The Comprehensive TEX Archive Network (CTAN)*

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Abstract

This paper outlines the concept, development, and use of the Comprehensive TEX Archive Network (CTAN)—a network-accessible archive for files related to the TEX family of document processing. The CTAN is a coordinated effort among consenting well-known archive sites which provides quick identification and retrieval files in a consistent manner from hosts on different continents, thereby reducing overall network load and increasing speed of retrieval. Moreover, it provides users with a parallel archive structure between hosts with holdings which are generally synchronized to within 30 hours of one another. This is achieved by routinely mirroring one another's holdings, as well as mirroring other archives to maintain an up-to-date collection of files.

Why a Comprehensive TEX Archive Network?

Since the inception of publicly-accessible network-based archives, TEX and its related packages, macros, and utilities have been available for retrieval by users via any number of techniques. The combination of the growth of the Internet in recent years, the growth of publicly-accessible network-based archive sites, and the growth in the number of files associated with TEX and it's affiliated packages and programs, created a rather overwhelming number of files for users with network connections to sort through. In terms of 'overwhelming,' the number of files available has been a significant boost for users; however, in these same terms, the number of different versions available, their precise location on a given archive host, the user interface available to access these files, and the ability to efficiently identify the various pieces required to make the various iterations of TEX and its relatives work properly has evolved to be a non-trivial task.

In recognition of these problems, the then-newly-created Technical Council of the TEX Users Group formed a Technical Working Group on TEX Archive Guidelines (officially WG-92-05; informally referred to as TWG-TAG) in the latter months of 1992, with the author as its Chair.[1] While a variety of issues related to archiving have been discussed (and broader guidelines, per se, will in all likelihood be forthcoming), the concept of creating a systematically coordinated family of network-based archive sites was tacitly agreed upon as a mechanism for verifying that the ideas under discussion were workable. Also, this approach was viewed as a mechanism for creating a more efficient design, both theoretically and practically, to meet the needs of the worldwide TEX community.

General Consensus Notes From TWG-TAG

Germane to the development of a set of archives in lieu of a 'hard and fast' set of guidelines for propagation to other hosts were the following concerns:

1. Existing archive hosts very likely have chosen and utilize a structure which is politically and practically acceptable for their site.
2. While the concept of the Internet's File Transfer Protocol (ftp) for a user interface was on everyone's mind, access via alternate means (primarily electronic mail and hard media) had to be considered.
3. Very few hosts on the network possess a comprehensive archive of TEX-related materials; thus, a design guideline which includes all dimensions of TEX may not be proper for a specialized archive.
4. Even if a set of guidelines were developed, there is no way to ensure that every site which possesses

*Published in TUGboat **14.3**, 342–351 (1993).

[1] I would like to take this opportunity to formally recognize the members of this Working Group and publicly thank them for their efforts on any number of topics which we have dealt with. These individuals are, in alphabetical order: Nelson Beebe, Barbara Beeton, Karl Berry, Johannes L. Braams, David Carlisle, Michael J. Ferguson, Alan J. Hoenig, Don Hosek, David M. Jones, Pierre MacKay, David Osborne, Philip Taylor, Jon Radel, Sebastian Rahtz, Rainer Schoepf, Joachim Schrod, and Elizabeth Tachikawa.

some aspect of TEX in its archive would follow them since archives are a function of local resources, support, and needs more than 'network' demands.
5. If a workable demonstration of the guidelines existed, more sites may voluntarily elect to follow the ultimate guidelines.
6. No single site on the network possessed a canonical listing, much less collection, of the latest relevant files available; therefore, any guidelines developed would be hypothetical more than working.
7. It is necessary to make the structure as flexible as possible, while at the same time ensuring that files may be easily located by users via some consistent and logical design.
8. As much as foreseeably possible, the structure should be extensible into evolving network retrieval and browsing technologies, such as Gopher, Mosaic, and other developing utilities.
9. It is essential that the archives support users from the variety of platforms under which TEX is available; while a given platform may be used for the archives themselves, it should not impose problems on any other platform which a user may wish to ultimately use the files on.
10. At least initially, the concern was to provide a reliable archiving directory hierarchy from within the project, as opposed to a production system hierarchy.[2]

Genesis of the Design

Prior to defining the CTAN directory structure, extensive discussion was undertaken by TWG-TAG regarding the optimal directory hierarchy. Compared for use were the hierarchical design used on most ftp-accessible hosts now possessing a TEX archive and the flat design used by a number of mail-oriented hosts. For brevity's sake, allow it to be said that the hierarchical design was chosen.
Once this decision was made, comparisons of existing archives were undertaken, primarily focusing on the holdings of three major sites—Stuttgart University's `ftp.uni-stuttgart.de`, Aston University's `TeX.ac.uk`, and Claremont College's `ymir.claremont.edu`. The end result is a hybrid of the three directory structures, focusing on top-level directories which are somewhat mnemonically-based directory names at this level which, at least in the author's view, is pleasing.

The structure is adequately diverse so that dvi-related files (such as device drivers, dvi to output programs, and dvi viewers) are distinctly different from macros, and that macros are adequately categorized into the appropriate flavor of TEX for which they are intended. The top-level directory hierarchy is presented in Appendix A.

Conceptually, every file in the archive fits into one branch of this directory hierarchy (albeit the directory mutually agreed to by the maintainers of the hosts involved in this project). Where a file conceptually fits into more than one directory, efforts are made to ensure that the file properly appears where it should.

Coincidences of Consequence

A critical dimension of this project was its timing. Two hosts were new machines; therefore, they were easily designed into whatever structure was agreed to. The main coincidences which aided the success of this project were:

- Sebastian Rahtz, who was just beginning to put together the Aston 'daughter' archive at `ftp.tex.ac.uk`, began utilizing the directory design by following the very rough outline of the preliminary structure. Making the structure operational was a significant factor in more than a few subsequent decisions as it illustrated, in a close-to-production environment, the strengths and weaknesses of the then-tentative hierarchy.
- Sam Houston State University was just installing its first Unix-based host and learning its idiosyncrasies; however, its use as an archive host was established soon after its installation. This was a preferable choice for an archive host over SHSU's more established ftp host, `Niord.SHSU.edu`, as it ran a comparable software to the other two hosts, and was configurable for use as a mirror.
- David M. Jones had just released the first version of his index of TEX and LATEX macros, providing the TWG-TAG with a relatively-comprehensive listing of files, their authoritative location, current version, and other critical information.
- Joachim Schrod's mirroring software for Unix hosts (which the CTAN hosts utilize) was being upgraded. Joachim was able to quickly address a few specific problems resulting from its massive use.
- Nelson Beebe was developing a few new extensions to the ftp server software which was adopted for use. Significant contributions were his definitions which allow users to retrieve recursive `ZIP` and `ZOO` archives of directory holdings.
- A bug was located in the adopted ftp server software. This led to the new release of the ftp server software, resulting in a much nicer interface, easier management, and more generic installation as compared to prior versions. In essence, while each host is unique in architecture, the configurations are virtually parallel, as are most features available to users.
- Karl Berry further extended his somewhat standardized Unix TEX directories and installation. While this has yet to play a significant role in design, it provides significant future extensions to the services

[2] Please note that the concerns above are those perceived by the author as the majority opinion and are not necessarily those of the TWG-TAG, nor are they necessarily those of any one given member of the TWG-TAG.

of the CTAN.

- The University of Minnesota upgraded the facilities and functions of its `Gopher` software. This interface now serves as an alternative access method to the CTAN at Aston and SHSU.
- Significant enhancements to the `ZIP` utilities by the Info-ZIP team were released. This is a major item of concern as it allows for a platform-independent mechanism for the archival of files held within the CTAN collection. In essence, when combined with Nelson Beebe's extensions, this feature allows users on virtually any platform to retrieve recursive directory holdings, then convert them to the operating system specific needs which they confront.

By no means is this a complete listing of all coincidences of consequence to the project—suffice it to say that without a number of apparently disjoint and unrelated projects coming to fruition at approximately the same time, this project would likely still be in its planning stages.

The CTAN Hosts

By now, you're very likely asking where these hosts are on the network. The present CTAN hosts and their root CTAN directories are:

```
ftp.uni-stuttgart.de   /pub/tex/
ftp.tex.ac.uk          /pub/archive/
ftp.shsu.edu           /tex-archive/
```

Based at Stuttgart University (Germany),[3] Aston University (England),[4] and Sam Houston State University (United States),[5] respectively.

While the designs of the consulted archives were largely congruent, there were some modifications when compared to all existing archives. Rainier Schoepf, TEX archive manager at Stuttgart University's `ftp.uni-stuttgart.de`, was fully agreeable to modifying the directory structure there based on the recommendations which were developed. While it was clear that the changes would impose short run problems for users of his collection and potential problems in the management of his site's mirroring of packages, he was in agreement that the long term benefits to the TEX community of a well-known and specified structure outweighed any short term impact. Also, as the other two hosts involved were new to the network, being able to plan for the inclusion of an existing large and active archive from the start was a real benefit, especially since it had a mirroring structure already in place and the site was mirrorable by other sites.

What's Available

As noted in the name selected for these hosts, the *Comprehensive* TEX Archive Network, the collections available are about as comprehensive and timely as humanly possible. Do these hosts have 'everything'? The truthful answer is that they probably do not and probably never will—but they are and will be about as comprehensive a collection as can be arranged. As sites possessing relevant files and packages are identified, one of the CTAN hosts will include them in its mirroring passes; from there, the files will then propagate to the other CTAN hosts. Presently, there are about 790 megabytes of files available in the `/tex-archive/` directory tree on `ftp.shsu.edu`. It would be expected that the collections in the TEX archive area on the other two hosts would be virtually identical.

How It Is Achieved

The synchronization between hosts is handled within a 'mirroring' program whereby files on one host are propagated to the other hosts of the CTAN. The variant of mirroring used by the CTAN hosts is a modification of a family of perl scripts written by Joachim Schrod.[6]

Conceptually, the process entails three major points. First, hosts where files are authoritatively available for retrieval are mirrored inbound by a selected CTAN host. This CTAN host locates these files in a pre-specified area of the collection. Second, users may contribute files to a given CTAN host by uploading their files into an 'incoming' area on any given CTAN host. From there, the local CTAN administrator moves these contributions into the CTAN hierarchy. Finally, the CTAN hosts mirror one another on a routine basis to collect all new files which have entered the collection at the mirrored host. In all, about one gigabit of files are referenced daily by the mirroring processes in order to maintain accuracy, timeliness, and correctness of holdings.

Existing User Interfaces

As noted throughout this paper, the Internet's File Transfer Protocol (ftp) is supported at the moment for a user interface. There are three other interfaces which should be recognized—Gopher, mail, and hard copy—as these are important to users which prefer to utilize them.

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[3] In addition to the administration of the institution, thanks are extended to DANTE, the German speaking TEX Users Group, for their archival support and leadership role in maintaining this archive.

[4] In addition to the administration of the institution, thanks are extended to the UK TEX Users Group for their archival support and leadership role in the development of their original archive, as well as in the creation and development of this new archive host.

[5] In addition to the administration of the institution, thanks are extended to SHSU's Computer Services Division, which has been more than forthcoming in support and access as this archive has evolved. Additionally (and especially), thanks are extended to SHSU's College of Business Administration for its continued interest in and support of this project.

[6] The program itself is available in the `archive-tools/mirror/` directory of the CTAN hosts.

ftp

The ftp interface utilized by each CTAN host is the 'wuarchive ftpd' program.[7] In addition to the normal ftp commands a user would expect, these hosts support a variety of additional useful functions, such as locating a file, creating ZIP, ZOO, and Unix tar archives on-the-fly, automatic compression of files on-the-fly, and a few other features. As these features may be modified, the best policy is to consult any files named README in the default directory at login.

