FTPMount

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Chapter 1

FTPMount

1.1   FTPMount

FTPMount allows FTP sites to be mounted as part of an AmigaDOS file
system.

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It is unclear what the status of the following is, however I guess
something like it should be included:

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1.2   FTPMount - Introduction

After looking at the various options as far as which FTP utilities were
available, I came to the conclusion that there were no acceptable user
interfaces as far as I was concerned.

Instead of writing another FTP client, I decided to write an FTP file system.

FTPMount is the result.

FTP sites appear as subdirectories of a file system device 'FTP:'.
The root directory of FTP: is actually a mirror of a real directory somewhere
else in the file system. This allows common FTP sites to be permanently
listed under FTP: (so they appear in file requesters etc), and, through the
use of icon tooltypes, to support ftp site aliases and other options.

FTPMount supports both anonymous and private ftp sessions. Mounted
private ftp sessions can act as a poor-person's NFS mount.

Due to the restrictive nature of the FTP protocol (RFC 959), there are some
significant limitations that apply to FTP: that prevent it from supporting all
file system actions fully.

FTPMount is written for the AmiTCP API, and requires AmiTCP 2.0 to actually
do anything useful, although you can install and mount FTPMount quite
happily without it.

1.3   FTPMount - Installation

I put complete faith in my (first ever!) install script :-). If you are less
trusting, manual installation is not difficult.

A few notes on the automatic installation:

The DOSDriver entry referred to is a little text file passed to mount. It is
similar to the files in DEVS:DOSDrivers and SYS:Storage/DOSDrivers (eg. PIPE,
AUX, PC0 etc). In this case the DOSDriver entry is FTP and the installer will
ask you where you want to put it. Normally if you wanted FTP to be mounted
automatically at boot time you would put it in DEVS:DOSDrivers. Note that FTP
needs FTPMountDir: to be assigned when it is activated. Due to the way
Startup-Sequence and User-Startup are structured, the assign will be done
after the DEVS:DOSDrivers are mounted. Thus if you want FTP: to be
mounted and activated at boot time DEVS:DOSDrivers is not an advisable
destination (if you feel like moving the assign from User-Startup to Startup-
Sequence before the DOSDrivers mount, things will be fine). The only safe
alternative appears to be to put this entry in WBStartup. This is a little
unorthodox, and not really an ideal place from a categorization point of view.

Speaking of whether you want the DOSDriver activated upon mounting ... when a
handler is mounted it can either be activated (loaded) there and then, or it
can be deferred. If activation is deferred this simply means that the handler
is not loaded until a reference to FTP: is made. For CLI users there is
little point in forcing it to be activated when it is mounted since you can
still refer to files within FTP: and not notice that it will be loaded upon

the first such reference. For Workbench users, however, there is a difference
in that Workbench won't recognise FTP: until it is activated, and hence there
won't be an icon for it until it is activated. So if you want FTP: to appear
on your Workbench desktop upon booting you will need to say "Yes" to the
"Do you want the DOSDriver activated upon mounting?" question. The previous
point is relevant in this case, and the FTP DOSDriver entry should be put in
WBStartup.

The anonymous login identification string is composed from the environment
variables USER and HOST as USER@HOST. If these variables are not set at the
time of installation, the installer script will ask you to supply them and
will then copy them to ENVARC:USER and ENVARC:HOST respectively. Please
supply USER and HOST so as to produce a valid email address USER@HOST. I
debated whether to have an EMAIL environment variable instead of using these
two. I'm still not sure which is a better solution – feedback would be
appreciated.

1.4   FTPMount - Manual Installation

FTPMount looks for all its files in a directory to which FTPMountDir: is
assigned. So you will need to put an assign in your User-Startup for
FTPMountDir: to this directory.

Make subdirectories FTPMountDir:Hosts and FTPMountDir:L, and if you want to
install alternate catalogs, FTPMountDir:Catalogs.

Copy L/FTPMount-Handler to FTPMountDir:L

If you want the example sites directories:
Copy Hosts all to FTPMountDir:Hosts

Copy the relevant catalog directories that you are interested in, for example:
Copy Catalogs/English to FTPMountDir:Catalogs/English all

Now you need to put the mount entry somewhere, so copy DOSDrivers/FTP to
DEVS:DOSDrivers, SYS:Storage/DOSDrivers, SYS:WBStartup or equivalent.

If you want it activated upon mounting, change the tooltype for ACTIVATE to
1 instead of 0.

Remember to set USER and HOST environment variables as discussed in the main
installation section.

1.5   FTPMount - Usage

The default operation of FTPMount is to take references to directories in the
root of FTP: as ftp site addresses. Addresses can be dotted names or dotted
numbers.

If the address contains an '@', the string to the right of the '@' will be
taken as the address while that to the left is assumed to be a user name.
If no '@' is present, an anonymous login is attempted with user 'ftp' and

password of USER@HOST.

If the connection is as a private (non-anonymous) ftp session, a requester
asking for a password will be opened.

Note that if the address begins with an '@' then the requester will ask
for both a user name and password.

