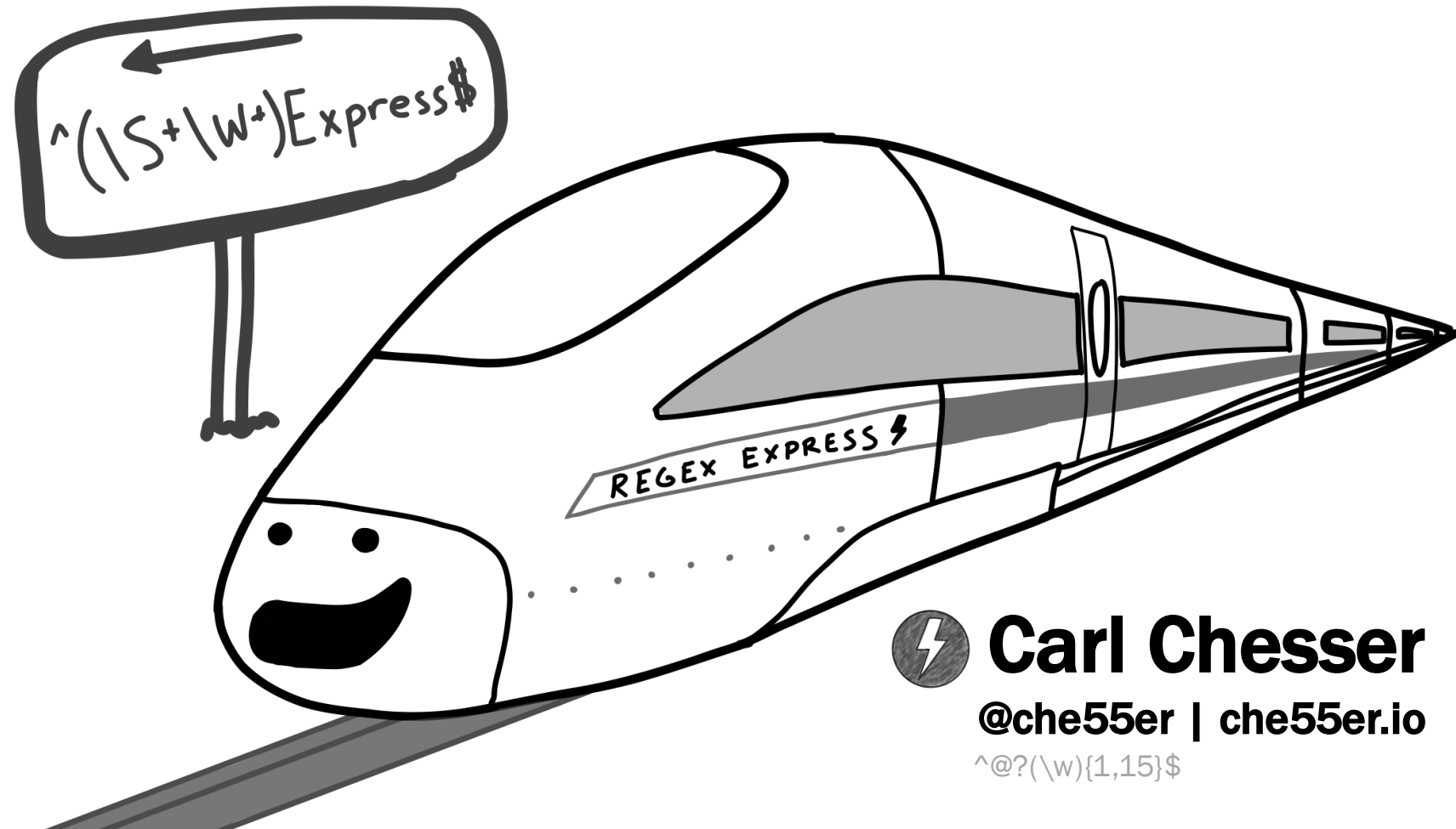


RegEx Express



Carl Chesser

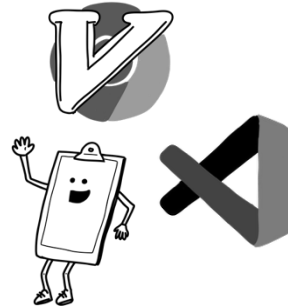
@che55er | che55er.io

`^@?(\\w){1,15}$`

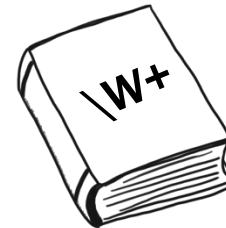
Our Journey



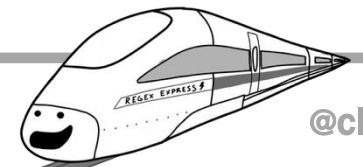
Background
& Concepts



Examples

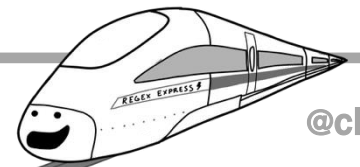


Learning
Resources



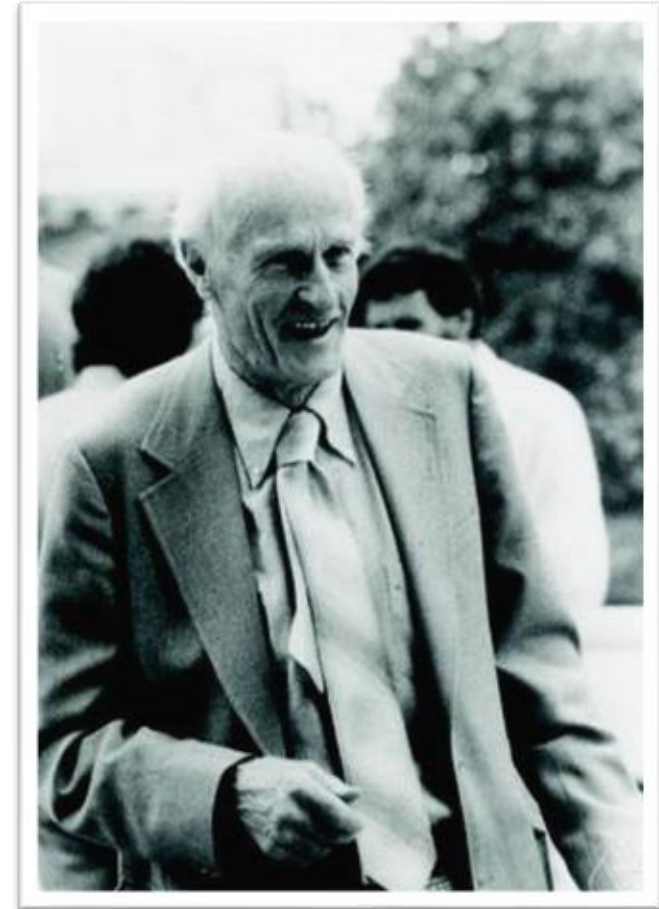


Background and Concepts



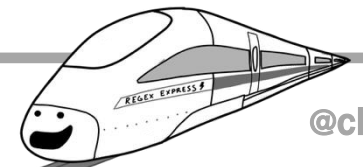
The Beginning

Invented in 1951 and published in a RAND Corporation paper which described representing events with McCulloch-Pitts neural networks.



Source: Wikipedia

Stephen Cole Kleene



The Beginning

Get the original
paper here



7. Regular Events:

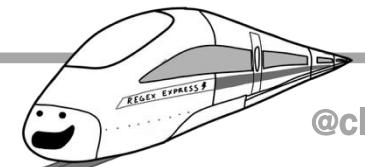
7.1 "Regular events" defined: We shall presently describe a class of events which we will call "regular events."

