INSTALLATION GUIDE

Document Number TND-0219-10

The Network Director

North Ridge Software, Inc.

Special Notices

This document contains proprietary information associated with a generalized software product named **The Network Director**, which is a VTAM based terminal security and productivity product developed, maintained, and marketed by North Ridge Software, Inc.

Information contained herein that is associated with other proprietary products (as identified below) is also subject to copyright law and may not be reproduced without the express written permission of the appropriate company.

All rights are reserved. No portion of this document may be reproduced, copied, distributed, transmitted, transcribed, or translated into any human or computer language, or otherwise disclosed to third parties without the express written permission of:

<div align="center">

North Ridge Software, Inc.
12515 Willows Road N.E.
Suite 205
Kirkland, Washington 98034-8795
U.S.A.

(c) Copyright 1997

</div>

North Ridge Software, Inc. can be contacted via any of the following mechanisms:

Telephone	425/814-9000
FAX	425/823-9636
InterNet	support@nrsinc.com
Homepage	http://www.nrsinc.com

North Ridge Software, Inc. makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of fitness for any particular purpose.

Acknowledgements

References within this manual to the following products should be recognized as references to proprietary products and trademarks of the following firms:

Computer Associates	TOP SECRET, ACF2, UCC7, ROSCOE, EMAIL, IDMS/DC, TPX
IBM	ACF/VTAM, ACF/TCAM, NMPF, NPDA, VM/GCS, OS/VS1, NETVIEW, NLDM, NPA, CMS, MVS, DOS/VSE, CICS/VS, TSO, IMS, RACF, NPDA, and NCCF
Software AG	Com-plete
Sterling Software	VM/SECURE

Table of Contents

List of Illustrations

Introduction

The Network Director's *Installation Guide* is intended to be utilized by the individual responsible for the installation and operating system related aspects of **The Network Director**.

This manual describes the procedures associated with the installation and initial execution of The Network Director in any supported operating system environment. It is intended to be used by the individual or individuals that will actually be responsible for the installation of the software subsystem.

The manual is divided into four segments. This Introduction should be reviewed by all installations for a general overview of the installation procedure.

To complete the installation, refer to the appropriate section of the manual for your installation and operational environment, as follows:

Environment	*Reference*
MVS/SP, MVS/XA, MVS/ESA, VS1	"OS" on page 11
DOS/VSE, VSE/SP, VSE/ESA	"DOS" on page 37
VM/SP, VM/HPO, VM/XA, VM/ESA	"VM" on page 53

The Network Administrator

The Network Administrator is the individual at your site that has been designated to monitor and maintain the logical image of the network utilizing standard Network Director facilities. This installation will result in an executing Network Director, but it may not have all the network characteristics that your site requires. Thus, it is reasonable to expect that the network definition used during this installation will have to be modified and extended to meet your site's needs (see the *Network Administrator's Guide*).

This manual will assume that the individual accomplishing installation is also the Network Administrator. However, it is entirely possible for you to install and verify The Network Director before the Network Administrator begins the detailed definition and configuration for your network.

The Manual Set

This manual is one of a set related to The Network Director. The set consists of:

Number	Manual Title
TND-0201	General Information Manual
TND-0202	Network User's Guide
TND-0203	Network Administrator's Guide
TND-0204	Quick Reference Guide
TND-0205	Internals
TND-0206	Messages and Codes
TND-0210	Network Operator's Guide
TND-0219	Installation Guide
TND-0220	Single System Image
TND-0226	SecureNet Key Interface Reference
TND-0420	Version 4.2 Release Guide

Figure 1.   The Manual Set

Each Network Director installation is provided with a complete set of base documentation for The Network Director. The base set consists of the *General Information Manual, Network User's Guide, Network Administrator's Guide, Quick Reference Guide, Internals, Messages and Codes, the Network Operator's Guide, Single System Image,* and the *Installation Guide*. Additional documentation is available, as requested.

Notation

The following notation is used within this manual to reference operand or statement choices within The Network Director's Configuration Parameters or Assembler macros. Where Assembler Language statements are utilized, you must follow Assembler syntax, as documented in the appropriate Assembler Language and/or Assembler Programmer's Guide.

1. *Operands* (left side of the equal sign "=") must be sufficiently specified to uniquely identify it within the statement. Underscored portions are the minimum number of letters required for The Network Director to consider the operand for a match.

2. *Values* (right side of the equal sign "=") may not require the entire coded value. Underscored values are the default.

3. *Brackets* "[ ]" indicate an optional operand.

4. *Braces* "{ }" indicate a list of items to select from.

5. The symbol "|" is a *separator* in a list of choices and should be interpreted as "or".

6. The string "..." indicates that the preceding value can be repeated.

7. *Parenthesis* "( )" represent a value list and should be coded as portrayed.

8. *Time specification* is in the form HH:MM, where HH is from 00 to 24 and MM is from 00 to 60. Range specification between time specifications is valid (E.G. 08:15-11:30).

9. A *range specification* is represented by a dash "-" and implies *through*.

10. *Day specification* is MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, or SUNDAY. A range specification is valid (E.G. MONDAY-THURSDAY).

11. *UPPER CASE* items should be coded as portrayed. *lower case* items represent that variable data should be provided.

12. *alpha value* indicates that any alphanumeric string is acceptable.

13. *numeric value* must be made up of digits from 0 to 9 and can include the accepted abbreviations (M = minutes, S = seconds, H = hours, D = days, K = 1024 increments).

14. *alpha pattern* indicates that the alphanumeric string specified *may* include wild characters (the "+" symbol).

You may code the Stage One operands that may have embedded special characters with or without single quotes. Stage One generation will detect these quotes and react accordingly. Naturally, you must code these operands so that they will successfully be assembled by the Assembler.

Installation Overview

To accomplish the basic installation (excluding subsystem options) of The Network Director within all operating systems, the following basic steps should be followed

---

1. Check with NRS Technical Support for the contents of the *bucket* associated with your release tape

2. Unload the distribution tape

3. Perform Stage One (TNDGEN or TNDINST)

4. Perform Stage Two (dependent upon operating system)

5. Define The Network Director to ACF/VTAM via an APPL definition

6. Start The Network Director

Figure 2.   Basic Installation Steps

The Bucket

Each release tape for The Network Director is uniquely identified by a release number. NRS technical support maintains a list of problems or suggestions (individually identified as APARs or PTFs) associated with each release that may be of interest to you. This list of items is called the **bucket**, which NRS recommends you request prior to beginning installation.

The bucket itself is available as hardcopy, but is also available in other forms (FAX, diskette, telex, 3420, 3480, Email via the InterNet, etc.). It may contain PTFs that should be applied or the bucket may simply be empty. All items of significance associated with the release will be listed in the bucket. An empty bucket represents a release that has no reported difficulties of any significance.

Contact Technical Support at 425/814-9000 or you can review the current buckets on the NRS Web Site at http://www.nrsinc.com/nrs3200.html.

Distribution Tape Format

The Network Director is distributed as a single physical tape (3420, 3480, or 9346) with appropriate distribution files for each environment (OS, DOS, or CMS) at various relative locations on the tape. The physical tape volume will be externally labeled with the product name, its version number, volume serial number, and tape density (if applicable).

The Network Director's Version number is made up of three digits normally separated by periods ("."). The first digit is the major version level. The second is release number. The third digit is the maintenance level for the product. The Version number will be produced by The Network Director on the standard output LOG, in response to an operator request, and as a portion of the default LOGO.

The distribution tape's volume serial number is TNDxxx, where the xxx is equivalent to the Version number of the product on the tape. E.G. TND410 is Version 4, Release 1, Maintenance Level 0. When comparing two version numbers, the most recent release will have the highest numeric value.

The distribution tape is formatted to be used for all three operating environments (OS, VM, and DOS). It is in the general form of a standard labeled tape (all files on the tape are actually identified by standard labels, even if the applicable operating system does not process the label).

The generalized tape format is:[1]

File	Used by	Contents	Format	Space Requirements
1	OS	NRS.DIRECTOR.DATA	PO	5 Cylinders 3380
2	OS	NRS.DIRECTOR.LOAD	PO	3 Cylinders 3380
3	OS	NRS.DIRECTOR.ASM	PO	13 Cylinders 3380
4		null file		
5		null file		
6	All	External File	VSAM	10 Cylinders 3380
7	VM	Distribution files	VMFPLC2	7,000 1K blocks
8	VM	Source files	VMFPLC2	25,000 1K blocks
9		null file		
10		null file		
11	DOS	NRS.DIRECTOR.LIB	LIBR	4,000 blocks

Figure 3. Distribution Tape Format

---

[1] Even though The Network Director's distribution tape has a generalized format, not all distribution files will be on all tapes (source files will only be present if you are licensed for them, etc.). Without regard for actual content, the distribution tape will always contain the proper number of tape marks to allow the file's contents to remain consistent with Figure 3.

Stage One

Initial installation and customization is a generalized process known as *Stage One.* This process causes the necessary jobs, procedures, or libraries to complete installation to be generated or allocated. The precise mechanism used to perform Stage One is operating system dependent and described in the individual sections associated with the operating system.

Stage Two

Depending upon the values selected during Stage One preparation for OS or DOS installations, one or more of the following job streams **may** have been produced by Stage One. They are listed here simply for reference and to improve understanding of the various Stage One parameters.

Each job will be identified by its jobname, which is made up of the Stage One PREFIX= value (represented as **xxx** in the following descriptions) and a Stage One assigned suffix.

xxxLOAD Unloads the rest of the distribution files.

This job will be generated for OS or DOS installations and will produce the necessary JCL to copy the OS LOAD modules (DOS RELO phases) and the VSAM file from the tape.

It will also produce the record images necessary to start The Network Director in the targeted environment (OS JCL, DOS Job Control, or a GCS EXEC) into the member or file named DIRECTOR. Additionally, the initial Configuration Parameters will be placed into the member or file named TNDDECK.

xxxCICS Generate CICS Single System Image.

This job stream will invoke the operating system's Assembler and Linkage editor to produce a link edited module (TNDGMM) for later inclusion in CICS. This is selected by specifying CICS=YES during Stage One. Follow the instructions on the Stage One Listing for completing the CICS installation.

xxxCOM Generate COM-PLETE Single System Image (OS Only).

This job stream will invoke the operating system's Assembler and Linkage editor to produce a link edited module for later inclusion during COM-PLETE initialization. This is selected by specifying COMPLTE=YES during Stage One. Follow the instructions on the Stage One Listing for completing the COM-PLETE installation.

xxxTSO Generate TSO Single System Image (OS Only).

This job stream will invoke the operating system's Assembler and Linkage editor to produce a link edited module (TNDEFLD) for later inclusion during MVS IPL. This module is only required for TSO/E installations.

xxxIDMS Generate IDMS Single System Image (OS Only).

This job stream will invoke the operating system's Assembler and Linkage editor to produce a link edited module (TNDIDMS) for use within IDMS/DC.

xxxIMS Generate IMS Single System Image (OS Only).

This job stream will invoke the operating system's Assembler and Linkage editor to produce a link edited module (TNDCTTO0) suitable for use within IMS/DC.

Define The Network Director to ACF/VTAM

The Network Director executes as a normal VTAM subsystem and will require a definition within a VTAM Application Program Major Node. This is accomplished by placing the VTAM APPL definition statement in the appropriate VTAM library member, file, or source book.

The system generation process will have prepared a sample APPL statement on its Stage One Listing based upon the installation parameters. You should insure that it matches the criteria that you wish and then insert this definition into an appropriate location within VTAMLST.

The basic format for The Network Director related APPL definition statement is:

```
applname     APPL  AUTH=(PASS,NVPACE{,ACQ}{,SPO})
                   ,PRTCT=password
```

Figure 4.   Network Director APPL Definition

While "ACQ" and "SPO" are not required, they are recommended by North Ridge Software, Inc. to insure proper operation and availability of Network Director functionality.

For additional information and a more detailed description of the individual items on the APPL definitions, consult the appropriate ACF/VTAM publication and The Network Director's *Network Administrator's Guide* (TND-0203) in the section titled "VTAM Definition Activities".

Event Recording

The Network Director will optionally record information about activities that are occurring within the network in an external medium. To activate this accounting or *event recording*, you will need to make three basic decisions. They are:

1. Which items would you like to record (specified via the GLOBALS EVENTS operand)

2. In what format and on what media would you like the information recorded (specified via the GLOBALS ACCOUNTING operand)

3. If you are an OS based system and have elected to utilize SMF recording, what SMF record number would you like to use (specified via the GLOBALS SMF operand)

The Network Director produces event records in two basic forms (termed the **SMR** or **SAR** formats). The SMR format may only be utilized for SMF type recording in OS based systems (the SMR is a variable length record). The SAR format is a fixed 80 character record that may be utilized in any of The Network Director's supported operating environments.

For this reason, NRS recommends SAR type recording because it is the only format that is common across all operating systems, but SMR recording takes a fuller advantage

of SMF variable length characteristics. The SMR and SAR records have *sub-types* as defined in the *Network Administrator's Guide.*

OS

The following information should be referenced to install The Network Director into VS1, MVS/SP, MVS/XA, or MVS/ESA environments.

Installation

To accomplish the basic installation (excluding subsystem options) of The Network Director, the following basic steps should be followed:

Step	Task	Completed
1	Check with NRS Technical Support for the contents of the *bucket* associated with your release tape (See "The Bucket" on page 4 for more information)	
2	Unload the DATA library	
3	Code the system Stage One (TNDGEN)	
4	Assemble the Stage One generation deck	
5	Execute the jobs that resulted from system generation	
6	Start The Network Director	

Figure 5.   OS Installation Steps

Distribution Tape Format

The distribution tape has a general format as described in Figure 3 on page 5. The OS specific files have the following characteristics.

File	Dataset Name	RECFM	LRECL	BLKSIZE
1	NRS.DIRECTOR.DATA	FB	80	3120
2	NRS.DIRECTOR.LOAD	U	0	6447
3	NRS.DIRECTOR.ASM	FB	80	3120

Figure 6.   OS Distribution File Format

Unloading the Distribution Tape

To unload the distribution tape, you should prepare a single step job for execution in your operating system to copy the first dataset from the distribution tape to disk. This manual makes the assumption that you have some type of a source editor available to you (TSO, ROSCOE, etc.) for the purpose of preparing job streams.

You should provide values in the following examples where you see lower case letters and review the values that are underscored.

```
//jobname  JOB (accounting),name,CLASS=class
//*
//*   UNLOAD THE FIRST FILE FROM THE DISTRIBUTION TAPE
//*
//UNLOAD    EXEC PGM=IEBCOPY
//SYSPRINT  DD  SYSOUT=A
//SYSUT1    DD  DSN=NRS.DIRECTOR.DATA,
//              UNIT=TAPE,DISP=OLD,
//              VOL=SER=TNDxxx
//SYSUT2    DD  DSN=NRS.DIRECTOR.DATA,
//              UNIT=SYSDA,
//              VOL=SER=volser,
//              DISP=(,CATLG),
//              SPACE=(CYL,(5,,10)),
//              DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120)
//SYSUT3    DD  UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4    DD  UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN     DD  DUMMY
```

Figure 7.   OS Unload JCL

Stage One

The Network Director installation is a standard two stage generation process. Once the first dataset from the installation tape is unloaded, you are ready to prepare Stage One. Stage One consists of preparing the proper values for The Network Director's generation mechanism.

The generation mechanism consists of a single Assembler Macro (TNDGEN) and its assembly. Simply review the operands in the member TNDSTG1[2] for the system generation macro and modify any values that do not satisfy your installation's requirements.

When you actually "assemble" the TNDGEN macro, it will produce (on SYSPUNCH) multiple jobs (OS JCL), which are referred to as Stage Two jobs. The eventual execution of these Stage Two jobs will complete the installation of The Network Director.

Stage One will also produce a checklist and installation notes on the output printer (SYSPRINT). These notes will reproduce the parameters used to generate The Network Director as well as produce comments about proceeding with the installation. You should review this Stage One Listing prior to proceeding with Stage Two. The Stage One listing produced by the ASSEMBLER is in **lower and UPPER case** characters. Thus, to properly view the result, you should insure that the output will be printed on a printer that is prepared to accept both upper and lower case.

A sample Stage 1 job was unloaded when dataset 1 was copied from the distribution tape. You may use member TNDSTG1 as an example of the Stage 1 job. It contains a standard generation that matches the defaults discussed in this section of the manual.[3]

Review the individual Stage One operand value of the TNDGEN macro and set them as desired by your installation.

---

[2]   Do **not modify** the TNDGEN member.

[3]   The Stage One - Stage Two process is provided as an aid to simplifying The Network Director's installation, but The Network Director is self contained and there are no decisions that you make now that cannot be reversed after installation. To reverse a decision, you will simply modify The Network Director's Configuration Parameters and possibly run one of the Stage Two jobs.

```
TNDGEN
  [ OPSYS={VS1|MVS|DOSVSE|VM} ]
  [ ACCTING={DIRECTOR|accounting information}  ]
  [ ASMBLER={IFOX00|ASSEMBLY|assembler name}  ]
  [ CICS={YES|NO} ]
  [ CLASS={A|jobclass} ]
  [ COMPLTE={YES|NO} ]
  [ CMS={YES|NO} ]
  [ FILESZ={5|number of cylinders} ]
    FILEVOL=volume-serial
  [ IDMSDC={YES|NO} ]
  [ IMSDC={YES|NO} ]
  [ INFO={YES|NO} ]
  [ JOBNAME={TND|jobname} ]
  [ LABEL={,EXPDT=98000|label parameter} ]
    LIBVOL=volume-serial
  [ LU=luname ]
  [ MESSAGE={YES|NO} ]
  [ MODEL204={YES|NO} ]
  [ MSGCLAS={A|msgclass} ]
  [ NAME=Your Site Name|alpha value} ]
  [ PGMR={DIRECTOR|programmer-name} ]
  [ PREFIX={TND|high-level-qualifier} ]
  [ REGION=nK ]
  [ ROSCOE={YES|NO} ]
  [ SECURE={NONE|ACF2|RACF|TOPSECRET} ]
  [ SOURCE={YES|NO} ]
  [ STRTJCL=library-name ]
  [ SYSDA={SYSDA|generic disk name} ]
  [ SYSOUT={*|standard sysout class} ]
  [ TAPE={TAPE|generic tape name} ]
  [ TSO={YES|NO} ]
  [ UNIT={3380|file disk type} ]
  [ UPGRADE={YES|NO} ]
  [ VTAMAPL={DIRECTOR|appl-name} ]
  [ VTAMOPR={YES|NO} ]
  [ VTAMPAS=password ]
```

Figure 8.   OS TNDGEN Macro Overview

where each operand has the following uses:

OPSYS   specifies the operating system environment that The Network Director is to operate in.

ACCTING identifies the job accounting information which is to appear on the JOB card of each job generated by this Stage One.

ASMBLER identifies the name of the assembler to be used during Stage Two of the system generation if any assemblies are required. IFOX00 is the default.

CICS controls whether this Stage One should generate the necessary job to prepare The Network Director's CICS Single System Image module for later inclusion into CICS. YES implies that the job should be generated. NO indicates that Stage One should not generate the job. ESA indicates that the CICS system is at the 3.3 or higher level.

CLASS is the job class that all Stage Two jobs will be executed in. This value assigns a value to the CLASS= parameter on the JOB card.

COMPLTE specifies whether this Stage One should generate the necessary job to prepare the COM-PLETE environment for The Network Director's Single System Image facility. YES requests the facility and NO indicates that this installation will not support COM-PLETE SSI.

FILESZ represents the number of cylinders that will be allocated via Access Method Services for the External VSAM File.

FILEVOL is the volume serial number of the DASD volume that the External File should be placed on.

INFO specifies whether The Network Director's Information facility will be utilized.

JOBNAME is the three byte prefix that will be used on all the Stage Two job's jobname parameter. If *jobname* is used instead of *TND*, only the first three characters will be used. The last five characters of each job name will be assigned by the Stage One generation process.

IDMSDC indicates whether this Stage One should generate the necessary job to linkedit the IDMS/DC SSI module TNDIDMS and the sample Configuration Parameter definitions for IDMS.

IMSDC indicates whether this Stage One should generate the sample Configuration Parameter definitions for IMS.

LABEL establishes an additional parameter to be generated into the DD statement's LABEL parameter. This is typically utilized to generate the proper option to bypass certain tape processing associated with TMS/UCC1 installations.

