

Norsk Data



COSMOS **Operator Guide**

ND-30.025.02



COSMOS

Operator Guide

ND-30.025.02

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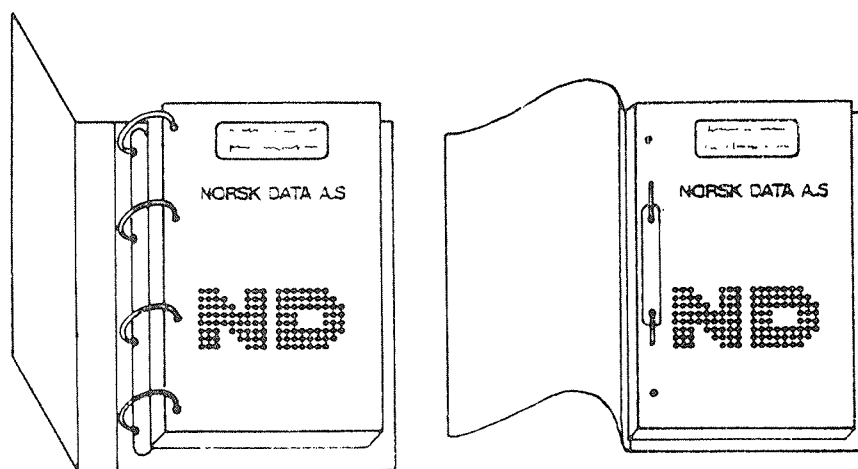
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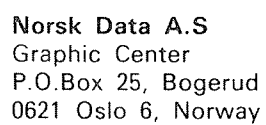
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Preface:THE PRODUCT

This manual documents the installation and operation procedures of the network facilities in the

COSMOS Basic Module	ND 10374
IS XMSG	ND 10373

as implemented under SINTRAN III version I or later. Only the facilities of IS XMSG that are needed to operate and run the COSMOS Basic Module are described in this manual.

THE READER

This manual is intended for the system supervisor or network supervisor, who needs a system supervisor's manual for the communication facilities of COSMOS, as implemented under SINTRAN III.

PREREQUISITE KNOWLEDGE

The reader should have a broad knowledge of the SINTRAN III operating system.

The reader should also have a general understanding of data communication in general, and be familiar with the different facilities offered by the COSMOS Basic Module at the programmer's level and at the end user's level

RELATED MANUALS

SINTRAN III Reference Manual	ND-60.128
SINTRAN III System Supervisor	ND-60.103
COSMOS User Guide	ND-60.163
COSMOS Programmer Guide	ND-60.164

THE MANUAL

This manual describes procedures used by the system supervisor or network supervisor to install and operate the facilities available in the COSMOS Basic Module.

In the first part of this manual, the functions are documented by functional category as opposed to the SINTRAN III Reference Manual where most of the functions are documented in alphabetical order. For alphabetical references - see the reference appendices in the back of this manual, or the index.

CHANGES FROM PREVIOUS VERSION

The manual has been completely rewritten and reorganized.

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C H A P T E R 1

INTRODUCTION

1 INTRODUCTION

1.1 Synopsis

The first part of this chapter gives an introduction to data communication standards with reference to the International Standard Organization Reference Model for Open Systems Interconnection, the OSI model.

The latter part describes the hardware and software requirements that have to be fulfilled to be able to run the COSMOS Basic Module.

1.2 Introduction

COSMOS is Norsk Data's distributed communications environment. It provides communication and application services to augment the user services provided by SINTRAN III.

The COSMOS Basic Module provides the services necessary to run a minimal local network. These services are common to all COSMOS installations. Additional options can be added.

1.2.1 The OSI Reference Model

The figure on the next page sketches the International Standard Organization Reference Model for Open Systems Interconnections, the OSI model.

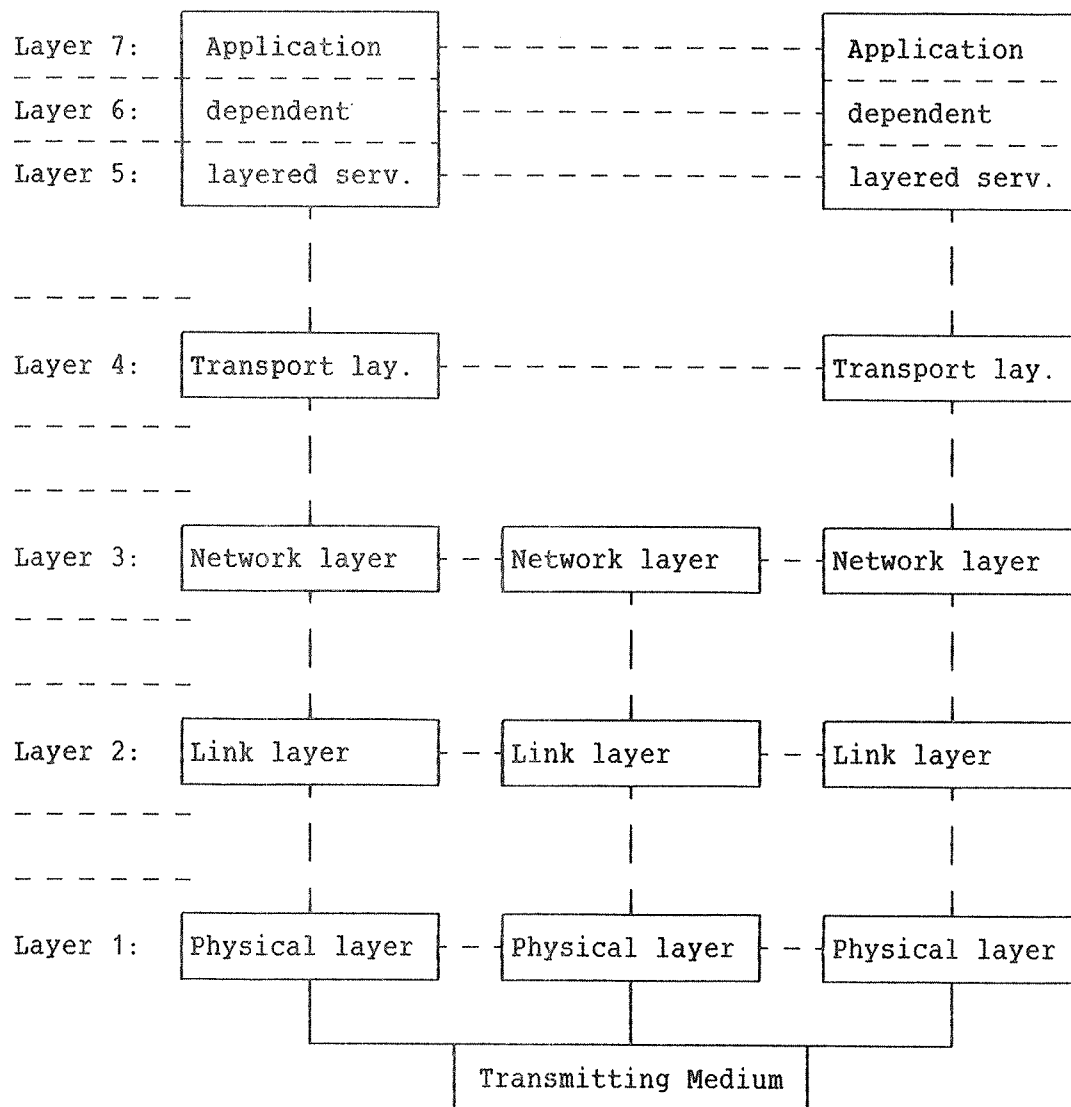


Figure 1. The OSI Reference Model

According to the OSI Model, the COSMOS Basic Module offers the following services.

- At layer 1: Physical layer.
V24 / V28 (RS232C) up to 19.2 kbps,
V11 / X27 (RS422) up to 1 Mbps using
ND HDLC-DMA or MEGALINK interface hardware.
- At layer 2: COSMOS Local Link Protocol. Performs secure
transmission with flow control and error recovery.
It uses HDLC frame formats.
- At layer 3: COSMOS Network Layer. Provides routing and global
delivery of the Intersystem datagram Protocol Data
Unit. COSMOS Networks allow for networks containing
up to 64,000 systems (nodes or hosts). Since COSMOS
handles all routing, the user does not need to be
concerned with routing or communications
facilities.
- At layer 4: Transport layer. At this layer, COSMOS provides the
end-to-end transport functions needed by all the
higher layers. Layer 4 is recommended for all user
programs. This layer is documented in the COSMOS
Programmer Guide, ND-60.164.
- At layer 5:]
- At layer 6:] These layers depends on the COSMOS application.
See also the COSMOS User Guide, ND-60.163.
- At layer 7:]

Figure 2. The OSI Model and COSMOS

1.3 Prerequisites and the Product Description Document

Due to special system configurations and product changes the requirements outlined below may not be exact in all cases. Consult the Product Description document to verify the outline below.

1.3.1 Hardware Requirements - OSI Layer 1

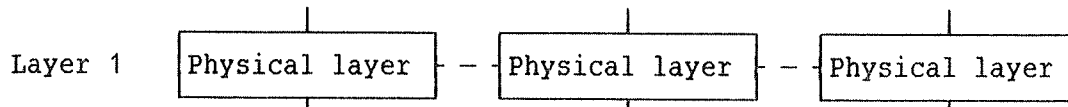


Figure 3. OSI Layer 1

The COSMOS Basic Module runs on all ND-100s, or the 100 part of ND-500 systems, and all Satellites as long as the following additional hardware requirements are fulfilled.

Depending on network configuration, one or more of the following communication interfaces has to be installed:

Communication Interfaces: {
(Hardware) HDLC-DMA
 ND MEGALINK

The internal hardware configuration may cause problems when trying to install, for example, the ND MEGALINK card. Normally this problem is solved by a simple reconfiguration of the system.

1.3.2 Software Requirements

1.3.2.1 OSI Layers 2 to 4

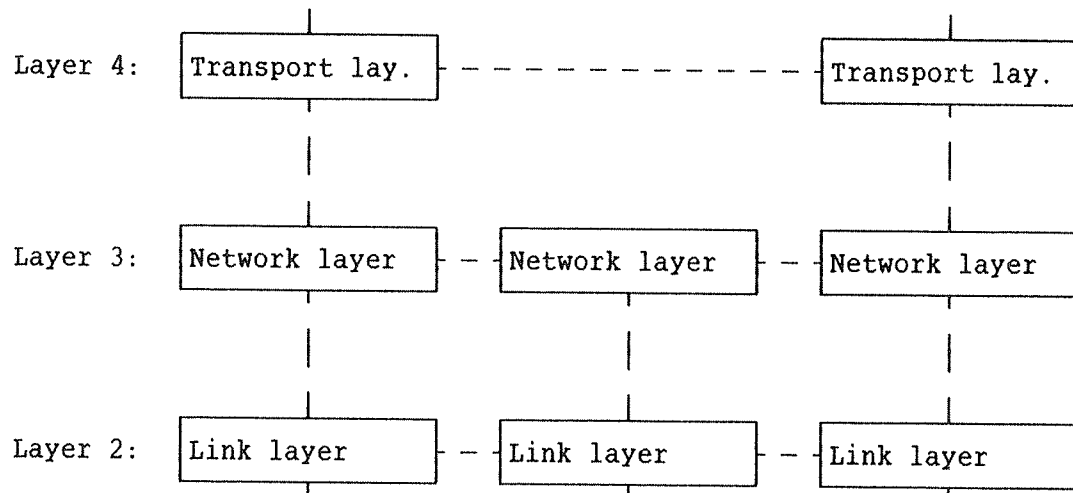


Figure 4. OSI Layers 2 to 4

These layers require Inter System XMeSsaGe (IS XMSG : ND 10373G or later for SINTRAN III/VS.

ND IS XMSG is a task-to-task program communication tool and takes care of layers 2 to 4 in the OSI reference model. It is of course possible to access the different level of IS XMSG which corresponds to a certain OSI layer (2-4).

IS XMSG is documented in the COSMOS Programmer Guide ND-60.164.

1.3.2.2 OSI Layers 5 to 7

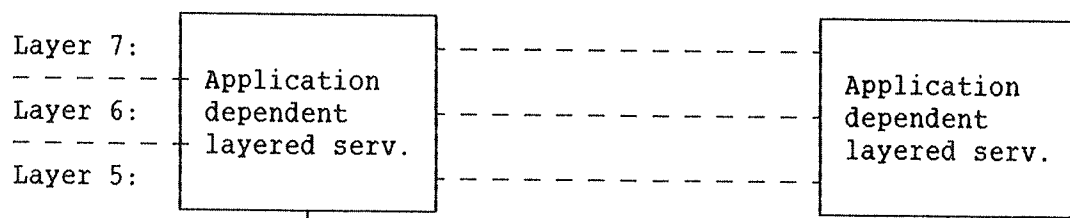


Figure 5. The OSI Layers 5 to 7

These layers are user-application dependent, but are covered by the COSMOS Basic Module.

Remote Terminal Access and Inter System File Transfer are applications which provide end user facilities.

1.3.2.3 Requirements for SINTRAN III

COSMOS Basic Module requires SINTRAN III version H or later.

The following prerequisites have to be fulfilled:

- A free area in resident memory of minimum 10,000B words.
In other words, 9POFS - 7ENDC >= 10,000B words.
- The files SYMBOL-1-LIST:SYMB and SYMBOL-2-LIST:SYMB must be present under user SYSTEM, and must be valid for your present SINTRAN III system.
- User SYSTEM must always have at least 100 unused pages and free entries for at least 8 new files.

As stated above, the reader is advised to check all information with the Product Description Document.

1.3.3 The COSMOS Protocol Relationship

In the figure below, the protocol relationship between the different products/processes in a COSMOS environment are sketched.

As with the OSI reference model, the higher layer protocols are shown on top of the lower layer protocols. But there are no one-to-one correlations between the OSI reference model and the figure below.

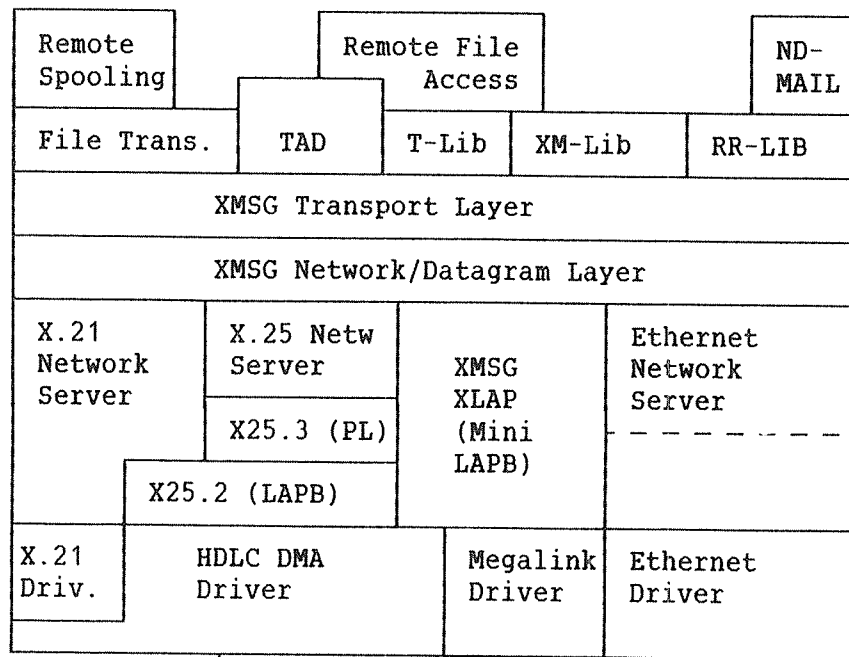


Figure 6. Protocol Relationship within a COSMOS Networking System

Explanation of abbreviations and acronyms:

- TAD - Terminal Access Device
- T-LIB - Transport LIBrary
- XM-LIB - XMsg LIBrary
- RR-LIB - Request Response LIBrary
- XLAP - Xmsg Link Access Procedure
- LAPB - Link Access Procedure Balanced
- HDLC - High-level Data Link Controller

C H A P T E R 2

HOW TO OPERATE XMSG

2 HOW TO OPERATE XMSG

2.1 Synopsis

The first part of this chapter gives an introduction to the XMSG-COMMAND program and defines certain key terms.

Then the different commands used in the start-up mode file are explained.

The last sections explain where to include the XMSG-START:MODE file in the SINTRAN LOAD-MODE:MODE file.

2.2 The XMSG-COMMAND Background Program

XMSG-COMMAND is a background program that is used to control and supervise the XMSG system.

It can also be used for XMSG testing and benchmarking.

XMSG-COMMAND accepts commands in the usual SINTRAN way, with abbreviations being allowed and prompts for parameters that are not specified on the command line.

Any command line preceded with the @ sign will be handed over to the SINTRAN III background command processor for execution.

Many of the commands in the background program use privileged XMSG functions.

XMSG-COMMAND will automatically use the XFPRV function to make itself privileged when most of these functions are invoked, but this will be refused if the user is not logged in as 'SYSTEM'.

After having listed the most important XMSG commands for the operation of a point-to-point HDLC (Megalink) local area network, in the following sections we will examine a typical XMSG-START:MODE file, explaining the commands as they appear in the file:

2.3 The Most Important XMSG Commands

Appendix A of this manual contains a list of all the necessary commands to operate a point to point HDLC (Megalink) local area network.

In the table below these commands are listed:

Command Name	Command protection
CLEAR-PRIVILEGED	Only user SYSTEM or RT
DEFINE-LOCAL-SYSTEM	Only user SYSTEM or RT
DEFINE-REMOTE-NAME	Only user SYSTEM or RT
DEFINE-SYSTEM-ROUTE	Only user SYSTEM or RT
EXIT	All user categories
GET-ERROR-MESSAGE	All user categories
HELP	All user categories
LIST-LINKS	Only user SYSTEM or RT
LIST-NAMES	All user categories
LIST-ROUTING-INFO	All user categories
LIST-SYSTEMS	All user categories
REMOVE-SYSTEM	Only user SYSTEM or RT
SET-ADVANCED	All user categories
SET-PRIVILEGED	Only user SYSTEM or RT
START-LINK	Only user SYSTEM or RT
STOP-LINK	Only user SYSTEM or RT

Table 1. The Most Common XMSG Commands

You should notice that only user SYSTEM has the privilege to perform all the commands necessary. Make it a rule to log in as user SYSTEM when manipulating with XMSG.

Because of this privilege, and the other privileges you have when logged in as user SYSTEM, you should not do anything unless you are certain about its consequences.

2.4 XMSG Installment Procedures

If you have not installed XMSG (and the COSMOS Basic Module) yet, read the Product Description Sheet supplied with the system floppy disks.

Make certain that you edit the XMSG-LOAD:MODE file correctly. The mode file should be started from the SINTRAN HENT-MODE:MODE file. Examples of these mode files are included in Appendix F.

When XMSG has been installed properly, the next step is to load and start XMSG. This procedure is looked upon in detail in the following sections.