(We would welcome any suggestions as to a more descriptive term. *)

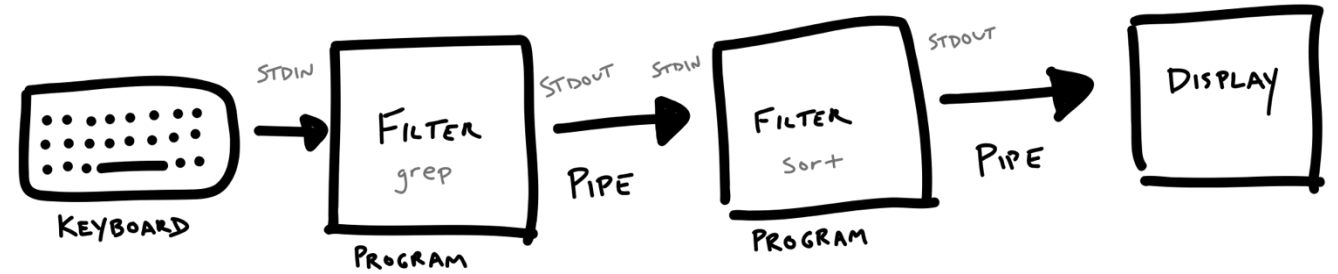
We assume for the purpose that the events refer to the inputs up through time p on a set of k input neurons N_1, \dots, N_k the same for all events considered; but the definition applies equally well for any $k \geq 1$ or even for $k = 0$.

Source: Representation of Events in Nerve Nets and Finite Automata

“Regular events” were the source reference of “Regular” which expanded to a language.



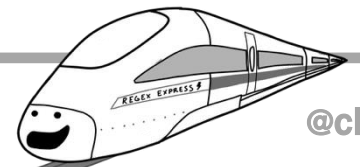
Popularized



Ken Thompson

*In the 1960s, Thompson also began work on regular expressions. Thompson had developed the CTSS version of the editor QED, which included regular expressions for searching text. QED and Thompson's later editor ed (the standard text editor on Unix) contributed greatly to the eventual popularity of regular expressions, and regular expressions became pervasive in Unix text processing programs. **Almost all programs that work with regular expressions today use some variant of Thompson's notation. He also invented Thompson's construction algorithm used for converting regular expressions into nondeterministic finite automata in order to make expression matching faster.***

Source: Wikipedia

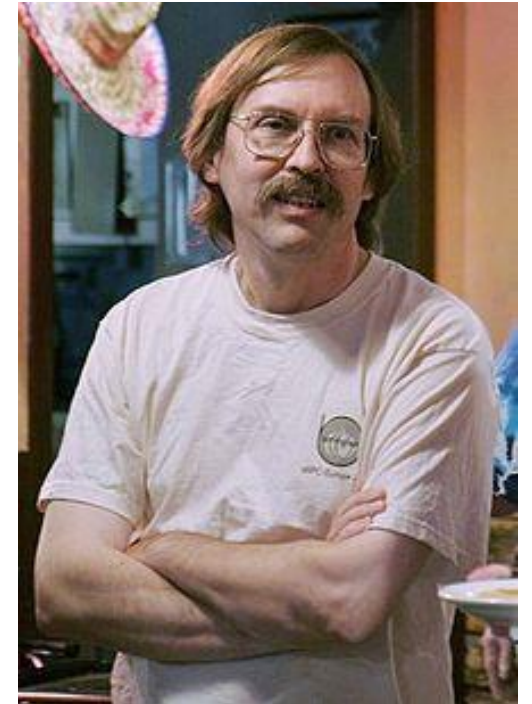


Perl Programming Language

The rise of personal computers gave way to the rise of newsgroups, and NNTP went to the IETF to become an Internet Draft in RFC 977. People were posting tools to this new medium and Wall posted his little Perl project to comp.sources.unix in 1988, quickly iterating to Perl 2 where he added the languages form of regular expressions. This is when Perl became one of the best programming languages for text processing and regular expressions available at the time.

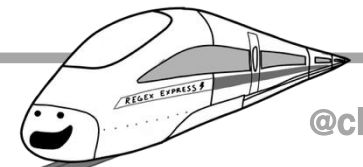
Source: The History of Computing podcast

Larry Wall



Source: Wikipedia

```
> # PCRE = Perl-Compatible Regular Expressions
> echo 'RegEx Express 2022' | perl -nE 'say /(\d+)/'
2022
```




WHENEVER I LEARN A NEW SKILL I CONCOCT ELABORATE FANTASY SCENARIOS WHERE IT LETS ME SAVE THE DAY.

OH NO! THE KILLER MUST HAVE FOLLOWED HER ON VACATION!



BUT TO FIND THEM WE'D HAVE TO SEARCH THROUGH 200 MB OF EMAILS LOOKING FOR SOMETHING FORMATTED LIKE AN ADDRESS!



IT'S HOPELESS!



EVERYBODY STAND BACK.



I KNOW REGULAR EXPRESSIONS.

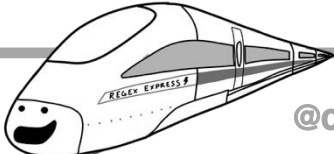


PERL!

TAP TAP



<https://xkcd.com/208/>



Regex quick reference

<code>[abc]</code>	A single character of: a, b, or c	<code>.</code>	Any single character	<code>(...)</code>	Capture everything enclosed
<code>[^abc]</code>	Any single character except: a, b, or c	<code>\s</code>	Any whitespace character	<code>(alb)</code>	a or b
<code>[a-z]</code>	Any single character in the range a-z	<code>\S</code>	Any non-whitespace character	<code>a?</code>	Zero or one of a
<code>[a-zA-Z]</code>	Any single character in the range a-z or A-Z	<code>\d</code>	Any digit	<code>a*</code>	Zero or more of a
<code>^</code>	Start of line	<code>\D</code>	Any non-digit	<code>a+</code>	One or more of a
<code>\$</code>	End of line	<code>\w</code>	Any word character (letter, number, underscore)	<code>a{3}</code>	Exactly 3 of a
<code>\A</code>	Start of string	<code>\W</code>	Any non-word character	<code>a{3,}</code>	3 or more of a
<code>\Z</code>	End of string	<code>\b</code>	Any word boundary	<code>a{3,6}</code>	Between 3 and 6 of a

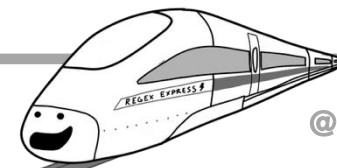
options: `i` case insensitive `m` make dot match newlines `x` ignore whitespace in regex `o` perform `#{...}` substitutions only once

Rubular uses Ruby 2.5.9. Share questions/comments/issues [@rubular](#). Made by [Michael Lovitt @lovitt](#).

Rubular

<https://rubular.com/>

RegEx Express



@che55er

Your regular expression:

```
(?<month>\d{1,2})\/(?<day>\d{1,2})\/(?<year>\d{4})
```

Your test string:

Today's date is: 6/20/2022.

Match result:

Today's date is: 6/20/2022.