LIBVOL is the volume serial number of the DASD volume that The Network Director's libraries should be placed on.

LU is a ACF/VTAM device that can be utilized for initial testing of The Network Director. This optional parameter causes the generation of an appropriate definition statement to have The Network Director dynamically acquire the device at initialization.

Additional terminals can be inserted into the Configuration Parameters after the Stage one process by using a text editor on the Parameters produced by the Stage One and using the produced TERMINAL statement as an example.

MESSAGE specifies whether The Network Director's Message Facility will be used (YES) or will not be used (NO). This does not effect the ability for authorized Network Administrator's to issue the BROADCAST command.

MSGCLAS is used to route messages issued by the OS Job Scheduler to the specified output class.

NAME　is the short title (up to 24 characters) that will be utilized as the installation name for non-LOGO based screens (Network Administration, INFO, etc.).

PGMR　specifies the programmer name to be associated with all the Stage Two jobs.

PREFIX　specifies the high level index name that should be used to refer to all of The Network Director's OS data sets. The suffixes for the rest of the file names are assigned by Stage One.

REGION　is the amount of storage that should be available to the Stage Two jobs for execution in the partition or address space. If this operand is omitted, the default value established for the system will be in effect.

ROSCOE　indicates whether this Stage One should generate the necessary Configuration definitions necessary to support the SSI concepts for ADR's ROSCOE programming environment.

SECURE　indicates which security system (if any) that you have installed on your system. Specify this only if you would like The Network Director to operate in conjunction with the security package (for userid/password validation, etc.).

SOURCE　specifies whether Stage One should generate a Stage Two job to unload The Network Director's source library. Note that this installation file (dataset 4) will only be present if your installation has a source license for The Network Director.

STRTJCL　specifies the name of the library that should receive The Network Director's initialization JCL and Configuration definitions. Typically, OS systems will use libraries like SYS2.PROCLIB. If this parameter is omitted for OS, Stage One will use the library named, PREFIX= value suffixed with the string ".DIRECTOR.DATA".

SYSDA　identifies your installation's chosen generic name for general work space.

SYSOUT　identifies the general sysout class that you would like used for all standard printer output.

TAPE　identifies your installation's chosen generic name for a tape drive on which to mount the installation tape.

TSO　specifies whether your installation will be supporting TSO as a target subsystem.

UNIT　identifies the specific volume type that the distribution libraries and External File will be stored on.

UPGRADE　specifies whether this Stage One is simply installing a release upgrade at an existing Network Director site. Some Stage Two jobs will not be produced and additional information relative to maintenance will be placed on the Stage One Listing.

VSAMPAS　is the 1 to 8 byte password that you would like associated with the External File for security purposes. If this operand is omitted, The Network Director will assume that there is no password associated with the External File.

VTAMAPL　is the 1 to 8 byte character string that will identify The Network Director to VTAM as an application. This will become the VTAM APPL and The Network Director's VTAM ACB APPLID.

VTAMOPR specifies whether The Network Director is to provide facilities to the Network Administrator that are associated with the VTAM Program Operator facility.

VTAMPAS is the 1 to 8 byte password that must be used by VTAM and The Network Director to allow access to the VTAM APPL defined by the VTAMAPL operand. If this operand is omitted, The Network Director will assume that there is no password associated with VTAMAPL.

After reviewing the Stage One options, submit the job for execution. This will produce the Stage Two jobs and the Stage One Listing.

The Stage One Listing will contain several comments about how the Stage One proceeded. Any errors will be listed along with a suggested resolution for the problem.

Additionally, the Stage One Listing will contain instructions about various other processes that should be accomplished. For example, Stage One will print a suggested VTAM APPL definition statement that should be added to the appropriate VTAM definition member prior to attempting initialization of The Network Director. The Stage One Listing should be thoroughly reviewed prior to beginning Stage Two.[4]

Stage Two

The Stage One Listing will have a summarization of the Stage Two jobs that it produced. After the xxxLOAD job has executed successfully, the remaining jobs can be run in any order. You should use your system editor to edit the Stage Two job stream (member or book TNDSTG2) and review the results of Stage One for suitability in your environment. See "Stage Two" on page 7 for additional information about the Stage Two jobs.

Once you are satisfied with the result of Stage One, simply submit the Stage Two jobs to the operating system for execution. They should all run to normal completion. If they do not, identify which job has failed and try to identify the reason for failure.

The External File

The Network Director utilizes the standard VSAM access method to manage all disk queueing and disk file input and output. The External File is a standard variable length KSDS cluster with a single 34 character key beginning in position one of each record. It is the Network Administrator's responsibility to insure that the External File is backed up on a regular cycle. The Network Director provides no recovery facilities associated with VSAM and the External File.

---

[4] The Network Director's Stage One (as well as the majority of its functional modules) will generate both upper and lower case output. It is important that you have your system printer, etc set up to handle the resulting output. If you do not have it properly setup, you may not be capable of viewing the output information.

Starting The Network Director

Once the Stage Two jobs have completed, you can initialize The Network Director by submitting the member named DIRECTOR from the library specified in the STRTJCL= operand specified in Stage One (default is the PREFIX= value suffixed with "DIRECTOR.DATA") or issuing an appropriate OS Start command.[5]

The Network Director should now initialize as any other job in a partition or address space. You should now be able to logically connect an eligible VTAM terminal to The Network Director. (E.G. "LOGON APPLID(DIRECTOR)"). If you accepted all defaults for Stage One and have not yet modified the Configuration Parameters, The Network Director should reply with an Identification screen that will look similar to:

```
                              Your Company LOGO here
            \\\\\\\\\     \\\\\\\\\
            \NNNNNNNN     \NNNNNNNN
            \NNNNNNNNN    \NNNN\\\\\\\\\\\\\\\\\\\
            \NNNNNNNNNN  \NNNN\RRRRRRRRRRRRRRRRRRR
            \NNNNNNNNNNN\NNNN\RRRRRRRRRRRRRRRRRRRR\\\\\\\\\\\\\\\
            \NNNNNNNNNNNNNNNNN\RRRRRRR    \RRRRR\SSSSSSSSSSSSSSSS
            \NNNNNNNN\NNNNNNN\RRRRRRR\\\\\RRRR\SSSSSSSSSSSSSSSSS
            \NNNNNNNN \NNNNNN\RRRRRRRRRRRRRRRR\SSSSSSSS       \SSS
            \NNNNNNNN   \NNNNN\RRRRRRRR\RRRRRR\SSSSSSSS\\\\\\\\
            \NNNNNNNN     \NNNN\RRRRRRRR  \RRRRRR\SSSSSSSSSSSSSSSS
                         \RRRRRRRR   \RRRRR\\       \SSSSSSSS
                         \RRRRRRRR    \RRR\SSS\\\\\\\SSSSSSSS
                                           \SSSSSSSSSSSSSSSSS
                                           \SSSSSSSSSSSSSSS

                     Network Director Version 4.2.2

                   Please enter your User Id and Password


       Id: █_____  Password:                      Time: 08:03:30
       Lu: T01001    New Password:                   Date: 12/03/97
```

Figure 9.   Initial Identification Screen

Simply enter the test userid of **TECH** and any password. The Network Director should then present an Application Selection Panel that looks similar to the following figure:
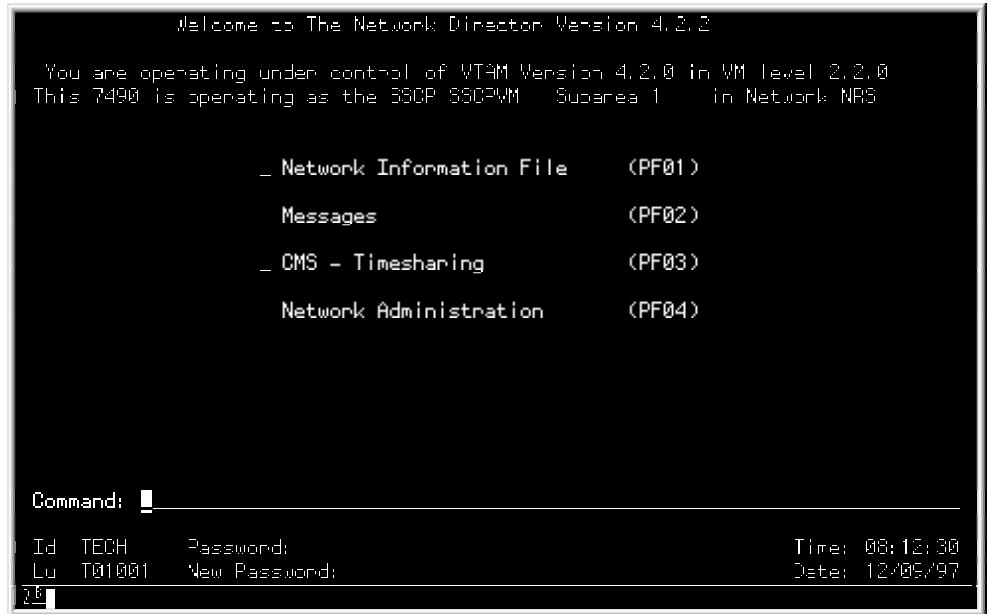
Figure 10.   Initial Application Selection Panel

Naturally, the terminal id, date, and time will be filled in with the values currently in effect. You should notice that this screen may not have all the selections you would like at your installation (the screen has been set up to get you started and is based upon which operands you set to YES during the Stage One process). The Network Administrator should now begin to define the Configuration Parameters specific to your installation.

If you specified additional subsystems during Stage One, each of these will also be assigned a selection entry on the Application Selection Panel and will have sample APPLICATION statements generated for them.

Validating the Installation

The basic Network Director facilities can be validated prior to the Network Administrator completing the initial implementation planning. To validate the basic facilities, simply select the options available on the Application Selection Panel. The Network Director's *Network User's Guide* will provide information about the use of the Messages and Network Information entries.

The Network Administration entry can be validated by reference to the *Network Operator's Guide*. Simple usage of a few of the facilities should provide basic validation that the installation has proceeded successfully.

It is now time for the Network Administrator to become active in the logical definition and tailoring of the network.

Maintenance Releases

Network Director maintenance is made available periodically as full replacement files. The Network Director's release upgrade tapes are actually the same tape as the distribution tape you have used to install The Network Director from.

To install maintenance you simply reinstall datasets 1, 2, and optionally dataset 3. Specifying UPGRADE=YES causes the Stage One process to provide you with additional information on the Stage One Listing relative to the release upgrade as well as the appropriate Stage Two jobs.

Because maintenance is distributed as full replacement libraries, you should never place a member you would like to keep in The Network Director's OS libraries (or you should preserve members you would like to keep).

System Security Package Issues

The Network Director is a network security offering that enforces the guidelines provided to it via the Configuration Parameters. It is also possible (and usually common), to utilize The Network Director to enforce the guidelines and implied security checking of one of the standard system security offerings that are available to OS installations (RACF from IBM, and ACF2 or TOP-SECRET from Computer Associates).

Utilize the instructions present in this section of the manual to activate the interface to the system you have installed.[6]

When a security system is active, The Network Director will invoke it to check the User Id and Password combination when the following general items are true:

- The GLOBALS SECURITY= operand has been set

- The individual attempting to signon to the network is using a USER, GROUP, or DEFAULT PASSWORD= operand set equal to the constant "YES"

Normally, the PASSWORD= value is set on the DEFAULT statement. You can set the PASSWORD operand onto the USER or GROUP statement also. The PASSWORD value must be YES or The Network Director will **not** call the security package for validation. In this manner, you can control which network users are susceptible to security package validation. Normally, all network users would be susceptible to this security checking (specifying DEFAULT PASSWORD=YES is typical).

---

[6] A security package is **not** required by The Network Director, but The Network Director will take advantage of it if it is installed.

ACF2/MVS

When The Network Director will be interfacing to ACF2, specify GLOBALS SECURITY=ACF2. The Network Director must also be defined to ACF2 as a MUSASS. It will be invoking ACF2 via the ACF2 SVC for user signon (System Entry Validation), user signoff, and potentially resource rule validation or Information Storage access.

The Network Director invokes ACF2 via the defined ACVALD call for user id validation and ACTRM for logoff processing. The individual ACMCB identifying the user to ACF2 is anchored for each Network Director user in the ANE control block associated with the user.

Installation consists of:

---

1. defining The Network Director's logonid with appropriate ACF2 attributes (MUSASS required, RESTRICT and STC as appropriate).

2. Rules should be written to allow access to the External File and the library containing the Parameter Deck for authorized logonids (at least, The Network Director's logonid as defined in step 1).

3. Create SAFELIST entries as appropriate for the subsystem code (TNDIDMS (IDMS/DC), TNDGMM (CICS/VS), etc.).

4. Insert the ACF2 LOGONID statement in the appropriate job control and start The Network Director.

Figure 11.   ACF2 Installation Steps

You should also consider inserting an @MUSASS definition in the ACF2 FDR as discussed in the ACF2 System Programmer's Guide to reduce the amount of storage consumed by ACF2 in The Network Director's address space or partition. This can be achieved by instructing ACF2 to utilize a smaller mini-LID for logonids signing onto The Network Director.

As your usage of The Network Director expands, you may want to consider utilization of options associated with dynamically acquiring the Network Director GROUP specification from ACF2. Investigate the special case *GROUP=ACF2* and Network Director Exit 19 if this is of interest to you.

During initialization, The Network Director will dynamically locate the ACF2 ACCVT and the ACF2 control blocks associated with The Network Director (MLID name, ACF2 FDR, etc.). The Network Director will also locate the offsets in the LIDREC that will be used by The Network Director and ACF2 for the *name, phone,* and *account*. These fields are not required by The Network Director, but NRS recommends that you retain the name and phone number (if defining a mini-LID for The Network Director) to improve the information displayed in the LOG as the system is operating.

If you plan to use ACF2/MVS inheritance logic within Single System Image, you will be required to make The Network Director's load module APF authorized (ACF2/MVS checks that the inheritance calling system is authorized in this manner to prohibit any unapproved usage of inheritance logic).

Additional information about the processing options associated with The Network Director in an ACF2 environment are discussed in the *Network Administrator's Guide*.

RACF

When The Network Director will be interfacing to RACF to accomplish User id/Password validation, specify GLOBALS SECURITY=RACF in the Configuration Parameters. The Network Director will then invoke the RACF defined SVCs via the System Authorization Facility (SAF) at the appropriate times to validate the user id and password combination being presented from the terminal user.

In order for The Network Director to make use of the RACF provided SVCs, The Network Director should be executed as a APF authorized program by placing the DIRECTOR load module into an APF authorized library or by making The Network Director's load library APF authorized. The Network Director will then make use of the RACROUTE Macro interface to the RACF SVC to get RACF to create the ACEE in The Network Director's address space or partition.

The Network Director dynamically determines if it is being executed authorized or not (via TESTAUTH). If it is authorized, The Network Director will set itself to key zero (using MODESET) prior to issuing the RACROUTE request. The Network Director will set itself back to normal key upon completion of the SVC. This is necessary in order for The Network Director to use the NEWPASS operand of the RACINIT SVC, which is how The Network Director informs RACF that a terminal operator has entered a new password.

If The Network Director is not authorized, you will have to identify The Network Director to RACF as an authorized caller. However, when The Network Director is not authorized, your terminal operators will **not** be capable of setting a new password in the Password: field of the Id area (a requirement of RACF for the RACINIT NEWPASS operand).

You may wish to investigate the GROUP=RACF option of the USER statement to facilitate the usage of the RACF connect group as The Network Director GROUP name. Consult the Network Administrator's Guide for additional information.

TNDRIX02 - RACINIT Post Processing Exit

During normal TSO logon processing, RACF will periodically issue a message ICH70002 indicating that the password used by the user logging on is about to expire (RACF WARN-DAYS). This is issued by the RACF SVC utilizing a WTO, which is intercepted by TSO and sent to the terminal user. When using The Network Director to sign on to the system and set new passwords, this message is not displayed to the terminal operator.

If your installation would like to have The Network Director issue a message equivalent to the RACF warning, you will have to install a RACF RACINIT Post-processing exit called ICHRIX02. The distribution library will contain a member named TNDRIX02, which is the source code for the RACF exit. Installation of this exit should follow RACF and SMP standards in use at your installation.

Functionally, TNDRIX02 detects that the caller is The Network Director and collects the information necessary for The Network Director to inform the terminal operator when the password will expire. Communication between The Network Director and TNDRIX02 occurs utilizing the INSTLN parameter list. The Network Director will then evaluate whether a warning message is necessary (by locating the RCVT and looking at WARN-DAYS) and will issue message 602 to the terminal operator.

PassTicket Support

RACF Version 2.1 and higher or RACF Version 1.9.2 with the *Secured Signon SPE Information Package* applied can make use of "PassTickets" between RACF hosts instead of passwords. If you are operating a release of RACF prior to 2.1, you will need OY65281 or VM56690 applied, as documented in SC23-3765 and other accompanying materials.

If properly configured, The Network Director will invoke the Secured Signon Callable Service to generate a PassTicket when you code The Network Director's &TICKET variable in an appropriate INITIAL-DATA string.

Background: As a further explanation, when The Network Director sends a device to a subsystem, it provides an area called the CINIT User Data Area. This area is formatted to provide the information to the subsystem that is required to accomplish SSI functions. As an example, to automate the signon to a TSO system, the following Configuration Parameters apply:

```
APPLICATION TSO,TARGET=TSO,TITLE='Time Sharing Option',
        INITIAL-FUNCTION=LOGON,
        INITIAL-DATA=(&NAME,'/',&PASSWORD)
```

This causes The Network Director to format a string that contains the userid and password when the device user selects TSO. This information flows across a network, when the TSO that is selected is not in the same domain as The Network Director.

The Concept: Secured Single Signon implements a mechanism that allows The Network Director to pass something other than a password to TSO and still allow automated signon to occur. This "item" is called a **PassTicket**.

To make use of the PassTicket mechanism, you should code the following Configuration Parameters for TSO:

```
APPLICATION TSO,TARGET=TSO,TITLE='Time Sharing Option',
        INITIAL-FUNCTION=LOGON,
        INITIAL-DATA=(&NAME,'/',&TICKET)
```

When the user selects TSO, The Network Director's SSI formatting routines see that you have specified the PassTicket &TICKET variable. The routines will then invoke an IBM provided routine in your system to derive an appropriate PassTicket for this user to use the selected APPLICATION. This PassTicket is provided back to The Network Director, who will insert it into the data sent to the subsystem.

System Configuration Issues: To actually utilize the PassTicket mechanism, you should reference the appropriate RACF publications to generate support in RACF for the function. Briefly, you will have to:

1. Install the SPE on all RACF systems that will be involved in the PassTicket processing (if you are not at RACF 2.1 or better)

2. Activate the PTKTDATA Class

3. Define a profile in the PTKTDATA class establishing which applications can be accessed via the PassTickets

4. Add the &TICKET variable in the appropriate Network Director Configuration Parameters

TOP-SECRET

When The Network Director will be interfacing to TOP-SECRET to accomplish User id/Password validation, specify GLOBALS SECURITY=TOPSECRET in the Configuration Parameters. The Network Director will then invoke the IBM defined Router (RACROUTE) at the appropriate times to validate the user id and password combination being presented from the terminal user.

In order for The Network Director to make use of the IBM provided SVCs, The Network Director should be executed as a APF authorized program. The Network Director will then make use of the RACROUTE Macro interface to the RACF SVC to get TOP-SECRET to create the appropriate security environment in The Network Director's address space.

The Network Director uses a TopSecret/MVS provided interface routine (called TSSAI) to communicate with TopSecret/MVS and collect certain user specific information. This routine must also be authorized for Network Director use (if you have placed any restrictions upon it) and must be available in The Network Director's Job Pack Area during execution.

Control Options

In order for The Network Director to invoke TOP-SECRET at the appropriate points, it must be defined as a TOP-SECRET facility. The following Control Options (or something similar) should be specified to TOP-SECRET.[7]

```
FAC(USERx=NAME=NETDIR)
FAC(NETDIR=PGM=DIR)
FAC(NETDIR=ACTIVE,NOABEND,NOASUBM,NOAUDIT,AUTHINIT,ID=n)
FAC(NETDIR=NOINSTDATA,KEY=8,LCFCMD,LOCKTIME=0,NOLUMSG,LOG(VIOL))
FAC(NETDIR=NOMRO,MULTIUSER,NOPSEUDO,NORNDPW,RES,SIGN(M))
FAC(NETDIR=SHRPRF,NOSTMSG,NOTENV,NOTSOC,WARNPW,NOXDEF)
```

---

[7] "ID=n" should be set to a unique value amongst all your other environment facilities. This value is the Facility Code that will be present in the TSSUTIL reports.