Gopher

Two of the CTAN hosts, ftp.tex.ac.uk and ftp.shsu.edu are configured for Gopher access. The Internet Gopher, developed by the University of Minnesota, provides users with a menu-driven interface for transactions. Users may view and retrieve files in a fashion somewhat more friendly than ftp. Also, the Gopher menus presented do not necessarily represent files actually available at a site; instead, the client/server relationship utilized allows for servers to point to information stored elsewhere, which users are automatically connected to by simply selecting a menu entry.[8]

Pointing the Gopher client directly to the Gopher server on ftp.tex.ac.uk is the preferred method for access to the Aston CTAN archive; Gophering to SHSU's 'front door' Gopher server on Niord.SHSU.edu is the preferred method to access SHSU's CTAN archive. In addition to the archives themselves, a variety of TEX-related files and services are available on each host. Sample menus from each are provided in Appendix B.

Mail

At the moment, no agreed-to mail interface has been installed on all hosts. At present, plans exist to eventually utilize the ftpmail program as the mail interface supporting all CTAN hosts.[9] The mail interface to the CTAN hosts will be documented in a subsequent issue of *TEX and TUG News* once the interface is installed and stable.

Hard Copy

Sebastian Rahtz has already made arrangements and compiled a hard copy of the CTAN archives for CD-ROM distribution. The distribution will be made available from Prime Time Freeware. The first version of this file set is already available and it is to be routinely updated to reflect changes made to the archives.

Aspects for Authors

While the process of mirroring and uploading provides a rough and ready mechanism for achieving the reliability of the CTAN, authors should be aware of a few dimensions. At the moment, no specific guidelines exist on these topics, so please view the following as personal views which will, in time, be discussed.

File Headers and Checksums

Nelson Beebe has developed a package written as an Emacs Lisp file which creates 'standardized' file headers.[10] These headers, while clearly consuming space within the archive, provide valuable information which users and archive maintainers may refer to quickly. Moreover, these file headers provide valuable indexing information which may be blended into existing indices, such as David Jones' heroic effort. An example file header taken from a contributed LATEX style option is provided in Appendix C.

Optionally included in these headers is a 'checksum' option, which is of significant benefit whenever files are transferred electronically to verify correctness. The preferred is Robert Solovay's CWEB-based program which, with the assistance of Nelson Beebe, has been ported to a number of operating systems.[11]

Location of Files

It would behoove authors who maintain authoritative file set(s) on network hosts which are ftp-accessible to contact me so that arrangements may be made to mirror these files into the CTAN collection. Without a doubt, the ability to mirror files into the CTAN hierarchy is the least painful and most efficient method available as human intervention arises mainly in the review of the logs of the mirroring session. If an authoritative host is identified, its holdings will automatically be included when the site is referenced. In this way, additional copying to additional hosts for propagation will not be needed. Moreover, you will ensure that the latest versions are available for public consumption.

Directory Suggestions

Although it is well-specified, no official designation of the CTAN directory structure now exists. However, it is advisable for maintainers of authoritative files and packages to consider the utilization of the CTAN hierarchy, if at all possible. In this manner, the author will be able to envision how the archive is laid out for the end user. Also, if this structure is used, especially on Unix-based hosts, proper linkage to related files may be used. At the moment, one of the most wasteful uses of the CTAN directory contents are the multiple

[7] This program is available in the directory archive-tools/ftpd/mirror/ on the CTAN hosts. It is the classic ftp server/daemon utilized by Washington University in St. Louis, Missouri (USA) for their massive collection of files.

[8] Gopher clients are available for a wide variety of platforms. Sources for most platforms are available in the directory archive-tools/gopher/ on the CTAN hosts.

[9] Sources for the ftpmail service are available in the directory archive-tools/ftpmail/ on the CTAN hosts.

[10] This package is available in the archive-tools/filehdr/ directory of the CTAN hosts.

[11] This package is available in the archive-tools/checksum/ directory of the CTAN hosts.

copies of files which authors elect to include. For example, as of 1 July 1993, approximately 27 copies of the LATEX macros exist in the archive—only one of which (in `macros/latex/distribs/`) is authoritative. With linking, the mirror simply calls in the link and the latest versions of related files (from their well-specified directory) will be delivered to users.

Getting a File into the CTAN Without Mirroring

If mirroring is not practical (either because of inability to mirror a host, lack of a public ftp area in which to place a file, lack of ftp altogether, the contribution is a small number of files, or any other reason), authors can still easily get files included into the CTAN with electronic mail or via anonymous ftp.

Electronic Mail

To submit a contribution via electronic mail, use the address:
`CTAN-Mgr@SHSU.BITNET (CTAN-Mgr@SHSU.edu)`
including the file in whatever manner is feasible (encoding of executables, splitting of files, indicating within a single post with multiple files where to 'cut,' etc.). In these cases, checksums are ideal as it provides verification that the file received for archiving purposes is indeed the same file which the author intended for inclusion. A brief note describing the contribution is very appreciated. As soon as the contribution has been processed into the CTAN, the submitting author will be notified via return electronic mail.

Anonymous ftp

To submit a contribution via ftp, connect to one of the CTAN hosts with an ftp client. When prompted for a username, type `'anonymous'` (all lowercase; without quotes) and use your complete electronic mail address as your password. The Aston and SHSU CTAN hosts support the `/incoming/` directory for contributions (uploads) of files; the Stuttgart CTAN host supports the `/soft/incoming/tex/` directory for contributions of TEX-related files. Once connected, a typical upload session would look like:

```
cd <appropriate incoming area>  !! 1.
mkdir <your directory name>     !! 2.
cd <your directory name>        !! 3.
[binary | ascii]                !! 4.
[m]put your file(s)             !! 5.
```

ignoring everything beginning with and to the right of `!!` above. Each step represents:

- `cd` — change directory to proper incoming area (see above).
- `mkdir` — make subdirectory (optional), which is especially nice to retain together multiple files contributions which are intended to stay together; you may use any `your directory name` you please.
- `cd` — change to the directory you just created so you may use it.
- `binary` or `ascii` — just to be safe, it's always best to verify the intended transfer mode (`binary` or `ascii`) prior to transfer.
- `[m]put` — use standard ftp `put` or `mput` command to place your files in the incoming area.

Future Directions

While the CTAN hierarchy and holdings between its hosts are relatively stable at present, this does not imply that the project is completed. Topics for potential extension are:

1. The creation of on-demand 'kits'

At present, the `systems/` directory hierarchy includes sets of packages intended for system-specific installation. One very serious potential problem with these file sets is that they are not automatically updated when new files are introduced to the archive. For example, some of the system-specific installations include prior versions of macro sets (generally, the LATEX macros in these file sets are outdated), drivers (such as the rapidly changing `dvips`), or other dimensions of the included software. This implies that users retrieving these file sets, while able to install TEX, have to immediately return to the archives to upgrade their systems.

An alternative to the present process would be for servers to have the capability of creating on-demand up-to-the-minute 'kits' for platform-specific installations. However, specific design features for this functionality must be developed.

2. The use of a non-ftp mirroring mechanism

At present, the mirroring mechanism used by the CTAN hosts suffice for its use. However, ftp is not an efficient mechanism for moving the quantity of files involved in this project. A much preferable solution would be the use of some alternate protocol which allows for verification and automatic updating of all hosts in the CTAN.

3. Addition of other CTAN hosts

At present, the workload of the three hosts involved in this project is non-trivial. Essentially, the eastern side of the Atlantic is served by two hosts, while North America is served by a single host. The present configuration of hosts lends itself to easy extension to another North American host to service the Americas, as well as a Pacific-based host to serve Asia, the Pacific Rim, and the Southern Hemisphere. Simply creating a mirror of one of the existing CTAN hosts in these regions, with no additional network responsibilities, would be more than acceptable.

4. Automation of archival information

While the CTAN possesses the most comprehensive collection of TEX-related materials, one very dissatisfying aspect remains. This problem area lies in the collation of information which is quickly retrievable (even by the archivists themselves) which points to related files, required files, version requirements, authoritative location of files, listing of most recently added files within an area, etc. The mirroring process is marvelous at collecting files; however, without proper and somewhat standardized documentation of each component of the archive, tracing problems may prove to be painful.

At present, David Jones' index of macros—a wholly volunteer effort—exists and serves this function admirably within the context of macros. Additionally, the 'Frequently Asked Questions' (FAQ) files from the USENET newsgroup `comp.text.tex` provide more information on other selected aspects which are included in the collection. However, the fact that these are volunteer efforts, as well as the fact these only cover a microcosm at a point in time of the complete and rapidly changing archive, is troubling.

Appendix A: The Top-Level Directory Hierarchy

Once into the CTAN host's root area, the following directory hierarchy is presented:

```
archive-tools/
bibliography/
digests/
documentation/
dviware/
fonts/
graphics/
help/
indexing/
languages/
local/
macros/
misc/
support/
systems/
web/
```

In Brief, the contents of these directories include:

- `archive-tools/`
  contains the various archiving tools which users may find useful.
- `bibliography/`
  contains bibliography-related files, such as BIBTEX.
- `digests/`
  contains back issues of TEX-related periodicals.
- `documentation/`
  contains files and tutorials which document various aspect of TEX.
- `dviware/`
  contains the various dvi-to-whatever filters and drivers.
- `fonts/`
  contains a collection of fonts, both sources and pre-compiled.
- `graphics/`
  contains utilities and macros related to graphics.
- `help/`
  contains files which provide an overview to the archive and the TEX system.
- `indexing/`
  contains utilities and related files for indexing documents.
- `languages/`
  contains non-English related implementations of TEX.
- `local/`
  contains local site-specific files—not of general interest.
- `macros/`
  contains macros for TEX and its derivatives in unique subdirectories.
- `misc/`
  contains files and programs which cannot otherwise be catalogued.
- `support/`
  contains files and programs which can be used in support of TEX.
- `systems/`
  contains complete system setups, organized by operating system.
- `web/`
  contains WEB-related files and utilities.

Appendix B: Gopher Menus from Aston and SHSU

The menus for the CTAN archives via Gopher as of the time of this paper are provided below. For `ftp.tex.ac.uk` the Gopher menu structure appears as:

```
The menu's for the CTAN archives via Gopher as of the time of this paper
                  Root gopher server: ftp.tex.ac.uk

           1.  UK TeX Archive/
           2.  Aston University/
           3.  Minnesota Gopher root/
           4.  Archaeology/
           5.  Archie <?>
           6.  Font Samples/
           7.  General WAIS databases/
           8.  Looking things at AMS <TEL>
           9.  Veronica (search menu items in most of GopherSpace)/
           10. World Wide Web (Hypertext fra CERN) <TEL>
```

and selecting item 1. from this menu yields:

```
                                UK TeX Archive

       1.  Welcome.
       2.  Archive directory/
       3.  Indexed FTP (Directories names only) of UK TeX Archive.
       4.  Indexed FTP of UK TeX Archive.
       5.  Indexed access to archive hierarchy <?>
       6.  Other Archives/
       7.  TeX Font Samples/
       8.  UK-TeX.
       9.  WAIS database: TeX --- list of FTP sites with TeX material <?>
       10. WAIS database: TeX Frequently Asked Questions (UK specific) <?>
       11. WAIS database: TeX index of styles and macros (by David Jones) <?>
       12. WAIS database: The TeX Book <?>
       13. WAIS database: back issues of TeXhax, 1986 -- <?>
       14. WAIS database: back issues of UKTeX newsletter <?>
```

Selecting item 2. from this menu yields the directory hierarchy described in Appendix A.

