

OBTAINING SOFTWARE AND OTHER TEACHING MATERIALS BY E-MAIL

Lawrence S. Husch
Department of Mathematics
University of Tennessee
Knoxville, TN 37996
husch@math.utk.edu

There is plethora of materials, including software, which is available on the Internet and which can be used in the teaching of mathematics. The Mathematics Archives has provided many of these materials for those who have access to the Internet via anonymous ftp, gopher or World-Wide-Web. Recently, a mailserver has been set up on the Mathematics Archives so that those who only have access to the Internet with an e-mail account can now retrieve these materials. In this note, I will take you through the steps to obtain an MSDOS program from the Mathematics Archives and to get ready to execute that program.

During the first time you use the mailserver on the Mathematics Archives, you should get a copy of the help file which contains a list of commands and several examples demonstrating the use of these commands. Send an e-mail message (and all further e-mail messages in this note) to **ftpmail@archives.math.utk.edu** which contains the single word **help** in the body of the message. You should receive back fairly quickly a mail message which contains the help file. Parts of the help file are contained in the Appendix.

To look at the directory structure of the Mathematics Archives, I sent the following message to the Mathematics Archives:

```
reply-to husch@mathsun9.math.utk.edu
open
dir
quit
```

I received back three messages. The first was an acknowledgment of receipt of the message:

```
<FTP EMAIL> response
Welcome to the Mathematics Archives FTP Mail Server!
ftpmail has received the following job from you:
reply-to husch@mathsun1.math.utk.edu
open archives.math.utk.edu anonymous ftpmail/husch@mathsun1.math.utk.edu
dir
ftpmail has queued your job as: 646935.21548
There are 2 jobs ahead of this one in the queue.
To remove send a message to ftpmail@archives.math.utk.edu containing
just:
```

```
      delete 646935.21548
Your original input was>>
```

which was followed by a copy of my mail message. The second message contained the directory listing:

```
Subject: archives.math.utk.edu:/ (dir )
total 55
-rw-r--r-- 1 125      500          255 Nov  4 20:15 .DIRECTORIES_MOVED.t
-rw-r--r-- 1 ftp       ftp          1461 Nov 12 12:59 .cache
-rw-r--r-- 1 ftp       500          3902 Nov 11 17:10 .cache+
drwxr-xr-x 2 125      500          512 Sep 27 10:15 .cap
drwxrwxr-x 5 125      500          1024 Nov  8 22:19 .http
-rw-r--r-- 1 125      500          741 Oct 11 13:37 .links
-rw-r--r-- 1 125      500          642 Jul 23 13:17 README-accessing-arc
-rw-r--r-- 1 125      500          3802 Sep 20 1993 README-intro.txt
-rw-r--r-- 1 125      500          2538 Sep 23 23:35 README-uploading.txt
d--x--x--x 2 gauss    500          512 Apr 27 1994 bin
drwxr-sr-x 2 gauss    500          512 Aug 11 1993 dev
d--x--x--x 3 gauss    500          512 Apr 28 1994 etc
drwxrwxr-x 2 125      500          512 Aug 22 16:24 ftpmail
-rw-r--r-- 1 125      500          4437 Oct 13 14:09 gopher-organization.
-rw-r--r-- 1 125      500          109 Aug 23 17:41 help.txt
drwxrwsrwx 2 gauss    reviewer   512 Nov  8 16:41 incoming
drwxrwxr-x 4 125      500          512 Oct 13 14:11 information
drwxr-xr-x 2 gauss    0           8192 Aug  9 1993 lost+found
drwxr-xr-x 15 125     500          512 Oct 19 00:09 other.math.gophers
drwxrwxr-x 2 125      500          512 Aug 26 13:25 pids
drwxrwxr-x 2 gauss    500          512 Aug 11 1993 pub
-rw-r--r-- 1 gauss    1           352 Jul  1 1993 quotas
drwxrwxr-x 9 125      500          512 Oct 28 22:52 software
drwxrwxr-x 16 125     500          512 Oct 13 18:23 teaching.materials
drwxrwxr-x 2 gauss    500          512 Sep 22 12:42 tmp
drwxrwxr-x 3 gauss    500          512 Aug 11 1993 usr
-rw-r--r-- 1 125      500          387 Sep 10 12:20 welcome.msg
-rw-r--r-- 1 125      500          3114 Aug 22 1993 what-is-gopher.txt
-rw-r--r-- 1 125      500          1883 Jul 23 11:50 www.txt
-rw-r--r-- 1 125      500          1124 Aug 23 17:34 www_and_gopher.txt
```