Creating the ACID

You must also create an ACID for The Network Director and associated attributes as necessary to properly define The Network Director to TOP-SECRET.

```
  TSS CREATE(TND) NAME('Network Director ACID') FAC(STC) -
      TYPE(USER) PASS(NOPW) DEPT(deptname) NOSUBCHK -
      MASTFAC(NETDIR)
```

The ACID can be any name up to seven bytes ("TND" was chosen in the preceding example). As with any other user of the system, The Network Director's ACID must have authority to access its datasets (External File), etc.

If The Network Director is operated as a Started Task, the TOP-SECRET STC record will require updating, as:

```
  TSS ADDTO(STC) PROC(DIRECTOR) ACID(TND)
```

Conversely, if The Network Director is operated as an initiated job (submitted job), the USER= value on the JOB card must be coded (USER=TND).

Other Security Issues

Interfaces to other security mechanisms can be accomplished via use of The Network Director's Generalized Security Exit (TNDEXT01). Documentation for how to complete this approach is contained within the Internals Manual.

For information on other interfaces that may have been developed by other Network Director installations, contact North Ridge Software, Inc.

Operating System Issues

This portion of the Installation manual is committed to describing an discussing the operating system dependent areas of The Network Director. Daily operations that are independent of the operating system are discussed in the *Network Operator's Guide.*

Console Communications

The Network Director normally responds to the standard OS Stop/Modify commands entered from MVS or JES consoles. However, The Network Director will not respond to standard OS Stop/Modify commands facility unless CONSOLE=YES was specified on the GLOBALS statement. Presuming the default (GLOBALS CONSOLE=YES), The Network Director will enable the internal Operator Interface.

Once the Operator Interface is active, the operator's privileges will be managed by The Network Director exactly as any other TERMINAL would be. Thus, the console must be defined with a specialized TERMINAL statement within the Configuration Parameters in order to obtain authorization to manage The Network Director.

The Network Administrator must provide a TERMINAL statement with the terminal name set to the character string "OPERATOR". The stage one automatically generates an appropriate TERMINAL definition. Do not remove it until you are certain of the operating characteristics it will introduce. A typical set of Configuration Definitions would be:

```
APPLICATION NETADMIN,TARGET=TNDADMIN,
             TITLE='Network Adminstration',
             UPDATES=YES
*
APPLICATION MESSAGES,TARGET=TNDMSG,
             TITLE='Messages'
*
*
TERMINAL OPERATOR,APPLICATIONS=(NETADMIN,MESSAGES),
               MESSAGES=(BROADCAST)
```

This authorizes the Operator's Console to initiate Broadcast Messages and to control the network as a Network Administrator. It is this Network Administration authorization that is necessary to allow the operating system console to issue Network Director Operator Commands.[8]

---

[8] The Network Director will always honor a OS STOP command from the console operator.

Execution Job Control

The Network Director utilizes standard DDNAMEs or FILEs for its execution. The following chart shows the intent for each:

DDNAME	Usage
TNDLOG	Output printer for all messages and the network LOG.
TNDFILE	The External VSAM File
TNDPARMS	The initial Configuration Parameters
TNDSAR	The sequential Event Recording definition

Figure 12.   Standard DDNAMEs

The Network Director requires that the output LOG (TNDLOG) be defined. The External File (TNDFILE) and the Configuration Parameters (TNDPARMS) do not have to be present. During initialization, The Network Director will detect that TNDFILE is missing and will disable all attempts to use the External File. TNDSAR should be defined if you have activated the GLOBALS ACCOUNTING=TNDSAR option. If TNDPARMS is not defined, The Network Director will retrieve its Configuration Parameters from the External File from previously saved definitions.

There is currently no requirement that your installation even define the External File unless you want to use a facility that requires it. However, it is recommended that the file be defined. There are many valuable Network Director features that rely upon it for the storing of information across executions.

EXEC PARM= Processing

You can also utilize the OS PARM= operand on the EXEC statement in either of the following two formats:

- PARM='APPLID= ...'

- PARM='GLOBALS ...'

The first form provides upward compatibility from previous releases and may include any operand that may be specified on the GLOBALS statement, but may **not** start with the "GLOBALS" string (any other GLOBALS operand is valid). The first form of the PARM is processed logically **after** the Configuration Parameters and may, therefore, be utilized to override earlier specification of operands on the GLOBALS statement.

```
PARM='APPLID=TESTDIR,EXTERNAL-FILE=NO'
```

is an example of changing the APPLID and EXTERNAL-FILE operands.

The second form of the PARM always starts with the text string "GLOBALS", which identifies it as the new form PARM and is processed **before** the Configuration Parameters.

```
PARM='GLOBALS OPSYS=VM'
```

is an example of providing the operating system value before processing the Configuration Parameters.

This is particularly important when you are using RELOAD logic to obtain execution time options. In order to obtain the definitions from the External File, The Network Director **requires** that the OPSYS value be specified properly (The Network Director cannot read the External File properly unless it knows which operating system it is in). In addition, any password (VSAM-PASSWORD) on the External File must be specified prior to accessing the file.

If the Configuration Parameters are missing (DD statement not present, etc.), The Network Director will assume a RELOAD ALL should be executed. The NAME is extracted from the GLOBALS APPLID, which defaults to DIRECTOR. NRS recommends that you code PARM='GLOBALS APPLID=xxx,OPSYS=xx' operands in the PARM if you will use the implied RELOAD approach. If you do not use implied RELOAD, The Network Director is expecting that you will have coded one or more RELOAD statements in your Configuration Parameters.

Supported Accounting Operands

To obtain SMF recording, The Network Director will have to execute from an APF authorized library in order to issue the SMFWTM SVC. To obtain SMR format SMF recording, specify ACCOUNTING=SMR and SMF=numeric value. To obtain SAR format SMF recording, specify ACCOUNTING=SAR and SMF=numeric value.

To obtain SAR format records via a standard DD statement, specify ACCOUNTING=TNDSAR. Remember to allocate a TNDSAR DD statement to an appropriate location (disk file, JES spool file, etc.).

It is possible to obtain SMR and SAR formats in SMF **and** 80 character images via the TNDSAR DD statement by specifying ACCOUNTING=(TNDSAR,SAR,SMR) and SMF=numeric value (remember to provide the DD statement for TNDSAR).

Performance Issues

Typically, The Network Director executes at an operating system priority or performance group slightly below ACF/VTAM and generally equivalent to other interactive systems. For MVS systems, marking The Network Director nonswappable will decrease the sporadic response time characteristics typical of swappable address spaces. The Network Director provides a GLOBALS SWAP=NO option, which will cause a SYSEVENT TRANSWAP to be issued (if The Network Director is APF authorized). This can produce the nonswappable characteristic without the requirement to update the MVS PPT.

Problem Reporting

Whenever you have encountered a problem within The Network Director's environment, you should carefully collect all information that applies to the situation prior to contacting North Ridge Software, Inc. If it becomes necessary to forward the collected information to NRS, the collected information can be in any format that is convenient for you (paper, microfiche, tape, diskette, etc.).   Make sure that any information forwarded has a Problem number, PTF, or applicable APAR number on it.

Problems are generally grouped into two general categories (ABENDs and Processing Errors).

ABEND

For ABENDs, you should collect the job step JCL and the ABEND dump output. Insure that the failure was caused by The Network Director and not through Operator Cancel or a STOP ABEND Operator Command.   The dump should be a standard OS SYSUDUMP, SYSABEND, SYSMDUMP, or SVC dump. Do not forward an abbreviated dump (ABEND-AID, as an example). It normally does not display enough information to determine what the problem is.

Once you have validated that the ABEND condition was caused or created by The Network Director, collect the following information prior to reporting the problem to North Ridge Software, Inc.

---

1.   The ABEND Code produced

2.   Operating System and Maintenance Level

3.   VTAM Version and Maintenance Level

4.   The Network Director's Execution Listing (including the LOG file).

5.   The dump that was produced during termination

Figure 13.   Problem Resolution Materials

You should also be prepared to respond to general questions about the physical terminal network in use (terminal types and model numbers).

Correction Format

The Network Director's maintenance is generally in the form of a refresh tape made available periodically (a "release upgrade" tape). If your installation requires a correction prior to receiving an updated version, North Ridge Software, Inc. will provide the fix in OS IMASPZAP or IEBUPDTE format.   Consult the *Network Administrator's Guide* for more information about how these fixes are identified.

Some PTFs may have a CHECKSUM statement present.   This is a OS IMASPZAP function that is a duplicate check that the zap statements have been entered properly. It is **not** a required statement, but NRS recommends that you enter it exactly as show (if present in the PTF source).

Extended Architecture Support

The Network Director will operate in full 31 bit addressing mode in environments that support it (XA or ESA environments). When operational in this mode, The Network Director will relocate as many areas of virtual storage as possible above the 16 megabyte line.

To operate properly, The Network Director will require the following characteristics in a XA environment.

---

1. The Network Director's executable code must be located in 24 bit addressable storage. It is linked with RMODE(24) to accomplish this.

2. The Network Director must receive control in 31 bit mode at initialization. It is linked with " MODE AMODE(31)" to accomplish this.

3. You must be executing an appropriate release of any subsystem that is called by The Network Director (ACF/VTAM, RACF, ACF2, DFP, VSAM, etc.).

4. Network Director installation exits must be capable of operating in 31 bit addressing mode

Figure 14. XA Requirements

Characteristics

During initialization, The Network Director will dynamically determine the addressing mode it has received control from the operating system in (24 bit or 31 bit mode). It will issue message TND0753 indicating which mode it is operating in and will proceed with initialization.[9]

All Network Director control blocks and storage are located above the 16 megabyte line except the PDA, the ACBs and DCBs, and DCB related buffers. This has been accomplished by the allocation of storage pool elements above the line and sub-allocation within The Network Director's storage manager.

There are no Network Director based options to turn on or off 31 bit addressing. The mode is determined by The Network Director as a result of the AMODE it receives control from the operating system in. If you do **not** want The Network Director operating in 31 bit mode, simply relink the load module with AMODE(24).[10] During subsequent execution of The Network Director, it will dynamically determine that it is operating in 24 bit mode (a result of the AMODE(24)) and will make the appropriate adjustments.

---

[9] If The Network Director begins operation in 31 bit mode, allocates Network Director related control blocks above the 16 megabyte line and then attempts to interface with a subsystem (E.G. ACF/VTAM) that is not capable of 31 bit addressing mode, the **results will be unpredictable**.

[10] This may be desired if you are operating a XA capable processor with a back level ACF/VTAM that doesn't support 31 bit addressing.

ACF2/MVS

ACF2/MVS installations should be aware that the support of native 31 bit addressing does not reduce storage requirements associated with ACF2 control blocks in The Network Director's address space (MLID, ACMCB, and LIDRECs). These control blocks are allocated by ACF2 below the line and will remain in 24 bit addressable storage.

The Network Director invokes the ACF2 SVC in 31 bit mode, but provides all parameter lists, etc. as 24 bit addressable items.[11]

RACF

The Network Director will make use of MVS'S SAF (System Authorization Facility) interface to RACF via appropriate usage of RACROUTE. The Network Director does **not** directly utilize RACINIT. This RACROUTE use **requires** that your installation be at a RACF 1.8 release or higher.

All virtual storage items returned by RACF will be returned above the 16 MB line (the ACEE, Connect Group lists, user name, etc.).

Exit Considerations

If your installation has coded and installed any user exits, you must be aware that they will be receiving control in 31 bit addressing mode. Please insure that the installation exits follow the appropriate 31 bit addressing standards.

If one or more of the exits require 24 bit addressable storage, specify CB24, MX24, or TP24 as the POOL on the TNDALLOC macro. This will cause The Network Director's storage manager to allocate the requested storage from a 24 bit addressable GSA (General Storage Area). If you do not specify one of these and leave CB, MX, or TP, you will likely be returned a 31 bit addressable area.

If one or more of the exits require that they operate in 24 bit mode, it is possible to change the operational mode at execution time by the appropriate use of BSM, etc. The Network Director accomplishes this by a series of instructions stored in the PDA at initialization as PDAXA and PDANOXA. To enter 24 bit PSW mode, simply insert a BAL R14,PDANOXA instruction at appropriate points. Control will be returned at the next executable instruction (where R14 points) with the PSW AMODE bit turned off (24 bit addressing mode). To return to 31 bit addressing mode, insert a BAL R14,PDAXA instruction at the appropriate location.[12]

---

[11] This 24 bit requirement is introduced by ACF2/MVS.

[12] If your exit changes to 24 bit AMODE, many Network Director control blocks will **not** be properly addressable. It is also mandatory that the PSW AMODE be reset to 31 bit **before** returning to The Network Director.

DOS

The following information can be utilized to install The Network Director in a VSE/SP, or VSE/ESA system.

Installation

For the purposes of this document, the term DOS/VSE, VSE, VSE/SP, VSE/ESA, or DOS refers to VSE versions 2.1 and above.

To accomplish the basic installation (excluding subsystem options) of The Network Director, the following basic steps should be followed:

Step	Task	Completed
1	Check with NRS Technical Support for the contents of the bucket associated with your release tape	
2	Define The Network Director's private library and unload the library from the tape	
3	Code the system Stage One (TNDGEN)	
4	Assemble the Stage One generation deck	
5	Execute the jobs that resulted from system generation	
6	Start The Network Director	

Figure 15.   Basic Installation Steps

The following topics in this section of the manual will discuss each of these steps in detail.

Distribution Tape Format

The DOS installation library is present on the standard Network Director distribution tape. The DOS specific file is distribution tape file 11 as identified in Figure 3 on page 5.

Restoring the Library

Prepare and submit a job to restore The Network Director's private library, which contains source books, relocatable modules, and phases. The following figure provides sample job control and control statements for defining the private library and restoring it in the supported VSE environments.[13] The EXTENT statements in the following statements contain sample space allocations. For exact disk space requirements (in blocks) see Figure 3 on page 5 or use LIBR's SCAN function.

You should provide values in the following examples where you see lower case letters and review the values that are underscored. vvvvvv represents the disk volume the libraries will reside on. ssss represents the starting track number on the disk volume.[14]

```
 * $$ JOB JNM=jobname,DISP=D,CLASS=c
 // JOB RESTORE ALLOCATE LIBRARIES
 *
 *   Restore The Network Directors Library from tape
 *
 // DLBL   TND,'NRS.DIRECTOR.LIB',99/365
 // EXTENT ,vvvvvv,1,1,ssss,20000
 // ASSGN  SYS002,TAPE,VOL=TNDnnn
 // MTC    REW,SYS002
 // MTC    FSF,30
 // TLBL   TNDLIB,'NRS.DIRECTOR.LIB'
 // EXEC   LIBR,SIZE=900K
   RESTORE LIB=TND TAPE=SYS002 TAPELABEL=TNDLIB
 // RESET  SYS002
 /*
 /&
 * $$ EOJ
```

Figure 16.   VSE/SP LIBR Job Control

---

[13] Only VSE systems that use LIBR library and sublibrary concepts are supported. The Network Director 4.2 is based upon and was generated on a VSE/ESA 2.2 system.

[14] All the following examples and the results of the Stage One assume that your installation has standard work areas (SYSLNK, etc.) allocated to the partition the job will execute in as a portion of the DOS Standard Labels.

The restored DOS Library contains the following sublibraries:

Sublibrary	*Contents*
MACLIB	contains the source code for The Network Director's Assembler macros necessary to assemble Network Director exits, etc.
MISC	the various source code files associated with SSI modifications, sample Job Control, etc.
OBJECT	non-executable .OBJ files required to link edit The Network Director, which is normally not necessary (The Network Director's executable PHASE has been catalogued during library creation in the PROGRAMS sublibrary)
PROGRAMS	the executable core image PHASEs necessary to operate The Network Director
SOURCE	the various source code files associated with NRS provided sample exits, SSI modifications, and other assorted examples

Please remember that The Network Director is distributed from time to time as a complete replacement VSE Library. Do NOT place any elements into a Network Director Sublibrary that you would like to retain over maintenance releases.

Stage One

The Network Director installation is a standard two stage generation process. Once the distribution library is restored, you are ready to prepare Stage One. Stage One consists of preparing the proper values for The Network Director's generation mechanism.

The generation mechanism consists of a single Assembler Macro (TNDGEN) and its assembly. Simply review the operands for the system generation macro in the TNDSTG1.PROC book (TND.MISC sublibrary)[15] and modify any values that do not satisfy your installation's requirements.

When you actually assemble the TNDGEN macro, it will produce (on SYSPCH) multiple jobs (DOS job control), which are referred to as Stage Two jobs. The eventual execution of these Stage Two jobs will complete the installation of The Network Director.

Stage One will also produce a checklist and installation notes on the output printer (SYSLST). These notes will reproduce the parameters used to generate The Network Director as well as well as comments about subsequent installation processing. You should review this Stage One Listing prior to proceeding with Stage Two. The Stage One listing produced by the ASSEMBLY processor is in **lower and UPPER case** characters. Thus, to properly view the result, you should insure that the output will be printed on a printer that is prepared to accept both upper and lower case or make sure that the printer will fold the lower case to upper case.

A sample Stage 1 job was unloaded when the distribution Library was restored by LIBR. The TNDSTG1.PROC book in TND.MISC contains a sample TNDGEN macro invocation with some default operand settings. You should now extract TNDSTG1 from the library and review the default operands.

The TNDSTG1 book also contains sample job control to assemble Stage One, which will produce the Stage Two jobs. You will notice that the job control in TNDSTG1 does not contain any required POWER control statements (you should provide the appropriate JOB card, etc.). You should also review the job control for invoking the ASSEMBLY to make certain it conforms to your installation's requirements.[16]

---

[15] Do **not modify** the TNDGEN macro.

[16] The Stage One - Stage Two process is provided as an aid to simplifying The Network Director's installation, but The Network Director is self contained and there are no decisions that you make now that cannot be reversed after installation. To reverse a decision, you will simply modify The Network Director's Configuration Parameters and possibly run one of the Stage Two jobs.

```
TNDGEN
  [ OPSYS={VS1|MVS|DOSVSE} ]
  [ CICS={YES|NO} ]
  [ CLASS={A|jobclass} ]
  [ COMPLTE={YES|NO} ]
  [ FILESZ={5|number of cylinders} ]
    FILEVOL=volume-serial
  [ IDMSDC={YES|NO} ]
  [ IMSDC={YES|NO} ]
  [ JOBNAME={TND|jobname} ]
    LIBVOL=volume-serial
  [ MESSAGE={YES|NO} ]
  [ PREFIX={TND|high-level-qualifier} ]
  [ ROSCOE={YES|NO} ]
  [ SYSDA={SYSDA|generic disk name} ]
  [ TAPE={TAPE|generic tape name} ]
  [ TSO={YES|NO} ]
  [ UPGRADE={YES|NO} ]
  [ VSAMCAT={'VSESP.USER.CATALOG'|user-catalog} ]
  [ VSAMPAS=password ]
  [ VTAMAPL={DIRECTOR|appl-name} ]
  [ VTAMOPR={YES|NO} ]
  [ VTAMPAS=password ]
```

Figure 17. DOS TNDGEN Macro Overview

where each operand has the following uses:

OPSYS   specifies the operating system environment that The Network Director is to operate in. You must specify DOSVSE for this operand.

CICS   controls whether this Stage One should generate the necessary job to prepare The Network Director's CICS Single System Image module for later inclusion into CICS. YES implies that the job should be generated. NO indicates that Stage One should not generate the job.

CLASS   is the job class that all Stage Two jobs will be executed in. This operand assigns a value to the CLASS= parameter on the POWER JOB card.

COMPLTE specifies whether this Stage One should generate the necessary job to prepare the COM-PLETE environment for The Network Director's Single System Image facility. YES requests the facility and NO indicates that this installation will not support COM-PLETE SSI.

FILESZ   represents the number of cylinders that will be allocated via Access Method Services for the External VSAM File.

