Norsk Data

COSMOS User Guide

ND-60.163.4 EN

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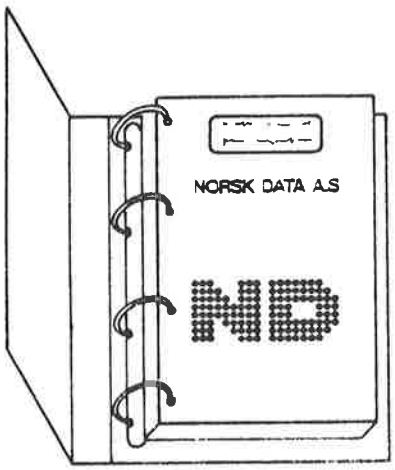

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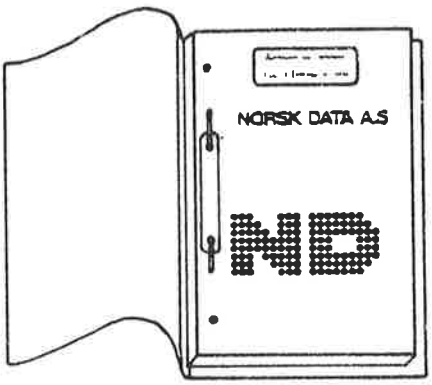

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PREFACE

THE PRODUCT

This manual documents the COSMOS end user communications facilities in version D of:

COSMOS Basic Module ND 210374D

as implemented in version K of SINTRAN III.

THE READER

This manual is intended for the timesharing user, for instance, a user of NOTIS-WP, who needs a user guide to the communications facilities of COSMOS.

PREREQUISITE KNOWLEDGE

You should be familiar with the SINTRAN III operating system. Recommended manuals supplying this knowledge are:

SINTRAN III Introduction ND-60.125
SINTRAN III Timesharing/Batch Guide ND-60.132

THE MANUAL

This manual describes commands used by timesharing and batch users. The commands in COSMOS are arranged according to how they function. For alphabetical references, see the index at the back of this manual.

Here are some other useful sources of information:

COSMOS User Card ND-99.001

may be used for quick reference purposes. It is a summary of the most important information in this manual.

If you are a programmer, you will be interested in how to use remote file access and other COSMOS facilities in programs written in FORTRAN, MAC and other programming languages. That information is covered in the following manual:

COSMOS Programmer Guide	ND-60.164

For a detailed description of how to install and operate COSMOS under SINTRAN III see:

COSMOS Operator Guide	ND-30.025

OTHER RELATED MANUALS

Introduction to Data Communication	ND-60.181
SINTRAN III Reference Manual	ND-60.128
SINTRAN III Real Time Guide	ND-60.133
SINTRAN III System Supervisor	ND-30.003

MANUAL STANDARDS

In our examples, user input is in BOLD FONT and given in UPPERCASE letters. This is to make it easy for you to know what you are expected to input. You may, of course, use lowercase letters in SINTRAN III and in COSMOS.

In descriptions of commands, the parameters are enclosed in angular brackets "<" and ">". For example, @CONNECT-TO <system name> is the description of the command. If the system name is MINOR, you write @CONNECT-TO MINOR, followed by carriage return.

In this manual, any parentheses in the parameters must be included when you give that command. Directory and user information, as well as user password, must be enclosed in parentheses when using Remote File Access.

CHANGES FROM PREVIOUS VERSION

This manual has been revised to cover version D of COSMOS and version K of SINTRAN III. The previous manual covered version B of COSMOS and version I of SINTRAN III.

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CHAPTER 1
INTRODUCTION TO THE COSMOS CONCEPT

Synopsis

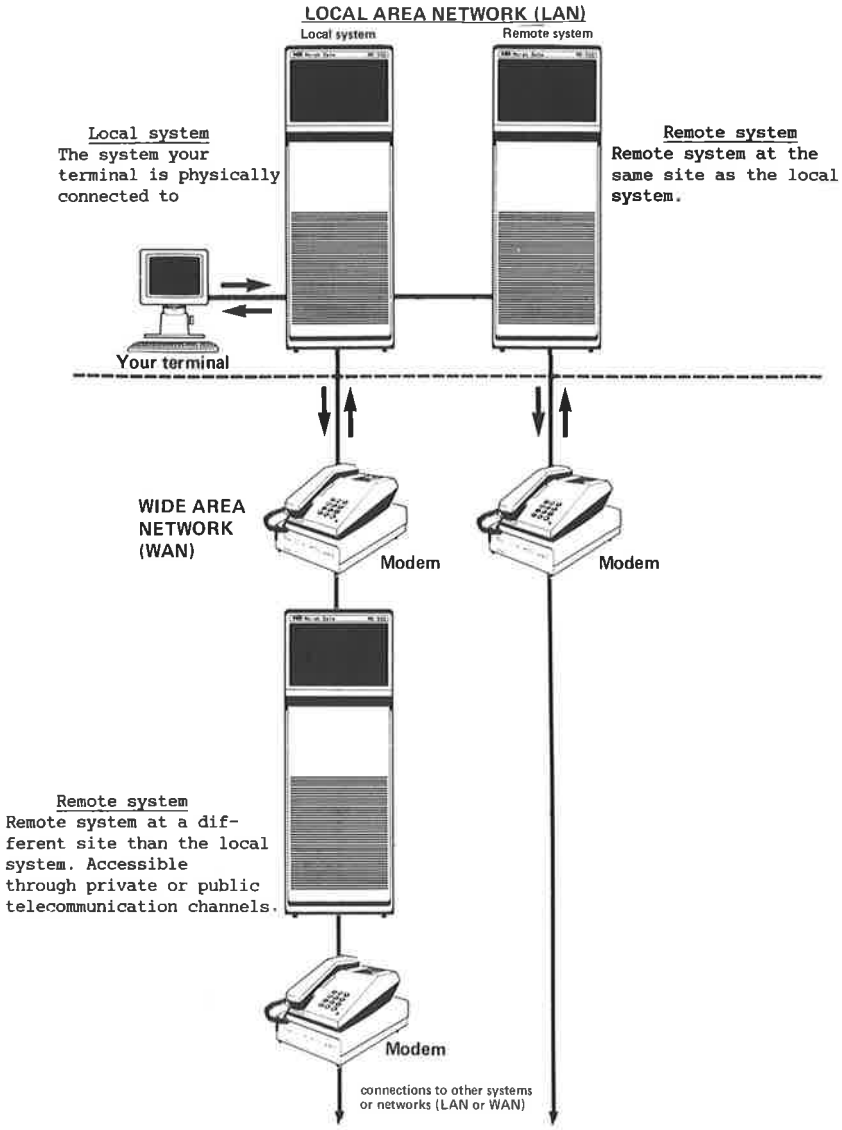
This chapter is written for the end user who does not have any prerequisite knowledge of data communications and computer networks. An experienced user may skip the first part, but the sections giving an outline of the COSMOS concept might prove useful.

The first part of this chapter sketches a typical data communications network system. The last two sections introduce the COSMOS concept and list its many facilities.

Note: a list of common data processing terms, abbreviations and acronyms is given in the glossary, appendix J, which starts on page 145. Use it when you encounter words that you are unfamiliar with.

A Typical Network System

In the following diagram, arrows indicate the possible flow of data:



A typical data communications network configuration

The figure illustrates a typical data communications network configuration. The network may consist of ND computers or an ND computer along with other vendors' computer systems. If non-ND systems are used, they must use internationally accepted and/or de facto standards.

The basic aim of such a network system is to place computer resources where they are needed: at the desk for word processing, in the factory for production and scheduling, and in the boardroom for planning and review. It also allows users on different systems to share printers, programs, and to exchange data.

In the next sections, the COSMOS concept will be outlined to provide you with insight into modern network systems.

THE COSMOS CONCEPT

Norsk Data's COSMOS Network System is a fully integrated hardware and software product. It allows you to distribute processing and create a communications environment on ND computer systems in an effective way.

COSMOS lets two or more computers and terminals interconnect without requiring that you, the end user, know how the network is routed. You do not even have to know if you are using a Local Area Network (LAN) or Wide Area Network (WAN). COSMOS provides a standard ND communications architecture which you use in the same way on all ND systems and on both network types.

All ND end user software can utilize the communications and network services provided by COSMOS. This means that systems can be implemented without major software changes or redesign.

The following keywords are central to the COSMOS concept:

SIMPLICITY

No complex procedures are needed to utilize the network system.

RESOURCE SHARING

Lets you share important resources (printers, databases, large programs, etc.). They may even be shared by users spread over any geographical area.

DISTRIBUTING APPLICATIONS AND WORK LOADS

This simplifies the work of your system supervisor. A heavy workload on one computer can be eased by using less utilized remote computer systems for some tasks.

INTERCONNECTING NETWORKS

This allows you to connect your network system to WAN's with total software transparency. In other words COSMOS is not a rigidly defined hardware/software system package. COSMOS is a communications and network concept which will constantly be expanded and updated, fulfilling today's and tomorrow's needs for effective data communications.

In the following section, an overview of the communications facilities of COSMOS is given.

THE COSMOS COMMUNICATIONS FACILITIES

The following subsections give a brief introduction to the facilities available to a typical end user (for example a NOTIS-WP user), on COSMOS.

Terminal access to remote systems

By using the CONNECT-TO program, you can connect your terminal to another system and use that system as if you were physically connected to it. COSMOS acts as a "software cable" to the remote system. You use the remote system exactly as you use your local

system. Your terminal will still work in the same way; terminal type, terminal mode, escape character, etc., will not change, even if default values for those things are different on the remote system.

By using SCRIPT, you can create your own versions of CONNECT-TO. SCRIPT can make it even easier for you to perform tasks on remote systems.

File Access to Remote Systems

This subsystem of COSMOS allows you to access files on remote systems by using commands in SINTRAN such as CREATE-FILE, DELETE-FILE, and RENAME-FILE.

Also, you can access programs on remote systems by using the RECOVER command. You only need to specify that the file is on a remote system.

When you use programs like NOTIS-WP, you can read from and write to files on remote systems, and you can print your documents on remote printers.

Transferring files between two systems

Here are some more things you can do by using COSMOS:

- You may transfer files to or from a remote system by using the TRANSFER-FILE command. It works in the same way as the SINTRAN III command @COPY-FILE.
- You can define a default remote system. That will save time if you are transferring many files to or from the same remote system.
- You can spool and print your documents on remote systems.
- You can submit remote batch jobs.

CHAPTER 2
THE CONNECT-TO PROGRAM

Synopsis

This chapter explains how to log in on a remote system using the COSMOS subsystem, the **CONNECT-TO program**. You may then use the remote system just as you use your local system.

You run the CONNECT-TO program by writing **@CONNECT-TO** in SINTRAN. CONNECT-TO will not start if any of the other COSMOS subsystems have not been properly installed or started, or if you are already connected to a remote system.

The error messages you will get in these two cases are discussed on page 89 in appendix A.

CONNECT-TO allows you to connect to a remote system and use it just as you use your local system. When you are done working on the remote system, you press the local character twice (usually the control character @) and you will return to your local system.

Another way to connect to remote systems is by using SCRIPT. This is explained in appendix I on page 137.

ENTERING THE CONNECT-TO PROGRAM IN SINTRAN

To start the CONNECT-TO program, you give the following command in SINTRAN:

```
MAIN@CONNECT-TO ↵

COSMOS CONNECT-TO PROGRAM VERSION-D, NOV.1,1985
C-T: _
```

The ↵ sign means that you push the carriage return key after writing CONNECT-TO. On some terminals, the carriage return key is marked **ENTER**.

Note that the SINTRAN prompt character **@** may be preceded by the **system name** (e.g., "MAIN@" instead of just "@") making it easier to identify the system on which you are logged in.

To see how you may reach a remote system directly in SINTRAN, see page 14.

Leaving the CONNECT-TO program

To leave the CONNECT-TO program and return to SINTRAN, use the EXIT command:

```
C-T: EXIT ↵

MAIN@_
```

LOGGING IN ON A REMOTE SYSTEM

In the examples that follow, we assume that you are logged in as the user **DONNA-COSMAN**, with the password **XYZ** on your local system. In our examples, the local system is called **MAIN** and the remote system is called **MINOR**.

Just as in SINTRAN commands, you can abbreviate most of the commands under the CONNECT-TO subsystem.

Connecting to a remote system using CONNECT-TO

You can connect to any system included in your network by issuing the following command under the CONNECT-TO subsystem:

```
C-T: CONNECT-TO <system name>
```

If the <system name> you give is included in your network, you will be connected to it.

Here is an example where the remote system name is **MINOR**:

```
C-T: CONNECT-TO MINOR ↵

=== CONNECTION ESTABLISHED ===
TAD LOGICAL UNIT NO: 768
LOCAL CHARACTER IS: 0 (ASCII value)
(Allowed idle time: 1 minute)
```

You are now connected to the remote system **MINOR** and have one minute to log in on MINOR.

If you do not touch your terminal within one minute, you will be disconnected automatically. This timeout facility will be discussed in greater detail on page 110.

Note that the octal value of the local character is listed.

Connecting to a remote system from SINTRAN

```
@CONNECT-TO <system name>
```

You may specify the parameter <system name> on the same line as CONNECT-TO. You will then be directly connected to the remote system you have specified.

```
MAIN@CONNECT-TO MINOR ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985
=== CONNECTION ESTABLISHED ===
TAD LOGICAL UNIT NO: 768
LOCAL CHARACTER IS: 0 (ASCII value)
(Allowed idle time: 1 minute)
```

You are now connected to the remote system MINOR just as if you had entered the CONNECT-TO program first and then issued the CONNECT-TO command.

How to log in on a remote system

After connecting to the remote system, you log in on it just as if your terminal were physically connected to it. You must, of course, be entitled to use the remote system. Ask your system supervisor which remote systems you are allowed to use. In the following example, we assume that your user-name is DONNA-COSMAN with password XYZ on the remote system.

```
MAIN@CONNECT-TO MINOR ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985
=== CONNECTION ESTABLISHED ===
TAD LOGICAL UNIT NO: 768
LOCAL CHARACTER IS: 0 (ASCII value)
(Allowed idle time: 1 minute)

  <ESC>

 14.20.03     30 DECEMBER    1985
 SINTRAN III - VSX/500 J - MINOR

ENTER DONNA-COSMAN ↵
PASSWORD: XYZ ↵
OK
(Allowed idle time: 30 minutes)
MINOR@_
```

<ESC> means that you push the escape key, just as you do when you log in on your local computer.

Note that the idle time is now 30 minutes. If you do not touch your keyboard for 30 minutes, you will be **logged out, disconnected, and returned to your local system.**

Once you are logged in on the remote system, you may issue any SINTRAN command, for example:

```
MINOR@WHO-IS-ON ↵

         48 RT
===>    768 DONNA-COSMAN
        670 SYSTEM
MINOR@_
```

RETURNING TO YOUR LOCAL SYSTEM

When you wish to return to your local system, press **control character @** twice. This is done as follows: While depressing the **control key**, type **@** twice. You will then be logged out, disconnected and returned to SINTRAN on your local system.

Control character @ is known as the local character in this case.