Match groups:

```
month 6  
day 20  
year 2022
```

Wrap words Show invisibles

make permalink

clear fields

`\d` Any digit ←

`\D` Any non-digit

`\w` Any word character (letter, number, underscore)

`\W` Any non-word character

`\b` Any word boundary

`a*` Zero or more of a

`a+` One or more of a

`a{3}` Exactly 3 of a

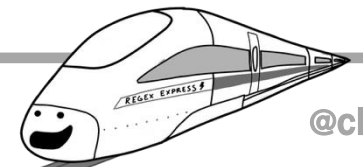
`a{3,}` 3 or more of a

`a{3,6}` Between 3 and 6 of a

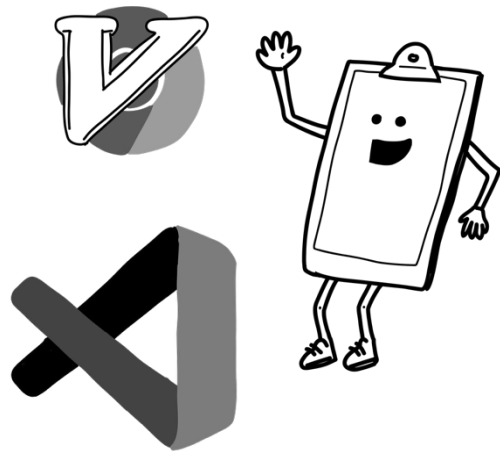
Rubular

<https://rubular.com/>

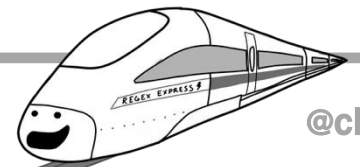
RegEx Express



@che55er



Examples



Example Tools

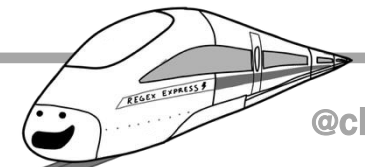
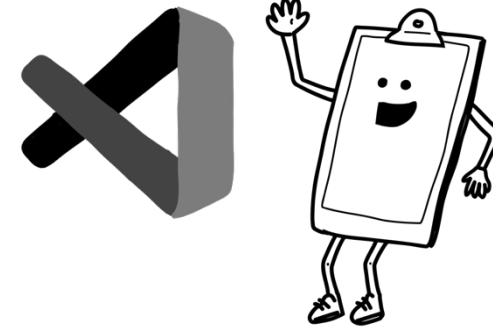
Telemetry

splunk>
 new relic

Internet Browsing



Editor



splunk >

rex

Use the rex command to either extract fields using regular expression named groups, or replace or substitute characters in a field using sed expressions.



Extract

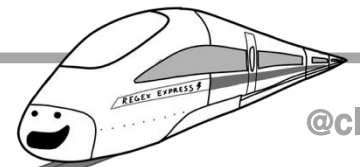
regex

Use the regex command to remove results that do not match the specified regular expression.



Filter

Source: <https://docs.splunk.com/Documentation/Splunk/9.0.0/SearchReference/Rex>



splunk>

Example log file

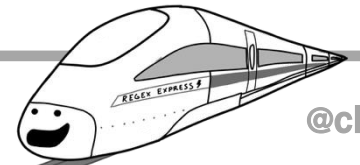


```
Mon Mar 19 20:16:27 2018 Info: Bounced: DCID 8413617 MID 19338947
From: <MariaDubois@example.com> To: <zecora@buttercupgames.com>
RID 0 - 5.4.7 - Delivery expired (message too old) ('000',
['timeout'])

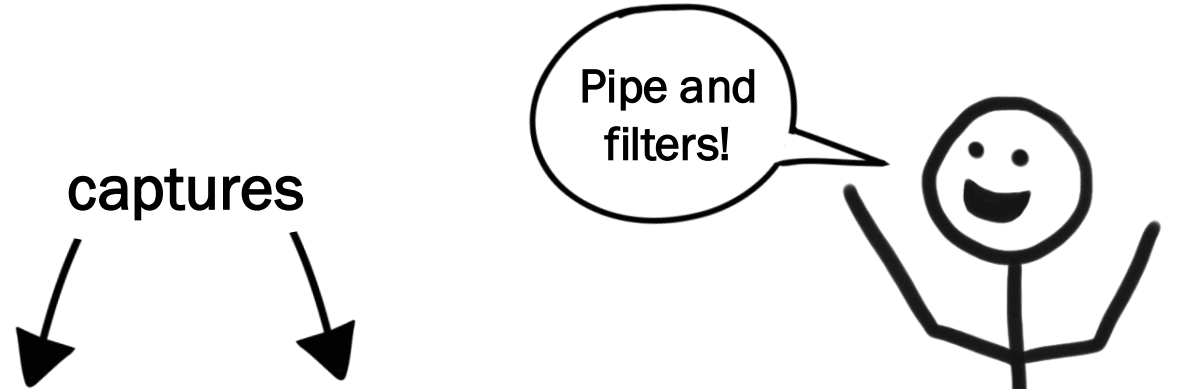
Mon Mar 19 20:16:03 2018 Info: Delayed: DCID 8414309 MID 19410908
From: <WeiZhang@example.com> To: <mcintosh@buttercupgames.com>
RID 0 - 4.3.2 - Not accepting messages at this time ('421',
['4.3.2 try again later'])

Mon Mar 19 20:16:02 2018 Info: Bounced: DCID 0 MID 19408690 From:
<Exit_Desk@sample.net> To: <lyra@buttercupgames.com> RID 0 -
5.1.2 - Bad destination host ('000', ['DNS Hard Error looking up
mahidnrasatyamsg.com (MX): NXDomain'])
```

Source: <https://docs.splunk.com/Documentation/Splunk/9.0.0/SearchReference/Rex>



splunk >



```
source="cisco_esa.txt" | rex field=_raw "From: <(?!<from>.*> To: <(?!<to>.*>" | dedup from to | table from to
```

Splunk Search Processing Language (SPL) supports perl-compatible regular expressions (PCRE).

New Search

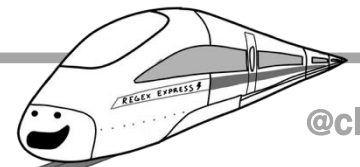
source="cisco_esa.txt" | rex field=_raw "From: <(?!<from>.*> To: <(?!<to>.*>" | dedup from to | table from to

51 events (before 6/25/18 10:20:49.000 AM) No Event Sampling

Statistics (51)

from	to
eduardo.rodriquez@sample.net	pinkie@buttercupgames.com
na.lui@sample.net	dash@buttercupgames.com
Vanya_Patel@example.com	rutherford@buttercupgames.com
MariaDubois@example.com	zecora@buttercupgames.com
na.lui@sample.net	rarity@buttercupgames.com
WeiZhang@example.com	mcintosh@buttercupgames.com

Source: <https://docs.splunk.com/Documentation/Splunk/9.0.0/SearchReference/Rex>





capture

Use capture() to extract values from an attribute using a regular expression.



Extract

Currently, only one capture group is supported.

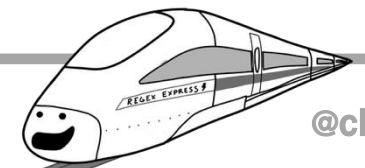
RLIKE

Operator that can be used within the WHERE clause that determines if an attribute contains a specified Regex sub-string.



