

# --help me if you can

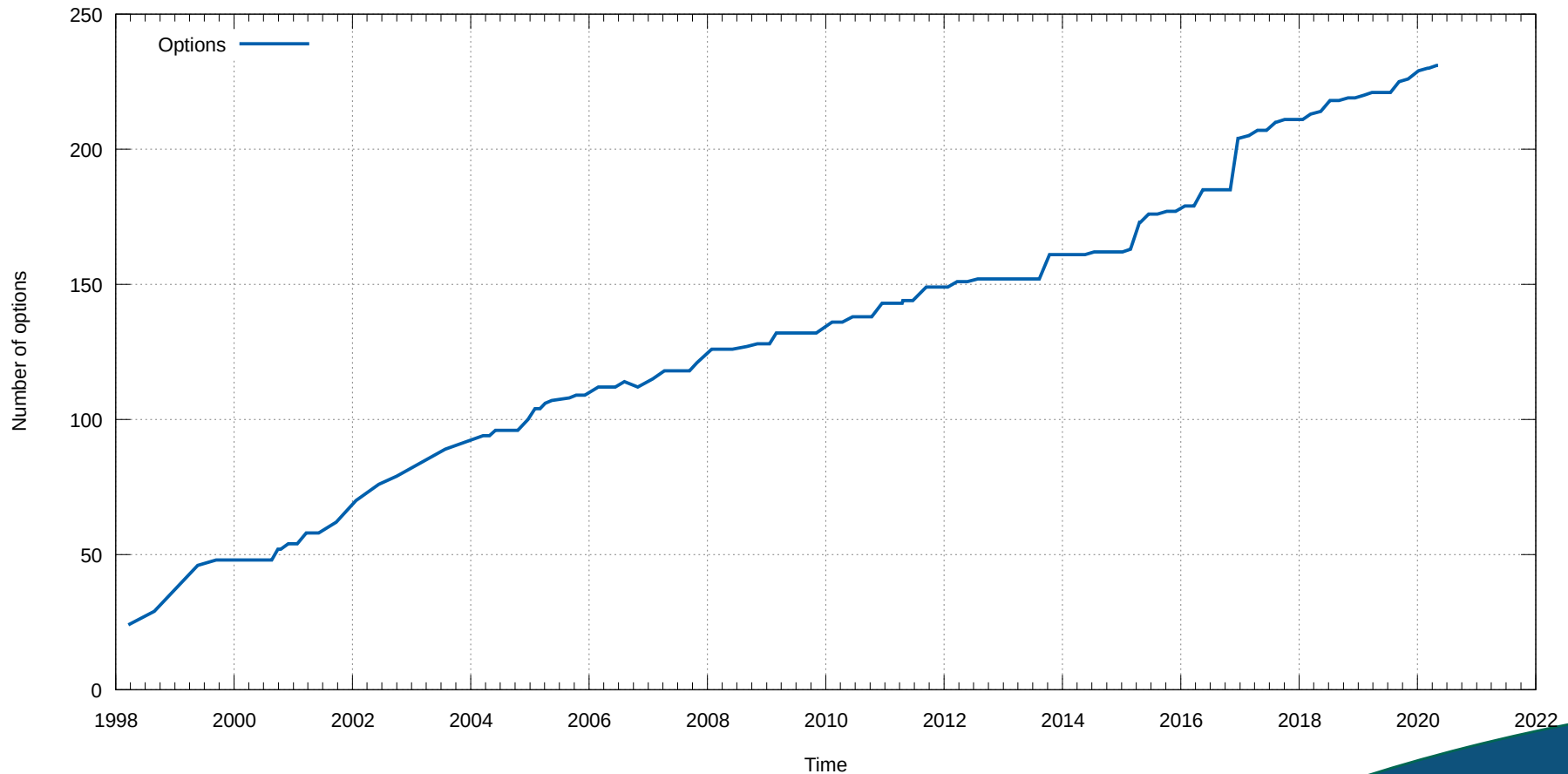
Helping people find what they need from hundreds  
of command-line options

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The logo for 'curl://up' is located in the bottom right corner. It features the text 'curl://up' in a stylized, rounded font. The '://' part is replaced by two parallel diagonal lines with small circles at their ends, resembling a network connection or a stylized 'up' arrow. The logo is set against a dark blue background that curves upwards from the bottom right.