The following example illustrates the procedure:

```
MINOR@<@> <@> (the local character)

-- DISCONNECTED FROM: MINOR --
Returning to: MAIN , as user: DONNA-COSMAN
MAIN@_
```

As you can see, you were disconnected from the remote system MINOR and returned to MAIN, your local system. This occurred immediately after you pressed the local character for the second time.

If you only press the local character once, you will be asked to press it one more time within 3 seconds. This is to help you avoid returning to your local system by mistake. If you respond within 3 seconds, you will return to your local system. If not, you will still remain on the remote system.

```
MINOR@<@>

MINOR@ -- To disconnect, RETYPE local-character --

(No activity for 3 seconds)


MINOR@_
```

If you are already logged out, you only need to press the local character once to return to your local system.

```
MINOR@LOG ↵

   14.30.31     25 SEPTEMBER 1985
-- EXIT --
(Allowed idle time:   1 minute)

<@>

-- DISCONNECTED FROM: MINOR --
Returning to: MAIN , as user: DONNA-COSMAN
MAIN@_
```

The local character

The **local character** tells the CONNECT-TO program that you want to return to your local system. The local character is normally a rarely used control character (e.g. control character @) that users and applications programs are not likely to use by acccident.

The default ASCII value of the local character in the CONNECT-TO program is 0. On the ND NOTIS terminal, ND-246, this corresponds to the **control character @**. It is normally referred to as CTRL @ or <@>.

The table in appendix D, on page 101 shows the ASCII values that generate their corresponding control characters.

If you cannot remember the local character, you can log out and wait one minute, then you will be disconnected automatically. This works if your local system uses the **default timeout value**. Its purpose is to disconnect users who connect to remote systems without logging in.

On some terminals and consoles, the ASCII character 0 corresponds to characters **other than CTRL @**. Some of the possible characters that can generate ASCII 0 on various terminals are listed in appendix D, on page 101.

CONNECT-TO COMMAND DESCRIPTIONS

You may abbreviate all CONNECT-TO commands in the same way as SINTRAN III commands. For clarity, no commands will be abbreviated in this manual.

You may specify all parameters on the same line as the command itself. If you just enter the command name followed by carriage return, the system will prompt for parameters. This works in the same way as SINTRAN commands.

To get a list of the commands available, write HELP.

The HELP command

```
C-T:  HELP  <command>
```

HELP will list all commands matching the string <command>. For instance, if L is given as the parameter to HELP, all commands beginning with L are listed.

Default for <command> is all commands. To list all commands, answer the prompt with carriage return or give the command followed by several commas. Here is an example:

```
MAIN@CONNECT-TO ↵

COSMOS CONNECT-TO PROGRAM  VERSION - D , OCTOBER 5, 1985
C-T: HELP,,, ↵

The ASCII character : 0 octal, will terminate your connection
if typed twice within 3 seconds. After you log out, the remote
connection can be terminated by typing this character once.

        HELP  <COMMAND: >
        LIST-SYSTEMS  <SYSTEM-NAME: >
        CONNECT-TO  <SYSTEM NAME: >
        LIST-LOCAL-CHARACTER
        LIST-TIMEOUT-VALUES
        EXIT
        SERVICE-PROGRAM

C-T: _
```

The CONNECT-TO command

```
C-T:  CONNECT-TO <system name>
```

This command will connect your terminal to the system specified. If you do not specify a system, you will be connected to your **own** system. If you have problems remembering the names of the remote systems, use the LIST-SYSTEMS command described in the next section.

The LIST-SYSTEMS command

```
C-T:  LIST-SYSTEMS <system name>
```

This command will give you information about the specified system.

If you do not specify a system, all the systems in your network will be listed:

```
C-T: LIST-SYSTEMS ↵

SYSTEM-NAME: ↵

!  S Y S T E M                  !  SYSTEM   ! T-ACC !   T A D S   !
!Number ! Name    (synonyms)    !S t a t u s!Running!In use! Free !
!-------!----------------------!-----------!-------!------!------!
!  150  ! DATABASE (ND-150).....!  UNAVAIL. !.......!......!......!
!  260  ! MINOR (ND-260).......!  ON NET   !  YES  !   2  !   2  !
!  590  ! MAIN (ND-590).......! < LOCAL > !  YES  !   2  !   6  !
!  870  ! OPTICS (ND-870).....! NOT FOUND !.......!......!......!
! 1005  ! BIGHELPER (ND-1005)...!  ON NET   !  YES  !   0  !   5  !
! 1150  ! MINI (ND-1150).......!  OFF NET  !.......!......!......!
! 1170  ! CENTRAL (ND-1170)....!  ON NET   !  YES  ! (A)  !  (A) !
! 1190  ! CHICAGO (ND-1190)....!  W. A. N. !.......!......!......!
!-------!----------------------!-----------!-------!------!------!
```

Under SYSTEM you will find the name (or names) and the number of each system in the network. You can use either the name or the number when connecting, for example:

```
C-T: CONNECT-TO ND-260 ↵
```

or

```
C-T: CONNECT-TO MINOR ↵
```

Either method will connect you to the same system.

Under SYSTEM status you will find that each system is in one of the following states:

LOCAL : This is your local system.
NOT FOUND: The system name has been defined, but it does not refer to a system.
OFF NET : The system is not on the network.
ON NET : The system is currently available.
UNAVAIL. : The system is currently unavailable.
WAN : The system is not on your local network.

Note that **MAIN is your local system.**

T-ACC stands for Terminal Access.

YES means you may connect to that system.

NO means you may not connect.

TADs are Terminal Access Devices. The number in use and the number not in use are listed. If no TADs are free on the system you want to connect to, you must wait for a free TAD.

If **(A)** is listed instead of a number, it means that that system is still using version A of COSMOS. CONNECT-TO is therefore unable to list the number of TADs.

If you list all systems or a subset of systems, only systems in the local network will return T-ACC and TAD information. For systems on Wide Area Networks, only WAN will be listed. To get information from a WAN system, you must write the **full name** of the system:

```
C-T: LIST-SYSTEMS ↵

SYSTEM-NAME: CHICAGO ↵

!  S Y S T E M                  !  SYSTEM   ! T-ACC !   T A D S   !
!Number ! Name    (synonyms)     !S t a t u s!Running!In use! Free !
!-------!-----------------------!-----------!-------!------!------!
! 1190   ! CHICAGO (ND-1190).....!  ON NET   !  YES  !   0  !  1   !
!-------!-----------------------!-----------!-------!------!------!
```

When you do this, CONNECT-TO sends a message to that system, and a telecommunications channel is used.

For other commands under the CONNECT-TO program, refer to appendix F.

CHAPTER 3
REMOTE FILE ACCESS IN SINTRAN III

Synopsis

COSMOS is an optional part of the SINTRAN III Input/Output system. This chapter describes the remote file access facilities you will have if your SINTRAN III includes COSMOS.

You will be able to access files on remote systems in two ways:

1. Directly from SINTRAN
2. Within SINTRAN subsystems

In both cases, you will be able to access the files as if they were local files.

SYNTAX

When accessing remote files, the following syntax will be used:

<ACCESS-INFORMATION>.<FILE-NAME>

If you have defined a default remote system, you only need to write:

.<FILE-NAME>

This is explained on page 37.

The syntax of Access-Information

In Access-Information, you tell COSMOS what system the file is on. You also tell COSMOS the name and password(s) of a user that has access to that file. Access-Information contains the following information:

<SYSTEM>(<REMOTE-USER>(<PASSWORD>:<PROJECT-PASSWORD>)).

An example is **MINOR(DONNA(XYZ:INVOICE))**, where MINOR is the name of the remote system, DONNA is the user on that system, XYZ is her password, and INVOICE is her project-password.

Since project passwords are not implemented on many systems, most of the examples in this chapter will not use project passwords.

<SYSTEM>(<REMOTE-USER>(<PASSWORD>:<PROJECT-PASSWORD>)).

Here is what the four parts mean:

SYSTEM Any system name included in the network system. Default is the system you are logged in on when you give the command.

REMOTE-USER REMOTE-USER is a user name entered in the main directory on the SYSTEM defined above. Default is current user name. If you are logged in on your local system when you give the command, REMOTE-USER is your user name. If REMOTE-USER does not exist, then FLOPPY-USER is used.

PASSWORD The password of REMOTE-USER. If you are REMOTE-USER, your password will be tried automatically so you do not need to write it. If you are not REMOTE-USER, the default password is merely carriage return.

PROJECT-PASSWORD The project-password of REMOTE-USER. Default is your project-password. If there is no project-password, merely write the password in parentheses and omit the colon.

The period separates the access information for COSMOS from the file name to be accessed.

The syntax of the FILE-NAME

<ACCESS-INFORMATION>.<FILE-NAME>

In the <FILE-NAME>, you tell SINTRAN which file you want, on the system specified. The file name consists of the following:

(<DIRECTORY>:<USER>)<OBJECT-NAME>:<TYPE>

DIRECTORY -
USER - } The same syntax as in SINTRAN III.
OBJECT-NAME:TYPE -

Here is an example of a file name:

(PACK-ONE:SUE)INFO:OUT

NOTE

On many installations, only one directory is used or all user files are on the default directory. In that case, directory and user information can be omitted. Then the file name would be **(SUE)INFO:OUT** or just **INFO:OUT**.

We have taken the liberty of abbreviating DIRECTORY to DIR and PROJECT-PASSWORD to PP, so that we can fit everything on one line in the example below. For simplicity, the syntax brackets have been omitted:

```
SYSTEM(REMOTE-USER(PASSWORD:PP)).(DIR:USER)OBJECT-NAME:TYPE
```

This tells COSMOS which system the file is on and whose access rights are being used.

This tells SINTRAN which file to access.

Here is an example:

```
MAIN@DELETE-FILE ↵

FILE NAME: MINOR(SUE(OOF)).(PACK-ONE:SUE)INFO:OUT ↵
```

ACCESS-INFORMATION has three parts: The **system** is MINOR, the **remote user** is SUE, and her **password** is OOF. There is no project password.

FILE-NAME has four parts: The **directory** is PACK-ONE, the **user** is SUE, the **object name** is INFO, and the **type** is OUT.

Only the FILE-NAME part is necessary if SYSTEM is the system you are logged in on. If you leave out the ACCESS-INFORMATION part, and only write the period, the **default remote system** will be used. If you are accessing many files, or need more security, you should define a **default remote system**. This is explained in detail on page 37.

COMMANDS FOR REMOTE FILE ACCESS IN SINTRAN

There are many commands in SINTRAN that allow remote file access. The ones that you are most likely to use are the following:

LIST-FILES
FILE-STATISTICS
CREATE-FILE
RENAME-FILE
EXPAND-FILE
DELETE-FILE
SET-TEMPORARY-FILE
LIST-OPEN-FILES
RECOVER

For a complete list of the SINTRAN commands allowing Remote File Access, see appendix G.

The LIST-FILES Command

Here is how you list the files on a remote system.

```
MAIN@LIST-FILES ↵

FILE NAME: MINOR(TOM(XYZ)).LETTERS:TEXT ↵

OUTPUT FILE: ↵
```

You can also list the files of TOM's friend JERRY on the same remote system, if TOM has read access on JERRY's files. This is useful if you want to list JERRY's files but you do not know his password:

```
MAIN@LIST-FILES ↵
FILE NAME: MINOR(TOM(XYZ)).(JERRY)REPORTS:TEXT ↵
OUTPUT FILE: ↵
```

The FILE-STATISTICS Command

You can get the statistics of a file on a remote system thus:

```
MAIN@FILE-STATISTICS ↵
FILE NAME: MINOR(TOM(XYZ)).LETTER:TEXT ↵
OUTPUT FILE: ↵
```

Here again, you can access the file-statistics of JERRY through TOM on the same remote system:

```
MAIN@FILE-STATISTICS ↵
FILE NAME: MINOR(TOM(XYZ)).(JERRY)REPORT:TEXT ↵
OUTPUT FILE: ↵
```

The CREATE-FILE command Here is how you create a file on the remote system called MINOR while you are logged in on MAIN:

```
MAIN@CREATE-FILE ↵
FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)REMOTE:TEXT ↵
NO. OF PAGES: 1 ↵
```

You do not have to be logged in as TOM on MAIN since you specified his password.

Note that REMOTE:TEXT is an empty continuous file. It only has room for one page, so it cannot contain much data without being expanded. When you create files that you will use in NOTIS-WP, specify 0 pages or answer with carriage return.

If you do not specify the file type, it will be type :DATA.

You may also create a new indexed file with the OPEN-FILE command by enclosing the file name in double quotes:

```
MAIN@OPEN-FILE ↵
FILE-NAME: MINOR(TOM(XYZ))."REMOTE:TEXT" ↵
ACCESS MODE (R,W,RW,RX,WA,RC,WC): WX ↵
```

WX means that the file is given random read and write access.

The other SINTRAN commands for Remote File Access are explained in appendix G.

REMOTE FILE ACCESS IN SINTRAN SUBSYSTEMS

All standard subsystems such as editors, compilers and other application programs may access files on remote ND systems in the COSMOS network.

Random read and write access is allowed. Random write, common and append access are also allowed. Sequential access is not implemented. You do not need to log in on the remote system to access the files.

Editors (NOTIS-WP, PED, etc.)

Here is an example of what you can do:

- You may read a file from a remote system into NOTIS-WP, edit it, and write the file back to the remote system.

Naturally, you may also read and write to remote files using other editors (PED, TED, QED, etc.).

You merely specify the remote system as a prefix to the local file name. In the following example, the local file L-FILE is read by NOTIS-WP and written to the file R-FILE on the remote system MINOR. (You press the **R** key to read and the **W** key to write.)

Both the files are owned by user PETER with the same password on both systems:

```
<Press the R key>
WP:Retrieve document: L-FILE:TEXT ↵
Line:  1-21  Column: 1-70  Region: MAIN          Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)

WP:96 lines retrieved (3601 bytes)
Line:  1-21  Column: 1-70  Region: MAIN          Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

```
<Press the W key>
WP:Store document: MINOR.R-FILE:TEXT ↵
Line:  1-21  Column: 1-70  Region: MAIN          Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)

WP:96 lines stored (3601 bytes)
Line:  1-21  Column: 1-70  Region: MAIN          Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

If R-FILE:TEXT does not exist yet, you write to it as follows:

```
WP:Store document: MINOR."R-FILE:TEXT" ↵
Line:  1-21  Column: 1-70  Region: MAIN          Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

Because the user is the same on the remote system as on the local system, it was not necessary to specify a remote user name or password here. If you want to write the same file to a different user on the remote computer, then you must specify the **password** and **project password** of that user.

For example, user **TOM** on remote sytem **MINOR** has password **XYZ** and no project password:

```
WP:Store document: MINOR(TOM(XYZ)).R-FILE:TEXT ↵
Line:  1-21  Column: 1-70  Region: MAIN          Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

If we did not use any default values whatsoever, we would have to write:

```
WP:Store document: MINOR(TOM(XYZ)).(PACK-ONE:TOM)R-FILE:TEXT ↵
Line:  1-21  Column: 1-70  Region: MAIN            Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

If the file is new, the directory information must also be enclosed in quotes:

```
WP:Store document: MINOR(TOM(XYZ))."(PACK-ONE:TOM)R-FILE:TEXT" ↵
Line:  1-21  Column: 1-70  Region: MAIN            Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

Specifying the directory is rarely necessary.