For `Niord.SHSU.edu` the Gopher menu structure appears as:

```
                    Root gopher server: Niord.SHSU.edu

       1.  About the Sam Houston State University Gopher.
       2.  Customizing the Print command at SHSU.
       3.  All the Gopher Servers in the World/
       4.  Chronicle of Higher Education 'EVENTS in ACADEME'/
       5.  Economics (SHSU Network Access Initiative Project)/
       6.  Internet Information/
       7.  LaTeX3 Public Document Library/
       8.  Libraries, Periodicals, References, etc./
       9.  Minnesota Gopher (Mama Gopher; get *your own* clients here!)/
       10. SAMINFO -- Sam Houston State University Information System <TEL>
       11. TeX-related Materials/
       12. Thesaurus and Dictionaries/
       13. USENET News (from Oakland University)/
       14. VMS Gopher-related file library/
       15. Veronica (search menu items in most of GopherSpace) /
       16. Weather Forecasts (National Weather Service; US)/
       17. Weather Underground (University of Michigan) <TEL>
       18. anonymous ftp archives on ftp.shsu.edu/
```

and selecting item 11. from this menu yields:

```
                          TeX-related Materials

        1.  Comprehensive TeX Archive Network (CTAN) at SHSU/
        2.  UK TeX Archive/
        3.  Archives of INFO-TeX/ctt-Digest (comp.text.tex)/
        4.  EconBib (LaTeX/BibTeX styles for economics)/
        5.          .*.*. FAQs, REFERENCE and PRIMERS .*.*.
        6.  FAQ for comp.text.tex (text and WAIS indexed)/
        7.  FAQ Supplement for comp.text.tex (text and WAIS indexed)/
        8.  TeX-Index (text and WAIS indexed)/
        9.  FAQ for comp.fonts (text and WAIS indexed)/
        10. The Canonical list of MetaFont fonts.
        11. A Gentle Introduction to TeX
        12. Components of TeX/
        13. Essential LaTeX/
        14. MetaFont for Beginners.
        15. NFSS in the Context of LaTeX
        16.              .*.*. RELATED FILES .*.*.
        17. LaTeX3 Public Document Library/
        18. Literate Programming Library/
```

Selecting item 1. from this menu yields the directory hierarchy described in Appendix A.

Appendix C: A Sample ‘ Standard ’ File Header

```
%%% ====================================================================
%%%  @LaTeX-style-file{
%%%     filename        = "showkeys.sty",
%%%     version         = "1.01",
%%%     date            = "25 August 1992",
%%%     time            = "11:32:08 BST",
%%%     author          = "David Carlisle",
%%%     address         = "Computer Science Department
%%%                        Manchester University
%%%                        Oxford Road
%%%                        Manchester
%%%                        England
%%%                        M13 9PL",
%%%     telephone       = "+44 61 275 6139",
%%%     FAX             = "+44 61 275 6236",
%%%     checksum        = "61501 431 1786 14304",
%%%     email           = "carlisle@cs.man.ac.uk (Internet)",
%%%     codetable       = "ISO/ASCII",
%%%     keywords        = "LaTeX, label, ref, citation, keys",
%%%     supported       = "yes",
%%%     docstring       = "
%%%
%%%     showkeys.sty
%%%
%%%     A LaTeX style option which causes
%%%     \label, \ref, \pageref, \cite and \bibitem
%%%     to print their argument for proof reading purposes. The main
%%%     feature of this style is that these labels are printed in such a
%%%     way as to minimise the changes caused to the formatting of the
%%%     rest of the document text.
%%%
%%%     Documentation requires Mittelbach’s doc.sty.
%%%
%%%     The checksum field above was produced by
%%%     Robert Solovay’s checksum utility.",
%%%  }
%%% ====================================================================
```

4allTEX: NTG's TEXvoor MS-DOS

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1 Inleiding

4allTEX is een zeer complete verzameling van programma's voor het werken met TEX en LATEX op PC's. Het pakket is een afspiegeling van wat er zoal te krijgen is op het Internet op dit gebied. De belangrijkste pakketten en uitbreidingen op het gebied van TEX en LATEX zijn bijeengebracht, geïnstalleerd, getest en in 'hapklare brokken' verdeeld. Het is gebaseerd op het emTEX pakket van Eberhard Mattes. De TEX en METAFONT 'compilers' kunnen onder DOS en OS/2 worden gebruikt, en op processoren vanaf 8088 tot en met de 586. Van de previewers bestaan versies voor DOS, OS/2 en Windows. Alle andere programma's uit de 4allTEX distributie werken tenminste onder DOS. Vaak zijn er speciale versies voor 80386 processoren, die meer geheugenruimte en snelheid bieden.

Aan het emTEX pakket is verschillende andere software toegevoegd, zoals Ghostscript, AMSPELL en een groot aantal uitbreidingen op LATEX en METAFONT. Verder zijn er een aantal *font libraries* opgenomen die de fonts bevatten die nodig zijn voor het werken met TEX.

Om TEX of LATEX te gebruiken is enige kennis van de 'programmeertaal' TEX of LATEX nodig. Als inleiding kan de korte inleiding van H. Partl `lkurz.tex` worden gebruikt. Een Nederlandse versie hiervan is gemaakt door André v.d. Vlies en Piet van Oostrum, en staat op 4allTEX disk 1. Aanvullende 'algemene' documentatie is op disk 9 te vinden. Het lezen van aanvullende literatuur wordt echter aanbevolen. Ook de documentatie-files bij de diverse pakketten zijn er niet voor niets: de ervaring leert dat het niet lezen van de documentatie een hoop tijd gaat kosten.

2 Diskettes

De opzet van het 4allTEX systeem:

Het geheel bestaat uit 27 disks met programma's, fonts e.d. Deze zijn zo opgezet dat een werkend TEX systeem al beschikbaar is met disk 1, en dat de andere utilities en uitbreidingen bevatten die hieraan kunnen worden toegevoegd. Het is zeker niet nodig om ze alle 27 te installeren: de overige 26 disks worden als 'kant-en-klare', onafhankelijke uitbreidingen op disk 1 aangeboden. Beginners wordt aangeraden om met een beperkte set te beginnen, en later uit te breiden. Een korte inhoudsopgave:

1. **Startdisk**
   Deze bevat TEX, LATEX, scherm-previewer `dviscr`. Genoeg voor een goed werkend TEX systeem waarmee je uit de voeten kan.
   - LATEX bevat standaard NFSSv1.
   - Nederlands en Engels worden met een (verkleinde) babel ondersteund.
   - Een Nederlandse LATEX cursus.
   - Voorgeïnstalleerde versies van de 7 'Mainz' pakketten: `doc, multicol, theorem, nfss, verbatim, array, ftnright.`
   - texcheck kijkt of je alle LATEX environments en { } goed hebt afgesloten.

   Een minimale font-library (`mini1.fli`) bijgeleverd, met daarin de meest voorkomende fonts. Indien er fonts gevraagd worden die niet aanwezig zijn, wordt een slim substitutie-schema toegepast.
2. **Printerdrivers**
   Bevat printerdrivers voor dot-matrix printers (alle 9 en 24 pin typen, makkelijk aan te passen voor 'exotische' matrixprinters), en laserprinters/inkjetprinters (HP-compatibelen). Tevens staat de documentatie van de `dvidrv` printerdrivers en previewers hierop.
   - BIBTEX is een utility voor literatuur-referentielijsten.
   - MakeIndx zorgt voor een index bij je documenten.

   De font-library `mini2.fli` bevat aanvullende fonts voor de 'standaard' set uit `mini1.fli`. Deze twee libraries zijn gemaakt voor 300dpi inkjet- en laserprinters. Voor matrixprinters (240x216 en 360dpi) zijn fonts in afwijkende resoluties nodig. Een basisset wordt gegeven in `mini3.fli`. In combinatie met `mini1.fli` is dit voldoende om de Nederlandse LATEX cursus van disk 1 af te drukken.
   Matrixprinters drukken ongeveer 1 pagina per 3 minuten af, inktspuiters doen al 1 à 2 pagina's per minuut, en laserprinters halen de 3 wel.

3. **4TEX start (disk 2 nodig)**
Een zeer uitgebreide 'shell' voor TEX (en eigenlijk alles wat je in het 4allTEX pakket kan vinden staat overzichtelijk in menus). Ontwikkeld op de universiteit van Groningen (Erik Frambach, Wietse Dol, Maarten van der Vlerk). Gebaseerd op 4DOS en QEDIT. Shareware releases hiervan staan ook op deze schijf.
4. **LATEX**
Een disk vol met LATEX style files van allerlei pluimage. Deze disk is gebaseerd op het te verschijnen boek *The LATEX Companion*. In dit boek wordt een hele serie uitbreidingen op LATEX behandeld, in de vorm van verschillende style-files. Alle behandelde styles, plus nog een aantal extra, staan erop. In de beschrijvingen zijn zij netjes gerangschikt naar gelang de hoofdstukken in het boek. Totaal meer dan 100 style-files.
   - Nederlandse LATEX styles van de NTG.
   - babel: voor pan-Europees TEX (en verder!). Samen met de verkleinde babel op disk 1 vormt dit de complete, voorgeïnstalleerde versie.
   - Afbreekpatronen voor verscheidene talen.
   - SLITEXvoor het maken van overheadsheets.
   - Seminar: een pakket om LATEX overheadsheets te maken (als SLITEX, maar beter).
   - een aantal *publisher's* styles: `.STY`, `.BST` files die precies de opmaak van een wetenschappelijk tijdschrift weergeven.
5. TEX386
Een krachtige versie van TEX voor 386-computers en hoger. Deze kan ingewikkelder documenten (met veel tabellen en plaatjes) verwerken. Voor degenen met niet zulke krachtige processoren is er een 'zwaardere' TEX versie voor 8088 en hoger. Deze is langzaam, want hij gebruikt de disk als virtueel geheugen.
   - TEXcad is een simpel tekenprogramma met LATEX output.
   - Converters van WORDPERFECT, Word en PC-Write naar LATEX.
   - BiBDB is een database programma voor BIBTEX files.
   - TEXSHELL is een TURBO PASCALachtige shell voor TEX/LATEX. Zeer compleet, menu- en muisbesturing, context-sensitive help voor LATEX commando's. Niet zo uitgebreid als 4TEX, maar toch een (snelle) aanrader. Speciaal geïnstalleerd voor 4allTEX.
6. **AMS-TEX, AMS-LATEX (disk 2 nodig)**
Een 'format' speciaal voor de American Math Society. Ondersteunt wiskundige formules nog beter dan standaard TEX al deed. Kan ook vanuit LATEX worden gebruikt.
   - fontlibrary met extra AMS-TEXwiskunde symbolen (`mini4.fli`).
   - fontlibrary met de fonts Euler Math en Concrete (`mini5.fli`.
   - Ondersteuning van Cyrillisch schrift, met fonts (`mini7.fli`).
   - diverse utilities voor `.DVI` files. O.a. voor het 2-up printen, het maken van 'boek-katernen' en folders.
7. **'Mainz' distributies**
Bevat de diverse 'Mainz' distributiepakketten, en andere distributiepakketten die met het '`docstrip`' systeem werken.
   - `docstrip` Voor het afdrukken en 'strippen' van 'documented stylefiles'
   - `multicol` Multi-kolom output.
   - `theorem` Diverse manieren om stellingen en bewijzen af te drukken.
   - `nfss` Het 'New Font Selection Scheme' versie 1.
   - `verbatim` Uitbreidingen van het `\verbatim` environment.
   - `array` Uitbreidingen van het `\tabular` environment.
   - `ftnright` Voetnoten rechts op meerkolompagina.
   - `nfssv2` Versie 2 van NFSS zal in LATEX 3 komen. Dit is niet voorgeïnstalleerd gegeven.
   - De officiële distributie van babel.
   - Lollipop is een 'format' voor makkelijk aanmaken van opmaak-styles.
   - TEXInfo is een 'format' waarmee je GNU manuals 'TEXt'.
8. **Plaatjes / PostScript (disk 2 nodig)**
Een disk met allerhande methoden voor het aanmaken van plaatjes, en om deze in je LATEX document te importeren. Ook PostScript komt hier aan bod.
   - BM2FONT zet een plaatje (`BMP`, `PCX`, `GIF`, ..) om naar `PK` font formaat (alsof het plaatje uit speciale grote letters bestaat).
   - HP `PCL5` plottertaal naar `BMP` / `PCX` omzetter.
   - GNUPlot 3.4 plot data en wiskundige functies.
   - PicIns: verschillende manieren om plaatjes te importeren in TEX. Diverse kaders, tekst kan om het plaatje heen 'zwemmen'.
   - PSNFSS: selekteer PostScript fonts in LATEX.
   - PSTRICKS: leuke trucks en gimmicks met PostScript.
   - PSFIG: PostScript plaatjes importeren in TEX.
   - DVIPS: een printerdriver voor PostScript printers.
9. **Documentatie**
Verschillende algemene documentatie-files. Bevat o.a. Duitse en Engelse LATEX handleidingen, documentatie van METAFONT, `.dvi`-files enzovoort. Tevens versies van de USENET ASCII bestanden `Frequently Asked Questions on TeX`, en `TeX-index`.
Ook bevat deze floppy de 'sources' van de boeken *The TEXbook* en *The* METAFONT*book*, beiden van D.Knuth. Natuurlijk niet om af te drukken.
10. **amSpell**
Een public domain spelling checker, die TEX files

van zichzelf herkent. Met Engelse, Nederlandse, Franse en Duitse woordenlijst, en batch-files voor gebruik in 4TEX en TEXSHELL.

