**Program
Offering**

VM Interface Program for TCP/IP

User's Guide

Program Number: 5798-DRG

IBM

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This publication describes the use of the higher-level
protocols within the VM Interface Program for TCP/IP.
The manual describes how to use the File Transfer Pro-
tocol, the TELNET protocol for remote system access,
and the CMS "note" and "sendfile" program as an
interface to the Simple Mail Transfer Protocol.

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VM Interface Program for TCP/IP
Release 1, Modification Level 2

    This document describes how to use the "higher-level"
protocols within the VM Interface Program for TCP/IP. In
particular, human users of TELNET, FTP, and SMTP (using
"NOTE", "PROFS", or "SENDFILE" as an interface) will find
this document useful. It consists of five chapters.   The
first chapter describes how to use FTP, the File Transfer
Protocol.   The second chapter describes how to use the
TELNET protocol for remote system access.   Chapter 3
describes briefly how to use the CMS "NOTE", "PROFS", or
"SENDFILE" program as an interface to the Simple Mail
Transfer Protocol (SMTP). The fourth chapter describes how
to use TFTP, the Trivial File Transfer Protocol. The fifth
chapter describes how to use NETSTAT, monitor network
status.   All VM Interface Program for TCP/IP software
described in this document has been developed within an IBM
VM/SP Release 3.0 environment.

OVERVIEW

    The VM Interface Program for TCP/IP refers to the VM
implementations of several standard protocols defined by the
Defense Advanced Research Projects Agency (DARPA).
protocols include three user services: file transfer using
the File Transfer Protocol (FTP, DARPA RFC 765); remote
system access using the TELNET protocol (DARPA RFC 764); and
electronic mail using NOTE (user interface) and the Simple
Mail Transfer Protocol (SMTP, DARPA RFC 821).   These three
higher-level protocols utilize the Transmission Control
Protocol (TCP, DARPA RFC 793) which uses in turn the
Internet   Protocol   (IP,   DARPA   RFC   791).   Detailed
specifications of the protocols are provided by the DARPA
"Request For Comment" documents mentioned.

    The   Transmission   Control   Protocol   (TCP) provides the
higher-level protocols with reliable data transport service
between host machines.   These higher-level protocols are
called "clients" of TCP.   Each client has two asymmetric
components, a "user" component that interacts with a local
human user, and a "server" component that services requests
forwarded to it by a remote user component. The sections in
this document are directed to the CMS user running the VM
Interface Program for TCP/IP "user" component; the "server"
component used will be that which is supplied on the remote
host.

    In addition to TCP, User Datagram Protocol (UDP, DARPA
RFC 768), Trivial File Transfer Protocol (TFTP, DARPA RFC
783), and IP routing are added in this release.

                                                             1

Sample pages for inclusion in a comprehensive command reference, such as the "IBM VM/SP CMS Command and Macro Reference", are given in this document. Section 1 provides a reference entry for FTP. Section 2 provides a reference entry for TELNET. No such entry is needed for SMTP, since the user invokes the "NOTE", "PROFS", or the "SENDFILE" command, rather than using SMTP directly. The descriptions for "NOTE" and "SENDFILE" remain virtually unchanged; the only difference is that they can now be used for sending messages to hosts running the "server" component of the SMTP protocol. An example of how to use PROFS to SMTP link is provided in Appendix A. Section 4 provides a reference entry for TFTP. Section 5 describes the use of NETSTAT which allow you to query the TCPIP virtual machine for information about network connections to and from local host.

CHAPTER 1: F T P -- THE FILE TRANSFER PROTOCOL

   This section describes the File Transfer Protocol (FTP). FTP allows a CMS user to transfer files between his host and any other host which supports the same protocol (including itself).

   The remote host may be specified as a parameter when FTP is called, or as an argument to the CONNECT command from inside of FTP. To specify the remote host, use its internet host name. If not specifying the remote host from the command line but instead using the CONNECT command, use either its internet host name or its internet address. This address is expressed in the form nn.nn.nn.nn.

   If the connection to the remote host is not made within a predetermined time limit, FTP will respond with the message:

   "Foreign host did not respond within OPEN timeout".

   If the remote host is not prepared to handle the connection, FTP will respond with the message:

   "Foreign host rejected the open attempt".

   After connecting, identify yourself to the remote host using the LOGIN subcommand. This authorization procedure ensures that files on remote hosts will not be accessible to unauthorized users.

   A variety of file operations may then be performed. These operations include transfering files in either direction as well as listing, erasing, renaming, or appending to accessible files on the remote system. In using the subcommands that perform these file operations, file names which are normally specified by a set of words are connected by periods ("."). File names in an environment in which CMS runs above IBM VM are normally specified as:

      filename filetype filemode.

When using the VM Interface Program for TCP/IP FTP, such names should be specified as:

      filename.filetype.filemode.

   Assistance in using the FTP facility may be obtained by issuing the FTP subcommand HELP. FTP will be exited and control will be returned to the CMS environment by issuing the FTP subcommand QUIT.

   The FTP command and its subcommands are described in the following pages. The subcommands appear in alphabetical order.

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NOTE: If abnormally terminating an FTP session, e.g., by typing "hx", pause a few moments before re-invoking FTP. This is to avoid errors in VMCF (the Virtual Machine Communication Facility), a component of CP used by FTP.

1.1 FTP

The File Transfer Protocol allows you, a CMS user, to transfer files between this host and any other host which supports the same protocol. The remote host may be specified when FTP is invoked, or via the CONNECT command from inside FTP.

After connecting, you must identify yourself to the remote host using the LOGIN subcommand. You may then perform a variety of file operations. These include transfering files in either direction as well as listing, erasing, renaming, or appending to accessible files on the remote system. You can leave FTP and return control to the CMS environment by issuing the FTP subcommand QUIT.

The format of the FTP command is:

```
+-----------------------------------------------------------------+
|   FTP        remotehost       portnumber    (DEBUG   TRACE       |
+-----------------------------------------------------------------+
```

where:

remotehost   is the name of the remote host computer to
                  which you want to connect. Note that the
                  remote host may be the same as the local host.
                  Specify the remote host via its internet host
                  name, or via its internet address in the form
                  nn.nn.nn.nn. (Note that the remote host's
                  name/address will be truncated to 8 characters
                  if entered from the command line. This
                  truncation can be avoided by waiting until you
                  are inside the FTP program and then issuing
                  the CONNECT subcommand.

portnumber   is the portnumber associated with some server
                  on the host machine. The default port is the
                  host's server FTP.

(DEBUG TRACE   these options may be specified to turn on the
                  generation of debugging or tracing output,
                  respectively.

Usage Notes:

1.   For a description of the File Transfer Protocol
     subcommands, see the subsection on FTP.

2.   If using the online HELP facility, type "HELP FTP MENU"
     for a menu of subcommands, or "HELP FTP <subcommand>"
     for a description of a particular subcommand.

3. If you abnormally terminate your FTP session (e.g., by typing "hx") then pause a few moments before re-invoking FTP.   This is to avoid errors in VMCF (Virtual Machine Communication Facility), a component of CP used by FTP.

Responses:

If the connection to the remote host is not made within a predetermined time limit, FTP will respond with the message:

    "Foreign host did not respond within OPEN timeout".

