

TRIM

Installation and Operations Manual

This document is applicable to the TRIM Version 7.6.1 software package.

Comments pertaining to this document and TRIM are encouraged. Please direct all comments to:

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Treehouse Software, Inc. provides two manuals with TRIM. These manuals are:

- **Installation and Operations Manual** This manual provides all of the information necessary to perform the installation and procedures to set up TRIM.
- **Reference Manual** This manual provides detailed reference material about the various TRIM functions and features.

The structure of the TRIM documentation is intended to make information about the product more convenient to locate and use.

This Installation and Operations Manual describes the installation process for the Treehouse Software, Inc. TRIM software package. This manual describes:

- Installation Specifics for each operating system
- Real-Time Monitor operational considerations
- Batch Log Analysis operational considerations
- Tailoring with zaps, TRMTAP, TRMLOG, TRMRSP, TRELOG, and TRMSLO
- Error Analysis and Problem Solving

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SECTION I

INTRODUCTION

I.1 Introduction to Installation

TRIM may be installed and executed in the following IBM 370 and compatible mainframe environments: OS (OS/390, MVS, MVS/XA, MVS/ESA, Z/OS), VSE, and VM (SP, XA, ESA). TRIM may also be installed on certain Siemens systems.

This Manual

The installation instructions in this manual cover all of the operating systems listed above. Since the vast majority of TRIM sites are OS, the instructions have an OS orientation. However, 80-90% of the installation process is identical or very similar in every operating system. Therefore, the installation steps are presented for all operating systems in one section, **Section II Installation**. The assumption is that VSE, VM, and Siemens systems personnel responsible for TRIM installation can adapt OS terminology to their operating system environments.

For example, a file in OS may be a library in VSE and a mini-disk in VM.

A PDS (partitioned dataset) in OS may be called a library in VSE and a GLOBAL TXTLIB in VM.

A member in OS may be a module in VSE and a file in VM.

A link-edit in OS may be called a link in VSE and a load in VM.

A load library in OS may be called a core-image library in VSE and a loadlib in VM.

A link-edit in OS has *INCLUDE load-library (member)*, while in VSE it is *INCLUDE text-member*, and in VM it is *loadlist member*.

For OS, to do assemblies, the source members and macros may both reside in one source library. For VSE with older assemblers, the macros must be formed into E-decks, and for VM the macros must be in a MACLIB.

Where appropriate, examples and explanations are given for each operating system.

ADABAS/NATURAL Levels

This version of TRIM contains support for ADABAS Version 7.4.2 and NATURAL Version 3.1.6 and above.

ADABAS Version 7.4.2 was the latest release available at the time the TRIM software and documentation were prepared. TRIM may support releases of ADABAS later than 7.4.2, but since those releases were not available at the time of this release, Treehouse Software, Inc. cannot be certain that TRIM Version 7.6.1 will support these later releases.

The TRIM RTM requires NATURAL Version 3.1.6 or 4.1.2 and above.

TRIM does not require Zaps for any operating system, teleprocessing system, or to ADABAS, NATURAL, or their associated software.

The TRIM RTM runs equally well in CICS, COM-LETE Version 4.5 and later, TSO, CMS, or any other teleprocessing environment capable of running NATURAL.

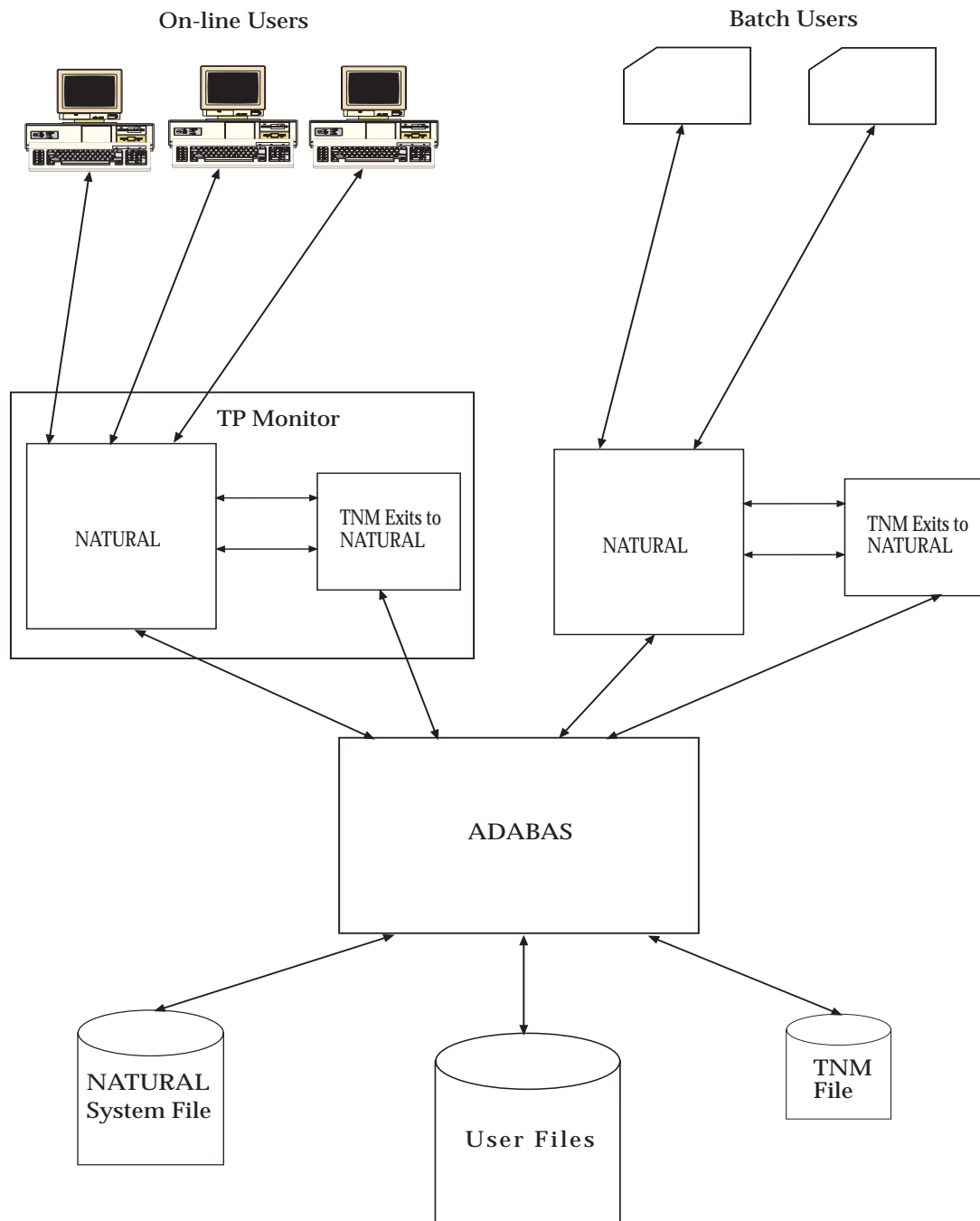
The ADABAS 7.4.2 / TRIM environment is shown in Figure 2.

Note: The TRIM NATURAL Monitor is referred to as TNM throughout this manual. TNM is installed with, and accessed via, the TRIM RTM.

I.2 Installation Steps

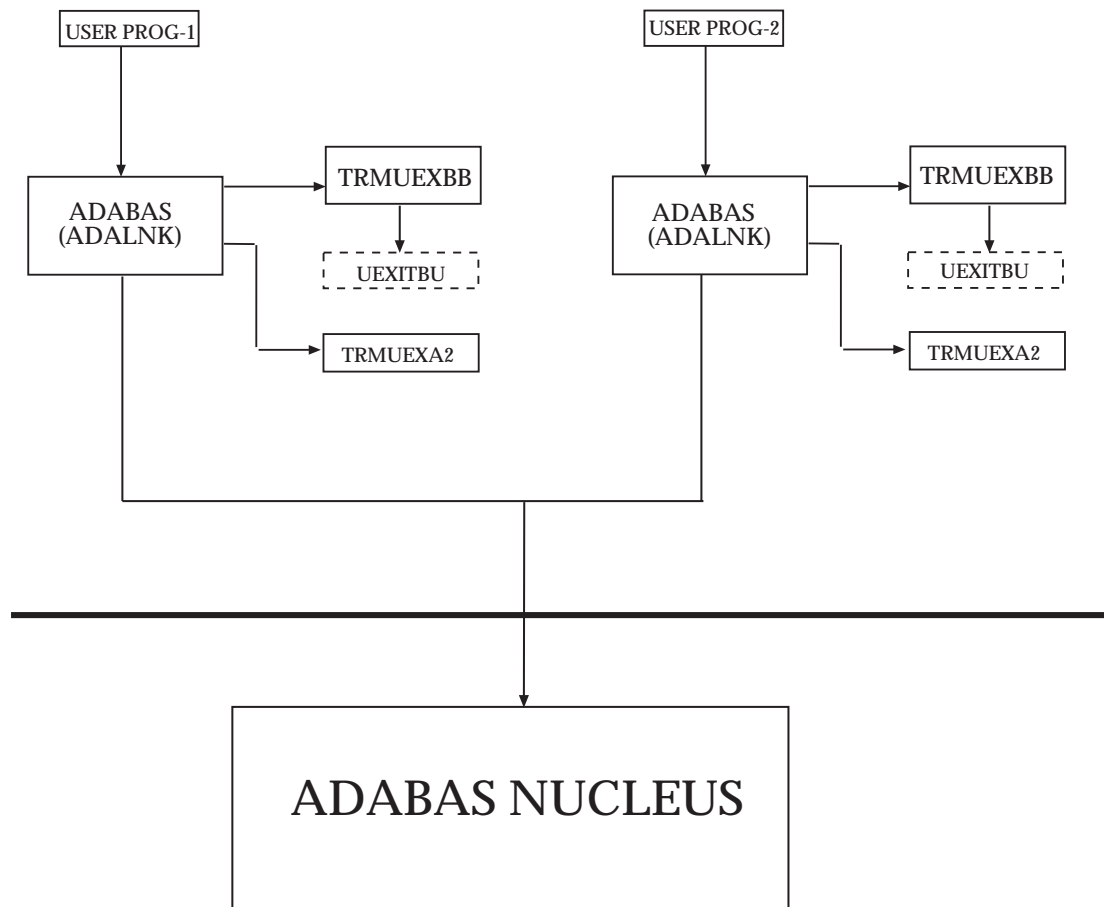
The following is an overview of the steps required for the installation of TRIM. Each step is covered in detail in the **Section II Installation**.

1. Allocate space for and catalog the TRIM source, object, and load libraries/minidisks (Refer to **Section II.2**).
2. Copy the datasets from the installation tape to DASD (Refer to **Section II.2**).
3. *** VSE ONLY *** Apply TRIM Zaps (Refer to **Section II.3**).
4. Link and Incorporate TRMTAP, TRMLOG, TRMRSP, and/or TRELOG (Refer to **Section II.4.1**).
5. *** OS and VM ONLY *** Apply TRIM Zaps (Refer to **Section II.3**).
6. Install the TRIM Real-Time Monitor (Refer to **Section II.5**).
7. Load the TNM DDE into PREDICT (Refer to **Section II.6**).
8. Create the TNM ADABAS file (Refer to **Section II.7**).
9. Modify the NATPARMS (Refer to **Section II.8.1** or **II.8.2**).
10. Link the TNM User-Exits to NATURAL (Refer to **Section II.8.1** or **II.8.2**).
11. Link the TRIM User-Exits to the ADABAS Link Routine (Refer to **Section II.9**).
12. Create a Re-entrant ADABAS Link Routine (Refer to **Section II.10**).
13. Incorporate Co-Existing User-Supplied User-Exits (Refer to **Section II.11**).
14. Modify ADABAS Startup Parameters (Refer to **Section II.12**).
15. Increase Sizes for ADABAS and NATURAL (Refer to **Section II.13**).
16. Restart the Database(s), NATURAL(s), and TP Monitor(s) (Refer to **Section II.14**).
17. Define TNM Data Collection Parameters (Refer to **Section II.15**).
18. Verify the TNM Installation (Refer to **Section II.16**).



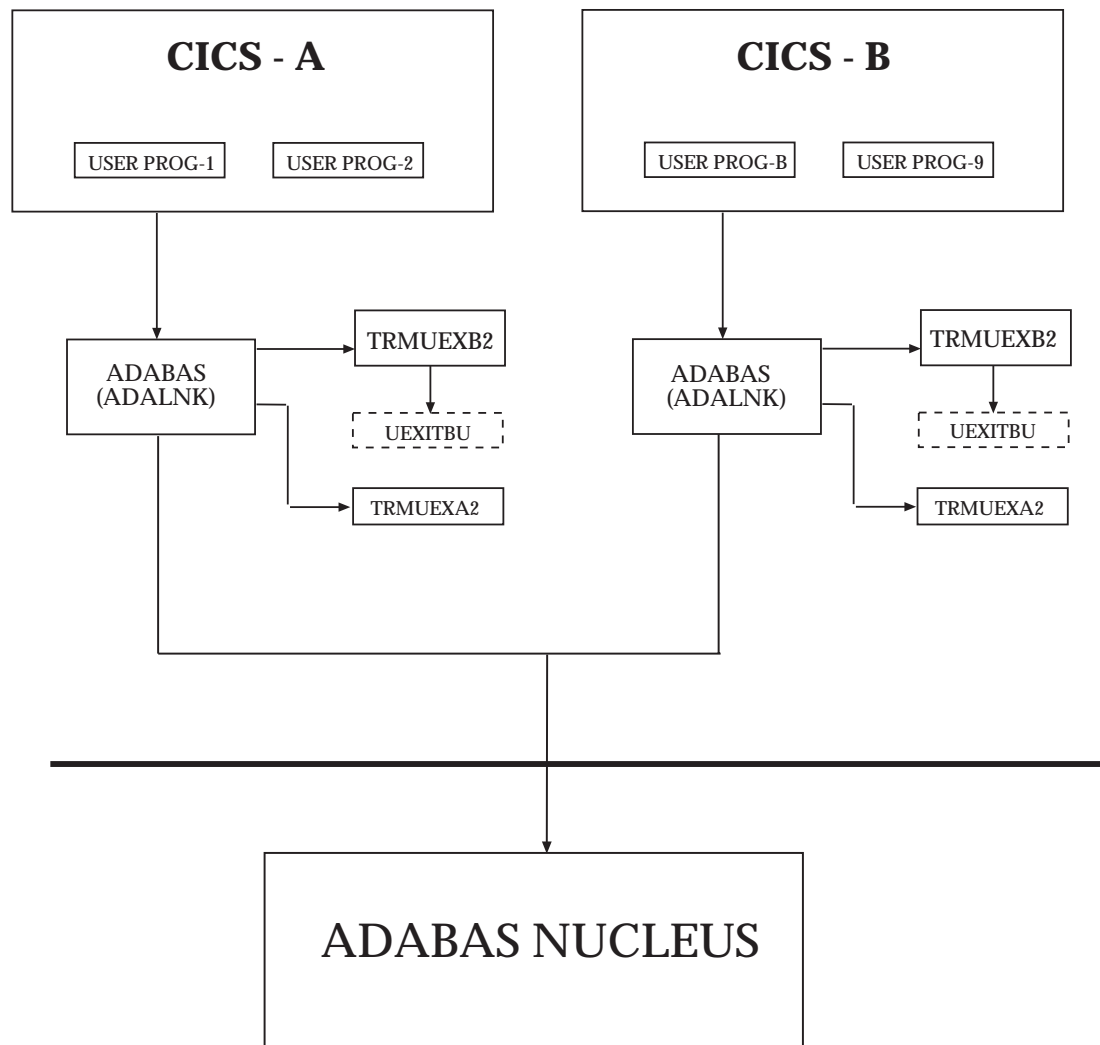
NATURAL TRIM Environment

Figure 1



ADABAS TRIM Environment (Batch/TSO)

Figure 2

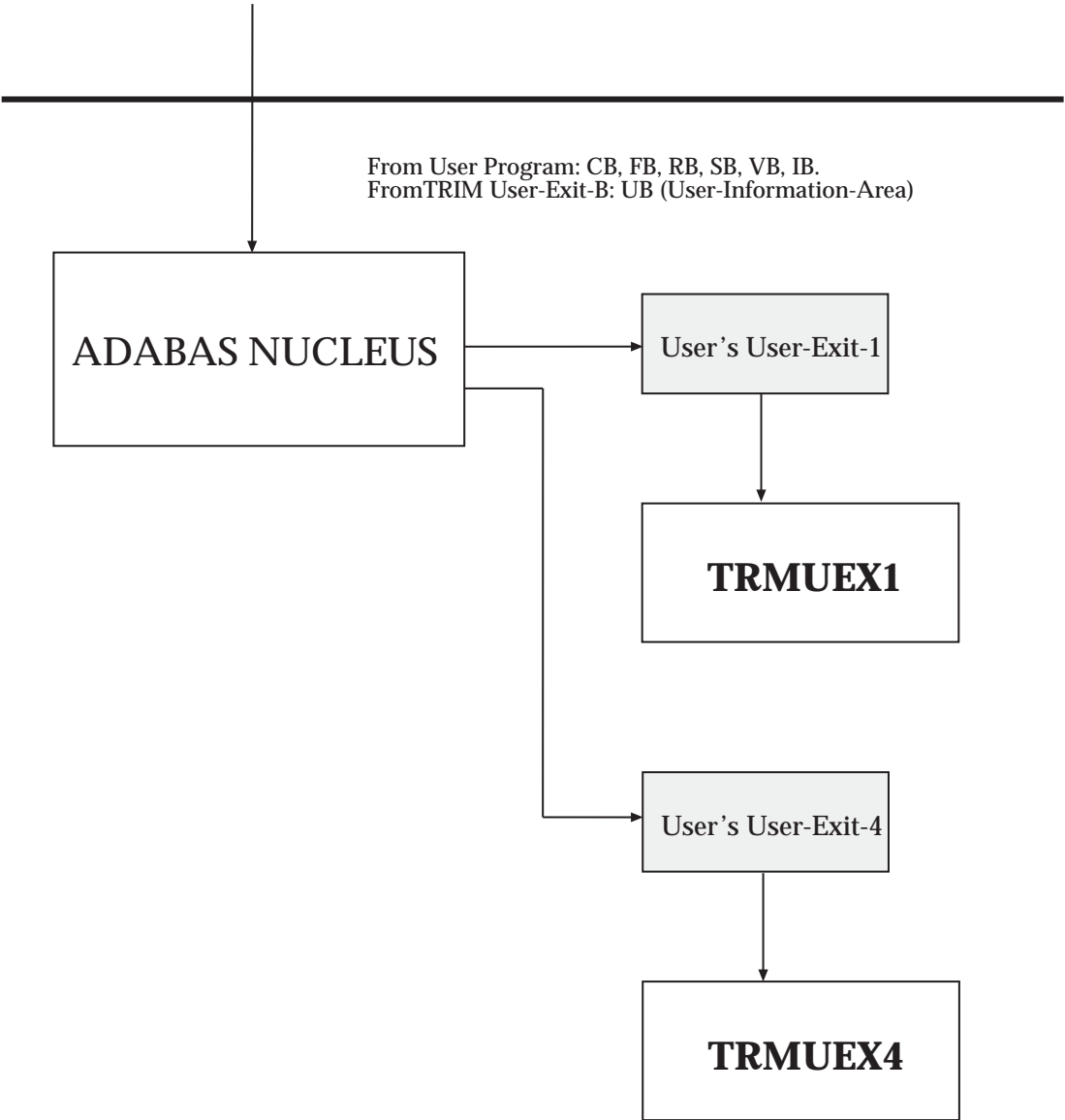


* ADALNC - for CICS Version pre 3.2

LNKOLSC and LNKOLM - for CICS Version 3.2 and later

ADABAS TRIM Environment (CICS)

Figure 2 (continued)



ADABAS TRIM Environment
Figure 2 (continued)

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SECTION II

INSTALLATION

II.1 Installation Tape

TRIM is distributed on a 3490 cartridge or via electronic distribution.

Tape distribution contents

The TRIM tape volume serial number is VOL=SER=TRM761. z/OS, VSE, and VM operating systems code are contained on a single tape. Siemens BS2000 is a separate distribution.

	Data Set Name	BLKSIZE	LRECL	RECFM	Format
1	TRM.V761.NATLOAD	25644	256	VB	NATURAL UNLOAD
2	TRM.V761.MVS.SOURCE	6180	6176	VS	IEBCOPY
3	TRM.V761.MVS.OBJECT	8020	8016	VS	IEBCOPY
4	TRM.V761.VM.SOURCE	81	81	FB	TAPPDS
5	TRM.V761.VM.OBJECT	81	81	FB	TAPPDS
6	TRM.V761.VM.MACLIB	81	81	FB	TAPPDS
7	TRM.V761.VM.EXECS	81	81	FB	TAPPDS
8	TRM.V761.VSE.JCL	6160	80	FB	IEBGENER
9	TRM.V761.VSE.SOURCE	6160	80	FB	IEBGENER
10	TRM.V761.VSE.OBJECT	8000	80	FB	IEBGENER
11	TRM.V761.TNMFILE	27998	27994	VB	IEBGENER
12	TRM.V761.DDE	10000	9996	VB	IEBGENER
13	TRM.V761.README	132	132	FB	IEBGENER

Additional data sets may be contained on the tape

	Data Set Name	BLKSIZE	LRECL	RECFM	Format
14	TRM.V761.MVS.ZAPS	6180	6176	VS	IEBCOPY
15	TRM.V761.VM.ZAPS	81	81	FB	TAPPDS
16	TRM.V761.VSE.ZAPS	6180	80	FB	IEBGENER
17	TRM.V761.NATLOAD.FIX	2544	256	VB	NAT UNLOAD
18	TRM.V761.MVS.OBJECT.FIX	8020	8016	VS	IEBCOPY
19	TRM.V761.VM.OBJECT.FIX	81	81	FB	TAPPDS
20	TRM.V761.VSE.OBJECT.FIX	8000	80	FB	IEBGENER

Electronic distribution contents

The TRIM electronic distribution is only available for MVS sites. TRIM is distributed as a ZIP file containing the following files:

File	Description
TRMV761RN.PDF	TRIM Release Notes
TRMV761Ref.PDF	TRIM Reference Manual
TRMV761Install.PDF	TRIM Installation and Operations Manual
TRMV761.NATLOAD.XMIT	NATURAL source/object code
TRMV761.SOURCE.XMIT	PDS containing source code
TRMV761.OBJECT.XMIT	PDS containing load modules
TRMV761.README.TXT	Details on fixes created after the initial release.
TRMV761.TNMFILE	ADACMP cards to create an FDT.
TRMV761.DDE	TNM reporting DDE.
TRM.XMITRECV.JCL.TXT	Sample JCL to receive XMIT datasets
TRM.XMITRECV.FIXJCL.TXT	Sample JCL to receive XMIT fix datasets

Section II.2.1 Load datasets from an electronic distribution details how to copy the datasets to the MVS environment, into datasets named the same as the tape distribution dataset names.

Trim distribution datasets**OS**

The TRM.V761.MVS.SOURCE dataset contains several members to assist in the installation and operation of TRIM. The following members are contained in this file:

JOSLOAD	(JCL for Loading Datasets from Tape to Disk)
JOSLINK	(JCL for Linking Load Modules from Object)
JOSCLOG	(JCL for Command Log Analysis)
JOSPLOG	(JCL for Protection Log Analysis)
JOSUX1	(JCL for User-Exit-1 Communication Run)
JOSUX4	(JCL for User-Exit-4 Communication Run)
JOSNLOAD	(JCL for Installing the NATURAL Real-Time Monitor)
JOSDDE	(JCL for Loading the TNM DDE File)
JOSCADA	(JCL to Assemble TSICADA – For TNM Only)

VSE

The TRM.V761.VSE.JCL dataset contains several members to assist in installation and operation of TRIM. The following members are contained in this file:

JVSLINK	(JCL for TRIM Link-edits)
JVSCLOG	(JCL for Command Log Analysis)
JVSPLOG	(JCL for Protection Log Analysis)
JVSUX1	(JCL for User-Exit-1 Communication Run)
JVSUX4	(JCL for User-Exit-4 Communication Run)
JVSNLOAD	(JCL for Installing the NATURAL Real-Time Monitor)
JVSDDE	(JCL for loading the TNM DDE file)
JVSMSP	(JCL for Defining TRM761 to MSP for zaps)
JVSALNK1	(First step to link ADALNK)
JVSALNK2	(Second step to link ADALNK)
JVSCADA	(JCL to Assemble TSICADA – For TNM Only)

VM

The TRM.V761.VM.EXECS dataset contains several members to assist in the installation and operation of TRIM. The following members are contained in this file:

JVMLoad	EXEC	(EXEC to load all of the TRIM modules to a minidisk)
JVMCLOG	EXEC	(EXEC for Command Log Analysis)
JVMPLOG	EXEC	(EXEC for Protection Log Analysis)
JVMUX1	EXEC	(EXEC for User-Exit-1 Communication Run)
JVMUX4	EXEC	(EXEC for User-Exit-4 Communication Run)
JVMNLOAD	EXEC	(EXEC to NATLOAD the NATURAL 2 Real-Time Monitor)
JVMDDE	EXEC	(EXEC for loading the TNM DDE file)
JVMGEN	EXEC	(EXEC to generate executable files)
JVMGMAC	EXEC	(EXEC to generate TRIM MACLIB)

Siemens

Siemens is distributed on a separate tape including separate install instructions.

All Operating Systems

The following members are included in the source (and MACLIB for VM) datasets for each of the operating systems:

PCLOG	(Parameters for Command Log Analysis)
PPLOG	(Parameters for Protection Log Analysis)
PUX1	(Parameters for User-Exit-1 Communication Run)
PUX4	(Parameters for User-Exit-4 Communication Run)
PPRESUM	(Parameters for PRESUM Run)
PSTARTUP	(Parameters for TRMTAP, TRMLOG, and TRMRSP)
PSLOW	(Parameters for Batch Selective Slowdown)
TRMTAP	(Macro - Time Adjustable Parameters)
TRMLOG	(Macro - Start-up Logging Parameters)
TRMRSP	(Macro - Exceptional Response Code Parameters)
TRELOG	(Macro - tRelational Logging Parameters)
TRMSLO	(Macro - Batch Selective Slowdown)
TRMUINFO	(Macro - Map TRIM User Information Area Segment)
UINFO	(Macro - Find or Build a User Information Area Segment)

The Source Library requires seven tracks of 3380 disk space or the equivalent.

The Object Library contains approximately 60 object members and requires six cylinders of 3380 disk space or the equivalent.

The Load Library (or Core Image Library for VSE) to be created via several link-edits requires two cylinders of 3380 disk space or the equivalent.

Object Members and the Link-edit Process

Link-edit steps for each operating system combine specific object members into the appropriate load modules necessary in a TRIM environment, including:

TRIM	(Batch Multi-Purpose Program)
TNMOD31A	(NATURAL 3.1 user-exit for TNM)
TNMOD31B	(NATURAL 3.1 user-exit for TNM)
TNMOD31C	(NATURAL 3.1 user-exit for TNM)
TNMOD31D	(NATURAL 3.1 user-exit for TNM)
TNMOPT31	(NATURAL 3.1 user-exit for TNM)
TNMDRV31	(NATURAL 3.1 user-exit for TNM)
TSIRDC31	(NATURAL 3.1 user-exit for TNM)
TNMMDRV	(OS driver for TNM)
TNMOD41A	(NATURAL 4.1 user-exit for TNM)
TNMOD41B	(NATURAL 4.1 user-exit for TNM)
TNMOD41C	(NATURAL 4.1 user-exit for TNM)
TNMOD41D	(NATURAL 4.1 user-exit for TNM)
TNMOPT41	(NATURAL 4.1 user-exit for TNM)
TNMDRV41	(NATURAL 4.1 user-exit for TNM)
TSIRDC41	(NATURAL 4.1 user-exit for TNM)
TNMOD42A	(NATURAL 4.2 user-exit for TNM)
TNMOD42B	(NATURAL 4.2 user-exit for TNM)

TNMOD42C	(NATURAL 4.2 user-exit for TNM)
TNMOD42D	(NATURAL 4.2 user-exit for TNM)
TNMOPT42	(NATURAL 4.2 user-exit for TNM)
TNMDRV42	(NATURAL 4.2 user-exit for TNM)
TSIRDC42	(NATURAL 4.2 user-exit for TNM)
TRMRDC	(NATURAL user-exit for TNM)
TSICIADA	(NATURAL user-exit for TNM with CICS)
TRMUEX1	(User-Exit-1)
TRMUEX4S	(Small User-Exit-4)
TRMUEX4R	(Regular User-Exit-4)
TRMUEX4L	(Large User-Exit-4)
TRMUEXA	(User-Exit-A for non-CICS)
TRMUEXA2	(User-Exit-A for CICS)
TRMUEXB	(User-Exit-B for CICS pre 3.2)
TRMUEXB2	(User-Exit-B for CICS 3.2 and later)
TRMUEXBB	(User-Exit-B for BATCH)
TRMUEXB5	(User-Exit-B for COM-LETE 4.5.x and later)
TRMXOS	(Indicates module is to be used in OS environment)
TRMXDS	(Indicates module is to be used in VSE environment with the date IPL'd in MM/DD/YY format)
TRMXSDST	(Indicates module is to be used in VSE environment with the date IPL'd in DD/MM/YY format)
TRMXVM	(Indicates module is to be used in VM environment)
TRMXBS	(Indicates module is to be used in BS2000 environment)

For Siemens, an LMS library is constructed from the second file containing many of the source and object members listed on the previous page, as well as:

TRELOG	
UEX4BRSP	(Parameters for User-Exit-4 Communication Run)
UEX1LOCK	(Parameters for User-Exit-1 Communication Run)
PRESUM	(Parameters for PRESUM Run)
SYSIPT	
SAMPLE	
STARTUP	(Parameters for TRMTAP, TRMLOG, TRMRSP)
PSLOW	(Parameters for Batch Selective Slowdown)

The TRIM Natural Code

The datasets containing the Trim Natural code will vary base on distribution method.

If Trim was distributed via a tape, TRM.V761.NATLOAD contains the Natural code in NATLOAD format.

If Trim was distributed via electronic distribution, the file TRM.V761.NATLOAD.XMIT contains the Natural code in NATLOAD format (after executing an XMIT receive).

These NATLOAD files contain Real-Time Monitor object code and three source members (TRMCUST, TRMFIN, and TRMIPSWD). If the NATLOAD dataset is to be placed onto disk, it requires 55 tracks of 3380 disk space or the equivalent (761 2540-byte blocks).

The TRIM. TNM File

The TRM.V761.TNMFILE dataset contains the TNM file. This dataset requires a minimum of 1 cylinder of 3380 disk space or the equivalent (712,140 bytes).

II.1.1 Installation Checklist

The installation procedure steps for TRIM, which are described in detail later, for all operating systems and TP monitors are summarized on the checklist below. This checklist can be used when installing Trim.

Note: TNM is not a required component of TRIM.

✓	STEP	FUNCTION	SECTION	REQUIRED
	T1	Allocate space for, and catalog, the TRIM source, object, and load libraries/mini-disks.	II.2	Y
	T2	Copy the datasets from the installation tape (or electronic distribution) to DASD.	II.2	Y
	T3	Apply TRIM sold zap and maintenance.	II.3	VSE ONLY
	T4	Link and Incorporate TRMTAP, TRMLOG, TRMRSP, and/or TRELOG.	II.4.1	N
		Link the TRIM load modules.	II.4.2	Y
	T5	Apply TRIM sold zap and maintenance.	II.3	OS and VM ONLY
	T6	Install the TRIM Real-Time Monitor.	II.5	Y
	T7	Create the TNM ADABAS file.	II.6	TNM Only
	T8	Load the TNM DDE into PREDICT.	II.7	TNM Only
	T9	Modify the NATPARMS.	II.8	Y
	T11	Link the TRIM User-Exits to the ADABAS Link Routine.	II.9	Y
	T12	Create a Re-entrant ADABAS Link Routine.	II.10	TNM Only
	T13	Incorporate Co-Existing User-supplied User-Exits.	II.11	N
	T14	Modify ADABAS Startup Parameters.	II.12	Y
	T15	Increase Sizes for ADABAS and NATURAL.	II.13	N
	T16	Restart the database(s), NATURAL(s), and TP Monitor(s).	II.14	Y
	T17	Turn TNM off in TRMCUST	II.15	Non-TNM Only
	T18	Define TNM data collection parameters.	II.16	TNM Only
	T19	Verify the TNM installation.	II.17	TNM Only

II.2 Load Datasets

TRIM is distributed on a 3490 cartridge with standard labels or via electronic distribution. If installing from an electronic distribution, refer to Section II.2.1 to load the datasets. If installing from a cartridge, refer to Section II.2.2 to load the datasets.

II.2.1 Load datasets from an electronic distribution

You must have an FTP server running on your mainframe and an FTP client running on your PC in order to transfer these files.

Installation Procedure

Summary of installation procedure:

- 1) Allocate datasets
- 2) Load datasets
- 3) Trim installation

Allocate Datasets

Allocate the following datasets

Dataset	DCB Information
TEMP.TRMV761.SOURCE	RECFM=FB,LRECL=80,BLKSIZE=3120, SPACE=(CYL,(2,2)),DSORG=PS
TEMP.TRMV761.OBJECT	RECFM=FB,LRECL=80,BLKSIZE=3120, SPACE=(CYL,(4,4)),DSORG=PS
TEMP.TRMV761.NATLOAD	RECFM=FB,LRECL=80,BLKSIZE=3120, SPACE=(CYL,(3,3)),DSORG=PS
TEMP.TRMV761.FDT	RECFM=FB,LRECL=80,SPACE=(TRK,(1,1))
TRM.V761.DDE	RECFM=FB,LRECL=4624,DSORG=PS, SPACE=(TRK,(20,20))
TRM.V761.README	RECFM=FB,LRECL=80,BLKSIZE=8000, SPACE=(CYL,(1,1)),DSORG=PS
TRM.XMITRECV.JCL	RECFM=FB,LRECL=80,BLKSIZE=8000, SPACE=(CYL,(1,1)),DSORG=PS
TRM.V761.MVS.LOAD	RECFM=U,BLKSIZE=32760, SPACE=(32760,(160,10,10)),DSORG=PO

Transfer the following files in ASCII mode

1. TRMV761.TNMFILE to TEMP.TRM.V761.FDT dataset.
2. TRMV761.DDE to TRM.V761.DDE dataset.
3. README.TXT to TRM.V761.README
4. TRM.XMITRECV.JCL.TXT to TRM.XMITRECV.JCL

Transfer the following files in BINARY mode:

1. TRMV761.SOURCE.XMIT to TEMP.TRMV761.SOURCE
2. TRMV761.OBJECT.XMIT to TEMP.TRMV761.OBJECT
3. TRMV761.NATLOAD.XMIT to TEMP.TRMV761.NATLOAD

Once the binary transfers are complete, customize the TRM.XMITRECV.JCL according to site standards, then execute it. This job will receive the files transferred in binary format to the following datasets (named the same as the tape distribution).

TRM.V761.MVS.SOURCE

TRM.V761.MVS.OBJECT

TRM.V761.NATLOAD

The TRM.XMITRECV.JCL includes a step to execute ADACMP on the FDT dataset to convert it to ADABAS ADACMP compressed format.

TRIM Installation

Skip to Section II.3.

II.2.2 Allocate Space, Install Code from Tape to Disk

OS

Allocate Space

Sample OS JCL to allocate space for and catalog the TRIM source, object, load, NATLOAD, TNM-FILE, TNM DDE, and README libraries follows:

```
//ALLOC1 EXEC PGM=IEFBR14
//TRIM1 DD DSN=TRM.V761.MVS.SOURCE,
// SPACE=(3120,(80,10,10)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120,DSORG=PO)
//*
//ALLOC2 EXEC PGM=IEFBR14
//TRIM2 DD DSN=TRM.V761.MVS.OBJECT,
// SPACE=(3120,(810,10,10)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120,DSORG=PO)
//*
//ALLOC3 EXEC PGM=IEFBR14
//TRIM3 DD DSN=TRM.V761.MVS.LOAD,
// SPACE=(32760,(160,10,10)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=U,BLKSIZE=32760,DSORG=PO)
//*
//ALLOC4 EXEC PGM=IEFBR14
//TRIM4 DD DSN=TRM.V761.NATLOAD,
// SPACE=(CYL,(8,0,0)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=VB,LRECL=256,BLKSIZE=2544,DSORG=PS)
//*
//ALLOC5 EXEC PGM=IEFBR14
//TRIM5 DD DSN=TRM.V761.TNMFILE,
// SPACE=(CYL,(1,1,0)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=VB,LRECL=27994,BLKSIZE=27998,DSORG=PS)
//*
//ALLOC6 EXEC PGM=IEFBR14
//TRIM6 DD DSN=TRM.V761.DDE,
// SPACE=(TRK,(5,5,0)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=VB,LRECL=9996,BLKSIZE=10000,DSORG=PS)
//*
//ALLOC7 EXEC PGM=IEFBR14
//TRIM7 DD DSN=TRM.V761.README,
// SPACE=(TRK,(5,5,0)),
// UNIT=SYSDA,VOL=SER=TRM761,
// DISP=(,CATLG,DELETE),
// DCB=(RECFM=FB,LRECL=132,BLKSIZE=132,DSORG=PS)
```

Load Source Dataset

Using the IEBCOPY utility, load the TRM.V761.MVS.SOURCE dataset to disk. Sample OS JCL to load this file follows:

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=TRM.V761.MVS.SOURCE,
// LABEL=(2,SL),UNIT=TAPE,DISP=SHR,
// VOL=SER=TRM761
//SYSUT2 DD DSN=TRM.V761.MVS.SOURCE,DISP=SHR
//SYSIN DD *
COPY INDD=SYSUT1,OUTDD=SYSUT2
```

Load Object, NATLOAD, and README Datasets

The OS JCL to load the TRIM datasets is provided on the installation tape source library in member JOSLOAD. Sample OS JCL to load TRIM datasets follows:

```

/* * CHANGE THE PARAMETERS OBJDSN, NLOADDSN, TNMFILE, TNMDDE, AND READDSN
/* * TO SPECIFY THE DATASETS WHERE THE TAPE FILES SHOULD BE LOADED.
/* *
//LOADALL    PROC OBJDSN=TRM.V761.OBJECT,
//            NLOADDSN=TRM.V761.NATLOAD,
//            TNMFILE=TRM.V761.TNMFILE,
//            TNMDDE=TRM.V761.DDE,
//            READDSN=TRM.V761.README
/* *
//STEP1      EXEC PGM=IEBGENER
//SYSPRINT   DD   SYSOUT=*
//SYSUT1     DD   DSN=TRM.V761.NATLOAD,
//            LABEL=(1,SL),UNIT=TAPE,DISP=SHR,
//            VOL=(,RETAIN,SER=TRM761)
//SYSUT2     DD   DISP=SHR,DSN=&NLOADDSN
//SYSIN      DD   DUMMY
/* *
//STEP2      EXEC PGM=IEBCOPY
//SYSPRINT   DD   SYSOUT=*
//SYSUT1     DD   DSN=TRM.V761.MVS.OBJECT,
//            LABEL=(3,SL),UNIT=TAPE,DISP=SHR,
//            VOL=(,RETAIN,SER=TRM761)
//SYSUT2     DD   DISP=SHR,DSN=&OBJDSN
//SYSIN      DD   DUMMY
/* *
//STEP3      EXEC PGM=IEBGENER
//SYSPRINT   DD   SYSOUT=*
//SYSUT1     DD   DSN=TRM.V761.TNMFILE,
//            LABEL=(11,SL),UNIT=TAPE,DISP=SHR,
//            VOL=SER=TRM761
//SYSUT2     DD   DISP=SHR,DSN=&TNMFILE
//SYSIN      DD   DUMMY
/* *
//STEP4      EXEC PGM=IEBGENER
//SYSPRINT   DD   SYSOUT=*
//SYSUT1     DD   DSN=TRM.V761.DDE,
//            LABEL=(12,SL),UNIT=TAPE,DISP=SHR,
//            VOL=SER=TRM761
//SYSUT2     DD   DISP=SHR,DSN=&TNMDDE
//SYSIN      DD   DUMMY
/* *
//STEP5      EXEC PGM=IEBGENER
//SYSPRINT   DD   SYSOUT=*
//SYSUT1     DD   DSN=TRM.V761.README,
//            LABEL=(13,SL),UNIT=TAPE,DISP=SHR,
//            VOL=SER=TRM761
//SYSUT2     DD   DISP=SHR,DSN=&READDSN
//SYSIN      DD   DUMMY
/* *
//            PEND
/* *
//LOADDSN    EXEC LOADALL
/* *

```

VSE**Deblock the Tape**

Code and submit a job to deblock the TRIM components to a large reel of tape.

```
* $$ JOB JNM=JSPDBLK,CLASS=O,DISP=H,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// JOB JSPDBLK          DEBLOCK LINK EDIT INPUT
// UPSI 1
// ASSGN SYS010,cuu      ==> TRIM RELEASE TAPE
// ASSGN SYS011,cuu      ==> DEBLOCKED LINK EDIT INPUT
// EXEC DITTO,SIZE=200K
$$DITTO REW OUTPUT=SYS010
$$DITTO REW OUTPUT=SYS011
$$DITTO FSF OUTPUT=SYS010,NFILES=22
$$DITTO TTR INPUT=SYS010,OUTPUT=SYS011,RECSIZE=80,BLKFACTOR=1
$$DITTO WTM OUTPUT=SYS011,NTMKS=25
$$DITTO RUN OUTPUT=SYS010
$$DITTO REW OUTPUT=SYS011
$$DITTO EOJ
/*
/&
* $$ EOJ
```

Note: NFILES= 22 is for the TRM.V761.VSE.JCL dataset.

NFILES= 25 is for the TRM.V761.VSE.SOURCE dataset.

NFILES= 28 is for the TRM.V761.VSE.OBJECT dataset.

Each of these three files must be DEBLOCKED and loaded to disk.

Edit and modify the JCL to conform to local devices, libraries, and standards.

Load Deblocked Tape File to Disk

Code and submit a LIBR run using the deblocked tape as SYSIPT to CATALOG the JCL, parms, macros, and object decks to a private library.

```
* $$                                JOB JNM=TRIMLOAD,CLASS=0,DISP=D
* $$                                LST DISP=D,CLASS=A
*
* *****
* VSE JCL TO INSTALL (LOAD) TRIM JCL &TEXT
* USE OUTPUT TAPE FROM JVSDBLK FOR INPUT TO THIS JOB
* *****
*
// JOB TRIMLOAD                      RESTORE TRIM VSE SUBLIB
// ASSGN SYSIPT,cuu                  POINT TO TAPE INPUT
// TLBL IJSYSIN,'DBLK'
// DLBL TSILIB,'TSILIB.LIBRARY',,VSAM,CAT=USERCATX,DISP=(OLD,KEEP)
// EXEC LIBR,PARM='ACCESS S=TSILIB.TRIM'
/*
// MTC REW,SYSIPT
/&
* $$                                EOJ
```

Edit and modify the JCL to conform to local devices, libraries, and standards.

VM**Allocate CMS Mini-disk Space**

Installation of TRIM will require the equivalent of a seven-cylinder 3380 mini-disk formatted in 4096 byte blocks.

For FBA allocation, use 10000 (512K) blocks.

Sample CMS Command to format a mini-disk:

```
FORMAT                                301 f
```

("301" is the address and "f" is the Disk File Mode.)

Load to Allocated Mini-disk

Issue the following commands to load the EXECs to a mini disk:

```
TAPE FSF 19
TAPPDS * EXEC f (PDS TAPx
```

where "f" is the Disk File Mode and "x" is the tape device.

Once the EXECs have been loaded to the minidisk, issue the following commands to load the remaining TRIM modules to the minidisk and build the TRIM MACLIB:

JVMLOAD	This EXEC will prompt for the tape device where the TRIM V761 tape is mounted and the minidisk specified in the previous step.
JVMGMAC	This EXEC will prompt for the minidisk where the generated MACLIB should be located and the minidisk where JVMLOAD placed the TRIM modules. If there is currently a TRMV761 MACLIB file on the minidisk specified, it will be replaced with the new version.

II.3 **Apply TRIM Fixes and Zaps**

There may be corrections or fixes in the form of Zaps or replacement modules that must be applied to the distributed code. Refer to the TRM.V761.README dataset for information on additional fixes and Zaps. If the README file indicates zaps and/or fixes have been included in the distribution, they must be applied before attempting to use Trim.

II.3.1 **Maintenance Fixes and Zaps**

It is only necessary to complete this sub-section if the README file indicates zaps and/or fixes have been included in the Trim distribution.

OS

Load Electronic Files to the Mainframe

Allocate the following datasets

Dataset	DCB Information
TEMP.TRMV761.SOURCE.FIX	RECFM=FB,LRECL=80,BLKSIZE=3120, SPACE=(CYL,(2,2)),DSORG=PS
TEMP.TRMV761.OBJECT.FIX	RECFM=FB,LRECL=80,BLKSIZE=3120, SPACE=(CYL,(4,4)),DSORG=PS
TEMP.TRMV761.NATLOAD.FIX	RECFM=FB,LRECL=80,BLKSIZE=3120, SPACE=(CYL,(3,3)),DSORG=PS
TRM.XMITRECV.FIXJCL	RECFM=FB,LRECL=80,BLKSIZE=8000, SPACE=(CYL,(1,1)),DSORG=PS

Transfer the following files in ASCII mode

1. TRM.XMITRECV.FIXJCL.TXT

Transfer the following files in BINARY mode:

1. TRMV761.SOURCE.XMIT to TEMP.TRMV761.SOURCE.FIX
2. TRMV761.OBJECT.XMIT to TEMP.TRMV761.OBJECT.FIX
3. TRMV761.NATLOAD.XMIT to TEMP.TRMV761.NATLOAD.FIX

Once the binary transfers are complete, customize the TRM.XMITRECV.FIXJCL.TXT according to sites standards, then execute it. This job will receive the files transferred in binary format to the following datasets (named the same as the tape distribution).

TRM.V761.MVS.SOURCE.FIX

TRM.V761.MVS.OBJECT.FIX

TRM.V761.NATLOAD.FIX

To load the V761.MVS-VM.OBJ.FIX.zip file, unzip the V710.MVS-VM.OBJ.FIX.zip file to a temporary directory. The contents of the temporary directory should be uploaded to the mainframe in binary format. Customize the trm.xmitrecv.fixobj.txt to transfer the unzipped module(s) to the mainframe. The modules should replace the existing module in the TRM.V710.MVS.OBJECT dataset.

Load tape FIX files to the mainframe

The following sample JCL will load the official zaps and fixes from the tape to the local Trim installations. The JCL requires modifications for site standards before executing.