Filter

Source: <https://docs.newrelic.com/docs/query-your-data/explore-query-data/>

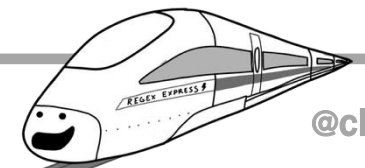




captures



Source: <https://newrelic.com/blog/how-to-relic/using-regex-capture>



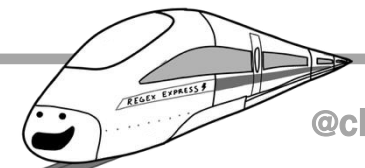


Look for versions of 7.0.0+

```
SELECT latest(agent.version) FROM ApplicationAgentContext
WHERE agent.language = 'java' AND agent.version RLIKE r'(([7-9]|\d{2,})\.\d+\.\d+)'
SINCE 1 WEEK AGO FACET appName
```

filter

Source: <https://docs.newrelic.com/docs/query-your-data/explore-query-data/>





Vimium

Remove from Chrome

★★★★★ 4,917 ⓘ | Productivity | 400,000+ users

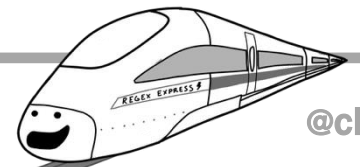
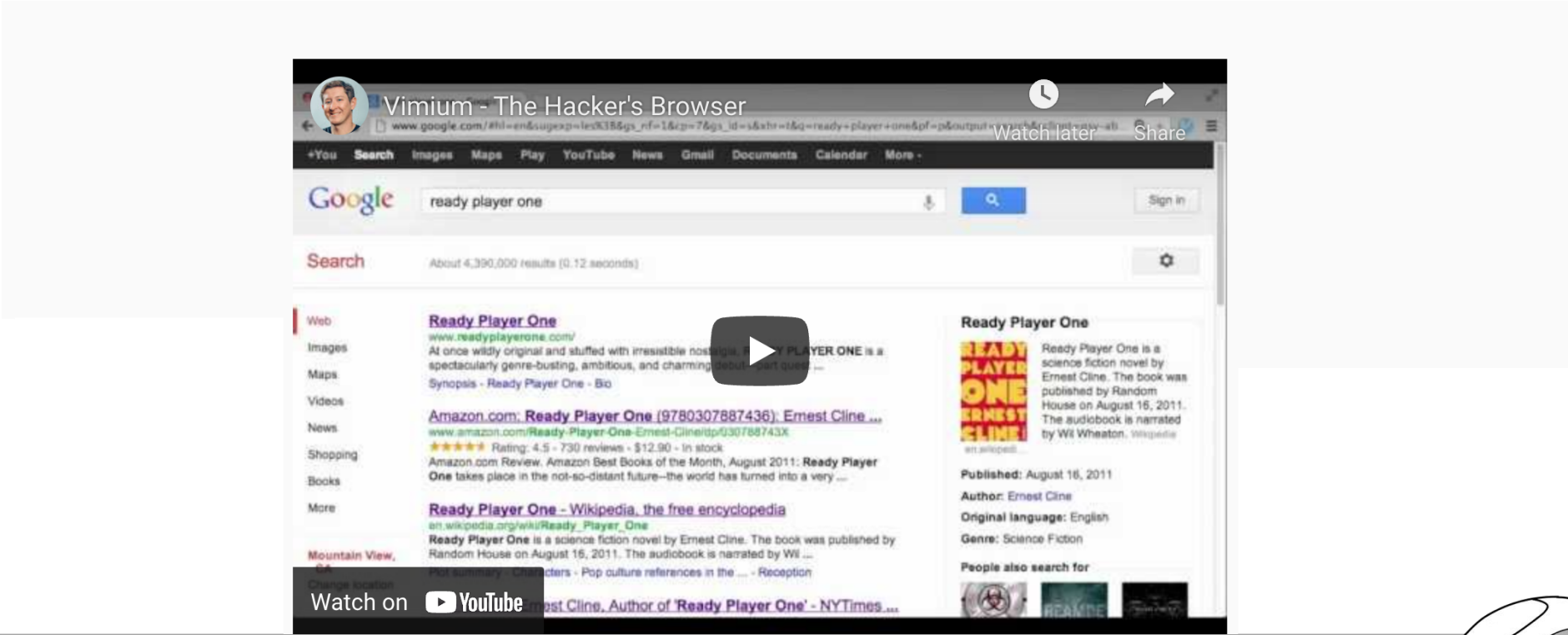
Overview

Privacy practices

Reviews

Support

Related



Vimium



Advanced Options

Scroll step size px

The size for basic movements (usually j/k/h/l).

Characters used for link hints

Leave empty to reset this option.

The characters placed next to each link after typing "f" to enter link-hint mode.

Miscellaneous options

Use smooth scrolling

Use the link's name and characters for link-hint filtering

In link-hint mode, this option lets you select a link by typing its text.

Enable

Don't let pages steal the focus on load

Prevent pages from focusing an input on load (e.g. Google, Bing, etc.).

Hide the Heads Up Display (HUD) in insert mode

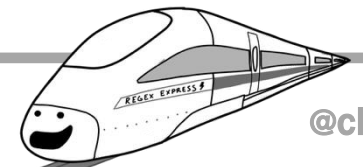
When enabled, the HUD will not be displayed in insert mode.

Treat find queries as JavaScript regular expressions

Switch back to plain find mode by using the `\R` escape sequence.

Ignore keyboard layout

This forces the use of `en-US` QWERTY layout and can be helpful for non-Latin keyboards.



Keys



Search



Next



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U.S. Energy Information Administration

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[+ Learn About Energy](#)
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PETROLEUM & OTHER LIQUIDS

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[GLOSSARY](#)
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← [GASOLINE AND DIESEL FUEL UPDATE HOME](#)

Gasoline and Diesel Fuel Update

Gasoline Release Date: June 13, 2022 | **Next Release Date:** June 21, 2022
Diesel Fuel Release Date: June 13, 2022 | **Next Release Date:** June 21, 2022

Notice: [We are implementing new methodology to estimate weekly on-highway diesel fuel prices](#)

On June 13, we started conducting the *On-Highway Diesel Fuel Price Survey* using new statistical methodologies.

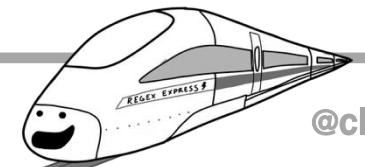
24-hour hotline: (202) 586-6966

- [Sign up for email updates](#)
- [Get the RSS feed](#)
- [Release Schedule](#)
- [Radio spots](#)

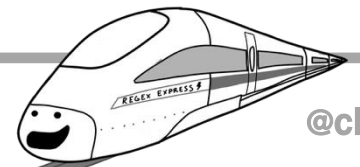
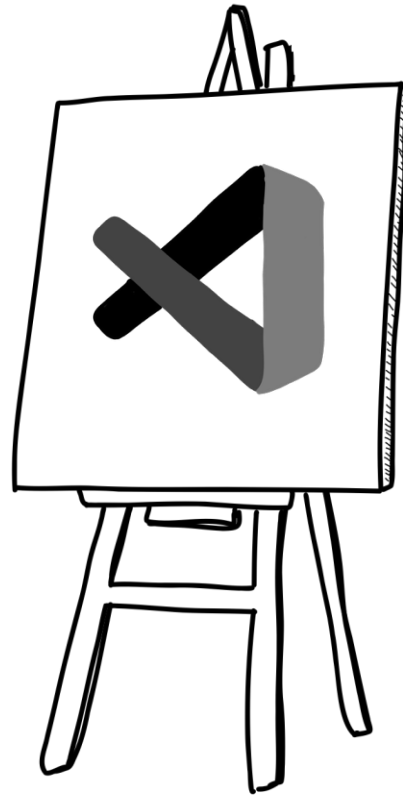
U.S. Regular Gasoline Prices*(dollars per gallon) [full history](#) [XLS](#)

	05/30/22	06/06/22	06/13/22	Change from	
				week ago	year ago
U.S.	4.624	4.876	5.006	↑ 0.130	↑ 1.937
East Coast (PADD1)	4.547	4.720	4.849	↑ 0.129	↑ 1.886
New England (PADD1A)	4.718	4.945	5.021	↑ 0.076	↑ 2.057
Central Atlantic (PADD1B)	4.771	4.872	4.992	↑ 0.120	↑ 1.913
Lower Atlantic (PADD1C)	4.361	4.566	4.715	↑ 0.149	↑ 1.824
Midwest (PADD2)	4.457	4.815	4.970	↑ 0.155	↑ 1.983

Regular Gasoline Prices



vscode as your Canvas



Version 1.68 is now available! Read about the new features and fixes from May.