FILEVOL is the volume serial number of the DASD volume that the VSAM External File should be placed on. This value will be placed in the VOLUMES parameter of the IDCAMS DEFINE CLUSTER statement.

IDMSDC indicates whether this Stage One should generate the necessary job to linkedit the IDMS/DC SSI module TNDIDMS and the sample Configuration Parameter definition for IDMS.

IMSDC indicates whether this Stage One should generate the suggested sample Configuration Parameter definition for IMS.

JOBNAME is the three byte prefix that will be used on all the Stage Two job's jobname parameter. If "jobname" is used instead of "TND", only the first three characters will be used. The last five characters of each job name will be assigned by the Stage One generation process.

LIBVOL is the volume serial number of the DASD volume on which The Network Director's libraries have been defined. The value entered here should be the same as the vvvvvv value used when you unloaded The Network Director's distribution sublibrary. This value is used in the volume operand of the EXTENT statement for The Network Director's private libraries.

If you have coded VSESP=YES and you have defined VSAM space for your Network Director private libraries code any six character value for this operand. Since VSAM libraries do not require any EXTENT statement, you will need to remove the EXTENT statements from the Stage Two jobs before running them. You will also need to add ",,VSAM" to the DLBL statements.

MESSAGE specifies whether The Network Director's Message Facility will be used (YES) or will not be used (NO). Setting of this operand does not effect the ability for authorized Network Administrator's to issue the BROADCAST command.

PREFIX specifies the high level index name that should be used to refer to all of The Network Director's private library file-ids. The suffixes for the rest of the file-ids are assigned by Stage One process. If you have changed the file-id suffixes from those documented in the Define Private Libraries sample, you will have to modify the Stage Two job control file-ids before executing the Stage Two jobs.

ROSCOE indicates whether this Stage One should generate the necessary Configuration Definitions necessary to support the SSI concepts for ADR's ROSCOE programming environment.

SYSDA identifies the DASD volume serial name where work files can be defined. This parameter will be used in constructing EXTENT statements for work files in the Stage Two jobs. You will still have to review the Stage Two jobs to assign begin track information for these extents.

TAPE identifies your installation's chosen name or address for the tape drive on which to mount the installation tape. This value is used in the ASSGN statement for installation tape processing.

TSO specifies whether your installation will be supporting TSO as a target subsystem.

UPGRADE specifies whether this Stage One is simply installing a release upgrade at an existing Network Director site. Some Stage Two jobs will not be produced and additional information relative to maintenance will be placed on the Stage One Listing.

VSAMCAT is the VSAM user catalog name where The Network Director's VSAM External File will be defined. This name will be used in the IDCAMS DEFINE CLUSTER definition and the IJSYSUC DLBL statement for loading and accessing the External File.

VSAMPAS is the 1 to 8 byte password that you would like associated with the External File for security purposes. If this operand is omitted, The Network Director will assume that there is no password associated with the External File.

VTAMAPL is the 1 to 8 byte character string that will identify The Network Director to VTAM as an application. This will become the VTAM APPL and The Network Director's VTAM ACB APPLID.

VTAMOPR specifies whether The Network Director is to provide facilities to the Network Administrator that are associated with the VTAM Program Operator facility.

VTAMPAS is the 1 to 8 byte password that must be used by VTAM and The Network Director to allow access to the VTAM APPL defined by the VTAMAPL operand. If this operand is omitted, The Network Director will assume that there is no password associated with VTAMAPL.

The Stage One Listing contains several comments about how the Stage One process proceeded. Any errors are listed along with suggested problem resolution.

Additionally, the Stage One Listing contains instructions about various other processes that should be accomplished. For example, Stage One prints a suggested VTAM APPL definition statement that should be added to the appropriate VTAM definition book prior to attempting initialization of The Network Director. The Stage One Listing should be thoroughly reviewed prior to beginning Stage Two.[17]

The External File

The Network Director External File is an optional feature of The Network Director. If your installation does not have the VSAM feature installed or you do not wish to use the External File simply remove the DLBL statement from the DIRECTOR Stage Two job. With the DLBL removed, The Network Director will disable all access and use of the External File for this Director execution. If you later decide to include VSAM file support, you can reactivate External File support by including a DLBL statement for the TNDFILE VSAM file.

The Network Director utilizes the standard VSAM access method to manage all disk queueing and disk file input and output. The External File is a standard variable length KSDS cluster with a single 34 character key beginning in position one of each record. It is the Network Administrator's responsibility to insure that the External File is backed up on a regular cycle. The Network Director provides no recovery facilities associated with VSAM and the External File.

---

[17] The Network Director's Stage One (as well as the majority of its functional modules will generate both upper and lower case output. It is important that you have your system printer, etc set up to handle the resulting output. If you do not have it properly setup, you may not be able to view the output information.

Link Editing Errors

The Network Director's Core Image phase is made up of several ASSEMBLER CSECTs that have references between them resolved by the linkage editor. Internally, The Network Director also supports many options and user exits that may not be present in your system. Thus, it is *normal* for there to be *unresolved external references* encountered during the link editing process. This will produce a return code of 4.

If you find that you LKED The Network Director's OBJECT, you should expect to receive messages for CSECTs with the following names.

CSECT Name	Internal Use
TNDEXTxx	These represents the user exit points that are available within The Network Director
TNDEXTR1	This is an extra VCON reserved for use by NRS
ACFGCSVC	This is the ACF2/VM interface routine's VCON
ACFDIAGG	This is an alternate ACF2/VM interface routine's VCON

Figure 18. Linkage Editor Unresolved VCONs

Starting The Network Director

Once the Stage Two jobs have completed, you can initialize The Network Director by submitting the DIRECTOR Stage Two job. You should review the job control before submitting the job.[18]

The Network Director should now initialize as any other job in a partition. You should now be able to connect any terminal to The Network Director with the VTAM LOGON command or the terminal you specified in the LU= Stage One operand should be connected automatically (assuming it is not already in session with another VTAM application). If you accepted all defaults for Stage One and have not yet modified the Configuration Parameters, The Network Director should reply with an Identification screen that will look similar to:

Figure 19.   Initial Identification Screen

---

[18] An example of the job control is in "Appendix C. Sample Initialization Procedures" on page 101.

Simply enter the test userid of **TECH** and any password. The Network Director should then present an Application Selection Panel which looks similar to the one below:


```
       Welcome to The Network Director Version 4.2.2

   You are operating under control of VTAM Version 4.2.0 in VM level 2.2.0
   This 7490 is operating as the SSCP SSCPVM   Subarea 1    in Network NRS



              _ Network Information File      (PF01)

                Messages                      (PF02)

              _ CMS - Timesharing             (PF03)

                Network Administration        (PF04)







  Command: █


| Id  TECH     Password:                            Time: 08:12:30
| Lu  T01001   New Password:                        Date: 12/06/97
|7█
```
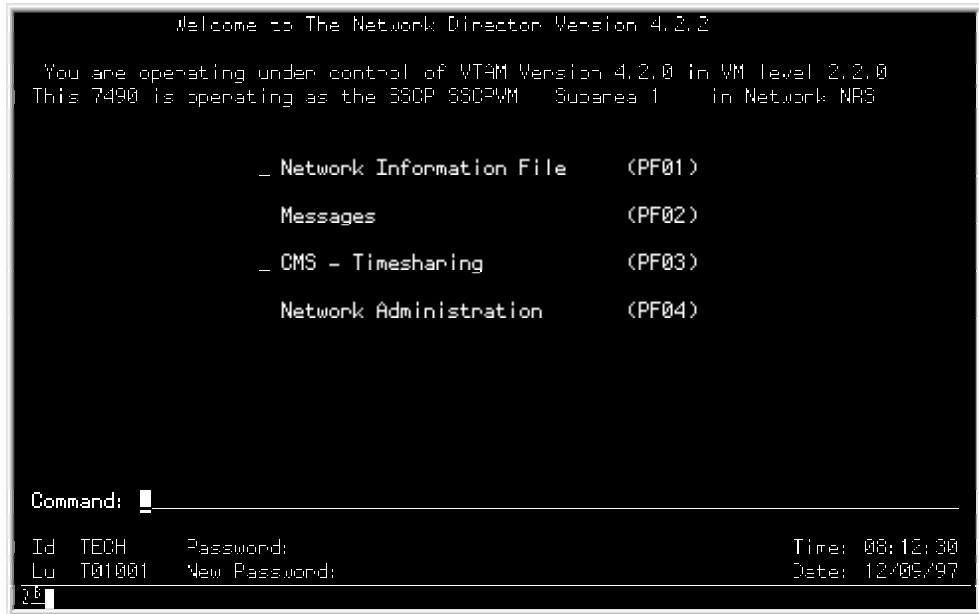
Figure 20.   Initial Application Selection Panel

Naturally, the terminal id, date, time, and other system variables will be filled in with the values currently in effect. You should notice that this screen does not have any selections other than those provided by The Network Director. The Network Administrator should now begin to define Configuration Parameters specific to your installation.

If you specified additional subsystems during Stage One, each of these will also be assigned a selection entry on the Application Selection Panel and will have sample APPLICATION statements generated for them.

Validating the Installation

The basic Network Director facilities can be validated prior to the Network Administrator completing the initial implementation planning. To validate the basic facilities, simply select the options available on the Application Selection Panel. The Network Director's Network User's Guide will provide information about the use of the Messages and Network Director Assistance entries.

The Network Administration entry can be validated by reference to the Network Operator's Guide. Simple usage of a few of the facilities should provide basic validation that the installation has proceeded successfully.

It is now time for the Network Administrator to become active in the logical definition and tailoring of the network.

Maintenance Releases

Network Director maintenance is made available periodically as full replacement files. The Network Director's release upgrade tapes are actually the same tape as the distribution tape you have used to install The Network Director.

To install maintenance you simply restore The Network Director's library again. Specifying UPGRADE=YES causes the Stage One process to provide you with additional information on the Stage One Listing relative to the maintenance release as well as the appropriate Stage Two jobs.

Because maintenance is distributed as a full replacement DOS Library, you should not modify any source book you would like to keep in The Network Director's Library.

System Security Package Issues

The Network Director is a network security offering that enforces the guidelines provided to it via the Configuration Parameters. It is also possible to utilize The Network Director to enforce the guidelines and implied security checking of a standard system security offering such as ACF2/VSE from Computer Associates.

A security package is **not** required by The Network Director, but The Network Director will take advantage of it if it is installed.[19]

When a security system is active, The Network Director will invoke it to check the User Id and Password combination when the following general items are true:

- The GLOBALS SECURITY= operand has been set

- The individual attempting to signon to the network is using a USER, GROUP, or DEFAULT PASSWORD= operand set equal to the constant **YES**

Normally, the PASSWORD= value is set on the DEFAULT statement. You can set the PASSWORD operand onto the USER or GROUP statement also. If the PASSWORD value is not YES, then The Network Director will **not** call the security package for validation.   In this manner, you can control which network users are susceptible to security package validation. Normally, all network users would be susceptible to this security checking.

---

[19] References to *a security package* within this manual are references to a **system wide** security system and not to subsystem specific systems (such as CICS based systems).

ACF2/VSE

Specify GLOBALS SECURITY=ACF2,SECURITY=SVC=108 to activate the ACF2/VSE interface. The Network Director will then call ACF2 to validate the logonid and password entered by the terminal user.

Contact NRS for details associated with the specific maintenance levels of ACF2/VSE that are required to enable the interface.

DIRECTOR

If you do not have another system security package, you can consider using SECURITY=DIRECTOR to cause The Network Director itself to enforce password validation within the system. See the *DIRECTOR* topic under *System Security Considerations* in the *Network Administrator's Guide* for additional information.

TOPSECRET/VSE

Activate the TopSecret/VSE interface by specifying GLOBALS SECURITY=TOPSECRET. Consult the Network Administrator's Guide for additional information about the characteristics of the interface.

Operating System Issues

This portion of the manual is committed to describing and discussing the DOS operating system dependent areas of The Network Director. Daily operations that are independent of the operating system are discussed in the *Network Operator's Guide.*

Console Communications

Through The Network Director's Operator Interface, the DOS console operator can communicate with The Network Director and issue authorized Network Director commands. The operator console is managed and defined to The Network Director exactly as any other TERMINAL.

The Operator Interface is defined by specifying CONSOLE=YES on the GLOBALS statement and adding a TERMINAL statement with the terminal name set to the character string **OPERATOR**. This specialized TERMINAL statement authorizes the console operator to issue The Network Director Network Administrator commands from the DOS console. The stage one automatically generates an appropriate TERMINAL definition. Do not remove it until you are certain of the operating characteristics it will introduce. A typical set of Configuration Parameters would be:

```
     APPLICATION NETADMIN,TARGET=TNDADMIN,
                   TITLE='Network Adminstration',
                   UPDATES=YES
     *
     APPLICATION MESSAGES,TARGET=TNDMSG,
                   TITLE='Messages'
     *
     *
     TERMINAL OPERATOR,APPLICATIONS=(NETADMIN,MESSAGES),
                     MESSAGES=(BROADCAST)
```

This authorizes the Operator's Console to initiate Broadcast Messages and to control the network as a Network Administrator. It is this Network Administration authorization that is necessary to allow the operating system console to issue Network Director Operator Commands.

To activate the Operator Interface, the console operator uses the DOS/VSE message (MSG) facility to signal the DIRECTOR partition for operator communication. Then the operator simply responds with any valid Network Director Network Administrator command. Messages in response to the operator commands will be written to the console log.

For example if DIRECTOR is running in the F4 partition, enter the following commands to DISPLAY The Network Director COUNTS:

```
        MSG F4
        4 DISPLAY COUNTS
```

Execution Job Control

The Network Director utilizes standard file names to read the its parameter statements, write messages, and access the VSAM External File. The file names, logical unit, DTF type and usage are described below:

File Name	Logical Unit	File Type	Usage
TNDFILE		VSAM	Optional VSAM External File
TNDLOG	SYSLST	DFTDI	Output print for Network Director messages and network LOG
TNDPARM	SYSIPT	DTFDI	Input where the initial Configuration Parameters are read
TNDSAR	SYSPCH	DFTDI	Event Recording

Figure 21.   File Names

The Log (TNDLOG/SYSLST) file must be defined to The Network Director. The External File (TNDFILE), Configuration Parameters (SYSIPT), and the Event Recording file (TNDSAR) are optional and need not be defined. If you do not define the External File The Network Director will detect is absence during initialization and disable all attempts to use the External File.

The TNDPARM file logical unit (SYSIPT) is normally assigned to the card reader and the Configuration Parameters are then read from the reader queue. If it is not defined, The Network Director will assume it should retrieve the Configuration Parameters from the External File.

The TNDLOG file logical unit (SYSLST) is normally assigned to the printer and the messages and Log is written to the printer queue.

There is currently no requirement that your installation even define the External File unless you want to use a facility that requires it. However, it is recommended that the file be defined. There are many valuable Network Director features that rely upon it for the storing of information across executions.

TNDSAR (SYSPCH) must be defined if you intend to collect accounting information (as controlled by the GLOBALS EVENTS= operand). The Network Director writes events to this file as they occur during execution. If allocated to POWER, you can utilize POWER control statement (* $$ PUN) operands (E.G. RBS=nnn) to manage when the output file is segmented for subsequent processing, while The Network Director is operating.

Supported Accounting Operands

In DOS, The Network Director supports the ACCOUNTING=TNDSAR option, which causes 80 character images representing an SAR (System Accounting Record) to be written to SYSPCH. To activate this logic, simply specify ACCOUNTING=TNDSAR. As discussed earlier, NRS recommends the usage of POWER control statements to control spool file segmenting.

Problem Reporting

If you should encounter a problem within The Network Director's environment, you should carefully collect all information that applies to the situation prior to contacting North Ridge Software, Inc.

Make certain the problem was caused by The Network Director. Then collect all of the information listed below pertaining to the problem situation and any other pertinent information.

---

1. The Problem Condition (Operation exception, Protection, etc)

2. Operating System and Maintenance Level

3. VTAM Version and Maintenance Level

4. The Network Director's Execution Listing (including the Log file)

5. Any dump that was produced during termination

6. Copy of the DOS Console log for The Network Director

Figure 22.   Problem Resolution Materials

You should also be prepared to respond to general questions about the physical terminal network in use (terminal types and model numbers).

Correction Format

The Network Director's maintenance is generally in the form of a release upgrade tape made available periodically. If your installation requires a correction prior to receiving an updated version, North Ridge Software, Inc. will provide the fix in MSHP format (ALTER statements). Consult the *Network Administrator's Guide* for more information about how these fixes are identified.[20]

---

[20] Because of the manner in which MSHP operates, you may be required to convert certain offsets within the core-image phase. It is **extremely** important that you retain the resulting output of the link-edit job (the linkage editor's output listing), if you relink The Network Director.

VM

The following procedures should be utilized to install The Network Director into VM/370, VM/HPO, VM/XA, or VM/ESA systems.

Installation

To accomplish the basic installation (excluding subsystem options) of The Network Director, the following basic steps should be followed:

Step	Task	Completed
1	Generate a VM Directory entry for The Network Director	
2	Include The Network Director's virtual machine in the GCS GROUP	
3	Add an APPL definition to an appropriate VTAMLST file	
4	Allocate and format mini-disk space as required	
5	Prepare the VSAM disk	
6	Perform Stage One and Stage Two (TNDINST)	
7	Start The Network Director in the target environment	
8	Modify the Configuration Parameters to match your needs	

Figure 23.   Basic Installation Steps

The following topics in this section of the manual will discuss each of these steps in detail.

VM Directory Requirements

While there are a variety of manners in which you can install The Network Director using CMS, North Ridge Software, Inc. recommends that you create a CMS mini-disk for all distribution files. If you will be using The Network Director in a GCS environment, you should create a separate mini disk for work area (typically, a 191 or A disk) for files that will be created **in addition** to the files that are loaded from the tape and a mini-disk for the VSAM file. These disks can be associated with the MAINT userid or any other virtual machine you may choose.

If you will be operating The Network Director under VM/GCS, you will need to create a unique Directory entry for The Network Director. This virtual machine will be utilized for the installation of The Network Director and eventually the actual execution of The Network Director (thus, the virtual machine will have to be a portion of the GCS GROUP that will be operating VM/VTAM). See the *VM/SP Installation Guide* for instructions on how to add a virtual machine to a GROUP.

The Network Director will also require a VTAM APPL definition as discussed in the *Network Administrator's Guide* under *VTAM Definition Activities*. Make an entry in a VTAMLST file that is available to ACF/VTAM, as appropriate for your installation.

The Network Director will normally require only a CP CLASS of G.[21] The ACCT option on the OPTION statement is only required if The Network Director will be doing Event Recording via DIAGNOSE X'4C'.

```
USER DIRECTOR DIRECTOR 6M 16M BGH
OPTION ECMODE ACCT
IUCV ANY P M 0
ACCOUNT DIRECTOR GCS
IPL GCS PARM AUTOLOG
CONSOLE 01F 3215
SPOOL 00C 2540 READER A
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK MAINT 595 595 RR                    GCS Object Code
MDISK 191 dddd ssss 0010 W               A disk (work space)
MDISK 192 dddd ssss 0007 W               D disk (VSAM space)
MDISK 193 dddd ssss 0015 W               B disk (distribution files)
```

Figure 24.   Sample VM Directory Entry

The 191 disk is intended to contain any customized files and execution time files that may be required for the operation of The Network Director.

The 192 disk will be the location for the External File (VSAM), if you will be operating The Network Director in GCS and you have VSAM installed in your VM system.[22]

---

[21] CP Class B will be required if you intend to utilize the DIAGNOSE 84 interface to validate userids and password against the CP Directory (GLOBALS SECURITY=VM). CP Class H is recommended if The Network Director will be calling RACF.

[22] A 192 disk is not required, if The Network Director will not operate in VM or if you do not have the CMSVSAM shared segment available.

The 193 disk will be utilized to contain all the distribution files actually loaded from the distribution tape (these will remain unchanged to simplify future maintenance).

When defining the size of the virtual machine, you should exercise care so that the virtual machine virtual size does not overlap with the VSAM Shared Segment (if VSAM is installed on your system and will be used by The Network Director).