11. **Metafont**
    Een programma om fonts mee te maken. Verschillende versies voor kleine en grote capaciteit, en voor 386. Met het MFJob programma kun je METAFONT 's nachts van flinke hoeveelheden werk voorzien, of (met een snelle 386) fonts 'on the fly' aanmaken tijdens het previewen. Bijgeleverd worden de 'sources' voor Computer Modern (de 'TEX' letter), de LATEX uitbreidingsfonts en de AMS-TEX symbolfonts.
12. **Metafont fontverzamelingen 1 (disk 11 nodig)**
    O.a. Blackboard Bold, Concrete, Cyrillic, Euler, Malvern, OCR-A en OCR-B, Pandora, Punk, Sauter, en fonts voor schaken en go.
13. **Metafont fontverzamelingen 2 (disk 11 nodig)**
    Nog veel meer fonts: allerlei vreemde tekens voor nog meer vreemde talen (zelfs het taaltje van de Klingons in Star Trek). Wie zegt er dat er in METAFONT geen fonts te krijgen zijn?
14. **Miscellaneous**
    Deze disk is een beetje een grabbelton geworden........
15. **4TEX shareware**
    Allerlei shareware die bij 4TEX gebruikt kan worden. Voornamelijk voor previewen en converteren van plaatjes. O.a. QEDIT macro library, Compu$erve show GIF-viewer, Graphics Workshop conversieprogramma.
16. `tex186, tex286, btex, bmf` **etc**
    Verschillende versies van TEX en METAFONT voor verschillende processoren die geen plekje op de andere disks kregen.
17. **Duitse versies, 87 versies**
    Deze disk bevat de Duitse documentatie bij de diverse emTEX onderdelen. De Engelse documentatie is steeds bij de onderdelen zelf geleverd. Ook een set previewers die een copro (x87) eisen.
18. **Windows 3**
    Previewer, GNUPlot en Ghostscript voor Kleine Zachte Raampjes. TEX en METAFONT worden in 'DOS-windows' gerund.
19. **OS/2**
    Speciale TEX en METAFONT versies die direct onder OS/2 runnen. Een previewer voor OS/2 PM uit de dviscr serie wordt bijgeleverd. Overigens draaien de 386 versies van disk 5 en 11 ook goed onder Het Halve Operating System.
20. **Ghostscript (disk 21 nodig)**
    Ghostscript is een PD Postscript interpreter. Zeer geschikt om als previewer te gebruiken, en ook nuttig voor degenen die het zonder PostScript-printer moeten stellen: het kan uitvoer naar matrix of laserjet-achtige printers verzorgen.
    - PSUTILS print PostScript files 2-up, in boekkaternen etcetera.
    - PFB2MF zet PostScript `PFB/ATM` fonts om in METAFONT files.
    - PS2PK zet PostScript `PFB/ATM` fonts om in TEX `TFM/PK` files (387 nodig)
21. **Ghostscript fonts (disk 20 nodig)**
    De public domain 'unhinted' Type 1 font set voor Ghostscript. Bevat alle 35 standaard postscript fonts in Ghostscript `GSF` formaat. Je zult wel merken dat de kwaliteit niet gelijk is aan de 'echte' fonts. Ghostscript kan ook overweg met 'echte' PostScript fonts.
22. **Extra fonts**
    `mini?e.fli` zijn een aantal 300dpi fontlibraries ontstaan nadat disk 12 door METAFONT is gehaald. Bevat o.a. de families Pandora en Malvern, om je TEX documenten eens een wat ander aanzien te geven.
    Ook is er een fontlibrary met grote letters voor SLiTEX (`mini6.fli`). Alle libraries compleet met `TFM` files en font-selectie style files voor LATEX / NFSS. Sluit aan op disk 1 (!), METAFONT niet nodig.
23. **Surrogaat PostScript (disk 8 nodig)**
    Twee disks met *font libraries* waarin 'surrogaat' PostScript fonts. Deze zijn afgeleid uit de Ghostscript fonts op disk 21. De echte zijn namelijk niet PD, die koop je van Adobe als je een PostScript printer koopt. Deze fontlibrary is bedoeld voor lieden die geen PostScript printer hebben, en ook voor degenen die PostScript TEX files willen previewen met `dviscr`. Alle 35 standaard PostScript fonts zijn aanwezig. Voor het gebruik heb je disk 8 nodig, met de PSNFSS ondersteuning. Disk 20/21 met Ghostscript is niet nodig.

25-27. **PD type 1 PostScript fonts**
Drie disks met een hele riedel aan public domain PostScript fonts. Daaronder ook een aantal die door de font-uitgeverijen in het Public domain zijn gegeven (en in kwaliteit dus niet onderdoen voor commerciële fonts). Disk 8 nodig (evt. 20,21).

3 Hoe behappen we 4allTEX?

27 floppy's met meer dan 80 megabyte (uitgepakt) aan files zijn in het begin moeilijk te 'behappen'. Daarom hier een aantal selecties uit het aanbod:

- 'Is TEX iets voor mij', 'mijn harddisk is zo vol', 'ik wil een gestripte versie' : alleen disk 1.
- Startset voor de geïnteresseerde beginner: disk 1, 2, 3.
- Startset voor een 386: disk 1, 2, 3, 5.
- Uitgebreide 4TEX set: disk 1, 2, 3, 4, 5, 6, 8, 10, 22.
- Power-users: disk 1 - 12, 20 - 24.
- Uitbreiding PostScript: disk 8, 23, 24, daarna eventueel disk 20, 21.
- Uitbreiding extra LATEX mogelijkheden: disk 4, 6, 8.
- Uitbreiding METAFONT: disk 11. Eventueel disk 12, 13.

4 Literatuurlijst

Referenties

[Eij91] Victor Eijkhout. *TEX by Topic*. Addison-Wesley, Massachusetts,USA, 1991. Voor gevorderden in TEX.

[PS91] Hubert Partl, Elisabeth Schlegl. *LATEX-Kurzbeschreibung*. Universität Wien, Wien, Österreich, 1991. Handleiding bij emTEX `lkurz.tex`. Vertaald naar Nederlands door André van der Vlies en Piet van Oostrum Staat op 4allTEX disk 1.

[Knu86a] Donald E. Knuth. *The TEXbook*. Addison Wesley, Massachusetts, USA, 1986. Originele beschrijving van TEX.

[Knu86b] Donald E. Knuth. *The* METAFONT*book*. Addison Wesley, Massachusetts, USA, 1986. Originele beschrijving van METAFONT.

[Kop93] Helmut Kopka, Patrick Daly *A guide to LATEX*. Addison-Wesley, New York, 1993. (Engels), leerboek, zeer compleet.

[Lam86] Leslie Lamport. *LATEX, a document preparation system*. Addison Wesley, Massachusetts, USA, 1986. Originele handleiding van LATEX.

[RdB88] J.R. Luyten R. de Bruin, C.G. van der Laan. *Publiceren met LATEX*, volume 19. CWI Syllabus, Amsterdam, 1988. Een goede start, boekje kost 25 gulden.

[Spi86] M. Spivak. *The Joy of TEX*. AmericaN Mathematical Society, Providence, USA, 1986. Beschrijving van $\mathcal{A}_{\mathcal{M}}\mathcal{S}$-TEX.

5 Gebruikersclubs

Voor TEX is een hele cultuur van clubs onstaan. Een greep:

- NTG (Nederlandstalige TEX Gebruikersclub), Postbus 394, 1740AJ Schagen. Zij geven de MAPS uit: het Nederlandse TEX tijdschrift, en organiseren 2x per jaar een bijeenkomst. Lidmaatschap 75 gulden, studenten 50 gulden.
- TUG (TEX Users Group), de internationale (Amerikaanse) groep. P.O. Box 869, Santa Barbara, CA 93102, USA. Zij geven de TUGboat uit, dat op een echt wetenschappelijk tijdschrift lijkt. Er zijn ook elk jaar conferenties. Lidmaatschap ongeveer 50 dollar.
- `TEX-NL` een distributielijst op het Internet (zogenaamde mailing list).
- `comp.text.tex` een USENET newsgroup.

6 Fileservers, Bulletin boards

Op het Internet (het wereldwijde computernetwerk) is een groot aantal fileservers aangesloten. Bijna allemaal hebben ze wel een of andere directory met TEX software. Je kunt ze met 'anonymous FTP' benaderen.

- CTAN *Comprehensive TEX Archive Network*. Hier staan altijd de allernieuwste versies op. Deelnemers: `ftp.uni-stuttgart.de`, `tex.ac.uk`, `niord.shsu.edu`.
- In Nederland is de belangrijkste: `archive.cs.ruu.nl`, deze is een 'mirror' van het CTAN archief. Daarnaast ook `obelix.icce.rug.nl`, `ftp.win.tue.nl`.
- De 'thuishaven' van 4allTEX is `ftp.urc.tue.nl`.
- Als je geen 'anonymous FTP' hebt, maar wel E-mail op het Internet kunt doen, gebruik dan `mail-server@cs.ruu.nl`. Een mailtje met 'Help' naar dit adres levert het gewenste resultaat.
- Heb je helemaal geen Internet-toegang, dan is er FGBBS. Dit bulletin-board van NTG is te bereiken op 085-217041.

001	Startdisk (1)	011	Metafont	021	Ghostscript fonts
002	DVI-printerdrv (2)(3)	012	Metafont fonts 1	022	FLI: extrafontlibs
003	4TeX start + 4DOS	013	Metafont fonts 2	023	FLI: Ghosts. PS
004	LaTeX Styles	014	Miscellaneous	024	FLI: Ghosts. PS
005	tex386,TeXShell	015	4TeX shareware	025	Postscript PD fonts
006	AMSTeX (4)(5)(7)	016	tex286, btex, bmf	026	Postscript PD fonts
007	DOC-distributies	017	Duitse/87 versies	027	Postscript PD fonts
008	Plaatjes, Postscript	018	TeX en Windows 3.1		
009	Documentatie	019	TeX en OS/2		
010	amSpell	020	Ghostscript		

Tussen haakjes de fontlibraries uit de mini(x) serie.