```
//*   LOAD OFFICIAL ZAPS
//*
//LOADFIX EXEC PGM=IEBCOPY,PARM=NEW
//SYSPRINT DD SYSOUT=*
//INPUT DD DSN=TRM.V761.MVS.ZAPS,DISP=(OLD,SHR),
//          UNIT=TAPE,VOL=SER=TRM710,LABEL=(14,SL)
//OUTPUT DD DSN=TRM.V761.MVS.ZAPS,DISP=(NEW,CATLG,DELETE),
//          SPACE=(TRK,(5,3,3)),UNIT=SYSDA
//SYSUT3 DD DSN=&&TEMP,UNIT=SYSDA,SPACE=(80,60,45)
//SYSIN DD *
        COPY INDD=INPUT,OUTDD=OUTPUT
//
//*   LOAD FIX OBJECT MEMBERS
//*
//OBJFIX EXEC PGM=IEBCOPY,PARM=NEW
//SYSPRINT DD SYSOUT=*
//INPUT DD DSN=TRM.V761.MVS.OBJECT.FIX,DISP=(OLD,SHR),
//          UNIT=TAPE,VOL=SER=TRM710,LABEL=(18,SL)
//OUTPUT DD DSN=TRM.V761.MVS.OBJECT,DISP=SHR
//SYSIN DD *
        COPY INDD=((INPUT,R)),OUTDD=OUTPUT
//
```

TRM.V761.MVS.ZAPS

This dataset contains all official Zaps as of the date of distribution. There are three members in this dataset: OSJCLZAP, VMJCLZAP, and VSJCLZAP. All OS installations should apply all applicable zaps in the OSJCLZAP member.

The member OSJCLZAP contains all OS/390, MVS Zaps, and JCL to apply these zaps.

After all appropriate Zaps have been applied, relink the load modules as indicated in the OSJCLZAP member.

TRM.V761.NATLOAD.FIX

This dataset contains all NATURAL fixes as of the date of distribution. This dataset should be NATLOADED into the TRMV761 library with the REPLACE option specified. If a complete Trim install is being done NATLOAD this dataset immediately after loading the TRIM RTM NATURAL modules (Section II.5 of the Installation and Operations Manual). If a new set of official fixes is being applied NATLOAD this dataset now (using NATLOAD ALL * REPLACE).

The JCL used to load the RTM can be modified to NATLOAD these objects. If installing from tape, change the LABEL parameter to read as follows:

```
LABEL=(17,SL)
```

TRM.V761.MVS.OBJECT.FIX

This dataset contains replacement object modules as official fixes. These modules should be loaded into the TRM.V761.MVS.OBJECT dataset with the REPLACE option specified.

Each replacement object module includes all Zaps targeted for that module. Therefore, no Zaps need to be applied to the replacement modules. However, the sold Zap and any zapswitch settings will need to be reapplied if the TRIM User-exit-4 is being relinked. The batch sold Zap will need to be reapplied if the TRIM (batch) load module is being relinked.

VM

TRM.V761.VM.ZAPS

This dataset contains all official zaps as of the date of distribution. There are three EXECs in this dataset: OSJCLZAP, VMJCLZAP, and VSJCLZAP. All VM installations should apply all applicable zaps in the VMJCLZAP member. The following commands are a sample of how to load this dataset:

```
TAPE FSF 43
TAPPDS * ZAP f (PDS TAPx
```

where "f" is the Disk File Mode and "x" is the tape device.

Once loaded, the following command can be used to apply all Zaps:

```
ZAP TXTLIB TRMV761 (INPUT VMJCLZAP
```

After all appropriate Zaps have been applied, relink the load modules as indicated in the VMJCLZAP member.

TRM.V761.NATLOAD.FIX

This dataset contains all NATURAL fixes as of the date of distribution. This dataset should be NATLOADED into the TRMV761 library with the REPLACE option specified.

If a complete Trim install is being done NATLOAD this dataset immediately after loading the TRIM RTM NATURAL modules (Section II.5 of the Installation and Operations Manual). If a new set of official fixes is being applied NATLOAD this dataset now (using NATLOAD ALL * REPLACE).

The JCL used to load the RTM can be modified to NATLOAD these objects. Change the file number on CMWKF01 from SL 1 to SL 17.

TRM.V761.VM.OBJECT.FIX

This fix contains replacement text modules as official fixes. These modules should be loaded into the mini disk where the TRIM text modules are loaded. The following commands are a sample of how to load this dataset:

```
TAPE FSF 55
TAPPDS * ZAP f (PDS TAPx
```

where "f" is the Disk File Mode and "x" is the tape device.

Each text module includes any Zaps targeted for the module. Therefore, no Zaps need to be applied to the replacement modules.

VSE**TRM.V761.VSE.ZAPS**

This dataset contains all official Zaps as of the date of distribution. There are three members in this dataset: OSJCLZAP, VMJCLZAP, and VSJCLZAP. All VSE installations should apply all applicable zaps in the VSJCLZAP member. The following JCL is a sample of how to deblock this dataset:

```
* $$ JOB JNM=JSPDBLK,CLASS=0,DISP=H,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// JOB JSPDBLK DEBLOCK LINK EDIT INPUT
// UPSI 1
// ASSGN SYS010,cuu ==> TRIM RELEASE TAPE
// ASSGN SYS011,cuu ==> DEBLOCKED LINK EDIT INPUT
// EXEC DITTO,SIZE=200K
$$DITTO REW OUTPUT=SYS010
$$DITTO REW OUTPUT=SYS011
$$DITTO FSF OUTPUT=SYS010,NFILES=46
$$DITTO TTR INPUT=SYS010,OUTPUT=SYS011,RECSIZE=80,BLKFACTOR=
$$DITTO WTM OUTPUT=SYS011,NTMKS=25
$$DITTO RUN OUTPUT=SYS010
$$DITTO REW OUTPUT=SYS011
$$DITTO EOJ
/*
/&
* $$ EOJ
*
```

Edit and modify the JCL to conform to local devices, libraries, and standards.

To load the deblocked tape file to disk, code and submit a LIBR run using the deblocked tape as SYSIPT to CATALOG the Zaps to a private library.

```
$$ JOB JNM=TRIMLOAD,CLASS=0,DISP=D
$$ LST DISP=D,CLASS=A
*
// JOB TRIMLOAD          RESTORE TRIM VSE SUBLIB
// ASSGN SYSIPT,cuu      POINT TO TAPE INPUT
// TLBL IJSYSIN,'DBLK'
// DLBL TSILIB,'TSILIB.LIBRARY',,VSAM,CAT=USERCATX,DISP=(OLD,KEEP)
// EXEC LIBR,PARM='ACCESS S=TSILIB.TRIM'
/*
// MTC REW,SYSIPT
/&
$$ EOJ
```

TRM.V761.NATLOAD.FIX contains all NATURAL fixes as of the date of distribution. This dataset should be NATLOADED into the TRMV761 library with the REPLACE option specified.

If a complete Trim install is being done NATLOAD this dataset immediately after loading the TRIM RTM NATURAL modules (Section II.5 of the Installation and Operations Manual).

If a new set of official fixes is being applied NATLOAD this dataset now (using NATLOAD ALL * REPLACE).

The JCL used to load the RTM can be modified to NATLOAD these objects. Change the BWORKDL statement from BWORKDL=(1,NL) to BWORKDL=(49,NL).

TRM.V761.VSE.OBJECT.FIX

This dataset contains replacement object modules as official fixes. These modules should be loaded into the TRIM V761 object dataset. The following jobs are an example of this process:

```
* $$ JOB JNM=JSPDBLK,CLASS=O,DISP=H,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// JOB JSPDBLK DEBLOCK LINK EDIT INPUT
// UPSI 1
// ASSGN SYS010,cuu ==> TRIM RELEASE TAPE
// ASSGN SYS011,cuu ==> DEBLOCKED LINK EDIT INPUT
// EXEC DITTO,SIZE=200K
$$DITTO REW OUTPUT=SYS010
$$DITTO REW OUTPUT=SYS011
$$DITTO FSF OUTPUT=SYS010,NFILES=58
$$DITTO TTR INPUT=SYS010,OUTPUT=SYS011,RECSIZE=80,BLKFACTOR=
$$DITTO WTM OUTPUT=SYS011,NTMKS=25
$$DITTO RUN OUTPUT=SYS010
$$DITTO REW OUTPUT=SYS011
$$DITTO EOJ
/*
/&
* $$ EOJ
*
```

Edit and modify the JCL to conform to local devices, libraries, and standards.

To load the deblocked tape file to disk, code and submit a LIBR run using the deblocked tape as SYSIPT to CATALOG the zaps to a private library.

```
$$ JOB JNM=TRIMLOAD,CLASS=O,DISP=D
$$ LST DISP=D,CLASS=A
*
// JOB TRIMLOAD          RESTORE TRIM VSE SUBLIB
// ASSGN SYSIPT,cuu      POINT TO TAPE INPUT
// TLBL IJSYSIN,'DBLK'
// DLBL TSILIB,'TSILIB.LIBRARY',,VSAM,CAT=USERCATX,DISP=(OLD,KEEP)
// EXEC LIBR,PARM='ACCESS S=TSILIB.TRIM'
/*
// MTC REW,SYSIPT
/&
$$ EOJ
```

Each replacement object module includes all Zaps targeted for that module. Therefore, no Zaps need to be applied to the replacement modules.

II.3.2 Authorization Zaps

A TRIM Authorization Zap (Expiration or Sold) is required to operate TRIM.

OS/VM

For OS and VM, Zaps may be applied to load modules, and, therefore, should be applied later in the installation process when load members are created.

For VM, copy the Zap statements exactly as given into a file with fixed-length, 80-byte records and a file type of 'ZAP', then use the command "ZAP TXTLIB TRMV761 (INPUT filename)" to apply them.

VSE

Zaps must be applied to object modules before link-editing. Before applying the authorization zap to set the expiration date, it is necessary to run JVSMSHP, which can be found on the installation tape, to prepare MSHP for Zaps for TRIM V761. Submit the supplied JVSMSHP member after changing the JCL to conform to local devices, libraries, and standards.

```
* $$ JOB JVSMSHP,CLASS=0,DISP=H,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// JOB JVSMSHP          DEFINE TRIM V761 TO MSHP
/*
// OPTION LOG
// EXEC MSHP
ARCHIVE TRM761
COMPRISES 9999-TRM-00
RESOLVES 'TREEHOUSE SOFTWARE - TRIM 7.6.1'
ARCHIVE 9999-TRM-00-761
RESIDENCE PRODUCT=TRM761          -
          PRODUCTION=VENDOR.TRIM761 -
          GENERATION=VENDOR.TRIM761
/*
/&
* $$ EOJ
```

II.3.3 CICS Specific zaps (CICS Only)

II.3.3.1 TWASIZE Adjustment (CICS Only)

1. Modify the CICS PCT entry for the NATURAL transaction to increase the TWASIZE by four bytes. For example, if the default of 128 bytes is used, increase it to 132 bytes.

Note: Steps 2 through 4 are only necessary if the original TWASIZE from step 1 is different than the default of 128.

2. Apply the TWA offset zap to the new TRMUEXB2 and TSIRDC Modules. This zap can also be found in TSI.TRM.V761.SOURCE(JOSTWAOF, JVSTWAOF, and JVMTWAOF) xxxx should be replaced with the hexadecimal representation of the original TWA value. For example: If the original TWA value was 64, xxxx would be replaced with 6040.

OS

```
NAME TRMUEXB2 TRMUEXB2
VER 05A2 6080
REP 05A2 xxxx
NAME TSIRDC31 TSIRDC
VER 0102 6080
REP 0102 XXXX
NAME TSIRDC41 TSIRDC
VER 00FA 6080
REP 00FA XXXX
NAME TSIRDC42 TSIRDC
VER 00FA 6080
REP 00FA XXXX
```

VSE

```
CORRECT 9999-TRM-00-761:TRTWAOF
AFFECTS MODULE=TRMUEXB2,ESDID=1
ALTER 0005A2 6080:xxxx
AFFECTS MODULE TSIRDC31,ESDID=1
ALTER 000102 6080:xxxx
AFFECTS MODULE TSIRDC41,ESDID=1
ALTER 0000FA 6080:xxxx
AFFECTS MODULE TSIRDC42,ESDID=1
ALTER 0000FA 6080:xxxx
```

VM

```
USE THE COMMAND ZAP TXTLIB
TRMV761TRTWAOF
```

Note: If multiple CICS transactions for NATURAL are used and each have different values for TWA, a separate TRMUEXB2 and NATURAL nuclei (containing separate TSIRDC modules) will need to be used for each environment or the CICS TWA sizes must be made consistent across environments.

3. Re-link LNKOLSC, making sure to include the new TRMUEXB2 and TRMXOS (from the original Trim install) into the re-link.
4. Re-link the ADABAS link routine with the new TRMUEXB2.
5. Re-cycle CICS.

II.3.3.2 CICS ADABAS Link Routine Name Zap (CICS and TNM Only)

If the Trim Natural Monitor (TNM) is to be installed, TSICIADA must be included in the Natural Nucleus to perform the TNM Adabas calls (refer to Section II.8 Link-Edit Trim User exits into Natural). If the name of the CICS ADABAS Link Routine is not ADABAS, the following zap must be applied to change the name TSICIADA uses for performing ADABAS calls.

If the default of name, ADABAS, is used, this zap is not necessary.

The REP value should be set to the hexadecimal representation of the link routine name. This is the same name used in the Natural parameter ADANAME

OS/VM

```
NAME TSICIADA TSICIADA
VER 00B0 C1C4,C1C2,C1E2,4040 ADABAS
REP 00B0 xxxx,xxxx,xxxx,xxxx NEW LINK ROUTINE NAME
```

VSE

```
CORRECT 9999-TRM-00-761:TRCIADA
AFFECTS MODULE TSICIADA ESDID=1
ALTER 0000B0 CIC4CIC2CIE24040:XXXXXXXXXXXXXXXXXX
```

II.4 Create the TRIM Load Modules

TRIM arrives with default settings for a reasonable amount of statistics to be retained and for the manner in which they will be displayed. There are several ways that these default settings may be altered.

If a temporary change is desired until the database session ends, the best way to make the change is through the TRIM Real-Time Monitor CTRL screen.

If a permanent change is desired and will be the same for later database sessions, the best way to make the change is by tailoring with Zaps. Follow the directions in **Section VI Tailoring with Zaps**.

II.4.1 Link and Incorporate TRMTAP, TRMLOG, TRMRSP, TRELOG (Optional)

In order to make TRIM as efficient as possible, statistics collection should be turned off when the statistics will not be viewed. This can be described as a permanent change, but for some sites, the change needs to be flexible during different hours of each day. The way to make the change is to use the TRMTAP, TRMLOG, and TRMRSP macros. These macros are supplied on the distribution tape. Assemblies must be run with JCL pointing to the TRIM source library as the macro library.

VM assemblies must be run using the TRMV761 MACLIB macro library. A TRMTAP, TRMLOG, TRMRSP sample assembly may be done with the following commands:

```
GLOBAL MACLIB TRMV761
ASSEMBLE PSTARTUP
```

If tRelational statistics are to be accumulated, a TRELOG module must be assembled and linked into the appropriate TRMUEX4. For information on the macros, refer to **Section VII TRMTAP, TRMLOG, TRMRSP, TRELOG, and TRMSLO**.

If TRMTAP, TRMLOG, TRMRSP, and/or TRELOG are used, the resulting assembled code must be included in an appropriate TRMUEX4 link-edit. The following is an example of the OS link-edit parameters:

```
INCLUDE TRIMLIB(TRMUEX4R)      (or can use TRMUEX4S or TRMUEX4L)
INCLUDE TRIMLIB(USRTAP)        (Optional Assembled TRMTAP macro)
INCLUDE TRIMLIB(USRLOG)        (Optional Assembled TRMLOG macro)
INCLUDE TRIMLIB(USRRSP)        (Optional Assembled TRMRSP macro)
INCLUDE TRIMLIB(USELOG)        (Optional Assembled TRELOG macro)
NAME TRMUEX4R(R)               (or can use TRMUEX4S or TRMUEX4L)
```

This job generates a condition code of 4.

TRIM User-Exit-1 and User-Exit-4 may be copied into the ADABAS Load Library or may remain in the TRIM Load Library.

Change the AMODE and RMODE values of the linkage editor parm statement to agree with the MODE of the site's ADABAS nucleus.

If PRESUM to the SMF Log is being used and the site is not at the ESA level of MVS, AMODE (24) must be specified for TRIM User-Exit-4. This is due to a restriction of the SMFWTM macro requiring the SMF record to reside below the 16-megabyte line. If the SMF record address is greater than 16 megabytes, the SMFWTM will cause an abend with a X'353' system completion code.

II.4.2 Link the TRIM Load Modules (Required)

OS

Create the TRIM load modules by linking from the object library into the load library. The OS JCL to link the TRIM modules is provided on the installation tape source library, member JOSLINK.

VSE

If TRMTAP, TRMLOG, TRMRSP, and/or TRELOG are used, the resulting assembled object must be included in the appropriate TRMUEx4 link-edit step.

For VSE, submit JVSLINK to place phases in the appropriate Core Image Library(ies). Below are the job names in the JVSLINK JCL:

```
TRMLTRIM - links TRIM
TRMLUX1 - links TRMUEx1
TRMLUX4R - links TRMUEx4R (Regular TRMUEx4)
```

TRMLUX4R is a sample User-Exit-4 link-edit, which may be modified to build a Small or Large User-Exit-4 and/or to include TRMTAP, TRMLOG, TRMRSP, and/or TRELOG assembled modules as follows:

```
INCLUDE TRMX4MAx
INCLUDE TRMX4S1x
INCLUDE TRMX4S2x
INCLUDE TRMX4S3x
INCLUDE TRMXDS (or TRMXSDT)
INCLUDE USRTAP (Optional Assembled TRMTAP macro)
INCLUDE USRLOG (Optional Assembled TRMLOG macro)
INCLUDE USRRSP (Optional Assembled TRMRSP macro)
INCLUDE USELOG (Optional Assembled TRELOG macro)
```

where x = R (Regular), L (Large), or S (Small)

In the User-Exit-4 link-edit, TRMXDS should be used at sites having the date IPLed in MM/DD/YY format. TRMXSDT should be used at sites having the date IPLed in DD/MM/YY format.

VM

If TRMTAP, TRMLOG, TRMRSP, and/or TRELOG are used, the resulting assembled text is included in the appropriate TRMUEx4 by the JVMGEN EXEC procedure.

The TRIM component modules are generated by running an EXEC supplied with each release. This is the JVMGEN EXEC, which has been loaded from the release tape. (When executing JVMGEN to build the batch TRIM MODULE, the ADABAS text library containing ADAUSER (ADABAS) must be available. If this is not handled automatically, use the CMS command "GLOBAL TXTLIB ADAVxxx" before JVMGEN.)

Before executing JVMGEN, be prepared to answer prompts for:

- the filemode desired for the batch TRIM MODULE file
- whether the ADABAS exits (1 and 4) are to be generated as a TXTLIB or as separate TEXT files
- the filename(s) and filemode desired for the TEXT or TXTLIB file(s) to contain the ADABAS exits
- the filenames of TEXT files (if any) containing TRIM start-up parameters and user-supplied ADABAS exits to be included with TRIM
- the size of TRIM User-Exit-4 desired
- the filemode where the TRIM files reside (refer to **Section II.2 Allocate Space, Install Code from Tape to Disk**)

When the EXEC prompts for the filemode for the user link routine, respond with a null line, indicating to skip building this file. This step will be completed later.

Enter the command "JVMGEN". The EXEC will then prompt for required information. Once completed, the EXEC will have created the TRIM Batch Module and the TRIM User-Exit-1 and User-Exit-4.

Siemens

In the User-Exit-4 link-edit, TRMXB2 must be stated.

```
INCLUDE TRMXB2 BS2000 INDICATOR
```


II.5 Install the TRIM Real-Time Monitor

II.5.1 NATLOAD the Real-Time Monitor Natural Objects

The TRIM Real-Time Monitor must be installed (NATLOADed) under NATURAL 3.1.6 or above. If the Software AG NATURAL SECURITY SYSTEM is installed, define the library TRMV761 with the PREDICT XREF feature set to OFF. The TRIM NATLOAD dataset contains no XREF data.

In the process of installing NATURAL itself, each installation has set up a "standard NATLOAD procedure". Use this NATURAL NATLOAD procedure to load the Real-Time Monitor NATURAL modules into library TRMV761. The modules may then be optionally moved into another library of the user's choice.

Note: It is recommended that you run the TRIM RTM out of the TRMV761 library. If the RTM modules are moved to a different library, excess TNM data collection will occur and may cause User-Exit-4 tables to fill up quicker.

OS

Sample NATLOAD related OS JCL and NATURAL commands to load the Real-Time Monitor NATURAL modules are in member JOSNLOAD.

```
//NATLOAD EXEC NATURAL
//CMWKF01 DD DSN=TRM.V761.NATLOAD,DISP=SHR
//CMPRINT DD SYSOUT=*
//DDCARD DD DISP=SHR,DSN=... ( ... )
//CMSYNIN DD *
LOGON TRMV761
NATLOAD ALL * FM LIB TRMV761
/*
```

The sample above assumes a PROC "NATURAL" exists as the installation standard.

Note: If the Trim distribution included a NATLOAD FIX dataset, it should be loaded immediately after the TRM.V761.NATLOAD dataset. Replace should be specified on the NATLOAD statement (i.e., NATLOAD ALL * REPLACE).

VSE

Sample NATLOAD related VSE JCL and NATURAL commands to load the Real-Time Monitor NATURAL modules are in member JVSINLOAD:

```
* $$ JOB JNM=JVSINLOAD,CLASS=0,DISP=L,PRI=8
* $$ LST LST=SYSLST,CLASS=Q
// JOB JVSINPL
/* THIS JOB MUST BE RUN IN THE ADABAS BATCH
/* PARTITION AND A TAPE UNIT MUST BE ATTACHED
// ASSIGN SYS000,READER
// ASSIGN SYS001,380      FOR RELEASE TAPE
// MTC REW,SYS001
// MTC FSF,SYS001,1
// TLBL CMWKF01
/* ISSUE ADABAS DLBLS HERE
// EXEC NATXXXX,SIZE=(AUTO,64K),PARM='SYSRDR'
FUSER=(009,207),FNAT=(009,206)
BWORKD=(1,1,2540,VB)
BWORKDL=(1,NL)
BWORKDR=(1,NOREWIND)
OBJIN=R
IM=D
MADIO=0
MAXCL=0
MT=0
STACK=OFF
/*
* PLACE STANDARD ADARUN PARMS HERE
/*
NATLOAD ALL * FM LIB TRMV761
/*
// MTC REW,SYS001
/&
* $$ EOJ
```

The sample above assumes a "NATXXXX" exists as the installation standard.

Edit and modify the JCL to conform to local devices, libraries, and standards.

Note: If the Trim distribution included a NATLOAD FIX dataset, it should be loaded immediately after the TRM.V761.NATLOAD dataset. Replace should be specified on the NATLOAD statement (ie: NATLOAD ALL * REPLACE).

VM

Sample NATLOAD related EXEC and NATURAL commands to load the Real-Time Monitor NATURAL modules are in file JVMNLOAD EXEC. Modify the dfttape, dftmodname, and dftprint lines to specify site specific information:

```

/* LOAD NATURAL MODULES FOR TNM          */

dfttape      = 'TAP1'                    /* tape unit */
dftmodname    = 'NATURALX'                /* NATURAL module name */
dftprint      = 'TERMINAL'                /* FILEDEF options for print */

Arg tape modname print
If tape      = '' Then tape      = dfttape
If modname    = '' Then modname  = dftmodname
If print      = '' Then print    = dftprint
Address 'COMMAND'
/* Is tape attached? Rewind tape. */
Do Forever
  Parse Var tape x 'TAP' y
  If x = '' & Index('0123456789ABCDEF',y) > 0 Then Do
    'TAPE REW ('tape
    If rc = 0 Then Leave
  End
  Say 'Enter the tape unit id (TAPn, or QUIT to quit):'
Pull tape
  If tape = 'QUIT' Then Exit 8
End
/* Get NATURAL module name */
Do Forever
  If modname ^= '' Then Do
    Address 'CMS' 'STATE' modname 'MODULE *'
    If rc = 0 Then Leave
  End
  Say 'Enter the name of your NATURAL module file (or QUIT to quit):'
Pull modname
  If modname = 'QUIT' Then Exit 8
End
/* Setup to call Natural */
'ERASE LUOUT1 CMSYNIN A'
'EXECIO 1 DISKW LUOUT1 CMSYNIN A 0 F 80 (STRING B'
'EXECIO 1 DISKW LUOUT1 CMSYNIN A (FINIS STRING FIN'
'FILEDEF * CLEAR'
'FILEDEF CMWKF01' tape 'SL 1 (RECFM VB LRECL 254 BLKSIZE 2540'
'FILEDEF CMSYNIN DISK LUOUT1 CMSYNIN A'
'FILEDEF CMPRINT' print
/* Load INPL file */
Say 'Starting INPL for TNM NATURAL modules'
'EXEC' modname 'BATCH STACK=(INPL) WORK=(OS) AUTO=OFF',
        'MADIO=0 IM=D MT=0 EJ=OFF'
If rc ^= 0 Then Do
  Say 'INPL for TNM NATURAL modules failed, return code = ' rc'.'
  Exit rc
End
Say 'TNM NATURAL modules loaded.'
'FILEDEF * CLEAR'
'ERASE LUOUT1 CMSYNIN A'
'TAPE RUN ('tape

```

Note: If the Trim distribution included a NATLOAD FIX dataset, it should be loaded immediately after the TRM.V761.NATLOAD dataset. Replace should be specified on the NATLOAD statement (ie: NATLOAD ALL * REPLACE).

All Operating Systems

Logon to the Trim NATURAL library (i.e., TRMV761) and use the command "LIST * *" to confirm that the Real-time Monitor modules are installed. There should be over 500 modules (MENU and all others starting with "TNM" or "TRM").

The TRMCUST, TRMFIN, and TRMIPSWD source programs are provided for user tailoring related to the NATURAL environment. For more information, refer to **Section VIII NATURAL Source Modules**.

NATURAL for DB2 is supported by TNM only if the TNM file, which is an ADABAS file, is available.

II.5.2 TRMUXCPY - Copy Software AG supplied user-exits

TRIM requires some Software AG supplied user-exits to reside in the SYSTEM library. Start a NATURAL session, logon to the TRIM library, and execute the program TRMUXCPY. This program will copy Software AG supplied user-exits from the 'SYSEXT' library on the FNAT file to the SYSTEM library on the FUSER file. The Software AG supplied user-exits that TRIM copies are: USR0011N, USR0050N, USR0330N, USR0340N, USR1009N, USR1022N, USR1043N, and USR2004N.

II.6 Create the TNM ADABAS File (TNM Only)

The statistics collected by the TRIM NATURAL Monitor user-exits to NATURAL are accumulated in the TNM file, which is a standard ADABAS file. The TNM file maintains certain parameter and control information needed by TNM to determine what activity is to be monitored.

Load the TRM.V761.TNMFILE dataset to the appropriate ADABAS database(s). The TRM.V761.TNMFILE file is an ADABAS V7 ADACMP compressed format dataset. This dataset may be input directly into the ADABAS V7 ADALOD utility. The following information applies to the TNM file:

NAME: TNM-DATA
SPACE: DSSIZE=(Calculate using formula below)
NISIZE=50B

The space required varies, based on the number of records to be written to the file. The number of records depends on how TNM is used and how often the data is purged. Keep in mind that if TNM Detail Data Collection is being used, the file may fill up very quickly.

Summary Requirements

- 1 record for each user
- 1 record for each program/subprogram/subroutine executed

Detail Requirements

- 2 records for each program/subprogram/subroutine executed
- 2 records for each ADABAS call
- 1 record for each terminal I/O

Formula for Estimating the DSSIZE of the TNM File

$$\frac{(\text{Estimated Summary Records} + \text{Estimated Detail Records}) \times 100}{4338}$$

For example,

$$\frac{(5000 + 1000) \times 100}{4338} = 138 \text{ blocks.}$$

II.7 Load the TNM DDE into PREDICT (TNM Only)

The TNM DDE allows the site to write NATURAL program(s) to report on information in the TNM data file. This is an optional step of the installation and should not be performed if site specific reporting will not be done.

Execute the PREDICT Load function to load the TNM DDE from the TRM.V761.DDE dataset.

The sample JCL assumes a cataloged procedure named NATURAL exists in the system to invoke NATURAL. This JCL is provided for reference only and will not execute as displayed here.

Once the TNM-DATA DDE has been loaded into PREDICT, users may generate a DDM that can be referenced in their customer report programs.

Note: When generating the DDM, modify the database-ID and file number to the values assigned to the TNM Adabas file..

OS

Sample JCL (located in the TRM.V761.MVS.SOURCE library, member JOSDDE) to load the TNM DDE follows:

```
//JOSDDE      EXEC    NATURAL
//CMWKF01     DD      DSN=TRM.V761.DDE,DISP=SHR
//CMPRINT     DD      SYSOUT=*
//DDCARD      DD      DISP=SHR,DSN=... ( ... )
//CMSYNIN     DD      *
LOGON SYSDICBE
MENU
LOAD ALL,REPLACE=Y
FIN
/*
//
```

VM

A sample VM EXEC (located in the TRM.V761.VM.SOURCE library, member JVMDDE) to load the TNM DDE follows:

```

/* LOAD DDE for TNM-DATA file */

dfttape      = 'TAP1'                      /* tape unit */
dftmodname    = 'NATURALX'                  /* NATURAL 2 module name */
dftprint      = 'TERMINAL'                  /* FILEDEF options for print */

Arg tape modname print
If tape      = '' Then tape      = dfttape
If modname    = '' Then modname  = dftmodname
If print      = '' Then print    = dftprint
Address 'COMMAND'
/* Is tape attached? Rewind tape. */
Do Forever
  Parse Var tape x 'TAP' y
  If x = '' & Index('0123456789ABCDEF',y) > 0 Then Do
    'TAPE REW ('tape
    If rc = 0 Then Leave
  End
  Say 'Enter the tape unit id (TAPn, or QUIT to quit):'
  Pull tape
  If tape = 'QUIT' Then Exit 8
End
/* Get NATURAL module name */
Do Forever
  If modname ^= '' Then Do
    Address 'CMS' 'STATE' modname 'MODULE *'
    If rc = 0 Then Leave
  End
  Say 'Enter the name of your NATURAL module file (or QUIT to quit):'
  Pull modname
  If modname = 'QUIT' Then Exit 8
End
/* Setup to call Natural */
'ERASE LUOUT1 CMSYNIN A'
'EXECIO 1 DISKW LUOUT1 CMSYNIN A 0 F 80 (STRING LOGON SYSDICBE'
'EXECIO 1 DISKW LUOUT1 CMSYNIN A (STRING MENU'
'EXECIO 1 DISKW LUOUT1 CMSYNIN A (STRING LOAD ALL,REPLACE=Y'
'EXECIO 1 DISKW LUOUT1 CMSYNIN A (FINIS STRING FIN'
'FILEDEF * CLEAR'
'FILEDEF CMWKF01' TAPE 'SL 12 (RECFM VB LRECL 254 BLKSIZE 2540'
'FILEDEF CMSYNIN DISK LUOUT1 CMSYNIN A'
'FILEDEF CMPRINT' print
/* Load INPL file */
Say 'Starting SYSDICBE LOAD for TNM-DATA file'
'EXEC' modname 'BATCH',
      'WORK=(OS) AUTO=OFF MADIO=0 IM=D MT=0 EJ=OFF'
If rc ^= 0 Then Do
  Say 'Load for TNM-DATA file failed, return code =' rc'.'
  Exit rc
End
Say ' JVMDDE-DATA DDE loaded.'
'FILEDEF * CLEAR'
'ERASE LUOUT1 CMSYNIN A'
'TAPE RUN ('tape

```

VSE

A sample VSE JCL and NATURAL commands (located in the TRM.V761.VM.SOURCE library, member JVSDDE) to load TNM DDE follows:

```
* $$ JOB JNM=JVSINLOAD,CLASS=0,DISP=L,PRI=8
* $$ LST LST=SYSLST,CLASS=Q
// JOB JVSINPL
* THIS JOB MUST BE RUN IN THE ADABAS BATCH
* PARTITION AND A TAPE UNIT MUST BE ATTACHED
// ASSIGN SYS000,READER
// ASSIGN SYS001,380          FOR RELEASE TAPE
// MTC REW,SYS001
// MTC FSF,SYS001,24          TAPE POSITIONING
// TLBL CMWKF01
* ISSUE ADABAS DLBLS HERE
// EXEC NATXXXX,SIZE=(AUTO,64K),PARM='SYSRDR'
FUSER=(009,207),FNAT=(009,206)
BWORKD=(1,1,10000,VB)
BWORKDL=(1,NL)
BWORKDR=(1,NOREWIND)
OBJIN=R
IM=D
MADIO=0
MAXCL=0
MT=0
STACK=OFF
/*
* PLACE STANDARD ADARUN PARMS HERE
/*
LOGON SYSDICBE
MENU
LOAD ALL,REPLACE=Y
FIN
/*
// MTC REW,SYS001
/&
* $$ EOJ
```

Note: Detail collection in production environments may cause excessive data to be accumulated and the TNM file could become full. Therefore, extensive detail collection in production environments is not recommended.

II.8 Link-edit TRIM User-exits into NATURAL

To enable TRIM to obtain certain NATURAL information (NATURAL Application/Library, NATURAL User-ID, and NATURAL Program Name) to be shown in the Real-Time Monitor and logging and to support TNM, a reassembly of the NATPARM module and a re-link of the NATURAL nucleus to include several TRIM user-exits are required for all NATURAL environments being used in the installation.

The TRIM user-exits to the NATURAL nucleus are a collection of Assembler modules that get control when the following events occur during a user's NATURAL session:

NATURAL Start:	This event occurs when the user first invokes NATURAL.
NATURAL End:	This event occurs when the user exits NATURAL.
Program Start:	This event occurs when the user begins to execute a NATURAL program or when a program the user is executing invokes another module (in the context of TNM, a program is any executable NATURAL object, including programs, subprograms, subroutines, and maps).
Program End:	This event occurs when the currently executing NATURAL program stops executing or returns control to the calling program.
ADABAS Call Start:	This event occurs when a NATURAL program is prepared to issue a command to ADABAS.
ADABAS Call End:	This event occurs after ADABAS responds to a command issued by a NATURAL program.
Terminal I/O:	This event occurs when the user exits a screen (e.g., presses Enter, a PF-key, or an Attention key).

When the TRIM user-exit gets control during one of the events above, it recognizes and retains the User-ID, program name, execution counts, times, etc. If TNM is in use, this information is periodically written to the TNM file. Once written to this file, the information is available to all users of the TNM reports. The collection of statistics by the NATURAL user-exits can be activated and deactivated as needed using the administrative functions of TNM.

To illustrate the events monitored by the TRIM user-exits to NATURAL, consider the following sample NATURAL session, showing the actions a user and an application performed, and the events recorded by TNM:

<u>User's or Program's Action</u>	<u>Event Recorded by TNM</u>
User logs on to NATURAL	NATURAL Start
User executes a program	Program Start
Program calls a map	Program Start (map)
Program displays a map to the user	Terminal I/O
User requests help for the map	Terminal I/O
Program fetches a help routine	Program Start (help routine)
User reads help, presses PF3 to end it	Terminal I/O
Help routine returns to caller	Program End (help routine)
User enters transaction data	Terminal I/O
Map ends	Program End (map)
Program issues an update command to an ADABAS file	ADABAS Call Start
ADABAS update is completed	ADABAS Call End
Program fetches a subprogram	Program Start (subprogram)
Subprogram returns to caller	Program End (subprogram)
Program displays results to user	Terminal I/O
Program ends	Program End
User logs off NATURAL	NATURAL End

By noting information about these events, TNM is able to determine program duration, elapsed time for ADABAS calls, and other performance characteristics.

II.8.1 Link-edit TRIM User-exits into NATURAL

A reassembly of the NATPARM module and a re-link of the NATURAL nucleus to include several TRIM user-exits are required for all Natural environments being used in the installation. The following steps will make the necessary modifications to the NATURAL nucleus:

The following parameters must be added to the NATPARM module:

```
ADAPRM=ON
RDCSIZE=2      (Minimum requirement)

USERBUF=9      ----- for TNM Only
```

Specify TNMOPTS as a CSTATIC entry, even if TNM is not being installed. Insert the following line as the last parameter in the NTPARM macro:

```
CSTATIC=(TNMOPTS)
```

Be sure to put a comma and continuation mark after the parameter that was previously the last one in NTPARM. If different NATPARM modules are used for batch and on-line, all NATPARM modules must be changed.

If TNM is being installed insert the following NTFILE macro after the last line in the NTPARM macro but before the END statement:

Natural 3.1.6

```
NTFILE ID=121,DBID=ddd,FNR=fff
```

Natural 4.x

```
NTLFILE 121,ddd,fff
```

where: ddd = The ADABAS Database-ID of the TNM-DATA file and fff = The file number of the TNM-DATA file

The file id 121 is used internally by TNM and does not affect any file on the database that has the file number 121.

Reassemble the NATPARM module with these additional parameters, using the standard NATPARM assembly procedure. The assembly should receive a condition code of 0. A condition code of 4 is normal for the LKED step on the NATPARM module. The Linkage Editor may produce the following warning message:

```
IEW0461 TNMOPTS
```

The module TNMOPTS is resolved by the Linkage Editor in the next step of the install.

Note: When assembling the NATPARM module with the USERBUF parameter specified, the following message will appear in the listing:

```
USERBUF PARAMETER IS NO LONGER USED FOR THE DATA COLLECTOR.  
PLEASE USE RDCSIZE INSTEAD.
```

These messages may be ignored.

As shown below, supplied modules must be linked into all NATURAL environments, including: BATCH, TSO, CICS, and COM-LETE. This must be accomplished by using the same jobs or procedures that were used in the original installation of NATURAL. These modules are coded re-entrant and marked "RENT,REUS".

Note: You may also zap CSECT TNMODA in module TNMODxxA (where xx = Natural version (31, 41, or 42)), offset x'28' from x'002B' to x'0009'. This will cause the ZSIZE buffer to be used instead of the USERBUF. ZSIZE must be specified to a value of at least 9. Other products may also use USERBUF. If so, use ZSIZE. If neither of these buffers are available, contact Treehouse Software Support.

Include the following statements (based on Natural version) at the end of the INCLUDEs before NATLAST:

OS and VSE

Non-TNM installation

Natural 3.1

```
INCLUDE TRIMLIB(TNMOPT31)
```

Natural 4.1

```
INCLUDE TRIMLIB(TNMOPT41)
```

Natural 4.2

```
INCLUDE TRIMLIB(TNMOPT42)
```

TNM Installation

Natural 3.1

```

INCLUDE TRIMLIB(TNMOD31A)
INCLUDE TRIMLIB(TNMOD31B)
INCLUDE TRIMLIB(TNMOD31C)
INCLUDE TRIMLIB(TNMOD31D)
INCLUDE TRIMLIB(TNMDRV31)
INCLUDE TRIMLIB(TNMMDRV)
INCLUDE TRIMLIB(TNMOPT31)
INCLUDE TRIMLIB(TSIRDC31)
INCLUDE TRIMLIB(TRMRDC)
INCLUDE TRIMLIB(TSICIADA) for CICS and TNM only

```

Natural 4.1

```

INCLUDE TRIMLIB(TNMOD41A)
INCLUDE TRIMLIB(TNMOD41B)
INCLUDE TRIMLIB(TNMOD41C)
INCLUDE TRIMLIB(TNMOD41D)
INCLUDE TRIMLIB(TNMDRV41)
INCLUDE TRIMLIB(TNMMDRV)
INCLUDE TRIMLIB(TNMOPT41)
INCLUDE TRIMLIB(TSIRDC41)
INCLUDE TRIMLIB(TRMRDC)
INCLUDE TRIMLIB(TSICIADA) for CICS and TNM only

```

Natural 4.2

```

INCLUDE TRIMLIB(TNMOD42A)
INCLUDE TRIMLIB(TNMOD42B)
INCLUDE TRIMLIB(TNMOD42C)
INCLUDE TRIMLIB(TNMOD42D)
INCLUDE TRIMLIB(TNMDRV42)
INCLUDE TRIMLIB(TNMMDRV)
INCLUDE TRIMLIB(TNMOPT42)
INCLUDE TRIMLIB(TSIRDC42)
INCLUDE TRIMLIB(TRMRDC)
INCLUDE TRIMLIB(TSICIADA) for CICS and TNM only

```

Note: If a site is using a shared NATURAL nucleus, the TNM modules, TSIRDCxx and TRMRDC, must be included in both portions of the shared NATURAL nucleus.

If TRIM (TNM) is installed under CICS with a shared nucleus, modules TSICIADA (from the TRIM load library), DFHEAI, and DFHEAIO (both from the CICS load library) must also be included shared portion.

Some sites include the ADABAS link routines (ADALNK, etc.) in the NATURAL link. These sites should perform the User-Exit-B installation steps first, and then re-link NATURAL, being sure to use the newly link-edited ADALNK/ADALNC/etc., as well as adding the INCLUDEs on the previous page.

VM

Use the standard EXEC (NAT\$LOAD) to link NATURAL, and add the following statements (based on Natural version):

Non-TNM installation

Natural 3.1

Loadlist = loadlist 'TNMOPT31'

Natural 4.1

Loadlist = loadlist 'TNMOPT41'

Natural 4.2

Loadlist = loadlist 'TNMOPT42'

TNM Installation

Natural 3.1

```
loadlist      = loadlist 'TNMOD31A'
loadlist      = loadlist 'TNMOD31B'
loadlist      = loadlist 'TNMOD31C'
loadlist      = loadlist 'TNMOD31D'
loadlist      = loadlist 'TNMDRV31'
loadlist      = loadlist 'TNMVDRV'
loadlist      = loadlist 'TNMOPT31'
loadlist      = loadlist 'TRMRDC'
loadlist      = loadlist 'TSIRDC31'
loadlist      = loadlist 'TSICIADA' for CICS only
```

If your NATURAL generation procedure uses LKED rather than LOAD/INCLUDE, use:

```
FILEDEF TNMODA DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD31A)
FILEDEF TNMODB DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD31B)
FILEDEF TNMODC DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD31C)
FILEDEF TNMODD DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD31D)
FILEDEF TNMDRV DISK TRMV761 TXTLIB * (PERM MEMBER TNMDRV31)
FILEDEF TNMVDRV DISK TRMV761 TXTLIB * (PERM MEMBER TNMVDRV)
FILEDEF TNMOPTS DISK TRMV761 TXTLIB * (PERM MEMBER TNMOPT31)
FILEDEF TRMRDC DISK TRMV761 TXTLIB * (PERM MEMBER TRMRDC)
FILEDEF TSIRDC DISK TRMV761 TXTLIB * (PERM MEMBER TSIRDC31)
FILEDEF TSICIADA DISK TRMV761 TXTLIB * (PERM MEMBER TSICIADA) (CICS and TNM only)
```

instead of the GLOBAL command.

Natural 4.1

```
loadlist      = loadlist 'TNMMOD41A'
loadlist      = loadlist 'TNMMOD41B'
loadlist      = loadlist 'TNMMOD41C'
loadlist      = loadlist 'TNMMOD41D'
loadlist      = loadlist 'TNMDRV41'
loadlist      = loadlist 'TNMVDRV'
loadlist      = loadlist 'TNMOPT41'
loadlist      = loadlist 'TRMRDC'
loadlist      = loadlist 'TSIRDC41'
loadlist      = loadlist 'TSICICIADA' for CICS only
```

If your NATURAL generation procedure uses LKED rather than LOAD/INCLUDE, use:

```
FILEDEF TNMMODA DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD41A)
FILEDEF TNMMODB DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD41B)
FILEDEF TNMMODC DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD41C)
FILEDEF TNMMODD DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD41D)
FILEDEF TNMDRV DISK TRMV761 TXTLIB * (PERM MEMBER TNMDRV41)
FILEDEF TNMVDRV DISK TRMV761 TXTLIB * (PERM MEMBER TNMVDRV)
FILEDEF TNMOPTS DISK TRMV761 TXTLIB * (PERM MEMBER TNMOPT41)
FILEDEF TRMRDC DISK TRMV761 TXTLIB * (PERM MEMBER TRMRDC)
FILEDEF TSIRDC DISK TRMV761 TXTLIB * (PERM MEMBER TSIRDC41)
FILEDEF TSICIADA DISK TRMV761 TXTLIB * (PERM MEMBER TSICIADA) CICS and TNM only
```

instead of the GLOBAL command.

Natural 4.2

Use the standard EXEC (NAT\$LOAD) to link NATURAL, and add the following statements:

```
loadlist      = loadlist 'TNMMOD42A'
loadlist      = loadlist 'TNMMOD42B'
loadlist      = loadlist 'TNMMOD42C'
loadlist      = loadlist 'TNMMOD42D'
loadlist      = loadlist 'TNMDRV42'
loadlist      = loadlist 'TNMVDRV'
loadlist      = loadlist 'TNMOPT42'
loadlist      = loadlist 'TRMRDC'
loadlist      = loadlist 'TSIRDC42'
loadlist      = loadlist 'TSICIADA' for CICS only
```

If your NATURAL generation procedure uses LKED rather than LOAD/INCLUDE, use:

```
FILEDEF TNMMODA DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD42A)
FILEDEF TNMMODB DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD42B)
FILEDEF TNMMODC DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD42C)
FILEDEF TNMMODD DISK TRMV761 TXTLIB * (PERM MEMBER TNMOD42D)
FILEDEF TNMDRV DISK TRMV761 TXTLIB * (PERM MEMBER TNMDRV42)
FILEDEF TNMVDRV DISK TRMV761 TXTLIB * (PERM MEMBER TNMVDRV)
FILEDEF TNMOPTS DISK TRMV761 TXTLIB * (PERM MEMBER TNMOPT42)
FILEDEF TRMRDC DISK TRMV761 TXTLIB * (PERM MEMBER TRMRDC)
FILEDEF TSIRDC DISK TRMV761 TXTLIB * (PERM MEMBER TSIRDC42)
FILEDEF TSICIADA DISK TRMV761 TXTLIB * (PERM MEMBER TSICIADA) for CICS only
```

instead of the GLOBAL command.

If using NAT\$LOAD (via NATBLDM/NATBLDS), the simplest procedure is using the following:

- Modify NAT\$LOAD by removing the statement (approximately line 105):

```
if rc=0 then exit 0
```

and change the statement (approximately line 116):

```
do while rc>0
```

to read:

```
do forever
```

II.9 Link-edit User-exits to ADABAS Link Routine

It is possible to specify user-exits to ADALNK (Batch, TSO, and VM), ADALNC (CICS pre 3.2), LNKOLSC (CICS 3.2 and later), ADALCO (COM-LETE 4.5 and later), and ADALNI (IMS). These exits are User-Exit-B (given control prior to the call to ADABAS) and User-Exit-A (given control after the call has completed).

A User-Exit-A and a User-Exit-B for each of the environments above are supplied with TRIM. User-Exit-A is used to retrieve the ADABAS version and ADABAS link routine information. TRIM makes use of User-Exit-B to gather information about the user's environment and to pass this information to TRMUEX1 and TRMUEX4. Refer to **Section IV.5 Reporting on the NATURAL Module Name** for a description of the NATURAL information gathering process.

The TRIM User-Exit-B modules use the information built by the TRIM user-exits to NATURAL. For this reason, the TRIM user-exits to NATURAL must be installed on all NATURALs, and all of the TRIM User-Exit-B modules (Batch, CICS, COM-LETE, etc.) must be installed in order to view NATURAL Program, User-ID, and Application information.

If a user-supplied User-Exit-B is to pass additional information in the USERINFO Area, it must use the method shown in **Section III Co-existing User-exits** for creating a user-defined USERINFO Area segment. Each segment requires six bytes plus the length of the user data, rounded up to a multiple of eight, to be added to the 240 bytes required by TRIM. **Section III Co-existing User-exit** of this manual shows the fields passed by TRIM User-Exit-B. This section also indicates how a user-supplied User-Exit-B may access data within the TRIM USERINFO segment and/or pass non-TRIM data in the USERINFO Area.

Batch jobs may be slowed down by TRMUEXBB. For more information, refer to **Section VI Tailoring with Zaps** and **Section VII TRMTAP, TRMLOG, TRMRSP, TRELOG, TRMSLO**.

TRIM and SECURITRE exits may co-exist. Please refer to the *Co-Existing User-exits* section for more information.

TRIM makes use of User-Exit-A to gather ADABAS version and ADABAS Link Routine information.

User-Exit-B/A for Batch and TSO (OS Only)

To install the TRIM User-Exit-B/A under Batch and TSO, the following steps should be followed:

- Near the TOP of the ADALNK module (located in the ADABAS source library) is an assembler equate LNUINFO. This equate must be modified to a value of 240 or more. This will allow TRIM User-Exit-B to pass 240 bytes of information about each command to TRMUEX1/4. ADALNK should be assembled with the source change in place. For VSE sites, it is important to create the ADALNK object, but not to create the ADALNK PHASE.
- Using the Linkage Editor, include the TRIM User-Exit-B (TRMUEXBB) and the TRIM User-Exit-A (TRMUEXA) within the ADALNK load module.
- A user-supplied User-Exit-B/A may also be included as part of the link-edit process. Refer to **Section III Co-existing User-exits**.

If Batch Selective Slowdown is being used, a TRMSLO module must be assembled and linked with TRMUEXBB (batch only) as follows:

OS

The following include cards should be used with the link-editor to create ADALNK.