# How hard can it be?

## Command line options



# curl 4.8 (1998)

curl 4.8 (SSL disabled) linux

Usage: curl [options...] <url>

Options: (H) means HTTP only (F) means FTP only

-a/--append Append to target file when uploading. (F)  
-A/--user-agent <string> User-Agent to send to server. (H)  
-c/--continue Resume a previous transfer where we left it. (F)  
-C/--continue-at <offset> Specify absolute resume offset. (F)  
-d/--data POST data. (H)  
-e/--referer Referer page. (H)  
-f/--fail Fail silently (no output at all) on errors. (H)  
-h/--help Huge help text  
-i/--include Include the HTTP-header in the output (H)  
-I/--head Fetch the HTTP-header only (HEAD)! (H)  
-k/--keep-alive Use Keep-Alive connection (H)  
-l/--list-only List only names of an FTP directory (F)  
-m/--max-time <seconds> Maximum time allowed for the transfer

-n/--netrc Read .netrc for user name and password  
-o/--output <file> Write output to <file> instead of stdout  
-O/--remote-name Write output to a file named as the remote file  
-p/--port <port> Use port other than default for current protocol.  
-P/--ftpport <address> Use PORT with address instead of PASV when ftping. (F)  
-r/--range <range> Retrieve a byte range from a HTTP/1.1 server (H)  
-s/--silent Silent mode. Don't show progress info  
-sl/--speed-limit Stop transfer if below speed-limit for 'speed-time' secs  
-st/--speed-time Time needed to trig speed-limit abort. Defaults to 30  
-t/--upload Transfer/upload stdin to remote site. (F)  
-T/--upload-file <file> Transfer/upload <file> to remote site. (F)  
-u/--user <user:password> Specify user and password to use  
-U/--proxy-user <user:password> Specify Proxy authentication  
-v/--verbose Makes the operation more talkative  
-V/--version Outputs version number then quits  
-x/--proxy <host> Use proxy. (Default port is 1080)

46 options





# Why --help exists

- What options are available
- What options the user might be looking for
- Advertise features
- How to use option (e.g. if it takes an argument)
- Quick lookup of something unrelated
- Because everyone does it

# Why should --help exist

- Different users want different things
- One user wants different things at different times
- Can't make everyone happy every time

# How other programs do it

- Survey of command-line program
- Restricted to those with lots of options
- Somewhat random program samples
- Each one uses one of seven approaches

# All

- Just show ALL the options!

Program	Version	Number
curl	7.70.0	231
imagemagick	7.0.8	255
lynx	2.9.0	148
timidity++	2.14.0	153
vim	8.1	43
wget	1.20.3	154



# Limited

- --help just shows basic options
- Read man page/documentation for the rest

Program	Version	# Shown	# Total
gs	9.27	7	213
mplayer	1.4	18	456
nmap	7.70	101	138

# External

- --help delivers help through external program
- man and less, mostly

Program	Version	Number
exiftool	11.300.0	79
less	550	57
git	2.21.1	145

# Advanced

- One option for basic help, one for advanced

Program	Version	Basic	Advanced
C-Kermit	8.0.211	48	24
gnugo	3.8	66	48
qpdf	8.4.1	100	1
zip	3.0	30	76
zoo	2.1	39	56

# Subcommand

- Only shows help for the selected subcommand
- Relevant only when subcommands exist

Program	Version	Subcommands
git	2.21.1	156
xmlstarlet	1.6.1	12

# Search

- `--help` command searches through option names

Program	Version	Number
aria2c	1.34.0	197

# Classes

- Help is broken down into similar classes
- Different help option for each class

Program	Version	Number	Classes
aria2c	1.34.0	197	15+
cmake	3.14.3	54	10
ffmpeg	4.1.5	2757	1518
gcc	8.3.1	1808	12
mc	4.8.22	30	4
sox	14.4.2	258	143
zenity	3.32.0	145	20

# Classes

- `--help=CLASS`
- `--help=#CLASS`
- `--help-CLASS`
- `--help-CATEGORY=CLASS`
- `-h CATEGORY=CLASS`

# Does curl need to change?

- curl isn't a outlier with many options
- Growth is slow and steady
- --help no longer reasonably usable "by hand"
- Overwhelming for new users
- Most new options are for niche needs
- Could substitute curl 4.8 and most people wouldn't notice



# How curl should change

- `curl --help` shows 1–2 dozen most common options
- Also lists all ways to get more help
- `--help-all` shows what `--help` does today

# How curl should change

- `--help-X` shows help on topic X
- X can be a protocol scheme or tag (class)
- 25 protocols
- Perhaps 20 additional tags to start
- `--help-security`, `--help-auth`, `--help-post`, `--help-proxy`, `--help-output`, `--help-log`, etc.
- Options can be displayed for more than 1 tag

# How curl should change

- Bonus points: detailed help
- Man page snippet shown for each option when given `--verbose`
- One “category” for each option to show detailed help on that option

# How curl should change

- Bonus points: full-text search
- Not sure what kind of UI; interactive?

# How curl should change

- Bonus points: open a website or e-book chapter
- Beginners might want to read an entire chapter on a topic
- Trick is to identify relevant chapters based on --help options

# Implementation

- Each tag points to a set of option letters
- Manually created index
- Expanded from data files in `cmdline-opts`
- Lots of work initially, a little bit for every new option
- Risk of getting out of date as options are supported in different protocols

# Thank-you!

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