2.5 The XMSG-START:MODE File

An example of the XMSG-START:MODE file is included in Appendix G, together with the other start-up mode files. However for your convenience, we will list the XMSG-START:MODE file here:

```
@CC      *** XMSG STARTUP MODE FILE FOR ND-999 ***
@SINTRAN-SERVICE
@STOP-XMSG
@EXIT
@HOLD 0 0
@HOLD 3 2
@SINTRAN-SERVICE
@START-XMSG
@EX
@HOLD 0 0
@HOLD 3 2
@(UTILITY)XMSG-COMMAND
SET-PRIVILEGED
DEFINE-LOCAL-SYSTEM,999
EXIT
@(UTI)XMSG-COMM
SET-PRIVILEGED
DEFINE-REMOTE-NAME,,MAIN,999
DEFINE-REMOTE-NAME,,FORMAT,998
DEFINE-REMOTE-NAME,,BATCH,997
DEFINE-REMOTE-NAME,,TEST,996
DEFINE-SYSTEM-ROUTE,,BATCH,FORMAT
DEFINE-SYSTEM-ROUTE,,TEST,FORMAT
START-LINK,1360,,, -1,,
EXIT
```

Example 1. The XMSG-START:MODE File

In the following section we will look upon the different commands in this mode file, in the same sequence as they appear and will explain what function they have and why they are performed.

2.5.1 Stopping XMSG

Stopping XMSG is done from the program SINTRAN-SERVICE. You must be logged in as user SYSTEM to start this program.

```
@SINTRAN-SERVICE ↵
*STOP-XMSG ↵

OK: XMSG terminated
*_
```

Example 2. Stopping XMSG

When the response 'OK: XMSG terminated' has been received, XMSG has stopped. You should be aware of the fact that stopping XMSG also clears all local XMSG tables. Subsequently, after XMSG has been stopped you have to rebuild those tables. This is shown later in this chapter.

Stopping XMSG will also normally clear all errors.

If XMSG does not run, this command will not have any affect.

2.5.2 Starting XMSG

After XMSG has been stopped, and all tables or error conditions cleared, the next step is to start XMSG. This is also done from the SINTRAN-SERVICE program:

```
@SINTRAN-SERVICE ↵
*START-XMSG ↵

OK: XMSG started
*_
```

Example 3. Starting XMSG

When the response 'OK: XMSG started' is displayed, XMSG is running, but since its local tables are blank, we must build up a new set of tables.

But first, you must EXIT the SINTRAN-SERVICE program.

2.5.3 Defining the System Names

Instead of referencing remote systems with integer numbers, we define symbolic system names instead. The first name we define is the symbolic name of your local system. In the examples below, we assume that the local system name is MAIN. In this version of XMSG you are not required to use the command DEFINE-LOCAL-SYSTEM, because this is done automatically when XMSG is initialized.

First we define the name of the local system. The number of the local system is 999. However, you are advised to use the command SET-PRIVILEGED first, to avoid getting warnings each time you execute a privileged command.

```
X-C:SET-PRIVILEGED ↵
*- WARNING: You can now bypass system protection mechanisms -*

X-C:DEFINE-REMOTE-NAME,,MAIN,999 ↵
OK

X-C:_
```

Example 4. Defining the Local System Name

When the symbolic name of the local system has been defined, we must define the names of the remote systems we want to define connections to. This is done as follows:

```
X-C:DEFINE-REMOTE-NAME,,FORMAT,998 ↵
OK

X-C:DEFINE-REMOTE-NAME,,BATCH,997 ↵
OK

X-C:DEFINE-REMOTE-NAME,,TEST,996 ↵
OK

X-C:_
```

Example 5. Defining Remote System Names

2.5.4 Defining the Route to the Remote Systems

The next step is to define the routes to the different remote systems. In the figure below, the network architecture of our example is illustrated:

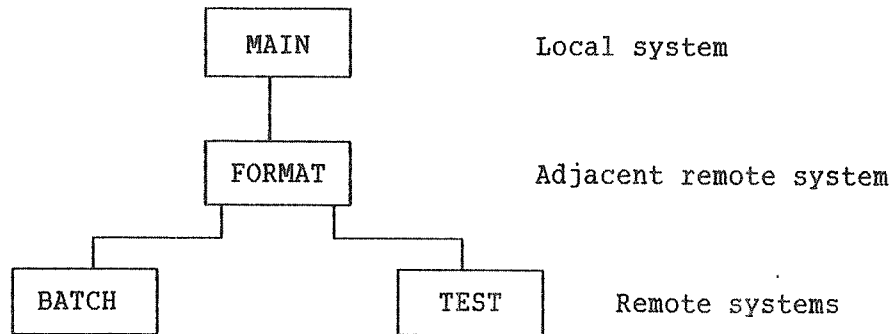


Figure 7. An Illustration of a Point-to-Point Network

When defining the route to remote systems, it is not necessary to define the route to the adjacent system(s). By adjacent system we mean the system to which the local system has a direct link. In other words, the system that is physically connected to the local system with an HDLC or Megalink cable.

So, in our example, it is only necessary to define the route to the two systems BATCH and TEST. This is shown in the example below:

```

X-C:DEFINE-SYSTEM-ROUTE,,BATCH,FORMAT ←]
OK
X-C:DEFINE-SYSTEM-ROUTE,,TEST,FORMAT ←]
OK
X-C:_
  
```

Example 6. Defining the Route to Remote Systems

2.5.5 Starting the Link

The last thing to do is to start the link. This is shown in the example below:

```
X-C:START-LINK 1360,,, -1,, ↵  
OK  
X-C: _
```

Example 7. Starting the Link

And then, provided that XMSG has been started successfully on the other systems as well, our little network should be operative.

However, the network is not initialized yet. This can be done by executing the command LIST-ROUTING, answering all parameter prompts with CR (or commas). Then the network will initialize itself and the output of the command will list the routes to the different systems.

2.6 The Other Important XMSG Commands

There are some other XMSG commands which are not used in the XMSG-START:MODE file, and consequently not covered in this chapter.

For a complete list of the different XMSG commands, see Appendix A.

2.7 SINTRAN Warm Starts

You should include the command

```
MODE XMSG-START:MODE,,,,,
```

in the SINTRAN LOAD-MODE:MODE file after all directories has been entered. See Appendix F for example of SINTRAN LOAD-MODE:MODE file.

2.8 SINTRAN Cold Starts

You should include the command

```
MODE XMSG-LOAD:MODE,,,,,
```

in the SINTRAN HENT-MODE:MODE file after the subsystem MAIL has been started. See Appendix F for example of SINTRAN HENT-MODE:MODE file.

C H A P T E R 3

THE CONNECT-TO SERVICE PROGRAM AND THE OPERATION OF TAD'S

3 THE CONNECT-TO SERVICE PROGRAM AND THE OPERATION OF TAD'S

3.1 Synopsis

This chapter covers the SINTRAN commands necessary to operate the Terminal Access Devices (TAD's) and the commands of special interest to the system supervisor of the CONNECT-TO program.

Turn to the next chapter for an explanation of the SCRIPT facility of the CONNECT-TO program.

3.2 The SINTRAN TAD Commands

There are three SINTRAN TAD commands you need to know. They are:

```
@TADADM
@START-TADADM
@STOP-TADADM
```

In the following subsections we will explain the three different commands.

3.2.1 The TADADM Command

The SINTRAN command @TADADM tells you the status of each Terminal Access Device (TAD):

<u>@TADADM</u> ↵									
TAD/TYP	RESERV	ESCAP	PORTNO	-	PORTNO	TERMNO	USER		SYSTEM
768/	0	TAD01	Enab	Discon	-		42 UTILITY		SCHOLAR
769/	0	TAD02	Enab	10	-	**This TAD has no corresponding PAD.			
770/	0	No	Enab	Discon	-				
771/	0	TAD04	Enab	12	-	9	50 SYSTEM		SOUTH
772/	0	TAD05	Enab	8	-	7	0 ** File Server Adm.	**	
Local system information					Remote system information				

Example 8. The TADADM Command

TAD's not in use should look like 770 above, while each TAD being used for a File Server should look like 772 above.

The information on the left is local system information: the TAD's are numbered from 768 and up, their "TYP" (type) should be 0. Reserved TAD's will normally be TAD01 for TAD 768, TAD02 for TAD 769, etc. These are all names of RT programs. "ESCAP" tells you whether or not ESCAPE is disabled on that terminal, and "PORTNO" tells you the XMSG

port numbers in use.

The righthand side contains the following information: "PORTNO" is the port number on the remote system; "TERMNO" is the terminal number, ie., the Logical Device Number, on the local system and "USER" and "SYSTEM" tell you the name of the user and his or her local computer system.

Note that TAD 769 has no Peripheral Access Device (PAD):

769/ 0 TAD02 Enab 10 - **This TAD has no corresponding PAD.
--

Example 9. Example of a Hanging TAD

Under certain circumstances this error situation occurs. When this happens, the TAD cannot be used for remote terminal access or for a File Server until you "fix" it by using the RECONNECT-TAD command of the CONNECT-TO Service program explained on later in this chapter.

3.2.2 The START-TADADM Command

The purpose of this command is to make the TAD service available, making it possible to log on a TAD from a remote system. The command is normally executed in the SINTRAN LOAD-MODE file. The command has no input parameters. Only user SYSTEM may use the command.

@ <u>START-TADADM</u> ↵

Example 10. The START-TADADM Command

3.2.3 The STOP-TADADM Command

When this SINTRAN command is executed, it will not be possible to log on any of the TAD's. However, you should note that the operation of active TAD's is not affected by the command. In other words, if a user is logged on a TAD, s/he will not see any change.

Users who try to log on a TAD when TADADM has been stopped, will get the error message 'Remote terminal access not running on xxxxxx', where 'xxxxxx' denotes system name.

```
@STOP-TADADM ↵
```

Example 11. The STOP-TADADM Command

3.3 The CONNECT-TO Service Program

In this manual, we will only look at the Service commands. The commands in CONNECT-TO are adequately explained in the COSMOS User Guide, ND manual 60.163.

```
@CONNECT-TO ↵  
  
COSMOS CONNECT-TO PROGRAM VERSION - B , NOVEMBER 28, 1983  
C-T: SERVICE ↵  
CONNECT-TO service-program - Version B.  
CT-SERV:_
```

Example 12. Starting the CONNECT-TO Service Program

3.3.1 The RECONNECT-TAD Command

If you want to fix a TAD without a PAD (Peripheral Access Device) or connect to a specific TAD, use:

```
RECONNECT-TAD  <TAD logical unit no: >
                <System name: >
```

For example, you want to fix TAD 774 on the system SOUTH:

```

C-T: SERVICE ↵
CONNECT-TO service-program - Version B.
CT-SERV: RECONNECT-TAD ↵
TAD LOGICAL UNIT NO: 774 ↵
SYSTEM-NAME: SOUTH ↵
Specify system-password for system: SOUTH please: (invisible) ↵
=== CONNECTION ESTABLISHED ===
      T.A.D. LOGICAL UNIT NO: 774
      LOCAL CHARACTER IS      : 0 (ascii value)

<ESC>
14.13.30      16 MAY   1984
SINTRAN III - VSE | SOUTH
ENTER FLOPPY-USER ↵
PASSWORD: (Invisible input) ↵
OK
SOUTH@_

```

Example 13. The RECONNECT-TAD Command

You have now reconnected the TAD by using it yourself. This can be useful if, for some reason, you have a "TAD without a PAD", or if you want to resume executing something on a TAD that was disconnected.

This procedure may be used when you need to recover a resource that has been reserved when using the TAD.

3.3.2 The SET-TIMEOUT-VALUES Command

If you need to change timeout values for your system, use:

```
SET-TIMEOUT-VALUES  <Not logged in: >  
                   <Not active: >
```

The "not logged in" value applies when you have connected to a remote system, but have not logged in. The default value is one minute. The "not active" value you give determines how long you can remain inactive and logged in before COSMOS logs you out. Default here is 30 minutes.

```
CT-SERV: SET-TIMEOUT-VALUES ↵  
NOT LOGGED IN: 2 ↵  
NOT ACTIVE: 10 ↵
```

Example 14. The SET-TIMEOUT-VALUES Command

You may change these values for everyone on your system who uses CONNECT-TO, but then you have to also give the DUMP-PROGRAM command. An example of how to go about it, is included later in this manual.

3.3.3 The TIMEOUT-OFF Command

This command can be used by user RT or user SYSTEM. It turns off your timeout, so you won't be disconnected once you connect to a remote system, no matter how long you are inactive.

This applies only until you are through using the CONNECT-TO program:

```
CT-SERV: TIMEOUT-OFF ↵
```

Example 15. The TIMEOUT-OFF Command

This will prevent you from being disconnected due to either type of timeout. Note that ordinary time-sharing users are not allowed to use this command. You can find out whether TIMEOUT is ON or OFF by giving the C-T (not CT-SERV) command LIST-TIMEOUT-VALUES.

If you want to change these values for everyone on your system who uses CONNECT-TO, you have to give the DUMP-PROGRAM command too.

3.3.4 The TIMEOUT-ON Command

Use this to restore your timeout values to the default values for your system. Only users RT and SYSTEM may use this command:

```
CT-SERV: TIMEOUT-ON ↵
```

Example 16. The TIMEOUT-ON Command

This is the default value for CONNECT-TO. You will thus normally use it to restore timeouts after TIMEOUT-OFF.

3.3.5 The SET-COMMAND-PROTECTION Command

```
SET-COMMAND-PROTECTION <Command: >  
                        <Protection (system, RT or public): >
```

Only user SYSTEM can use this command. You may define who may use a CONNECT-TO command. For instance, say you only want RT users to be able to dump script programs and you want to allow everyone to reconnect TAD's:

```
CT-SERV: SET-COMMAND-PROTECTION ↵  
COMMAND: INITIALIZE-SCRIPT ↵  
PROTECTION (SYSTEM, RT OR PUBLIC); RT ↵  
CT-SERV: SET-COMMAND-PROTECTION ↵  
COMMAND: RECONNECT-TAD ↵  
PROTECTION (SYSTEM, RT OR PUBLIC): PUBLIC ↵
```

Example 17. The SET-COMMAND-PROTECTION Command

These changes must be "dumped" to go into effect permanently.

3.3.6 The DUMP-PROGRAM Command

When you use the DUMP-PROGRAM command, you dump the program which is in memory. By changing some values and then dumping, you can create a new version of CONNECT-TO that reflects your changes. We suggest that you do not dump to the file (UTILITY)COS-CONNECT-TO:PROG unless you have a copy of the original program.

```
@CONNECT-TO ↵
COSMOS CONNECT-TO PROGRAM VERSION - B , NOVEMBER 28, 1983
C-T: SERVICE ↵
CONNECT-TO service-program - Version B.

CT-SERV: SET-COMMAND-PROTECTION ↵
COMMAND: INITIALIZE-SCRIPT ↵
PROTECTION (SYSTEM, RT OR PUBLIC): RT ↵

CT-SERV: SET-COMMAND-PROTECTION ↵
COMMAND: RECONNECT-TAD ↵
PROTECTION (SYSTEM, RT OR PUBLIC): PUBLIC ↵

CT-SERV: SET-TIMEOUT-VALUES ↵
NOT LOGGED IN: 2 ↵
NOT ACTIVE: 10 ↵

CT-SERV: DUMP-PROGRAM ↵
PROG-FILE: "NEW-CONNECT-TO" ↵

CT-SERV: EXIT ↵
C-T: EXIT ↵
Returning to: MAIN , as user: SYSTEM
```

Example 18. Modifying and Dumping the CONNECT-TO Program

Now, the next step is to make sure nobody is using CONNECT-TO and give the following command:

```
@DELETE-REENTRANT CONNECT-TO ↵
@DUMP-PROGRAM-REENTRANT CONNECT-TO NEW-CONNECT-TO ↵
```

When users on your system use CONNECT-TO, it will reflect the changes made above.

If you mistakenly give the above command while CONNECT-TO is in use, you will get the message "SEGMENT NUMBER 231 IS NOT CLEARED." (Note that it will not necessarily be segment 231.) Then you should use the RT-LOADER command CLEAR-SEGMENT to clear that segment.

THE CONNECT-TO SERVICE PROGRAM AND THE OPERATION OF TAD'S

If this change is to be permanent, remember to change:

```
@DUMP-PROGRAM-REENTRANT CONNECT-TO (UTILITY)COS-CONNECT-TO
```

to:

```
@DUMP-PROGRAM-REENTRANT CONNECT-TO NEW-CONNECT-TO
```

in your DUMP-REENTRANT mode file. That will give you your new version of CONNECT-TO when you do a cold start.

The CONNECT-TO service command DUMP-PROGRAM is also used to dump script programs. That is explained in the chapter about SCRIPT.

C H A P T E R 4

THE SCRIPT FACILITY OF CONNECT-TO

4 THE SCRIPT FACILITY OF CONNECT-TO

4.1 Synopsis

This chapter explains the SCRIPT feature of the CONNECT-TO program, illustrating the different facilities with comprehensive examples.

Before reading this chapter, you should have thorough understanding of the CONNECT-TO program in general.

4.2 An Introductory Example

SCRIPT is a feature of the CONNECT-TO subsystem 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 version of CONNECT-TO that does all that for you.

We will start by looking at an example of a SCRIPT, and then go on to explain in detail the different possibilities you have.

Let us say that you, or others on your system, often need to run a program called QUICK-ACCOUNT on the remote system SCHOLAR. In this example, we will make a SCRIPT called GO-QUICK. By writing @GO-QUICK in SINTRAN, you will automatically be connected to and logged in on SCHOLAR. QUICK-ACCOUNT will be executed. Upon completion, you return to SINTRAN on the local system.

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

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

Example 19. A Simple Example of SCRIPT

SCRIPT signals the beginning of a SCRIPT, and ENDSCRIPT marks the end. A file may contain many SCRIPTs. /SINGLE/ means that this file only contains one SCRIPT. /SINTRAN/ means that the user of the SCRIPT will return to SINTRAN on her/his local system after the program QUICK-ACCOUNT has been run.

The four lines starting with the line identifiers *INPUT:, *MACRO:, *DISPLAY-ON: and *INPUT: make up the SCRIPT body.

Note that each identifier in SCRIPT must start with an asterisk (*) and end with a colon (:). Extra blanks are stripped. It is not necessary to indent the SCRIPT body, but this will make your SCRIPT file much easier to read.

To create a SCRIPT out of the file above, do the following in SINTRAN:

```

MAIN@CONNECT-TO ↵
COSMOS CONNECT-TO PROGRAM VERSION - B, NOV. 28, 1983
C-T: SERVICE-PROGRAM ↵
CONNECT-TO service-program version B
CT-SERV: INITIALIZE-SCRIPT ↵
SCRIPT-FILE: GO-QUICK:SYMB ↵
--- SCRIPT NAME ..... : /SINGLE/
    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@_

```

Example 20. Initializing and Dumping a SCRIPT Program

You will now have a file called GO-QUICK:PROG. To execute the SCRIPT, you write:

```

MAIN@GO-QUICK ↵

```

Example 21. Starting a SCRIPT Program

You will automatically be connected to SCHOLAR, logged in as yourself (if that does not work, you will be logged in as FLOPPY-USER) and you will start the program called QUICK-ACCOUNT. When you are finished using QUICK-ACCOUNT, you will automatically be returned to your local system.