Another possibility is reading a file owned by a user **other than the remote user**, on the remote system:

```
WP:Retrieve document: MINOR(TOM(XYZ)).(PACK-SIX:JOE)OUT-FILE:TEXT ↵
Line:  1-21  Column: 1-70  Region: MAIN            Position: ┼
(...:...T1....:..T.2....:.T..3....:T...4....T....5...T:....6....:....)
```

This could occur if Joe has files which only he and Tom on the system MINOR are allowed to read. To read such files into the editor, we must either give Tom's or Joe's password.

You will be denied access to a remote file in the following cases:

- If the remote system is not in the network.
- If the user you specify does not exist on the remote system.
- If the remote password is not correct.
- If the remote project password is not correct.
- If you do not have access to the file you specify.

BACKUP

You can also use remote file access in the SINTRAN subsystem BACKUP. BACKUP is described in detail in the SINTRAN Utilities Manual, ND-60.151. BACKUP can be used in several ways; we will only discuss one of them here.

In the following example, all of user FLOPPY-USER's files on the remote system MINOR are copied to user TOM's area on the local system MAIN. Note that you only need to write a question mark in BACKUP to get help information. You do not need to press the carriage return key following that.

We took the liberty of abbreviating a few of the things written by BACKUP so that no lines would be too long.

```
MAIN@BACKUP-SYSTEM ↵

BACKUP-SYSTEM / VERSION D - 25.11.85

BA-SY: COPY-USERS-FILES ↵
 DESTINATION TYPE: ?
  . DESTINATION IS DIRECTORY OR VOLUME!

 DESTINATION TYPE: DIRECTORY ↵
    DEST. DIRECTORY-NAME / PACK-ONE / : ?
     . SPECIFY NAME OF (REMOTE) DESTINATION DIRECTORY.
     . (DEFAULT VALUE: DEFAULT DIRECTORY)

    DEST. DIRECTORY-NAME / PACK-ONE / : ↵
    DEST. USER-NAME / TOM / : ?
     . SPECIFY DESTINATION USER NAME. (MAX. 16 CHARACTERS)
     . (DEFAULT VALUE: OWN USER NAME)

    DEST. USER-NAME / TOM / : ↵

 SOURCE TYPE: ?
  . SOURCE IS DIRECTORY ,VOLUME, OR PARAMETER-FILE.

 SOURCE TYPE: DIRECTORY ↵
    SOURCE DIR-NAME / PACK-ONE / : MINOR(FLOPPY-USER).PACK-ONE ↵
    SOURCE USER-NAME / FLOPPY-USER / : ↵
    SOURCE FILE-NAME /  / : ↵

 MANUAL SELECTION: ?
  . YES, NO, LIST OR SELECT

 MANUAL SELECTION: LIST ↵

FILE  17: MINOR.(PACK-ONE-969:FLOPPY-USER)REPORT:TEXT;1
          INDEXED         20 PAGES.   MODIFIED: 29/12-85  - OK
FILE  18: MINOR.(PACK-ONE-969:FLOPPY-USER)REPORT:DATA;1
          INDEXED         12 PAGES.   MODIFIED: 30/12-85  - OK
```

All the files that are copied will be listed.

You should note the following when using BACKUP to transfer files:

- Use extreme care when answering **LIST** to the question "Manual Selection?"; all files will be copied, so you must be sure that you have enough available pages. You must also make sure you do not have important files with identical names in the destination user's area, as they will be overwritten.
- Normally, you should answer the question "Manual Selection?" with **YES**. You will then be asked about each file.
- Default values are given between slanting lines (//). They will be used if you answer by pushing the carriage return key.
- If you only want to transfer a few files, you are better off using TRANSFER-FILE. It is described on page 50.
- If you are transferring files to someone other than yourself, you should enter the remote system as user SYSTEM or as the destination user. In either case, you must specify password(s). For example:

```
SOURCE DIR-NAME /PACK-ONE/: MINOR(TOM(XYZ)).PACK-ONE ↵
```

- If there are several main directories, directory information must be given:

```
SOURCE DIR-NAME /PACK-ONE/: MINOR(EXTRA-MAIN:FL-US).PACK-TWO ↵
```

We abbreviated FLOPPY-USER and DIRECTORY to save space.

USING A DEFAULT REMOTE SYSTEM

In all the previous examples, we accessed remote files by specifying the full syntax:

```
SYSTEM(REMOTE-USER(PASSWORD:PP)).(DIR:USER)OBJECT-NAME:TYPE
```

This will work fine for giving a command or two, but if you are transferring many files between the same two systems, you will probably want to avoid repeating the remote system information over and over again. This is done by defining the remote system information as default.

In these examples, your local system is called MAIN and you are using the remote system called MINOR. You want to access files belonging to TOM whose password on MINOR is XYZ. Tom's project password is INVOICE. It does not matter whether you are Tom or not (because you know his password).

Here is how you can define that information as default:

```
MAIN@SET-DEFAULT-REMOTE-SYSTEM ↵

Remote system name: MINOR ↵
Remote user name: TOM ↵
Password: (invisible input) ↵
Project Password: (invisible input) ↵
```

Please note the following:

1. The default remote system will remain defined until you log out or until you use the SET-DEFAULT-REMOTE-SYSTEM command again. However, it will **not** be defined within subsystems such as File-transfer (see page 50).

2. The passwords should be specified on separate lines. If you do that, the password and project password you enter will not appear on the screen.

3. All parameters can be specified on the same line as the command, but then the passwords will appear on the screen:

```
MAIN@SET-DEFAULT-REMOTE-SYSTEM MINOR TOM XYZ INVOICE ↵
```

This is also a legal way to give the command.

Once the default remote system has been specified, **you can omit all the information to the left of the period.**

For example, you can write:

```
MAIN@CREATE-FILE ↵
FILE NAME: .(PACK-ONE:TOM)REMOTE:TEXT ↵
NO. OF PAGES: 1 ↵
```

instead of:

```
MAIN@CREATE-FILE ↵
FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)REMOTE:TEXT ↵
NO. OF PAGES: 1 ↵
```

In fact, we can normally omit the directory information (if we assume that PACK-ONE is the default directory) and the user name (TOM in both cases). Then the command becomes:

```
MAIN@CREATE-FILE ↵
FILE NAME: .REMOTE:TEXT ↵
NO. OF PAGES: 1 ↵
```

We can now try some SINTRAN commands that have Remote File Access with the assumption that we have defined a default remote system. Directory information will also be omitted.

Here is how you create a new version:

```
MAIN@CREATE-NEW-VERSION ↵
FILE NAME:.REMOTE:TEXT ↵
NO. OF PAGES: ↵
```

Here is how you rename a file:

```
MAIN@RENAME-FILE ↵

FILE NAME:.REMOTE:TEXT;2 ↵
NEW FILE NAME AND TYPE:USELESS:TEXT ↵
```

Note that we omitted the period for the new file name.

Here is how you expand a file (if you have space available):

```
MAIN@EXPAND-FILE ↵

FILE NAME:.REMOTE:TEXT;1 ↵

NO. OF PAGES: 10 ↵
```

Here is how you delete remote files:

```
MAIN@DELETE-FILE ↵

FILE NAME:.USELESS:TEXT ↵
```

```
MAIN@DELETE-FILE ↵

FILE NAME:.REMOTE:TEXT ↵
```

Remember to enclose the file name in quotes when you create a temporary file:

```
MAIN@SET-TEMPORARY-FILE ↵

FILE NAME:."(PACK-ONE:TOM)TEMP:SYMB" ↵
```

or:

```
MAIN@SET-TEMPORARY-FILE ↵

FILE NAME:."TEMP:SYMB" ↵
```

When calling :PROG files on the default system, we suggest you use the remote mode in SINTRAN. This is explained in the next section.

USING THE REMOTE MODE

You may define a default remote system and then give the command @SET-REMOTE-MODE. In that case, you can omit the system information and the period, and the system will do the following when you specify a file name:

1. Look for the file among your files on the local system.
2. Look for the file among user SYSTEM's files on the local system.
3. Look for the file among the default user's files on the remote system.
4. Look for the file among user SYSTEM's files on the remote system.

```
MAIN@SET-DEFAULT-REMOTE-SYSTEM ↵

Remote system name: MINOR ↵
Remote user name: TOM ↵
Password: (invisible input) ↵
Project Password: (invisible input) ↵

MAIN@SET-REMOTE-MODE ↵

MAIN@SCAN-DATA ↵
```

Instead of:

```
MAIN@SCAN-DATA ↵
```

you can also write:

```
MAIN@RECOVER SCAN-DATA ↵
```

In this example, SINTRAN will go through the following steps:

1. It will try to find the file SCAN-DATA:PROG among Tom's files on Main.

2. If there was no such file, it will try to find the file SCAN-DATA:PROG among user SYSTEM's files on Main.

3. If there was no such file, it will try to find the file SCAN-DATA:PROG among user Tom's files on MINOR.

4. If there was no such file, it will try to find the file SCAN-DATA:PROG among user SYSTEM's files on MINOR.

5. If the file is found, it will be run as a program.

This can be helpful if you do not remember where the file was located.

Be careful when using SET-REMOTE-MODE. If you specify a file that you do not have, there may be a file on the remote system by just that name! This can easily occur if you accidentally misspell a word.

To turn off the remote mode, give the following command:

```
MAIN@SET-LOCAL-MODE ↵
```

Local mode is the normal mode. When you are in the local mode, you may still have a default remote system, but you will have to include the period before the file name in order to access it.

The other SINTRAN commands that allow Remote File Access are discussed in appendix G.

CHAPTER 4
THE FILE-TRANSFER PROGRAM

Synopsis

The COSMOS File-Transfer subsystem is a part of the COSMOS Basic Module, ND 210374D. It allows a background user, such as a NOTIS-WP user, to:

- transfer one file at a time between any two SINTRAN III computer systems included in the COSMOS network system.
- submit batch jobs to any SINTRAN III system included in the network.

This chapter is primarily concerned with the typical end user facilities of the COSMOS File-Transfer subsystem.

One limitation of the File-Transfer subsystem is that it can only open **one** file at a time. When one transfer has been completed, the next request can be taken care of. This may cause problems if you copy a file to a slow peripheral device without spooling. In that case, talk to your system supervisor and she/he can create enough spooling files and pages for the printers you use.

You may submit batch jobs to batch processors on remote systems. If you are not familiar with batch jobs, you should read the SINTRAN III Timesharing/Batch Guide ND-60.132, which describes **local** batch processing. **Remote** batch processing works in a similar way, and is described in appendix H.

USING THE FILE-TRANSFER SUBSYSTEM

We assume you are user DONNA-COSMAN on system MAIN. To start the COSMOS File-Transfer subsystem, write the following in SINTRAN:

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11  11:00
Hello DONNA-COSMAN

F-T:_
```

Now the COSMOS File-Transfer subsystem is active and you may transfer files between any computer systems included in the network system. Before you do that, take a look at the HELP command:

The HELP command

Typing the **HELP** command lists the commands available to you under the File-Transfer subsystem.

```
F-T: HELP <command name>
```

or:

```
F-T: ? <command name>
```

When in the File-Transfer subsystem, you may either key in HELP or ?, followed by carriage return.

In the following example, you are user DONNA-COSMAN on system MAIN and you want to list the commands available in the File-Transfer subsystem:

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

F-T:HELP ↵
Command-name? ↵

Transfer <To>,<From>
Transfer-file <To>,<From>
Transfer-part-of-file <To>,<From>,<First page>
                      <Last page>,<Start outpage>
Append-remote-batch <Batch system and user name>,
                    <Input file>,<Output file>
Set-default-remote-system <System name>,
                          <User name>,<Password>
Get-default-remote-system
List-names <System name or no>
Compress <To>,<From>,<Mode>
Compress-file <To>,<From>,<Mode>
Set-advanced-mode
Help or ? <Command name>
? typed in Transfer(-file)/Append-remote-batch
             is used to get syntax information
Exit

F-T:_
```

To list these commands, we could also have just written HELP, followed by three commas and carriage return.

```
F-T:HELP,,, ↵
```

COMMANDS THAT LET YOU TRANSFER FILES

There are two commands, **TRANSFER** and **TRANSFER-FILE**, to let you transfer files between systems. Before we try them, let us look at the very similar COPY-FILE command in SINTRAN.

```
MAIN@COPY-FILE ↵

DESTINATION FILE: "TEST-FILE:TEXT" ↵
SOURCE FILE: SOURCE-FILE:TEXT ↵

MAIN@_
```

Since the destination file TEST-FILE:TEXT did not already exist, it was written in double quotes. That instructs SINTRAN to create a new file.

We could have given the parameters on the same line as the command, but letting SINTRAN prompt makes it clearer for you what the parameters are. This is the best way of giving commands until you are very familiar with them and no longer risk mixing up parameters.

COPY-FILE copies the source file page by page into the destination file. Another command in SINTRAN, COPY, has exactly the same syntax as COPY-FILE, but copies the source file byte by byte into the destination file. In COSMOS, TRANSFER-FILE operates like COPY-FILE, while TRANSFER copies the file page by page according to the maximum byte pointer.

```
@TRANSFER-FILE <To>,<From>
```

or:

```
F-T: TRANSFER-FILE <To>,<From>
```

TRANSFER-FILE can be called directly in SINTRAN or within the File-Transfer subsystem.

```
F-T: TRANSFER  <To>,<From>
```

TRANSFER can be called within the File-Transfer subsystem or directly in SINTRAN provided it has been defined reentrant by your system supervisor. If you have a file that used to be much larger than it is now, it may use more pages than it needs. For example, a file with 20481 bytes needs 12 pages. If it uses 20 pages, that means it was probably much larger before. If you transfer it by using TRANSFER, the file it is copied to will only use 12 pages, but it will still contain 20481 bytes.

If you do not know whether you should use TRANSFER-FILE or TRANSFER, use TRANSFER-FILE.

The syntax for the parameters <To> and <From> is available on-line if you answer with ?, followed by carriage return.

System and file syntax

The syntax used to describe files here is the same as for Remote File Access. This was described in detail on page 25.

The one thing that differs is that the project password is not implemented for TRANSFER-FILE, TRANSFER and the other commands described in this chapter. Thus you should use the following syntax (for simplicity, the syntax brackets have been omitted):

```
REMOTE-SYSTEM(REMOTE-USER(PASSWORD)).(DIR:USER)FILENAME:TYPE
└──────────────────────────────────┘ └──────────────────┘
              ↓                              ↓
This tells COSMOS which              This tells SINTRAN which file
system the file is on and            to access.
whose access rights are
being used.
```

Remember to include the dot. It separates access information from the file name.

Both <To> and <From> in TRANSFER-FILE and TRANSFER use the above syntax. By answering with ? and carriage return when you are prompted for these parameters, the syntax will appear on your terminal and the prompt will be repeated.

On some large systems, there may be several main directories. In that case, you will have to specify which directory the remote user is on:

```
REMOTE-SYSTEM(DIR:REMOTE-USER(PASSWORD)).(DIR:USER)FILENAME:TYPE
```

Normally, you will only need to specify the following:

```
REMOTE-SYSTEM(REMOTE-USER(PASSWORD)).FILENAME:TYPE
```

Note that if file type is not specified, the default type is :SYMB.