The third message contained a log of the anonymous ftp session:

```
Subject: ftpmail job completed
<FTP EMAIL> response
Your job was (lines beginning DONE show completed transfers):
  reply-to husch@mathsun1.math.utk.edu
  open archives.math.utk.edu anonymous
  ftpmail/husch@mathsun1.math.utk.edu
  DONE dir

The ftp log contains:
Connecting to archives.math.utk.edu
  220 archives FTP server (Version wu-2.4(2) Wed Apr 27 12:15:05 EDT
1994) ready.
  ---> USER anonymous
  331 Guest login ok, send your complete e-mail address as password.
  ---> PASS <somestring>
  230-* * * * *
```

```

230 Guest login ok, access restrictions apply.
---> PWD
257 "/" is current directory.
---> TYPE I
200 Type set to I.
---> TYPE A
200 Type set to A.
---> PORT 128,169,202,163,6,62
200 PORT command successful.
---> LIST
150 Opening ASCII mode data connection for /bin/ls.
226 Transfer complete.
---> TYPE I
200 Type set to I.
---> QUIT
221 Goodbye.

```

Since I was interested in getting software, I then sent the following message:

```

reply-to husch@mathsun1.math.utk.edu
open
cd software
dir
quit

```

Again, I got three messages back and one of these contained the directory listing:

Subject: archives.math.utk.edu:/software (dir)
drwxrwxr-x 2 125 500 512 Oct 21 11:37 .cap
-rw-rw-r-- 1 125 500 465 Oct 4 09:32 .links
-rw-rw-r-- 1 125 500 776 Aug 28 13:38 .message
drwxrwxr-x 12 125 500 512 Oct 4 09:57 apple
drwxrwxr-x 4 125 500 512 Oct 4 09:45 atari
drwxr-xr-x 10 125 500 512 Oct 1 13:30 life_sciences
drwxrwxr-x 24 501 500 1024 Oct 13 15:04 mac
-rw-r--r-- 1 501 500 61372 Aug 28 16:35 mac-files.txt
-rw-r--r-- 1 501 500 301 Aug 28 16:41 mac-moderator.txt
-rw-rw-r-- 1 501 500 1119 Aug 29 00:50 mac_files.mindex
drwxrwxr-x 27 125 500 1024 Sep 26 23:04 msdos
-rw-r--r-- 1 125 500 71415 Nov 11 20:28 msdos-files.txt
-rw-r--r-- 1 125 500 232 Aug 22 1993 msdos-moderator.txt
-rw-r--r-- 1 125 500 1360 Aug 25 23:51 msdos_files.mindex
drwxrwxr-x 12 125 500 512 Oct 11 14:39 multi-platform
-rw-r--r-- 1 125 500 288 Aug 22 1993 other-platforms-mode
-rw-r--r-- 1 125 500 137 Aug 24 1993 subject_oriented.txt

The two files, **mac-files.txt** and **msdos-files.txt**, contain a list of Macintosh and MSDOS software packages, resp., which are located on the Mathematics Archives. I then sent the following message to retrieve the latter file:

```

reply-to husch@mathsun1.math.utk.edu
open
cd software
get msdos-files.txt
quit

```

This time I received four messages; the following is a copy of a screen from the e-mail package which I use.

```
1 Nov 12 mail server for FT (49)    ftpmail job completed
2 Nov 12 mail server for FT (277)  [2 of 2] archives.math.utk.edu:/soft
3 Nov 12 mail server for FT (1234) [1 of 2] archives.math.utk.edu:/soft
4 Nov 12 mail server for FT (53)    <FTP EMAIL> response
```

The size of files are limited and the file which I requested was split into two files which are items 2 and 3 above.