```
INCLUDE ADA7LIB(ADALNK)           (Batch Link Routine)
INCLUDE TRIMLIB(TRMUEXBB)         (TRIM Batch/TSO User-Exit-B)
INCLUDE TRIMLIB(TRMUEXA)         (TRIM User-Exit-A)
INCLUDE TRIMLIB(TRMSLO)           (Optional if batch slowdown is selected)
NAME ADALNK(R)                   (Replace ADALNK)
```

VSE

Sample VSE JCL to create the ADALNK object is on the tape in member JVSALNK1.

```
* $$ JOB JVSALNK1,CLASS=0,DISP=H,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// JOB ASSEM          ASSEMBLE ADALNK TO CREATE OBJECT
// OPTION DECK
// LIBDEF *,SEARCH=ADALIB.ADABAST
// DLBL IJSYSPH,'SMA.SYSPCH.ONE'
// EXTENT SYSPCH,TEST00,1,0,1,350
// OPTION SYSPARM='99/01/01'
ASSGN SYSPCH,DISK,VOL=TSTWK1,SHR
// EXEC ASMA90,SIZE=(ASMA90,64K),C
          PARM='CPAT(SYSL),EXEC(LIBEXIT(EDECKXIT(ORDER=AE))),FOLD,C
          OP(VSE),LINECOUNT(056)'
+INC DBA.ADALNK
/*
CLOSE SYSPCH,PUNCH
*
* CATALOG ADALNK
// DLBL IJSYSIN,'SMA.SYSPCH.ONE'
// EXTENT SYSIPT,TEST00
ASSGN SYSIPT,DISK,VOL=TSTWK1,SHR
// EXEC LIBR,PARM='AC S=ADALIB.NATUPGD;CATALOG ADALNK.OBJ R=Y'
/*
CLOSE SYSIPT,READER
/. EOJ
/&
* $$ EOJ
```

Sample VSE JCL to create the PHASE ADALNK is found on the tape in member JVSALNK2.

```
* $$ JOB JVSALNK2,CLASS=0,DISP=H,PRI=3
* $$ LST LST=SYSLST,CLASS=Q
// JOB JVSALNK2          LINK OBJECT TO CREATE PHASE ADALNK
// LIBDEF *,CATALOG=ADALIB.NATUPGD
// LIBDEF *,SEARCH=(ADALIB.NATUPGD,ADALIB.TRM761)
// EXEC PROC=MSHPTECH
// OPTION CATAL
*
PHASE ADALNK,*,NOAUTO
INCLUDE ADALNK           (BATCH LINK ROUTINE)
MODE AMODE(31) RMODE(24)
INCLUDE TRMUEXBB         (TRIM BATCH/TSO USER-EXIT-B)
INCLUDE TRMXDS           (VSE INDICATOR (OR TRMXDSDT))
INCLUDE TRMSLO           (OPTIONAL IF BATCH SLOWDOWN IS SELECTED)
ENTRY ADABAS
// EXEC LNKEDT
*
/*
/&
* $$ EOJ
```

For more information, refer to **Section VII TRMTAP, TRMLOG, TRMRSP, TRELOG, and TRMSLO.**

User-Exit-B/A for COM-PLETE 4.5 and Later

To install the TRIM User-Exit-B/A under COM-PLETE 4.5 and later, the following steps should be followed:

- Near the TOP of the ADALCO module (located in the ADABAS 7 source library) is an assembler equate LNUINFO. This equate must be modified to a value of 240 or more. This will allow TRIM User-Exit-B to pass 240 bytes of information about each command to TRMUEX1/4. ADALCO should be assembled with the source change in place. For VSE sites, it is important to create the ADALCO object, but not to create the ADALCO PHASE.
- Using the LINKAGE EDITOR, include the TRIM User-Exit-B (TRMUEXB5) and the TRIM User-Exit-A (TRMUEXA) within the ADALCO load module.
- Re-link the COM-PLETE nucleus.

OS

The following include cards should be used with the link-editor to create ADALCO:

```
INCLUDE ADA7LIB(ADALCO)          (COM-PLETE Link Routine)
INCLUDE TRIMLIB(TRMUEXB5)        (TRIM COM-PLETE 4.5+ User-Exit-B)
INCLUDE TRIMLIB(TRMUEXA)        (TRIM COM-PLETE 4.5+ User-Exit-A)
MODE AMODE(31),RMODE(ANY)
NAME ADALCO(R)                  (Replace ADALCO)
```

VSE

Sample VSE JCL to create the ADALNK object is on the tape in member JVSALNK1. Make the appropriate changes to this member to assemble ADALCO in place of ADALNK.

Sample VSE JCL to create the PHASE ADALNK is found on the tape in member JVSALNK2. This JCL should be changed to create PHASE ADALCO, and the include cards should be changed to the following:

```
INCLUDE ADALCO                  (COM-PLETE Link Routine)
INCLUDE TRMUEXB5                (TRIM COM-PLETE 4.5+ User-Exit-B)
INCLUDE TRMUEXA                (TRIM COM-PLETE 4.5+ User-Exit-A)
INCLUDE TRMXDS                  (VSE Indicator (or TRMXDSDT))
MODE AMODE(31),RMODE(ANY)
```

Note: TRIM may be installed with TPF. Use the same procedures as for COM-PLETE.

Note: COM-PLETE 4.6.1 and above uses 31 bit addressing.

User-Exit-B/A for CICS 3.2 and Later

To install the TRIM User-Exit-B/A under CICS versions 3.2 and later, the following steps should be followed:

- Near the top of LNKOLSC is the invocation of the ADAGSET macro. The LUINFO and the LUSAVE parameters must be specified. If they are not present, they must be added. The LUINFO keyword parameter must be set to a value of at least 240 to allow TRIM User-Exit-B to pass 240 bytes of information about each command to TRMUEX1/4. LUSAVE must be set to a value of at least 72. LNKOLM & LNKOLSC should be assembled with the source change in place. For VSE sites, it is important to create the LNKOLM & LNKOLSC object, but not create the ADABAS PHASE.
- Using the LINKAGE EDITOR, include the TRIM User-Exit-B (TRMUEXB2) and the TRIM User-Exit-A (TRMUEXA2) within the LNKOLSC load module. TRMUEXB2 and TRMUEXA2 are coded re-entrant and marked "RENT,REUS".

A user supplied User-Exit-B/A may also be included as part of the link-edit process. For information regarding interfacing TRIM User-Exit-B/A with an installation written User-Exit-B/A, refer to **Section III Co-existing User-exits**.

The CICS region should be recycled to allow for installation of the resident module ADABAS.

NOTE: Any changes made to the ADABAS CICS command-level link routine (LUINFO and LUSAVE for TRIM) via the ADAGSET macro or by changing parameter values in the assembly source of the routine should be made to ALL components of the routine. Failure to do so will most likely result in #NOTEBxx or #NOTE4xx names for some Program names, Application Library names, and NATURAL Security IDs.

OS

The following include cards should be used with the link-editor to create ADABAS.

```
INCLUDE ADA7LIB(LNKOLSC)      (CICS Link Routine)
INCLUDE ADA7LIB(LNKOLM)
INCLUDE TRIMLIB(TRMUEXB2)     (TRIM CICS User-Exit-B)
* INCLUDE TRIMLIB(TRMUEXA2)    (TRIM CICS User-Exit-A)
NAME ADABAS(R)                (Replace ADALNC)
```

- * This include will create an unresolved symbol for V(ADABAS). This is a level 4 warning message. The unresolved symbol will be resolved at link time.

VSE

Sample VSE JCL to create the ADALNK object is on the tape in member JVSALNK1. Make the appropriate changes to this member to assemble LNKOLM & LNKOLSC in place of ADALNK.

Sample VSE JCL to create the PHASE ADALNK is found on the tape in member JVSALNK2. This JCL should be changed to create PHASE ADABAS, and change the include cards to the following:

```
INCLUDE LNKOLSC                (CICS Link Program (ADABAS) Phase)
INCLUDE LNKOLM
INCLUDE TRMUEXB2                (TRIM CICS User-Exit-B)
* INCLUDE TRMUEXA2              (TRIM CICS User-Exit-A)
INCLUDE TRMXDS                  (VSE Indicator (or TRMXDSDT))
```

- * This include will create an unresolved symbol for V(ADABAS). This is a level 4 warning message. The unresolved symbol will be resolved at link time.

User-Exit-B/A for IMS/DC

To install the TRIM User-Exit-B/A under IMS/DC, the following steps should be followed:

- Using the LINKAGE EDITOR, include the TRIM User-Exit-B (TRMUEXBB) and TRIM User-Exit-A (TRMUEXA) within the ADALNI load module.
- A user-supplied User-Exit-B/A may also be included as part of the link-edit process. Refer to **Section III Co-existing User-exits**.
- Add an INCLUDE for TRMUEXBB and one for TRMUEXA following any INCLUDEs for ADALNI.
- Change the LNUINFD parameter in ADALNI from 0 to 240.
- Link the NATURAL IMS nucleus.
- Reassemble and link NATIMS.

User-Exit-B /A for VM

Instructions for linking TRIM User-Exit-B (TRMUEXB) and TRIM User-Exit-A (TRMUEXA) with ADALNK are presented in the *Creating a Re-entrant ADALNK for VM* section.

User-Exit-B/A for Siemens

To install User-Exit-B/A for Siemens BS2000, follow these steps:

- Change the following source statement in ADALNK (RTIO):
 from: LNUINFO EQU 0 to: LNUINFO EQU 240
or update the corresponding object-module of ADALNK as described in the *ADABAS Implementation Manual* to the value X'00F0'.
- Change the following source statement in ADALNN or ADALNU (what is used - UTM)
 from: LNUINFO EQU 0 to: LNUINFO EQU 240
or update the corresponding object-module of ADALNN or ADALNU as described in the *ADABAS Implementation Manual* to the value X'00F0'.
- Supply the linkage of all NATURALs with following INCLUDE statement:
 INCLUDE TRMUEXB5,TRIM761.LMSLIB
 INCLUDE TRMUEXA,TRIM761.LMSLIB

 OR

 INCLUDE TRMUEXBU,TRIM761.LMSLIB
where TRMUEXBS indicates that no user-supplied User-Exit-B is used, and TRMUEXBU indicates that a user-supplied User-Exit-B is used.
- Execute the linkage of NATURAL with
 LINK-SYMBOLS *KEEP.

II.10 Create Re-entrant ADALINK (TNM Only)

TNM maintains statistics through an independent link to the ADABAS address space by issuing an ADABAS OPEN command with a newly-generated and unique ADABAS User-ID. This separate connection needs to be established because the transaction logic used by TNM to maintain statistics would normally conflict with that being used in the NATURAL application being monitored. This process requires a re-entrant ADABAS link routine.

This separate link to ADABAS is established for Batch/TSO, COM-LETE/TPF, and IMS, by creating a duplicate ADABAS link routine for use specifically by the TNM exits to NATURAL. In CICS, this separate link to ADABAS is established using the new TSICIADA module.

Note: For performance considerations, it is recommended that no user-exits be included with the re-entrant ADALINK.

If Treehouse Software, Inc.'s SECURITRE is installed, ADALNKR must be linked with either STRUEXBB (TSO/BATCH) or STRUEXB5 (COMPLETE/TPF).

Creating a Re-entrant ADALNKR for Batch/TSO

Note: When installing TRIM V7.6.1 under COM-LETE, and NATURAL is configured to use a shared nucleus, if that shared nucleus is also shared by NATURAL for TSO, use the ADABAS batch link routine ADALNKR as the re-entrant link routine used by TRIM. The COM-LETE link routine ADALCO cannot be used in a TSO environment, but the batch link routine ADALNK can be used under COM-LETE.

For ADABAS v7.4 and above, the new ADALNKR source module should be used to create a re-entrant ADALNK. Refer to SAG documentation for information on creating a Re-entrant Batch Link Routine.

Creating a Re-entrant ADALCOR for COM-LETE 4.5 and Later

Note: COM-LETE versions prior to 4.5 are no longer supported.

TRIM may be installed with TPF. Use the exact same procedures as for COM-LETE.

When installing TRIM V7.6.1 under COM-LETE, and NATURAL is configured to use a shared nucleus, if that shared nucleus is also shared by NATURAL for TSO, use the ADABAS batch link routine ADALNK, renaming it to ADALNKR, as the re-entrant link routine used by TRIM. The COM-LETE link routine ADALCO cannot be used in a TSO environment, but the batch link routine ADALNK can be used under COM-LETE.

Follow these steps to create a separate and re-entrant ADALCOR module for COM-LETE 4.5 and later:

- Make a copy of ADALCO and name it ADALCOR. Be sure to retain ADALCO.
ADALCO is the normal link routine to the database. ADALCOR is the link routine used by TNM for the collection of statistics.
- Locate the source line starting with SVCNR in column 1. Change the SVC number to the proper ADABAS 7 SVC number.
- Follow the instructions provided by Software AG in the ADALCOR source code for making the module re-entrant.

ADABAS 7 and later:

ADALCO is distributed as re-entrant.

- If TNM is called from a 31-bit addressing environment, then add the following two lines immediately after the "ADABAS CSECT" line, starting in column 1:

```
ADABAS    RMODE ANY
ADABAS    AMODE 31
```

- Assemble and link ADALCOR to a loadlib accessible at run time to the NATURAL environments where TNM will be executed.

Note: COM-LETE 4.6.1 and above uses 31 bit addressing.

Creating a Re-entrant ADALNIR for IMS/DC

Follow these steps to create a separate and re-entrant ADALNIR module for IMS/DC:

- Make a copy of ADALNI and name it ADALNIR. Be sure to retain ADALNI.
ADALNI is the normal link routine to the database. ADALNIR is the link routine used by TNM for the collection of statistics.
- Locate the source line starting with SVCNR in column 1. Change the SVC number to the proper ADABAS 7 SVC number.

- Follow the instructions provided by Software AG in the ADALNIR source code for making the module re-entrant.

ADABAS 7 and later:

The following assembler variable should be set to "on" (1) to generate a re-entrant ADALNK.

```
*&RENT      SETB    0      Non-reentrant ADALNK
&RENT       SETB    1      Re-entrant ADALNK
```

- If TNM is called from a 31-bit addressing environment, then add the following two lines immediately after the "ADABAS CSECT" line, starting in column 1:

```
ADABAS      RMODE ANY
ADABAS      AMODE 31
```

- Assemble and link ADALNIR to a loadlib accessible at run time to the NATURAL environments where TNM will be executed.

Creating a Re-entrant ADALNK for VM

Follow these steps to create a separate and re-entrant ADALNK for VM:

- Reassemble ADALNK. This assembly must be preceded by the CMS command "GLOBAL MACLIB ADAVnnn DMSSP OSMACRO CMSLIB" or other macro library list as stated in the ADALNK source comments.
- Assemble TRMSLO, if desired. This assembly must be preceded by the CMS command "GLOBAL MACLIB TRMV761".
- Execute JVMGEN, responding with a null line to the prompts for filemode for batch TRIM MODULE and MPM-exits (these were generated earlier). Before executing JVMGEN, be prepared to answer prompts for:
 - whether the user link routine (ADALNK) is to be generated as a TEXT file, a TXTLIB member, or a MODULE. (When executing JVMGEN to build an ADALNK, the ADABAS text library containing ADALDI must be available. If this is not handled automatically, use the CMS command "GLOBAL TXTLIB ADAVnnn" before JVMGEN.)
 - the filemode (and filename if a TXTLIB) desired for the user link routine file
 - the filename of a TEXT file (if any) containing a user-supplied User-Exit-B/A or TRMSLO
 - the filemode where the TRIM files reside (refer to the Allocate Space, Install Code from Tape to Disk section)
- If the users access ADALNK as a TXTLIB member, add the filename of the library just created to each user's GLOBAL TXTLIB command ahead of the ADABAS library.
- If an ADALNK TEXT or MODULE is used, make sure all ADABAS users access the new file.

Normal VM environments do not require re-entrant Link Routines. TRIM User-Exit-B (TRMUEXBB) and TRIM User-Exit-A (TRMUEXA) are coded in re-entrant style and marked "RENT,REUS". When used in a VM environment and linked with a non-re-entrant ADALNK, the resultant module is non-re-entrant. If the ADALNK/User-Exit-B/A combination is to be used in a re-entrant environment, the instructions listed within the ADALNK source module must be followed.

Creating a Re-entrant ADALNK for Siemens BS2000

Normal Siemens environments do not require re-entrant Link Routines. The TRIM User-Exit-Bs for Siemens (TRMUEXBS and TRMUEXBU) are coded in re-entrant style and marked "RENT,REUS". When linked with a non-re-entrant ADALNK, the resultant module is non-re-entrant. If the ADALNK/User-Exit-B/A combination is to be used in a re-entrant environment, the instructions listed within the ADALNK source module must be followed.

II.11 Incorporate Co-existing User-supplied User-exits

Co-existing User-Exit-Bs

User-supplied User-Exit-Bs may also be included as part of the link-edit process. To interface the TRIM User-Exit-Bs with user-supplied User-Exit-Bs, refer to **Section III Co-existing User-exits**.

The TRIM User-Exit-B will be invoked by the appropriate ADALINK routine and will, in turn, invoke the user-supplied User-Exit-B before returning to ADALINK.

Co-existing User-Exit-As

User-supplied User-Exit-As may also be included as part of the link-edit process. To interface the TRIM User-Exit-As with user-supplied User-Exit-As, refer to **Section III Co-existing User-exits** section.

The TRIM User-Exit-A will be invoked by the appropriate ADALINK routine and will, in turn, invoke the user-supplied User-Exit-A before returning to ADALINK.

Co-existing User-Exit-1

If it is desired to have the TRIM User-Exit-1 and the user's own User-Exit-1 "co-exist", the user's User-Exit-1 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-1 in the manner described in **Section III Co-existing User-exits**. User-Exit-1 is called immediately before ADABAS processes a command.

Co-existing User-Exit-4

If it is desired to have the TRIM User-Exit-4 and the user's own User-Exit-4 "co-exist", the user's User-Exit-4 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-4 in the manner described in **Section III Co-existing User-exits**. User-Exit-4 is called immediately after ADABAS processes a command and before the Command Log Record is written.

Co-Existing TRIM and SECURITRE User-exits

If TRIM and SECURITRE are to co-exist, SECURITRE User-Exit-Bs must be called prior to TRIM User-Exit-Bs, which may then optionally call user-supplied User-Exit-Bs. SECURITRE's User-Exit-1 should be invoked first, then an optional user-supplied User-Exit-1, followed by the TRIM User-Exit-1. SECURITRE's User-Exit-4 is not necessary when co-existing with TRIM. To interface TRIM with SECURITRE, refer to **Section III Co-existing User-exits**.

Co-Existing NATURAL User-exits

TNM exits have been written to interface with user-supplied user-exits. Refer to **Section III Co-existing User-exits**.

Note: If SECURITRE for NATURAL is being used, TRIM user-exits for NATURAL must co-exist with the SECURITRE NATURAL user-exits. Refer to **Section III Co-existing User-exits**.

II.12 Modify ADABAS Startup Parameters

The TRIM RTM requires ADABAS to be running and ADABAS Command Logging to be turned on in order to run its User-Exit Communication Runs, use its Real-Time Monitor, and generate Nucleus Session Statistics. However, it is not necessary to actually log any data.

Command logging must be turned on in ADABAS because ADABAS will only transfer control to User-Exit-4 if it senses that the command logs are to be written to a live dataset.

The ADABAS parameters required are LOGGING=YES, UEX1=TRMUEX1, and UEX4=TRMUEX4x (where x is S, R, or L). LOGCB=YES is suggested. All other buffer logging is at the user's discretion (the load modules indicated in UEX1 and UEX4 must be in the Adabas load library that is specified in the Adabas nucleus).

The logging of CLOG records may be completely turned off, may be selectively turned on/off, and/or may have various ADABAS call buffers removed from log records. These logging selections may be specified via TRIM User-Exit-4 Communication Runs and/or TRMLOG parameters.

In addition, the Command Log dataset may not be "dummy". Add DUALCLD and DUALCLS parameters for Dual Command Logs.

NATURAL generates additional user-IDs and TNM will generate an additional user-ID for each TNM user. The increase in user-IDs may cause response code 72 errors. This may be avoided by increasing the size of the NU ADARUN parameter.

II.13 Increase Sizes for ADABAS, NATURAL

The additional storage requirements in the ADABAS partition/region to accommodate the TRIM user-exits to ADABAS are as follows:

TRMUEX1	11K
TRMUEX4S	215K
TRMUEX4R	535K
TRMUEX4L	750K

Note: The TRMUEX4S, R, or L size will be increased by the size of TRELOG if tRelational logging is included.

For more information about the limits and restrictions for the different sizes of User-Exit-4, refer to **Section IV Real-Time Monitor Operations**.

Additional storage is required for NATURAL with TNM.

For Batch/TSO, COM-LETE/TPF, and IMS, the additional storage requirements for NATURAL are 6K for the TNM assembler modules and an additional 8K for each NATURAL user.

For CICS, the additional storage requirements for NATURAL are 6K for the TNM assembler modules. It may be necessary to increase the thread size by 8K or more. Use the NATURAL BUS utility to monitor thread usage and to reclaim unused space from other buffers.

VM**Increase the Size of the Virtual Machine**

If a site is not running NATURAL from a DCSS (Discontiguous Shared Segment), then increase the size of each virtual machine that will be running TNM. A machine size of 4M should be sufficient. To increase the size of the virtual machine, issue the following command:

```
DEF STOR 4M
```

If a site is running NATURAL from a DCSS, the DCSS needs to be saved at 2M or higher. See a VM System Administrator on loading a DCSS for NATURAL.

II.14 Restart the Database(s), NATURAL(s), TP Monitor(s)

To invoke the newly installed TRIM User-Exit-1 and User-Exit-4 to ADABAS, all appropriate ADABAS Nuclei must be brought down and up.

To invoke the newly modified ADABAS link routines with TRIM user-exits and the newly linked NATURALs with TRIM user-exits, the TP system(s) that run NATURAL must be "recycled" according to site standards and procedures.

II.15 Modify TRMCUST (non-TNM only)

When the TRIM RTM starts, one of the first functions it performs is to verify that it has access to the TNM file. If it cannot find the TNM file (i.e., LFILE 121), a message is given to the user that TNM has been de-activated. Since TNM will not be installed, this function should be turned off, so that the user will not see this message each time they start the RTM.

After the RTM has been installed, modify the TRMCUST module located in the TRIM installation library (the default is TRMV761). Modify the line that reads MOVE 'Y' TO #TNM-ACTIVE (approximately lines 990 and 1060) to read MOVE 'N' TO #TNM-ACTIVE. This will tell TRIM to skip all checks for TNM exits, file, etc.

II.16 Define TNM Data Collection Parameters (TNM Only)

The first user to enter TNM must define the Data Collection Parameters.

The default has both Summary and Detail Data Collection turned off. Refer to **Section II.16.2.2 Define Data Collection Parameters** of the **TRIM Reference Manual**.

Note: Detail collection in production environments may cause excessive data to be calculated and the TNM file could become full. Therefore, extensive detail collection in production environments is not recommended.

II.17 Verify the TNM Installation (TNM Only)

TNM includes a NATURAL program (TNMA110P), which verifies that the TNM file is properly installed. It writes records to and from the TNM file to ensure that all of the fields are defined correctly and then deletes these records.

To run the TNM verification program, log on to TRMV761 and type "TNMA110P" on the command line.

Following the completion of program execution, a screen is displayed identifying any installation problems. The following problems may be displayed:

Error number:	920
Common cause:	CSTATIC entries are not properly defined
Error number:	3017
Common cause:	Logical files defined improperly
Error number:	3041
Common cause:	Logical file defined is not the TNM file
Error number:	3061
Common cause:	Logical files defined improperly
Error number:	3062
Common cause:	Logical file defined is not the TNM file
Error number:	3075
Common cause:	Not enough space in the TNM file
Error number:	3077
Common cause:	Not enough space in the Associator

The following problem may be displayed:

```
THIS USER DID NOT SUCCESSFULLY INSTALL TNM MODULE TNMODA.  
THERE IS NO WORK AREA DEFINED FOR THIS USER.
```


SECTION III

CO-EXISTING USER-EXITS

III.1 Introduction

There are linkage and parameter passing rules that must be strictly followed for user-supplied user-exits to co-exist with TRIM user-exits.

Co-existing User-Exit-As

User-supplied User-Exit-As may be included with the ADABAS Link Routines. The TRIM User-Exit-A will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied User-Exit-A before returning to the link routine. For more information about interfacing TRIM User-Exit-As with user-supplied User-Exit-As, refer to **Section III.2 Co-existing User-Exit-A**.

Co-existing User-Exit-Bs

User-supplied User-Exit-Bs may be included with the ADABAS Link Routines. The TRIM User-Exit-B will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied User-Exit-B before returning to the link routine. For more information about interfacing TRIM User-Exit-Bs with user-supplied User-Exit-Bs, refer to **Section III.3 Co-existing User-Exit-B**.

<p>Note: ADALNK is for Batch/TSO and VM/CMS. ADALCO is for COM-LETE 4.5 and later. LNKOLSC and LNKOLM are for CICS 3.2 and later. ADALNI is for IMS.</p>

Co-existing User-Exit-1

If it is desired to have the TRIM User-Exit-1 and the user's own User-Exit-1 "co-exist", the user's own User-Exit-1 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-1 in the manner described in **Section III.5 Co-existing User-Exit-1**. User-Exit-1 is called immediately before ADABAS processes a command.

Co-existing User-Exit-4

If it is desired to have the TRIM User-Exit-4 and the user's own User-Exit-4 "co-exist", the user's own User-Exit-4 should be invoked first by ADABAS. Then it should call the TRIM User-Exit-4 in the manner described in **Section III.6 Co-existing User-Exit-4**. User-Exit-4 is called immediately after ADABAS processes a command and before the Command Log Record is written.

Co-existing TRIM and SECURITRE User-exits

If TRIM and SECURITRE are to co-exist, SECURITRE User-Exit-Bs must be called prior to TRIM User-Exit-Bs, which may then optionally call user-supplied User-Exit-Bs. SECURITRE's User-Exit-1 should be invoked first, then an optional user-supplied User-Exit-1, followed by the TRIM User-Exit-1. SECURITRE User-Exit-4 is not necessary when co-existing with TRIM. Linkage is further discussed in **Section III.7 Co-existing TRIM and SECURITRE User-exits**.

Co-existing TRIM User-exits to NATURAL

If TRIM user-exits to NATURAL are to co-exist with an additional user-exit, the TRIM user-exit should be invoked first. Then it should call the additional user-exit in the manner described in **Section III.8 Co-existing NATURAL User-exit**.

III.2 Co-existing User-Exit-A

General Information

TRIM User-Exit-As are all re-entrant. They are not only marked "RENT,REUS", but they are also coded in re-entrant fashion. The user-supplied User-Exit-A for ADALNK does not need to be re-entrant unless the re-entrant source modification to ADALNK is made (see the ADALNK source) and the composite is linked as re-entrant. User-exits for TP-environments should always be coded re-entrant, otherwise abends or incorrect data may result.

The TRIM User-Exit-A will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied User-Exit-A before returning. Upon entry to the user's user-exit, the entry rules, register settings, etc. are identical to the entry for the first user-exit, TRIM User-Exit-A. That is, when TRIM User-Exit-A is finished, control is passed to the user's user-exit with the registers all restored to what they were when TRIM User-Exit-A was entered with the obvious exception that R15 is set to the address of the user's user-exit.

The user's user-exit is entered via a "BR R15", and when exiting, the user must do a "BR R14" to return to the ADABAS Link Routine directly.

The user's User-Exit-A must have an entry point UEXITAU and must be linked with the ADABAS Link Routine and the TRIM User-Exit-A.

Because of register conventions, it would not be appropriate to attempt to use the same UEXITAU routine in both CICS and non-CICS environments.

Specifics for Each User-supplied User-Exit-A

TRMUEXA (Batch/TSO)

The user's User-Exit-A must contain the entry point "UEXITAU", and ADALNK must be linked with TRMUEXA and the user's User-Exit-A.

- At entry to UEXITAU, the following registers are set:
 - R1–R14 = contents are the same as when TRMUEXA was called
 - R15 = entry address of the user's User-Exit-A
- Standard subroutine register saving and restoring conventions should be used.
- At exit, all registers should be restored, except R15, and the return should be via a "BR R14".
- If ADALNK is set up to be re-entrant, then the TRMUEXA user logic must be coded in re-entrant fashion and must be marked "RENT,REUS" in any link-edit step. This means that the UEXITAU must not contain any modifiable data area or modify itself in any way. If a data area is needed, the user must allow for this by expanding the size of the USERINFO in ADALNK. Refer to the LNUINFO EQU near the top of ADALNK. It must be set to at least 240 to accommodate TRMUEXBB, but it may be set to a larger number to accommodate any data area required by UEXITBU.
- Re-link ADALNK (OS) using the following control cards:

```
INCLUDE ADA7LIB(ADALNK)      (Batch Link Routine)
INCLUDE TRIMLIB(TRMUEXBB)    (TRIM Batch/TSO User-Exit-B)
INCLUDE TRIMLIB(TRMUEXA)     (TRIM User-Exit-A for non-CICS)
INCLUDE USRLIB(USREXA)       (User's User-Exit-B for Batch/TSO)
NAME      ADALNK(R)          (Replace ADALNK)
```

TRMUExA (COM-PLExTEx - all versions)

The user's User-Exit-A must contain the entry point "UEXITAU", and ADALCO must be linked with TRMUExA and the user's User-Exit-A.

- At entry to UEXITAU, the following registers are set:
 - R0-R14 = contents are the same as when TRMUExA was called
 - R15 = entry address of the user's User-Exit-B
- Standard subroutine register saving and restoring conventions should be used.
- At return, all registers should be restored, except R15, and the return should be via a "BR R14".
- If ADALCO is set up re-entrant, then the TRMUExA user logic must be coded in re-entrant fashion and must be marked "RENT,REUS" in any link-edit step. This means that the UEXITAU must not contain any modifiable data or modify itself in any way. If a data area is needed, the user must allow for this by expanding the size of the USERINFO in ADALCO. Refer to the LNUINFO EQU near the top of ADALCO. It must be set to a value of at least 240 to accommodate TRMUExA, but it may be set to a larger number to accommodate any data area required by UEXITAU.
- Re-link ADALCO (OS) using the following control cards:

```

INCLUDE ADA7LIB(ADALCO)          (COM-PLExTEx 4.5+ Link Routine)
INCLUDE TRIMLIB(TRMUExA)        (TRIM User-Exit-A for non-CICS)
INCLUDE TRIMLIB(TRMUExB5)       (TRIM COM-PLExTEx 4.5+ User-Exit-B)
INCLUDE USRLIB(USREXA)          (User's User-Exit-A for COM-PLExTEx 4.5+)
MODE AMODE(31),RMODE(ANY)
NAME ADALCO(R)                  (Replace ADALCO)

```

Note: COM-PLExTEx 4.6.1 and above uses 31 bit addressing.

Note: VSE requires INCLUDE TRMXDS or TRMXDSDT after the include of TRMUExB5. The line INCLUDE TRIMLIB(TRMXOS) should be removed.

TRMUExA2 (CICS all versions)

The user's User-Exit-A must contain the entry point "UEXITAU", and LNKOLSC and LNKOLM must be linked with TRMUExA2 and the user's User-Exit-A.

- At entry to UEXITAU, the following registers are set:
 - R1-R14 = contents are the same as when TRMUExA2 was called.
 - R15 = entry address of the user's User-Exit-A
- Non-standard subroutine register saving and restoring conventions should be used. Registers may be saved at location 0(R2) and restored from this location. R12 and R13 should not be modified. R11 may be used as the subroutine base register.
- At exit, all registers should be restored, except R15, and the return should be via a "BR R14".

- The user logic must be coded in re-entrant fashion and must be marked "RENT,REUS" in any link-edit step. This means that the UEXITAU must not contain any modifiable data area or modify itself in any way. If a data area is needed, the user must allow for this by expanding the size of LUINFO and LUSAVE in LNKOLSC in the invocation of macro ADAGSET. LUINFO must be set to at least 240 to accommodate TRMUEXB2, but it may be set to a larger number to accommodate any data area required by UEXITAU. Similarly, LUSAVE must be set to at least 72 to accommodate TRMUEXB2.
- Re-link LNKOLSC (OS) using the following control cards:

```
INCLUDE ADA7LIB(LNKOLSC)      (CICS 3.2+ Link Routine)
INCLUDE ADA7LIB(LNKOLM)
INCLUDE TRIMLIB(TRMUEXB2)     (TRIM CICS 3.2+ User-Exit-B)
INCLUDE TRIMLIB(TRMUEXA2)     (TRIM User-Exit-A for all versions of CICS)
INCLUDE USRLIB(USREXA)        (User's User-Exit-B for CICS 3.2+)
NAME      ADABAS(R)           (ADALNC is named ADABAS in CICS PPT)
```

Note: VSE requires INCLUDE TRMXDS or TRMXDSDT after the include of TRMUEXB2.

III.3 Co-existing User-Exit-B

General Information

TRIM User-Exit-Bs are all re-entrant. They are not only marked "RENT,REUS", but they are also coded in re-entrant fashion. The user-supplied User-Exit-B for ADALNK does not need to be re-entrant unless the re-entrant source modification to ADALNK is made (see the ADALNK source) and the composite is linked as re-entrant. User-exits for TP-environments should always be coded re-entrant, otherwise abends or incorrect data may result.

When setting up the linkage from the ADABAS Link Routine(s) to the TRIM User-Exit-Bs (and the user's user-exits), the USERINFO Area length must be set to at least 240 in the ADABAS Link Routine(s). It must be set to a larger value if a user-supplied User-Exit-B is to pass additional information in the USERINFO Area. **Section III.4 USERINFO Area** illustrates the definition and access of a user segment of the USERINFO Area. Each segment requires 6 bytes plus the length of the user data, rounded up to a multiple of 8, to be added to the 240 TRIM-required bytes.

The TRIM User-Exit-B will be invoked by the ADABAS link routines and will, in turn, invoke the user-supplied User-Exit-B before returning. Upon entry to the user's user-exit, the entry rules, register settings, etc., are identical to the entry for the first user-exit, TRIM User-Exit-B. That is, when TRIM User-Exit-B is finished, control is passed to the user's user-exit with the registers all restored to what they were when TRIM User-Exit-B was entered with the obvious exception that R15 is set to the address of the user's user-exit. In addition, the TRIM USERINFO Area will be provided to UEXITBU.

Note: ADALNK is for Batch/TSO and VM/CMS.
 ADALCO is for COM-LETE 4.5 and later.
 LNKOLSC and LNKOLM are for CICS 3.2 and later.
 ADALNI is for IMS.

The user's user-exit will normally not be entered if the call comes through a Network environment or if TRIM User-Exit-B detects the USERINFO Area to be too small or improperly set. TRIM User-Exit-B may be zapped to force a transfer to the user's user-exit for all calls (refer to **Section VI Tailoring with Zaps**).

The user's user-exit is entered via a "BR R15", and when exiting, the user must do a "BR R14" to return to the ADABAS Link Routine directly.

The user must set R15 to zero to indicate acceptance or non-zero to indicate rejection of the call. If setting R15 to non-zero, the ADABAS Control Block Response Code field should be set to decimal 216 (meant for this condition) or another appropriate non-zero value, such as 200 (security violation).

The user's User-Exit-B must have an entry point UEXITBU and must be linked with the ADABAS Link Routine and the TRIM User-Exit-B.

Because of register conventions, it would not be appropriate to attempt to use the same UEXITBU routine in both CICS and non-CICS environments.

Specifics for Each User-supplied User-Exit-B

TRMUEXBB (Batch/TSO)

The user's User-Exit-B must contain the entry point "UEXITBU", and ADALNK must be linked with TRMUEXBB and the user's User-Exit-B.

- At entry to UEXITBU, the following registers are set:
 - R1 = address of parameters from ADALNK
 - R13 = address of an 18 full-word register save area in ADALNK
 - R14 = return address within ADALNK
 - R15 = entry address of the user's User-Exit-B
- Standard subroutine register saving and restoring conventions should be used.
- Upon exit, R15 should be set to zero if the command is acceptable or non-zero if the command is to be rejected (i.e., not sent to ADABAS). If the command is to be rejected, the two ACRSP bytes should be set to decimal 216 or another appropriate non-zero value, such as 200 (security violation).
- At exit, all registers should be restored, except R15, and the return should be via a "BR R14".
- If ADALNK is set up to be re-entrant, then the TRMUEXBB user logic must be coded in re-entrant fashion and must be marked "RENT,REUS" in any link-edit step. This means that the UEXITBU must not contain any modifiable data area or modify itself in any way. If a data area is needed, the user must allow for this by expanding the size of the USERINFO in ADALNK. Refer to the LNUINFO EQU near the top of ADALNK. It must be set to at least 240 to accommodate TRMUEXBB, but it may be set to a larger number to accommodate any data area required by UEXITBU.
- The R1 parameter passed to TRMUEXBB and UEXITBU is the address of the ADABAS "UB". ADABAS documentation may be referenced for the exact layout of the UB. Items of particular interest will include:
 - x'18' into the UB is the address of the ADABAS parameter list, the list of the six items passed on each ADABAS call (CB, FB, RB, SB, VB, IB)
 - x'3E' into the UB is the halfword length (binary) of the User Information Block (UIB). This length must be greater than or equal to 240
 - x'42' into the UB is the UIB, which must have a length greater than or equal to 240 bytes
- Re-link ADALNK (OS) using the following control cards:

```
INCLUDE ADA7LIB(ADALNK)      (Batch Link Routine)
INCLUDE TRIMLIB(TRMUEXBB)    (TRIM Batch/TSO User-Exit-B)
INCLUDE TRIMLIB(TRMUEXA)     (TRIM User-Exit-A for non-CICS)
INCLUDE USRLIB(USREXBB)      (User's User-Exit-B for Batch/TSO)
NAME      ADALNK(R)          (Replace ADALNK)
```

Note: VSE requires INCLUDE TRMXDS or TRMXDSDT after the include of TRMUEXBB. The line INCLUDE TRIMLIB(TRMXOS) should be removed.

TRMUEXB5 (COM-LETE 4.5 and Later)

The user's User-Exit-B must contain the entry point "UEXITBU", and ADALCO must be linked with TRMUEXB5 and the user's User-Exit-B.

- At entry to UEXITBU, the following registers are set:
 - R1 = address of parameters from ADALCO
 - R13 = address of an 18 full-word save area in ADALCO
 - R14 = return address within ADALCO
 - R15 = entry address of the user's User-Exit-B
- Standard subroutine register saving and restoring conventions should be used.
- Upon exit, R15 should be set to zero if the command is acceptable or non-zero if the command is to be rejected (i.e., not sent to ADABAS). If the command is to be rejected, the two ACBRSP bytes should be set to decimal 216 or another appropriate non-zero value, such as 200 (security violation).
- At return, all registers should be restored, except R15, and the return should be via a "BR R14".
- If ADALCO is set up re-entrant, then the TRMUEXB5 user logic must be coded in re-entrant fashion and must be marked "RENT,REUS" in any link-edit step. This means that the UEXITBU must not contain any modifiable data or modify itself in any way. If a data area is needed, the user must allow for this by expanding the size of the USERINFO in ADALCO. Refer to the LNUINFO EQU near the top of ADALCO. It must be set to a value of at least 240 to accommodate TRMUEXB5, but it may be set to a larger number to accommodate any data area required by UEXITBU.
- The R1 parameter passed to TRMUEXB5 and UEXITBU is the address of the ADABAS "UB". ADABAS documentation may be referenced for the exact layout of the UB. Items of particular interest will include:
 - x'18' into the UB is the address of the ADABAS parameter list, the list of the six items passed on each ADABAS call (CB, FB, RB, SB, VB, IB)
 - x'3E' into the UB is the halfword length (binary) of the User Information Block (UIB). This length must be greater than or equal to 240
 - x'42' into the UB is the UIB, which must have a length greater than or equal to 240 bytes
- Re-link ADALCO (OS) using the following control cards:

```

INCLUDE  ADA7LIB(ADALCO)           (COM-LETE 4.5+ Link Routine)
INCLUDE  TRIMLIB(TRMUEXA)          (TRIM User-Exit-A for non-CICS)
INCLUDE  TRIMLIB(TRMUEXB5)         (TRIM COM-LETE 4.5+ User-Exit-B)
INCLUDE  USRLIB(USREXB5)           (User's User-Exit-B for COM-LETE 4.5+)
MODE     AMODE(31),RMODE(ANY)
NAME     ADALCO(R)                 (Replace ADALCO)
```

Note: COM-LETE 4.6.1 and above uses 31 bit addressing.

Note: VSE requires INCLUDE TRMXDS or TRMXDSDT after the include of TRMUEXB5. The line containing INCLUDE TRIMLIB(TRMXOS) should be removed.

TRMUEXB2 (CICS 3.2 and Later)

The user's User-Exit-B must contain the entry point "UEXITBU", and LNKOLSC and LNKOLM must be linked with TRMUEXB2 and the user's User-Exit-B.

- At entry to UEXITBU, the following registers are set:
 - R2 = address of a 64 byte register save area in LNKOLSC
 - R3 = address of parameters from LNKOLSC
 - R12 = points to EIB
 - R13 = points to EISTG
 - R14 = return address within LNKOLSC
 - R15 = entry address of the user's User-Exit-B
- Non-standard subroutine register saving and restoring conventions should be used. Registers may be saved at location 0(R2) and restored from this location. R12 and R13 should not be modified. R11 may be used as the subroutine base register.
- Upon exit, R15 should be set to zero if the command is acceptable, or to non-zero if the command is to be rejected (i.e., not sent to ADABAS). If the command is to be rejected, the two ACBRSP bytes should be set to decimal 216, or some other non-zero value such as 200 (security violation).
- At exit, all registers should be restored, except R15, and the return should be via a "BR R14".
- The user logic must be coded in re-entrant fashion and must be marked "RENT,REUS" in any link-edit step. This means that the UEXITBU must not contain any modifiable data area or modify itself in any way. If a data area is needed, the user must allow for this by expanding the size of LUINFO and LUSAVE in LNKOLSC in the invocation of macro ADAGSET. LUINFO must be set to at least 240 to accommodate TRMUEXB2, but it may be set to a larger number to accommodate any data area required by UEXITBU. Similarly, LUSAVE must be set to at least 72 to accommodate TRMUEXB2, but it may be set to a larger number to accommodate UEXITBU.
- The R3 parameter passed to TRMUEXB2 and UEXITBU is the address of the ADABAS "UB". ADABAS documentation may be referred to for the exact layout of the UB. Items of particular interest will include:
 - x'18' into the UB is the address of the ADABAS parameter list, the list of the six items passed on each ADABAS call (CB, FB, RB, SB, VB, IB)
 - x'3E' into the UB is the halfword length (binary) of the User Information Block (UIB). This length must be greater than or equal to 240
 - x'42' into the UB is the UIB, which must have a length greater than or equal to 240 bytes
- Re-link LNKOLSC (OS) using the following control cards:


```

INCLUDE ADA7LIB(LNKOLSC)      (CICS 3.2+ Link Routine)
INCLUDE ADA7LIB(LNKOLM)
INCLUDE TRIMLIB(TRMUEXA2)     (TRIM User-Exit-A for CICS)
INCLUDE TRIMLIB(TRMUEXB2)     (TRIM CICS 3.2+ User-Exit-B)
INCLUDE USRLIB(USREXB)        (User's User-Exit-B for CICS 3.2+)
NAME      ADABAS(R)           (ADALNC is named ADABAS in CICS PPT)
```

Note: VSE requires INCLUDE TRMXDS or TRMXDSDT after the include of TRMUEXB5.

III.4 USERINFO Area

This section shows the layout of the TRIM-formatted segment of the ADABAS USERINFO Area, describes how the USERINFO Area is passed to a user's user-exit (UEXITBU), and shows how the user's user-exit may co-exist with the TRIM user-exit.

When setting up the linkage from the ADABAS Link Routine(s) to the TRIM User-Exit-Bs (and the user's user-exits), the USERINFO Area length must be set to at least 240 in the ADABAS Link Routine(s). It must be set to a larger value if a user-supplied User-Exit-B is to pass additional information in the USERINFO Area. The definition and access of a user segment of the USERINFO Area is illustrated in Figure 3 - USERINFO Area. Each segment requires 6 bytes plus the length of the user data, rounded up to a multiple of 8, to be added to the 240 TRIM-required bytes.

As shown in the sample code later in this section, the supplied macros TRMUINFO and UINFO may be used to map and locate both TRIM and user-defined segments within this area. (Detailed documentation on the operands of these macros is included in the macro source.)

The offsets in the USERINFO DSECT (TRIMUINFO DSECT in Figure 3) are correct for TRIM version 7.6.1 and begin at R3 + 72 bytes on entry to UEXITBU. However, to minimize difficulties in installing subsequent releases, it is strongly recommended that access to fields be made symbolically and the TRMUINFO and UINFO macros be used as in the examples.

The field labeled UISPSUM in the TRIM USERINFO Area segment is a sixteen-byte area initialized to blanks and reserved for "Special PRESUM" data. A user-supplied User-Exit-B may set any 16-byte value (16X'00', 16X'40', and 16X'FF' are best avoided) to be used for accumulating PRESUM TYPE=Y data. Be aware that PRESUM=SPE must be in effect for this data to be accumulated. It may be set by a TRMTAP macro, ZAPSWITCH, or dynamically via the RTM.

Section III - Co-existing User-exits

000000	TRIMUINFO	DSECT		
000000	UILEN	DC	AL2(L'UI)	LENGTH OF SEGMENT
000002	UISEG	DC	CL4'TRIM'	SEGMENT ID
000006		DC	C'V'	
000007	UIVERNO	DC	CL3'7xx'	CURRENT VERSION/RELEASE/LEVEL
	*			
00000A	UIFACIL	DC	CL4' '	FACILITY (CICS, TSO, ETC.)
00000E	UIENVI	DS	0XL26	INFO FOR ENVIRONMENT
00000E	UIUEXBID	DC	CL2' '	USER EXIT B ID
000010	UIASMDT	DS	0CL4	USER EXIT ASSEMBLY DATE
000010	UIASMMM	DC	CL2' '	MONTH
000012	UIASMDD	DC	CL2' '	DAY OF MONTH
000014	UIZAPSW	DC	8XL1'0'	ZAP SWITCHES
00001C	UIWAITIV	DC	F'0'	BATCH SLOWDOWN WAIT INTERVAL
000020	UIWAITCT	DC	F'0'	BATCH SLOWDOWN COUNT
000024	UISTRTHR	DC	H'0'	BATCH SLOWDOWN START HOUR
000026	UISTOPHR	DC	H'0'	BATCH SLOWDOWN STOP HOUR
	*			
000028		DC	2F'0'	RESERVED
000030	UIUX1DB	DC	A(0)	A(TRIM USER EXIT 1 DATA BLOCK)
000034		DC	A(0)	RESERVED FOR SECURITRE USE
000038		DC	2F'0'	RESERVED
	*			
000040	UITIMES	DS	0XL16	COMMAND TIMERS
000040	UITIMEST	DC	XL4'0'	COMMAND START STCK - UEXITB
000044	UITIMEEN	DC	XL4'0'	COMMAND START STCK - UEXITA
000048	UITIMEPT	DC	XL4'0'	COMMAND PREVIOUS TOTAL DUR
00004C	UITIMEPA	DC	XL4'0'	COMMAND PREVIOUS ADABAS DUR
	*			
000050	UIGENJOB	DC	CL8' '	GENERAL JOBNAME
000058	UIGENSTP	DC	CL8' '	GENERAL STEPNAME
000060	UIGENPGM	DC	CL8' '	GENERAL PGMNAME
000068	UIGENJID	DC	CL4' '	GENERAL JES NUMBER
	*			
00006C	UISPSUM	DC	CL16' '	RESERVED FOR USER/SPECIAL PRESUM
	*			
00007C	UINATPGM	DC	CL8' '	NATURAL PROGRAM
000084	UINATAPL	DC	CL8' '	NATURAL APPLICATION ID
00008C	UINATUID	DC	CL8' '	NATURAL USERID
	*			
000094	UICOMTID	DC	CL4' '	COMPLETE TID
000098	UIRACFID	DC	CL8' '	SECURITY (RACF) USER ID
	*			
000094	UICICTRM	EQU	UICOMTID	CICS TERMID
000098	UICICUID	EQU	UIRACFID	CICS USERID (1.7 AND ABOVE)
0000A0	UICICTRN	DC	CL4' '	CICS TRANID
0000A4	UICICOPI	DC	CL3' '	CICS OPID
0000A7	UICICTSK	DC	CL5' '	CICS TASKID
0000AC	UICICRES	DC	16CL1' '	CICS RESERVED
	*			
0000BC	UICALLN	DC	F'0'	CALL COUNT FOR SLOWDOWN
0000C0	UNIGENJXP	DC	CL8' '	GENERAL JES NUMBER EXPANDED TO 5 BYTES
0000C8	UITECP	DC	XL4'0'	TECB FOR VSE BATCH SLOWDOWN
0000D0	UIEND	DS	0D	
000006	UITXT	EQU	UILEN+6,UIEND-UILEN-6,C'X'	
000000	UI	EQU	UILEN,UIEND-UILEN,C'X'	

USERINFO Area

Figure 3

A UEXITBU may access the TRIM-formatted segment of the USERINFO Area. A sample exit to accomplish this is shown below. Note that two macros from the TRIM source library (UINFO and TRMUINFO) and a copy from the ADABAS source library (UB) are used.

