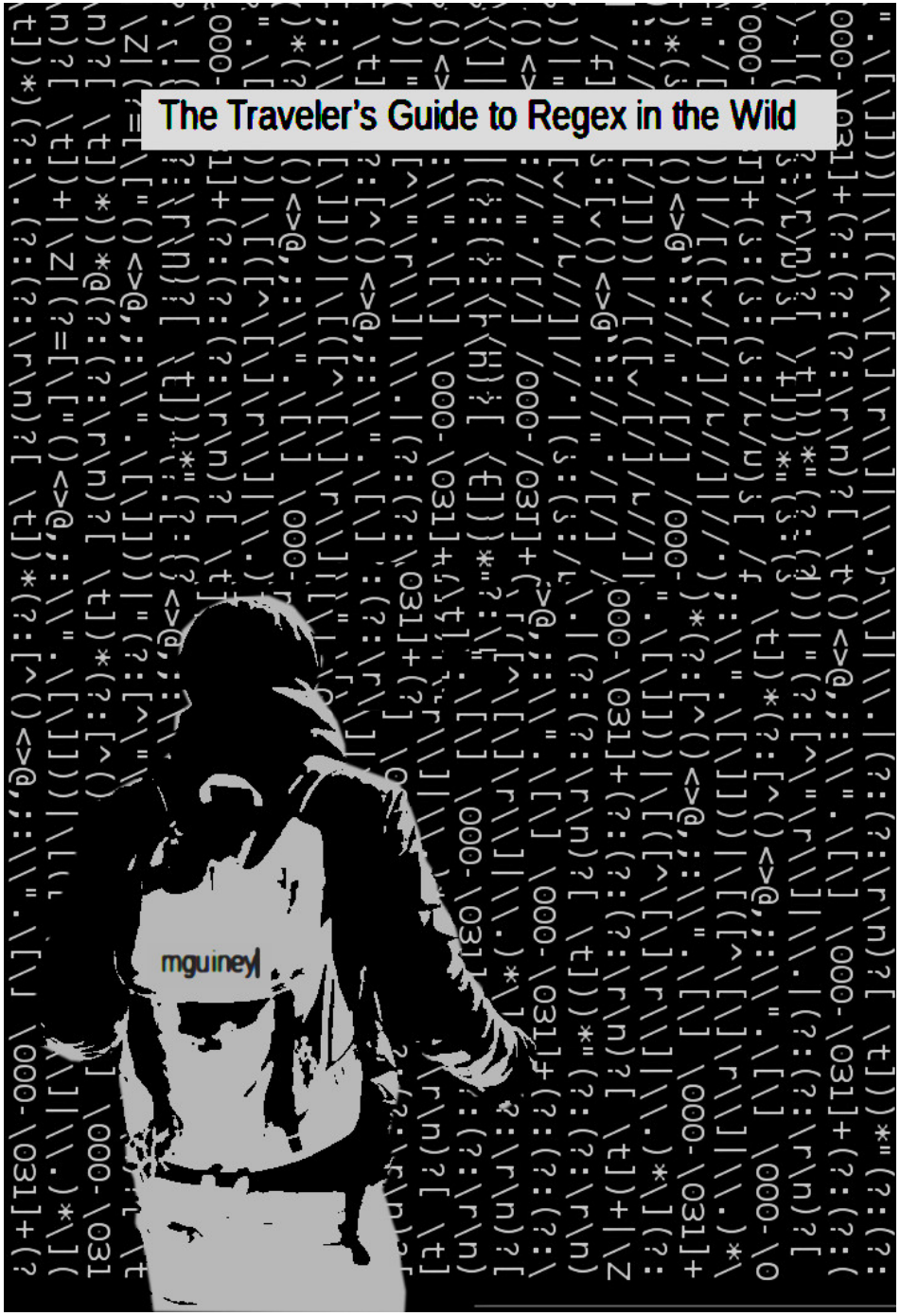
((back cover))



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Useful Learning Resources

- Regex One: an interactive tutorial for teaching regex from the ground up —¿ https://regexone.com/
- Regex adventure: an educational workshop —¿ https://github.com/workshopper/regex-adventure
- Regex Crossword: a site offering a series of games allowing you to test your regex chops using old-school brainteasers —¿ https://regexcrossword.com/
- Redoku: regex sudoku/puzzle —¿ http://padolsey.github.io/redoku/
- Regex Tuesday - Challenges: regex challenges for the daring (or the bored) —¿ https://callumacrae.github.io/regex-tuesday/
- Most Crazy Regexes —¿ https://stackoverflow.com/questions/ 800813/what-is-the-most-difficult-challenging-regular-expression-you-have-ever-written
- Regex Humor: because regex humor is the universal language —¿ http://www.rexegg.com/regex-humor.html

Introduction

The first regex I learned to work with was Perl, in a workshop offeredby the same organization where I first started to learn about Linux.This was largely a cultural thing, the organization had been around since the 90's, and a lot of the scripts in usage when I got there were still implemented in Perl. Imagine my surprise, after using Perl flags in my bash scripts with no trouble at all, when I tried to use those same regexes in my Python Scripts!

Eventually (after much frustration) I started working with a python regex reference pulled up in the background, so I decided to make a more unified reference pocketbook, both for my use, and the use of anyone else wants it. It's a super handy cheat sheet to have on hand for convenience's sake.

Happy hacking, y'all!