Tabel 1: *De disks uit de 4allTEX library*

7 De disks uit 4allTEX

Hier volgt een aaneenschakeling van de diverse `'WHATS-ON.TXT'` files op de 4allTEX disks. De disks bevatten ook `'DESCRIPT.ION'` files voor 'uitgebreide' directories onder 4DOS. Het getal tussen `[]` geeft de grootte in kilobytes van het uitgepakte archief aan.

```
Volume in drive A is 4ALLTEX. 1
===============================
4alldoc.arj     41442  10-06-93   0:07 [89]  documentation 4allTeX
4alltex.txt      3067  10-23-93   0:27 Description of 4allTeX
arj.exe         84763   6-26-93  23:18 ARJ archiver/dearchiver (R.Jung)
ask.exe          4151   7-30-90  16:54 Program for user input in batchfiles
babel-in.arj    30357   9-27-93  18:53 [65]  Multi-language setup (Braams) <9>
dvidrv.arj       7171   9-20-93  23:02 [15]  DVI driver startup (E.Mattes)
dviscr.arj     122712   8-19-93  20:18 [226] viewer CGA HGC EGA VGA (E.Mattes)
f-4all1.arj    479376   9-01-93  20:37 [586] fontlibrary 1 (standard CM fonts)
install.bat      1982   9-25-93  13:40 44allTeX installation batchfile
install.txt      4988  10-23-93   0:28 Installation of 4allTeX
lat-a4.arj       3519   5-28-93  15:39 [6]   LaTeX styles for A4/A5 paper
lat-fmi.arj     56731   9-27-93  21:18 [162] LaTeX: preinstalled MZx files
latex.arj      108429   9-12-93  19:00 [427] LaTeX (march '92) (L.Lamport)
latexnfl.arj    57627   9-27-93  21:56 [179] New Font Sel.Scheme (preinstalled)
latexsty.arj    45163   4-27-93  11:10 [141] LaTeX standard stylefiles
latextfm.arj    14112   3-24-92  14:06 [22]  LaTeX TFM files
lkurz-nl.arj    33236   9-17-93  19:24 [94]  Dutch LaTeX course
set-tex.bat      2578   9-27-93  19:48 emTeX/4allTeX configuration file
tex.arj         36713   9-26-93  12:39 [105] emTeX startup (E.Mattes)
tex86.arj      129634   6-25-91  20:10 [226] emTeX for 8086/8088 and up
texcheck.arj    44756  12-05-91  13:40 [68]  LaTeX syntax checker
tfm.arj         69488   6-01-93  16:23 [98]  TFM files for standard CM fonts
tue-sty.arj     23696   9-26-93  16:23 [61]  LaTeX styles/fonts T.U.Eindhoven
   1,405,691 bytes in 23 file(s)         45,056 bytes free
```

```
Volume in drive A is 4ALLTEX. 2
===============================
bibtex.arj      60544   2-22-93  23:28 [130] Bibliography generation
bibtxman.arj    37919   9-23-93  22:09 [106] BiBTeX manual and demos
dvidocs.arj     60883  11-04-92  18:57 [204] Documentation for dvidrv (Mattes)
dvidot.arj     146031   9-20-93  23:02 [242] Dot-matrix DVI driver (E.Mattes)
dvihplj.arj     92314   8-19-93  21:19 [162] HP laserjet DVI driver (E.Mattes)
emtexdoc.arj    27637   6-23-92  21:55 [111] documentation emTeX (E.Mattes)
f-4all2.arj    480495   9-19-93  23:02 [600] Fontlibrary 2 (extension fonts)
f-4all3.arj    505626   6-01-93  21:18 [632] Fontlib 3 (for matrix printers)
makeindx.arj    40355  10-20-92  12:44 [108] LaTeX Index generation
   1,451,804 bytes in 9 file(s)          3,072 bytes free
```

```
Volume in drive A is 4ALLTEX. 3
===============================
4dos402d.zip   232963   3-30-93   4:02 [1020]Documentation for 4DOS
4dos402p.zip   282318   6-07-93   4:02 [607] 4DOS 4.02: replace COMMAND.COM
4tex-sty.arj    42181   7-02-93  17:03 [110] Style-files needed for 4texdoc
4tex300.arj    316343  10-20-93  23:21 [626] 4TeX workbench v3.00
4texdoc.arj    117333   9-13-93  22:55 [612] Documentation for 4TeX
4texhelp.arj   110413   2-22-93  18:28 [167] 4TeX workbench TeXhelp TSR
4texsamp.arj    16856   4-27-93  10:06 [37]  TeX sample files for 4TeX course
4texsrc.arj     75257   2-18-93  10:50 [273] 4TeX workbench sources
acd210.zip      53203   8-01-92   2:10 [120] Directory commander
install.bat      5743   9-25-93  21:31 Installatie van 4TeX (disk 3)
qedit210.zip   167011   2-26-92   9:49 [437] Q Editor version 2.10
unzip.exe       26903   1-06-93  23:06 PD ZIP archive extractor
   1,446,524 bytes in 12 file(s)                 7,168 bytes free
```

```
Volume in drive A is 4ALLTEX. 4
===============================
2up.arj         11350   2-16-93  22:08 Lat-C+4 print 2-up pages (T.vZandt)
acm.arj          5414   8-23-92   1:00 JOUR: Comm. ACM style+bibstyle
alleqno.arj       844   1-29-92  12:58 Lat-C+8 number all equations/displaymath
alltt.arj        1866   9-11-92   1:00 Lat-C.2 use 'typerwriter' as base font
annote.arj      16359   6-25-93  13:59 JOUR: annotated bibliographies
apa.arj         10344   6-29-92   1:00 JOUR: Am. Psycholoy style+bibstyle
apalike.arj      9888   8-30-92   1:00 JOUR: Am. Psychology style+bibstyle
articlem.arj     7173   3-24-93  10:00 Lat-C+4 article style in 7,8,9 points
babel-la.arj    64508   9-27-93  19:23 [166] Multi-language, extra languages
bar.arj         24816  11-16-92  16:00 Lat-C.10 block-diagrams (J.Bleeser)
bibmods.arj      1328  11-25-92  10:00 Lat-C.13 improve spacing around cites
bibtex-a.arj    49420   6-25-93  22:19 [185] Extra BST files, plus descriptions
bibunits.arj     2653   3-24-93  10:00 Lat-C.13 separate bibliographies
bnf.arj          4867   1-29-92  12:58 Lat-C+5 typeset BNF specifications
boxminip.arj     1158   3-24-93  10:00 Lat-C.10 Box around minipage (M.Wolczko)
calc.arj         2379   3-24-93  10:00 Lat-C.1 calculations in LaTeX
captcont.arj      431   2-19-91   9:23 Lat-C+6 second caption in figure
chapterb.arj     3686   6-04-93  13:26 Lat-C.13 separate bibliogr/chapter
chemtex.arj     44926   1-12-93  13:55 [176].10 chemical formulae (R.Haas)
chicago.arj     21313   9-01-92   1:00 JOUR: chicago style book+bibstyles
chomsky.arj      2330   1-29-92  12:58 Lat-C+5 typeset language specifications
cite.arj         3871   4-26-93  11:23 Lat-C.13 'compress' cites (D.Arsenau)
citesidx.arj     4521   3-24-93  10:00 Lat-C.13 add ref-pagelist to bibitems
citesort.arj     1076  10-26-92  10:00 Lat-C.13 sort and compress cites
code.arj         1618   8-17-93  11:22 Lat-C+5 program include environments
comment.arj      2010   9-21-92  18:34 Lat-C+3 optional comments in text
cprog.arj        4689   2-19-91  20:20 Lat-C+5 prettyprint C or Pascal programs
cropmark.arj     1751   8-15-92  18:34 Lat-C+4 print cropmarks in pageedges
crosswor.arj     7961   5-08-92  13:24 Lat-C+5 typeset crosswords (B.Kelly)
curves.arj      24093   7-03-93  17:42 [76] .10 curves (bezier) in 'picture'
dblspace.arj     2723   6-04-93  13:25 Lat-C.2 double linespaced proofdocuments
diagram.arj      6972   9-22-93   9:51 Lat-C+10 commutative diagrams (M.Barr)
drftcite.arj     2706   6-25-91  22:34 Lat-C.13 use key-field as cite-mark
drop.arj         1107   2-19-91   9:24 Lat-C+3 drop+enlarge first letter
eclbip.arj       2303   3-10-93  10:00 Lat-C.10 bipartite graphs in 'epic'
ecltree.arj      2809   3-10-93  10:00 Lat-C.10 trees in 'epic' (H.Isozaki)
eepic.arj       18307   2-09-92  10:00 [55] .10 ext. epic, non-std DVI (C.Kwok)
elsevier.arj     7885   8-14-92   9:37 JOUR: Elsevier Scientific Publ.
endfloat.arj     4582   6-02-92   1:00 Lat-C.6 move all floats to end of chapt.
endnotes.arj     7034   1-29-92  12:59 Lat-C.2 endnotes instead of footnotes
epic.arj        27721   2-09-92  22:00 [79] .10 ext. to 'picture' (S.Podar)
equation.arj     2529   2-18-93   9:32 Lat-C+8 hacks for equation environment
example.arj      5488  10-08-92  10:00 Lat-C.2 'TeXinput/DVIoutput' environment
exercise.arj    12079   9-22-93  21:20 Lat-C+3 an 'exercise-answer' environment
fancybox.arj    20787   3-24-93  10:00 Lat-C+10 oval, double \fboxes (T.vZandt)
fancychp.arj     1812   1-18-93  10:00 Lat-C+2 userdef. chapterheadings
fancyhdr.arj     4440   1-19-93  10:39 Lat-C.4 userdef head/foot (P.vOostrum)
feynman.arj     94368   9-01-92  12:00 [312].10 Feynman diagrams in 'picture'
float.arj       14565   7-02-93  17:03 Lat-C.6 New float environs/styles + HERE
floatfig.arj    10048   7-02-93  17:13 Lat-C.6 Float text around figures
floatnoh.arj      450   3-24-93  10:00 Lat-C+6 empty pagestyle for floatpage
flow.arj         1042   3-08-93  10:00 Lat-C+6 flow text around a picture
footnpag.arj     4405  10-20-88  20:34 Lat-C+3 number footnotes per page
hackallo.arj      546   7-14-91  19:59 Lat-C.1 allocate resources locally
hyphens.arj    177526   7-28-93  23:06 [414].9 European hyphenation patterns
ieee.arj        23347   7-16-93  16:51 JOUR: IEEE trans. style+bibstyle
index.arj        7867   4-13-93  11:47 Lat-C.12 multiple indexes (D.Jones)
jeep.arj         8891   6-03-92  22:47 Lat-C+4 modifications 'article,report'
kluwer.arj      11648   8-03-93  11:44 JOUR: Kluwer Cs. Press style+biblio
lambda.arj      14601   1-29-92  13:00 Lat-C+8 typeset lambda-calculus
lat-tug.arj     55335   3-02-93  14:32 [167] LaTeX styles for 'TuGboat'
longname.arj      834   9-16-92  16:11 Lat-C+2 long chapname text, short TOC
```