The syntax of To? and From?

Here is an example of how you get on-line documentation for the TRANSFER-FILE command:

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

F-T: TRANSFER-FILE ↵
To? ? ↵

Syntax: SYSTEM(REMOTE-USER(PASSWORD)).(DIRECTORY:USER)FILENAME:TYPE
Default: MAIN(DONNA-COSMAN(PASSWORD)).   As in SINTRAN III
NOTE: DONNA-COSMAN'S password and CR will be tried
if no password is specified.
If REMOTE-USER does not exist, then FLOPPY-USER() is used.
You will have REMOTE-USER's file access on remote machine.

To? _
```

First we wrote TRANSFER-FILE in SINTRAN, then we entered the command TRANSFER-FILE. We were prompted for the name of the file we wanted to transfer data to, so we entered ? followed by carriage return to get syntax information. After that, we were reprompted for the <To> parameter.

The syntax for the <From> parameter is exactly the same.

What does Default: MAIN(DONNA-COSMAN(PASSWORD)).mean?

If you specify a file name preceded only by a period, File-Transfer will try user DONNA-COSMAN's access to that file on MAIN. In this case, MAIN is the local system. You can omit both the access information **and the period** if the file you are copying to is local. Access information is that which is written to the left of the period.

The default user and system may be different than yourself on your local system if you define a **default remote system**. The advantages of doing that are explained in appendix H.

If you do not specify a password, File-Transfer will try your password. If that does not work, it will try **CR** (which means no password).

For example, you are JONES on system MAIN and your password is SPOT. You write:

```
F-T:TRANSFER-FILE ↵

To? MINOR(JONES)."MONTHLY-MEMO" ↵
```

You will succeed in copying the file if JONES's password on MINOR is SPOT or if JONES has no password on MINOR.

If you should make a typing error:

```
To? MINOR(JONSE)."MONTHLY-MEMO" ↵
```

File-Transfer will see if there really is a JONSE on the remote system MINOR. If there is, JONSE must have the password SPOT or no password at all for you to put the file

MONTHLY-MEMO:DATA in JONSE's user area.

If JONSE does not exist, the file MONTHLY-MEMO:DATA will be created in FLOPPY-USER's area provided FLOPPY-USER has no password and provided the file MONTHLY-MEMO:DATA does not already exist.

You may want to copy a file that is not yours, but which you are entitled to read:

```
From? MINOR(JONSE).(PACK-ONE:SYSTEM)INFO-TO-USERS:TEXT ↵
```

User JONES on MINOR is entitled to read the file INFO-TO-USERS, but JONES was misspelled. If JONSE does not exist, FLOPPY-USER will be tried. If FLOPPY-USER is entitled to read the file, it will be copied anyway.

We can also answer "From?" with "?", and we will get the same syntax information as for "To?".

How to transfer a file to a remote system

Here is how you use the TRANSFER-FILE command:

```
MAIN@TRANSFER-FILE ↵

F-T: TRANSFER-FILE ↵
To? MINOR(DONNA-COSMAN(XYZ))."(PACK-ONE:DONNA-C)LET:TEXT" ↵
From? (PACK-ONE:DONNA-COSMAN)LET:TEXT ↵

No. of pages in file: 5
To:    LET:TEXT, Created: 1985.11.07 08:55:16
From:  LET:TEXT, Created: 1985.11.07 08:45:11
           Last written: 1985.11.07 08:46:41
Current page index:
4
Completed. Transfer rate: 17 Kbytes/sec

F-T: _
```

MINOR is the specified remote system name.

DONNA-COSMAN is the user name on the remote system.

XYZ is DONNA-COSMAN's password on the remote system MINOR.

"(PACK-ONE:DONNA-C)LET:TEXT" means that a new file called LET:TEXT is created on pack-one in user DONNA-COSMAN's area. DONNA-COSMAN was shortened to DONNA-C to fit everything on one line. Note that the directory information was also enclosed in quotes.

We did not specify a remote system for "From?" because we copied from the user we are logged in as on MAIN. Normally, when copying files between systems, one of them is the system we are logged in on. We do not need to specify a remote system for that parameter.

If you are only on one directory, you can also omit that information because the default directory is **pack-one**, the directory **your user name** is on. What's more, if the file name is the same in both parameters (To? and From?), you can omit it when you are prompted for "From?". So, you could have just written:

```
To? MINOR(DONNA-COSMAN(XYZ))."LET:TEXT" ↵
From? ↵
```

The file LET:TEXT on the local system will be copied to LET:TEXT on MINOR.

This leaves only one problem. For security reasons, we do not recommend writing a password so that it is displayed on the screen. To avoid that, we could have defined a DONNA-COSMAN on MINOR as default values. The password could then have been entered in advance without it ever appearing on the screen. This is explained in appendix H.

If DONNA-COSMAN's password is XYZ **on MINOR and on MAIN**, you can write:

```
To? MINOR(DONNA-COSMAN)."LET:TEXT" ↵
From? ↵
```

If you are an advanced user transferring files over long distances, you may want to define special transfer conditions before you give the TRANSFER-FILE or TRANSFER commands. This is explained in appendix H.

Executing the TRANSFER-FILE command directly from SINTRAN

You may also execute the TRANSFER-FILE command directly from SINTRAN. Here is the same example as the one given above, except this time the file is written from MAIN to a system called MINOR:

```
MAIN@TRANSFER-FILE MINOR(DONNA-COSMAN)."LET:TEXT",,, ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

No. of pages in file: 5
To:    LET:TEXT, Created: 1985.11.07 08:55:16
From:  LET:TEXT, Created: 1985.11.07 08:45:11
            Last written: 1985.11.07 08:46:41
Current page index:
4
Completed. Transfer rate: 17 Kbytes/sec

MAIN@_
```

The commas mean that the default value for the <From> parameter is used. In this case, it is the file **LET:TEXT** on the local system MAIN. This is the method to use when you have gained the necessary competence in transferring files.

If you are copying files within one computer system, use COPY-FILE. By using TRANSFER-FILE, you may be tying up the file server for others. Remember, the file server cannot open more than one file at a time.

When using the COSMOS File-Transfer program, you do not have to be logged in on either of the systems you are transferring files between. You may even be logged in on a remote system, transferring files between a third and fourth system!

The TRANSFER command

The TRANSFER command has the same parameters as TRANSFER-FILE. It cannot be given directly in SINTRAN. Use TRANSFER for files that have more pages than they need. A file generally needs one page for every 2048 bytes it contains, plus one or two pages. Here is an example of TRANSFER:

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

F-T:TRANSFER ↵
To? MINOR(FLOPPY-USER)."LIST-OUTPUT:TEXT" ↵
From? MAIN(DONNA-COSMAN(XYZ)).MODE-OUTPUT:TEXT ↵

No of pages in file according to max byte pointer: 4
To:   LIST-OUTPUT:TEXT, Created: 1985.11.08 15:14:06
From: MODE-OUTPUT:TEXT, Created: 1985.11.08 14:10:44
                        Last written: 1985.11.08 14:21:23
Current page index:
3
Completed. Transfer rate: 12 Kbytes/sec

F-T:_
```

We see that DONNA-COSMAN, logged in on MAIN, copied a file called MODE-OUTPUT:TEXT to a new file called LIST-OUTPUT:TEXT on user FLOPPY-USER on a remote system called MINOR. It would have been smarter just to write:

```
From? MODE-OUTPUT:TEXT ↵
```

because MAIN was the local system name and DONNA-COSMAN was the local user. As it was, DONNA-COSMAN revealed her password, which was XYZ. FLOPPY-USER had no password.

By defining a default remote system, you can avoid revealing your password or the remote user's password. See page 125 for more details.

TRANSFERRING PARTS OF A FILE

It is possible to transfer parts of a file under the FILE-TRANSFER subsystem. The command **TRANSFER-PART-OF-FILE** has five parameters:

```
F-T: TRANSFER-PART-OF-FILE <To>,<From>,<First page>,
                           <No. of pages>,<Start outpage>
```

For example, you have user-area DONNA-COSMAN with password XYZ on system MAIN. You wish to transfer 4 pages of your file called WHOLE-FILE:TEXT, starting from page 2, to a newly created file called PART-FILE:TEXT lying in user-area JONES with password ABC on remote system MINOR.

```
F-T: TRANSFER-PART-OF-FILE ↵
To? MINOR(JONES(ABC))."PART-FILE:TEXT" ↵
From? MAIN(DONNA-COSMAN(XYZ)).WHOLE-FILE:TEXT ↵

No of pages in file according to max byte pointer: 14
To:    PART-FILE:TEXT, Created: 1985.11.08 15:14:06
From: WHOLE-FILE:TEXT, Created: 1985.11.08 14:10:44
                  Last written: 1985.11.08 14:21:23

First page? 2 ↵
No. of pages? 4 ↵
Start outpage? 1 ↵

Current page index:
5
Completed. Transfer rate: 12 Kbytes/sec

F-T:_
```

In the above example, when we type "2" to the parameter <First page?>, TRANSFER-PART-OF-FILE will transfer part of the file starting from page 2 of the file WHOLE-FILE:TEXT. When we type "1" to the parameter <Start outpage?>, the 4 pages transferred into the file PART-FILE:TEXT will be numbered from page 1 onwards.

- The default value for the parameter <First page?> is 0.
- The default value for the parameter <No. of pages?> is the total number of pages in the file (in the case above, 14). No error message is given if the value is too big.
- The default value for the parameter <Start outpage?> is the value you give to the parameter <First page?> (in the case above, 2).

The TRANSFER-PART-OF-FILE command is useful when you want to continue transferring the rest of a file that did not get transferred when the system or links went down while you were under normal file transfer.

TRANSFERRING FILES IN A COMPRESSED FORM

Under the File-Transfer subsystem of COSMOS, it is also possible to transfer files in a compressed form to and from a remote system. By using this method of transferring files, one can save both time and money when accessing a slow and costly channel like X21, X25 or a modem.

There are two commands for transferring compressed files, namely, the **COMPRESS-FILE** command and the **COMPRESS** command.

The COMPRESS-FILE command

With the COMPRESS-FILE command, the file is compressed and transferred page by page.

The COMPRESS-FILE command has three parameters:

```
F-T: COMPRESS-FILE <To>,<From>,<Mode>
```

The COMPRESS command

The COMPRESS command compresses and transfers the pages in the file according to the maximum byte pointer.

The COMPRESS command also has three parameters:

```
F-T: COMPRESS <To>,<From>,<Mode>
```

The various Modes in COMPRESS-FILE

You can get a listing of all the available modes in COMPRESS-FILE and COMPRESS by typing **?** after the Mode? prompt.

```
Mode? ? ↵

Normal-transfer: No compression or decompression.
Compression-mode: Normal compression and decompression.
                  (default value).
Omit-decompression: No decompression is done after transfer.
Omit-compression: No compression is done before transfer.
Compress-here: Compression-mode, but compression is done
               locally
Decompress-here: Compression-mode, but decompression is done
                 locally

Mode? _
```

The following examples illustrate the use of the different modes under the COMPRESS-FILE command.

NORMAL-TRANSFER With this mode, there will be no compression or decompression of the file being transferred. The COMPRESS-FILE and the COMPRESS commands in this mode will then be identical in function to the TRANSFER-FILE and TRANSFER commands.

```
F-T:COMPRESS-FILE ↵
To? MINOR(JONES(ABC))."DEST-FILE:TEXT" ↵
From? SOURCE-FILE:TEXT ↵
Mode? NORMAL-TRANSFER ↵

No. of pages in file:  8
To:  DEST-FILE:TEXT, Created: 1985.10.21 14:15:00
From: SOURCE-FILE:TEXT, Created: 1985.08.09 12:15:00
                    Last written: 1985.09.10 13:00:00
Current page index:
7
Completed.  Transfer rate:  3 Kbytes/sec

F-T:_
```

COMPRESSION-MODE

With this mode, the file will be compressed at the system where the source file is. It will then be sent to the system where the destination file is, and decompressed there. This parameter is default, and is activated on carriage-return (↵).

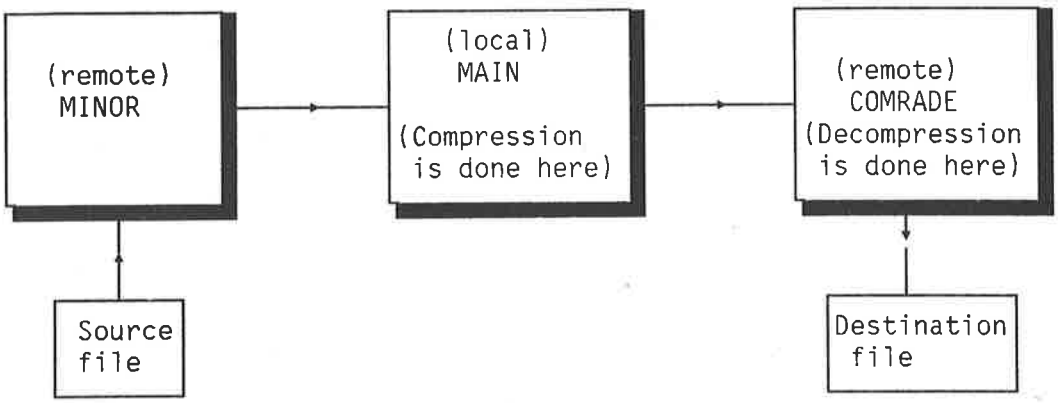
```
F-T:COMPRESS-FILE ↵
To? MINOR(JONES(ABC))."DEST-FILE:TEXT" ↵
From? SOURCE-FILE:TEXT ↵
Mode? COMPRESSION-MODE ↵

No. of pages in file:  8
To:  DEST-FILE:TEXT, Created: 1985.10.21 14:15:00
From: SOURCE-FILE:TEXT, Created: 1985.08.09 12:15:00
                  Last written: 1985.09.10 13:00:00
Current page index:
7
Completed.  Compression rate:  5 Kbytes/sec

F-T:_
```

COMPRESS-HERE

This particular mode only applies if you are transferring a file from a remote system to another remote system. The source file is first transferred from the remote system where it is residing, to the local system. It is then **compressed at the local system** before it is sent further to the remote system where the destination file is residing.