If you merely want to test a SCRIPT program, don't use the DUMP-PROGRAM command; exit to SINTRAN instead. Then write:

```
@GOTO-USER 0 ↵
```

Example 22. Testing a SCRIPT Program

If the SCRIPT programs you write are going to be used quite often, you may want to dump them as reentrant programs:

```
@DUMP-PROGRAM-REENTRANT GO-QUICK GO-QUICK:PROG ↵
```

Example 23. Dumping a SCRIPT Program Reentrant

You may want to include many SCRIPTs in the same SCRIPT program. That will reduce the number of :PROG files. For instance, the program SCRIPT:PROG could contain SCRIPTs for QUICK-ACCOUNT, FORTRAN-500, ND-500-MONITOR, etc., and the user would write:

```
@SCRIPT ND-500-MONITOR ↵
```

Example 24. Starting a Multi-SCRIPT Program

But use shorter SCRIPT names than these since they cannot be abbreviated by users.

- 2) If your SCRIPT file contains many SCRIPTs, use this for each of them:

*SCRIPT: <SCRIPT name>

Note that the <SCRIPT name> is not enclosed in slashes (/). Each <SCRIPT name> must only appear once in the file. The name must be at least two characters long. Writing *SCRIPT: PROG-ONE would be correct. Writing PROG ONE (no hyphen) would give you the name PROG; the rest of the line will be ignored.

- 3) The third possible parameter is to write:

*SCRIPT: /DEFAULT/

This SCRIPT will be executed when no name is specified.

*SCRIPT: must always be followed by a name. If the name is DEFAULT, it should be enclosed in slashes like this /DEFAULT/. The names you make yourself should not be enclosed in slashes.

4.4.2 *ENDSCRIPT:

The identifier *ENDSCRIPT: must come at the end of each SCRIPT in the SCRIPT file.

If *ENDSCRIPT: has parameters, it means that the remote command mode is not allowed. When the SCRIPT comes this far, the user will be returned to her/his local system. S/he will be in SINTRAN if the parameter to *ENDSCRIPT: is /SINTRAN/, otherwise the specified subsystem name will be started.

Do note that if the user is in a subsystem, for example, NOTIS-WP, the FORTRAN compiler, the ND-500-MONITOR, etc., the user will return to his/her local system immediately upon leaving that subsystem, but not before.

If the SCRIPT fails to connect to a remote system, the user will enter the CONNECT-TO program.

Let us take a closer look at the three possibilities for *ENDSCRIPT:.

- 1) If you want the user of the SCRIPT to return to SINTRAN on his/her local system, use this:

*ENDSCRIPT: /SINTRAN/

Writing /SINTRAN/ means that the remote command mode is not allowed.

- 2) If you want control to be returned to a specified subsystem on the local system, use this.

*ENDSCRIPT: <subsystem name>

The remote command mode is not allowed. Note that the subsystem name could be the name of a SCRIPT program.

For example, writing

*ENDSCRIPT: NOTIS-WP-ENG

will start up NOTIS-WP on the local system when the SCRIPT is finished.

- 3) The third possibility is to not write anything after ENDSCRIPT:

*ENDSCRIPT:

This means that the user will be where the SCRIPT left off on the remote system. That will normally mean that the user will be in SINTRAN or a subsystem on the remote system.

4.5 The SCRIPT Body

The body of a SCRIPT is the part between *SCRIPT: and *ENDSCRIPT:.

4.5.1 *INPUT:

The identifier *INPUT: accepts a character string as its parameter:

*INPUT: <character string>

Any trailing spaces at the end of the string will be ignored. The <character string> will be input to the CONNECT-TO program if the user is not yet connected to a remote system. Otherwise, the string will be input to the remote system that the user is connected to.

Here are a few examples:

```
*INPUT: CONNECT-TO SCHOLAR

*INPUT: LIST-SPOOLING-QUEUE PHILIPS,,,

*INPUT: ACCESS

*INPUT: DATCL

*INPUT: FORTRAN-100
```

Example 25. The *INPUT: Identifier

Here is one thing you should not write in a SCRIPT:

```
*INPUT: SERVICE
```

You may not have the SCRIPT enter the CONNECT-TO Service program before connecting to a remote system.

4.5.2 *ADDIN:

The *ADDIN: command has a <character string> as its parameter. Unused characters from the SINTRAN command line will be added to the string. *ADDIN: should only be used once after CONNECT-TO, because all unused characters will be added to the string.

```
*ADDIN: <character string>
```

If you want to create a SCRIPT that will allow users to connect to the system they specify, you can write:

```
*ADDIN: CONNECT-TO
```

When calling that SCRIPT, users can write the name of the system they want to connect to. For instance, if the SCRIPT is called TO, they can write:

```
@TO SCHOLAR
```

They will then be connected to the system called SCHOLAR.

4.5.3 *MACRO:

The command *MACRO: should be followed by one of the LOGIN macros or the ASK-SCRIPT macro. If the macro has any parameters, they should be given on the same line:

*MACRO: <macro name> <macro parameters>

There are the four *MACRO: possibilities, the first three have to do with logging in on the remote system:

- 1) If you want to log the SCRIPT user in as a specified user, do this:

LOGIN-SPECIFIED <user name> <password> <project password>

A LOGIN macro should only be used once in a SCRIPT.

Example:

```
*ADDIN: CONNECT-TO
*MACRO: LOGIN-SPECIFIED TOM XYZ INVOICE
```

After the user is connected to the system s/he specifies, s/he will be logged in as TOM with the password XYZ and the project password INVOICE. Naturally, if that user is not defined on the specified system, or if one of the passwords is incorrect, the SCRIPT will be unable to log in the user.

- 2) LOGIN-DEFAULT has two possible parameters. If you use /MYSELF/, the SCRIPT will try to log in using the user's own name and password(s). If that fails, the SCRIPT will try again using the last 3 parameters. Note that <user name>, <password>, and <project password> are optional.

LOGIN-DEFAULT </myself/> <project password>
 <user name> <password> <project password>

Here are some examples:

```
*MACRO: LOGIN-DEFAULT    /MYSELF/,,FLOPPY-USER
```

The SCRIPT will try to log the user in as her/himself. The two commas mean that the user has no project password. If the attempt to log in fails, FLOPPY-USER with no password and no project password will be tried.

```
*MACRO: LOGIN-DEFAULT    /MYSELF/,,TOM XYZ INVOICE
```

If the SCRIPT cannot log in the user as her/himself, user TOM with password XYZ and project password INVOICE will be tried.

- 3) The other possibility for LOGIN-DEFAULT is to enter User Environment:

```
LOGIN-DEFAULT /UE/
```

This should only be used if User Environment is enabled on all the TAD's.

Here is a SCRIPT file that logs in user TOM with password XYZ and project password INVOICE on SCHOLAR:

```
*SCRIPT: /DEFAULT/  
*INPUT: CONNECT-TO SCHOLAR  
*MACRO: LOGIN-DEFAULT /UE/  
*INPUT: TOM  
*INPUT: XYZ  
*INPUT: INVOICE  
*DISPLAY-ON:  
*INPUT: CC  
*ENDSCRIPT:
```

Example 26. Example of SCRIPT Using USER ENVIRONMENT

- 4) If you create a SCRIPT file that has no default SCRIPT, you will always be asked what SCRIPT name you want. If you want to replace that text with your own text, create a default SCRIPT that only has ASK-SCRIPT in its body:

```
*SCRIPT: /DEFAULT/  
*MACRO: ASK-SCRIPT Please specify SCRIPT name:  
*ENDSCRIPT:
```

Example 27. Example of ASK-SCRIPT

Don't use *MACRO: ASK-SCRIPT in a SCRIPT file with /SINGLE/ in it.

The character string must not be longer than 40 characters and it must only include printable characters. Each dollar sign (\$) will produce a new line on output.

Note that the /DEFAULT/ SCRIPT with ASK-SCRIPT must only be used once in each SCRIPT file.

4.5.4 *DISPLAY-ON:

The command `*DISPLAY-ON:` will display all the commands given in the SCRIPT and all responses from the system.

`*DISPLAY-ON:`

All the commands given will be displayed. We recommend that you use `*DISPLAY-ON:` after the LOGIN macro.

4.5.5 *DISPLAY-OFF:

To make a SCRIPT more transparent to the user, use the command:

`*DISPLAY-OFF:`

Neither the commands given nor the system's responses will be displayed, so you will probably only want to use this before the connection has been made.

Display off is the default mode in a SCRIPT. You will normally want to include `*DISPLAY-ON:` after the log in.

4.6 Error Messages

The error messages that occur when you work with SCRIPTs will be explained in the following sections.

4.6.1 Errors When You Initialize SCRIPTs

When you use the INITIALIZE-SCRIPT command to initialize SCRIPT files, the error message will generally list the line number where the error was found:

INITIALIZE ERROR IN LINE: n

That message will be followed by one of the following messages:

Expected identifier: SCRIPT: found: xxxxxx

Check and make sure that your file has the same number of `*ENDSCRIPT:` and `*SCRIPT:` identifiers. If "found" contains many ampersands (they look like this: `&&&`) and other characters that you do not remember seeing in your SCRIPT file, you may have made a special sort of error: You may have edited your file in NOTIS-WP and given it a character size of 16 instead of 7. In that case, change 16 to 7 in NOTIS-WP menu 1.

ENDSCRIPT: is missing in SCRIPT: xxxxxx

You have more *SCRIPT: identifiers than *ENDSCRIPT: identifiers.

More than one default SCRIPT defined

*SCRIPT: /DEFAULT/ must only appear once in a SCRIPT file.

Several SCRIPTs in file are not allowed when /SINGLE/ is used

Change /SINGLE/ to /DEFAULT/ or to some name and you should be able to initialize your SCRIPT file.

Unknown line identifier: "xxxxxxxxxx"

This means that your line does not begin with one of the following identifiers: *SCRIPT:, *ENDSCRIPT:, *INPUT:, *ADDIN:, *MACRO:, *DISPLAY-ON:, or *DISPLAY-OFF:. Only CAPITAL letters are accepted in the identifiers.

Error in reading from SCRIPT file

This message will be followed by a SINTRAN file system error message which should explain what the problem is.

Error in opening file, SINTRAN error message:

This will be followed by an error message such as "No such file name", "Ambiguous file name", etc., that should explain the error.

End of file in SCRIPT: xxxxxx

The end of the file was reached before the definition of the SCRIPT xxxxxx was found. You have probably forgotten *ENDSCRIPT: or your file may be corrupted.

Parameter error in: xxxxxx

The SCRIPT identifier xxxxxx has incorrect parameters. For instance, you may have written *SCRIPT:, followed by a one letter name, but SCRIPT names must be at least two letters long. This error message can also mean that the character string after ASK-SCRIPT was longer than 40 characters.

Unknown macro: xxxxxx in SCRIPT: yyyyyy

The macro name xxxxxx found in the SCRIPT called yyyyyy is unknown. Make sure that you have spelled the macro name correctly, and that it is written with CAPITAL letters.

Parameter error in macro: xxxxxx "yyyyyy"

The parameters "yyyyyy" are incorrect. For instance, you may have misspelled /MYSELF/ after *MACRO:.

4.6.2 Errors When You Dump SCRIPTs

You may get the following messages when you dump a program:

SCRIPTs already initialized and dumped

If you have more SCRIPT files to initialize and dump, leave the CONNECT-TO program and return again. You may only initialize one SCRIPT file each time you enter the Service program.

WARNING -- exit without dumping initialized SCRIPT.

This means that you have left the Service program without having given the command DUMP-PROGRAM. You will not have created a :PROG file.

WARNING -- program is dumped unmodified.

If you enter the Service program, and dump without initializing, you will get this message. Remember to always initialize a SCRIPT file first.

4.6.3 Errors When You Run SCRIPTs

You may get the following message(s) when you run a program:

Error in initialized commands:

This will be followed by the type of error, for example, "Illegal command: <command name>." See if you used *INPUT: or *ADDIN: to send illegal input to the CONNECT-TO program.

Unsuccessful log in on system: xxxxxx

This probably means that the user name did not exist on the remote system or that the password given was incorrect.

User Environment not active on TAD no. nnn on remote system: xxxxxx

User SYSTEM needs to give the command @UE-AUTOMATIC-LOGIN for the TAD's on the remote system.

4.7 Examples

Here are some examples of SCRIPT files:

4.7.1 Example 1

If your users always use the ND 500 Monitor on the same system, you could make a SCRIPT file that looks like this:

```
*SCRIPT: /SINGLE/  
*ADDIN: CONNECT-TO MAXIM  
*MACRO: LOGIN-SPECIFIED GUEST XYZ PROG  
*DISPLAY-ON:  
*ADDIN: ND-500-MONITOR  
*ENDSCRIPT: /SINTRAN/
```

Example 28. Example of SCRIPT

This file could be dumped as ND-500-MONITOR:PROG and here are some examples of how users would use it. Let us assume that N-500-M is an unambiguous abbreviation for the program:

@N-500-M DEBUGGER	This will enter the ND-500 Monitor on MAXIM and start the Debugger.
@N-500-M PLANC-500	This will enter the ND-500 Monitor on MAXIM and start the PLANC compiler.

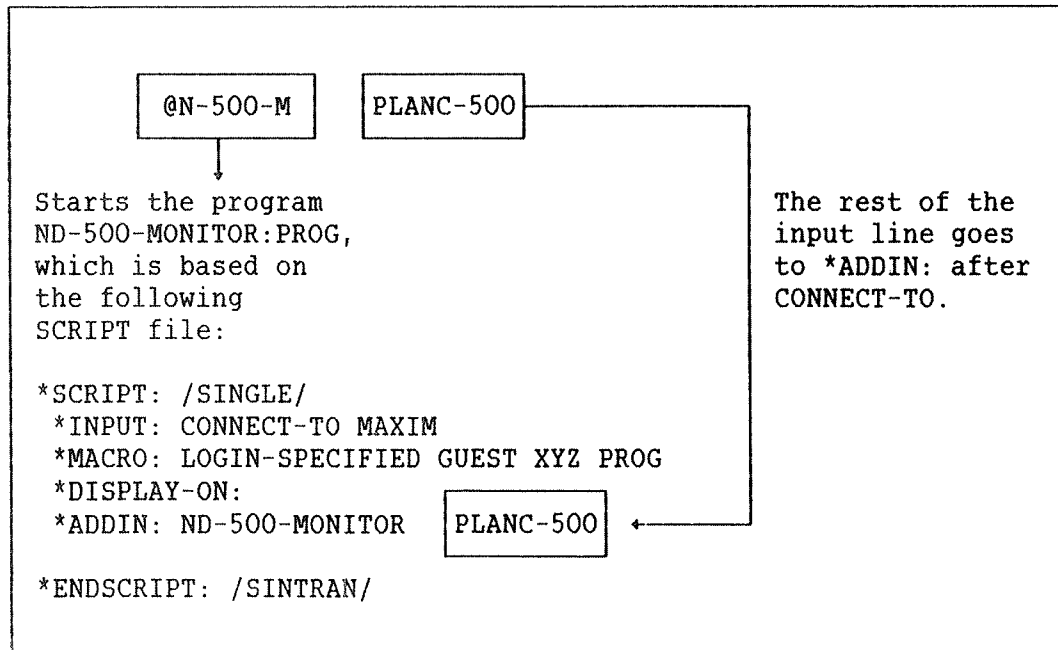


Figure 8. Illustration of an Example of SCRIPT Syntax

When the user leaves the ND-500-MONITOR, s/he will return to SINTRAN on his/her local system.

4.7.2 Example 2

Here is a slightly more complicated SCRIPT:

```
*SCRIPT: /SINGLE/  
  *ADDIN: CONNECT-TO  
  *MACRO: LOGIN-DEFAULT,/MYSELF/,,FLOPPY-USER  
  *DISPLAY-ON:  
  *ADDIN: ND-500-MONITOR  
*ENDSCRIPT: /SINTRAN/
```

Example 29. Example of SCRIPT

This file could be dumped as ND-500-MONITOR:PROG and here are some examples of how users would use it. Let us assume that N-500-M is a unambiguous abbreviation for the program:

@N-500-M ND-5019 DEBUGGER

This will start the ND-500 Monitor
on ND-5019 and start the Debugger.

@N-500-M MAXIM PLANC-500

This will start the ND-500 Monitor
on MAXIM and start the PLANC
compiler.

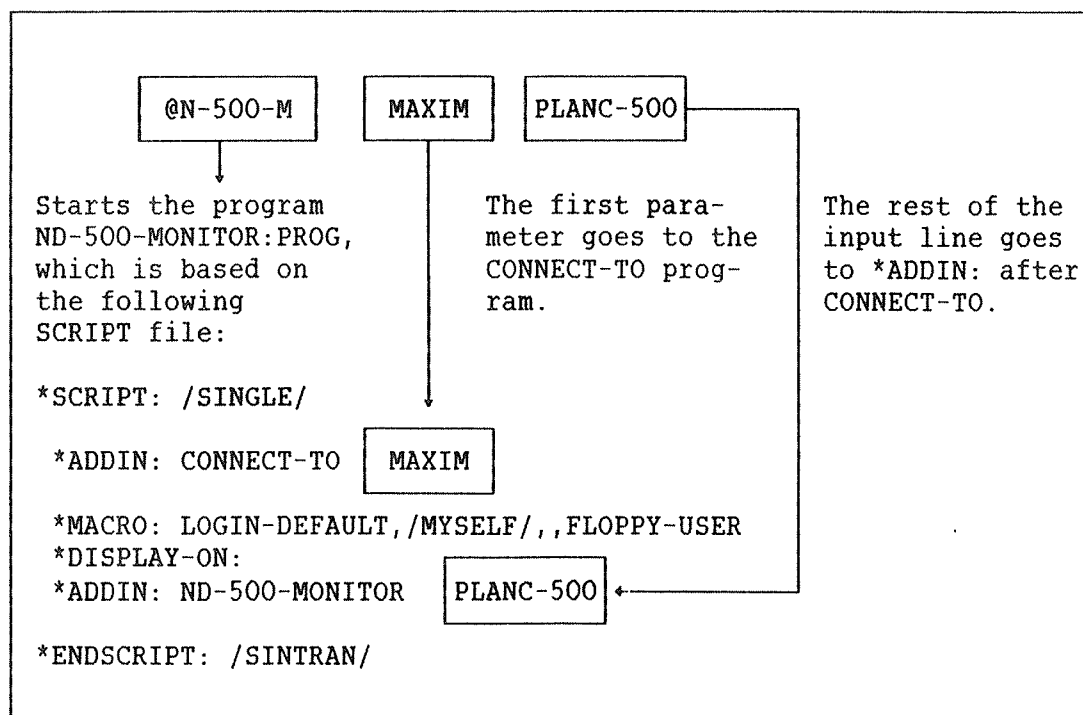


Figure 9. Illustration of Another SCRIPT Syntax Example

4.7.3 Example 3

This SCRIPT file could be useful on a system that does not have the FORTRAN compilers:

```
*SCRIPT: /DEFAULT/
  *MACRO: ASK-SCRIPT CHOOSE F-100 OR FTN:
*ENDSCRIPT:
*SCRIPT: F-100
  *ADDIN: CONNECT-TO
        *MACRO: LOGIN-DEFAULT,/MYSELF/, ,FLOPPY-USER
  *DISPLAY-ON:
  *INPUT: CC YOU WILL RETURN TO YOUR LOCAL SYSTEM AFTERWARDS
  *INPUT: FORTRAN-100
*ENDSCRIPT:/SINTRAN/
*SCRIPT: FTN
  *ADDIN: CONNECT-TO
        *MACRO: LOGIN-DEFAULT,/MYSELF/, ,GUEST PROG XYZ
  *DISPLAY-ON:
  *INPUT: CC GIVE CONTROL @ TWICE TO RETURN TO LOCAL SYSTEM
  *INPUT: FTN
*ENDSCRIPT:
```

Example 30. Example of Multi-SCRIPT

4.8 Initializing and Dumping a SCRIPT File

Let us illustrate the whole procedure of initializing and dumping the SCRIPT file.

```
CENTRAL@CONNECT-TO ↵
COSMOS CONNECT-TO PROGRAM VERSION - B , NOVEMBER 28, 1983
C-T: SERVICE ↵
CONNECT-TO service-program - Version B.
CT-SERV: INIT SCRIPT-TEST ↵
--- SCRIPT NAME ..... : F-100
    Remote command mode .. : NOT ALLOWED.
    Command mode return to : LOCAL COMMAND MODE.

--- SCRIPT NAME ..... : FTN
    Remote command mode .. : ALLOWED.

CT-SERV: DUMP "FORTRAN-REMOTE:PROG" ↵
CT-SERV: EXIT ↵
Returning to: CENTRAL , as user: AUTHOR
@_
```

Example 31. The Complete Procedure for Dumping a SCRIPT File

Note that for FTN the remote command mode is not allowed. The user will return to SINTRAN on his/her local system when s/he leaves the FTN Compiler.