Preparing the CMS Mini-disks

To prepare the VM mini-disks for use during installation, you will first have to format them, as appropriate. The 191 and 193 disks will be standard CMS mini-disks and are formatted by the standard CMS FORMAT command. To format the disks, enter:

```
FORMAT 191 A
FORMAT 193 B
```

Naturally, CMS FORMAT will require that you respond properly to continue the formatting operation and to provide a mini-disk label. A sample VM/SP Release 5 FORMAT operation follows (information **in this type style** represents information entered at the console):

---

format 191 A
DMSFOR603R FORMAT will erase all files on disk A(191).
    Do you wish to continue?
Enter 1(YES) or 0 (NO).
1
DMSFOR605R Enter disk label:
tnd191
Formatting disk 'A'
10 Cylinders formatted on A(191)
R;

Figure 25.   Formatting a CMS mini-disk

Preparing the VSAM Mini-disk

The 192 disk is intended to be the dasd space that will contain the VSAM file and must be formatted for VSAM usage. If you will not be executing The Network Director under GCS or do not have the CMSVSAM shared segment installed, you can skip this formatting step.

To proceed with formatting the disk, refer to the instructions in the CMS User's Guide under the *Using Access Method Services and VSAM Under CMS and CMS/DOS*. To prepare the VSAM disk, you will have to use the IPL DSF file to format the mini-disk (IPL ICKDSF for ESA systems). All the VSAM functions that must be performed can be accomplished in OS VSAM mode (SET DOS ON is not required).

Preparing the DSF File

In order to use the DSF utility to format the target disk, you should prepare a file named TND DSF A1 on the 191 disk using XEDIT that looks similar to this (modifying where necessary the virtual device number, device type, etc.):

```
INIT UNIT(192) DEVTYPE(3380) PRG NVFY VOLID(TNDEXT) -
   DVTOC(0,1,1) MIMIC (MINI(05))
```

Figure 26.   CKD DSF INIT Command

```
INIT UNITADDRESS(192) NVFY PRG VOLID(TNDEXT) -
   FBAVTOC(END)
```

Figure 27.   FBA DSF INIT Command

Note that the INIT statement begins in column 2. This file will be used by the stand alone DSF utility to control the formatting operation.

Once this is prepared, you can issue the commands as portrayed in the following figure to actually perform the formatting process. Information entered at the console is portrayed in **this type face**.

```
SPOOL PUNCH TO * CLASS I CONT NOHOLD
R;
PUNCH IPL DSF * (NOH) or PUNCH IPL ICKDSF * (NOH)
R;
PUNCH TND DSF * (NOH)
R;
SPOOL PUNCH NOCONT CLOSE
R;
SPOOL READER CLASS I NOHOLD
R;
IPL 00C CLEAR ATTN
- ENTER -
ICK005E DEFINE INPUT DEVICE, REPLY 'DDDD,CUU' OR 'CONSOLE'
ENTER INPUT/COMMAND
2540,00c
2540,00C
ICK006E DEFINE OUTPUT DEVICE, REPLY 'DDDD,CUU' OR 'CONSOLE'
ENTER INPUT/COMMAND
console
CONSOLE
ICKDSF - SA DEVICE SUPPORT FACILITIES .. version information..

 INIT UNIT(192) DEVTYPE(3380) PRG NVFY VOLID(TNDEXT) DVTOC(0,1,1) -
   MIMIC (MINI(05))
ICK00700I DEVICE INFORMATION FOR 192 IS CURRENTLY AS FOLLOWS:
        PHYSICAL DEVICE = 3380
        STORAGE CONTROLLER = 3380
        STORAGE CONTROL DESCRIPTOR = 03
        DEVICE DESCRIPTOR = 0A
ICK003D REPLY U TO ALTER VOLUME 192 CONTENTS, ELSE T
ENTER INPUT/COMMAND
u
ICK01313I VOLUME CONTAINS 0     ALTERNATE TRACKS -- 0    AVAILABLE
ICK01314I VTOC IS LOCATED AT CCHH=X'0000 0001' AND IS    1 TRACKS
ICK00001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

ICK00002I ICKDSF PROCESSING COMPLETE. CONDITION CODE WAS 0
```

Figure 28. Formatting the VSAM Mini-disk

TNDINST Functions

The remainder of the VSAM functions required will be done under CMS and by the installation EXEC TNDINST.[23]

Simply IPL CMS and follow the instructions present under "Unloading the Distribution Tape" on page 61. The VSAM installation is controlled by the contents of three AMSERV files that will be unloaded and/or created during installation (in the TNDINST2 EXEC). You can review their contents by answering **NO** to the prompt about loading the External VSAM file and using XEDIT on them. This *review* is appropriate if you will be installing the VSAM file on a "shared" VSAM mini-disk or would like to modify the NRS provided defaults and accomplish the installation manually rather than via the use of TNDINST.

The three files are:

Filename	Contents
TNDCAT	Master Catalog Definition Statements
TNDCLUS	Cluster Definition Statements
TNDREPRO	REPRO Statements

TNDCAT - Master Catalog Definition Statements

The Master Catalog Definition statements distributed with The Network Director are contained in the file TNDCAT AMSERV.

DEFINE MASTERCATALOG (NAME (TNDMAST) -
    VOLUME(TNDEXT) DEDICATE)

Figure 29.   VSAM Master Catalog Definitions

The DLBL statement required is issued by TNDINST2 as necessary.

If you decide to manually install the VSAM file you should:

1.   Enter DLBL IJSYSCT D DSN TNDMAST (PERM VSAM)

2.   Enter AMSERV TNDCAT

The results of the Access Method Services execution will be in the file named TNDCAT LISTING on the A disk.

---

[23] See "Appendix D. Manual VSAM File Installation" on page 103 for a sample manual installation. If you manually install the VSAM file, you will also have to add the appropriate DLBL statements into the DIRECTOR GCS file.

TNDCLUS - Cluster Definition Statements

The Cluster definition statements are contained in the file named TNDCLUS AMSERV.

```
DEFINE CLUSTER -
    (NAME(TND.DIRECTOR.FILE) -
    RECORDS(2000) -
    VOL(TNDEXT) -
    KEYS(34 0) -
    RECORDSIZE(550 4089)) -
  INDEX -
    (NAME(TND.DIRECTOR.FILE.INDEX)) -
  DATA -
    (NAME(TND.DIRECTOR.FILE.DATA)) -
  CATALOG (TNDMAST);
```

Figure 30.   VSAM Cluster Definitions

To manually define the Cluster, simply:

1.   Enter AMSERV TNDCLUS

TNDREPRO - Unloading the VSAM File

The REPRO statements are contained in the file TNDREPRO AMSERV.

```
REPRO -
  INFILE(TNDTAPE -
    ENV(BLOCKSIZE(32767) -
      NOLABEL -
      NOREWIND -
      PDEV(2400) -
      RECFM(VB) ) ) -
  OUTFILE(TNDFILE) REPLACE ;
```

Figure 31.   VSAM REPRO Statements

To manually REPRO the file, you will have to:

1.   Enter DLBL IJSYSCT D DSN TNDMAST (VSAM PERM

2.   Enter DLBL TNDFILE D DSN TND.DIRECTOR.FILE (VSAM

3.   Enter FILEDEF TNDTAPE TAP1 NL

4.   Enter TAPE REW to insure tape positionality

5.   Enter TAPE FSF 16 to position at the VSAM file image

6.   Enter AMSERV TNDREPRO (TAPIN 181

7.   Enter TNDTAPE in response to the AMSERV prompt

Unloading the Distribution Tape

To unload the distribution tape, logon to a CMS machine and mount the distribution tape on an available tape drive and attach it to the CMS machine at your virtual 181. Access as your A disk, the disk that you would like the distribution files loaded onto (ACCESS 193 A if you are using our recommended virtual machine configuration).

Once this is done, issue the following CMS commands to load the installation EXEC (specify 18TRACK for 3480 media):

```
TAPE FSF 19
VMFPLC2 LOAD TNDINST EXEC {(18TRACK)}
```

You will then see the CMS EXEC named TNDINST restored to your A disk. Once it is loaded, enter **TNDINST** to proceed with installation. This EXEC will prompt you for several values and will establish the type of installation you are about to do. It will then load the rest of the necessary files and will take you step by step through the remainder of the installation.

Once this is complete, you should issue the ACCESS commands required to get the CMS search order back into the sequence you desire. North Ridge Software, Inc. recommends that the 193 disk be accessed as a read only extension of the 191 disk (ACCESS 193 B/A). If you have followed the recommended mini-disk configuration, the PROFILE GCS file that was loaded during the TNDINST EXEC should be copied to the 191 disk. This EXEC will automatically issue the appropriate GCS ACCESS commands to set up the proper search order after you have IPLed GCS (if you are executing The Network Director under control of a GCS environment).

Stage One

TNDINST will prompt you for several values that will assist it in the creation of sample Configuration Parameters (Network Director initialization parameters) and other related files.

If you are installing a OS or DOS based version of The Network Director, the TNDINST process will produce several results. Generally, a punched job will contain the actual link edit of the load module (OS) or phase (DOS). In addition, the stage one process (assembling TNDGEN) will produce an additional file that contains jobs that may be applicable to the actual execution of The Network Director in the target host environment. Not all of these jobs will be required for you to complete the installation. You should edit this sample job stream and execute those that are appropriate for your target system.

If you are installing a GCS based version of The Network Director, you can look at "Appendix A. Sample TNDINST Usage" on page 91 for a sample session using the TNDINST EXEC.[24]

TNDINST (Stage One) will produce a checklist of information and additional notes about the maintenance included on the tape in the output TNDSTG1 LISTING file. You should review this Stage One Listing prior to proceeding with the reset of the installation.

If you find a need to utilize the individual EXECs after initial installation, the following list identifies the general purpose of each one:

EXEC	Usage
TNDINST	Basic installation prompts, CMS file loads, generates TNDSTG1 LISTING and DIRECTOR GCS files
TNDINST1	Initial Configuration Parameters (TNDPARMS INPUT)
TNDINST2	Defines and unloads the External File

Figure 32. Installation EXECs

---

[24] The TNDINST installation process is provided as an aid in simplifying The Network Director's installation, but The Network Director is self contained and there are no decisions that you make now that cannot be reversed after installation. To reverse a decision, you will simply modify The Network Director's Configuration Parameters (TNDPARMS INPUT).

The External File

The Network Director utilizes the standard VSAM access method to manage all disk queueing and disk file input and output. The External File is a standard variable length KSDS cluster with a single 34 character key beginning in position one of each record.

For GCS environments, you must have installed the VSE/VSAM component in CMS to support the VSAM requests. If you do not have it installed, you will be unable to utilize The Network Director's disk queueing facilities. The Network Director will detect whether you have the VSAM shared segment installed by issuing DIAGNOSE X'64' (FINDSYS) for the segment named CMSVSAM.

If the VSAM shared segment is installed and you do **not** want The Network Director to attempt to open the VSAM file, you should specify EXTERNAL-FILE=NO on the GLOBALS statement in the TNDPARMS INPUT file. This will cause The Network Director to bypass efforts to operate on the External File.

In addition, it is the Network Administrator's responsibility to insure that the External File is backed up on a regular cycle. The Network Director provides no recovery facilities associated with VSAM and the External File.

Starting The Network Director

Upon completion of TNDINST, you can initialize The Network Director by simply entering DIRECTOR on the GCS console (naturally, after IPLing GCS).[25]

The Network Director will now initialize as any other virtual machine in the GCS group. You should now be able to logically connect an eligible VTAM terminal to The Network Director. If you accepted all defaults for Stage One and have not yet modified the Configuration Parameters, The Network Director will reply with a identification screen. The should look similar to the following figure:

Figure 33. Identification Screen

Naturally, the terminal id, date, and time will be filled in with the values currently in effect.

---

[25] A sample of the DIRECTOR EXEC is in "Appendix C. Sample Initialization Procedures" on page 101.

You should then simply enter the userid **TECH** and any password value in the appropriate locations and press ENTER. You will now receive a *Application Selection Panel* that will look similar to the next figure.
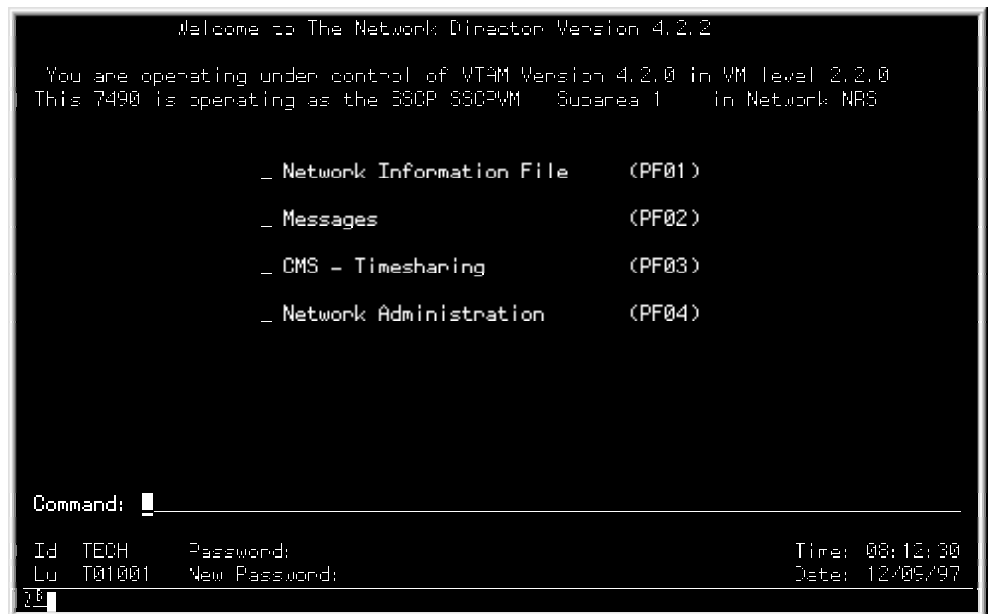
Figure 34.   Initial Application Selection Panel

You should notice that this screen may not have any selections other than those provided by The Network Director (dependent upon how the TNDINST EXEC was responded to). The Network Administrator should now begin to define Configuration Parameters specific to your installation.

If you specified additional subsystems during Stage One, each of these will also be assigned a selection entry on the Application Selection Panel and will have sample APPLICATION statements generated for them.

Validating the Installation

The basic Network Director facilities can be validated prior to the Network Administrator completing the initial implementation planning. To validate the basic facilities, simply select the options available on the Application Selection Panel. The Network Director's *Network User's Guide* will provide information about the use of the Messages and Network Information entries.

The Network Administration entry can be validated by reference to the *Network Operator's Guide* and the *Network Administrator's Guide*. Simple usage of a few of the facilities should provide basic validation that the installation has proceeded successfully.

It is now time for the Network Administrator to become active in the logical definition and tailoring of the network.

Maintenance Releases

Network Director maintenance is made available periodically as full replacement files. The Network Director's maintenance release tapes are actually the same tape as the distribution tape you have used to install The Network Director from.

To install maintenance you simply reload the CMS files from file 7 on the tape and REPRO the file from physical file 6. You will be given the opportunity by TNDINST to completely reinstall the External File (including Cluster definitions) or to simply REPRO the new information into the existing cluster.

Because maintenance is distributed as full replacement files, you should never modify a file you would like to keep on the 193 mini disk (or you should preserve files you would like to keep).

System Security Package Issues

The Network Director is a network security offering that enforces the guidelines provided to it via the Configuration Parameters. It is also possible, to utilize The Network Director to enforce the guidelines and implied security checking of one of the standard system security offerings that are available to VM installations (ACF2/VM, etc.).

Utilize the instructions present in this section of the manual to activate the interface to the system you have installed.[26]

When a security system is active, The Network Director will invoke it to check the User Id and Password combination when the following general items are true:

- The GLOBALS SECURITY= operand has been set

- The individual attempting to signon to the network is using a USER, GROUP, or DEFAULT PASSWORD= operand set equal to the constant **YES**

Normally, the PASSWORD= value is set on the DEFAULT statement. You can set the PASSWORD operand onto the USER or GROUP statement also. If the PASSWORD value is not YES, then The Network Director will **not** call the security package for validation. In this manner, you can control which network users are susceptible to security package validation. Normally, all network users would be susceptible to this security checking.

---

[26] A security package is **not** required by The Network Director, but The Network Director will take advantage of it if it is installed.

ACF2/VM

Utilization of ACF2/VM from within The Network Director is activated by including an ACF2 provided interface routine named ACFGCSVC or ACFDIAGG.[27] The file is distributed by Computer Associates in a variety of manners depending upon the ACF2/VM release you are using. It may be present on the ACF2 distribution disk or you may have to request it separately. Distribution has been either as a TEXT file or as a member of a LOADLIB.

If you received both files, you should utilize ACFDIAGG (which dynamically loads ACFGCSVC). When using ACFDIAGG, you will also have to add the LOADLIB that contains ACFGCSVC to the GLOBAL LOADLIB statement present in the DIRECTOR GCS file.

If you only have ACFGCSVC, use that value in the following discussion where ACFDIAGG is present.

ACFDIAGG TEXT

If you receive a TEXT file, logon as The Network Director's virtual machine, access the ACF2 distribution disk, and issue the following commands:

```
ERASE DIRECTOR TEXT A
COPY TNDOS TEXT A TNDNUC TEXT A ACFDIAGG TEXT * DIRECTOR TEXT A
LKED DIRECTOR (RENT XREF)
```

This process causes CMS to regenerate The Network Director's nucleus and includes the ACF2/VM interface during normal link-edit processing.

ACFDIAGG LOADLIB or TXTLIB

To install the LOADLIB or TXTLIB member, logon as The Network Director's virtual machine and XEDIT DIRECTOR TEXT. At the bottom of the TEXT file insert the single line:

```
INCLUDE SYSLIB(ACFDIAGG)
```

and file the TEXT file.[28]

Then issue the following commands:

```
FILEDEF SYSLIB DISK acfdiagg libtype * (RECFM U
LKED DIRECTOR (RENT XREF)
```

---

[27] The exact module to be used is a function of the maintenance level of ACF2/VM.

[28] Make sure there is a blank in column one (a requirement of the linkage editor).

In either case, you should check the DIRECTOR LKEDIT file produced on the A disk to make sure that the External Reference for ACFDIAGG is resolved. You should also make sure you include **ACFDIAGG** on The Network Director's GLOBAL LOADLIB statement in the DIRECTOR GCS file.

ACFFDR Changes

The ACF2/VM FDR will also have to be updated to authorize The Network Director to call ACF2/VM as a SRF user. To accomplish this, simply insert an **@SRF DIRECTOR** definition in the FDR generation (presuming that DIRECTOR is the logonid The Network Director will be operating under) or use the ACF command to change The Network Director's logonid to enable SRF.

Once this is complete, simply specify GLOBALS SECURITY=ACF2 and PASSWORD=YES on the appropriate definitions in the Configuration Parameters to activate the interface.

Operational Characteristics

The Network Director interfacing to ACF2/VM will have the following characteristics:

---

1. userid and password validation

2. new password update

3. ACF2 message display in the LOG and on the terminals

4. LIDREC field display (NAME and PHONE)

5. dynamic GROUP assignment via ACMCB or EXT19

Figure 35.   ACF2/VM Operational Characteristics

DIAGNOSE 84

The Network Director will optionally invoke the CP DIAGNOSE function 84 to validate the userid and password entered on the terminal against the contents of the VM Directory. Specify GLOBALS SECURITY=VM to enable this function (the users that will be checked will be those where PASSWORD=YES is in effect).[29]

The Network Director does not contain the necessary logic to allow the terminal operator to change or otherwise modify the password when using the DIAGNOSE X'84' mechanism. This is due to the inability of VM to retain the updated password across VM IPLs. If you would like the ability for the operator to change the password periodically, you will have to install a system security package or may utilize SECURITY=DIRECTOR (as an alternative).

---

[29] This function requires that the virtual machine executing The Network Director be authorized for DIAGNOSE 84, which is normally a CP class B machine. If The Network Director is not operating in a virtual machine with the appropriate class authorization, it will not be able to validate the userid and password against the Directory or may abend The Network Director's virtual machine.

RACF

To utilize The Network Director in VM with RACF, simply specify SECURITY=RACF on the GLOBALS statement. The Network Director will interact with RACF utilizing DIAGNOSE X'A0' (the RACF DIAGNOSE). In order for this to occur properly, DIAGNOSE X'A0' requires that the calling virtual machine (in this case, The Network Director) must have a CP Class other than simply G. NRS recommends that the VM Directory entry be updated specifying CP class H.