We assume that you are logged in on the local system **MAIN**, and that you want to transfer a file from the remote system **MINOR** to the remote system **COMRADE:**

```
MAIN@TRANSFER-FILE ↵

F-T:COMPRESS-FILE ↵
To? COMRADE(KARL(XYZ))."DEST-FILE:TEXT" ↵
From? MINOR(JONES(ABC)).SOURCE-FILE:TEXT ↵
Mode? COMPRESS-HERE ↵

No. of pages in file: 9
To: DEST-FILE:TEXT, Created: 1985.10.08 14:55:00
From: SOURCE-FILE:TEXT, Created: 1985.01.10 12:15:15
                    Last written: 1985.02.11 16:45:02
Current page index:
8
Completed.   Compression rate: 2 Kbytes/sec

F-T:_
```

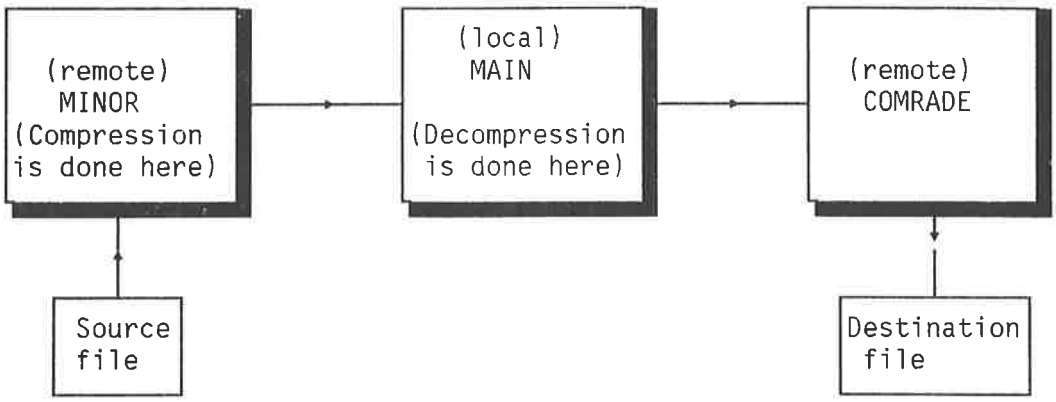


Schematic diagram of Compress-here mode

DECOMPRESS-HERE

```
Mode? DECOMPRESS-HERE ↵
```

The DECOMPRESS-HERE mode is similar to the COMPRESS-HERE mode, except that **decompression** is done locally.



Schematic diagram of Decompress-here mode

OMIT-DECOMPRESSION

In this mode, the file will be transferred in a compressed form, and stored as such. It will only be decompressed after it is taken out of storage. Because a compressed file occupies less storage space, this mode is useful when you have little storage space in the system.

Before we proceed with this mode, let us check the file statistics of REPORT:TEXT, a file that we want to transfer and store in a compressed form.

```
MAIN@FILE-STATISTICS ↵

FILE NAME: REPORT:TEXT ↵
OUTPUT FILE: ↵

FILE 23:(PACK-ONE:DONNA-COSMAN) REPORT:TEXT;1
        (INDEX FILE)
        PUBLIC ACCESS: NONE
        FRIEND ACCESS: READ,WRITE,APPEND
        OWN ACCESS: READ,WRITE,APPEND,COMMON,DIRECTORY
        OPENED 10 TIMES
        CREATED 14.15.00 OCTOBER 15, 1985
        OPENED FOR READ 16.30.00 NOVEMBER 12, 1985
        OPENED FOR WRITE 15.20.00 DECEMBER 13, 1985

        53 PAGES,  108314 BYTES IN FILE
```

Now we compress the file being transferred using the Omit-decompression mode:

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11  11:00

Hello DONNA-COSMAN

F-T:COMPRESS-FILE ↵
To? MINOR(JONES(XYZ))."REPORT:TEXT" ↵
From? REPORT:TEXT ↵
Mode? OMIT-DECOMPRESSION ↵

No. of pages in file: 53
To: REPORT:TEXT, Created: 1985.10.08 14:55:00
From: REPORT:TEXT, Created: 1985.01.10 12:15:15
              Last written: 1985.02.11 16:45:02
Current page index:
52
Completed.   Compression rate: 2 Kbytes/sec

F-T: EXIT ↵

MAIN@_
```

We can now check the file statistics of the file REPORT:TEXT again, and we will find that the number of pages stored is less than before the transfer.

```
MAIN@FILE-STATISTICS ↵

FILE NAME: MINOR(JONES(XYZ)).REPORT:TEXT ↵
OUTPUT FILE: ↵

FILE 23:(PACK-ONE:DONNA-COSMAN) REPORT:TEXT;1
        (INDEX FILE)
        PUBLIC ACCESS: NONE
        FRIEND ACCESS: READ,WRITE,APPEND
        OWN ACCESS: READ,WRITE,APPEND,COMMON,DIRECTORY
        OPENED 11 TIMES
        CREATED 14.15.00 OCTOBER 15, 1985
        OPENED FOR READ 16.30.00 NOVEMBER 12, 1985
        OPENED FOR WRITE 15.20.00 DECEMBER 13, 1985

        14 PAGES,   108314 BYTES IN FILE
```

OMIT-COMPRESSION

This particular mode is used when transferring files that have been stored in a compressed form, e.g. files that have been transferred using the Omit-decompression mode.

In the example below, we will transfer the file REPORT:TEXT that has been stored in a compressed form on remote system MINOR back to the local system MAIN.

```
MAIN@FILE-TRANSFER ↵

COSMOS File-Transfer (version D) of 1985.11.11  11:00

Hello DONNA-COSMAN

F-T:COMPRESS-FILE ↵
To? MAIN(DONNA-COSMAN(ABC)).REPORT:TEXT ↵
From? MINOR(JONES(XYZ)).REPORT:TEXT ↵
Mode? OMIT-COMPRESSION ↵

No. of pages in file: 14
To: REPORT:TEXT, Created: 1985.10.08 14:55:00
From: REPORT:TEXT, Created: 1985.01.10 12:15:15
              Last written: 1985.02.11 16:45:02
Current page index:
13
Completed.   Compression rate: 2 Kbytes/sec

F-T: EXIT ↵

MAIN@
```

For a list of the error messages in Compress-File, see appendix C.

The LIST-NAMES command This command will list all the systems that can be reached from the specified system name or number. For example:

```
F-T:LIST-NAMES ↵
System name or no? MAIN ↵

System   Port  Free SPs    Name
  590       2         1    *XFTRA.
  150                      DATABASE.
  150                      ND-150.
  260                      ND-260.
  260                      MINOR.
  590                      ND-590.
  590                      MAIN.
  870                      ND-870.
  870                      OPTICS.
 1005                      ND-1005.
 1005                      BIGHELPER.
 1170                      ND-1170.
 1170                      CENTRAL.
```

Note that this is a list of systems that can be accessed from MAIN. If a system has several names, it is listed once for each name. If you compare this list with the list produced by LIST-SYSTEMS in CONNECT-TO (see page 20), you will see that users of MAIN cannot reach MINI and CHICAGO.

Writing **LIST-NAMES 590** followed by carriage return will give the same output.

The other commands in the FILE-TRANSFER program can be found in appendix H.

CHAPTER 5
REMOTE SPOOLING

WHAT IS SPOOLING?

Spooling is a technique that takes files to be printed and copies them to **spooling files** on fast mass storage devices such as disks. The spooling files wait for their turn in a **spooling queue** to be printed one at a time. This saves time because your file is released as soon as it is copied into the spooling file.

Here is an example:

You format a document called REPORT:TEXT using NOTIS-TF. When you are through inspecting the resulting output document REPORT:OUT, you want the line printer to print a copy of it. You press the PRINT key, and you are prompted for "Output device:" You answer LINE-PRINTER, followed by carriage return:

```
WPI:Output device: LINE-PRINTER ↵
Page: 1 A  Sheet no.: 1/10  Column: 19 - 98
.2....:....3....:....4....:....5....:....6....:....7....
```

Your file REPORT:TEXT will be copied to a spooling file in a matter of seconds. Once it is copied, you can continue using the text formatter. If the text formatter did not use spooling, your terminal would have been tied up until the printer had finished printing your document. That would have taken much longer.

To see where your document REPORT:OUT is in the spooling queue, give the following command:

```
@LIST-SPOOLING-QUEUE LINE-PRINTER ↵

FILE CURRENTLY BEING PRINTED ON:  LINE-PRINTER:;1
LINE-PRINTER:;3 , LAST USED BY JONES,
     APPROX. 24572 BYTES LEFT TO PRINT
LINE-PRINTER:;4 , LAST USED BY RT,
     2 COPIES, 51005 BYTES IN FILE
LINE-PRINTER:;2 , LAST USED BY MARY-COSMAN,
     1 COPY, 17162 BYTES IN FILE
```

The spooling file LINE-PRINTER:;2 is last in the queue. It contains the contents of the document REPORT:OUT. It will be printed after versions 3 and 4 of the spooling file LINE-PRINTER have been printed. (Note that two copies of LINE-PRINTER:;4 are to be printed.) The file LINE-PRINTER:;1 is the printer itself.

Without spooling, you would only be able to send a document to the printer when the printer was idle. And when you finally found that the printer was idle, your document and your terminal would still be tied up until the printer was done printing your document.

COSMOS Spooling

COSMOS Spooling provides you with considerable flexibility. Your system supervisor makes a list of **local printer names** that you use when you want to print documents. The system supervisor decides which **local printer name** corresponds with which **remote printer**. This is called **configuring the printers**.

To explain how it works, it is best to use an

analogy. Let us say that you often need to call Bob on the phone, but he moves around a lot and can be at one of five different telephone numbers. Instead of trying each number, wouldn't it be nice to just dial "BOB" and leave it to the telephone to know which number he was at?

COSMOS Spooling works in a similar way! Your system supervisor makes a list of printer names and associates each one with a real printer that may be local or remote. When you want to print a document you have in NOTIS-WP, you just specify one of the printer names. You can check to see which printer it was printed on and then go get your printed document.

When you print a document in NOTIS, here is what happens behind the scenes:

1. NOTIS looks up the name of the printer you specify in a file called WP-PRINTERS. That file is stored under user SYSTEM and gives the printer information about how it is to print documents.

2. Your document is copied to a spooling file and put in the COSMOS Spooling Queue where it waits to be sent to the spooling queue of the printer you specified.

3. Then COSMOS and SINTRAN use the COSMOS Spooling Service to find out what system the specified printer is on. The spooling file containing a copy of your document is then copied to another spooling file in the spooling queue of the printer you specify.

4. When that file is first in line, it will be printed.

By using spooling queues twice, one for files waiting to be transferred to (remote) printers, and one for each printer where the transferred files are waiting to be printed,

your waiting time is reduced to a minimum. You can perform other tasks while waiting for your document to be printed.

The HELP command in COSMOS Spooling Service

You enter the **COSMOS Spooling Service (C-S-S)** program by writing **COS-SPOOL-SERVIC** in SINTRAN. You leave COSMOS Spooling by writing EXIT. Such long subsystem names must be abbreviated because SINTRAN only allows 16 characters in a subsystem name.

Once you are in C-S-S, type HELP to get a list of the commands available:

```
MAIN@COS-SPOOL-SERVIC ↵

COSMOS Spooling Service program
(version D) of 1985.11.11 11:00

C-S-S: HELP,,, ↵

Define-printer <Local spooling file>,<Remote system>,
               <Remote printer> <Extra header>,
               <No. of local spooling files>
List-printers
Delete-printer <Local printer name>
Change-password <Remote system name>
Get-file-statistics
List-server-errors
Get-error-message <Error value (dec)>
Help <Command name>
Exit
List-all-commands

C-S-S: _
```

You will only need to know the commands in boldface above. The other commands are protected and only your system supervisor may use them.

The LIST-PRINTERS command

By giving the command LIST-PRINTERS, you can see which printers have been defined by your system supervisor:

```
C-S-S: LIST-PRINTERS ↵

Local printer name: !Remote system and printer name: ! Header: !
DP-55               ! MAIN.DP-55                     !         !
PHILIPS-T           ! MAIN.PHILIPS                   !         !
PHILIPS-S           ! MINOR.PHILIPS                  !    X    !
LINE-PRINTER        ! MINOR.LINE-PRINTER             !    X    !
<Default printer>   ! MAIN.LINE-PRINTER              !         !
```

Now let us say that one person starts a print job on your local DP-55 printer that may take several hours. Let us also assume that your local Philips printer needs to be repaired. Your system supervisor could then change the list to the following:

```
Local printer name: !Remote system and printer name: ! Header: !
DP-55               ! MINOR.DP-55                    !    X    !
PHILIPS-T           ! MINOR.PHILIPS                  !    X    !
PHILIPS-S           ! MINOR.PHILIPS                  !    X    !
LINE-PRINTER        ! MINOR.LINE-PRINTER             !    X    !
<Default printer>   ! MAIN.LINE-PRINTER              !         !
```

Anyone sending a document to "Philips-T" or "DP-55" will get it printed on a printer attached to MINOR instead of MAIN. When users can once again use the printers on MAIN, the system supervisor can redefine PHILIPS-T and DP-55.

An "X" under "Header" means that your listing will contain information about which system you were on, your name, and the spooling file your document was on. An example of a header is given on page 84.

SENDING OUTPUT TO A PRINTER

If you want to send a list of all SINTRAN commands that begin with R to the printer called DP-55, here is what you do:

```
MAIN@HELP R DP-55 ↵
```

But normally you will send output to a printer from an editor. For example, you want to print a document that you are inspecting in NOTIS.

Let us say that you want to print your document called REPORT:OUT which you produced by using NOTIS-TF, once again. You press the PRINT key, and you are prompted for "Output device:". You type DP-55, followed by carriage return.

```
WPI:Output device: DP-55 ↵
Page: 1 A  Sheet no.: 1/10  Column: 19 - 98
.2....:....3....:....4....:....5....:....6....:....7....
```

After sending output to the printer, you can use the SINTRAN command LIST-SPOOLING-QUEUE, to see that your file was sent by COSMOS to the queue of the printer DP-55.

```
MAIN@LIST-SPOOLING-QUEUE COSMOS-SPOOLING,,, ↵

DP-55:;1 , LAST USED BY MARY-COSMAN
     1 COPY , 826 BYTES IN FILE
```

The file DP-55:;1 is a spooling file and it is first in the COSMOS Spooling Queue. Files in the COSMOS Spooling Queue are files on the local system waiting to be transferred to the spooling queues of printers that may be local or remote. Often files will be transferred so quickly that by the time you give the LIST-SPOOLING-QUEUE command, the file will already have been transferred, and you will get the message "QUEUE IS EMPTY."

Note that you specified a local printer name (DP-55), but the printer itself may or may not be local, depending on how it is defined in the table of printers.

The APPEND-SPOOLING-FILE command

There are three reasons for using the SINTRAN command APPEND-SPOOLING-FILE:

- you want to print your file on a remote printer that is **not defined in the LIST-PRINTERS list**.
- you want to print several copies of your document.
- you want to send a user message to the spooling queue on the remote printer.

Supposing you want to print your file REPORT:OUT on the DP-55 printer on the remote system OPTICS. You may then write:

```
MAIN@APPEND-SPOOLING-FILE ↵
PERIPHERAL FILE NAME:COSMOS-SPOOLING ↵
FILE NAME:REPORT:OUT ↵
NUMBER OF COPIES:2 ↵
TEXT (TERMINATED WITH '):@ROUTE OPTICS.DP-55
                         @MESSAGE FORMAT A4' ↵
PRINTING MESSAGE INDEPENDENT OF SPOOLING CONDITIONS?:NO ↵
```

After the TEXT: prompt, you should respond with the SINTRAN sign (*@*) followed by *ROUTE* and the name of the **remote system**, a period (.), the name of the **remote printer**, an optional parameter *@MESSAGE* , and an apostrophe (') at the end.

@ROUTE is also optional in the sense that if you **do not type "@ROUTE"**, your document will be printed on the default remote printer listed under LIST-PRINTERS.

If you use @MESSAGE followed by a text, the text up to the apostrophe (') will be given as user message to your printout on the remote spooling system (see example below).

If you use both @ROUTE and @MESSAGE however, **@ROUTE must come before @MESSAGE.**

To check that the file REPORT:OUT has been appended to the spooling queue of the remote printer, you have to connect to the remote system OPTICS and list the spooling queue there:

```
OPTICS@LIST-SPOOLING-QUEUE ↵

PERIPHERAL FILE NAME: DP-55 ↵
OUTPUT FILE: ↵

FILE CURRENTLY BEING PRINTED ON: DP-55:;1
DP-55:;2
    LAST USED BY RT-PROGRAM XFTRA
    2 COPIES LEFT, APPROX. 51366 BYTES LEFT TO PRINT
*** USER-MESSAGE: FORMAT A4
```

You can also use the command **GET-FILE-STATISTICS** on the local system, to check that the file has been appended to the spooling queue of the printer on the remote system. This is explained in the next section.

The GET-FILE-STATISTICS command

Using the GET-FILE-STATISTICS command, you may get information about the last file sent by COSMOS Spooling:

```
MAIN@COS-SPOOL-SERVIC ↵

COSMOS Spooling Service program
(version D) of 1985.11.11 11:00

C-S-S:GET-FILE-STATISTICS ↵

File statistics for last transferred file:
Date transferred: 85.12.14 17:21:27
File name: (PACK-5:MARY-COSMAN)DOC:OUT;1
No. of pages transferred: 1 + header (1 page) = 2
No. of bytes transferred: 764 + header (1 page) = 2912
Sent  to  system: OPTICS
Remote file name: DP-55
Transfer  status: OK.