4.9 Executing a SCRIPT Program

Here is how the user can execute the program:

```
@FORTRAN-REMOTE ↵
COSMOS CONNECT-TO PROGRAM VERSION - B , NOVEMBER 28, 1983
CHOOSE F-100 OR FTN: F-100 ↵
CONNECT-TO SYSTEM NAME: COMPACT ↵

Connected to: COMPACT, T.A.D.no: 772, as user: AUTHOR
(Allowed idle time: 30 minutes)
COMPACT@CC      YOU WILL RETURN TO YOUR LOCAL SYSTEM AFTERWARDS
COMPACT@FORTRAN-100
ND-100/NORD-10 ANSI 77 FORTRAN COMPILER  203053D
FTN: CC      The user uses the compiler and exits when finished:
FTN: EXIT ↵

-- DISCONNECTED FROM: COMPACT --
Returning to: CENTRAL , as user: AUTHOR
CENTRAL@CC      Note that the user returned to the local
CENTRAL@CC      system upon leaving the compiler.
CENTRAL@_
```

Example 32. Example of Use of Multi-SCRIPT

The USER can, of course, give all the parameters on the command line in SINTRAN. We assume below that F-R is a sufficient abbreviation for FORTRAN-REMOTE:

@F-R F-100 COMPACT

This starts the FORTRAN-100
compiler on COMPACT.

@F-R FTN SATELLITE

This starts the FTN
compiler on SATELLITE.

C H A P T E R 5

THE FILE SERVER ADMINISTRATOR

5 THE FILE SERVER ADMINISTRATOR

5.1 Synopsis

The purpose of this chapter is to explain how to operate, start, maintain and stop, the COSMOS Remote File Access facility.

The reader is advised to read through the chapter about CONNECT-TO and the TAD's.

5.2 Remote File Access

There are about 30 SINTRAN commands that allow you to access files on remote computer systems. When you use one of them, as in the illustration below, a File Server must be running on the remote system.

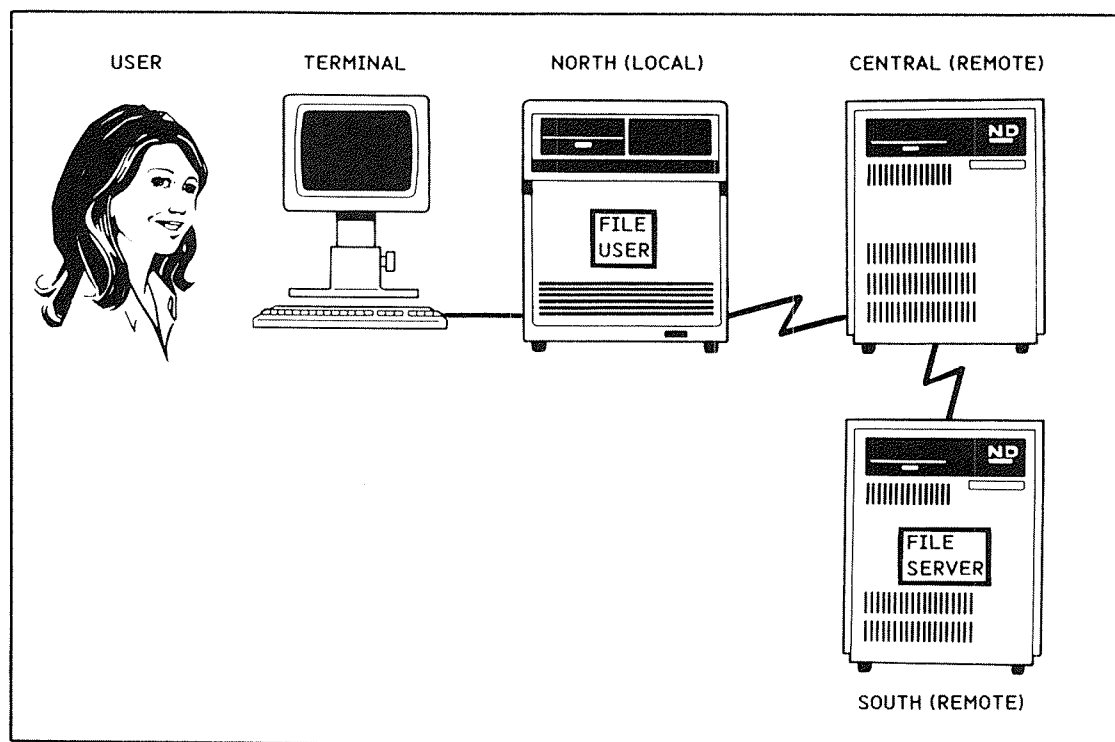


Figure 10. A Typical Configuration

Furthermore, your local system must have the File User. This means that the file COS-FA-USER-1:BPUN must be loaded on segment 22 and COS-FA-USER-2:BPUN must be loaded on segment 26. These files are stored under user UTILITY and you normally load them by running the mode file (UTILITY)COS-FA-USER-LOAD:MODE in your HENT-MODE file. This procedure is explained in the Product Description document for COSMOS.

If you want to see if a File Server is running on your system, give the command:

```
@TERMINAL-STATUS,..... ↵
```

Example 33. Checking a File Server

At least one of the lines should contain the underlined text below:

```
768 SYSTEM          HOLD          0      2  FS 01 ACTIVE
```

If you do not see "FS 01 ACTIVE" anywhere, you need to run the mode file (UTILITY)COS-START-SERVER:MODE. This mode file runs the File Server Administrator package to start a File Server. The package consists of the background program FS-ADMINISTRATOR and the RT program FSART which must be running on the system on which you want to control file servers.

5.3 The FS-ADMINISTRATOR Program

The program FS-ADMINISTRATOR allows you, the system supervisor, to start or stop File Servers on your local system or on other systems in your network. You must be logged in as user SYSTEM; then you write the following to start the program.

```
@FS-ADMINISTRATOR ↵
```

Example 34. Starting the FS-ADMINISTRATOR Program

FS-ADMINISTRATOR accepts abbreviated commands just like SINTRAN does, and it prompts you for parameters that you don't specify on the command line.

You can give SINTRAN commands by typing @ within the FS-ADMINISTRATOR program, followed by the SINTRAN command you want.

The following sections describe all available commands and how to use them. The error messages from FS-ADMINISTRATOR are explained and other likely error messages are listed.

5.3.1 The HELP Command

FSA: HELP <command>

The HELP command lists the command or commands matching the parameter you specify. If you do not specify any, all the commands will be listed.

```
@FS-ADMINISTRATOR ↵
COSMOS FILE SERVER ADMINISTRATOR   MAY 26, 1983
FSA: HELP ↵
HELP                                <COMMAND: >
SELECT-FSA                         <SYSTEM NAME: >
                                    <SYSTEM PASSWORD: >
                                    <PROJECT PASSWORD: >

ND-100-MODE
ND-500-MODE
START-SERVERS                     <NUMBER OF SERVERS: >
                                    <NUMBER OF FACS: >
TERMINATE-SERVER                  <SERVER NUMBER: >
ABORT-SERVER                      <SERVER NUMBER: >
DISCONNECT-SERVER                 <SERVER NUMBER: >
SERVER-STATUS                     <SERVER NUMBER: >
LIST-OPEN-FACS                    <SERVER NUMBER: >
CLOSE-FAC                         <SERVER NUMBER: >
                                    <CONNECTION ID: >

LIST-SERVERS
EXIT
FSA: _
```

Example 35. The FS-ADMINISTRATOR HELP Command

5.3.2 The SELECT-FSA Command

```
FSA: SELECT-FSA  <system name>  
                  <system password>  
                  <project password>
```

You may select any system in the COSMOS network.

- <System name> is the name of the system on which you want to start File Servers.
- <System password> is the password of user SYSTEM on the specified system.
- You must give a <project password> if you want to start File Servers on a computer system that uses accounting.

If you do not specify a system name, it means your local system. Then you do not need to give the password because you already gave it when you logged in.

SELECT-FSA must be the first command you give: you select the system you want to control File Servers on. It establishes a connection between the FS-ADMINISTRATOR program and FSART on the system you specify. You then may control the File Servers that FSART administrates.

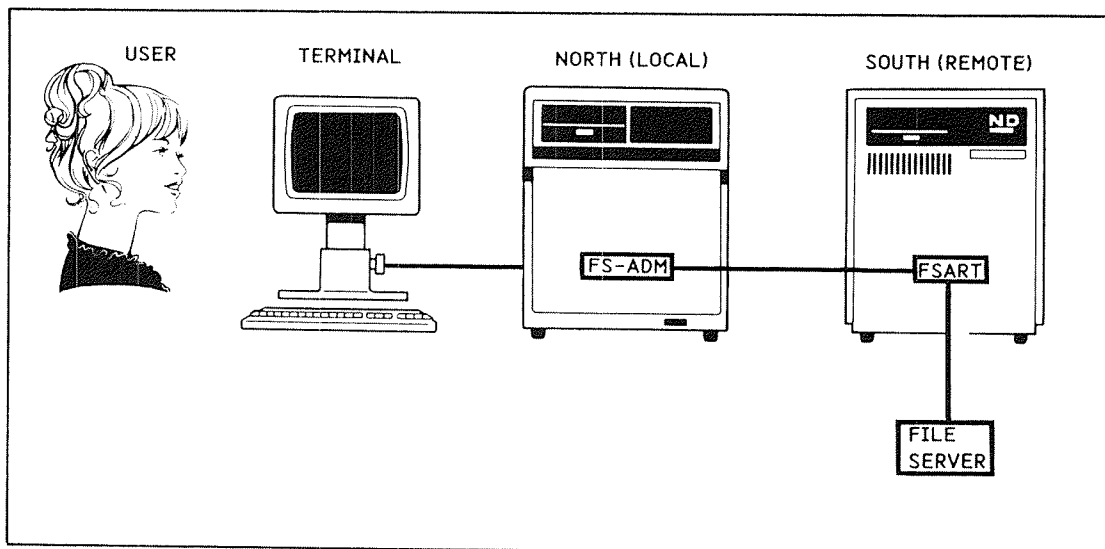


Figure 11. The File Server System

Here is how you select your own system:

```
FSA: SELECT-FSA,..... ↵  
Connection established  
  
FSA: _
```

Example 36. The SELECT-FSA Command

The above example shows a successful connection. You will now be able to start or stop servers on your local system. Here are the most common error messages you may get if you fail to connect:

- Remote FSA not started.

The RT program FSART is not running on the system you specified. If Remote File Access has been installed on that system, you probably need to run the mode file (UTILITY)COS-START-SERVER:MODE.

- Wrong password.

You gave the wrong system password. Your request was refused.

- Remote system is not available.

The specified remote system is not running, or XMSG is not started on the system.

- Already selected.

You have already selected the FSART on that system.

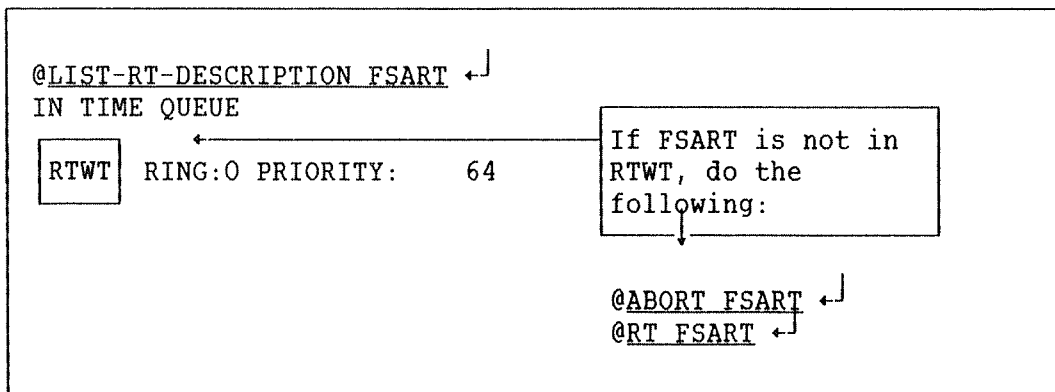
- Unknown remote system or remote FSA is not running

The system name is not known within the COSMOS network, or FSART is not activated on the specified system.

- File Server Administrator already in use.

Another system supervisor has already selected FSART on the system you specified. Wait until the FSART is free to use.

If you do not get any message at all, it may mean that the RT program FSART has the wrong status. FSART should always be in RT Wait (RTWT) status. If it is not, connect to that system and do the following:



Example 37. Checking the RT Program FSART

5.3.3 The ND-100-MODE Command

FSA: ND-100-MODE

The File Server Administrator may operate in one of two modes. The ND-100-MODE is the default mode when you enter FS-ADMINISTRATOR.

5.3.4 The ND-500-MODE Command

FSA: ND-500-MODE

If you are on an ND-500 system, you may use this command to start a File Server on the ND-500 processor. However, this requires that you have the reentrant program FA-SERVER-500 on the specified system.

NOTE: As of 31.07.1984, FA-SERVER-500 is not available from ND. It will be made available at a later date.

5.3.5 The START-SERVERS Command

```
FSA: START-SERVERS <number of servers>  
                  <number of FAC's>
```

We suggest you use the default values and start one server with 29 FAC's (File Access Connections). If you use 29, each File Server can access 29 files at the same time. This is one less than the maximum number of open files one background program can have.

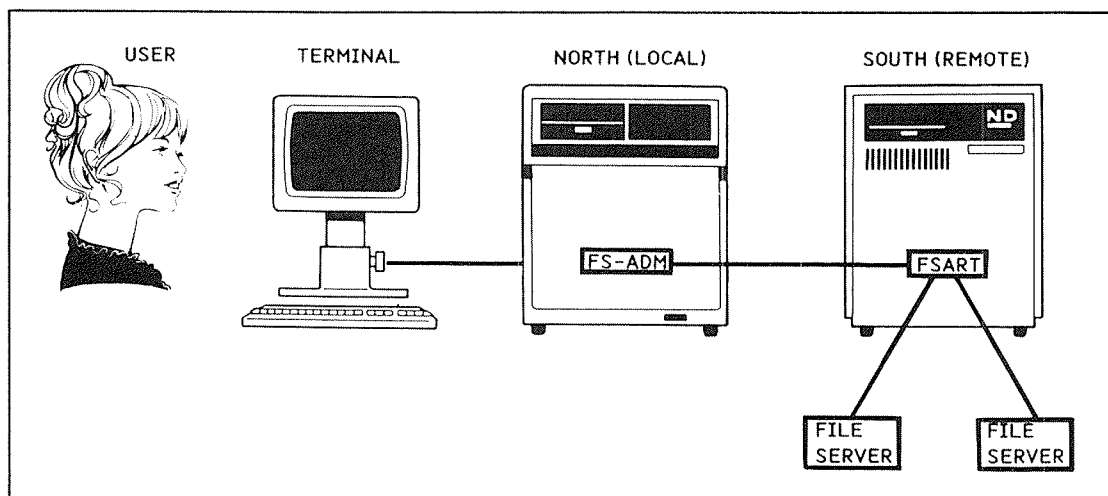


Figure 12. The File Servers

Each system can have up to 4 File Servers. Each server can have up to 29 FAC's (File Access Connections). Each remote file a user accesses by using a SINTRAN command or monitor call uses one FAC on the remote system. It does not use a FAC on the local system.

FSART uses the Terminal Access Administrator (TADADM) to allocate one Terminal Access Device (TAD). That TAD is then used as a terminal on which to run the File Server. The TAD used by FSART cannot be used for remote log in. The TAD is released when the File Server on that TAD is stopped.

If too few TAD's or XMSG ports are free for FSART to use, you may not be able to start as many File Servers as you want. At any rate, you must have SINTRAN generated with at least as many TAD's as the maximum number of File Servers you wish to have running simultaneously.

Here is how you start a server with the maximum number of FAC's:

```

FSA: START-SERVERS,1,,, ↵
--- please wait ---
Server 1 started.           No of FAC's attached: 29
FSA: @TERMINAL-STATUS,,, ↵
LOG.NO  USER      MODE   CPU-MIN  OUT-OF  LAST-COMMAND
    1  SYSTEM      COMMAND    1      2  TERM-STAT,,,,
   768 SYSTEM      HOLD      0      0  FS 01 ACTIVE
   670 SYSTEM      COMMAND    0      3
FSA: @TADADM ↵

TAD NO RESERV  ESCAP PORTNO - PORTNO TERMNO USER          SYSTEM
768/  0  TAD01 Enab      8 -      7      0 **** File Server Adm
769/  0  No     Enab  Discon
770/  0  No     Enab  Discon
771/  0  No     Enab  Discon

FSA: _

```

Example 38. Starting a File Server

The `TERMINAL-STATUS` command shows that the Server is running on the TAD with logical device number 768, while the `TADADM` command shows that the File Server Administrator (ie., FSART) has connected to TAD no. 768, which is used to run a File Server. Here are some error messages you may get:

- System unavailable.

You cannot start a File Server before the system is set available.

- Terminal access not running or unknown port name.

You must give the `SINTRAN` command `START-TADADM` before you can start servers.