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manual.arj      22396   6-24-92   1:00 Pagestyle UNIX manual pages
mathtabb.arj      652   2-19-91   9:21 Lat-C+8 math in tabbing environ
merge.arj        2729   1-29-92  13:00 Lat-C+2 'mailmerge' for LaTeX
minitoc.arj      9102   8-17-93  10:45 Lat-C+2 a TOC before each chapter
morefloa.arj      909   3-16-92  22:34 Lat-C+6 more (36) unprocessed floats
moreverb.arj     2170   3-24-93  10:00 Lat-C.2 tabbing,listings,boxed verbatim
mrabbrev.arj    25711   8-02-90  16:43 [89]  BibTeX abbreviations for journals
multcolp.arj     1039   3-24-93  10:00 Lat-C+3 multicol par's side-by-side
multibox.arj     1319   1-29-92  20:01 Lat-C.10 multiple boxes in 'picture'
multido.arj     10009   1-14-93  20:44 Lat-C+1 a 'for-do-end' loop in LaTeX
multirow.arj     1539   2-20-92  19:59 Lat-C+5 extension to 'tabular'
named.arj        6642   9-15-91   1:00 JOUR: 'named' bibliographies
nofm.arj         1164   1-29-92  13:00 Lat-C+4 number pages 1 of 4
nosecnum.arj      864   6-15-92  13:03 Lat-C+2 suppress section numbers
ntg-sty.arj     76306   9-01-92  23:41 [243] NTG Dutch article/report style
overcite.arj     4747   4-26-93  11:22 Lat-C.13 compress citex and superscript
picinpar.arj     8399   3-22-93  10:00 Lat-C.2 a picture in a paragraph
program.arj     12803   4-13-91  22:49 Lat-C.5 typeset algorithms (C,Pascal)
proof.arj        2412   1-29-92  13:00 Lat-C+8 diagram of proof dependencies
qed.arj          9431   9-13-93  13:12 Lat-C+8 a 'proof' environment + Q.E.D
rcs.arj          1220   1-29-92  13:01 Lat-C+3 Revision Control System in TeX
refman.arj       6542   1-29-92  13:01 Lat-C+4 a reference manual page style
res.arj          7885   1-29-92  13:01 Lat-C+4 resume (curriculum vitae)
schedule.arj     6023   1-29-92  13:01 Lat-C+5 typeset shedules/timetables
seminar.arj    125739   3-24-93  10:00 [407] Better overhead slides (T.vZandt)
shadow.arj       1273   1-29-92  13:01 Lat-C.10 shadowed TeX boxes
shapepar.arj    11210   5-12-93  16:13 Lat-C.2 funny paragraph shapes
showkeys.arj     4992   9-16-92   1:00 Lat-C.13 show \label,\ref,\cite in DVI
showtags.arj     1470  11-25-92  10:00 Lat-C.13 show key-fields in bibliography
siam.arj        23111   6-25-93  13:59 JOUR: SIAM trans. style+bibstyle
slitex.arj      51308   9-26-93  16:16 [190] SliTeX: overheadsheets (Lamport)
sober.arj        1945   7-22-92  11:14 Lat-C+4 save paper with less whitespace
springer.arj    22485  11-27-91  10:00 JOUR: Springer-Verlag style+bibstyle
sprite.arj        951   2-03-92  11:26 Lat-C+10 low-res bitmap pictures
subeqnar.arj     1422   2-18-93   9:36 Lat-C+8 number equations 2a,2b,2c
subfigur.arj     4543   6-04-93  13:27 Lat-C.6 number figures 3a,3b,3c
supertab.arj    12066   7-10-92   1:00 Lat-C.5 typeset *very long* tables
texnames.arj      941   7-14-91  22:36 Lat-C+2 \AmSTeX, \METAFONT etc
tight.arj        1717   5-28-93  15:39 Lat-C+4 save paper with less whitespace
tree.arj         5967   3-10-93  10:00 Lat-C.10 tree structures in 'picture'
ulem.arj         6050   4-26-93  11:23 Lat-C.2 underline instead of emphasize
unixman.arj      8774   1-29-92  13:01 Pagestyle UNIX manual pages
version.arj       894  11-06-91  10:00 Lat-C.2 version-dependent text
which.arj         391   2-19-91   9:19 Lat-C+2 enter \includes at each run
wrapfig.arj      2434   3-24-93  10:00 Lat-C.6 wrap text around figures
xspace.arj       2187   3-24-93  20:29 Lat-C.2 optional spaces after a command
   1,409,283 bytes in 108 file(s)        15,872 bytes free


Volume in drive A is 4ALLTEX. 5
===============================
bbibtex.arj     63429  12-30-92  21:36 [145] Big BibTeX for 386up
bibdb13b.arj   151403   6-13-93   1:32 [271] Database manager for BiBTeX files
btex86.arj     141304   4-09-92  16:52 [271] BigTeX for 8088/86 up (E.Mattes)
fontlib.arj     53284   7-18-93  21:14 [122] Maintain your fontlibs (FLI files)
pcwtex.arj      13847   9-20-90  15:47 [26]  Convert PC-Write -> LaTeX
pkedit.arj      48009   8-13-90  11:33 [96]  Edit PK fontfiles without Metafont
remove.arj      27394   9-01-93  20:26 [44]  emTeX REMOVE program
tex386.arj     165492   5-03-92   2:00 [325] TeX for 386 and up (E.Mattes)
texcad28.arj    69092   5-20-92  14:27 [150] drawing package for TeX
texconv.arj     37592   6-16-91  18:36 [62]  use ext.ASCII symbols (E.Mattes)
tfm-vf.arj     160262   8-08-90  23:33 [298] Utils for TFM/VF files (E.Mattes)
ts26e.arj      341607   9-28-93  23:48 [1043]TeXShell,english (J.Schlegelmilch)
wd2latex.arj    12849   2-19-91  13:35 [26]  Convert uS Word -> LaTeX
```

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web.arj        123476   9-16-90  16:44 [258] TeX was written in pascal-like WEB
wp2latex.arj    38896  10-20-92   0:03 [59]  Convert Wordperfect -> LaTeX
   1,447,936 bytes in 15 file(s)         4,608 bytes free


Volume in drive A is 4ALLTEX. 6
===============================
amslatex.arj   215847   7-21-93   0:30 [753] AMSLaTeX: extra math for LaTeX
amstex.arj     185162   2-24-93  15:13 [586] AMSTeX: extra math for TeX
dvi2dvi.arj     28144   2-20-89  17:56 [56]  2-4 pages/sheet, rearrange
dvibook.arj     28552  12-12-91  21:13 [29]  arrange pages in book 'signature'
dviconca.arj    27426  12-12-91  21:25 [26]  concatenate DVI files
dvidvi.arj      14616  12-12-91  22:52 [16]  2-4 pages/sheet (T.Rokicki)
dviselec.arj    29558  12-12-91  20:16 [32]  select pages from DVI file
dvispell.arj    42011   2-25-92  12:47 [79]  'check' DVI files (E.Mattes)
dvitype.arj     58611  11-25-91  20:16 [88]  DVI -> ASCII terminal (E.Mattes)
f-4all4.arj    128029   7-11-93  21:53 [194] Fontlibrary 4 : AMS SYMBOLS
f-4all5.arj    482310   9-01-93  20:35 [598] Fontlib 5 : Concrete Math, Euler
f-4all7.arj    205640   6-01-93  21:19 [256] Fontlibrary 7 : Cyrillic
   1,445,906 bytes in 12 file(s)         7,680 bytes free


Volume in drive A is 4ALLTEX. 7
===============================
array.arj       71629  10-12-92  16:02 [230] MZ5: array (F.Mittelbach)
babel.arj      185984   9-24-93  14:24 [573] Multi-language distrib. (J.Braams)
docstrip.arj    96194   9-08-92  18:11 [334] MZ0: docstrip (F.Mittelbach)
ftnright.arj    18232   5-17-93  11:40 [51]  MZ6: fntright (F.Mittelbach)
latexdoc.arj   144965   3-31-92  22:49 [450] LaTeX standard .STY documentation
lollipop.arj    99483   9-26-93  12:57 [304] Format for pagelayout (Eijckhout)
multicol.arj    38210   9-07-92  15:09 [120] MZ1: multicol (F.Mittelbach)
nfss-v1.arj    119548   1-28-93  20:35 [358] MZ3: NFSSv1 (distrib)
nfss-v2.arj    436738   9-25-93  12:17 [1304]MZ8: NFSSv2 (distrib., has all)
ntg-doc.arj     88525   9-01-92  13:55 [293] NTG Dutch article/report documnet.
pictex.arj      46309  12-13-91  22:39 [166] Ext. TeX/LaTeX picture environment
texinfo.arj     41478   9-26-93  12:57 [136] Format for GNU/Emacs online manual
theorem.arj     29630   9-07-92  15:02 [80]  MZ2: theorem (F.Mittelbach)
verbatim.arj    27561   1-20-92  20:31 [88]  MZ4: verbatim (F.Mittelbach)
   1,444,486 bytes in 14 file(s)         8,704 bytes free


Volume in drive A is 4ALLTEX. 8
===============================
bm2font.arj     32817   2-12-93   0:01 [34]  Convert GIF PCX -> TeX PK files
changeba.arj    19553   7-02-93  11:27 [64] .11 Changebars in text (J.Braams)
dvips.arj      192748   9-20-93  22:36 [457] DVI to Postscript (Rockiki)
epsf.arj        11153   5-06-93   0:04 [28] .11 include EPSF, color (T.Rokicki)
epsfig.arj      14407   9-20-93  13:17 [48] .11 combine EPSF/PSFIG (S.Rahtz)
gpt34bas.arj    72160   6-10-93   9:57 [198] GNUplot 3.4 start: plot functions
gpt34dem.arj    93852   7-08-93  22:38 [324] GNUplot 3.4 demos
gpt34doc.arj    87589   7-09-93  15:52 [258] Gnuplot 3.4 documentation
gpt34exe.arj   175879   6-10-93  10:17 [479] GNUplot 3.4 executable
hppicins.arj   209355   1-14-93  23:54 [430] PICINS docs; convert PCL <-> MSP
picins.arj       4626   9-28-92   0:21 [20]  Combine 'wrapfig' and 'fancybox'
psbox.arj       27337  11-25-92  13:33 [80] .11 Shaded boxes, EPSF (J.Orloff)
psfig.arj       53452   5-06-93   0:31 [147].11 manipulate EPSF (T.Darell)
psfrag.arj      20773  10-04-93  18:25 [54]  Put CM font in EPSF pictures
psnfss24.arj    72646   8-05-93  20:34 [212] NFSSv1 for Postscript (S.Rahtz)
pstfm.arj      168780  11-14-92  20:27 [260] TFM, VF for std.PS fonts, NFSS1
pstricks.arj   137396   2-16-93  22:08 [470] Various PS tricks LaTeX (T.vZandt)
rotating.arj    18886   9-22-93  21:41 [58] .11 flip/rotate TeX boxes (S.Rahtz)
texdraw.arj     28425   9-19-91  20:57 [162] PS figures in TeX drawing package
   1,441,834 bytes in 19 file(s)         9,728 bytes free
```

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Volume in drive A is 4ALLTEX. 9
===============================
dvi-std.arj     74713   9-20-91  12:46 [205] Document on DVI file standard
essentia.arj    22601   4-07-93  20:11 [64]  'Essentials of LaTeX' (Warbrick)
fontna15.arj    43088   6-15-93  15:53 [126] Font naming scheme (K.Berry)
friends.arj     49195   4-07-93  20:27 [151] 'Intro TeX and Friends' (Maltby)
gentle-i.arj    69271   4-07-93  20:12 [217] 'Gentle Intro to TeX' (Doob)
knuth-a.arj    570730   2-19-92  15:40 [1670]'The TeXbook' (Knuth) + manmac
knuth-c.arj    335243   2-19-92  15:34 [958] 'The METAFONTbook' (Knuth)
lkurz-d.arj     31042   5-31-90  14:27 [90]  Original German LKURZ [1]
metaguid.arj    19878   4-07-93  20:11 [50]  'Metafont for Beginners' (Tobin)
tex-faq.arj     87791   9-12-93  15:30 [245] From USENET: comp.text.tex FAQ
texindex.arj    88912   4-07-93  20:13 [378] THE LIST of TeX-related files
webmac.arj      44737   2-27-92  15:36 [117] The WEB language
   1,437,201 bytes in 12 file(s)         16,384 bytes free
```

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Volume in drive A is 4ALLTEX.10
===============================
am-s-de.arj    354678   4-20-93  22:15 [779] German word list for amSpell
am-s-fr.arj    142423   4-20-93  22:08 [570] French word list for amSpell
am-s-nl.arj    476011   3-01-93  23:59 [1063]Dutch word list for amSpell
am-s-uk.arj    318129   3-01-93  23:59 [718] British word list for amSpell
am-spell.arj    52303   3-30-93  22:16 [77]  TeX-aware spelling checker
bbdb13-8.arj   100449   1-27-93  15:07 [107] Bibdb for 8088 and up
   1,443,993 bytes in 6 file(s)          11,264 bytes free
```

```
Volume in drive A is 4ALLTEX.11
===============================
bmf86.arj      136716   5-31-92  15:11 [271] BigMetafont 88 exec (E.Mattes)
m-amssym.arj    81686   6-01-93  16:55 [313] Font: AMS symbols (lib 4)
m-logos.arj      5714   7-19-93  19:51 [9]   Font: TUE logo font
m-manfon.arj    51781   6-01-93  16:29 [194] Font: Manfnt (book Knuth [14])
makefile         3730   7-26-93  14:47 Makefile for fontgeneration UNIX
makefile.dir      205   7-26-93  14:47 Makefile for fontgeneration UNIX
mf-cm.arj      225732  12-01-92  11:22 [723] Font: Computer Modern (Knuth)
mf-latex.arj    33123  12-01-92  11:30 [100] Font: C. Modern LaTeX extensions
mf-logo.arj     16326   7-19-93  19:46 [23]  Font: Metafont logo
mf-test.arj     16186   3-26-91  23:05 [213] Various font-testfiles
mf.arj          74359   9-24-93  17:42 [213] Metafont fontgenerator (E.Mattes)
mf86.arj       129373   5-31-92  14:28 [227] emMetafont 86 executable
mf88.arj       126971   8-04-90  22:29 [224] emMetafont 88 exec. (old versie)
mf386.arj      118478   5-31-92  14:30 [244] emMetafont 386 executable
mfjob.arj       79355   2-20-93   8:55 [150] for big Metafont jobs at night
mfware.arj     346625   8-08-90  22:24 [590]  Metafont utils (GFtoPK, GFtoDVI)
   1,446,360 bytes in 16 file(s)         6,144 bytes free
```