Regex Variants

In this guide, we'll only be covering the Python and Perl Regex variants, but they're actually technically from the same family of regexes. There are two major types of Regular Expression, IEEE Posix compliant, and PCRE

IEEE Posix compliance standards:

- BRE (Basic Regular Expression):requires the escape of { } and ( )
- ERE (Extended Regular Expression): adds ?, + and |, as well as removing the need to escape { } and ( ), amongst other differences
- SRE (Simple Regular Expression)

Perl and PCRE (Perl Compatible Regular Expressions): Perl's readability and utility have led to Perl Regex variants being adopted by a number of programming languages and utilities, including:

- Java
- JavaScript
- Python
- Ruby
- Qt
- XML Schema

Despite being Perl RegEx compatible, most of them have places where they deviate from the core implementation. Let'stake a look at a few of the the ways
ways the Perl and Python PCRE Regex flavors differ:

Some handy examples

- Date in format dd/mm/yyyy:

```
/^(0?[1-9]|[12][0-9]|3[01])([\/\-])(0?[1-9]|1[012])
 \2([0-9][0-9][0-9][0-9])(([-])([0-1]?[0-9]|2[0-3]):
 [0-5]?[0-9]:[0-5]?[0-9])?
```

- `Standard Username: /^[a-zA-Z0-9_-]{3,16}$/`
- `Email: /^.+@.+$/`
- URL:

```
/^((https?|ftp|file):\/\/)?([\da-z\.-]+)
 \.([a-z\.]{2,6})([\/\w \.-]*)*\/?$/
```

- `Hex values: /^#?([a-fA-F0-9]{6}|[a-fA-F0-9]{3})$/`
- `Phone number: /^\+?(\d.*){3,}$/`
- `Newline: /[\r\n]|$/`

Which type of regex does $LINUX_UTIL use?

Gray *nix util	Regex variant	Additional notes
awk	ERE	may depend on implementation
grep	BRE	grep -P switches to PCRE
egrep	ERE	N/A
less	ERE	usually ERE, the regex variant is supplied by the system
screen	plaintext	N/A
sed	BRE	Using the -E flag switches to ERE

Multiplicity

Gray Wat do?	How Perl do?	How Python do?
0 or 1	?	?
0 or 1, non-greedy	??	??
0 or 1, don't give back on backtrack	?+	N/A
0 or more	*	*
0 or more, non-greedy	*?	*?
0 or more, don't give back on backtrack	*+	N/A
1 or more	+	+
1 or more, non-greedy	*?	*?
1 or more, don't give back on backtrack	++	N/A
Specific number	{n} or {n,m} or{n,}	{n} or {n,m} or{n,}
Specific number, non-greedy	{n,m}? or{n,}?	{n,m}? or{n,}?
Specific number, don't give back on backtrack	{n,m}+ or{n,}+	N/A

Other basic regex characters

Gray Wat do?	How Perl do?	How Python do?
Independent non-backtracking pattern	(?¿...)	N/A
Anywhere but word boundary	(?i) or (?-i)	(?i) or (?-i)

CONTENT SECTION TBD

Basic Symbols

Wat do?	How Perl do?	How Python do?
Custom character class	[...]	[...]
Negated custom character class	[^...]	[^...]
Ranges	[a-z] (with '-' escaped if it comes last)	[a-z] (with '-' escaped if it comes last)
Alternation ("or")	—	—

Moar Character Classes

Wat do?	How Perl do?	How Python do?
Match a digit character	\d or [[:digit:]]	\d
Match a non-digit character	\D	\D
Any hexadecimal digit	[[:xdigit:]]	N/A
Any octal digit	N/A	N/A
Any graphical character excluding ”word” characters	[[:punct:]]	N/A
Any alphabetical character	[[:alpha:]]	N/A
Any alphanumerical character	[[:alnum:]]	N/A
ASCII character	[[:ascii:]]	N/A

Lookarounds

Gray Wat do?	How Perl do?	How Python do?
Positive lookahead	(?=...)	(?=...)
Negative lookahead	(?!...)	(?!...)
Positive lookbehind	(?¡=...)	(?¡=...)
Negative lookbehind	(?¡!..)	(?¡!..)

Lookaheads assert that the character or series of characters following the current position can be represented by the given expression (here represented by '...'), while lookbehinds assert that the expression is representative of the character immediately preceeding the current position.

Positive lookarounds suggest the presence of a match, while negative lookarounds assert the absence of an expression match.

Zero-width assertions

Wat do?	How Perl do?	How Python do?
Word boundary	\b	\b
Anywhere but word boundary	\B	\B
Beginning of line/string	^ / \A	^ / \A
End of line/string	$ / \Z	$ / \Z

Captures and Groups

Wat do?	How Perl do?	How Python do?
Capturing group	(...) or (?¡name¿...)	(...) or (?P¡name¿...)
Non-capturing group	(?:...)	(?:...)
Backreference to a specific group	\1, \g1	\1
Named backreference	\k¡name¿	(?P=name)

Character Classes

Wat do?	How Perl do?	How Python do?
Any character (except newline)	.	.
Match a non-”word” character	\W	\W
Match a ”word” character	\w or [[:word:]]	\w
Case	[[:upper:]] or [[:lower:]]	N/A
Whitespace (not including newlines)	N/A	N/A
Whitespace (not including newlines)	N/A	N/A
Whitespace (including newline)	\s or [[:space:]]	\s
Match a non-whitespace character	\S	\S