- No free TAD's at present, try later.

All available TAD's are in use by other servers or remote logged in users.

- File Server aborted: out of XMSG resources, ie., ports, task descriptors or message buffers.

You need to generate an XMSG system with more system resources.

5.3.6 The Three Ways to Stop Servers

There are three ways to stop servers, each of them is illustrated in the following imaginary telephone conversations between the FS-ADMINISTRATOR and FSART:

TERMINATE-SERVER:

FS-ADMIN: Do not open any more files and let me know when all your FAC's are closed.

...

FSART: I got your message, but have open FAC's.

...

FSART: All my FAC's are now closed.

FS-ADMIN: I am going to hang up now, okay?

FSART: Okay, goodbye.

FS-ADMIN: Goodbye.

(FS-ADMIN hangs up.)

CONTROLLED
STOP
WHEN FACS
ARE OPEN

ABORT-SERVER:

FS-ADMIN: I am going to hang up now, okay?

(FS-ADMIN waits for FSART to say "bye".)

FSART: Okay, goodbye.

FS-ADMIN: Goodbye.

(FS-ADMIN hangs up.)

QUICK
STOP

DISCONNECT-SERVER:

FS-ADMIN: Goodbye.

(FS-ADMIN hangs up without waiting for FSART to say anything.)

STOP IN
ABNORMAL
SITUATIONS

Example 39. The Three Ways of Stopping a File Server

Note that FS-ADMIN disconnects immediately when you use DISCONNECT-SERVER.

5.3.6.1 The TERMINATE-SERVER Command

FSA: TERMINATE-SERVER <server number>

This command terminates the specified server. If the server has open File Access Connections (called FAC's), new FAC's will not be opened on the server, and when all the FAC's are finally closed, the server will stop and the TAD will be released. If the server has no open File Access Connections, it terminates immediately.

This command does not accept a default server number.

Examples:

```
The server has no open FAC's:
FSA: TERMINATE-SERVER 1 ↵
Server 1 terminated.
FSA:

The server has open FAC's:
FSA: TERMINATE-SERVER 2 ↵
Server 2 terminating.
FSA: _
```

Example 40. The TERMINATE-SERVER Command

You may check the status of a File Server by using the command SERVER-STATUS.

5.3.6.2 The ABORT-SERVER Command

FSA: ABORT-SERVER <server number>

This command closes open files, disconnects any open FAC's and then stops the server immediately.

You can give this command if you cannot wait for a server to terminate.

```
FSA: TERMINATE-SERVER 1 ↵
Server 1 terminating.

FSA: ABORT-SERVER 1 ↵
Server 1 aborted

FSA: _
```

Example 41. The ABORT-SERVER Command

5.3.6.3 The DISCONNECT-SERVER Command

FSA: DISCONNECT-SERVER <server number>

This command disconnects the connection from FSART to the specified File Server, which then terminates as soon as the disconnect message is received. Use this command if the command ABORT-SERVER does not terminate the server. In other words, this is a command for abnormal situations.

```
FSA: DISCONNECT-SERVER 1 ↵
Server 1 disconnected.

FSA: _
```

Example 42. The DISCONNECT-SERVER Command

5.3.7 The LIST-SERVERS Command

FSA: LIST-SERVERS

This command lists each server and what state it is in:

```
FSA: LIST-SERVERS ↵
Server 1 active.
Server 2 terminating.
Server 3 not accessible.
Server 4 not accessible.

FSA: _
```

Example 43. The LIST-SERVER Command

5.3.8 The SERVER-STATUS Command

FSA: SERVER-STATUS <server number>

This command obtains status information from the specified server. The default parameter value is all servers.

If the server is active, the number of reserved open file entries, the number of open files, the total number of attached File Access Connections, and the last user operation performed will be listed.

```
FSA: SERVER-STATUS... ↵
```

SERVER	STATE	RESERVED ENTRIES	OPEN FILES	OUT OF	LAST USER COMMAND
1	active	15	10	29	Open-file
2	terminating	2	2	29	Close-file
3	not accessible				
4	not accessible				

FSA: _

Example 44. The SERVER-STATUS Command

5.3.9 The LIST-OPEN-FACS Command

FSA: LIST-OPEN-FACS <server number>

This lists the File Access Connections (FAC's) used by the server you specify. It also lists the name of the system, RT program, and the user that reserved the FAC. If the FAC has an open file, the file name is listed.

The server number must be 1, 2, 3 or 4.

```

@OPEN-FILE SOUTH(FLOPPY).OPEN-ME:DATA:2 RX ↵
FILE NUMBER IS 000103
@OPEN-FILE SOUTH(FLOPPY).OPEN-ME:DATA:3 WY ↵
FILE NUMBER IS 000104
@DELETE-FILE SOUTH(FLOPPY).OPEN-ME:DATA:5 ↵
@FS-ADMINISTRATOR ↵

COSMOS FILE SERVER ADMINISTRATOR, VERSION B  NOVEMBER 22, 1983

FSA: SELECT-FSA SOUTH ↵
SYSTEM PASSWORD: (invisible input) ↵
PROJECT PASSWORD: (invisible input) ↵

Connection established
FSA: SERVER-STATUS,1 ↵

SERVER  STATE          RESERVED  OPEN   LAST USER
      1  active.        ENTRIES   FILES OUT OF  COMMAND
                        3         2    29   Delete-file

FSA: LIST-OPEN-FACS 1,... ↵
***** SERVER 1 *****
15 Opened by: ND-1150.BAK12  UTILITY
   File name: No file opened
16 Opened by: ND-580.BAK11  SYSTEM
   File name: (PACK-ONE:FLOPPY-USER)OPEN-ME:DATA:2
17 Opened by: ND-580.BAK11  SYSTEM
   File name: (PACK-ONE:FLOPPY-USER)OPEN-ME:DATA:3
FSA: EXIT ↵

```

Example 45. The LIST-OPEN-FACS Command

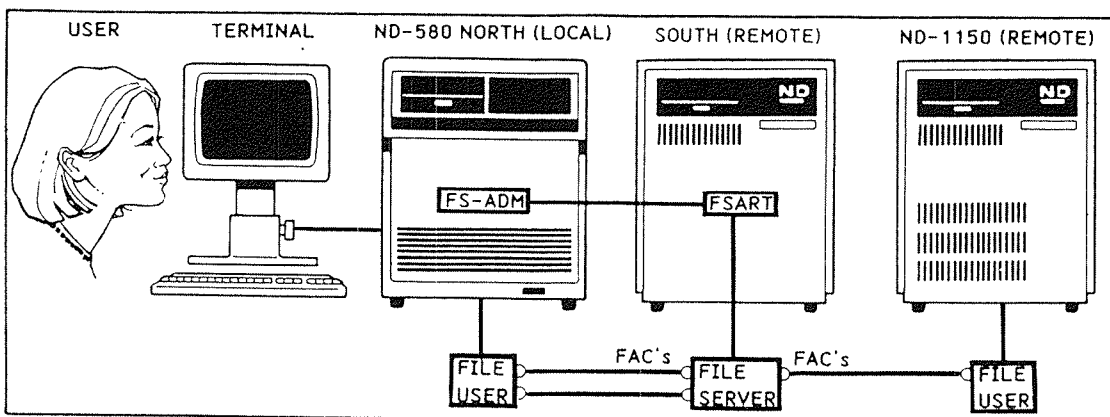


Figure 13. The LIST-OPEN-FACS Command

5.3.10 The CLOSE-FAC Command

```
FSA: CLOSE-FAC  <server number>  
                <connection ID>
```

Server number is the number of the Server and connection ID is the number of the FAC.

This command closes and releases the specified File Access Connection. If the FAC has an open file, it is automatically closed.

The command enables you to clean up and release a FAC which is left open when the program reserving it has lost the connection due to some error.

```
FSA: LIST-OPEN-FACS 1 ↵  
***** SERVER 1 *****  
  18 Opened by: ND-1150.BAK05  FA-COSMOS  
      File name: (PACK-TWO:FA-COSMOS)FA-DOCUMENT:TEXT  
FSA: CLOSE-FAC 1,18 ↵  
FAC no. 18 closed.  
      Opened by: ND-1150.BAK05  FA-COSMOS  
      File name: (PACK-TWO:FA-COSMOS)FA-DOCUMENT:TEXT  
FSA: _
```

Example 46. The CLOSE-FAC Command

5.3.11 The EXIT Command

```
FSA: EXIT
```

You leave FS-ADMINISTRATOR and return to SINTRAN.

C H A P T E R 6

TRANSFER FILE

6 TRANSFER FILE

6.1 Synopsis

This chapter covers the TRANSFER-FILE commands of interest to system supervisors. Other commands are documented in the manual COSMOS User Guide, ND-60-163.

6.2 The TRANSFER-FILE Program

The TRANSFER-FILE Program is a normal program which can be run from any terminal. It may be run as a :PROG program, but you are advised to dump it reentrant.

An example of how to start the program and how to list all commands is shown on the next page.

@TRANSFER-FILE ↵

COSMOS File-Transfer (version B) of 1983.11.11 11:00

Hello SYSTEM

F-T:LIST-ALL-COMMANDS ↵

? typed in Transfer(-file)/Append-rem-batch,
is used to get syntax information

APPEND-REMOTE-BATCH	<Batch system and user name>, <Input file>, <Output file>
CHECKOUT	<Remote system and user name>, <No of page transfers>
DEBUGPRINT-OFF	
DEBUGPRINT-ON	
DECODE-BUFFER	<Input buffer (y/n)>
DEFINE-TRANSFER-CONDITIONS	<No of buffers>, <Size in bytes>, <Secure messages>
EXIT	
GET-DEFAULT-REMOTE-SYSTEM	
GET-ERROR-MESSAGE	<Error value (dec)>
HELP OR ?	<Command name>
LIST-ALL-COMMANDS	
LIST-NAMES	<System name or no>
LIST-VARIABLES	
MODE	<File name>, <No of times>
SET-DEFAULT-REMOTE-SYSTEM	<System name>, <User name>, <Password>
TRANSFER	<To>, <From>
TRANSFER-FILE	<To>, <From>

F-T: _

Example 47. The LIST-ALL-COMMANDS of the TRANSFER-FILE Program

Note that we took the liberty of arranging the commands in alphabetical order.

6.2.1 The CHECKOUT Command

This command checks to see if you can transfer files to the system you specify. In other words, you find out if XFTRA is working on that system.

```
F-T:CHECKOUT ↵
Remote system and user name: SOUTH(UTILITY)
No of pages in file: 50 ↵
To:  ** Dummy (no access to file system) **
From: ** Dummy (no access to file system) **

Completed. Transfer rate: 15 Kbytes/sec

F-T:_
```

Example 48. The CHECKOUT Command

In this case, file transfers to SOUTH are going fine. Some points to note:

- If you don't specify a user name, user SYSTEM will be used. That will only work if user SYSTEM on the system specified has the same password as SYSTEM on your local system. If you don't specify how many pages, 50 will be used.
- The peripheral file DUMMY must be defined on both systems. If it is not defined, you do so by typing:

```
@SET-PERIPHERAL-FILE ↵
FILE NAME: "DUMMY" ↵
DEVICE NUMBER: Q ↵
@_
```

Example 49. Creating the DUMMY: File

If users on your system cannot transfer files between two systems, try using CHECKOUT for both systems to see if XFTRA is working. If XFTRA is not working, you should abort XFTRA (@ABORT XFTRA) on your local system, and then restart it by giving the SINTRAN command @RT XFTRA. Check that noone else is using it. If this does not work, try the same procedure on the remote system.

6.2.2 The DEFINE-TRANSFER-CONDITIONS Command

The command DEFINE-TRANSFER-CONDITIONS may be worthwhile using if you are transferring files on a wide area network (WAN), using the COSMOS X.21 Option or the COSMOS X.25 Option. For example:

```
F-T: DEFINE-TRANSFER-CONDITIONS ↵  
NUMBER OF BUFFERS: 2 ↵  
SIZE IN BYTES: 512 ↵  
SECURE MESSAGES?: YES ↵  
F-T: TRANSFER (etc.)
```

Example 50. The DEFINE-TRANSFER-CONDITIONS Command

This may work better than using two 1024-byte buffers, which is the default value.

6.2.3 Other Commands

Some of the less important commands and self-explanatory commands are covered here:

APPEND-REMOTE-BATCH is explained in the COSMOS User Guide. Note that if users make mistakes, their batches won't start and the error message will appear on the remote computer system's console. For instance, if a user specifies an output file that doesn't exist, that error is discovered when it is time to execute the batch and the following message appears on the remote console:

```
17.49.36 ERROR 08 IN BCH03; BATCH SYSTEM ERROR  
FILE ERROR NO.:      56; ADDRESS:  27510  
NO SUCH FILE NAME
```

Example 51. Example of Batch Error Message

GET-ERROR-MESSAGE <Error value> gives you the text that corresponds to the numerical error code you specify. This works for all the XMSG errors, but not for SINTRAN errors.

HELP <Command name> lists the matching command(s) and their parameters. Note that HELP does not list some commands that end users never need to use.

EXIT returns you to SINTRAN.

LIST-ALL-COMMANDS lists all the commands, including those end users do not need.

LIST-NAMES <system name or no.> lists all the names that are defined on the system you specify. This is the same as the LIST-NAMES command in the XMSG command program.

You will probably not need to use the following five commands:

DECODE-BUFFER <Input buffer (y/n)>

DEBUGPRINT-ON

DEBUGPRINT-OFF

LIST-VARIABLES

MODE <File name>, <No. of times>

Writing DECODE-BUFFER YES gives you the File Transfer program's input buffer, while DECODE-BUFFER NO gives its output buffer.

DEBUGPRINT-ON can be used to list registers when calling XMSG. DEBUGPRINT-OFF stops debug information from being written each time you use a command. Default is debug information off.

LIST-VARIABLES lists some the variables that XMSG gets from File Transfer. This is only of interest to XMSG programmers.

MODE executes the mode file you specify as many times as you want. Writing MODE EX 3 is the same as typing @MODE EX:SYMB three times in SINTRAN.

CHAPTER 7

REMOTE SPOOLING

7 REMOTE SPOOLING

7.1 Synopsis

This chapter covers the system supervisor part of the Remote Spooling facility of COSMOS.

Since this system uses parts of the TRANSFER-FILE subsystem, the reader should have a general understanding of that subsystem.

7.2 The Purpose of Remote Spooling

COSMOS Spooling provides you with considerable flexibility. You make a list of local printer names that you use when you want to print documents. These names represent printers on local or remote computer systems.

Users on your system need only learn the names you define. When they print a document in NOTIS or other applications programs, it is copied to a spooling file which is put in the COSMOS Spooling Queue. The spooling file is then sent to the spooling queue of the printer they specified.

The figure on the next page illustrates the structure of the COSMOS Remote Spooling system.

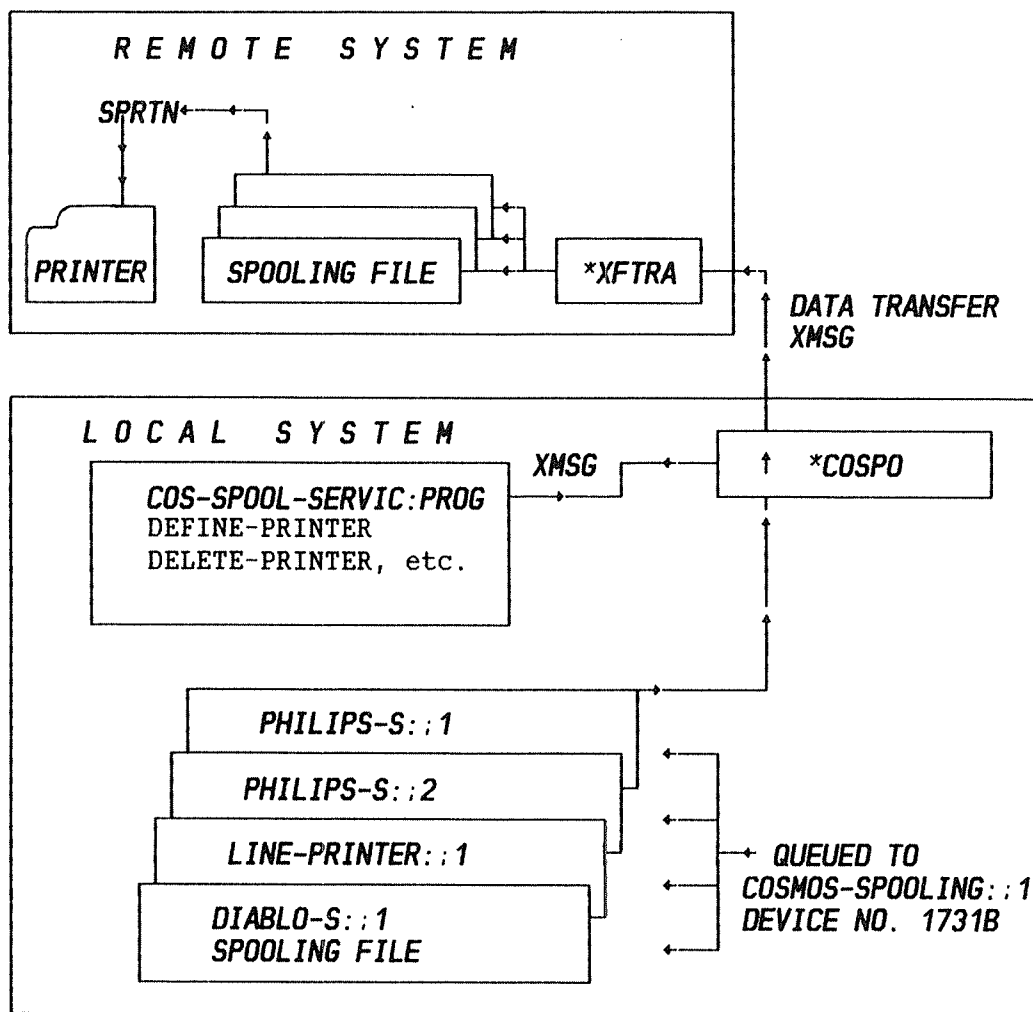


Figure 14. The COSMOS Spooling System

SPRTn is an RT program that sends spooling files to a printer. The "n" in "SPRTn" is a number. Each printer has its own SPRTn.

*XFTRA is the RT program that transfers files between systems.

By using spooling queues twice, once for files waiting to be transferred to (remote) printers, and once for each printer where the transferred files are waiting to be printed, the waiting time for users is reduced to a minimum.

7.3 The COSMOS Spooling Service Program

The COS-SPOOL-SERVIC program is the main tool for the system operator when configuring a remote spooling service. We recommend you store it under user UTILITY.