The file **msdos-files.txt** contains the names of MSDOS programs together with their location. If, for example, we were interested in programs in linear algebra then we can look at the linear algebra part of the file:

```
linear.algebra-----
amp30.zip      Symbolic calculation tool.
anumr5.zip     C library of function for linear algebra, etc.
cc4-9206.zip   Beta test of new version of Calculus Calculator.
cla20.zip      Find rank, determinant, row-reduced, Jordan ...
form.arc       A Symbolic manipulation program for large scale formula.
jkmatrix.zip   Many topics including row-reduction, eigenvalues, ...
jkmath14.zip   Many topics including row-reduction, eigenvalues, ...
lgsolv11.zip   Large linear systems solver.
linalg.zip     Elementary manipulation of matrices and vectors.
linsys10.zip   Solves systems of linear equations.
maplev.zip     A demo of the commercial package Maple V.
mathview.zip   Matrix algebra, signal processing, 2D and 3D graphs.
matrx041.zip  Small Matrix Toolbox for C programmers
mcaddos.zip   A demo of Mathcad for DOS, v 2.5.
mcadwin.zip   A demo of Mathcad for Windows, v.4.0.
minimat.zip   Subset of an implementation of the comm. package Matlab.
newmat07.zip  C++ procedures for scientists and engineers.
nummeth.zip   Numerical Methods: MATLAB Programs
packawin.exe   Mathematica notebooks from Transitional Mathematics Proj.
pari386.zip   High speed number theory calculations package.
sm31a.zip     Symbolic calculator.
tsmatrl1.arc   3 programs: solve linear sys., find inverse, deter....
twodmaps.zip  Experiment with affine transformations on the plane.
```

which contains the names of programs which can be used in the teaching of linear algebra together with a one line discription of the program. This is followed by a directory listing:

```
2423 Jul 22 11:27 amp30/amp30.abstract
        428 Jul 22 11:27 amp30/amp30.readme
219729 Jul 22 11:27 amp30/amp30.zip
        934 Jul 22 11:27 anumr5/anumr5.abstract
        16088 Jul 22 11:27 anumr5/anumr5.readme
242360 Jul 22 11:27 anumr5/anumr5.zip
        854 Jul 22 16:03 cafmc/cafmc.abstract
        ...
```

Each of the programs is contained in own subdirectory; so, for example, the program

amp30.zip is contained in the directory **software/linear.algebra/amp30**.

Note that there are two other files in this subdirectory: **amp30.abstract** which contains a short abstract of the program written by one of the moderators of the Mathematics Archives and **amp30.readme** which is a copy of the readme file which is provided by the author of the program. The readme file usually gives information about the program and the configuration which is needed to run the program.

I decided to download the fractals program **frain182.zip** which is contained in the subdirectory **software/msdos/fractals/fraint18** and I sent the following message:

```
reply-to husch@mathsun1.math.utk.edu
open
cd software/msdos/fractals/fraint18
get frain182.zip
quit
```

This is a fairly large program and the program was sent in twelve parts:

```
Folder is '=ftpmail' with 54 messages [ELM 2.3 PL11]

11 Nov 12 mail server for FT (973) [1 of 12] archives.math.utk.edu:/sof
12 Nov 12 mail server for FT (972) [5 of 12] archives.math.utk.edu:/sof
13 Nov 12 mail server for FT (972) [6 of 12] archives.math.utk.edu:/sof
14 Nov 12 To ftpmail@archive (22) #10
15 Nov 12 mail server for FT (53) <FTP EMAIL> response
16 Nov 12 mail server for FT (972) [9 of 12] archives.math.utk.edu:/sof
17 Nov 12 mail server for FT (972) [4 of 12] archives.math.utk.edu:/sof
18 Nov 12 mail server for FT (972) [7 of 12] archives.math.utk.edu:/sof
19 Nov 12 mail server for FT (972) [2 of 12] archives.math.utk.edu:/sof
20 Nov 12 mail server for FT (972) [3 of 12] archives.math.utk.edu:/sof
```

It is necessary to save each of these messages in a separate file; I copied message [1 of 12] to **a.1**, message [2 of 12] to **a.2**, etc. I then downloaded the twelve parts to my MSDOS machine. I used the text editor from MSDOS to edit each of these files. These files contain information from being sent by e-mail:

```
Return-Path: <ftpmail@archives.math.utk.edu>
Date: Sat, 12 Nov 94 10:05:38 -0500
To: husch@mathsun1.math.utk.edu
Subject: [1 of 12]
archives.math.utk.edu:/software/msdos/complex.variables/frain
t18/frain182.zip uuencoded (get frain182.zip)

begin 600 frain182.zip
M4$L#!!0 @ ( $6H&!MH?;W]FVT& M!#P , 1E)!0U1)3E0N15A%Q-M]
M7%15XOCQ.S-P&1X&$ 7!AT%%(O(!\2$"U$F)$*UP8HM(#<V,DLK,9LA51&5:
MDSMJ?;75FEPWQ+76S%S7W-$,R0@0!Q(U)6M=,S-'K#43\8&8W^?<&<P>OG_\
M_OB]?KUZ#_>><^YYNN>>>^Z=\;[ )%ZOL[<-! ;VKG:3V>\>.E'I)4$7PJ*5:2
M)(WD)_TA<[:T*/-I3,8*G20EHB<TZ-!*TD5\AX_P/M;A*=R'@3BED:0FE* (
    ...
```