Code editing. Redefined.

Free. Built on open source. Runs everywhere.

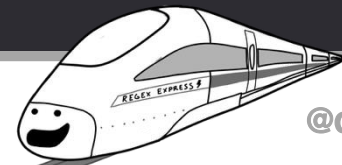
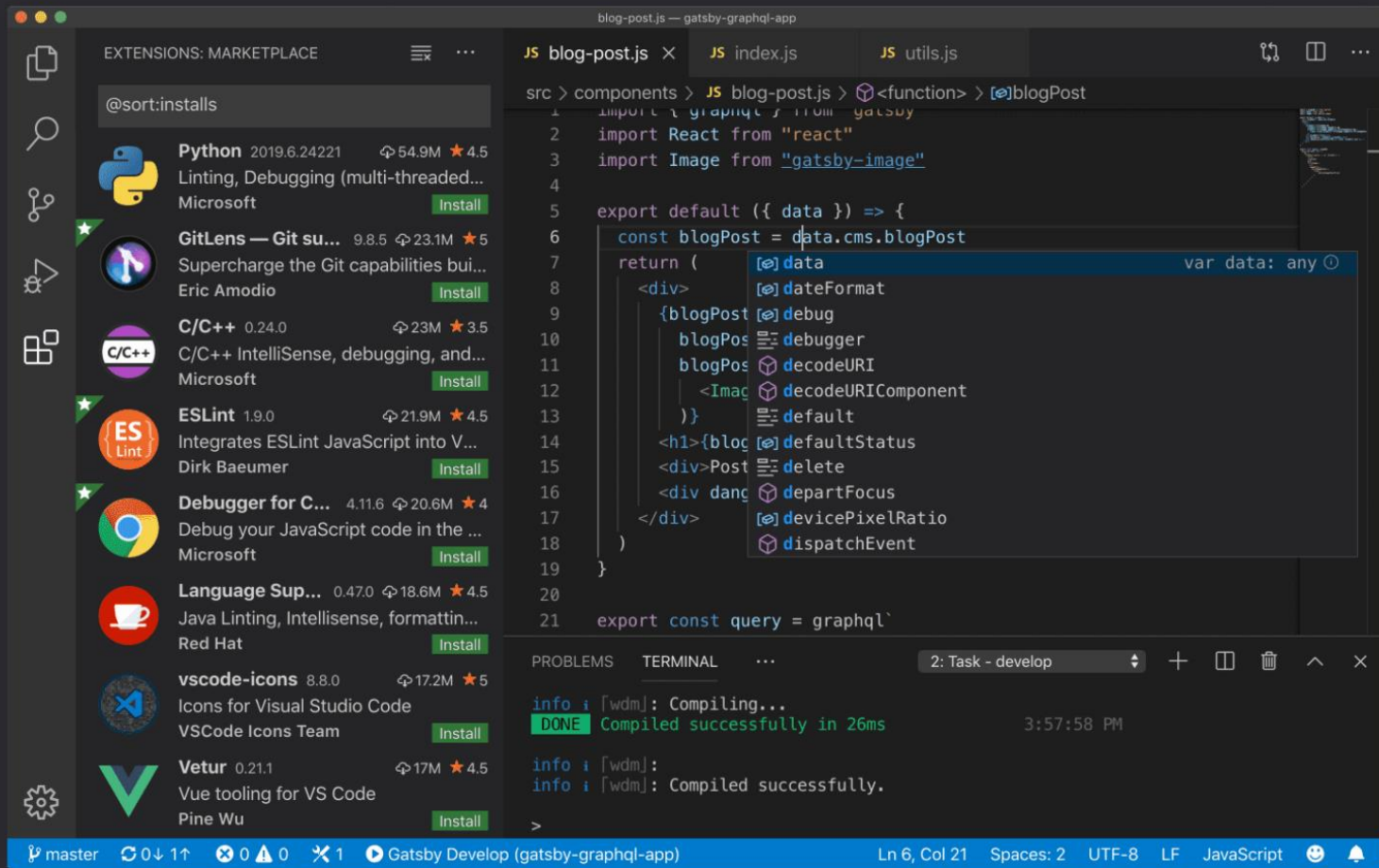
Download Mac Universal

Stable Build

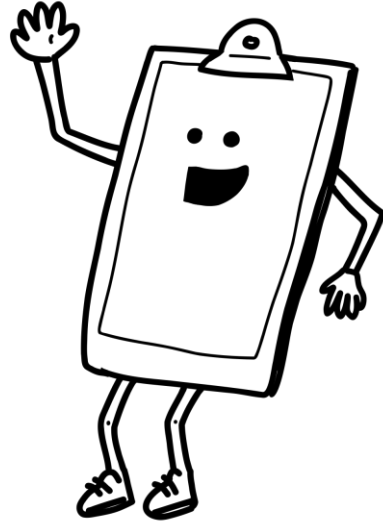


Web, Insiders edition, or other platforms

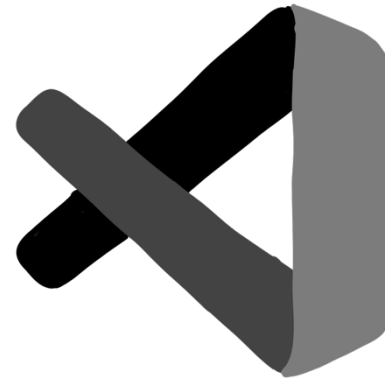
By using VS Code, you agree to its [license and privacy statement](#).



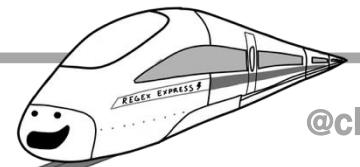
vscode as your Canvas



Transition text from anywhere
(email, browser, terminal)



Find, select, transform





kubernetes

Pull requests Issues Marketplace Explore



Repositories 104K

Code 13M

Commits 3M+

Issues 1M

Discussions 6K

Packages 959

Marketplace 141

Topics 598

Wikis 14K

Users 5K

Languages

Shell 13,914

Go 12,237

JavaScript 7,252

Python 7,068

Java 5,103

HCL 4,531

Dockerfile 4,291

HTML 2,684

Smarty 1,997

TypeScript 1,935



Kubernetes

☆ Star

Kubernetes is an open source system for automating deployment, scaling, and management of containerized applications.