If the remote host is not prepared to handle the connection, FTP will respond with the message:

    "Foreign host rejected the open attempt".

1.2 ACCOUNT

Use the ACCOUNT subcommand to send host-dependent account information.

The format of the ACCOUNT subcommand is:

```
+--------------------------------------------------------------------+
   ACCOUNT      parameters
+--------------------------------------------------------------------+
```

where:

parameters   is a string identifying the user's account.

Usage Notes:

1.   Some hosts require account information for specific
      access, such as for storing files. For example, if the
      remote host runs the CMS operating system above VM,
      passwords are needed for read or write access to
      minidisks.

      If the remote host runs the VM Interface Program for
      TCP/IP FTP server component, the ACCOUNT command is used
      to supply a read or write password for the current
      directory, or minidisk. (To see how to establish a
      current directory, see the CWD subcommand.)

Possible Responses (from remote host):

230 - User logged in, proceed

202 - Command not implemented; superfluous on this host

530 - Not logged in

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
503 - Bad sequence of commands
421 - Service not available, closing TELNET connection

1.3 APPEND

Use the APPEND subcommand to append a local file to a remote file.

The format of the APPEND subcommand is:

```
+------------------------------------------------------------------
   APPEND      localfile  remotefile
+------------------------------------------------------------------
```

where:

localfile   is the name of the local file to be appended.
                 Specify   localfile   by   name.type.mode   or
                 name.type. The default mode is *.

remotefile   is the name of the file on the remote machine
                 to be appended to. If this name is normally
                 specified by a set of words, (e.g., name
                 type), concatenate the words with periods,
                 (e.g., name.type).   If the file does not yet
                 exist, it will be created.

Usage Notes:

1. To APPEND to a file on the remote host, you must have a
    working directory defined (see CWD), and you must have
    write privileges for it (see ACCOUNT).

Possible Responses (from remote host):

125 - Data connection already open; transfer starting
150 - File status okay; about to open data connection

110 - Restart marker reply

226 - Closing data connection; requested file action successful
250 - Requested file action okay, completed

425 - Can't open data connection
426 - Connection closed; transfer aborted
451 - Requested action aborted: local error in processing
551 - Requested action aborted: page type unknown
552 - Requested file action aborted: exceeded storage allocation

```
532 - Need account for storing files
450 - Requested file action not taken: file busy
550 - Requested action not taken: file not found or no access
452 - Requested action not taken: insufficient storage space in system
553 - Requested action not taken: file name not allowed

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection
530 - Not logged in
```

1.4 CMS

Use the CMS command prefix to pass a command to the local CMS environment.

The format for using CMS is:

```
+----------------------------------------------------------------------
   CMS           cms-command
+----------------------------------------------------------------------
```

where:

cms-command   is a CMS command. Do not use synonyms.

Usage Notes:

1.   Depending on the VM release/service level that you are
      running on, the CMS subcommand may or may not allow you
      to issue commands that utilize their own full-screen
      facilities (e.g., FILELIST, XEDIT).

Responses:

Any output of the CMS command will be displayed.   If the
command is unsuccessful, the Return Code will be printed.

1.5 CONNECT

Use the CONNECT subcommand to connect to a remote host.

The format of the CONNECT subcommand is:

```
+-------------------------------------------------------------------+
   CONNECT     hostname    portnumber
+-------------------------------------------------------------------+
```

where:

hostname   is the name of some remote host machine.
                    Specify the remote host via its internet host
                    name or via its internet address of the form
                    nn.nn.nn.nn. Note that the remote host may be
                    the same as the local host.

portnumber   is the portnumber associated with some server
              on the host machine. The default port is the
              host's server FTP.

Usage Notes:

1. If you are already connected to a remote host, you will
    not be allowed to connect to another.

Possible Responses (from remote host):

120 - Service ready in nnn minutes

220 - Service ready for new user
421 - Service not available, closing TELNET connection

1.6 CWD

Use the CWD subcommand to change the remote working directory or file group.

The format of the CWD subcommand is:

```
+------------------------------------------------------------------
   CWD          directory
+------------------------------------------------------------------
```

where:

directory   is the name of a file directory, or other
                     system- dependent file group designator, on
                     the remote host. If the remote host is using
                     VM and the VM Interface Program for TCP/IP FTP
                     server component, a file group is indicated by
                     USERID   VIRTUAL-DISK-ADDR, such as JONES.191
                     (or JONES 191). The default VIRTUAL-DISK-ADDR
                     is 191.

Usage Notes:

1.   This subcommand changes your working directory to the
     indicated file group only if you have appropriate
     privileges to do so. If the remote host is running VM
     and the VM Interface Program for TCP/IP server FTP, you
     will need to supply a read password for the minidisk if
     the password is other than ALL. Supply the password
     using the ACCOUNT subcommand. To get write privileges
     to your working directory, you will need to supply a
     write password for the minidisk; again, supply the
     password using the ACCOUNT subcommand. If there are no
     passwords on the minidisk (not even passwords of ALL),
     no access to the minidisk will be granted.

2.   Depending on the remote system, you may or may not have
     a default working directory defined at the time you log
     in (using the LOGIN subcommand). If the remote host is
     running VM and the VM Interface Program for TCP/IP
     server FTP, you will have your 191 minidisk defined as
     your working directory at the time you log in if you
     have a read password of ALL on that minidisk. If you
     have a write password of ALL, you will also have write
     privileges at the time you log in. Otherwise, you will
     need to use the ACCOUNT subcommand to supply a password

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to obtain write privileges. If you have no ALL
password, you will have no working directory defined at
log in time, and will have to use the CWD command to
define one.

Possible Responses (from remote host):

250 - Requested file action okay, completed

450 - Requested file action not taken: file busy
550 - Requested action not taken: file not found or no access

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection.
530 - Not logged in

1.7 GET

Use the GET subcommand to copy a remote file into a local file with name "localname".

The format of the GET subcommand is:

```
+----------------------------------------------------------------------
   GET          remotefile    localname   (REPLACE
+----------------------------------------------------------------------
```

where:

remotefile   is the name of the file to be retrieved from
              the remote host.   If this name is normally
              specified by a set of words, (e.g., name
              type), concatenate the words with periods,
              (e.g., name.type).

localname   is the name to be given to the local copy
              created as a result of the GET subcommand. The
              localname is specified by name.type.mode or
              name.type. The default mode is A.

(REPLACE   If a file by localname already exists, use the
              REPLACE option to allow the old file to be
              overwritten.

              Usage Notes:

1.   To GET a file from the remote host, you must have a
      working directory defined (see CWD), and you must have
      read privileges for it (see ACCOUNT).

2.   If a file with the name "localname" already exists and
      the REPLACE option is not used, then the old file is not
      overwritten and a message is given.

