The state of CTAN: 2025

Erik Braun

2025-07-09
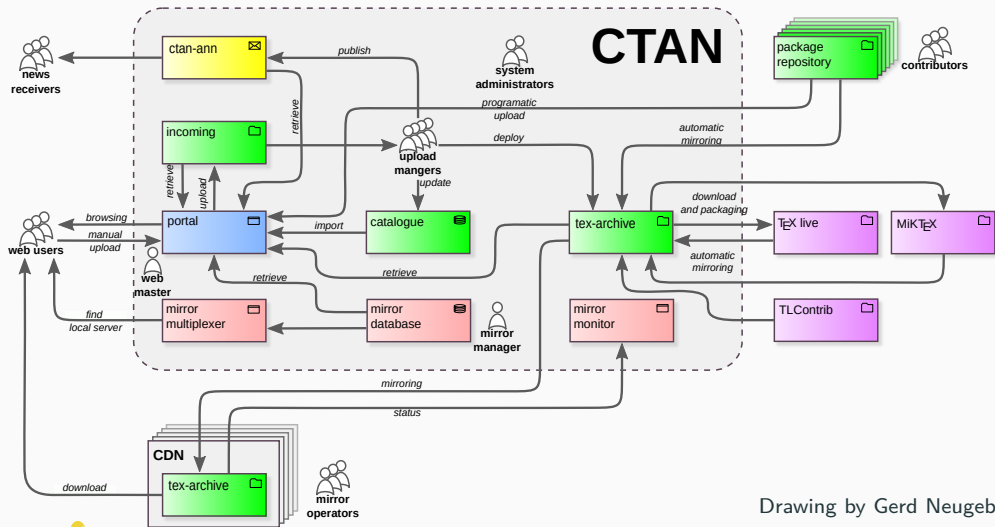
What's CTAN?

Comprehensive TeX Archive Network

CTAN lion drawing by Duane Bibby

- ▶ Webpage www.ctan.org et al.
- ▶ It contains all sorts of TeX related stuff, i.e. mostly packages and software
- ▶ Upload management, Catalogue updates, Announcements
- ▶ Synchronization with mirrors
- ▶ Most packages are free software
- ▶ Packages are sources for the distributions

CTAN's connections

Drawing by Gerd Neugebauer

A very brief history of CTAN

BORING

▶ Earliest reference: George D. Greenwade, TUGboat Volume 14, 3/1993

▶ Has an eventful history, which is written down on https://ctan.org/ctan and in Wikipedia

▶ Several main servers (USA, England, Germany)

The Wetware

The CTAN team consists of...

- ▶ Upload managers: Petra Rübe-Pugliese, Manfred Lotz (both long time ago), Erik Braun (since 2016), Vincent Goulet (since 2025)

- ▶ Webmaster and programming: Gerd Neugebauer. Recently, Oliver Kopp has joined

- ▶ System administration: Manfred Lotz, Erik Braun

- ▶ Mirror management: Petra Rübe-Pugliese, Erik Braun

The Hardware

For reasons of maintainability and cost, we have tried to separate the services:

- `www.ctan.org`: the main server for uploads and the portal, lots of space and memory
  $\rightarrow$ 10 cores AMD EPYC-Rome, 24 GB RAM, 1 TB storage on HDD, 1 GigE network connection
- `mirror.ctan.org`: fast processor, storage, network connection
  $\rightarrow$ 4 cores AMD EPYC 7702P, 8 GB RAM, 160 GB storage on SSD, 2.5 GigE network connection
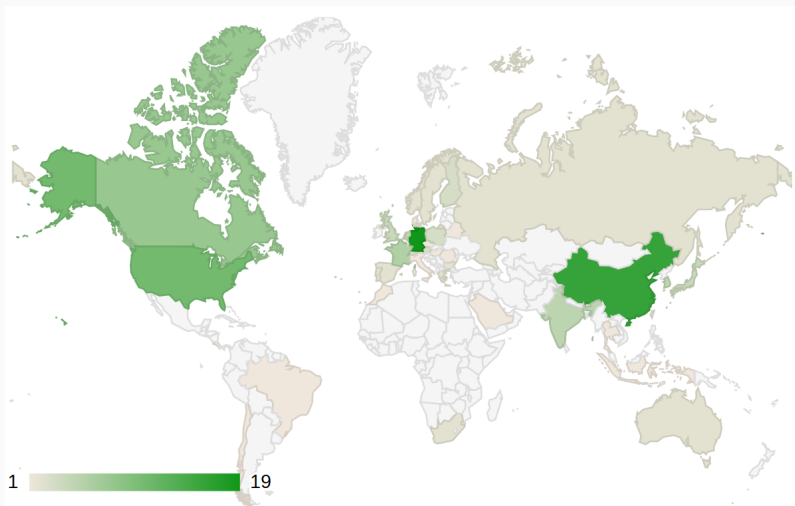- (DNS, DANTE e.V. webpages, LaTeX project server moved away)

The Software

The CTAN IT landscape consists of…

- ▶ Standard Linux systems for all the servers (Debian Stable)
- ▶ Portal: Tomcat application written by Gerd Neugebauer
- ▶ Mirroring: Apache Handler, which uses the MaxMind GeoIP
- ▶ Mailing List, ML archive
- ▶ https://ctan.org/credits