Here is how you start it and list all the commands at your disposal:

```
@(UTILITY)COS-SPOOL-SERVIC ↵
COSMOS Spooling Service program (version B) of 1983.11.11 11:00

C-S-S:LIST-ALL-COMMANDS ↵
Change-password      <Remote system name>
                   <Password>

Debugprint-off
Debugprint-on
Decode-buffer        <Input buffer (y/n)>
Define-printer       <Local spooling file>
                   <Remote system>
                   <Remote printer>
                   <Extra header>
                   <No. of local spooling files>
Delete-printer       <Local printer name>
Exit
Get-error-message    <Error value (dec)>
Get-file-statistics
Help                 <Command name>
List-all-commands
List-names           <System name or no.>
List-printers
List-server-errors
Mode                 <File name>
                   <No. of times>

C-S-S: _
```

Example 52. The LIST-ALL-COMMANDS of the COSMOS Spooling Service Program

We arranged the commands in alphabetical order for this manual.

7.3.1 The Command LIST-PRINTERS

The first command you want to use is LIST-PRINTERS to see what printers are already defined:

```

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            ! SCHOLAR.PHILIPS                ! X !
LINE-PRINTER         ! SCHOLAR.LINE-PRINTER         ! X !
<Default printer>    ! MAIN.LINE-PRINTER         !
C-S-S: _

```

Example 53. The LIST-PRINTERS Command

7.3.2 The DEFINE-PRINTER Command

Let us say that you define a printer called NICE-PRINTER. Here is what you do:

```

C-S-S:DEFINE-PRINTER ↵
Local spooling file name? NICE-PRINTER ↵
Remote system name? SOUTH ↵
Remote printer name? PHILIPS ↵
Extra header (Y/N)? YES ↵
No. of local spooling files? 2 ↵
OK
C-S-S: _

```

Example 54. The DEFINE-PRINTER Command

You have now created two spooling files on your system. Their names are (SYSTEM)NICE-PRINTER;1 and (SYSTEM)NICE-PRINTER;2. When files are copied to NICE-PRINTER, they will now be printed on the PHILIPS printer on the computer system SOUTH.

Now you can see that your printer has been defined in the table:

```

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            ! SCHOLAR.PHILIPS                      ! X       !
LINE-PRINTER         ! SCHOLAR.LINE-PRINTER                  ! X       !
NICE-PRINTER         ! SOUTH.PHILIPS                        ! X       !
<Default printer>    ! MAIN.LINE-PRINTER                    !         !

C-S-S: _

```

Example 55. Checking That a Printer is Defined

If you want to redefine a printer, use DELETE-PRINTER and then DEFINE-PRINTER.

You now have a file called NICE-PRINTER:

```

@FILE-STATISTICS NICE-PRINTER,,,
FILE 18 : (PACK-ONE-655:SYSTEM)NICE-PRINTER;;1
          (SPOOLING FILE)

          (etc.)

```

Example 56. Checking the Local Spooling Files

If users on your system will be writing to this printer from NOTIS-WP or PED, you should define it in the file (SYSTEM)WP-PRINTERS. Here are eight lines of that file (note that only the first 65 characters of each line are shown):

%=====!=====.		
%=====!=====.		
%Logical name	Computer.File name	Printer type
%=====!=====.		
LINE-PRINTER	SCHOLAR.LINE-PRINTER	LINE-PRINTER
EPSON	TERMINAL	EPSON-MX80
NICE-PRINTER	NICE-PRINTER	PHILIPS

This should be the name of a spooling file on your local system. If you use the name of a file on a remote system, for example, COMPACT.LINE-PRINTER, the files printed on it will be sent to the remote system without using COSMOS Spooling.

This is the name that users in NOTIS-WP, NOTIS-TF and PED use after they push the PRINT key. It need not have the same name as "computer.file name", but that is normally the easiest way to do it.

Figure 15. The WP-PRINTER:SYMB File

To fill in all the attributes of a printer (feeder, form length, displacement, etc.), see the WP-PRINTERS file on the system that the printer is on.

7.3.3 The DELETE-PRINTER Command

If you want to remove a printer from the list, use the command
DELETE-PRINTER:

```
C-S-S: DELETE-PRINTER ↵
Local printer name? NICE-PRINTER ↵
OK
C-S-S: _
```

Example 57. The DELETE-PRINTER Command

NICE-PRINTER will disappear from the list of printers and the files
NICE-PRINTER::1, NICE-PRINTER::2, etc., will be deleted.

7.3.4 The CHANGE-PASSWORD Command

COSMOS Spooling needs to be able to know FLOPPY-USER's password on the remote systems listed under LIST-PRINTERS. It assumes that FLOPPY-USER has no password unless you tell it otherwise. If FLOPPY-USER has a password on a remote system, users will fail when they try to transfer their files to that printer; they will get SINTRAN error message 48D (Wrong password).

If you know that user FLOPPY-USER has the password XYZ on the system SOUTH, you can remedy that problem as follows:

```
C-S-S: CHANGE-PASSWORD ↵
Remote system name? SOUTH ↵
Password? (Write XYZ, it will be invisible) ↵
OK
C-S-S: _
```

Example 58. The CHANGE-PASSWORD Command

If you don't know FLOPPY-USER's password on SOUTH, you can't access printers on SOUTH.

7.3.5 Other Commands

GET-FILE-STATISTICS tells how many pages and bytes the last file transferred had.

LIST-SERVER-ERRORS lists the transfers COSMOS Spooling was unable to perform. The number of the error message is given. You can find out what the error message was by using the command GET-ERROR-MESSAGE <Error value (dec)>. This works for all the XMSG errors, but not for SINTRAN errors.

HELP <Command name> lists the matching command(s) and their parameters. Note that HELP does not list some commands that end users never need to use. See LIST-ALL-COMMANDS below.

EXIT returns you to SINTRAN.

LIST-ALL-COMMANDS lists all the commands, including those end users do not need.

LIST-NAMES <system name or no.> lists all the names that are defined on the system you specify. This is the same as the LIST-NAMES command in the XMSG command program.

MODE <File name>,<No. of times> executes the specified mode file as many times as you want.

You will not need to use the following three commands:

DECODE-BUFFER <Input buffer (y/n)>

DEBUGPRINT-ON

DEBUGPRINT-OFF

Writing DECODE-BUFFER YES gives you the COSMOS Spooling program's input buffer, while DECODE-BUFFER NO gives its output buffer.

DEBUGPRINT-ON can be used to list registers when calling XMSG. DEBUGPRINT-OFF stops debug information from being written each time you use a command.

7.4 The Mode File COS-DEFINE-PRINT:MODE

Store the mode file COS-DEFINE-PRINT:MODE under user UTILITY. You should include this file in (SYSTEM)LOAD-MODE:MODE, so that it will be executed every time you do a warm start.

In COS-DEFINE-PRINT:MODE, you should define all the printers you normally use, and you should use CHANGE-PASSWORD for any remote systems that have passwords for FLOPPY-USER. You will only need to use these two commands in COS-DEFINE-PRINT.

7.5 Warm Starts

You should have the following two commands in your LOAD-MODE file:

```
@START-SPOOLING COSMOS-SPOOLING  
@MODE (UTILITY)COS-DEFINE-PRINT:MODE,,,
```

Example 59. The Remote Spooling Commands in the SINTRAN LOAD-MODE File
Then these commands will be executed every time you do a warm start.

7.6 Cold Starts

You should have the following command in your HENT-MODE file:

```
@MODE (UTILITY)COS-LOAD-COSPO:MODE,,,
```

Example 60. Loading COSMOS Spooling from the SINTRAN HENT-MODE File
Then this mode file will be executed every time you do a warm start.

CHAPTER 8

HANDLING OF XMSG ERRORS

8 HANDLING OF XMSG ERRORS

8.1 Synopsis

This chapter gives an brief outline of how to operate XMSG, with special consideration of how to diagnose error conditions.

8.2 XMSG Troubleshooting

The following sections list some of the most 'common' error conditions that can occur when using XMSG.

8.2.1 Problems When Generating XMSG

Check that the highest address used in POF (5XEND - see end of generation listing) is less than 176000B and that there are no undefined symbols.

8.2.2 Problems When Loading XMSG

When loading segment 33 (XMSG POF area), the RT-loader can give the message 'VIRTUAL ADDRESS AREA FILLED SEGMENT 33'. If this occurs, contact your local ND service representative.

8.2.3 Problems When Starting/Running XMSG

- 1) The error message 'XMSG NOT LOADED' implies that the XMSG-LOAD:MODE file has not been run correctly. Check the output file.
- 2) Error message 28: 'Space not available' for segment 33 implies that XMSG was unable to fix its POF part into memory because someone else had stolen it. The reason for this might be that XMSG was started after spooling or the ND-500 monitor was started. Edit the SINTRAN III LOAD-MODE:SYMB file so that XMSG is started before spooling and the ND-500 monitor, then restart the system.

- 3) If XROUT aborts with user error 53, the suberror code gives the reason:

- 1 : (probably) The POF area (segment 33) was too big (above 176000B).
- 9 : There was not enough physical memory to fix segment 35 (order more memory).

Other errors : Report back to your local ND service representative.

- 4) XROUT may also abort with error code 54. Report back to your local ND service representative.

8.2.4 If the Computer Stops or Loops

- 1) **ERRFATAL when restarting the system after loading XMSG**
This is probably due to the SINTRAN III startup sequence running out of space in POF. A smaller SINTRAN III must be generated (or a smaller XMSG). To recover either do a)HENT or use MACM to patch location 165 to 0 and then restart SINTRAN III by using 22!.
- 2) **At any other time**
XMSG itself does not call ERRFATAL (it crashes itself - see below). If a crash occurs follow the usual sequence for finding out what was going on (look at active levels, and registers for that level, etc.....).
- 3) **When XMSG crashes itself**
A message will be printed out on the error device 'XMSG FATAL ERROR: xxxx'. In this case XMSG has noticed that its internal tables have been corrupted, or the information being sent to it by another computer is untreatable. In this case the crash reason (a value to be matched with the XMSG crash codes xxxx in XMSGH-VALUES) and the crash location in POF are written out together with the error message. They are also saved in the XMSG basefield locations XCRAR (reason) and XCRAP (location).

If this occurs, you should look in the listing to see where ZCRAS (XMSG's ERRFATAL) was called, and see why - usually there is an explanatory text there. The information to be collected is:

- the registers on level 5

- the XMSG basefield (200B locations)
- the current caller's XT-block (pointed at by XCTPT in the basefield)

It is difficult to say in general which other locations are interesting, as it is dependent on where the crash routines were called. If the crash reason was XXRO2, then the reason that XMSG crashed was that XROUT crashed, and one should dump the XROUT basefield that lies at the beginning of segment 34.

Note that this should be done without stopping SINTRAN and so the SINTRAN-SERVICE command OCTAL-DUMP can be used to dump large areas of segment 33 and 35 to a disk file.

After you have tried to find out what has happened, XMSG should be stopped and restarted in the usual way.

8.3 If Inter System XMSG Does Not Work

If XMSG runs, but IS-XMSG does not provide communication, the following diagnostic steps might prove useful.

- 1) Log in as user SYSTEM
- 2) Recover XMSG-COMMAND program (UTILITY) and execute the command LIST-LINKS. Find the link, and note the Logical Unit (LUN), you should be using.
Possible states are:

DEAD : Fatal hardware error, see HDLC status

CALL : Trying to make contact with remote system, but there is no reply. Either the remote system has not done START-LINK, do LIST-LINKS there to check, or there is a hardware malfunction, use XMSG-HDLC-TEST (described below) to find it.

CONN : Your end has received a restart indication from the opposite end, but has not received an acknowledgement of your restart. Try STOP-LINK and START-LINK at each end. If this does not cure the problem, then the link is probably only functioning in one direction. Use XMSG-HDLC-TEST to check link hardware.

RUN : Full duplex contact has been established. If all is not OK, go on to the next diagnostic.

- 3) Execute the command LIST-ROUTE.
The command lists all the systems via which you must go in order to reach the destination. Each system is contacted, so LIST-ROUTE will indicate how far you can go before the error occurs. Go to the system in error and:

- Check that XMSG is running
- Check that the links are running (see LIST-LINKS above)
- Check that the routing information in that system is correct (using LIST-ROUTES)

If you can reach the target system, and CONNECT-TO or TRANSFER-FILE do not run, then use:

LIST-NAMES <target system name>

If you get an error message, then first check that the remote system name is known locally and remotely. If not, use DEFINE-SYSTEM-NAME to define system name.

The names that are listed should include:

*TADMIN if remote terminal access is running. Use the SINTRAN command START-TADADM if not.

*XFTRA if file transfer server is running. Use the SINTRAN commands ABORT XFTRA and RT XFTRA if not.

8.4 Short Guide for XMSG-HDLC-TEST Program

8.4.1 Purpose

The XMSG-HDLC-TEST program is used to test the HDLC and the MEGALINK interfaces and cables which are to be used by XMSG, since XMSG itself does not include detailed diagnostics.

8.4.2 Before Running XMSG-HDLC-TEST

Since XMSG-HDLC-TEST uses the normal HDLC driver in SINTRAN, and requires buffer space, the latter must be allocated to it. The example assumes that HDLC2 is to be tested. If another link is being tested, replace 1362 and 1363, with n, n+1.

```
@SINTRAN-SERVICE ↵
*CHANGE-BUFFER-SIZE,1362,I,400,Y,N ↵
*CHANGE-BUFFER-SIZE,1363,O,400,Y,N ↵
*EXIT ↵
@RESTART-SYSTEM ↵
```

Example 61. Changing the HDLC Buffer Size

The reason why you have to do a RESTART-SYSTEM, a warm start, is to allow SINTRAN to reallocate the buffers.

8.4.3 Instructions for Running XMSG-HDLC-TEST

@(UTIL)XMSG-HDLC-TEST

HDLC / MEGALINK Test Program (1.xx) ** (When

Sintran Log.Unit..... (def=1360): 1362

Loop on interface? (N/y): Y

Max frame size (dec.) bytes (def=128): CR (default)

>SEND 2000

Example 62. Running the XMSG-HDLC-TEST Program

The test program will now put the interface into maintenance mode and send and receive 2000 frames in local loop, checking the data that is received. If this goes OK, the driver and interface on the local system are OK.

Try this also at the other end (including the change of buffer size) and (if OK) then put that end into echo-mode by restarting XMSG-HDLC-TEST and replying N to the question 'Loop on interface?' and then using the ECHO-MODE command.

Go back to the first system, restart XMSG-HDLC-TEST and reply N to the 'Loop on interface?' command. The SEND command then transmits frames to the remote system, which echoes them, and the local system checks that the replies are correct. If both the local loop tests worked correctly, but the last test failed, the problem lies in the plugs, cables or switch settings. In particular check that the cable type is correct for the interface (MEGALINKS and HDLC's use DIFFERENT cables!).

WARNING: XMSG-HDLC-TEST does not release the devices when exiting, so log out after running XMSG-HDLC-TEST, and before using the START-LINK command in XMSG-COMMAND.

A P P E N D I X A

THE XMSG-COMMAND PROGRAM

NOTE : This appendix lists the different XMSG commands necessary to operate and run IS XMSG.

The last part of the chapter includes a list of the most common parameters to the XMSG commands.

Command name : <i>CLEAR-PRIVILEGED</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Only permitted for user SYSTEM.

Related Commands: SET-PRIVILEGED
SET-ADVANCED

Function. . . . : Clears the state set by the command SET-PRIVILEGED.

Command name : DEFINE-LOCAL-SYSTEM		
No:	Parameter Name:	Default Value:
1	<system number>	<local system>

Rules : Only permitted for user SYSTEM. Not necessary to use in XMSG version I or later (when using SINTRAN version H or later versions), because the system number is given to XROUT when XROUT is initialized. It is illegal to redefine the local system.

Related Commands: LIST-SYSTEMS
LIST-NAMES
LIST-ROUTING-INFO

Function. : This command defines the identity of the local system in its own system tables.

Command name : <i>DEFINE-REMOTE-NAME</i>		
No:	Parameter Name:	Default Value:
1	<XROUT system>	<local system>
2	<Port or system name>	
3	<system number>	

Rules : Only permitted for user SYSTEM. XROUT system must be local.

Related Commands: LIST-NAMES

Function. : This command defines a remote system name in the local system tables. You must also use this command to define additional symbolic names for your local system.

To delete a name entry in the local XMSG name tables, you just give the system name and answer the third parameter, <system number>, with carriage return (CR).

Command name : DEFINE-SYSTEM-ROUTE		
No:	Parameter Name:	Default Value:
1	<XROUT system>	<local XROUT system>
2	<system>	
3	<via system>	

Rules : Only permitted for user SYSTEM. The XROUT system must be the local (default) system. The names of the different systems must be defined in the local name tables.

Related Commands: LIST-ROUTING-INFO

Function. : This command updates the local system routing tables.

EXPLANATION: In the example above, the <via system> parameter may be any system on the route to the specified <system>. The routing to (and name of) the <via system> parameter must be known by your local system. The name of the target system must also be defined in your own system tables. It is not necessary to define the route to an adjacent system.

Command name : <i>EXIT</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all user categories.

Function. . . . : Terminates the XMSG-COMMAND program and returns the user to SINTRAN.

Command name : <i>GET-ERROR-MESSAGE</i>		
No:	Parameter Name:	Default Value:
1	<Error value (dec)>	

Rules : Available to all user categories.

Function. : This command displays the error message corresponding to the XMSG error value given in the input parameter.

Legal input parameters are negative error code and Standard Error Codes (SEC's).

Command name : <i>HELP</i>		
No:	Parameter Name:	Default Value:
1	<commands>	<all commands>

Rules : Available to all user categories.

Related Commands: SET-ADVANCED

Function. : List all commands available to the user if default input parameter is given. If the input parameter <commands> is specified, a subset of commands (if any) matching the given input will be displayed.

Command name : <i>LIST-LINKS</i>		
No:	Parameter Name:	Default Value:
1	<link block address>	<all links>

Rules : Only permitted for user SYSTEM.

Related Commands: START-LINK
STOP-LINK
START-NETWORK-SERVER
STOP-NETWORK-SERVER

Function. : This command is used to list the current status of all links being used by XMSG. This mean those started by the START-LINK or the START-NETWORK-SERVER commands. You may specify either XMSG link index or link block address.

A link reserved by a network server is a virtual link. The System Identification (Sysid) then refers to a virtual system within the local system and Sysid will be in the range of 9800 to 9803. Further, the figure in the LUN column is the XMSG Port number and not the SINTRAN Logical Unit Number. The columns giving HDLC information (Rcv, Xmit, Hard stat) will always be zero.

Turn to the next page for an explanation of the output listing.

EXPLANATION: In the table below, the output information of the command List-links is explained.

No	- link index in XMSG
Addr.	- of link block (XL-block)
State	- of connection to adjacent system. Values are: DEAD - crashed (fatal timeout or hardware error) INIT - being initialized (purely internal) CALL - trying to contact neighbour CONN - contact made RUN - data phase
Sysid	- of neighbour (CONN and RUN states only!)
Rcv	- last HDLC A/C bytes received (0 if netw.serv. NS)
Xmit	- last HDLC A/C bytes transmitted (0 if netw.serv. NS)
Lun	- SINTRAN Logical Unit No (Octal) (Virt.sys.no. if NS)
Timeout	- Timeout value in XTU's and counter value
Soft-stat	- HDLC software status (should be zero)
-hard	- HDLC Hardware status (should be zero)
TXData	- Number of DATA frames transm. since last start-link
Retry	- Number of retransmits
RXBad	- Number of bad frames received (CRC error, etc.)