Once the RACF interface is activated, it will have the following characteristics:

---

1. userid and password validation

2. dynamic GROUP assignment via the ACIGROUP Directory statement

Figure 36. RACF/VM Operational Characteristics

RACF/VM (Version 1.7 and below) does **not** provide a mechanism for The Network Director to provide a new password or manipulate other information similar to the OS RACF system. This is due to the lack of a ACEE in The Network Director's virtual machine, which where the OS RACF information is extracted from.

VM/SECURE

The Network Director provides an interface to The Systems Center's VMSECURE product to accomplish security system related items. The interface has the following functions available (items in parenthesis identifies how The Network Director accomplishes the listed function):

---

1. Userid and Password validation (DIAGNOSE X'A0')

2. new password setting (via TNDVMS)

3. dynamic GROUP assignment (DIAGNOSE X'A0')

4. last access notification (via TNDVMS)

5. storage and retrieval of name and phone (via TNDVMS)

6. expired password detection (via DIAGNOSE X'A0')

7. TNDVMS Version display

8. password expiration warning message (via TNDVMS)

Figure 37. VMSECURE Interface Facilities

The VMSECURE interface allows each installation to decide the level at which they would like The Network Director to interact with VMSECURE. NRS recommends that the entire interface be installed as indicated below to maximize the facilities available to the Network Administrator.

The DIAGNOSE X'A0' interface requires that the VMSECURE Rules Facility be installed and functional. If your installation does not utilize the Rules Facility, consider the SECURITY=VM as an alternative to SECURITY=VMSECURE. Contact NRS for more information if you require more information about this.

Installation Summary

The installation of The Network Director in a VMSECURE environment requires several items. They are discussed in detail in the remainder of this section (the following list is an overview).

---

1. Install VMSECURE into VM following the VMSECURE (possibly VMCENTER) installation procedures

2. Install and activate the Rules Facility (discussed under *Implementing the Rules Facility* in the VMSECURE System Administrator's Guide)

3. Modify the VMSECURE CONFIG file to GRANT appropriate authority to the virtual machine that will operate The Network Director

    a. GRANT DIAGPCHK TO DIRECTOR

    b. GRANT $TNDVMS TO DIRECTOR

4. Insert a CP LINK and CMS ACCESS command to The Network Director's base disk (default 193) in VMSECURE's PROFILE EXEC to establish VMSECURE's ability to execute the TNDVMS subcommand

5. Specify GLOBALS SECURITY=VMSECURE and CP-MSGS=YES in the Configuration Parameters to activate the interface

6. Place SET SMSG IUCV and SET MSG IUCV into The Network Director's initialization EXEC (normally, DIRECTOR GCS on the virtual 191 disk)

7. Specify PASSWORD=YES for those USERS that you would like managed by VMSECURE

Figure 38.   VMSECURE Interface Installation Overview

Note: The Network Director's communication with VMSECURE makes use of messages that are transmitted between the VMSECURE virtual machine and The Network Director's. To make sure that these messages are properly reflected into The Network Director's virtual machine, please verify that there is **NO secondary console specified on the VM Directory's CONSOLE definition** for the virtual machine that will actually execute The Network Director.

If a Secondary Console is specified, The Network Director will be unable to receive information from VMSECURE (user's name, etc.) and logon via VMSECURE will take at least 15 seconds. DO NOT SPECIFY A SECONDARY CONSOLE.

DIAGNOSE X'A0'

The Network Director uses CP DIAGNOSE X'A0' to interface to VMSECURE for two basic functions when SECURITY=VMSECURE has been specified (userid/password validation and ACIGROUP extraction).

Installation: To utilize the DIAGNOSE X'A0' interface, you must have implemented the VMSECURE Rules Facility within CP (inserted VM/SECURE's provided DMKRPW, DMKRPI, and DMKRPD into your CP nucleus).

Once this has been done you will have to enable each Network Director virtual machine that will be issuing the DIAGNOSE by inserting a "GRANT DIAGPCHK TO [machine name]" within the VMSECURE CONFIG file. Failure to do so will cause The Network Director to suffer an S0C6 each time it attempts to call VMSECURE via DIAGNOSE for userid and password validation (i.e. when a user attempts to log on via The Network Director).

Userid and Password Validation: Each time a defined network element attempts to signon to the system, The Network Director will invoke VMSECURE logic by executing a DIAGNOSE X'A0' subcode 0. This validates the userid and password against the current contents of VMSECURE.[30]

GROUP Assignment: The Network Director will also dynamically collect the Directory's ACIGROUP value and utilize it to "connect" a user to a particular Network Director GROUP definition. This logic is activated by simply coding GROUP=VMSECURE on the applicable USERS definition statement.

In this case, The Network Director will request the GROUP name by issuing DIAGNOSE X'A0' subcode 4. If a GROUP is present, The Network Director will attempt to connect the user to that GROUP (if defined to The Network Director). If the dynamic connection fails, The Network Director will then attempt to connect the user to a defined Network Director GROUP of "VMSECURE". If that fails, no GROUP connection will be accomplished for the user.

_____

[30] In addition to SECURITY=VMSECURE, you must also have specified PASSWORD=YES on the applicable USERS, GROUP, and/or DEFAULT definition statement.

TNDVMS Subcommand

The DIAGNOSE X'A0' interface is a limited interface and cannot perform many functions that are generally required of a security package interface within The Network Director's environment. To extend the availability of VMSECURE functions from The Network Director, a new VMSECURE subcommand is provided on The Network Director's distribution tape (called TNDVMS). This subcommand can be utilized to accomplish the remaining functions of The Network Director's VMSECURE interface (changing passwords, etc.)

Installation: To install TNDVMS, simply make the file name TNDVMS VMSECURE (on The Network Director's base disk, normally virtual 193) available to the VMSECURE service machine. This can be done by inserting into the VMSECURE machine's PROFILE EXEC appropriate CP/CMS commands.

```
CP LINK DIRECTOR 193 300 RR
ACCESS 300 Q/A
```

Alternatively, you can also COPY the TNDVMS VMSECURE file to a VMSECURE owned disk (some installations use VMRMAINT for this). All VMSECURE applicable optimization procedures (VMXMACUP utility), etc. are possible for the TNDVMS file (as the procedures at your shop require).

Because TNDVMS has several functions that are critical to the security of your installation (changing passwords, etc.), it contains a validation check to insure that the virtual machine that is invoking it has been GRANTed authority to execute TNDVMS. This eliminates the potential for any virtual machine capable of SMSG from using TNDVMS improperly.

Thus, place a

```
GRANT $TNDVMS TO virtual-machine-name
```

in the VMSECURE CONFIG file for each virtual machine that will be authorized to issue it (normally, all machines that will execute The Network Director). Virtual machines operating The Network Director will require access to at least the GETINFO, VERSION, and CHGPSW functions. You can restrict other virtual machines (like managers) to ADDNAME and ADDPHONE by GRANTing only these subfunctions (E.G. "GRANT $ADDNAME TO VMRMAINT" allows the virtual machine named VMRMAINT to issue only the TNDVMS ADDNAME command).

Subcommand Format: Most of TNDVMS's functions are intended for use only during a terminal user's interactions with The Network Director, but a couple of the functions are intended for use by the Network Administrator. The TNDVMS command format is:

```
TNDVMS
              [ ADDINFO information ]
              [ ADDNAME  name ]
              [ ADDPHONE phone]
              [ CHGPSW   userid new-password]
              [ GETINFO  userid luname]
              [ VERSION ]
```

Figure 39.   TNDVMS Subcommand Format

During execution, The Network Director will automatically cause the CHGPSW, GETINFO, and VERSION functions to start in the VMSECURE machine as necessary. This is accomplished by The Network Director by issuing a CP SMSG command to the VMSECURE service machine invoking the TNDVMS subcommand. Responses are sent by VMSECURE via MSGNOH back to The Network Director (intercepted via the CP-MSGS=YES IUCV intercepts), where the results of the command are interpreted.

The ADDNAME and ADDPHONE functions are available for a Network Director Network Administrator to add the name and phone for a specific individual so that the messages utilized within The Network Director can include these items (they are generally quite useful in diagnosing any network problems, etc. that you may be encountering).

The functions provided by TNDVMS are:

Function	Purpose
ADDINFO	causes a *LO= card to be inserted or replaced in the specified userid directory entry. The 25 characters may be in any format and will be utilized by The Network Director (after GETINFO) for inclusion in the System Directory "Information" field. The &DIRINFO variable accesses it.
ADDNAME	causes a *NM= card to be inserted or replaced in the specified userid directory entry. The 20 characters may be in any format and will be utilized by The Network Director (after GETINFO) for inclusion in logon and logoff messages, subsystem selection and return messages, and in response to a DISPLAY NET= request.
ADDPHONE	causes a *PH= card to be inserted or replaced in the specified userid directory entry. The 20 characters may be in any format and will be utilized by The Network Director (after GETINFO) for inclusion in response to a DISPLAY NET= request.
CHGPSW	causes the password to be updated to a new value, updates the *PW card to maintain password history, and updates any *FL cards that may be present.
GETINFO	causes the *NM, *PH, *LL, and other miscellaneous information to be provided to The Network Director associated with a user that just completed the logon process. The *LL card is also updated with the new logon date and time. The luname operand is utilized by TNDVMS to construct the *LL record for display of the VTAM terminal name properly the next time the user logs on. Information returned by GETINFO is utilized to compute when a terminal user shall begin to receive the "password warning" message (TND0602). Five days prior to expiration, The Network Director will begin to inform the terminal operator that the password will expire soon.
VERSION	returns the release information associated with VMSECURE and TNDVMS. This is recorded in the TNDLOG file for simple reference and information.

Executing TNDVMS: As indicated previously, The Network Director will automatically execute GETINFO, CHGPSW, and VERSION during execution. The ADDNAME and ADDPHONE functions can be executed by any virtual machine granted access to TNDVMS by issuing CP SMSG. CMS users can simply enter:

```
SMSG VMSECURE TNDVMS ADDNAME VMUSER1 JOHN DOE
```

where:

Token	*Purpose*
SMSG	identifies the CP command to execute
VMSECURE	identifies the virtual machine to receive the message being sent
TNDVMS	identifies to VMSECURE the subcommand to execute
ADDNAME	identifies to TNDVMS which subfunction to execute
VMUSER1	is the userid who is having a name added
JOHN DOE	is the 20 character name that will be inserted on the *NM= card

This command can also be issued from Network Administration by simply prefixing it all with the "VM" statement identifier. Responses (if any) will then be placed into the normal Network Administrator's LOG for display.

Directory Comments

The Network Director has added two new VMSECURE Directory comment cards (*NM and *PH) and interrogates or updates three others (*FL, *LL, and *PW). These items are all operated on by TNDVMS, as necessary. The use made of each of the comment cards follows.

Directory Purpose

*FL   The *FL (FLAG) record is updated from the Expired condition (*FL= E) by CHGPSW when the user logs onto the system and successfully sets a new password. An expired user will not be allowed access unless a new password is provided.

*LL   The *LL (Last Logon) record is updated by GETINFO after a user has successfully passed the userid and password check (DIAGNOSE X'A0' subcode 4). The prior *LL contents is returned by TNDVMS to The Network Director for display at the terminal and the *LL record is then updated with the new date, time, and VTAM LU name for display the next time the user logs on.

*LO   The *LO (Location) record is updated via ADDINFO or direct editing of the Directory entry to place any additional information of your choice. It is retrieved by The Network Director at execution time and stored in The Network Director's System Directory for use by terminal users.

*NM   The *NM (Name) record is updated by the ADDNAME function and is returned to The Network Director by the GETINFO function.

*PH   The *PH (Phone) record is updated by the ADDPHONE function and is returned to The Network Director by the GETINFO function.

*PW   The *PW (Password) record contains the date of last password update and a historical list of the passwords that have been utilized. The date of last update is returned to The Network Director by GETINFO and the historical list of passwords is maintained by the CHGPSW subcommand of TNDVMS.

TopSecret/VM

The installation of The Network Director in a TopSecret/VM environment requires one or more definition efforts, dependent upon which functions of The Network Director's TopSecret/VM interface you intend to utilize. The items are discussed in detail in the remainder of this section (the following list is an overview).

---

1. Define the ACID

2. Optionally, identify The Network Director as a facility

3. Optionally, define selection resources

Figure 40. TopSecret/VM Interface Installation Overview

Define the ACID

You should add a TopSecret/VM ACID to identify The Network Director's executable machine. An example of the TSS commands follow:

```
TSS CREATE(DIRECTOR) NAME('Network Director') TYPE(SCA)
    FAC(VM) PASSWORD(DIRECTOR,30)

TSS ADMIN(DIRECTOR) DATA(BASIC)

TSS PERMIT(DIRECTOR) DIAG(A0) ACTION(VMPRIV)
```

The TYPE(SCA) specification allows The Network Director to issue the TSS LIST command to retrieve the Department, Division, and Name associated with the ACID (provided the ADMIN command is also issued specifying at least the authority levels identified). It is also possible to specify TYPE(USER) or assign a lesser Security Administrator. In these cases, the TSS LIST may fail and the Name, Division and Department ACIDs will not be available to The Network Director.

FAC(VM) allows the ACID to logon to VM to start The Network Director's execution. Other TopSecret/VM facilities for restricting the use of The Network Director's ACID are also valid (as required by your installation).

The PERMIT allows The Network Director to access to TopSecret/VM's DIAGNOSE X'A0' to make use of the Application Interface (AIPL).

The Network Director will also be issuing DIAGNOSE X'08' to issue the TSS LIST command. If your installation has ownership of DIAG(08) assigned, it will also have to be PERMITted to The Network Director's ACID.

Identify The Network Director as a Facility

The Network Director provides an entry into the VM system for multiple network users. It may be advantageous to establish a separate security environment for The Network Director and, therefore, identify it as a unique TopSecret/VM **facility**.

If The Network Director is not defined as a TopSecret/VM facility, it will operate under the FAC(VM) security environment and will have the characteristics associated with the VM facility.

If The Network Director is defined as a TopSecret/VM facility, the security environment (MODE, STMSG, LOG, etc.) and the TopSecret/VM reporting will properly reflect The Network Director. However, each ACID that is intended to logon via The Network Director will have to have FAC(DIRECTOR) specified or they will receive the TSS0142E message when attempting to logon to The Network Director.

To define The Network Director as a facility, identify an available facility within the TopSecret/VM facility matrix and reassign it to The Network Director. The following example assumes that the facility identified as USER1 is available.

```
    FAC(USER1=NAME=DIRECTOR)

    TSS ADDTO(DIRECTOR) MASTFAC(DIRECTOR)
```

The *Control Option* should be placed in the appropriate TSS PARMS file for the TopSecret/VM Server machine. The ADDTO command causes TopSecret/VM to recognize that the ACID identified as DIRECTOR is the master facility DIRECTOR.

Define Selection Resources

To make use of the individual selection process (PRIVILEGE), you will have to define a TopSecret/VM *resource class* that will be used to store selection authorization under. The following example uses the literal DIRECTOR as the keyword and assigns default protection.

At execution time, The Network Director will issue the appropriate resource validation request using a resource code of X'2E',[31] which must be specified on the RESCODE operand. Other values on the ADD(RDT) are optional and may be specified as desired.

```
TSS ADD(RDT) RESCLASS(DIRECTOR) RESCODE(2E) ATTR(DEFPROT)

TSS ADDTO(DIRECTOR)   DIRECTOR(ADMIN,PROG,PAYROLL)

TSS PERMIT(TS001)     DIRECTOR(PROG)
TSS PERMIT(TESTUSER)  DIRECTOR(PAYROLL) FOR(1)
TSS PERMIT(SYSTEMS)   DIRECTOR(ADMIN,PAYROLL)
```

The ADDTO(DIRECTOR) causes ownership of the DIRECTOR resources ADMIN, PROG, and PAYROLL to be assigned to the DIRECTOR ACID. In practice, these resources should be assigned to an appropriate Division or Department Security Administrator. The VCA or DCA should then issue appropriate PERMITs to allow individual ACIDs access to the selection.

---

[31] The RESCODE of X'2E' has been arbitrarily selected by The Network Director and can be modified. Contact NRS if you require a different RESCODE.

Common Installation Errors

Symptom	Cause	Correction
TSS0414E	The Network Director does not have authorization to issue DIAGNOSE X'A0', or does not have ACTION(VMPRIV) specified on it's ACID	Issue the appropriate PERMIT (see "Define the ACID" on page 80)
NAME does not appear in the LOG	The Network Director is not defined with sufficient authority to LIST the ACID for the user	Redefine The Network Director's ACID with an upgraded TYPE specification (see "Define the ACID" on page 80).
PERMIT for DIAG(A0) fails with TSS0318E	You have not assigned ownership of DIAG(A0) to an existing ACID	Assign ownership by issuing an appropriate ADDTO command and retry the PERMIT
TSS/VM is not being called	GLOBALS SECURITY=TOPSECRET is missing or you have not specified PASSWORD=YES on the appropriate USERS definition statement	Check the LOG right after the GLOBALS statements for TSS0303I messages. If they are missing, you have not specified SECURITY=TOPSECRET. Verify that the appropriate USERS, GROUP, or DEFAULT statement has specified PASSWORD=YES.
TSS0142E	The Network Director is defined as a facility to TopSecret/VM, but the ACID trying to logon has not been authorized to use The Network Director	Add the FAC definition in the user's ACID with the appropriate ADDTO command
S0C2 issuing DIAGNOSE	You have changed characteristics associated with The Network Director's ACID while The Network Director was logged on	TopSecret/VM will refresh information associated with the ACID the next time The Network Director's virtual machine is logged on or reconnected (LOGOFF and back on)

Figure 41. Common TopSecret/VM Installation Errors

Other Security Issues

Interfaces to other security mechanisms can be accomplished via use of The Network Director's Generalized Security Exit (TNDEXT01). Documentation for how to complete this approach is contained within the Internals Manual.

For information on other interfaces that may have been developed by other Network Director installations, contact North Ridge Software, Inc.

Operating System Issues

This portion of the manual is committed to describing and discussing the operating system dependent areas of The Network Director. Daily operations that are independent of the operating system are discussed in the Network Operator's Guide.

Console Communications

When The Network Director is operating with OPSYS=VM specified on the GLOBALS statement, the CONSOLE=YES operand activates WTOR (Write to Operator with Reply) logic. This implies that the virtual machine console connected to The Network Director's virtual machine must use the GCS REPLY command to communicate with The Network Director. Each time The Network Director issues the WTOR, GCS will automatically assign a unique message number to the message (you can see the message number and text by using the GCS QUERY REPLY immediate command). To communicate with The Network Director, simply reply to the message number and follow it with the appropriate Network Director command.

As an example:

```
  REPLY 01 STOP IMMEDIATE
```

will immediately shut down The Network Director (presuming that the number 01 has been assigned to the WTOR issued by The Network Director.

Execution FILEDEFs/DLBLs

The Network Director utilizes standard GCS FILEDEFs or DLBLs to define its input and output files. The following chart shows the intent for each:

FILEDEF or DLBL	Usage
TNDLOG	Output printer for all messages and the network LOG.
TNDFILE	The External VSAM File
TNDPARMS	The initial Configuration Parameters
TNDSAR	The sequential file that will contain accounting records

Figure 42.   Standard FILEDEFs/DLBLs

The Network Director requires that the output LOG (TNDLOG) be defined. The External File (TNDFILE) and the input parameters (TNDPARMS) do not have to be present. The CMS/DOS VSAM Shared Segment will need to be available in order to take advantage of the External File. The TNDSAR FILEDEF will be required only if you have elected to produce sequential event recording (GLOBALS ACCOUNTING=TNDSAR).

It is also possible to FILEDEF the TNDLOG listing to the virtual printer (E.G. "FILEDEF TNDLOG PRINTER") so that all Network Director generated messages are sent directly to the VM spool. This can be useful if your Network Director will run 24 hours a day and you would like to periodically review the contents of the LOG listing (issuing an appropriate VM CLOSE function against the LOG listing will cause a unique VM spool file to be generated).

There is currently no requirement that your installation even define the External File unless you want to use a facility that requires it. However, it is recommended that the file be defined. There are many valuable Network Director features that rely upon it for the storing of information across executions.

OSRUN PARM= Processing

You can also utilize the GCS PARM= operand on the OSRUN statement in either of the following two formats:

- PARM='APPLID= ...'