C-S-S:_
```

As you can see, the command GET-FILE-STATISTICS tells how many pages and bytes were transferred to the printer called DP-55 on the system called OPTICS. The header is a list that comes with your printout telling you who requested the printer and other useful information.

If there is an X in the column for "Header" for the printer you use in the table of printers (see page 79), one page of your listing will contain the following information:

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                               *
*     C O S M O S   S P O O L I N G   S Y S T E M               *
*                                                               *
*       TRANSFERRED : 85.12.14  17:21:27                        *
*                                                               *
*       FROM SYSTEM : MAIN                                      *
*                                                               *
*       USER NAME   : MARY-COSMAN                               *
*                                                               *
*       FILE NAME   : DP-55:;1                                  *
*                                                               *
*                                                               *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

The header lists the date and time of transfer, the system you were logged in on when you sent your document to the printer, your user- name, and the name of the file that was transferred. Remember, your document REPORT:OUT was copied to the spooling file DP-55. That is why DP-55 is listed and not the name of your document.

If the **Transfer Status** is **NOT OK**, you may use the command **LIST-SERVER-ERRORS** explained below to find out what the problem is.

The LIST-SERVER-ERRORS command

By giving the command LIST-SERVER-ERRORS, you can get a list of file transfers that COSMOS Spooling was unable to perform.

```
C-S-S:LIST-SERVER-ERRORS ↵

-- Datcl: 85.12.19  17:13:03
Error messages written by COSPO

-- Date:  85.12.19  16:14:39
Cannot transfer (PACK-ONE:TOM)MY-FILE:SYMB;1
to CHICAGO.LINE-PRINTER

-- Date:  85.12.19  16:14:39
XMSG error (dec/oct): 16972/41114
```

You can find out what XMSG error 16972 means by using the GET-ERROR-MESSAGE command:

```
C-S-S:GET-ERROR-MESSAGE 16972 ↵

No access to remote system

C-S-S:_
```

As you can see, Tom did not have access to the remote system CHICAGO.

Other commands

The three commands **DEFINE-PRINTER, DELETE-PRINTER** and **CHANGE-PASSWORD** are commands for your system supervisor and are described in the COSMOS Operator Guide. The command **LIST-ALL-COMMANDS** lists a few more commands, but they are also commands that end users do not need to know.

APPENDIX A
ERROR MESSAGES IN CONNECT-TO

CONNECT-TO ERROR MESSAGES

You can get two types of error messages from the CONNECT-TO program: system error messsages and user error messages.

System error messages are displayed when the error lies in the computer or the network. Contact your system supervisor when you get these messages.

User error messages are caused by your errors. Some typical errors are trying to make a remote connection from a remote system, trying to connect to an unknown system, or giving commands that are misspelled or do not exist.

System error messages will look like this:

```
xxxx MALFUNCTION: (See supervisor / yyyyyy : nn)
```

In place of **xxxx**, either **TERMINAL ACCESS** or **SYSTEM** will be written. **YYYYYY** is the error name, and nn is the error number.

Here are two examples:

```
SYSTEM MALFUNCTION:  (See supervisor / REMOTE : 4)

SYSTEM MALFUNCTION:  (See supervisor / CONNCT : 26)
```

You should write down this information and give it to your system supervisor. The messages are explained in the COSMOS Operator Guide, ND-30.025.

Other messages may follow. Here are some examples:

```
SINTRAN error message: nnnnn

TAD protocol error: nnnnn

Network inaccessible, XMSG error: nnnn

Proper operation of TAD not possible on system ssssss
```

These should also be reported to your supervisor.

User error messages are caused by your errors. Here are the most common errors:

```
TERMINAL ACCESS DENIED:
You are already remotely connected. Please return
to your local system and disconnect before new connection.

TERMINAL ACCESS DENIED:
The CONNECT-TO program can not be started from a Batch job.
Allowed execution modes are: interactive-mode and mode-jobs.
```

You may only use CONNECT-TO from your terminal and in mode jobs (when you write @MODE <file name> in SINTRAN).

Here are some more common errors:

```
UNSUCCESSFUL CONNECT:
Unknown remote system name <system name>

UNSUCCESSFUL CONNECT:
Remote terminal access not running on: <system name>

UNSUCCESSFUL CONNECT:
Remote system <system name> not available

UNSUCCESSFUL CONNECT:
No free TAD at present on system: <system name>, try later

UNSUCCESSFUL CONNECT:
Remote terminal access at present closed on system <system name>
```

If you use the command LIST-SYSTEMS in the CONNECT-TO program, you will see if there are any free Terminal Access Devices (TADs).

If you make errors in your commands or their parameters, you may get one of the following messages:

```
Ambiguous command

Illegal parameter

Illegal parameter format

Illegal command
```

Since this manual does not teach you how to write SCRIPT commands, error messages that result when you give the command INITIALIZE-SCRIPT will not be covered here. See the COSMOS Operator Guide.

APPENDIX B
ERROR MESSAGES IN REMOTE FILE ACCESS

REMOTE FILE ACCESS ERROR MESSAGES

You can get two types of error messages when you try to access remote files: system error messsages and user error messages.

System error messages are displayed when the error lies in the computer or the network. Contact your system supervisor when you get these messages.

User error messages are caused by your errors. Some typical errors are using SINTRAN commands that do not allow remote file access or misspelling the names of commands, systems, users or files.

Here are some examples of **system error messages**:

```
NO ANSWER FROM REMOTE SYSTEM,
FILE ACCESS CONNECTION ABORTED
```

The remote system has probably gone down.

```
FILE ACCESS REENTRANT SEGMENTS NOT LOADED
```

Contact your system supervisor and ask to have these segments loaded.

```
FILE ACCESS CONNECTION ABORTED BY FILE SERVER
FILE ACCESS CONNECTION ABORTED BY FILE SERVER ADMINISTRATOR
```

You tried to access a file after it was closed by the File Server Administrator. Try again or contact your system supervisor for help.

```
NO MORE REMOTE FILE ACCESS DATA SEGMENTS AVAILABLE
```

There are only a limited number of segments available and all of them are currently in use. You should wait and try again later.

If you get any of the following messages, you should contact your system supervisor:

FILE ACCESS PROTOCOL ERROR, CONNECTION ABORTED

FILE ACCESS INTERNAL ERROR,
CALL NOT VALID IN CURRENT STATE

FILE ACCESS TRANSPORT LAYER ERROR,
ALL CONNECTIONS ABORTED

FILE ACCESS INTERNAL ERROR,
INVALID PARAMETER VALUE

FILE ACCESS NOT RUNNING OR CRASHED,
ALL CONNECTIONS ABORTED

REMOTE FILE SERVER IS NOT AVAILABLE

Here are some examples of **user error messages**:

UNKNOWN REMOTE SYSTEM NAME

Check and see if you spelled the name of the remote system correctly. Check and see if the remote system is included in the network.

ILLEGAL ACCESS CODE ON REMOTE FILE

You will get this message if you try to access a file using something other than random read and write access or random read, write and append access. You will also get this message if you try to use a SINTRAN command that does not accept remote file access, for example, if you use COPY-FILE instead of TRANSFER-FILE.

APPENDIX C
ERROR MESSAGES IN FILE-TRANSFER

FILE-TRANSFER ERROR MESSAGES

There are two types of error messages you may get when you try to transfer files between systems: system error messages and user error messages.

System error messages are displayed when the error lies in the computer or the network. Contact your system supervisor when you get these messages.

User error messages are caused by your errors. The errors you are most likely to make are syntax errors, causing you to incorrectly identify a remote system, user or file.

Here are some examples of **system error messages**:

NO ACCESS TO REMOTE SYSTEM

The remote system cannot be accessed now. Use the command LIST-SYSTEMS in CONNECT-TO to see the current status of the remote system.

If you get any of the following messages, you will be unable to transfer files until your system supervisor does the necessary work:

NO REMOTE BATCH SERVICE HERE

FACILITY NOT YET IMPLEMENTED

REMOTE SYSTEM NOT DEFINED IN ROUTING TABLES

XMSG IS NOT RUNNING

TIMEOUT, A MESSAGE IS LOST

Here are some examples of **user error messages**:

ILLEGAL PARAMETER TYPE

Check to see that you wrote the parameters correctly.

ILLEGAL SYSTEM NUMBER

UNKNOWN REMOTE SYSTEM NAME

Use the command LIST-NAMES in FILE-TRANSFER to see if you have specified the correct number or name of the remote system.

DESTINATION FILE NAME MUST BE GIVEN

Write the destination file name in response to the prompt, 'To?'.

ILLEGAL FILE NAME SYNTAX

Error Messages from using COMPRESS-FILE in the FILE-TRANSFER subsystem:

COMPRESSION NOT IMPLEMENTED AT REMOTE SERVER

The file was transferred using COMPRESS, but could not be compressed or decompressed because the XFTRAD server was not on the remote system.

The following error message will appear if you use the Omit-Compression Mode while transferring a file that is not stored in a compressed form.

CANNOT DECOMPRESS, THE SOURCE FILE IS NOT COMPRESSED

APPENDIX D
ASCII 0 ON VARIOUS TERMINALS

Here is a list of terminals and what generates ASCII 0 on them. Please note that some of the following terminals may have national versions that use something other than **CTRL + @** to generate ASCII 0.

Tandberg TDV2115	CTRL @
Tandberg TDV2215 (extended)	CTRL @
Tandberg TDV2215 SDS V2	CTRL @
Tandberg TDV2200/9 ND NOTIS	CTRL @
Tandberg TDV2200/9 V2 ND NOTIS	CTRL @
Facit 4420 ND NOTIS	CTRL @
Facit Twist	CTRL @
DEC LA36 (Decwriter II)	CTRL @
DEC consoles VT52 and VT 100	CTRL + the space key
Infoton 200	CTRL @
Infoton 400 (British, Norwegian, Danish)	CTRL @
Infoton 400 - special version (Norwegian, Danish)	CTRL É
Colortrend 210	CTRL @

NATIONAL VARIATIONS ON MOST TERMINALS:

US, British, Dutch, Norwegian, Danish, Swedish and Finnish	CTRL + @
French	CTRL + à
German terminals	CTRL + §

HOW TO GENERATE ASCII 0 ON MOST CONSOLES:

(The following applies to Texas Instruments Omni 800 825 KSR terminals)

International, US, British and Dutch	CTRL + [
Danish and Norwegian	CTRL +]

If none of the control characters above generate ASCII 0 on your terminal or console, you can try the following:

- Find the manual for your terminal type and look in the back for the code charts.
- Ask your system supervisor what generates ASCII 0 on your terminal or console.
- On consoles, you might try CTRL + the key to the right of "**P**" on the keyboard. This often generates ASCII 0.
- If all else fails, you can log out of the remote system. If your COSMOS uses the default time of one minute, you will be disconnected after one minute.

If the local character is not ASCII 0, here are some other octal values and what generates them:

OCTAL VALUE	YOU USE:	OCTAL VALUE	YOU USE:	OCTAL VALUE	YOU USE:
1	CTRL + A	2	CTRL + B	3	CTRL + C
4	CTRL + D	5	CTRL + E	6	CTRL + F
7	CTRL + G	10	CTRL + H	11	CTRL + I
12	CTRL + J	13	CTRL + K	14	CTRL + L
15	CTRL + M	16	CTRL + N	17	CTRL + O
20	CTRL + P	21	CTRL + Q	22	CTRL + R
23	CTRL + S	24	CTRL + T	25	CTRL + U
26	CTRL + V	27	CTRL + W	30	CTRL + X
31	CTRL + Y	32	CTRL + Z		

You probably do not need to change the local character. However, if you must do so, you can change it like this:

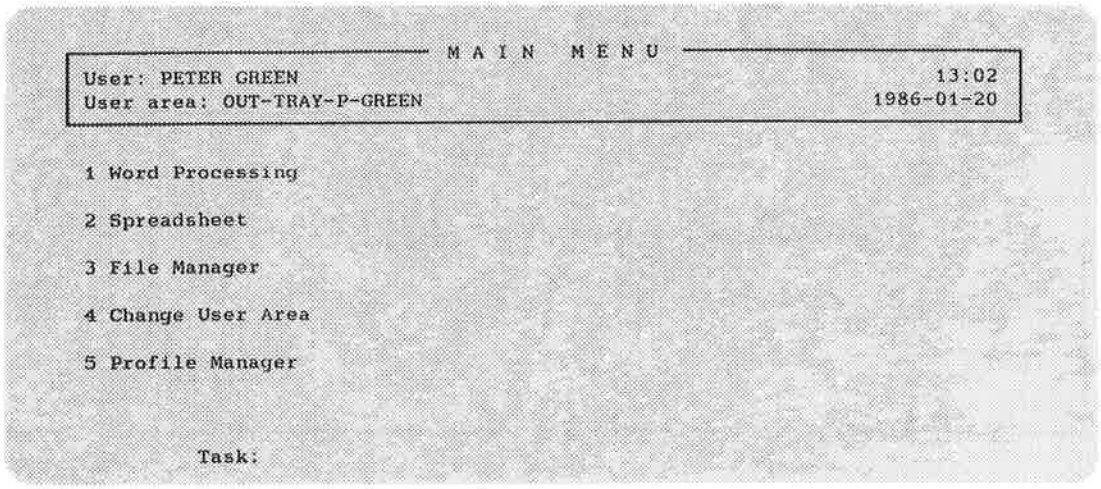
```
MAIN@CONNECT-TO ↵

C-T: SERVICE-PROGRAM ↵
CT-SERV: CHANGE-LOCAL-CHARACTER ↵
ASCII VALUE: 32 ↵
CT-SERV: EXIT ↵

C-T: _
```

In this case, the local character was changed to CTRL Z. You could also have written **26D** instead of **32**. The decimal number 32 is the same as the octal number 26. When you connect to a remote system, you will have to press CTRL Z twice to disconnect.

When you are through using CONNECT-TO, the local character will once again be ASCII 0. End users are not allowed to change the local character permanently.

APPENDIX E
COSMOS AND USER ENVIRONMENT

If you are using version B of User Environment, the standard main menu may look like this on your screen:



Entering the CONNECT-TO program via User Environment

To enter the CONNECT-TO subsystem, you can just type the SINTRAN prompt "@" from anywhere in the main menu and the "@" prompt and the cursor will appear after 'Task:'.

Then you type "CONNECT-TO" followed by carriage return and you will be in the CONNECT-TO subsystem:

```
Task:@CONNECT-TO ↵.....................
```

```
@CONNECT-TO

COSMOS CONNECT-TO PROGRAM VERSION - D , OCTOBER 1985
C-T: _
```

Entering the FILE-TRANSFER program via User Environment

To enter the FILE-TRANSFER subsystem you follow the same procedure as above; i.e. you type "@TRANSFER-FILE" after the 'Task:' prompt, followed by carriage return:

```
Task:@TRANSFER-FILE ↵.....................
```

```
@TRANSFER-FILE

COSMOS File-Transfer (version D) of 1985.11.11 11:11

Hello OUT-TRAY-P-GREEN

F-T:_
```

APPENDIX F
OTHER COMMANDS IN CONNECT-TO

The LIST-LOCAL-CHARACTER command

This command gives you the octal value of the local character.