While a connection is being established, a requester will be on the screen
indicating that a connection is being established, and containing a cancel
button to abort the connection.

Once the connection is established the FTP site will be accessible as normal
files and subdirectories of the site's name.

While there are any locks, or an open file, FTPMount will try to keep the
connection open. If there are no locks and no open file, FTPMount will close
the connection after 2 minutes of idle time.

Doing a directory of the root of FTP: gives the directory of
FTPMountDir:Hosts. File operations on any file in the root of FTP: are
passed through to the equivalent files in FTPMountDir:Hosts. Thus icons can
be used to store information about the FTP sites; as well as the image of the
icon and the drawer window size and position, the tooltypes control some
options which change the behaviour of the directory from the default behaviour
described above.

    Tooltype Options

    Control of FTPMount

    FileSystem Restrictions

1.6 FTPMount - ToolType options

Note that setting tooltypes is best done on the original drawer icons in
FTPMountDir:Hosts rather than in FTP: itself. While it is possible to set
the tooltypes of the drawers in FTP: it is quite fiddly and difficult in some
cases (since to get the Info on the drawer, Info locks the directory, and in
so doing tries to make a connection to the site). Also, the tooltypes are
only read once when a connection is first attempted. To force FTPMount to
reread the icon information, go to the Commodities Exchange and toggle the
Active/Inactive button twice (this closes all connections and flushes all
buffers).

If there is no icon associated with a site, then the tooltypes are taken from
the Default.info icon instead.

ToolTypes that are recognized:

    USER   - an alternative to specifying the directory as user@site.
                  NB: for a directory labelled user@site, the USER tooltype
                      is ignored

    PASSWORD   - for private logins, you may put your password, in plain

                          text, here. This means private logins can be done
                          completely automatically with no user/password requester.
                          NB: obviously plain text passwords in a fairly accessable
                              place could easily be a security risk. Only include
                              your password here if you are sure that your machine is
                              secure both physically and from network users. If you
                              serve a public access FTP site from your Amiga I would
                              strongly suggest not using this feature.

        HOST   - used as the address of the site to connect to instead of the
                          name of the directory. This is useful for making abbreviated
                          aliases for sites, or for accessing the same site in
                          different capacities (particularly in concert with the ROOT
                          option).
                          NB: because the HOST tooltype overrides the directory name,
                              there is significant scope for potential confusion.

        ROOT   - specifies an alternate directory to use as the root of the
                          site. The parameter should be an absolute path name. This
                          is particularly useful in concert with the HOST option to
                          access a particular archive (eg. a directory "aminet" with
                          HOST pointing to your favourite aminet site, and ROOT set to
                          /pub/aminet ... then all files on the aminet archive would
                          be referenced as FTP:aminet/util/comm/FTPMount.lha etc).

        STATUS   - open the site's status window upon initial reference.

        QUICK   - access the site in "Quick" mode. In quick mode several
        SLOW   FTP commands may be issued at once. This is safe for almost
                          all sites, and can significantly improve turnaround time to
                          sites with a badly lagged link. Unfortunately some ftp
                          servers cannot handle it (notably the FTPd I was using on my
                          amiga as a test). Note that QUICK mode is now the default.
                          If the site starts acting up, notably locking up on directory
                          listings or file opens, turn off QUICK mode, either by adding
                          the tooltype QUICK=off, or by adding the tooltype SLOW.

        CASE   - all filenames are case sensitive (if the server is case
                          sensitive). The default is to be as case insensitive as
                          possible. It is not possible to be completely case
                          insensitive, notably on references which include several
                          directory names (eg ftp:site/Fish/Frog/Womble/x.c).

        MESSAGES   - controls which messages will be displayed during connection
                          to a site. Possible values for this tooltype are ALL,
                          ERROR and NONE. The default is ALL. Setting
                          MESSAGES=ERROR will only bring up a requester when the
                          FTP connection has been unsuccessful. Setting MESSAGES=
                          NONE disables any requesters that require a response. NB:
                          This includes the User/Password requester.

        PORT   - sets the port number to connect to, this defaults to the
                          FTP port number specified in AmiTCP:db/services, or if no
                          entry is specified there, it defaults to 21.

1.7   Controlling FTPMount

Due to the unreliable nature of the net, connections to FTP sites go up and
down, go really sllllooooowwwwly or other such filesystem anti-social
behaviour. In such cases your Workbench copy or directory operation may
never complete, leaving Workbench stranded and useless. In order to monitor
and control your active connections, a control system was added based on
commodities.

When FTPMount is activated, it becomes a commodity broker, and appears in the
list of commodities in the commodity exchange.

The standard command buttons work fairly much as you would expect.

Active/Inactive – When FTPMount goes inactive it closes all FTP connections
   and refuses all file system requests (will display a "Please insert volume"
   message) until it is made active again.

Remove – FTPMount closes all connections and frees all its resources.
   NB: while the volume is removed the DOS device node of FTP: can't be freed,
   and will remain, but all requests will be refused.