[See topic](#)

104,385 repository results

Sort: Best match ▾



kubernetes/kubernetes

Production-Grade Container Scheduling and Management

kubernetes cncf go containers

☆ 89.4k ● Go Apache-2.0 license Updated 4 hours ago 105 issues need help



helm/charts Public archive

⚠ (OBSOLETE) Curated applications for Kubernetes

kubernetes helm charts

☆ 15.4k ● Go Apache-2.0 license Updated on Feb 20



helm/helm

The Kubernetes Package Manager

kubernetes helm charts chart cncf

☆ 22k ● Go Apache-2.0 license Updated 17 hours ago 5 issues need help

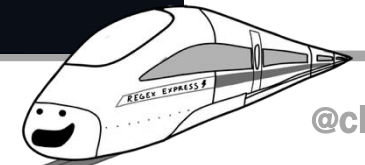


kubernetes/minikube

Run Kubernetes locally

kubernetes containers go cluster cncf minikube

☆ 24.1k ● Go Apache-2.0 license Updated 19 hours ago 132 issues need help





```
1 |project|stars|
2 |---|---|
3 |kubernetes/kubernetes|89.4k|
4 |helm/helm|22k|
5 |kubernetes/minikube|24.1k|
6 |kubernetes/community|9.8k|
7 |kubernetes/ingress-nginx|12.9k|
8 |k3s-io/k3s|20.2k|
9 |kubernetes/website|3.2k|
10 |justmeandopensource/kubernetes|1.2k|
11 |kubernetes/examples|5k|
```

Multiple Cursors

Source: <https://code.visualstudio.com/docs/editor/codebasics>



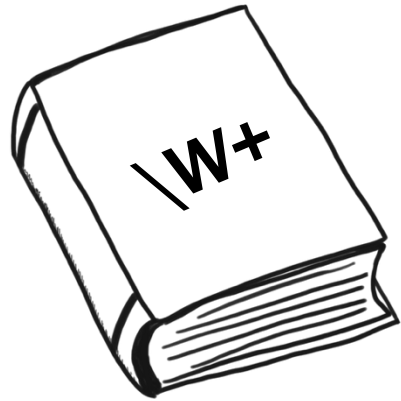
```
1 |project|stars|
2 |---|---|
3 |kubernetes/kubernetes|89.4k|
4 |helm/helm|22k|
5 |kubernetes/minikube|24.1k|
6 |kubernetes/community|9.8k|
7 |kubernetes/ingress-nginx|12.9k|
8 |k3s-io/k3s|20.2k|
9 |kubernetes/website|3.2k|
10 |justmeandopensource/kubernetes|1.2k|
11 |kubernetes/examples|5k|
```

Regex: `(\\S+)(\\d+\\.*)`

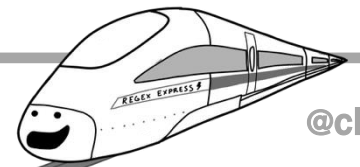
Matched: `$2$1`

Search and reuse parts of what was matched with capturing groups

Source: <https://code.visualstudio.com/docs/editor/codebasics>



Learning Resources



Regex Golf

Classic Teukon Holiday

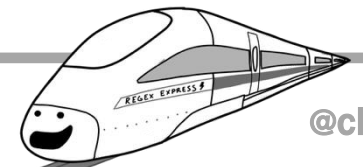
Warmup – Type a regex in the box.

0

Match all of these... and none of these...

- | | |
|-----------|-----------|
| ✓ afoot | ✗ Atlas |
| ✓ catfoot | ✗ Aymoro |
| ✓ dogfoot | ✗ Iberic |
| ✓ fanfoot | ✗ Mahran |
| ✓ foody | ✗ Ormazd |
| ✓ foolery | ✗ Silipan |
| ✓ foolish | ✗ altared |
| ✓ fooster | ✗ chandoo |
| ✓ footage | ✗ crenel |
| ✓ foothot | ✗ crooked |
| ✓ footle | ✗ fardo |
| ✓ footpad | ✗ folksy |
| ✓ footway | ✗ forest |

<https://alf.nu/RegexGolf>



Regex Golf

Classic Teukon Holiday

Warmup – Type a regex in the box.

a|

1

The string `dogfoot` did not match, but should

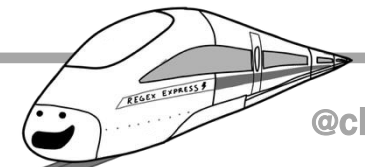


Golf “stroke”

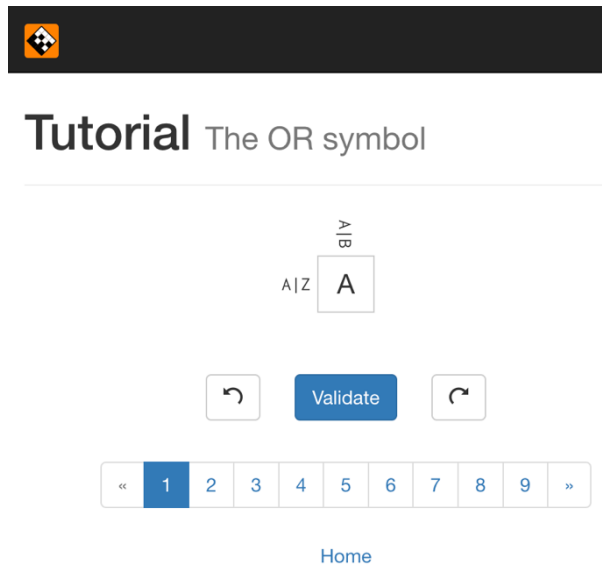
Match all of these... and none of these...

- | | |
|-------------------------------|-------------------------------|
| ✓ a <u>foot</u> | ✗ Atlas |
| ✓ ca <u>tfoot</u> | ✓ Aymoro (no match) |
| ✗ dog <u>foot</u> (no match) | ✓ Iberic (no match) |
| ✓ fa <u>n</u> foot | ✗ Ma <u>h</u> ran |
| ✗ fo <u>o</u> dy (no match) | ✗ Orma <u>z</u> d |
| ✗ fo <u>o</u> lery (no match) | ✗ Silipa <u>n</u> |
| ✗ fo <u>o</u> lish (no match) | ✗ a <u>l</u> tared |
| ✗ fo <u>o</u> ster (no match) | ✗ cha <u>n</u> doo |
| ✓ fo <u>o</u> tage | ✓ cren <u>e</u> l (no match) |
| ✗ fo <u>o</u> thot (no match) | ✓ croo <u>k</u> ed (no match) |
| ✗ fo <u>o</u> tle (no match) | ✗ fa <u>r</u> doo |
| ✓ fo <u>o</u> tpad | ✓ folk <u>s</u> y (no match) |
| ✓ fo <u>o</u> tway | ✓ fore <u>s</u> t (no match) |