- PARM='GLOBALS ...'

The first form provides upward compatibility from previous releases and may include any operand that may be specified on the GLOBALS statement, but may **not** start with the "GLOBALS" string (any other GLOBALS operand is valid). The first form of the PARM is processed logically **after** the Configuration Parameters and may, therefore, be utilized to override earlier specification of operands on the GLOBALS statement.

```
PARM='APPLID=TESTDIR,EXTERNAL-FILE=NO'
```

is an example of changing the APPLID and EXTERNAL-FILE operands.

The second form of the PARM always starts with the text string "GLOBALS", which identifies it as the new form PARM and is processed **before** the Configuration Parameters.

```
PARM='GLOBALS OPSYS=VM'
```

is an example of providing the operating system value before processing the Configuration Parameters.

This is particularly important when you are using RELOAD logic to obtain execution time options. In order to obtain the definitions from the External File, The Network Director **requires** that the OPSYS value be specified properly (The Network Director cannot read the External File properly unless it knows which operating system it is in). In addition, any password (VSAM-PASSWORD) on the External File must be specified prior to accessing the file.

If the Configuration parameters are missing (FILEDEF not present, etc.), The Network Director will assume a RELOAD ALL should be executed. The NAME is extracted from the GLOBALS APPLID, which defaults to DIRECTOR. NRS recommends that you code PARM='GLOBALS APPLID=xxx,OPSYS=xx' operands in the PARM if you will use the implied RELOAD approach. If you do not use implied RELOAD, The Network Director is expecting that you will have coded one or more RELOAD statements in your Configuration Parameters.

VM Dial Considerations

In VM systems, it is quite common for devices to issue the CP DIAL command to connect a device to a specific virtual machine for processing. It is possible for The Network Director to present a choice to the terminal operator that, when selected, causes an appropriate DIAL command to be issued.

This can be achieved by establishing standard Network Director APPLICATION with a TARGET of the VSCS system (default is TARGET=VM) and then specifying with INITIAL-DATA the CP command that is acceptable to VSCS. An example of this is:

```
APPLICATION DOSCICS,TITLE='DOS CICS Production',
            TARGET=VM,INITIAL-DATA=('DIAL DOSVSE')
```

Supported Accounting Operands

To activate VM accounting via DIAGNOSE X'4C', specify ACCOUNTING=SAR.[32] The Network Director will then produce VM account records via DIAGNOSE X'4C' with using a subcode of X'0010'. This will generate records with a "C0" in card columns 79-80 of the account record.

To obtain SAR format records via a standard FILEDEF statement, specify ACCOUNTING=TNDSAR. Remember to place a TNDSAR FILEDEF command in the appropriate EXEC and point it to an appropriate location (191 disk, PUNCH, etc.).

It is possible to obtain SAR formats via DIAGNOSE X'4C' **and** 80 character images via the TNDSAR FILEDEF statement by specifying ACCOUNTING=(TNDSAR,SAR). Remember to provide the FILEDEF statement for TNDSAR.

---

[32] The Network Director will require the ACCT option in its VM directory entry.

Problem Reporting

Whenever you have encountered a problem within The Network Director's environment, you should carefully collect all information that applies to the situation prior to contacting North Ridge Software, Inc. If it becomes necessary to forward problem resolution materials to NRS, any media that is convenient for you is acceptable to NRS (paper, microfiche, tape, diskette, etc.). Dumps should be forwarded using VMFPLC2 DUMP in IPCS format.

Problems are generally grouped into two general categories (ABENDs and Processing Errors).

ABEND

For ABENDs, you should collect a copy of TNDLOG and the ABEND dump output (the GCS recovery machine will normally receive this). Insure that the failure was caused by The Network Director and not through Operator FORCE or a STOP ABEND Operator Command.

Once you have validated that the ABEND condition was caused or created by The Network Director, collect the following information prior to reporting the problem to North Ridge Software, Inc. This information can normally be obtained through appropriate usage of the VM IPCS component.

---

1.   The ABEND Code produced

2.   Operating System and Maintenance Level

3.   VTAM Version and Maintenance Level

4.   The Network Director's Execution Listing (including the LOG file).

5.   The dump that was produced during termination

Figure 43.   Problem Resolution Materials

You should also be prepared to respond to general questions about the physical terminal network in use (terminal types and model numbers).

Correction Format

The Network Director's maintenance is generally in the form of a refresh tape made available at regular intervals. If your installation requires a correction prior to receiving an updated version, North Ridge Software, Inc. will provide the fix in CMS ZAP format. Consult the *Network Administrator's Guide* for more information about how these fixes are identified.

Information about applying ZAP type fixes is in the *VM/SP Operator's Guide*. North Ridge Software, Inc. recommends that you allocate a file on The Network Director's 191 disk for each PTF applied with the name *xxxxxx ZAP*, where xxxxxx represents the PTF number. To apply the fix to the execution time file, enter:

```
  SPOOL PRT TO * CONT
  ZAP LOADLIB DIRECTOR (INPUT xxxxxx)
  SPOOL PRT CLOSE NOCONT
```

You should then READ the ZAP LOG from your virtual reader into an appropriately named file (e.g. READ xxxxxx LISTING) This approach keeps an audit trail on the 191 disk of all fixes that you have applied to your system.

In general, NRS recommends that fixes should be applied against the DIRECTOR LOADLIB and not against the distributed TEXT files. This allows the reconstruction of a distribution level nucleus by simply issuing the LKED command again (this is issued by the TNDINST process during installation).

On occasion, North Ridge Software, Inc. may request that you zap the TEXT files. If this occurs, you should reference the ZAPTEXT command in the *VM/SP Operator's Guide* for more information.

Appendix A. Sample TNDINST Usage

The following output is a sample of the result of invoking the TNDINST EXEC. Terminal input is represented by **bold type in this type face**. Output from the virtual machine (and the TNDINST EXEC) will be portrayed in this "normal" type face. Where the ENTER key was simply struck, this appendix has used the **-ENTER-** string.

```
tape fsf 19
Ready; T=0.44/1.61 13:06:51
vmfplc2 load tndinst exec
 LOADING.....
 TNDINST  EXEC    A1
Ready; T=0.44/1.62 13:06:55
tndinst
.. 21:07:39 95/04/28
..
..         =================
..         | T h e   N e t w o r k   D i r e c t o r |
..         =================
..
..                     Version 4.1.0
..
..              CMS Based Installation Procedure
..
..  The Network Director is a proprietary product providing VTAM based
..  terminal security and productivity.  It is produced, maintained,
..  and marketed by:
..
..                   North Ridge Software, Inc.
..                 12515 Willows Road NE - Suite 205
..                   Kirkland, Washington 98034-8795
..                       (206) 882-2600
..
..                 TELEX 5106014846 NRIDGE SOFTWARE
..                 FAX   (206) 823-9636
..
..  Hit ENTER to proceed (QUIT to exit the EXEC).
-ENTER-
..
..  This is the CMS based installation procedure for OS, DOS, or VM
..  based systems.  All systems (MVS, VS1, VSE, VM/VCNA, and GCS are
..  in general release.
..
..  You should have with you the Installation Guide, which
```

.. contains written documentation for this procedure. If you do not
.. have the proper manuals, contact NRS or your local representative
.. for it.
..
.. Hit ENTER to proceed (QUIT to exit the EXEC).
-ENTER-
.. Installation basically consists of this EXEC and subsequent actions.
.. Briefly:
..
..   This EXEC will:
..
..   1). Ask you a few questions about the environment you will be
..   installing The Director into.
..
..   2). Unload the appropriate files onto your current A disk (TEXT,
..   EXEC, DOSJOB, OSJOB, MACRO, COPY, and/or ASSEMBLE files)
..
..   3). Aid you in proceeding through the Stage 1 process
..
.. Note: The DOSVSE and native VM installation does not currently
.. produce jobs or steps that can be used to install SSI in some
.. subsystems requiring additional coding (IDMS/DC, TSO, or COM-PLETE)
.. If you are interested in utilizing SSI concepts in one of these
.. subsystems, consult the installation manual for the environment
.. these systems are operating in.
..
.. Hit ENTER to proceed (QUIT to exit the EXEC).

```
 LABEL   CUU M  STAT   CYL TYPE BLKSIZE     FILES  BLKS USED-(%) BLKS LEFT  BLK TOTAL
 TND193  193 A   R/W   FB 9332 1024            2        27-00       7473       7500
 MNT190  190 S   R/O   FB 9332 1024          207     10566-72       4026      14592
 MNT19E  19E Y/S R/O   FB 9332 2048          150      4050-81        950       5000
```

-ENTER-
..
.. If you do not have your CMS disks ACCESSed in the order you would
.. like, respond QUIT to the next prompt and start this EXEC over
.. once the disks are as you would like them. Files from the
.. distribution tape will be loaded onto the A disk.
..
.. North Ridge recommends that you allocate an individual mini-disk
.. to contain The Network Director's distribution files, but it is
.. really up to you. If you do use a separate mini-disk, it is
.. possible at any point to interrupt the installation process,
.. ERASE all the files that have been unloaded, and simply start the
.. process over again.
..
.. Hit ENTER to proceed (QUIT to exit the EXEC).
-ENTER-
..
.. General Installation Prompts:
..
.. What type of Operating System will The Network Director be
.. executed on (DOSVSE, MVS, VS1, or VM)??
..

vm

..

.. The rest of the installation required files will now be loaded
.. to the A disk. We are presuming that the installation tape
.. is still attached to CMS as the virtual 181 device.

..

.. Do you want to proceed with loading the files (YES)?
-ENTER-
REWIND COMPLETE
 LOADING ...
 COPYRITE TND   A1
 NRSCOMP ASSEMBLE A1
 NRSIMS   OS   A1
 NRSIMS31 OS   A1
 PROFILE GCS   A1
 TNDBLK   ASSEMBLE A1
 TNDCASE TEXT   A1
 TNDCAT   AMSERV A1
 TNDCICSL ASSEMBLE A1
 TNDCLUS AMSERV A1
 TNDCMS   EXEC   A1
 TNDCPACI VM   A1
 TNDCPCFB VM   A1
 TNDCPCFC VM   A1
 TNDCPLOG VM   A1
 TNDCTTO0 ASSEMBLE A1
 TNDCTTSN ASSEMBLE A1
 TNDDSECT ASSEMBLE A1
 TNDDSIEX ASSEMBLE A1
 TNDD21   TEXT   A1
 TNDD31   TEXT   A1
 TNDEFLD ASSEMBLE A1
 TNDEFLD TEXT   A1
 TNDEFLDT ASSEMBLE A1
 TNDEFLD1 ASSEMBLE A1
 TNDEFLD2 ASSEMBLE A1
 TNDEXT01 ASSEMBLE A1
 TNDEXT04 ASSEMBLE A1
 TNDEXT06 ASSEMBLE A1
 TNDEXT08 ASSEMBLE A1
 TNDEXT12 ASSEMBLE A1
 TNDEXT15 ASSEMBLE A1
 TNDEXT19 ASSEMBLE A1
 TNDEXT22 ASSEMBLE A1
 TNDEXT24 ASSEMBLE A1
 TNDEXT25 ASSEMBLE A1
 TNDEXT26 ASSEMBLE A1
 TNDEXT31 ASSEMBLE A1
 TNDEXT33 ASSEMBLE A1
 TNDGMM   ASSEMBLE A1
 TNDGMMSA ASSEMBLE A1
 TNDGMSG0 ASSEMBLE A1
 TNDIDMS ASSEMBLE A1
 TNDINFO COPY   A1

```
TNDINST  EXEC     A1
TNDINST1 EXEC     A1
TNDINST2 EXEC     A1
TNDINTAB OS       A1
TNDINTX0 ASSEMBLE A1
TNDLGNX0 ASSEMBLE A1
TNDMAX   MACLIB   A1
TNDMSGS  ASSEMBLE A1
TNDMSGSF ASSEMBLE A1
TNDNSI   TEXT     A1
TNDNSIX1 ASSEMBLE A1
TNDNSIX1 TEXT     A1
TNDNSIX2 COBOL    A1
TNDNSIX3 ASSEMBLE A1
TNDNSI62 TEXT     A1
TNDNUC   TEXT     A1
TNDOS    TEXT     A1
TNDPCT   OS       A1
TNDPDDSO ASSEMBLE A1
TNDREPRO AMSERV   A1
TNDRIX02 ASSEMBLE A1
TNDSTASK ASSEMBLE A1
TNDSTG1  DOS      A1
TNDSTG1  OSVM     A1
TNDULGX1 ASSEMBLE A1
TNDUTIL  EXEC     A1
TNDUTIL  TEXT     A1
TNDUTILD TEXT     A1
TNDUTILJ OS       A1
TNDVMS   VMSECURE A1
TNDVSE   ASSEMBLE A1
TNDVSI   TEXT     A1
TNDVSJCL DOS      A1
END-OF-FILE OR END-OF-TAPE
```

..
.. If your system is equipped with the CMSVSAM shared segment, you
.. can unload (REPRO) The Network Director's optional External File
.. to a properly formatted mini disk.
..
.. Would you like to unload the External File now (NO)?
-ENTER-
..
.. This process is done with the installation tape.
..
.. We will now produce a DIRECTOR LOADLIB, which will contain the
.. executable Network Director. It will be referenced later
.. as a portion of the DIRECTOR GCS file.
..
..
.. Would you like to create sample Configuration Parameters (YES)?
-ENTER-
.. TNDINST1 - Sample configuration parameters
.. ====   ============
..

.. You will now be asked a series of questions associated with your
.. environment. The answers to these questions will be utilized to
.. create sample configuration parameters for The Network Director
.. to use the first time you attempt to bring it up.
..
.. Each question will have a default value specified in parenthesis.
.. To accept the default, simply press the ENTER key. Provide an
.. alternative by simply typing an appropriate response (YES or NO,
.. etc.).
..
.. Once this process is complete, you can XEDIT the result in
.. TNDPARMS INPUT A1 and continue the customization process if you
.. would like. Enter QUIT at any point to simply exit the
.. Configuration Parameter prompting and construction process.
..
.. What is the VTAM APPL name you would like the Director to use when
.. it opens the VTAM ACB (DIRECTOR)?
..
-ENTER-
.. What AUTHORIZATION code was given to you to execute The Network
.. Director (123456789012345)?
..
-ENTER-
.. If the VTAM APPL definition has a password (PRTCT) associated with
.. it, specify it now ()?
..
-ENTER-
.. What VTAM subsystems will you be authorizing using The Network
.. Director ()? Select one from the list (CMS, IDMS, CICS, TSO,
.. ROSCOE, COMPLETE, IMS).
..
.. Press ENTER to terminate this subsystem loop.
..
cms
.. What VTAM subsystems will you be authorizing using The Network
.. Director ()? Select one from the list (CMS, IDMS, CICS, TSO,
.. ROSCOE, COMPLETE, IMS).
..
.. Press ENTER to terminate this subsystem loop.
..
cics
.. What VTAM subsystems will you be authorizing using The Network
.. Director ()? Select one from the list (CMS, IDMS, CICS, TSO,
.. ROSCOE, COMPLETE, IMS).
..
.. Press ENTER to terminate this subsystem loop.
..
-ENTER-
.. If you have a terminal that you would like The Director to acquire
.. when it initializes, enter the LUNAME now ()?
..
.. Strike ENTER when you are done specifying devices.
t01005
.. If you have a terminal that you would like The Director to acquire

.. when it initializes, enter the LUNAME now ()?
..
.. Strike ENTER when you are done specifying devices.
-ENTER-
..
.. The Configuration Parameters have been placed onto your
.. A1 disk in the file named TNDPARMS INPUT
..
.. You can review it or modify it by simply XEDITing it. These
.. parameters will be read by The Network Director when it
.. initializes in the GCS environment (a GCS FILEDEF command
.. will indicate to the Director where the parameters reside).
..
..
.. The Stage One result (TNDSTG1 LISTING A) will contain comments you
.. should review prior to proceeding.
..
.. To start up The Network Director, you will now have to IPL GCS
.. (presuming this virtual machine is a member of the GROUP). Remember
.. to SET ECMODE ON and then simply type DIRECTOR, which will invoke the
.. DIRECTOR GCS exec file to start The Director.
..
.. The input parameters are in the file named TNDPARMS INPUT on your
.. A disk and the output LOG file will be in TNDLOG LISTING on the A
.. disk.
..
.. Shut The Network Director down from any functioning Network
.. Administrator's terminal by using the STOP IMMEDIATE command.
.. You can also shut down The Network Director by replying to the
.. outstanding reply (QUERY REPLY to get the number) with a
.. REPLY xx STOP IMMEDIATE (where xx is the number displayed by the
.. the QUERY command's response.
..
Ready; T=68.62/87.25 13:16:47