Note: You should note that the meanings of some of the parameters are different when the link has been reserved by a network server. Then the link is a virtual link and the system is a virtual system.

Command name : <i>LIST-NAMES</i>		
No:	Parameter Name:	Default Value:
1	<XROUT system>	<local XROUT system>

Rules : Available to all users.

Related Commands: LIST-SYSTEMS

Function. . . . : This command asks an XROUT system to dump out its name table, listing the system, port number and number of free service points for each name in XROUT's tables.

In an inter-system configuration, the command allows access to any XROUT, so the first prompt asks for the system number where the XROUT program is to be found. (Default is local.)

EXPLANATION: The output parameters of this command are:

System - System number
Port - XMSG port number
Free SPs - Number of free XMSG Service Points
Name - Remote system or port name

It is not possible to specify a virtual system.

Command name : <i>LIST-ROUTING-INFO</i>		
No:	Parameter Name:	Default Value:
1	<from system>	<local system>
2	<to system>	<all systems>

Rules : Available to all user categories.

Related Commands: DEFINE-SYSTEM-ROUTE
REMOVE-SYSTEM-ROUTE

Function. : This command lists the routing tables and checks the connections. The parameters <from system> and <to system> are both of type 'system' which means that 'system number' or 'system name' may be specified.

The command checks the network by sending connection requests to the remote with system(s). It is advisable to identify the name of the <to system> if you have a lot of connections through a WAN. This is because of the fact that a public data network may be congested, so it may take minutes to get a complete list.

EXPLANATION: Output parameters:

- Path according to local tables - this is how the route is defined on the system given in the <from system> input parameter.
- Path according to tables - this is how the route is defined on the system specified in the input parameter <via system> of the command DEFINE-SYSTEM-ROUTE and the following systems (if any).
- Actual path - the actual path of the connection. The 'actual path' and 'path according to tables' should be the same. All systems on the route to the target system will be listed here.

Command name : <i>LIST-SYSTEMS</i>		
No:	Parameter Name:	Default Value:
1	<system>	<all systems>

Rules : Only permitted for user system if XMSG is older than version H.

Related Commands: LIST-NAMES
LIST-ROUTING

Function. : Lists the system(s) that are defined in the local system's tables.

EXPLANATION: Description of the information listed

Address	- Address of system block descriptor
Sysno	- System Number identifier
State	- >0 if connected, if <0, timeout while waiting for INIT
Link	- Address of link block descriptor
Subaddr	- Parameter to Network Server to find the way
Send-seq-recv	- Send and receive sequence numbers for secure messages
Hops	- Number of LANs and WAN hops to this system (if state>0)

If the link is a virtual link to a network server, Sysno and Subaddr will display the same system number. This is because Sysno and Subaddr then identify a virtual system within the local system.

Command name : REMOVE-SYSTEM		
No:	Parameter Name:	Default Value:
1	<XROUT system>	<local system>
2	<system name>	

Rules : Only permitted for user SYSTEM. It is illegal to specify an XROUT system other than your own.

Related Commands: LIST-ROUTING-INFO

Function. : This command removes the entries of the specified system in the routing tables of your local system. It does not remove the entry in the name table. To remove an entry in the name tables, see the command DEFINE-REMOTE-NAME.

Command name : <i>SET-ADVANCED</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all user categories.

Related Commands: SET-PRIVILEGED
HELP

Function. : Sets the advanced user context. This means that all
commands are listed when typing HELP. The command
does not let you use privileged commands.

Command name : <i>SET-PRIVILEGED</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Only permitted for user SYSTEM.

Related Commands: CLEAR-PRIVILEGED
SET-ADVANCED

Function. . . . : This command gives user SYSTEM the right to use privileged functions without getting warnings printed on the screen each time.

Command name : <i>START-LINK</i>		
No:	Parameter Name:	Default Value:
1	<Logical Unit Number>	
2	<Timeout>	
3	<Window size>	
4	<Max.no.of attempts>	
5	<XROUT system>	

Rules : Only permitted user SYSTEM.

Related Commands: LIST-LINKS
STOP-LINK

Function. . . . : Starts specified link.

Command name : STOP-LINK		
No:	Parameter Name:	Default Value:
1	<Logical Unit Number>	
2	<XROUT system>	

Rules : Only permitted user SYSTEM.

Related Commands: LIST-LINKS
START-LINK

Function. . . . : Stops specified link.

Below is a list of the different input parameters used by the most common XMSG commands.

General XMSG-COMMAND Parameters:

<commands>	Used in the HELP command. Default value is all commands.
<error value (dec.)>	Used in the GET-ERROR-MESSAGE command. Value less than zero will list XMSG Error Message. A positive value will list XMSG Crash Message. Decimal notation. You may also use SEC's.
<from system>	Used in the LIST-ROUTING command. Same as the <system> parameter.
<record address>	Used in different LIST- commands. Octal numbers.
<server name>	Name of the network server (ie., X21NS or X25NS).
<system name>	Name of the system (ie., OBELIX or ND-666).
<system number>	Number of the system (ie., 685, 10102).
<system>	This parameter will accept either <system name> or <system number>.
<to system>	Used in the LIST-ROUTING command. Same as the <system> parameter.
<XROUT system>	Used in different commands. You are only allowed to specify the local XROUT system in XMSG version H or later. This does not apply to LIST commands.

A P P E N D I X B

THE CONNECT-TO PROGRAM

NOTE: This appendix lists all command of the CONNECT-TO program, including the CONNECT-TO Service program.

Command name : <i>CHANGE-LOCAL-CHARACTER</i>		
No:	Parameter Name:	Default Value:
1	<ASCII value>	

Rules : Available to all users. This is a SERVICE command.

Related Commands: LIST-LOCAL-CHARACTER

Function. : The value of the local character when the system is installed is 0, which corresponds to CTRL @ on the standard NOTIS terminal.

EXPLANATION: This command changes the local (recall) character. If a permanent change is necessary, see the command DUMP-PROGRAM.

Command name : <i>CONNECT-TO</i>		
No:	Parameter Name:	Default Value:
1	<system name>	<local system>

Rules : Available to all users.

Function. : This command connects you to the remote system specified.

EXPLANATION: If no system is specified when recovering the program from SINTRAN, the program is started as a normal program and you may use any of the other commands in the program.

If the system name is specified, the connection will be established directly. If you specify the default system, giving commas or answering the prompt System name with carriage return, you will be connected to your local system.

Make sure that you know the Local character before you connect to another system.

Command name : <i>DUMP-PROGRAM</i>		
No:	Parameter Name:	Default Value:
1	<prog-file>	

Rules : Available to all users. This is a SERVICE command.

Related Commands: INITIALIZE-SCRIPT
SET-TIMEOUT-VALUES
TIMEOUT-OFF
TIMEOUT-ON

Function. : This command dumps the modified program code in memory to the specified prog file.

EXPLANATION: This command is used when you want to create a new version of the CONNECT-TO program. Normally there are two reason why you want to create a new version of the CONNECT-TO program:

- 1) You have created a SCRIPT you want to dump as a separate program
- 2) You have modified the system default values of certain parameters, such as the timeout values or the command protection, and you want the changes to be permanent.

You should make certain that you do not dump onto the file (UTILITY)COS-CONNECT-TO:PROG because this is the standard version.

When the program has been dumped, you may dump it reentrant, using the SINTRAN command DUMP-PROGRAM-REENTRANT.

Command name : <i>EXIT</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Function. . . . : This command terminates the program.

EXPLANATION: If given in the SERVICE mode (CT-SERV:), you will be returned to the CONNECT-TO mode (C-T:). In CONNECT-TO mode, the program terminates and you are returned to SINTRAN.

Command name : <i>HELP</i>		
No:	Parameter Name:	Default Value:
1	<command name>	<all commands>

Rules : Available to all users.

Function. : Lists one, a subset, or all commands available in the current mode (standard or SERVICE), depending on the parameter <command name>. If no command name is specified, all commands will be listed.

EXPLANATION: In SERVICE mode, only the commands in this mode are listed, you have only access to them.

Command name : <i>INITIALIZE-SCRIPT</i>		
No:	Parameter Name:	Default Value:
1	<SCRIPT file>	

Rules : Available to all users. This is a SERVICE command.

Related Commands: DUMP-PROGRAM

Function. . . . : The purpose of this command is to read the symbolic
SCRIPT file and modify the code in memory
accordingly.

EXPLANATION: See the special chapter about SCRIPT.

Command name : <i>LIST-LOCAL-CHARACTER</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Related Commands: CHANGE-LOCAL-CHARACTER

Function. . . . : Lists the value of the current local character.

EXPLANATION: The value of the current local character is given in octal notation. System default is ASCII 0, which on the standard ND NOTIS terminal is CTRL @.

If you use a special language version of the NOTIS terminal or if you use any other terminal, you should identify what control character generates the local character before you try to establish a connection.

Command name : <i>LIST-SYSTEMS</i>		
No:	Parameter Name:	Default Value:
1	<system name>	

Rules : Available to all users.

Function. . . . : Lists one, a subset, or all systems defined in the local system tables depending on the parameter <system name>. If no system name is specified, all systems defined in own tables will be listed.

EXPLANATION: An explanation of the information listed is included below.

System Number : The (XROUT) system number.

System Name (synonyms): Symbolic name(s) corresponding to system number(s).

System Status : Possible values: ON NET, OFF NET, UNAVAIL. or W.A.N. W.A.N. means Wide Area Network and indicates that the connection goes through a public network (X.21 or X.25).

T-ACC running : Indicates whether terminal access is running on the remote system or not.

TAD's In use : Tells how many Terminal Access Devices are currently being used.

TAD's Free : Tells how many Terminal Access Devices are currently free and available.

Command name : <i>LIST-TIMEOUT-VALUES</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Related Commands: SET-TIMEOUT-VALUES

Function. : This command lists whether timeout is ON or OFF together with the value of 'Number of minutes inactive when not logged in' and the value of 'Number of minutes inactive when logged in'.

EXPLANATION: System defaults are :

TIMEOUT ON

Number of minutes inactive when not logged in : 1

Number of minutes inactive when logged in : 30

These values may be changed by the command CHANGE-TIMEOUT-VALUES. A change of these values will only be valid during current session. The system defaults will be used the next time the program is recovered.

If a permanent change is necessary, see the command DUMP-PROGRAM.

Command name : <i>RECONNECT-TAD</i>		
No:	Parameter Name:	Default Value:
1	<TAD Logical Unit Number>	<local system>
2	<System name>	
3	<system password>	

Rules : Only available to user SYSTEM. This is a SERVICE command.

Function. : This command enables the system supervisor to reconnect to a TAD.

EXPLANATION: The purpose of this command is to make it possible after a system failure to reconnect to a 'hanging' TAD and terminate the session on the TAD normally.

When the TAD has been identified, using the SINTRAN command TADADM, you can execute the RECONNECT-TAD command.

If the TAD is on the local system, you must give your parameters <system name> and answer <system password> with carriage return.

Command name : SERVICE-PROGRAM		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Function. . . . : You must give this command when you want to execute
any of the CONNECT-TO SERVICE commands.

EXPLANATION: When in SERVICE mode, you cannot give any of the normal
CONNECT-TO commands. To return to the normal mode, just give the
command EXIT.

Command name : <i>SET-COMMAND-PROTECTION</i>		
No:	Parameter Name:	Default Value:
1	<Command name>	
2	<Protection>	

Rules : Only available to user SYSTEM. This is a SERVICE command.

Related Commands: HELP

Function. : The purpose of this command is to change the protection of a command.

EXPLANATION: This command is only useful together with the Dump-program command, because this command does not have any permanent effect unless the modified program code is dumped and permanently stored.

Command name : <i>SET-TIMEOUT-VALUES</i>		
No:	Parameter Name:	Default Value:
1	<not logged in>	
2	<not active>	

Rules : Only available to user SYSTEM. This is a SERVICE command.

Related Commands: LIST-TIMEOUT-VALUES
TIMEOUT-ON
TIMEOUT-OFF

Function. . . . : The purpose of this command is to change the timeout values.

EXPLANATION: As with the other change commands, the change is not permanent unless the program is dumped afterwards. See the DUMP-PROGRAM command.

Command name : <i>TIMEOUT-OFF</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Only available to user RT (or SYSTEM). This is a SERVICE command.

Related Commands: LIST-TIMEOUT-VALUES
SET-TIMEOUT-VALUES
TIMEOUT-ON

Function. . . . : This command is a switch which turns the timeout facility off.

EXPLANATION: The command has only effect as long as the CONNECT-TO program is running. When the CONNECT-TO program is started again, the system default is used. When the system is generated, the timeout facility is on.

For a permanent change, you must use the DUMP-PROGRAM command.

Command name : <i>TIMEOUT-ON</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Only available to user RT (or SYSTEM). This is a SERVICE command.

Related Commands: LIST-TIMEOUT-VALUES
SET-TIMEOUT-VALUES
TIMEOUT-OFF

Function. . . . : This command is a switch which turns the timeout facility on.

EXPLANATION: The command has only effect as long as the CONNECT-TO program is running. When the CONNECT-TO program is started again, the system default is used.

For a permanent change, you must use the DUMP-PROGRAM command.

A P P E N D I X C

THE TRANSFER-FILE PROGRAM

NOTE ! You should note that some of the commands listed when using the Transfer-file command List-all-commands, are not of general interest since they are only used for advanced debugging purposes. Subsequently these commands will not be covered in this manual.

Command name : <i>APPEND-REMOTE-BATCH</i>		
No:	Parameter Name:	Default Value:
1	<Batch system and user name>	
2	<Input file>	
3	<Output file>	

Rules : Available to all users.

Function. : This command appends a batch input job to the batch queue on the specified remote system.

EXPLANATION: You should note that it is not possible to specify the batch processor. The batch processor used is number 1. The batch input file and the batch output file (list file) must exist under the specified remote user name.

Command name : <i>CHECKOUT</i>		
No:	Parameter Name:	Default Value:
1	<Remote system and user name>	
2	<No. of page transfers>	

Rules : Available to all users.

Function. . . . : This command is used to check the file transfer system. It transfers dummy data to a specified remote system. The remote file name is DUMMY;;1. The default user name is FLOPPY-USER.

EXPLANATION: The command does not write to the remote file, so there is no disk access. Subsequently, the command is useful for benchmarking.

Command name : <i>EXIT</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Function. . . . : This command terminates the TRANSFER-FILE program.

Command name : <i>GET-DEFAULT-REMOTE-SYSTEM</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Related Commands: SET-DEFAULT-REMOTE-SYSTEM

Function. : Lists the default remote system name together with default remote user name. The password is not listed.

Command name : <i>GET-ERROR-MESSAGE</i>		
No:	Parameter Name:	Default Value:
1	<Error value (dec.)>	

Rules : Available to all users.

Function. : The purpose of this command is to list the XMSG error message corresponding to the specified error value.

EXPLANATION: A negative error value indicate an XMSG Error message. Positive numbers indicate XMSG Fatal Crash messages.

Command name : <i>HELP</i>		
No:	Parameter Name:	Default Value:
1	<Command name>	<All commands>

Rules : Available to all users.

Related Commands: LIST-ALL-COMMANDS

Function. : List one, a subset or all commands available in the normal mode. For a list of all commands, use the command LIST-ALL-COMMANDS.

Command name : <i>LIST-ALL-COMMANDS</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available to all users.

Related Commands: HELP

Function. : List all commands available in the program.

EXPLANATION: You should note that some of the commands listed when using this command are not documented here because they are only meant to be used for special debugging purposes.

Of the advanced commands, only CHECKOUT, GET-ERROR-MESSAGE and MODE will be covered in this appendix.

Command name : <i>LIST-NAMES</i>		
No:	Parameter Name:	Default Value:
1	<System name>	<Local system>

Rules : Available to all users.

Function. . . . : This command list all system names, including
synonyms, defined on the specified (default is
local) system.

EXPLANATION: Description of output information.

System : XROUT system number
Port : XMSG port number
Free SPs : Free Service Points
Name : System name (synonyms)

Command name : <i>MODE</i>		
No:	Parameter Name:	Default Value:
1	<File name>	
2	<No. of times>	

Rules : Available to all users.

Function. . . . : The purpose of this command is to give the user the possibility of creating mode files s/he can use to run directly from the Transfer-file program. This may, of course, be done directly from SINTRAN using the MODE command there, but the Mode command in the Transfer-file program has the repeat feature.

Command name : <i>SET-DEFAULT-REMOTE-SYSTEM</i>		
No:	Parameter Name:	Default Value:
1	<System name>	
2	<User name>	
3	<Password>	

Rules : Available to all users.

Related Commands: GET-DEFAULT-REMOTE-SYSTEM

Function. . . . : The purpose of this command is to simplify the transfer of several files. This means that the user only has to write the decimal point '.' (full stop) in front of the file name, instead of having to use the whole syntax each time s/he want to transfer a file to/from a specific remote system.

Command name : TRANSFER		
No:	Parameter Name:	Default Value:
1	<To>	
2	<From>	

Rules : Available to all users.

Related Commands: TRANSFER-FILE
SET-DEFAULT-REMOTE-SYSTEM

Function. : This command enables you to transfer a file to
specified file on remote system.

EXPLANATION: The specified file will be transferred according to the
number of bytes there are in the file. The actual transfer will be
done page by page as with the TRANSFER-FILE command.

Command name : <i>TRANSFER-FILE</i>		
No:	Parameter Name:	Default Value:
1	<To>	
2	<From>	

Rules : Available to all users.

Related Commands: TRANSFER
SET-DEFAULT-REMOTE-SYSTEM

Function. : This command transfers a file to specified system.
This is the default command when starting the
program from SINTRAN.

EXPLANATION: The equivalent SINTRAN command is COPY-FILE.

A P P E N D I X D

THE FS-ADMIN PROGRAM

NOTE: This appendix contains all the commands necessary
to operate the COSMOS remote file access system.

Command name : ABORT-SERVER		
No:	Parameter Name:	Default Value:
1	<Server number>	

Rules : Available only for user SYSTEM.

Related Commands: SELECT-FSA
TERMINATE-SERVER
DISCONNECT-SERVER

Function. : This command closes open files, disconnects any open
FAC's and then stops the server immediately.

EXPLANATION: You should try to avoid using this command. Instead you
should use the command TERMINATE-SERVER, which performs a controlled
shutdown of the server and its immediate environment.

Command name : <i>CLOSE-FAC</i>		
No:	Parameter Name:	Default Value:
1	<Server number>	
2	<Connection ID>	

Rules : Available only for user SYSTEM.

Related Commands: LIST-OPEN-FACS
SELECT-FSA

Function. : This command closes and releases the specified File
Access Connection (FAC).

EXPLANATION: If the FAC has an open file, it is automatically closed.

The command is useful for cleaning up hanging situations, where a FAC is open but the program which opened it is unable to communicate with it, due to some error.

Command name : <i>DISCONNECT-SERVER</i>		
No:	Parameter Name:	Default Value:
1	<Server number>	

Rules : Available only for user SYSTEM.