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Volume in drive A is 4ALLTEX.12
===============================
m-bbold.arj     40296   7-22-93  23:17 [198] Blackboard Bold: outline-letters
m-braill.arj     6165   6-01-93  14:11 [27]  Braille font
m-chess.arj     27582   6-01-93  14:12 [65]  Schaakstukken
m-concre.arj    80112   7-22-93  16:35 [194] Family: CONCRETEMATHEMATICS(Knuth)
m-cyrill.arj   133655   6-01-93  15:09 [393] Cyrillic C. Modern (U.Washington)
m-dc.arj       176118   1-06-93  22:03 [731] C. Modern, international encoding
m-ega.arj       40989   9-24-91  20:16 [80]  Clone of EGA card textfont
m-euler.arj    308037   7-22-93  16:35 [1293]Family: EULER (math)
m-fcm.arj        5180   6-01-93  17:07 [10]  Computer Modern varianten (Sauter)
m-go.arj        23997  12-01-92  14:05 [208] For GO and comic books
m-malver.arj   249552   7-22-93  16:35 [622] Family: MALVERN
m-mfplot.arj    30195   9-19-91  20:57 [95]  Plot graphs with Metafont
```

```
m-ocr.arj       31913   7-25-93  18:09 [118] Family: OCR-A OCR-B (acceptgiro's)
m-pandor.arj   105542   7-23-93  16:35 [361] Family: PANDORA
m-punk.arj      11228   7-20-93  16:35 [27]  Family: PUNK (grafitti, Knuth)
m-sauter.arj   132579   6-15-93  22:33 [417] C. Modern 'continu' (Sauter)
m-wasy.arj      42801   6-01-93  17:39 [154] Symbols and dingbats
   1,445,941 bytes in 17 file(s)         6,656 bytes free


Volume in drive A is 4ALLTEX.13
===============================
m-astro.arj     14576   1-08-93  13:37 [46]  Astronomy/astrology-symbols
m-bashki.arj    17267   6-01-93  14:46 [41]  Bashkirian (Cyrillic extension)
m-callig.arj   131248   7-26-93  14:49 [624] Schoonschrift, capitals only
m-capbas.arj    22056   8-19-93  23:50 [68]  CAPITAL BASEBALL + toolkit (P.Bloe
m-cirth.arj     15087   6-01-93  14:13 [43]  Runen writings from Tolkien
m-cun.arj       35024   7-26-93  19:29 [64]  Spijkerschrift
m-ditko.arj     11340   1-06-93  17:48 [28]
m-duerer.arj    30517   1-08-93  17:01 [94]  DUERER (capitals only)
m-eiad.arj      18812   7-26-93  17:10 [60]  Irish language texts
m-extrac.arj    62169   6-14-93  14:45 [182] Extra C. Modern variants
m-futhor.arj    14282   6-01-93  15:13 [36]  Old Swedish rune writings
m-german.arj   199035   8-13-93  11:51 [670] Ghotic,Swabic,Fraktur,Initial
m-greek.arj     87100   6-01-93  15:30 [232] New-Greek language texts
m-hershy.arj   122710   7-26-93  20:03 [275] Family: HERSHEY (converted to MF)
m-imagin.arj     8897   1-08-93  13:38 [37]
m-karta.arj     38551   7-26-93  15:01 [180] Clone of ZAPF DINGBATS
m-klinz.arj     21161   6-01-93  15:32 [97]  Klingon language texts (Star Trek)
m-knot.arj      13301   6-01-93  15:45 [36]
m-loggat.arj    10415   6-01-93  15:45 [39]  Logic gates (AND, OR, XOR)
m-misc.arj      55263   6-01-93  16:32 [340] The big 'dumpster' of fonts
m-music.arj     32191   6-01-93  16:43 [119] For musical notes
m-qbcd.arj       2205   1-08-93  13:38 [3]   Quixote Coleman Borell Dingbats
m-redis.arj     27197   7-26-93  15:04 [69]
m-rsfs.arj      16103   7-22-93  16:35 [49]  Calligraphic texts
m-rune.arj       8642   7-26-93  15:09 [46]  Rune writings from Tolkien
m-russib.arj    42637   9-26-91  22:14 [171] Variants of C. Modern Cyrillic
m-simpso.arj    17707   6-01-93  16:45 [46]  Bart Simpson
m-stmary.arj    49312   6-01-93  16:47 [173] Lots of symbols and dingbats
m-tamil.arj     19559   1-06-93  18:00 [94]  Tamil language texts
m-tengwa.arj    16288   1-08-93  13:38 [38]  Rune writings from Tolkien
m-thai.arj      50083   6-01-93  17:11 [123] Thai language texts
m-turkis.arj    67903   6-01-93  17:15 [211] Turkish language texts
m-twcal.arj     44602   7-25-93  16:50 [320] Family: Calligraphic
m-wsuipa.arj    93388   7-26-93  15:20 [337] International fonetic
m-xypic.arj     21738  12-01-92  14:06 [68]  XYPIC for arrows in LaTeX
m-yannis.arj     2538   6-01-93  17:42 [5]
   1,440,904 bytes in 36 file(s)         6,144 bytes free


Volume in drive A is 4ALLTEX.14
===============================
bibsty.doc       6399   9-23-93  22:09
bibtex-x.arj    41739   6-29-92   1:00 [171] More BST files
bookform.arj    24334   3-25-93  10:00 Pagestyle 'bookform'
dvidrvma.arj    75051   7-02-91  17:01 [244] DVIDRV documentation in DVI format
dvimsp.arj      75228   7-12-93  21:44 [127] Convert DVI -> MSP
gpt34emx.arj   207749   6-10-93   9:56 [510] GnuPlot DOS extenders
gs261art.arj    84216   7-16-93  11:55 [186] Ghostscript plaatjes en demos
harvard.arj     30111   4-29-92   1:00 JOUR: Harvard press/Kluwer bibstyle
jmb.arj         10743   6-29-92   1:00 JOUR: J. Mol. Biology style+bibstyle
lacheck.arj     17703   1-20-92  10:54 [70]  LaTeX syntax checker
latexnf2.arj    94078   9-26-93  12:31 [254] NFSS2: setup LaTeX/NFSS2 <disk1>
lucida.arj     188484   9-27-93   6:16 [529] Files to work with Lucida Math
mathtimf.arj    28399   7-18-93  12:11 [69]  LaTeX with comm. Math Times Roman
```

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milstd.arj      24353   9-20-93  11:22 Pagestyle 'milstd'
newapa.arj       8673   1-08-92  22:39 JOUR: a clone of APA
nf2-ams.arj     93875   9-24-93  19:36 [272] NFSS2: AMSLaTeX <overwritepackage>
nf2-dc.arj      15177   9-24-93  20:11 [35]  NFSS2: DC (Cork) font encodings
nf2-luc.arj     34220   9-24-93  19:52 [98]  NFSS2: LucidaMath fontdefinitions
nf2-post.arj    54586   9-25-93  14:14 [137] NFSS2: postscript font definitions
nf2-xxx.arj      5982   9-24-93  16:16 [11]  NFSS2: pandora, punk
pstfmnf2.arj   163145   8-10-93   7:18 [254] TFM, VF for std.PS fonts, NFSS2
tex88.arj      132658   8-08-90  23:33 [235] TeX for 8088 (old) (E.Mattes)
vdm.arj         26838   1-29-92  13:01 JOUR: VDM style
   1,443,741 bytes in 23 file(s)         8,192 bytes free


Volume in drive A is 4ALLTEX.15
===============================
am-s-us.arj    247419   4-20-93  22:18 [541] American wordlist for amSpell [10]
amac44.zip     417280  10-22-92   9:31 Macropakket bij Qedit
cshw846a.zip   137607   8-10-92  16:02 Compu$erve Show GIF viewer
dcview21.zip   257651   1-13-93  16:36
grfwk61t.zip   384849  12-15-92  16:05 Graphics Workshop plaatjes converter
   1,444,806 bytes in 5 file(s)          11,264 bytes free


Volume in drive A is 4ALLTEX.16
===============================
bmf88.arj      134390   8-04-90  23:15 [262] BigMetafont for 88 and up (old)
bmf186.arj     135713   5-31-92  15:12 [267] BigMetafont for 186 and up
bmf286.arj     133431   8-04-90  23:15 [265] BigMetafont for 286 up (old)
btex88.arj     137287   8-05-90  12:48 [257] BigemTeX for 88 and up (old)
btex186.arj    140535   4-09-92  16:52 [263] BigemTeX for 186 and up
btex286.arj    136547   8-05-90  12:48 [265] BigemTeX for 286 and up (old)
dviscrs.arj    102323   7-14-93  19:43 [176] dviscr for small memory
mf186.arj      128937   5-31-92  14:29 [224] Metafont voor 186 and up
mf286.arj      126526   8-04-90  22:29 [220] Metafont voor 286 and up (old)
tex186.arj     129121   6-25-91  20:10 [223] emTeX voor 186 and up
tex286.arj     127863   8-05-90   0:25 [220] emTeX voor 286 and up (old)
   1,432,673 bytes in 11 file(s)         21,504 bytes free


Volume in drive A is 4ALLTEX.17
===============================
bm2fman.arj    514079   9-22-93  22:54 [1575]Documentation for BM2FONT [8]
dvidrv87.arj   303392   4-11-92  16:10 [550] Dvidrv drivers for coprocessor
dvivik.arj      92649  11-04-92  17:30 [153] Dvidrv for expensive Viking screen
emtex-de.arj   198578  11-04-92  18:54 [681] German documentation for emTeX
ts26d.arj      328993   9-28-93  23:48 [977] Original German TeXSHell [5]
   1,437,691 bytes in 5 file(s)          18,432 bytes free


Volume in drive A is 4ALLTEX.18
===============================
dvipswin.arj   126950   3-23-93   8:37 [272] DVI driver -> Postscript under Win
dviwn281.arj   314922  10-13-93  22:47 [683] DVI previewer, takes FLI fonts
gpt34win.arj   278429   6-10-93  10:14 [842] GnuPlot for Win3
gs261win.arj   219199   7-16-93  11:59 [577] Ghostscript vor Win3
tex386w.arj    125676   9-06-93  18:04 [230] 'tex386' modified for VCPI/DPMI
windll.arj     143604  10-08-93   2:18 [336] DLL libraries vor TeX & Windows
wintex.arj     168153   8-12-93  15:14 [803] 'Shell' for TeX in Windows
   1,376,933 bytes in 7 file(s)          78,336 bytes free
```