≈ 135 Mirrors

Visualization by Google GeoChart

1   19

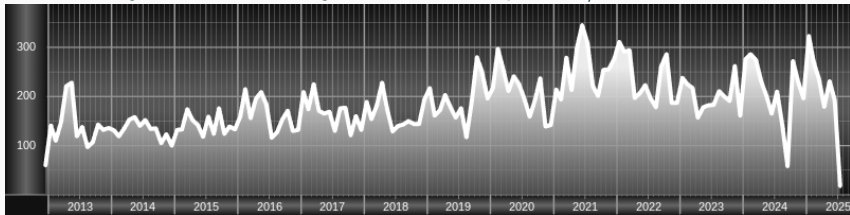## Mirrors and Synchronization

- ▶ Becoming a mirror is described on the CTAN website
- ▶ Mirrors must synchronize at least once in 24 h
  $\rightarrow$ recommended every 6 hours, but can be done every hour without any problems
- ▶ State and freshness of all files are not actively checked
- ▶ Status of the mirrors is displayed on the CTAN website at https://ctan.org/mirrors/mirmon

Uploads

▶ Over the years constantly about 200 uploads/month

▶ Upload managers check for formal correctness
▶ Simple and frequent problems are wrong file formats, forgotten version numbers and license information
▶ You can minimize formal problems by using l3build
  and pkgcheck (→https://ctan.org/pkg/pkgcheck)

The future of ctan.org

Switching to a new website, codename »3.0«, due to an outdated technological code base in the background:

- ▶ Client-side rendering instead (in particular with the use of Javascript)
- ▶ Client `Nuxt.js`, server framework `Dropwizard`
- ▶ A cleaner user interface with less crowded pages
- ▶ Integration of the historical archive

Details on https://build.ctan.org/ (Gitlab, UI Design Guide)

What we do in the shadows

The daily/weekly/monthly routine:

▶ Check for formal requirements of uploads

▶ Find a concise description and suitable topics for new packages

▶ Periodic check of the links in the description

▶ Supporting tools for uploaders exist:

  ⇒ l3build   (The LaTeX3 Project)

  ⇒ pkgcheck   (Manfred Lotz)

  ⇒ ctanify   (Scott Pakin)

  ⇒ ctan-o-mat   (Gerd Neugebauer)

Frequently occurring problems (I)

Legacy work. Previously installed packages that do not meet the requiremets of new packages:

► Updates of these packages can be complex and time-consuming

► Packages that are warned not to use `l2tabu` are still prominent to find

► (even `l2tabu` has become old)

Frequently occurring problems (II)

1. An author has a bright idea and creates a package which is widely used
2. The author loses his interest in his work, the contact data gets outdated, *BUT*
3. Other users could improve the package, they and CTAN try (sometimes to no avail) to contact him; this is a WOMBAT

$\Rightarrow$ Hard Solution: Fork

$\Rightarrow$ Preferred Solution: authors keep in contact with CTAN and have themselves marked as "inactive"

(Should the authors periodically be reminded that they own packages on CTAN?)

TEX archive numbers

Date	Size	Number of files	Number of directories
2017-12-31	14G	285205	16353
2018-12-31	16G	301705	16887
2019-12-31	17G	329041	17261
2020-12-31	18G	337077	17336
2021-12-31	19G	357642	17628
2022-12-31	22G	363846	18171
2023-12-31	23G	374833	18447
2024-12-31	24G	387994	18910

▶ Here MiKTEX, TEX Live, and MacTEX are not included.

▶ Currently their size is approx. 32 GB

Authors

Year	Authors	Female	Institutions	Died
2016	2403	–	45	–
2017	2479	–	49	12
2018	2568	–	50	13
2019	2651	–	53	14
2020	2753	65	59	16
2021	2829	65	59	21
2022	2905	66	65	24
2023	2960	66	69	24
2024	3030	66	73	27

The TₑX catalog has a lot of packages

- ▶ approx. 98% are hosted on CTAN
  $\rightarrow$ more small special purpose packages
- ▶ 1%–2% are unmaintained and were moved to the obsolete/ tree.
- ▶ Around 1% are not hosted on CTAN.
  Examples: JabRef, AUCTeX

Packages on CTAN – Numbers

	Total	On CTAN	Unmaintained	Not on CTAN
2014-12-31	4814	4757	82	57
2015-12-31	5024	4960	95	64
2016-12-31	5248	5185	105	63
2017-12-31	5433	5371	110	62
2018-12-31	5615	5555	114	60
2019-12-31	5778	5707	118	71
2020-12-31	5963	5882	134	81
2021-12-31	6161	6078	134	83
2022-12-31	6359	6275	138	84
2023-12-31	6528	6445	179	83
2024-12-31	6681	6597	197	84

Subversion commits

Year	Commits	Updates	New pkgs	*Lazy days*	(days without any commit)
2014	2277	≈1051	217	16	
2015	2476	≈1335	203	8	
2016	2831	≈1609	225	6	
2017	2703	≈1648	186	5	
2018	2783	≈1591	184	5	
2019	3047	≈1863	152	0	
2020	3376	≈2010	175	2	
2021	3579	≈2271	196	1	
2022	3272	≈2129	197	2	
2023	3151	≈2036	170	2	
2024	3162	≈2155	152	3	

Frequently Asked Questions...

▶ ...why maintain our own mirror infrastructure instead of using MirrorBrain or a commercial CDN like Cloudflare?

▶ ...why run our own mail system instead of relying on a commercial provider?

▶ ...why operate our own nameserver?

▶ ...I really want to get involved with CTAN or with TeX in general — how and where can I participate?

Questions?

Literatur

Greenwade, George D. (März 1993). **„The Comprehensive TEX Archve Network (CTAN)".** In: **TUGboat** 14.3, S. 342–351. URL: https://www.tug.org/TUGboat/Articles/tb14-3/tb40green.pdf.