Possible Responses (from remote host):

125 - Data connection already open; transfer starting
150 - File status okay; about to open data connection

110 - Restart marker reply

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```
226 - Closing data connection; requested file action successful
250 - Requested file action okay, completed

425 - Can't open data connection
426 - Connection closed; transfer aborted
451 - Requested action aborted: local error in processing

450 - Requested file action not taken: file busy
550 - Requested action not taken: file not found or no access

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
421 - Service not available, closing TELNET connection.
530 - Not logged in
```

1.8 HELP

Use the HELP subcommand to assist you in using FTP.

The format of the HELP subcommand is:

```
+------------------------------------------------------------------------
   HELP          subcommand | SERVER  subcommand
+------------------------------------------------------------------------
```

where:

subcommand   is the name of any available subcommand.   The
                    subcommand can be specified by any unambiguous
                    prefix.

Usage Notes:

1.   If HELP is invoked without a parameter, then a general
description of FTP is presented.

2.   If invoked with the parameter (subcommand), then a
description of that subcommand is given.

3.   If invoked with the parameter SERVER, then whatever help
is offered by the remote host is given.

4.   If invoked with the parameters SERVER (subcommand), then
whatever the remote host has to say on that subcommand
is given.

Possible Responses (from remote host):

211 - System status, or system help reply
214 - Help message

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection.

<u>1.9 LIST</u>

Use the LIST subcommand to list the directory entry(s) of a
remote set of files, file group, or directory.

The format of the LIST subcommand is:

```
+---------------------------------------------------------------------+
   LIST         name
+---------------------------------------------------------------------+
```

where:

name   is the name of the set of remote file(s) whose
                    directory entry(s) are to be listed. Or, when
                    connecting to certain FTP server components
                    (not VM), the name of the remote directory or
                    file group whose contents are to be listed.

                    The default for "name" is the entire current
                    directory or file group.

                    The specification of a set of remote files is
                    dependent on the conventions of the remote
                    host. If the remote host is using VM and the
                    VM Interface Program for TCP/IP FTP server
                    component, a set of files is specified by
                    name.type. An * can be substituted for "name"
                    and/or "type".

                    The specification of a directory or file group
                    is also dependent on the conventions of the
                    remote host. If the remote host is using VM
                    and the VM Interface Program for TCP/IP FTP
                    server component, a file group is made to be
                    the current one by use of the CWD subcommand.

Usage Notes:

1.   Directory entries listed are complete, giving auxilliary
     information about the file(s). (For a list of just the
     filenames in a directory, use the NAMELIST subcommand.)

Possible Responses (from remote host):

```
125 - Data connection already open; transfer starting
150 - File status okay; about to open data connection

226 - Closing data connection; requested file action successful
250 - Requested file action okay, completed

425 - Can't open data connection
426 - Connection closed; transfer aborted
451 - Requested action aborted: local error in processing

450 - Requested file action not taken: file busy

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection.
530 - Not logged in
```

1.10 LOGIN

Use the LOGIN subcommand to identify yourself to the remote host. To identify yourself to a remote host running VM and the VM Interface Program for TCP/IP FTP server, you would say "LOGIN yourname yourpassword".

The format of the LOGIN subcommand is:

```
+-----------------------------------------------------------------------+
   LOGIN        username    password    account
+-----------------------------------------------------------------------+
```

where:

username   is your login name on the remote machine.

password   is your password on the remote machine. If you do not supply your password when invoking the LOGIN subcommand, you will be prompted for it.

account   is your account information on the remote host.   Many remote hosts require no account information to log in.

If the remote host is running VM and the VM Interface Program for TCP/IP server FTP, no account information is needed to to log in. The ACCOUNT subcommand is used, however, to supply a password to obtain a link to VM minidisk.   (See   the   ACCOUNT   and   CWD subcommands.)

Possible Responses (from remote host):

The LOGIN subcommand actually sends a USER, a PASSWORD, and, possibly, an ACCOUNT subcommand to the remote host.   The possible responses from each are as follows:

from USER subcommand ---

230 - User logged in, proceed

530 - Not logged in

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
421 - Service not available, closing TELNET connection

331 - User name okay, need password
332 - Need account for login

from PASSWORD subcommand ---

Same as for USER, except OMIT 331, and add:

202 - Command not implemented; superfluous on this host

503 - Bad sequence of commands

from ACCOUNT subcommand ---

Same as for PASSWORD, only not 332

1.11 LSTATUS

Use the LSTATUS subcommand to display local status information.

The format of the LSTATUS subcommand is:

```
+-----------------------------------------------------------------------+
   LSTATUS
+-----------------------------------------------------------------------+
```

The following information is displayed:

- The values of the boolean flags DEBUG and TRACE, which are settable by the user.
- The values of the boolean flags TEST and USEABORT, which are settable when the program is compiled, and which are meaningful only for someone working on the FTP program code.
- The foreign host name, port number, and login status.
- The local port number.
- The FTP format, carriage control, transfer mode, byte size and file delimiter.

1.12 MODE

Use the MODE subcommand to specify what mode, or data format, the file transfer is to take place in. MODE defines how the bits of the data are to be transmitted.

The format of the MODE subcommand is:

```
+-----------------------------------------------------------------------+
   MODE    B    S
+-----------------------------------------------------------------------+
```

where:

B   refers to BLOCK mode. When using BLOCK mode, data is transmitted as a series of data blocks, preceded by one or more header bytes.   BLOCK allows the transfer of binary data, while preserving the logical record length (LRECL) of the file.   Any representation type may be used with BLOCK mode (see the REPRESENT subcommand).

S   refers to STREAM mode. When using this mode, data is transmitted as a stream of bytes.   Any representation type may be used with STREAM mode (see the REPRESENT subcommand).

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STREAM mode is the default transfer mode.

Usage Notes:

1. Insure that files stored (see SEND command) with one set
    of transfer parameters is retrieved (see GET command)
    with the same set.

Possible Responses (from remote host):

200 - Command okay

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
504 - Command not implemented for that parameter
421 - Service not available, closing TELNET connection
530 - Not logged in

1.13 NAMELIST

Use the NAMELIST subcommand to list only the names of the
files in a remote set of files, file group, or directory.

The format of the NAMELIST subcommand is:

```
+----------------------------------------------------------------------+
    NAMELIST      name
+----------------------------------------------------------------------+
```

where:

name   is the name of the set of remote file(s) whose
                     directory entry(s) are to be listed. Or, when
                     connecting to certain FTP server components
                     (not VM), the name of the remote directory or
                     file group whose contents are to be listed.

                     The default for "name" is the entire current
                     directory or file group.

                     The specification of a set of remote files is
                     dependent on the conventions of the remote
                     host. If the remote host is using VM and the
                     VM Interface Program for TCP/IP FTP server
                     component, a set of files is specified by
                     name.type. An * can be substituted for "name"
                     and/or "type".

                     The specification of a directory or file group
                     is also dependent on the conventions of the
                     remote host. If the remote host is using VM
                     and the VM Interface Program for TCP/IP FTP
                     server component, a file group is made to be
                     the current one by use of the CWD subcommand.

Usage Notes:

1.   Just the filenames are listed by the NAMELIST
     subcommand. (For a list of complete directory entries,
     giving auxilliary information about the file(s), use the
     LIST subcommand.)
Possible Responses (from remote host):

```
125 - Data connection already open; transfer starting
150 - File status okay; about to open data connection

226 - Closing data connection; requested file action successful
250 - Requested file action okay, completed

425 - Can't open data connection
426 - Connection closed; transfer aborted
451 - Requested action aborted: local error in processing

450 - Requested file action not taken: file busy

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection.
530 - Not logged in
```

1.14 NOOP

Use the NOOP subcommand to see if the remote host is still responding.

The format of the NOOP subcommand is:

```
+------------------------------------------------------------------------+
   NOOP
+------------------------------------------------------------------------+
```

Possible Responses (from remote host):

200 - Command okay

500 - Syntax error, command unrecognized
421 - Service not available, closing TELNET connection

1.15 QUIT

Use the QUIT subcommand to exit FTP and disconnect from the remote host.

The format of the QUIT subcommand is:

```
+-----------------------------------------------------------------
   QUIT
+-----------------------------------------------------------------
```

Possible Responses (from remote host);

221 - Service closing connection
500 - Syntax error, command unrecognized

1.16 QUOTE

Use the QUOTE subcommand to send an uninterpreted string to the server port on the remote host.

The format of the QUOTE subcommand is:

```
+-----------------------------------------------------------------------+
   QUOTE         string
+-----------------------------------------------------------------------+
```

where:

string   is some string containing data you wish to
                      send verbatim to the port on the remote host.

Usage Notes:

1. QUOTE bypasses the local user FTP interface.

    It may be used to send a command to the server FTP that
    the user FTP does not recognize. For example, the VM
    Interface Program for TCP/IP FTP does not need, and so
    does not support, the FTP "ALLOCATE" command. If you
    wish to send the "ALLOCATE" command to the server FTP on
    a non-VM remote host that supports it, you could say
    "QUOTE ALLO 512", where ALLO is the FTP standard string
    for the "ALLOCATE" command, and 512 is the number of
    bytes you wish to allocate.

    Similarly, if you are using a user FTP other than the VM
    Interface Program for TCP/IP user FTP, and are connected
    to a host running VM and the VM Interface Program for
    TCP/IP server FTP, you may find that the user FTP does
    not support the "ACCOUNT" command. This command is
    necessary to send a password for obtaining a write link
    to a VM minidisk. Therefore, you could say "QUOTE ACCT
    (password)" to send the password to the VM Interface
    Program for TCP/IP server FTP.

    As a third example, if you are connected to some port on
    the remote host other than the server FTP port, (see the
    CONNECT command), the data exchange must follow the
    protocol recognized by the other port. In such a
    situation, you would have to use the QUOTE command for
    all communications with the remote host.

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1.17 RENAME

Use the RENAME subcommand to rename a file on the remote host.

The format of the RENAME subcommand is:

```
+----------------------------------------------------------------
   RENAME     originalname   newname
+----------------------------------------------------------------
```

where:

originalname   is the present name of the remote file. If
               this name is normally specified by a set of
               words, (e.g., name type), concatenate the
               words with periods, (e.g., name.type)

newname   is the new name desired for the remote file.
               If this name is normally specified by a set of
               words, (e.g., name type), concatenate the
               words with periods, (e.g., name.type)

Usage Notes:

1. If a file by the name of "newname" already exists, it is
    replaced.

Possible Responses (from remote host):

The RENAME subcommand actually sends a RENAME FROM and a RENAME TO t(
the remote host. The possible responses from each are as follows:

from RENAME FROM subcommand ---

450 - Requested file action not taken; file busy
550 - Requested action not taken; file not found or no access

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection
530 - Not logged in

350 - Requested file action pending further information

from RENAME TO subcommand ---

250 - Requested file action okay, completed

532 - Need account for storing files
553 - Requested action not taken: file name not allowed

503 - Bad sequence of commands
500, 501, 502, 421, and 530, as above

1.18 REPRESENT

Use the REPRESENT subcommand to specify what representation, or type, the file transfer is to take place in.

The format of the REPRESENT subcommand is:

```
+----------------------------------------------------------------
   REPRESENT    I   a  N    e  N
+----------------------------------------------------------------
```

where:

I   refers to IMAGE type. When using IMAGE type, data
            is sent as contiguous bits, packed into eight bit
            bytes.   It is intended for the efficient storage
            and retrieval of files and for the transfer of
            binary data.

a   N   refers to ASCII non-print type. This is the
            default transfer type. "Non-print" indicates that
            no vertical format infor- mation is transfered. If
            the transfered file is printed, standard values for
            spacing and margins may be assumed.

e   N   refers to EBCDIC non-print type. EBCDIC transfer
            type is useful when transfering files from one
            EBCDIC host to another.   Again,   "Non-print"
            indicates that no vertical format information is
            transfered (see description of "a N " above).

Usage Notes:

1. Insure that files stored (see SEND command) with one set
    of transfer parameters is retrieved (see GET command)
    with the same set.

Possible Responses (from remote host):

200 - Command okay

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
504 - Command not implemented for that parameter
421 - Service not available, closing TELNET connection
530 - Not logged in

1.19 SEND

Use the SEND subcommand to copy a local file into a file
with name "remotename".

The format of the SEND subcommand is:

```
+--------------------------------------------------------------------+
   SEND          localfile   remotename
+--------------------------------------------------------------------+
```

where:

localfile   is the name of the local file to be sent,
                 specified by name.type.mode or name.type. The
                 default mode is *.

remotename   is the name given to the delivered file on the
                 remote host.   If this name is normally
                 specified by a set of words, (e.g,. name
                 type), concatenate the words with periods,
                 (e.g., name.type)

Usage Notes:

1.   To SEND a file to the remote host, you must have a
     working directory defined (see CWD), and you must have
     write privileges for it (see ACCOUNT).

2.   If a file with the name "remotename" already exists on
     the remote host, it is replaced. Otherwise, a new file
     with that name is created.

Possible Responses (from remote host):

125 - Data connection already open; transfer starting
150 - File status okay; about to open data connection

110 - Restart marker reply

226 - Closing data connection; requested file action successful
250 - Requested file action okay, completed

425 - Can't open data connection
426 - Connection closed; transfer aborted

451 - Requested action aborted: local error in processing
551 - Requested action aborted: page type unknown
552 - Re<.uested file action aborted: exceeded storage allocation

532 - Need account for storing files
450 - Requested file action not taken: file busy
452 - Requested action not taken: insufficient storage space in syst
553 - Requested action not taken: file name not allowed

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
421 - Service not available, closing TELNET connection.
530 - Not logged in

1.20 SITE

Use the SITE subcommand to send site-dependent information essential for file transfer. Many remote hosts do not require such information. Remote hosts running VM and the VM Interface Program for TCP/IP FTP server component do not require site-dependent information.

The format of the SITE subcommand is:

```
+----------------------------------------------------------------------+
   SITE         parameters
+----------------------------------------------------------------------+
```

where:

parameters   are dependent on the site, or host

Possible Responses (from remote host):

200 - Command okay

202 - Command not implemented, superfluous on this host

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
530 - Not logged in

1.21 STATUS

Use the STATUS subcommand to check the connection status of the remote FTP.

The format of the STATUS subcommand is:

```
+------------------------------------------------------------------
   STATUS        pathname
+------------------------------------------------------------------
```

where:

pathname   is a remote directory or file for which status
                  information is requested. If omitted, general
                  status information is received. If the remote
                  host is using VM and the VM Interface Program
                  for TCP/IP FTP server component,   pathname
                  should   always   be omitted; a summary of
                  activity thus far will be sent in response.

Possible Responses (from remote host):

211 - System status, or system help reply
212 - Directory status
213 - File status

450 - Requested file action not taken: file busy

500 - Syntax error, command unrecognized
501 - Syntax error in parameters or arguments
502 - Command not implemented
421 - Service not available, closing TELNET connection.
530 - Not logged in

The TELNET protocol program allows you to remotely log in
to another host computer which supports the same protocol.

You may specify a remote host name when invoking TELNET.
Otherwise, you will be prompted to enter one of the
following: a remote host, "quit", or "?" for assistance.

Once you have successfully connected to the remote host,
helpful hints on using TELNET will be displayed on the
screen, and "...MORE" will appear in the lower right corner.
Hit the CLEAR key, and then follow the log in and usage
procedures of the remote host.   If the remote host is
running VM, you will see the VM log in screen.   If the
remote host is not running VM, you will see its log in
prompt. When logging in to a non-VM host, hit the PF3 or
PF15 key before entering your password; this will cause your
password to be invisible.

The format of the TELNET command is:

+--+
| TELNET   remotehost   portnumber   (LINEMODE |
+--+

where:

remotehost   is the name of the remote host machine to
                      which you want to log in.   Note that the
                      remote host may be the same as the local host.
                      Specify the remote host via its internet host
                      name, or via its internet address in the form
                      nn.nn.nn.nn.   (Note that the remote host's
                      name/address will be truncated to 8 characters
                      if entered from the command line.   This
                      truncation can be avoided by waiting for the
                      program to prompt you before entering the host
                      name.)

portnumber   is an optional parameter indicating the port
                      number on the remote host to which you want to
                      connect.   The default port number is 23, the
                      TELNET server port.   If connecting to a
                      non-TELNET port, the data exchange must follow
                      the protocol recognized by the other port.

(LINEMODE   the "LINEMODE" option (or "L" for short)
                      directs TELNET to operate in Line Mode (see
                      discussion below), and not even attempt

to use Transparent Mode (again, see discussion below).

This TELNET program must be invoked from an IBM 3270 type Display Station. The display stations currently supported are: the 3275 Model 2; the 3276 Models 2,3, and 4; the 3277 Model 2; the 3278 Models 2,3,4, and 5; and the 3279 Models 2 and 3.

If you use this program to connect to a remote host which is running the IBM VM/SP operating system and has the VM Interface Program for TCP/IP TELNET server program, you will find that your remote terminal session will look exactly like a local terminal session. In particular, all full-screen capabilites of the remote host will be realized at your local Display Station. This look-alike behavior is referred to as "Transparent Mode". On the other hand, if you use this program to connect to a remote host which is running some other operating system, or which does not have a TELNET server program that deals with Transparent Mode, you will find that output from the remote host will be displayed on your screen one line after the other, without full-screen capabilities. This behavior is referred to as "Line Mode".

When connected to a remote host via TELNET, you use the commands and facilities supplied by the remote host. There are also some capabilites that the TELNET Protocol itself provides for you. These capabilities are provided via the use of TELNET Commands. TELNET Commands allow you to do such things as interrupt the remote host command you are currently executing, or query the status of the TELNET connection. The TELNET Commands are described below.

2.1 TELNET COMMANDS:

Several TELNET commands are available to the user. To invoke a TELNET command, hit a key to get the program's attention, as follows:

- If in Transparent Mode: Hit the PA1 key.

- If in Line Mode: Hit any PF key except
  PF1, 2, 3, or 13, 14, 15.

After hitting the key, you will be prompted to enter a TELNET command. Enter any of the commands described below. They may be entered in upper or lower case.

HELP (or, ?) -- Receive assistance.

36

AYT -- Are You There? Query the existence of the
connection.   IP   -- Interrupt Process; abort the current
command.

AO   -- Abort Output; stop displaying output for current
          command.
SYNCH -- Clear the data path to the remote site (except for
          any TELNET commands in the data path).

QUIT -- Quit the TELNET session. If you are TELNETed to a
          CMS virtual machine, and you use the TELNET QUIT
          command, you will be disconnected from the remote
          virtual machine, not logged off of it.

PA1 -- Relevant only when in Transparent Mode. Sends a PA1
          key over the TELNET connection.

Usage Notes:

1.   The VM Interface Program for TCP/IP TELNET program must
     be invoked from an IBM 3270 type Display Station.

2.   If you are using TELNET in Line Mode:

     a.   Use a "¢" to indicate a control character.
          (E.g., Ctl-p is ¢p)

     b.   Use a "¢" before the <ENTER> key to suppress the
          sending of a carriage return and line feed.

          This mechanism is useful for continuing a line
          without introducing a new line. Do this by ending
          the continued line with "¢".
          (E.g.,   purge rdr 45 78 99 67 69¢<ENTER>
                    56 44   )

          This mechanism can be even more useful if the command
          environment of the remote host is one which normally
          responds to the typing of a single non-<ENTER> character,
          with no carriage return and line feed after it. Although
          you must hit <ENTER> after the character in order for
          the local TELNET program to accept it, you can precede
          the <ENTER> with a "¢" to suppress the carriage
          return and line feed. (E.g.,   a¢<ENTER>   )

     c.   Use PFkey 1 or 13 to retrieve previous input line.

     d.   Use PFkey 2 or 14 to scroll halfway up.

     e.   Use PFkey 3 or 15 to turn off display of user-line.
          This key is designed to be used before entering your
          password.

3.   If the connection is abnormally broken, TELNET will
     quit.
4.   When you log off, the TELNET connection will be broken,
     and TELNET will quit.

Responses: If the connection to the remote host is not made
within a predetermined time limit, TELNET will respond with
the message:

     "Foreign host did not respond within OPEN timeout".

If the remote host is not prepared to handle the connection,
TELNET will respond with the message:

     "Foreign host rejected the open attempt".

NOTE to Users Connecting To a VM/SP Host From a Non-VM/SP
Host:

If you invoke a TELNET Protocol program from a non-VM/SP
host to connect to a VM/SP host, "Transparent Mode" is not
possible.   In particular, if you are using a terminal that
does not behave like a 3270 Display Station,   then VM/SP
programs that use full-screen capabilities will perform in a
degraded fashion at your terminal. Output will be displayed
in "Line Mode", one line immediately following the next.
Input must be entered from the default user input line, the
bottom line of the screen.   Also, even if your local host
echoes the commands you enter, you will see the normal CMS
command echo.

CHAPTER 3:   S M T P -- SIMPLE MAIL TRANSFER PROTOCOL

The Simple Mail Transfer Protocol (SMTP) allows you, a CMS user, to send and receive "notes" and files to and from other computer users on remote hosts.

SMTP is not used directly by you. Instead, you can use VM Interface Program for TCP/IP's slightly modified version of the CMS "NOTE" program to compose and send notes, or VM Interface Program for TCP/IP's modified version of the CMS "SENDFILE" program to send files. The "mailing address" of the user(s) to which you want to send a note or file, or a nickname associated with the user(s), must be specified when invoking "NOTE" or "SENDFILE". (See the "NOTE", "SENDFILE", and "NAMES" commands in the "IBM VM/SP CMS Command and Macro Reference".) Notes and files that you send which have (an) address(es) recognized by SMTP are forwarded to a virtual machine called SMTPUSER on the local host. The SMTPUSER virtual machine will see that your message is delivered to the remote host. Messages to local users or to users with addresses not known by SMTP will be handled by RSCS.

Similarly, computer users on remote hosts can send you messages. A virtual machine called PROFSMTP will receive these notes and spool them to your virtual reader.

| For sites which use PROFS, a method of linking PROFS to
| SMTP is provided in this release. Refer to Appendix A for
| how to use PROFS to send mail to the network; refer to the
| Installation Guide for how to install PROFSMTP.

You may use the VM Interface Program for TCP/IP modified versions of "NOTE" and "SENDFILE" just as you would use the original CMS versions. Any differences will be transparent to you. One small point, however, applies when using the VM Interface Program for TCP/IP "NOTE". The "NOTE" program automatically insert a blank line after the headings, to separate the headings from the body of the note. When using the VM Interface Program for TCP/IP "NOTE", it is especially important that this blank line be maintained.

NOTE: In some environments, the "NOTE"/SMTP cooperation does not work properly if the virtual storage size of your virtual machine is larger than 1500K. If this is the case in your environment, simply decrease your virtual machine size temporarily to about 1M, using the DEFINE command, i.e., "DEFINE STORAGE 1M". Reset it to its original size afterward.

     The TFTP program allows a user to transfer files via
the TFTP protocol (DARPA RFC 783). The Trival File Transfer
Protocol uses a simple lock-step method of acknowledging
each nonterminal packet separately. This program lacks most
features of FTP. The only action it can perform is to
read/write files from/to a remote server. It can not list
directories, and has no provision for user authentication.
TFTP   is implemented using the Internet User Datagram
Protocol (UDP; DARPA RFC 768).

The format of the TFTP command is:


```
+----------------------------------------------------------------
   TFTP         remotehost
+----------------------------------------------------------------
```


where:

remotehost   is the name of the remote host computer to
                which you want to connect. Specify the remote
                host via its internet host name, or via its
                internet address in the form nn.nn.nn.nn.
                (Note that the remote host's name/address will
                be truncated to 8 characters if entered from
                the command line.   This truncation can be
                avoided by waiting until you are inside the
                TFTP program and then issuing the CONNECT
                SUBCOMMAND.

Responses:

TFTP: Host "hostname" not known.

4.1 CONNECT

Use the CONNECT subcommand to identify with which internet host one wishes to transfer. TFTP will not allow a transfer until one has successfully connected to an internet host.

The format of the CONNECT subcommand is:

```
+----------------------------------------------------------------------+
| CONNECT      hostname                                                 |
+----------------------------------------------------------------------+
```

where:

hostname   is the name of the internet host to which the user
                would like to transfer.

Possible Responses:

TFTP: Host "hostname" not known.

4.2 GET

Use the GET subcommand to retrieve a file from the foreign TFTP serv(
The file will be transfered using the currently selected mode (see
the MODE command). The file is created/overwritten with a record
format of variable.

The format of the GET subcommand is:

```
+---------------------------------------------------------------------
| GET          localfile foreignfile
+---------------------------------------------------------------------
```

where:

localfile   is the name to be given to the local copy created as a
                result of the GET subcommand.
                The localfile is specified by name.type.mode or name.t)
                The default mode is A.

foreignfile   is the name of the file to be retrieved from the
                remote host.

Usage Notes:

1.   If a file with the name "localname" already exists then
     that file is overwritten.

2.   If the transfer mode is octet, then the file is created
     with a record length of 512.

3.   When a file is stored in netascii, and an empty line is
     found, that line is written to the file as a single
     space. This occurs because it is not possible to write a
     zero length record to a CMS file. Thus, if a file is
     transferred into vm, and then back out, all previously
     empty lines will contain a single space.

     Possible Responses:

     TFTP: not connected.
     TFTP: Invalid local filename
     TFTP: Local name too long
     TFTP: A message from the remote server

4.3 MAXPKT

Use the MAXPKT subcommand to set the maximum number of times a packet may be retransmitted.

The format of the MAXPKT subcommand is:

```
+--------------------------------------------------------------------+
| MAXPKT        NumberOfTimes                                        |
+--------------------------------------------------------------------+
```

where:

NumberOfTimes   is the maximum number of times a packet may
                     be retransmitted.

Usage Notes:

1.   The default value is 5.

2.   See also the REXMIT subcommand.

Possible Responses:
TFTP: Bad packet count - packet count remains: nnn.

4.4 MODE

Use the MODE subcommand to change the TFTP transfer mode.
The transfer mode determines how the data bits are transmitted.

The format of the MODE subcommand is:

```
+-----------------------------------------------------------------------
| MODE        OCTET | NETASCII
+-----------------------------------------------------------------------
```

where:
OCTET   sets the mode to octet. In this mode, all data is
               is treated as raw 8 bit bytes. No conversion is
               performed on the bytes.

NETASCII   sets the mode to NETASCII. In this mode, data is
               transferred in ASCII (as per the "USA Standard Code for
               Information Interchange" with the modifications specif'
               in the "Telnet Protocol Specification"). Thus, in this
               mode, bytes are converted from EBCDIC to ASCII when the
               file is sent. When a file is received, bytes are
               converted from ASCII to EBCDIC.

Usage Notes:

1. The default mode is NETASCII.

Possible Responses:
TFTP: Unknown mode.

4.5 PUT

Use the PUT subcommand to send a file to the foreign TFTP server. The file will be transferred using the currently selected mode (see the MODE command).

The format of the PUT subcommand is:

```
+---------------------------------------------------------------------+
| PUT          localfile foreignfile                                  |
+---------------------------------------------------------------------+
```

where:

localfile   is the name of the local file to be transferred to
                the remote host.
                The localfile is specified by name.type.mode or name.type.
                The default mode is *.

foreignfile   is the name of the file to be created at the
                remote host.

Possible Responses:

TFTP: not connected.
TFTP: Invalid local filename
TFTP: Local name too long
TFTP: A message from the remote server

4.6 QUIT

Use the QUIT subcommand to leave the TFTP program.

The format of the QUIT subcommand is:

```
+-----------------------------------------------------------------------
| QUIT
+-----------------------------------------------------------------------
```

4.7 REXMIT

Use the REXMIT subcommand to change the per packet timeout value.
Whenever TFTP sends a packet for which it expects a subsequent packet
from the remote TFTP, a timer is set. If this timer expires before
the subsequent packet is received, then the original packet is
retransmitted. This packet will be retransmitted a specified number
of times. If the packet is retransmitted the maximum number of times,
and nothing is received from the foreign TFTP, the transfer will
be terminated.

The format of the REXMIT subcommand is:

```
+--------------------------------------------------------------------+
| REXMIT       NumberOfSeconds                                       |
+--------------------------------------------------------------------+
```

where:
NumberOfSeconds   is the number of seconds TFTP will wait
before
                       retransmitting a packet.

Usage Notes:

1. The default value is 5 seconds.

2. See also the MAXPKT subcommand.

Possible Responses:

TFTP: bad rexmit interval - interval remains: nnn.

4.8 STATUS

Use the STATUS subcommand to display local status information
about TFTP. The information displayed is:

    Name of connected host (or not connected).
    Transfer mode.
    Whether packet tracing is on or off.
    Packet retransmit interval (in seconds).
    Packet retry count (in packets).

The format of the STATUS subcommand is:

```
+-------------------------------------------------------------------
| STATUS
+-------------------------------------------------------------------
```

4.9 TRACE

Use the TRACE subcommand to toggle the tracing of TFTP packets.
When enabled, information about each TFTP packet sent or received is
displayed. The format of the display is:

    direction: (size) (kind) per-packet-information

where direction is either "Sending" or "Received", size is
the number of bytes in the packet, kind is the type of TFTP
packet (see note 1), and per-packet-information is other
interesting data which is containted in the packet (see note
2).

The format of the TRACE subcommand is:

+---+
| TRACE |
+---+

Usage Notes:

1.   The possible TFTP packet types are:
        RRQ   - read request.
        WRQ   - write request.
        DATA - data packet.
        ACK   - acknowledgement packet.
        ERROR - error packet.

2.   Information displayed about each packet is:
        RRQ   - remote filename, transfer mode.
        WRQ   - remote filename, transfer mode.
        DATA - block number.
        ACK   - block number.
        ERROR - error number, error text (if any).

     The NETSTAT program allows you to query the TCP/IP
virtual machine for information about the network
connections to and from the local host.

The format of the NETSTAT command is:

```
+------------------------------------------------------------------
   NETSTAT    CONN   HOME    CLIENTS   GATE    ALL   |  INTERVAL  N
+------------------------------------------------------------------
```

where:

CONN   Displays information about active TCP
               connections. For each active TCP connection,
               the user id, local socket, foreign socket, and
               connection state are displayed. An active
               connection is one that is not in the CLOSED
               state. Note: CONN is the default function.

HOME   Displays the home address list. For each entry
               in the list, the internet address and network
               driver are displayed.

CLIENTS   Displays information about clients known to
               TCP.   For each client, the following
               information is displayed: the client name,
               the client's authorization, the notes handled
               by the client, the elapsed time since the
               client was last touched, the elapsed time
               since the client was last forced, and the
               client's VMCF error count.

GATE   Displays information about gateways known to
               TCP.   For each gateway, the following
               information is displayed: the address of the
               network, the first hop address, the driver
               used by the first hop, and the packet size
               used by the first hop.

INTERVAL   N   Displays information about active TCP
               connections.   The display uses the entire
               screen. By default, the screen is updated
               every 20 seconds.   If the optional "N"
               parameter is used, then the update frequency
               is set to "N".   For each connection, the
               following information is displayed: the user
               id, bytes received on the connection, bytes
               sent on the connection, the local port, the
               foreign socket, and the idle time. Note that

the idle time refers to the time the user id was idle within TCP.

The INTERVAL mode can be exited by depressing the enter key.

NOTE: this mode can only be used on a model 3278 display station.

ALL   Displays all information known about every TCP connection.   This   mode   is   intended   for debugging TCP and not recommended for anyone with a weak stomach.

?   Displays a brief help message.

    Any   elapsed   time   is   printed   in   the   form hours:minutes:seconds.   Internet addresses are interpreted and printed symbolically if possible. If an address cannot be interpreted, it is displayed in "dot" notation. Addresses that are unspecified are displayed as an asterisk (*). Well known port numbers are displayed symbolically. Other port numbers are displayed numerically. A socket is displayed as an internet address, two periods (..), and a port.

    More than one command can be placed on the command line. The exception to this rule is that INTERVAL must be specified without any other commands.

APPENDIX A -- PROFS TO SMTP INTERFACE

An interface that allows you as a PROFS user to send mail directly from PROFS to a user on a TCP/IP based network is provided here. It requires a virtual machine named PROFSMTP to be created (refer to Installation Guide).

You must address a copy of the note to the userid 'PROFSMTP'. That is, somewhere in your note, in the 'Send To:' field or with a '.cc' or '.ad', code the name 'PROFSMTP'. Then in the text portion of your note, code a new dot command, '.ddn' with the proper address information for the remote SMTP user. The '.ddn' must begin in column 1 just like all other dot commands. There may be multiple addresses on the line separated by one or more blanks. You may also code more than one '.ddn' if necessary. For example:

```
                         SEND A NOTE
Send To: profsmtp
From: UserA
Subject: Using SMTP
    This is for demonstration purposes only.
```

This would send the note to userids 'user1' at node 'hostname1', 'user2' at node 'hostname2' and 'thisisuser3' at 'longhostname'. Notice either the hostname, userid or both can be either shorter or longer than eight characters. A few other things to remember are that unlike other dot commands:

a) The '.ddn' will not be removed from the text of the note when sent to other PROFS users on the local system. They are removed from the copies sent to the remote SMTP users however.

b) Since PROFS treats the '.ddn' as text, it is important that you be careful when using PF6 (FORMAT) while creating a note. PROFS may reposition your '.ddn' in such a way that it will not be processed later.

c) The addresses on the '.ddn' must have a left parenthesis separating the node and userid. The right parenthesis is optional.

d) No imbedded blanks within the addresses.

e) There must be one or more blanks separating multiple addresses.

f) For those hostnames and/or userids are over 8 characters long, they can't be placed in distribution lists or your nickname file.

For example, you send a PROFS note as follows:

SEND A NOTE
Send To: profsmtp localusr
From: UsrrA
Subject: Using SMTP
    This is for demonstration purposes only.

This procedure should enable you to send mail to any user on
a remote TCP/IP SMTP based host.

    For incoming mail, have your remote user address it to
your PROFS userid at your local Internet host name. The
format that you'll see for notes received from a remote
TCP/IP SMTP based network user is slightly different than
what you are used to on PROFS. A note sent to you from a
remote TCP/IP SMTP based network user, will appear as
follows on the 'OPEN THE MAIL' screen:

                        OPEN THE MAIL

 Press the PF key for the document you want.   DUE
      ----FROM----   -----TO-----   TYPE DATE DOCUMENT NO.
 PF1 PROFSMTP--LOCALSYS USERID --LOCALSYS Note   MM/DD/YY HH:MM
      Subject: NO SUBJECT
 PF2 SYSADMIN--LOCALSYS All Profs Users   Note   MM/DD/YY HH:MM
           Subject: Using Profs/SMTP Interface

The standard PF key definitions that users are all familiar
with are left off. A note you have received from someone on
TCP/IP SMTP based network will always appear from user
PROFSMTP.   This is the service machine that receives all
mail from TCP/IP SMTP based network user, converts it to a
CMS note format, not PROFS, and then sends it to you.
PROFSMTP may be modified to put these notes into a PROFS
format but for now this is what you can expect to see.
Depending on the local installation you may name your local
system as one of the RSCS system names which is different
from your TCP/IP based internet host name.   Thus from the
PROFS, you see the local system name. The note itself also
appears differently as shown below:

                      LOOK AT THE NOTE
 From: PROFSMTP--HCCVMMSS   Date and time
 From: PROFSMTP--HCCVMMSS   12/19/85 11:05:07
 ==
 Received: from hostname1.netA.Domain by hostname2.Domain
                                    on 12/19/85 at 11:05
 Date: 19 Dec 85 09:40:28 CST
 From: user1+hostname1.netA.Domain
 To: userX+hostname2.Domain
 This is for demonstration purposes only.
                     E N D   O F   N O T E

 As you may have guessed, you will not be able to use the
'REPLY' function successfully with these notes since the
reply will be sent to 'PROFSMTP' and not the original
sender.   You will have to either use the 'FORWARD' function
                                                          53

or send a new note to be able to send a reply to the remote TCP/IP SMTP based network user.

The following list of restrictions and hints for using the '.ddn' command will help avoid problems when sending PROFS notes to users on remote SMTP hosts. Remember, the '.ddn' is used when sending mail to users on TCP/IP based networks, for example, ARPANET or MILNET.

Restrictions:

1) Send a copy of the note to 'PROFSMTP'.

In order for the '.ddn' commands to be processed, you must send one copy of the note directly to userid 'PROFSMTP'. That is you must enter 'PROFSMTP' in either the send to field, or on a '.cc' or '.ad' command. You only need to code 'PROFSMTP' once ,however, since all '.ddn' statements within the note will be processed.

2) There must be a left parenthesis '(' in the address field.

The addresses on the '.ddn' must be in the form of, hostname(userid). The left parenthesis is required as the separator between the hostname and userid. The right parenthesis is optional.

3) No imbedded blanks within the address.

You may now code multiple addresses on a '.ddn' statement each separated by one or more blanks. Therefore, there can be no blanks imbedded within a single address.

4) The '.ddn' must begin in column one, like all other dot commands.

Even though PROFS does not know what a '.ddn' statement is, 'PROFSMTP' will only scan columns 1 thru 5 for '.ddn' when looking for '.ddn'.

5) The '.ddn' must be on a line all by itself.

Like the other PROFS dot commands, you may not place text from your note on a line with a '.ddn' in column one. This text would be interpreted as additional addressees, all of which would no doubt be invalid.

6) Use the format key (PF6) before entering your '.ddn' statements.

Since PROFS does not recognize the '.ddn' as a special command, it treats the '.ddn' like any other text. Therefore, if you're not careful, when you format the note any '.ddn' statements you entered may no longer be

in column one and text from the remainder of the note
may have been placed on the line with your address
information.

7) Delete all '.ddn's from a note before you 'RESEND' it
   with your own '.ddn' statement added.

   Since PROFS treats the '.ddn' as text, it is not deleted
   from notes where it was used and a copy was also sent to
   you. If you then 'RESEND' the note and add your own
   '.ddn' statement sending a copy to 'PROFSMTP', any
   other '.ddn's that were already in the note will also
   be processed. 'PROFSMTP' has no way of determining
   which '.ddn's you entered and which ones were already
   there. Remember, when you 'RESEND' a note you can modify
   the existing text as though you created the note.

   You do not have this problem when you 'FORWARD' the
   note, since PROFS places a special line between any text
   you add and the note you are forwarding. Only '.ddn'
   statements found preceding this special line will be
   processed.

Hint:

Use the '.gf' command for frequently used '.ddn' statements.

If you frequently send notes to the same SMTP users, it will
probably save you time and prevent errors to create a small
file containing a '.ad' for PROFSMTP and the necessary
'.ddn' statements and them use either a the '.gf' or '.im'
command to include the file in your note.

For example:

Create the file 'SMTP MAIL' using xedit. This file would
contain the following lines:

Then, when you want to send mail to these three users,
create your note, format it, and then put in either a '.gf
smtp mail' or '.im ddn mail' as shown below.

                        SEND A NOTE
Send To: pal
From: userA
Subject: Using SMTP
    This is for demonstration purposes only.
    This note was created and then reformatted prior to entering
    the following line.

    Now when you hit enter, your note will look like;

                        SEND A NOTE
Send To: pal

From: userA
Subject: Using SMTP
    This is for demonstration purposes only.
    This note was created and then reformatted prior to entering
    the following line.
            hostname2(remote-user2)

As you can see, you have automatically sent a copy to
'PROFSMTP', saved all the keystrokes needed for the '.ddn'
line, and eliminated the possibility for typing errors while
entering the addressees.

WARNING:

Do not reply to a note that you received from a remote SMTP
user.   Since all mail entering our system from TCP/IP SMTP
based network is processed by userid 'PROFSMTP' before being
sent to you, it will always appear as though 'PROFSMTP' sent
you the note. Therefore, if you use the 'REPLY' function,
your reply is sent to 'PROFSMTP' and not the original user
you really wished to reply to. At this time you can either
'FORWARD' a reply to the remote user, send him a new note,
or use 'RESEND' to add your comments and then delete the
remainder of the note before sending it.

The following messages may be sent to you by PROFSMTP when
sending mail to remote TCP/IP SMTP based network mailboxes.

1) 'address' is an invalid format. Please correct it and
    resend your note.

    Explanation: The address displayed does not contain a
    left parenthesis '(' separating the hostname from the
    userid. This address was on a '.ddn' statement within
    your note.

    System Action: None

    User Action: Using the 'RESEND' function, correct this
    address and resend the note to PROFSMTP. Delete all
    other addressees, since the note has already been sent
    to all valid recipients.

2) 'hostname' is not valid. Please check it and then resend
    your note.

    Explanation: The hostname displayed as 'hostname' does
    not match any known Internet host names in the HOSTS
    address tables received from the Network Information
    Center.

    System Action: None

    User Action:Verify the spelling of 'hostname'. If
    needed, use the 'RESEND' function to send the note to

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just the userid/hostname in error, all valid
userid/hostname combinations have already been sent a
copy. If the spelling is correct, contact the local
system administrator for assistance.

3) There is no .DDN data in your note. It has been returned
to your reader.

Explanation: You mailed a note directly to PROFSMTP but
did not place a '.ddn' within the text of the note.

System Action: The note is returned to your reader.

User Action: Use the 'RESEND' function to add the needed
'.ddn' and mail the note to PROFSMTP again.

4) A non-PROFS note was received from your user-id. It is
being returned.

Explanation: PROFSMTP has received a file from you that
is not a PROFS note. For example, an improperly tagged
print file.

System Action: The file is returned to your reader.

User Action: If this is printed output, you may correct
the tag information on the file while its in your reader
and transfer it back to RSCS. Or you may discard it and
try printing it again. If you used 'SENDFILE', or a
similar command, to send this file to PROFSMTP, discard
it. You may not use 'SENDFILE' to send files to
PROFSMTP. If you don't know how this file got to
PROFSMTP, contact the PROFS systems programmers for
assistance.

5) An error occurred reading your note. It is being
returned to you.

Explanation: A non-zero return-code was received while
attempting to read your note to disk for processing.

System Action: The note is returned to your reader.

User Action: Use the 'RESEND' function to send the note
again, only addressing it to those network recipients
you were mailing it too. If the error occurs again,
notify the PROFS systems programmer.

6) An error has occurred processing your TCP/IP SMTP based
network note. Please resend it. If the error occurs
again, notify the PROFS system programmers.

Explanation: A non-zero return code was received from
Xedit while processing your note on disk.

System Action: A copy of your note is saved on disk to
aid the system programmers in determining the error.

User Action: Use the 'RESEND' function to send the note
again, only addressing it to those network recipients
you were mailing it to. If the error occurs again,
notify the PROFS systems programmer.

VM Interface Program for TCP/IP   5798-DRG

User's Guide

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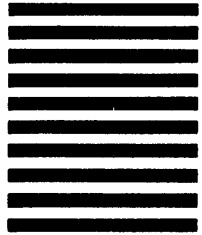
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