Appendix B. Sample Configuration Parameters

The following sample Configuration Parameters are an example of The Network Director's initialization parameters that may have been generated by the Stage One process (TNDINST for VM, TNDGEN for OS and DOS systems).

```
**************************************************************************
**************************************************************************
**                                                                    **
**  The Network Director               North Ridge Software, Inc. **
**  ===================                ========================= **
**                                                                    **
** Installed by DIRECTOR at NRS - 95/04/13 at 19:38:09
**                                                                    **
**************************************************************************
**************************************************************************
**                                                                    **
**                         GLOBALS                                    **
**                                                                    **
**  The GLOBALS statement defines items that apply to the overall    **
**  operating environment (Operating system type information).       **
**                                                                    **
**                                                                    **
**************************************************************************
**************************************************************************
GLOBALS APPLID=DIRECTOR,
        AUTHORIZATION=123456789012345,
        TRANSLATE=UPPER,
        WTO=10,
        LOGON-MESSAGE=DETAIL,
*       SECURITY=VM,
*       CP-MSGS=NO,
        OPSYS=VM,
        VTAMOPER=YES
**************************************************************************
**************************************************************************
**                                                                    **
**                      APPLICATIONS                                  **
**                                                                    **
**  Each APPLICATION statement represents a logical application       **
**  subsystem that may appear on a selection screen.  They are        **
**  assigned to TERMINALS, USERS, and GROUPs via the associated       **
**  APPLICATIONS= operand.                                            **
**                                                                    **
**  PFKEY values will be assigned by the Director if they are not     **
**  assigned here.  You control the order that the applications       **
**  appear on the selection screen by the order you place them in     **
**  the APPLICATIONS= operand.                                        **
**                                                                    **
**  The applications named ADMIN, HELP, and MESSAGES are internal to **
**  The Network Director.  You should not remove these (especially    **
**  ADMIN) until you are familiar with them and have opted not to     **
**  use them.                                                         **
**                                                                    **
```

```
       ***************************************************************************
       ***************************************************************************
       APPLICATION ADMIN,TARGET=TNDADMIN,
                   UPDATES=YES,
                   TITLE='Network Administration'
       APPLICATION MESSAGES,TARGET=TNDMSG,
                   TITLE='Messages'
       APPLICATION HELP,TARGET=TNDHELP,
                   UPDATES=YES,
                   TITLE='Network Information File'
       ***************************************************************************
       ***************************************************************************
       **                                                                     **
       **                          PROFILES                                   **
       **                                                                     **
       ** The PROFILE statement is used to establish the === DEFAULT ===      **
       ** values for terminal operator modifiable parameters.  The terminal   **
       ** operator will be able to modify these via the PROFILE command       **
       ** (default PA1) if he/she is authorized.                              **
       **                                                                     **
       ***************************************************************************
       ***************************************************************************
       PROFILE SAMPLE,PRINTER=PRT01
       ***************************************************************************
       ***************************************************************************
       **                                                                     **
       **                          DEFAULT                                    **
       **                                                                     **
       **  The DEFAULT statement provides a location for you to establish     **
       **  certain items as applying to the entire network.  When the         **
       **  Director is deciding where to obtain information from, it will      **
       **  look at the USER/TERMINAL definition first, then the GROUP          **
       **  definition, and finally the DEFAULTs.  Think of it as a "sift       **
       **  down" type search.                                                 **
       **                                                                     **
       ***************************************************************************
       ***************************************************************************
       DEFAULT COMMANDS=YES,
            SELECTIONS=*,
            PASSWORD=++++++++,
            ATTRIBUTES=EXTENDED-SEARCH,
            FORMAT-ID=OPTION1,
            PROFILE=(SAMPLE,CHANGE),
            LOGO=
                                  {Your Company LOGO here

           %"\\\\\\\\\   \\\\\\\\\"
           %"\NNNNNNNN   \NNNNNNNN"
           %"\NNNNNNNNN  \NNNN\\\\\\\\\\\\\\\\\\\ "
           %"\NNNNNNNNNN \NNNN\RRRRRRRRRRRRRRRRRR"
           %"\NNNNNNNNNNN\NNNN\RRRRRRRRRRRRRRRRRR\\\\\\\\\\\\\  "
           %"\NNNNNNNNNNNNNNNNN\RRRRRRR   \RRRRR\SSSSSSSSSSSSSSS "
           %"\NNNNNNNN\NNNNNNN\RRRRRRR\\\\RRRR\SSSSSSSSSSSSSSSSS"
           %"\NNNNNNNN \NNNNNN\RRRRRRRRRRRRRRRR\SSSSSSSS     \SSS"
           %"\NNNNNNNN  \NNNNN\RRRRRRRR\RRRRRR\SSSSSSSS\\\\\\\  "
           %"\NNNNNNNN   \NNNN\RRRRRRRR \RRRRRR\SSSSSSSSSSSSSSS "
                            %"\RRRRRRRR  \RRRRR\\    \SSSSSSSS"
                            %"\RRRRRRRR   \RRR\SSS\\\\\\SSSSSSSS"
                                           %"\SSSSSSSSSSSSSSSSSS"
                                           %" \SSSSSSSSSSSSSSS "

                            {Network Director Version &VERS

                            Please enter your User Id and Password
       LOGO-END
       ***************************************************************************
       ***************************************************************************
       **                                                                     **
```

```
**                       GROUPs                                 **
**                                                              **
** A GROUP can be defined for each major segment of your processing **
** environment.  Essentially, a GROUP is a short hand manner in **
** which you can specify the characteristics of multiple users in **
** one place and then reference it from other definitions (USERS or **
** TERMINALS.                                                   **
**                                                              **
***************************************************************************
***************************************************************************
GROUP SYSTEMS,APPLICATIONS=(HELP,MESSAGES,ADMIN),
LOGO=
            Welcome to The Network Director Version &VERS

 You are operating under control of VTAM Version &VTAM in VM level &OPSYS
This &&MOD is operating as the SSCP &SSCP... Subarea &SUB in Network &NETID

LOGO-END
GROUP USERS,APPLICATIONS=(HELP,MESSAGES,ADMIN),
      LOGO=
+-----------------------------------------------------------------------------+
|                                                                             |
|                    This is the GROUP "USERS" logo                           |
|                                                                             |
+-----------------------------------------------------------------------------+
LOGO-END
GROUP  OPERS,APPLICATIONS=(ADMIN),TIMEOUT=5M,
      LOGO=
+-----------------------------------------------------------------------------+
|                                                                             |
|                    This is the GROUP "OPERS" logo                           |
|                                                                             |
+-----------------------------------------------------------------------------+
LOGO-END
*
***************************************************************************
***************************************************************************
**                                                              **
**                       USERS                                  **
**                                                              **
**   Each USERS statement defines a pattern for who will be authorized**
**   to logon to the Director.  The USER named TECH is a member of **
**   the GROUP SYSTEMS.  The USERS defined with "++++++++" as a **
**   userid implies that anyone can logon to the Director with the **
**   password checking controlled by the setting of the DEFAULT **
**   PASSWORD operand.                                          **
**                                                              **
***************************************************************************
***************************************************************************
USER  TECH,GROUP=SYSTEMS
USERS ++++++++,GROUP=USERS
*
***************************************************************************
***************************************************************************
**                                                              **
**                       TERMINALS                              **
**                                                              **
**   Typically, installations provide control of VTAM LUs to the **
**   Director via the LOGAPPL option in the VTAM definitions.   **
**   However, any terminals that require special handling by the **
**   Director need to be defined here.  The most typical use of this **
**   is to specify ACQUIRE=YES during early testing.  It is entirely **
**   possible to execute the Director with no TERMINAL definitions **
**   (it will enter into session with any device that enters the **
**   LOGON exit.                                                **
**                                                              **
***************************************************************************
```

```
*********************************************************************
TERMINAL OPERATOR,APPLICATIONS=(ADMIN),MESSAGES=(BROADCASTS)
```

Appendix C. Sample Initialization Procedures

The following examples are representative of the general process that can be utilized to start The Network Director in the various operating system environments.

OS

The following JCL provides an example of how The Network Director might be initialized under an OS operating environment.

```
//DIRECTOR JOB (accounting),DIRECTOR,CLASS=9
//*
//*   THE NETWORK DIRECTOR
//*
//IDCAMS   EXEC PGM=IDCAMS
//TNDFILE  DD  DSN=TND.DIRECTOR.FILE,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  DSN=TND.DIRECTOR.DATA(VERIFY),DISP=SHR
//*
//DIRECTOR EXEC PGM=DIRECTOR,REGION=4096K
//STEPLIB  DD  DSN=TND.DIRECTOR.LOAD,DISP=SHR
//TNDLOG   DD  SYSOUT=*
//TNDFILE  DD  DSN=TND.DIRECTOR.FILE,DISP=SHR,AMP=('BUFSP=65536')
//TNDPARMS DD  DSN=TND.DIRECTOR.DATA(TNDDECK),DISP=SHR
//SYSABEND DD  SYSOUT=*
```

DOS

The following job control provides an example of how The Network Director might be initialized under the VSE operating environment.

```
* $$ JOB JNM=DIRECTOR,DISP=D,CLASS=4
// JOB DIRECTOR
// DLBL TND,'NRS.DIRECTOR.LIB',99/365
// EXTENT ,DOSRES
// LIBDEF *,SEARCH=(TND.PROGRAMS),TEMP
// DLBL TNDFILE,'NRS.DIRECTOR.FILE',,VSAM,CAT=VSESPUC
// OPTION DUMP
// EXEC DIRECTOR,SIZE=AUTO
    .
    .
  configuration parameters
    .
    .
/*
/&
* $$ EOJ
```

VM

The following sample REXX file provides an example of how The Network Director might be initialized under the GCS operating environment.

```
/********************************************************************
**                                                                **
**    DIRECTOR Initialization EXEC (DIRECTOR GCS A1)              **
**                                                                **
********************************************************************/
'SET SMSG IUCV'
'SET MSG IUCV'
'FILEDEF TNDPARMS DISK TNDPARMS INPUT   A'
'FILEDEF TNDLOG   DISK TNDLOG   LISTING A'
'FILEDEF TNDSAR   DISK TNDSAR   DATA    A'
'DLBL IJSYSCT D DSN TNDMAST (VSAM PERM)'
'DLBL TNDFILE D DSN TND.DIRECTOR.FILE (VSAM PERM)'
'GLOBAL LOADLIB DIRECTOR'
'OSRUN DIRECTOR PARM=''GLOBALS OPSYS=VM'''
```

If you would like the LOG listing to be sent directly to the VM spool, use "FILEDEF TNDLOG PRINTER" instead.

The SET MSG IUCV command is required to allow communications between The Network Director and TNDVMS (VM/SECURE installations only).

Appendix D. Manual VSAM File Installation

The following output is a sample of the results that would be generated in you decide to *manually* install the External File in a VM environment. Terminal input is represented by **bold type in this type face**. This sample installs the External File onto an FBA device.

```
Ready; T=0.01/0.03 09:47:38
spool punch to * class i cont nohold
Ready; T=0.01/0.03 09:47:49
punch ipl dsf * (noh)
Ready; T=1.98/5.84 09:48:16
punch tnd dsf * (noh)
Ready; T=0.02/0.04 09:48:18
spool punch nocont close
PUN FILE 0222  TO  DIRECTOR COPY 001   NOHOLD
Ready; T=0.01/0.04 09:48:26
spool reader class i nohold
Ready; T=0.01/0.02 09:48:35
ipl 00c clear attn
- ENTER -
ICK005E DEFINE INPUT DEVICE, REPLY 'DDDD,CUU' OR 'CONSOLE'
ENTER INPUT/COMMAND:
2540,00c
2540,00C
ICK006E DEFINE OUTPUT DEVICE, REPLY 'DDDD,CUU' OR 'CONSOLE'
ENTER INPUT/COMMAND:
console
CONSOLE
ICKDSF -  SA  DEVICE SUPPORT FACILITIES   ... version information ...

 INIT UNITADDRESS(192) NVFY PRG VOLID(TNDEXT) FBAVTOC(END)
ICK00700I DEVICE INFORMATION FOR 192 IS CURRENTLY AS FOLLOWS:
        PHYSICAL DEVICE = device type
        STORAGE CONTROLLER = controller type
        STORAGE CONTROL DESCRIPTOR = 00
        DEVICE DESCRIPTOR = 00
ICK003D REPLY U TO ALTER VOLUME 192 CONTENTS, ELSE T
ENTER INPUT/COMMAND:
u
U
ICK01731I MAP FUNCTION NOT SUPPORTED FOR MINI-DISKS
ICK00001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0
```

ICK00002I ICKDSF PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
IPL CMS
19E replaces Y (19E)
Y (19E) R/O
VM/SP REL 5

Ready; T=0.36/0.59 09:50:13
access 192 d
Ready; T=0.01/0.01 09:50:35
dlbl ijsysct d dsn tndmast (vsam perm
Ready; T=0.01/0.01 09:51:05
q dlbl
```
DDNAME  MODE LOGUNIT  TYPE CATALOG EXT VOL BUFSPC PERM DISK  DATASET.NAME
IJSYSCT  D1           VSAM IJSYSCT                      DOS  TNDMAST
```
Ready; T=0.02/0.06 09:51:12
amserv tndcat
Ready; T=2.61/5.55 09:52:03
x tndcat listing
Ready; T=2.61/5.55 09:52:13
amserv tndclus
Ready; T=2.61/5.55 09:52:17
x tndclus listing
Ready; T=2.61/5.55 09:52:32
attach 580 * 181
Ready; T=0.01/0.01 09:52:34
dlbl tndfile d dsn tnd.director.file (vsam
Ready; T=0.01/0.01 09:52:37
filedef tndtape tap1 nl
Ready; T=0.01/0.02 09:52:43
tape rew
Ready; T=0.04/0.08 09:55:31
tape fsf 16
Ready; T=0.01/0.03 09:57:00
amserv tndrepro (tapin 181
DMSAMS367R Enter tape input DDNAMEs:
tndtape
Ready; T=6.06/10.43 09:58:13
x tndrepro listing
Ready; T=0.01/0.03 09:58:20

Glossary

abend: an unexpected interruption in the normal processing of a program

ACB: Access Method Control Block - the operating system control block that identifies The Network Director to VTAM and VSAM.

ACF2: Computer Associate's Access Control Facility, a system security software package for OS, DOS, and VM installations.

APAR: Authorized Program Analysis Request, represents a request for investigation of an option or feature by NRS

APPLICATION: The Network Director's Statement used in the Parameter Deck to identify a logical application.

APPLID: The 1 to 8 byte code that identifies The Network Director to VTAM. Used in conjunction with the ACB and the GLOBALS APPLID operand.

CICS: IBM's Customer Information Control System (a transaction processing system).

CMS: Conversational Monitor System. The programming component of the VM operating system from IBM.

COM-PLETE: A teleprocessing system from Software AG

DOS: IBM's Disk Operating System (recent versions are known as DOS/VSE or VSE/ESA). When referenced, The Network Director is referencing any of the DOS or DOS/VSE releases capable of supporting ACF/VTAM and VSE/ESA Librarian concepts.

dump: the hexadecimal listing associated with a program interrupt or abend

External File: The VSAM KSDS file used by The Network Director for storing Profiles, Messages, and HELP information.

GCS: the Group Control System is a component of VM Release 4 and higher

IDMS/DC: A teleprocessing system from Computer Associates

IMASPZAP: the OS Service Aid program utilized to apply temporary fixes to a software subsystem

IMS/DC: the teleprocessing component of IBM's IMS

LIBR: The VSE/SP system utility utilized to process books in a program library

LOG: Identifies both the external Print file (SYSPRINT or SYSLST) and the main storage queue used for LOG viewing by the Network Administrator.

Linkage Editor: The operating system utility program that combines object decks into an executable module or phase

LOGAPPL: The VTAM operand on the LU or PU statement that can be used to direct terminals to The Network Director.

LU: The acronym for a VTAM Logical Unit. Typically dealt with as a "terminal".

Maintenance: The process associated with installing a new release of a software product to incorporate upgrades, fixes, and enhancements.

MAINT: The DOS/VSE system utility utilized to process books in a program library

MODEL204: Computer Corporation of America's (CCA) data base management system

MSHP: the DOS Service Aid program utilized by the system programmer to apply maintenance to software subsystems. It is also the vehicle for

application of temporary fixes for Dos Release 2.1 and beyond.

MVS: IBM's OS/MVS or Multiple Virtual Storage operating system. When utilized by The Network Director, MVS references any release of OS/MVS capable of supporting ACF/VTAM This includes all base releases of MVS as well as MVS/XA.

NCCF: IBM's Network Communications Control Facility, typically utilized to allow for improved operation of a ACF/VTAM domain

NCP: IBM's Network Control Program, a software component that resides in and controls the resources associated with a 37x5

NETVIEW: IBM's combination of software tools (NCCF, NLDM, etc.) that provide facilities to monitor and improve operational characteristics of the network

Network Administration: The process of managing the logical network to guarantee availability, security, and usability.

NIB: a control block used by VTAM and The Network Director to represent an individual LU (the Node Initialization Block)

NLDM: IBM's Network Logical Data Manager, a software component that operates as a NCCF processor to aid in locating and diagnosing failing network components

PDZAP: the DOS Service Aid program utilized to apply temporary fixes to a software subsystem (for DOS releases prior to Release 2.1)

POWER: The DOS/VSE spool manager that controls job input and output files

PPT: An acronym for the MVS Program Properties Table or the CICS Processing Program table

program operator: A VTAM facility that allows standard VTAM "application programs" to issue and receive VTAM commands and messages.

PTF: a term commonly utilized to identify a temporary fix of a problem (a Program Temporary Fix)

PU: A VTAM Physical Unit. Typically identifies a single physical terminal.

RACF: IBM's Resource Access Control Facility, a system security software package for OS and VM installations.

REPRO: A facility within VSAM's Access Method Services that allows a file to be reproduced.

ROSCOE: A program development environment from ADR

RPL: a Request Parameter List is a control block in storage that represents a request for work to ACF/VTAM or VSAM

SITE: The Network Director's statement used to define another ACF/VTAM DOMAIN also executing a Network Director

SMF: the Systems Management Facility, an OS based facility to collect accounting, performance, and activity records

SMP: the OS Service Aid program utilized by the system programmer to apply maintenance to software subsystems.

SNA: IBM's System Network Architecture, a set of concepts that provide a framework for communication between various network components

SSI: The Network Director's acronym that represents the concept of Single System Image (the image that all the host applications are combined into a single unified system)

Stage One: The process of deciding major characteristics associated with the installation of The Network Director.

Stage One Listing: One of the results of Stage One, which describes that activities that should be followed to complete installation.

Stage Two: One of the results of the Stage One process. Stage Two consists of multiple jobs that should be run to complete the installation as specified in the Stage One deck.

SYSPRINT: The OS DD statement typically defining a SYSOUT=A printer that The Network Director will place its printer LOG file on.

TERMINAL: The Network Director's statement used to define a pattern to be matched with ACF/VTAM LUNAMEs that will indicate special processing associated with the device

TNDGEN: The Stage One generation Macro. This is used to produce the Stage Two jobs and the Stage One Listing.

TNDLOG: The output file (OS DD statement, DOS SYSLST, and VM FILEDEF) defining The Network Director's output listing file.

TNDPARMS: The input file (OS DD statement, DOS SYSIPT, and VM FILEDEF) defining The Network Director's input Parameter Deck file.

TNDSAR: The sequential output file (OS DD statement, VM FILEDEF, or DOS ASSGN statement) defining The Network Director's destination for accounting records (when GLOBALS=TNDSAR has been selected)

TOP-SECRET: Computer Associates system security software package for OS installations.

TPX: The TeleProcessing eXecutive is a VTAM based multi-session software offering

TSO: IBM's Time Sharing Option. A program development facility for OS/MVS installations.

USER: The Network Director's statement used to define a pattern of userids, which will be recognized as valid for logging onto the system

VCNA: IBM's Virtual Machine/VTAM Communications Network Application software

packaging of SNA communications for VM environments (is based around DOS/VSE or OS/VS1)

VM: IBM's Virtual Machine operating system. When utilized by The Network Director, VM references any release of VM capable of supporting ACF/VTAM This includes VM releases supported by VCNA as well as VM systems with GCS capabilities.

VSAM: the Virtual Storage Access Method, a commonly used method of storing and retrieving data from external disk devices

VS1: IBM's OS/VS1 (Virtual Storage 1) operating system. When utilized by The Network Director, VS1 references any release of OS/VS1 capable of supporting ACF/VTAM This includes VM/VCNA implementations utilizing VS1 as a host environment.

VTAM: the Virtual Terminal Access Method, an implementation of SNA for IBM mainframes providing control over and access to network resources

37x5: a term used generically to describe a hardware component responsible for managing the interface between the host CPU and one or more remote communication lines. Also known as a communications controller

Index

I

ICHRIX02 24
IDCAMS 43
IDMS 7, 15, 42
IDMS/DC
    defined 105
IFOX00 14
IJSYSCT 59
IJSYSUC 43
IMASPZAP
    defined 105
implied RELOAD 31, 86
IMS 7, 15, 42
IMS/DC
    defined 105
INFO 15
Info Storage 22
initialization JCL 101
install steps 4, 11, 37, 53
installation aid 61
InterNet address ii
IPCS 88
IPL DSF 57

J

JCL for startup 101
JOBNAME 15, 42

L

LABEL 15
LIBR 38
    defined 105
libraries 38
LIBVOL 15, 42
LIDREC 69
link edit 44
linkage editor 52
    defined 105
LISTING 62
load module 4
LOG
    defined 105
LOGAPPL
    defined 105

LST 51
LU 15
    defined 105
LU name 79

M

MAINT
    defined 105
maintenance 47
    defined 105
manual set 2
member 4
MESSAGE 15, 42
MLID 22
MODEL204
    defined 105
MODESET 24
MSG facility 50
MSGCLAS 15
MSGNOH 76
MSHP 52
    defined 105
MVS
    defined 106
MX24 35

N

NAME 16
NCCF
    defined 106
NCP
    defined 106
NETVIEW
    defined 106
Network Administration
    defined 106
Network Administrator 1
NEWPASS 24
NIB
    defined 106
NLDM
    defined 106
nonswappable 32
notation 3
null PARM 31, 86

O

object code   4
operator interface   29
operator's console   50
OPSYS   14, 41
OS
   unload jcl   12
OS installation   11
OS PARM   31
OSRUN PARM   86

P

PARM   31, 86
PARM processing   31, 86
PassTicket   25
password expiration message   24
password validation   70, 74
PDANOXA   35
PDAXA   35
PDZAP
   defined   106
PERMIT   80, 83
PGMR   16
POWER   51
   defined   106
PPT   32
   defined   106
PREFIX   16, 42
preparing the mini-disks   56
private libraries   38
private library definition   38
problem reporting   52
problem resolution materials   52
product maintenance   42
program operator
   defined   106
PRT   51
psw mode   35
PTF   52
   defined   106
PTFs   4
PTKTDATA   26
PU
   defined   106

Q

QUERY REPLY   84

R

RACF   16, 24, 25, 35, 71
   defined   106
RACF exit   24
RACINIT   24, 35
RACROUTE   24, 27, 35
RBS   51
RCVT   24
RDT   82
REGION   16
REPLY   84
REPRO   60
   defined   106
RESCODE   82
resource rules   22
RESTORE DOS library   38
RMODE   34
ROSCOE   16, 42
   defined   106
RPL
   defined   106
rules facility   72, 74

S

S0C2   83
SAF   24, 35
SCA   80
search order   61
secondary program operator   43
SECURE   16
Secured Signon   25
SECURITY   22, 24, 27
security systems   48
SECURITY-SVC   22
segmenting TNDSAR   51
selection resources   82
setting AMODE   35
shutting down   84
single system image
   CICS   7
   Com-plete   7
   IDMS   7
   IMS   7
   TSO   7