Show Interface – displays a list of all currently active sites. Selecting
   one of the sites will bring up the status window for that site.
   NB: The hotkey brings up this same list-of-sites window. The default
   hotkey is ctrl-alt-f.

Each site may have a status window open. This status window shows what is
happening (getting a directory listing, reading a file, etc), as well as
providing two buttons – Abort and Disconnect. Depending on what state the
connection is in, one or both of these buttons may be disabled.

Abort attempts to interrupt the current operation without
disconnecting. Unfortunately most of the time an abort causes a disconnect
as well because by interrupting a system call FTPMount can no longer guarantee
what state the connection is in.

Disconnect simply disconnects the FTP session brutally and suddenly.

1.8   FTPMount - Restrictions on FileSystem operations

FTP does not allow for all the filesystem operations which you would expect of
a normal AmigaDOS filesystem. These restrictions include:

 · Only one file may be open at a time for a given site. This is the big
   restriction. In future this may be worked around by allowing multiple
   connections. At the moment, however, this is a hard limit. If you attempt
   to open a file while another file is open, you will get an "Object in use"
   error. This restriction means that some simple file operations are not
   possible, for example "copy file.c file.c.old".

 · A file can only be open for reading or writing, not both. If you attempt
   this, you will get an "Object is write/read protected" error.

- Seeking is not generally possible. A few limited cases are emulated to
  support, for example, those programs which seek to the end of the file just
  to see how big the file is. Seeking at the very start of a file is also
  supported. Unfortunately this confuses 'more' somewhat – it does a small
  seek at the beginning to see if the filesystem supports seeks, and if it
  does it allows you to page backwards ... but this fails later dumping you
  out.

- Case sensitivity is still a problem with full path names. This is because
  if a reference is made to /fish/Bing/FrogWomble/x.c, FTPMount will simply
  try to CWD to /fish/Bing/FrogWomble and then get a directory listing.
  Thus, /fish/Bing/FrogWomble must be the right case if the FTP server is
  case sensitive. Leaf names are case insensitive (as long as you don't set
  the CASE tooltype obviously).

- Directory listings are cached indefinitely. There is basically no low
  impact way of telling that files in the directory have been updated, and
  I refuse to retrieve the directory listing every time you do anything in a
  directory. The directory is flushed when a file is opened for writing, so
  if you need to update the directory you could do something like:
      echo bing >flush.file
      delete flush.file

- Unix soft links are always assumed to be directories. This is because the
  standard format for a LIST has the first character as either a 'd', a '-',
  or an 'l'. Thus if it's a link to a file it looks just like a link to a
  directory. This may be fixed (with much contortion) in future. For now
  it is more generally useful to assume the link is to a directory.

- '.' and '..' are filtered out due to potential AmigaDOS confusion.

- FTPMount shouldn't be used on the Workbench if a utility such as DefIcons
  or Icon is running, since these attempt to determine the filetype by
  reading a portion of each file in a directory. This takes many minutes,
  and is a bit net anti-social.

- Locks are no guarantee that the file won't be changed/removed/mangled
  underneath you.

- File notification is not supported, and is not supportable.

- Record locking is not supported, and is not supportable.

- ~Protection bits cannot be modified.

- Comments are not supported, and are not supportable.

- MakeLink is not supported, and is not supportable.

1.9 FTPMount - Release changes to 0.8

FTPMount0.8 is a minor upgrade to 0.7. There are a few bug fixes and
a few minor improvements done in an afternoon, and only done because they
were simple and would really help some people.

Changes from 0.7 to 0.8:

· FTPMount no longer pretends to support the ExamineFH packet. There was
  a problem with ExamineFH which caused crashes related to the fact that
  the file handle was not in the position in the packet that documentation
  indicated that it was. I couldn't work out what to do about this, so it
  returns an ACTION_NOT_KNOWN error instead. Most programs should be able
  to cope transparently with this.

· "//" is legal at the beginning of an FTP: path (for pseudo-URL support),
  thus FTP://ftp.netnet.net/pub/aminet/RECENT is a legitimate path name.

· Directory listings are stored in the same order they are retrieved, so
  for example, a copy with a wildcard will copy in standard sorting order
  rather than reversed.

· Case insensitivity now picks an exact match over a case insensitive
  match. Thus if a site (eg Aminet/RECENT/recent ... Grrr) has two entries
  with the same name, but different cases, you can always distinguish
  the one you want by typing the name exactly.

· If there is no icon for a site, the tooltypes will be read from the
  Default.info icon. NB: this doesn't mean that the Default icon specifies
  the default value for tooltypes!

· The "MESSAGES" ToolType has been added to allow disabling of either
  banner messages or all messages. Please note that banner messages for public
  FTP sites are generally "Conditions of use" which should be read and
  understood by users, so I strongly recommend against putting "MESSAGES=ERROR"
  or "MESSAGES=NONE" in the Default icon, or in fact for any public ftp site.

· The "PORT" ToolType has been added to allow connection to ports other
  than the standard FTP port (21).

· FTPMount now handles file names with spaces.