```

UEXITBU          CSECT      ADABAS USER BLOCK
                  USING      UB,R3
*
R0               EQU        0
...
R15             EQU        15
*
                  STM        R14,R12,12(R13)    SAVE ADALNK REGISTERS
                  LR         R11,R15            PROGRAM BASE
                  USING      UEXITBU,R11
*
                  LA         R15,SAVEAREA        STANDARD
                  ST         R15,8(R13) AREA
                  LR         R13,R15            LINKAGE
*
                  UINFO      R10,'TRIM' FIND TRIM USER INFO AREA
                  BNZ        EXIT              NO TRIM AREA FOUND - QUIT
                  USING      UI,R10          TRIM USER INFO AREA
*
* TRIM AREA IS ADDRESSABLE BEGINNING HERE
*
...
*
EXIT             L          R13,4(R13) RESTORE SAVE AREA POINTER
                  LM         R14,R12,12(R13) RESTORE ADALNK REGISTERS
                  XR         R15,R15          R15 = 0 TO PROCESS CMD
                  BR         R14              RETURN TO ADALNK
*
SAVEAREA         DS         18F
*
                  COPY      UB              ADABAS USER BLOCK DEFINITION
TRIMINFO         TRMUINFO UI              TRIM USER INFORMATION AREA
*
                  END

```

User-exits may share the USERINFO Area with TRIM. A 4-byte identifier is required to distinguish the user's area from the TRIM-generated areas; identifiers beginning with "U" or a non-alphabetic character are reserved for users. A sample UEXITBU that accesses a user area is shown below. Note that a macro from the TRIM source library (UINFO) and a copy from the ADABAS source library (UB) are used.

```

UEXITBU      CSECT
              USING    UB,R3      ADABAS USER BLOCK
*
R0            EQU      0
...
R15           EQU      15
*
              STM      R14,R12,12(R13)  SAVE ADALNK REGISTERS
              LR        R11,R15          PROGRAM BASE
              USING     UEXITBU,R11
*
              LA        R15,SAVEAREA      STANDARD
              ST        R13,4(R15) S      AVE
              ST        R15,8(R13) AREA
              LR        R13,R15          LINKAGE
*
              UINFO     R10,'USER',USERSIZE  FIND/BUILD USER AREA
              BZ        NOTFIRST          AREA EXISTS, CAN UPDATE
              BP        FIRST             INITIALIZE AREA
              B         EXIT              NO ROOM TO BUILD THE AREA (OR OTHER PROBLEM)
              USING     USER,R10
*
* USER AREA IS ADDRESSABLE BEGINNING HERE
*
FIRST         DS        0H              SET UP THE USER AREA
...
NOTFIRST      DS        0H              UPDATE THE USER AREA
...
*
EXIT          L         R13,4(R13) RESTORE SAVE AREA POINTER
              LM        R14,R12,12(R13)  RESTORE ADALNK REGISTERS
              XR        R15,R15          R15 = 0 TO PROCESS CMD
              BR        R14              RETURN TO ADALNK
*
SAVEAREA      DS        18F
USERSIZE      DC        AL2(USEREND-USERLEN)  LENGTH OF USER AREA
*
              COPY     UB              ADABAS USER BLOCK DEFINITION
*
USERINFO      UINFO     USER,MAP='USER'  USER INFO AREA SEGMENT
              ...      USER DATA AREA MAP
              UINFO     USER,MAP=SUFFIX
*
              END

```

III.5 Co-existing User-Exit-1

If it is desired to have the TRIM User-Exit-1 and the user's User-Exit-1 "co-exist", the user's User-Exit-1 should be invoked first by ADABAS. Then, it should call the TRIM User-Exit-1 in the manner illustrated below.

To call a linked TRIM User-Exit-1 from a user's User-Exit-1, add the following code to the user's User-Exit-1.

```

*                INSERT AT END OF USER'S USER-EXIT-1 LOGIC
*-----
DONE            DS      0H
                L        R15,=V(TRMUEX1)    R15 = A(TRMUEX1)
                L        R13,4(R13) R13 = A(PREVIOUS SAVE AREA)
                L        R14,12(R13) R14 = RETURN POINT IN ADABAS
                LM       R1,R12,24(R13)    RESTORE REGS 1-12
                BR       R15              GO TO TRMUEX1
                LTORG

```

This method requires link-editing the user's User-Exit-1 with TRMUEX1, as follows:

For OS

```

INCLUDE USERLIB(USRUEX1)
INCLUDE TRIMLIB(TRMUEX1)
NAME      ADAUEX1(R)

```

For VSE

```

PHASE      ADAUEX1,*
INCLUDE USRUEX1
INCLUDE TRMUEX1

```

User-Exit-1 is called immediately before ADABAS processes a command. The input parameters are:

0(R1)	Address of Return Code byte returning zero means allow the command returning non-zero means do not allow the command
4(R1)	Address of Parameter List
8(R1)	Address of Command Queue Element for command

Parameter List:

loc:	contents:
0	Address of ADABAS Control Block
4	Address of ADABAS Format Buffer
8	Address of ADABAS Record Buffer
12	Address of ADABAS Search Buffer
16	Address of ADABAS Value Buffer
20	Address of ADABAS ISN Buffer

Note: Prior to calling TRMUEX1, it is necessary to set the registers (except R15) to the values they contained when ADABAS called the user's own User-Exit-1. In other words, the user's User-Exit-1 must be made "invisible" to TRMUEX1. TRMUEX1 will return control directly back to ADABAS.

III.6 Co-existing User-Exit-4

If it is desired to have the TRIM User-Exit-4 and the user's User-Exit-4 "co-exist", the user's User-Exit-4 should be invoked first by ADABAS. Then, it should call the TRIM User-Exit-4 in the manner illustrated below.

To call a linked TRIM User-Exit-4 from a user's User-Exit-4, add the following code to the user's User-Exit-4.

```
*
*          INSERT AT END OF USER'S USER-EXIT-4 LOGIC
*-----
DONE      DS      0H
          L        R15,=V(TRMUEx4)      R15 = A(TRMUEx4)
          L        R13,4(R13) R13 = A(PREVIOUS SAVE AREA)
          L        R14,12(R13) R14 = RETURN POINT IN ADABAS
          LM       R1,R12,24(R13)      RESTORE REGS 1-12
          BR       R15                  GO TO TRMUEx4
          LTORG
```

This method requires link-editing the users User-Exit-4 with TRMUEx4 as follows:

For OS

```
INCLUDE USERLIB(USRUEX4)
INCLUDE TRIMLIB(TRMUEx4x)
INCLUDE TRIMLIB(TRMTAP) (optional)
INCLUDE TRIMLIB(TRMLOG) (optional)
INCLUDE TRIMLIB(TRMRSP) (optional)
INCLUDE TRIMLIB(TRELOG) (optional)
NAME      ADAUEX4(R)
```

For VSE

```
PHASE      ADAUEX4,*
INCLUDE    USRUEX4
INCLUDE    TRMX4MAx
INCLUDE    TRMX4S1x
INCLUDE    TRMX4S2x
INCLUDE    TRMX4S3x
INCLUDE    TRMTAP (optional)
INCLUDE    TRMLOG (optional)
INCLUDE    TRMRSP (optional)
INCLUDE    TRELOG (optional)
```

where x = R(REGULAR), L(LARGE), or S(SMALL)

User-Exit-4 is called immediately after ADABAS processes a command and before the Command Log Record is written. The input parameters are:

0(R1)	Address of Return Code byte returning zero means log the record returning non-zero means do not log the record
4(R1)	Address of the record to be logged (0 on final call)
8(R1)	Address of the end of the log block
12(R1)	Address of Command Queue Element for command

Note: Prior to calling TRMUEx4x, it is necessary to set the registers (except R15) to the values they contained when ADABAS called the user's User-Exit-4. In other words, the user's User-Exit-4 must be made "invisible" to TRMUEx4x. TRMUEx4x will return control directly back to ADABAS.

The user's User-Exit-1 and User-Exit-4 may access the USERINFO Area. The same technique is used to access either the TRIM segment or a user segment built in UEXITBU. Following is an example of a user's User-Exit-4 that examines both the TRIM-formatted USERINFO Area segment and the area built by the sample UEXITBU above. Note that two macros from the TRIM source library (TRMUINFO and UINFO) and a copy from the ADABAS source library (CQ) are used.

```

USEREX4   CSECT
          USING PARM4,R1      USER EXIT 4 PARM LIST
*
R0        EQU      0
...
R15       EQU      15
*
          STM      R14,R12,12(R13)  SAVE ADABAS REGISTERS
          LR       R11,R15          PROGRAM BASE
          USING    USEREX4,R11
*
          LA       R15,SAVEAREA      STANDARD
          ST       R13,4(R15) SAVE
          ST       R15,8(R13) AREA
          LR       R13,R15          LINKAGE
*
          L        R8,P4CQE ADDRESS ADABAS
          USING    CQE,R8          COMMAND QUEUE ELEMENT
*
          UINFO    R9,'TRIM',LUINFO=*CQEAUI  FIND TRIM USER INFO AREA
          BNZ      EXIT            TRIM AREA NOT FOUND - QUIT
          USING    UI,R9          TRIM USER INFO AREA
*
* TRIM AREA IS ADDRESSABLE BEGINNING HERE
*
          ...
*
          UINFO    R10,'USER',LUINFO=*CQEAUI  FIND USER SEGMENT
          BNZ      EXIT            USER SEG NOT FOUND - QUIT
          USING    USER,R10
*
* USER AREA IS ADDRESSABLE BEGINNING HERE
*
          ...
*
EXIT      L        R15,=V(UEX4)      GET TRIM'S UEX4 ADDRESS
          L        R13,4(R13) RESTORE SAVE AREA POINTER
          L        R14,12(R13) RESTORE
          LM       R0,R12,20(R13) ADABAS REGISTERS
          BR       R15              TRANSFER CONTROL TO TRIM
*
SAVEAREA  DS       18F
*
PARM4     DSECT ,      USER EXIT 4 PARM LIST
P4SWITCH  DS       A      A(LOG/DON'T LOG SWITCH)
P4LOGREC  DS       A      A(START OF LOG RECORD)
P4LOGEND  DS       A      A(END OF LOG RECORD)
P4CQE     DS       A      A(COMMAND QUEUE ELEMENT)
*
          COPY     CQ            ADABAS COMMAND QUEUE
TRIMINFO  TRMUINFO UI    TRIM USER INFORMATION AREA
*
USERINFO  UINFO USER,MAP='USER'    USER INFO AREA SEGMENT
          ...                    USER'S DATA AREA MAP
          UINFO    USER,MAP=SUFFIX
*
          END

```

III.7 Co-existing TRIM and SECURITRE User-exits

If TRIM and SECURITRE are to co-exist, SECURITRE User-Exit-Bs must be called prior to TRIM User-Exit-Bs, which may then optionally call user-supplied User-Exit-Bs. SECURITRE's User-Exit-1 should be invoked first, then an optional user-supplied User-Exit-1, followed by the TRIM User-Exit-1. SECURITRE User-Exit-4 is not necessary when co-existing with TRIM.

Co-existing TRIM and SECURITRE User-Exit-B

- USERINFO LENGTH MINIMUM 416

For TRIM and SECURITRE to co-exist, the LNUINFO value near the top of ADALNC/LNKOLSC/LNKOLM/ADALCO/ADALNI/ADALNK source modules must be set to at least 416. If installation exits are to share the USERINFO Area, refer to **Section III.4 USERINFO Area**. Reassemble prior to re-linking the appropriate Link module.

- TRMUEXBB (Batch/TSO)

Re-link ADALNK using the following Linkage Editor control cards:

```

INCLUDE ADA7LIB(ADALNK)      (Batch Link Routine)
CHANGE UEXITBU(TRMUEXBB)    (STR calls TRIM User-Exit-B)
INCLUDE STRLIB(STRUExBB)    (STR User-Exit-B for Batch/TSO)
CHANGE UEXITB(TRMNOENT)     (Rename duplicate external symbol)
INCLUDE TRIMLIB(TRMUExBB)    (TRM User-Exit-B for Batch/TSO)
INCLUDE TRIMLIB(TRMUExA)     (TRIM's User-Exit-A for non-CICS)
INCLUDE USRLIB(UExIBUB)      (Site User-Exit-B for Batch (optional))
NAME ADALNK(R)              (Replace ADALNK in loadlib)

```

- TRMUExB5 (COM-LETE)

Re-link ADALCO using the following Linkage Editor control cards:

```

INCLUDE ADA7LIB(ADALCO)      (COM-LETE 4.5+ Link Routine)
CHANGE UEXITBU(TRMUExB5)    (STR calls TRIM User-Exit-B)
INCLUDE STRLIB(STRUExB5)    (STR User-Exit-B for COM-LETE 4.5+)
CHANGE UEXITB(TRMNOENT)     (Rename duplicate external symbol)
INCLUDE TRIMLIB(TRMUExB5)    (TRM User-Exit-B for COM-LETE 4.5+)
INCLUDE TRIMLIB(TRMUExA)     (TRIM's User-Exit-A for non-CICS)
INCLUDE USRLIB(UExITBU)      (Site User-Exit-B for COM-LETE 4.5+ (optional))
NAME ADABAS(R)

```

- TRMUEXB (CICS releases 3.2 and later)

Re-link LNKOLSC & LNKOLM using the following Linkage Editor control cards:

```

INCLUDE ADA7LIB(LNKOLSC)      (CICS 3.2+ Link Routine)
INCLUDE ADA7LIB(LNKOLM)
CHANGE UEXITBU(TRMUEXB2)      (STR calls TRIM User-Exit-B)
INCLUDE STRLIB(STRUEXB3)      (STR User-Exit-B for CICS 3.2+)
CHANGE UEXITB(TRMNOENT)       (Rename duplicate external symbol)
INCLUDE TRIMLIB(TRMUEXB2)      (TRM User-Exit-B for CICS 3.2+)
INCLUDE TRIMLIB(TRMUEXA2)      (TRIM's User-Exit-A for CICS)
INCLUDE USRLIB(UEXITBU)        (Site User-Exit-B for CICS 3.2+ (optional))
NAME      ADABAS(R)
```

- TRMUEXBB (IMS)

Re-link ADALNI using the following Linkage Editor control cards:

```

INCLUDE ADA7LIB(ADALNI)       (IMS Link Routine)
CHANGE UEXITBU(TRMUEXBB)      (STR calls TRIM User-Exit-B)
INCLUDE STRLIB(STRUEXBB)      (STR User-Exit-B for Batch/TSO)
CHANGE UEXITB(TRMNOENT)       (Rename duplicate external symbol)
INCLUDE TRIMLIB(TRMUEXBB)      (TRM User-Exit-B for Batch/TSO)
INCLUDE TRIMLIB(TRMUEXA)       (TRIM's User-Exit-A for non-CICS)
INCLUDE USRLIB(UEXIBUB)        (Site User-Exit-B for Batch (optional))
NAME      ADALNI(R)           (Replace ADALNI in loadlib)
```

Co-existing TRIM and SECURITRE User-Exit-1

ADABAS must be set up to call SECURITRE User-Exit-1 first. The ADARUN UEX1= control card should refer to the STRUEX1 module.

STRUEX1 should then call TRIM User-Exit-1. The STRDEF UEXIT1= control card should refer to the TRMUEX1 module.

If a user's User-Exit-1 is to be invoked, the STRDEF UEXIT1= control card should refer to the user's User-Exit-1, and the User-Exit-1 module should pass control to the TRIM User-Exit-1, as described in **Section III.5 Co-existing User-Exit-1**.

Co-existing TRIM and SECURITRE User-Exit-4

The SECURITRE User-Exit-4 may be omitted from a TRIM/SECURITRE install. All necessary SECURITRE functions are performed by the TRIM User-Exit-4.

III.8 Co-existing NATURAL User-exits

The following TRIM modules contain NATURAL user-exits as designated.

TNMMODA (User-Exit-2)

The user's User-Exit-2 must contain the entry point "USRUEX2", must **not** contain an entry point of "NATUEX2", and NATURAL must be linked with TNMMODA and the user's User-Exit-2.

TNMMODC (User-Exit-6)

The user's User-Exit-6 must contain the entry point "USRUEX6", must **not** contain an entry point of "NATUEX6", and NATURAL must be linked with TNMMODC and the user's User-Exit-6.

In order to co-exist the TRIM and SECURITRE NATURAL User-Exit-6s, the following changes need to be made to the link-edit cards.

From:

```
INCLUDE  STRLIB(STNE)
INCLUDE  TRIMLIB(TNMMODC)
```

To:

```
CHANGE  DCNNEX6(TNMMODC)
INCLUDE  STRLIB(STNE)
CHANGE  NATUEX6(TNMNOEN6)
INCLUDE  TRIMLIB(TNMMODC)
```

TNMMODD (User-Exit-3, User-Exit-4, User-Exit-5, User-Exit-7)

The user's User-Exit-3 must contain the entry point "USRUEX3", must **not** contain an entry point of "NATUEX3", and NATURAL must be linked with TNMMODD and the user's User-Exit-3.

The user's User-Exit-4 must contain the entry point "USRUEX4", must **not** contain an entry point of "NATUEX4", and NATURAL must be linked with TNMMODD and the user's User-Exit-4.

The user's User-Exit-5 must contain the entry point "USRUEX5", must **not** contain an entry point of "NATUEX5", and NATURAL must be linked with TNMMODD and the user's User-Exit-5.

The user's User-Exit-7 must contain the entry point "USRUEX7", must **not** contain an entry point of "NATUEX7", and NATURAL must be linked with TNMMODD and the user's User-Exit-7.

At entry to NATURAL user-exits, including the TRIM NATURAL user-exit described above, and any co-existing user's user-exits, the following register conventions apply:

- The following registers are set:
 - R1 = address of parameters for link routine
 - R12 = address of NATURAL BB
 - R13 = address of an 18 full-word register save area in NATURAL
 - R14 = return address within NATURAL
 - R15 = entry address of the user's User-Exit
- Standard subroutine register saving and restoring conventions should be used.
- At exit, all registers should be restored, and the return should be via a "BR R14".

In order to co-exist the TRIM and SECURITRE NATURAL User-Exit-5s, the following changes need to be made to the link-edit cards.

From:

```
INCLUDE  STRLIB(STND)
INCLUDE  TRIMLIB(TNMMODD)
```

To:

```
CHANGE  DCNNEX5(TNMMODD3)
INCLUDE  STRLIB(STND)
CHANGE  NATUEX5(TNMNOEN5)
INCLUDE  TRIMLIB(TNMMODD)
```

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SECTION IV

REAL-TIME MONITOR OPERATIONS

IV.1 TRIM RTM Requirements

TRIM 7.6.1 can only be used with ADABAS 7.4.2. There can be no "mixing" of modules from various TRIM versions, or the results may be unpredictable. At the time of release of TRIM 7.6.1, ADABAS 7.4.2 was the highest version of ADABAS available.

The TRIM 7 Real-Time Monitor (RTM) NATURAL modules are required to be installed on only one database, preferably TEST, although they may be installed on multiple databases.

The RTM requires NATURAL Version 3.1.6 or above. At the time of release of TRIM 7.6.1, NATURAL 4.1.2 was the highest version of NATURAL to be tested. TRIM 7 is prepared for and tested with DBID and File Numbers of two bytes (i.e., greater than 255).

The RTM NATURAL modules may be installed into a default library or any other library the user chooses, but the default library is strongly suggested. The default library is TRMV761. Usage of the RTM is described in **Section II Real-Time Monitor** of the **TRIM Reference Manual**.

The RTM requires ADABAS to be running and ADABAS Command Logging to be turned on, although records do not necessarily have to be logged. The RTM also requires TRIM User-Exit-4 to be active with ADABAS for each database to be monitored.

LOGGING=YES must be specified in the ADARUN parameters in order for ADABAS to call the User-Exit-4. It is preferable to also log the Control Block (LOGCB=YES), which contains some important information that will be output to the eventual command log detail records only if LOGCB=YES is stated. (For the Real-Time Monitor, the Control Block and buffers are not necessary to log.)

Therefore, the ADARUN parameters should be stated as:

```
LOGGING=YES
LOGCB=YES          (and other buffers if desired)
UEX1=TRMUEX1      (optional)
UEX4=TRMUEX4x     (where x is S, R, or L)
```

A dataset must be available for logging (a temporary dataset is adequate, but DD DUMMY is not); otherwise ADABAS will not call User-Exit-4. However, it is not necessary to actually log any records for the Real-Time Monitor to be operational. Unless start-up parameters or Zaps instruct differently, TRMUEX4 inhibits all logging until instructed to do otherwise via a User-Exit-4 Communication Run.

The ability to reduce Command Logging via start-up logging Zaps, parameters (TRMLOG), and the Dynamic Logging Facility have no effect on the RTM. In other words, the RTM displays statistics for all commands, whether or not they end up on the Command Log.

The RTM NATURAL modules are invoked by keying the following sequence on-line:

```
LOGON TRMV761
MENU
```

(or whatever LIB was used for installation)

If NATURAL Security is used, the application TRMV761 (or whatever library is used) must be made available to every intended user of the RTM.

IV.2 TNM Requirements

When instructed to do so, the TRIM NATURAL Monitor (TNM) collects Summary and Detail data about NATURAL activity. This data is kept in a workarea obtained from one of the NATURAL buffers (USERBUF by default). Periodically, the data is written to the TNM file. The amount of data written to the TNM file depends upon the parameters specified on the Define Data Collection Parameters screen. The more data TNM is instructed to collect, the more data will be written to this file.

When collecting Detail data, TNM retains up to 50 events in its workarea or the NATURAL thread. When the 50th event is recorded, all 50 events are compressed into a single record and written to the TNM file. The 50 events are then removed from memory to make room for the next 50 events.

Before the compressed Detail data records can be used in a report, they must first be decompressed into 50 separate records on the TNM file. The Convert Detail Data function expands the compressed Detail data records into individual records for each event.

IV.3 Storage Requirements

TRMUEX1 requires less than 11K bytes.

TRMUEX4 requires varying amounts of storage:

TRMUEX4S	(Small)	215K bytes
TRMUEX4R	(Regular)	535K bytes
TRMUEX4L	(Large)	750K bytes

Note: The TRMUEX4S, R, or L size will be increased by the size of TRELOG if tRelational logging is included.

TRMUEX1 and TRMUEX4x are part of the ADABAS region.

TRIM User-Exit-Bs require small amounts of storage. These are linked with the appropriate ADABAS Link Routines.

IV.4 Limits and Restrictions

The RTM minute statistics screens always show the 19 files, commands, etc. of highest usage for each hour with these maximums:

	TRMUEX4S	TRMUEX4R	TRMUEX4L
• Thread	100	100	100
• File Number	100	100	100
• Command	100	100	100
• Response	100	100	100
• JOB	100	100	100
• NATURAL Program	100	100	100
• User-ID	100	100	100
• Security-ID	100	100	100
• NATURAL Application Library	N/A	100	100
• NATURAL Security User-ID	N/A	100	100
• CICS Transaction-ID	N/A	100	100
• User-Area of Control Block	N/A	100	100

If more than 19 files, commands, etc., are contained in the TRIM tables, TRIM will report 18 files, commands, etc., with an "other" line indicating the total of the statistics for all other files, commands, etc. not included in the 18 that are explicitly listed.

The RTM's hourly statistics breakdown always shows the 19 files, commands, etc. of highest usage for each hour with these maximums:

	TRMUEX4S	TRMUEX4R	TRMUEX4L
• Thread	256	256	256
• File Number	256	512	1024
• Command	40	40	40
• Response	256	256	256
• JOB	64	128	512
• NATURAL Program	128	512	1024
• User-ID	64	512	1024
• Security-ID	64	128	512
• NATURAL Application Library	N/A	512	1024
• NATURAL Security User-ID	N/A	512	1024
• CICS Transaction-ID	N/A	512	1024
• User-Area of Control Block	N/A	512	1024

If more than 19 files, commands, etc., are contained in the TRIM tables, TRIM will report 18 files, commands, etc., with an "other" line indicating the total of the statistics for all other files, commands, etc. not included in the 18 that are explicitly listed.

The on-line and hard-copy Nucleus Session Statistics include these maximums:

	TRMUEx4S	TRMUEx4R	TRMUEx4L
• Thread	256	256	256
• File Number	256	256	256
• Command	40	40	40
• Command within file	N/A	YES	YES
16 command groups for 256 files			
• Response	256	256	256
• JOB	128	512	1024
• NATURAL Programs	128	1024	2048
• User-ID	128	512	1024
• Security-ID	128	512	1024
• NATURAL Application Library	N/A	512	1024
• NATURAL Security User-ID	N/A	512	1024
• CICS Transaction-ID	N/A	512	1024
• User-Area of Control Block	N/A	512	1024

The PRESUM statistics are output hourly with these maximums:

	TRMUEx4S	TRMUEx4R	TRMUEx4L
• Thread	256	256	256
• File Number	256	512	1024
• Command	40	40	40
• Response	256	256	256
• JOB	64	128	512
• NATURAL Programs	128	512	1024
• User-ID	64	512	1024
• Security-ID	64	128	512
• NATURAL Application Library	N/A	512	1024
• NATURAL Security User-ID	N/A	512	1024
• CICS Transaction-ID	N/A	512	1024
• User-Area of Control Block	N/A	512	1024
• Special	N/A	512	1024

Additional RTM facilities are available as follows:

RACE concurrent users	3	10	10
Entries in one trace	85	85	85
Extended User Queue (XUQ) Entries	256	512	1024
Hold Queue "Highest Users" sort	40	400	400

XUQ Limits

XUQ processing has been modified to avoid excessive processing whenever table overflow conditions are encountered due to extremely heavy processing activity. Only the most recent users will be maintained in the XUQ. The number of most recent users is determined by the User-Exit-4 size selected (Large = 1024, Regular = 512, and Small = 256). If the number of users exceeds 1024, the oldest (least recently used) entry will be reused.

IV.5 Reporting on the NATURAL Module Name

One of the primary features of TRIM is identification of NATURAL Program, Application, and User-ID for every ADABAS call.

Other than defining the USERINFO Area length in the User-Exit-Bs, TRIM requires no source changes, Zaps, or Zap removal regarding any SAG code. TRIM obtains NATURAL information whenever possible, using the USERINFO Area of the ADABAS User Information Block (UIB) as the vehicle to transport this information.

In ADABAS 7, it is possible to pass the UIB as an additional parameter to ADABAS via the ADABAS Link Routines. This is done transparent to application programs. This UIB is available on all calls to ADABAS.

In order to create a UIB and populate it with meaningful information, the ADABAS 7 Link Routines have exit capabilities, User-Exit-B (before the call), and User-Exit-A (after the call).

TRIM supplies User-Exit-Bs for each ADABAS Link Routine which accomplish the task of populating the UIB with information about the NATURAL Program, Application, User-ID, Security-ID, CICS Tran-ID, RACF-ID (for SECURITRE use), etc. The ADABAS Link Routines transfer this UIB to ADABAS.

The user may also contribute to the UIB information through the user's User-Exit-B.

ADABAS ignores the UIB, but TRMUEX4 obtains information from it. The UIB may be output to the Command Log. (To be consistent with the other log buffers (FB, RB, SB, VB), the UIB is termed UB or User Buffer further in this documentation.)

Details on the USERINFO Area, User-Exit-Bs, and Co-existing user-exits are presented in previous sections of this manual.

NATURAL information obtained in TRIM includes:

- NATURAL Program Name (NATPROG in TRIM)
- NATURAL Application-ID (NSA or NATAPPL in TRIM)
- NATURAL User-ID (NSU or NATUSER in TRIM)

The NATURAL information is obtained solely through the User-Exit-B supplied for the environment. TRIM no longer uses the Reserved Field, source changes to NATURAL modules, or "intuitive logic" in TRIM User-Exit-4 to obtain NATURAL information. These User-Exit-B environments include:

- Batch/TSO/VM TRMUEXBB to be linked with ADALNK and ADALNKR
- COM-PLETE 4.5 & later TRMUEXB5 to be linked with ADALCO and ADALCOR
- CICS pre 3.2 TRMUEXB to be linked with ADALNC with and without &SAP=Y
- CICS 3.2 & later TRMUEXB2 to be linked with LNKOLSC and LNKOLM with and without &SAP=Y
- IMS TRMUEXBB to be linked with ADALNI and ADALNIR

Regarding COBOL (or other program) names, TRIM User-Exit-B(s) obtains these names from the operating/TP system (OS systems only, currently) and places it into the UIB. The name will remain unused unless the user has TRMUEX4 tailored for use of the "alternate program name". This alternate logic involves using the alternate (COBOL) program name when the NATURAL program name is unknown (#NOTEBxx).

It is anticipated that larger, more complex sites will leave out a TRIM module or user-exit here and there. An example is linking TRIM User-Exit-B to some CICSs, but not all, that may actually be preferred while testing. In these types of cases, TRIM will try to let the user know of the "incomplete environment". This is through several "#NOTE"s that may appear about the NATURAL information these user-exits are intended to develop. So, when viewing the RTM Screens, the NATURAL information will often appear with interspersed notes. The possible #NOTE entries are listed below.

- #NOTEB01 TRMUEXBB (Batch, TSO, VM, or IMS) cannot determine the NATURAL Program, Application or User-ID, probably because this call did not originate in NATURAL.
- #NOTEB02 TRMUEXBB (Batch, TSO, VM, or IMS), NATURAL, has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB03 TRMUEXBB (Batch, TSO, VM, or IMS), NATURAL, has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB11 TRMUEXB (CICS pre 3.2) cannot determine the NATURAL Program, Application or User-ID, probably because this call did not originate in NATURAL.
- #NOTEB12 TRMUEXB (CICS pre 3.2), NATURAL has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB13 TRMUEXB (CICS pre 3.2), NATURAL, has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB21 TRMUEXB2 (CICS 3.2 or later) cannot determine the NATURAL Program, Application or User-ID, probably because this call did not originate in NATURAL.
- #NOTEB22 TRMUEXB2 (CICS 3.2 or later), NATURAL has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB23 TRMUEXB2 (CICS 3.2 or later), NATURAL, has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB41 TRMUEXB5 (COM-LETE 4.5 or later) cannot determine the NATURAL Program, Application or User-ID, probably because this call did not originate in NATURAL.
- #NOTEB42 TRMUEXB5 (COM-LETE 4.5 or later), NATURAL, has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTEB43 TRMUEXB5 (COM-LETE 4.5 or later), NATURAL, has not (yet) determined the NATURAL Program, Application, or User-ID.
- #NOTE401 No Command Queue Element address was passed to User-Exit-4. This is usually the case when ADABAS is running in Single User Mode. Without a CQE, TRMUEX4 cannot receive a User Information Block (UIB), and may therefore not determine NATURAL or CTI information.
- #NOTE402 No UIB address was passed to User-Exit-4. This address is necessary to receive the data passed from User-Exit-B. Either User-Exit-B was not in use in the particular environment from which this call was made, the ADABAS link routine cannot pass a UIB, or the ADABAS Link routine did not allow for a UIB of adequate size. Without this UIB, NATURAL and CTI information cannot be determined.

#NOTE403 A UIB was received by TRIM User-Exit-4, but there is no indication it originated from a TRIM User-Exit-B or from a TRIM User-Exit-B of the proper version number. Without this User Information Block, NATURAL and CTI information cannot be determined.

#NOTE405 No program information was available.

Some of the notes above imply "missing parts", accidentally missing or intentionally left out, in the set up of the users ADABAS/NATURAL environment. Using the TRIM RTM, the combinations of User-Exit-Bs involved in calls to the database may be viewed. Refer to **Section II.14 Environment Information** of the **TRIM Reference Manual**.

Some notes will also be received naturally. For example, #NOTE402 may be received when NATURAL does its ADABAS Open Command to start a session, and a Close to end a session. At that time, no particular NATURAL program is being executed, but rather NATURAL itself is running. Rather than assign a blank NATURAL program name or assume it is some previously assigned NATURAL program, a "note" is assigned. These notes start with #, so that they sort to the top of most screen displays and reports, in order to draw the user's attention.

The Command Log Reserved Field would normally contain the Global ID, zeros, or some special value, which would be of little use. A TRMUEx4 Zap option exists to have TRMUEx4 place the NATPROG value into the Reserved field of the output Command Log record, assuming LOGCB=YES. For batch TRIM processing, use the field named "RESERVED" to refer to the NATURAL program name.

A TRMUEx4 Zap option exists to have TRMUEx4 place the NSA and NSU values into the ADDITIONS-3 and ADDITIONS-4 fields, respectively, in the Command Log record. Normally these fields would contain the password and cipher values, but would be better used as NSA and NSU values. For batch TRIM processing, use the field names "ADD3" and "ADD4" to refer to the NSA and NSU values.

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SECTION V

BATCH OPERATIONS

V.1 TRIM Execution Requirements

TRIM includes support for running TRIM Batch above the 16MB line in OS/390 and VM operating systems.

TRIM requires ADABAS to be running and ADABAS Command Logging to be turned on to run its User-exit Communication Runs, use its Real-Time Monitor, and generate Nucleus Session Statistics. However, it is not necessary to actually log any data.

To generate data on Command Logs, the ADABAS parameter required is LOGGING=YES. LOGCB=YES is suggested. Any other buffer logging is at the user's discretion.

For processing Command or Protection Logs, TRIM may be run on any CPU, whether it runs ADABAS or not.

Command Logs (or Protection Logs) from one or more CPUs and one or more ADABASes may be input to TRIM.

Multiple OS Command or Protection Log datasets are processed by specifying concatenated datasets in the execution JCL. Command and Protection Logs cannot be input together in the same TRIM run.

While TRIM expands the capabilities of Command Logging to contain other useful data, TRIM takes advantage of ADABAS facilities for defining and maintaining logs. Pertinent ADABAS Operations Manual explanations should be consulted for single/dual logging, tape or disk, switching the dual log areas, copying disk logs to tape, etc.

TRIM does not require the log records or log datasets to be in any particular order. If records are sorted out of the standard date/time order, TRIM will be unaffected.

V.2 PRESUM Run

TRIM uses the Command Log containing PRESUM records (created in TRIM User-Exit-4) for this batch run. The Control Screen settings, start-up Zap settings, or start-up TRMTAP parameters for TRMUEx4 must have requested PRESUM by Thread, Command, File Number, NATURAL Program, Job Name, User-ID, Response Code, NATURAL Application Library, NATURAL Security User-ID, User-Area, Security-ID, or Special for this run to be of any use.

Other records on the Command Log will be ignored in this run. Switching the Detail Records and Buffers on and off will not affect this run. Switching PRESUM specifications on and off will not affect the run except to make the PRESUM figures incomplete.

PRESUM runs cannot be executed against PRESUM data stored in the SMF log. To execute a PRESUM run against PRESUM data that has been placed in the SMF log, PRESUM data must first be extracted from the SMF log and written to a dataset in the format expected by the TRIM batch facility. An example of a NATURAL program that performs this extraction and reformatting appears in **Appendix E: PRESUM Data Extraction From SMF** of the *TRIM Reference Manual*.

V.3 TRELOG Run

TRIM uses the Command Log containing TRELOG records (created in TRIM User-Exit-4) for this batch run. Other records on the Command Log will be ignored for this run. The TRELOG records will cover only the time that tRelational Logging was active.

V.4 Command Log Analysis Run

TRIM uses the ADABAS Command Log Detail data as one type of input. ADABAS should be activated with the ADARUN LOGGING=YES parameter and, preferably, LOGCB=YES. Format, Record, Search, and Value Buffers may optionally be turned on. These ADARUN parameters are LOGFB=YES, LOGRB=YES, LOGSB=YES, and LOGVB=YES.

Actual logging of all Detail records and buffers generally takes an unreasonable amount of space. TRMUEx4 has the capability of selectively logging Detail records and the various buffers. Refer to **Section IV Dynamic Logging Facility** of the *TRIM Reference Manual*.

PRESUM records produced by TRIM User-Exit-4 may be interspersed with Command Log Detail data. Any other modifications to these standard record formats or to the field contents via the user's User-Exit-4 or other similar manipulation should be avoided.

Switching the Detail Record Logging on and off or changing the logging of the Control Block and Buffers will not affect TRIM, except to make non-logged records, fields, and buffers unavailable. Switching PRESUM logic on and off will not affect Detail log processing.

V.5 Protection Log Analysis Run

TRIM may be used to analyze the ADABAS 7.4.2 Protection Log (PLOG), sometimes known as SIBA.

Modifications to the standard PLOG record format or field contents should be avoided.

There is no ADABAS standard user-exit facility available for manipulation or reducing PLOG data. Protection Logging may be turned on or off for any ADABAS session. Lack of a PLOG for any period of time will not affect TRIM, except to make the missing update images unavailable. Lack of a PLOG for any period of time may affect user ability to recover from failures using standard ADABAS facilities.

In order to decompress the "before" and "after" compressed record images on the PLOG, TRIM requires a description of the files for which records will be decompressed. This description is obtained from ADAWAN (file loader) card images provided as input to TRIM. ADACMP format card images may be used rather than ADAWAN card images.

Note: The Treehouse Software product AUDITRE may be used for more extensive Protection Log Auditing.

V.6 TRIM Misc-Log Analysis Run

TRIM may be used to process other logs. Examples are:

- TRIM summarized statistics, which were previously output to a sequential dataset
- Data extracted from ADABAS startup parameters, shut-down statistics, ADAREP reports, utility execution statistics, ADABAS Files, etc. and placed into a sequential dataset in a form definable as log input to TRIM
- The logs of other database systems or TP systems, as long as these logs are definable to TRIM
- Other sequential data, such as time-cards, expense reports, etc.

V.7 Dynamic Control and TRMUEx1

User-Exit-1 (TRMUEx1) and three User-Exit-4s (TRMUEx4L, R, and S) are provided. They should be placed into the ADABAS load library (or, in OS terminology, the TRIM.Vxxx.LOAD library should be concatenated to the ADABAS load library), and the ADARUN parameters "LOGGING=YES", "UEX1=TRMUEx1", and "UEX4=TRMUEx4x" (where x = S (Small), R (Regular), or L (Large)) must be specified for ADABAS startup.

Anytime while ADABAS is running, a TRIM "User-Exit-1 Communication Run" may be run (Refer to the *TRIM Reference Manual*) to screen out commands, lock files, do password checks, and/or set passwords.

TRMUEx1 in its "dormant" state allows all commands, locks no files, and does no security checking.

User-Exit-4 is required when using User-Exit-1.

V.8 Dynamic Logging and TRMUEx4

To reduce the amount of Detail log data and to summarize (PRESUM) certain data, User-Exit-4 is provided (TRMUEx4x). TRMUEx4x should be placed onto the ADABAS load library (or, in OS terminology, the TRIM.Vxxx.LOAD library should be concatenated to the ADABAS load library), and the ADARUN parameter "UEX4=TRMUEx4x" must be specified for ADABAS startup. Additionally, LOGGING must be turned on within ADABAS (LOGGING=YES), and the Control Block should be logged (LOGCB=YES). Format, Record, Search, and Value Buffers may optionally be turned on. These ADARUN parameters are LOGFB=YES, LOGRB=YES, LOGSB=YES, and LOGVB=YES.

A dataset must be available for logging (a temporary dataset is adequate, but DD DUMMY is not). However, it is not necessary to actually log any records for the Dynamic Logging Facility to be operational.

Default "start-up logging" parameters may be defined through the TRMLOG macro. Linked with TRMUEx4x, these remain in force throughout the session unless replaced or complemented with additional "user logging" parameters. The user or DBA may run a TRIM "User-Exit-4 Communication Run" (refer to the ***TRIM Reference Manual***) to log data that will later be used in TRIM Command Log Analysis. Without start-up or user parameters, TRMUEx4 by default instructs ADABAS to log no Detail records.

V.9 Batch Execution Procedure

OS, VM, and SIEMENS

TRIM Command Log analysis, PRESUM runs, TRELOG runs, and Protection Log processing are executed with the following datasets:

<u>Dataset</u>	<u>Meaning</u>
TRMPARM	Input Parameters to TRIM.
TRMACLOG	Input ADABAS Command Log(s), other logs, or previously output sequential data (tape or disk). (For CLOGLAYOUT=4, PRESUM, or TRELOG.)
TRMCLOG5	Input ADABAS Command Log(s), other logs, or previously output sequential data (tape or disk). (For CLOGLAYOUT=5.)
TRMAPLOG	Input ADABAS Protection Log(s) (tape or disk).
TFDNNNNN	Protection Log Analysis ADABAS Loader (ADAWAN or ADACMP) card images describing each file. NNNNN represents the ADABAS FNR.
TRMPRT00	Dataset for printing the input parameters, error messages, and execution statistics.
TRMPRT01, 02, 03, etc.	First dataset for printing the first detail report and all summary reports. Remaining datasets for subsequent detail reports.
TRMOUT01, 02, 03, etc.	Output datasets for first, second, etc., output detail logs or summary statistics, allocated with characteristics similar to TRMACLOG or TRMAPLOG.

Multiple Input Tapes/Files

For VM, if the INPUT parameter statement specifies TAPES=0, multiple VM Command or Protection Log tapes or files are processed by operator response to a console message issued by TRIM. The message asks if more input tapes are to be processed. A 'Y' (for YES) instructs TRIM to open another file for processing. An 'N' (for NO) instructs TRIM to end the job. If the INPUT parameter statement specifies a fixed number of tapes, exactly that number will be processed by TRIM, and no console messages will be issued. (For VM, "TAPES=1" should be specified when processing logs from a disk file.)

ADAWAN/ADACMP Cards

To accommodate two-byte ADABAS file numbers in Protection Log runs, the SHOW statement FNR parameter has been changed to allow for file number values from 1 to 65535. Correspondingly, the file description (known in TRIM as the FDT or ADAWAN/ADACMP card images) is expected to be in datasets TFDxxxxx (for OS). Formerly, these were in datasets TRMFDxxx. VM EXECs for PLOG processing are similarly affected. There is a limit of 99 files in any one run.

VSE

TRIM Command Log analysis, PRESUM runs, TRELOG runs, and Protection Log processing are executed with the following files:

<u>VSE LBL</u>	<u>VSE ASSGN</u>	<u>Meaning</u>
	SYSIPT	Input Parameters to TRIM.
TRMACLG	SYS010	Input ADABAS Command Log(s), other logs, or previously output sequential dataset from tape.
TRMACLD	SYS012	Input ADABAS Command Log(s), other logs, or previously output sequential dataset from disk.
TRMAPLG	SYS010	Input ADABAS Protection Log(s) from tape.
TRMAPLD	SYS012	Input ADABAS Protection Log(s) from disk.
TRMFD01, TRMFD02, TRMFD03, TRMFD04, TRMFD05	SYS006, SYS016, SYS026, SYS036, SYS046	Protection Log Analysis ADABAS Loader (ADAWAN or ADACMP) card images describing each file. The first file referenced in a SHOW statement is assumed to have ADAWAN card images in SYS006, second file in SYS016, etc., up to 5 files.
	SYSLST	Dataset for printing the input parameters, error messages, and execution statistics.
	SYS005, 015, 025, 035, 045	The first dataset is for printing the first detail report and all summary reports. The remaining datasets are for subsequent detail reports.
TRMOUT1 TRMOUT2 TRMOUT3 TRMOUT4 TRMOUT5	SYS011 SYS021 SYS031 SYS041 SYS051	Output datasets for first, second, etc., output detail logs or summary statistics from tape, allocated with characteristics similar to TRMACLOG or TRMAPLOG. All output detail records are placed on SYS011 and all output summary records are placed on SYS021, unless OUTPUT statement SYSNO parameters specify otherwise.
TRMOT1D TRMOT2D TRMOT3D TRMOT4D TRMOT5D	SYS013 SYS023 SYS033 SYS043 SYS053	Output datasets for first, second, etc., output detail logs or summary statistics from disk, allocated with characteristics similar to TRMACLOG or TRMAPLOG. All output detail records are placed on SYS011 and all output summary records are placed on SYS021, unless OUTPUT statement SYSNO parameters specify otherwise.

Multiple Input Tapes/Files

If the INPUT parameter statement specifies TAPES=0, multiple VSE Command or Protection Log tapes or files are processed by operator response to a console message issued by TRIM. The message asks if more input tapes are to be processed. A 'Y' (for YES) instructs TRIM to open another file for processing. An 'N' (for NO) instructs TRIM to end the job. If the INPUT parameter statement specifies a fixed number of tapes, exactly that number will be processed by TRIM, and no console messages will be issued.

ADAWAN/ADACMP Cards

The accommodation of the two-byte ADABAS file numbers in Protection Log runs has no affect on VSE JCL, since the FDTs are still expected to reside in SYS006, SYS016, etc.

For Protection Log runs, ADAWAN/ADACMP cards for the first file to be decompressed (the first file referenced in a SHOW statement) must be in SYS006, and the second through fifth files in SYS016, SYS026, SYS036, and SYS046 respectively.

V.9.1 OS**Sample OS JCL for a Command Log Analysis, PRESUM Run or TRELOG Run**

(Refer to source library member JOSCLLOG)