```
C-T: LIST-LOCAL-CHARACTER ↵

OCTAL VALUE OF LOCAL CHARACTER: 0
C-T: _
```

By using the table in appendix D on page 101, you can determine what control character that octal value corresponds to.
The default value is octal 0.

The EXIT command

This command allows you to leave the CONNECT-TO program.

```
C-T: EXIT ↵

MAIN@_
```

The SERVICE-PROGRAM command

```
C-T: SERVICE-PROGRAM ↵

CONNECT-TO service-program  -  Version D

CT-SERV: _
```

This command is documented in the COSMOS Operator Guide and should not be used by end users. The SERVICE-PROGRAM is mainly used to create SCRIPT programs, and one such example is given in appendix I.

The LIST-TIMEOUT-VALUES command

Each person connected to a remote system occupies one **Terminal Access Device (TAD)** on that system. Since the number of TADs on a system is limited, inactive users are disconnected after a certain period of time. This frees the TADs so that others may use them.

You can find out what the default timeout values are by the following command:

```
C-T: LIST-TIMEOUT-VALUES ↵

TIMEOUT ON
Number of minutes inactive when not logged in: 1
Number of minutes inactive when logged in    : 30

C-T: _
```

The timeout facility will generally work no matter what your last command was. For instance, if you log in on a remote system and work on a file using NOTIS-WP and leave your terminal for more than half an hour, you will be disconnected from the remote system. All the changes made in that file since the last time you wrote it to the disk may be lost. As a general rule, you should log out when leaving your terminal.

When you have less than a minute left before being disconnected by timeout, your terminal will beep every 5 seconds.

If a timeout occurs, and you lose vital data, **do not touch your terminal. Contact your local system supervisor at once!**

A timeout looks like this if you are not logged in:

```
MAIN@CONNECT-TO MINOR ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985
=== CONNECTION ESTABLISHED ===
T.A.D. LOGICAL UNIT NO: 768
LOCAL CHARACTER IS: 0 (ASCII value)
(Allowed idle time: 1 minute)

   (No activity for 1 minute)

-- CONNECTION TIMEOUT --
To ensure that T.A.D.'s are available to active users,
a T.A.D. not logged in cannot be held
for more than 1 minute.

-- DISCONNECTED FROM: MINOR --
Returning to: MAIN , as user: DONNA-COSMAN
MAIN@_
```

If you are logged in to a remote system when a timeout occurs, you will get the following message:

```
MINOR@_

(No activity for 30 minutes)

-- CONNECTION TIMEOUT --
To ensure that T.A.D.'s are available to active users,
an inactive connection cannot be held for more
than 30 minutes.

-- DISCONNECTED FROM: MINOR --
Returning to: MAIN , as user: DONNA-COSMAN

MAIN@_
```

Appendix G
Other commands in Remote File Access

These commands allow you to access remote files:

```
@ALLOCATE-FILE <file name> <page address> <no. of pages>
@ALLOCATE-NEW-VERSION <file name> <page address> <no. of pages>
@APPEND-SPOOLING-FILE <peripheral file name> <file name>
                      <number of copies> <text (terminated with ')>
                  <printing message independent of spooling conditions>
@CLOSE-FILE <file no.>
@CONNECT-FILE <file name> <file no.> <access type>
@COPY <destination file> <source file>
@COPY-FILE <destination file> <source file>
@CREATE-FILE <file name> <no. of pages>
@CREATE-NEW-VERSION <file name> <no. of pages>
@DELETE-FILE <file name>
@DUMP <file name> <start address> <restart address>
@DUMP-REENTRANT <subsystem name> <start address>
                <restart address> <binary file name>
@EXPAND-FILE <file name>
@FILE-STATISTICS <file name> <output file>
@LIST-FILES <file name> <output file>
@LIST-OPEN-FILES  (includes files opened on remote systems)
@LIST-RTOPEN-FILES  (includes files opened on remote systems)
@LOAD-BINARY <file name>
@OPEN-FILE <file name> <access type>
@PLACE-BINARY <file name>
@RECOVER  <file name>
@RENAME-FILE <old file name> <new object name> <:new type>
@RFILE <file no.>
@RTCLOSE-FILE <file no.>
@RTCONNECT-FILE <file name>
@RTOPEN-FILE <file name>
@SCRATCH-OPEN <file name> <access type>
@SET-BLOCK-POINTER <file no.> <block no.>
@SET-BLOCK-SIZE <file no.> <block size>
@SET-BYTE-POINTER <file no.> <block no.>
@SET-PERIPHERAL-FILE <file name> <log.no.>
@SET-PERMANENT-OPENED <file no.>
@SET-TEMPORARY-FILE <file name>
@WFILE <file no.>
```

Below, we will discuss the rest of the SINTRAN commands allowing Remote File Access that were not included in chapter 3.

The CREATE-NEW-VERSION command

You create a new version of the same file by doing the following:

```
MAIN@CREATE-NEW-VERSION ↵

FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)REMOTE:TEXT ↵
NO. OF PAGES: ↵
```

The file will now have two versions: REMOTE:TEXT;1 (the latest version), and REMOTE:TEXT;2.

The RENAME-FILE command

You rename a remote file by doing the following:

```
MAIN@RENAME-FILE ↵

FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)REMOTE:TEXT;2 ↵
NEW FILE NAME AND TYPE:USELESS:TEXT ↵
```

The files on the remote system are now REMOTE:TEXT;1 and USELESS:TEXT. Please note that the parameter "New File Name and Type" **does not accept access information.**

The EXPAND-FILE command Here is how you expand a remote file:

```
MAIN@EXPAND-FILE ↵

FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)REMOTE:TEXT;1 ↵
NO. OF PAGES: 10 ↵
```

If space is available, REMOTE:TEXT will be expanded by 10 pages. If the file had 1 page before, it will have 11 pages now.

If space is not available, you will get the message "Space already allocated."

The DELETE-FILE command Below are examples of how you delete the remote files created above:

```
MAIN@DELETE-FILE ↵

FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)USELESS:TEXT ↵
```

```
MAIN@DELETE-FILE ↵

FILE NAME:MINOR(TOM(XYZ)).(PACK-ONE:TOM)REMOTE:TEXT ↵
```

The SET-TEMPORARY-FILE command

You make a temporary file on a remote system by doing the following:

```
MAIN@SET-TEMPORARY-FILE ↵

FILE NAME:MINOR(TOM(XYZ))."(PACK-ONE:TOM]TEMP:SYMB" ↵
```

A new file called TEMP:SYMB will be created. Each time you are through reading the contents of TEMP:SYMB, the contents will be erased and the file will be empty.

The OPEN-FILE command

You can open a file on a remote system by doing the following:

```
MAIN@OPEN-FILE ↵

FILE NAME: MINOR(TOM(XYZ)).REMOTE:TEXT ↵
ACCESS MODE (R,W,RW,RX,WX,WA,RC,WC): WX ↵
FILE NUMBER IS 000101
```

WX means that the file is given random read and write access.

The LIST-OPEN-FILES command

You can find out what files are open on both the local and remote system by doing the following:

```
MAIN@LIST-OPEN-FILES ↵

OUTPUT FILE: ↵
FILE NUMBER 000100: (PACK-ONE:SCRATCH)SCRATCH19:DATA;1
FILE NUMBER 000101: MINOR.(PACK-ONE:TOM)REMOTE:TEXT;1
MAIN@_
```

Note that you do not need to specify the remote system for this command.

The RECOVER command

You can use the RECOVER command to execute programs on :PROG files. For instance, let us say that the program SCAN-DATA is located on user SYSTEM's files on the remote system, BIGHELPER. You do not know user SYSTEM's password, but you know that all users on BIGHELPER may execute the SCAN-DATA program. You know that FLOPPY-USER has no password, so you access the :PROG file via FLOPPY-USER:

```
MAIN@RECOVER ↵
SUBSYSTEM NAME: BIGHELPER(FLOPPY-USER).(SYSTEM)SCAN-DATA ↵
```

Note that we did not specify which disk, user SYSTEM was on; this is usually not necessary because the most important :PROG files are placed on the default directory. If we omit both the directory and the user name for the file SCAN-DATA:PROG, SINTRAN will first look for the file in user FLOPPY-USER's area. If the :PROG file is not found there, SINTRAN will look in the user SYSTEM's area.

Note that you can just as well execute the same program on a remote system by simply doing the following:

```
MAIN@BIGHELPER(FLOPPY-USER).SCAN-DATA ↵
```

Do not call reentrant subsystems on remote systems. Connect to the remote system and use them there instead.

The COPY-FILE Command

This command copies the file page by page if both the local and the remote files are mass-storage files.

```
MAIN@COPY-FILE ↵

DESTINATION FILE:MINOR(TOM(XYZ)).REMOTE:TEXT↵
SOURCE FILE: LOCAL:TEXT ↵
```

The COPY Command

This command copies the file byte by byte according to the maximum byte pointer.

```
MAIN@COPY ↵

TO DEVICE: MINOR(TOM(XYZ)).REMOTE:TEXT↵
FROM DEVICE: LOCAL:TEXT ↵

END OF FILE
```

The APPEND-SPOOLING-FILE Command

You can append a file from your local system **or remote system** onto the spooling queue of a printer connected to a remote system. That is to say, both the file and the printer can be on different remote systems. We assume that the file called REPORT:TEXT on remote system BUDDHA is to be printed on the line-printer on remote system MINOR:

```
MAIN@APPEND-SPOOLING-FILE ↵

PERIPHERAL FILE NAME: MINOR(TOM(XYZ)).LINE-PRINTER ↵
FILE NAME: BUDDHA(JOE(VIP)).REPORT:TEXT ↵
NUMBER OF COPIES: 5 ↵
TEXT (TERMINATED WITH '): SEND TO THE IRON OX' ↵
PRINTING MESSAGE INDEPENDENT OF SPOOLING CONDITIONS? NO ↵
```

To check that your file has been appended on the remote printer queue, you should connect to system MINOR and list the spooling queue of the line-printer there.

```
MINOR@LIST-SPOOLING QUEUE ↵
PERIPHERAL FILE NAME: LINE-PRINTER ↵
OUTPUT FILE: ↵

BUDDHA.(PACK-SIX:JOE)REPORT:TEXT;1
   APPENDED BY TOM
   1 COPY, 17942 BYTES IN FILE
*** USER MESSAGE: SEND TO THE IRON OX
```

For an explanation on how to use the APPEND-SPOOLING-FILE command under the COSMOS Spooling System, see chapter 5.

APPENDIX H
OTHER COMMANDS IN FILE-TRANSFER

The SET-DEFAULT-REMOTE-SYSTEM command

This command has two advantages:

1. You may transfer files without your password appearing on the screen.
2. You can avoid writing the remote system parameters. This will save you time if you are copying many files.

The command SET-DEFAULT-REMOTE-SYSTEM has three parameters. **Remote system name** and **remote user name** may be written on the same line as the command itself. The **password** should always be written on a separate line. This will not appear on the screen. If you only give the command, each parameter will be prompted for.

Project Password is not implemented for this command.

In the following example, you are DONNA-COSMAN on your local system MAIN. You want to copy a file you have called MAIN:TEXT to a file called SECURE:TEXT. SECURE:TEXT is on FRIENDLY-USER's area on the remote system MINOR. You define MINOR as the default remote system, FRIENDLY-USER as the default user name, and then you enter FRIENDLY-USER's password.

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

F-T: GET-DEFAULT-REMOTE-SYSTEM ↵
Remote system name: MAIN
Remote user name: DONNA-COSMAN

F-T: SET-DEFAULT-REMOTE-SYSTEM ↵
Remote system name? MINOR ↵
Remote user name? FRIENDLY-USER ↵
Password? (invisible input) ↵

F-T: GET-DEFAULT-REMOTE-SYSTEM ↵
Remote system name: MINOR
Remote user name: FRIENDLY-USER

F-T: TRANSFER-FILE ↵
To? ."SECURE:TEXT" ↵
From? MAIN-FILE:TEXT ↵

No of pages in file: 1
To:   SECURE:TEXT, Created: 1985.11.09 19:50:59
From: MAIN-FILE:TEXT, Created: 1985.11.09 19:29:56
                  Last written: 1985.11.09 19:30:21
Current page index:
0
Completed. Transfer rate: 25 Kbytes/sec

F-T: _
```

There is one very important thing to note here:

If you omit the dot when you specify a file name, the default values for the remote system will not be used.

So, if you write:

SECURE:TEXT

instead of:

."SECURE:TEXT"

the file SECURE:TEXT will be created on the local system MAIN instead of in FRIENDLY-USER's area on MINOR.

The easiest way is to use the same file name for both "To?" and "From?".

By writing everything on one line, you can transfer MAIN-FILE:TEXT as follows:

```
F-T: TRANSFER-FILE ."MAIN-FILE:TEXT",, ↵
```

Just the period without any system name specified to the left of it, means that the destination file for "To?" will be on the default remote system. The commas mean that the local file MAIN-FILE:TEXT will be used as the source file for "From?".

Note that everything to the left of the period can be omitted and the default values will be used. You can thus specify some parts and use the default values for the rest:

```
F-T: TRANSFER-FILE (PETER)."MAIN-FILE:TEXT",,, ↵
```

Since we only specify the remote user, the default remote system MINOR and FRIENDLY-USER's password will be used. This will only work if PETER and FRIENDLY-USER have the same passwords on MINOR.

The GET-DEFAULT-REMOTE-SYSTEM command

To make sure you set the right default system, use the command:

```
F-T: GET-DEFAULT-REMOTE-SYSTEM ↵
```

This command was illustrated in the previous example.

The APPEND-REMOTE-BATCH command

The syntax for the APPEND-REMOTE-BATCH command is almost identical to the TRANSFER-FILE command. The command can be considered as an extension of the SINTRAN III command APPEND-BATCH.

The APPEND-REMOTE-BATCH command cannot be given directly in SINTRAN. It must be performed **within** the File-Transfer program.

