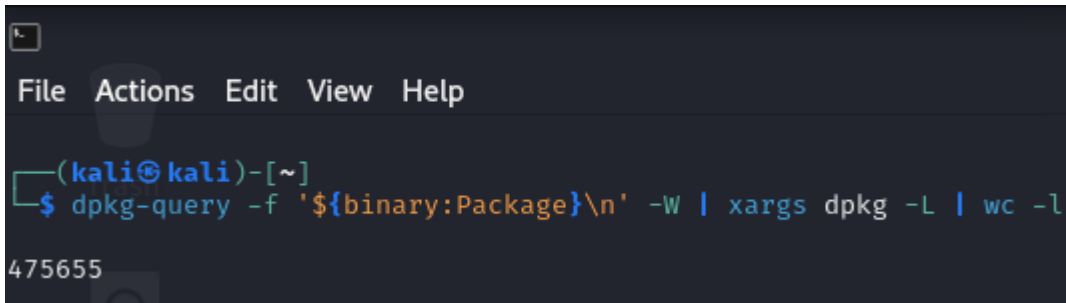
Lista todos los paquetes instalados.

`xargs dpkg -L:`

Toma la lista de paquetes y para cada paquete ejecuta `dpkg -L` que lista todos los archivos instalados por ese paquete.

`wc -l:`

Cuenta el número de líneas en la salida, que en este contexto corresponde al número total de archivos.



```
File Actions Edit View Help
(kali@kali)-[~]
└─$ dpkg-query -f '${binary:Package}\n' -W | xargs dpkg -L | wc -l
475655
```

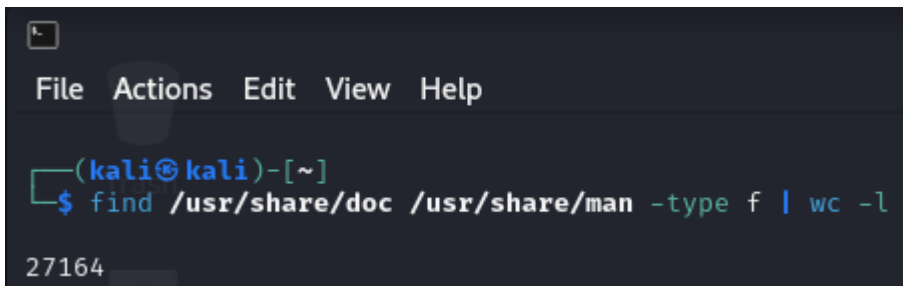
4- Un recuento de todos los archivos de documentación instalados con RPMs:

Aunque Kali Linux no usa RPMs (Red Hat Package Manager) nativamente (usa paquetes .deb y dpkg porque está basado en Debian), los archivos de documentación típicamente se encuentran en directorios estándar como `/usr/share/doc`.

Primero vamos a listar todos los archivos de documentación:

Usamos `find` para buscar archivos en los directorios típicos de documentación, como `/usr/share/doc` y `/usr/share/man`, y le agregamos el comando `wc -l` para que nos devuelva el número de líneas para saber cuántos archivos de documentación tenemos instalados en esos directorios:

```
find /usr/share/doc /usr/share/man -type f | wc -l
```



```
File Actions Edit View Help
(kali@kali)-[~]
└─$ find /usr/share/doc /usr/share/man -type f | wc -l
27164
```

5- Una búsqueda de todos los paquetes en cuyo nombre aparece "perl":

Para buscar todos los paquetes en cuyo nombre aparece "perl" en Kali Linux, voy a usar el comando `apt` que está diseñado para interactuar con los paquetes del sistema:

En este caso: `apt search perl` y le agrego: `grep -i perl` para que busque la palabra sobre en el nombre de los paquetes e ignore las descripciones:

```
apt search perl | grep -i perl
```

File Actions Edit View Help

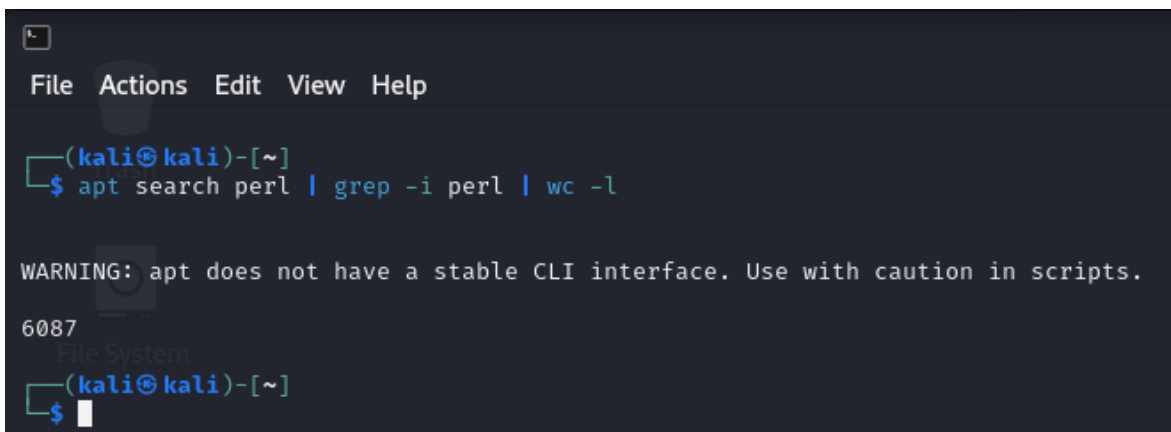
(kali@kali)-[~]

```
$ apt search perl | grep -i perl
```

WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

```
simple email archiver written in perl
bioperl/kali-rolling 1.7.8-1 all
Perl tools for computational molecular biology
bioperl-run/kali-rolling 1.7.3-11 all
BioPerl wrappers: scripts
Perl module dependency manager (aka Bundler for Perl)
Portable Perl-compatible regular expressions for Common Lisp
Portable Perl-compatible regular expressions for Common Lisp (Unicode)
claws-mail-perl-filter/kali-rolling 4.2.0-2+b3 amd64
Message filtering plugin using perl for Claws Mail
Perl Interface to Debconf
dh-make-perl/kali-rolling 0.125 all
helper for creating Debian packages from perl modules
dh-perl6/kali-rolling 0.4 all
debhelper add-on to simplify Perl 6 package building
debhelper add-on to simplify Perl 6 package building
bitrate calculator for DivX;-) movies written in perl
Perl based tool to parse DMARC reports
eperl/kali-rolling 2.2.14-23+b7 amd64
Embedded Perl 5 Language
PSGI engine for Perl based on EV/libev
fonts-atkinson-hyperlegible/kali-rolling 0.0-git20210430.1cb3116-3 all
fonts-atkinson-hyperlegible-ttf/kali-rolling 0.0-git20210430.1cb3116-3 all
fonts-atkinson-hyperlegible-web/kali-rolling 0.0-git20210430.1cb3116-3 all
games-perl-dev/kali-rolling 5 all
development of games in Perl
Gearman distributed job server and Perl interface
Display GRIB2 fields using OpenGL (Perl/Tk interface)
HyperLogLog++ cardinality estimation algorithm
hexchat-perl/kali-rolling 2.16.2-1+b3 amd64
Perl plugin for HexChat
mail/news handling commands and Perl modules
gui text editor along Perl alike Paradigms
powerful MUD client with a built-in Perl interpreter
powerful MUD client with a built-in Perl interpreter - manual
kio-perldoc/kali-rolling 4:22.12.3-1+b1 amd64
Perl documentation KIO slave
Perl script for running LaTeX the correct number of times
libaccessors-perl/kali-rolling 1.01-4 all
Perl module to create accessor methods in caller's package
libace-perl/kali-rolling 1.92-11+b4 amd64
libacme-bleach-perl/kali-rolling 1.150-4 all
Perl module for really clean programs
libacme-brainfck-perl/kali-rolling 1.1.1-2.1 all
Embed Brainf*ck in your perl code
libacme-constant-perl/kali-rolling 0.1.3-3 all
libacme-damn-perl/kali-rolling 0.08-2+b3 amd64
Perl module to unbless objects
libacme-eyedrops-perl/kali-rolling 1.62-3 all
funny way for visual programming in Perl
libacme-poe-knee-perl/kali-rolling 1.12-4 all
libafs-pag-perl/kali-rolling 1.02-5+b1 amd64
Perl bindings for AFS PAG manipulation
libai-decisiontree-perl/kali-rolling 0.11-2+b3 amd64
libai-fann-perl/kali-rolling 0.10-5+b5 amd64
Perl wrapper for the FANN library
libalgorithm-backoff-perl/kali-rolling 0.010-1 all
libalgorithm-c3-perl/kali-rolling 0.11-2 all
Perl module for merging hierarchies using the C3 algorithm
libalgorithm-checkdigits-perl/kali-rolling 1.3.6-2 all
Perl extension to generate and test check digits
libalgorithm-combinatorics-perl/kali-rolling 0.27-3+b3 amd64
libalgorithm-dependency-perl/kali-rolling 1.110-1.2 all
Base class for implementing various class dependency trees in Perl
libalgorithm-diff-perl/kali-rolling,now 1.201-1 all [installed,automatic]
libalgorithm-diff-xs-perl/kali-rolling 0.04-8+b3 amd64 [upgradable from: 0.04-8+b2]
libalgorithm-hyperloglog-perl/kali-rolling 0.24-2+b2 amd64
implementation of the HyperLogLog cardinality estimation algorithm
libalgorithm-lbfgs-perl/kali-rolling 0.16-3+b3 amd64
```

Como podemos ver son un montón. Vamos a contar cuantas líneas tenemos para saber la cantidad de paquetes que tenemos que contienen la palabra “perl”:



```
File Actions Edit View Help
(kali@kali)-[~]
└─$ apt search perl | grep -i perl | wc -l

WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

6087
(kali@kali)-[~]
└─$
```

Rodrigo Vila.-