Related Commands: SELECT-FSA
ABORT-SERVER
TERMINATE-SERVER

Function. : This command disconnects the connection between FSART and the specified file server. The server terminates as soon as the special disconnect message is received.

EXPLANATION: This command is the most powerful command of the three commands that stop servers and should only be used if both of the two others do not work.

Command name : <i>EXIT</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available only for user SYSTEM.

Function. . . . : Terminates the FS-ADMIN program. The command does not terminate any of the server(s) started.

EXPLANATION: The command does not terminate any of the file server processes.

Command name : <i>HELP</i>		
No:	Parameter Name:	Default Value:
1	<Command name>	<All commands>

Rules : Available only for user SYSTEM.

Function. : This command lists one, a subset or all commands depending on the specified <Command name>.

EXPLANATION: If no <Command name> is specified, all commands will be listed.

Command name : <i>LIST-OPEN-FACS</i>		
No:	Parameter Name:	Default Value:
1	<Server number>	

Rules : Available only for user SYSTEM.

Related Commands: CLOSE-FACS
SELECT-FSA

Function. : This command lists the FAC's opened by the server you have specified. <Server number> may be any integer from 1 to 4.

EXPLANATION: The command lists the name of the remote system, the name of remote terminal background process (BAKnn), the user name and the name of the file together with directory information (directory name and user name).

Command name : <i>LIST-SERVERS</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available only for user SYSTEM.

Related Commands: SELECT-FSA

Function. . . . : This command lists all servers and what state they
are in.

EXPLANATION: The three possible states are

Active
Terminating
Not accessible

Command name : <i>ND-100-MODE</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available only for user SYSTEM.

Related Commands: ND-500-MODE

Function. : Sets the File Server Administrator in the ND-100-mode.

EXPLANATION: The ND-100-MODE is the default mode when you start the FS-ADMINISTRATOR program.

Command name : <i>ND-500-MODE</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available only for user SYSTEM.

Related Commands: ND-100-MODE.

Function. : Sets the File Server Administrator in the ND-500-mode. This requires that you have the program FA-SERVER-500 on the specified system.

EXPLANATION: As of June 1984, this service is not yet available.

Command name : <i>SELECT-FSA</i>		
No:	Parameter Name:	Default Value:
1	<System name>	<local system>
2	<System password>	
3	<Project password>	<General>

Rules : Available only for user SYSTEM.

Related Commands: START-SERVER
TERMINATE-SERVER
ABORT-SERVER
DISCONNECT-SERVER
LIST-SERVER
SERVER-STATUS
LIST-OPEN-FACS
CLOSE-FAC

Function. . . . : This command sets up a communication link with the specified system's file server system.

EXPLANATION: This command must be executed before any of the other commands manipulating or listing information from a server are given.

Command name : <i>SERVER-STATUS</i>		
No:	Parameter Name:	Default Value:
1	<Server number>	<all servers>

Rules : Available only for user SYSTEM.

Related Commands: LIST-SERVERS
SELECT-FSA

Function. . . . : This command lists status information from the specified server. Default is all servers.

EXPLANATION: The information listed is:

Server number	- Integer number from 1 to 4.
State.	- Values: Active Terminating Not accessible.
Reserverd Entries	- Number of open FAC's.
Open files	- Number of opened files.
Out of	- Maximum number of opened files.
Last user command	- Last command executed by the server.

The maximum number of opened files (and FAC's) is limited to the maximum number of opened files allowed for each background process. This number is normally set to 29.

Command name : START-SERVERS		
No:	Parameter Name:	Default Value:
1	<Number of servers>	
2	<Number of FACs>	<29 (see below)>

Rules : Available only for user SYSTEM.

Related Commands: SELECT-FSA
LIST-SERVER
SERVER-STATUS
TERMINATE-SERVER
ABORT-SERVER
DISCONNECT-SERVER

Function. : This command starts the specified number of servers on the system selected.

EXPLANATION: The maximum number of opened files (and FAC's) is limited to the maximum number of opened files allowed for each background process. This number is normally set to 29.

When the server has been started successfully, you can check the status of the server with the command SERVER-STATUS.

Command name : TERMINATE-SERVER		
No:	Parameter Name:	Default Value:
1	<Server number>	

Rules : Available only for user SYSTEM.

Related Commands: ABORT-SERVER
DISCONNECT-SERVER
LIST-SERVERS
SERVER-STATUS

Function. : This command performs a controlled shutdown of the server specified.

EXPLANATION: You should normally use this command when you want to stop a server.

A P P E N D I X E

THE COSMOS SPOOLING PROGRAM

NOTE: You should note that only the most important commands of the COSMOS Spooling Program is included in this appendix.

Command name : <i>CHANGE-PASSWORD</i>		
No:	Parameter Name:	Default Value:
1	<Remote system name>	
2	<password>	

Rules : Only available for user SYSTEM.

Function. : This command informs the local system that the password of FLOPPY-USER on remote system is <password>.

EXPLANATION: This command must be used if FLOPPY-USER on remote system has a password (other than CR).

Command name : <i>DEFINE-PRINTER</i>		
No:	Parameter Name:	Default Value:
1	<Local spooling file>	
2	<Remote system name>	
3	<Remote printer name>	
4	<Extra header>	
5	<No.of local spooling files>	

Rules : Available for all users.

Related Commands: LIST-PRINTERS
DELETE-PRINTER

Function. . . . : The purpose of this command is to define a new remote printer and create one or more local spooling files for it.

EXPLANATION: As a general rule, you should not abbreviate the input parameters of this command.

The parameter <Extra header> may only be answered with yes or no.

Command name : <i>DELETE-PRINTER</i>		
No:	Parameter Name:	Default Value:
1	<Local-printer-name>	

Rules : Only available for user SYSTEM.

Related Commands: DEFINE-PRINTER
DELETE-PRINTER

Function. : The purpose of this command is to delete a remote printer in your own system tables.

EXPLANATION: The local spooling files for that printer will be deleted.

Command name : <i>EXIT</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available for all users.

Function. . . . : Terminates the COSMOS Spooling Service program.

EXPLANATION: The remote spooling service will, of course, not be affected (terminated) by this command.

Command name : <i>GET-ERROR-MESSAGE</i>		
No:	Parameter Name:	Default Value:
1	<Error value (dec.)>	

Rules : Available for all users.

Function. . . . : List the XMSG Error message corresponding to specified Error value. A positive error value indicates a fatal (XMSG crash) error, a negative value indicates a nonfatal error.

EXPLANATION: Same as the XMSG command of the same name.

Command name : <i>GET-FILE-STATISTICS</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available for all users.

Function. . . . : The purpose of this command is to list the number of
bytes and pages of the last transferred file.

EXPLANATION: This command will always list the last file transferred.
It is not possible to get information about a specific transfer.

Command name : <i>HELP</i>		
No:	Parameter Name:	Default Value:
1	<Command name>	<All commands>

Rules : Available for all users.

Related Commands: LIST-ALL-COMMANDS

Function. . . . : This command lists one, a subset or all general
commands available to the user.

EXPLANATION: This command does not list all available commands. To
list all commands, use the command LIST-ALL-COMMANDS.

Command name : <i>LIST-ALL-COMMANDS</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available for all users.

Related Commands: HELP

Function. : This command lists all commands available to the user. You should note that not all of the commands are documented in this appendix because some of them are only meant for system debugging.

The additional commands (as compared to the HELP command) which are documented in this appendix are:

LIST-NAMES
LIST-SERVER-ERRORS
and MODE

Command name : <i>LIST-NAMES</i>		
No:	Parameter Name:	Default Value:
1	<System name>	

Rules : Available for all users.

Function. . . . : This command lists all system names defined in the local system tables (default), or in specified remote system tables.

EXPLANATION: Same as the XMSG command with the same name.

Command name : <i>LIST-PRINTERS</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available for all users.

Related Commands: DEFINE-PRINTER
DELETE-PRINTER

Function. . . . : The purpose of this command is to list all the
printers defined locally.

EXPLANATION: An 'X' in the column 'Extra header' indicates that the
Extra header option is turned on.

Command name : <i>LIST-SERVER-ERRORS</i>		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Rules : Available for all users.

Related Commands: GET-ERROR-MESSAGE

Function. : The purpose of this command is to list the transfers
the COSMOS Spooling system was unable to perform.

EXPLANATION: The number of error messages is given, and you can find out the meaning of the error message by using the command GET-ERROR-MESSAGE. This will, of course, only work for the XMSG error messages.

Command name : <i>MODE</i>		
No:	Parameter Name:	Default Value:
1	<File name>	
2	<No. of times>	

Rules : Available for all users.

Function. : This command makes it possible to use the mode facility directly from the COSMOS spooling program, as in SINTRAN.

EXPLANATION: In addition to the normal mode facility, this command enables you to execute the same mode file several times. This could be useful for benchmarking.

A P P E N D I X F

EXAMPLES OF INSTALLMENT MODE FILES

NOTE: All the examples of load and start mode files in this appendix must be modified according to your special needs.

The SINTRAN HENT-MODE:MODE File:

```

@SET-UNAVAILABLE $SYSTEM COLDSTART$
@SINTRAN-SERVICE
@DEFINE-SEGMENT-FILE Y Y 1 SEGFILE:DATA
@DEFINE-TITLE $ ND-100/CX.999 - MAIN$' Y Y Y
@DEFINE-PROMPT-STRING MAIN@' Y Y Y
@CHANGE-VARIABLE MAXP 200 Y Y Y
@EXIT
@RT-LOADER
Y
EX
@INITIALIZE-BACKGROUND-PROGRAMS
@RTENTER
@ENTER-DIRECTORY PACK-TWO DISC-2-75-1,1
@SET-DEFAULT-DIRECTORY PACK-TWO
@INITIAL-COMMAND ENTER-DIRECTORY,,DISC-2-75-1,0
@NEXT-INITIAL-COMMAND SET-ERROR-DEVICE 1
@NEXT-INITIAL-COMMAND BATCH
@NEXT-INITIAL-COMMAND CONNECT-FILE SYS-OUT 105 W
@NEXT-INITIAL-COMMAND CLOSE 105
@NEXT-INITIAL-COMMAND APPEND-BATCH 1 LOAD-MODE:MODE SYS-OUT
@RT-LOADER
READ-BINARY DMAC 7
YES
END
READ-BINARY COS-TADADM 36
YES
EXIT
@MAIL
@RUN-MAIL
@EXIT
@MODE (UTILITY)XMSG-LOAD:MODE,,,
@MODE (UTILITY)COS-LOAD-COSPO:MODE,,,
@MODE (UTILITY)COS-FA-USER-LOAD:MODE,,,,
@MODE (UTILITY)COS-FSART-LOAD:MODE,,,,,
@APPEND-BATCH 1 DUMP-REE:BATC SYS-OUT-1
@APPEND-BATCH 1 LOAD-MODE:MODE SYS-OUT-1

```

The XMSG-LOAD:MODE File:

```
@CC      **  LOAD  OR RELOAD XMSG - THE XMSG-GENERATE:BAT FILE MUST HAVE
BEEN RUN **
@CC      * 1 *  LOAD XMSG-POF ONTO ITS SEGMENT, AND THEN XROUT ONTO ITS:
@SINTRAN-SERVICE-PROGRAM
@STOP-XMSG
@EXIT
@HOLD 0 0
@HOLD 3 2
@UNFIX 33
@UNFIX 35
@RT-LOADER
CLEAR-SEGMENT 33
YES
YES
SET-PAGE-TABLE 2
NEW-SEGMENT 33,2,ND,,,,,
READ-BINARY (UTILITY)XMSG-POF:BPUN,,,,
END
CLEAR-SEGMENT 34
YES
YES
SET-PAGE-TABLE 2
NEW-SEGMENT,34,2,DM,,,,
READ-BINARY (UTILITY)XMSG-XROUT:BPUN,,,
YES
END
CLEAR-SEG 35
YES
YES
SET-PAGE-TABLE 2
NEW-SEGMENT,35,2,,,,,,
READ-BINARY (UTILITY)XMSG-SEGM:BPUN,,,,,
YES
END
SET-PAGE-TABLE 2
DECLARE-PROGRAM XROUT,,,
CHANGE-RT-DESCRIPTION XROUT,100,34,33,0,,,
DECLARE-PROGRAM XTRACE,,,,
CHANGE-RT-DESCRIPTION XTRACE,100,35,33,0,,,
DECLARE-PROGRAM XFTRA,,,
CHANGE-RT-DESCRIPTION XFTRA,70,34,0,2,,,
END
WRITE-SEGMENT 33,,,,,,
WRITE-SEGMENT 34,,,,,,
WRITE-SEGMENT 35,,,,,,
EXIT
@CC      * 2 *  PATCH IN IMAGE AND RESIDENT TO FLAG XMSG LOADED ***
@LOOK-AT RESIDENT
165/-1
.
@LOOK-AT IMAGE
165/-1
.
@CC      AND NOW YOU CAN START-XMSG BY USING THE SINTRAN-SERVICE COMMAND
```

The COS-LOAD-COSPO:MODE File:

```
@cc *****
@cc * Mode file to load COSPO into a free      *
@cc * segment and start Cosmos spooling.      *
@cc *                                          *
@cc * NB!: Substitute XXX with segment number.*
@cc *****
@cc
@STOP-SPOOLING COSMOS-SPOOLING
@SET-PERIPHERAL-FILE "COSMOS-SPOOLING",1731B
@HOLD 0,0
@HOLD 12,2
@ABORT COSPO
@SCHEDULE 503B
@RT-LOADER
CHANGE-RT-DESCRIPTION COSPO,,0,,,,,,
CLEAR-SEGMENT 222
SET-PAGE-TABLE 0
NEW-SEGMENT 222,2,DM,,,,,,
READ-BINARY (UTIL)COS-COSPO:BPUN,222,,,
END
WRITE-SEGMENT 222,,,,
CHANGE-RT-DESCRIPTION COSPO,,222,,,2,,,,
EXIT
@RTON COSPO
@START-SPOOLING COSMOS-SPOOLING
```


The COS-FA-USER-LOAD:MODE File:

```
@RT-LOADER
READ-BINARY (UTILITY)COS-FA-USER-1:BPUN 22
Y
END-LOAD
READ-BINARY (UTILITY)COS-FA-USER-2:BPUN 26
Y
END-LOAD
EXIT-LOADER
@SINTRAN-SERVICE-PROGRAM
@SEGMENT-WRITE-PROTECT 22
@SEGMENT-WRITE-PROTECT 26
@EXIT
```

The COS-FSART-LOAD:MODE File

```
@RT-LOADER
DELETE-PROGRAM FSART
CLEAR-SEGMENT FSASG
NEW-SEGMENT FSASG,,DM,,,,
READ-BINARY (UTILITY)COS-FSART FSASG,,,
END-LOAD
DECLARE-PROGRAM FSART,,,
CHANGE-RT-DESCRIPTION FSART 100 FSASG 0 0,,,
END-LOAD
EXIT-LOADER
```

A P P E N D I X G

EXAMPLES OF STARTUP MODE FILES

The SINTRAN LOAD-MODE:MODE File:

```
@ENTER SYSTEM,xxxxxx,,3200,,  
  
@CC Enter the remaining directories  
  
@ENTER-DIRECTORY PACK-TWO DISC-2-75-1,1  
@SET-DEFAULT-DIRECTORY PACK-TWO  
  
@CC Start all batch processors  
  
@BATCH  
@BATCH  
  
@CC Start XMSG and COSMOS Spooling  
  
@MODE (UTILITY)XMSG-START:MODE,,,  
@MODE (UTILITY)COS-DEF-PRINT:MODE,,,,  
  
@CC Start the TAD Administrator  
  
@START-TADADM  
  
@CC Set the system available  
  
@SET-AVAILABLE  
  
@CC Start COSMOS File Servers  
  
@MODE (UTILITY)COS-START-SERVER:MODE,,,,  
  
@CC Inform users that the system is up  
  
@MAIL  
@DIRECT-BROADCAST  
  
SYSTEM IS AVAILABLE  
  
@EXIT  
  
@CC List routing to initialize all systems:  
  
@(UTIL)XMSG-COMMAND  
LIST-ROUTING,,,,,  
EXIT  
  
@CC END OF FILE
```

The XMSG-START:MODE File:

```
@CC      *** XMSG STARTUP MODE FILE FOR ND-999 ***
@SINTRAN-SERVICE
@STOP-XMSG
@EXIT
@HOLD 0 0
@HOLD 3 2
@SINTRAN-SERVICE
@START-XMSG
@EX
@HOLD 0 0
@HOLD 3 2
@(UTILITY)XMSG-COMMAND
SET-PRIVILEGED
DEFINE-LOCAL-SYSTEM,999
EXIT
@(UTI)XMSG-COMM
SET-PRIVILEGED
DEFINE-REMOTE-NAME,,MAIN,999
DEFINE-REMOTE-NAME,,FORMAT,998
DEFINE-REMOTE-NAME,,BATCH,997
DEFINE-REMOTE-NAME,,TEST,996
DEFINE-SYSTEM-ROUTE,,BATCH,FORMAT
DEFINE-SYSTEM-ROUTE,,TEST,FORMAT
START-LINK,1360,,,-1,,
EXIT
```

The COS-START-SERVER:MODE File:

```
@SET-AVAILABLE
@ABORT FSART
@RT FSART
@HOLD 1,1
@HOLD 2,2
@FS-ADMINISTRATOR
SELECT-FSA,,,,
START-SERVER 1,,,,
EXIT
```

The COS-DEFINE-SPOOL:MODE File

@(UTILITY)COS-SPOOL-SERVIC

Help,hh, Definition of DEFAULT printer:

Help,hh, (Explanation of parameters below.)

DEFINE-PRINTER,,DONALD,LINE-PRINTER,Y

Help,hh,

Help,hh, Definition of other printers:

Help,hh, Local spooling file name

Help,hh, ~ Remote system name

Help,hh, ~ ~ Remote spooling file name

Help,hh, ~ ~ ~ Extra header

Help,hh, ~ ~ ~ ~ No of local spooling files

Help,hh, ~ ~ ~ ~ ~

Help,hh, v v v v v

DEFINE-PRINTER,LINE-PRINTER,DONALD,LINE-PRINTER,Y,2

DEFINE-PRINTER,DIABLO-S,DONALD,DIABLO,N,1

DEFINE-PRINTER,PHILIPS-T,ROLL,PHILIPS,Y,1

DEFINE-PRINTER,XEROX,HILDUR,XEROX,Y,1

Help,hh, ~

Help,hh, S: Sheet feeder, T: Tractor feeder

Help,hh, NB! DIABLO-S etc. must be defined in (SYS)WP-PRINTERS!!!.

Help,hh, NB! The first parameter must match the old when redefining

Help,hh, printers:

Help,hh, Ex: DEFINE-PRINTER,PHILIPS-S,ND-1050,PHILIPS,N,2

Help,hh, NB!:Number of local spooling files will now still be 3,

Help,hh, because spooling file no 3 will not be deleted when

Help,hh, redefining printers.

Help,hh, (To be safe: "Delete-printer" before "Define-printer".)

ex

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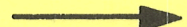
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