```
//TRIM      EXEC      PGM=TRIM
//STEPLIB   DD        DSN=TRIM.Vxxx.LOAD,DISP=SHR
//TRMACLOG   DD        DSN=ADABAS.Vx.COMMAND.LOG,DISP=SHR CLOG FORMAT=4      (1)
//TRMCLOG5   DD        DSN=ADABAS.Vx.COMMAND.LOG,DISP=SHR CLOG FORMAT=5
//TRMPRT00   DD        SYSOUT=A
//TRMPRT01   DD        SYSOUT=A
//TRMPRT02   DD        SYSOUT=A
//TRMPRT03   DD        SYSOUT=A
.
.   CONTINUE PRINT LINES AS NEEDED
.
//TRMOUT01   DD        DSN=ADABAS.Vx.CLOGSAVE.XXX,DISP=(OLD,PASS)      (1)
//TRMOUT02   DD        DSN=ADABAS.Vx.CLOGSAVE.YYY,DISP=(OLD,PASS)      (1)
.
.   CONTINUE OUTPUT LINES AS NEEDED
.
//TRMPARM    DD        *
                        (TRIM parameters)      (2)

//
```

NOTES:

- (1) The "Vx" in this step should correspond to the ADABAS Version being used (e.g., V742). TRMACLOG or TRMCLOG5, not both, should be used.
- (2) TRIM parameters are discussed in **Section VI Log Analysis Parameter Statements** of the **TRIM Reference Manual** and sample parameters may be found in the report related appendices of the **TRIM Reference Manual**.

Sample OS JCL for a Protection Log Analysis Run

(Refer to source library member JOSPLLOG)

```
//TRIM      EXEC      PGM=TRIM
//STEPLIB   DD        DSN=TRIM.Vxxx.LOAD,DISP=SHR
//TRMAPLOG   DD        DSN=ADABAS.Vx.PROT.LOG,DISP=SHR      (1)
//TFD00001   DD        DSN=ADABAS.Vx.LOADER(FDT001),DISP=SHR      (1)
//TFD12345   DD        DSN=ADABAS.Vx.LOADER(FDT12345),DISP=SHR      (1)
.
.   CONTINUE FDT LINES AS NEEDED
.
//TRMPRT00   DD        SYSOUT=A
//TRMPRT01   DD        SYSOUT=A
//TRMPRT02   DD        SYSOUT=A
//TRMPRT03   DD        SYSOUT=A
.
.   CONTINUE PRINT LINES AS NEEDED
.
//TRMOUT01   DD        DSN=ADABAS.Vx.PLOGSAVE.XXX,DISP=(OLD,PASS)      (1)
//TRMOUT02   DD        DSN=ADABAS.Vx.PLOGSAVE.YYY,DISP=(OLD,PASS)      (1)
.
.   CONTINUE OUTPUT LINES AS NEEDED
.
//TRMPARM    DD        *
                        (TRIM parameters)      (2)

//
```

NOTES:

- (1) The "Vx" in this step should correspond to the ADABAS Version being used (e.g., V742).
- (2) TRIM parameters are discussed in **Section VI Log Analysis Parameter Statements** of the **TRIM Reference Manual** and sample parameters may be found in the report related appendices of the **TRIM Reference Manual**.

Sample OS JCL for a User-Exit-1 Communication Run

(Refer to source library member JOSUX1)

```

//TRIM      EXEC    PGM=TRIM
//STEPLIB   DD      DSN=TRIM.Vxxx.LOAD,DISP=SHR
//          DD      DSN=ADABAS.Vx.LOAD,DISP=SHR          (1)
//TRMPRT00  DD      SYSOUT=A
//TRMPARM   DD      *

                (TRIM UEX1 parameters)                (2)

//DDCARD    DD      (as supplied for any batch ADABAS job)
//

```

Sample OS JCL for a User-Exit-4 Communication Run

(Refer to source library member JOSUX4)

```

//TRIM      EXEC    PGM=TRIM
//STEPLIB   DD      DSN=TRIM.Vxxx.LOAD,DISP=SHR
//          DD      DSN=ADABAS.Vx.LOAD,DISP=SHR          (1)
//TRMPRT00  DD      SYSOUT=A
//TRMPARM   DD      *

                (TRIM UEX4 parameters)                (3)

//DDCARD    DD      (as supplied for any batch ADABAS job)
//

```

NOTES:

- (1) The "Vx" in this step should correspond to the ADABAS Version being used (e.g., V711).
- (2) TRIM UEX1, ALLOW/DISALLOW, LOCK/UNLOCK, PASS/FAIL, and SETPW parameters are discussed in **Section III.2 Using Dynamic Control and Security** of the *TRIM Reference Manual*.
- (3) TRIM UEX4 and LOG parameters are discussed in **Section III.2 Using Dynamic Control and Security** of the *TRIM Reference Manual*.

V.9.2 VSE

Sample VSE POWER JCL for a Command Log Analysis, PRESUM Run or TRELOG Run

(Refer to source library member JVSCLOG)

```

* $$ JOB JNM=TRIM,CLASS=0,DISP=L,PRI=8,USER='ADABAS'
* $$ LST LST=SYS005,CLASS=Q
* $$ LST LST=SYS015,CLASS=Q
.
.   CONTINUE PRINT LINES AS NEEDED
.
* $$ LST LST=SYS015,CLASS=Q
// JOB TRIM                                TRIM REPORTS
*                                     *****
// PAUSE      ***   MOUNT  COMMAND LOG ON 18X      ***
*                                     OUTPUT      ON 18N
*                                     ***
// ASSGN SYS010,18X      TRMACLG INPUT TAPE
// TLBL TRMACLG
// LIBDEF PHASE, . . .
// ASSGN SYS011,18N      TRMOUT1 OUTPUT TAPE
// TLBL TRMOUT1
// EXEC TRIM,SIZE=200K

                                (TRIM parameters)                                (1)

/*
/&
* $$ EOJ

```

NOTE:

- (1) TRIM parameters are discussed in **Section VI Log Analysis Parameter Statements** of the **TRIM Reference Manual**, and sample parameters may be found in the report related appendices in the **TRIM Reference Manual**.

Sample VSE POWER Execution JCL for a Protection Log Analysis Run

(Refer to source library member JVSPLOG)

```

* $$ JOB JNM=TRIM,CLASS=0,DISP=L,PRI=8,USER='ADABAS'
* $$ LST LST=SYS005,CLASS=Q
* $$ LST LST=SYS015,CLASS=Q
.
.   CONTINUE PRINT LINES AS NEEDED
.
* $$ LST LST=SYSLST,CLASS=Q
// JOB TRIM                                TRIM REPORTS
*                                          ***
// PAUSE                                *** MOUNT PROTECTION LOG ON 18X ***
*                                          OUTPUT ON 18N
*                                          ***
// ASSGN SYS010,18X                      TRMAPLG INPUT TAPE
* TLBL TRMAPLG
*          CHANGE ddd IN NEXT CARD TO DISK ADDRESS
// ASSGN SYS006,ddd ADAWAN CARDS FOR FIRST FILE
*          CHANGE **** IN NEXT DLBL CARD TO SEQ DISK FILE-ID
*                                          OF ADAWAN CARD IMAGE FILE
// DLBL TRMFD01,'****',0,SD
*
*          CHANGE xxxx IN NEXT EXTENT CARD TO DISK START ADDRESS
*          CHANGE yyyy IN NEXT EXTENT CARD TO # OF TRACKS OR FBA BLOCKS
*
// DLBL XXXCL,'CORE.IMAGE.LIBRARY',01/365,SD
// EXTENT SYS006,1,0,xxxx,yyyy
// LIBDEF PHASE, . . .
// ASSGN SYS011,18N                      TRMOUT1 OUTPUT TAPE
// TLBL TRMOUT1
// EXEC TRIM,SIZE=200K

                                (TRIM parameters)                                (1)

/*
/&
* $$ EOJ

```

NOTE:

- (1) TRIM parameters are discussed in the **Section VI Log Analysis Parameter Statements** of the **TRIM Reference Manual**, and sample parameters may be found in **Appendix H: Sample Protection Log Analysis Input Parameters and Reports** of the **TRIM Reference Manual**.

Sample VSE POWER JCL for a User-Exit-1 Communication Run

(refer to source library member JVSUX1)

```
* SAMPLE VSE JCL FOR TRIM USER-EXIT-1 COMMUNICATION RUN
*
* $$ JOB JNM=TRIM,CLASS=0,DISP=L,PRI=8,USER='ADABAS'
* $$ LST LST=SYSLST,CLASS=Q
// JOB TRIM
// LIBDEF PHASE, . . .
// ASSGN SYS000,SYSIPT
// EXEC TRIM,SIZE=200K

      (TRIM UEX1, ALLOW/DISALLOW, LOCK/UNLOCK, PASS/FAIL          (1)
      AND SETPW PARAMETERS)

/*
      (ADARUN PARAMETER CARDS AS SUPPLIED FOR ANY BATCH ADABAS JOB)
/*
/&
* $$EOJ
```

NOTE:

- (1) TRIM UEX1, ALLOW/DISALLOW, LOCK/UNLOCK, PASS/FAIL, and SETPW parameters are discussed in **Section III.2 Using Dynamic Control and Security** of the **TRIM Reference Manual**.

Sample VSE POWER JCL for a User-Exit-4 Communication Run

(refer to source library member JVSUX4)

```
* SAMPLE VSE JCL PROC FOR TRIM USER-EXIT-4
*
* $$ JOB JNM=TRIM,CLASS=0,DISP=L,PRI=8,USER='ADABAS'
* $$ LST LST=SYSLST,CLASS=Q
// JOB TRIM          TRIM REPORTS
// LIBDEF PHASE, . . .
// ASSGN SYS000,SYSIPT
// EXEC TRIM,SIZE=200K

      (TRIM UEX4, LOG PARAMETERS)                                (1)

/*
      (ADARUN PARAMETER CARDS AS SUPPLIED FOR ANY BATCH ADABAS JOB)
/*
/&
* $$ EOJ
```

NOTE:

- (1) TRIM UEX4 and LOG parameters are discussed in **Section III.2 Using Dynamic Logging Facility** of the **TRIM Reference Manual**.

V.9.3 VM**Sample VM EXEC for a Command Log Analysis, PRESUM Run, or TRELOG Run**

(refer to source library member JVMCLOG)

```

&TRACE ON
*
*   SAMPLE VM EXEC FOR TRIM COMMAND LOG ANALYSIS
*
FILEDEF      TRMACLOG          DISK CLOG DATA1 T4 (RECFM VB BLOCK 10000
FILEDEF      TRMPRT00          DISK TRIMCLOG LISTING
FILEDEF      TRMPRT01          DISK TRIMREP1 LISTING
FILEDEF      TRMPRT02          DISK TRIMREP2 LISTING
FILEDEF      TRMPRT03          DISK TRIMREP3 LISTING
.
.   CONTINUE PRINT LINES AS NEEDED
.
FILEDEF      TRMOUT01          DISK TRIMOUT1 OUTPUT A4 (RECFM VB BLOCK 10000
FILEDEF      TRMOUT02          DISK TRIMOUT2 OUTPUT A4 (RECFM VB BLOCK 10000
.
.   CONTINUE OUTPUT LINES AS NEEDED
.
FILEDEF TRMPARM DISK PCLOG TRMPARM *
CP SPOOL PRINTER CONT
TRIM
CP CLOSE PRINTER NAME TRIMCLOG LISTING
CP SPOOL PRINTER NOCONT CLOSE

```

The PCLOG TRMPARM file must contain the TRIM parameters to use with this execution. These parameters are discussed in **Section V Log Analysis Parameter Statements** of the **TRIM Reference Manual** and sample parameters may be found in the report related appendices in the **TRIM Reference Manual**.

Sample VM EXEC for a Protection Log Analysis Run

(refer to source library member JVMPLOG)

```

&TRACE ON
*
*   SAMPLE VM EXEC FOR TRIM PROTECTION LOG ANALYSIS
*
FILEDEF TRMAPLOG DISK PLOG DATA T4 (RECFM VB BLOCK 10000
FILEDEF TRMPRT00 DISK TRIMPLOG LISTING
FILEDEF TRMPRT01 DISK TRIMREP1 LISTING
FILEDEF TRMPRT02 DISK TRIMREP2 LISTING
FILEDEF TRMPRT03 DISK TRIMREP3 LISTING
.
.   CONTINUE PRINT LINES AS NEEDED
.
FILEDEF TRMOUT01 DISK TRIMOUT1 OUTPUT A4 (RECFM VB BLOCK 10000
FILEDEF TRMOUT02 DISK TRIMOUT2 OUTPUT A4 (RECFM VB BLOCK 10000
.
.   CONTINUE OUTPUT LINES AS NEEDED
.
FILEDEF TFD00001 DISK FDT001 ADAWAN *
FILEDEF TFD12345 DISK FDT12345 ADAWAN *
.
.   CONTINUE FDT LINES AS NEEDED
.
FILEDEF TRMPARM DISK PPLOG TRMPARM *
CP SPOOL PRINTER CONT
TRIM
CP CLOSE PRINTER NAME TRIMPLOG LISTING
CP SPOOL PRINTER NOCONT CLOSE

```

The PPLOG TRMPARM file must contain the TRIM parameters to use with this execution. These parameters are discussed in **Section V Log Analysis Parameter Statements** of the **TRIM Reference Manual** and sample parameters may be found in **Appendix H Sample Protection Log Analysis Input Parameters and Reports** of the **TRIM Reference Manual**.

Sample VM EXEC for a User-Exit-1 Communication Run

(refer to source library member JVMUX1)

```
&TRACE ON
*
*           VM/CMS EXEC FOR USER-EXIT-1 COMMUNICATION RUN
*
FILEDEF TRMPRT00 DISK TRIMUEX1 LISTING
FILEDEF TRMPARM  DISK PUX1 TRMPARM *
FILEDEF DDCARD  DISK PINSTA TRMPARM *
TRIM
```

The PUX1 TRMPARM file must contain the UEX1 statement and associated parameters to use with the User-Exit-1 Communication run. These parameters are discussed in **Section III.2 Using Dynamic Control and Security** of the *TRIM Reference Manual*.

Sample VM EXEC for a User-Exit-4 Communication Run

(refer to source library member JVMUX4)

```
&TRACE ON
*
*           VM/CMS EXEC FOR USER-EXIT-4 COMMUNICATION RUN
*
FILEDEF      TRMPRT00          DISK TRIMUEX4 LISTING
FILEDEF      TRMPARM DISK PUX4 TRMPARM *
FILEDEF      DDCARD  DISK PINSTA TRMPARM *
TRIM
```

The PUX4 TRMPARM file must contain the UEX4 statement and associated parameters to use with the User-Exit-4 Communication run. These parameters are discussed in **Section III.2 Using Dynamic Logging Facility** of the *TRIM Reference Manual*.

V.9.4 Siemens**Sample Siemens JCL for a Command Log Analysis, PRESUM Run or TRELOG Run**

```

/ PROC      C
/ REMARK
/ REMARK      Sample BS2000 procedure for a
/ REMARK      Command Log Analysis, PRESUM Run, or TRELOG Run
/ REMARK
/ SYSFILE   SYSDTA=(SYSCMD)
/ EXEC      (SYSIPT,TRIMV761,LMSLIB)                                (1)

                        (TRIM UEX4 and LOG parameters)                (2)

/ FILE      #IPT,LINK=TRMPARM
/ FILE      ADABASVx.CLOG,LINK=TRMACLOG,BLKSIZE=                    (3)
/ REMARK
/ FILE      TTT,LINK=TRMPRT00
/ FILE      UUU,LINK=TRMPRT01
/ FILE      VVV,LINK=TRMPRT02
/ FILE      WWW,LINK=TRMPRT03
/ REMARK
/ FILE      XXX,LINK=TRMOUT01
/ FILE      YYY,LINK=TRMOUT02
/ REMARK
/ EXEC      (TRIM,TRIMVyyy.LMSLIB)
/ ENDP

```

NOTES:

- (1) SYSIPT constructs a temporary file containing the TRIM parameters.
- (2) TRIM parameters are discussed in **Section VI Log Analysis Parameter Statements** of the **TRIM Reference Manual** and Sample parameters may be found in the report related appendices in the **TRIM Reference Manual**.
- (3) Supply appropriate ADABAS version library.

Sample Siemens JCL for a Protection Log Run

```

/ PROC      C
/ REMARK
/ REMARK      Sample BS2000 procedure for a
/ REMARK      Protection Log Analysis Run
/ REMARK
/ FILE      ADABASVx.PLOG,LINK=TRMAPLOG,BLKSIZE=                    (1)
/ FILE      ADABASVx.FDT001,LINK=TFD00001                          (1)
/ FILE      ADABASVx.FDT12345,LINK=TFD12345                        (1)
/ REMARK
/ FILE      TTT,LINK=TRMPRT00
/ FILE      UUU,LINK=TRMPRT01
/ FILE      VVV,LINK=TRMPRT02
/ FILE      WWW,LINK=TRMPRT03
/ REMARK
/ FILE      XXX,LINK=TRMOUT01
/ FILE      YYY,LINK=TRMOUT02
/ REMARK
/ EXEC      (TRIM,TRIMV761.LMSLIB)                                (1)
/ ENDP

```

NOTES:

- (1) Supply appropriate ADABAS version library.
- (2) TRIM parameters are discussed in **Section VI Log Analysis Parameter Statements** of the **TRIM Reference Manual** and sample parameters may be found in **Appendix H: Sample Protection Log Analysis Input Parameters and Reports** of the **TRIM Reference Manual**.

Sample Siemens JCL for a User-Exit-1 Communication Run

```

/ PROC      C
/ REMARK
/ REMARK      Sample BS2000 procedure for a
/ REMARK      User-Exit-1 Communication Run
/ REMARK
/ FILE      YYY, LINK=TRMPARM          TRIM parameters          (1)
/ FILE      ZZZ, LINK=TRMPRT00
/ SYSFILE   TASKLIB=ADA.Vx.MOD          (2)
/ SYSFILE   SYSDDTA=(SYSCMD)
/ EXEC      (TRIM, TRIMV761.LMSLIB)
ADARUN .... (ADARUN parameter as supplied for any batch ADABAS job)
/ ENDP

```

NOTES:

- (1) TRIM parameters are discussed in **Section III.2 Using Dynamic Control and Security** of the **TRIM Reference Manual**.
- (2) Supply appropriate ADABAS version library

Sample Siemens JCL for a User-Exit-4 Communication Run

```

/ PROC      C
/ REMARK
/ REMARK      Sample BS2000 procedure for a
/ REMARK      User-Exit-4 Communication Run
/ REMARK
/ FILE      YYY, LINK=TRMPARM          TRIM parameters          (1)
/ FILE      ZZZ, LINK=TRMPRT00
/ SYSFILE   TASKLIB=ADA.Vx.MOD          (2)
/ SYSFILE   SYSDDTA=(SYSCMD)
/ EXEC      (TRIM, TRIMV761.LMSLIB)
ADARUN .... (ADARUN parameter as supplied for any batch ADABAS job)
/ ENDP

```

NOTES:

- (1) TRIM parameters are discussed in **Section III.2 Using Dynamic Logging Facility** of the **TRIM Reference Manual**.
- (2) Supply appropriate ADABAS version library.

Sample TRIMRUN DDCARD to use with the User-Exit-1 and User-Exit-4 Communication Runs:

```

ADARUN DATABASE=001          (1)
ADARUN DEVICE=3380
ADARUN MODE=MULTI

```

NOTE:

- (1) This must identify the database intended for the User-exit Communication.

V.10 Batch TNM Administration Functions

Note: All TNM Batch jobs should be executed using Delimiter Mode.

All TNM Administration functions that are available on-line are also available in batch, with the exception of the Define Data Collection Parameters function. Executing Administration functions in batch is recommended when functions access large amounts of data.

TNM includes a collection of NATURAL programs that perform various administrative and reporting functions:

- Defining (updating) data collection parameters to determine which statistics are to be collected for which users and programs, etc.
- Converting (expanding) the compressed statistics on the TNM file for reporting purposes.
- Purging (deleting) obsolete data from the TNM file.

These functions can be performed on-line or in batch (with the exception of the Define Data Collection Parameters function) and are password-controlled to prevent unauthorized use.

When performing a TNM Administration function in batch, it is necessary to replace #PROGRAM in the sample JCL/EXEC with the Administration function to be executed and to replace #CONTROL with the Administration function parameters in the exact order described, separated by the delimiter character (the default is comma). Optional parameters (or parameters used by other functions with the same #PROGRAM), which are omitted, must be designated with the delimiter character if other parameters follow. The standard format is as follows:

Password, Menu code, Parameters

Multiple Administration functions may be run in the same job stream.

Note: In the following Batch Administration functions, the password is the default TRIMTRIM, and menu codes are the codes that identify Administration functions on menu screens.

OS

The following JCL is an example used to support Batch Administration functions for OS. This JCL must be tailored to accommodate site-specific needs.

```
//TNMBATCH JOB(20000),'TNM BATCH ADMIN'
//*
//ADMIN      EXEC PGM=NAT
//CMPRINT    DD      SYSOUT=*
//CMPRT01    DD      SYSOUT=*
//CMSYNIN    DD      *
LOGON TRMVxxx
#PROGRAM
#CONTROL
FIN
/*
//
```

VSE

The following JCL is an example used to support Batch Administration functions for VSE. This JCL must be tailored to accommodate site-specific needs.

```
//JOB
//EXEC NATXXX,...
LOGON TRMVxxx
#PROGRAM
#CONTROL
FIN
/*
//
```

VM

The following EXEC is an example of VM EXECs used to support the Batch Administration functions. This EXEC must be tailored to accommodate site-specific needs.

```
/*Execute TNM Batch Administration functions */
address 'COMMAND'
'ERASE TNM CMSYNIN A'

'EXECIO 1 DISKW TNM CMSYNIN A 1 F 80(String LOGON TRMVxxx'
'EXECIO 1 DISKW TNM CMSYNIN A 2 F 80(String #PROGRAM'
'EXECIO 1 DISKW TNM CMSYNIN A 3 F 80(String #CONTROL'
'EXECIO 1 DISKW TNM CMSYNIN A 4 F 80(String FIN'

'FILEDEF * CLEAR'
'FILEDEF CMSYNIN DISK TNM CMSYNIN A'
'FILEDEF CMPRINT PRINTER'
'FILEDEF CMPRT01 PRINTER'
'EXEC NAT BATCH'

'ERASE TNM CMSYNIN A'
exit
```


V.10.1 Convert TNM Detail Data

#PROGRAM TNMBCONV is used for the Convert Detail Data function. There are no required parameters for this function. However, a User-ID may optionally be specified to convert data belonging to that User-ID only. If a User-ID is not specified, the optional parameter must be designated with the delimiter character.

The Convert Detail Data function expands Detail data records, allowing Detail data to be included in Detail reports. If no User-ID is entered, records for all User-IDs are converted. The standard format is as follows:

```
#PROGRAM:      TNMBCONV
#CONTROL:      Password,User-ID
```

#CONTROL	DESCRIPTION
PASSWORD (required)	Password to access TNM Administration functions.
USER-ID (optional)	Converts detail data for the specified User-ID.

Example:

```
#PROGRAM:      TNMBCONV
#CONTROL:      TRIMTRIM,USER24
```

Note: The session for which you are doing a conversion must have ended in order to flush all buffers before running a batch conversion.

V.10.2 Purge TNM Program Summary Data

#PROGRAM TNMBPPS is used for the following functions: Purge Program Summary Data By Date, Purge Program Summary Data By Days, and Purge Program Summary Data By Library. The standard format is as follows:

#PROGRAM: TNMBPPS
 #CONTROL: Password,Menu code,Date,Days of retention,Library,Starting program,Ending program

Required parameters for the selected function must be specified. Optional parameters not specified and parameters for the other functions must be designated with the delimiter character, and spaces must not be included.

#CONTROL	DESCRIPTION
PASSWORD (required)	Password to access TNM Administration functions.
MENU CODE (required)	Code used to access function (A, B, or C).
DATE (required for Purge Program Summary Data By Date only)	Deletes program summary data collected on or before the specified date.
DAYS OF RETENTION (required for Purge Program Summary Data By Date only)	Deletes program summary data collected prior to number of days specified to be retained.
LIBRARY (required for Purge Program Summary Data By Library only)	Deletes program summary data belonging to the specified library.
STARTING PROGRAM (optional)	Deletes program summary data starting with the specified program.
ENDING PROGRAM (optional)	Deletes program summary data ending with the specified program.

Purge Program Summary Data By Date

The Purge Program Summary Data By Date function allows users to delete all Program Summary data collected on or before a specified date.

Example:

#PROGRAM: TNMBPPS
 #CONTROL: TRIMTRIM,A,20011231,,,

Purge Program Summary Data By Days

The Purge Program Summary Data By Days function allows users to delete Program Summary data based on the number of days that Program Summary data is to be retained. (For example, if the default value of 7 days is used, data collected within the past 7 days will be retained. All other data will be deleted.)

Example:

```
#PROGRAM:          TNMBPPS
#CONTROL:          TRIMTRIM,B,,21,,,
```

Purge Program Summary Data By Library

The Purge Program Summary Data By Library function allows users to delete Program Summary data belonging to a specified library. A library must be entered, and a starting program and/or an ending program may optionally be entered to limit the deletion of Program Summary data.

Example:

```
#PROGRAM:          TNMBPPS
#CONTROL:          TRIMTRIM,C,,,PAYROLL,PAYIN,PAYOUT
```

II.10.3 Purge TNM User Summary Data

#PROGRAM TNMBPUS is used for the following functions: Purge User Summary Data By Date, Purge User Summary Data By Days, and Purge User Summary Data By User-ID. The standard format is as follows:

#PROGRAM: TNMBPUS
 #CONTROL: Password,Menu code,Date,Days of retention,User-ID

Required parameters for the selected function must be specified. Optional parameters not specified and parameters for the other functions must be designated with the delimiter character, and spaces must not be used.

#CONTROL	DESCRIPTION
PASSWORD (required)	Password to access TNM Administration functions.
MENU CODE (required)	Code used to access function (D, E, or F).
DATE (required for Purge User Summary Data By Date only)	Deletes user summary data collected on or before the specified date.
DAYS OF RETENTION (required for Purge User Summary Data By Date only)	Deletes user summary data collected prior to number of days specified to be retained.
USER-ID (required for Purge User Data By User-ID only)	Deletes user summary data belonging to a specified user-ID.

Purge User Summary Data By Date

The Purge User Summary Data By Date function allows users to delete User Summary data collected on or before a specified date.

Example:

#PROGRAM: TNMBPUS
 #CONTROL: TRIMTRIM,D,20011231,,

Purge User Summary Data By Days

The Purge User Summary Data By Days function allows users to delete User Summary data based on the number of days the User Summary data is to be retained. (For example, if the default value of 7 days is used, data collected within the past 7 days will be retained. All other data will be deleted.)

Example:

#PROGRAM: TNMBPUS
#CONTROL: TRIMTRIM,E,,14,

Purge User Summary Data By User-ID

The Purge User Summary Data By User-ID function allows users to delete User Summary data belonging to a specified User-ID.

Example:

#PROGRAM: TNMBPUS
#CONTROL: TRIMTRIM,F,,,USER24

II.10.4 Purge TNM Detail Data

#PROGRAM TNMBPEV is used for the following functions: Purge Detail Data By Hour and Purge Detail Data By Library. The standard format is as follows:

#PROGRAM: TNMBPEV
 #CONTROL: Password,Menu code,Hours of retention,Library,Starting program,Ending program

Required parameters for the selected function must be specified. Optional parameters not specified and parameters for the other functions must be designated with the delimiter character, and spaces must not be used.

#CONTROL	DESCRIPTION
PASSWORD (required)	Password to access TNM Administration functions.
MENU CODE (required)	Code used to access function (A or B).
HOURS OF RETENTION (required for Purge Detail Summary Data By Date only)	Deletes detail summary data collected prior to number of hours specified to be retained.
LIBRARY (required for Purge Detail Summary Data By Library only)	Deletes detail summary data belonging to the specified library.
STARTING PROGRAM (optional)	Deletes detail summary data starting with the specified program.
ENDING PROGRAM (optional)	Deletes detail summary data ending with the specified program.

Purge Detail Data By Hour

The Purge Detail Data By Hour function allows users to delete Detail data based on the number of hours the Detail data is to be retained.

Example:

#PROGRAM: TNMBPEV
 #CONTROL: TRIMTRIM,A,168,,,

Purge Detail Data By Library

The Purge Detail Data By Library function allows users to delete Detail data belonging to a specified library. A library must be entered, and a starting program and/or an ending program may optionally be entered to limit the deletion of Detail data.

Example:

#PROGRAM: TNMBPEV
 #CONTROL: TRIMTRIM,B,,PAYROLL,PAYIN,PAYOUT

II.10.5 Purge TNM Non-Converted Data

#PROGRAM TNMBPNC is used for the following functions: Purge Non-converted Data By Date, Purge Non-converted Data By Days, and Purge Non-converted Data By User-ID. The standard format is as follows:

#PROGRAM: TNMBPNC
 #CONTROL: Password,Menu code,Date,Days of retention,User-ID

Required parameters for the selected function must be specified. Optional parameters not specified and parameters for the other functions must be designated with the delimiter character, and spaces must not be used.

#CONTROL	DESCRIPTION
PASSWORD (required)	Password to access TNM Administration functions.
MENU CODE (required)	Code used to access function (C, D, or E).
DATE (required for Purge Non-converted Summary Data By Date only)	Deletes non-converted summary data collected on or before the specified date.
DAYS OF RETENTION (required for Purge Non-converted Summary Data By Date only)	Deletes non-converted summary data collected prior to number of days specified to be retained.
USER-ID (required for Purge Non-converted Data By User-ID only)	Deletes non-converted summary data belonging to a specified user-ID.

Purge Non-Converted Data By Date

The Purge Non-converted Data By Date function allows users to delete all non-converted data collected on or before a specified date.

Example:

#PROGRAM: TNMBPNC
 #CONTROL: TRIMTRIM,C,20011231,,

Purge Non-Converted Data By Days

The Purge Non-converted Data By Days function allows users to delete non-converted data based on the number of days the non-converted data is to be retained. (For example, if the default value of 7 days is used, data collected within the past 7 days will be retained. All other data will be deleted.)

Example:

```
#PROGRAM:          TNMBPNC
#CONTROL:          TRIMTRIM,D,,14,
```

Purge Non-Converted Data By User-ID

The Purge Non-converted Data By User-ID function allows users to delete non-converted data belonging to a specified User-ID.

Example:

```
#PROGRAM:          TNMBPNC
#CONTROL:          TRIMTRIM,E,,,USER24
```


V.11 Storage Requirements

The storage requirements for running TRIM Batch Command Log facilities vary. TRIM may be run in approximately 200K bytes of real memory, if it only has to produce detail reports and a few simple summary reports. More virtual storage is required when TRIM is expected to produce several complex summary reports. This is because summary report figures are all maintained in memory until the end of the input has been reached. Then the figures are formatted and printed on the various reports.

Excessive storage requirements may be caused by any of the following summary report conditions:

- The CONTROL field(s) cause excessive numbers of figures to be maintained. For example, a summary report by COMMAND would yield about 30 sets of figures (because there are about 30 different ADABAS Commands), by FILE possibly 65,535 sets of figures, and by COMMAND within FILE possibly 1,966,050 sets of figures.
- The number of summary calculations may cause excessive numbers of figures to be maintained. For example, calculating the SUM, MAXIMUM, MINIMUM, and AVERAGE of CPUTIME, ASSOIO, DATAIO, and WORKIO requires 16 "accumulators". Assuming 4 bytes per accumulator for each of 16 calculations for each of 1,966,050 sets of figures (COMMAND within FILE), 31,456,800 bytes of storage would be required.

The user should carefully choose the CONTROL fields and summary calculations for the several summary reports typically required.

Furthermore, the user may choose to INCLUDE or EXCLUDE certain records for certain reports or to run only a subset of all log records in any one TRIM execution. A further option may be to OUTPUT certain detail log records to a sequential dataset for later extensive summary calculations in a separate TRIM run or through COBOL or NATURAL programs.

TRIM Batch may now be run above the 16MB line (in OS/390 and VM environments). This will relax the virtual storage constraints that exist below the 16MB line.

In the unlikely event that TRIM runs out of available storage after processing many log records, TRIM will not ABEND. Instead, TRIM will print all summary calculations accumulated to that point, zero its accumulators, and continue processing uninterrupted. The user will notice all reports are in two (or more) parts. The user should modify the TRIM parameters or increase the storage for future TRIM runs.

A TRIM Protection Log Analysis Run usually will require less than 200K because there are few, if any, summary reports worth obtaining from the Protection Log.

A TRIM User-Exit-1 or User-Exit-4 Communication Run (batch run) requires less than 200K bytes of real memory.

V.12 Processing Time Requirements

The amount of CPU time required for any TRIM Command Log analysis or PRESUM execution is widely variable and depends upon a number of factors, primarily the following:

- CPU model
- Number of input log records
- Size of input log records
- Number of input records INCLUDED in reports
- Number of user defined FIELD and VALUE statements
- Number of summary reports and their complexity (number of CONTROL and summary calculation fields).

Significant improvement in processing time (sometimes by a factor of 100 or more) may be experienced if PRESUM records are used for resource statistics, rather than using thousands or millions of Detail Log records.

TRIM Protection Log processing execution time figures are not currently available.

A TRIM User-exit Communication Run usually takes less than one second.

V.13 Limits and Restrictions

TRIM 7.6.1 can only be used with ADABAS 7.4.2 CLOGs and PLOGs.

Every effort has been made to minimize the restrictions and keep TRIM limits well beyond commonly reached levels.

The number of input log records is unlimited.

The number of output log records and report print lines is unlimited.

The number of detail reports is limited to 99 for OS and VM, and 5 for VSE. A typical TRIM run may require two to three detail reports.

The number of summary reports is unlimited (within storage constraints). A typical TRIM run may require one to five summary reports.

Each OS and VM report line size may be set to a minimum of 72 characters and a maximum of 4000 characters, with 133 being the most typical line size. POWER and VSE considerations limit report line size to 121. The page size may be set to a minimum of 10 lines and an unlimited maximum, with 55 being the most typical page size.

The number of fields that may be stated on a detail report DISPLAY statement is 50, with 8 to 10 being typical. Fields may be stated more than once.

The number of fields that may be stated on a summary report CONTROL statement is 10. This means 10 control levels. One to three control levels are most typical.

The number of "list" values within parentheses for each INCLUDE, EXCLUDE, VALUE, or LOG statement is 10. For example: INCLUDE COMMAND=(A1,A4,E1,E4,N1,N2) has 6 list values. Multiple INCLUDE, EXCLUDE, VALUE, LOG, ALLOW/DISALLOW, LOCK/UNLOCK, PASS/FAIL, and SETPW statements are permitted, which nearly eliminates this restriction.

Summary calculations are limited to 18 decimal digit values. Command Log Detail, PRESUM Records, and TRELOG Records contain no numeric fields larger than 4 bytes binary. Therefore, the largest summary calculation, SUM, for 10 million log records could not reach 18 decimal digits.

The number of "derived" fields the user may state via the FIELD parameter statements is limited to 40. Each field may have a stated length of a maximum of 16 characters (format = 'C' or 'H') or a maximum of 4 bytes (format = 'B'). Each field may have an unlimited (within storage constraints) number of potential values (VALUE statement).

The number of output sequential datasets (OUTPUT Statement) is limited to 99 for OS and VM, and 5 for VSE (5 tape and/or disk outputs). VSE outputs may be placed together, eliminating any real restrictions.

The five VSE output datasets are:

- SYS011 (tape), or SYS013 (disk)
- SYS021 (tape), or SYS023 (disk)
- SYS031 (tape), or SYS033 (disk)
- SYS041 (tape), or SYS043 (disk)
- SYS051 (tape), or SYS053 (disk)

A mixture of tape and disk output may be specified for VSE. However, if SYS011 is being used, for example, then SYS013 cannot be used. The number of LOG and LOGxx statements allowed for Dynamic Logging is 30 to 50, depending upon their complexity.

The total number of ALLOW/DISALLOW, LOCK/UNLOCK, PASS/FAIL, and SETPW statements allowed for Dynamic Control and Security is 30 to 50, depending upon their complexity.

ADABAS commands that receive certain response codes are not logged on the ADABAS Command Log. These include some response codes from the ADABAS Link Routines and SVC, which usually have to do with queue overflows. ADABAS itself never "sees" these commands, therefore they are not logged and not viewable on-line via TRIM.

Protection Log SHOWn (SHOW statement) fields are limited by a 10K byte output area into which the SHOWn fields are decompressed. The maximum number of fields that may be stated on one statement is 100. Multiple SHOW statements for the same file may be stated on one report. This causes a concatenation of the fields on the report and output, practically eliminating any real restriction on the number of fields.

To avoid filling up the TRIM collection tables with its own internal commands and to avoid excessive TNM data collection, any commands from any TRMV* library will not be accumulated. If the RTM modules are moved to a non-TRMV* library, the TNM file and the user-exit collection tables will fill up faster.

<p>Note: TNM Detail collection in production environments may cause excessive data to be calculated and the TNM file could become full. Therefore, extensive detail collection in production environments is not recommended.</p>
--

SECTION VI

TAILORING WITH ZAPS

VI.1 Tailoring User-Exit-4

Tailoring of User-Exit-4 may be accomplished by several simple Zaps.

Optional start-up and Time Adjustable Parameters (TAP) may be generated using a supplied macro, TRMTAP. Refer to the Time Adjustable Parameters section.

By using the Real-Time Monitor Control Screens, any and all of these start-up and hourly adjustment settings may be adjusted. These Zaps affect the accumulations done in User-Exit-4, the resulting logging volume, the operation of the Real-Time Monitor, and the Nucleus Session Statistics.

Some options are modifiable only by the application of a Zap. These options are **not** modifiable via TRMTAP or Real-Time Monitor Control Screens. These options are so indicated in the list that follows.

The following Zaps are for Module (PHASE) TRMUEX4, CSECT CODECS:

RTM Control Screen Password

Location: X'14'

Default: 'E3D9C9D4E3D9C9D4' (TRIMTRIM)

Options:

- Should be zapped to a DBA desired password value. This password will be required when the DBA or other authorized user desires to view or modify certain critical RTM information.

Detail Logging

Location: X'1C'

Default: X'00'

Options:

- X'00': Do not log detail records unless/until instructed otherwise.
- X'FF': Log all detail records unless/until instructed otherwise.

PRESUM

Location: X'1D'

Default: X'00' (all below deactivated)

Options:

- X'00': All below deactivated.
- X'01': Activate accumulation for Thread.
- X'02': Activate accumulation for File Number.
- X'04': Activate accumulation for Command Code.
- X'08': Activate accumulation for Response Code.
- X'10': Activate accumulation for Program.
- X'20': Activate accumulation for Job.
- X'40': Activate accumulation for User-ID.
- X'FF': Activate all accumulations.

Location: X'1E'

Default: X'00' (all below deactivated)

Options:

- X'00': All below deactivated.
- X'04': Activate accumulation for Security-ID.
- X'08': Activate accumulation for CICS Transaction-ID.
- X'10': Activate accumulation for NATURAL Application Library.
- X'20': Activate accumulation for NATURAL Security User-ID.
- X'40': Activate accumulation for Control Block User-Area.
- X'80': Activate accumulation for Special PRESUM.
- X'FF': Activate all accumulations.

Minute Accumulations

Location: X'1F'

Default: X'FF' (all below activated)

Options:

- X'00': All below deactivated.
- X'01': Activate accumulation for Thread.
- X'02': Activate accumulation for File Number.
- X'04': Activate accumulation for Command Code.
- X'08': Activate accumulation for Response Code.
- X'10': Activate accumulation for Program.
- X'20': Activate accumulation for Job.
- X'40': Activate accumulation for User-ID.
- X'FF': Activate all accumulations.

Location: X'20'

Default: X'00' (all below deactivated)

Options:

- X'00': All below deactivated.
- X'04': Activate accumulation for Security-ID.
- X'08': Activate accumulation for CICS Transaction-ID.
- X'10': Activate accumulation for NATURAL Application Library.
- X'20': Activate accumulation for NATURAL Security User-ID.
- X'40': Activate accumulation for Control Block User-Area.
- X'FF': Activate all accumulations.

Hourly Accumulations

Location: X'21'

Default: X'FF' (all below activated)

Options:

- X'00': All below deactivated.
- X'01': Activate accumulation for Thread.
- X'02': Activate accumulation for File Number.
- X'04': Activate accumulation for Command Code.
- X'08': Activate accumulation for Response Code.
- X'10': Activate accumulation for Program.
- X'20': Activate accumulation for Job.
- X'40': Activate accumulation for User-ID.
- X'FF': Activate all accumulations.

Location: X'22'

Default: X'00' (all below deactivated)

Options:

- X'00': All below deactivated.
- X'04': Activate accumulation for Security-ID.
- X'08': Activate accumulation for CICS Transaction-ID.
- X'10': Activate accumulation for NATURAL Application Library.
- X'20': Activate accumulation for NATURAL Security User-ID.
- X'40': Activate accumulation for Control Block User-Area.
- X'FF': Activate all accumulations.

Session Accumulations

Location: X'23'

Default: X'FF' (all below activated)

Options:

- X'00': All below deactivated.
- X'01': Activate accumulation for Thread.
- X'02': Activate accumulation for File Number.
- X'04': Activate accumulation for Command Code.
- X'08': Activate accumulation for Response Code.
- X'10': Activate accumulation for Program.
- X'20': Activate accumulation for Job.
- X'40': Activate accumulation for User-ID.
- X'80': Activate accumulation for Command with File.
- X'FF': Activate all accumulations.

Location: X'24'

Default: X'00' (all below deactivated)

Options:

- X'00': All below deactivated.
- X'04': Activate accumulation for Security-ID.
- X'08': Activate accumulation for CICS Transaction-ID.
- X'10': Activate accumulation for NATURAL Application Library.
- X'20': Activate accumulation for NATURAL Security User-ID.
- X'40': Activate accumulation for Control Block User-Area.
- X'FF': Activate all accumulations.

Print Session Statistics

Location: X'25'

Default: X'FF'

Options:

- X'00': Do not print session statistics.
- X'FF': Print only at end of session.
- A number (1, 2, 3, 4, 6, 8, 12, 24) indicates the number of times to print and clear the session statistics in a 24-hour period. The number must be expressed as a hex value, and must be evenly divisible into 24.

Print Sequence

Location: X'26'

Default: X'C3' (C)

Options:

- X'C3' (C): Print session statistics in ascending sequence by Category, such as FNR, JOB, etc.
- X'C6' (F): Print session statistics in descending sequence by Frequency, so that the most used FNR, JOB, etc. is displayed first.
- X'C2' (B): Print session statistics Both by category, then by frequency.

Crunch

Location: X'27'

Default: X'40' (Blank)

Options:

- X'40' (blank): Non-crunch mode for detail log records.
- X'C3' (C): Crunch mode for detail log records.

Location: X'28' (no longer used)

Zero FNR

Location: X'29'

Default: X'00'

Options:

- X'00': Do not adjust the FNR in the log record for any commands. Often the FNR field remains a "valid" and reasonable value, left over from a previous call from the user program (a common occurrence in NATURAL programs). For example, if there is an L3 on file 89, it may be followed by an RC (on file 89). In actuality, the RC has nothing to do with a particular file (in ADABAS). However, the RC has more to do with file 89 than it has to do with file 0 in terms of statistics gathering. Therefore, the user may desire to leave the FNR field unchanged to gather meaningful statistics.
- Non-zero: Change the FNR to zero in the log record for certain commands, such as RC, BT, OP, CL, ET, etc. These commands will operate correctly in ADABAS with or without a "valid" file number (i.e., ADABAS ignores the file number). Non-NATURAL applications tend to properly zero or blank (hex '40') the FNR field before calling ADABAS. NATURAL applications tend not to zero the FNR field. Statistics may show, for example, many RC commands against file 64. This may not be disconcerting unless the site has no file 64, in which case the above mentioned blanking of the FNR must have taken place. To get statistics to appear to be correct, the user may prefer to have the FNR field changed to zero.

Note: 2-byte file numbers containing blanks (hex '4040') will appear as file 16448.

User-ID and User-Area in Character or Hex

Location: X'2A'

Default: X'C8' (H)

Options:

- X'C8'(H): Display the User-ID and User-Area of the Control lock in hexadecimal on all screens.
- X'C3' (C): Display the User-ID and User-Area as four characters on all screens.

Sort Sequence

Location: X'2B'

Default: X'C3' (C)

Options:

- X'C3' (C): Display screen figures in ascending sequence by Category, such as FNR, JOB, etc.
- X'C6'(F): Display screen figures in descending sequence by Frequency, so that the most used FNR, JOB, etc. is displayed at the top of each screen.

STOP/TERMINATE

Location: X'2C'

Default: X'E2' (S)

Options:

- X'E2'(S): Execute a NATURAL STOP statement upon completion of the Real-Time Monitor. This will return the NEXT prompt.
- X'E3'(T): Execute a NATURAL TERMINATE statement upon completion of the Real-Time Monitor. This will exit NATURAL.

Password Retention

Location: X'2D'

Default: X'D5' (N)

Options:

- X'D5'(N): Suppress (zero out) the Additions-3 (password) field on all detail log records.
- X'E8'(Y): Retain the Additions-3 (password) field on all detail log records.
- X'E5'(V): Retain the Additions-3 (password) field only for detail log records that show Response Codes 200-203 (password violations).

Refer to Note for Zap switch at Location X'3C'.

TRIM Idle Mode

Location: X'2E'

Default: X'00' TRIM Active

Options:

- X'00': TRIM is active and will function as defined by TRMTAP, TRMLOG, TRMRSP, and Zap settings.
- X'FE': TRIM is idle and will not accumulate statistics but will process User-Exit-B information. For more information, refer to **Section IX Idle Mode** of the *TRIM Reference Manual*.
- X'FF': TRIM is idle and will not accumulate statistics. For more information, refer to **Section IX Idle Mode** of the *TRIM Reference Manual*.

Location: X'2F' (no longer used)

Trace

Location: X'30'

Default: X'E8' (Y)

Options:

- X'E8' (Y): Make the Trace function available.
- X'D5' (N): Do not make the Trace function available.

High Use and High Duration

Location: X'31'

Default: X'E8' (Y)

Options:

- X'E8' (Y): High Use statistics and Long Duration Commands are kept.
- X'D5' (N): High Use statistics and Long Duration Commands are not kept.

Alternate User-ID

Location: X'32'

Default: X'E8' (Y)

Options:

- X'E8' (Y): Display CICS or COM-LETE Term-ID, when available, for most references to Internal User-ID (referred to as UIDALT).
- X'D5' (N): Always display ADABAS User-ID for Internal User-ID.

Display All User Queue Entries

Location: X'33'

Default: X'D5' (N)

Options:

- X'E8' (Y): Display all User Queue entries, even those that appear to be inactive.
- X'D5' (N): Do not display inactive entries.

Display STCK Sequence Error

Location: X'34'

Default: X'E8' (Y)

Options:

- X'E8' (Y): Display console warning message when Command Log STCK time is out of sequence.
- X'D5' (N): Ignore STCK time sequence error.

SECURITRE Violator Accumulations

Location: X'35'

Default: X'72' (all below activated)

Options:

- X'00': All below deactivated.
- X'02': Activate accumulation for File Number.
- X'10': Activate accumulation for Program.
- X'20': Activate accumulation for Job.
- X'40': Activate accumulation for User-ID.
- X'72': Activate all accumulations.

Location: X'36'

Default: X'14' (all below activated)

Options:

- X'00': All below deactivated.
- X'10': Activate accumulation for NATURAL Application Library.
- X'04': Activate accumulation for Security-ID.
- X'14': Activate all accumulations.

TRIM Usage Control through SECURITRE

Location: X'37'

Default: X'D5' (N)

Options:

- X'D5' (N): Do not control TRIM RTM functions via SECURITRE.
- X'E8' (Y): Control TRIM RTM functions via SECURITRE.

Location: X'38' (not currently used)

Use Command Queue Job Name

Location: X'39'

Default: X'C3'

Options:

- X'00' (J): Use Job Name as passed in the Command Log.
- X'C3' (C): Use Job Name from the Command Queue.
- X'E4' (U): Use Job Name from the USERINFO Area.

Clear Session Stats

Location: X'3A'

Default: X'FF'

Options:

- X'00': Do not clear Session Statistics.
- X'FF': Clear Session Statistics each time they are printed. Restart counts from zero.

Alternate for null NATPROG

Location: X'3B'

Default: X'00'

Options:

- X'00': Do not use an alternate for NATPROG.
- X'FF': Replace null NATPROG with COBOL or other program name (when available).

NATURAL Application Library & User-ID in Log

Location: X'3C'

Default: X'00'

Options:

- X'00': Do not pass NATURAL Application Library or NATURAL Security User-ID or Security-ID in the Command Log.
- X'FF': Pass the NATURAL Application Library and the NATURAL Security User-ID in the Command Log in the Additions-3 (Password) and Additions-4 (Cipher) fields, respectively.
- X'FE': Pass the NATURAL Application Library and NATURAL Security-ID in the Command Log in the Additions-3 (Password) and Additions-4 (Cipher) fields, respectively.

Note: Activation of this Zap byte and the External User-ID Zap byte simultaneously will result in passing the NATURAL Application Library in the Additions-3 (Password) field and External User-ID in the Additions-4 (Cipher) field.

Activation of this Zap byte and the Password Retention Zap byte simultaneously will result in retaining the Password in the Additions-3 (Password) field and passing the NATURAL Security User-ID in the Additions-4 (Cipher) field.

It is necessary to have LOGCB=YES for ADABAS and TRIM in order to get any of the fields in the Control Block portion of the Command Log.

External User-ID in Log

Location: X'3D'

Default: X'00'

Options:

- X'00': Do not move External User-ID to Command Log.
- X'FF': Move External User-ID to Additions-4 (Cipher) field of the Command Log.

Refer to Note for Zap switch at Location X'3C'.

NATURAL Program Name in Log

Location: X'3E'

Default: X'E8' (Y)

Options:

- X'E8' (Y): Pass the NATURAL Program Name in the RESERVED field in the Command Log.
- X'D5' (N): Do not pass the NATURAL Program Name in the Command Log.

CTI in Log

Location: X'3F'

Default: X'D5' (N)

Options:

- X'D5' (N): Do not move four bytes at CTI+4 (CICS Tran-ID portion of CTI field) to the User-Area of the Command Log.
- X'E8' (Y): Move four bytes at CTI+4 to the User-Area of the Command Log.

Response Code on LOCK

Location: X'40'

Default: X'0011' (decimal 17)

Options:

- Any reasonable Response Code value, such as x'0010' (decimal 16) or x'1111' (decimal 4369), which distinguishes TRIM-induced LOCKs from normal ADABAS Response Code 17 (Invalid File Number).

Response Code on DISALLOW

Location: X'42'

Default: X'0016' (decimal 22)

Options:

- Any reasonable Response Code value, such as x'00DF' (decimal 239) or x'2222' (decimal 8738), which distinguishes TRIM-induced DISALLOWs from normal ADABAS Response Code 22 (Invalid Command Code).

Response Code on FAIL

Location: X'44'

Default: X'00C8' (decimal 200)

Options:

- Any reasonable Response Code value, such as x'00DF' (decimal 239) or x'3333' (decimal 13107), which distinguishes TRIM-induced FAILs from normal ADABAS Response Code 200 (Password Violation).

tRelational Logging

Location: X'46'

Default: X'D5' (N)

Options:

- X'D5' (N): Do not activate tRelational logging
- X'E8' (Y): Activate tRelational logging

All of the Zap settings above are possible to macro-generate as start-up parameters and hourly adjustments (TRMTAP), as described in **Section VII.1 Time Adjustable Parameters**.

THE FOLLOWING OPTIONS ARE AVAILABLE ONLY AS ZAP SETTINGS:

PRESUM SMF Logging (OS only)

Location: X'50'

Default: X'C3' (C)

Options:

- X'C3' (C): Log PRESUM to the CLOG
- X'E2' (S): Log PRESUM to the SMF Log
- X'C2' (B): Log PRESUM to BOTH, SMF, and CLOG

Note: If the "S" or "B" option is chosen, the desired PRESUM SMF Record Type must be specified.

PRESUM SMF Record Type (OS only)

Location: X'51'

Default: X'98' (decimal 152)

Options:

- X'80' (decimal 128) to X'FF' (decimal 255)

Note: The next several bytes in TRMUEx4 are reserved for additional user-specific Zap settings. Users who have had special Zaps prepared for past TRIM versions are requested to call Treehouse Software Support for assistance in applying special Zaps. The locations of these special Zaps have increased.

VI.2 Tailoring User-Exit-B

There are several Zap switches available in TRIM User-Exit-Bs. These are listed below for each User-Exit-B:

TRMUEXBB (Batch/TSO)**Transfer to UEXITBU**

Location: X'B8'

Default: X'00'

Options:

- X'00': Do not transfer control to UEXITBU when the ADABAS call parameter list is invalid or the USERINFO area is set up improperly.
- X'FF': Transfer control to UEXITBU in any case.

ACEE Variable Length Security-ID

Location: X'B9' (OS only)

Default: X'00'

Options:

- X'00': Try to get to ACEE variable length Security-ID.
- X'FF': Get the Security-ID from ASXB.

Program Name

Location: X'BA' (OS only)

Default: X'00'

Options:

- X'00': Obtain Program Name from Job Step in Batch, Task in TSO.
- X'01': Obtain Program Name from Active Task in Batch and TSO.
- X'02': Obtain Program Name from Job Step in Batch, PRB in TSO.
- X'03': Obtain Program Name from Current PRB in Batch and TSO.

Attempt to Locate NATURAL Information without TRMMODC and TRMMODD Installed

Location: X'BB'

Default: X'00'

Options:

- X'00': If NATURAL information is not located with the help of TRMMODD, try to find it another way.
- X'FF': Only get NATURAL information with the help of TRMMODD.

Slow Down Batch

Location: X'BC'

Default: X'00'

Options:

- X'00': Do not Slow Down Batch.
- X'FF': Slow Down Batch with parameters as shown in Zap bytes below.

Set Batch IDLE

Location: X'BD'

Default: X'00'

Options:

- X'00': Do not run Batch in IDLE mode.
- X'FF': Run Batch IDLE. The user info processing will be omitted.

Locations: X'BE', X'BF' (not currently used)

Slow Down Batch nnnn Milliseconds

Location: X'C0'

Default: X'000003E8' (decimal 1000 = 1 second)

Options:

- Any reasonable value of milliseconds of wait time.

Slow Down Batch Every nnnn Calls

Location: X'C4'

Default: X'00000064' (decimal 100)

Options:

- Any reasonable value for number of calls to ignore before doing the wait.

Slow Down Batch Starting Hour

Location: X'CC'

Default: X'0007' (decimal 7)

Options:

- Starting hour (0-23) for waiting to take effect.

Slow Down Batch Ending Hour

Location: X'CE'

Default: X'0010' (decimal 16)

Options:

- Ending hour (0-23) for waiting to have an effect.

Note: The four Zaps above have the following meaning:

During prime time hours 7-16, slow down the batch job by one second every 100 calls. This slow down applies to the batch job(s) for which this ADALNx/TRMUExBB is used.

The four Zap values for Slow Down take effect only when the Zap byte at location X'BC' indicates Batch Slow Down is to be in effect and is not overridden by TRMSLO. TRMUExBB recognizes commands from TSO environments and does not slow these down. TRMUExBB does not recognize IMS, FOCNET, etc. Therefore, Batch Slow Down should not be activated via Zap switches for ADALNx/TRMUExBB in these environments.

Transfer to UEXITBU

Location: X'B8'

Default: X'00'

Options:

- X'00': Do not transfer control to UEXITBU when the ADABAS call parameter list is invalid or the USERINFO area is set up improperly.
- X'FF': Transfer control to UEXITBU in any case.

Bypass ASSIGN

Location: X'B9'

Default: X'E8' (Y)

Options:

- X'D5' (N): Do not execute CICS ASSIGN to obtain user-ID, opid, and program name for CICS 3.2 and above.
- X'E8' (Y): Execute CICS ASSIGN to obtain user-ID, opid, and program name for CICS 3.2 and above.
- X'C3' (C): Execute CICS ASSIGN to obtain user-ID, opid, and program name for CICS 3.2 and above for non-NATURAL programs only.

Location: X'BA' (not currently used)

CICS Version

Location: X'BB'

Default: X'17' (TRMUEXB)

X'32' (TRMUEXB2)

Options:

- X'16': CICS is at a pre-Version 1.7 level.
- X'17': CICS is at Version 1.7 to 3.1.
- X'32': CICS is at version 3.2 or above

TRMUEXB5 (COM-LETE) 4.5 and Later

Transfer to UEXITBU

Location: X'B8'

Default: X'00'

Options:

- X'00': Do not transfer control to UEXITBU when the ADABAS call parameter list is invalid or the USERINFO area is set up improperly.
- X'FF': Transfer control to UEXITBU in any case.

ACEE Variable Length Security-ID

Location: X'B9' (OS only)

Default: X'00'

Options:

- X'00': Try to get to ACEE variable length Security-ID.
- X'FF': Get the Security-ID from ASXB.

Program Name

Location: X'BA' (OS only)

Default: X'01'

Options:

- X'01': Obtain Program Name from Active Task in COM-LETE.
- X'02': Obtain Program Name from Job Step in COM-LETE.

Attempt to Locate NATURAL Information without TNMMODD Installed

Location: X'BB'

Default: X'00'

Options:

- X'00': If NATURAL information is not located with the help of TNMMODD, try to find it another way.
- X'FF': Only get NATURAL information with the help of TNMMODD.

Get User-ID and COBOL Program Name

Location: X'BC'

Default: X'00'

Options:

- X'00': Use COM-PLETE Control Block to get the User-ID and the COBOL program name.
- X'FF': Use Operating System Control Blocks to get the User-ID and COBOL program name.

Specify the Version of COM-PLETE

Location: X'BD'

Default: X'45'

Options:

- X'45': Specifies COM-PLETE Version 4.5.
- X'46': Specifies COM-PLETE Version 4.6 and above.

VI.3 Tailoring the TRIM NATURAL Monitor

VI.3.1 TNMMODA

Read Parameter Interval

Location: X'30'

Default: X'03'

Options:

- X'01' - X'0A' Value between 1 and 10 indicating the number of minutes between automatic re-read of the TNM parameters.

Write Parameter Interval

Location: X'31'

Default: X'03'

Options:

- X'01 - X'0A' Value between 1 and 10 indicating the number of minutes between automatic updating of the TNM parameters.

SECTION VII

TRMTAP, TRMLOG, TRMRSP, TRELOG, TRMSLO

The five macros supplied with TRIM 7.6.1 have been changed. This requires reassembly of all TRMTAP, TRMLOG, TRMRSP, TRMSLO, and TRELOG modules that the user may currently have in use, along with re-linking to the various TRIM User-Exit-4s being used.

VII.1 Time Adjustable Parameters (TRMTAP)

Certain actions and calculations within the Real-Time Monitor (RTM), logging of selected Detail Command Log records, PRESUM, and TRELOG summarizations are accomplished via TRIM's User-Exit-4. Recent increased usage of the RTM by DBA and applications staff has occurred due to the ease of use and additional functionality in TRIM. This added functionality and usage has been met with a corresponding enhancement in RTM efficiency in several ways:

- Improving table lookup methods
- Improving sorting algorithms
- Making most functions optional (explained below)
- Providing three User-Exit-4s for small, regular, and large-sized tables (the small version also has certain functions disabled)
- Permitting the NATURAL programs to run from one database (usually TEST) while monitoring the activity on several databases.

Although TRIM attempts to be as efficient as possible, any processing requires some overhead within the system. When statistics will not be viewed, the associated accumulators can be made inactive to reduce machine requirements. This would apply to statistics never referenced or not used during particular time periods. For example, TRMTAP can be used to deactivate accumulations of Five Minute statistics at the end of Prime shift, when no one would be using them. They could then be re-activated at the beginning of Prime shift the next day. Since Hourly statistics are only kept for five hours, these accumulators might be deactivated at the end of Prime Shift, and restarted five hours prior to Prime Shift.

Statistics of no use (i.e., NATURAL Application Library in a system without NATURAL Security) can be deactivated by TRMTAP or made permanently inactive by tailoring TRMUEX4.

The setting of options of RTM functions is addressed on three levels:

- Zaps may be applied to the User-Exit-4 to "tailor" the exit. Each database's User-Exit-4 can be tailored differently. Refer to **Section VI Tailoring With Zaps**.
- Time Adjustable Parameters (TRMTAP) provide for automatic start-up "tailoring" during any time of the day and for adjustments on an hourly basis. Each database's User-Exit-4 can be linked with a different set of TRMTAP. The Production Database may, therefore, be tailored to keep certain statistics during prime hours, less statistics at night, and very little statistics during early morning hours. When User-Exit-4 is first entered, it knows what the current time is, analyzes its TRMTAP for the hour, and starts-up accordingly.

TRMTAP may be described as "elevating Zaps to a higher level - easier to specify and less error prone." TRMTAP is also somewhat "dynamic" in that it allows 24 sets of Zaps, one for each hour.

Refer to the usage explanation in the next subsection.

- RTM Control Screens (CTRL and CTAP) can be used to adjust the current functionality of the RTM (through User-Exit-4) and to adjust other hours' TRMTAP. Refer to **Section II.6.2 RTM Control (CTRL)** and **Section II.6.3 Time Adjustable Parameter (TRMTAP) Settings (CTAP)** of the **TRIM Reference Manual**.

VII.1.1 TRMTAP Generation and Usage

TRMTAP are generated through macro-assembly using one macro, TRMTAP, provided on the TRIM source library. TRMTAP may generate instructions for TRIM User-Exit-4 for any or all 24 hours (0-23). These "instructions" are in the form of constants and resemble the start-up Zaps in **Section VI Tailoring With Zaps** in relative location and content. TRMTAP may be used with the small, regular, and large User-Exit-4s.

Once TRMTAP are generated into an object library, the TRMTAP must be link-edited with all desired User-Exit-4s.

When the User-Exit-4 is first entered by ADABAS, it checks for the presence of the generated TRMTAP. If not present, User-Exit-4 reverts to its default or Zap settings. If present, User-Exit-4 determines the time of day, locates the hour in the TRMTAP, and uses the appropriate hour's parameters. If no TRMTAP are generated for the start-up hour, the previous hour's TRMTAP are used. TRMTAP is "wraparound". That is, if TRMTAP are generated for hours 5, 9, and 19, and the database is brought up at 3:15 a.m., the hour 19 start-up TRMTAP are used.

The first call to User-Exit-4 each hour will cause User-Exit-4 to reevaluate its settings based on TRMTAP for the current hour, if present.

Once the database is brought up with certain TRMTAP, any change to the TRMTAP object/load module will not affect the current ADABAS session. Changes to the module linked with User-Exit-4 will affect the next session. Changes to the current session's future hours may be made via the RTM's CTAP screen.

VII.1.2 TRMTAP Macro Parameters

TRMTAP macro parameter fields and values are shown in Figure 4.

<u>Field</u>	<u>Values</u>	<u>Description</u>
HOUR	0-23	Starting hour for these parameters to take effect.
CONTROL	8 characters	RTM Control Password.
LOG	YES, NO	Default logging of Detail Records. TRMLOG parameters and User-Exit-4 Communication Run(s) may override this setting.
PRESUM	THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, SID, SPE, NONE	PRESUM records to be summarized and written to the Command Log. None means turn off PRESUMing.
MINUTE	THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, SID, NONE	Minute statistics.
HOURLY	THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, SID, NONE	Hourly statistics.
SESSION	THD, CMD, FNR, UID, JOB, RSP, NAT, NSA, NSU, CTI, USA, CWF (Command within File), SID, NONE	Session statistics.
FREQ	0, n, ADAEND	Frequency of print of TRIM Nucleus Session Statistics. "n" is number of times to print in each 24-hour period (1, 2, 3, 4, 6, 8, 12, or 24). Zero means do not print. ADAEND means only at ADAEND.
NSSSEQ	CAT, FREQ, BOTH	Specifies Nucleus Session Statistics to print in ascending order of category (CAT), descending order of frequency of use (FREQ), or both.
CRUNCH	YES, NO	Specifies whether or not to crunch Command Log Detail Record data.
ZEROFNR	YES, NO	Specifies the option of zeroing the file number on certain commands (ET, BT, RC, OP, etc.).
UID	HEX, CHAR	Specifies User-ID and User-Area display format.

TRMTAP Macro Parameters
Figure 4

(continued on next page)

<u>Field</u>	<u>Values</u>	<u>Description</u>
SORT	CAT, FREQ	Specifies the sort sequence for certain hourly and minute screen displays, ascending by category (CAT), or descending by frequency of use (FREQ).
STOP	STOP, TERMINATE	Specifies whether PF12 should act to STOP (return to NATURAL "NEXT" screen) or TERMINATE (exit NATURAL).
PW	YES, NO, VIO	Specifies the action to be taken on the Additions-3 field in the Control Block on Command Log records: YES Retain always. NO Do not retain. VIO Retain for response codes 200-203.
IDLE	NO, YES, UEXB	Specifies the mode of operation for TRIM: NO TRIM active. YES TRIM idle. UEXB TRIM idle but will process user information area data.
TRACE	YES, NO	Specifies whether or not to make the Tracing Facility available.
HIDUR	YES, NO	Specifies whether or not to maintain the high duration commands (Longest Duration Screen).
ALTID	YES, NO	Specifies whether the CICS TERMID should replace the ADABAS UID as the primary display UID.
UQALL	YES, NO	Specifies whether inactive User Queue entries should be displayed. YES Display inactive. NO Display active only.
CLMSG	YES, NO	Specifies whether command log STCK sequence errors should be displayed. YES Display errors. NO Do not display errors.

TRMTAP Macro Parameters Figure 4 (continued)

(continued on next page)

<u>Field</u>	<u>Values</u>	<u>Description</u>
VIOLATE	FNR, UID, JOB, NAT, NSA, SID, NONE	SECURITRE Violation Statistics.
SECURE	YES, NO	Specifies whether or not SECURITRE is to control access to the TRIM RTM.
ALTJN	J, C, U	Specifies where to obtain the Job Name. J Use Job Name as passed in the Command Log. C Use Job Name from the Command Queue. U Use Job Name from the USERINFO Area.
SESCL	NO, YES	Controls the clearing of Session Statistics (Restart counts from zero). NO Do not clear session statistics. YES Clear session statistics each time they are printed.
NTALT	NO, YES	Specifies the use on an alternate for NATPROG. NO Do not use an alternate for NATPROG. YES Replace null NATPROG with COBOL or other program name (when available).

TRMTAP Macro Parameters Figure 4 (continued)

(continued on next page)

<u>Field</u>	<u>Values</u>	<u>Description</u>
NSLOG	NO, NSA, NSU	<p>Controls the placement of NATURAL Application Library or NATURAL Security User-ID in the Command Log.</p> <p>NO Do not use pass NATURAL Application Library or NATURAL Security User-ID or Security-ID in the Command Log.</p> <p>NSA Pass the NATURAL Application Library and the NATURAL Security User-ID in the Command Log in the Additions-3 (Password) and Additions-4 (Cipher) fields, respectively.</p> <p>NSU Pass the NATURAL Application Library and Security-ID in the Command Log in the Additions-3 (Password) and the Additions-4 (Cipher) fields respectively.</p>
XUAD4	NO, YES	<p>Controls the move of the External User-ID to the Command Log.</p> <p>NO Do not move External User-ID to the Command Log.</p> <p>YES Move External User-ID to Additions-4 (Cipher) field of the Command Log.</p>
NATLG	NO, YES	<p>Controls passing the NATURAL program name in the RESERVED field in the Command Log.</p> <p>NO Do not pass the NATURAL program name to the Command Log.</p> <p>YES Pass the NATURAL program name in the RESERVED field in the Command Log.</p>

TRMTAP Macro Parameters Figure 4 (continued)

(continued on next page)

<u>Field</u>	<u>Values</u>	<u>Description</u>
CTILG	NO, YES	Controls the move of four bytes at CTI + 4 (CICS Tran-ID portion of CTI field) to the User-Area of the Command Log. NO Do not move four bytes at CTI + 4 to the User-Area of the Command Log. YES Move four bytes at CTI + 4 to the User-Area of the Command Log.
RSPLOCK	1 - 65535	Any reasonable Response Code value that distinguishes TRIM-induced LOCKs from normal ADABAS Response Code 17 (Invalid File Number).
RSPDSAL	1 - 65535	Any reasonable Response Code value that distinguishes TRIM-induced DISALLOWs from normal ADABAS Response Code 22 (Invalid Command Code).
RSPFAIL	1 - 65535	Any reasonable Response Code value that distinguishes TRIM-induced FAILs from normal ADABAS Response Code 200 (Password Violation).
TRELOG	NO, YES	Specifies whether or not to activate tRelational logging.

VII.1.3 Sample TRMTAP

The following sample TRMTAP includes comments that show the strategy for setting different TRMUEX4 functionality for different time periods. (This is member PSTARTUP in the TRIM source library.)

```

*      AT 5:00 AM TAILOR TRMUEX4 TO START COLLECTING SOME HOURLY
*      AND SESSION STATISTICS OF INTEREST.  ALSO, OUTPUT SOME PRESUM
*      DATA.  NOBODY SHOULD BE ABLE TO TRACE.  NO NEED FOR HI DURATION
*      COMMANDS TO BE TALLIED - DO NOT CARE ABOUT EARLY MORNING.
*      USE THE ALTERNATE INTERNAL UID FOR DISPLAYS AND SUPPRESS
*      MESSAGES ABOUT CLOG STCK SEQUENCE ERRORS.
*
*      CONTROLS NOT SPECIFIED RETAIN THEIR PREVIOUS VALUE (DEFAULT,
*      ZAPPED OR PREVIOUS HOUR SETTING WITHIN TAP PARMS)
*
TRMTAP HOUR=5,
      PRESUM=(CMD,FNR,UID),HOURLY=(CMD,JOB,UID,NSA),
      MINUTE=(UID),SESSION=(CWF,FNR,CMD,UID),FREQ=3,
      VIOLATE=(NAT,UID,FNR),
      SECURE=N,
      CRUNCH=YES,UID=HEX,SORT=FREQ,
      STOP=TERMINATE,PW=VIO,
      TRACE=NO,HIDUR=NO,CLMSG=NO,
      NSSSEQ=BOTH,ALTID=YES,CONTROL=TRMEARLY
*
*      AT 9:00 AM, CAN SEE HOURLY STATISTICS STARTED AT 5:00.  FURTHER
*      TAILOR TRMUEX4 TO KEEP STATISTICS OF INTEREST DURING PRIME
*      TIME.  ALLOW TRACING.  KEEP HI DURATION COMMANDS.  USE THE
*      ALTERNATE INTERNAL UID FOR DISPLAY.  DISPLAY MESSAGES ABOUT
*      ANY CLOG STCK TIME SEQUENCE ERROR.
*
TRMTAP HOUR=9,
      PRESUM=(CMD,FNR,UID),HOURLY=(CMD,FNR,JOB,UID,NSA),
      MINUTE=(JOB,UID,CMD),SESSION=(CWF,FNR,CMD,UID),
      VIOLATE=(NAT,UID,FNR),FREQ=24,
      TRACE=YES,SORT=FREQ,NSSSEQ=BOTH,HIDUR=YES,
      ALTID=YES,CLMSG=YES,UQALL=YES,CONTROL=TRMPRIME
*
*      AT 7:00 PM, KEEP MINIMAL STATISTICS FOR VIEWING TOMORROW.
*      PARAMETERS NOT SPECIFIED RETAIN PREVIOUS OR DEFAULT VALUES.
*
TRMTAP HOUR=19,
      PRESUM=NONE,HOURLY=(FNR,NSU),
      MINUTE=NONE,SESSION=(NAT,CWF,NSA,RSP),FREQ=24,
      UID=CHAR,SORT=CAT,NSSSEQ=FREQ,
      ALTID=NO,CLMSG=NO,CONTROL=TRMNIGHT
*
*      START UP LOGGING ONLY CERTAIN COMMANDS FOR CERTAIN JOBS WHICH
*      HAVE A DURATION GREATER THAN 1 SECOND.
*      ALSO, LOG BAD RESPONSE CODES, BUT ONLY FOR PRIME TIME,
*      LOG THE CB FOR THESE, AND THE FB FOR ONLY RESPONSES 40-49.
*      ALSO, LOG BAD DURATION CALLS - GREATER THAN 2 SECONDS.
*
*      THESE LOGGING PARMS WILL BE DISPLAYED BY RTM 'CLOG' SCREEN
*      UNDER THE IDENTIFICATION OF 'TRMLOG'
*
TRMLOG CMD,EQ,(L1,S2),JOB,EQ,(XXXXXXXX,T-ZZZZZ,
      AAAA-BBBB,CCCC,DDDD,EEEE,FFFF,GGGG),DUR,GT,10000
TRMLOG RSP,EQ,(1,2,4-8,10-65535),HR,EQ,(8-19)
TRMLOG DUR,GT,20000
TRMLOG CB
TRMLOG FB,RSP,EQ,(40-49)
*
*      WOULD LIKE WARNINGS IN THE RTM ABOUT THE DEFAULT RESPONSE CODES
*      IN ADDITION TO THE FOLLOWING LIST.

```

(continued on next page)

(continued from previous page)

```

*
TRMRSP 0,,DEFAULT=YES
TRMRSP 019,'ATTEMPT TO UPDATE BY ACC USER'
TRMRSP 046,'MAX NQCID EXCEEDED'
TRMRSP 047,'MAX NISNHQ EXCEEDED'
TRMRSP 048,'OPEN ERROR ENCOUNTERED'
TRMRSP 076,'OVERFLOW IN INVERTED LIST INDX'
TRMRSP 079,'HYPEREXIT NOT IN ADARUN PARMS'
TRMRSP 086,'HYPEREXIT RETURN ERROR'
TRMRSP 098,'DUPLICATE FOR UNIQUE DE'
TRMRSP 152,'LU VALUE TOO SMALL'
TRMRSP 162,'SHORT ON SPACE- BUFR POOL HDRS'
TRMRSP 173,'INVALID DATA STORAGE RABN'
TRMRSP 255,'ALL ATTACHED BUFFERS ALLOCATED'
*
END

```

The TRMLOG and TRMRSP statements coded near the end of this sample refer to startup logging as described in the next subsection. The statements are shown here because TRMTAP, TRMLOG, and TRMRSP may be, and usually are, coded together.

VII.2 Start-Up Logging (TRMLOG)

Using the TRMLOG macro, the DBA may assemble (pre-define) selected Detail Command Logging requirements. These constants may be generated separately or along with TRMTAP (refer to **Section VII.1.3 Sample TRMTAP**), and they must be link-edited with TRIM User-Exit-4. The small, regular, and large User-Exit-4s may all use TRMLOG start-up logging parameters.

The TRMLOG parameters state which ADABAS Detail Log records and buffers to output to the Command Log. Any records and buffers not meeting the criteria are not logged.

TRMLOG parameters always have the ID "TRMLOG". Changes and additions to the start-up logging criteria are provided via TRMUEx4 Communication Runs described in the *TRIM Reference Manual*. These Dynamically communicated logging requirements are incremental, or in addition to, existing parameters.

For example, the DBA pre-defines some TRMLOG parameters:

(refer to TRMTAP and TRMLOG sample in the previous subsection)

User-A desires to log certain records and submits a User-Exit-4 Communication Run with ID=BIGTEST.

```
UEX4    ID=BIGTEST
LOG      JOB=A4910763
```

User-B also desires to log certain records and submits a User-Exit-4 Communication Run with ID=JOE.

```
UEX4    ID=JOE
LOG      FNR=(13,14,16-18,63178)
```

User-A then desires to log more records and submits a User-Exit-4 Communication Run with ID=USERA.

```
UEX4    ID=USERA
LOG      FNR=3,CMD=L1
```

User-A then desires to change the requirements for ID=BIGTEST.

```
UEX4    ID=BIGTEST
LOG      JOB=(A4917000-A4917999)
```

The DBA then desires to change the original TRMLOG parameters for the duration of the ADABAS session.

```
UEX4    ID=TRMLOG
LOG      RSP=0
LOG      DUR>20000
```

The DBA desires to delete the requirements for ID=JOE.

```
UEX4    ID=JOE
```

By viewing the Real-Time Monitor E4LO screen, the DBA can see that three sets of logging requirements are in effect for IDs:

- TRMLOG
- USERA
- BIGTEST

The DBA may view any or all of these parameters on-line by following the instructions on the E4LO screens.

VII.2.1 TRMLOG Macro Parameters

The first parameter to TRMLOG is the Command Log Buffer indicator. Valid values are CB, FB, RB, SB, VB, IB, IO, and UB. If no buffer is indicated, the TRMLOG parameters are assumed to be for the log record rather than a buffer. For example:

TRMLOG	...	refers to logging the record
TRMLOG	RB, ...	refers to logging the Record Buffer

The remaining parameters, all separated by commas, must be stated in sets of three as follows:

keyword, operator, value-list

keyword:	One of the fields in the Command Log Basic Part or Control Block, along with Duration and Hour (refer to Figure 4).	
operator:	EQ	Equal
	NE	Not Equal
	GT	Greater than
	LT	Less than
value-list:	A single value or a list in parenthesis (maximum 10). Ranges are allowed.	

An example of the use of the TRMLOG start-up logging macro follows:

```
TRMLOG  CMD,EQ,(L1,S2),JOB,EQ,(AAAAAAA-BBBBBBBB,
        CCCCCCCC,DDDDDDDD-EEEEEEEE) *
```

To also log the Record Buffer for the above criteria, insert the "RB" parameter as follows:

```
TRMLOG  RB,CMD,EQ,(L1,S2),JOB,EQ,(AAAAAAA-BBBBBBBB,
        CCCCCCCC,DDDDDDDD-EEEEEEEE) *
```

Keyword values permitted on TRMLOG macro parameters include:

<u>Keyword</u>	<u>Description</u>		<u>Length</u>	<u>Format</u>
PRI	Priority		1	B
CTY	Command Type	1	B	
ECB	ECB Count		1	B
THD	Thread Number	1	B	
NUP	Number of Descriptors Updated	2	B	
JOB	JOB-NAME		8	C
CPU	CPUID		8	C
UID	User-ID		4	C
OPS	OPSYSID		4	C
UBU	UBUID		8	C
UAC	UACSN		4	C
DBD	DBID		2	B
AIO	Associator IOs		2	B
DIO	Data IOs		2	B
WIO	Work IOs		2	B
PHY	PHYS		2	B
AR1	ARCH5A		1	C
ARB	ARCH5B		4	C
RV1	REVIEW1		4	C
RV2	REVIEW2		4	C
AD2	Additions-2		4	C
OP1	Command Option-1		1	C
OP2	Command Option-2		1	C
CMD	Command Code		2	C
CID	Command ID		4	C
FNR	File Number		2	B
RSP	Response Code	2	B	
ISN	Internal Sequence Number		4	B
ISL	ISN Lower Limit	4	B	
ISQ	ISN Quantity		4	B
FBL	Format Buffer Length		2	B
RBL	Record Buffer Length		2	B
SBL	Search Buffer Length		2	B
VBL	Value Buffer Length		2	B
IBL	ISN Buffer Length		2	B
AD1	Additions-1		8	C
AD3	Additions-3		8	C
AD4	Additions-4		8	C
NAT/RES	NATURAL Program(Reserved Field)		8	C
USA	User-Area		4	C
USN	User-Area		4	B
DUR	Duration in tenths of milliseconds		4	B
HR/HOUR	Hour		1	B

TRMLOG Macro Parameters

Figure 5

VII.3 **Exceptional Response Setup (TRMRSP)**

Exceptional Response Codes to be monitored may be selected through the TRMRSP macro, which may be assembled with or without the TRMLOG and TRMTAP macros for Linking to TRMUEX4.

When TRIM User-Exit-4 encounters one of the Response Codes selected in the TRMRSP parameters, an Exceptional Response Code Warning will be displayed on the RTM screen and on the Nucleus Session Statistics (Refer to **Section II.15 Exceptional Response Codes** of the *TRIM Reference Manual*).

VII.3.1 **TRMRSP Macro Parameters**

The TRMRSP parameters consist of two positional parameters and a one-time keyword parameter. The format is:

TRMRSP num,msg,DEFAULT=c

Where:	'num'	is 0 for Header statement or a Response Code in the range 1-65535.
	'msg'	is the Response Code message of up to 30 characters.
	DEFAULT	is the keyword used only on the Header statement entry. It indicates whether TRIM defaults are also to be used.
	'c'	is the value of DEFAULT. Valid values are 'Y', 'YES', 'N', and 'NO'.

Only one Header statement is permitted, and it may be omitted if TRIM defaults are also to be used.

Entries must be entered in ascending sequence of Response Code value.

Note: Sample use of TRMRSP is shown earlier in the Sample TRMTAP section.

VII.3.2 Sample TRMRSP

```
TRMRSP 0,,DEFAULT=YES
TRMRSP 019,'ATTEMPT TO UPDATE BY ACC USER'
TRMRSP 046,'MAX NQCID EXCEEDED'
TRMRSP 047,'MAX NISNHQ EXCEEDED'
TRMRSP 048,'OPEN ERROR ENCOUNTERED'
TRMRSP 076,'OVERFLOW IN INVERTED LIST INDX'
TRMRSP 079,'HYPEREXIT NOT IN ADARUN PARMS'
TRMRSP 086,'HYPEREXIT RETURN ERROR'
TRMRSP 098,'DUPLICATE FOR UNIQUE DE'
TRMRSP 152,'LU VALUE TOO SMALL'
TRMRSP 162,'SHORT ON SPACE- BUFR POOL HDRS'
TRMRSP 173,'INVALID DATA STORAGE RABN'
TRMRSP 255,'ALL ATTACHED BUFFERS ALLOCATED'
```

This TRMRSP would cause TRIM to watch for and warn about twelve response codes in addition to the thirteen response codes that compose the normal TRIM defaults.

The normal Defaults are:

<u>Response</u>	<u>Message</u>
1	OVERFLOW LS SETTING FOR A SORT
2	OVERFLOW HQ SETTING
27	INSUFF WORK AREA FOR SBL + VBL
70	OVERFLOW OF LQ SETTING
71	OVERFLOW OF LI SETTING
72	OVERFLOW OF NU SETTING
73	OVERFLOW WORK CONTAINING ISNS
74	NO WORK AREA FOR COMPLEX FINDS
75	REQUESTING > 5 ASSO/DS EXTENTS
77	INSUFF SPACE FOR ASSO/DS EXTENT
145	HOLD QUEUE IS FULL
151	OVERFLOW OF CQ SETTING
152	INTERNAL USER BUFFER TOO SMALL

The DBA may view any or all of these parameters on-line by the following the instructions on the RTM E4RS screen.

Note: A response code of 145 can be returned for two reasons: the *hold queue is full* or the requested *record is on hold by another user*. The default message (shown above) is HOLD QUEUE IS FULL. This message implies that there is only one possible reason for the response code of 145. To modify the message to indicate both of these possible causes, include 145 in the TRMRSP macro.

VII.4 **tRelational Logging (TRELOG)**

If tRelational logging is desired, a TRELOG macro must be assembled and linked with TRIM's User-Exit-4. Using the TRELOG macro, the DBA may define the size of the tRelational log table, the file number(s) to log, and the number of entries to write to the CLOG when the table fills up. If the required memory is available, the table can be defined large enough to minimize any writes to the CLOG. Likewise, if memory is constrained, a small table can be defined and frequent writes to the CLOG will be required.

VII.4.1 **TRELOG Generation and Usage**

TRELOG modules are generated through macro-assemblies using the macro TRELOG provided on the TRIM source library. TRELOG generates a table to accumulate tRelational data. The parameters for TRELOG may specify: the size of the table, how much of the table to empty when full, and what FNRs are to be monitored. Once TRELOG modules are generated into an Object library, the TRELOG modules must be link-edited with TRIM User-Exit-4. Only one TRELOG module may be linked with any one TRIM User-Exit-4. Once the TRELOG is linked as part of TRIM User-Exit-4, tRelational Logging may be activated via Zap switch, TRMTAP parameter, or dynamically via the CTRE screen in the RTM.

VII.4.2 **TRELOG Macro Parameters**

<u>Field</u>	<u>Values</u>	<u>Description</u>
FNR	1-65535	The file number(s) to be logged (N ₁ , N ₂ , N ₃ ,...N _x).
ENTRIES	Any reasonable number	The number of 60 byte entries in the table. The size of the table will be 60 x (this number) bytes.
WRITES	Any number = or < than entries	The number of entries to write to the log whenever the table is full.

VII.5 OS/VM Batch Selective Slowdown (TRMSLO)

TRIM User-Exit-B (TRMUEXBB) for batch may be customized to slow selected batch jobs by a specified criteria. This may be useful in a situation in which the volume of batch activity overruns on-line response time.

VII.5.1 TRMSLO Generation and Usage

TRMSLO modules are generated through macro-assemblies using the macro TRMSLO provided on the TRIM source library. TRMSLO may generate data for TRMUEXBB to slow selective jobs based on specified criteria (if all batch/VM jobs are to be slowed, TRMUEXBB may be zapped as described in **Section VI Tailoring with Zaps**).

Once TRMSLO modules are generated into an object library, the TRMSLO modules must be link-edited with all desired ADABAS Link Modules.

Whenever TRMSLO is included with TRMUEXBB, it will override the TRMUEXBB Slow Down Zaps for any job that meets the TRMSLO criteria. For more information, refer to **Section II Installation**.

VII.5.2 TRMSLO Macro Parameters

<u>Field</u>	<u>Values</u>	<u>Description</u>
JOBNAME	8 characters	Any jobname to be slowed. An asterisk (*) can be used as a wildcard character at the end of the value.
WAIT	1-99999999	Any reasonable value of milliseconds of wait time (decimal 1000 = 1 second).
COUNT	1-99999999	Any reasonable value for number of calls to ignore before doing the wait.
START	0-23	Starting hour for waiting to take effect.
STOP	0-23	Ending hour for waiting to take effect.

VII.5.3 Sample TRMSLO

```

TRMSLO JOBNAME=BATCH*,WAIT=1000,COUNT=20,START=08,STOP=18
*   Every 20 commands, have BATCH01, BATCH02, etc., wait
*   one second between 8 AM and 6 PM.
*
TRMSLO JOBNAME=TREE32,WAIT=8000,COUNT=10,START=10,STOP=03
*   Every 10 ADABAS commands, hold TREE32 back 8 seconds.
*
TRMSLO JOBNAME=TREE3*,WAIT=500,COUNT=99,START=08,STOP=18
*   Every 99 commands, hold TREE3-TREE39 back 1/2 second.
*
TRMSLO JOBNAME=TH99903,WAIT=9000,COUNT=1,START=08,STOP=18
*   Every command, hold TH99903 back 9 seconds between
*   8 AM and 6 PM.
*
END

```


SECTION VIII

NATURAL SOURCE MODULES

There are three NATURAL source modules supplied with TRIM for use with the Real-time Monitor. The source modules provided are TRMCUST, TRMFIN, and TRMIPSWD. One additional parm has been added to the TRMCUST module, #STR-VERSION. This allows the user to specify the version of SECURITRE installed in the environment.

VIII.1 TRMCUST

The TRIM RTM has features that may be customized to meet site requirements. These features are controlled by values set in a NATURAL subprogram, TRMCUST. This NATURAL subprogram is called at the startup of the TRIM RTM and at every database switch in order to retrieve these customized values.

The RTM features may be tailored by modifying the appropriate values and then STOWing this subprogram.