<https://alf.nu/RegexGolf>



Regex Crossword



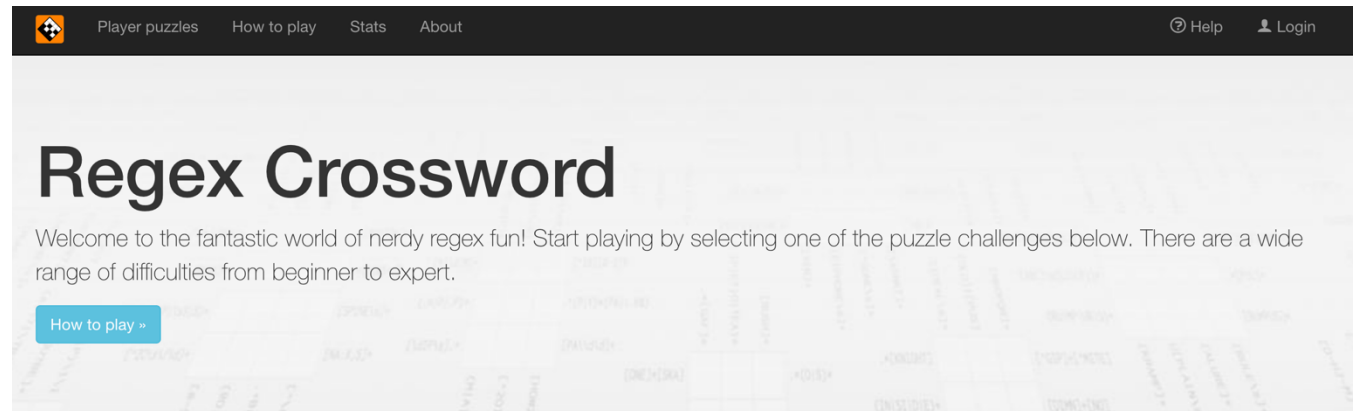
Tutorial The OR symbol

A|B
A|Z A

Validate

« 1 2 3 4 5 6 7 8 9 »

[Home](#)



Player puzzles How to play Stats About Help Login

Regex Crossword

Welcome to the fantastic world of nerdy regex fun! Start playing by selecting one of the puzzle challenges below. There are a wide range of difficulties from beginner to expert.

[How to play »](#)

Mobile (NEW!)

Try our new mobile version! Optimized for phones and solving puzzles on the go.

[Play »](#)

Tutorial

A step by step tutorial, teaching you the different symbols and regex patterns.

[Play »](#)

Beginner

Cut your teeth on an easy set of crosswords, learning the basics of regular expressions.

[Play »](#)

Intermediate

So you've got skills eh? Let's see how you handle a tougher challenge...

[Play »](#)

Experienced

Now it's getting difficult. We are ramping up the size and complexity. Try to keep up!

[Play »](#)

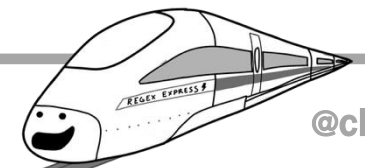
Palindromeda

Bend your mind around these cubistic 2D palindrome puzzles.

[Play »](#)

<https://regexcrossword.com/>

RegEx Express



@che55er

Regex Puzzle

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
0														
1														
2														
3														
4														

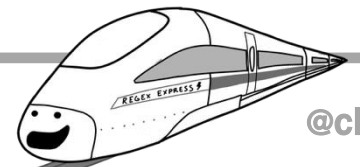
```
[^XZVCHFJLQM]+
[^PZVJG]{4}(\.)(EFUG){6}\1[^sPZVJI]{2}
[^sPQFB]{7}[^MGVAJNZ\s]+[^MVZJ]
N[OYSRU]{5}[NICE]{6}\s\
.A[A\sDL]{4}O[AECLV\s]+
```

```
[VIMZJ]{3}\-\s
X?W(\se|os|pe){2}
[XHDJ]R[MZVITJ]EC
N(XN|ZB|CA|FS){2}
(JK|AE|EN|MG){2}L
T[GLMV]{2}(E)\1
S[MVU]B(TZ|BP|IV)
ES?F?(OBZ|UCO|PTE)
(FF|BE|QU|OS){2}L
(\.)\1\1\1\s
(U)(T)\2\1[AOB? ]
(LS|CA|OS)[L\sP][DO]{2}
[XYZ])(P|GO|EL)\1.
\sA?(SA|PE|N\s){2}
```



**Puzzle made it into
BBC's *Puzzle for Today***

Source: bbc.co.uk



https://regexr.com/

Cheatsheet

Character classes

- `.` any character except newline
- `\w \d \s` word, digit, whitespace
- `\W \D \S` not word, digit, whitespace
- `[abc]` any of a, b, or c
- `[^abc]` not a, b, or c
- `[a-g]` character between a & g

Anchors

- `^abc$` start / end of the string
- `\b \B` word, not-word boundary

Escaped characters

- `\. * \\` escaped special characters
- `\t \n \r` tab, linefeed, carriage return

Groups & Lookaround

- `(abc)` capture group
- `\1` backreference to group #1
- `(?:abc)` non-capturing group
- `(?=abc)` positive lookahead
- `(?!abc)` negative lookahead

Expression

JavaScript Flags

```
/([A-Z])\w+/g
```

Text Tests NEW 29 matches (0.2ms)

RegExp was created by gskinner.com, and is proudly hosted by Media Temple.

Edit the Expression & Text to see matches. Roll over matches or the expression for details. PCRE & JavaScript flavors of RegEx are supported. Validate your expression with Tests mode.

The side bar includes a Cheatsheet, full Reference, and Help. You can also Save & Share with the Community, and view patterns you create or favorite in My Patterns.

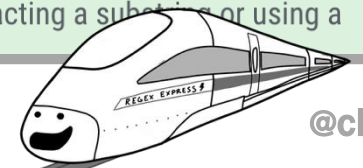
Explore results with the Tools below. Replace & List output custom results. Details lists capture groups. Explain describes your expression in plain English.

Tools

Replace List Details Explain ×

Roll-over elements below to highlight in the Expression above. Click to open in Reference.

(Capturing group #1. Groups multiple tokens together and creates a capture group for extracting a substring or using a backreference.



REGEXPER

You thought you only had two problems...


- ☰ Changelog
- 📖 Documentation
- 🔗 Source on GitLab

```
\d+\:\w+
```

Display

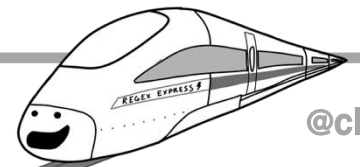
[Download SVG](#) // [Download PNG](#) // [Permalink](#)



Created by [Jeff Avallone](#) // Generated images licensed: 

<https://regexper.com/>

RegEx Express



@che55er

Search

Related:

- e.164 phone number
- E.164 is a telephone numb...
- han unification
- Han characters are a comm...
- hyphen word break
- A hyphen appears at the e...

- playground
- github
- submit regex

regex for phone number

match a phone number

https://ihaterexex.io/

```
^\[\+]?[(]?[0-9]{3}[/]?[-\s\.]?[0-9]{3}[-\s\.]?[0-9]{4,6}$
```

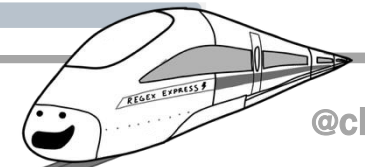
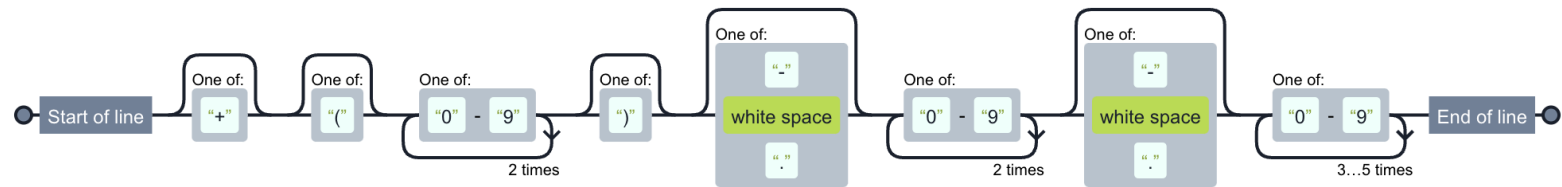
gmi copy

hide matches

- +919367788755
- 8989829304
- +16308520397
- 786-307-3615
- 789
- 123765
- 1-1-1
- +982