I deleted the first few lines of **a.1** so that the first line now reads

```
begin 600 frain182.zip
```

I also deleted the last blank line from the end of the file. The file **a.2**

```
Return-Path: <ftpmail@archives.math.utk.edu>
Date: Sat, 12 Nov 94 10:05:41 -0500
To: husch@mathsun1.math.utk.edu
Subject: [2 of 12]
archives.math.utk.edu:/software/msdos/complex.variables/frain
t18/frain182.zip uuencoded (get frain182.zip)
M#DN(3>L.2W;4:%[HD_'\_C.G3W4!C#'X$2OUTMY)XYVD:0U$^D(91T_7Z;?W
M3K0;_<5ZK4;SB%ZK(4!_X5[?.F&O=6=/_[Y'Z_7X$PE&KP90@QS>K,K@A,WJ
M_<8>=D[ [YZ]LL98GF "5DSZU5.6DAT;"G'22_,KHGB]<7:+& HCXE E/K%18
M(YZ(K7CRW(1V6LY-V+(6W$0WJ95!U>>-3>6Y?]HYWY#A"SS:S^N3B7SB.1J
...
...
```

also had to be edited so that the first line is

```
M#DN(3>L.2W;4:%[HD_'\_C.G3W4!C#'X$2OUTMY)XYVD:0U$^D(91T_7Z;?W
```

and the last blank line from the end of the file is deleted. After editing all twelve files similarly, then I used the MSDOS command

copy a.1+a.2+a.3+a.4+a.5+a.6+a.7+a.8+a.9+a.10+a.11+a.12 a.uue

so that all twelve parts are combined together into a single file called **a.uue**. It is important that the files are concatenated together in the correct order.

The resulting file is an ASCII file which is in UUENCODED format. We must now convert the file into binary format. We use the program **uudecode.exe** by using the command **uudecode a.uue**. After a few seconds, I had the zipped file **frain182.zip** which I then "unzipped" using the program **unzip.exe** by using the command **unzip frain182.zip**.

The two programs **uudecode.exe** and **unzip.exe** can be obtained from the author by sending a floppy disk and a self-addressed stamped envelope to the author at the address listed on the first page of this note.

Appendix - The Help File

With several exceptions, the commands for **ftpmail** are similar to those used in an anonymous ftp session. The following commands must appear at the top of an e-mail message.

reply-to your_email_address	Optional. (Defaults to your login address.)
open [site [user [passwd]]]	Site to ftp to. (Defaults are archives.math.utk.edu, anonymous, and reply-to-address.) See note below for more information.

To obtain this message, use the command

help	sends this file
------	-----------------

An "open" command may be followed by 100 of the following commands:

cd pathname	Change directory.
ls [pathname]	Obtain short listing of pathname. (Default pathname is current directory.)
dir [pathname]	Obtain long listing of pathname. (Default pathname is current directory.)
get pathname	Get a file and email it back.
compress	Compress files/dir-listings before emailing.
gzip	Gzip files/dir-listings before emailing back.
size num[K M]	Set the max size a file can be before it is split up and emailed back in parts to the given number of Kilo or Mega bytes. This is limited to 102400.
mode binary	Change the mode selected for the get command. (Defaults to binary.)
mode ascii	
quit	End of input - ignore any following lines.

At most one site may be contacted in one e-mail message. We have limited access to other sites other than the Mathematics Archives. We provide service ONLY to other sites for materials which can be used in the teaching of mathematics. The list of sites together with the list of files available through this server is contained in the file **ftpmail/sites_and_files.txt** on the Mathematics Archives. If there are additional files which you think should be available using this service, send a message to **help@archives.math.utk.edu** and your request will be considered. We will NOT provide service to sites which have their own e-mail service. Examples of some of these sites are NETLIB and MathSource.