```
0010 *****
0020 *
0030 * PROPRIETARY SOFTWARE OF TREEHOUSE SOFTWARE, INC.  ALL RIGHTS RESERVED
0040 *
0050 *   NAME:   TRMCUST
0060 *
0070 * DESCR:  CONTAINS VALUES FOR SITE CUSTOMIZED OPTIONS
0080 *
0090 * NOTES:  THIS SUBPROGRAM IS INVOKED AT THE STARTUP OF THE TRIM
0100 *         RTM AND WHEN A DBID SWITCH TAKES PLACE.
0110 *         IT IS USED TO SET CERTAIN CUSTOMIZATION VALUES FOR THE RTM.
0120 *         THE PARAMETERS AND THEIR VALID VALUES ARE AS FOLLOWS:
0130 *
0140 *         #DEFAULT-DBID          - 0 - INDICATES THE DEFAULT DATABASE IS
0150 *                                THE ONE WHERE THE RTM IS INSTALLED.
0160 *
0170 *                                - 1-65535 - INDICATES A DEFAULT DATABASE
0180 *                                OTHER THAN THE ONE WHERE THE RTM IS
0190 *                                INSTALLED.
0200 *
0210 *         #DEFAULT-MENU-OPTION - '.' (DOT) - A DOT WILL BE SHOWN AS
0220 *                                THE DEFAULT OPTION FOR ALL MENU
0230 *                                SCREENS.
0240 *
0250 *                                - ' ' (SPACE) - A SPACE WILL BE SHOWN AS
0260 *                                THE DEFAULT OPTION FOR ALL MENU
0270 *                                SCREENS.
0280 *
0290 *         #DB-OPEN-REQUIRED      - 'N' - INDICATES THAT AN OPEN IS NOT
0300 *                                REQUIRED TO ACCESS THE DATABASE(S),
0310 *                                I.E., THE ADABAS STARTUP PARAMETER
0320 *                                OPENREQ IS SET TO NO.
0330 *
0340 *                                - 'Y' - INDICATES THAT AN OPEN IS REQUIRED
0350 *                                TO ACCESS THE DATABASE(S),
0360 *                                I.E., THE ADABAS STARTUP PARAMETER
0370 *                                OPENREQ IS SET TO YES.
0380 *
0390 *         #DISPLAY-BANNER        - 'Y' - INDICATES THAT THE TRIM RTM
0400 *                                BANNER SCREEN WILL BE DISPLAYED AT
0410 *                                RTM STARTUP.
```

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```

0420 *
0430 *           - 'N' - INDICATES THAT THE TRIM RTM
0440 *           BANNER SCREEN WILL NOT BE DISPLAYED
0450 *           AT RTM STARTUP.
0460 *
0470 *           #STR-LIB           - THE STR RTM LIBRARY.
0480 *
0490 *           #STR-VERSION       - THE STR VERSION.
0500 *
0510 *           #RTM-ACTIVE        - 'Y' - THE TRIM ADABAS MONITOR FUNCTIONS
0520 *           ARE AVAILABLE
0530 *
0540 *           - 'N' - THE TRIM ADABAS MONITOR FUNCTIONS
0550 *           ARE NOT AVAILABLE
0560 *
0570 *           #TNM-ACTIVE        - 'Y' - THE TRIM NATURAL MONITOR FUNCTIONS
0580 *           ARE AVAILABLE
0590 *
0600 *           - 'N' - THE TRIM NATURAL MONITOR FUNCTIONS
0610 *           ARE NOT AVAILABLE
0620 *
0630 *           THIS SWITCH SHOULD NOT BE SET ON A
0640 *           PER DATABASE LEVEL.  TRIM WILL ONLY
0650 *           READ THIS PARAMETER ONCE DURING A USER
0660 *           SESSION.
0670 *
0680 *
0690 * *****
0700 *
0710 DEFINE DATA
0720   PARAMETER
0730     01 #DEFAULT-DBID           (N5)
0740     01 #DEFAULT-MENU-OPTION    (A1)
0750     01 #DB-OPEN-REQUIRED       (A1)
0760     01 #DISPLAY-BANNER         (A1)
0770     01 #STR-LIB                (A8)
0780     01 #RTM-ACTIVE             (A1)
0790     01 #TNM-ACTIVE             (A1)
0800     01 #STR-VERSION           (A3)
0810 END-DEFINE
0820 *
0830 IF #DEFAULT-DBID EQ 0
0840   MOVE 0          TO #DEFAULT-DBID          /*SET THE DEFAULT DBID
0850 END-IF
0860 *
0870 DECIDE ON EVERY VALUE OF #DEFAULT-DBID    /*SET DEFAULTS FOR EACH DBID
0880   VALUE 4
0890     MOVE ' '      TO #DEFAULT-MENU-OPTION
0900     MOVE 'Y'      TO #DB-OPEN-REQUIRED
0910     MOVE 'Y'      TO #DISPLAY-BANNER
0920     MOVE 'Y'      TO #RTM-ACTIVE
0930   ANY VALUE                      /* AFFECTS ALL DATABASES
0940     MOVE 'Y'      TO #TNM-ACTIVE
0950   NONE VALUE                      /*DEFAULT SETTINGS WHEN THE
0960     MOVE ' '      TO #DEFAULT-MENU-OPTION /* DBID IS NOT FOUND ABOVE
0970     MOVE 'Y'      TO #DB-OPEN-REQUIRED
0980     MOVE 'Y'      TO #DISPLAY-BANNER
0990     MOVE 'Y'      TO #RTM-ACTIVE
1000     MOVE 'Y'      TO #TNM-ACTIVE
1010 END-DECIDE
1020 *
1030 MOVE 'STRV311' TO #STR-LIB          /*SET THE STR RTM LIBRARY
1040 MOVE '311'     TO #STR-VERSION      /* SET THE STR VERSION
1050 *
1060 END

```

If the #DEFAULT-DBID is zero, the database of the current FUSER will be viewed each time the RTM is invoked. Line 0880 in TRMCUST must be modified to set the #DEFAULT-DBID parameter value to allow the initial database to be viewed through the RTM to be one other than the database where the RTM is installed. If, for example, the production database statistics are to be viewed from the RTM installed on the test database, #DEFAULT-DBID will need to be set to the DBID of the production database and the subprogram will need to be STOWed.

TRMCUST allows for a seamless flow from the TRIM RTM to the SECURITRE RTM. Modify the #STR-LIB value on line 1090 to point to the correct SECURITRE library and STOW the subprogram. This enables the TRIM RTM to transfer directly to SECURITRE from the TRIM RTM menu without exiting the TRIM RTM.

Modify the #STR-VERSION library on line 1100 to specify the version of SECURITRE currently installed.

If SECURITRE is not installed, no changes need to be made to the #STR-LIB or #STR-VERSION values.

#TNM-ACTIVE allows the DBA to control access to the TNM. If #TNM-ACTIVE = 'N', the user will not be able to access any direct command that starts with 'N' (TNM screens).

#RTM-ACTIVE allows the DBA to control access to the TRIM RTM. If #RTM-ACTIVE = 'N', the user will only be able to access direct commands that begin with 'N' (TNM screens).

VIII.2 TRMFIN

Each NATURAL user's session totals can be maintained within the TRIM User-Exit-4 Extended User Queue. **Section II.10.2 User Queue Element (QUQE)** of the **TRIM Reference Manual** introduced this Extended User Queue concept, showing counts of ADABAS calls, I/Os, and Duration for the selected user's session. It also showed the NATURAL Program (Module) Name, NATURAL Application Library, and NATURAL Security User-ID currently in effect for the user.

The NATURAL user's calls, I/Os, duration, and estimated number of instructions (for estimating CPU usage -- refer to **Appendix B: CPU Time Calculations** of the **TRIM Reference Manual**) are maintained during the user session. Once the user ends the session (which is normally done by typing "FIN"), TRIM may display one or more screens about the user's activity, give NATURAL Security information, estimate CPU usage, translate usage to charge-back figures, etc., and end the session through its TRMFIN feature.

Without TRMFIN, a user exits from NATURAL by issuing the "FIN" command. With TRMFIN installed, the user still issues the "FIN" command, but the results of this action are different. The TRMFIN program will:

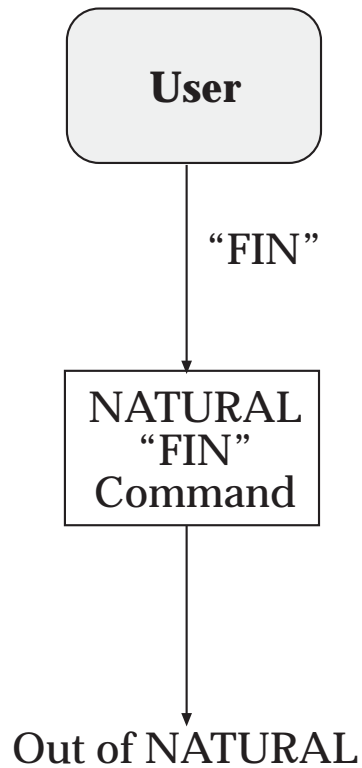
- CALLNAT "TRMFINX" to obtain the desired statistics from the TRIM Extended User Queue
- Display the desired statistics
- Stack the "REALFIN" command
- Terminate

During debugging, the supplied TRMFIN source program should be edited and stowed as "TRMFIN". The "return program" name passed to TRMFINX should therefore be "TRMFIN". The program could stack "EX MENU" so that the debugging session is not terminated during each trial run.

Once the desired statistics are displayed in an acceptable fashion, the TRMFIN program must be changed, so that it passes "FIN" for the program name and stacks the "REALFIN" command. The DBA must then disable the "FIN" command in NATTEXT (refer to the *NATURAL DBA Guide*), renaming the "FIN" command to "REALFIN" (or any other desired name). The "TRMFIN" program should then be cataloged as "FIN" in the NATURAL "SYSTEM" library on both the FNAT and FUSER files. Thus, when the user issues a "FIN" command, NATURAL will execute the TRMFIN program named "FIN" rather than issuing the NATURAL "FIN" command (which has been renamed).

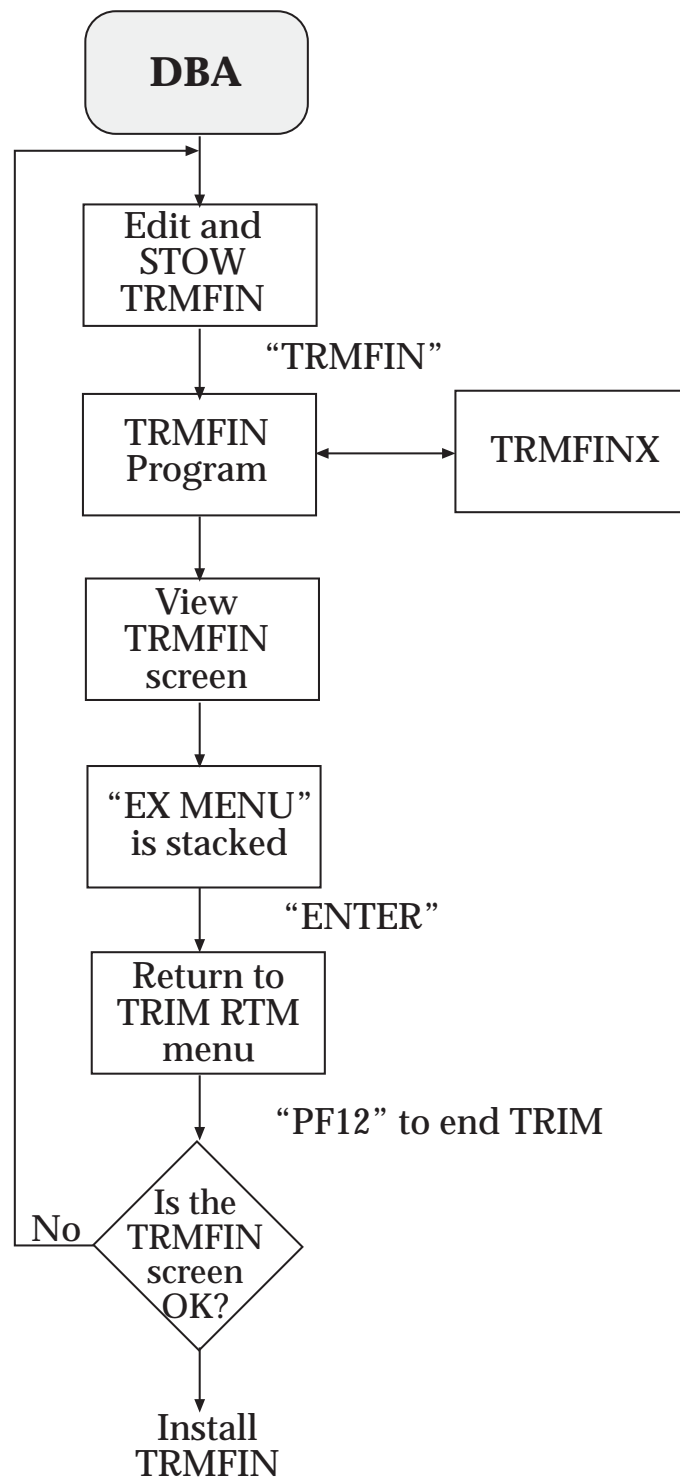
The following diagrams illustrate the effect of the "FIN" command before and after TRMFIN is installed.

Without TRMFIN

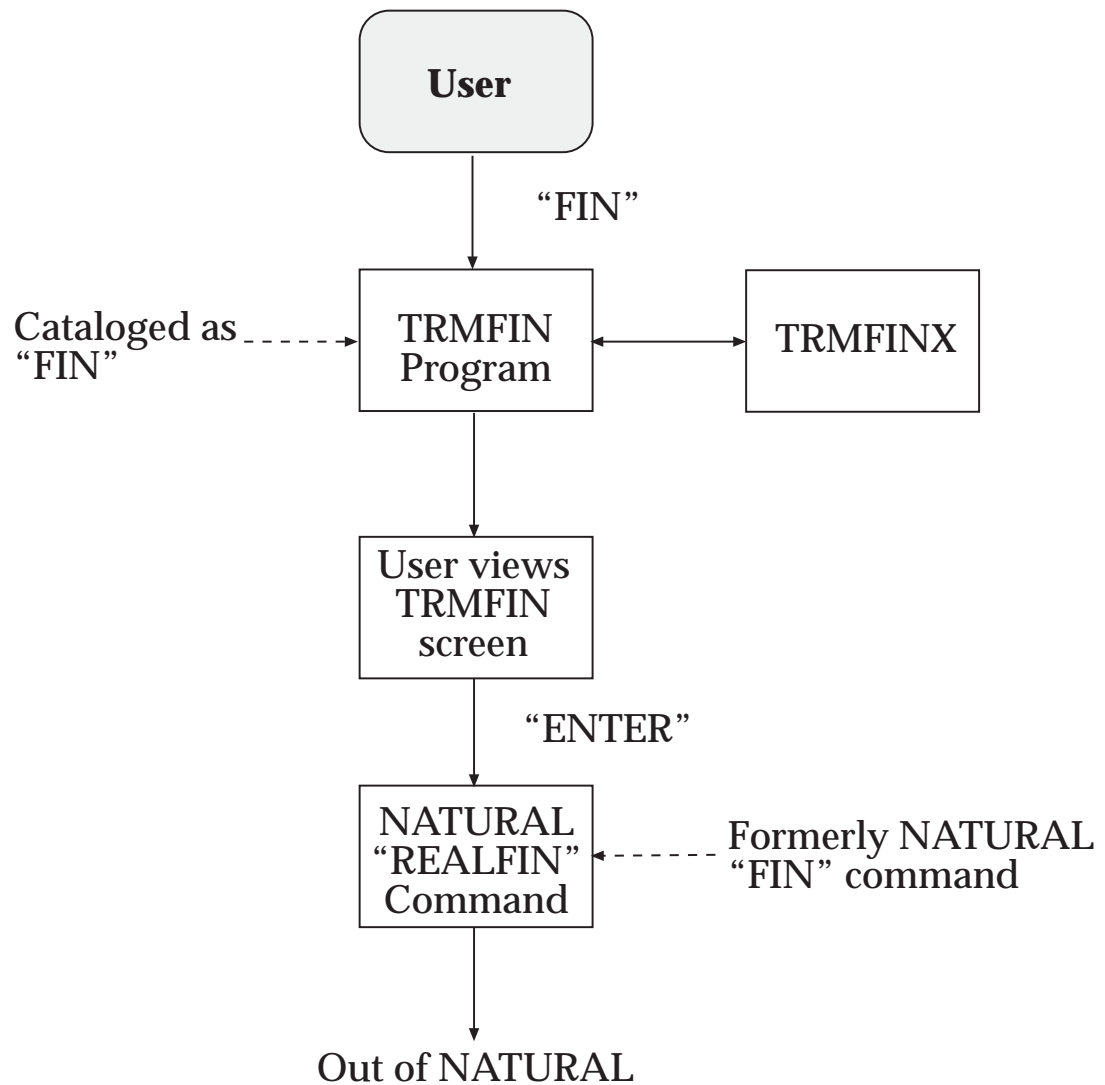


Without TRMFIN, a user issuing a "FIN" will exit from NATURAL via NATURAL's "FIN" command.

While TRMFIN is Being Tested



The DBA modifies TRMFIN until the desired screen displays are produced.

Once TRMFIN is Installed for Use

With TRMFIN installed, issuing the "FIN" command will invoke the TRMFIN program (cataloged as "FIN"), which retrieves statistics from TRIM's Extended User Queue via TRMFINX and displays them. TRMFIN then causes the user to exit from NATURAL by issuing a "REALFIN" command.

VIII.2.1 TRMFIN Program

Once debugged and installed, the following NATURAL program "TRMFIN" will display statistics (as shown later in this section) for each user issuing the "FIN" command.

```

0010 *****
0020 *
0030 * PROPRIETARY SOFTWARE OF TREEHOUSE SOFTWARE, INC.  ALL RIGHTS RESERVED
0040 *
0050 * NAME:          TRMFIN
0060 *
0070 * DESCR:         THIS PROGRAM REPORTS STATISTICS FOR A NATURAL SESSION
0080 *
0090 * NOTES:         CALCULATIONS AND DISPLAYS MAY BE MODIFIED TO ACCOMMODATE
0100 *                SPECIFICATIONS
0110 *
0120 *                STOW THIS PROGRAM AS FIN WHEN FINISHED TESTING
0130 *
0140 *****
0150 *
0160 DEFINE DATA LOCAL USING TRMFINL
0170   LOCAL
0180     01#FINPARM
0190       02 #UID      (B4)
0200       02 #EXTUID  (A8)
0210       02 #JOB     (A8)
0220       02 #NSA     (A8)
0230       02 #NSU     (A8)
0240       02 #IO      (B4)
0250       02 #DUR     (B4)
0260       02 #CPU     (B4)
0270       02 #COUNT (B4)
0280       02 #NOFNR   (B2)
0290       02 #DBID    (B2)          /* DBID BEING ACCESSED
0300       02 #ADARSP  (B2)
0310       02 #CONDCD  (B1)
0320       02 #FIN###  (B4)
0330       02 #FILL1   (A17)        /* FILL TO 80 BYTES
0340     01 #DBIDN     (N5)
0350     01 #COUNTN   (N10)
0360     01 #CPUN       (N10)
0370     01 #DURN       (N10)
0380     01 #ION        (N10)
0390     01 #NOFNRRN    (N5)
0400     01 #UPDFLD     (A1)
0410     01 #CPUCOST    (N8.2)
0420     01 #DURCOST    (N8.2)
0430     01 #IOCOST     (N8.2)
0440     01 #TOTCOST    (N8.2)
0450   END DEFINE
0460 *****
0470   MOVE #FIN##### TO #FIN###
0480 *
0490 * CHOOSE 1 OF THE 2 GET STATS OPTIONS BELOW.
0500 *
0510   MOVE 0          TO #DBID          /* GET STATS FROM THE RESIDENT DBID
0520 * MOVE NNNNN      TO #DBID          /* GET STATS FROM SPECIFIED DBID
0530 *
0540 *
0550   CALLNAT 'TRMFINX' #FINPARM        /* GET STATS FROM SELECTED DBID
0560 *
0570   PERFORM SHOW-STATS
0580 *
0590   STACK COMMAND 'EX MENU'           /* WHILE TESTING
0600 * STACK TOP COMMAND 'REALFIN'       /* WHEN DONE TESTING
0610 *
0620 *
0630   DEFINE SUBROUTINE SHOW-STATS
0640 *
0650 *   #CONCD 0 = ADABAS RESP 0 AND WE HAVE STATS FOR THE USER

```

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```

0660 *          1 = VERSION RESP IS NON ZERO (SEE #ADARSP)
0670 *          2 = VERSION MISMATCH BETWEEN TRMFINX AND UEX4
0680 *          3 = VERSION MISMATCH BETWEEN TRMFIN AND TRIMFINX
0690 *          4 = STATISTICS NOT AVAILABLE FOR THIS USER
0700 *
0710 IF #CONCD = 1
0720   DO
0730     IF #ADARSP = 148
0740       DO
0750         MOVE #DBID TO #DBIDN
0760         INPUT (IP=OFF SG=OFF AD=AIL)
0770         *DATX (AD=OD) 3X 'FIN'
0780         25T 'NATURAL SESSION STATISTICS' (I)
0790         72T *TIME (AL=8 AD=OD)
0800         //// 15T 'DATABASE ' #DBIDN (EM=ZZZZ9 AD=OD) ' IS NOT ACTIVE.'
0810       DOEND
0820     IF #ADARSP = 17
0830       DO
0840         MOVE #DBID TO #DBIDN
0850         INPUT (IP=OFF SG=OFF AD=AIL)
0860         *DATX (AD=OD) 3X 'FIN'
0870         25T 'NATURAL SESSION STATISTICS' (I)
0880         72T *TIME (AL=8 AD=OD)
0890         //// 10T 'COMMUNICATIONS WITH DATABASE ' #DBIDN (EM=ZZZZ9 AD=OD)
0900           ' CAN NOT BE ESTABLISHED.'
0910       DOEND
0920     ELSE
0930       DO
0940         INPUT (IP=OFF SG=OFF AD=AIL)
0950         *DATX (AD=OD) 3X 'FIN'
0960         25T 'NATURAL SESSION STATISTICS' (I)
0970         72T *TIME (AL=8 AD=OD)
0980         //// 15T 'ADABAS RESPONSE CODE: ' #ADARSP
0990       DOEND
1000     ESCAPE ROUTINE
1010   DOEND
1020 IF #CONCD = 2
1030   DO
1040     INPUT (IP=OFF SG=OFF AD=AIL)
1050     *DATX (AD=OD) 3X 'FIN'
1060     25T 'NATURAL SESSION STATISTICS' (I)
1070     72T *TIME (AL=8 AD=OD)
1080     //// 10T 'VERSION MISMATCH ATTEMPTING TO GET STATS FROM TRMUEX4'
1090     ESCAPE ROUTINE
1100   DOEND
1110 *
1120 IF #CONCD = 3
1130   DO
1140     INPUT (IP=OFF SG=OFF AD=AIL)
1150     *DATX (AD=OD) 3X 'FIN'
1160     25T 'NATURAL SESSION STATISTICS' (I)
1170     72T *TIME (AL=8 AD=OD)
1180     //// 10T 'VERSION MISMATCH, STATISTICS NOT AVAILABLE'
1190     ESCAPE ROUTINE
1200   DOEND
1210 *
1220 IF #CONCD = 4
1230   DO
1240     INPUT (IP=OFF SG=OFF AD=AIL)
1250     *DATX (AD=OD) 3X 'FIN'
1260     25T 'NATURAL SESSION STATISTICS' (I)
1270     72T *TIME (AL=8 AD=OD)
1280     //// 15T 'STATISTICS NOT AVAILABE FOR THE USER'
1290     ESCAPE ROUTINE
1300   DOEND
1310 *
1320 *   THE FOLLOWING CALCULATIONS MAY BE TAILORED AS DESIRED
1330 *
1340   MOVE #DUR TO #DURN
1350   MULTIPLY #DURN BY .016

```

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```

1360 MULTIPLY #DURN BY .001 GIVING #DURCOST
1370 MOVE #COUNT TO #COUNTN
1380 MOVE #IO TO #ION
1390 MULTIPLY #ION BY .003 GIVING #IOCOST
1400 MOVE #CPU TO #CPUN
1410 MULTIPLY #CPUN BY .0001 GIVING #CPUCOST
1420 MOVE #NOFNR TO #NOFNRRN
1440 ADD #DURCOST #IOCOST #CPUCOST GIVING #TOTCOST
1450 *
1460 * THE FOLLOWING STATS DISPLAY MAY BE TAILORED AS DESIRED
1470 *
1480 INPUT (IP=OFF SG=OFF AD=ALL)
1490 *DATU (AD=OD) 3X 'FIN '
1500 25T 'NATURAL SESSION STATISTICS' (I)
1510 72T *TIME (AL=8 AD=OD)
1520 // 15T '*INIT-USER:' *INIT-USER (AD=IO)
1530 40T 'INTERNAL USER-ID:' #UID (AD=IO EM=HHHH)
1540 // 54T '--- COST ---'
1550 / 15T 'ADABAS DURATION (MS)'
1560 36T #DURN (AD=OD EM=ZZZZ,ZZZ,ZZ9)
1570 54T #DURCOST (AD=OD EM=ZZZZZ,ZZZ.99)
1580 // 15T 'COMMAND COUNT'
1590 36T #COUNTN (AD=OD EM=ZZZZ,ZZZ,ZZZ)
1600 // 15T 'I/O COUNT'
1610 45T #NOFNRRN (AD=OD EM=ZZ9)
1620 / 54T '===== '
1630 // 54T #TOTCOST (AD=IO EM=ZZZZZ,ZZZ.99)
1640 // 20T ' LAST NATURAL SECURITY ACCESS'
1650 // 20T 'APPLICATION:' #NSA (AD=IO) ' USER:' #NSU (AD=IO)
1660 / 77T #UPDFLD (AD=M)
1670 RETURN
1680 *
1690 END

```

VIII.2.2 TRMFIN Screen

The sample TRMFIN program will produce the following screen when the user attempts to "FIN". Once the user views the screen and hits ENTER (or any key), the screen will disappear, and the user will be taken out of NATURAL (via the "REALFIN" command).

```

01-12-31  FIN              NATURAL SESSION STATISTICS
11:38:00

      *INIT-USER:  LARRY1              INTERNAL USER-ID:  C1C4F4C3

                                --- COST ---
ADABAS DURATION (MS)              75,855              75.85
COMMAND COUNT                     32,206
I/O COUNT                        8,137              24.41
CPU INSTRUCTIONS                 198,175              19.81
NUMBER OF FILES                   4
                                =====
                                120.07

                        LAST NATURAL SECURITY ACCESS
                        APPLICATION:  TESTLIB      USER:  LARRY1

```

Note: TRMFINX is callable via CALLNAT from the user's own NATURAL Programs, such as Security exits, charge-back routine, etc.

VIII.3 TRMIPSWD

The TRMIPSWD subprogram is used to assign an ADABAS password with Read Authority to the files on the database that are password protected. This is necessary for those RTM functions that require FCB/FDT information to be read from ADABAS. If the passwords are not supplied here, the user will be prompted when a password-protected file is accessed on the IFDT screen.

The subprogram is passed the DBID as input and passes back the appropriate password for each file on that database that is password protected.

```

0010 *****
0020 *
0030 * PROPRIETARY SOFTWARE OF TREEHOUSE SOFTWARE, INC.  ALL RIGHTS RESERVED
0040 *
0050 *   NAME:      TRMIPSWD
0060 *
0070 * DESCR:     ASSIGNS ADABAS PASSWORD TO FILES FOR TRIM RTM USE
0080 *
0090 * NOTES:     THIS SUBPROGRAM IS USED TO ASSIGN AN ADABAS PASSWORD WITH
0100 *            READ AUTHORITY TO THE FILES ON THE DATABASE THAT ARE PASS-
0110 *            WORD PROTECTED.  THIS IS NECESSARY FOR THOSE RTM FUNCTIONS
0120 *            WHICH REQUIRE FCB/FDT INFORMATION TO BE READ FROM ADABAS.
0130 *
0140 *            TRMIPSWD IS PASSED THE DBID AS INPUT AND PASSES BACK THE
0150 *            APPROPRIATE PASSWORD FOR EACH FILE ON THAT DATABASE THAT IS
0160 *            PASSWORD PROTECTED.  IT ALLOWS FOR 200 PASSWORD PROTECTED
0170 *            FILES PER DATABASE.
0180 *
0190 *            EACH OCCURRENCE IN THE PASSWORD ARRAY CONTAINS THE FILE
0200 *            NUMBER AND A PASSWORD THAT IS ASSIGNED TO IT.  FOR EXAMPLE,
0210 *            IF #FILENUM(1) = 25 AND #PASSWORD(1) = 'TESTTEST' THIS MEANS
0220 *            THAT THE PASSWORD TESTTEST HAS BEEN ASSIGNED TO FILE 25 WITH
0230 *            READ AUTHORITY.
0240 *
0250 *****
0260 *
0270 DEFINE DATA
0280     PARAMETER
0290         01  #DBID                (N5)          /* DBID RTM CURRENTLY MONITORING
0300         01  #FILE-PASSWORD       (200)         /* PSWDS USED TO READ FILES ON DBID
0310         02  #FILENUM              (B2)          /* FILE NUMBER
0320         02  #PASSWORD             (A8)          /* PASSWORD
0330 END-DEFINE
0340 *
0350 *****
0360 * BELOW IS THE CODE THAT SHOULD BE CUSTOMIZED AT YOUR SITE FOR ANY
0370 * PASSWORD PROTECTED FILES ON YOUR DATABASES.  YOU CAN CODE A SET
0380 * OF PARAMETERS FOR EACH DATABASE THAT HAS PASSWORD PROTECTED FILES.
0390 * NO PARAMETERS ARE NEEDED IF THERE ARE NO PASSWORD PROTECTED FILES.
0400 *****

```

Note: TRIM will use the following values as default passwords. These values may be modified accordingly to meet the requirements of the site. Only those files that require a password need to have an entry moved into the #FILENUM and #PASSWORD arrays.

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```

0410 *
0420 DECIDE ON FIRST VALUE OF #DBID
0430 *
0440   VALUE 1                                     /* VALUE 1 = DBID 1
0450       MOVE 3                                TO #FILENUM(001)
0460       MOVE 'PW-3'                          TO #PASSWORD(001)
0470 *
0480       MOVE 92                              TO #FILENUM(002)
0490       MOVE 'TESTTRIM'                     TO #PASSWORD(002)
0500 *
0510       MOVE 120                             TO #FILENUM(003)
0520       MOVE 'PW-120'                       TO #PASSWORD(003)
0530 *
0540       MOVE 149                             TO #FILENUM(004)
0550       MOVE 'PAYROLL'                      TO #PASSWORD(004)
0560 *
0570       MOVE 288                             TO #FILENUM(005)
0580       MOVE 'PRODCAR'                     TO #PASSWORD(005)
0590 *
0600       MOVE 12345                          TO #FILENUM(006)
0610       MOVE 'TULIPS'                      TO #PASSWORD(006)
0620 *
0630   VALUE 222                                 /* VALUE 222 = DBID 222
0640 *
0650       MOVE 44                              TO #FILENUM(001)
0660       MOVE 'ROSES'                        TO #PASSWORD(001)
0670 *
0680       MOVE 299                             TO #FILENUM(002)
0690       MOVE 'TRAINS'                      TO #PASSWORD(002)
0700 *
0710       MOVE 23456                          TO #FILENUM(003)
0720       MOVE 'RAIN'                        TO #PASSWORD(003)
0730 *
0740   NONE VALUE
0750 *
0760       IGNORE
0770 *
0780 END DECIDE
0790 *
0800 END

```

SECTION IX

ERROR DETECTION, PROBLEM DIAGNOSIS

IX.1 Error Messages in Batch Runs

Error numbers with meaningful messages pertaining to incorrect parameters for batch runs are usually displayed directly after the parameter in error.

Any parameter error will cause TRIM to terminate with condition code 4095 without processing any input log records. In VSE, this termination is via PDUMP with Register 15 containing 4095 (hex FFF). The parameters must be corrected and the job rerun.

Error messages for a reason other than parameter errors will be printed on the applicable report(s).

Error Message:	TRM001	INVALID STATEMENT NAME
-----------------------	---------------	-------------------------------

Explanation:	The statement name encountered is not a valid TRIM statement. Possible causes may include: <ul style="list-style-type: none">• The input parameter file is not a TRIM parameter file.• Misspelled or omitted statement name.• Invalid continuation from previous line (missing comma at end of previous line).• Statement name not followed by a blank.
--------------	--

Error Message:	TRM002	INVALID PARAMETER SEPARATOR
-----------------------	---------------	------------------------------------

Explanation:	The only separators allowed are the comma, greater than symbol, less than symbol, equal sign, and not-equal symbol.
--------------	---

Error Message:	TRM003	NULL PARAMETER INVALID
-----------------------	---------------	-------------------------------

Explanation:	The parameter cannot be null. A possible cause is a double comma.
--------------	---

Error Message:	TRM004	POSITIONAL PARAMETERS NOT ALLOWED
-----------------------	---------------	--

Explanation:	Either the positional parameter is not allowed or the maximum of 50 positional parameters was exceeded.
--------------	---

Error Message: **TRM005** **UNKNOWN OR INVALID KEYWORD**

Explanation: The keyword parameter is not valid. Possible causes may be a misspelled keyword or a keyword that is valid for another statement, but not this one.

Error Message: **TRM006** **LIST SIZE EXCEEDED (MAXIMUM 10)**

Explanation: Only 10 entries are allowed in a list of parameters in parentheses.

Error Message: **TRM007** **LIST OF VALUES NOT ALLOWED**

Explanation: The parameter must be a single value, not a list of values.

Error Message: **TRM008** **REQUIRED PARAMETER MISSING**

Explanation: A required parameter is missing. Possibly it is misspelled, or a comma is missing at the end of the line and the parameter is present on the following line.

Error Message: **TRM009** **PARAMETER LENGTH EXCEEDED**

Explanation: The parameter length is larger than permitted.

Error Message: **TRM010** **PREMATURE END-OF-FILE**

Explanation: The parameter file has reached the end, but the previous line indicated another line to follow by having a comma at the end of the previous line.

Error Message: **TRM011** **INVALID END OR CONTINUATION OF STMT**

Explanation: Parameters must be continued by placing a comma after the last character of the previous line and starting the next line after Column 1. No lines can extend beyond Column 71. Possibly the statement ended before an expected ending quote, a right parenthesis, or a comma was encountered.

Error Message: **TRM012** **INVALID NUMERIC VALUE**

Explanation: Only the numeric digits 0 through 9 are allowed for numeric parameters. Possibly an excessive number of digits were specified.

Error Message: **TRM013** **INVALID HEXADECIMAL VALUE**

Explanation: Valid hexadecimal digits are 0 through 9 and A through F. Possibly the ending quote is missing.

Error Message:	TRM014	INVALID PARAMETER VALUE
Explanation:	The parameter is not one of the acceptable values.	

Error Message:	TRM030	STATEMENT NO LONGER VALID
Explanation:	This statement is no longer valid.	

Error Message:	TRM031	PARAMETER NO LONGER VALID
Explanation:	This parameter is no longer valid.	

Error Message:	TRM038	LOG FORMAT (4) AND LOGTYPE CONFLICT
Explanation:	The Logtype was specified as CLOG5 for log format 5, and the input log encountered was log format 4.	

Error Message:	TRM039	LOG FORMAT (5) AND LOGTYPE CONFLICT
Explanation:	The Logtype was specified as COMMAND for log format 4, and the input log encountered was log format 5.	

Error Message:	TRM040	INPUT OR UEX1/4 STMT REQUIRED
Explanation:	One INPUT statement is required to identify the type of log input being processed. One UEX1 statement is required to identify this TRIM run as a "User-Exit-1 Communication Run". One UEX4 statement is required to identify this TRIM run as a "User-Exit-4 Communication Run."	

Error Message:	TRM042	STATEMENT INVALID FOR INPUT TYPE
Explanation:	The statements permitted for this input type are listed in the <i>TRIM Reference Manual</i> .	

Error Message:	TRM044	FILE MUST BE 1 THRU 65535 FOR LOCK/UNLOCK
Explanation:	LOCK/UNLOCK for file zero is not permitted. The first (positional) parameter must be a file number in the range 1-65535.	

Error Message:	TRM045	TOO MANY FIELD STATEMENTS
Explanation:	A maximum of 40 user-defined or "derived" fields are allowed.	

Error Message: TRM046 FIELD LENGTH OR DECIMALS INVALID

Explanation: For 'C' or 'H' format, the field length may be specified as one to 16 bytes. For 'B' format, the field length may be specified as one, two, or four bytes with one to five decimal positions.

Error Message: TRM047 FIELD NAME RESERVED OR ALREADY USED

Explanation: The FIELD statement NAME=name contains a reserved field name (Refer to the Expanded Detail Record in Figure 6, Expanded PRESUM Record in Figure 7, the Expanded TRELOG Record in Figure 8, and the Expanded Protection Log in Figure 9 in the **TRIM Reference Manual**). It is possible the name was already used in a prior FIELD statement.

Error Message: TRM048 VALUE STATEMENT BYPASSED

Explanation: A previous FIELD statement is erroneous, so this VALUE statement is bypassed.

Error Message: TRM050 REPORT STMT REQUIRED BEFORE THIS STMT

Explanation: The sequence of statements is invalid. A REPORT statement that identifies the report must precede this statement.

Error Message: TRM051 INVALID PRINTER LINE-SIZE

Explanation: The printer line-size is limited to between 72 and 4000 positions.

Error Message: TRM052 AT LEAST ONE REPORT STATEMENT REQUIRED

Explanation: At least one REPORT statement must be present. Otherwise, there is no reason to run TRIM.

Error Message: TRM053 DETAIL REPORT EXCEEDS LINE-SIZE

Explanation: The detail report has been determined to exceed the line-size. Possibly an excessive number of fields are being displayed. The user may define two separate reports to get all of the desired fields displayed.

Error Message:	TRM060	INVALID FIELD NAME xxxxxxxx
Explanation:	The indicated field name is not one of the allowable Command Log Detail Record, PRESUM Record, TRELOG Record, Protection Log fields or one of its alias names, or one of the user-defined fields. Consult the following sections of the <i>TRIM Reference Manual</i> : Section V.1.1 ADABAS Command Log Detail Record Fields , Section V.1.5 ADABAS Command Log PRESUM Fields , Section V.2.2 ADABAS Protection Log Fields , and Section V.1.8 ADABAS Command Log TRELOG Fields .	

Error Message:	TRM061	FIELD INAPPROPRIATE FOR SUMMARY REPORT xxxxxxxx
Explanation:	The xxxxxxxx field is not one of the numeric log fields for which summary calculations may be performed, or it is not a numeric user-defined field. Consult the sections listed above in TRM060.	

Error Message:	TRM062	STATEMENT INVALID FOR SUMMARY REPORT
Explanation:	The statement is invalid for a summary report. Possibly it is valid, but only for a detail report.	

Error Message:	TRM070	STATEMENT INVALID FOR DETAIL REPORT
Explanation:	The statement is invalid for a detail report. Possibly it is valid, but only for a summary report.	

Error Message:	TRM071	CONTROL STMT SUMMARY LEVELS EXCEED 10
Explanation:	The CONTROL statement is limited to 10 fields, providing control levels to a depth of 10. Receiving this error possibly implies a misunderstanding of summary reports. Refer to Section VI.2.8 Control of the <i>TRIM Reference Manual</i> .	

Error Message:	TRM074	INVALID CHARGE VALUE
Explanation:	CHARGE parameter analysis revealed an invalid value. The syntax must be: FIELD-NAME followed by an asterisk (times the value), followed by a numeric value of 5 digits or less with one possible decimal point. The value may have a preceding minus sign. Refer to Section VI.2.14 Charge of the <i>TRIM Reference Manual</i> .	

Error Message:	TRM078	FEATURE REQUIRES TSI AUDITING FACILITY
Explanation:	An attempt has been made to use a feature available only in AUDITRE, Treehouse Software's Auditing Facility.	

Error Message:	TRM080	FAILURE GETTING FDT FOR THE SHOW FNR
Explanation:	The dataset TRMFDnnn cannot be opened or read. Possibly the SHOW FNR=nnn is an inappropriate file number.	

Error Message:	TRM081	NO FDT RECORDS
Explanation:	No FDT records are available for the TFDnnnnn dataset, where nnn is the file number specified on the SHOW statement.	

Error Message:	TRM082	SHOW GROUP OR OCCURRING FIELD
Explanation:	The SHOW statement cannot specify a group field or an occurring field without occurrence numbers.	

Error Message:	TRM083	SHOW COUNT FOR NON-OCCURRING FIELD
Explanation:	The SHOW statement cannot specify a count field for a non-occurring field.	

Error Message:	TRM084	SHOW INVALID FOR LOGTYPE
Explanation:	The SHOW statement is only valid for LOGTYPE=PROTECTION.	

Error Message:	TRM085	SHOW FIELD NOT AVAILABLE
Explanation:	The SHOW field is not a valid field in this file as indicated by the ADAWAN or ADACMP loader cards in the TRMFDnnn dataset.	

Error Message:	TRM086	HYPHEN NOT ENCOUNTERED IN RANGE
Explanation:	The SHOW statement specification of an occurring field does not contain a hyphen in what appears to be an occurring range.	

Error Message:	TRM087	RANGE ERROR
Explanation:	The SHOW statement occurring field range is invalid.	

Error Message:	TRM088	EXCESSIVE SHOW FIELDS
Explanation:	There are too many SHOW fields. A 10k buffer is used to decompress the shown fields. This 10k limit has been exceeded.	

Error Message:	TRM089	SHOW MU IN PE SPECIFICATION ERR
Explanation:	There is an error in SHOW specifications for MU within PE (after the #).	

Error Message:	TRM090	EXCESSIVE LOG STATEMENTS
Explanation:	There are too many LOG statements. The maximum is approximately 50.	

Error Message:	TRM091	UEX4 COMMUNICATION UNSUCCESSFUL
Explanation:	The TRIM User-Exit-4 Communication Run was unsuccessful. Possible causes: <ul style="list-style-type: none">• The run was made against the wrong database, possibly due to an incorrect STEPLIB.• The wrong database was being used due to the DDCARD DBID specification.• The TRIM User-Exit-4 was not loaded because the ADARUN parameters did not specify UEX4=TRMUEX4.• The ADARUN parameters did not specify LOGGING=YES.• The logging dataset is "dummied out".• The ADARUN parameters specified LOGGING=NO, or logging was turned off by operator commands.• The user's own User-Exit-4 does not properly co-exist with TRIM User-Exit-4.	

Error Message:	TRM092	PRESUM SPECIFICATION ERROR
Explanation:	There is a problem with the PRESUM specification.	

Error Message:	TRM093	EXCESSIVE DYNAMIC LOGGING PARAMETERS
Explanation:	The combination of TRMLOG default logging parameters and user-communicated dynamic logging parameters is excessive.	

Error Message:	TRM095	UEX1 COMMUNICATION UNSUCCESSFUL
Explanation:	The TRIM User-Exit-1 Communication Run was unsuccessful. Possible causes: <ul style="list-style-type: none">• The run was made against the wrong database, possibly due to an incorrect STEPLIB.• The wrong database was being used due to the DDCARD DBID specification.• The TRIM User-Exit-1 was not loaded because the ADARUN parameters did not specify UEX1=TRMUEX1.	

Error Message:	TRM096	UNSUCCESSFUL - UEX1 REQUIRES UEX4
Explanation:	In order to use TRMUEX1 functions, TRMUEX4 must also be used and be functional (refer to TRM091).	

Error Message: TRM099 SEVERE PARAMETER ERROR(S)

Explanation: An earlier parameter error was detected and a message was printed. The run will be ABENDED with a completion condition code of 4095. No input log records are processed when there are parameter errors.

Error Message: TRM100 OPEN OPERATION FAILURE ON LOG INPUT

Explanation: The dataset defined to contain the log input could not be opened. This indicates a JCL specification problem. The run will be aborted with a completion condition code of 4093.

Error Message: TRM110 OPEN OPERATION FAILURE ON PRINTER nn

Explanation: The dataset defined to contain the indicated printer-nn output could not be opened. This indicates a JCL specification problem. Printer zero (TRMPRT00) is always required for printing the input parameters. Printer one (TRMPRT01) is always required to print any reports. Printer two, three, etc., are required if, and only if, there are multiple detail reports. Possibly there are not enough printer datasets defined for the number of detail reports requested. The run will be aborted with a completion condition code of 4092.

Error Message: TRM111 OUTPUT ERROR ON PRINTER nn

Explanation: The dataset defined to contain the indicated printer-nn output has malfunctioned. The run will not be aborted. The missing report can be run at a later time.

Error Message: TRM120 OPEN OPERATION FAILURE ON OUTPUT nn

Explanation: The nnth dataset defined to contain detail or summary output could not be opened. This indicates a JCL specification problem. The run will be aborted with a completion condition code of 4091.

Error Message: TRM121 OUTPUT ERROR ON OUTPUT nn

Explanation: The nnth dataset defined to contain the detail or summary output has malfunctioned. The run will not be aborted. The missing output can be generated at a later time.

Error Message: TRM190 CLOSE OPERATION FAILURE ON xxxxxxxx

Explanation: The xxxxxxxx dataset close operation has failed. The run will not be aborted. If the file is an output file, possibly the data will have to be regenerated.

Error Message: TRM200 REPORT LIMIT REACHED

Explanation: The limit of records specified for this report has been reached. Perhaps this has been a test run to view the type of report being output. If not, possibly the limit should be raised or removed altogether for subsequent runs.

Error Message: TRM201 SUMMARY REPORT EXCEEDS LINE-SIZE

Explanation: The exact format of the summary report is not determined until all input log records are processed. Only then are the values of all sums, maximums, averages, etc. known. Only then can the report be formatted to a logical columnar design. All fields up to the one that goes beyond the line-size will be printed. For subsequent runs, either:

- define a larger line-size, if possible.
- specify less summary calculations on this report.
- define another report to contain additional necessary summary figures.

Error Message: TRM250 ADABAS RESPONSE CODE nnn

Explanation: An ADABAS Response Code was received on a User-Exit-1 or User-Exit-4 Communication Run.

Error Message: TRM255 INVALID OUTPUT FILE-TYPE

Explanation: An invalid output file type has been encountered.

IX.2 Condition Codes in Batch Runs

Upon successful completion in OS, TRIM will set the condition code (Register 15) to zero before returning to the caller (operating system). In VSE, TRIM will execute an EOJ.

Abnormal termination in OS will result in the setting of the following condition codes:

<u>CODE</u>	<u>MEANING</u>
4095	A parameter error has been encountered. Refer to the report on printer zero (TRMPRT00). At least one error message will identify the error. All parameter errors must be corrected before TRIM will process input log records.
4094	Insufficient storage to process desired reports.
4093	An error has been encountered in attempting to open or read the input parameter file. Check the JCL.
4092	An error has been encountered in attempting to open the input log file. Check the JCL.
4091	An error has been encountered in attempting to open an output dataset. The output dataset number (01-99) is noted in an error message on printer zero.
4090	An error has been encountered in attempting to open printer zero (TRMPRT00) or a report printer dataset. The printer number (01-99) is noted in an error message on printer zero.
4089	ADABAS Response Code encountered. Refer to associated error message.
4088	Failure in attempting to open or read the ADAWAN or ADACMP FDT for the SHOW FNR.
4087	Failure in getting the FDTs.

In VSE, abnormal termination will be via PDUMP with Register 15 containing one of the above codes.

IX.3 TNM Exit Codes

TNMNAT001	BAD ADABAS RESPONSE CODE XXX ON COMMAND YY – ZZZZZZZZ XXX is replaced with the non-zero response code from ADABAS. YY is replace with the command code that received the non-zero response code. ZZZZZZZZ is replaced with a module identifier of the location where the command was issued.
TNMNAT002	CMDBB BUSER FIELD IS IN USE BY ANOTHER PRODUCT
TNMNAT004	NATURAL ENVIRONMENT IS NOT VALID Either NTFILE 121 has not been correctly specified or not all of the TNM NATURAL exits have been installed.
TNMNAT007	USERBUF AREA WAS NOT PROVIDED VIA NATURAL PARAMETER The USERBUF parameter of the NATPARM module has not been specified.
TNMNAT008	TNMMODA GETMAIN FAILURE An error occurred attempting to perform a GETMAIN. The most common reason for this error is that TNM was unable to obtain an 8M user area.
TNMNAT009	USERBUF AREA PROVIDED VIA NATURAL PARAMETER IS NOT LARGE ENOUGH The value for the USERBUF parameter of the NATPARM module is not large enough.
TNMNAT012	LUMMODA ADALNK NOT LINKED IN THE NATURAL MODE ADALNKR is not linked with NATURAL. Refer to Section II.10 Create Re-entrant ADALINKs for information on how to assemble and link ADALNKR.
TNMNAT080	READ PARM TOO LOW. NO STATISTICS WILL BE COLLECTED The interval specified for reading the TNM parameter record is less than one minute. Contact Treehouse Software.
TNMNAT081	READ PARM TOO HIGH. NO STATISTICS WILL BE COLLECTED The interval specified for reading the TNM parameter record is greater than ten minutes. Contact Treehouse Software.
TNMNAT085	WRITE PARM TOO LOW. NO STATISTICS WILL BE COLLECTED The interval specified for writing the TNM parameter record is less than one minute. Contact Treehouse Software.
TNMNAT086	WRITE PARM TOO HIGH. NO STATISTICS WILL BE COLLECTED The interval specified for writing the TNM parameter record is greater than ten minutes. Contact Treehouse Software.

IX.4 **TNM Data Collection Error Codes**

When entering TNM:

Group 1: ADABAS Flags:

<u>Return Code</u>	<u>Description</u>
80	TNM-FILE Open Error (ADA #1). This error occurs during open in EX2 error reference #1.
40	Event Detail Record Error (ADA #2). Error adding a record in Exit B error reference #3.
20	Program Summary Record Error (ADA #3). This error occurs with find w/hold and add/update commands in exit 4 error references #1 and 2.
10	Parameter Record Error (ADA #4). Indicates an invalid system parameter record read in Exit B error reference #6.
08	End Transaction Error (#5). Indicates a problem issuing an ET from exit 2 or exit B. Both have error reference #4.
04	Release Control Error (ADA #6). Indicates a problem issuing an RC from exit 2 (error reference #2 and 3), exit B (error reference #1 and 2).
02	Invalid Installation Parameter. User Summary Record.

Installation Error Flags:

<u>Return Code</u>	<u>Description</u>
65	User-exits not installed properly.
02	TNM Parm Error.

Collection Error Flags:

<u>Return Code</u>	<u>Description</u>
80	Collection turned off.

IX.5 Frequently Encountered Problems

Problem: TRIM MODULE/LIBRARY MANAGEMENT

Explanation: The most common TRIM problem is one of TRIM Module/Library mismanagement by the user. Each new version of TRIM is distributed on a newly named library on tape, TRIM.Vxxx.LOAD(xxx = version). The member names (TRIM, etc.) tend to stay the same from version to version. Upon installing this library, users often rename, copy, move members, etc. Fixes (Zaps) supplied by Treehouse Software often get applied without resulting in any apparent fix of the problem because the wrong library or wrong member has been zapped. Some users link their own User-Exit-4 with TRMUEX4 and forget to Zap this new module. Sometimes User-exit Communication Runs are attempted with one version of TRIM and a different version of the user-exit.

This problem can be solved through better user module/library management.

Problem: ADABAS COMMAND LOG LAYOUT

Explanation: TRIM supports the log record format offered by ADABAS 5.2 and above, known as CLOGLAYOUT=5. There are slight differences in the format and data that ADABAS puts in some of the log fields in CLOGLAYOUT=4 and CLOGLAYOUT=5. For example, the USERID field is 8 bytes long in CLOGLAYOUT=5, but it is 4 bytes long in CLOGLAYOUT=4. For more information, refer to the ADABAS Manuals for the new record layout.

Problem: COMMUNICATION FAILURE TRYING TO EXECUTE THE RTM

Explanation: One of the following conditions is true:

- RTM was not installed with the correct ADARUN parameters (installed on the wrong database).
- TRMUEX4 executing is not the same Version/Release level as the RTM.
- UEX4= was not specified or specified the wrong User-Exit-4 when ADABAS was activated.
- The Command Log dataset (file) was "dummied out" or IGNored when ADABAS was activated.
- The User's UEX4 does not properly co-exist with TRMUEX4.
- ADABAS LOGGING=NO was specified or ADABAS Logging was turned off by operator command.
- An attempt is being made to monitor another DBID that is not valid or for which one or more of the above conditions is true.

<p>Note: If LOGGING=NO is specified to ADABAS, turning logging on via operator command is useless as far as TRIM is concerned. This is because ADABAS makes an initial determination as to whether or not to load and use the User-Exit-4. If LOGGING=NO, the User-Exit-4 will not be loaded initially nor will it ever be loaded.</p>

Problem: COMMAND SEQUENCE OR PARAMETER SYNTAX ERROR MESSAGES

Explanation: Parameter error messages, incorrectly processed parameters, and unexpected results can be avoided by using proper Command sequencing and Parameter syntax.

Problem: FILE 0 DISPLAYED IN TRIM BATCH OR REAL-TIME MONITOR

Explanation: Certain TRIM batch and RTM reports or displays show File 0, but no File 0 is defined on the database. This is a result of ADABAS being supplied a File Number Zero (correctly) for certain commands. These commands include BT, CL, C1, C2, C3, C5, ET, OP, RC, and RE.

Problem: STATISTICS SHOW INAPPROPRIATE COMMANDS FOR A FILE

Explanation: Certain ADABAS commands require no file number (the ADABAS commands ignore any particular value in the file number field). Values remaining in the file number field are recognized in TRIM as valid. Often this includes file 64 (caused by hex 40 - blank) or file 16448 (caused by hex 4040).

Problem: STATISTICS FROM RTM AND CLOG SUMMARY REPORT DO NOT AGREE

Explanation: Certain commands, such as RC, BT, OP, CL, ET, etc., will operate correctly in ADABAS with or without a valid file number (i.e., ADABAS ignores the file number). A "correction" is made in TRIM User-Exit-4 for on-line functions (minute, hour, session statistics, and Nucleus Session Statistics). The FNR is changed to zero for commands that should have specified FNR=0. This causes a mismatch with the TRIM batch CLOG reports for statistics based upon FNR. ZAPSWITCH X'29' provides the option to also have the FNR set to 0 in the CLOG, which would alleviate any mismatch of statistics. (See "Zero FNR" in **Section VI Tailoring with Zaps** and "Option for Zeroing FNR" in **Section II.4 Real-Time Monitor Operation** of the *TRIM Reference manual* for additional information.)

To avoid filling up the TRIM collection tables with its own internal commands, TRIM's User-Exit-4 does not keep statistics on any command from the RTM or any TRMV* NATURAL library. If the RTM is moved to another library, all database calls from any TNM* module will be logged. The calls from TRM* modules will only be logged on a rare occasion.

Problem: LINK-EDIT (VSE) PROBLEM USING PRODUCT "FLEE"

Explanation: Copy the link-edit JCL from the Installation Tape and remove the SIZE= parameter from the EXEC card image.

Problem: NATURAL PROGRAM DISPLAYS AS #NOTExxx, BLANK, OR STRANGE CHARACTERS

Explanation: Possibly non-NATURAL ADABAS commands were issued. Perhaps ADALINK/User-Exit-B is not properly in place for all NATURAL environments: Batch, TSO, CICS, COM-LETE, etc. Refer to the **NATURAL Program** sub-section in the **Real-Time Monitor Operations** section.

Problem: OUTPUT FILE APPEARS INCOMPLETE

Explanation: Output was limited by INPUT LIMIT=, INCLUDE/EXCLUDE, or OUTPUT LIMIT= statements.

Problem: PRESUM DATA IS INCOMPLETE

Explanation: TRMUEx4 start-up parameters may have PRESUM off/on, but may have been changed via Control Screens.

Problem: PRESUM REPORTS SHOW INVALID CMDs, FNRs, ETC.

Explanation: All PRESUM records have the same format with a "Type" indicator of 'C' for CMD, 'F' for FNR, etc. and the object of the PRESUM (CMD, FNR) field in bytes 36-51 of the record. When the report is involved with CMD statistics, it should INCLUDE TYPE=C, and when it is involved with FNR statistics, it should INCLUDE TYPE=F. Failure to include only the correct TYPE will cause other record types' objects to display on the report in an apparent erroneous fashion.

Problem: PROTECTION LOG PROCESSING PROBLEM (VSE)

Explanation: When processing multiple ADABAS Files in a single PLOG run, reference the Files in the same sequence as their Loader definition files are defined in the JCL (SYS006 for first file, SYS016 for second file, etc.).

Problem: REPORT APPEARS INCOMPLETE

Explanation: One of the following conditions is true:

- Report was limited by INPUT LIMIT=, REPORT LIMIT=, or INCLUDE/EXCLUDE statements.
- A summary report may be segmented because there is not enough storage to maintain all the summary accumulators requested. Providing more processing storage for the region or partition or reducing the complexity of the summary reports will reduce or eliminate segmenting.

Problem: REPORT CONTAINS DATA THOUGHT TO BE EXCLUDED

Explanation: Refer to the description and examples for the INCLUDE/EXCLUDE statements in **Section VI.2.5 Include/Exclude** of the **TRIM Reference Manual**.

Problem: TIME IS INACCURATE BY A MULTIPLE OF HOURS

Explanation: Local CPU is IPLed with a time other than the local time. Use the INPUT CLOCK-FACTOR= parameter to adjust to local time. The Clock Factor is calculated automatically in the RTM.

Problem: TRMUEX1/4 CAUSES ABEND WHEN CALLED BY ADABAS

Explanation: This is often caused by a user's UEX1/4 not correctly co-existing with TRMUEX1/4. Possibly a TRMUEX1/4 Zap is incorrectly applied.

Problem: **TRMUEX1 DOES NOT APPEAR TO BE CORRECTLY LOCKING, DISALLOWING, ETC.**

Explanation: User-Exit-1 parameters are not "incremental." Each Communication Run must re-specify all intended parameters.

Problem: **TRIM DOES NOT PRODUCE AN EXPECTED REPORT, AND THERE IS NO ERROR MESSAGE**

Explanation: One of the following conditions is true:

- No records were found of the type specified in the INPUT LOGTYPE= statement.
- No records were selected by the INCLUDE statement(s), or all records were rejected by the EXCLUDE statement(s).
- No records were found for this report within the set of records processed by the INPUT LIMIT= statement.
- Input tape (VSE) has a bad record or is missing a label record.

Problem: **USER DEFINED FIELD PROBLEM**

Explanation: User defined fields must not use a FIELD name already being used by TRIM. For example, the user-defined field cannot be named "FNR".

Problem: **PROBLEM READING USER DEFINED FILES**

Explanation: Input Files defined as INPUT LOGTYPE=* are expected to be Variable Length blocked files.

Problem: **TRACE SCREEN BLANK**

Explanation: When communicated from the RTM to the User-Exit-4 that the trace is for a particular user/job/file, etc., the user-exit responds with the stack of the last 19 commands for that user/job/file. On the first communication for a user/job/file, there are no commands stacked yet, since tracing has just started. Until the user/job/file executes commands, this screen will appear blank.

Problem: TRIM BATCH PROCESSING ABENDS DUE TO SHORTAGE OF MEMORY

Explanation: Too many SUMMARY reports or SUMMARY CONTROL fields were requested. This only occurs when a large amount of memory is used, and TRIM is forced to total and restart several times.

Less storage is used by more reports with fewer CONTROL fields than by fewer reports with more CONTROL fields. This is true because each level of control multiplies the accumulators required.

Problem: TRM014 WITH ABEND, BUT STATEMENTS APPEAR TO BE OKAY

Explanation: Parameters may have been specified in the wrong sequence.

Too many fields may have been defined in a single DISPLAY or SHOW statement.

Problem: TRIM, RTM OPERATION UNSUCCESSFUL

Explanation: At trial sites, this is often the case due to incorrect application of trial date extension Zaps. The Zaps must be applied to all appropriate modules. When TRMUEx4x is linked to the user's own User-Exit-4, the combined exit must be date-zapped. Similarly, if TRIM and/or TRMUEx4x are renamed or copied to another library, they must be properly zapped.

Problem: ADABAS LINK ROUTINE DOES NOT WORK PROPERLY

Explanation: If the Link Routine works without inclusion of TRIM User-Exit-B, check the User-Exit-B Zaps for erroneous application.

Another common error is to link with the wrong User-Exit-B. The link combinations must be:

- Batch/TSO ADALNK and TRMUExBB
- COM-LETE ADALCO and TRMUExB5 (COM-LETE 4.5 and later)
- CICS ADALNC and TRMUExB (CICS pre 3.2)
- CICS LNKOLSC or LNKOLM and TRMUExB2 (CICS 3.2 and later)
- IMS ADALNI and TRMUExBB

An abend can result in ADARUN when ADALNK and TRMUExBB are linked as re-entrant, but the appropriate modifications have not been made to ADALNK source to make it re-entrant. PLEASE VIEW THE ADALNK SOURCE.

Problem: UNABLE TO EXTRACT DATA FROM CLOG OR PLOG FOR A DATETIME RANGE

Explanation: The DATETIME field cannot be used in an INCLUDE or EXCLUDE with a value range. The DATETIME data contains an imbedded '--' that prohibits its use in a VALUE RANGE statement. To accomplish the same effect of DATETIME in a VALUE RANGE statement, the two fields, YYMMDD and TIME, must be used in concert. An example would be:

```
INCLUDE YYMMDD=XXXXXX,TIME=(range)
INCLUDE YYMMDD=YYYYYY,TIME=(range)
```

Another option is to use the DATE4TIME field that allows for expression of the year in four digits. An example would be:

```
INCLUDE YYYYMMDD=xxxxxxxx,TIME=(range)
```

Problem: UNABLE TO LOGON TO TRIM RTM AFTER EXITING AOS

Explanation: This problem had reportedly been solved by a recent AOS release. This problem has reportedly resurfaced in a newer AOS release. Contact Software AG.

Problem: DUPLICATE "TRIM IS ACTIVE" MESSAGES

Explanation: This is probably caused by joining two TRIM User-Exit-4s in one ADABAS environment. Either the two were linked together to co-exist or a dispatcher was coded to invoke both exits. Remove one; keep the newest one.

Problem: CO-EXISTENCE WITH REVIEW

Explanation: It has been noted by customers that REVIEW may destroy certain registers before calling the TRIM user-exit. This may have been fixed in later REVIEW releases. Contact Software AG.

Problem: UNEXPECTED VALUES IN TRIM DERIVED FIELDS IN THE VM ENVIRONMENT

Explanation: If the environment module TRMXVM was not included in the UEX1 and UEX4 link-edits, unexpected results will occur. Verify that TRMXVM has been linked with the UEX1 and UEX4 load modules before contacting Treehouse Software.

Problem: TRELOG REQUIRED FOR TRELATIONAL (1 OR 2)

Explanation: This error message indicates that tRelational Logging has been requested, but no TRELOG module has been linked into TRIM User-Exit-4. Assemble and link a TRELOG module with TRIM User-Exit-4, and retry activating tRelational Logging before contacting Treehouse Software.

Problem: TRELOG LOGGING STOPPED RC=004

Explanation: An internal error with the tRelational logging table has occurred. This requires stopping the database and restarting to be able to reactivate tRelational Logging. Please contact Treehouse Software.

Problem: TRMLOG IS TOO LARGE - IS TRUNCATED

Explanation: This error message indicates an overflow of the table containing the logging parameters specified via the TRMLOG macros. To avoid an abend condition, the parameters have been truncated with the last parameter to fit into the table. Logging will continue with the truncated parameters. Refer to the TRMLOG assembly for MNOTE statements indicating an overflow of the allowable table size. An MNOTE statement indicating the accumulated size may be found for each TRMLOG statement in the TRMLOG assembly.

Problem: TRIM WILL USE TRUNCATED TRMLOG

Explanation: This message will be found as part of the start up messages when a 'TRMLOG IS TOO LARGE - IS TRUNCATED' condition has been encountered. Refer to the 'TRMLOG IS TOO LARGE - IS TRUNCATED' message for details.

Problem: PROTECTION LOG PROCESSING ABENDS WHEN LOADER DEFINITION CARD IMAGE DATASET (FILE) IS READ

Explanation: The DDCARD (File Label) for the Loader definition dataset (file) may be missing from the Job Control.

Possibly the loader dataset (file) definition is not in 80 character format (unblocked for VSE).

To accommodate two-byte ADABAS file numbers, the SHOW statement FNR parameter has been changed to allow for file number values from 1 to 65535. Correspondingly, the file description (known in TRIM as the FDT or ADAWAN/ADACMP card images) is expected to be in datasets TFDxxxxx (for OS). Formerly, these were in datasets TRMFDxxx. VM EXECs for PLOG processing are similarly affected. VSE is unaffected, as the FDTs are expected to reside in SYS006, SYS016, etc. Siemens sites should contact the TSI German Affiliate for any changes necessary.

Problem: PROTECTION LOG PROCESSING PROBLEMS

Explanation: TRIM V7.6.1 can only process PLOGs from ADABAS V7.4.2.

Problem: **INFORMATION WRITTEN FROM THE USER'S USERINFO AREA SEGMENT IS MISSING. THIS COULD SHOW UP IN A COUPLE OF WAYS. IF SMF RECORDS WERE TO HAVE BEEN WRITTEN, THEY MAY BE MISSING. IF INFORMATION FROM THE USER'S USERINFO AREA SEGMENT WAS TO OVERLAY INFORMATION IN THE CLOG OR PRESUM RECORDS, IT MAY BE MISSING**

Explanation: The source for the UINFO macro changed in TRIM V5. At the time this changed, a corresponding source change was noted in the example for UEXITBU that establishes a user's area in the USERINFO area. This source change needs to be incorporated in the user's source for their UEXITBU. Without the source change, the user's USERINFO segment is not created correctly.

The old code was:

```
USERSIZE DCAL2(L'USER)                                Length of user area
```

The new code should be:

```
USERSIZE DCAL2(USEREND-USERLEN)                        Length of user area
```

Problem: **IN TNM, A "PURGE DISALLOWED" OR "CONVERSION DISALLOWED" MESSAGE IS DISPLAYED WHEN EXECUTING A PURGE OR CONVERSION**

Explanation: Another user is executing a purge or conversion for the same data. If no other users are executing a purge/conversion, the purge/conversion flag may not have been reset properly. This can happen if the last purge/conversion terminated abnormally, and the purge/conversion flag was left active for that user.

This flag will be reset if the user that experienced the abnormal termination executes the purge/conversion again and is successful.

Problem: **IN TNM, WHEN USING THE REPOSITION LIBRARY/PROGRAM OR REPOSITION USER-ID FIELDS ON A REPORT, THE USER DOES NOT REPOSITION TO THE EXPECTED LOCATION**

Solution: The parameters on the input screen create a subset of data to be displayed. The reposition fields can only reposition the user within that subset of data.

Problem: **IN TNM, IN THE PROGRAM PERCENTAGE SUMMARY REPORT OR USER PERCENTAGE SUMMARY REPORT, THE PERCENTAGE FOR EACH PROGRAM OR USER CHANGES AS THE USER PAGES FORWARD AND BACKWARD THROUGH THE REPORT**

Explanation: When the report is being executed for the current day, the data input to the report is constantly being updated. Each value that changes has the ability to cause every percentage on the report to change.

Problem: **IN TNM, THE CATALOGED DATE DISPLAYED ON THE REPORT IS NOT THE SAME AS THE DATE DISPLAYED ON THE NATURAL LIST COMMAND SCREEN**

Explanation: The date of the program's object code and source code are different. This could be caused by migrating only object code from another library or updating source code and not re-stowing the object code. To see the catalog date of the object code the user can type "LD" on the selection line next to the program name in the NATURAL editor. This will display both the source code and object code dates.

Problem: **IN TNM, NO SUMMARY DATA IS AVAILABLE FOR SELECTED USERS AND PROGRAMS**

Explanations: Under System Preferences on the Define Data Collection Parameters screen, the Enable All Data Collection field is set to "N".

The Enable Summary Data Collection field is set to "N".

The user is not executing a copy of NATURAL that includes the TNM NATURAL user-exits.

To avoid collecting access data while using the RTM, TNM will not collect statistics on any NATURAL module from a TRMV* library. If the RTM is moved to another library, collection will be done and excessive data will be collected during RTM operations. To avoid this problem, the RTM should be kept in a TRMV* NATURAL library.

Problem: **IN TNM, ON THE USER TRACE REPORT, RESPONSE TIME IS BLANK FOR A MAP**

Explanations: Response time is calculated by subtracting the start time of a map from the event time of the last terminal I/O. If data collection is turned on and a map start is executed before a terminal I/O, the response time for that map will be blank.

The Convert Detail Data function requires both a terminal I/O and map start to calculate response time. If either value is not available during the conversion, the response time will default to blank.

Terminal I/Os or Program Starts were not selected on the Define Data Collection Parameters screen to be collected, which will cause all response times to be set to blank.

Problem: **IN TNM, ON THE PROGRAM NEST REPORT, LIBRARY/PROGRAM DISPLAYS THE FOLLOWING MESSAGE: ">>>>14 LIBRARY-NAME PROGRAM-NAME"**

Explanation: The program is executed at a level greater than 14. Programs at level 15 or above will be displayed, but they will not be indented.

Problem: **IN TNM, NO DETAIL DATA EXISTS FOR THE USER, DATE, AND TIME SELECTED**

Explanations: The data collection parameters were specified incorrectly.

The Enable All Data Collection field on the Define Data Collection Parameters screen is set to "N". If this occurs, the user will be notified when starting TNM (if the user did not leave NATURAL before starting TNM).

The data was collected, but it was not converted at this time.

The Convert Detail Data function completed before all the detail data was available for converting.

TNM experienced an error while accessing with the TNM file. If this occurs, the user will be notified when starting TNM (if the user did not leave NATURAL before starting TNM).

The user is not executing a copy of NATURAL that includes the TNM user-exits.

To avoid collecting access data while using the RTM, TNM will not collect statistics on any NATURAL module from a TRMV* library. If the RTM is moved to another library, collection will be done and excessive data will be collected during RTM operations. To avoid this problem, the RTM should be kept in a TRMV* NATURAL library.

Problem: **IN TNM, AN ADABAS ERROR OR WARNING SCREEN APPEARS AS A USER ENTERS TNM**

Explanations: The warning screen informs the user that the administrator turned TNM off by setting the Disable All Data Collection parameter to "Y" on the Define Data Collection Screen. This occurred before the user entered NATURAL or while the user was in NATURAL. Therefore, the user may see that either no TNM data was collected or that partial TNM data was collected.

The TNM Data Collection Error screen informs the user that TNM experienced an error while communicating with the TNM file. When such an error occurs, TNM displays an error message to the operator, sets the ADABAS Error flag, and automatically stops collecting data. Therefore, the user may see that partial TNM data was collected.

Refer to **Section IX.6.3 TNM Warnings and Error Messages** for an explanation of the ADABAS Error flag that appears on the TNM Data Collection Error Screen.

Problem: **IN TNM, NO DATA APPEARS FOR LIBRARIES PREFIXED WITH SYS OR TRMVxxx**

Explanation: TNM does not collect statistics for these libraries.

IX.6 **Problem Diagnosis Checklists**

The following checklists may make it possible to diagnose or solve many TRIM problems. Four checklists are presented:

- Diagnosing an ADABAS ABEND, Possibly TRIM Related
- Diagnosing Real-Time Monitor Related NATURAL Errors
- Diagnosing TNM Warning and Error Messages
- Diagnosing TRIM Batch Reporting Errors

IX.6.1 **ADABAS ABENDs**

The following checklist may help to uncover the cause of a an ADABAS ABEND, possibly TRIM related.

- Has new Software AG software, IBM software, or any system maintenance recently been added to the system? If so, what?
New software or system maintenance may affect TRIM and its ability to function in the user's environment. Try running TRIM with the new software removed, if possible. If the problem goes away, the new software could be the cause. Call Treehouse Software for more information.
- Are all TSI published Zaps applied? Are they applied correctly?
The failure to apply all published Zaps or the incorrect application of a published Zap can have a severe negative impact on the operation of TRIM. Verify all Zaps. If the problem persists, contact Treehouse Software. At that time, verification can be made that all published Zaps have been received.
- What size TRIM User-Exit-4 was executing?
When debugging TRIM problems it is important to let TSI know what size TRIM User-Exit-4 encountered the error.
- Did any particular event seem to cause the ABEND, such as trying to execute a particular RTM screen? Which screen was being viewed (if any), and which screen was being requested next?
Make a note of the event causing the ABEND, then contact Treehouse Software.
- Can the problem be re-created?
Make a note of how the problem can be re-created and contact Treehouse Software.
- Does the abend occur across all databases? If not, what are the differences between the databases? Do all databases have TRIM User-exits operational? Is the same User-Exit-4 being used across all databases?
It is important that the TRIM versions are consistent across databases. Mixed versions can be unpredictable. Attempting to monitor a database without a TRIM user-exit in place on that database can also cause errors.
- Does the user have their own User-Exit-4 and/or User-Exit-1? Has each been properly linked with TRMUEx4 and/or TRMUEx1? Has the user's own user-exit been checked out by itself? With ADABAS?
If the user's user-exit is properly linked with TRMUEx4 and/or TRMUEx1, and the user's user-exit works on its own, contact Treehouse Software.

- Is this the first time this problem has occurred under this version of TRIM?
If this version of TRIM has been running consistently without problems and suddenly ABENDs, something may have changed. Installation of new software, application of maintenance, reorganizing load libraries, and other such changes could contribute to the problem and should be considered when attempting to solve the problem that is occurring.
- Is this the first attempt to run a new version of TRIM? If yes, did the problem occur under an older version?
If the new version of TRIM is incorrectly installed, an ABEND could result. Verify the installation before calling Treehouse Software.
If the problem did not occur under an older version of TRIM, contact Treehouse Software to determine why the problem might have occurred.
- Did the database ABEND immediately?
If inadequate storage is provided for the ADABAS region, an ABEND will occur immediately when ADABAS tries to load the user-exits.
- Does the problem still occur after TRIM is removed?
If the problem persists after TRIM is removed, the cause of the problem is not TRIM. Other areas should be researched.

Before calling Treehouse Software, be sure to have the ADAM99 information from the ADABAS SYSLOG available, along with the answers to the questions above. This information will greatly improve the speed at which the problem is resolved.

IX.6.2 Real-Time Monitor NATURAL Errors

If a NATURAL error message is received, the following checklist may help to uncover the problem:

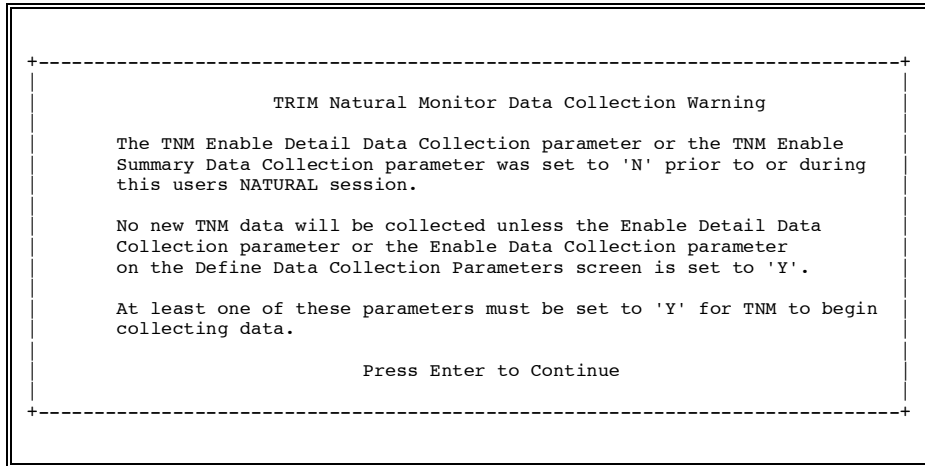
- Was a new version of NATURAL installed, or was any maintenance applied to NATURAL?
If TRIM worked with the previous arrangement, but not under the new situation, it is possible that the change to the NATURAL environment interferes with TRIM's operation. Contact Treehouse Software.
- Was a new version of TRIM recently installed?
Incorrect installation of the new version of TRIM can cause problems with operation, leading to ABENDS and NATURAL errors. Verify the installation procedure.
- Do the RTM and TRMUEx4 versions match?
Attempting to use different versions of the RTM and TRIM user-exits will cause NATURAL errors (and other unpredictable results) to occur. Be sure to install not only the new RTM, but also the new user-exits.
- Did the user specify TRMMENU instead of MENU as their NATURAL Security default start-up menu?
If so, globals are not set correctly and errors will occur. MENU should always be specified as the default start-up program.
- Which TRIM screen ABENDED? Does the error occur on more than one screen? If so, which screens encounter the error?
It is possible that a problem could cause some screens to ABEND, but not others. It will assist Treehouse Software's technical staff to know which screen(s) ABENDED. If navigating to another screen, it is helpful to know the screens involved (from and to).
- Was a new release of the NATURAL TP monitor recently installed, or was any maintenance applied to it?
Changes to the NATURAL TP monitor may cause it to become temporarily incompatible with TRIM. If TRIM was working before the changes were made, contact Treehouse Software.

Before calling Treehouse Software, be sure to have the errant program's name, line number, error code, and message text available, along with the answers to the questions above. This information will greatly improve the speed at which the problem is resolved.

IX.6.3 TNM Warning and Error Messages

Data Collection Warning

The message below is displayed when the user first enters TNM.



The message above indicates that either Detail Data Collection or Summary Data Collection is set to 'N'. The user must set at least one of the parameters to 'Y' for TNM to begin collecting data. Refer to **Section II.16.2.2 Define Data Collection Parameters** of the **TRIM Reference Manual** for more information.

ADABAS Errors

The following error message is displayed on the operator's screen if an ADABAS error occurs while a user is executing code being monitored by TNM:

```
TNM001 BAD ADABAS RESPONSE CODE xxxx ON COMMAND yy-zzzzzzzz
```

This message indicates an ADABAS error has occurred while TNM was trying to access ADABAS. An explanation of the error can be obtained by examining the ADABAS response code in the ADABAS Messages and Codes Manual.

xxxx	identifies the ADABAS response code.
yy	identifies the command code.
zzzzzzzz	identifies the module and ADABAS call that experienced the error.

For example, the following message is an ADABAS response code 77 in NATURAL User-Exit-4 on the second statement that occurs in User-Exit-4:

```
TNM0001 BAD ADABAS RESPONSE CODE 0077 ON COMMAND N1 - NUEX4 #2
```

This indicates that sufficient space was not available for a required Associator or Data Storage extent.

An error message is also displayed on the user's screen when the user first enters TNM. The error message identifies the ADABAS Error Flag.

```

+-----+
|               |
|      TNM Data Collection Error      |
|               |
|  An error has occurred during TNM data collection.  |
|  As a result of the error, TNM stopped collecting data. |
|               |
|  The following error detection flags have been set:  |
|               |
|      ADABAS Error Flag:                64          |
|      Installation Error Flag:           0          |
|      Collection Error Flag:             0          |
|               |
|               Press ENTER to Continue               |
|               |
+-----+

```

The verification program TNMA110P may be executed to help identify the cause of the ADABAS error. For additional information, refer to **Section II.16 Verify the TNM Installation**.

The following table displays ADABAS Error Flags and their explanations:

ERROR FLAG	EXPLANATION
128	TNM File Open Error 1) Open -NUEX2#1
64	Event Detail Record Error 1) Add -TNMB #3
32	Program Summary Record Error 1) Find w/Hold -NUEX4#1 2) Add/Update -NUEX4#2
16	Parameter Record Error 1) Read -TNMB #6
08	End Transaction Error 1) ET -NUEX2#4 2) ET -TNMB #4
04	Release Control 1) RC -TNMB #5
02	User Summary Record Error 1) Find w/ Hold -NUEX2#2 2) Find -NUEX2#3 3) Find -TNMB #1 4) Find -TNMB #2

The ADABAS Error Flag number should be identified when contacting Treehouse Software regarding an ADABAS error.

Note: Statistics collection will cease in the event of any of the ADABAS errors above.

Installation Errors

Installation errors are checked when the user first enters NATURAL, and the error detection flags are set before any data is collected.

The message below is displayed when the user first enters TNM if an Installation error has occurred.

```

+-----+
|                                     |
|           TNM Data Collection Error |
|                                     |
| An error has occurred during TNM data collection. |
| As a result of the error, TNM stopped collection data. |
|                                     |
| The following error detection flags have been set: |
|                                     |
|      ADABAS Error Flag:             0 |
|      Installation Error Flag:       65 |
|      Collection Error Flag:         0 |
|                                     |
|           Press ENTER to Continue |
|                                     |
+-----+

```

The following table displays Installation Error Flags and their explanations:

ERROR FLAG	EXPLANATION
65	User-exits not installed properly.
16	TNM was unable to find its User Info Segment information. Probable cause: NATRDC is installed with NATURAL 2.2.8.
12	TNM was unable to locate sufficient space for a work area. Increase the size of the selected buffer (USERBUF or ZSIZE) or select a different buffer.
01, 02	Invalid installation parameter.

The Installation Error Flag number should be identified when contacting Treehouse Software regarding an Installation error.

IX.6.4 **TRIM Batch Reporting Problems**

If none of the "Common Problems" are the cause of a TRIM batch reporting problem, consider the following checklist:

- Is the user specifying the correct LOGTYPE parameter in the reporting parameters?
Using a CLOGLAYOUT=5 command log with LOGTYPE=COMMAND will cause a compatibility error. Likewise, using a CLOGLAYOUT=4 command log with LOGTYPE=CLOG5 will also cause a compatibility error. Make sure the command log input matches the LOGTYPE parameter setting.
- Is the user executing a TRIM module of the same version in which the CLOGs and/or PLOGs were generated?
Using older logs with newer TRIM versions and vice-versa can cause problems with TRIM batch reporting functions. Contact Treehouse Software for more information.
- Did this problem exist in prior versions of TRIM?
If this is the case, contact Treehouse Software.
- Was a large enough region supplied in which to run the report?
The lack of sufficient storage area can cause batch reporting to ABEND. Try a larger region size before calling Treehouse Software.
- What specifically is wrong with the report?
When contacting Treehouse Software, specify precisely what is wrong with the report (i.e., it contains invalid data, the headings are wrong, etc.).
- Was all necessary information logged before producing the report?
For instance, if the user wants to report on NATURAL program name, was the Control Block logged?

Failure to log the necessary information will make reporting on that information impossible.

If the user is logging the proper records and data is not appearing in TRIM reports, dump the log and see if the desired information has actually been logged.
- Does the customer's JCL point to the correct Load Library?
When new versions of TRIM are installed, customers sometimes fail to update JCL to reflect the new Load Libraries.
- Are file definitions correct?
Protection Log problems are almost always due to the file definitions not matching what is actually on the file. Verify that the definitions are correct by dumping the Protection Log (or run a TRIM report, including the ABENDING record, and DISPLAY IMAGE), and compare it with the ADAWAN or ADACMP file definition.
- Did the correct "FNR=nnnnn" appear on the SHOW statement?
The "FNR=nnnnn" parameter states the ADABAS file number. If this parameter is missing, file zero will be assumed, ending the run as a JCL error for lack of ADAWAN or ADACMP cards for file zero.

- Did a PLOG run fail?

Usual problems that would cause an abend during PLOG processing are:

- *The PLOG being processed is from the wrong database, but it happens to have the same file number. (i.e., There are different Files 102 with different field layouts on databases 250 and 251.)*
- *The ADAWAN/ADACMP definitions and the ADABAS FDT do not match. It may be that the file definition was recently modified and the TRIM job being run is using the new file definition with an old PLOG tape. Upon closer investigation, the customer will probably discover that this happens on one particular record in a particular file, probably the first record for the file.*

An unusual problem that would cause an abend is:

- *The input for the job is a CLOG, not a PLOG.*
- Has the customer tried a PLOG "phased-test?"
When a complicated PLOG run ABENDs, the customer should attempt to assist in determining the problem by first trying one Report on one file, DISPLAYing some "fixed fields", but SHOWing no ADABAS fields. Then, if this works, try SHOWing one field, the first field. Do not SHOW ALL. Steadily increase complexity until the failure occurs.

To determine the problem, TSI (or the customer) will need the following items:

- *ADAWAN/ADACMP cards supplied to TRIM*
- *TRIM parameters used to process the file*
- *TRIM report (several pages up to the failure point)*
- *A "dump" of the PLOG for the failing record*

The PLOG "dump" can be accomplished in the following manner:

- *If the TRIM parameters report on multiple files, then temporarily reduce the complexity of the run to the failing file. Then reduce the run to the failing record. There may already be enough information to do so, such as a SEQ or TIME field value that can be used in an INCLUDE for the next run.*
- *Process the PLOG with a DISPLAY IMAGE statement included with the rest of the parameters. This DISPLAY IMAGE can be placed after any other DISPLAY statements and before any SHOW statements. The DISPLAY IMAGE will cause a hex dump of the entire compressed record that TRIM is attempting to decompress.*
- *If the DISPLAY IMAGE results in a huge printout then try running against the PLOG one time without the DISPLAY IMAGE for the purpose of determining the failing record. DISPLAY the SEQ, TIME, FNR, etc. fields. Then run against the PLOG again, "dumping" a small portion of records that include the failing record with a DISPLAY of the SEQ, TIME, FNR, and IMAGE fields.*

After acquiring the information above, often the problem can be seen if one understands the rules for decompression. If not, TSI should be able to help. As a last resort, send the collected information to TSI.

- If a TRIM report seems inconsistent or invalid, was logging somehow deactivated?

Logging could have been deactivated by an operator command, PRESUM logging turned off via the RTM, or a User-Exit-4 Communication Run may have been submitted without the user's knowledge, altering the logging specifications.

In addition, if TRMTAP and/or TRMLOG macros were used to activate logging the user should have linked the macros with a "clean" TRMUEX4 and not with a TRMUEX4 that had been previously linked with a TRMTAP and/or TRMLOG macro.

IX.7 ADABAS Experiences

During the testing process for TRIM, certain observations were made regarding ADABAS 7 releases and their interaction with TRIM. Changes in subsequent ADABAS 7 releases may correct any of the problems or inconsistencies noted below.

ADABAS COMMAND STATISTICS

A new type of ADABAS command, the INTERNAL COMMAND, is being encountered. These commands are generated by the ADABAS nucleus in response to OPERATOR commands, UTILITIES, or to perform internal processing. INTERNAL COMMANDS are not requested by a user program and are not executed in the user threads. TRIM distinguishes between INTERNAL COMMANDS and commands requested by the user on the Nucleus Session Statistics.

ADABAS and TRIM do not always agree as to the percentage used (high water marks) of the various buffers. This is primarily due to the fact that ADABAS appears to truncate when computing the percentage, and TRIM rounds when computing the percentage.

ADABAS does not appear to account for all of the users during an ADABAS session. This could result in a discrepancy when reporting commands by users and the number of users participating in an ADABAS session.

There is also a discrepancy concerning the number of OP commands and the high-water mark for the UQ. In all cases, TRIM's figures are higher than those generated by ADABAS in its final statistics printout. This is possibly because ADABAS does not count all OP commands, and it does not count all users. It is also possible that ADABAS ignores UTILITY users.

TRIM shows the number of internal commands generated by ADABAS. ADABAS does not.

ADABAS does not appear to account for all commands received when reporting commands by command-type. Furthermore, the number of commands reported by file does not always agree with the number of commands by command-type on the ADABAS session report.

When reviewing commands by file, remember that TRIM uses the file number in the Control Block, even if the command does not require a file (ET, OP, CL, RC), unless the ZERO FNR Option of TRIM is selected.

FULL XA SUPPORT

TRIM fully supports ADABAS buffer pools above the 16 MEG line under MVS/XA (AMODE=31).

COMMAND LOG FIXUP

The ADABAS 7 command log (CLOGLAYOUT=5), as it is presented to TRMUEx4, contains a few errors. For example, the JOBNAME and USER-ID values are not always correct within the log record. TRMUEx4 inserts the correct values into the log record.

STCK TIME INCONSISTENCIES

STCK time on the ADABAS Command Log (CLOGLAYOUT=5) is occasionally erroneous. The time should always be equal to or greater than the time on the previous log record. Sometimes, however, in ADABAS the current log has a lesser time than the previously completed command (i.e., it is not in ascending STCK sequence, and the STCK times can be off by as much as 5-10 minutes). TRMUEx4 was adjusted to recognize and handle this case, but vendor-supplied or other user-supplied code may be affected.

PASSWORD CONFIRMATION

In previous versions, it was possible for the user to accidentally change the RTM password to an unknown value because TRIM did not confirm that the new password was entered correctly. The Real-Time Monitor's CTRL screen now causes a "confirmation screen" to appear when password changes are requested. This screen now asks for the old password and the new password. The new password must be entered a second time to verify that it has been entered correctly. This should eliminate the problems caused by accidentally entering an incorrect password.

PLOG PROCESSING

ADACMP and ADAWAN format card images are now acceptable input for definition of fields for each file.

READ-ONLY AND OPENRQ=YES ACCOMMODATION

TRIM Communication runs have had Open commands added to insure their functionality in an environment that uses OPENRQ=YES. Also, TRIM Communication runs have been modified to permit their usage in a READONLY=YES environment.

DIAGNOSTIC MESSAGES

During the initialization of TRIM (this occurs when the first command is received by TRMUEx4) several messages are output to DDPRINT / SYSLST and to the console as WTOs to aid in problem resolution. The format of these messages is as follows:

```
TRIMX4 99999 TRIMV761 message
```

Where:

TRIMX4 indicates that the message came from TRMUEx4.
99999 is the DBID.

The following messages are possible:

```
STARTUP IS IN PROGRESS
ADABAS LBP - ABOVE THE 16 MEG LINE
ADABAS LBP - BELOW THE 16 MEG LINE
TRIM IS ACTIVE
```

If TRMTAP, TRMLOG, TRELOG, or TRMRSP parms are specified, the following messages are also possible:

```
TRIM WILL USE TRMTAP PARS
TRIM WILL USE TRMLOG PARS
TRIM WILL USE TRMRSP PARS
TRIM WILL USE TRELOG PARS
BAD TRMTAP PARM MODULE DETECTED
TRMTAP SM LEVEL MISMATCH DETECTED
```

In the event that the expiration date for TRIM is reached, the following messages will appear:

```
TRIM HAS EXPIRED
TRIM USER EXIT 4 NOW DORMANT
```

When an internal error has been detected and the integrity of the XUQ has been lost, the XUQ is reinitialized. The following message indicates that the table (and therefore the corresponding statistics) has been reinitialized. Statistics will be accumulated from the reinitialization time forward.

```
TRIMX4 00250 TRIMV761 XUQ REINITIALIZED
```

If TRMRSP parms are specified, the following start-up messages are possible on the Nucleus Session Statistic Report:

```
TRIM WILL USE TRMRSP PARS
ERROR(S) FOUND IN TRMRSP PARS
```

When TRIM is changed from active to idle, the following message will appear:

```
TRIM IS NOW IDLE
```

When TRIM is changed from idle to active, the following message will appear:

```
TRIM IS NOW ACTIVE
```

TRMFINX IS CALLABLE

TRMFINX is callable via CALLNAT from the user's own NATURAL Programs, such as Security exits, charge-back routine, etc.

LARGE NUMBERS AS >>>>

Large numbers, such as an ASSOIO greater than 999 or 9999, occasionally failed with NAT1305 and such messages. TRIM screens have been adjusted to allow for most large numbers. In certain cases, however, formatted screen outputs containing many fields prohibit displaying unusually large numbers. In this case, the numbers are shown as ">>>>".

CO-EXISTENCE WITH REVIEW AND/OR APAS

This release of TRIM was not tested in conjunction with REVIEW or APAS. However, there is no reason to suspect that TRIM cannot be used on the same database as REVIEW or APAS. With previous ADABAS versions, both monitors could be used simultaneously on the same database, if desired by the site. If compatibility problems between TRIM and REVIEW or APAS are suspected, notify Treehouse Software.

BATCH CLOG PROCESSING

TRIM supports ADABAS CLOGFORMAT=4 and 5. An explanation of these confusing-sounding formats follows.

When ADABAS 5 was released, there was the option within ADABAS to generate a new format CLOG, containing additional information beyond what had previously been available. With numerous user sites processing CLOGs using TRIM or other performance monitors or statistics gathering tools, support for the "old" format of CLOG data from the ADABAS 4 era had to be maintained. This was named CLOGFORMAT=4 in ADABAS 5 startup parameters. The new format was named CLOGFORMAT=5. There have not been any additional changes to the CLOG data formats since Adabas 5.

Note: At the time of preparation of this manual, ADABAS was known to have the errors or miscalculations listed above. Any or all of them may have been fixed in one or more versions or releases of ADABAS.

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