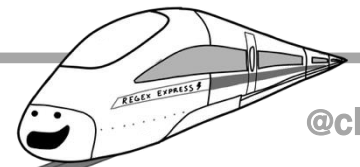
Match a phone number with "-" and/or country code.

iHateRegex

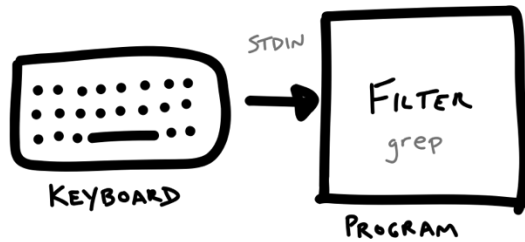




Summary



Grown from programming languages into tools



Some tools have native regex support

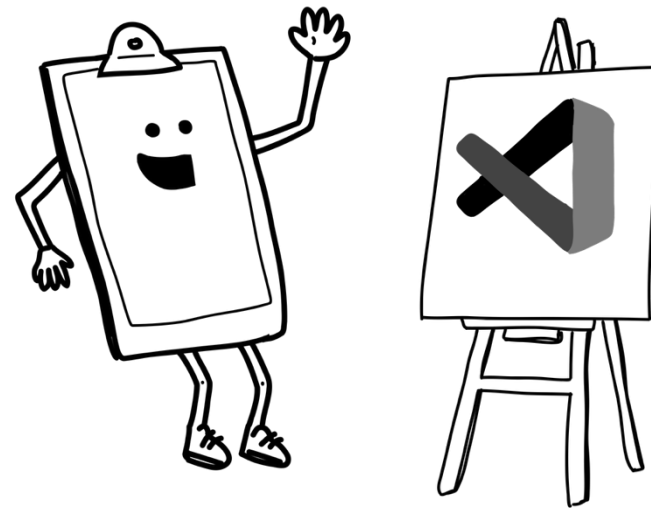
splunk >

 new relic



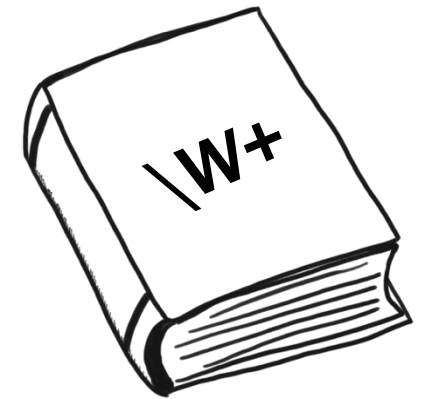
Become comfortable using regex in your text editor

Transform different sources



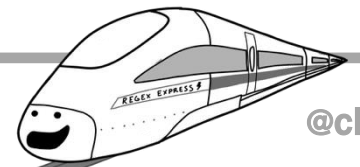
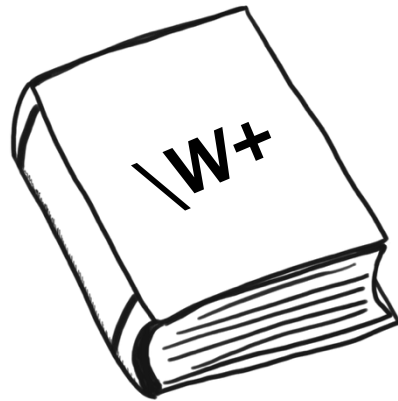
Great learning resources

(with puzzles!)

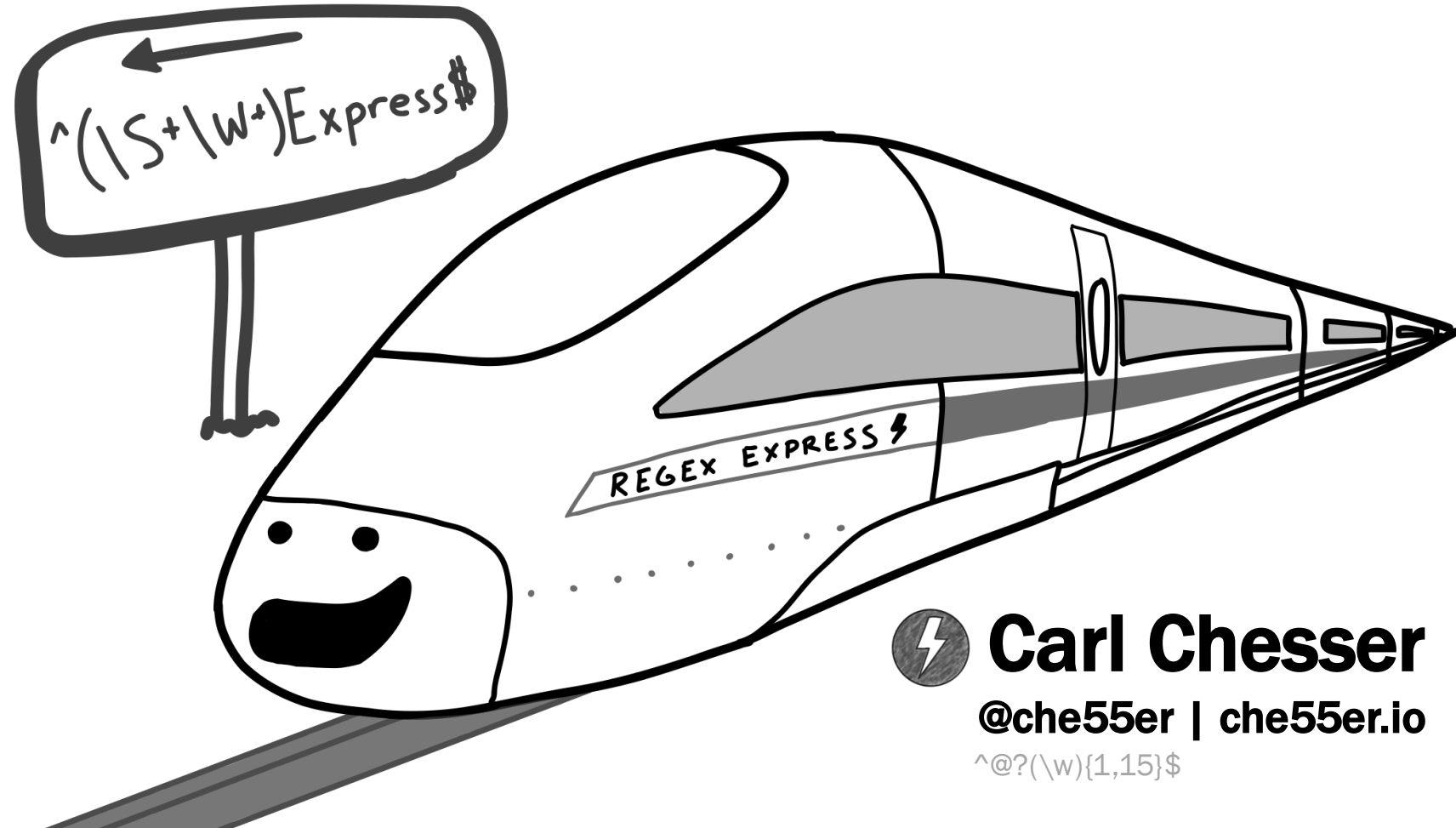


References

<https://che55er.io/talks/regex-express>



Thank You!



Carl Chesser

@che55er | che55er.io

`^@?(\\w){1,15}$`