If you do not know how to perform a local batch job, you should read the Timesharing/Batch Guide, ND-60.132.

Submitting a Remote Batch Job

First we have to create the batch job input file. It should contain some commands in SINTRAN. Create a file in the ND Program Editor(PED), that looks like this:

```
@ENTER FLOPPY-USER,,,1
@cc ENTER <user> <password> <proj. password> <max. time>
@cc The last parameter means max. CPU time is 1 minute.
@cc The default parameters of ENTER are
@cc password and project password which are CR.
@cc The third parameter means max one minute CPU time.
@TERMINAL-STATUS,,,
@cc Terminate this batch file
@cc with CONTROL 0 and escape twice.
@cc That will appear as && in the file.
&&
```

We send the batch job input file to FLOPPY-USER because FLOPPY-USER is the remote user who is going to process the batch. The file is called MY-BATCH-JOB:SYMB.

The example that follows consists of 2 parts:

1. We copy our file MY-BATCH-JOB:SYMB to FLOPPY-USER's area on BIGHELPER, which is the remote system.

2. We append the remote batch to FLOPPY-USER on BIGHELPER and specify the input and output files to be used in FLOPPY-USER's area.

You can type "?" to get the syntax information for the parameters: "Batch system and user name?", "Input file?" and "Output file?".

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

F-T: TRANSFER-FILE ↵
To? BIGHELPER(FLOPPY-USER)."MY-BATCH-JOB:SYMB" ↵
From? ↵

No. of pages in file: 1
To:   MY-BATCH-JOB:SYMB, Created: 1985.11.08 14:21:22
From: MY-BATCH-JOB:SYMB, Created: 1985.11.08 13:43:02
                         Last written: 1985.11.08 14:20:07
Current page index:
0
Completed. Transfer rate: 20 Kbytes/sec

F-T: APPEND-REMOTE-BATCH ↵
Batch system and user name? ? ↵
Syntax:   SYSTEM(REMOTE-USER(PASSWORD))
Default: MAIN(DONNA-COSMAN(PASSWORD))
NOTE: You will have REMOTE-USER's
      file access on remote machine.

Batch system and user name? BIGHELPER(FLOPPY-USER) ↵
Input file? ? ↵
Syntax:  (DIRECTORY:USER)INPUT-FILE:TYPE
Default:       As in SINTRAN III

Input File? MY-BATCH-JOB:SYMB ↵
Output file? "MY-BATCH-OUT:SYMB" ↵
OK
F-T: EXIT ↵
MAIN@_
```

Note that we used the default file name for "From?" We also used default values for Directory and User for the parameters "Input file?" and "Output file?"

If you try this example, read the batch output file, MY-BATCH-OUT:SYMB, on the remote system. The result should be similar to the file listed below. If it did not work, try the example again, or consult the SINTRAN III Timesharing/Batch Guide for more information

about batch processing.

You might want to connect to the remote system and give the SINTRAN commands LIST-BATCH-PROCESS and LIST-BATCH-QUEUE to see that your batch job has been received by the remote sytem.

This is the output file of the remote batch job above:

```
&
 SINTRAN III - VSE I

< 100.1005  -  BIGHELPER  >


  --- SINTRAN III BATCH PROCESSOR ---

USER FLOPPY-USER ENTERED AT 14.21.25      8 NOVEMBER   1985


 MAXIMUM TIME IS      1 MINUTES

 @cc ENTER <user> <password> <proj. password> <max. time>
 @cc The last parameter means max. CPU time is 1 minute.
 @cc The default parameters of ENTER are
 @cc password and project password which are CR.
 @cc The third parameter means max. CPU time is 1 minute
 @cc The last parameter means max. CPU time is 1 minute.
 @TERMINAL-STATUS,,,

  LOG.NO  USER            MODE     CPU-MIN OUT OF  LAST COMMAND
      54  JANICE          COMMAND      0      45
     545  MARIA           USER         3     124   CC <NOTIS WP> CC
     670  FLOPPY-USER     COMMAND      0       0   TERMINAL-STATUS,,,
     672  SYSTEM          COMMAND      0    1413

 @cc Terminate this batch file

 @cc with CONTROL O and escape twice.

 @cc That will appear as && in the file.

BATCH USER LOGGED OFF AT 14.21.27      8 NOVEMBER   1985

TIME USED IS    0 SECS OUT OF    1 SECS&
```

Transferring files over long distances

If you are transferring files over long distances, for example between two countries, it is safer to **define special transfer conditions**.

In the example below, you are user DONNA-COSMAN on system MAIN in Norway. You want to transfer the file, LETTER:TEXT belonging to user TOM with password XYZ on the remote system ENGLAND-REMOTE in England, to your own user-area.

```
MAIN@TRANSFER-FILE ↵

COSMOS File-Transfer (version D) of 1985.11.11 11:00

Hello DONNA-COSMAN

F-T: SET-ADVANCED ↵

F-T(Adv): DEFINE-TRANSFER-CONDITIONS ↵
No of buffers? 2 ↵
Size in bytes? 512 ↵
Secure messages? YES ↵

F-T(Adv): TRANSFER-FILE ↵
To? "LETTER:TEXT" ↵
From? ENGLAND-REMOTE(TOM(XYZ)).LETTER:TEXT ↵

No of pages in file:  18
To:   LETTER:TEXT, Created: 1985.09.17 12:55:16
From: LETTER:TEXT, Created: 1985.02.13 08:45:12
              Last written: 1985.03.02 10:15:13
Current page index:
17
Completed. Transfer rate: 351 Bytes/sec

F-T(Adv): EXIT ↵

MAIN@_
```

Normally, files are transferred using two 1024-byte buffers at a time. Using smaller buffers can often work better when you are transferring files over long distances.

Always answer YES to the question "Secure messages?"

It is recommended that you use the COMPRESS-FILE command when transferring files over long distances as this saves both time and money. Refer to page 62 in chapter 4.

APPENDIX I
THE SCRIPT PROGRAM

Writing a SCRIPT program

SCRIPT is a feature of the CONNECT-TO program that allows you to create your own versions of CONNECT-TO. For instance, if you often need to log in on a remote system and run a certain program there, you can create a special CONNECT-TO version that will do all that for you.

Normally, however, your system supervisor will create these special versions, **called SCRIPT programs**. Thus only a couple of short examples on how SCRIPT works will be given here. For more details, see the COSMOS Operator Guide.

Let us say that you need to run an accounting program called QUICK-ACCOUNT several times daily on the remote system MINOR. Normally, you can run that program as follows:

```
MAIN@CONNECT-TO MINOR ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985
=== CONNECTION ESTABLISHED ===
T.A.D. LOGICAL UNIT NO: 768
LOCAL CHARACTER IS: 0 (ASCII value)
(Allowed idle time: 1 minute)

  <ESC>

 14.20.03     30 DECEMBER    1983
 SINTRAN III - VSE I

ENTER DONNA-COSMAN ↵
PASSWORD: ↵
OK
(Allowed idle time: 30 minutes)
MINOR@QUICK-ACCOUNT ↵
```

When you are done running QUICK-ACCOUNT, you type the local character twice to return to your local system.

Using SCRIPT, you can make a program called GO-QUICK:SYMB for example, that will do all that for you automatically. Then you only need to write:

```
MAIN@GO-QUICK ↵
```

You will be directly connected to the remote system MINOR and you will be disconnected when you are finished.

Here is how you can make your own CONNECT-TO version called "GO-QUICK":

Create a document in PED called GO-QUICK:SYMB (use CAPITAL letters in the document) that contains the following lines:

```
*SCRIPT: /SINGLE/
          *INPUT: CONNECT-TO MINOR
          *MACRO: LOGIN-DEFAULT,/MYSELF/,,FLOPPY-USER
          *DISPLAY-ON:
          *INPUT: QUICK-ACCOUNT
*ENDSCRIPT: /SINTRAN/
```

When you have created the document, do the following in SINTRAN:

```
MAIN@CONNECT-TO ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985
C-T: SERVICE-PROGRAM ↵

CONNECT-TO service-program version D
CT-SERV: INITIALIZE-SCRIPT ↵
SCRIPT-FILE: GO-QUICK:SYMB ↵

--- SCRIPT NAME ---------- : /SINGLE/
    CT info status ------- : CT INFO ON
    Remote command mode -- : NOT ALLOWED
    Command mode return to : LOCAL COMMAND MODE

CT-SERV: DUMP-PROGRAM ↵
PROG-FILE: "GO-QUICK" ↵
CT-SERV: EXIT ↵

C-T: EXIT ↵

MAIN@_
```

You will now have a file called GO-QUICK:PROG. When you write GO-QUICK in SINTRAN, you will automatically be connected to MINOR (assuming you or FLOPPY-USER are defined users on MINOR; we assume here that DONNA-COSMAN is a user on both systems MAIN and MINOR) and the program called QUICK-ACCOUNT will be started. When QUICK-ACCOUNT has been fully executed, you will be automatically returned to your local system:

```
MAIN@GO-QUICK ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985

Connected to: MINOR, TAD no: 770, as USER: DONNA-COSMAN
(Allowed idle time: 30 minutes)
MINOR@QUICK-ACCOUNT

-- DISCONNECTED FROM: MINOR --
Returning to: MAIN , as user: DONNA-COSMAN

MAIN@_
```

Note: If you try this example, change MINOR to the name of a system on your network. Change QUICK-ACCOUNT to the name of a program on that system. If you do not know what programs are on the remote system, use the commands @LIST-REENTRANT and @LIST-FILES (SYSTEM):PROG.

Setting a default remote system through SCRIPT

You can also write a SCRIPT program that connects you to a specified remote system under a specified user name. Let us suppose that you often need to connect to remote system MINOR under user name DONNA-COSMAN with password XYZ. You can call the program "MINOR:SYMB", and it may look like this:

```
*SCRIPT: /SINGLE/
          *INPUT: CONNECT-TO MINOR
          *MACRO: LOGIN-SPECIFIED DONNA-COSMAN XYZ
          *DISPLAY-ON:
*ENDSCRIPT:
```

Then you initialize and dump the program as follows:

```
MAIN@CONNECT-TO ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, NOV. 28, 1985
C-T: SERVICE-PROGRAM ↵

CONNECT-TO service-program version D
CT-SERV: INITIALIZE-SCRIPT ↵
SCRIPT-FILE: MINOR:SYMB ↵

--- SCRIPT NAME ---------- : /SINGLE/
    CT info status ------- : CT INFO ON
    Remote command mode -- : ALLOWED

CT-SERV: DUMP-PROGRAM ↵
PROG-FILE: "MINOR" ↵
CT-SERV: EXIT ↵

C-T: EXIT ↵

MAIN@_
```

Now you can just write MINOR followed by carriage return and you will enter directly into SINTRAN on remote system MINOR.

```
MAIN@MINOR ↵

COSMOS CONNECT-TO PROGRAM VERSION - D, OCTOBER 22, 1985

Connected to: MINOR, TAD no: 770, as USER: DONNA-COSMAN
(Allowed idle time: 30 minutes)
MINOR@_
```

This can be useful if you want to avoid resetting a default remote system everytime you log out, like in the SET-DEFAULT-REMOTE-SYSTEM command dicussed in chapter 3.

The idea behind SCRIPT is to allow you to call subsystems on remote systems in the same way that you call local subsystems. All the possible commands in the SCRIPT program are not mentioned here. See the COSMOS Operator Guide for a complete description of the commands available in SCRIPT.

Turning Off the Connect-To Information

If you do not wish to have the COSMOS Connect-To information appearing on your screen when you run SCRIPT, use the directive below in your SCRIPT file.

```
*CT-INFO-OFF:
```

If you do this in the previous example, the following will appear on your screen when you initialize the SCRIPT file.

```
--- SCRIPT NAME ---------- : /SINGLE/
    CT info status ------- : CT INFO OFF (IN SCRIPT ONLY)
    Remote command mode -- : ALLOWED
```

APPENDIX J
GLOSSARY

For easy reference for the novice, some important terms, acronyms and abbreviations are listed below:

ambiguous Not sufficiently defined. Having more than one meaning.

batch job You start a batch job when you send a file consisting of SINTRAN III commands and other input to a batch processor by using the @APPEND-BATCH command from your terminal. The first command in the file must be @ENTER. After that, the batch processor processes the commands on the file without tying down a terminal. You can have the computer work for you while you do other things. Batch jobs can also be started on other systems by using the command APPEND-REMOTE-BATCH in the FILE-TRANSFER subsystem.

command The instruction or request a user gives to SINTRAN or another program.

default An assumption made automatically by the program or system when no specific choice is given by the user. You can specify that you want to use the default value by answering a prompt with carriage return. You can get the default values by writing a command followed by several commas, for example, @HELP,,,.

device An appliance with a special purpose (for example, a printer or a disk) that is connected to a computer system.

disk A revolving circular magnetizable plate used for mass storage.

file A collection of related records stored on computer hardware such as a magnetic disk (or in the computer's internal memory).

idle Doing nothing. For example, your terminal is idle while a system is waiting for input from you.

interactive job When a user's input at the terminal goes directly to the computer and is acted upon at once. You must use a terminal when you work interactively. See batch job.

LAN Local Area Network. A LAN is a communication system connecting computers in a small geographical area, with less than a few kilometres between the furthest points. A network connecting the computers within a company building is an example of a LAN.

mass storage device A device used for storing data that is too extensive or too infrequently used to be stored in the computer's internal memory. A mass storage device is also used to keep safe copies of your files and programs. A disk is a mass storage device.

mass storage files Files that are stored on magnetic disks, floppy diskettes, etc. Your :TEXT and :OUT files in NOTIS are typical examples of mass storage files.

memory The part of the computer where instructions and data are stored for immediate internal use.

modem A device that allows a computer to send and receive data over a telephone line. Two systems with modems can communicate with each other by using telephones.

octal numbers Numbers in a number system with only 8 digits (0 to 7). For example, 8 is written 10B, 15 is written 17B, 16 is written as 20B, and 64 as 100B in the octal number system. The B indicates octal numbers.

peripheral files Files used to access terminals and printers in SINTRAN. For instance, if you have a Diablo printer, the file (SYSTEM)DIABLO:;1 is probably the name of the peripheral file used for the Diablo printer.

spooling file A file used to store data waiting to be printed. For instance, if you have a Diablo printer with 3 spooling files, they are probably versions 2, 3 and 4 of the file (SYSTEM)DIABLO.

spooling A technique where files to be printed are first copied to spooling files on fast mass storage devices such as disks. The printer, in turn, prints the contents of one spooling file at a time. Spooling saves time because the file is released as soon as it is copied into the spooling file.

spooling queue The queue of spooling files waiting to be sent to slow peripheral devices such as printers.

system supervisor The person in charge of the operation and daily maintenance of a computer system. The system supervisor normally has access to all SINTRAN III and subsystem commands.

TAD Terminal Access Device. A device on the remote system that allows you to access that system. The number of TADs on a system is limited.

terminal Normally a keyboard and a monitor (a monitor is also called a video screen), but a terminal may also be a hard copy terminal. A hard copy terminal is a keyboard attached to a printer so that all input and output to/from the computer are written on paper instead of on screen.

user The person who uses a program or an operating system.

WAN Wide Area Network. A WAN is a communication system connecting computers in a large geographical area, say a whole country or even worldwide.

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