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Volume in drive A is 4ALLTEX.19
================================
bmfp2.arj      131675   5-31-92  15:12 [261] Big Metafont for OS/2
btexp.arj      136620   8-05-90   1:23 [250] Big emTeX for OS/2 (old)
btexp2.arj     151844   4-09-92  15:31 [278] Big emTeX for OS/2
dvipm.arj      172999  11-04-92  17:31 [316] DVI viewer for OS/2
dvipsos2.arj   124148   3-23-93   8:38 [250] DVI -> postscript under OS/2
mfp.arj        125085   6-04-91  21:43 [220] Metafont for OS/2 (old)
mfp2.arj       126898   5-31-92  14:39 [227] Metafont for OS/2
texp.arj       126746   8-05-90   0:25 [210] emTeX for OS/2 (old)
texp2.arj      139364   4-08-92   4:07 [233] emTeX for OS/2
texpert.arj    143965   4-20-93  12:37 [290] OS/2 version of 'TeXShell'
   1,379,344 bytes in 10 file(s)         75,264 bytes free


Volume in drive A is 4ALLTEX.20
================================
24hershy.arj    59999   7-16-93  12:31 [128] Ghostscript PS font: Hershey
24paltno.arj    87385  11-24-91  17:27 [169] Ghostscript PS font: Palatino
24symbls.arj    80319  12-29-91   5:24 [149] Ghostscript PS font: Symbols
26cyril.arj     47635   7-16-93  12:31 [82]  Ghostscript PS font: Cyrillic
gs261.arj      211612   7-16-93  11:58 [477] PD Postscript interpreter setup
gs261doc.arj   107635   7-16-93  11:58 [277] Documentation for Ghostscript
gs261exe.arj   200285   7-16-93  11:56 [491] PD PS previewer 88 exec
gs261386.arj   291342   7-16-93  11:57 [556] PD PS previewer 386 exec
pfb2mf.arj      68846   3-20-93  18:32 [88]  PS font (PFB/AFM) -> Metafont
ps2pk13.arj    143687   9-30-92  20:21 [329] PS font (PFB/AFM) -> TeX PK/TFM
psutils.arj     48083   3-17-92  22:29 [82]  PS utils: sel.page, 2up, bookprint
t1utils.arj     97384   6-18-92  14:51 [245] PS Type1 font utils: PFB<->PFA etc
   1,444,212 bytes in 12 file(s)          8,704 bytes free


Volume in drive A is 4ALLTEX.21
================================
24avantg.arj    83810  11-24-91  17:19 [164] Ghostscript PS font: AvantGarde
24bookmn.arj    75479  11-24-91  17:19 [150] Ghostscript PS font: Bookman
24courob.arj    92225  11-24-91  17:20 [172] Ghostscript PS font: Courier Obliq
24helvtc.arj   190140  11-24-91  17:24 [353] Ghostscript PS font: Helvetica
24schlbk.arj   186203  11-24-91  17:34 [339] Ghostscript PS font: New Cent. Sch
24times.arj    183995  11-24-91  17:28 [337] Ghostscript PS font: Times Roman
24zaphc.arj    172280   4-08-92  23:39 [311] Ghostscript PS font: Zapf Chancery
25chartr.arj   144668   5-26-92   1:38 [305] Ghostscript PS font: Charter
25courer.arj   193793   5-26-92   1:37 [394] Ghostscript PS font: Courier
25utopia.arj   126569   5-26-92   1:38 [253] Ghostscript PS font: Utopia
   1,449,162 bytes in 10 file(s)          4,608 bytes free


Volume in drive A is 4ALLTEX.22
================================
f-4all1e.arj   377820   9-19-93  22:39 [531] Fontlib 1e: Pandora
f-4all2e.arj    74603   9-26-93  16:46 [89]  Fontlib 2e: OldGerman
f-4all3e.arj   147949   9-26-93  16:59 [242] Fli 3e: bbold,logos,symbols,games
f-4all4e.arj   123544   9-26-93  16:47 [218] Fontlib 4e: TW Calligraphic
f-4all5e.arj   201334   9-26-93  17:09 [433] Fontlib 5e: Malvern
f-4all6.arj    451917   9-26-93  16:38 [561] Fontlib 6: big fonts for slides
f-4all6e.arj    71324   9-26-93  17:20 [427] Fontlib 6e: OCR-A, OCR-B
   1,448,491 bytes in 7 file(s)           7,168 bytes free
```

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Volume in drive A is 4ALLTEX.23
===============================
f-4all3p.arj   338658   9-03-93  21:56 [468] PS Fontlib 3p: Courier
f-4all5p.arj   343971   9-03-93  21:57 [468] PS Fontlib 5p: NewCenturySchoolb.
f-4all6p.arj   368861   9-03-93  21:57 [491] PS Fontlib 6p: Palatino
f-4all8p.arj   349199   9-03-93  21:58 [471] PS Fontlib 8p: Times Roman
fonttst1.tex     2666   7-01-93  12:50
fonttst2.tex      955   7-01-93  12:47
newfonts.sub      820   7-01-93  12:47
readme.ps        6201   7-01-93  12:50
   1,411,331 bytes in 8 file(s)          43,520 bytes free
```

```
Volume in drive A is 4ALLTEX.24
===============================
f-4all1p.arj   372300   9-03-93  21:16 [517] PS Fontlib 1p: AvantGarde
f-4all2p.arj   439888   9-03-93  21:17 [562] PS Fontlib 2p: Bookman
f-4all4p.arj   374603   9-03-93  21:56 [509] PS Fontlib 4p: Helvetica
f-4all7p.arj    98069   9-03-93  21:17 [113] PS Fontlib 7p: Symbol
f-4all9p.arj   144509   9-03-93  21:18 [182] PS Fontlib 9p: Zapf Dingbats
fonttst1.tex     2666   7-01-93  12:50
fonttst2.tex      955   7-01-93  12:47
newfonts.sub      820   7-01-93  12:47
readme.ps        6201   7-01-93  12:50
   1,440,011 bytes in 9 file(s)          14,336 bytes free
```

```
Volume in drive A is 4ALLTEX.25
===============================
ps-arial.arj   167340   4-01-93  12:34 [228] PS font: Arial
ps-baskv.arj    44261   3-19-93  13:40 [52]  PS font: Baskerville
ps-chart.arj   157359   4-01-93  12:42 [222] PS font: Charter (Bitstream)
ps-cour.arj    220429   4-01-93  12:42 [280] PS font: Courier (IBM)
ps-garmn.arj    49108   3-19-93  13:40 [63]  PS font: Garamond
ps-letgo.arj    47243   4-01-93  12:35 [57]  PS font: LetterGothic
ps-litho.arj    27057   4-01-93  12:35 [37]  PS font: Lithograph
ps-lumpa.arj    64172   4-01-93  12:35 [74]  PS font: Lumparsky
ps-symbo.arj    38786   4-01-93  12:35 [48]  PS font: Symbols
ps-times.arj   212680   4-01-93  12:35 [275] PS font: Times Roman
ps-ultra.arj    27693   4-01-93  12:35 [38]  PS font: UltraBlack
ps-urw.arj     194328   5-22-93  17:26 [362] PS font: Nimbus & Antiqua (URW)
ps-utopi.arj    42008   6-03-92  16:24 [59]  PS font: Utopia (Bitstream)
pstfm-2.arj    133998  12-18-90   0:48 [200] TFM, VF for Garamond Stone Optima
   1,426,462 bytes in 14 file(s)         26,624 bytes free
```

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Volume in drive A is 4ALLTEX.26
===============================
ps-aap.arj      21997   4-01-93  12:34 [24]  PS font: Aarcover
ps-alexa.arj    35893   4-01-93  12:34 [52]  PS font: Alexandria
ps-andes.arj    47318   4-01-93  12:34 [58]  PS font: Andes
ps-astro.arj    42593   4-01-93  12:34 [58]  PS font: AstroSemiBold
ps-basqu.arj    49856   4-01-93  12:34 [65]  PS font: BasqueLight
ps-cacc.arj     59441   4-01-93  12:34 [60]  PS font: CarricqKaps
ps-crf.arj      39345   4-01-93  12:34 [40]  PS font: CrackFir
ps-dup.arj      51591   4-01-93  12:34 [59]  PS font: Dubiel
ps-elgar.arj    58235   4-01-93  12:34 [65]  PS font: Elgar
ps-gocmp.arj    54985   4-01-93  12:34 [65]  PS font: GoodCityModern
ps-godba.arj    89465   4-01-93  12:34 [105] PS font: GoodBadUgly
ps-goudy.arj    36441   4-01-93  12:34 [40]  PS font: Goudy100
ps-grfdi.arj   274366   4-01-93  12:34 [282] PS font: GriffDin
ps-harqu.arj    43560   4-01-93  12:34 [54]  PS font: Harquil
ps-inter.arj    85308   4-01-93  12:35 [94]  PS font: Inter
ps-isado.arj    43411   4-01-93  12:35 [53]  PS font: Isadora
```

```
ps-kik.arj      52974   4-01-93  12:35 [54]  PS font: KinigKap
ps-lefty.arj    84541   4-01-93  12:35 [94]  PS font: LeftyCasual
ps-luxem.arj    18236   4-01-93  12:35 [28]  PS font: Luxembourg
ps-mapma.arj    53961   4-01-93  12:35 [65]  PS font: MapmakerThin
ps-neuva.arj    77208   4-01-93  12:35 [87]  PS font: NeuvareseBoldItalic
ps-victo.arj    65426   4-01-93  12:35 [81]  PS font: VictoriaSecre
ps-wid.arj      52939   4-01-93  12:35 [61]  PS font: WindsorDemi
   1,439,090 bytes in 23 file(s)         11,776 bytes free


Volume in drive A is 4ALLTEX.27
===============================
ps-ashle.arj    29967   4-01-93  12:34 [34]  PS font: Ashley
ps-barco.arj    14321   4-01-93  12:34 [25]  PS font: Barcode39
ps-beb.arj      27467   4-01-93  12:34 [30]  PS font: BellBottomLaser
ps-bec.arj      19198   4-01-93  12:34 [20]  PS font: BenjaminCaps
ps-cab.arj      29469   4-01-93  12:34 [34]  PS font: CarawayBold
ps-chm.arj      32654   4-01-93  12:34 [39]  PS font: ChineMen
ps-deser.arj    29137   4-01-93  12:34 [37]  PS font: Deseret
ps-dow.arj      30339   4-01-93  12:34 [33]  PS font: DownWind
ps-grcc.arj     16064   4-01-93  12:34 [17]  PS font: GreenCaps
ps-hocc.arj     16965   4-01-93  12:34 [18]  PS font: HorstCaps
ps-igles.arj   118246   4-01-93  12:34 [130] PS font: Iglesia
ps-kaste.arj    13443   4-01-93  12:35 [15]  PS font: Kaste
ps-kl.arj       12185   4-01-93  12:35 [14]  PS font: Klinzhai
ps-kokk.arj     37908   4-01-93  12:35 [39]  PS font: KonanurKaps
ps-mazam.arj    22880   4-01-93  12:35 [27]  PS font: Mazam
ps-nordi.arj    16166   4-01-93  12:35 [26]  PS font: Nordic
ps-premi.arj    15219   4-01-93  12:35 [19]  PS font: Premi
ps-rhyol.arj    12112   4-01-93  12:35 [15]  PS font: Rhyol
ps-rop.arj      19220   4-01-93  12:35 [22]  PS font: Rounders
ps-unive.arj    54741   4-01-93  12:35 [68]  PS font: Univers
     567,701 bytes in 20 file(s)           884,736 bytes free
```